AGNICO EAGLE

Design Report For Dike D-CP1

Meliadine Gold Project, NU

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EXECUTIVE SUMMARY

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the project). The mine is located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. A new Type "A" Water Licence (No. 2AM-MEL1631) was recently awarded to Agnico Eagle for the development of the project. Agnico Eagle is developing the mine towards proposed production in 2020.

Agnico Eagle retained Tetra Tech EBA Inc. (Tetra Tech EBA) to conduct a detailed design of the water management infrastructures for the project. Several water retention dikes are required to manage the site contact water during pre-production, operation, and interim mine closure. Dike D-CP1 (D-CP1) is one of the water retention dikes and is required to be constructed before the spring freshet of 2017. This report presents the site conditions, design basis and considerations, engineering analyses, and construction drawings for the detail design of D-CP1.

The proposed D-CP1 dike will be located at the outlets of two existing shallow lakes (H17 and H6) and the dike will be approximately 600 m long with a maximum dike height of 5.6 m. It is planned that the two lakes will be dewatered in August to September 2016 for construction of D-CP1. After D-CP1 is constructed, the former Lakes H17 and H6 will become a large water storage pond, named CP1. CP1 is the final water collection pond that will receive all of the site contact water from the Industrial Area (plant site and accommodation complex buildings), Waste Rock Storage Facility, Dry Stack Tailings Facility, Ore Stockpiles, and two open pits. The water will be temporarily collected in CP1 and pumped to a water treatment plant for treatment. The treated water that meets discharge criteria will be pumped through a pipeline to a diffuser in Meliadine Lake for final discharge.

Permafrost is anticipated beneath the footprint of the proposed D-CP1. Seepage control measures adopted for D-CP1 include using a geomembrane liner keyed into competent frozen ground (saturated inorganic permafrost) or bedrock. The design intent is to protect the original permafrost foundation beneath the liner in the key trench from thawing, thus limiting seepage through the dike and maintaining the integrity of its foundation.

Thermal, stability, and seepage analyses were conducted to evaluate the design concept and support the design.

A water collection sump and two channels that feed into the sump are proposed in the downstream area close to the downstream slope toe of D-CP1 to collect any seepage and runoff water from the dike. The collected water in the sump will be pumped back to CP1 on an as-need basis to regularly empty the sump.

Geotechnical instrumentation is proposed in the design of D-CP1 to monitor the dike performance during construction and operation of the dike. The instrumentation includes horizontal and vertical ground temperature cables, and settlement survey monitoring points.

Detailed drawings for construction of D-CP1 are included in an appendix.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
AEP	Annual Exceedance Probability
CP	Collection Pond
IDF	Inflow Design Flood
km	Kilometres
mg/L	Milligrams per Litre
ML	Metal Leaching
MMER	Metal Mining Effluent Regulations
NPAG	Non-Potentially Acid Generating
ppt	parts per thousand
PGA	Peak Ground Acceleration
QA/QC	Quality Assurance and Quality Control
3D	Three-dimensional
TSS	Total Suspended Solids
WTP	Water Treatment Plant

1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the project). The mine is located approximately 25 km north from Rankin Inlet, Nunavut. Situated on the western shore of Hudson Bay, the proposed project site is located on the peninsula between the east, south, and west basins of Meliadine Lake (63°01'23.8"N, 92°13'6.42"W). A general location plan for the project is shown in Figure 1.

The current project focuses on the development of the Tiriganiaq gold deposit which will be mined using conventional open-pit and underground mining operations. Proposed site facilities will include: plant site and accommodation complex buildings, ore stockpiles, waste rock storage facilities, a dry stack tailings storage facility, and water management systems including collection ponds, water retention dikes, water diversion berms, channels, culverts, a water treatment plant (WTP), and many pipelines.

A new Type “A” Water Licence (No. 2AM-MEL1631) was recently awarded to Agnico Eagle for the development of the project. Agnico Eagle is now developing the mine towards proposed production in 2020.

Agnico Eagle retained Tetra Tech EBA Inc. (Tetra Tech EBA) to undertake the following tasks associated with Dike D-CP1:

- Conduct the detailed design of water retention dike D-CP1 (D-CP1) to produce construction drawings; and
- Prepare the design report for D-CP1, in accordance with the requirements in Part D of the Type “A” Water Licence (No. 2AM-MEL1631).

The proposed D-CP1 dike will be located at the outlets of two existing shallow lakes (H17 and H6) and the dike will be approximately 600 m long with a maximum dike height of 5.6 m.

This report summarizes the site conditions, design basis, considerations, criteria, analyses, and evaluations and presents the detailed design of D-CP1. In addition, construction related items including construction drawings for D-CP1 are also presented.

2.0 GENERAL SITE CONDITIONS

2.1 Climate and Meteorology

The project site lies within the Southern Arctic Climatic Region where daylight reaches a minimum of 4 hours per day in winter and a maximum of 20 hours per day in summer. The nearest weather station is Rankin Inlet A (Station 2303401), located approximately 25 km south of the project site. The closest long-term regional evaporation station operated by Environment Canada is in Churchill, Manitoba.

The monthly mean air temperature is typically above 0°C for the months of June to September, and is below 0°C between October and May. July is typically the warmest month and January the coldest. Winters are typically long and cold, while summers are short and cool. Spring and autumn are short. The mean annual temperature for the period of record from 1981 to 2009 was -10.4°C.

The annual average total precipitation at the project site is 405 mm/year and falls almost equally as snow and rainfall (Golder, 2013a). Average annual evaporation for small waterbodies in the project area is estimated to be 323 mm between June and September. The average annual loss of snowpack to sublimation and snow redistribution is estimated to vary between 46% and 52% of the total precipitation for the winter period and occurs between October and May (Golder, 2013a).

Table 2.1 presents the estimated mean monthly precipitation, evaporation, and temperature characteristics of the site (Agnico Eagle, 2015).

Table 2.1: Estimated Mine Site Mean Monthly Climate Characteristics (Agnico Eagle, 2015)

Month	Monthly Air Temperature (°C)			Mean Monthly Precipitation (mm)			Lake Evaporation (mm)
	Minimum	Average	Maximum	Rainfall	Snowfall	Total	
January	-37.2	-30.9	-19.8	0.0	12.9	11.1	0
February	-35.3	-30.1	-24	0.0	13.1	11.1	0
March	-30.8	-25.1	-18.8	0.0	18.6	16.1	0
April	-20.2	-15.7	-10.4	1.4	28.8	26.4	0
May	-10.8	-5.9	-1.2	7.7	19.2	25.2	0
June	0.1	4.1	6.7	26.4	7.1	37.0	60.4
July	6.9	10.5	14.9	43.7	0.2	51.2	124.4
August	7.7	9.7	11.2	63.7	0.3	74.6	95.6
September	1.3	3.8	6.8	45.2	5.7	57.8	42.7
October	-9.9	-4.6	1.7	15.5	36.9	50.0	0
November	-23.6	-17.2	-10.2	0.3	33.3	28.5	0
December	-33.3	-25.9	-19.4	0.0	18.9	15.8	0
Annual	**-37.2**	**-10.4**	**14.9**	**203.9**	**195.0**	**404.8**	**323.1**

The region is known for high winds, which are due in part to the broad, flat, uninterrupted expanses offered to moving air masses. The wind blows from the north and north-northwest direction more than 30% of the time. The mean values for wind speed show that the north-northwest, together with north and northwest winds, have the highest speeds and tend to be the strongest. Mean monthly wind speeds are typically between 19 km/hour and 27 km/hour.

The climate in the project region is projected to be warmer for the 2020s, 2050s, and 2080s time horizons when compared to the observed historic values (Agnico Eagle and Golder, 2014). Precipitation shows an increase compared to historical values, but the majority of projections are not significantly different from the annual recorded precipitation values.

2.2 Topography and Lakes

The dominant terrain in the project area comprises glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and lakes. A series of low relief ridges are composed of glacial deposits, oriented in a northwest-southeast direction, which control the regional surface drainage patterns. The property is about 60 metres above sea level (masl) in low-lying topography with numerous lakes. Surface waters are usually frozen by early October and remain frozen until early June.

The surveyed lake surface elevations in the project area range from about 51 masl at Meliadine Lake to about 74 masl for local small perched lakes. Lakes formed by glaciofluvial processes or glacial processes, are common throughout the project area. Most of the perched lakes at the project site are relatively shallow (less than 2 m water depth). Late-winter ice thicknesses on freshwater lakes in the project area range between 1.0 m and 2.3 m with an average thickness of 1.7 m. Ice cover usually appears by the end of October and is completely formed in early November. The spring freshet typically begins in mid-June and is complete by early July (Golder, 2012a).

2.3 Permafrost

The project site is located within the Southern Arctic terrestrial eco-zone, one of the coldest and driest regions of Canada, in a zone of continuous permafrost. Continuous permafrost to depths of between 360 m to 495 m is expected based on historical and recent ground temperature data from thermistors installed near Tiriganiaq, F-Zone, and Discovery deposits (Golder, 2012b). The measured ground temperature data indicates that the active layer is 1.0 m to 3.0 m in areas of shallow soils and areas away from the influence of lakes. It is anticipated that the active layer adjacent to lakes or below a body of moving water such as a stream could be deeper. The typical permafrost ground temperatures at the depths of zero annual amplitude (typically at a depth of below 15 m) are in the range of -5.0°C to -7.5°C in the areas away from lakes and streams. The geothermal gradient ranges from 0.012C°/m to 0.02C°/m (Golder, 2012b).

2.4 Groundwater

In areas of continuous permafrost, there are generally two groundwater flow regimes: a shallow groundwater flow regime located in the active layer near the ground surface, and a deep groundwater flow regime located beneath permafrost. From late spring to early autumn, when temperatures are above 0˚C, the active layer thaws. Within the active layer, the water table is expected to be a subdued replica of topography, and is expected to parallel the topographic surface. The project area groundwater in the active layer flows to local depressions and ponds that drain to larger lakes.

The permafrost in the rock in the project area would be virtually impermeable to groundwater flow. The shallow groundwater flow regime, therefore, has little to no hydraulic connection with the deep groundwater regime. A numerical hydrogeological model for the deep groundwater flow regime was developed (Golder, 2013b). The results of the hydrogeological model have indicated that the rock at the project site below the base of the permafrost or in taliks is generally of low hydraulic conductivity, on the order of 3×10^{-9} m/s (Golder, 2013c).

To a lesser degree, groundwater beneath the permafrost is influenced by density differences due to the upward diffusion of deep-seated brines (density-driven flow). In the Canadian Shield, concentrations of Total Dissolved Solids (TDS) in groundwater increase with depth, primarily in response to upward diffusion of deep-seated brines. Salinity can induce a freezing point depression, creating a cryopeg in permafrost where water can be unfrozen even though the temperature is below 0°C. At the project site, the freezing point depression was calculated to be equivalent to -3.3°C (Golder, 2012b). The portion of the permafrost, where groundwater may be partially or wholly unfrozen due to the freezing point depression, has been estimated to be at a depth of 350 m to 375 m (Golder, 2012b).

2.5 Subsurface Conditions

A number of site investigation programs were carried out at the project site in 1998, 1999, 2007, 2009, 2011, 2012, 2013, 2014, 2015, and 2016.

In general, the near surface stratigraphy comprises a veneer of organic material, underlain by non-cohesive soils (i.e. silty sand and sandy silt) with cobbles and boulders. The overburden thickness ranges between 1.5 m and 17.8 m and is underlain by greywacke, medium to strong with some fracturing and frost jacking of the upper bedrock surface. A layer of ice-rich overburden (silt or sand) has been observed in some of the drilled boreholes. Overburden soils with excess ice (Vc, Vs, Vx, and Vr) were observed in most of the boreholes. Massive icy beds up to 1.25 m thick were also encountered. The estimated percentage (by volume) of the excess visible ice ranged from 2% to more than 50% in the overburden soils. Limited soil porewater salinity tests (EBA, 2013) indicated that the overburden soils may have a porewater salinity of up to 4 parts per thousand (ppt) for shallow sandy soils, up to 7 ppt for shallow silty soils, and up to 12 ppt for deep silty soils.

2.6 Seismic Zone

The project site is situated in an area of low seismic risk. The peak ground acceleration (PGA) for the area was estimated from the 2015 National Building Code of Canada seismic hazard website (http://earthquakesscanada.nrcan.gc.ca). The estimated PGA is 0.022 g for a 5% in 50-year probability of exceedance (0.001 per annum or 1 in 1,000 year return) and 0.037 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) for the area.

2.7 Other Relevant Data

The raw land survey data, a 1-m contour digital map of the ground surface and 0.5 m contour lake bathymetric data for selected lakes at the project site were provided to Tetra Tech EBA by Agnico Eagle. Survey data for selected areas were recently provided to Tetra Tech EBA and were incorporated into the original digital map for the design in this Project.

3.0 DESIGN BASIS

3.1 Overall Site Water Management Plan

The water management plan for the project was presented to Agnico Eagle in 2015 (Agnico Eagle, 2015). Figure 2 presents a layout plan of the current site. Figure 3 presents a site layout plan during future mine operation (Year 7). A brief summary of the water management plan during construction and operation is presented as follows:

- Contact water from the major mine infrastructures will be collected in water collection ponds (CP1, CP3 to CP6).
- Runoff and seepage (if any) water in two open pits will be collected by the sumps and then pumped to the designated water collection ponds.
- The collected water in interim water collection ponds (CP3 to CP6) will eventually be pumped to CP1. When available, the water collected in CP1 can be reused by the process plant. The excess water in CP1 will be treated by a water treatment plant. The treated water that meets discharge criteria will be discharged in Meliadine Lake via a diffuser.
- Water from underground mine will be collected and re-used in underground. The excess water from underground mine will be either stored underground (when capacity is available) or pumped to surface for temporary storage in a saline water storage pond before final disposal, either through a saline water treatment plant or after a permit is awarded, discharge into Hudson Bay through a diffuser if the water quality meets discharge criteria.
- Freshwater usage on site will be supplied from Meliadine Lake.

Table 3.1 summarizes the overall contact water management plan for the major mine infrastructure with the initial water collection location and final water destination.

Table 3.1: Overall Site Surface Contact Water Management Plan

Contact Water Source	Initial Contact Water Collection Location	Final Contact Water Collection Location
Industrial Area (camp/process plant area)	CP1	CP1
WRSF1 Area	CP1, CP4, and CP5	
WRSF2 Area	CP1 and CP5	
WRSF3 Area	CP6	
Dry Stack TSF Area	CP1 and CP3	
Ore Stockpiles OP1 to OP3	CP1	
Landfill	CP1	
Landfarm (biopile)	Sump within landfarm	To CP1 after pre-treatment of oil
Tiriganiaq Pit 1 Tiriganiaq Pit 2	Open pit sumps	First to CP5 and then to CP1
Tiriganiaq underground	Sump in underground mine	Mainly within underground mine with excess water to be pumped to surface for temporary storage in a saline water storage pond before final disposal either through a saline water treatment plant or after a permit is awarded, discharge into Hudson Bay through a diffuser if the water quality meets discharge criteria. If treated, the non-saline water after treatment may be discharged into CP1

3.2 Operation Plan for Site Contact Water Management

The operation plan for site surface contact water management of the project was presented to Agnico Eagle in 2015 (Agnico Eagle, 2015). A brief summary of the key operation plan for site surface contact water management is presented as follows:

- The water collected in each of the interim water collection ponds will be actively pumped to CP1 so that the pond will be nearly empty most of the time, except for early days during the annual spring freshet for preparing the pump system or during an extreme rainfall event.
- Active open pits are normally kept dry most of the time except that short-term, temporary water ponding may occur early during the annual spring freshet while preparing the pump system or during extreme rainfall events.
- A water treatment plant (WTP) will be in operation to treat the water collected in CP1 during the open-water season from June to October each operation year. The proposed minimum water treatment capacity for the WTP is 12,000 m^3/day. The treated water that meets discharge criteria will be pumped through a water pipeline from the WTP to the diffuser in Meliadine Lake for final discharge.
- The water elevation in CP1 will be kept low during most of the operation time, except that temporary water storage may occur during the annual spring freshet for preparing the pump/treatment system or during an extreme rainfall event.
- CP1 will become nearly empty (with a water elevation below 63.0 m) before the WTP is shut down by the end of the water treatment season (around end of October) each year until closure of the mine.

- Based on the current mine plan, it is assumed that CP1 will start in operation in 2017 and continue in use during pre-production stage (2017 to 2019), mine production stage (2020 to 2027), and interim mine closure period (2028 to 2030).
- After final closure of the mine, water from other areas will not be pumped to CP1. D-CP1 will be breached and will not serve as a water retention dike after mine closure.
- The WTP should be in full operation by September 1, 2017 to treat the CP1 water and discharge it into Meliadine Lake through the diffuser, thereby lowering the water elevation in CP1 below 63.0 m before the WTP is shut down by the end of water treatment season.
- The WTP should be in operation with full treatment capacity no later than June 15 each year after 2017. It is expected that the WTP will continue in operation after June 15 until the water elevation in CP1 is lowered to be below a preferred low operating water elevation after spring freshet (around 64.5 m).

3.3 Lake Dewatering in 2016

A lake dewatering program will start in August 2016 to dewater Lakes H17 and H6 for construction of D-CP1. It is assumed that Lake H17 dewatering through a mobile water treatment plant will be completed by mid-September 2016. After dewatering of Lake H17, the water from Lake A54 will be pumped to dewatered lake H17 to facilitate construction of Dike D-CP5. The pumping station in H6 will remain in place in October to manage water during construction of D-CP1.

3.4 Precipitation, Surface Runoff, and Lake Surface Evaporation

Various parameters for surface runoff estimation for a mean precipitation year are presented in Table 3.2. Similar parameters for a wet precipitation year are presented in Table 3.3. The values in Tables 3.2 and 3.3 were adopted from the feasibility study (Tetra Tech EBA, 2014a) and also presented in Appendix B of the Water Management Plan (Agnico Eagle, 2015). Some of the parameters in these tables were used in estimating the volumes of the runoff/run-on water from natural precipitation for water balance and management.

Table 3.2: Various Parameters for Surface Runoff Estimation for a Mean Precipitation Year

Item	Value
Total adjusted annual precipitation for a mean precipitation year	412 mm
Total adjusted annual rainfall for a mean precipitation year	210 mm
Total adjusted annual water equivalent snowfall for a mean precipitation year	202 mm
Total estimated snow sublimation	99 mm
Estimated snow melt water equivalent in spring freshet	103 mm
Monthly rainfall distribution	16% in June, 21.2% in July 30.8% in August, 24.5% in September 7.5% in October
Annual net runoff on natural on-land surface for a mean precipitation year	215 mm (127 mm in June, 22 mm in July, 32 mm in August, 26 mm in September, and 8 mm in October)
Estimated monthly lake (non-saline water) surface evaporation	60 mm in June, 125 mm in July 96 mm in August, 42 mm in September

Table 3.2: Various Parameters for Surface Runoff Estimation for a Mean Precipitation Year

Item	Value
Annual net runoff on lake surface for a mean precipitation year	-10 mm (76 mm in June, -80 mm in July, -31 mm in August, 9 mm in September, and 16 mm in October)
Estimated monthly natural land surface evapotranspiration	6 mm in June, 14 mm in July 11 mm in August, 5 mm in September
Annual net runoff on disturbed land surface for a mean precipitation year	251 mm (133 mm in June, 36 mm in July, 43 mm in August, 31 mm in September, and 8 mm in October)

Table 3.3: Various Parameters for Surface Runoff Estimation for a 1 in 100 Extreme Wet Year and Extreme Rainfall

Item	Value
Total adjusted annual precipitation for a 1 in 100 wet precipitation year	594 mm
Total adjusted annual rainfall for a 1 in 100 wet precipitation year	324 mm
Total adjusted annual water equivalent snowfall for a 1 in 100 wet precipitation year	270 mm
Total estimated snow sublimation	99 mm
Estimated snow melt water equivalent in spring freshet for a 1 in 100 wet precipitation year	171 mm
Monthly rainfall distribution	16% in June, 21.2% in July 30.8% in August, 24.5% in September 7.5% in October
Annual net runoff on natural on-land surface for a 1 in 100 wet precipitation year	430 mm (213 mm in June, 55 mm in July, 80 mm in August, 63 mm in September, and 19 mm in October)
Estimated monthly lake surface (non-saline water) evaporation	60 mm in June, 125 mm in July 96 mm in August, 42 mm in September
Annual net runoff on lake surface for a 1 in 100 wet precipitation year	172 mm (163 mm in June, -56 mm in July, 4 mm in August, 37 mm in September, and 24 mm in October)
Estimated monthly natural land surface evapotranspiration	6 mm in June, 14 mm in July 11 mm in August, 5 mm in September
Annual net runoff on disturbed land surface for a 1 in 100 wet precipitation year	466 mm (219 mm in June, 69 mm in July, 91 mm in August, 68 mm in September, and 19 mm in October)
24-hour duration extreme rainfall with a 1 in 100 years of return period	65 mm
24-hour duration extreme rainfall with a 1 in 1,000 years of return period	77 mm
24-hour duration probable maximum precipitation (PMP)	259 mm
Runoff coefficient for extreme rainfall	1.0

3.5 Geotechnical Conditions in D-CP1 Area

A total of five boreholes were drilled near the proposed footprint of D-CP1 during previous site investigations (Golder, 2012d; Tetra Tech EBA, 2014b). The borehole locations in the D-CP1 area are presented on Drawing 65-685-230-204 in Appendix A. The measured ground temperatures from two ground temperature cables were about -6.0°C at a depth of 15 m below the ground surface. A summary of the key geotechnical information of the overburden soils in the D-CP1 area is summarized in Table 3.4 and shown on Drawing 65-685-230-206 in Appendix A.

Table 3.4: Geotechnical Information of Overburden Soils in Area of D-CP1

Borehole No.	Organic Layer Thickness (m)	Major Overburden Soil Types	Ice Conditions	Depth to Bedrock (m)
GT12-69	0.10	Low recovery; sand and gravel (fines washed away); gravel (fines washed away)	Thawed during drilling	6.8
GT14-05	-	Silty sand; sand and silt; sandy silt	0.5 m ice and silt from 1.7 m to 2.2 m	2.7
GT14-06	0.42	Gravelly sand with some silt; ice and sand with some silt; silty sand; gravel and sand with some silt	0.16 m ice and sand from 1.54 m to 1.7 m; 0.8 m ice from 1.7 m to 2.5 m	4.2
GT14-07	0.40	Silty sand; silty gravel and sand	0.1 m ice and sand from 1.9 m to 2 m; up to 10% Vs from 5.5 m to 7 m	7.0
GT14-08	0.50	Gravelly sand with some silt; sandy silt; gravelly sandy silt	Vx 40% from 3.1 m to 3.4 m	8.2

3.6 Geochemical Characteristics of Overburden and Rock

A baseline geochemical characterization program for the project was initiated in 2008 and consisted of static and kinetic testing methods to assess the chemical composition of the mine waste and overburden, its potential to generate acid rock drainage and its potential for metal leaching (ML) upon exposure to ambient conditions.

Golder (2012c) documented the waste geochemical characterization programs carried out from 1998 to 2011 for the project. The key findings included the following:

- The waste rock from the Tiriganiaq deposit area is considered to be non-potentially acid generating (NPAG) and has a low potential for ML. Kinetic tests at various scales indicate that drainage water quality will meet Metal Mining Effluent Regulations (MMER) monthly mean effluent limits.
- The overburden at the site will be NPAG, and that leachate concentrations are generally lower than waste rock and will meet MMER monthly mean effluent limits. Waste rock and overburden have compatible geochemical characteristics such that these materials can be managed together in the same disposal facilities.

Therefore, the waste rock from the mine development, fill materials sourced from the rock, and overburden materials will be NPAG and have low potential of ML.

3.7 Construction Materials

Based on previous preliminary design of D-CP1 and discussions with Agnico Eagle's internal technical team and the external reviewers retained by Agnico Eagle, the construction materials for D-CP1 include the following:

- The waste rock from underground development;
- The rock to be excavated from the proposed saline water storage pond during its construction in August and September 2016;
- Rockfill or esker sand;
- Esker sand and gravel;
- Geomembrane liner; and
- Bentonite powder for soil mixing.

Agnico Eagle indicates that esker sand and gravel is available at the site and can be used as dike construction material. It is understood that the esker sand and gravel will be stockpiled during summer 2016 to allow natural excess moisture to drain, facilitating it to be used as fill material during winter construction.

During the design review process both Agnico Eagle's internal technical team and the external reviewers retained by Agnico Eagle recommended the use of Coletanche ES3 as the liner material for D-CP1, based on their past positive experience with the Coletanche geomembrane liner.

3.8 Construction and Operation Schedules

The following construction and operation schedules were assumed for the design of Dike D-CP1:

- Construction
  - Start lake dewatering of H17 and H6 in August 2016;
  - Start the key trench excavation for D-CP1 in mid-September 2016;
  - Complete key trench backfill by November 2016;
  - Complete the remaining construction of D-CP1 by May 2017 before spring freshet of 2017;
- Operation
  - Start operation of the WTP by September 1, 2017 to discharge the water collected in CP1;
  - Lower the water level in CP1 to below 63.0 m before the WTP is shut down by the end of the water treatment season (around the end of October) in 2017;
  - Treat the water collected in CP1 during the open-water season from June to October each operation year after 2017 until the closure of the mine; and
- Closure and Post-Closure
  - D-CP1 will be breached and not serve as a water retention dike after mine closure.

3.9 Water Storage Curve for CP1

The stage-storage capacity and water surface area with elevations for CP1 are presented in Table 3.5.

Table 3.5: Stage-Storage Capacity and Pond Surface Area with Elevations for CP1

Pond Elevation (m)	Pond Surface Area (km^2)	Pond Storage Volume ($M\ m^3$)
62.5	0.000	0.000
63.0	0.030	0.010
63.5	0.115	0.050
64.0	0.174	0.123
64.5	0.221	0.223
65.0	0.258	0.345
65.5	0.282	0.482
66.0	0.294	0.628
66.5	0.302	0.779
67.0	0.304	0.932

3.10 Catchment Areas

Table 3.6 presents the maximum catchment areas for various infrastructure components during mine operation. Most of the catchment areas remain unchanged during mine operation while minor changes in some of the catchment areas occur for some of the facilities.

Table 3.6: Maximum Catchment Areas for Various Facilities

Facility	Planned Schedule of Start Operation	Maximum Catchment Area (km^2)
CP1 (including Landfarm and Landfill)	2017 (Year -3)	1.545
CP3	2020 (Year 1)	0.383
CP4	2020 (Year 1)	0.441
CP5	2017 (Year -3)	0.612
CP6	2023 (Year 4)	0.444
Tiri_1000_01	2021 (Year 2)	0.319
Tiri_1000_02	2023 (Year 4)	0.158
All of the above Facilities where Contact Water will report to CP1		3.675

4.0 DESIGN OF DIKE D-CP1

4.1 Design Objectives

The water retention dike design criteria were adopted to meet the following objectives:

- Comply with the Canadian Dam Safety Guidelines (CDA, 2007 with 2013 revision);
- Minimize seepage through the dike while optimizing construction efficiency;
- Maximize the use of available construction materials at the site;
- Utilize permafrost as an effective seepage barrier; and
- Meet other applicable regulation, codes, guidelines, and standards.

4.2 Dike Classification and Consequence of Failure

CDA (2007) provides recommendations and directions for dam/dike classification based on the consequences of failure. The consequences of dam/dike failure are evaluated in terms of loss of life, environmental and cultural values, and infrastructure and economics. The dike classification for D-CP1 is determined to be “Significant” due to the following consequences of failure:

- Loss of Life: None or unspecified due to no permanent resident downstream of D-CP1;
- Economic/Social Losses: This dike only; no temporary or permanent infrastructures downstream of D-CP1; and
- Environmental/Cultural Losses: Potential of temporary deterioration of fish habitat in Lake H1 and a small portion of Meliadine Lake due to release of a moderate volume of contact water collected in the CP1 pond.

4.3 Inflow Design Flood and Earthquake Levels

Extreme wet year spring freshet from snow-melt or high-intensity short-term rainfall events are normally critical to the design of a dike with a limited short-term discharge capability, which is the case for D-CP1. The resulting water level rise in the pond from a short-term flood event tends to be greater than that under a longer precipitation event. The longer event allows time for excess water to be pumped to a water treatment plant from where the water is treated and discharged.

The inflow design flood (IDF) for a given classification is suggested in CDA (2007). Based on a classification of “Significant”, the annual exceedance probability (AEP) of between 1/100 and 1/1,000 is recommended in CDA (2007). For the design of D-CP1, it has been assumed that no water would flow or be pumped out from the CP1 pond during spring freshet or during an extreme rainfall event. The IDF adopted for D-CP1 meets the most critical of the following cases:

- Spring freshet for a 1 in 100 return wet year;
- Spring freshet for a mean (1 in 2 return) year plus a 1 in 1,000 return 24-hour extreme rainfall event;
- Maximum monthly total rainfall for a mean (1 in 2 return) year plus a 1 in 1,000 return 24-hour extreme rainfall event; or
- Maximum monthly total rainfall for a 1 in 100 return wet year.

Table 4.1 summarizes the IDF values for D-CP1 and an adopted design IDF value of the equivalent unit runoff of 180 mm.

Table 4.1: Value for IDF Adopted for D-CP1 Design

Dike	Cases of IDF Considered	Value for IDF (mm)
D-CP1	Equivalent unit area runoff during spring freshet (in June) for a 1 in100 return wet year	171
	Equivalent unit area runoff during spring freshet (in June) for a mean (1 in 2 return) year plus a 1 in 1,000 return 24-hour extreme rainfall	**180**
	Maximum monthly total rainfall (in August) for a mean (1 in 2 return) year plus a 1 in 1,000 return 24-hour extreme rainfall	142
	Maximum monthly total rainfall (in August) for a 1 in 100 return wet year	100

For a structure with a “Significant” classification, CAD (2007) suggested that the AEP for the design earthquake is 1/1000. In this study, since the site is located in a low seismic zone and the seismic loading is not a controlling factor, a conservative AEP value of 1/2,475 was adopted for seismic loading in stability evaluations. The estimated PGA is 0.037 g for a 1 in 2,475 year return for the site area.

4.4 Design Criteria for Water Containment Element

The top elevation of the water containment element (e.g., geomembrane liner) for Dike D-CP1 has been selected to have a minimum freeboard that meets or exceeds that required by CDA (2007). The top elevation of the dike water containment element has been designed to be higher than the maximum pond operating water level during the IDF plus wind set-up plus settlement due to consolidation of foundation and embankment materials after construction. The projected water elevations, minimum freeboard, and adopted design crest elevation of the water containment element are presented below:

- Estimated maximum water elevation during IDF: 66.6 m;
- Minimum freeboard (wind set-up and potential settlement after construction) required by CDA (2007): 0.2 m;
- Required minimum water containment element elevation of D-CP1: 66.8 m; and
- Adopted design crest elevation of water containment element (liner system) of D-CP1: 67.0 m.

4.5 Design Criteria for Crest Elevation

The top elevation of the dike crest has been designed to be higher than the maximum pond operating water level during the IDF plus wind set-up plus wave run-up plus settlement due to consolidation of foundation and embankment materials after dike construction. These design criteria meet the requirements suggested in CDA (2007). The projected water elevation, minimum freeboard, and adopted design elevation against overtopping for D-CP1 are summarized below:

- Estimated maximum water elevation during IDF (m): 66.6 m;
- Minimum freeboard (wind set-up, wave run-up, and potential settlement after construction) required by CDA (2007): 1.1 m;

- Required minimum dike crest elevation against overtopping of D-CP1: 67.7 m; and
- Adopted design dike crest elevation against overtopping: 68.0 m.

Other considerations, such as thermal cover to protect the dike's permafrost foundation, have been taken into account in determining the top elevation of the dike crest elevation. In the dike abutments, the dike crest elevations are higher due to the thermal protection required.

4.6 Design Concept, Typical Section, and Key Parameters

Permafrost is anticipated beneath the footprint of the proposed D-CP1. Seepage control measures adopted for D-CP1 include using a geomembrane liner keyed into competent frozen ground (saturated inorganic permafrost) or bedrock. The design intent is to protect the original permafrost foundation beneath the liner in the key trench from thawing and to limit seepage through the dike and its foundation.

The key design parameters for D-CP1 are summarized below:

- Design crest elevation of water containment element (liner system): 67.0 m;
- Design crest elevation against overtopping: 68.0 m;
- Design maximum operating water elevation by end of October each year: 63.0 m;
- Design maximum operating water elevation before each spring freshet: 64.1 m;
- Design maximum operating water elevation: 66.2 m;
- Estimated maximum water elevation under IDF: 66.6 m;
- Estimated maximum pond operating water elevation under normal operating conditions and mean precipitation years: 65.7 m;
- Total dike length including thermal cover at abutments: approximately 600 m;
- Maximum dike height: 5.6 m; and
- Maximum water head under IDF: 4.2 m.

The drawings for construction of D-CP1 are presented in Appendix A.

4.7 CP1 Storage Capacity with Construction of D-CP1

Table 4.2 summarizes the key information and design parameters for CP1.

Table 4.2: Key Information and Design Parameters for CP1

Pond Operation Condition	CP1 Pond Elevation (m)	Water Volume in CP1 Pond (m^3)
Maximum Operating Water Elevation by End of October Each Year	63.0	10,000
Maximum Operating Water Elevation before Each Spring Freshet	64.1	140,000

Table 4.2: Key Information and Design Parameters for CP1

Pond Operation Condition	CP1 Pond Elevation (m)	Water Volume in CP1 Pond (m^3)
Estimated Maximum Pond Operating Water Elevation under Normal Operating Conditions and Mean Precipitation Years	65.7	539,000
Maximum Operating Water Elevation	66.2	687,000
Estimated Maximum Water Elevation during IDF	66.6	809,000
Design Effective Crest Elevation of Dike Containment Element (Liner System) after Assumed Post-Construction Settlement	66.8	870,800

4.8 Thermal Analyses

Permafrost is expected to exist beneath the footprint of D-CP1. The design intent is to maintain the original permafrost foundation beneath the liner in the key trench in a frozen condition over the life of the dike. Thermal analyses for D-CP1 were conducted for a typical section and an abutment section to assist in the thermal design of D-CP1.

The thermal analyses simulated the dike construction and operation conditions and considered the effects of water ponding and various climatic conditions including potential extreme warm years on the thermal performance of the dike.

Dike D-CP1 has been designed to maintain the permafrost beneath the liner in the key trench in frozen condition during both normal operation and upset conditions. The following thermal design criteria were adopted for dike design purpose:

- Under the mean climatic and normal operation conditions, the ground temperatures in the critical zone beneath the liner in the key trench should be colder than -2.0°C; and
- Under the extreme warm (1 in 100 warm) year climatic conditions, the ground temperatures in the critical zone beneath the liner in the key trench should be colder than -1.5 °C.

The findings from the thermal analyses suggest that the abovementioned thermal design criteria can be met for the typical design section of D-CP1. In addition, the 4 m thick thermal cover over the key trench is sufficient to keep the permafrost beneath the liner in the key trench in frozen conditions along the dike abutments.

4.9 Stability Analyses

A series of slope stability analyses were carried out to evaluate the stability of the typical design section of D-CP1. The analyses involved several scenarios including short-term construction, long-term (after construction), and other sensitivity cases. Both static and seismic loading conditions were evaluated.

The minimum design factors of safety adopted for D-CP1 are presented in Table 4.3. The factors meet or exceed the minimum factors suggested in CAD (2007, 2013 Edition).

Table 4.3: Design Minimum Factors of Safety for D-CP1

Loading Conditions	Minimum Factor of Safety	Slope
Static loading, short-term, end of construction before reservoir filling	1.3	Upstream and Downstream
Static loading, long-term, normal operating	1.5	Upstream and Downstream
Seismic loading (pseudo-static), long-term, normal operating	1.1	Upstream and Downstream

The analysis results indicate that all of the calculated minimum factors of safety for D-CP1 exceed the adopted minimum factors of safety.

4.10 Seepage Evaluations

The design intent of Dike D-CP1 is to protect the original permafrost foundation below the key trench from thawing and limit the seepage through the liner system and its foundation. The seepage control measures adopted for D-CP1 include a geomembrane liner that is keyed into competent frozen ground or bedrock. If suitably investigated, designed and constructed, an ice-saturated permafrost foundation will provide a nearly impervious barrier to seepage through the dike foundation.

Potential leakage through the geomembrane liner, in the event of damage including small holes in parts of the liner, was estimated based on some literature publications. The leakage rate through the liner will depend on how many holes exist in the liner, damaged area per hole, water head, and bedding material hydraulic conductivities. Based on typical ranges of these parameters assumed, the calculated potential leakage rate through the liner system in D-CP1 ranges from 4 m^3/day to 11 m^3/day.

Two seepage sensitivity analyses were conducted to estimate potential seepage rates through the dike foundation for an upset scenario if a 0.5 m thick layer of the permafrost soils beneath the bottom of the key trench is assumed to be thawed. The seepage rates will depend on the water level in CP1 and hydraulic conductivity values assumed for various materials. One seepage sensitivity analysis was conducted using reasonably typical hydraulic conductivity values for thawed foundation soils. The estimated seepage rates through the dike foundation ranging from 1 m^3/day to 2 m^3/day for the analysis. The second seepage sensitivity analysis assumed high limits of hydraulic conductivity values for thawed foundation soils. The estimated seepage rates through the dike foundation range from 32 m^3/day to 51 m^3/day for the second analysis.

A downstream sump and two channels are proposed in the current design to collect any seepage and runoff water from D-CP1. The collected water that does not meet the direct discharge criteria will be pumped back to CP1.

4.11 Deformation Considerations

The majority of potential deformations of the rockfill used for D-CP1 construction are expected to occur during the construction stage. Small deformation (mainly settlement) may occur when the upper rockfill is first thawed during the summer following construction (summer thaw depth of around 2.5 m to 3 m). The current design has considered a potential settlement of approximately 0.12 m in the dike central area close to the crest of the liner.

The intent of the current design is to maintain the original permafrost below the liner system along the key trench in a frozen condition. This is supported by the thermal analysis results. For this reason, thaw-induced ground deformation below the liner system in the key trench is not expected.

It is expected that some thaw-induced ground settlement may occur in the upstream area away from the key trench when some of the original overburden permafrost is thawed in summer when water is stored in CP1. It is expected that the settlement will not have detrimental effects on the critical area around the liner system located in the dike's central zone. Maintenance (placing additional fill) during dike operation may be required to level off any settlement and maintain the design elevations. Similarly, it is expected that localized thaw-induced ground deformation may occur in the area close to the toe of the D-CP1 downstream slope. This is acceptable and will not have detrimental effects on the critical central area around the liner system.

Ice-rich foundation soils were encountered during site investigations. Limited creep-induced deformations may occur at these locations. The dike design has adopted wide dike crests to limit the potential deformations within the critical areas around the liner system. Considering the design concept and low dike heights, the consequence of the potential creep-induced deformation of the dike is low.

4.12 Downstream Water Collection Channel and Sump

A water collection sump and two channels that feed into the sump are proposed in the downstream area at least 5 m away from the downstream slope toe of D-CP1 to collect any contact water seeping through the dike. The water collected in the sump will be pumped back to CP1 on an as-needed basis. The drawings for construction of the channels and sump are presented in Appendix A. Table 4.4 summarizes the design parameters for the channels and sump.

Table 4.4: Summary of Design Parameters for Channels and Sump

Item	Value
Length of Channels	227 m (north channel) and 68 m (south channel)
Range of Channel Depth	0.3 m to 1.0 m for north channel and 0.3 m to 0.4 m for south channel
Bottom Width of Channels	1.0 m
Range of Sump Depths	1.6 m to 1.8 m
Bottom Dimensions of Sump	27 m x 27 m
Sump Design Capacity with 0.3 m Freeboard	1,260 m^3

4.13 Instrumentation

Instrumentation is proposed in the design of D-CP1 and includes the following:

- Five horizontal ground temperature cables to be installed in the dike key trench immediately above the bottom liner to monitor the ground temperatures in the key trench area;
- Two vertical ground temperature cables to be installed through the dike, downstream of the liner system and key trench, to monitor temperatures in the downstream portion of the dike and its foundation;
- Three vertical (including one inclined) ground temperature cables to be installed through the dike, upstream of the liner system and key trench, to monitor temperatures in the upstream portion of the dike and its foundation; and
- Six settlement survey monitoring points to be installed in the central area of the dike and located immediately above the liner crest to monitor any settlements of the liner crest.

The drawings for the dike instrumentation are presented in Appendix A.

5.0 CONSTRUCTION OF D-CP1

5.1 Construction Drawings

The construction drawings for Dike D-CP1 are attached in Appendix A of this report.

5.2 Key Trench Excavation

The geomembrane liner for D-CP1 will be keyed into a trench in the dike foundation. The key trench must be excavated into ice-saturated (with a water saturation of above 90%), permanently frozen soil, or competent rock. The base of the excavation must have no natural or excavation related open voids or joints. It is currently planned that the key trench of D-CP1 will be excavated from mid-September to October 2016 when the natural active layer at the site is at its deepest. It is expected that the typical active layer thickness at the site ranges from 1.4 m to 1.8 m, which is the expected typical depth of the key trench excavation. The minimum design key trench depth is 1.4 m. Any thawed natural ground below the bottom of the key trench should be completely excavated before the key trench is backfilled.

Ice-rich soils were encountered in several boreholes drilled in the D-CP1 area. Shallow holes can be drilled into the base of the key trench to take core samples and verify the soil conditions below the key trench. Ice-rich soils can be visually identified by a qualified geotechnical engineer and are normally defined to have excess pore water after the soils are thawed. If ice-rich soils are identified in the key trench bottom during key trench excavation, the ice-rich soils should be excavated out to a minimum depth of 1.0 m below the bottom of the liner. The lower portion of the over-excavated zone shall be backfilled with compacted, wet 0 to 20 mm granular soil or esker sand with a water saturation of nearly 90%. The remaining upper 0.5 m thick zone below the liner along the bottom of the key trench should be backfilled with compacted, bentonite-augmented material (mixture of bentonite powder and 0 to 20 mm granular fill or esker sand).

Based on the geotechnical site investigations at the D-CP1 area, the trench excavation will likely be within the overburden. If shallow bedrock is encountered, rock excavation shall be conducted in a manner that avoids excessive fracturing of underlying rock. Final cleaning of the key trench must be conducted with hand excavation, brooms, and compressed air or other appropriate equipment such as rippers, jack hammers, etc. to remove all loose, broken, or altered material from the base of the key trench. Snow and ice must be removed from the key trench prior to fill placement. Bentonite-augmented material will be placed to fill in local depressions or open bedrock joints before a liner is keyed into the trench. The Engineer may decide that grout or concrete or pure bentonite may be used to fill in open bedrock joints that are difficult to be filled in with the bentonite-augmented material.

5.3 Construction Materials and Estimated Quantities for D-CP1

The general considerations of the construction materials for D-CP1 are presented in Section 3.7 of this report.

Table 5.1 presents the estimated in-place quantities of the construction materials for D-CP1.

Table 5.1: Estimated In-Place Material Quantities for Construction of D-CP1

Item	Estimated In-Place Quantity after Compaction and Installation	Material Source
Type A: Run-of-Mine Rockfill (600 mm minus) in Dike Upstream and for Thermal Cover	19,840 m^3	Stockpiles or underground operation
Type A1: Run-of-Mine Rockfill (600 mm minus) in Dike Downstream	23,540 m^3	Rock excavated from the proposed saline water storage pond to be constructed in August and September 2016; rock or fill from other sources may be used if approved by the Design Engineer
Type B: Transition Rockfill (150 mm minus)	8,800 m^3	To be sourced from the rock excavated from the proposed saline water storage pond or other sources approved by the Design Engineer
Type C: Granular Fill or Esker Sand (20 mm minus)	9,180 m^3	To be sourced from the rock excavated from the proposed saline water storage pond or natural esker sand with fines content of less 10% or other sources approved by the Design Engineer
Type F: Bentonite-Augmented Material	1970 to 2,920 m^3	Mixture of bentonite powder (design bentonite content of 10% by mass of Type F Material) and Type C Material; bentonite powder ordered by Agnico Eagle; the source for Type C Material is the same source above
Type H: Esker Sand and Gravel (75 mm minus)	12,590 m^3	Stockpiles of natural esker sand and gravel after removal over-sized particles and draining of excess in situ natural moisture
Geomembrane Liner (Coletanche ES3)	11,580 m^2	Ordered by Agnico Eagle
Key Trench Excavation	10,450 m^3	Natural overburden or bedrock
Dry Bentonite Powder for Type F Material	433 to 642 metric tons	Ordered by Agnico Eagle

These quantities were estimated based on the available geotechnical/topographic data and the following assumptions:

- Average depth of key trench excavation of 1.8 m;
- Key trench excavation sideslope of 1.5H:1V; and
- Additional Type F Material required for liner bedding over the key trench to infill local depressions and over-excavation zones in ice-rich areas.

It should be noted that the actual quantities could be different from those estimated due to the following reasons:

- The actual depth of key trench could vary and be different from the assumed;

- The key trench excavation sideslope will depend on the actual site conditions and excavation method adopted by the Contractor and could be different from the assumed;
- The required Type F Material quantities will depend on the actual site conditions and could be different from the assumed; and
- The field observations during construction may lead to design and construction related modifications, which may in turn affect the quantities.

5.4 Construction Materials and Estimated Quantities for Downstream Channels and Sump

The construction materials for the downstream channels and sump include rip rap material and geotextile.

Table 5.2 presents the estimated in-place quantities of the construction materials for the downstream channels and sump.

Table 5.2: Estimated In-Place Material Quantities for Construction of Downstream Channels and Sump

Item	Estimated In-Place Quantity after Compaction and Installation
Sump Excavation	1,635 m^3
Rip Rap for Sump	290 m^3
Geotextile for Sump	820 m^2
Channel Excavation	780 m^3
Rip Rap for Channels	410 m^3
Geotextile for Channels	1,615 m^2

5.5 Overall Construction Management Plan

The construction and operation schedules for D-CP1 are presented in Section 3.8.

Based on the current construction plan, the supply of the construction materials is as follows:

- The on-site preparation/processing of the fill materials for D-CP1 construction is under a separate package and contract. Therefore, the Contractor for D-CP1 construction will use the stockpiled fill materials without further processing or quarrying;
- Geomembrane liner and bentonite powder have been ordered by Agnico Eagle and will be supplied to the Contractor for D-CP1 construction, and
- The geotextile for the channels and sump construction will be supplied by Agnico Eagle.

5.6 Water Management and Erosion Control during Construction

Seepage water from unfrozen overburden soils into the excavated area are expected. The Contractor will need to take proper measures to manage the water and protect the excavated slopes from erosion. It is difficult to provide an accurate estimate of the seepage water volume into the excavated area because of unknown hydraulic conductivities of the overburden soils. The water collected during excavation will either need to be pumped to the

dewatered H17 for storage or treated through a mobile water treatment plant (TSS only) before being discharged downstream, as directed by Agnico Eagle.

Under a rainfall event, the runoff from the catchment of H6 will flow into H6, which is immediately upstream of the proposed D-CP1. The water will be pumped to the dewatered H17 through a pumping system that would be installed during the lake dewatering stage in early August 2016 and remain at the site during the construction of D-CP1.

5.7 Quality Assurance and Quality Control

A quality control/quality assurance (QA/QC) program is required during construction of D-CP1 to ensure that construction-sensitive features of the design are achieved.

Soil testing for the construction QA/QC program and associated documentation will be carried out by either the Engineer or a separate contractor hired by the Owner. The Contractor for construction of D-CP1 may have their own QC team, if required.

During dike construction, a daily field report will be prepared to outline the construction activities inside and outside of the work area. The daily report should be prepared by the on-site construction QA/QC team. The daily report will include, but not be limited to, the following:

- Up to date information of daily construction activities including a list of equipment on-site and weather conditions;
- A summary of visual inspections and observations from inside and outside the work area;
- Records of any construction deficiency and appropriate actions taken, if any;
- Records of QA/QC results and monitoring data; and
- Report on construction and design changes made during construction.

Upon the completion of the construction activities, an as-built construction report will be prepared and submitted to the regulators within 90 days after construction is completed. The Construction report should provide all relevant supporting documentation compiled during implementation of the QA/QC plan. The construction report will include, but not be limited to the following:

- Construction drawings based on the as-built survey information of the surface of all material placed;
- Actual construction quantities;
- All testing records, a summary of all test sample location, collection methods, and test results;
- Summary of the construction issues and resolution applied;
- Report on construction and design changes made during construction; and
- Installation details of any required instrumentation or monitoring devices, if any.

5.8 Surveying Requirements

A Survey Contractor will be directly hired by the Owner to carry out as-built surveying and documentation to verify quantities and produce as-built drawings for D-CP1.

The Survey Contractor should carry out the following tasks, but not be limited to:

- Survey original ground within the D-CP1 footprint prior to the commencement of construction, additional detailed high-resolution contour data are required to produce elevation contours to an accuracy of approximately 0.1 m, including additional spot elevations to confirm nearby lake/pond water levels.
- During and after construction, the following tasks should be performed:
  - Provide staking to guide construction;
  - Survey the as-built conditions of excavations and fills including different material boundaries as required;
  - Survey any measurement for payment items;
  - Survey the locations and elevation of each thermistor bead in each of the horizontal ground temperature cables;
  - Survey the locations of each of vertical ground temperature cables and settlement survey monitoring points;
  - Provide quantities of excavations and fill materials on critical stages or as required;
  - Provide the Engineer with AutoCAD drawings showing three-dimensional (3D) lines and surfaces of the excavations and fill materials at critical stages of construction or as required; and
  - Provide the as-built AutoCAD drawings showing 3D lines and surfaces of the excavations and fill materials after the completion of each structure.
- During the operation of the dike, the water elevation in the CP1 pond should be regularly surveyed and documented.

5.9 Instrumentation Installation

As summarized in Section 4.13, instrumentation will be installed in D-CP1 to monitor the performance of the dike during construction and operation. The Contractor will be responsible for installing the instrumentation and taking the first three sets of reading to confirm the instrumentation is functioning as specified. Some instrumentation installations will require a drill rig to install instrumentation through the dike and into the dike foundation.

Regular readings, as directed by Tetra Tech EBA, should be made during the remaining construction stage and the dike operation stage. The instrumentation records should be regularly sent to Tetra Tech EBA for review and evaluation. The reading frequency can be adjusted by the Design Engineer.

6.0 MONITORING, INSPECTION, AND REPORTING

Performance monitoring is an integral part of the operation of any water retention structure, particularly in an arctic environment. The performance of D-CP1 will need to be monitored throughout construction and operating life.

Regular readings of the instrumentation installed in D-CP1 should be made during the construction and operation of the dike. The instrumentation records should be regularly sent to the Design Engineer for review. The reading frequency can be adjusted by the Design Engineer.

Visual inspection and monitoring can provide early warning of many conditions that can contribute to dike failures and incidents. Monitoring and inspection during construction and operation may include, but not be limited to,

monitoring of cracks, settlement/movement, seepage, and pond water level. Agnico Eagle should regularly undertake a visual inspection of the dike, especially during spring and summer periods. Agnico Eagle should note any water seepage through the dike, unusual settlement/deformation, cracks and should contact Tetra Tech EBA. Any monitoring data should be sent to Tetra Tech EBA for review and evaluation.

An annual site inspection will be carried out by a qualified geotechnical engineer to evaluate the continual performance of the dike. The annual inspection report can be included in Meliadine's global annual report or submitted to the regulators as a separate report.

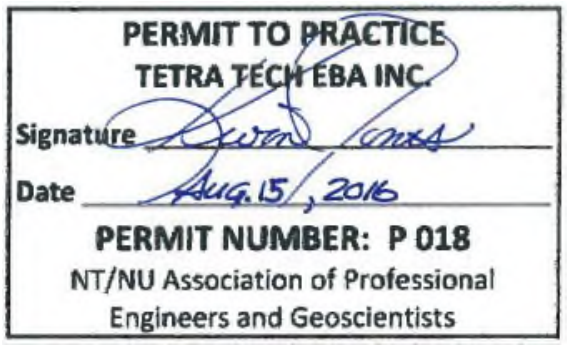
7.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Limited and their agents. Tetra Tech EBA Inc. 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 Mines Limited, 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 Inc.'s Services Agreement. Tetra Tech EBA Inc.'s General Conditions are provided in Appendix B of this report.

8.0 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.



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Regional Manager, Arctic Region
Direct Line: 780.451.2130 x301
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/jf:ktd

REFERENCES

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FIGURES

Figure 1 General Project Location Plan
Figure 2 General Site Layout Plan for Current Condition
Figure 3 General Site Layout Plan for Proposed Infrastructure during Mine Operation (Year 7)

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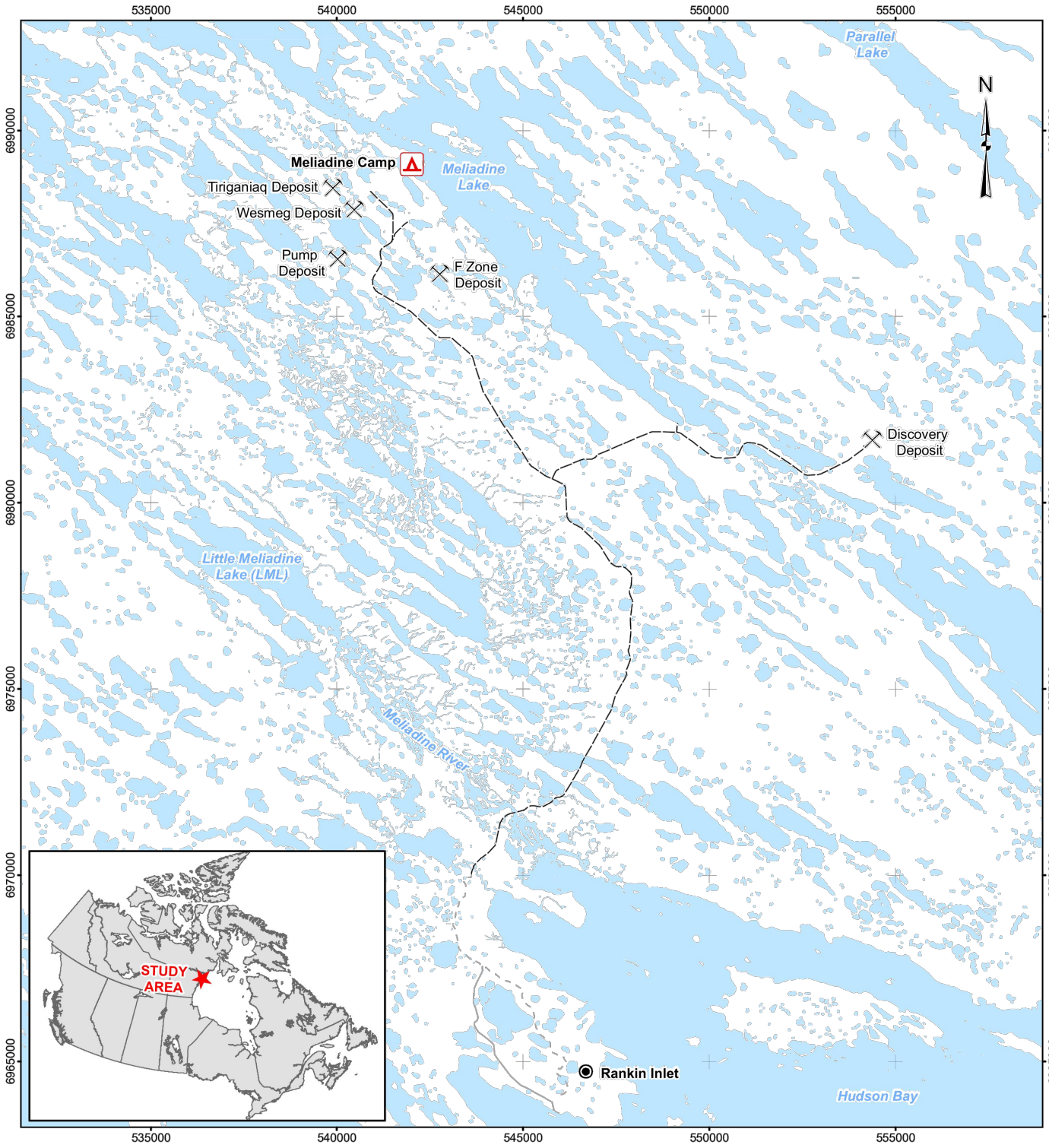

LEGEND

- Camp
- Proposed Mine Site
- All-weather Access Road (AWAR)
- Road - New
- Road - Existing
- Watercourse
- Waterbody

AGNICO EAGLE – MELIADINE DIVISION

AGNICO EAGLE

TETRA TECH EBA

AGNICO EAGLE – MELIADINE DIVISION

FIGURE 1 GENERAL PROJECT LOCATION PLAN

No. PROJET PROJECT No.		DATE	08–15–2016
DESSINÉ PAR DRAWN BY	EP		FEUILLE/SHT 1 / 1
APPROUVÉ PAR APPROVED BY	GZ		
NO. DESSIN DRAWING NO.			REVISION 0

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NO. DESSIN
DRAWING NO.

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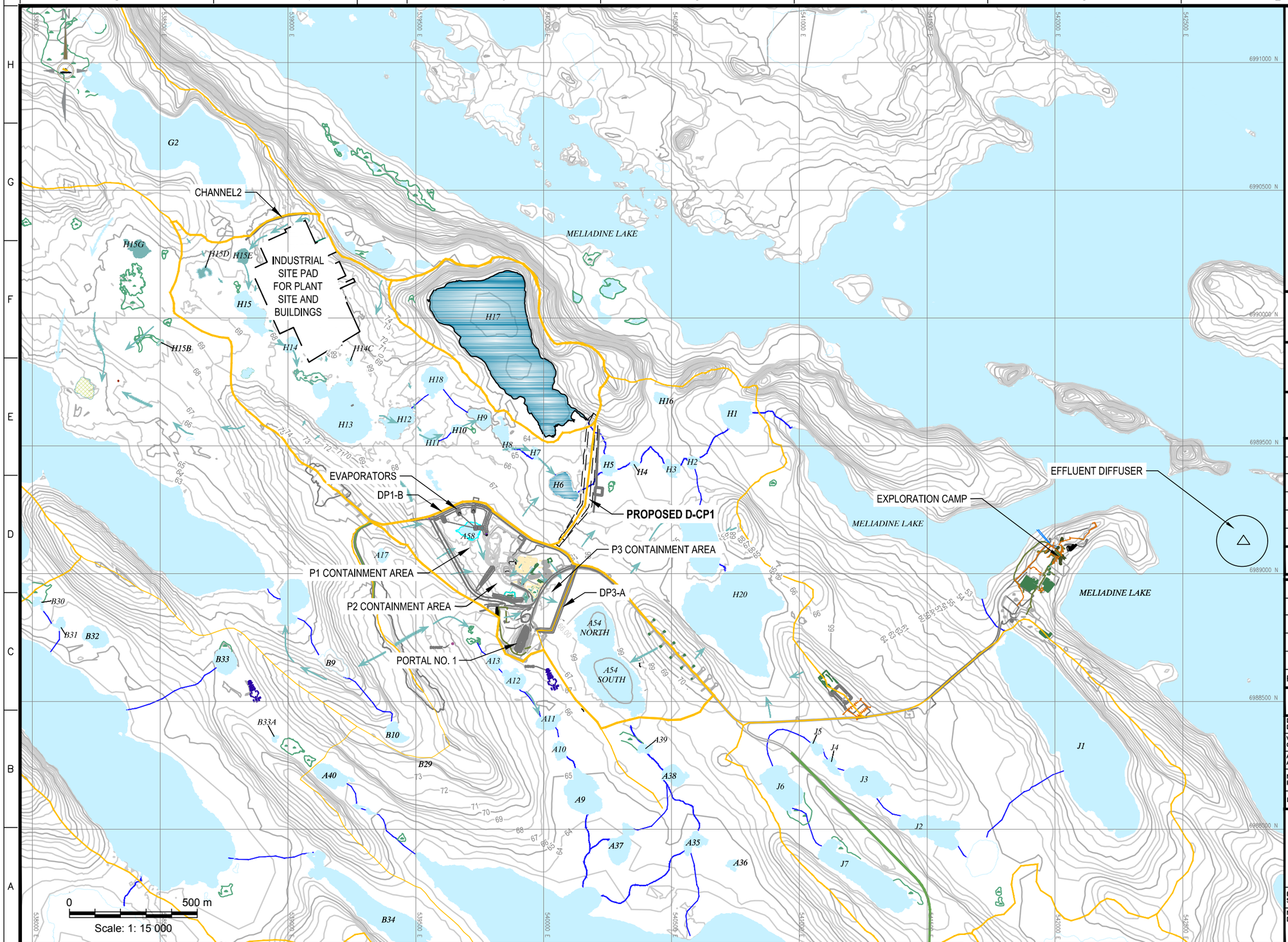

LEGEND

- CATCHMENT BOUNDARY (EXISTING GROUND)
- WATERBODY
- WATER FLOW DIRECTION
- STREAM
- INDUSTRIAL SITE PAD

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	PAR BY
0	ISSUED FOR USE	08–15–2016	GZ
A	ISSUED FOR REVIEW	08–05–2016	GZ

REVISIONS

DESSINÉ PAR / DRAWN BY	EP	DATE 08–15–2016
VÉRIFIÉ PAR / CHECKED BY	GZ	08–15–2016
APPROUVÉ PAR / APPROVED BY		
No. PROJET / PROJECT NO.	6515	
DATE		

TITRE / TITLE

AGNICO EAGLE MELIADINE GOLD PROJECT
FIGURE 2
GENERAL SITE LAYOUT PLAN
FOR CURRENT CONDITION

ÉCHELLE/ SCALE	FICHIER FILE		
No. DESSIN/ DRAWING NO.		REVISION 0	FEUILLE/SHT 1 / 1

AE–CART–ANSI B

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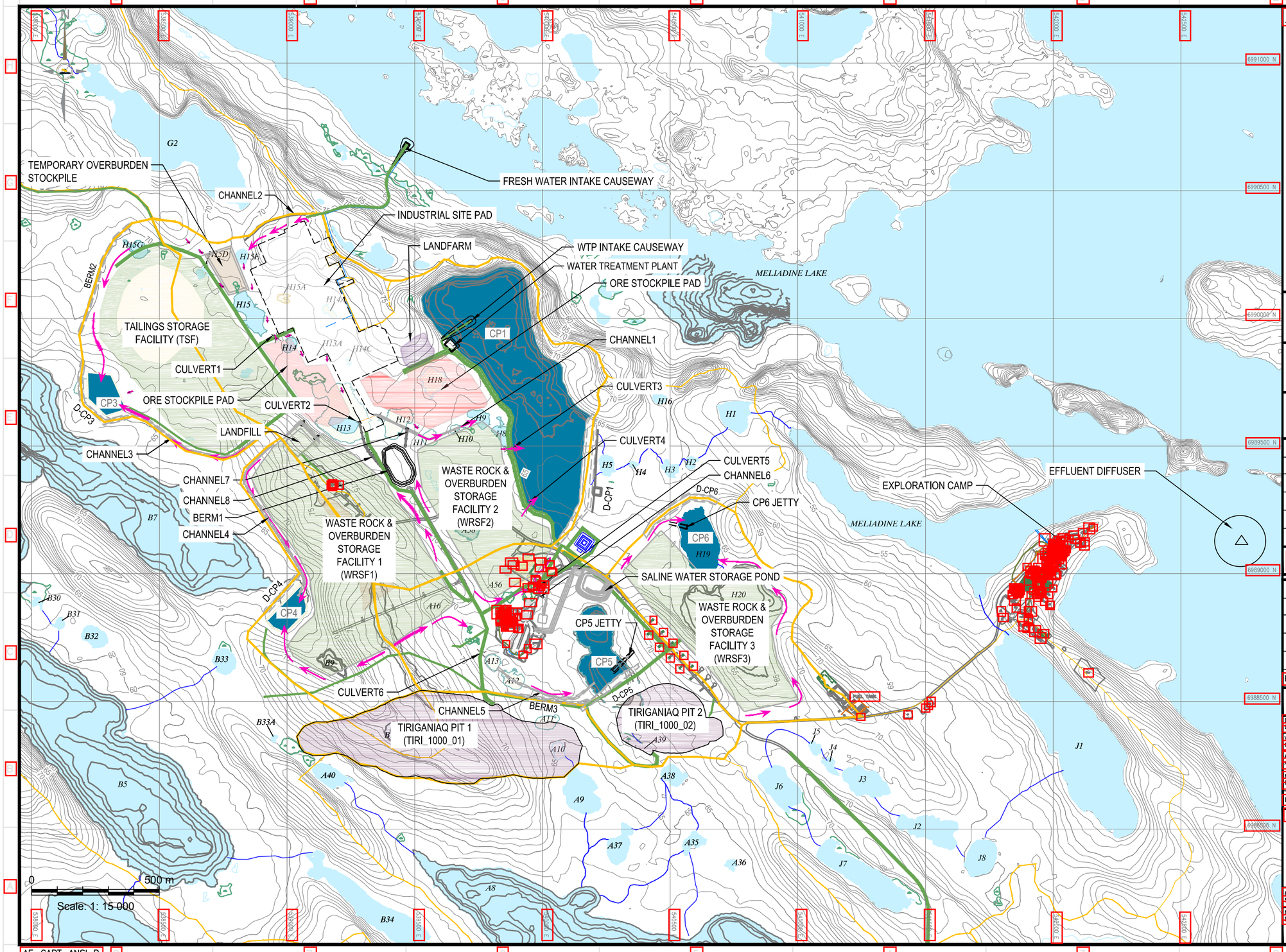

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- CONTACT WATER FLOW DIRECTION

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE | # DWG

DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

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0	ISSUED FOR USE	08–15–2016	GZ
A	ISSUED FOR REVIEW	08–05–2016	GZ

REVISIONS

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VÉRIFIÉ PAR / CHECKED BY	GZ	08–15–2016
APPROUVÉ PAR / APPROVED BY		
No. PROJET / PROJECT NO.	6515	
DATE		

TITRE / TITLE

AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 3 GENERAL SITE LAYOUT PLAN
FOR PROPOSED INFRASTRUCTURE
DURING MINE OPERATION (YEAR 7)

ÉCHELLE/SCALE	FICHIER/FILE	REVISION	FEUILLE/SHT
1:15000	.DWG	0	1 / 1

No. DESSIN/DRAWING NO.

AE–CART–ANSI B

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APPENDIX A
CONSTRUCTION DRAWINGS FOR DIKE D-CP1

NO. DESSIN / DRAWING NO. 65-685-230-204

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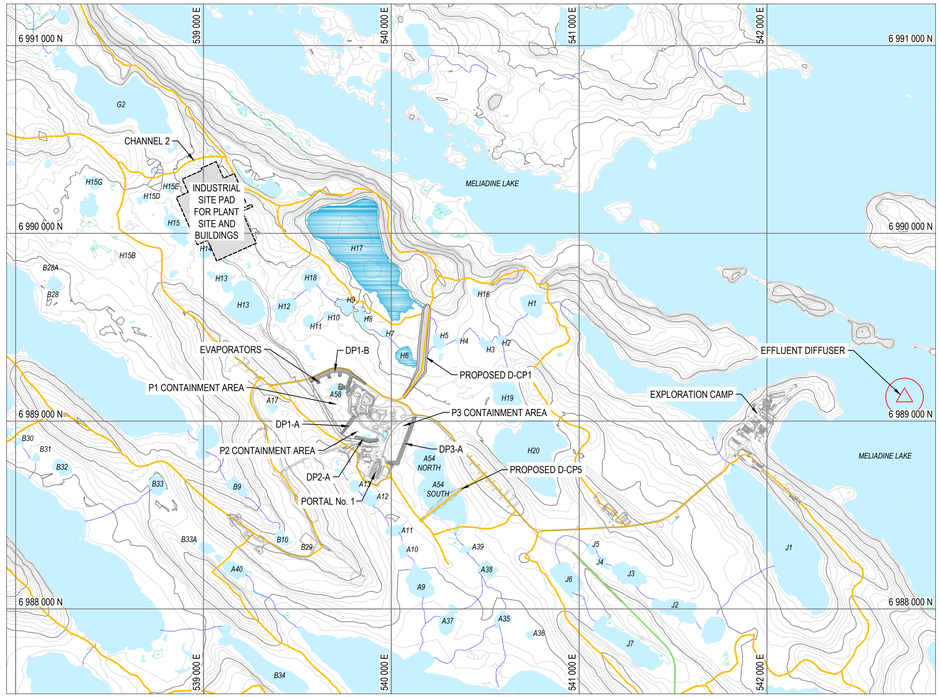

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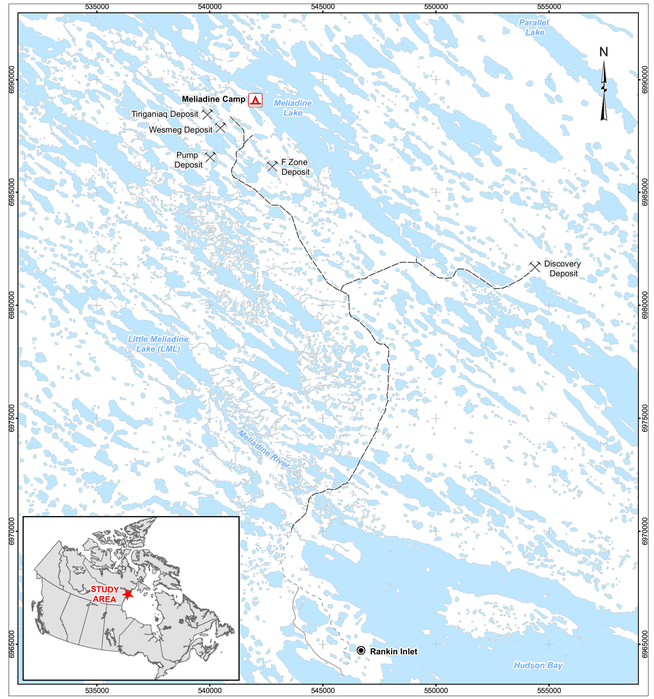

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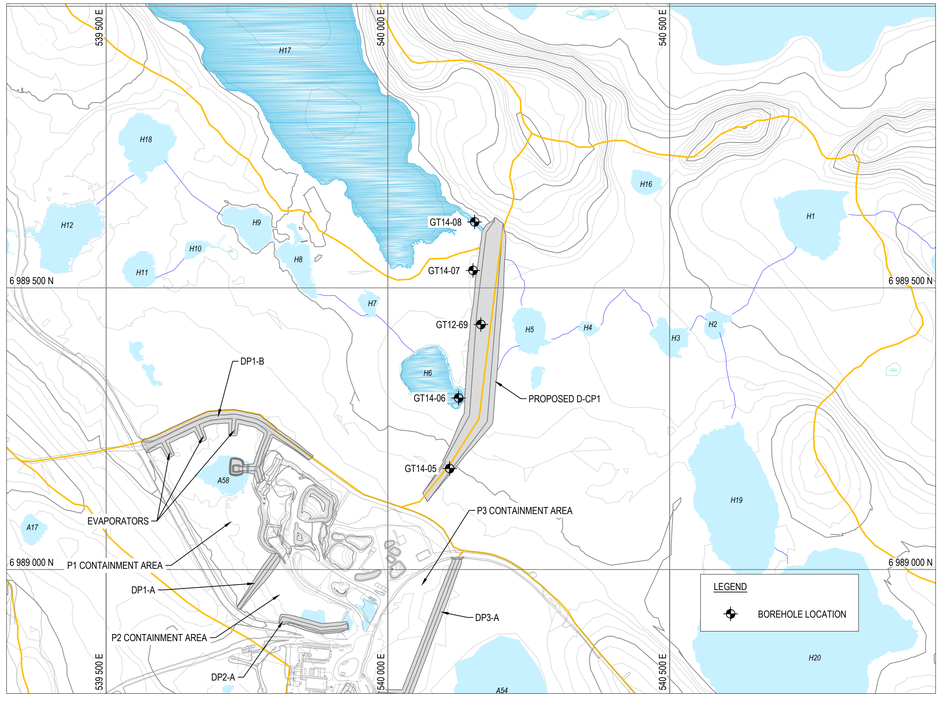

D-CP1 SITE LOCATION
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D-CP1 CONSTRUCTION DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE
65-685-230-204	D-CP1 GENERAL LOCATION PLAN
65-685-230-205	D-CP1 KEY TRENCH AND DIKE LAYOUT PLAN
65-685-230-206	D-CP1 PROFILES
65-685-230-207	D-CP1 THERMAL COVER LAYOUT PLAN AND PROFILES
65-685-230-208	D-CP1 TYPICAL SECTIONS AND QUANTITIES
65-685-230-209-001	D-CP1 SECTIONS STATION 0+025 TO 0+200
65-685-230-209-002	D-CP1 SECTIONS STATION 0+225 TO 0+400
65-685-230-209-003	D-CP1 SECTIONS STATION 0+425 TO 0+575
65-685-230-210	D-CP1 DOWNSTREAM WATER COLLECTION CHANNEL AND SUMP LAYOUT PLAN AND PROFILES
65-685-230-211	D-CP1 INSTRUMENTATION PLAN AND DETAILS FOR GROUND TEMPERATURE CABLES
65-685-230-212	D-CP1 INSTRUMENTATION PLAN AND DETAILS FOR GROUND TEMPERATURE CABLES AND SETTLEMENT SURVEY MONUMENT POINTS
65-685-230-213	D-CP1 TYPICAL DETAILS

TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE 2016-08-15
AGNICO EAGLE

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

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B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Aug 15, 2016

REGISTERED PROFESSIONAL ENGINEER — KEVIN W. JONES — LICENSEE — NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
GENERAL LOCATION PLAN

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
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NO. PROJET / PROJECT NO.	6515	REVISION 0 / FEUILLE / SHT 1 / 12

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DRAWING NO. 65-685-230-205

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• 0+025	540063.92	6989125.08	66.56
• 0+050	540078.14	6989145.63	66.21
• 0+075	540091.95	6989166.46	65.65
• 0+100	540106.27	6989186.95	65.34
• 0+125	540119.95	6989207.88	64.72
• 0+150	540133.46	6989228.90	64.02
• 0+175	540146.86	6989250.01	63.26
• 0+190.30	540155.40	6989262.68	62.96
• 0+200	540159.59	6989271.37	62.77
• 0+207.68	540160.77	6989278.96	62.89
• 0+225	540161.96	6989296.23	62.82
• 0+250	540163.97	6989321.14	62.83
• 0+275	540165.34	6989346.10	62.59
• 0+300	540167.46	6989371.01	62.65
• 0+325	540169.66	6989395.91	62.74
• 0+350	540171.85	6989420.80	62.82
• 0+359.98	540173.15	6989430.70	63.03
• 0+375	540173.36	6989445.71	62.64
• 0+386.86	540173.79	6989457.55	62.43
• 0+400	540175.10	6989470.60	62.55
• 0+410.19	540177.06	6989480.60	63.01
• 0+425	540178.43	6989495.34	63.09
• 0+450	540180.87	6989520.22	63.28
• 0+475	540183.49	6989545.08	63.53
• 0+489.13	540184.38	6989559.18	63.44
• 0+500	540185.65	6989569.97	63.61
• 0+525	540188.54	6989594.77	63.98
• 0+532.09	540189.27	6989601.77	64.05
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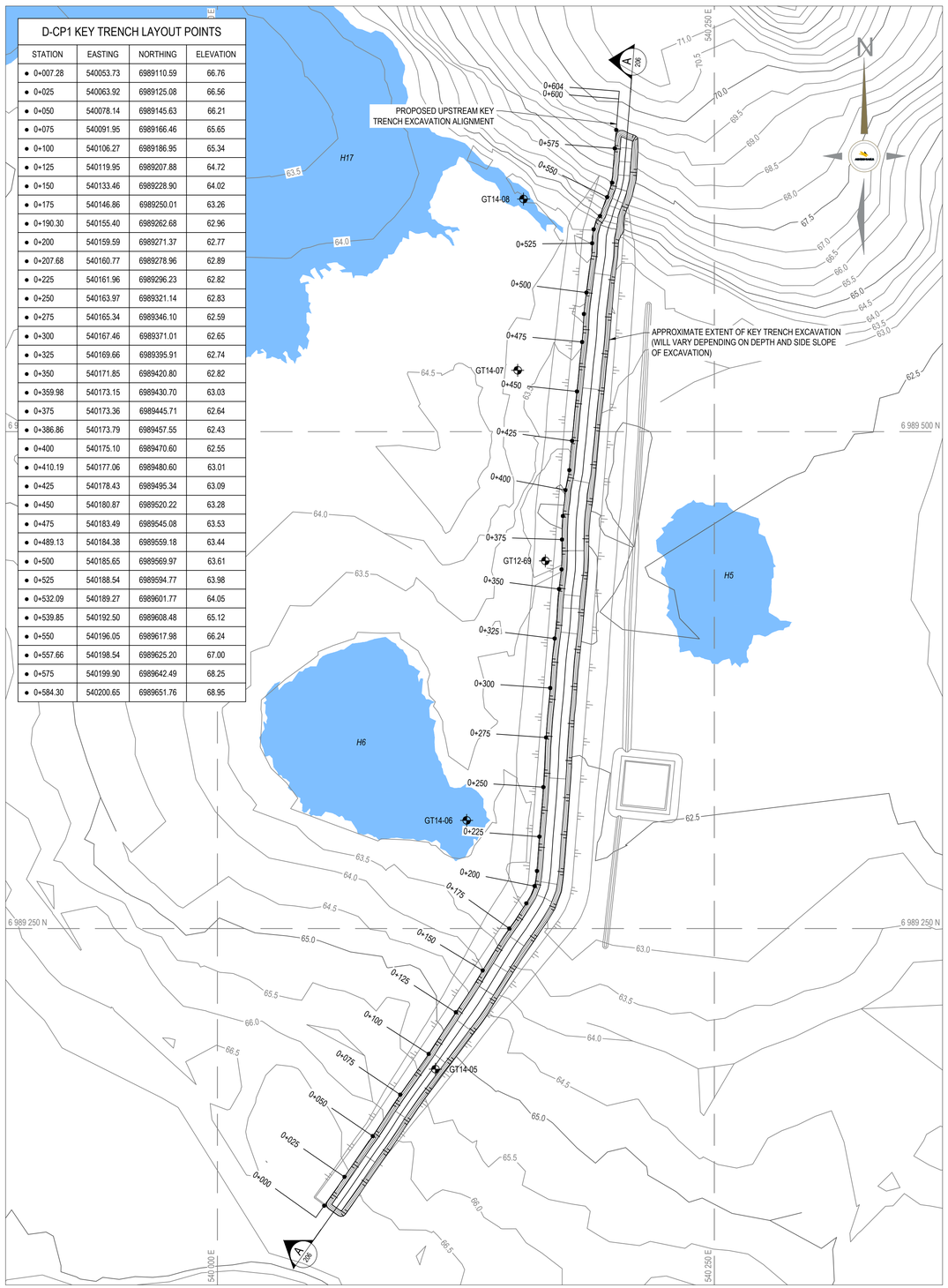

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• 1+025	540061.70	6989118.12	67.00
• 1+050	540076.66	6989138.15	67.00
• 1+075	540091.61	6989158.19	67.00
• 1+100	540106.56	6989178.22	67.00
• 1+125	540121.52	6989198.26	67.00
• 1+150	540136.47	6989218.29	67.00
• 1+175	540151.43	6989238.33	67.00
• 1+200	540166.38	6989258.36	67.00
• 1+205	540169.05	6989262.58	0.00
• 1+210	540170.89	6989267.22	67.00
• 1+215	540171.84	6989272.12	67.00
• 1+220	540172.24	6989277.10	67.00
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• 1+275	540176.58	6989331.93	67.00
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• 1+350	540182.51	6989406.70	67.00
• 1+375	540184.49	6989431.62	67.00
• 1+400	540186.46	6989456.54	67.00
• 1+425	540188.44	6989481.46	67.00
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• 1+550	540198.32	6989606.07	67.00
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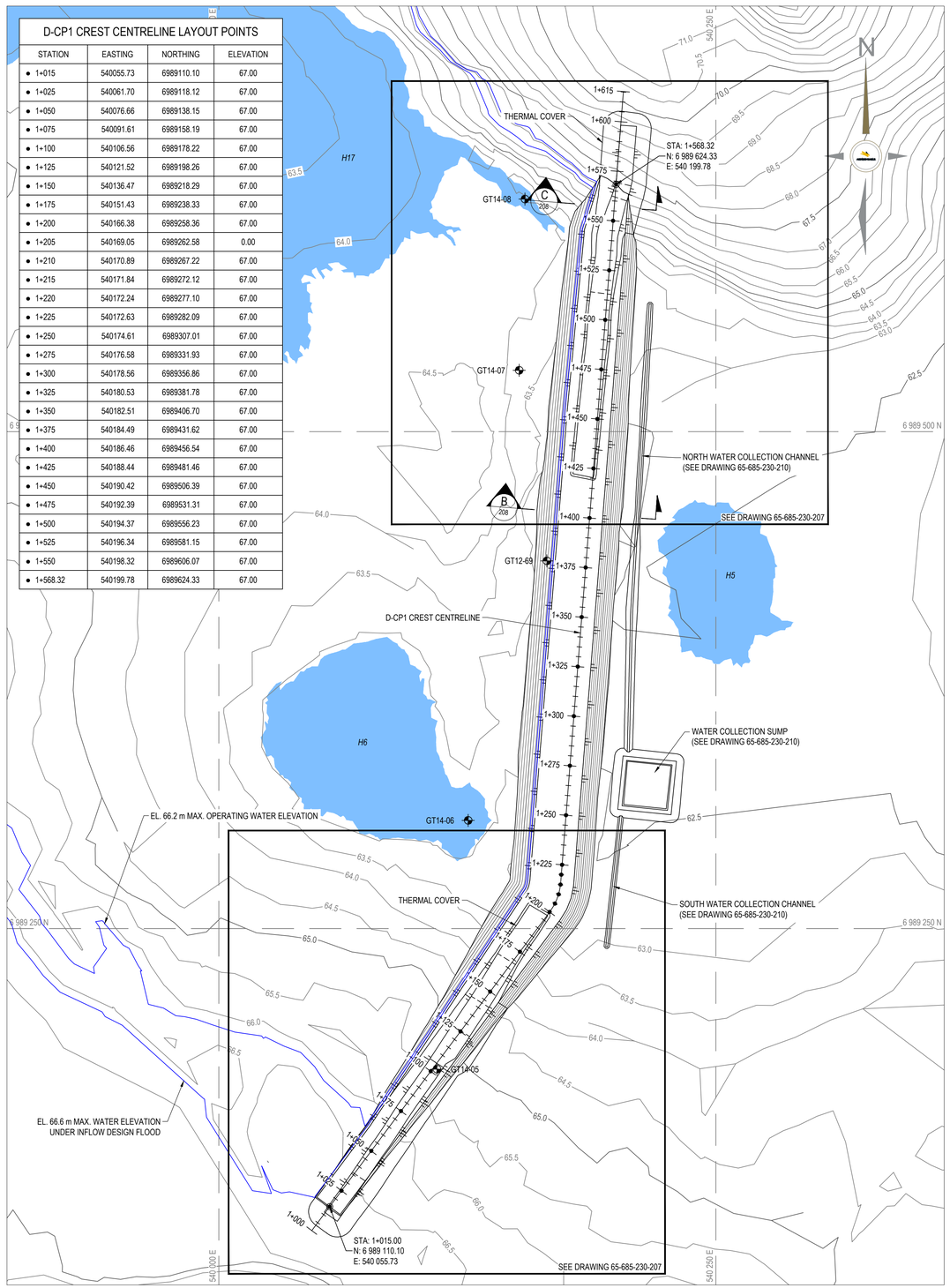

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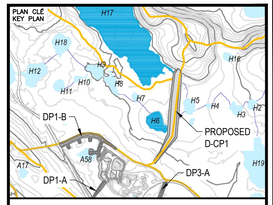

TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

0 50m
Scale: 1:1,250

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2016-08-15
AGNICO EAGLE

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

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AGNICO EAGLE

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B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

APEGGNT PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU

ASSOCIATION OF PROFESSIONAL ENGINEERS KEVIN W. JONES REGISTERED MEMBER LICENSEE NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
KEY TRENCH AND DIKE LAYOUT PLAN

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VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
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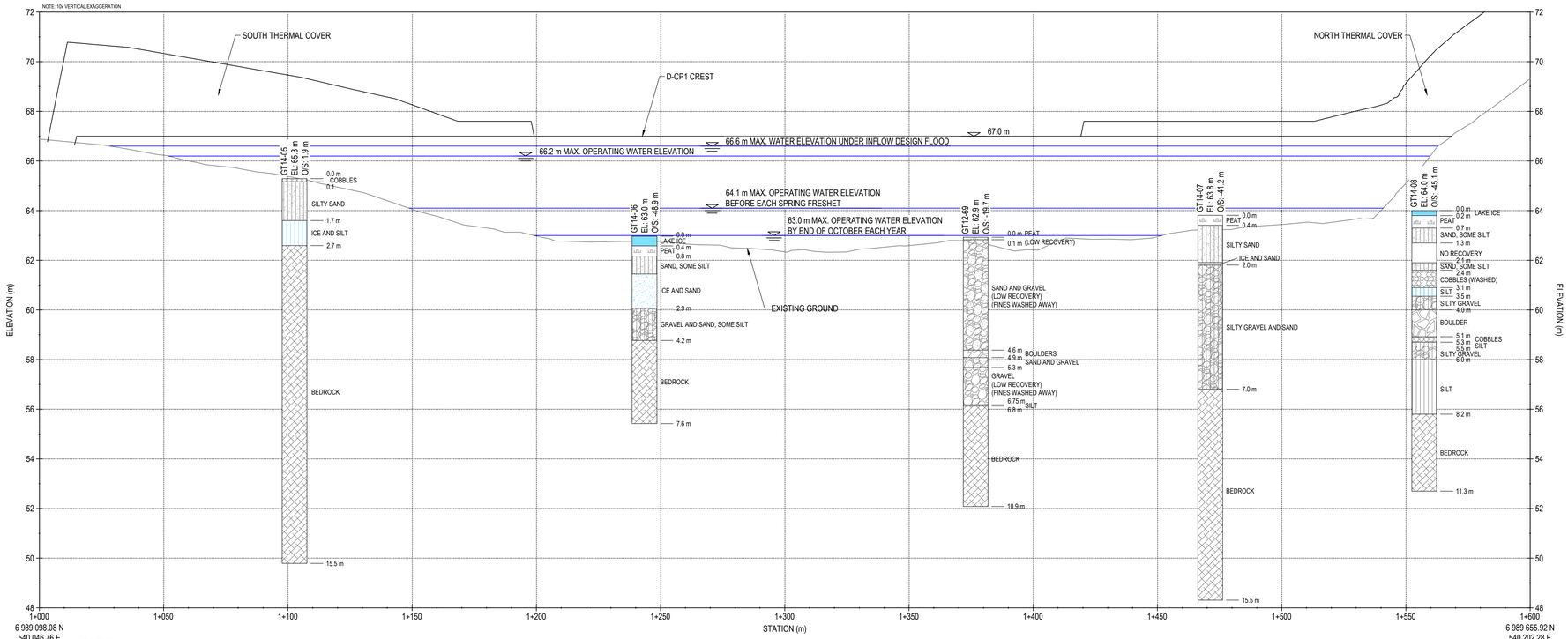

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LEGEND

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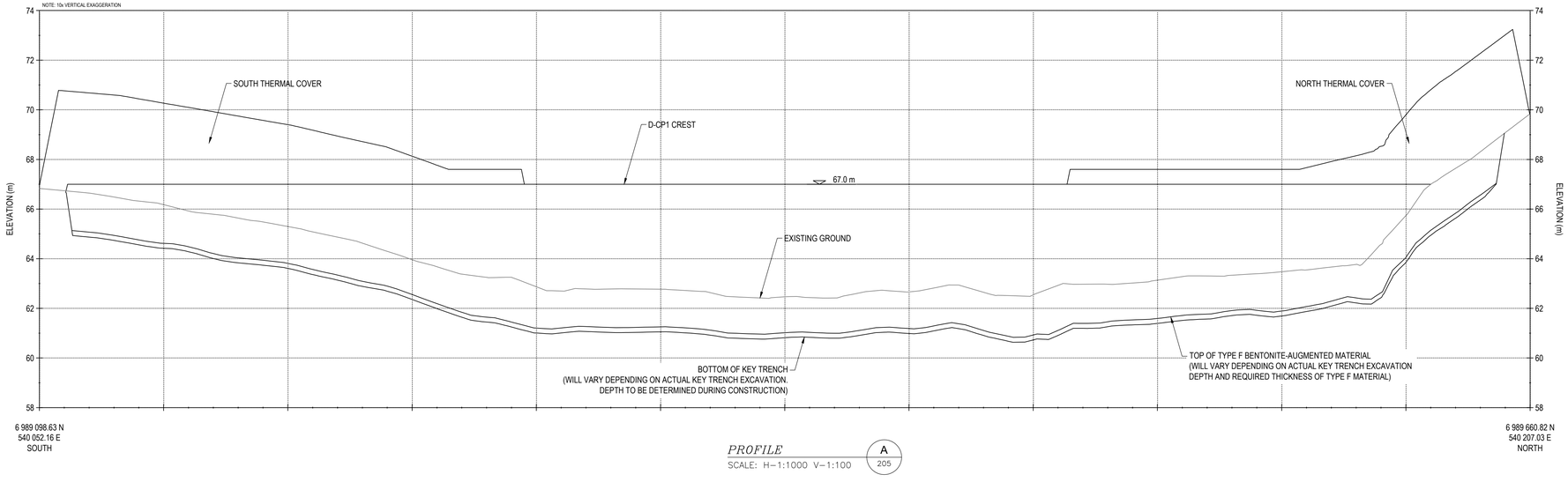
- PEAT
- SAND / ICE RICH SAND
- GRAVEL AND SAND
- GRAVEL
- SILT / ICE RICH SILT
- COBBLES
- BOULDERS
- BEDROCK
- NO RECOVERY



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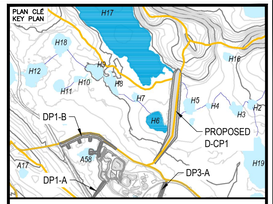

TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

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TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

0 50m
Scale: 1:1,000

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

APEGGNT PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU
APEGGNT PROFESSIONAL ENGINEER KEVIN W. JONES LICENSEE NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
PROFILES

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VERIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
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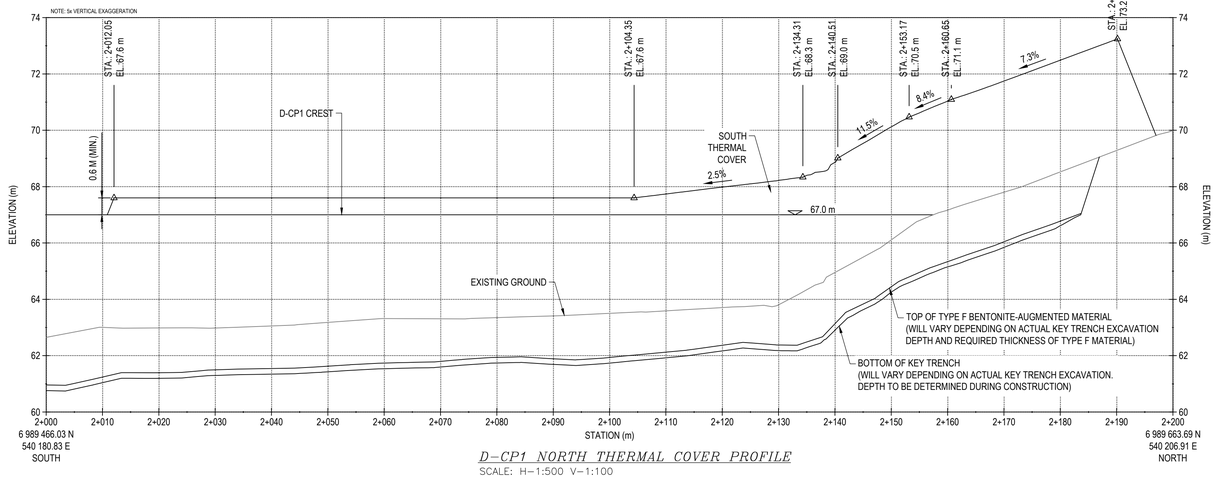

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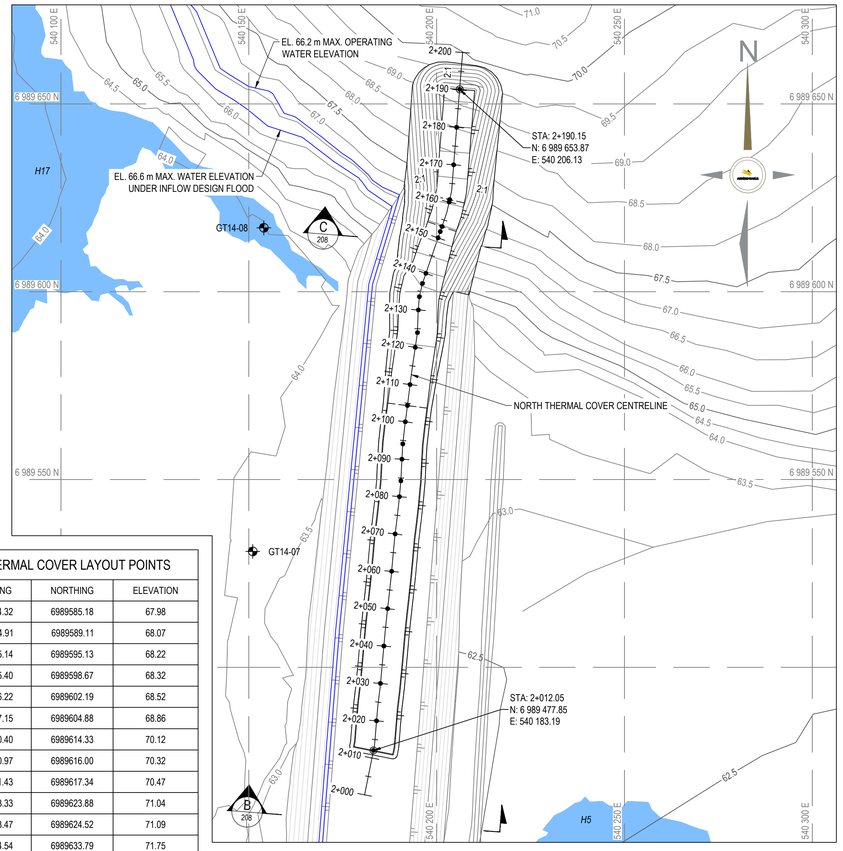


D-CP1 NORTH THERMAL COVER
SCALE: 1:750

D-CP1 SOUTH THERMAL COVER LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION
• 3+009.39	540056.32	6989105.10	70.78
• 3+020	540062.46	6989113.74	70.69
• 3+030	540068.20	6989121.93	70.61
• 3+033.98	540070.44	6989125.23	70.58
• 3+040	540073.82	6989130.20	70.47
• 3+050	540079.47	6989138.45	70.30
• 3+060	540085.24	6989146.62	70.13
• 3+070	540090.66	6989155.03	69.95
• 3+080	540096.24	6989163.32	69.78
• 3+090	540102.03	6989171.47	69.60
• 3+100	540107.79	6989179.65	69.43
• 3+103.20	540109.57	6989182.31	69.38
• 3+105.31	540110.73	6989184.07	69.33
• 3+110	540114.16	6989187.27	69.22

D-CP1 SOUTH THERMAL COVER LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION
• 3+110.45	540114.49	6989187.58	69.21
• 3+120	540119.76	6989195.54	68.98
• 3+123.59	540121.73	6989198.54	68.90
• 3+130	540125.21	6989203.92	68.76
• 3+140	540130.82	6989212.20	68.54
• 3+141.13	540131.43	6989213.15	68.52
• 3+150	540136.13	6989220.68	68.20
• 3+160	540141.34	6989229.21	67.83
• 3+166.44	540144.72	6989234.69	67.60
• 3+170	540146.60	6989237.72	67.60
• 3+175.41	540149.47	6989242.30	67.60
• 3+180	540152.10	6989246.06	67.60
• 3+190	540157.73	6989254.33	67.60
• 3+195.80	540160.90	6989259.19	67.60

D-CP1 SOUTH THERMAL COVER
SCALE: 1:750

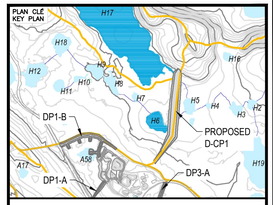
D-CP1 NORTH THERMAL COVER LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION
• 2+012.05	540183.19	6989477.85	67.60
• 2+020	540184.01	6989485.75	67.60
• 2+030	540185.05	6989495.69	67.60
• 2+040	540185.96	6989505.65	67.60
• 2+050	540186.95	6989515.60	67.60
• 2+060	540188.02	6989525.54	67.60
• 2+070	540188.95	6989535.50	67.60
• 2+080	540190.11	6989545.43	67.60
• 2+084.22	540190.49	6989549.63	67.60
• 2+090	540190.77	6989555.41	67.60
• 2+094.07	540191.00	6989559.47	67.60
• 2+100	540191.67	6989565.36	67.60
• 2+104.35	540192.22	6989569.68	67.60
• 2+110	540192.93	6989575.28	67.74

D-CP1 NORTH THERMAL COVER LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION
• 2+120	540194.32	6989585.18	67.98
• 2+123.97	540194.91	6989589.11	68.07
• 2+130	540195.14	6989595.13	68.22
• 2+133.54	540195.40	6989598.67	68.32
• 2+137.16	540196.22	6989602.19	68.52
• 2+140	540197.15	6989604.88	68.86
• 2+150	540200.40	6989614.33	70.12
• 2+151.76	540200.97	6989616.00	70.32
• 2+153.17	540201.43	6989617.34	70.47
• 2+160	540203.33	6989623.88	71.04
• 2+160.65	540203.47	6989624.52	71.09
• 2+170	540204.54	6989633.79	71.75
• 2+180	540205.33	6989643.76	72.49
• 2+190.00	540206.13	6989653.87	73.24

D-CP1 SOUTH THERMAL COVER PROFILE
SCALE: H-1:500 V-1:100



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

0 25m
Scale: 1:750

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

G. ZHANG
LICENSEE
NWT/NU
Aug 15, 2016

KEVIN W. JONES
LICENSEE
NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 THERMAL COVER
LAYOUT PLAN AND PROFILES

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	1:750	DATE 2016-08-15

NO. DESSIN / DRAWING NO. 65-685-230-207

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	4 / 12

AE-CART-ARCH D

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NO. DESSIN
DRAWING NO. 65-685-230-208

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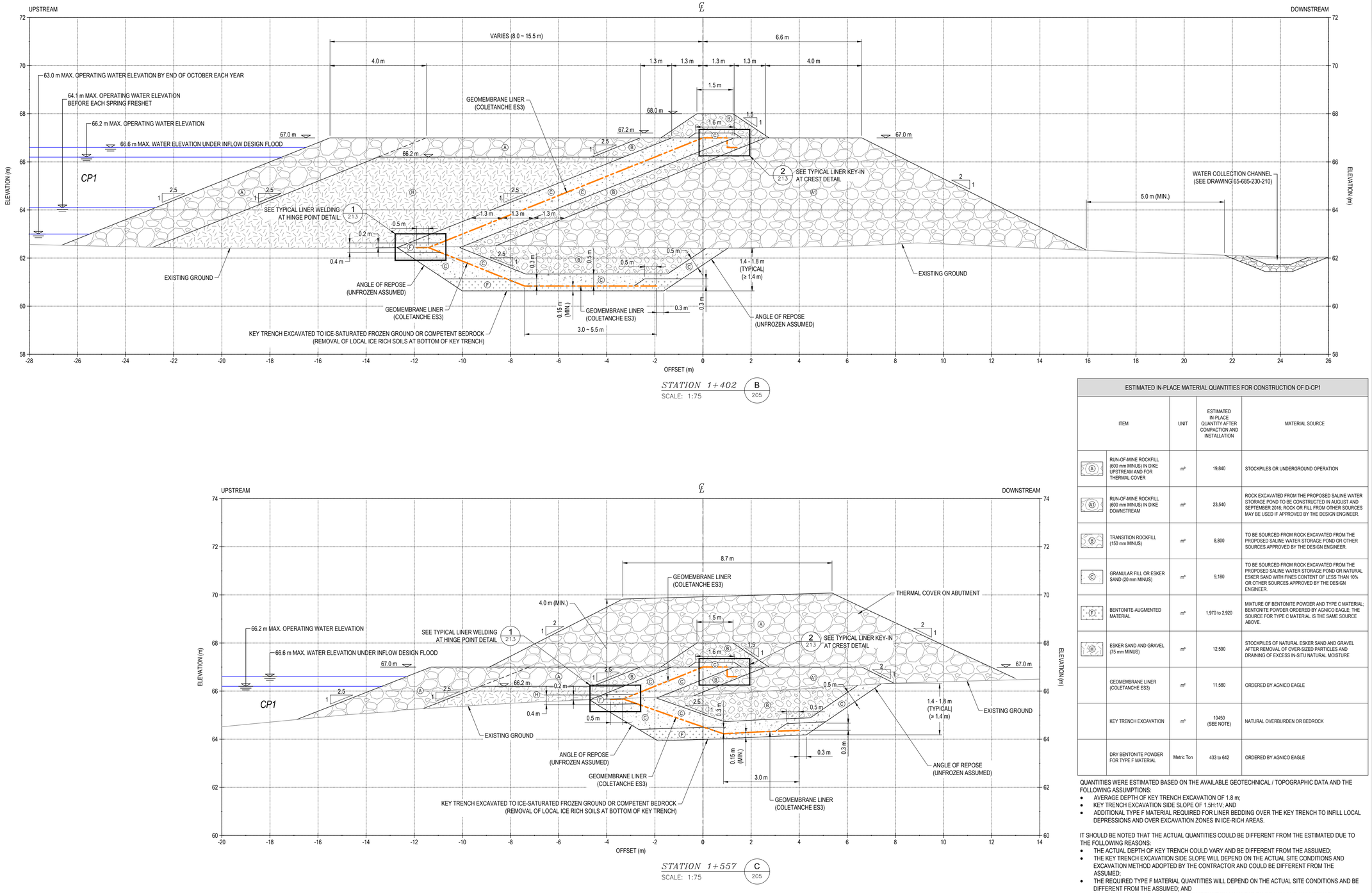


STATION 1+402 (B / 205)
SCALE: 1:75

STATION 1+557 (C / 205)
SCALE: 1:75

ESTIMATED IN-PLACE MATERIAL QUANTITIES FOR CONSTRUCTION OF D-CP1

	ITEM	UNIT	ESTIMATED IN-PLACE QUANTITY AFTER COMPACTION AND INSTALLATION	MATERIAL SOURCE
A	RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE UPSTREAM AND FOR THERMAL COVER	m³	19,840	STOCKPILES OR UNDERGROUND OPERATION
A1	RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM	m³	23,540	ROCK EXCAVATED FROM THE PROPOSED SALINE WATER STORAGE POND TO BE CONSTRUCTED IN AUGUST AND SEPTEMBER 2016; ROCK OR FILL FROM OTHER SOURCES MAY BE USED IF APPROVED BY THE DESIGN ENGINEER.
B	TRANSITION ROCKFILL (150 mm MINUS)	m³	8,800	TO BE SOURCED FROM ROCK EXCAVATED FROM THE PROPOSED SALINE WATER STORAGE POND OR OTHER SOURCES APPROVED BY THE DESIGN ENGINEER.
C	GRANULAR FILL OR ESKER SAND (20 mm MINUS)	m³	9,180	TO BE SOURCED FROM ROCK EXCAVATED FROM THE PROPOSED SALINE WATER STORAGE POND OR NATURAL ESKER SAND WITH FINES CONTENT OF LESS THAN 10% OR OTHER SOURCES APPROVED BY THE DESIGN ENGINEER.
F	BENTONITE-AUGMENTED MATERIAL	m³	1,970 to 2,920	MIXTURE OF BENTONITE POWDER AND TYPE C MATERIAL; BENTONITE POWDER ORDERED BY AGNICO EAGLE; THE SOURCE FOR TYPE C MATERIAL IS THE SAME SOURCE ABOVE.
H	ESKER SAND AND GRAVEL (75 mm MINUS)	m³	12,590	STOCKPILES OF NATURAL ESKER SAND AND GRAVEL AFTER REMOVAL OF OVER-SIZED PARTICLES AND DRAINING OF EXCESS IN-SITU NATURAL MOISTURE
	GEOMEMBRANE LINER (COLETANCHE ES3)	m²	11,580	ORDERED BY AGNICO EAGLE
	KEY TRENCH EXCAVATION	m³	10450 (SEE NOTE)	NATURAL OVERBURDEN OR BEDROCK
	DRY BENTONITE POWDER FOR TYPE F MATERIAL	Metric Ton	433 to 642	ORDERED BY AGNICO EAGLE

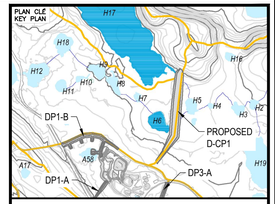
QUANTITIES WERE ESTIMATED BASED ON THE AVAILABLE GEOTECHNICAL / TOPOGRAPHIC DATA AND THE FOLLOWING ASSUMPTIONS:

- AVERAGE DEPTH OF KEY TRENCH EXCAVATION OF 1.8 m;
- KEY TRENCH EXCAVATION SIDE SLOPE OF 1.5H:1V; AND
- ADDITIONAL TYPE F MATERIAL REQUIRED FOR LINER BEDDING OVER THE KEY TRENCH TO INFILL LOCAL DEPRESSIONS AND OVER EXCAVATION ZONES IN ICE-RICH AREAS.

IT SHOULD BE NOTED THAT THE ACTUAL QUANTITIES COULD BE DIFFERENT FROM THE ESTIMATED DUE TO THE FOLLOWING REASONS:

- THE ACTUAL DEPTH OF KEY TRENCH COULD VARY AND BE DIFFERENT FROM THE ASSUMED;
- THE KEY TRENCH EXCAVATION SIDE SLOPE WILL DEPEND ON THE ACTUAL SITE CONDITIONS AND EXCAVATION METHOD ADOPTED BY THE CONTRACTOR AND COULD BE DIFFERENT FROM THE ASSUMED;
- THE REQUIRED TYPE F MATERIAL QUANTITIES WILL DEPEND ON THE ACTUAL SITE CONDITIONS AND BE DIFFERENT FROM THE ASSUMED; AND
- THE FIELD OBSERVATIONS DURING CONSTRUCTION MAY LEAD TO DESIGN AND CONSTRUCTION RELATED MODIFICATIONS, WHICH MAY IN TURN AFFECT THE QUANTITIES.

PLAN CLÉ
KEY PLAN



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

Scale: 1:75

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — AUG 15, 2016 — NWT/NU
REGISTERED PROFESSIONAL ENGINEER — KEVIN W. JONES — AUG 15, 2016 — LICENSEE — NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
TYPICAL SECTIONS AND QUANTITIES

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VERIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	1:75	DATE 2016-08-15
NO. DESSIN / DRAWING NO.	65-685-230-208	
NO. PROJET / PROJECT NO.	6515	REVISION 0
		FEUILLE / SHT 5 / 12

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NO. DESSIN
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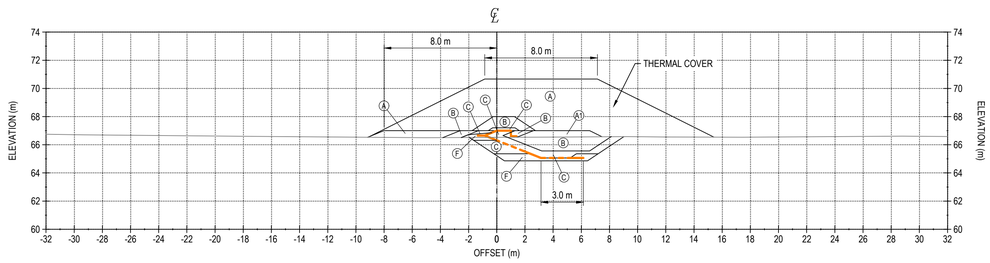

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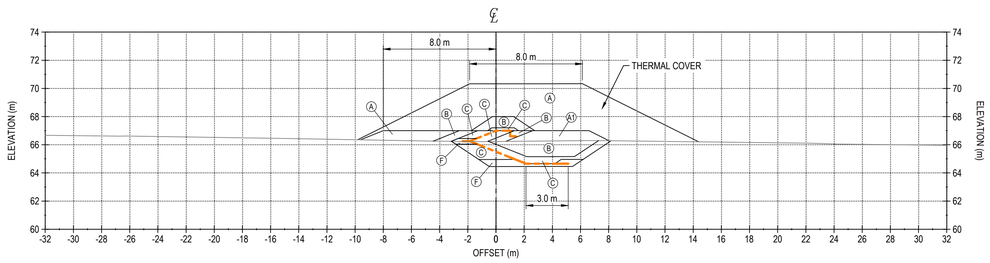

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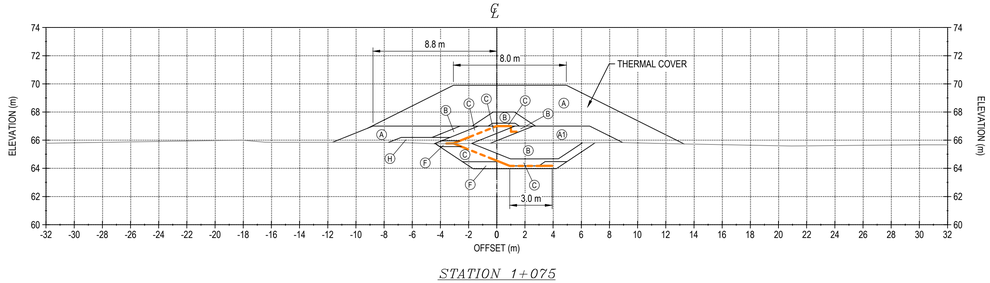

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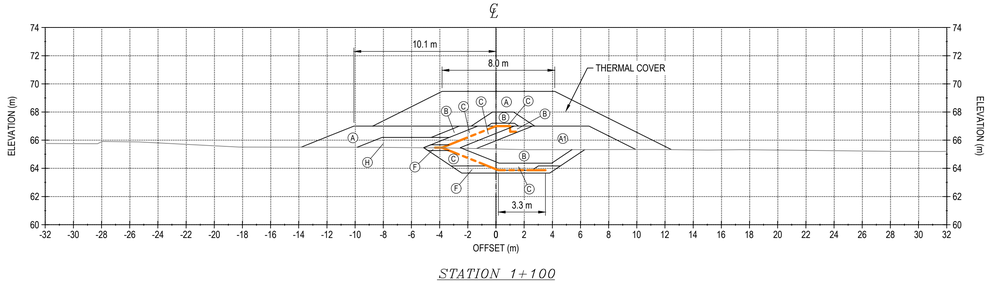

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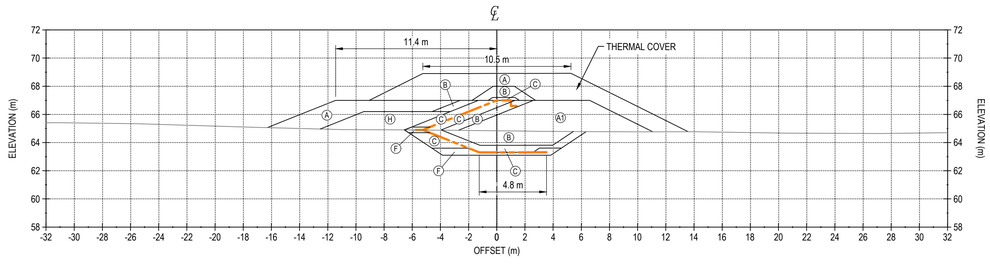

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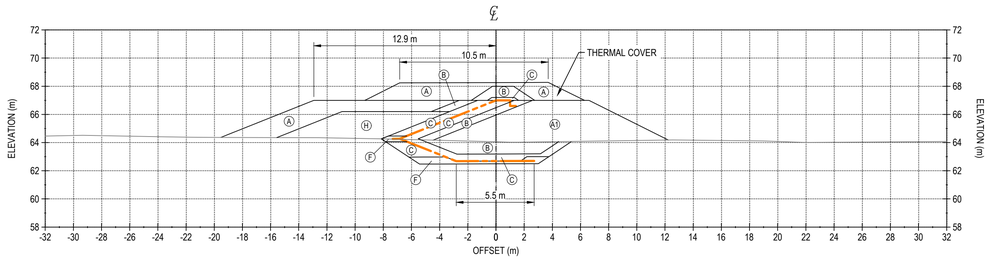

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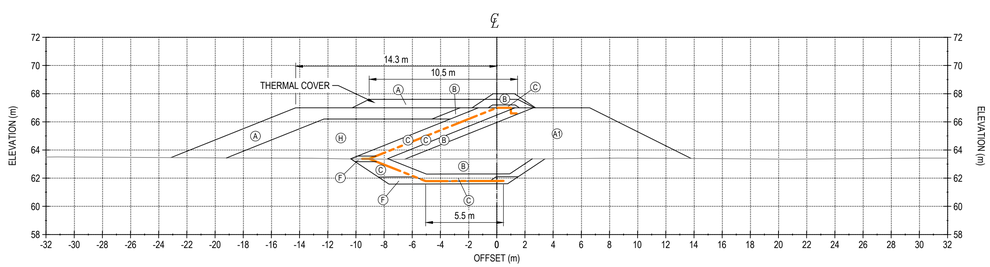

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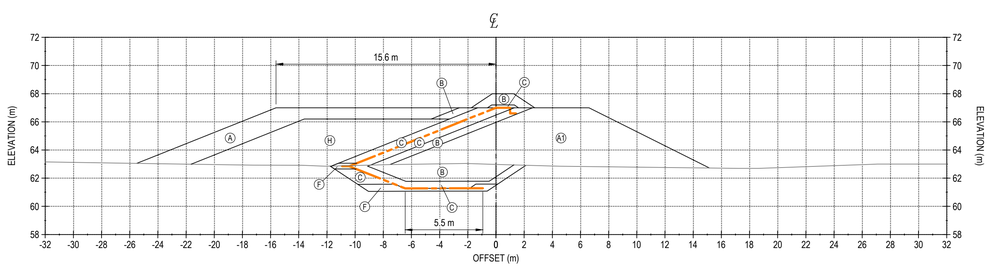
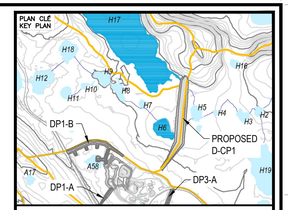


STATION 1+200



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- (A) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE UPSTREAM AND FOR THERMAL COVER
- (A1) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM
- (B) TRANSITION ROCKFILL (150 mm MINUS)
- (C) GRANULAR FILL OR ESKER SAND (20 mm MINUS)
- (F) BENTONITE-AUGMENTED MATERIAL (MIXTURE OF BENTONITE AND TYPE C MATERIAL)
- (H) ESKER SAND AND GRAVEL (75 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug. 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS NWT/NU — G. ZHANG — LICENSEE — Aug. 15, 2016
ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS NWT — KEVIN W. JONES — LICENSEE

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 SECTIONS
STATION 1+025 TO 1+200

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	1:200	DATE 2016-08-15

NO. DESSIN / DRAWING NO.
65-685-230-209-001

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	6 / 12

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NO. DESSIN
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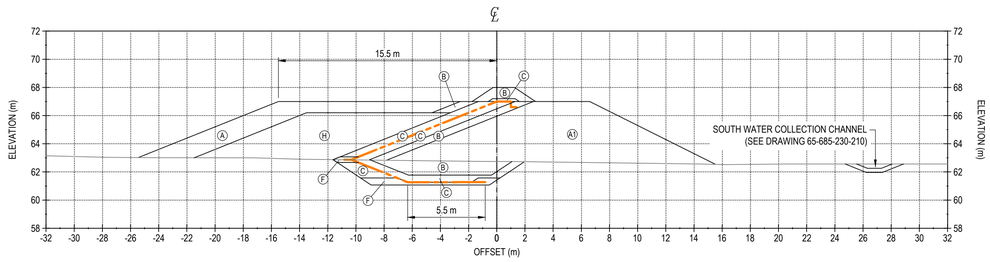

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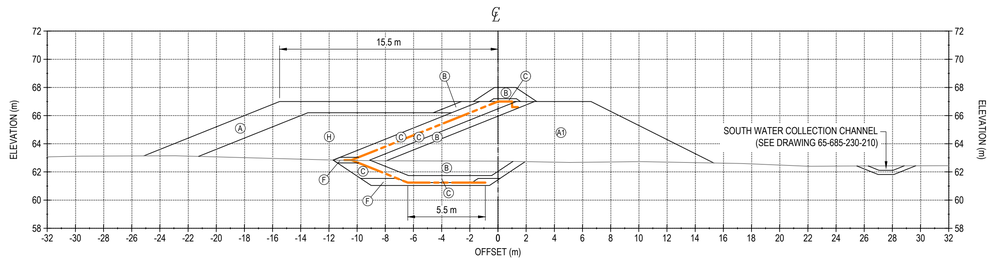

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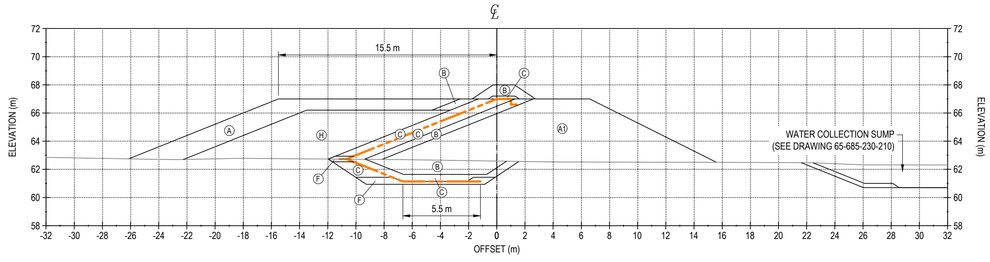

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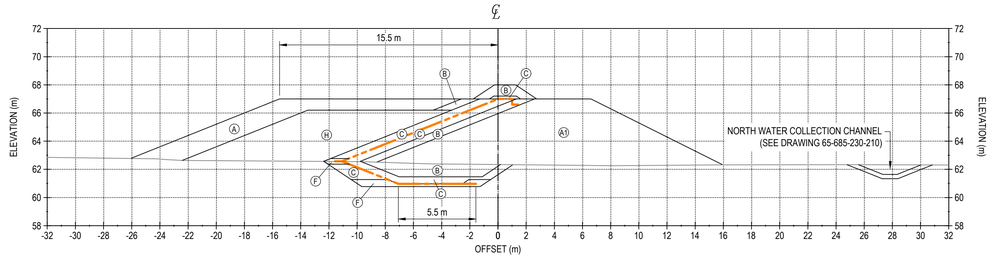

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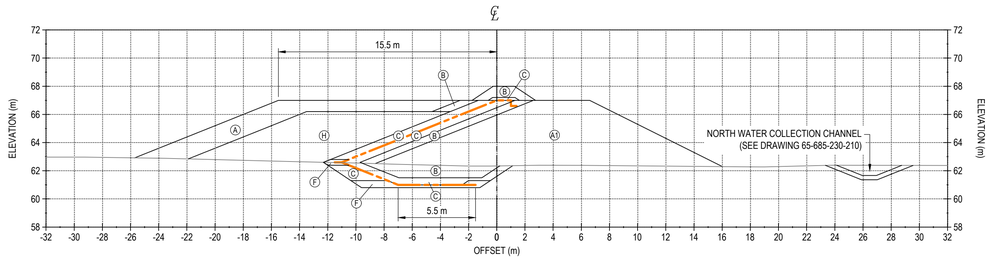

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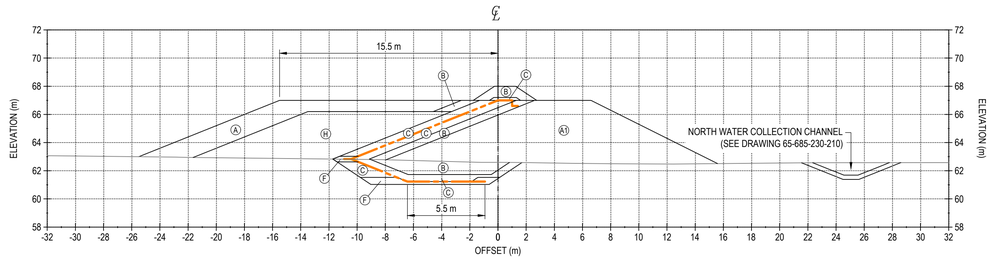

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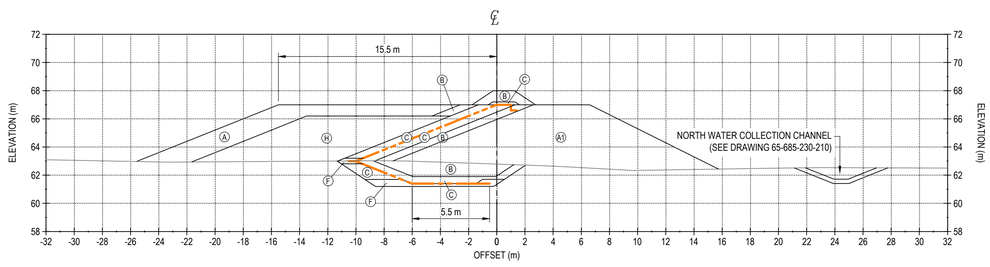

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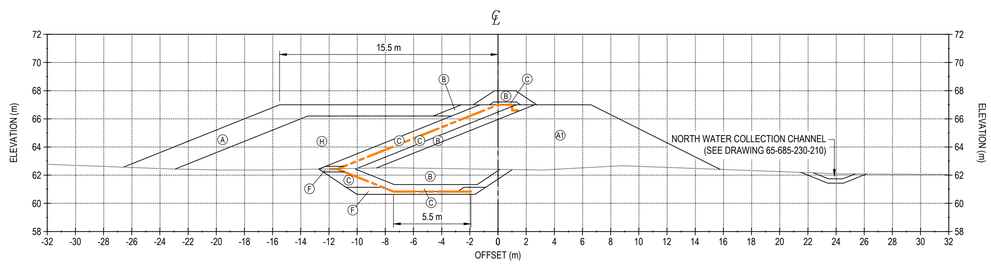

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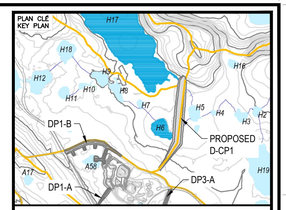

TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- (A) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE UPSTREAM AND FOR THERMAL COVER
- (A1) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM
- (B) TRANSITION ROCKFILL (150 mm MINUS)
- (C) GRANULAR FILL OR ESKER SAND (20 mm MINUS)
- (F) BENTONITE-AUGMENTED MATERIAL (MIXTURE OF BENTONITE AND TYPE C MATERIAL)
- (H) ESKER SAND AND GRAVEL (75 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
DATE : 2016-08-15
AGNICO EAGLE

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

G. ZHANG — LICENSEE — NWT/NU — Aug 15, 2016
KEVIN W. JONES — LICENSEE — NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 SECTIONS
STATION 1+225 TO 1+400

DESSINÉ PAR / DRAWN BY	EL		DATE 2016-08-15
VERIFIÉ PAR / CHECKED BY	GZ		2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ		2016-08-15
ÉCHELLE / SCALE	1:200	DATE	2016-08-15
NO. DESSIN / DRAWING NO.	65-685-230-209-002		
NO. PROJET / PROJECT NO.	6515	REVISION 0	FEUILLE / SHT 7 / 12

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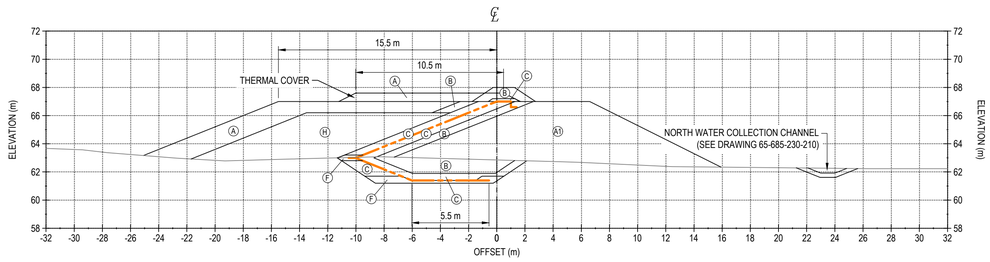
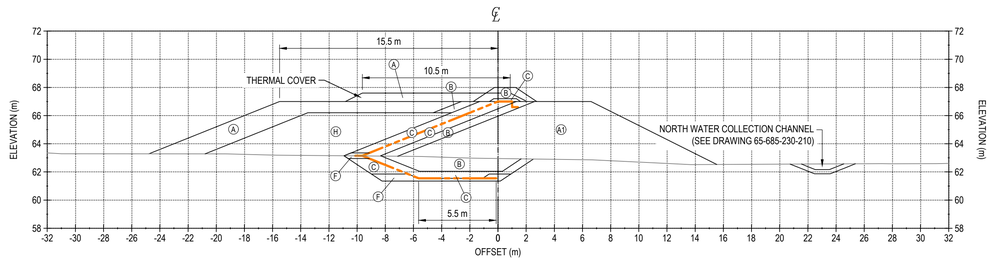
FILE NO. 65-685-230-209.dwg

NO. DESSIN
DRAWING NO. 65-685-230-209

FORMAT ARCHD



STATION 1+425



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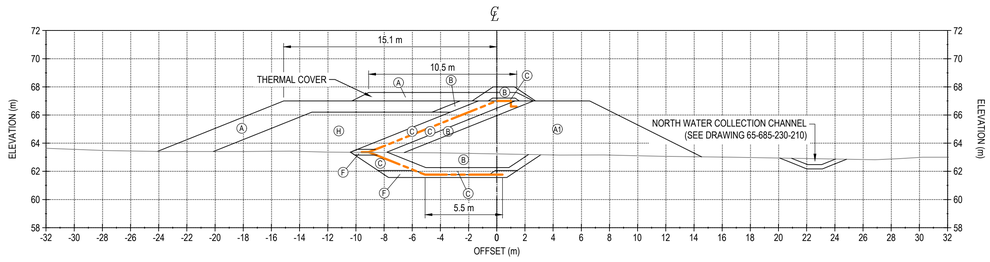

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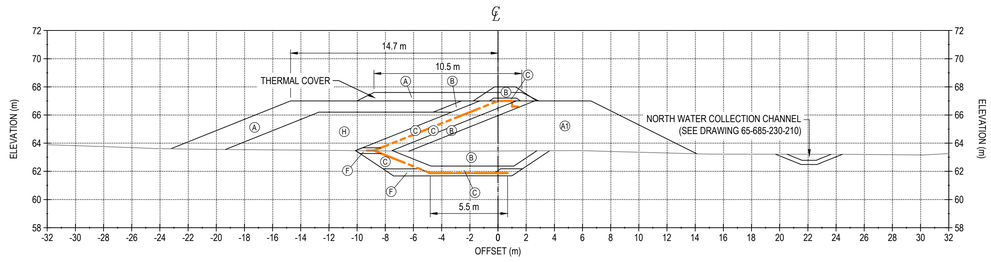

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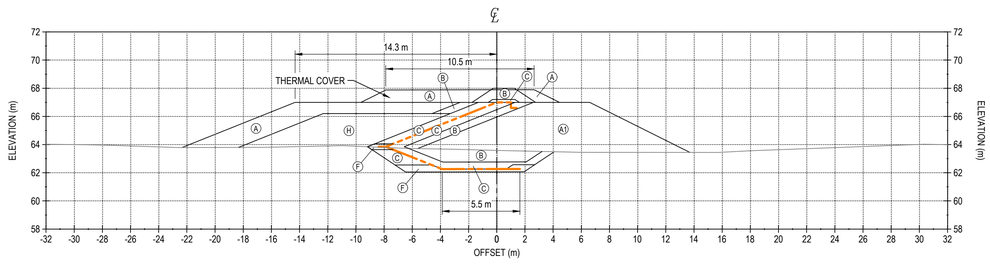

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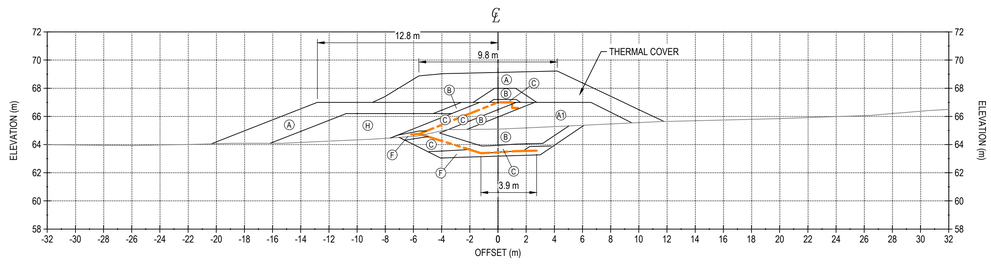

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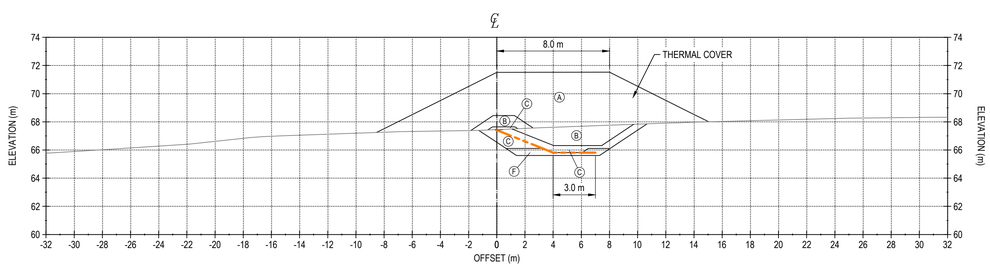

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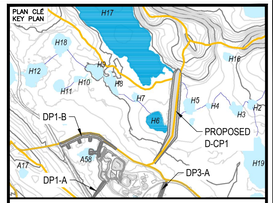

TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- (A) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE UPSTREAM AND FOR THERMAL COVER
- (A1) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM
- (B) TRANSITION ROCKFILL (150 mm MINUS)
- (C) GRANULAR FILL OR ESKER SAND (20 mm MINUS)
- (F) BENTONITE-AUGMENTED MATERIAL (MIXTURE OF BENTONITE AND TYPE C MATERIAL)
- (H) ESKER SAND AND GRAVEL (75 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

G. ZHANG — LICENSEE — NWT/NU — Aug 15, 2016
KEVIN W. JONES — LICENSEE — NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 SECTIONS
STATION 1+425 TO 1+575

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	1:200	DATE 2016-08-15

NO. DESSIN / DRAWING NO. 65-685-230-209-003

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	8 / 12

AE-CART-ARCH D

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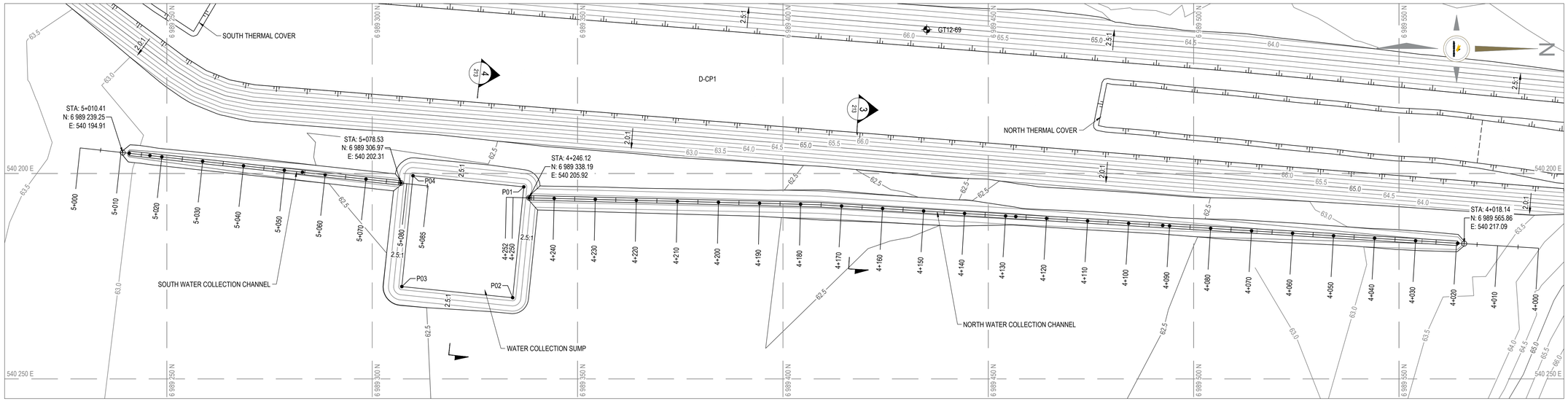
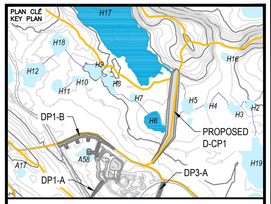
FILE NO. 65-685-230-209.dwg

NO. DESSIN
DRAWING NO. 65-685-230-210

FORMAT ARCHD





TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

0 2.5m
Scale: 1:75

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

G. ZHANG LICENSEE NWT/NU
KEVIN W. JONES LICENSEE NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
DOWNSTREAM WATER COLLECTION CHANNEL
AND SUMP LAYOUT PLAN AND PROFILES

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	1:75	DATE 2016-08-15

NO. DESSIN / DRAWING NO. 65-685-230-210

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	9 / 12

D-CP1 NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+019.73	540216.99	6989564.28	62.61
• 4+030	540216.37	6989554.03	62.48
• 4+040	540215.77	6989544.04	62.36
• 4+050	540215.17	6989534.06	62.23
• 4+060	540214.56	6989524.08	62.11
• 4+070	540213.96	6989514.10	61.98
• 4+080	540213.36	6989504.12	61.86
• 4+090	540212.75	6989494.14	61.73
• 4+091.68	540212.65	6989492.46	61.71

D-CP1 NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

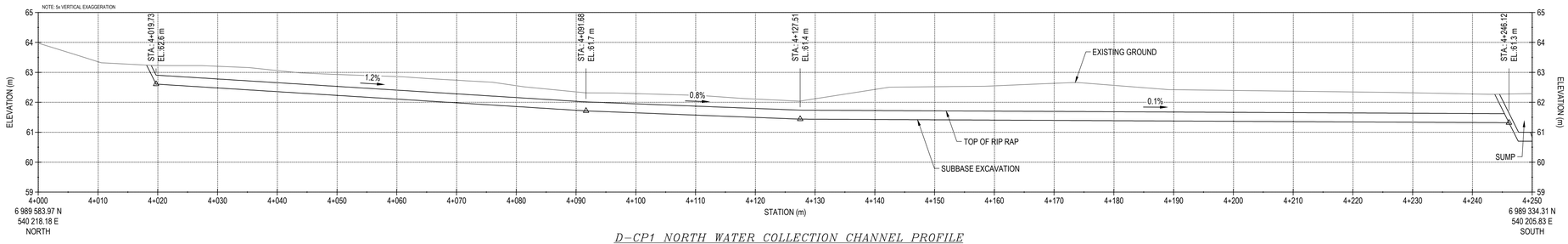
STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+100	540212.15	6989484.15	61.65
• 4+110	540211.55	6989474.17	61.57
• 4+120	540210.95	6989464.19	61.50
• 4+127.51	540210.49	6989456.69	61.44
• 4+130	540210.34	6989454.21	61.44
• 4+140	540209.74	6989444.23	61.43
• 4+150	540209.14	6989434.24	61.42
• 4+160	540208.53	6989424.26	61.41
• 4+170	540207.93	6989414.28	61.40

D-CP1 NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

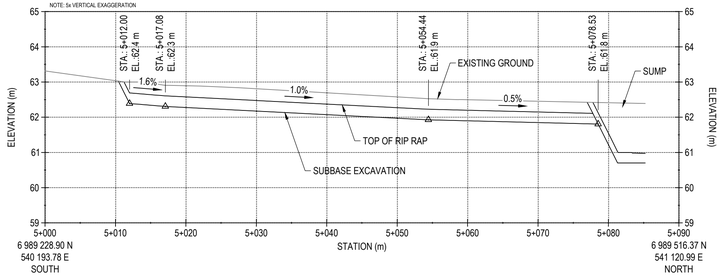
STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+180	540207.49	6989404.29	61.39
• 4+190	540207.26	6989394.30	61.38
• 4+200	540207.02	6989384.30	61.37
• 4+210	540206.78	6989374.30	61.36
• 4+220	540206.54	6989364.30	61.35
• 4+230	540206.31	6989354.31	61.34
• 4+240	540206.07	6989344.31	61.33
• 4+246.12	540205.92	6989338.19	61.32

D-CP1 SOUTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 5+012	540195.09	6989240.83	62.39
• 5+017.08	540195.64	6989245.88	62.31
• 5+020	540195.96	6989248.78	62.28
• 5+030	540197.04	6989258.72	62.17
• 5+040	540198.13	6989268.66	62.07
• 5+050	540199.21	6989278.61	61.97
• 5+054.44	540199.69	6989283.01	61.93
• 5+060	540200.30	6989288.55	61.90
• 5+070	540201.39	6989298.49	61.85
• 5+078.53	540202.31	6989306.97	61.81



D-CP1 NORTH WATER COLLECTION CHANNEL PROFILE
SCALE: H-1:400 V-1:80



D-CP1 SOUTH WATER COLLECTION CHANNEL PROFILE
SCALE: H-1:400 V-1:80

D-CP1 WATER COLLECTION SUMP LAYOUT POINTS

POINT No.	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• P01	540203.27	6989336.90	60.70
• P02	540230.25	6989334.19	60.70
• P03	540227.54	6989307.21	60.70
• P04	540200.56	6989309.92	60.70

AE-CART-ARCH D

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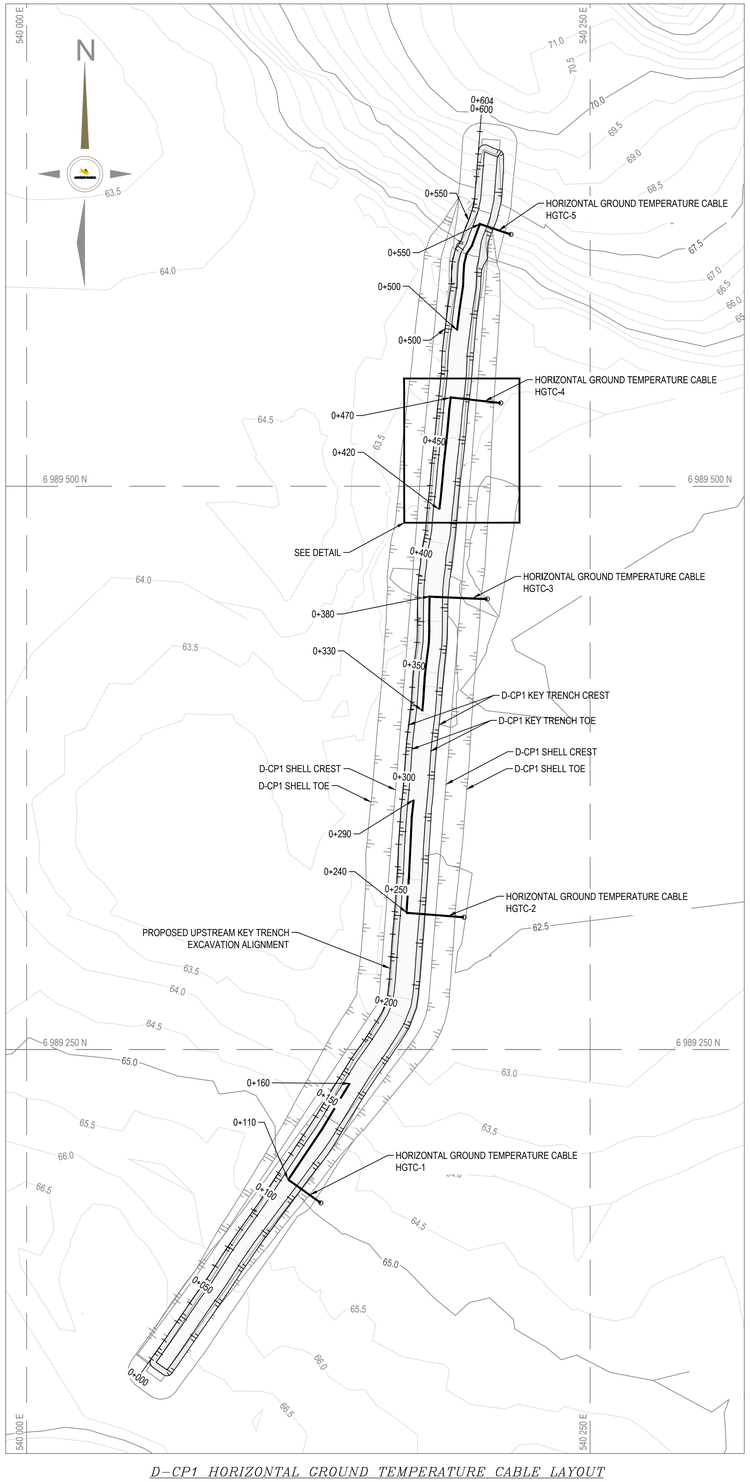
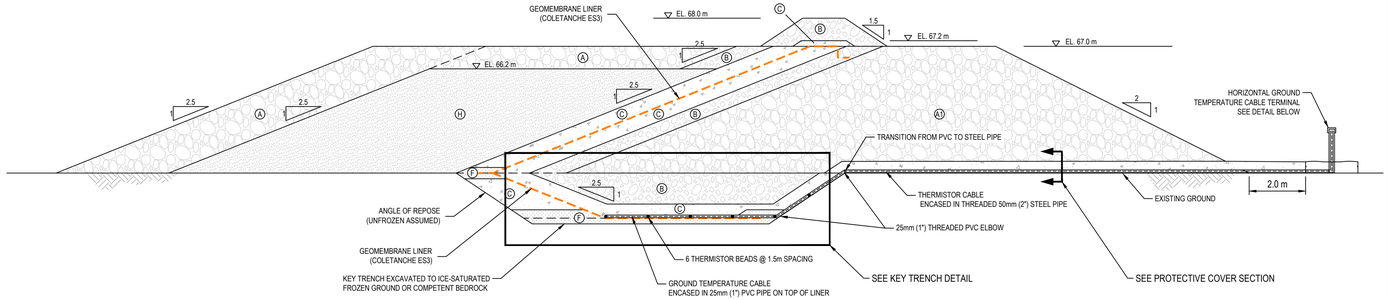
FILE NO. 65-685-230-210.dwg

NO. DESSIN
DRAWING NO. 65-685-230-211

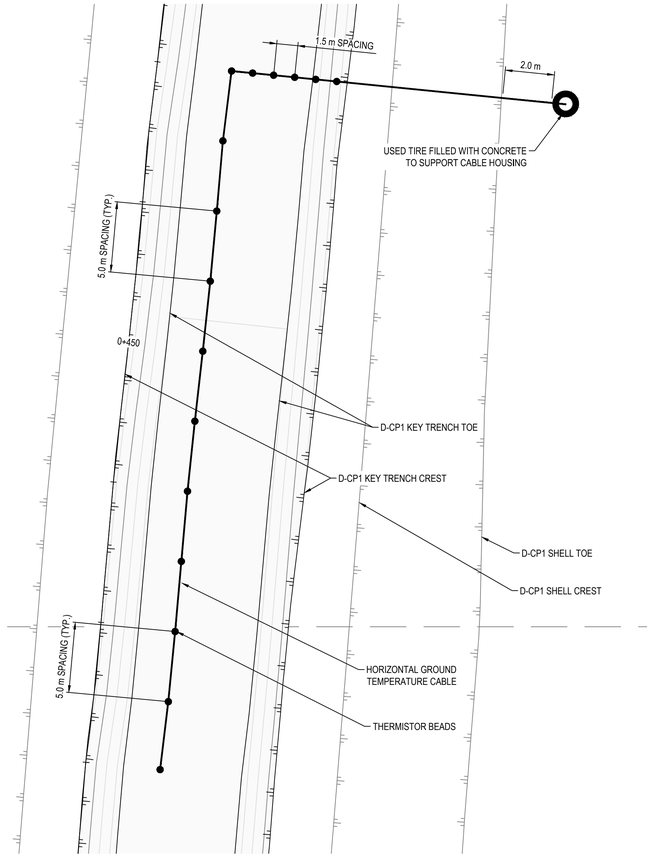
FORMAT ARCHD



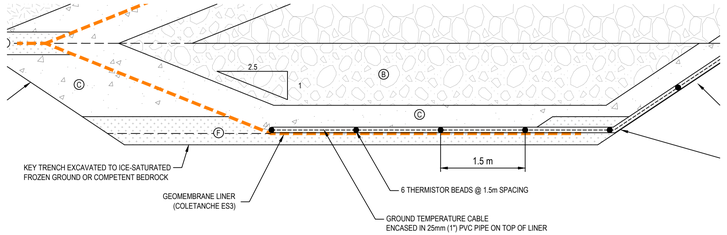
D-CP1 HORIZONTAL GROUND TEMPERATURE CABLE LAYOUT
SCALE: 1:1250



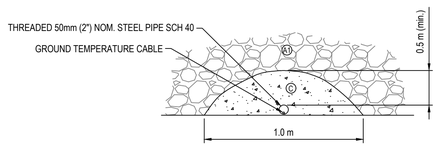
D-CP1 HORIZONTAL GROUND TEMPERATURE CABLE – TYPICAL SECTION
SCALE: 1:100



D-CP1 HORIZONTAL GROUND TEMPERATURE CABLE LAYOUT – DETAIL
SCALE: 1:200



D-CP1 HORIZONTAL GROUND TEMPERATURE CABLE – KEY TRENCH DETAIL
SCALE: 1:50



TEMPERATURE CABLE – PROTECTIVE COVER SECTION
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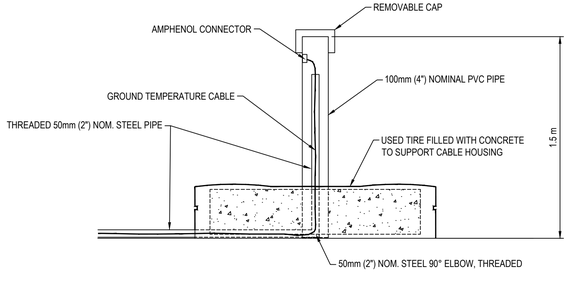
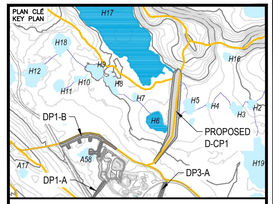


TEMPERATURE CABLE – TERMINAL SUPPORT DETAIL
SCALE: NTS



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU

ASSOCIATION OF PROFESSIONAL ENGINEERS KEVIN W. JONES 12215 LICENSEE NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
INSTRUMENTATION PLAN AND DETAILS
FOR GROUND TEMPERATURE CABLES

DESSINÉ PAR DRAWN BY	DRG	DATE 2016-08-02
VÉRIFIÉ PAR CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR APPROVED BY	KJ	2016-08-15
ÉCHELLE SCALE	AS SHOWN	DATE 2016-08-02

NO. DESSIN
DRAWING NO. 65-685-230-211

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	10 / 12

AE-CART-ARCH D

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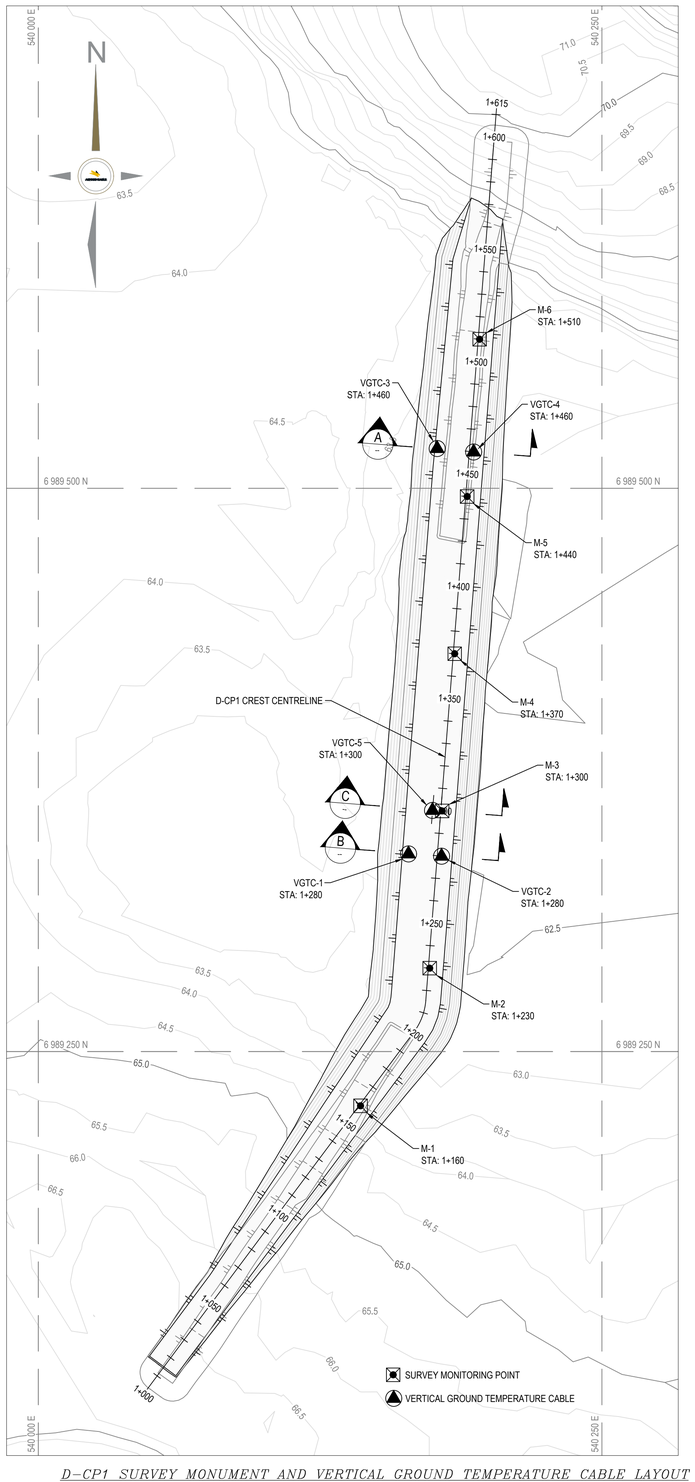
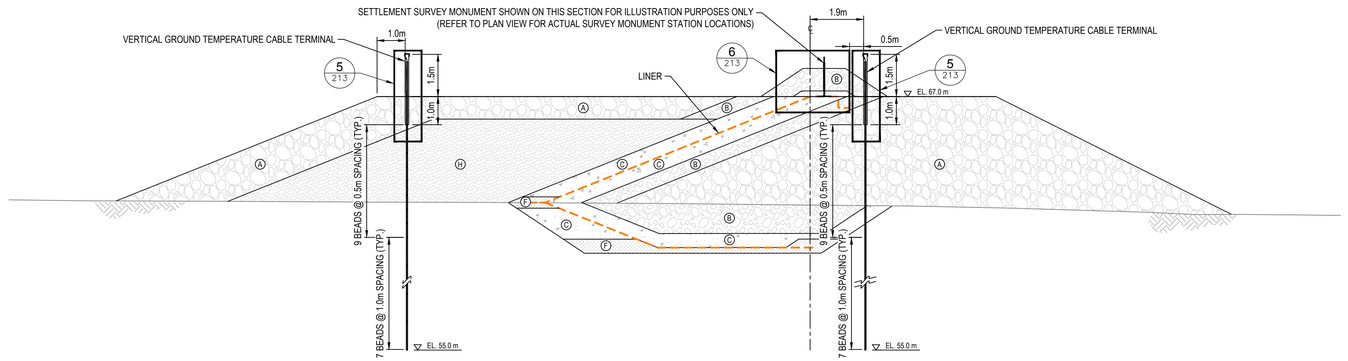
FILE NO. 65-685-230-211.dwg

NO. DESSIN
DRAWING NO. 65-685-230-212

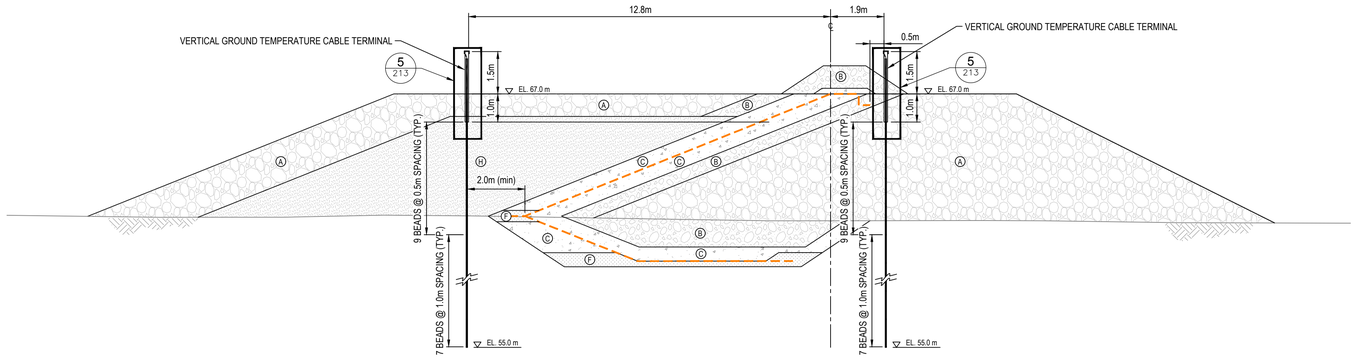
FORMAT ARCHD



D-CP1 SURVEY MONUMENT AND VERTICAL GROUND TEMPERATURE CABLE LAYOUT
SCALE: 1:1250



D-CP1 – SECTION A – VERTICAL GROUND TEMPERATURE CABLE – STATION 1+460
SCALE: 1:100



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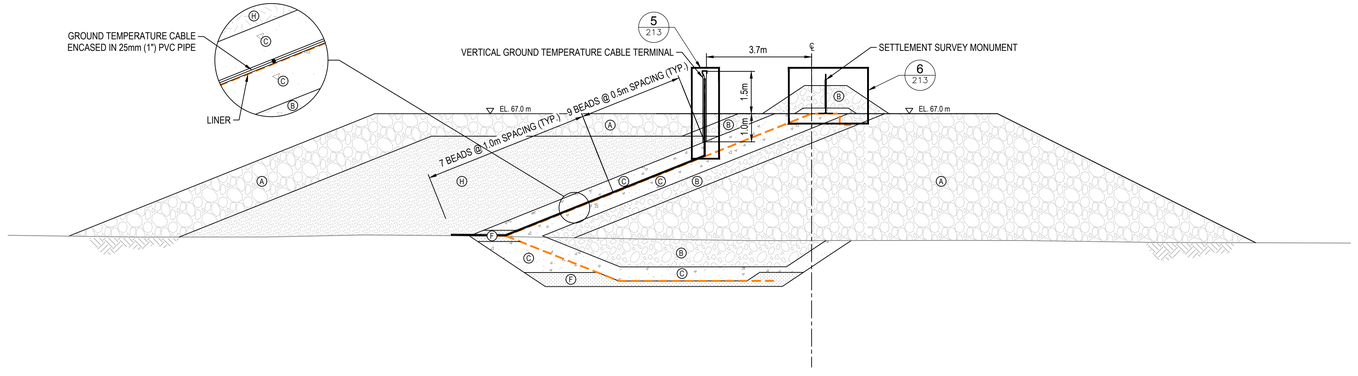
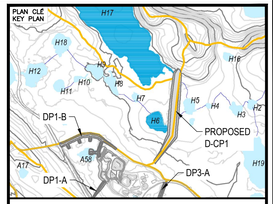


D-CP1 – SECTION C – VERTICAL GROUND TEMPERATURE CABLE – STATION 1+300
SCALE: 1:100



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug 15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU

PROFESSIONAL ENGINEER KEVIN W. JONES LICENSEE NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1- INSTRUMENTATION PLAN AND DETAILS
FOR GROUND TEMPERATURE CABLES
AND SETTLEMENT SURVEY MONUMENT POINTS

DESSINÉ PAR / DRAWN BY	DRG	DATE 2016-08-02
VERIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	AS SHOWN	DATE 2016-08-02
NO. DESSIN / DRAWING NO.	65-685-230-212	
NO. PROJET / PROJECT NO.	6515	REVISION 0
		FEUILLE / SHT 11 / 12

AE-CART-ARCH D

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FILE NO. 65-685-230-212.dwg

NO. DESSIN
DRAWING NO. 65-685-230-213

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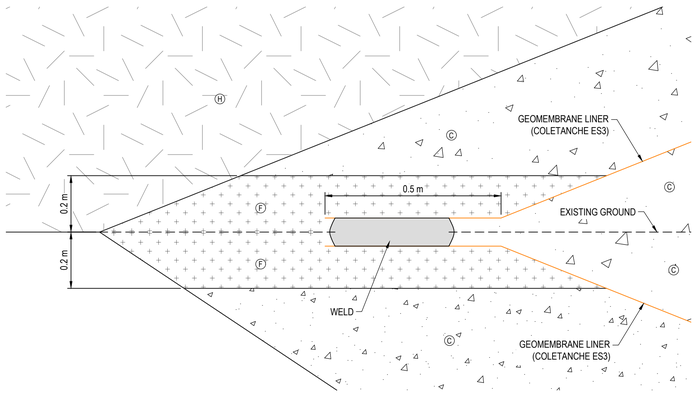
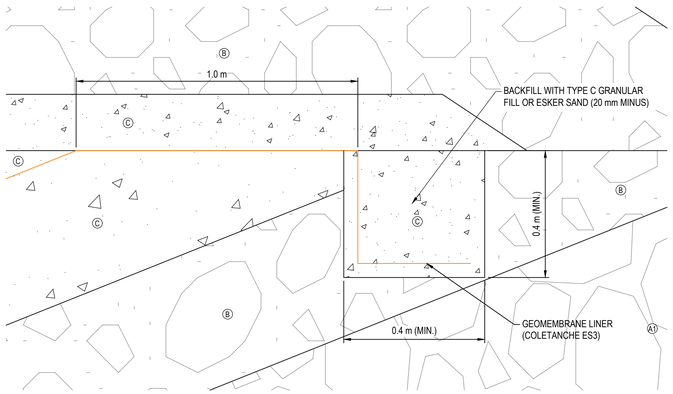
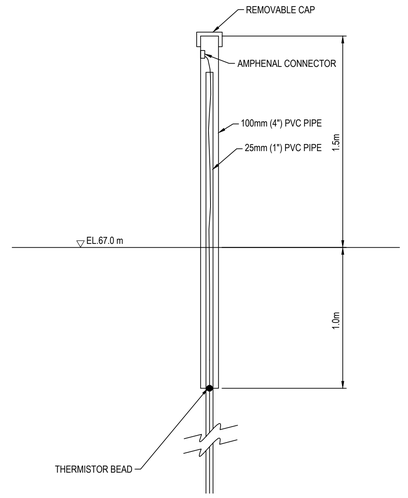


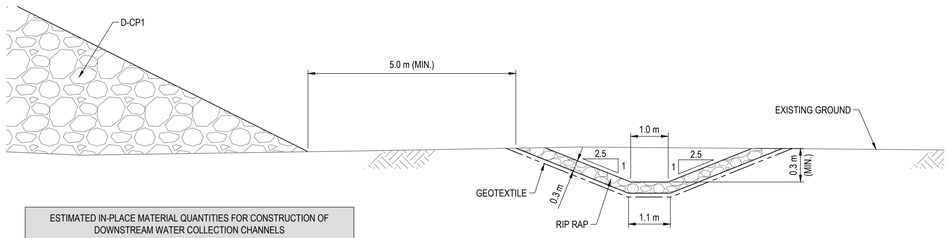
TYPICAL LINER WELDING AT HINGE POINT 1 / 208
NOT TO SCALE



TYPICAL LINER KEY-IN AT CREST 2 / 208
NOT TO SCALE



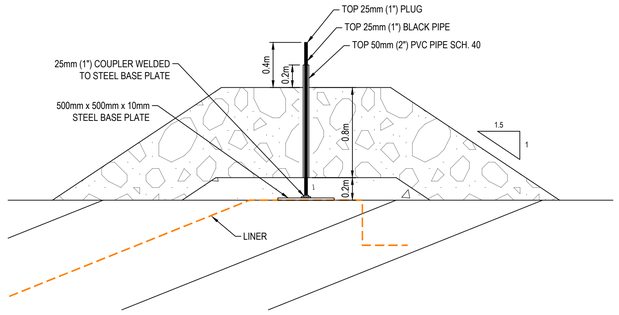
D-CP1 TYPICAL VERTICAL GROUND TEMPERATURE CABLE TERMINAL DETAIL 5 / 212
SCALE: 1:20



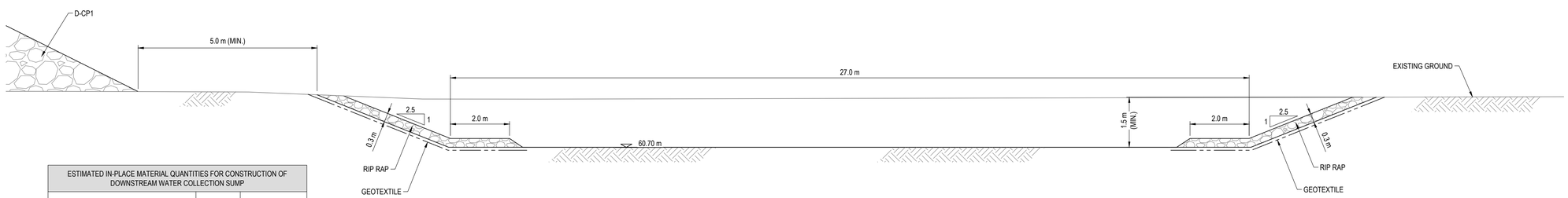
D-CP1 TYPICAL WATER COLLECTION CHANNEL DETAIL 3 / 210
NOT TO SCALE

ESTIMATED IN-PLACE MATERIAL QUANTITIES FOR CONSTRUCTION OF DOWNSTREAM WATER COLLECTION CHANNELS

ITEM	UNIT	ESTIMATED IN-PLACE QUANTITY AFTER COMPACTION AND INSTALLATION
CHANNEL EXCAVATION	m³	780
CHANNEL RIP RAP	m³	410
CHANNEL GEOTEXTILE LINER	m²	1,615



D-CP1 TYPICAL SETTLEMENT SURVEY MONUMENT DETAIL 6 / 212
SCALE: 1:25

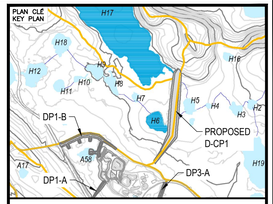


D-CP1 TYPICAL WATER COLLECTION SUMP DETAIL 4 / 210
NOT TO SCALE

ESTIMATED IN-PLACE MATERIAL QUANTITIES FOR CONSTRUCTION OF DOWNSTREAM WATER COLLECTION SUMP

ITEM	UNIT	ESTIMATED IN-PLACE QUANTITY AFTER COMPACTION AND INSTALLATION
SUMP EXCAVATION	m³	1,635
SUMP RIP RAP	m³	290
SUMP GEOTEXTILE LINER	m²	820

PLAN CLÉ
KEY PLAN



TETRA TECH EBA

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- (A1) RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM
- (B) TRANSITION ROCKFILL (150 mm MINUS)
- (C) GRANULAR FILL OR ESKER SAND (20 mm MINUS)
- (F) BENTONITE-AUGMENTED MATERIAL (MIXTURE OF BENTONITE AND TYPE C MATERIAL)
- (H) ESKER SAND AND GRAVEL (75 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH EBA INC.
Signature
Date Aug.15, 2016
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2016-08-15

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
–	–
–	–
–	–
–	–
–	–
–	–
–	–

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2016-08-05	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Aug 15, 2016
REGISTERED PROFESSIONAL ENGINEER — KEVIN W. JONES — LICENSE — NWT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1
TYPICAL DETAILS

DESSINÉ PAR / DRAWN BY	EL	DATE 2016-08-15
VÉRIFIÉ PAR / CHECKED BY	GZ	2016-08-15
APPROUVÉ PAR / APPROVED BY	GZ	2016-08-15
ÉCHELLE / SCALE	N.T.S.	DATE 2016-08-15

NO. DESSIN / DRAWING NO. 65-685-230-213

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	0	12 / 12

AE-CART-ARCH D

Q:\Edmonton\Engineering\E141\Projects\E14103230_Block007_Meliadine Detail Design\Modelling\Production Drawings\D-CP1\Issued for Construction_Rev0\65-685-230-213.dwg-2016-08-15 15:10:11

FILE NO. 65-685-230-213.dwg

APPENDIX B

TETRA TECH EBA'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.

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.