AGNICO EAGLE

Emergency Amendment Responses

Meliadine Mine – Water Licence 2AM-MEL1631

Submitted to:

Nunavut Water Board

Submitted by:

Agnico Eagle Mines Limited – Meliadine Division

April 6, 2020

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Supporting Documents

Attachment A: Water Quality Data for MEL-12 and CP1 Samples Collected June to October 2019

Attachment B: Assessment of Dike DCP-1, Meliadine Mine, Canada

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-1**
Re:	**n/a**		

Recommendation Made By Interested Party:
As it is unclear as to whether an emergency scenario will occur, it is important that Agnico Eagle provide the following information:

1. designed capacity of CP1;
2. volume of water currently in CP1;
3. predicted volume of water from the 2020 freshet event;
4. volume of water that had been treated and discharged prior to freeze-up;
5. chemistry of water in CP1 besides TDS; and
6. geotechnical assessment on stability or integrity of CP1.d.

Agnico Eagle's Response to Recommendation:
Response 1
D-CP1 Maximum Operating Level non-inflow design flood (IDF) is 66.2m, which represents a volume of 742,075 m^3. This is the maximum operating volume during a non-IDF spring freshet or short-term after each spring freshet.

D-CP1 Maximum Operating Level under IDF is 66.6m, which represent a volume of 855,245 m^3. This is the maximum short-term water volume under the IDF.

> ***Reference:***
> *Tetra Tech, 2016 – Design Report For Dike D-CP1, Meliadine Golder Project, NU, Version 0, August 15, 2016.*

Response 2
The current water volume in CP1 is 716,326 m^3.

Response 3
The table below presents the predicted volume of water from the 2020 freshet event and the summer 2020 CP1 water management strategy.

	MAY	JUNE	JULY	AUGUST	SEPT	OCT
STARTING VOLUME in CP1	716,326	716,326	784,513	433,292	109,696	24,455
WATER REPORTING TO CP1	0	518,187	98779	126404	114759	41667
PUMP DOWN VIA TREATMENT PLANT	0	450,000	450,000	450,000	200,000	66,122
NET BALANCE OF WATER IN CP1	716,326	784,513	433,292	109,696	24,455	0

Response 4

The table below presents the 2019 volume of water that had been treated and discharged and the average TDS concentration measured in CP1 during that period.

CP1 volumes pumped in 2019

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2019 Total
Water pumped (m^3)	-	-	-	-	-	-	*30,614*	*107,540*	*157,912*	*10,707*	-	-	*306,773*
TDS concentration in CP1 (mg/L)	-	-	-	-	-	*1,570*	*2,130*	*2,100*	*2,490*	*2,370*	-	-	-

Response 5

Refer to ECCC-2, Response 1.

Response 6

As highlight in the 2019 Annual Geotechnical Inspection Report, design water elevation at the end of October each year must me below 63.0 m and 64.1 m before each spring freshet. This level is required to provide sufficient storage for runoff water from an IDF event for the entire site, treated sewage from the site during the winter period and treated water from the SWTP.

> *''As of October 29, 2019, the water level in CP1 was 65.84 m. This level is higher than both the specified levels for the end of October, and before the following spring freshet. The current available capacity in CP1 between the October 29, 2019 level and the design maximum water level of 66.6 m is 229,000 m3. This is not sufficient to store the Inflow Design Flood (IDF) spring freshet from the CP1 catchment plus the design inflows from other areas of site. It is understood that AEM is developing a plan to deal with the excess water.''*

Tetra Tech issued a Structural Assessment of the Dike D-CP1 on April 6, 2020 (Attachment B). Conclusions of the assessment are that:

- *''As the water level rises above the maximum short term design elevation of 66.6 m, the water could flow around the area south of the dike. There is the risk that this water could flow into the downstream shell of the dike as the water level rises. If this occurs, the relatively warm contact water ingressing into the key trench has the potential to thaw and degrade the permafrost below the dike and the thaw the engineered frozen key trench. Both of these frozen components are part of the dikes primary seepage control mechanism. This could have major local consequences for the dike structure in terms of; thaw settlement (sinkholes) and associated cracking, differential settlement and tear damage to liner, local reduction of crest*

elevation, and loss of water tightness. This could result in an uncontrolled local failure of the dike structure;

- *In the extreme case where the ponded water is allowed to rise and flow over the dike liner crest elevation. Water could potentially erode the liner bedding, resulting in a drop in the liner elevation leading to a sudden increase of the outflow rate from CP1. More importantly, this water will naturally gravitate through the highly permeable downstream rockfill directly into the dike's frozen key trench. As described in 1. Above, this relatively warm contact water inundation has the potential to rapidly thaw and degrade the permafrost below the dike and the engineered frozen key trench. Both of these frozen components are part of the dikes primary seepage control mechanism. This could have major global consequences for the dike structure in terms of; thaw settlement (sinkholes) and associated cracking, differential settlement and tear damage to liner, local reduction of crest elevation, and loss of water tightness. This could result in a catastrophic failure of the dike structure.''*

Reference:

- *Tetra Tech, 2020* – 2019 Annual Geotechnical Inspection, *Meliadine Golder Project, NU, Version 0, March 25, 2020.*
- *Tetra Tech, 2020* –Assessment of Dike DCP-1, *Meliadine Mine, Canada. File No. 704-ENG.EARC03140-01. April 6, 2020.*

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-2**
Re:	**n/a**		

Recommendation Made By Interested Party:
What adaptive measures Agnico Eagle have implemented to resolve or mitigate the potential challenges and why this request was not made soon after CP1 freeze-up in 2019

Agnico Eagle's Response to Recommendation:
Agnico Eagle implemented mitigation to the TDS loading in CP1 since the beginning of the construction phase by building several water treatment systems such as evaporators, reverse osmosis, and desalination plants. Segregation of surface and underground water to improve treatment efficiency was review each year to optimize water management practices and reduce concentration at the source.

In 2019, Agnico Eagle completed an investigation of the overall CP1 water quality issue. Results of this investigation showed that TDS is the only parameter of concern. Several different scenarios were evaluated to manage this situation in 2019 and different adaptive management measures were implemented during last summer to allow discharge CP1 water in Meliadine Lake such as improving the water treatment efficiency by increase RO permeate production and rerouting surface water on site to reduce inflows in CP1.

Freshet Action Plan was review during the winter 2020 to evaluate potential new water management strategies required to manage CP1 water efficiently. The selected strategy consists of improving segregation of surface contact water with high TDS concentration from CP1 by capturing runoff reporting in CP1 upstream to the pond and use the access road as a temporary structure to hold this inflow. Even with the implementation of those mitigations, forecasted CP1 water TDS concentration will be above the 1,400 mg/L and volume of water in CP1 will be above the Maximum Operating Level.

Agnico Eagle considers that the treatment and storage option is not a long-term solution as storage capacity is limited and CP1 water can't be discharge with the current TDS Effluent Quality Criteria (EQC). Agnico Eagle initiated in late 2019 a study to understand the potential effect of mine effluent TDS loading on the Meliadine Lake, which is presented in the Water Quality Management and Optimization Plan (WQ-MOP; Golder 2020). Results of that study showed that the 1,400 mg/L is over conservative and a temporary effluent discharge threshold of 3,500 mg/L would allow the site to manage CP1 water effectively and without any environmental effect in Lake Meliadine.

Agnico Eagle developed the WQ-MOP based on the discussions held with mainly ECCC but also CIRNAC, KivIA and NWB in 2019 and 2020. Different scenarios were evaluated for the revision of the TDS EQC with the parties and NWB recommend the proponent to apply for an Emergency Amendment as the standard amendment process would not be completed in time.

Reference:
Golder (Golder Associates Ltd.). 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-3**
Re:	**n/a**		

Recommendation Made By Interested Party:
What other alternatives has Agnico Eagle considered for managing the water in CP1 with high TDS, including treatment before discharge

Agnico Eagle's Response to Recommendation:
Agnico Eagle completed a risk assessment of the situation in November 2019. The following list of items summarize the different actions and mitigations evaluated:

- Increase allowable effluent TDS criteria for discharge to Meliadine Lake;
- Aggradation of brine water in frozen structure;
- Upgrade Reverse Osmosis system to treat brine under CP1 ice cap;
- Ice removal from CP1 (leaving brine);
- Optimize water management to minimize inflows to CP1 during freshet;
- Segregation and direct discharge of freshet runoff;
- Snow management optimization;
- Use CP1 water as make-up water in the Mill,
- Installation of a spillway on D-CP1 to prevent an uncontrolled discharge;
- Strategies waste rock deposition to minimize leaching of solutes to CP1; and
- Solidification of brine with a polymer.

Agnico Eagle understand from the recent communication with the NWB that every adaptive management options need to be submitted to the NPC and NIRB and these options cannot be implemented in a timely fashion to complete the approval process. Agnico Eagle would like to continue working with the parties to develop a legal framework that would allow the implementation of effective adaptive management in Nunavut. However, the way the current Meliadine Licence is drafted, it does not allow this flexibility.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-4**
Re:	**n/a**		

Recommendation Made By Interested Party:
How will Agnico Eagle mitigate any unanticipated potential adverse effects on water quality of the receiving environment during this discharge

Agnico Eagle's Response to Recommendation:
The discharge from CP1 will be managed so that the receiving environment remains protected. The management of this discharge already includes a number of mitigations that have been described in the WQ-MOP (Golder 2020):

- First, Agnico Eagle has proposed an interim target for effluent of 3,500 mg/L calculated TDS as a Maximum Average Effluent Concentration (MAEC), which will apply to the average of four successive weekly samples collected at the end of pipe, and an interim target of 1,000 mg/L (as calculated TDS), which will apply in the receiving environment at the edge of the 100 m mixing zone. These TDS targets were developed based on strong scientific evidence of site-specific toxicity testing, an understanding of the chemical constituency of the water to be discharged and that in the receiving environment, and supporting evidence from TDS effects studies completed at other northern mines. Because these targets have been established at concentrations lower than those at which acute toxicity (for end-of-pipe comparisons) or chronic toxicity (for edge of mixing zone comparisons) have been observed in multiple rounds of site-specific tests, they represent no-effect concentrations that already incorporate conservatism and thereby mitigate against adverse effects.

- Second, discharge will be directed through a submerged diffuser that is already operating at site. The diffuser was designed for rapid dispersion of effluent. Site-specific monitoring of the effectiveness of the diffuser while operating (e.g., EEM plume delineation study [Golder 2019], a performance assessment [Tetra Tech 2018]) supported earlier modelling work associated with the FEIS on the conceptual diffuser in 2015 (Agnico Eagle 2015).

- Third, monitoring during active discharge will focus on the end of pipe and receiving environment. Monitoring at the end of pipe will compare effluent quality to discharge limits, which will include the interim target of 3,500 mg/L. Monitoring in the receiving environment will be completed at the edge of the mixing zone boundary, and include a plume delineation study that will incorporate near-field and further downstream (mid-field) stations. Monitoring will include toxicity testing of effluent (acute testing) at water at the edge of the mixing zone (sub-lethal testing), and water chemistry testing.

Agnico Eagle is confident that the proposed discharge plan bound by the mitigations described above will not result in any adverse environmental effects in the receiving environment. However, additional mitigation can be evoked if required. These may include the reduction of discharge rates or the temporary cessation of pumping. The basis for the triggering of these mitigations would be driven by effluent quality or water quality at the edge of the mixing zone, and if they meet thresholds as part of an adaptive management plan approach:

- As an example, should two consecutive end of pipe TDS concentrations be equivalent to, or greater, than 3,500 mg/L, sampling frequency will be increased.
- As a follow-up example, should two consecutive edge of mixing zone TDS concentrations be equivalent to, or greater, than 75% of the interim target of 1,000 mg/L, sampling frequency will be increased.

These thresholds will be finalized two weeks following the onset of discharge.

References:

Agnico Eagle Mines Ltd. 2015. Water Management Plan Version 1. 6513-MPS-11. Type A Water Licence Application, Meliadine Gold Project.

Golder (Golder Associates Ltd.). 2019. Cycle 1 Environmental Effects Monitoring Report and 2018 Aquatic Effects Monitoring Program Annual Report. Agnico Eagle Mines Limited—Meliadine Gold Mine. Submitted to Agnico Eagle Mines Limited. March 2019.

Golder. 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Tetra Tech. 2018. Effluent Discharge Modelling for the As-Built Diffuser at the Meliadine Gold Project, Nunavut. Prepared for Agnico Eagle Mines Limited. May 2018.

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-1**
Re:	**Duration of Discharge**		

Recommendation Made By Interested Party:

ECCC recommends that

- *The proponent provide clarification on the required discharged duration and volumes in order to maintain structural integrity of the dam of collection pond 1 (DCP1).*
- *The proponent confirm that the discharge at TDS levels above current licence limits is limited to the existing contents of CP1.*

Agnico Eagle's Response to Recommendation:

Agnico Eagle has provided details on the discharge duration and volume to maintain structural integrity of D-CP1 in response to CIRNAC-1. We confirmed that discharge at TDS levels above current licence is limited to the existing contents of CP1.

Interested Party:	ECCC	Rec No.:	ECCC-2
Re:	Information Gaps		

Recommendation Made By Interested Party:
ECCC recommends that the Proponent provide further information on effluent characterization and effects. Specifically,

- *Full chemistry should be provided for CP1, and include details of any treatment which will occur pre-release.*
- *The proponent should identify the frequency of effluent sampling and analysis during discharge.*
- *The proponent should provide the range and maximum TDS expected and evaluate the potential toxicity associated with these values.*
- *The Proponent should evaluate the potential for loading effects in Meliadine Lake*

Agnico Eagle's Response to Recommendation:
Response 1
The full list of water quality parameter data from samples collected from MEL-12 and CP1 from June to October 2019 is provided in the response to CIRNAC-1 (Attachment A). These samples are considered representative of predicted water quality for CP1 freshet discharge in 2020. No treatment, apart from natural settlement processes in the collection pond or dilution from ice melt in the pond and freshet inflows from natural runoff, will occur prior to the water in the pond being discharged to Lake Meliadine. Based on toxicity testing results to date, no treatment is required. In 2020, no positive toxicity tests to *Daphnia magna* (49-hr Survival LC_{50}) or Rainbow Trout (96-hr Survival LC_{50}) using water from CP1 were reported (refer to the response to bullet 3 below)

Response 2
The frequency of sampling of water in CP1 that represents the end-of-pipe discharge quality is expected to be as per existing regulatory and operational requirements for CP1 under the Water Management Plan for Station MEL-04 in the Meliadine Mine Water Licence 2AM-MEL1631. Under the current licensed conditions, this sampling includes:

- Water Chemistry – prior to discharge and weekly for conventional parameters, nutrients, metals, and MDMER parameters during discharge;
- Discharge Rate – daily volume measurements; and
- Toxicity testing – prior to discharge and monthly thereafter during discharge.

Response 3
Acute toxicity data for CP1 samples collected in 2020 is presented in Table 2 and is supplementary to the data presented in the WQ-MOP (Golder 2020, Appendix A, Table A-4). Nine CP1 samples with concentrations greater than 3,500 mg/L TDS have been tested in 2020 and no acute toxicity (i.e., LC_{50} <100% vol/vol) to Rainbow Trout and *Daphnia magna* has been observed. For these same nine CP1 samples there has been 0% mortality to Rainbow Trout and *D. magna* exposed to full-strength (100% vol/vol) CP1 sample with no indication that TDS concentrations are approaching an acute toxicity

threshold. Therefore, acute toxicity at end-of-pipe during the freshet effluent discharge is not anticipated at the interim TDS target MAEC of 3,500 mg/L. Agnico continues to monitor for acute toxicity using dilution series to validate the interim MAEC.

TDS is not expected to exceed 1,000 mg/L TDS at the edge of the mixing zone. Based on a review of water quality benchmarks for TDS developed for similar mixtures as Meliadine, a literature review of TDS toxicity, and a review of site-specific chronic toxicity data for Meliadine (treated effluent and influent samples) TDS concentrations of less than or equal to 1,000 mg/L provide reasonable certainty of no harm to aquatic life up to and including 1,000 mg/L TDS. Validation of the interim TDS target for effluent and at the edge of the mixing zone will be undertaken as part of the monitoring program during discharge to reduce uncertainty associated with the interim targets.

Table 2. Acute toxicity data for CP1 samples collected in 2020 with corresponding total dissolved solids and chloride concentrations

Sample Location	Sample Date	*D. magna* 49-hr Survival LC_{50} (% vol/vol)	Rainbow Trout 96-hr Survival LC_{50} (% vol/vol)	Measured TDS (mg/L)	Calculated TDS (mg/L)	Chloride (mg/L)
CP1	05 January 2020	>100	>100	4,830	4,465	2,400
	12 January 2020	>100	>100	4,150	3,815	1,900
	26 January 2020	>100	>100	4,160	3,659	1,900
	02 February 2020	>100	>100	4,080	4,263	2,100
	09 February 2020	>100	>100	4,330	4,219	2,100
	16 February 2020	>100	>100	4,880	4,352	2,300
	01 March 2020	>100	>100	5,350	4,946	2,500
	08 March 2020	>100	>100	4,870	4,816	2,400
	15 March 2020	>100	>100	5,420	4,925	2,500

TDS = total dissolved solids; mg/L = milligrams per litre; CP1 = Collection Pond 1; LC_x = lethal concentration causing a lethal effect to x% of the test population.

Response 4

The influence the emergency amendment discharge will have on loading to Meliadine Lake is anticipated to be slightly larger than that assessed in the FEIS (Agnico Eagle 2015) primarily because TDS concentrations in the amendment discharge are anticipated to be higher than those used as inputs to the FEIS model. The volume of the amendment discharge, however, is expected to be similar to that in the FEIS model. This temporary increase in loading may result in a minor change to TDS concentrations in the near-field; however, there is no added risk potential to aquatic life, and the conclusions of the FEIS remain the same.

All effluent pumped to Meliadine Lake during this amendment discharge, and for the remainder of operations, will be carried by currents within Meliadine Lake and further mixed with ambient water. Based on the bathymetry of Meliadine Lake and the location and depth of the submerged diffuser in the main flow channel of the lake, all pumped effluent will be dispersed towards the lake outlet.

As per Section 4.3.3 in Appendix 7.4-A Water and Sediment Quality Model, water quality concentrations were predicted to increase in the region of Meliadine Lake bound by the modelling during the operations phase of the mine as a result of operational discharge from the Mine to Meliadine Lake. The modelling

focussed on TDS, Cl, and Na, since these water quality parameters are conservative substances, and projected their maximum concentrations to occur in the last year of the operations phase (i.e., 176, 66, and 19 mg/L for TDS, Cl and Na, respectively). After the first year of closure, no effluent is discharged into Meliadine Lake and concentrations are predicted to gradually decrease to background levels.

As a component of the monitoring program proposed for the discharge, a plume delineation study will be undertaken, which will include near- and mid-field stations. The data compiled from this study, as well as that during the operational discharge (e.g., end-of-pie and edge of mixing zone monitoring) will further inform the understanding of the influence of pumped effluent from the mine to Meliadine Lake.

References:

Agnico Eagle Mines Ltd. 2015. Water Management Plan Version 1. Type A Water Licence Application, Meliadine Gold Project.

Submitted to Agnico Eagle Mines Limited. March 2019.

Golder. 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Interested Party:	ECCC	Rec No.:	ECCC-3
Re:	Monitoring		

Recommendation Made by Interested Party:
ECCC recommends that the proponent base the receiving environment sampling frequency on the duration and volumes of discharge, and that the proponent do an evaluation of the potential for, and implications of, far-field effects. ECCC also recommends further development of the monitoring programs.

Agnico Eagle's Response to Recommendation:
Agnico Eagle is confident that the proposed field program is adequate to characterize the water quality changes in the receiving environment during the discharge period. In developing the amendment proposal, Agnico Eagle assumed that discharge would be required from May with the onset of freshet; however, the ability to safely access the lake to complete the testing was also considered. For example, with discharge occurring during freshet, ice cover would still be present on Meliadine Lake, making it unsafe for access. Therefore, monitoring in Meliadine Lake would not be safe until all ice is melted in the bay in the vicinity of the diffuser and mixing zone.

The frequency of water quality sampling at the edge of the mixing zone is proposed to be weekly during the period of discharge; this sampling would be triggered once it is safe to access Meliadine Lake. This frequency is based on the assumption that regulated monitoring at the edge of the mixing zone remains consistent with existing licence conditions (refer to ECCC-2, Bullet 2); this frequency may be re-evaluated should discharge be shorter than proposed, or if monitoring results show higher TDS concentrations than projected in updated modelling (see response to ECCC-2 Bullet 4; refer also to the response to CIRNAC-4 regarding thresholds for supplemental mitigation that would be incorporated into adaptive management strategies). However, as per the expected sampling frequency at the end of pipe (i.e., daily for discharge rate and weekly for water chemistry; see response 2 to ECCC-1), Agnico Eagle will be able to appropriately characterize the chemistry of the effluent.

The plume delineation study is expected to be completed as soon as safe access to the lake can occur during discharge. The WQ-MOP (Golder 2020) indicates that the plume monitoring will include stations up to 500 m from the edge of the mixing zone, but this may be extended further afield should the proportion of effluent be estimated to consistently comprise >10% of the ambient lake water quality at this extent. This will generate data to evaluate the influence of the discharge on mid-field region of the lake and the potential for any far-field effect. Should discharge extend to October, a follow-up plume delineation study may be proposed.

Agnico Eagle is of the opinion that the further afield AEMP stations and/or the EEM far-field reference stations will not be adversely affected by the discharge because of the toxicity-based evidence collected to date from water from CP1. However, it is possible that slight measurable water quality changes may occur during this discharge event; it is expected that any such changes would be temporary and decline after discharge has ceased.

Agnico Eagle is confident that the design of the diffuser will actively disperse the water from CP1 effectively into Meliadine Lake to minimize any potential for risk to the receiving environment. This has been determined in previous assessments (Golder 2019; Tetra Tech 2018) and will be confirmed by the plume delineation study. This infrastructure control, as well as the monitoring, and adaptive management and mitigation contingencies outlined in CIRNAC-4 for this discharge, will limit potential for increased risk to the receiving environment in Meliadine Lake.

References:

Golder (Golder Associates Ltd.). 2019. Cycle 1 Environmental Effects Monitoring Report and 2018 Aquatic Effects Monitoring Program Annual Report. Agnico Eagle Mines Limited—Meliadine Gold Mine. Submitted to Agnico Eagle Mines Limited. March 2019.

Golder. 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Tetra Tech. 2018. Effluent Discharge Modelling for the As-Built Diffuser at the Meliadine Gold Project, Nunavut. Prepared for Agnico Eagle Mines Limited. May 2018.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-4**
Re:	**Edge of Mixing Zone Target**		

Recommendation Made by Interested Party:
ECCC recommends that the proponent provide further information on the effluent composition, and discuss this composition in the context of receiving environment targets.

Agnico Eagle's Response to Recommendation:
The interim TDS target was developed considering that the ionic composition of effluent discharged during spring freshet would fall within the bounds of the ionic composition of historical effluent and pond water and near-field receiving water. Provided that this assumption holds, the ionic composition will be favorable for mitigating against chronic toxicity at the edge of the mixing zone. The potential toxicity of TDS to aquatic life was evaluated based on TDS toxicity thresholds from the literature for TDS mixtures similar in ionic composition to the anticipated freshet discharge, and using site-specific acute and chronic toxicity data tested with influent, effluent and pond water from Meliadine. These sources of information provide a more technically sound basis for evaluating potential for toxicity relative to application of a generic water quality guideline for chloride or any other component of TDS. Collectively, the literature and site-specific data indicate low likelihood of potential effects to aquatic life at the proposed interim TDS target at the edge of the mixing zone of 1,000 mg/L. The upcoming monitoring program to be conducted during the freshet discharge will be used to further validate the interim TDS target at the edge of the mixing zone and reduce uncertainty related to potential for effects to aquatic life in the receiving environment.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-5**
Re:	**Final Environmental Impact Statement (FEIS) Assessment of TDS in Effluent**		

Recommendation Made by Interested Party:
ECCC recommends that the proponent provide clarification regarding the basis on which TDS concentrations were assessed in the FEIS, because the requested amendment does not use concentrations that are within previously assessed TDS concentrations.

Agnico Eagle's Response to Recommendation:
The 2014 FEIS assessed effluent mixing in both the near field and far field environments of Meliadine Lake.

The near field assessment included preliminary estimates of MAEC that would result in meeting the edge of mixing zone guideline of 500 mg/L TDS, and based on a mixing ratio of 1:10. This estimate resulted in a MAEC of 4,685 mg/L TDS. This estimate does not consider bathymetry or any physical parameters that may encourage mixing, and is representative only of an assumed conservative mixing ratio of 1:10.

A CORMIX model was then completed to provide an estimate of a mixing ratio based on lake bathymetry and physical attributes (current speed, wind speed, etc.), as well as diffuser design parameters. This assessment used an effluent TDS concentration of 2,400 mg/L, which was the maximum effluent concentration predicted to occur during discharge. The results of a total of 112 test runs suggested a mixing factor of 1:145.

Based on this mixing factor, and by assuming a potential maximum effluent TDS concentration of 4,685 mg/L to allow a comparison to the preliminary MAEC calculations, the edge of mixing zone concentration was estimated at 68 mg/L. This illustrates the difference between two mixing ratios (1:10 vs 1:145), where edge of mixing zone concentrations would result in 500 mg/L vs 68 mg/L TDS, respectively.

The far field assessment was a mass balance model, which ran through a 40 year period (construction through post-closure) to provide estimates of TDS concentrations in a bounded section of Meliadine Lake, based on the predicted concentrations in Attenuation Pond 1 (now CP1) and discharge rates to Meliadine Lake over time. Though concentrations in Attenuation Pond 1 during operations were predicted to reach a maximum of approximately 5,600 mg/L, TDS concentrations during times of discharge reached approximately 2,400 mg/L.

It should be noted that the proposed MAEC discharge TDS concentration is 3,500 mg/L and not 4,685 mg/L (nor will it be 5,600 mg/L).

KIVALLIQ INUIT ASSOCIATION (KIVIA)

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-1**
Re:	**Justification of Risk to CP1 Dike**		

Recommendation Made By Interested Party:
For Agnico Eagle's amendment application be processed based on the "significant risk" to the CP1 Dike, the following information should be provided:

Structural concerns with the CP1 Dike must be outlined and validated by a geotechnical engineer. A tentative timeline for when a "significant risk" to the CP1 dike would occur in 2020 and what the implications of those risks may be must also be provided. Agnico Eagle must further justify why complete dewatering is required as opposed to discharging water to Meliadine Lake with TDS in excess of the 1,400 mg/L effluent quality criterion at a rate sufficient to maintain the operational capacity for freshet.

We understand that Agnico Eagle would prefer not to impact mining operations at Meliadine. However, Agnico Eagle must justify why a change in operations is either not feasible or would not result in a decrease in contact water reporting to CP1.

Without this information, we do not see sufficient rationale to process the application as an emergency.

Agnico Eagle's Response to Recommendation:
Agnico Eagle refer the KivIA to CIRNAC-1 response for additional details regarding the D-CP1 status.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-2**
Re:	**Source of High TDS water in CP1**		

Recommendation Made By Interested Party:
Agnico Eagle must provide an explanation as to why TDS has increased within CP1 to the point at which discharges at the existing effluent quality criterion of 1,400 mg/L are no longer feasible. Additional mitigation measures (reduction at source) must also be investigated to ensure contact water with elevated TDS does not continue to pose a management problem on site and to reduce or eliminate the need for high salinity discharges to Meliadine Lake.

Agnico Eagle's Response to Recommendation:
Agnico Eagle refers KivIA to CIRNAC-2 response for additional details regarding the different mitigation that were investigation during the last months to address this situation. In the event that the construction and operation of the Waterline between Meliadine Site and the Melvin Bay is deemed approved by the Nunavut Impact Review Board, Agnico Eagle could consider the alternative of using this infrastructure to convey and discharge elevated concentrations of TDS CP1 water into Melvin Bay.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-3**
Re:	**Alternative Management Strategies for Excess CP1 Water**		

Recommendation Made By Interested Party:
Please provide a discussion and analysis of potential alternatives to the Meliadine Lake discharge.

Agnico Eagle's Response to Recommendation:
Agnico Eagle refers KivIA to CIRNAC-3 response for additional details regarding the potential alternatives to the Meliadine Lake discharge and the different adaptive management options evaluated.

Interested Party:	KivIA	Rec No.:	KivIA-4
Re:	Insufficient Characterization of High TDS Water in CP1		

Recommendation Made By Interested Party:
A full chemical analysis of water quality in CP1 is still required. Characterization of the components (e.g. major ions, trace metals) comprising the total dissolved solids throughout CP1 are needed to understand the potential environmental risk associated with the CP1 discharges.

Specifically, we request Agnico Eagle collect physicochemical water column profiles from multiple locations within CP1 to determine whether the pond is fully mixed. A discrete sample should be collected from the depth at which the maximum conductivity was measured if the water column profile suggests that CP1 is not fully mixed; a depth composite sample is otherwise sufficient. Results from that sample should be applied as the worst-case scenario concentrations to determine potential environmental effects associated with the proposed discharges from CP1. This full characterization is particularly important as Agnico Eagle is proposing a 3,500 mg/L TDS discharge criterion as a maximum average concentration rather than a fixed value.

The samples used to provide this characterization of water within CP1 must have been collected no earlier than December 2019 as results from CP1 presented in Table A-4 indicate measured TDS concentrations in December 2019 and after increased significantly as compared to earlier water quality measurements. If this information has already been collected, we request Agnico Eagle provide it to all intervenors for review.

Agnico Eagle's Response to Recommendation:
Water quality of MEL-12 discharged between June to October 2019 is representative of the effluent characterization for CP1 freshet discharge in 2020. A full chemical analysis for MEL-12 data collected between June to October 2019 is provided in Attachment A. During freshet discharge fully mixed conditions in CP1 are expected; although this statement is based on similar water chemistry in samples collected concurrently between the discharge pipeline and surface water grabs, fully mixed conditions would be expected during open water conditions due to its relatively small size (i.e., volume, ~660,000 m^3; mean depth, ~2 m).

Higher TDS concentrations were observed in CP1 in winter 2020 because the winter water quality measurements are subject to cryo-concentration from the ice overlying the collection pond (i.e., at the end of March, the ice volume represented approximately 70% of the volume capacity of CP1, which means the measured water quality parameter concentrations were subject to almost a 3.5-fold increase in concentration). As this ice melts, and the collection pond receives freshet inflows of snow and ice in the pond's drainage system, the TDS concentrations are anticipated to substantially reduce to levels below the MAEC; predicted TDS concentrations in CP1 discharge under different precipitation conditions for 2020 range from 1,491 to 2,542 mg/L (refer to CIRNAC-1, Response 1). However, even under elevated TDS concentration of >3,500 mg/L in CP1, acute toxicity has not been observed. Acute toxicity data collected in 2020 from CP1 for nine samples with calculated TDS concentrations from 3,695 to 4,925 mg/L indicated no acute toxicity (LC_{50} <100% vol/vol) and 0% mortality in full-strength sample (100% vol/vol) to Rainbow Trout and *Daphnia magna* (see response to ECCC-2, Table 2).

Interested Party:	KivIA	Rec No.:	KivIA-5
Re:	Dilution Factor to Meet Interim TDS Target at Edge of Mixing Zone		

Recommendation Made By Interested Party:
We request Agnico Eagle provide hydrodynamic modelling results to demonstrate the behavior of the plume using 3,500 mg/L TDS as an input. We further request Agnico Eagle provide a second model run using 4,000 mg/L TDS as a model input given the discharge concentration will be regulated as a MAC. This modelling is intended to provide confidence that dilution of effluent discharged at MAC of 3,500 mg/L TDS will be achieved sufficient to meet the 1,000 mg/L TDS target at the edge of the mixing zone. We further request Agnico Eagle specify the intended effluent discharge rate and apply that to the hydrodynamic model.

Agnico Eagle's Response to Recommendation:
Agnico Eagle is of the opinion that hydrodynamic modeling is not required at this stage of decision-making for the proposed amendment discharge. In the WQ-MOP (Golder 2020), evidence was provided on the efficiency of the existing diffuser's capacity to disperse discharge. This evidence is based on a plume delineation survey conducted in 2018 in the near-field region of Meliadine Lake as part of the Environmental Effects Monitoring (EEM)/Aquatic Effects Monitoring Program (AEMP) (Golder 2019) and a diffuser performance assessment conducted by Tetra Tech (Tetra Tech 2018). These studies confirmed the anticipated performance of a conceptual diffuser included in the FEIS stage of the project in 2015 (Agnico Eagle 2015).

The modelled and assessed dilution factors at the 100 m mixing zone boundary for the FEIS and to 2018 have been very similar (65:1 in Agnico Eagle [2015]; an average of 72:1 for Scenario A in Golder [2019]; and 72:1 for the first year of discharge in Tetra Tech (2018]). Tetra Tech (2018) also included a dilution factor (23:1) based on multi-year simulations. If the lower dilution factor (23:1) is used for the discharge, the mixing of water from CP1 through dispersion in the mixing zone would still be expected to consistently meet the interim target of 1,000 mg/L. The table below shows the required TDS concentration at the effluent to trigger the interim target of 1,000 mg/L at the edge of the mixing zone for each of those models. As observed, the required effluent TDS concentration to trigger potential chronic toxicity is greater than the proposed target of 3,500 mg/L.

Model	Dilution Factor	Required TDS concentration at the effluent to trigger the interim target of 1,000 mg/L at the edge of the mixing zone (mg/L)
FEIS (Agnico Eagle, 2015)	65:1	65,000
Scenario A (Golder 2019)	72:1	72,000
First year discharge (Tetra Tech, 2018)	72:1	72,000
Multi-year simulation (Tetra Tech, 2018)	23:1	23,000

References:

Agnico Eagle Mines Ltd. 2015. Water Management Plan Version 1. Type A Water Licence Application, Meliadine Gold Project.

Golder (Golder Associates Ltd.). 2019. Cycle 1 Environmental Effects Monitoring Report and 2018 Aquatic Effects Monitoring Program Annual Report. Agnico Eagle Mines Limited—Meliadine Gold Mine. Submitted to Agnico Eagle Mines Limited. March 2019.

Golder. 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-6**
Re:	**Chronic Toxicity Concerns**		

Recommendation Made By Interested Party:
We request additional chronic toxicity testing to assess the potential for aquatic life exposed to effluent from the Meliadine site to experience deleterious effects should Agnico Eagle be permitted to discharge effluent from CP1 at a MAC of 3,500 mg/L TDS. Specifically, we request serial dilution chronic toxicity tests using water currently in CP1. Test water must be collected directly from CP1 at the depth where conductivity is measured at the highest concentration as determined by a conductivity profile collected from the deepest point of the pond.

Serial dilution tests should be run on all species listed in Table A-3 as well as Daphnia magna at the following dilutions: 100%, 75%, 50% and 25%, 12.5%. Note that no tests need be run at TDS concentrations lower than 500 mg/L.

We further request Agnico Eagle provide a discussion of the feasibility of either a) lowering the interim TDS target for the edge of the mixing zone and b) using a chloride based interim target for the edge of the mixing zone.

Finally, we request Agnico Eagle propose a maximum effluent concentration associated with the currently proposed 3,500 mg/L TDS MAC and clarify the time over which the average would be calculated.

Agnico Eagle's Response to Recommendation:
Response 1
Additional chronic toxicity testing with CP1 is not proposed at this time based on the following:

- Agnico Eagle has proposed an interim target for effluent of 3,500 mg/L TDS as a Maximum Average Effluent Concentration (MAEC).
- The results of plume delineation survey conducted in the near-field region of Meliadine Lake in 2018 is presented in the WQ-MOP (Golder 2020). Dilution factors at 100 m distance from the diffuser (representing the edge of the mixing zone) ranged from 23:1 to 101:1.
- At a MAEC of 3,500 mg/L TDS, and assuming a background concentration of 35 mg/L TDS, the TDS concentration at the edge of the mixing zone is predicted to range from 48 to 185 mg/L.
- As presented in Appendix A of the WQ-MOP (Golder 2020) there are multiple lines of evidence (literature based toxicity data and benchmarks for similar ionic composition to Meliadine and site-specific toxicity data) that indicate negligible effects to aquatic life at TDS concentrations of less than or equal to 1,000 mg/L. Therefore, additional chronic toxicity testing with CP1 is not proposed at this time, but will be conducted during the discharge event, as discussed below.

Additional monitoring to validate the proposed interim TDS target at the edge of the mixing zone will be undertaken as part of the freshet discharge monitoring program. Although the test species and protocols have not yet been finalized, we understand the importance of including a sensitive crustacean in the test battery for chronic toxicity endpoints. Therefore, the validation monitoring program will consider inclusion of the 21-day *Daphnia magna* survival and reproduction test (ASTM 2004) and/or the three brood *Ceriodaphnia dubia* survival and reproduction test. The data collected for validation during this monitoring program will further reduce uncertainty related to potential for effects to aquatic life in the receiving environment. Note that data are already available for the three brood *Ceriodaphnia dubia* survival and reproduction test that indicate no chronic toxicity above the proposed interim concentration of 1,000 mg/L.

The *D. magna* 48-hour acute toxicity test, including dilutions over a range of TDS (and component ions) is already incorporated in routine testing of pit water and will be retained in the validation program for effluent toxicity at the point of discharge. This is in addition to the chronic toxicity testing of crustaceans described above for the receiving water testing.

Response 2

The proposed interim target is based on the best available scientific data, and at this time the data do not support reducing the interim TDS target for the edge of the mixing zone. Data collected during the validation program will be used to further evaluate the proposed interim TDS target at the edge of the mixing zone and to further confirm that the interim target does not result in chronic toxicity. Importantly, the interim target was developed considering that the ionic composition of effluent discharged during spring freshet would fall within the bounds of the ionic composition of historical effluent and pond water and near-field receiving water. The ionic balance has been stable over several years of monitoring and it is not anticipated to deviate during the freshet discharge. A stable ionic balance is suited to development of a single interim target for TDS, without requiring development of individual benchmarks for component ions. Furthermore, lowering of the interim TDS target for the edge of the mixing zone would diverge from the available technical information on chronic toxicity and could be misinterpreted to convey that the lower number is required for protection of aquatic life.

The interim TDS target incorporates contributions from chloride (along with other ionic components) and is therefore predicted to be protective against overall TDS toxicity as well as toxicity from individual ions within the TDS mixture (e.g., chloride). Evidence from site-specific Pit water samples and from other northern mine sites with similar ionic composition indicate that the proposed interim target for TDS, including component ions, is protective. Therefore, Agnico is not proposing to develop a chloride-based interim target at the edge of the mixing zone at this time.

Response 3

At this time, concentrations up to 4,925 mg/L calculated TDS are the maximum observed concentration in Collection Pond 1 (refer to ECCC-2; Table 2) and it is not anticipated that TDS would exceed currently observed conditions during the discharge event. This is because the winter water quality measurements are subject to cryo-concentration from the ice overlying the collections pond. As this ice melts, and the collection pond receives freshet inflows of snow and ice in the pond's drainage system, the TDS

concentrations are anticipated to substantially reduce to levels below the MAEC. Prediction for TDS concentrations during CP1 2020 discharge indicate TDS will range from 1,491 to 2,542 mg/L. Therefore, although there is a possibility that TDS concentrations above the MAEC of 3,500 mg/L may occur during the discharge event, the MAEC is expected to be consistently met. Occurrences of discharge above the MAEC will be adequately dispersed by the diffuser, even if the lowest dilution factor occurs (23:1; Tetra Tech 2018), with the interim target of 1,000 mg/L still being met.

References:

ASTM (American Society for Testing and Materials). 2004. Conducting *Daphnia magna* Life-Cycle Toxicity Tests. Method E1193-97 (Reapproved 2004). In: Annual book of ASTM standards, Vol 11.06. Biological effects and environmental fate: Biotechnology, water and environmental technology. Philadelphia (PA): ASTM. p. 1–19.

Golder. 2020. Water Quality Management and Optimization Plan, Implementation Plan for Total Dissolved Solids. Prepared for Agnico Eagle Mines Limited. Ref No. 19132390-751-RPT-Rev1. March 24, 2020.

Tetra Tech. 2018. Effluent Discharge Modelling for the As-Built Diffuser at the Meliadine Gold Project, Nunavut. Prepared for Agnico Eagle Mines Limited. May 2018.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-7**
Re:	**Robust Effluent Monitoring for 2020**		

Recommendation Made By Interested Party:
We provide the following recommendations to refine Agnico Eagle's proposed validation studies if the amendment is granted:

Plume Delineation Study
Water quality samples collected as part of the plume delineation study within the receiving environment should include samples collected both at surface (grab) as well as at the point of highest conductivity in the water column as determined by a physico-chemical water column profile. This is intended to ensure the plume is appropriately characterized at depth within the mixing zone.

Water Quality Monitoring
We request a more robust sampling regime as part of validation sampling for discharges of Meliadine effluent with a MAC of 3,500 mg/L TDS. Specifically, we request weekly sampling at both MEL-12 and MEL 14 for the test parameter categories outlined in Table 3. We request weekly triangulated water quality samples be collected from the edge of the mixing zone for at least the first four weeks of discharges at the new TDS effluent quality criterion. Four weekly samples should also be collected at the midfield monitoring areas. Monthly water quality samples should be collected from the far field and reference areas.

Physico-chemical profiles should be added to the list of test parameters as part of water quality monitoring in the receiving environment. Water quality samples should be collected from the surface (grab) as well as from the depth with the highest measured conductivity at each station at the edge of the mixing zone.

A working group hosted by the NWB consisting of the KivIA and other key parties (e.g. ECCC, CIRNAC, DFO) should be established to review and evaluate the effluent and environmental monitoring data with the first meeting scheduled two weeks following the commencement of discharges from CP1. Adaptive management and mitigation options should be provided by the proponent for each meeting if a) there has been any instances of noncompliance with the effluent quality criterion of 3,500 mg/L MAC TDS as measured at MEL-14, and b) if there have been any instances of noncompliance with the interim TDS threshold applied to the edge of the mixing zone.

Toxicity Testing
Daphnia magna should be added as a test species for chronic toxicity testing performed on the effluent and samples collected at the edge of the mixing zone. Toxicity test samples at the edge of the mixing zone should be collected from the depth in the water column at which the highest conductivity was measured through a water column profile conducted concurrent with the collection of water for those tests.

Agnico Eagle's Response to Recommendation:

Plume Delineation Study

Water quality samples will be collected after the physico-chemical water column field measurements are collected taken at each station. The number of samples collected at each of sampled stations will be determined based on the total water depth. For example, if the total depth at a station is less than or equal to 5 m at a station, samples were collected at the surface (e.g., 0.3 m below the bottom of the surface) and at the depth of highest conductivity. If the total depth is greater than 5 m at a station, water samples will be collected at the surface, mid-depth and bottom. For the mid-depth and bottom, either will be substituted for the depth of the highest measured conductivity as applicable.

Water Quality Monitoring

Agnico Eagle are of the opinion that the proposed monitoring program through discharge is reasonable (see response to ECCC-3). The focus of the monitoring program is on water quality at the end-of-pipe and the edge of the mixing zone, which will be sampled on a weekly basis. Mid-field, and even potential far-field, sampling is limited to the plume delineation study, which will be conducted as soon as it is safe to access Meliadine Lake after ice-off. Should monitoring data identify that thresholds are being approached the monitoring program may be revised to accommodate increased sampling frequency and/or further afield monitoring (see response to CIRNAC-4). In addition to the monitoring described specifically for the amendment discharge, supplemental data will be accessed from coincident monitoring in the receiving environment, such as the AEMP, and included in the evaluation.

Field physico-chemical water column profile measurements (specifically temperature and specific conductivity) through the water column will be collected at each station as part of the edge of mixing zone sampling program and the plume delineation study. These data will be integral to identify the depths for water sample collection (see above) profiles.

Agnico Eagle agrees that meetings with NWB and other parties is an appropriate mechanism to disseminate data and to seek feedback. Agnico Eagle therefore propose to host monthly meetings with NWB, KivIA, ECCC, and CIRNAC to present a summary of the collected CP1 and receiving environmental monitoring data available at the time. The first meeting will be scheduled two weeks following the commencement of discharge from CP1. At this meeting adaptive management and mitigation options will be presented (as per the response to CIRNAC-4), as well as a summary of collected data (discharge rates and end-of-pipe water quality). At subsequent meetings, these station data will be supplemented by edge of mixing zone and plume delineation data.

Toxicity Testing

The 21-day *Daphnia magna* survival and reproduction test (ASTM 2004) is being considered for inclusion in the validation study for the interim TDS target at the edge of the mixing zone. Agnico Eagle agrees that toxicity test samples collected at the edge of the mixing zone will be collected from the depth with the highest conductivity as measured using in situ water quality meters. Water quality samples will be collected concurrently with toxicity samples from the same depth.

References:

ASTM (American Society for Testing and Materials). 2004. Conducting *Daphnia magna* Life-Cycle Toxicity Tests. Method E1193-97 (Reapproved 2004). In: Annual book of ASTM standards, Vol 11.06. Biological effects and environmental fate: Biotechnology, water and environmental technology. Philadelphia (PA): ASTM. p. 1–19.

Attachment A:

Water Quality Data for MEL-12 and CP1 Samples Collected June to October 2019

Table A-1. Water quality data for MEL-12 and CP1 samples collected June to October 2019

Parameter	Unit	2019-Jun-24 MEL-12 MEL-12	2019-Jul-09 MEL-12 MEL-12	2019-Jul-30 MEL-12 MEL-12	2019-Aug-07 MEL-12 MEL-12	2019-Sep-03 MEL-12 MEL-12	2019-Sep-24 MEL-12 MEL-12	2019-Oct-01 MEL-12 MEL-12	2019-Oct-08 CP1 CP1
Conventional Parameters									
pH	pH units	7.36	7.28	7.71	7.8	7.62	7.73	7.63	7.69
Specific conductivity	µmhos/cm	2,000	2,600	3,400	3,500	4,100	4,200	4,300	4,200
Hardness, as CaCO3 (D)	mg/L	428	535	667	687	839	917	939	915
Hardness, as CaCO3 (T)	mg/L	413	566	671	685	877	936	1,030	920
Total alkalinity, as $CaCO_3$	mg/L	21	36	58	-	59	65	66	67
Total dissolved solids (measured)	mg/L	1,570	1,580	2,130	2,100	2,600	2,490	2,450	2,370
Total dissolved solids (calculated)[(a)]	mg/L	1,070	1,336	1,755	-	2,188	2,202	2,356	2,350
Total suspended solids	mg/L	26	26	6	8	14	17	12	36
Total organic carbon	mg/L	-	-	12	14	16	15	15	15
Dissolved organic carbon	mg/L	-	-	-	-	-	-	-	-
Turbidity	NTU	7.5	13	3.7	3.5	4.4	7.8	6.8	7.5
Major Ions									
Calcium	mg/L	121	156	182	195	233	261	265	261
Chloride	mg/L	540	680	890	930	1,100	1,100	1,200	1,200
Magnesium	mg/L	30.4	35.6	51.3	48.5	62.5	64.5	67.4	64.2
Potassium	mg/L	14.7	18.5	25.1	25.2	27.9	28.3	29.3	27.8
Sodium	mg/L	204	253	338	339	431	410	428	415
Sulphate	mg/L	77	90	120	130	180	190	200	220
WQTC04-Nutrients and Chlorophyll a									
Nitrate	mg/L	15.9	18.3	25.8	25.3	26.6	24.7	28.7	27.5
Nitrite	mg/L	0.293	0.598	1.04	1.61	1.42	1	0.926	0.772
Nitrate + nitrite	mg/L	16.2	18.9	26.8	26.9	28.1	25.7	29.6	28.3
Total ammonia	mg/L	5.2	5.3	9.4	7.9	7.3	7.2	7.5	7.4
Total phosphorus	mg/L	-	0.19	0.088	0.081	0.076	0.078	0.069	0.076
Orthophosphate	mg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Table A-1. Water quality data for MEL-12 and CP1 samples collected June to October 2019

Parameter	Unit	2019-Jun-24 MEL-12 MEL-12	2019-Jul-09 MEL-12 MEL-12	2019-Jul-30 MEL-12 MEL-12	2019-Aug-07 MEL-12 MEL-12	2019-Sep-03 MEL-12 MEL-12	2019-Sep-24 MEL-12 MEL-12	2019-Oct-01 MEL-12 MEL-12	2019-Oct-08 CP1 CP1
WQTC06-Total Metals									
Aluminum	mg/L	1.94	0.354	0.0984	0.0473	0.125	0.283	0.284	0.326
Antimony	mg/L	< 0.00050	0.00053	< 0.0010	0.00063	< 0.0010	0.00068	< 0.0010	< 0.0010
Arsenic	mg/L	0.00613	0.00764	0.00407	0.00366	0.00457	0.00421	0.00807	0.00732
Barium	mg/L	0.0682	0.0905	0.111	0.118	0.13	0.139	0.146	0.136
Beryllium	mg/L	< 0.00010	< 0.00010	< 0.00020	< 0.00010	< 0.00020	< 0.00010	< 0.00020	< 0.00020
Bismuth	mg/L	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0020	< 0.0010	< 0.0020	< 0.0020
Boron	mg/L	0.176	0.246	0.362	0.364	0.446	0.434	0.473	0.435
Cadmium	mg/L	0.000021	0.000048	0.000043	0.000037	0.000047	0.000065	0.000064	0.000064
Calcium	mg/L	118	167	186	188	245	268	304	262
Chromium	mg/L	0.0012	< 0.0010	< 0.0020	< 0.0010	< 0.0020	< 0.0010	< 0.0020	< 0.0020
Cobalt	mg/L	0.00126	0.00182	0.00134	0.0012	0.00149	0.00159	0.00192	0.00182
Copper	mg/L	0.00298	0.00381	0.0025	0.00264	0.003	0.00242	0.0029	0.0028
Iron	mg/L	1.44	0.385	0.132	0.199	0.235	0.297	0.307	0.309
Lead	mg/L	0.0008	0.00064	< 0.00040	0.00027	< 0.00040	0.00052	0.00052	0.0007
Lithium	mg/L	0.0734	0.0936	0.11	0.0998	0.119	0.132	0.151	0.134
Magnesium	mg/L	29.1	36.4	50.1	50.9	64.4	64.9	66.2	64.8
Manganese	mg/L	0.203	0.314	0.0913	0.0704	0.17	0.318	0.345	0.334
Mercury	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	< 0.00001
Molybdenum	mg/L	0.0019	0.0026	0.0028	0.0027	0.0025	0.0033	0.0036	0.0034
Nickel	mg/L	0.0053	0.0065	0.0067	0.0069	0.0075	0.0087	0.0087	0.0088
Potassium	mg/L	14.2	19.3	23.5	23.7	30.3	28.9	33.2	28.9
Sodium	mg/L	196	237	345	-	432	443	438	424
Selenium	mg/L	0.00011	0.00015	< 0.00020	0.00017	0.00032	0.00025	0.00033	0.00032
Silicon	mg/L	0.677	1.16	0.874	0.717	1.06	1.27	1.75	1.31
Silver	mg/L	< 0.000020	< 0.000020	< 0.000040	< 0.000020	< 0.000040	< 0.000020	< 0.000040	< 0.000040
Strontium	mg/L	2.58	3.3	4.23	4.1	4.26	5.25	5.17	5.01
Sulphur	mg/L	25.9	33	44.8	45.5	64.9	65.3	77.9	68.5
Thallium	mg/L	0.000038	0.000043	0.000058	0.000058	0.000059	0.000059	0.000057	0.000056
Tin	mg/L	< 0.0050	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.01
Titanium	mg/L	< 0.0050	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.01
Uranium	mg/L	0.00054	0.00114	0.00113	0.00106	0.00142	0.00171	0.00195	0.00189
Vanadium	mg/L	< 0.0050	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.0050	< 0.01	< 0.01
Zinc	mg/L	**0.429**	0.013	0.038	0.047	0.016	0.0172	0.016	0.012
Zirconium	mg/L	< 0.00010	0.00012	< 0.00020	< 0.00010	< 0.00020	0.00016	0.00025	< 0.00020
WQTC11-Toxicity									
Cyanide (free)	mg/L	-	-	-	0.0013	-	-	-	-
Cyanide (total)	mg/L	0.0072	< 0.0050	< 0.0050	< 0.0050	0.0081	0.007	0.015	0.0099

mg/L = milligrams per litre; mg-N/L = milligrams nitrogen per litre; mg-P/L = milligrams phosphorus per litre; µg/L = micrograms per litre; µmhos/cm = micromhos per centimeter; NTU = nephelometric units; $CaCO_3$ = calcium carbonate; CP1 = Collection Pond 1.

Attachment B:

Assessment of Dike DCP-1, Meliadine Mine, Canada

ISSUED FOR USE

To:	Jennifer Pyliuk, M.Eng., P.Eng. Geotechnical Engineer Agnico Eagle Mines Limited	**Date:**	April 6, 2020
c:		**Memo No.:**	001
From:	Bill Horne, M.Sc., P.Eng. Director of Arctic Engineering Tetra Tech Canada Inc.	**File:**	704-ENG.EARC03140-01
Subject:	Assessment of Dike DCP-1, Meliadine Mine, Canada		

1.0 INTRODUCTION

Site contact water at the Meliadine Gold Mine is managed through a series of water collection ponds (CP's). The main water collection pond is CP1, in to which all the contact water from the other collection ponds are directed. CP1 comprises a water storage pond and a water retention dike D-CP1 at it's the southeastern boundary. Contact water is retained in CP1 prior to treatment and discharged to Meliadine Lake through a diffuser. The intent by Agnico Eagle Mines Limited (Agnico Eagle) was to discharge the water from CP1 during the summer of 2019, such that CP1 has enough capacity to accommodate the 2020 freshet. However, this could not be accomplished which has resulted in higher water levels in CP1 than planned and insufficient volume to accommodate the upcoming 2020 freshet.

Agnico Eagle requested Tetra Tech Canada Inc. (Tetra Tech) to assess the D-CP1 integrity if the CP1 water levels could not be drawn down during the upcoming freshet 2020.

2.0 BACKGROUND

Dike D-CP1 was constructed across the outlets of former Lakes H6 and H17, which combine to form Pond CP1. D-CP1 was constructed between October 2016 and July 2017. A general location plan is in Appendix B.

Permafrost is present beneath the footprint of D-CP1. The geotechnical conditions in the dike footprint were determined by five boreholes drilled prior to construction. The conditions are summarized in Table 2.1.

Table 2.1: 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

D-CP1 is approximately 600 m long with a maximum height of 6.6 m from original ground (Tetra Tech 2017). The as-built design cross section for the dike is shown in Appendix B.

The dike is predominately a rockfill structure. The seepage control measures for D-CP1 includes a geomembrane (Coletanche) liner keyed into competent frozen ground (saturated inorganic permafrost) or bedrock. The design intent was 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. The dike also includes a zone of esker material in the upstream shell to act as a thermal buffer between the reservoir and the key trench. The esker material has the additional benefit to reduce seepage if there are defects in the liner.

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

A water collection sump and two channels that feed into the sump were constructed 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 is pumped back to CP1 on an as-need basis to empty the sump.

The CDA (2013) dam consequence classification for Dike D-CP1 is Significant (Tetra Tech 2016).

Key elevations in the dike cross section are as follows:

- Elevation of esker material in the upstream shell – 66.0 m (as built low point).
- Elevation of the upstream shell rockfill – 66.88 m (as built low point minus anticipated settlement).
- Design Liner Crest Elevation – 67.25 m (as-built minus anticipated settlement).

2.1 Instrumentation and Monitoring

Horizontal and vertical ground temperature cables (GTCs) were installed in D-CP1 between March and July 2017, as shown in Appendix B. Five horizontal GTCs (HGTC-1 to 5) installed in D-CP1 above the liner parallel to the key trench and five vertical GTCs (VGTC-1 to 5) installed upstream and downstream of the key trench.

The key trench temperatures are warmest in late fall (October and November) and coldest in late spring (May and June). The average key trench temperatures are summarized Table 2-2.

Table 2-2: Summary of D-CP1 Key Trench Ground Temperatures

Cable	Average June 5, 2018 (°C)	Average June 5, 2019 (°C)	Difference (C°)	Average Nov 1, 2018 (°C)	Average Oct 31, 2019 (°C)	Difference (C°)
HGTC-1	-12.4	-8.4	4	-4.6	-4.5	0.1
HGTC-2	-9.2	-9.2	0	-5.3	-5.1	0.2
HGTC-3	-7.9	-8.6	-0.7	-5.8	-5.6	0.2
HGTC-4	-9.4	-8.9	0.5	-6.2	-6.0	0.2
HGTC-5	-9.2	-8.7	0.5	-3.8	-3.4	0.4
VGTC-1	-7.0	-7.2	-0.2	-6.4	-6.4	0
VGTC-2	-6.7	-6.2	0.5	-6.4	-6.1	0.3
VGTC-3	-7.2	-7.3	-0.1	-6.9	-7.0	-0.1
VGTC-4	-7.3	-6.6	0.7	-7.2	-6.7	0.5
VGTC-5	-10.2	-10.3	-0.1	-2.3	-2.1	0.2

Note: HGTC temperatures in base of the key trench, VGTC temperatures taken from the deepest temperature of cable.

Overall there has been a slight warming (average 0.2 C°) over the past year. The key trenches have remained below -2°C throughout the year.

Six settlement survey monuments were installed over the liner crest in the central area of the dike as shown in Appendix B. Survey monitoring points M-1 to M-6 indicate a range of total vertical downward displacement between 18 mm and 65 mm since they were installed on September 19, 2017. Most of the movement was in the first year after construction. There is “noise” in the readings as the readings fluctuate slightly; it appears to be a systematic error that may be due to a benchmark issue. The dike operating water levels were based on a settlement of 120 mm; the measured settlement has been less than this to date.

2.2 Water Management

CP1 receives inputs from the surrounding area as well as water pumped from other areas of the site (CP3, CP4, CP5, CP6, and other sources).

The inflow design flood (IDF) for a determined dam classification is suggested in Dam Safety Guidelines (CDA 2007). 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 2.3 summarizes the IDF values for D-CP1 and the selected design IDF value of the equivalent unit runoff of 180 mm.

Table 2.3: 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 in 100 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

Note: The bold value indicates the selected IDF value for D-CP1 design, which assumed that the CP1 water will be treated in the WPT and then discharged into Meliadine Lake by following the water management plan.

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. This is the case for D-CP1. The resulting water level rise in the pond CP1 from a short-term flood event tends to be greater than that under a longer precipitation event. The longer event allows time for the excess water to be pumped out to the EWTP for treatment and discharge.

The CP1 and D-CP1 design operating levels are listed in Table 2-4.

Table 2-4: Design Water Elevations for D-CP1 Operation

Situation	Maximum Operating Level (m)	CP1 Storage Capacity (m^3)	Requirement
End of October each year	63.0	25,400	This level is required to provide sufficient storage for: ▪ 661,500 m^3 for the runoff water from an IDF event for the entire site (a total maximum catchment area of 3.675 km^2 during the design life of D-CP1); ▪ 38,800 m^3 for the treated sewage from late October to early June (8 months); and ▪ 69,600 m^3 for the treated water pumped from the SWTP to CP1 from late October to early June (8 months).
Before each spring freshet	64.1	202,000	This level is required to provide sufficient storage for: ▪ 661,500 m^3 for the runoff water from an IDF event for the entire site.
During non-IDF spring freshet or short-term after each spring freshet	66.2	742,000	This water elevation is to allow CP1 to have a storage capacity of 119,000 m^3 to store the runoff water from a 1/1,000 24-hour extreme rainfall event (77 mm precipitation) for the CP1 maximum catchment area of 1.545 km^2, without exceeding the design D-CP1 maximum water elevation of 66.6 m (under the IDF).
Short-term water elevation under the IDF	66.6	855,000	This is the design maximum water elevation for D-CP1 for a short period. The water elevation should be drawn down by pumping from CP1 to the EWTP and then discharging the treated water to Meliadine Lake.

As of March 4, 2020, the water level in CP1 was 65.98 m with an approximate volume of 681,000 m^3. This level is significantly higher (1.88 m) than the specified water level prior to freshet (64.1 m). The available capacity in CP1 between the March 4, 2020 level and the design maximum water level of 66.6 m is 174,000 m^3. This is not sufficient to store the IDF spring freshet from the CP1 catchment plus the design inflows from other areas of site (661,500 m^3).

2.2.1 Freeboard

The design geomembrane liner crest elevation for D-CP1 was 67.5 m. However, the as-built minimum geomembrane liner crest elevation is approximately 67.37 m at the location around Station 1+342 of D-CP1. The minimum geomembrane liner crest elevation would be expected to be around 67.25 m after the potential post-construction settlement (estimated to be about 0.12 m) occurs. Therefore, the freeboard before water overtopping the geomembrane liner is 0.65 m if the water elevation in CP1 is at elevation 66.6 m, as would be the case under the IDF inflows.

Note, that the original ground close to the south end of D-CP1 is flat and has a natural ground elevation slightly above 66.6 m as shown in Drawing 65-685-230-205 in Appendix B. Therefore, if the CP1 water elevation is higher than 66.6 m, then CP1 water could flow into the P2/P3 containment area or by-pass the dike south abutment and then flow down along the D-CP1 dike downstream toe into the downstream channel and sump. Site infrastructure may impact where water will flow as the water level rises above elevation 66.6 m.

3.0 ASSESSMENT

Currently CP1 does not have sufficient capacity to contain the freshet IDF along with current contained volume of water. Accordingly, the water within CP1 could rise above the maximum short term design water elevation of 66.6 m. The current pond elevation is 65.98 m which is only 0.62 m below the maximum short term design water elevation. If the water levels remain unmanaged and the water levels within CP1 are allowed to rise above maximum short term design water elevation it can have the following consequences:

1. As the water level rises above the maximum short term design elevation of 66.6 m, the water could flow around the area south of the dike. There is the risk that this water could flow into the downstream shell of the dike as the water level rises. If this occurs, the relatively warm contact water ingressing into the key trench has the potential to thaw and degrade the permafrost below the dike and thaw the engineered frozen key trench. Both of these frozen components are part of the dikes primamary seepage control mechanism. This could have major local consequences for the dike structure in terms of: thaw settlement (sinkholes) and associated cracking, differential settlement and tear damage to liner, local reduction of crest elevation, and loss of water tightness. This could result in an uncontrolled local failure of the dike structure

2. In the extreme case where the ponded water is allowed to rise and flow over the dike liner crest elevation. Water could potentially erode the liner bedding, resulting in a drop in the liner elevation leading to a sudden increase of the outflow rate from CP1. More importantly, this water will naturally gravitate through the highly permeable downstream rockfill directly into the dike's frozen key trench. As described in 1. above, this relatively warm contact water inundation has the potential to rapidly thaw and degrade the permafrost below the dike and the engineered frozen key trench. Both of these frozen components are part of the dikes primary seepage control mechanism. This could have major global consequences for the dike structure in terms of: thaw settlement (sinkholes) and associated cracking, differential settlement and tear damage to liner, local reduction of crest elevation, and loss of water tightness. This could result in a failure and permanent damage of the dike structure.

3. If the water level was allowed to rise to elevation 67.0 m, just above the upstream dike shell, the following additional risks will be present.

   - The risk of water flowing around the south end of the dike increases. The existing infrastructure in a frozen state may temporarily mitigate the flows, but can not be relied upon to prevent the flow into the dike foundation.
   - Water on the upstream crest of the dike brings the water closer to the liner bedding, which increases the risk of a flow path down through the liner bedding. It may introduce a thermal spike in this zone resulting in thawed bedding material. The risk of water flowing through liner defects increases.
   - Water on the upstream crest may flow into the cracks in the upstream crest which may provide a shorter flow path towards the liner.
   - Water on the upstream crest may also impact the dike instrumentation, which is very important to have in this situation.
   - The freeboard for the liner containment decreases to 0.25 m. This provides nominal freeboard with wind setup and other factors.

From the above it is clear that at water elevations above the maximum short term design elevation of 66.6 m could have serious impacts and consequences to the D-CP1 dike structure and its future performance. Accordingly, it is Tetra Tech's opinion that the water elevation of 66.6 m should not be exceeded.

4.0 LIMITATIONS OF MEMO

This memo and its contents are intended for the sole use of Agnico Eagle Mines Limited and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the memo when the memo 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 memo is at the sole risk of the user. Use of this document is subject to the Limitations on Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

5.0 CLOSURE

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

Respectfully submitted,
Tetra Tech Canada Inc.

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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature Bill Horne
Digitally signed by: Bill Horne
DN: CN = Bill Horne email = bill.horne@tetratech.com C = CA O = Tetra Tech Canada Inc.
Date: 2020.04.06 17:13:55 -06'00'
Date
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

REFERENCES

Tetra Tech EBA Inc. (Tetra Tech EBA). 2016. Design Report for D-CP1 Meliadine Gold Project, NU. Prepared for Agnico Eagle Mines Limited. August 15, 2016. Document No. 6515-E-132-007-132-REP-003.

Tetra Tech. 2017h. Construction Summary (As-Built) Report for Dike D-CP1, Meliadine Gold Project Nunavut. Prepared for Agnico Eagle Mines Limited. October 19, 2017. Document No. 6515-E-132-007-132-REP-012.

APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

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1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH 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.

1.8 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 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.

1.9 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.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes 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 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.

1.11 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.

1.12 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.

1.13 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.

1.14 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.

1.15 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.

1.16 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.

1.17 SAMPLES

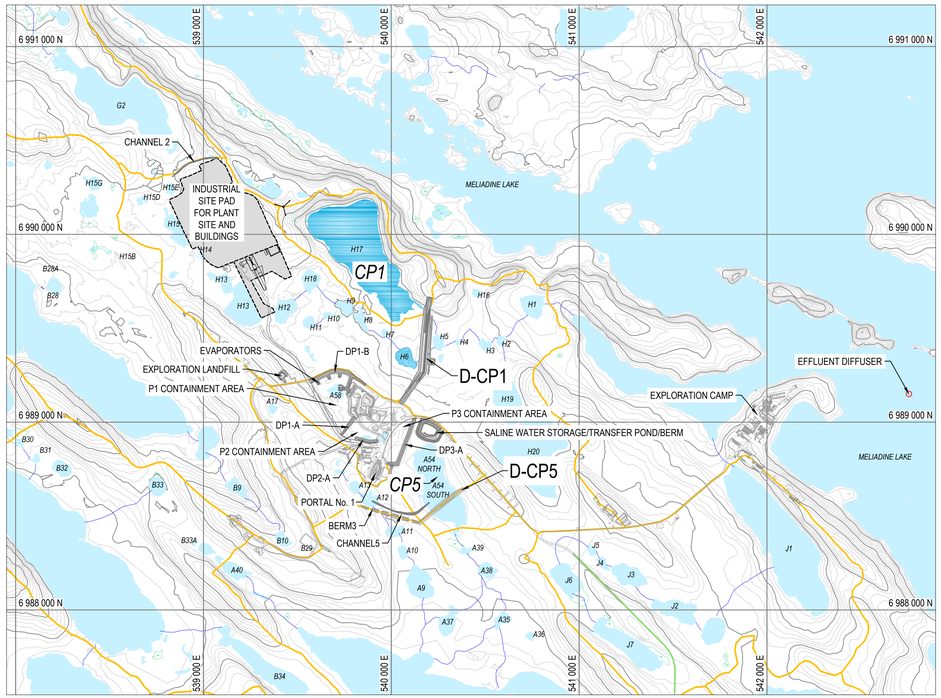
TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

APPENDIX B

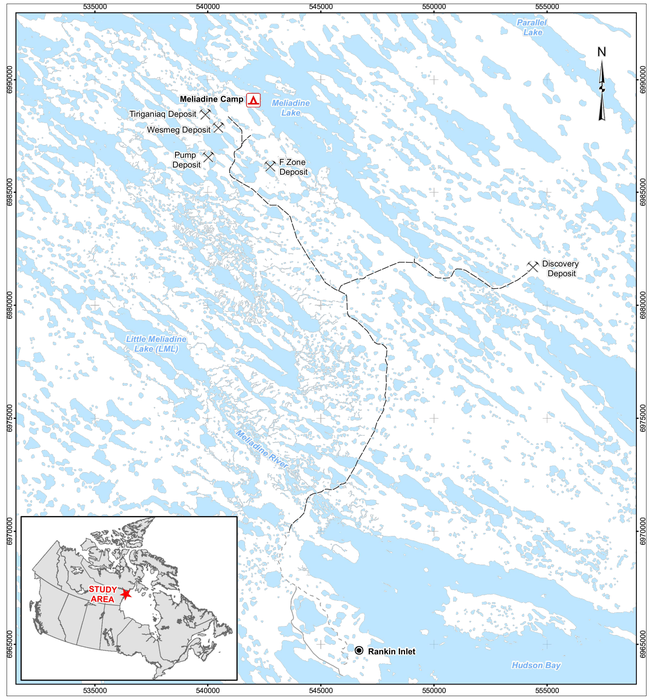
POND CP1 AND DIKE D-CP1 RECORD DRAWINGS

NO. DESSIN
DRAWING NO. 65-685-230-204_R2

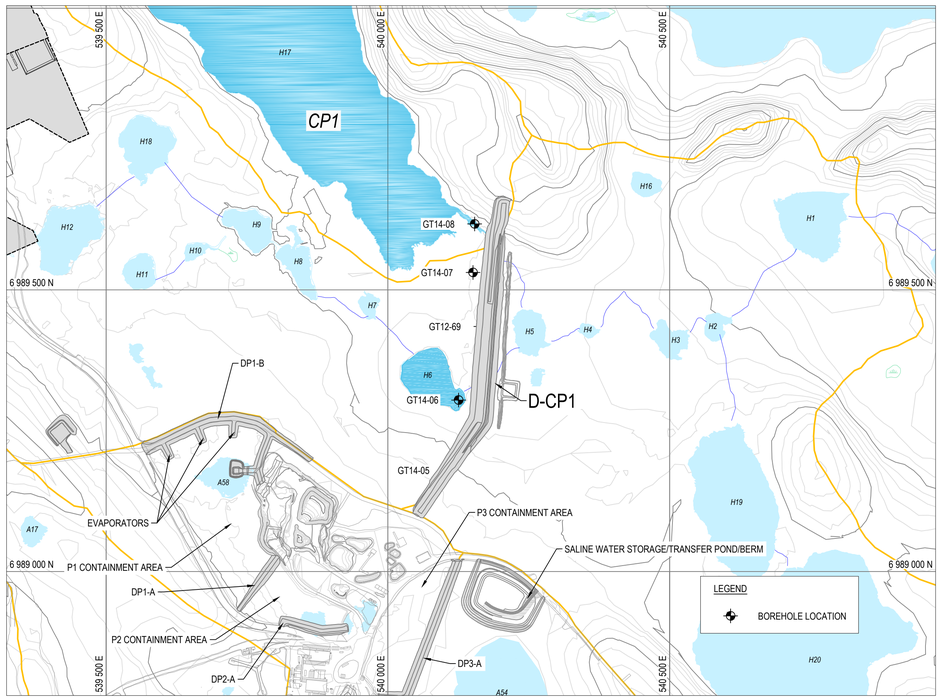
FORMAT ARCHD



GENERAL SITE LOCATION
SCALE: 1:15,000



LOCATION MAP
SCALE: N.T.S.



D-CP1 SITE LOCATION
SCALE: 1:5,000

D-CP1 CONSTRUCTION DRAWING INDEX

DRAWING NUMBER	REV.	DRAWING TITLE
65-685-230-204	2	D-CP1 AS-BUILT GENERAL LOCATION PLAN
65-685-230-205	2	D-CP1 AS-BUILT KEY TRENCH AND DIKE LAYOUT PLAN
65-685-230-206	2	D-CP1 AS-BUILT PROFILES
65-685-230-207	2	D-CP1 AS-BUILT THERMAL COVER LAYOUT PLAN AND PROFILES
65-685-230-208	2	D-CP1 AS-BUILT TYPICAL SECTIONS AND QUANTITIES
65-685-230-209-001	2	D-CP1 AS-BUILT SECTIONS STATION 0+025 TO 0+200
65-685-230-209-002	2	D-CP1 AS-BUILT SECTIONS STATION 0+225 TO 0+400
65-685-230-209-003	2	D-CP1 AS-BUILT SECTIONS STATION 0+425 TO 0+575
65-685-230-210	2	D-CP1 AS-BUILT DOWNSTREAM WATER COLLECTION CHANNEL AND SUMP LAYOUT PLAN AND PROFILES
65-685-230-211	2	D-CP1 AS-BUILT INSTRUMENTATION PLAN AND DETAILS FOR GROUND TEMPERATURE CABLES
65-685-230-212	2	D-CP1 AS-BUILT INSTRUMENTATION PLAN AND DETAILS FOR GROUND TEMPERATURE CABLES AND SETTLEMENT SURVEY MONUMENT POINTS
65-685-230-213	2	D-CP1 AS-BUILT DOWNSTREAM WATER COLLECTION CHANNEL AND SUMP PROFILES AND INSTRUMENTATION DETAILS

TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
–	–
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 — W.T. HORNE — LICENSEE — N.W.T. — Oct 19/17
REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Oct 19/17

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT
GENERAL LOCATION PLAN

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VÉRIFIÉ PAR / CHECKED BY	WTH	2017-10-06
APPROUVÉ PAR / APPROVED BY	NG	2017-10-06
ÉCHELLE / SCALE	AS SHOWN	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-204	
NO. PROJET / PROJECT NO.	6515	REVISION 2
		FEUILLE / SHT 1 / 12

AE-CART-ARCH D

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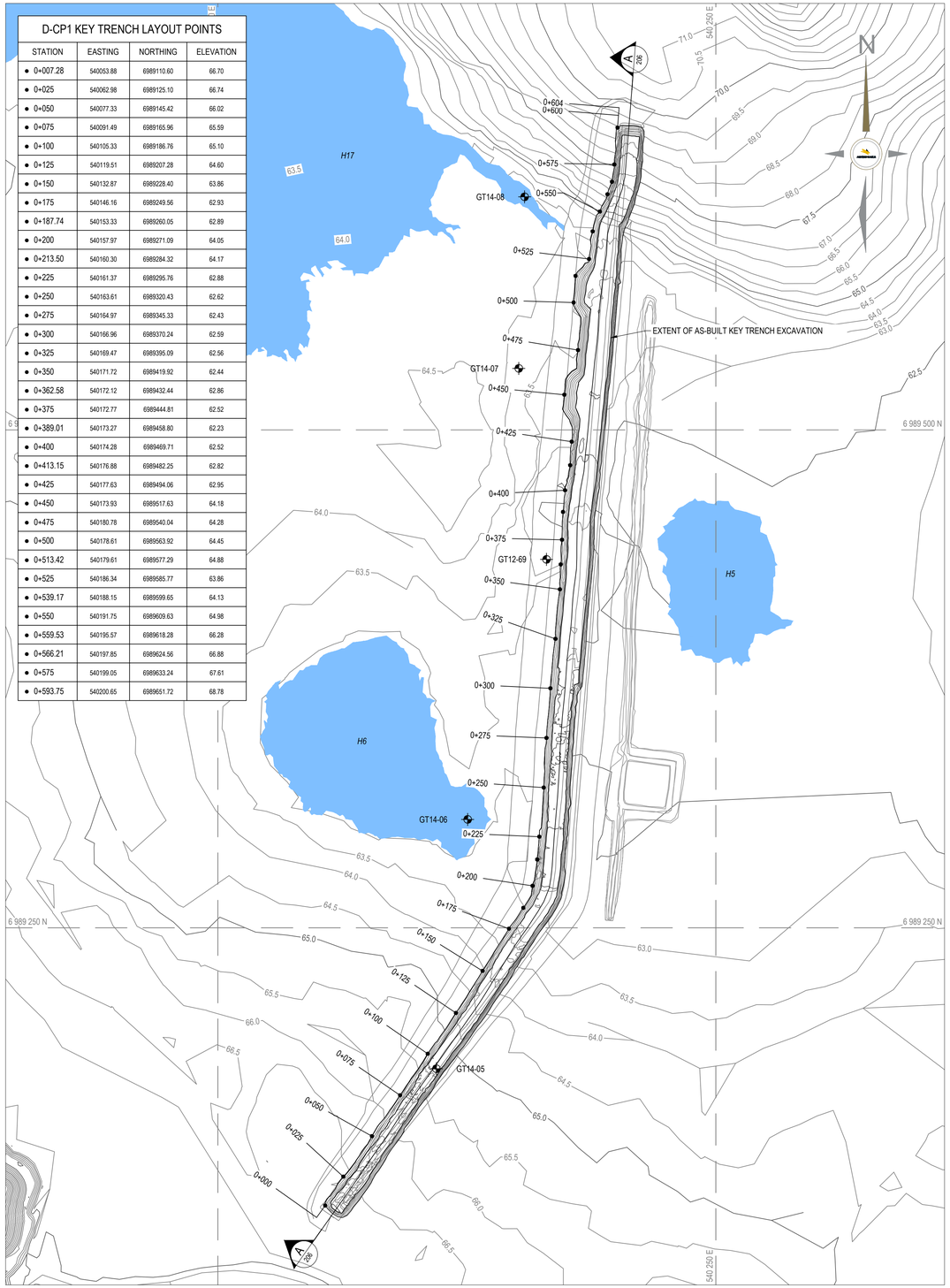
FILE NO. 65-685-230-204_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-205_R2

FORMAT ARCHD

D-CP1 KEY TRENCH LAYOUT POINTS

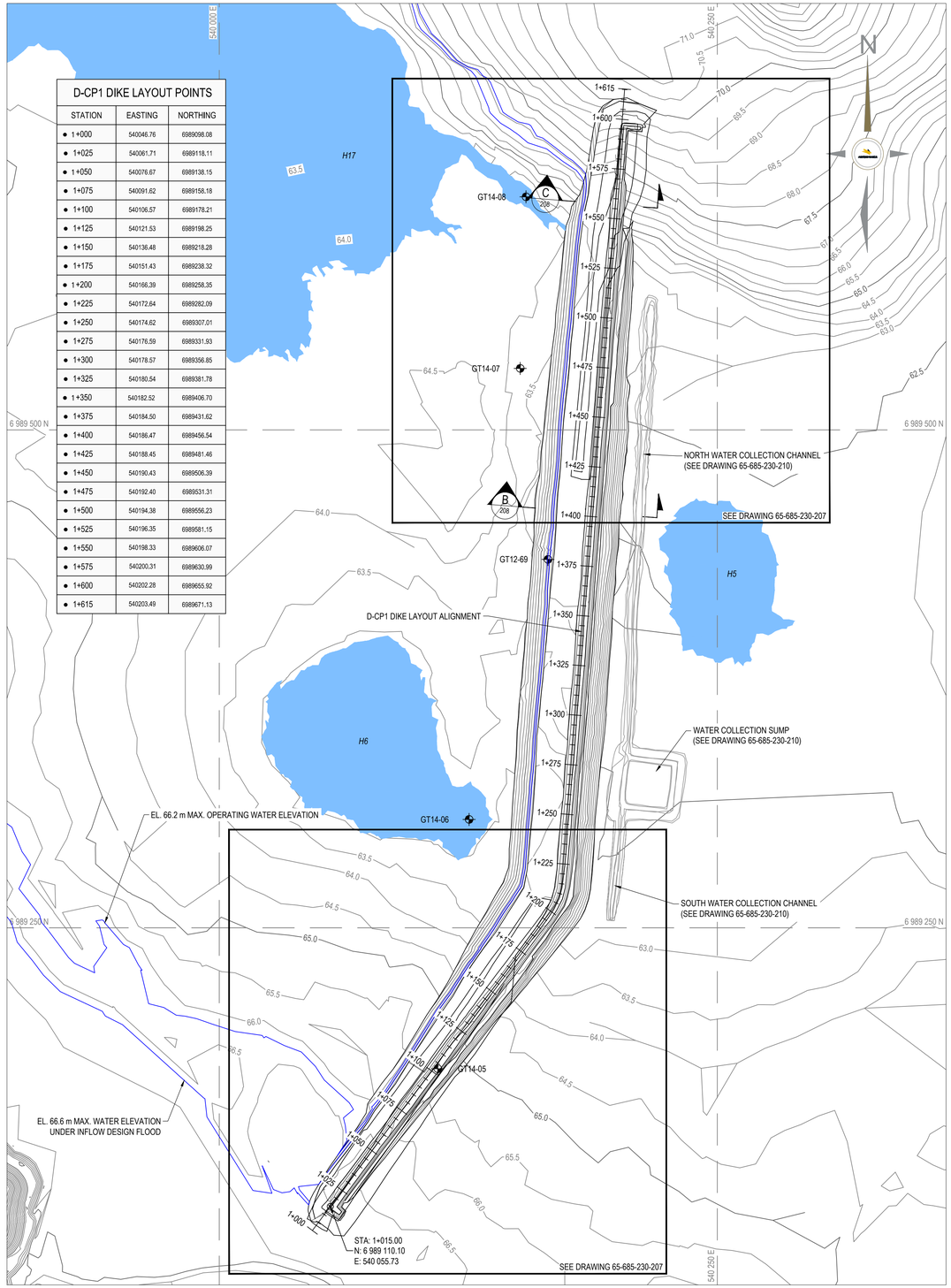
STATION	EASTING	NORTHING	ELEVATION
0+007.28	540053.88	6989110.60	66.70
0+025	540062.98	6989125.10	66.74
0+050	540077.33	6989145.42	66.02
0+075	540091.49	6989165.96	65.59
0+100	540105.33	6989186.76	65.10
0+125	540119.51	6989207.28	64.60
0+150	540132.87	6989228.40	63.86
0+175	540146.16	6989249.56	62.93
0+187.74	540153.33	6989260.05	62.89
0+200	540157.97	6989271.09	64.05
0+213.50	540160.30	6989284.32	64.17
0+225	540161.37	6989295.76	62.88
0+250	540163.61	6989320.43	62.62
0+275	540164.97	6989345.33	62.43
0+300	540166.96	6989370.24	62.59
0+325	540169.47	6989395.09	62.56
0+350	540171.72	6989419.92	62.44
0+362.58	540172.12	6989432.44	62.86
0+375	540172.77	6989444.81	62.52
0+389.01	540173.27	6989458.80	62.23
0+400	540174.28	6989469.71	62.52
0+413.15	540176.88	6989482.25	62.82
0+425	540177.63	6989494.06	62.95
0+450	540173.93	6989517.63	64.18
0+475	540180.78	6989540.04	64.28
0+500	540178.61	6989563.92	64.45
0+513.42	540179.61	6989577.29	64.88
0+525	540186.34	6989585.77	63.86
0+539.17	540188.15	6989599.65	64.13
0+550	540191.75	6989609.63	64.98
0+559.53	540195.57	6989618.28	66.28
0+566.21	540197.85	6989624.56	66.88
0+575	540199.05	6989633.24	67.61
0+593.75	540200.65	6989651.72	68.78



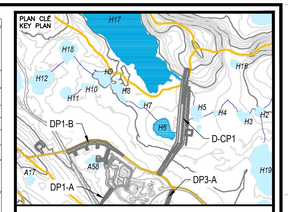
D-CP1 KEY TRENCH PLAN VIEW
SCALE: 1:1250

D-CP1 DIKE LAYOUT POINTS

STATION	EASTING	NORTHING
1+000	540046.76	6989098.08
1+025	540061.71	6989118.11
1+050	540076.67	6989138.15
1+075	540091.62	6989158.18
1+100	540106.57	6989178.21
1+125	540121.53	6989198.25
1+150	540136.48	6989218.28
1+175	540151.43	6989238.32
1+200	540166.39	6989258.35
1+225	540172.64	6989282.09
1+250	540174.62	6989307.01
1+275	540176.59	6989331.93
1+300	540178.57	6989356.85
1+325	540180.54	6989381.78
1+350	540182.52	6989406.70
1+375	540184.50	6989431.62
1+400	540186.47	6989456.54
1+425	540188.45	6989481.46
1+450	540190.43	6989506.39
1+475	540192.40	6989531.31
1+500	540194.38	6989556.23
1+525	540196.35	6989581.15
1+550	540198.33	6989606.07
1+575	540200.31	6989630.99
1+600	540202.28	6989655.92
1+615	540203.49	6989671.13



D-CP1 PLAN VIEW
SCALE: 1:1250



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

0 50m
Scale: 1:1,250

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 — W.T. HORNE — LICENSEE — N.W.T. — 2017
PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — 2017

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT
KEY TRENCH AND DIKE LAYOUT PLAN

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VERIFIÉ PAR / CHECKED BY	WTH	2017-10-06
APPROUVÉ PAR / APPROVED BY	NG	2017-10-06
ÉCHELLE / SCALE	1:1250	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-205	
NO. PROJET / PROJECT NO.	6515	REVISION 2
		FEUILLE / SHT 2 / 12

AE-CART-ARCH D

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NO. DESSIN
DRAWING NO. 65-685-230-206_R2

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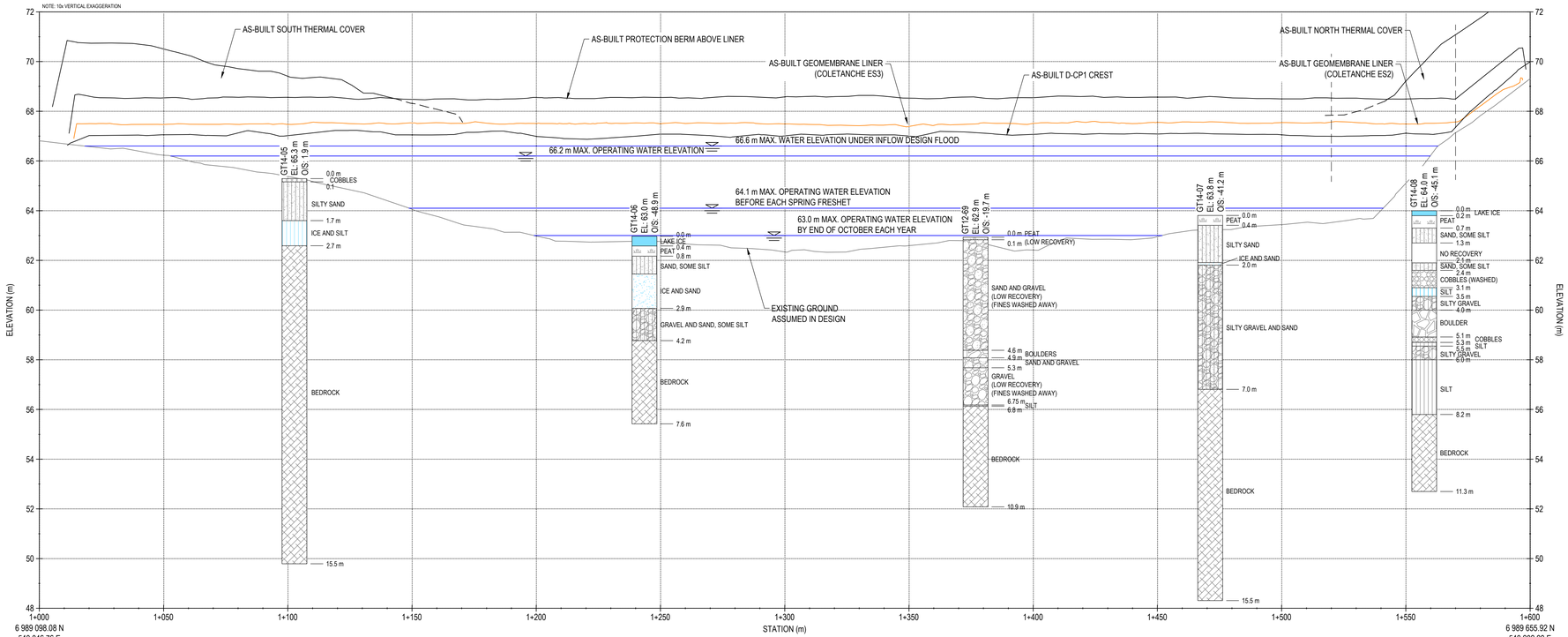
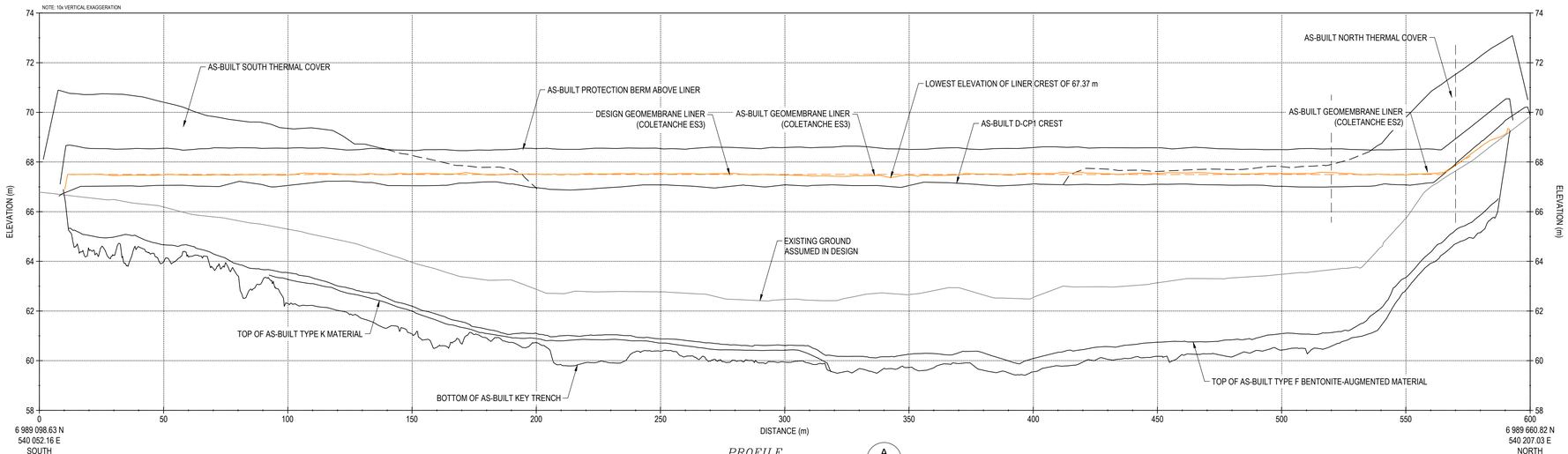


D-CP1 PROFILE
SCALE: H-1:1000 V-1:100

LEGEND

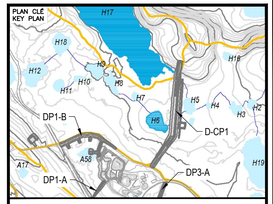
- LAKE ICE
- PEAT
- SAND / ICE RICH SAND
- GRAVEL AND SAND
- GRAVEL
- SILT / ICE RICH SILT
- COBBLES
- BOULDERS
- BEDROCK
- NO RECOVERY



PROFILE
SCALE: H-1:1000 V-1:100

A
205

PLAN CLÉ
KEY PLAN



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
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1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 W.T. HORNE LICENSEE N.W.T. 2017
PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU 2017

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT PROFILES

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VERIFIÉ PAR / CHECKED BY	WTH	2017-10-06
APPROUVÉ PAR / APPROVED BY	NG	2017-10-06
ÉCHELLE / SCALE	1:1000	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-206	
NO. PROJET / PROJECT NO.	6515	REVISION 2
		FEUILLE / SHT 3 / 12

AE-CART-ARCH D

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NO. DESSIN
DRAWING NO. 65-685-230-207_R2

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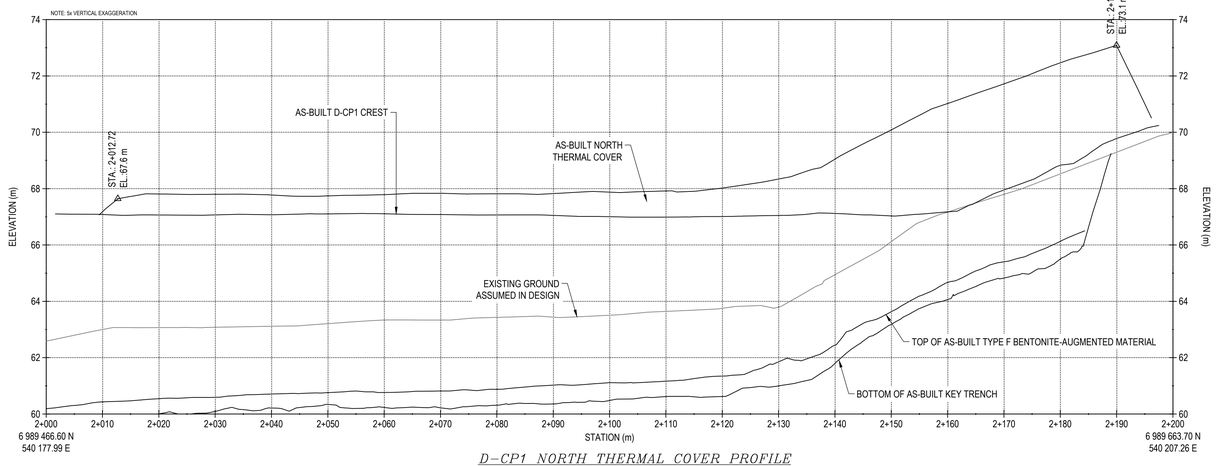
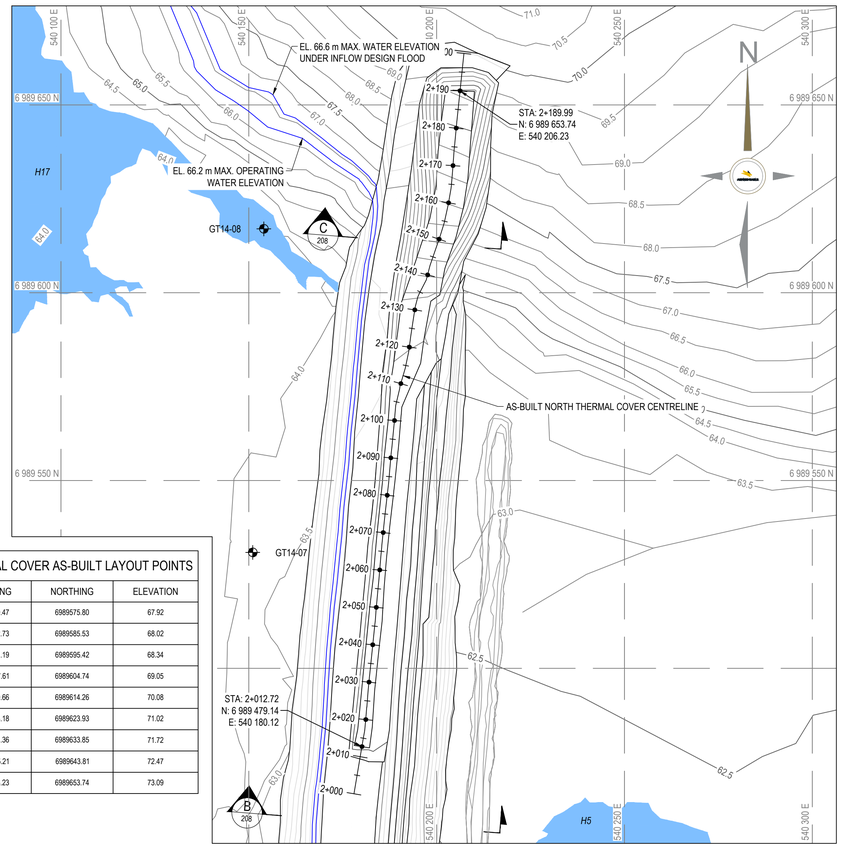


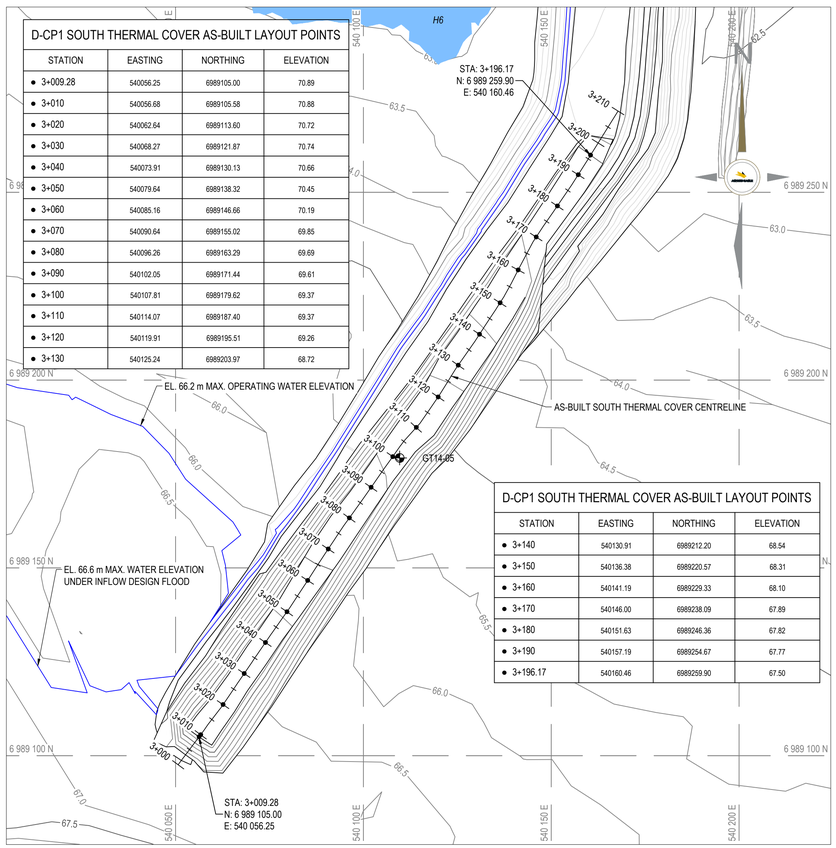
D-CP1 NORTH THERMAL COVER PROFILE
SCALE: H-1:500 V-1:100



D-CP1 NORTH THERMAL COVER
SCALE: 1:750

D-CP1 NORTH THERMAL COVER AS-BUILT LAYOUT POINTS			
STATION	EASTING	NORTHING	ELEVATION
• 2+012.72	540180.12	6989479.14	67.64
• 2+020	540181.14	6989486.34	67.81
• 2+030	540181.99	6989496.31	67.80
• 2+040	540183.00	6989506.25	67.77
• 2+050	540183.95	6989516.21	67.74
• 2+060	540184.86	6989526.17	67.79
• 2+070	540185.78	6989536.12	67.84
• 2+080	540186.85	6989546.07	67.82
• 2+090	540187.81	6989556.02	67.82
• 2+100	540188.79	6989565.97	67.87

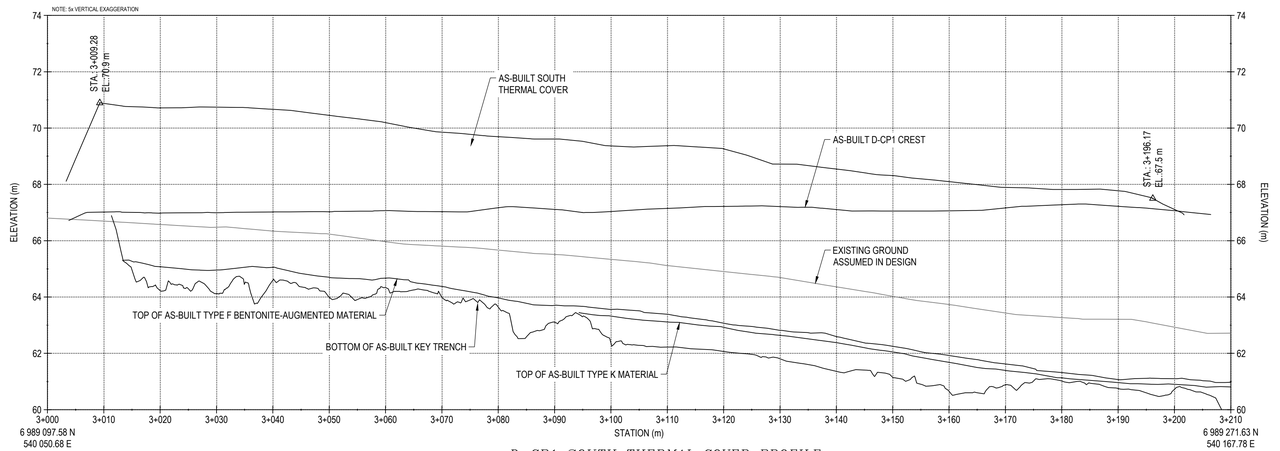
D-CP1 NORTH THERMAL COVER AS-BUILT LAYOUT POINTS			
STATION	EASTING	NORTHING	ELEVATION
• 2+110	540190.47	6989575.80	67.92
• 2+120	540192.73	6989585.53	68.02
• 2+130	540194.19	6989595.42	68.34
• 2+140	540197.61	6989604.74	69.05
• 2+150	540200.66	6989614.26	70.08
• 2+160	540203.18	6989623.93	71.02
• 2+170	540204.36	6989633.85	71.72
• 2+180	540205.21	6989643.81	72.47
• 2+189.99	540206.23	6989653.74	73.09



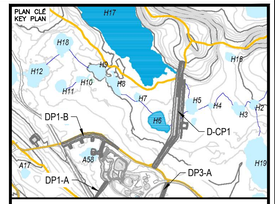
D-CP1 SOUTH THERMAL COVER AS-BUILT LAYOUT POINTS			
STATION	EASTING	NORTHING	ELEVATION
• 3+009.28	540056.25	6989105.00	70.89
• 3+010	540056.68	6989105.58	70.88
• 3+020	540062.64	6989113.60	70.72
• 3+030	540068.27	6989121.87	70.74
• 3+040	540073.91	6989130.13	70.66
• 3+050	540079.64	6989138.32	70.45
• 3+060	540085.16	6989146.66	70.19
• 3+070	540090.64	6989155.02	69.85
• 3+080	540096.26	6989163.29	69.69
• 3+090	540102.05	6989171.44	69.61
• 3+100	540107.81	6989179.62	69.37
• 3+110	540114.07	6989187.40	69.37
• 3+120	540119.91	6989195.51	69.26
• 3+130	540125.24	6989203.97	68.72

D-CP1 SOUTH THERMAL COVER AS-BUILT LAYOUT POINTS			
STATION	EASTING	NORTHING	ELEVATION
• 3+140	540130.91	6989212.20	68.54
• 3+150	540136.38	6989220.57	68.31
• 3+160	540141.19	6989229.33	68.10
• 3+170	540146.00	6989238.09	67.89
• 3+180	540151.63	6989246.36	67.82
• 3+190	540157.19	6989254.67	67.77
• 3+196.17	540160.46	6989259.90	67.50

D-CP1 SOUTH THERMAL COVER
SCALE: 1:750



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



TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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

W.T. HORNE LICENSEE N.W.T. — G. ZHANG LICENSEE NU/NT

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT THERMAL COVER
LAYOUT PLAN AND PROFILES

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VERIFIÉ PAR / CHECKED BY	WTH	2017-10-06
APPROUVÉ PAR / APPROVED BY	NG	2017-10-06
ÉCHELLE / SCALE	AS SHOWN	DATE 2017-10-06

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

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	4 / 12

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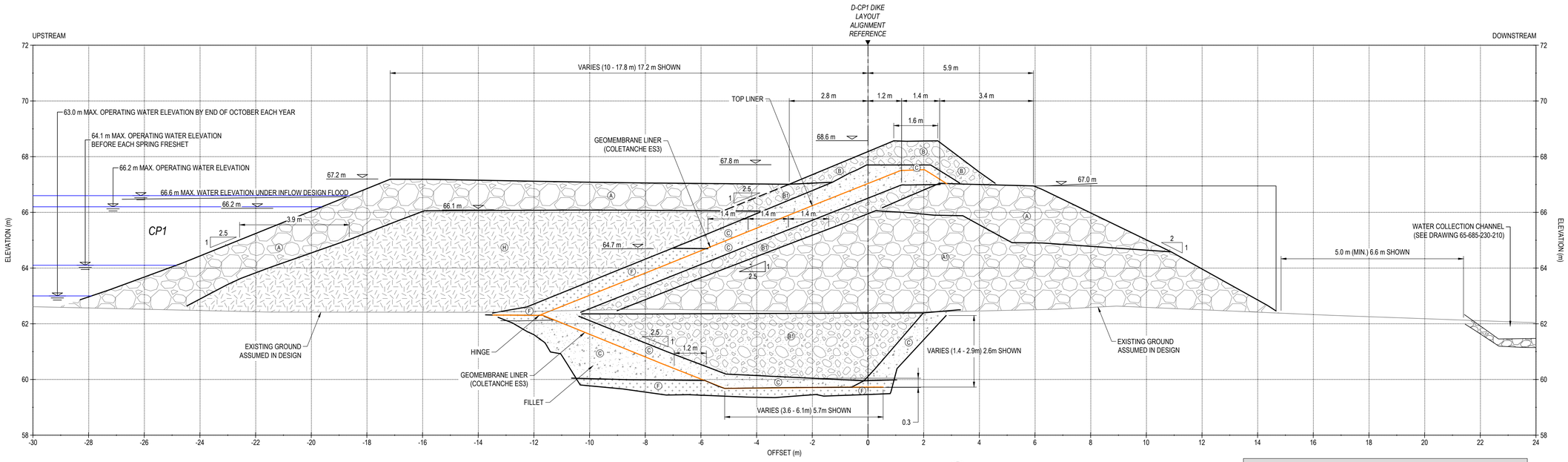
FILE NO. 65-685-230-207_R2.dwg

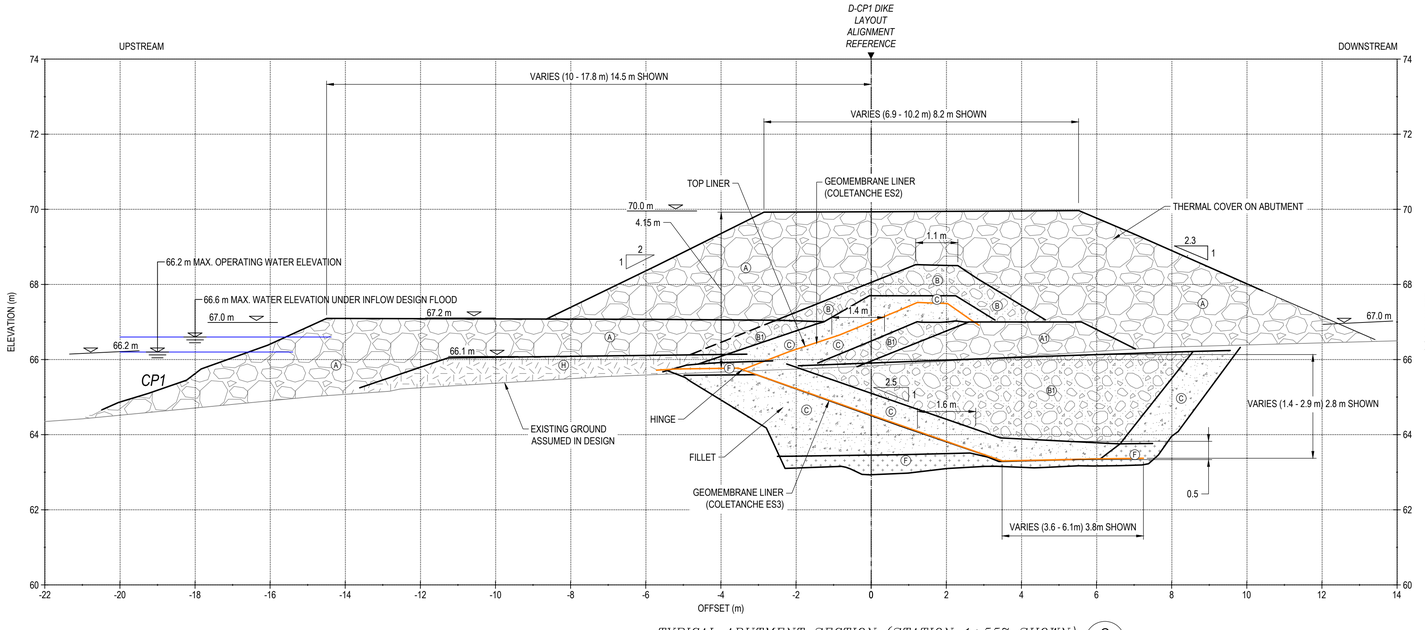
NO. DESSIN
DRAWING NO. 65-685-230-208_R0

FORMAT ARCHD



TYPICAL SECTION (STATION 1+402 SHOWN)
SCALE: 1:75

B
205



TYPICAL ABUTMENT SECTION (STATION 1+557 SHOWN)
SCALE: 1:75

C
205

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

	ITEM	UNIT	AS-BUILT QUANTITY [a]
(A)	RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE UPSTREAM AND FOR THERMAL COVER	m³	24,896
(A1)	RUN-OF-MINE ROCKFILL (600 mm MINUS) IN DIKE DOWNSTREAM	m³	18,347
(B)	TRANSITION ROCKFILL (150 mm MINUS)	m³	2,690
(B1)	TRANSITION ROCKFILL (150 mm MINUS)	m³	10,274
(C)	GRANULAR FILL OR ESKER SAND (20 mm MINUS)	m³	12,930
(F)	BENTONITE-AUGMENTED MATERIAL	m³	4,256
(H)	ESKER SAND AND GRAVEL (75 mm MINUS)	m³	14,961
(K)	NEARLY-SATURATED BACKFILL (20 mm MINUS)	m³	1,127
	GEOMEMBRANE LINER (COLETANCHE ES3) (INCLUDING PORTION OF ES2)	m³	14,874
	KEY TRENCH EXCAVATION	m³	23,018

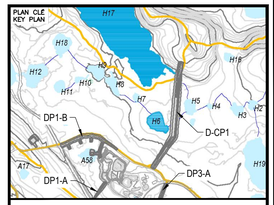
[a] MATERIAL QUANTITIES WERE BASED ON SURVEY DATA PROVIDED BY AGNICO EAGLE ON AUGUST 2017

NOTE

THE DESIGN MINIMUM LINER CREST ELEVATION WAS 67.50 m.
THE DESIGN MINIMUM LINER CREST ELEVATION IS 67.37 m.

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

PLAN CLÉ
KEY PLAN



TETRA TECH

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)
- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

DASHED LINES REFER TO NO AS-BUILT DATA BUT ESTIMATED BASED ON FIELD VISUAL OBSERVATION

COLETANCHE ES2 LINER WAS USED FOR ABOVE ORIGINAL GROUND PORTION OF THE LINER FOR STATIONS 1+520 TO 1+570

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 W.T. HORNE LICENSEE N.W.T. 14.19
REGISTERED PROFESSIONAL ENGINEER G. ZHANG LICENSEE N.W.T/NU 14.19

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT
TYPICAL SECTIONS AND QUANTITIES

DESSINÉ PAR DRAWN BY	EL	DATE 2017-09-22
VÉRIFIÉ PAR CHECKED BY	WTH	2017-09-22
APPROUVÉ PAR APPROVED BY	NG	2017-09-22
ÉCHELLE SCALE	1:75	DATE 2017-09-22
NO. DESSIN DRAWING NO.	65-685-230-208	
NO. PROJET PROJECT NO.	6515	REVISION 2 / FEUILLE / SHT 5 / 9

AE-CART-ARCH D

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NO. DESSIN
DRAWING NO. 65-685-230-209_R2

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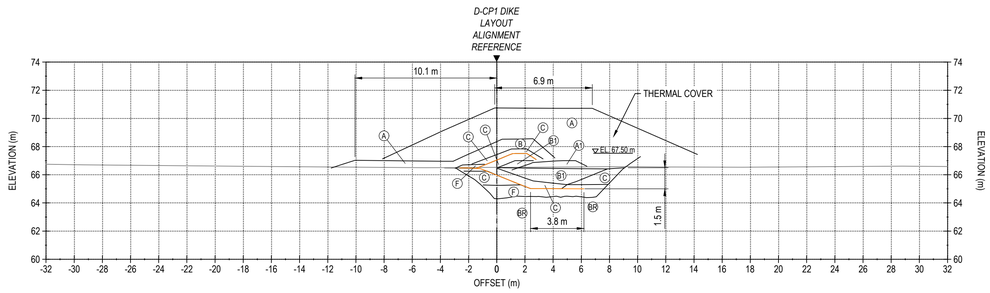
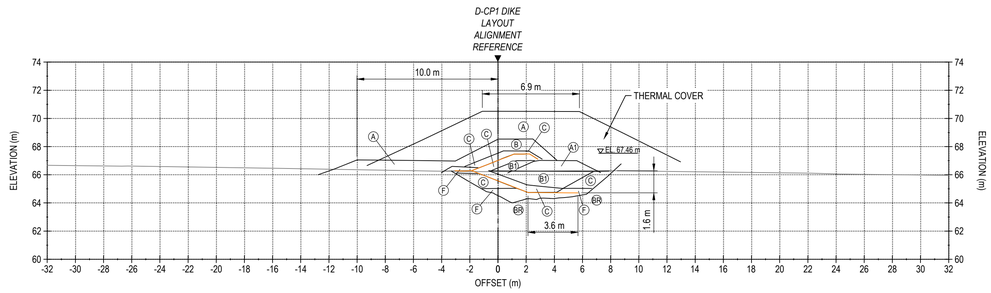


STATION 1+025



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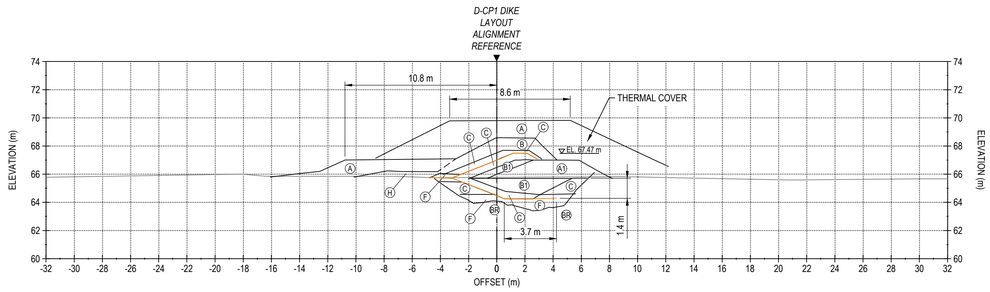

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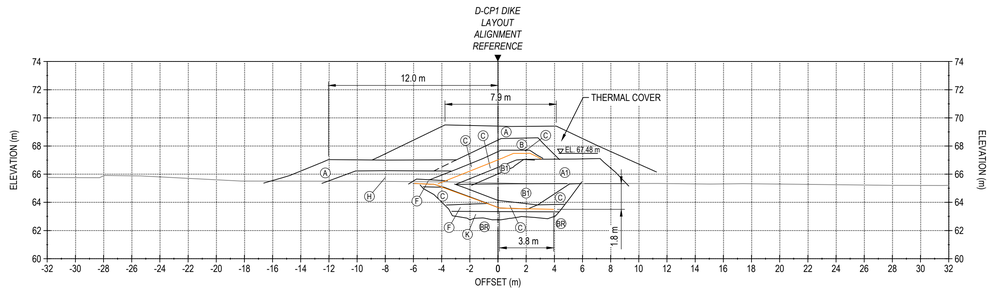

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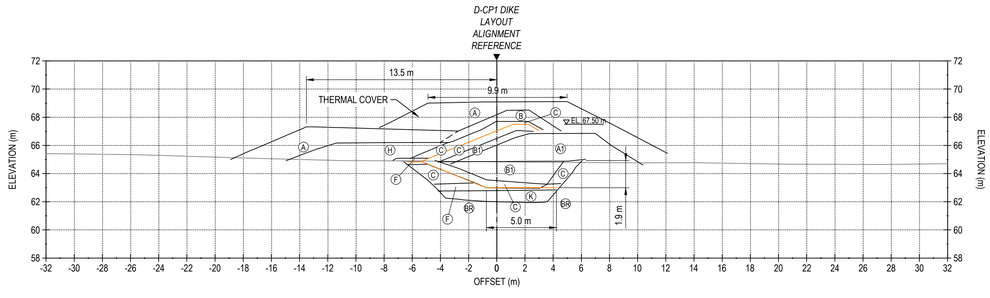

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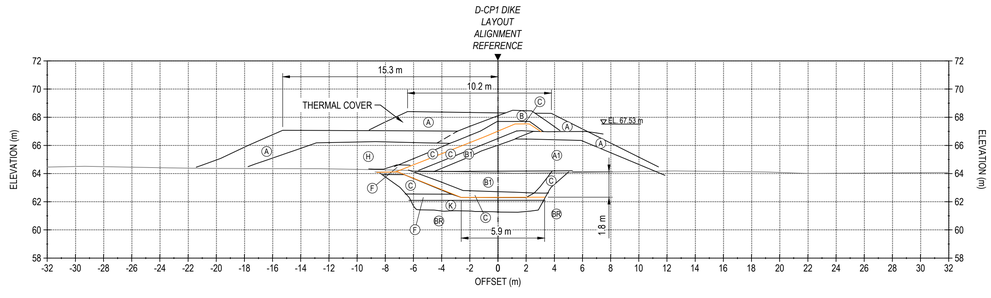

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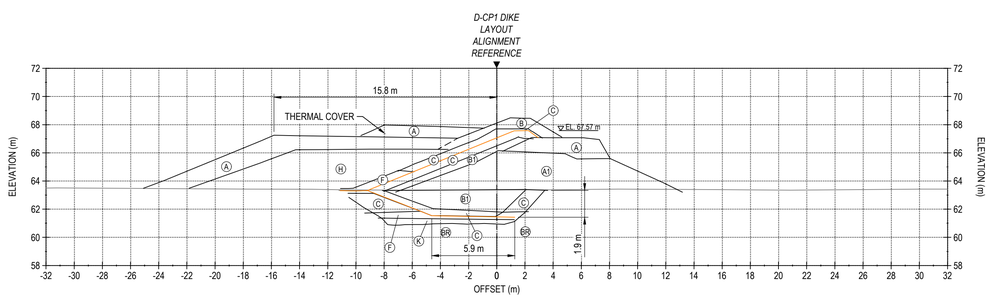

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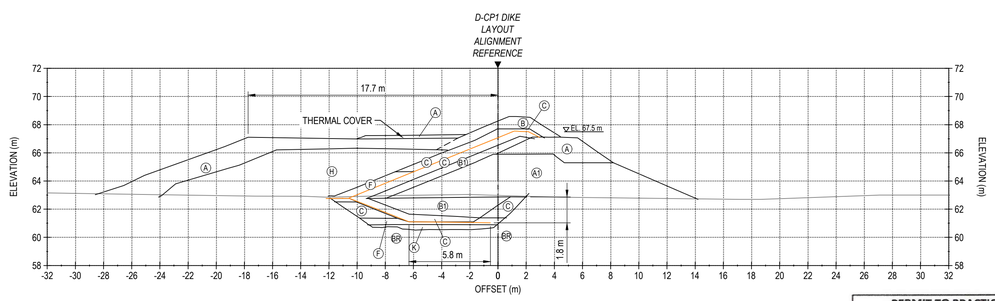
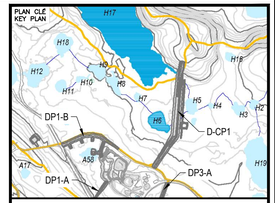


STATION 1+200

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

PLAN CLÉ
KEY PLAN



TETRA TECH

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)
- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

  DASHED LINES REFER TO NO AS-BUILT DATA BUT ESTIMATED BASED ON FIELD VISUAL OBSERVATION
- (BR) BEDROCK

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
0	2016-08-16	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 — W.T. HORNE — LICENSEE — N.W.T. — Oct 19, 2017

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Oct 19, 2017

TITRE / TITLE

AGNICO EAGLE MELIADINE GOLD PROJECT

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

DESSINÉ PAR / DRAWN BY	EL	DATE	2017-10-06
VERIFIÉ PAR / CHECKED BY	WTH		2017-10-06
APPROUVÉ PAR / APPROVED BY	NG		2017-10-06
ÉCHELLE / SCALE	1:200	DATE	2017-10-06

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

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	6 / 12

AE-CART-ARCH D

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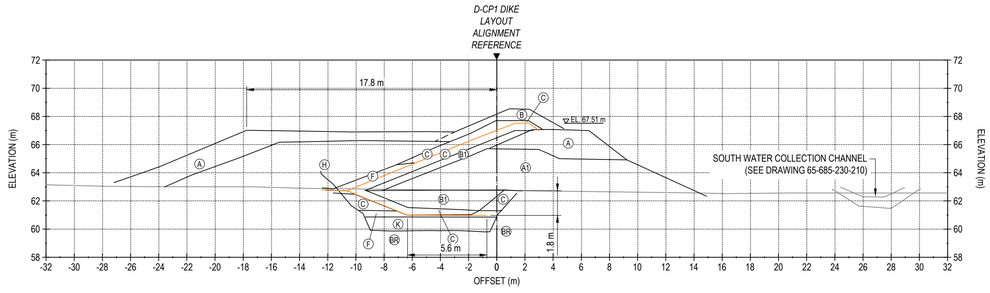
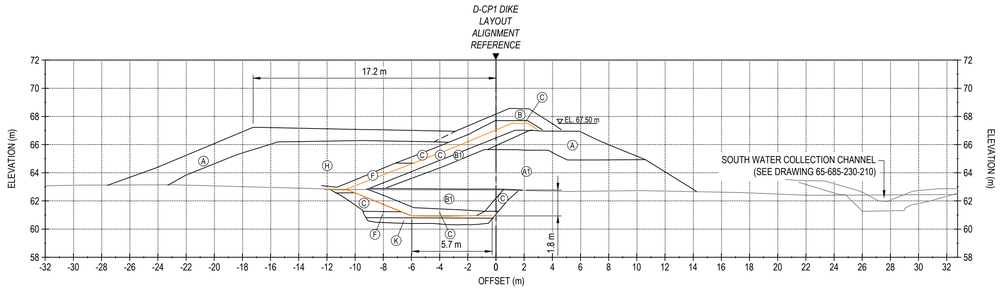
FILE NO. 65-685-230-209_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-209_R2

FORMAT ARCHD



STATION 1+225



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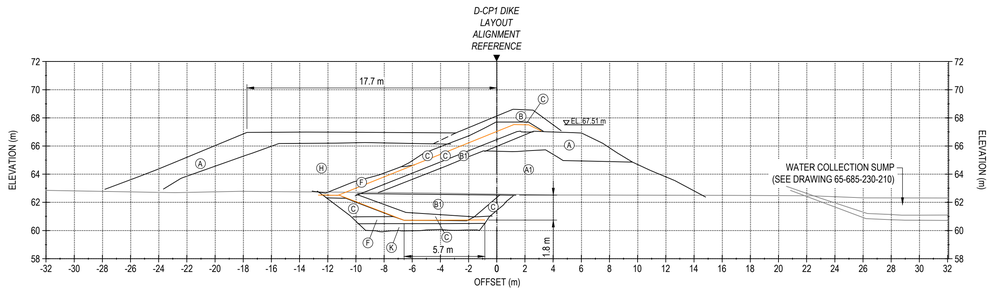

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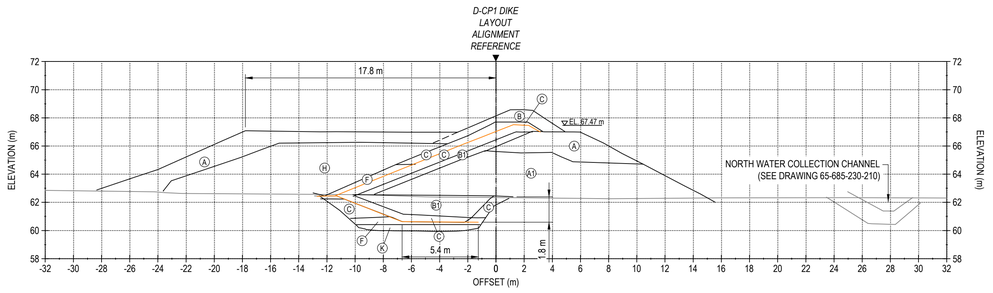
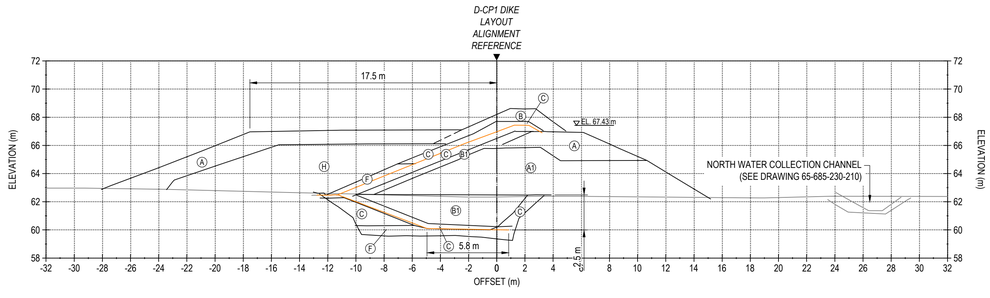


STATION 1+300



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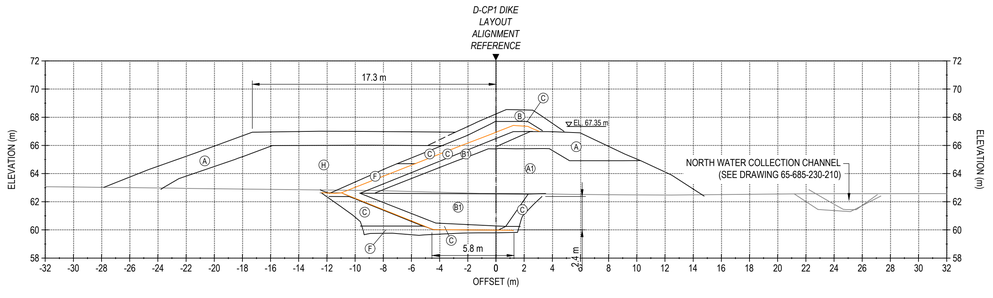

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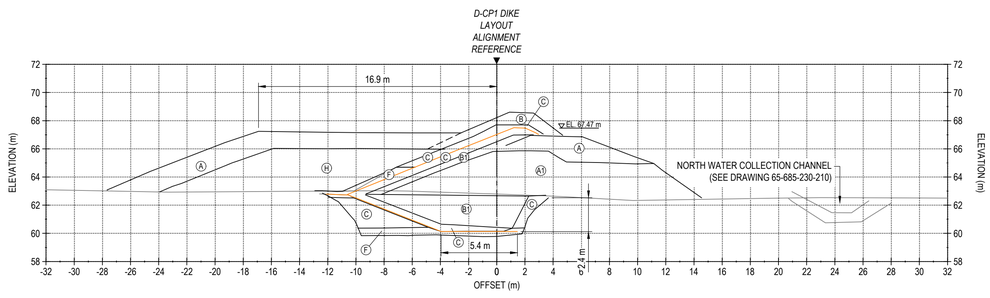

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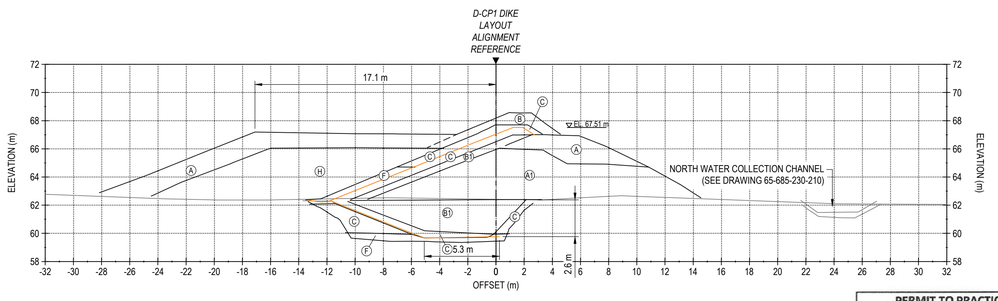
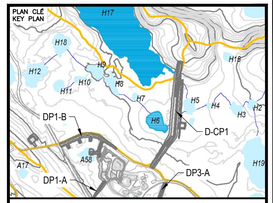


STATION 1+400

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

PLAN CLÉ
KEY PLAN



TETRA TECH

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
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- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

DASHED LINES REFER TO NO AS-BUILT DATA BUT ESTIMATED BASED ON FIELD VISUAL OBSERVATION

- (BR) BEDROCK

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 — W.T. HORNE — LICENSEE — N.W.T. — Oct 19, 2017

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Oct 19, 2017

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

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

DESSINÉ PAR / DRAWN BY	EL	DATE	2017-10-06
VERIFIÉ PAR / CHECKED BY	WTH		2017-10-06
APPROUVÉ PAR / APPROVED BY	NG		2017-10-06
ÉCHELLE / SCALE	1:200	DATE	2017-10-06

NO. DESSIN / DRAWING NO. 65-685-230-209-002

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	7 / 12

AE-CART-ARCH D

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FILE NO. 65-685-230-209_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-209_R2

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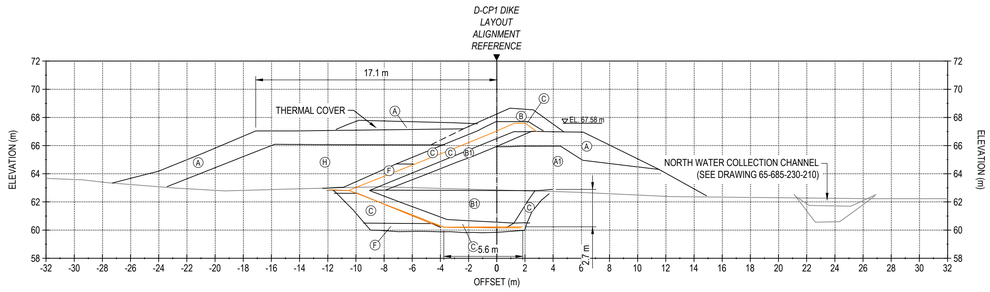
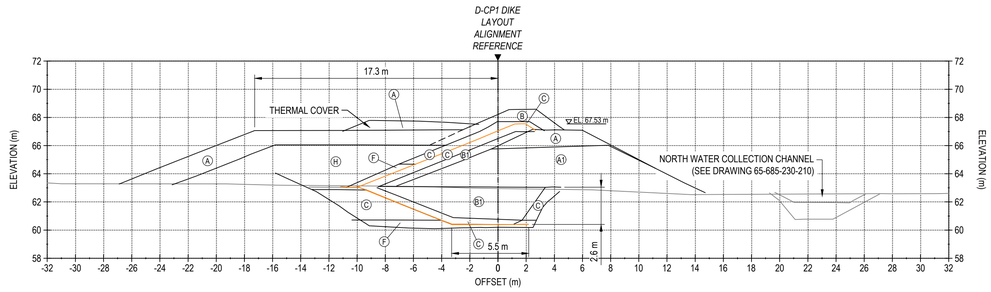
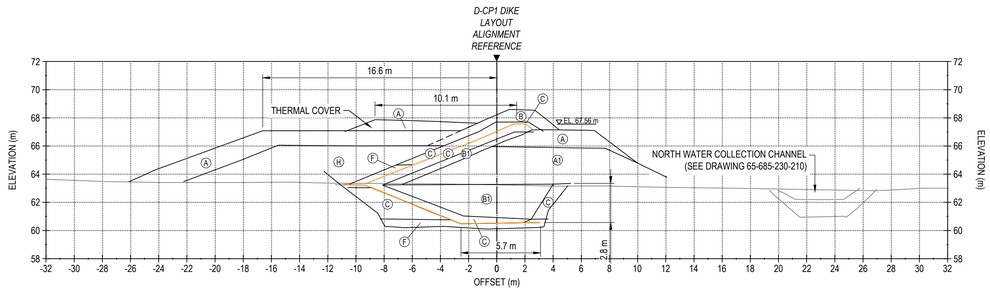


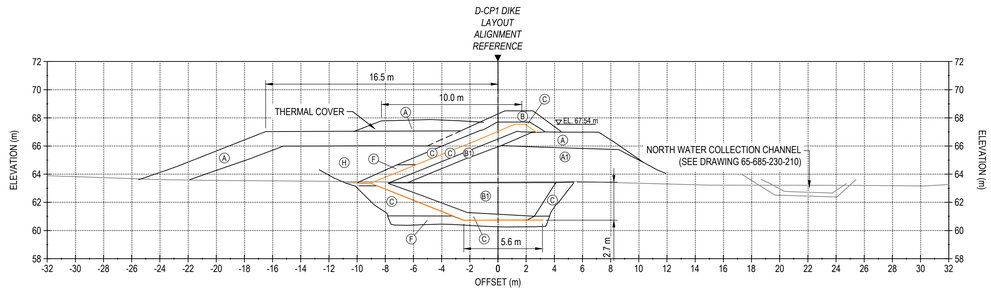
STATION 1+425



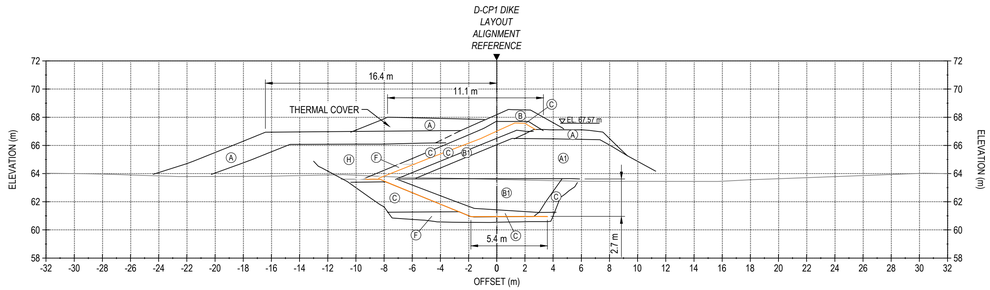
STATION 1+450



STATION 1+475



STATION 1+500



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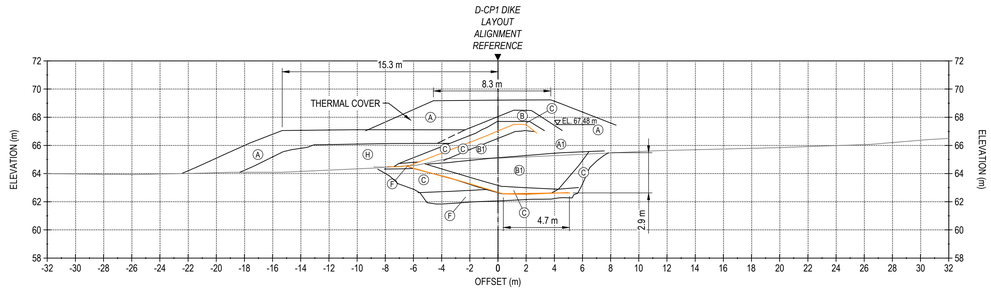
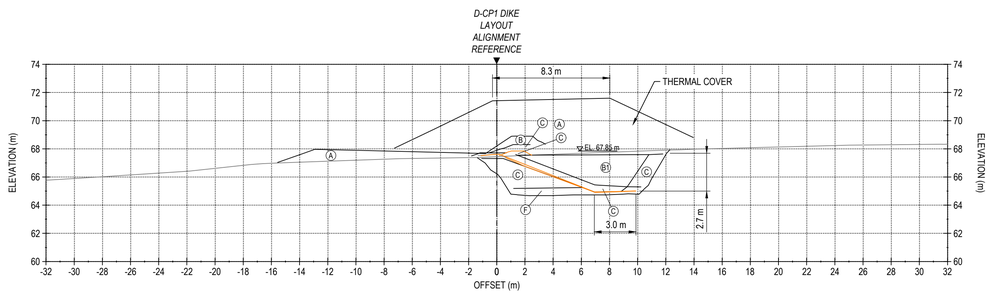
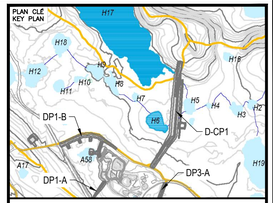


STATION 1+550



STATION 1+575

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional
Engineers and Geoscientists



TETRA TECH

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)
- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

DASHED LINES REFER TO NO AS-BUILT DATA BUT ESTIMATED BASED ON FIELD VISUAL OBSERVATION

- (BR) BEDROCK

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 — W.T. HORNE — LICENSEE — N.W.T. — Oct 19 2017

REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU — Oct 19 2017

TITRE / TITLE

AGNICO EAGLE MELIADINE GOLD PROJECT

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

DESSINÉ PAR / DRAWN BY	EL	DATE	2017-10-06
VÉRIFIÉ PAR / CHECKED BY	WTH		2017-10-06
APPROUVÉ PAR / APPROVED BY	NG		2017-10-06
ÉCHELLE / SCALE	1:200	DATE	2017-10-06

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

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	8 / 12

AE-CART-ARCH D

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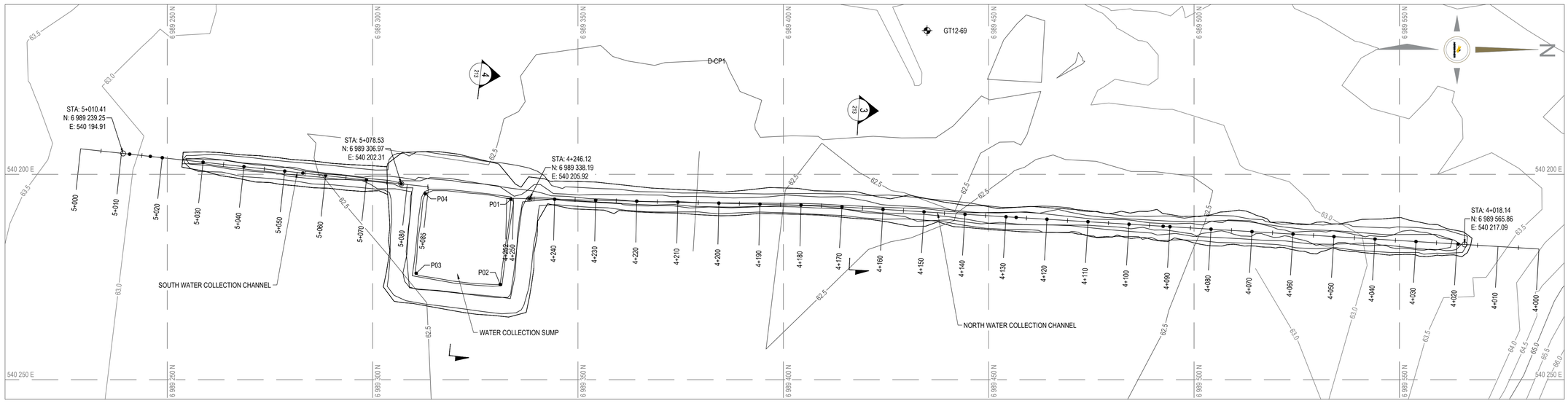
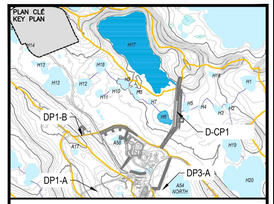
FORMAT ARCHD





TETRA TECH

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

BOREHOLE

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
0	2016-08-15	ISSUED FOR CONSTRUCTION	GZ	KJ	
B	2016-08-11	ISSUED FOR REVIEW	GZ	KJ	
A	2017-09-28	ISSUED FOR REVIEW	GZ	KJ	

REVISIONS

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

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

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VÉRIFIÉ PAR / CHECKED BY	GZ	2017-10-06
APPROUVÉ PAR / APPROVED BY	GZ	2017-10-06
ÉCHELLE / SCALE	AS SHOWN	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-210	
NO. PROJET / PROJECT NO.	6515	REVISION 2 / FEUILLE / SHT 9 / 12

D-CP1 AS-BUILT NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+019.73	540216.99	6989564.28	62.18
• 4+030	540216.37	6989554.03	62.46
• 4+040	540215.77	6989544.04	61.52
• 4+050	540215.17	6989534.06	61.61
• 4+060	540214.56	6989524.08	60.68
• 4+070	540213.96	6989514.10	60.60
• 4+080	540213.36	6989504.12	60.72
• 4+090	540212.75	6989494.14	60.73
• 4+091.68	540212.65	6989492.46	60.50

D-CP1 AS-BUILT NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

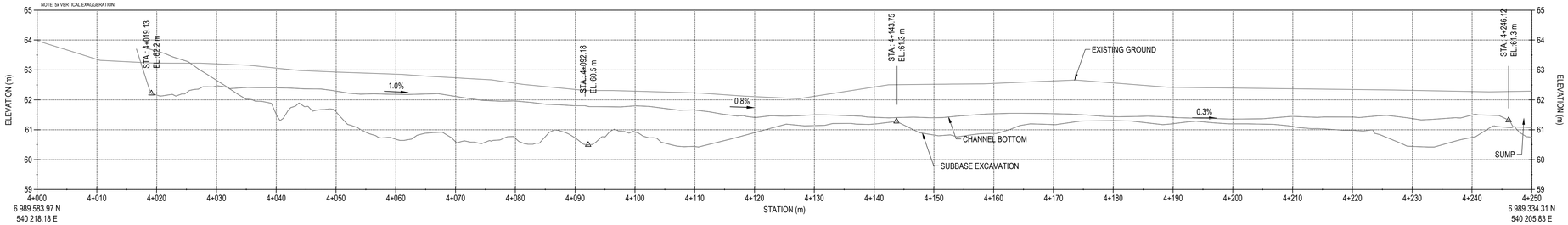
STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+100	540212.15	6989484.15	60.93
• 4+110	540211.55	6989474.17	60.44
• 4+120	540210.95	6989464.19	60.90
• 4+127.51	540210.49	6989456.69	61.15
• 4+130	540210.34	6989454.21	61.14
• 4+140	540209.74	6989444.23	61.19
• 4+150	540209.14	6989434.24	60.82
• 4+160	540208.53	6989424.26	60.87
• 4+170	540207.93	6989414.28	61.17

D-CP1 AS-BUILT NORTH WATER COLLECTION CHANNEL CENTRELINE LAYOUT POINTS

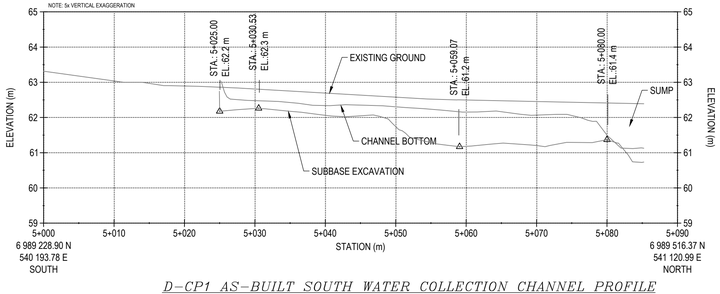
STATION	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• 4+180	540207.49	6989404.29	61.30
• 4+190	540207.26	6989394.30	61.20
• 4+200	540207.02	6989384.30	61.20
• 4+210	540206.78	6989374.30	61.11
• 4+220	540206.54	6989364.30	60.98
• 4+230	540206.31	6989354.31	60.44
• 4+240	540206.07	6989344.31	60.75
• 4+246.12	540205.92	6989338.19	61.08

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	62.26
• 5+040	540198.13	6989268.66	62.06
• 5+050	540199.21	6989278.61	61.74
• 5+054.44	540199.69	6989283.01	61.31
• 5+060	540200.30	6989288.55	61.18
• 5+070	540201.39	6989298.49	61.20
• 5+078.53	540202.31	6989306.97	61.31



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



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

D-CP1 AS-BUILT WATER COLLECTION SUMP LAYOUT POINTS

POINT No.	EASTING	NORTHING	ELEVATION (SUBBASE EXCAVATION)
• P01	540206.06	6989333.67	60.72
• P02	540226.83	6989331.06	60.72
• P03	540224.11	6989310.61	60.83
• P04	540204.73	6989312.84	60.70

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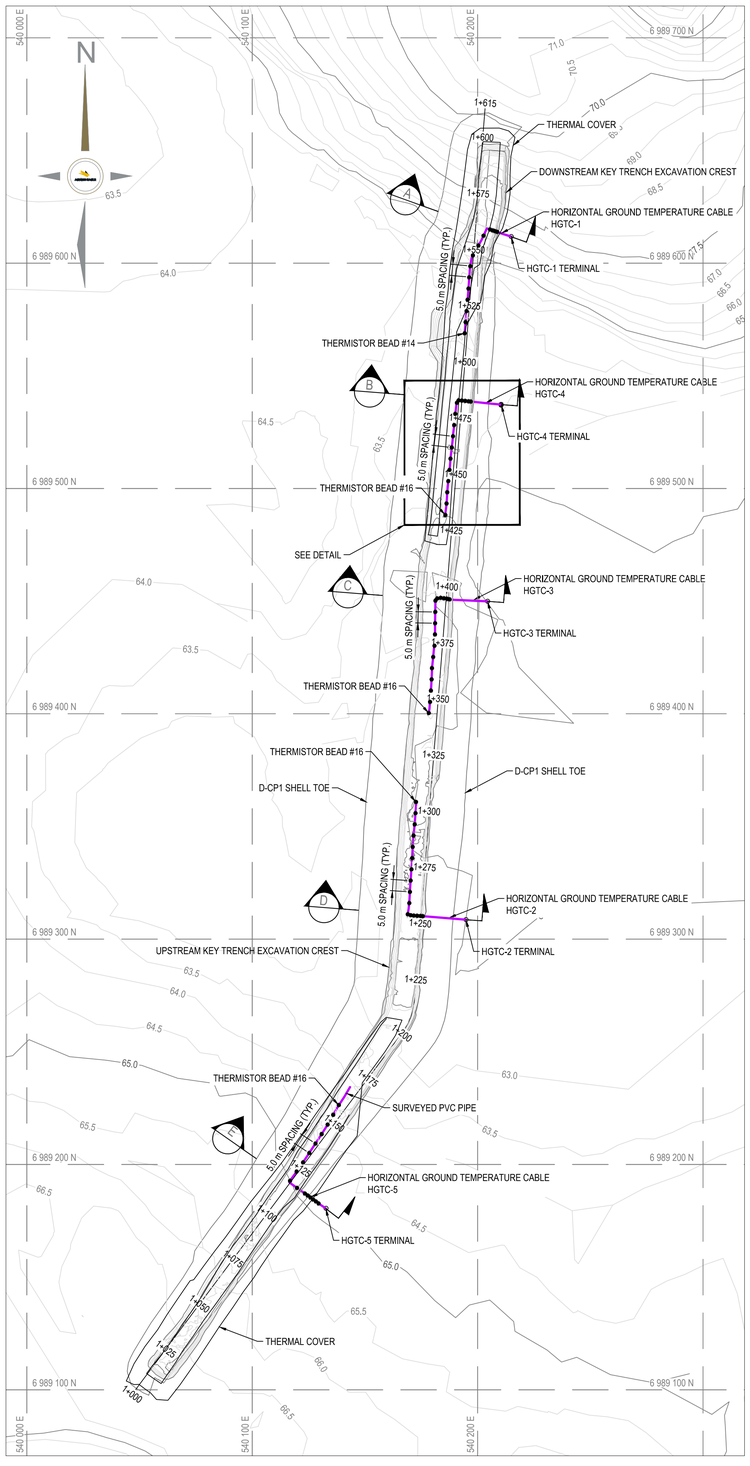
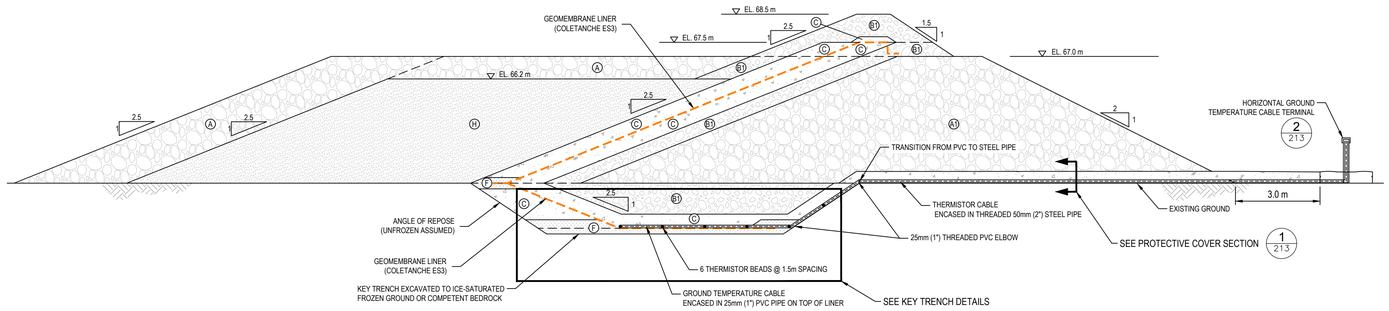
FILE NO. 65-685-230-210_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-211_R2

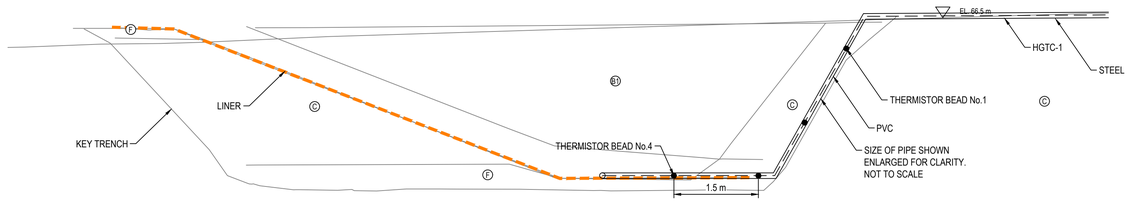
FORMAT ARCHD



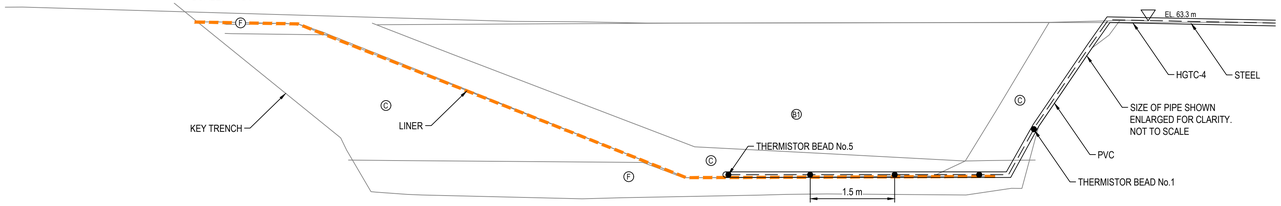
D-CP1 AS-BUILT HORIZONTAL GROUND TEMPERATURE CABLE LAYOUT
SCALE: 1:1250



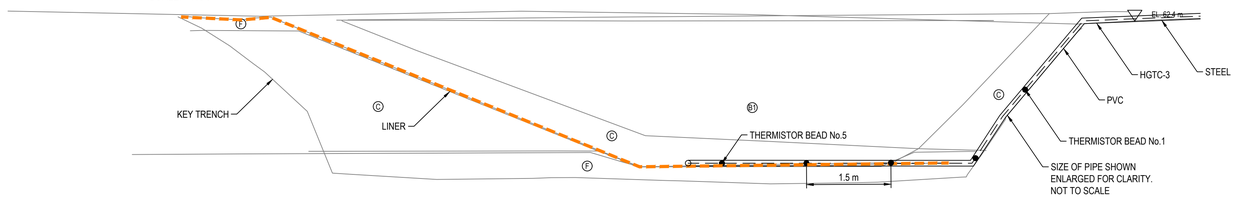
D-CP1 HORIZONTAL GROUND TEMPERATURE CABLE - DESIGN TYPICAL SECTION
SCALE: 1:100



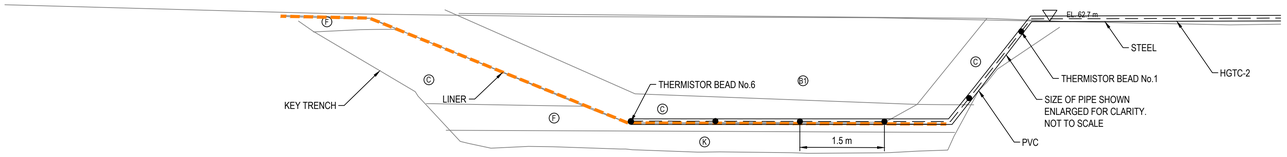
D-CP1 AS-BUILT - SECTION A - HORIZONTAL GROUND TEMPERATURE CABLE - KEY TRENCH DETAIL THROUGH STATION 1+562
SCALE: 1:50



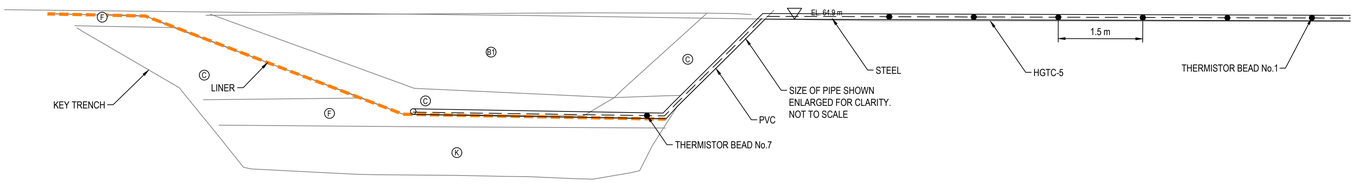
D-CP1 AS-BUILT - SECTION B - HORIZONTAL GROUND TEMPERATURE CABLE - KEY TRENCH DETAIL THROUGH STATION 1+482
SCALE: 1:50



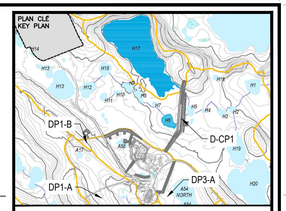
D-CP1 AS-BUILT - SECTION C - HORIZONTAL GROUND TEMPERATURE CABLE - KEY TRENCH DETAIL THROUGH STATION 1+394
SCALE: 1:50



D-CP1 AS-BUILT - SECTION D - HORIZONTAL GROUND TEMPERATURE CABLE - KEY TRENCH DETAIL THROUGH STATION 1+254
SCALE: 1:50



D-CP1 AS-BUILT - SECTION E - HORIZONTAL GROUND TEMPERATURE CABLE - KEY TRENCH DETAIL THROUGH STATION 1+117
SCALE: 1:50



TETRA TECH

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)
- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-09-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 W.T. HORNE LICENSEE N.W.T.
REGISTERED PROFESSIONAL ENGINEER G. ZHANG LICENSEE NWT/NU

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT
INSTRUMENTATION PLAN AND DETAILS
FOR GROUND TEMPERATURE CABLES

DESSINÉ PAR / DRAWN BY	DRG	DATE 2017-10-06
VÉRIFIÉ PAR / CHECKED BY	GZ	2017-10-06
APPROUVÉ PAR / APPROVED BY	KJ	2017-10-06
ÉCHELLE / SCALE	AS SHOWN	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-211	
NO. PROJET / PROJECT NO.	6515	REVISION 2 / FEUILLE / SHT 10 / 12

AE-CART-ARCH D

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FILE NO. 65-685-230-211_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-212_R2

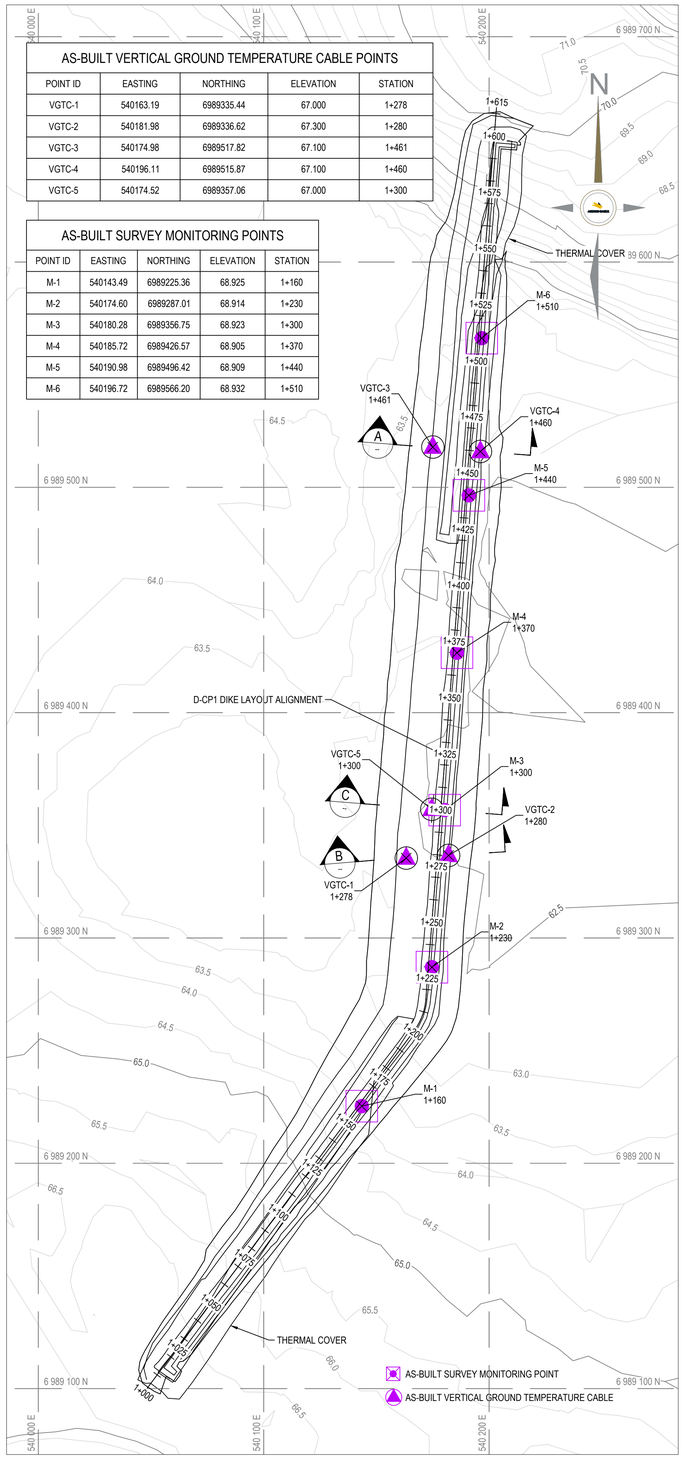
FORMAT ARCHD

AS-BUILT VERTICAL GROUND TEMPERATURE CABLE POINTS

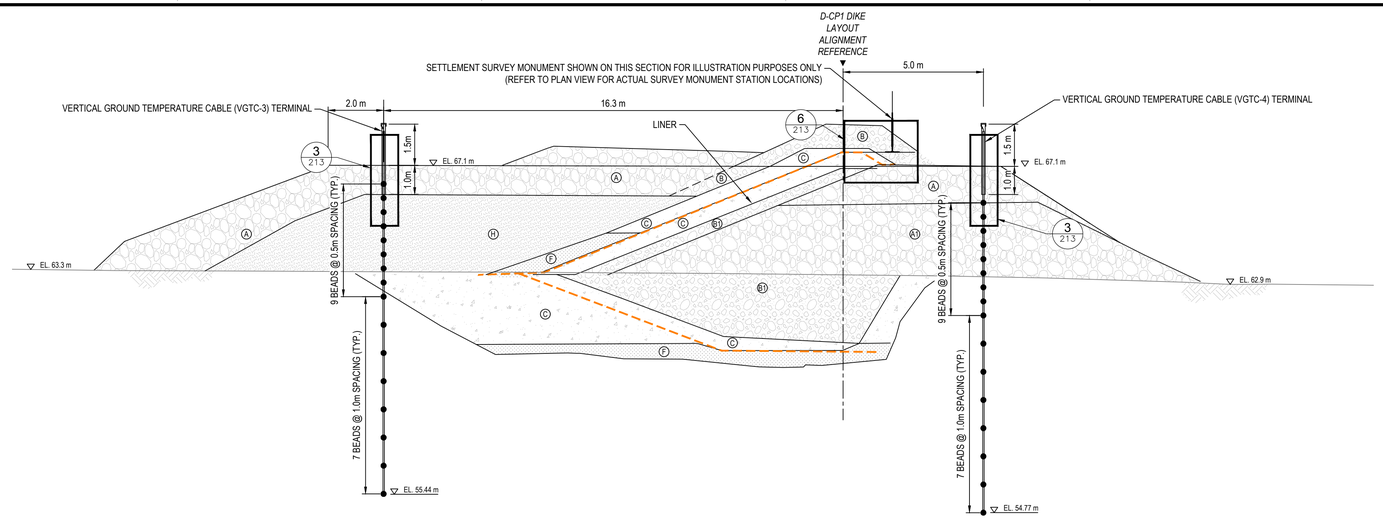
POINT ID	EASTING	NORTHING	ELEVATION	STATION
VGTC-1	540163.19	6989335.44	67.000	1+278
VGTC-2	540181.98	6989336.62	67.300	1+280
VGTC-3	540174.98	6989517.82	67.100	1+461
VGTC-4	540196.11	6989515.87	67.100	1+460
VGTC-5	540174.52	6989357.06	67.000	1+300

AS-BUILT SURVEY MONITORING POINTS

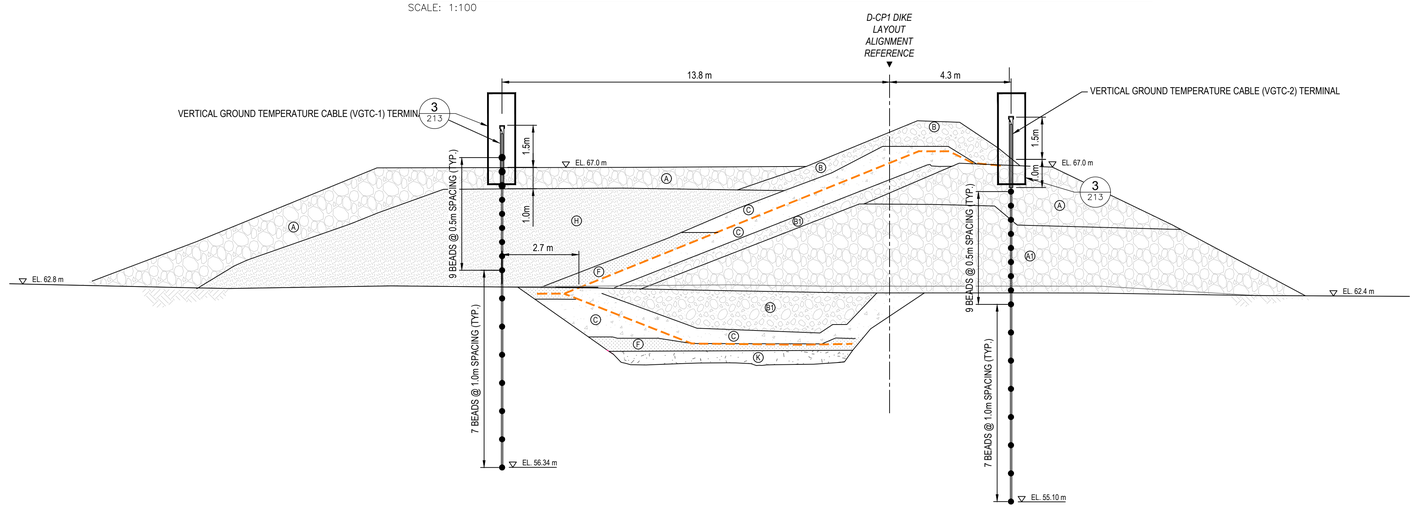
POINT ID	EASTING	NORTHING	ELEVATION	STATION
M-1	540143.49	6989225.36	68.925	1+160
M-2	540174.60	6989287.01	68.914	1+230
M-3	540180.28	6989356.75	68.923	1+300
M-4	540185.72	6989426.57	68.905	1+370
M-5	540190.98	6989496.42	68.909	1+440
M-6	540196.72	6989566.20	68.932	1+510



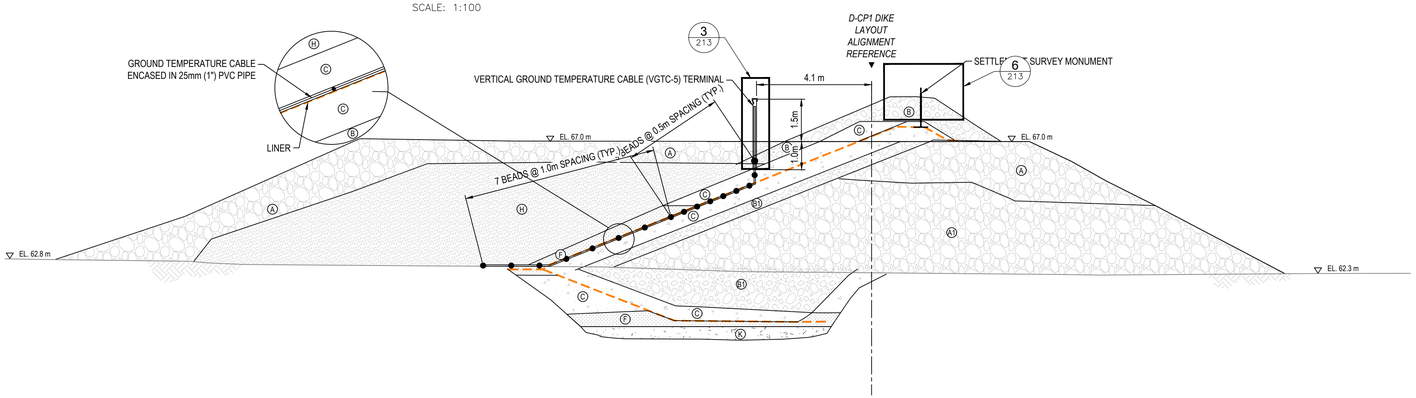
D-CP1 AS-BUILT SURVEY MONUMENT AND VERTICAL GROUND TEMPERATURE CABLE LAYOUT
SCALE: 1:1250



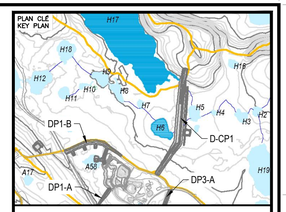
D-CP1 - AS-BUILT - SECTION A - VERTICAL GROUND TEMPERATURE CABLE - STATION 1+460
SCALE: 1:100



D-CP1 AS-BUILT - SECTION B - VERTICAL GROUND TEMPERATURE CABLE - STATION 1+279
SCALE: 1:100



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



TETRA TECH

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)
- (B1) 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)
- (K) NEARLY-SATURATED BACKFILL (20 mm MINUS)

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-10-19	ISSUED FOR RECORD	WTH	NG	
1	2016-08-26	ISSUED FOR CONSTRUCTION	GZ	KJ	
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 W.T. HORNE LICENSEE N.W.T./NU — REGISTERED PROFESSIONAL ENGINEER G. ZHANG LICENSEE N.W.T./NU

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

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

DESSINÉ PAR / DRAWN BY	DRG	DATE 2017-10-06
VÉRIFIÉ PAR / CHECKED BY	GZ	2017-10-06
APPROUVÉ PAR / APPROVED BY	GZ	2017-10-06
ÉCHELLE / SCALE	AS SHOWN	DATE 2017-10-06

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

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	2	11 / 12

AE-CART-ARCH D

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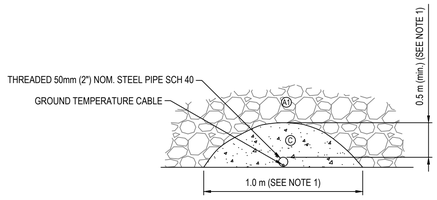
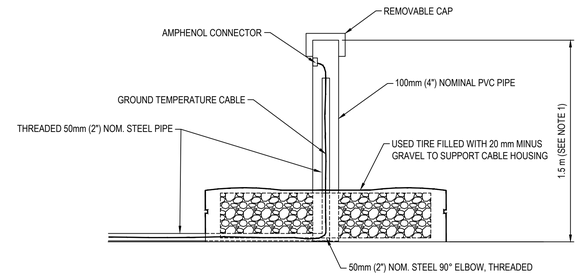
FILE NO. 65-685-230-212_R2.dwg

NO. DESSIN
DRAWING NO. 65-685-230-213_R2

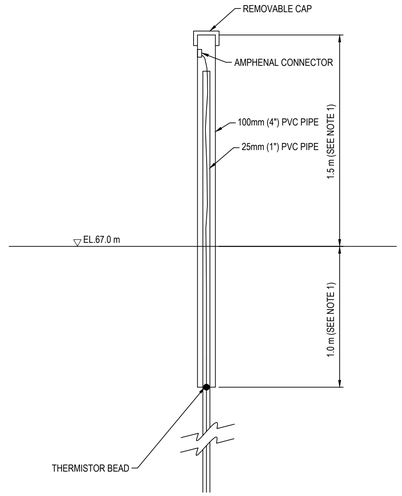
FORMAT ARCHD



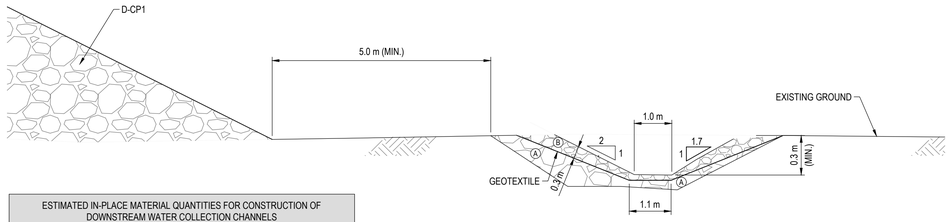
TEMPERATURE CABLE – PROTECTIVE COVER SECTION 1/211
SCALE: NTS



TEMPERATURE CABLE – TERMINAL SUPPORT DETAIL 2/211
SCALE: NTS

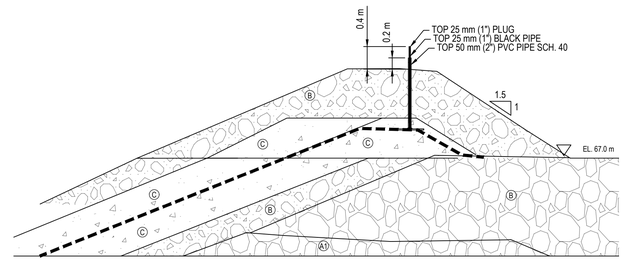


D-CP1 TYPICAL VERTICAL GROUND TEMPERATURE CABLE TERMINAL DETAIL 3/212
SCALE: 1:20

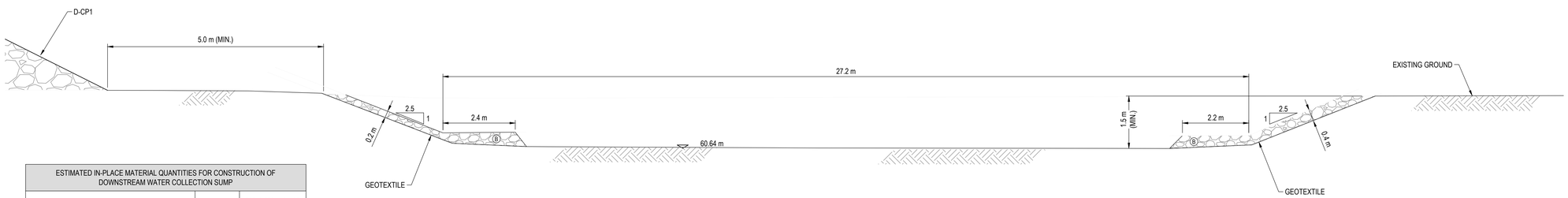


ESTIMATED IN-PLACE MATERIAL QUANTITIES FOR CONSTRUCTION OF DOWNSTREAM WATER COLLECTION CHANNELS		
ITEM	UNIT	ESTIMATED IN-PLACE QUANTITY AFTER COMPACTION AND INSTALLATION
CHANNEL EXCAVATION	m³	1,598
CHANNEL MATERIAL B TRANSITION ROCKFILL (150 mm MINUS)	m³	930
CHANNEL MATERIAL A RUN OF MINE ROCKFILL (600 mm MINUS)	m³	520
CHANNEL GEOTEXTILE LINER	m²	1,542

D-CP1 AS-BUILT WATER COLLECTION CHANNEL DETAIL 4/210
NOT TO SCALE



D-CP1 AS-BUILT SETTLEMENT SURVEY MONUMENT DETAIL 6/212
SCALE: 1:50

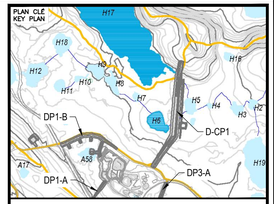


ESTIMATED IN-PLACE MATERIAL QUANTITIES FOR CONSTRUCTION OF DOWNSTREAM WATER COLLECTION SUMP		
ITEM	UNIT	ESTIMATED IN-PLACE QUANTITY AFTER COMPACTION AND INSTALLATION
SUMP EXCAVATION	m³	1,575
SUMP MATERIAL B TRANSITION ROCKFILL (150 mm MINUS)	m³	280
SUMP GEOTEXTILE LINER	m²	895

D-CP1 AS-BUILT WATER COLLECTION SUMP DETAIL 5/210
NOT TO SCALE

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Oct 19, 2017
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

PLAN CLÉ
KEY PLAN



TETRA TECH

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)

NOTE 1: NO SURVEY DATA AVAILABLE. BASED ON DESIGN AND FIELD OBSERVATIONS

TEL QUE CONSTRUIT
AS BUILT
AGNICO EAGLE
DATE : 2017-10-19

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
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AGNICO EAGLE

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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 — W.T. HORNE — LICENSEE — N.W.T.
REGISTERED PROFESSIONAL ENGINEER — G. ZHANG — LICENSEE — NWT/NU

TITRE / TITLE
AGNICO EAGLE MELIADINE GOLD PROJECT

D-CP1 AS-BUILT DOWNSTREAM WATER COLLECTION CHANNEL AND SUMP PROFILES AND INSTRUMENTATION DETAILS

DESSINÉ PAR / DRAWN BY	EL	DATE 2017-10-06
VÉRIFIÉ PAR / CHECKED BY	GZ	2017-10-06
APPROUVÉ PAR / APPROVED BY	GZ	2017-10-06
ÉCHELLE / SCALE	N.T.S.	DATE 2017-10-06
NO. DESSIN / DRAWING NO.	65-685-230-213	
NO. PROJET / PROJECT NO.	6515	REVISION 2 / FEUILLE / SHT 12/12

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