February 17, 2012

REPORT

REPORT ON

2011 Annual Geotechnical Inspection Meadowbank Gold Mine, Nunavut

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Report Number: 11-1221-0095/2100 1305 Ver. 0
Document Number:
Distribution:

1 Copy: Agnico-Eagle Mines Limited, Baker Lake, NU
1 e-copy: Agnico-Eagle Mines Limited, Baker Lake, NU
3 copies: Golder Associés Ltée, Montréal, QC

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1.0 INTRODUCTION

Agnico-Eagle Mines Limited (AEM) Meadowbank Division requested Golder Associates Ltd. (Golder) to conduct an annual geotechnical inspection, pursuant to the requirement of Water License Permit No. 2AM-MEA0815, Part I, Item 12 (page 23 and 24) for the Meadowbank Gold Project, Nunavut.

Under Part I, Item 12, AEM is required to undertake an annual geotechnical inspection of the following facilities between the months of July and September:

- Dewatering Dikes;
- Stormwater Dike;
- Saddle Dams;
- Pit walls;
- Tailings Storage Facility;
- Shoreline protection at the location of the Wally Lake and Portage Lake Outfall Diffusers;
- Geotechnical instrumentation;
- All-Weather Private Access Road (AWPR) and site roads, in particular water course crossings;
- Quarries;
- Landfill;
- Landfarm;
- Bulk fuel storage facilities at the Meadowbank site and in Baker Lake (marshalling area);
- Attenuation Ponds;
- Reclaim Pond; and
- Sumps.

The mine is currently in operation, however construction of some facilities continues and as a result an inspection of all items listed above was not completed.

The inspection was conducted by Karine Doucet, P.Eng., of Golder, between September 12 and September 19, 2011. The inspection was carried out prior to snowfall and at the time of year when the seasonal depth of thaw (active layer) would be expected at, or near its maximum. Daily minimum temperatures were approximately between 0°C and 7°C, and daily maximum temperatures were between 4°C and 11°C. Wind speed was variable with no significant precipitation occurring during this period. At this time of year there is generally low to moderate surface water flow. Peak water flows typically occur during the spring thaw (mid-June through mid-July). Precipitation over the summer of 2011 was normal; therefore, at the time of the inspection, water levels were normal and flows observed at water crossings were moderate.

An inspection of the following was conducted:

- Dewatering Dikes: East Dike, West Channel Dike, South Channel Dike and Bay-Goose Dike (dewatering of Bay-Goose Basin was ongoing at the time of the inspection and, therefore, South Channel Dike and Bay-Goose Dike are in transition to operation);
- Tailings Storage Facility including the Stormwater Dike, Saddle Dam 1, Saddle Dam 2, and the Reclaim Pond. Note construction of Saddle Dam 2 Stage 2 and the connection between Saddle Dam 2 and Stormwater Dike was ongoing at the time of the inspection.
- Geotechnical instrumentation (East Dike, South Camp Dike, Bay-Goose Dike, Saddle Dam 1 and Saddle Dam 2);
- AWPR and site roads, with particular attention paid to water crossings (bridges and culverts);
- Quarries;
- Landfill;
- Bulk fuel storage facilities at Meadowbank and in Baker Lake; and
- Stormwater Management Pond 1 (Teardrop Lake).

Figure 1 shows the mine site area. At the time of the inspection, liner placement at Saddle Dam 2 and Stormwater Dike was underway. Construction of subsequent portions of the Tailings Storage Facility will occur on an ongoing basis as additional capacity to store tailings is required. Construction of Bay-Goose Dike has been completed and dewatering of Bay-Goose Basin was in progress and therefore South Camp Dike and Bay Goose Dike are in transition to operation.

Inspection of the Portage Pit was also conducted during this same general period and is reported under separate cover, “Draft - Annual Review of Portage Pit Slope Performance (2011c)”, Golder Doc. No. 1314, dated November 12, 2011. It should be noted that there is no current activity in the Vault Pit or Goose Island Pit areas.

Diffusers were not in place at the Wally Lake and Portage Lake outfalls. The landfarm had also not been constructed. Therefore, inspections of these items were not conducted.

This report describes the geotechnical aspects of the areas inspected and presents general observations and recommendations.

It is noted that an external review board, the Meadowbank Dike Review Board (MDRB), has also been established which periodically meets to review dike designs, construction activities, as-built information and other geotechnical aspects for the project. The MDRB members were present on site while the annual geotechnical inspection was being performed.

1.1 Scope Limitations

The scope of the inspection was limited to geotechnical aspects for each of the facilities listed above. The inspection did not include structural, mechanical, environmental, or other assessments.

For additional information related to the limitations of this scope, reference should be made to the Study Limitations provided at the beginning of this report.

2.0 DEWATERING DIKES

The dewatering dikes at Meadowbank include: the East Dike, West Channel Dike, South Camp Dike and Bay-Goose Dike. The locations of the dewatering dikes are shown on Figure 1. Construction of these dikes is complete. The East Dike and West Channel Dike are in operation, as dewatering of the northwest arm of Second Portage Lake has occurred. Dewatering of the Bay-Goose Basin was in progress at the time of the inspection; consequently, Bay-Goose dike and South Camp dike will gradually become operational. The West Channel Dike is considered a temporary structure that upon completion of dewatering of the Bay-Goose Basin will cease to operate and be removed as part of development of the Portage Pit.

A preliminary draft East Dike Operation, Maintenance and Surveillance (OMS) Manual (Golder Doc. No. 571), including a preliminary draft Emergency Preparedness Plan (EPP), was available for review at the time of the inspection. An OMS Manual and EPP that will cover all of the dewatering dikes is being prepared and anticipated to be complete in January 2012.

An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared, and includes a risk assessment of potential failure mechanisms, consequences, and control measures for the East Dike and Bay-Goose Dike. The ERP does not address directly the procedures to be followed in the event of failure of a dewatering dike, but rather refers to the EPP for these structures. No mention is made of the South Camp Dike. It is recommended that the ERP and risk assessment be reviewed and updated to include all dewatering dikes and respective facilities, and to incorporate information gained during operation of the East Dike and construction of the Bay-Goose Dike.

A summary of instrumentation data obtained from the dewatering dikes is presented in Section 4.0.

2.1 East Dike

East Dike is located on the east side of the Portage Pit, and in conjunction with West Channel Dike, isolates the northwest arm of Second Portage Lake. Figure 2 shows the location of the East Dike. Dewatering of the northwest arm of Second Portage Lake has occurred to allow the development of the Portage Pit and the construction of the Tailings Storage Facility. At the time of the inspection, the East Dike served only as access road to the northern portion of Bay-Goose Dike, and was no longer used as a haul road.

East Dike was constructed in the summer of 2008 and grouting of the foundation and bedrock occurred in 2008 and during the first quarter of 2009. East Dike is approximately 800 m in length, and was constructed within Second Portage Lake prior to dewatering. It consists of a wide rockfill shell, with downstream filters and a soil-bentonite cutoff wall that extends to bedrock up to 8 m below lake level. A final as-built report for the East Dike (Golder 2009f, Doc. No. 900) was available for review during the inspection.

Instrumentation has been installed within the East Dike and is being monitored. At the time of the inspection, it was observed that the inclinometer at Sta. 60+195 that was previously destroyed had not been replaced. Replacement of this instrument is currently not considered necessary; however, monitoring all other existing instrumentation within East Dike should continue and if anomalous conditions are observed, then replacement of

this inclinometer should be re-evaluated. A protective berm separates vehicles from the cutoff wall and the geotechnical instrumentation approximately between Sta. 60+440 and 60+500. As vehicle traffic on the East Dike is now limited, the recommendation to create a barrier between traffic and the instrumentation made in previous annual inspection reports is no longer considered necessary.

As discussed in the previous annual inspection reports, an apparent leak of up to 0.5 m^3/s over several days occurred through the East Dike near Sta. 60+490 during dewatering of the northwest arm of Second Portage Lake in 2009. The leak then appeared to self heal following drilling works for the additional grouting carried out in this sector. A sinkhole cavity of about 18 m^3 in the general vicinity of the leak (Sta. 60+472) also appeared in July 2009. The sinkhole was located immediately upstream of the cutoff wall and extended at least partially through the cutoff wall. A Technical Memorandum entitled, "Meadowbank East Dike Grouting Response Plan – Completed Works" (Golder 2009b, Doc. No. 916) provides additional information regarding these occurrences, as does Golder (2009d, Doc. No. 961) East Dike Sinkhole Summary Report.

Following the appearance of the sinkhole, a cone penetration test (CPT) investigation was conducted, and three diamond drill holes and a surface geophysical survey were advanced in the area to obtain additional information. Details regarding these investigations are provided in East Dike CPT Investigation Report (Golder 2010b, Doc. No. 953) and East Dike Sinkhole Investigation Program October-November 2009 (Golder 2010a, Doc. No. 986). Based on the CPT results, there appears to be a zone of coarser grained material (area with lower fines content) in the apparent leak area. The drilling investigation indicated that there may be soil between the base of the cutoff wall and underlying bedrock that was not completely excavated and/or grouted.

An additional investigation of the sinkhole and apparent leakage area consisting of the temporary installation of thermistor strings and monitoring of the thermal condition was initially conducted in 2010 and repeated in 2011. Based on the thermal results, it appears that a pervious zone exists within the cutoff wall and shallow bedrock between approximately Sta. 60+440 and 60+504. Although seepage through the dike has been stable, AEM is considering potential mitigation options to reduce seepage through the dike and/or to provide contingency protection for the Portage Pit.

No active monitoring of seepage rates through the dike was occurring at the time of the inspection. Construction of a series of seepage collection sumps was underway, and through this process, the temporary weirs had been removed. Since the inspection, AEM has indicated that based on pumping tests conducted within the sump installed near the downstream toe at about Sta. 60+500, seepage has been stable at a rate of about 10 L/s, and consistent with rates recorded during previous years with no visual signs of turbidity noted.

A second seepage zone is present near the downstream toe at about Sta. 60+300 and based on pumping rates, the seepage appears stable at around 4 L/s with no visual signs of turbidity noted. This rate is also consistent with measurements from 2010. A third small zone of seepage exists near Sta. 60+550. It is estimated that seepage in this area is about 1 L/s; however, no monitoring system is in place. Historically, small zones of seepage (estimated to be less than 1 L/s) were observed between Sta. 60+700 and 60+750. No seepage was observed during this inspection; however, vegetation (moss) growth was observed in these zones, which is indicative of a zone of higher moisture content. It is unclear at this time whether these zones of higher moisture are the result of seepage or surface runoff. Continued observation of this area is recommended.

At the time of the inspection, seepage from the East Dike was not being actively managed or pumped from the sumps installed near the downstream toe, nor had the seepage collection system been winterized to permit year

round operation. Seepage into Portage Pit downstream of the East Dike was observed. Without active management of the East Dike sumps, it is difficult to assess if additional seepage is occurring through the East Dike. A seepage collection system downstream of East Dike is required to capture seepage such that the volume can be measured, water quality visually observed (turbidity), and the water removed (pumped), on a year round basis. AEM has indicated that they plan to implement a year round pumping system.

During the site inspection, and based on the instrumentation data collected up to that time, the condition of the East Dike generally appears stable, as:

- No visual signs of slope instability or erosion were observed on the upstream and downstream rockfill slopes;
- Seepage rates, while higher than anticipated in design, currently do not appear to have increased and no signs of turbidity have been noted;
- No signs of tension cracks were observed along the cutoff wall alignment;
- Freeboard is adequate; and
- Instrumentation data: piezometric, thermal, seepage, and inclinometer data do not show deteriorating conditions, and consistent trends have been observed over the past 3 years.

Appendix A1 contains a photographic log, the record of inspection form, and two samples of the inspection summaries performed by AEM for the East Dike.

2.2 West Channel Dike

The West Channel Dike is located on the south side of the Portage Pit, and in conjunction with the East Dike, isolates the northwest arm of Second Portage Lake to allow dewatering and development of the northern portion of the Portage Pit and the Tailings Storage Facility. The location of the West Channel Dike is shown on Figure 2. The West Channel Dike is considered a temporary structure as upon completion of dewatering of the Bay-Goose Basin the structure will no longer be required and will be removed as part of further mining of the Portage Pit.

No evidence of erosion or instability of the upstream or downstream slopes was apparent at the time of the inspection. Development of the Portage Pit is currently in close proximity to the dike. No instrumentation exists within the West Channel Dike, nor has any surveying of the dike crest occurred. Blast vibration monitoring has been periodically conducted. As-built details regarding the dike are provided in West Channel Dike Construction As-Built Report (Golder 2009g, Doc. No. 980).

Appendix A2 contains a photographic log and the record of inspection form for the West Channel Dike.

2.3 South Camp Dike

The South Camp Dike is located south of the plant site area and is used to connect the mainland to South Camp Island. The South Camp Dike, in conjunction with the Bay-Goose Dike, isolates a portion of Third Portage Lake, the “Bay-Goose Basin”, which was being dewatered at the time of the inspection to permit development of the Goose Island Pit and the southern portion of the Portage Pit. Figure 3 shows the location of the South Camp Dike. It covers a narrow channel, approximately 60 m in width, with shallow water depths between 0.5 and 1 m.

The South Camp Dike was primarily constructed between April and June of 2009, prior to ice breakup. During the winter of 2009-2010 additional thermal capping material and rockfill for the haul road was added to the dike. The South Camp Dike has a broad rockfill shell with a bituminous geomembrane liner installed on the upstream side of the shell. Compacted granular material mixed with bentonite was placed above the toe of the liner. The liner was founded on native frozen (permafrost) till material in a trench approximately 3 to 5 m below the lakebed surface. The access road is located on the downstream side of the dike.

At the time of the inspection, the South Camp Dike was used as an access road to connect the southern part of the Bay-Goose Dike, and the contractor's offices and equipment area with the mine facilities. No evidence of erosion or instability of the upstream or downstream slopes was apparent at the time of the inspection. Two thermistor strings exist on the upstream side of the dike, but one stopped functioning mid July 2011 (labelled SD-10 or T38-5). Thermistor string data obtained from the functioning thermistor (SD-09A) indicated that the foundation below elevation 130 m remained frozen throughout the past summers (2009, 2010 and 2011).

No evidence of settlement was observed at the time of the inspection.

An as-built report for the South Camp Dike had not been prepared at the time of the inspection. It is understood that AEM is preparing an as-built report and that this document is anticipated to be complete during the first quarter of 2012.

Appendix A3 contains a photographic log and record of inspection form for the South Camp Dike.

2.4 Bay-Goose Dike

The Bay-Goose Dike is located within Third Portage Lake on the south side of Portage Pit and encompasses the Goose Island Pit. The Bay-Goose Dike, in conjunction with South Camp Dike, isolates a portion of Third Portage Lake (Bay-Goose Basin) which was being dewatered at the time of the inspection to permit development of the Goose Island Pit and southern portion of the Portage Pit. Figure 3 shows the location of the Bay-Goose Dike.

Construction of the Bay-Goose Dike commenced in the summer of 2009. The earthworks component for the northern portion of the dike was principally completed by early October 2009 and for the southern portion by October 2010. Grouting of the foundation and bedrock occurred between March 2010 and July 2011. Jet grouting occurred in selected portions of the dike between October 2010 and May 2011.

Bay-Goose Dike is approximately 2,200 m in length and consists of a wide rockfill shell, with downstream filters and a cutoff wall. Non acid generating rock, primarily Ultramafic rock, obtained from pit development activities (waste rock) was used for construction of the dike, including the rockfill component, coarse filter and core backfill. For the majority of the dike, the cutoff wall extends to bedrock and consists of soil-bentonite and/or cement-soil bentonite. For portions of the dike where the cutoff wall was not constructed to bedrock, jet grouting of the soil between the base of the cutoff wall and the bedrock was performed, thereby extending the low permeability element of the dike to the bedrock surface. The dike design also includes grouting of the contact and shallow bedrock. Water depth beneath the dike is up to 9 m, with a maximum depth to bedrock below lake elevation upwards of 20 m.

It is understood that a downstream seepage collection and monitoring system will be constructed following the completion of dewatering.

At the time of the inspection, instruments to monitor and assess dike performance had been installed and were regularly being monitored by AEM. Instrumentation includes piezometers, thermistor strings, settlement monuments, and inclinometers. Periodic blast vibration monitoring has occurred on the north portion of the dike, and it is understood that this will continue along the full dike length as pit development progresses.

Unlike the East Dike, the Bay-Goose Dike is not intended to function as a haul road and, therefore, limited traffic should be present on the dike.

Dewatering of the Bay-Goose Basin is scheduled to be completed by mid-November 2011. Flow meters have been installed to track discharge volumes relative to drawdown rates during dewatering. At the time of the inspection, access to the cutoff wall alignment and all instrumentation was available. Periodic review of instrumentation data (i.e., drawdown rate, piezometric head and thermal regime) was conducted by AEM during the critical dewatering phase to monitor dike performance; however, the design engineer (Golder) had limited access to the instrumentation data to perform a more detailed review prior to the inspection. Since mid-September the frequency of data review to verify performance and to detect potential changes has been increased and is considered adequate. At the time of the inspection, a thermistor string had not been installed upstream of the dike in Third Portage Lake; however, AEM did install a thermistor string in Third Portage Lake near Sta. 31+100 on October 17, 2011.

Currently the dike crest surface, near the cutoff wall centreline, is highly irregular which limits visual observation of potential deformations, settlement, and/or cracking. At Bay-Goose, to assist in regular visual inspection of the dike by AEM personnel, it is recommended to smooth the existing surface 3 m (one dozer blade width) on either side of the dike centerline. It is understood that the thermal cap is currently not in place to facilitate access to existing casings and instrumentation in the event that remediation work be required in the next year. Once the thermal cap would be placed, it is recommended to smooth the surface, 3 m on either side of the thermal cap.

The jet grouting spoils were disposed of on the upstream rockfill platform (roadway) of the Bay-Goose Dike during construction. The spoils comprise lakebed soils mixed with cement. During the inspection it was observed that the spoils are still present over the rockfill platform. It is recommended to remove the spoils and dispose of them in a suitable location. Alternatively, covering the spoils with suitable granular materials may be possible as it will reduce erosion of the spoil.

An as-built report for the Bay-Goose Dike is currently under preparation; however it has been noted that thermistor strings at Sta. 30+260, 30+272, and 30+288.5 were not installed at the correct elevation in accordance with the design and therefore, it is recommended that these thermistor strings be replaced.

At the time of the site inspection and based on the instrumentation data collected up to that time, the condition of the Bay-Goose Dike appears stable, as:

- No visual signs of slope instability or erosion were observed on the upstream and downstream rockfill slopes;
- Freeboard is adequate; and
- Review of instrumentation data (piezometer, thermistor, and inclinometers) is occurring on a regular basis.

The Bay-Goose Dike is in a period of transition as dewatering is underway and performance monitoring of the structure through the instrumentation data has occurred for a relatively short period. Frequent review of the instrumentation data continues to assess the dikes' performance. Piezometric pressures, thermal regime, and inclinometer data have not identified any significant concerns related to the performance of the dike. However, the thermal monitoring data has indicated that a potential seepage zone may exist between about Sta. 30+260 and 30+350, which corresponds to the zone where CSB overlies SB. A second limited zone of potential seepage was identified near Sta. 30+650 (T12) between elevation 128 and 130 m near the cutoff wall and bedrock contact. On September 14, 2011 AEM decided to conduct a investigation and grouting program to further investigate these potential thermal anomalies. This program did not identify any zones of seepage; results are provided in Golder 2011b, Doc. No. 1311, dated November 2, 2011.

Appendix A4 contains a photographic log, the record of inspection form and a sample of the inspection summary performed by AEM, for the Bay-Goose Dike.

3.0 TAILINGS STORAGE FACILITY

The Tailings Storage Facility (TSF) is being progressively constructed within the dewatered portion of the northwest arm of Second Portage Lake as additional capacity to store tailings is required. The general location of the facility is shown on Figure 1 and further details are shown on Figure 4. Appendix B1 contains photographs of the facility at the time of the inspection.

The TSF was commissioned in conjunction with mill start-up in February 2010, with tailings being deposited within the north cell of the facility. The north cell was initially formed through the Stage 1 construction of the Stormwater Dike and Saddle Dam 1 in 2009. At the time of the 2011 inspection, ongoing construction of the TSF was observed to include liner placement on the Stormwater Dike and Saddle Dam 2. The initial four years of tailings deposition is planned to occur within the north cell of the facility, after which time deposition will begin in the south cell, ultimately resulting in the Stormwater Dike becoming encapsulated within tailings.

At the time of the inspection, the TSF was storing an excess of water within the facility. This situation raises some concerns related to the design intent for the perimeter structures, the impact on tailings storage volume, and the potential for decreased tailings density and increased ice content. It is understood that AEM is currently reviewing their general water management practises including reclaim water usage and the construction of water diversion structures.

A bathymetric survey of the tailings pond had just been conducted by AEM (mid-September) in order to gather data on tailings beach slopes and tailings pond volume. It is understood that this data will be used to track actual versus assumed storage capacity, and to verify the design assumptions for the facility including tailings density within the pond, and ice entrapment. AEM has indicated that these surveys are being performed bi-annually (June and September) to have a good understanding of the tailings and the degree of ice entrapment.

Construction drawings for the Stormwater Dike, Saddle Dam 1 and Saddle Dam 2 provide details for seepage collection trenches and sumps along the downstream toe of the structures in order to collect, monitor, and pump seepage back to the TSF. AEM is currently evaluating how to modify current temporary collection trenches and/or sump systems into a more permanent system at Saddle Dam 1 and Saddle Dam 2.

As-built reports documenting construction details of Stormwater Dike, Saddle Dam 1 and Saddle Dam 2 were not completed at the time of the inspection. As-built reporting is in progress and is anticipated to be completed during the first quarter of 2012.

An OMS Manual and EPP for the TSF were not prepared at the time of the inspection; however, it is understood that AEM is currently preparing these documents. An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared which includes a risk assessment of potential failures for the Central Dike, Saddle Dams, and Stormwater Dike. The risk assessments should be regularly reviewed and updated, as required, to reflect current designs and understanding about the structures and the TSF. It is noted that the ERP itself does not address the emergency procedures to be followed in the event of failure of any one or a combination of the tailings perimeter structures, but rather refers to the EPP for these structures.

The following subsections provide further details regarding each of the TSF dike structures and the Reclaim Pond.

3.1 Saddle Dam 1

Saddle Dam 1 is located at the northwest corner of the TSF (Figure 4) and forms one of the perimeter structures which are intended to retain tailings and supernatant fluid during the operational and closure/post closure period of the mine. Saddle Dam 1, which crosses a valley or depression between the northwest arm of Second Portage Lake and Third Portage Lake, is a rockfill embankment with an upstream slope of 3 horizontal to 1 vertical (3H:1V) and a downstream slope of 1.5H:1V. The design includes inverted base filters, upstream graded filters, and a linear low density polyethylene geomembrane liner on the upstream dike face. The geomembrane liner is placed between an upper and lower non-woven geotextile layer for protection, and then is covered by approximately 0.3 m or more of granular material up to an elevation of 140 m. The abutments are founded on bedrock, while the central portion of the dike is founded on ice-poor soil. Till and/or crushed aggregate mixed with dry bentonite powder have been placed above the toe of the liner.

Saddle Dam 1 was progressively constructed. Stage 1 was constructed in the fall of 2009 with a height of 10 m (crest elevation of 141 m) and length of 250 m. Stage 2 was constructed in 2010 to an overall height of 20 m (crest elevation of 150 m) and length of about 400 m.

A continuous beach along the upstream face of Saddle Dam 1 was not visible at the time of the inspection due to the tailings pond being impounded directly against the structure. The tailings pond elevation was approximately 138.3 m. It is understood that AEM plans to resume tailings discharge near Saddle Dam 1 in mid-October to re-establish the beach to maintain the tailings pond away from the structure thereby providing protection for the geomembrane liner from potential ice damage. As the LLDPE geomembrane was exposed on Saddle Dam 1 above elevation 140 m, it is essential that a continuous tailings beach be maintained throughout the operational life of the structure and into closure to meet the design requirements (seepage control and to prevent ice loading and ice-induced damage to the geomembrane liner). Following completion of the site visit, AEM provided photographs showing that a beach had been re-established along the Saddle Dam 1 upstream face in early November 2011.

Significant wrinkles in the liner just above the current water level were observed at the time of the inspection. The removal of these wrinkles is required to provide for proper liner performance following covering by tailings. According to the design, the geomembrane liner is to be in intimate contact with, and lie in a relaxed state on top of, the fine filter. Any large wrinkles that have the potential to fold over should be repaired as these locations will

tend to concentrate stress in the liner and become a point of weakness thereby increasing the likelihood for seepage. AEM has informed Golder that repairs to remove the wrinkles were performed following the inspection.

During the summer of 2011, AEM reported that damage to a portion of the LLDPE liner occurred as a result of wind uplift and was subsequently replaced. To reduce the potential future damage to the geomembrane by wind up lift, AEM placed some additional ballasting (crushed rock), as shown on photograph (B2-3). The adequacy of the ballasting should continue to be monitored and additional ballasting added if necessary.

Four thermistor strings are installed at Saddle Dam 1. Location of the instrumentation is shown in Appendix C4. Three thermistors are installed to monitor the thermal condition within the structure and its foundation. The fourth thermistor string is installed along the upstream face of the dam to monitor the thermal condition of the tailings. Displacement monitoring locations should be established and regularly monitored. Additional information regarding the existing instrumentation is included in Section 4.0.

Thermistor data from within the structure indicates that the dike foundation remained frozen during the past year. Below the rockfill shell, the foundation soil or bedrock remained in a frozen state with temperatures ranging from about -4°C to about -7°C. At the upstream toe, below elevation 132 m, most of the compacted till base material below the liner remained frozen. Thermistor data showed that the frozen tailings above about El. 135.2 m thawed in June 2010. The tailings below elevation 134.5 m appear to have remained frozen during the summer of 2011. The rockfill shell remained frozen with the exception of the upper part (above El. 140 m) that thawed in September 2011.

Ponding water was observed at the downstream toe of Saddle Dam 1, which has the potential to thaw the frozen soils within the dam foundation, thereby increasing the likelihood of settlement with the potential for liner damage and seepage through the structure. Water ponding at the downstream toe and within the foundation of Saddle Dam 1 is due to the natural topography and the accumulated water is not necessarily a result of seepage but rather natural runoff from the surrounding terrain. Nevertheless, the installation of the permanent pumping system with the capability of year round operation is necessary. Monitoring of the water quality of the ponded water should be conducted to assess if seepage through Saddle Dam 1 is occurring. At the time of the inspection a temporary pumping system was observed, however, it was not operational. AEM has indicated they are in the process of establishing a power supply to Saddle Dam 1 such that a permanent system to pump back water will be in place.

Appendix B2 contains a photographic log, the record of inspection form and samples of the inspection summaries performed by AEM for Saddle Dam 1.

3.2 Saddle Dam 2

Saddle Dam 2 is located along the western side of the TSF and connects to the western corner of the Stormwater Dike (Figure 4). Along with Saddle Dam 1, Saddle Dam 2 forms one of the perimeter structures of the north cell of the TSF which is intended to retain tailings and supernatant fluid during the operational and closure/post closure period of the mine. Saddle Dam 2 crosses a depression between the northwest arm of Second Portage Lake and Third Portage Lake. Its design is similar to Saddle Dam 1. The upstream foundation of the dike and abutments are primarily founded on bedrock; however, some portions of the structure, underneath the inverter filter, are founded on ice-poor soil. A thin layer of low permeability till was placed and compacted along the liner connection with bedrock for placing the upstream liner tie-in. In select areas where

open factures within the bedrock were noted, a thin layer of crushed aggregate mixed with dry bentonite powder was placed under the thin layer of low permeability till. A blanket of till was also placed above the installed liner tie-in at the toe of the structure.

Construction of Saddle Dam 2 to a design crest elevation of 150 m was in progress at the time of the inspection where AEM was placing the LLDPE liner from Elevation 146 m to 150 m. Saddle Dam 2 has a maximum height of about 10 m and a crest length of 460 m. Some pooling was present over the liner above the tailings pond level near the northwest abutment at the time of the inspection. It is recommended to drain all ponded water present over the liner before ice forms to protect the liner from potential ice damage. No seepage was evident at the downstream toe of the dike.

Three thermistor strings are installed at Saddle Dam 2. The location of the instrumentation is shown in Appendix C5. The thermistor strings have been installed to monitor the thermal condition within the structure and its foundation. A fourth thermistor string is planned to be installed along the upstream face of the dam to monitor the thermal condition of the tailings. Displacement monitoring instrumentation should be installed and regularly monitored. Additional information regarding the existing instrumentation is included in Section 4.0.

Thermistor data from within the structure indicates that the dike foundation remained frozen during the past year. Below the rockfill shell the foundation soil or bedrock remained in a frozen state with temperatures ranging from about 0°C to -9.5°C. At the upstream toe of the dike only the upper 2 m of the compacted till material thawed during the summer of 2011 (above elevation 143 m). The rockfill varied from frozen to unfrozen.

Appendix B3 contains a photographic log, the record of inspection form and samples of the inspection summaries performed by AEM for Saddle Dam 2.

3.3 Stormwater Dike

The Stormwater Dike (SWD) is an internal structure that subdivides the TSF into two areas (the north cell and south cell) within the dewatered northwest arm of Second Portage Lake (Figure 4). The Stormwater Dike is a temporary structure that is intended to retain tailings and supernatant fluid during the first four years of operation. Upon completion of tailings deposition within the north cell, the south cell will commence.

The Stormwater Dike is a rockfill embankment structure founded on lakebed soils. The upstream slope is approximately 3H:1V and the downstream slope is about 1.5H:1V. A bituminous geomembrane liner has been installed on graded filters placed on the upstream face of the dike. Low permeability till was placed and compacted along the upstream toe of the dike, above the liner. The abutments are generally founded on bedrock; however, some areas have been built on frozen soil with varying quantities of ice.

The Stormwater Dike is being progressively constructed using waste rock generated from the mining operations as rockfill and crushed aggregate for the fine and coarse filters. Stage 1 was constructed in 2009 to a height of 10 m (crest elevation of 140 m) and length of 860 m. Stage 2 was primarily constructed in 2010 to an overall height of 18 m (crest elevation of 148 m) and length of about 1060 m. A horizontal bench exists along the upstream face of the structure between the connection of the 2009 and 2010 portions of the structure. While the Stormwater Dike design and current tailings deposition plan are based on a crest elevation of 150 m, it is understood that AEM has elected to construct this structure to an elevation of 148 m at this time.

Finalization of the construction of the Stormwater Dike to a crest elevation of 148 m, near the west abutment, was in progress at the time of the inspection where AEM was placing the liner from Elevation 140 m to 148 m. The junction between the bituminous liner of Stormwater Dike and the LLDPE liner of Saddle Dam 2 was planned to be performed as part of the work to complete the construction of this structure. Based on preliminary as-built documentation provided by AEM after the inspection, the connection between Saddle Dam 2 and Stormwater Dike does not appear to have damaged the LLDPE placed on Saddle Dam 2.

The current method for supporting the tailings pipe at Stromwater Dike has resulted in damage to the liner. The Stormwater Dike is a temporary structure and, therefore, this damage is less of a concern, but in accordance with the design intent, continuous inspection and repair of the liner is to be performed before the tailings beach or pond elevation rises above the damaged areas. AEM is encouraged to develop and utilize alternative pipe supports or discharge systems to reduce or eliminate the potential for damage.

Tension cracks were identified near the downstream side of the crest near the north abutment (between 10+849 and 10+940) in 2010. The crest of the dike is used to access other portions of the TSF and it appears that the crest surface was levelled and road base material placed as part of regular maintenance of the dike prior to the inspection. As a result, no actual tension cracks were observed during the inspection, but depressions were observed between Sta. 10+700 and 10+900. The locations of the observed depressions have been surveyed and their locations are shown in Appendix B4. It is recommended that AEM continue to monitor the structure, including the observed depressions, for any change or rate of change and for the presence of tension cracks. Corrective measures or controls should be implemented, if necessary.

At the time of the inspection, tailings were being discharged through the end of the pipe near the southwest corner of the facility. The tailings pond elevation was approximately 138.3 m. It was noted that the discharge end was submerged. To promote the development of a beach, the end of the tailings discharge pipe should be above the pond elevation.

No seepage was observed along the downstream toe of Stormwater Dike; however, minor ponded areas were observed and have been surveyed (refer to Appendix B4 for locations).

It is noted that no instrumentation currently exists within the Stormwater Dike to monitor its performance. A single deep thermistor string does exist at the downstream toe of Stormwater Dike and is being utilized to monitor freeze back of the talik, and in future, will be used to monitor the thermal regime beneath the tailings in the south cell.

Appendix B4 contains a photographic log, a plan view of surveyed depressions and ponded area, the record of inspection form and samples of the inspection summaries performed by AEM for the Stormwater Dike.

3.4 Reclaim Pond

The Reclaim Pond within the north cell of the TSF has been established and operated since the startup of the mill. The concept for the operation of the reclaim pond is to maintain the pond generally within the middle of the facility and away from the perimeter structures. Reclaim water is pumped from a floating barge structure at the end of the causeway that extends out into the north cell. The causeway is constructed of rockfill and is raised on a regular basis to provide access to the barge and for the reclaim pipeline.

There are no geotechnical concerns associated with the causeway or the reclaim barge facility.

As part of the 2010 filling scheme update, assessment of the tailings density was performed comparing the initial average assumed value of 1.31 t/m^3 (including bulking factor for ice) to the measured value of 1.27 t/m^3 (based on field data collected between February to September 2010). Similar assessment will be performed as part of the 2011 filling scheme update and will be provided under a separate cover during the first quarter of the year 2012.

Appendix B5 contains a photographic log of the Reclaim Pond within the TSF.

3.5 Cofferdam

Construction of a cofferdam as a "contingency structure" for temporary water storage was underway within the upstream portion of the footprint of the future Central Dike during the inspection. The design and construction QA for the cofferdam was performed by AEM.

The inspection of the cofferdam was not part of the 2011 annual geotechnical inspection as it is considered a temporary structure and construction was not complete.

4.0 GEOTECHNICAL INSTRUMENTATION

4.1 East Dike

Instrumentation within the East Dike was installed in the spring of 2009 to monitor the dike's performance following construction and during dewatering, operation, and into closure. Additional instrumentation was added in 2009 and 2010 to increase coverage across the dike. Data has been regularly collected and reviewed by AEM since the installation, and has periodically been reviewed by Golder, the design engineer. The following subsections present a summary of the data for the period between September 2010 and September 2011, with a few general references to previous monitoring data results. The 2009 and 2010 Annual Geotechnical Inspection Reports (Golder, 2009e, 2010c) contain additional information regarding instrumentation data collected prior to September 2010. Data plots for the instrumentation are contained in Appendix C1 along with a plan, profile and cross-sections showing the location of the instruments.

4.1.1 Piezometers

Three arrays of multilevel vibrating wire piezometers (VWP) were installed within the East Dike in mid March 2009 as follows:

- South Channel (Sta. 60+190);
- North Channel (Sta. 60+490); and
- North Shallows (Sta. 60+700).

At each location, multilevel VWP were installed on the:

- Upstream side of the cutoff wall, approximately 2 m from the centerline;
- Immediately downstream of the cutoff wall, approximately 2 m from the centerline; and

- Further downstream of the cutoff wall, approximately 10 m from the centerline.

In addition, a single VWP was installed immediately downstream of the cutoff wall near the contact area (base of cutoff wall and top of bedrock surface) at Sta. 60+150, Sta. 60+200, Sta. 60+240, Sta. 60+400, Sta. 60+450, Sta. 60+460, Sta. 60+470, Sta. 60+472, Sta. 60+480, Sta. 60+500, Sta. 60+510, Sta. 60+550, Sta. 60+600, Sta. 60+650, and Sta. 60+750.

For the three piezometric arrays located at Sta. 60+190, Sta. 60+490, and Sta. 60+700 the following observations are made:

- At Sta. 60+190 the observed levels are consistent with expectations for a functioning cutoff wall. There is a consistent drop in the hydraulic head across the cutoff wall and within the grouted bedrock in the downstream direction. Further downstream the hydraulic head continues to decrease, with a small upward gradient noted in the summer linked with sump construction activities in the area;
- At Sta. 60+490 a small decrease in the hydraulic head is apparent within the lower bedrock, but remains high at the contact. Flow through this portion of the dike is apparent within the bedrock and near the contact, and is particularly evident in the thermal instrumentation data. This is discussed in more detail below. A rise in the piezometeric levels was observed in mid-July and is attributed to the downstream sump construction activities. This rise should decrease once continual pumping of the sump is implemented. Monitoring to confirm this should continue; and
- At Sta. 60+700, the observed levels are consistent with expectations for a functioning cutoff wall. Piezometer 700-P1-C installed near the bedrock contact remained frozen throughout the year which gave unexpected and likely erroneous readings.

Sta. 60+472

An unexpected rise in hydraulic head was recorded in September 2010 near the interface between the cutoff wall and the bedrock, but over the past year the total head seems to have stabilized.

Sta. 60+750

In the month of July 2011, an 8 m drop in the piezometric pressure was recorded at this station which approximately corresponds with a time when the temperature at the piezometer dropped below zero degrees Celsius. Irregular changes in the measured piezometric pressure have been observed historically at this location as the piezometer fluctuates between frozen and thawed conditions. The observed drop in head does not appear to be real and is not considered a concern.

4.1.2 Thermistors

Approximately 2.5 years of thermal data have been collected from the instrumentation installed within the East Dike.

Sta. 60+092 and Sta. 60+842

The two thermistors installed at Sta. 60+092 and Sta. 60+842 are located on the south and north abutments, respectively. Only the upper 0.5 m to 1.2 m of the dike on the abutment thawed during the past summer (active layer). The remaining portion of the cutoff wall and bedrock remained frozen. The temperature within the cutoff wall at these locations varied near the top of the wall from -11°C to 0.5°C, and at the base from about -10°C to -2°C. Comparatively less temperature variation was observed with depth at each location. At approximately 10 m into the bedrock the temperature variation was less than 1°C and was stable at about -4.5°C (Sta. 60+092) and -3°C (Sta. 60+842), respectively. The thermistor string located at Sta. 60+092 appears to have one node (number 9; elevation 131 m) that has not been functioning correctly since approximately May 2010. Thermal results for this elevation after this date are not shown on the East Dike instrumentation plots provided in Appendix C1. Trends observed in 2010-2011 are consistent with what has been observed historically. No signs of seepage are apparent at these locations; nevertheless, ongoing monitoring is required.

Sta. 60+185

The thermistor string installed in the South Channel at Sta. 60+185 (bedrock about 6 m below water surface at elevation 127 m) recorded the following temperature variations:

- The upper 1 m (El. 135.5 m) of the cap material thawed during the summer of 2011 and was frozen during the winter period;
- The cutoff wall has remained frozen from about El. 135.0 to 133.0 m;
- The cutoff wall from El. 133 m to 132 m has been subject to freeze and thaw cycles. This elevation roughly corresponds to the water level in Second Portage Lake upstream of the dike (133.1 m). The temperature varied from about -2°C to 2°C;
- The remaining portion of the wall (below elevation 132 m to the base of the wall at 127 m) has remained thawed since the instrument was installed with a temperature variation of about 4.5°C (between 0.5°C and 5°C); and
- Recorded temperatures within the bedrock indicate that it is also thawed. The seasonal variation in the temperature decreased with increasing depth. Near the bedrock surface, the temperature varied by approximately 4.5°C (from 0.5 to 5°C), and 7 m into rock, seasonally varied by about 1°C, with a stable temperature of about 2°C.

Trends observed in 2010-2011 are consistent with that observed historically. Based on the thermal data at this location no signs of seepage are evident; nevertheless, ongoing monitoring is required.

Sta. 60+695

The thermistor string installed in the North Shallows at Sta. 60+695 (bedrock at approximately elevation 128.5 m, 4 m below upstream lake level) recorded the following temperature variations:

- The cap and upper portion of the cutoff wall from about El. 136.5 to 134.6 m thawed during the past summer and was frozen during the winter;
- The cutoff wall from about El. 134.6 to 131.5 m remained frozen throughout the monitoring period;

- A portion of the cutoff wall from El. 131.5 to 130.9 m cycled from frozen to thawed. The temperature varied by about 1°C;
- The remaining portion of the cutoff wall from El. 130.9 to 128.5 m remained thawed throughout the monitoring period. Temperature varied by about 2.5°C (from 0.2 to 2.7°C); and
- The bedrock remained thawed from El. 128.5 to 123 m, with the temperature varying from about 0.2 to 3.5°C. Annual temperature variation decreased with depth (below El. 123 m), with a stable temperature of about 2°C.

Trends observed in 2010-2011 are consistent with that observed historically. Based on the thermal data at this location no signs of seepage are evident; nevertheless, ongoing monitoring is required.

Sta. 60+485

The thermistor string at Sta. 60+485, installed within the North Channel (bedrock at approximately El. 125 m, 8 m below lake level), indicated the following temperature variations:

- The cap and upper portion of the cutoff wall was initially frozen and then thawed (El. 136.5 to 132.8 m).
- The cutoff wall between El. 125.4 and 132.8 m remained thawed throughout the year; and
- The bedrock also remained thawed throughout the year.

The thermal variation observed within the cutoff wall below El. 133 m and shallow bedrock down to an elevation of 123 m is similar and significant at this location, with fluctuations between high temperatures of 14°C and lows slightly above 0°C. There is good correlation between the temperatures monitored within the cutoff wall and the upstream lake temperatures indicating advective flow (i.e., recorded temperature changes are primarily a result of temperature changes in water flowing through this area). The delay between changes in the recorded temperatures within the lake and within the cutoff wall is minimal (less than 4 days). The temperature response recorded in the piezometers at Sta. 60+490 P2-C are also significant, as are the responses recorded within the piezometers at Sta. 60+450-C, Sta. 60+460-C, Sta. 60+470-C, Sta. 60+472-C, Sta. 60+480-C, Sta. 60+490 P1-C, and Sta. 60+500-C. Similar variations in the thermal regime were recorded between Sta. 60+458, 60+467, 60+479, 60+483, 60+486, 60+491, and 60+494. In 2010, a longer portion of the dike was monitored, which indicated signs of seepage between approximately Sta. 60+440 and 60+504.

Trends observed in 2010-2011 are consistent with that observed historically. Based on the instrumentation data, it is recommended that AEM continue to closely monitor the dike and that the risk to operations be evaluated to assess if mitigation or implementation of other protective measures are warranted.

4.1.3 Inclinometers

Three inclinometers were installed at East Dike Sta. 60+195, Sta. 60+495, and 60+705. The inclinometer at Sta. 60+195 was destroyed in July 2010. The inclinometer displacements are referenced along Axis A and Axis B; Axis A is aligned with the cutoff wall alignment (positive displacements are towards up chainage), while the Axis B is perpendicular to the Axis A.

Recorded displacements to the date of the inspection are small. The maximum cumulative displacements at the crest were observed in the inclinometer installed at Sta. 60+495. The cumulative displacement is about

13.5 mm parallel to the cutoff wall (Axis A), and about 10 mm perpendicular to the cutoff wall (Axis B). Crest displacements recorded in the inclinometer at Sta. 60+705 were slightly less. The recorded displacements are well within the tolerable displacements for the structure and are not a concern.

4.1.4 Survey Monuments

AEM have recently installed additional survey monuments on the dike crest. From the survey monument data provided it appears that the accuracy of data is not sufficient, and it is recommended that survey techniques be reviewed to improve accuracy.

4.1.5 Seismograph

Periodic seismograph monitoring of blast vibrations has occurred on the crest of the East Road at three different locations, as shown on Figure 2. Only one event was recorded on the crest of East Dike, near Sta. 60+196. The blasting effect assessment for East Dike is using data primarily recorded from monitoring stations on East Road located near the downstream toe of East Dike. Although the East Road is close to the dike, the responses on the dike crest could be different even under the same blasting events, due to different materials and heights. For a better understanding of dike performance during blasting events, it is recommended to re-initiate directly monitoring vibration responses on the dike crest. Estimated tensile and shear strains generated as a result of the blast vibrations to date are not a concern for the integrity of the dike.

4.2 South Camp Dike

Two thermistor strings exist on the upstream side of the South Camp Dike. SD-10 is located near the liner toe and SD-09-A is located approximately 20 m further upstream within Third Portage Lake. Thermistors SD-10 stopped functioning in mid-July 2011. The following summarizes the observations regarding the thermal regime at these locations:

- The liner toe has remained frozen over the monitoring period;
- Soils located beneath the dike foundation and liner appear to have remained frozen (permafrost) below elevation 133 m; and
- Soils located immediately upstream of the dike beneath about 1 m of water have remained frozen.

Trends observed in 2010-2011 are consistent with that observed historically. Based on the thermal data at this location no signs of seepage are evident; nevertheless, ongoing monitoring is required. It is also recommended to replace the damaged thermistor to provide ongoing thermal monitoring of the structure and its foundation.

Plots of the South Camp Dike thermistor data are provided in Appendix C2.

4.3 Bay-Goose Dike

Instrumentations within the Bay-Goose Dike were installed in the summer of 2011 to monitor the dike's performance following construction and during dewatering, operation, and into closure. At the time of the inspection, instrumentation data were being monitored to assess dike performance during Bay-Goose Basin dewatering. The following subsections present a summary of the data for the period between mid-July 2011 and mid-November 2011. Data plots for the instrumentation are contained in Appendix C3 along with a plan, profile and cross-sections showing the location of the instruments.

4.3.1 Piezometer

Arrays of multilevel vibrating wire piezometers (VWP) were installed within the Bay-Goose Dike as follows:

- Sta. 30+153
- Sta. 30+276.5
- Sta. 30+378.5
- Sta. 30+453.5
- Sta. 30+645.5
- Sta. 31+165
- Sta. 31+600
- Sta. 31+815
- Sta. 31+885
- Sta. 32+000
- Sta. 32+065
- Sta. 32+105

At each location, multilevel VWP were installed on the:

- Upstream side of the cutoff wall, approximately 2 m from the centerline;
- Immediately downstream of the cutoff wall, approximately 2 m from the centerline; and
- Further downstream of the cutoff wall, approximately 10 m from the centerline.

In addition, single VWP were installed immediately downstream of the cutoff wall near the contact area (base of cutoff wall and top of bedrock surface) at the following stations:

- Sta. 30+167;
- Sta. 30+249.5
- Sta. 30+306.5
- Sta. 30+440
- Sta. 30+516.5
- Sta. 30+684.5
- Sta. 30+770
- Sta. 30+804.5
- Sta. 31+052
- Sta. 31+220
- Sta. 31+565
- Sta. 31+615
- Sta. 31+700
- Sta. 31+842
- Sta. 31+928
- Sta. 31+990
- Sta. 32+020

The observed levels are consistent with expectations for a functioning cutoff wall during dewatering. Generally, there is a consistent drop in the hydraulic head across the cutoff wall and within the grouted bedrock in the downstream direction. In all VWP piezometric elevations achieved a constant reading near the end of dewatering. It was noted that when VWP are frozen, inconsistent piezometric readings sometimes occur under frozen conditions and are not a concern.

4.3.2 Thermistor

As a complete annual cycle of thermal data has not yet been recorded and the structure has been in a state of flux due to dewatering observed trends in the data may be difficult to interpret and continued monitoring of the thermal data should continue to assess the performance of the structure and to correlate with the thermal variation in the upstream water temperatures.

Sta. 30+ 134 (T1), Sta. 30+827 (T14) and 32+140 (T30)

The three thermistors installed at Sta. 30+134 and Sta. 30+827 and 32+140 are located on the south abutment, Goose Island and west abutments, respectively. The first node of these thermistors is installed about 1 m below the dike crest. From the data collected, thawing was observed on the south and west abutment to an elevation of about 134.5 or 134 m. From mid-July to mid-November, the cutoff wall and the bedrock foundation seemed to have warmed up and reached a maximum temperature toward the end of dewatering.

Sta. 30+ 185 (T2), Sta. 30+489.5 (T9), Sta. 30+553.25 (T10), Sta. 30+621.5 (T11), Sta. 30+650 (T12), Sta. 30+713 (T13), Sta. 31+080 (T15), Sta. 31+134.5 (T16), Sta. 31+170 (T17), Sta. 31+352 (T18), Sta. 31+752.5 (T21), Sta. 31+820 (T22).

Twelve thermistors were installed in the soil-bentonite portion of the cutoff wall. Eleven of the twelve thermistors show a similar trend where the initially frozen upper portion of the cutoff wall thawed during the summer of 2011 (above El. 133.7 m), which is comparable to the “active layer” and is an expected trend. At Sta. 31+553.25 (T10), the upper part of the cutoff wall near the crest stayed frozen during the summer of 2011 with a maximum of about -0.2°C and then the portion of the wall below elevation 133.5 remained unfrozen throughout the monitoring period.

The twelve thermistors showed that a portion of the cutoff wall frozen during the summer 2011, ranging from El. 133.7m to maximum El. 131.8 m. In all thermistors, the rest of the cutoff wall beneath the frozen part, and down into bedrock stayed unfrozen during the monitoring period. A punctual warming at Sta. 30+621.5 (T11), near about El. 121 m could lead to the presence of a more permeable bedrock mass.

Sta. 30+260 (T3), Sta. 30+261.5 (T3’), Sta. 30+272 (T4), Sta. 30+273.5 (T4’), Sta. 30+288.5 (T5), Sta. 30+290 (T5’), Sta. 30+330.5 (T6)

This portion of the dike contains a cutoff wall where cement-soil-bentonite (CSB), a rigid material sits on top of soil-bentonite (SB), a soft material, where settlement could occur. The design thermistor node configuration for T3 (Sta. 30+260), T4 (Sta. 30+272) and T5 (Sta. 30+288.5) were modified to have nodes located at a very close spacing and were to be installed to monitor the interface between the CSB and SB material as noted below. The themistors T3, T4 and T5 were not installed to the designed depths, but instead have been installed below the interface and monitor the bedrock contact. Mid-September, AEM installed three more thermistors at Sta. 30+261.5 (T3’), Sta. 30+273.5 (T4’) and Sta. 30+290 (T5’), but the spacing between each node were of a meter, and did not met the close spacing design for the interface of CSB overlying SB. Early sign of monitoring of those instrumentations indicated the possibility of a seepage pathway at the interface between CSB and SB. A field investigation was performed at the end of September, to assess the interface between CSB and SB. The investigation outcomes indicated that potentially anomalous zone associated with an increase in thermal profile at/along the CSB/SB interface was not characterized by obvious large opening that could results in large inflows. Nevertheless, the interface should continue to be monitored.

Sta. 30+386 (T7), Sta. 30+417.5 (T8), Sta. 31+595 (T19), Sta. 31+605 (T20), Sta. 31+850 (T23), Sta. 31+880 (T24), Sta. 31+960 (T25), Sta. 31+960 (T25), Sta. 31+995+ (T26), Sta. 32+030 (T27), Sta. 32+060 (T28), Sta. 32+100 (T29)

Twelve thermistors were installed in areas where the bottom of the cutoff wall was jet grouted. It is assumed that the warming trends observed in most of them represent the continuation of the columns curing. As observed in

most of the thermistors installed along Bay-Goose Dike centerline, the twelve thermistors show that the top part of the cutoff wall thawed in the summer 2011, and a portion of the wall remains, beneath the thawed part, remained frozen. In those twelve thermistors, the frozen part is smaller then what was observed elsewhere, mainly due to the warming caused by the curing of the jet grouting columns.

4.3.3 Inclinometers

Eight inclinometers were installed at Bay-Goose Dike at Sta. 30+282, Sta. 30+390, 31+180, 31+590, 31+640, 31+815, 31+885 and 32+065. The inclinometer displacements are referenced along Axis A and Axis B; Axis A is aligned with the cutoff wall alignment (positive displacements are towards up chainage), while the Axis B is perpendicular to the Axis A. At the time of inspection, only 2 measurements had been taken in each inclinometer, one mid-August 2011 and one early September 2011.

Recorded displacements to the date of the inspection are mainly small, with the exception of inclinometer installed at Sta. 31+590 (cumulative displacement at crest of 280 mm parallel to the cutoff wall (Axis A) and about 26 mm perpendicular to the cutoff wall (Axis B)). The rest of the recorded displacements seem well within the tolerable displacements for the structure, but two readings are insufficient to draw any conclusions about trends. Additional data is required and AEM should continue to review and assess conditions.

4.3.4 Survey Monuments

AEM installed survey monuments on the dike crest, but the results were not provided at the time of the inspection.

4.3.5 Seismograph

Periodic seismograph monitoring of blast vibrations on the crest of the Bay-Goose dike has occurred at a single location, Sta. 30+400. Estimated tensile and shear strains generated as a result of the blast vibrations to date are not a concern for the integrity of the dike. It is recommended that ongoing seismograph monitoring continue and additional monitoring stations be added as the Goose Pit and south portion of Portage Pit are developed.

4.4 Saddle Dam 1

Three thermistor strings were installed in Saddle Dam 1 in 2009 and early 2010 as part of Stage 1 construction. A fourth thermistor string was installed following the completion of Stage 2 construction in 2010.

The SD1-T1 thermistor string was installed in the centre of the upstream face of the dike immediately beneath the geomembrane liner to monitor temperatures within deposited tailings. A thin layer of protective granular material exists above the geomembrane liner at this location. This thermistor records values similar to the ambient air temperature. During the winter of 2011 all tailings froze. Some portion of the tailings thawed during the summer 2011; as of September 2011 tailings beneath El. 135.3 m remained frozen. It is anticipated that data collected from this location will be useful in monitoring the freeze back of the tailings in the coming years.

The SD1-T2 thermistor string was installed vertically through the upstream Stage 1 crest in the centre of the dike. It shows that the dike foundation remained frozen during the past year. As of mid-September 2011, the rockfill temperature had warmed and was near zero at the foundation level and the upper 4 m of rockfill had thawed. Trends observed in 2010-2011 are consistent with that observed last year.

The SD1-T3 thermistor string was installed vertically through the upstream Stage 2 crest in the centre of the dike. It shows that the dike foundation remained frozen during the past year. As of mid-September 2011 the rockfill temperature had warmed and was near zero at the foundation level and the upper 10 m of rockfill had thawed.

The SD1-T4 thermistor string was installed vertically through the upstream toe near the centre of the dike. It shows that the dike foundation remained frozen during the past year. Only about 1 m of the compacted till base material below the geomembrane liner thawed. During the inspection it was observed that water collects at the downstream toe and within the downstream foundation of the structure, but the thermistor data shows no thawing of the soil foundation. Nevertheless, the installation of the permanent pumping system with the capability of year round operation is recommended to reduce any chance of thawing and therefore settlement of the structure that could lead to liner damage and increase the likelihood of seepage through the structure. No warming of the upstream toe was observed between September 2010 and September 2011, even if water was observed to be ponding at the downstream toe (the downstream toe higher than upstream toe, therefore if water collects at the downstream toe, water collects likely also at the upstream toe.

No sign of seepage or thawing of the foundation soil was observed. The structure is performing as expected.

Plots of the Saddle Dam 1 thermistor data are provided in Appendix C4.

4.5 Saddle Dam 2

Three thermistor strings were installed in Saddle Dam 2. A fourth thermistor is planned to be installed following the construction of the structure.

The SD2-T1 thermistor string is planned to be installed in the centre of the upstream face of the dike immediately on top of the geomembrane liner to monitor the thermal regime of the tailings in contact with the structure.

The SD2-T2 thermistor string was installed vertically through the upstream crest in the centre of the dike. It shows that the dike foundation remained frozen during the past year. As of mid-September 2011 the rockfill temperature had warmed and was near zero at the foundation level and the upper 4 m of rockfill had thawed.

The SD2-T3 thermistor string was installed vertically through the upstream key-in trench near the centre of the dike. It shows that the dike foundation remained frozen during the past year. Less than a metre of the upper part of the compacted till base material below the geomembrane liner thawed during the summer of 2011. The till blanket material (as shown on photograph B3-5 in Appendix C4 and) placed on top of the compacted till base also thawed during the summer of 2011.

The SD2-T4 thermistor string was installed vertically through the upstream toe about mid-way between the centre of the dike and the northwest abutment. It shows that the dike foundation remained frozen during the past year along with the compacted till base material below the geomembrane liner in this area. The till blanket, placed on top of the compacted till base in this region, also thawed during the summer of 2011.

No sign of seepage or thawing of the foundation soil was observed. The structure is performing as expected.

Plots of the Saddle Dam 2 thermistor data are provided in Appendix C5.

5.0 ALL WEATHER PRIVATE ROAD (AWPR)

The All Weather Private Road (AWPR) formerly referred to as the All Weather Private Access Road (AWPAR) was built in 2007-2008 to connect the hamlet of Baker Lake to the Meadowbank Mine site (Figure 5). The road is approximately 107 km in length with nine bridge crossings and culverts installed at a total of thirty-eight locations. Table 1 lists each structure along the AWPR, the designated name, and approximate location.

The road design, as presented in Golder 2006 (06-1413-021 July 2006), is based on a general rockfill subbase and crushed granular rockfill surfacing with a combined minimum thickness of 1 m over thawed stable soil and 1.2 m over thawed susceptible soil.

At the time of the inspection, the AWPR visually appeared to be in good condition and functioning well. Areas of washboard were observed; however, this is expected to occur on heavily trafficked gravel roads. This is not a concern.

A few upgrades of the road were made in 2011, including the installation of two culverts in the area of Bridge 1 (R02, Sta. 8+750) and repairs of the north abutment of Bridge 5 (R13, 62+060). Evidence of ongoing road maintenance and upgrade activities was observed at the time of the inspection. Fewer locations were observed to have road fill thicknesses less than design in comparison with previous annual inspections. No evidence of thermal degradation of the permafrost was observed on the road during the inspection. It should be noted that visual evidence may not necessarily be observed due to the regular road maintenance performed by AEM.

In general, the fill material that comprises the majority of the road provides no significant barrier to low gradient water flow due to its coarse nature. The summer of 2011 was within the normal ranges in terms of precipitation. As a result, water levels and flow velocities at the crossings were observed to be normal for the time of the year.

Water was observed flowing through the rockfill near the south approach of Bridge 9 (R19 Sta. 84+300) during the inspection. During previous inspections, water was observed flowing through the rockfill in several locations. In some areas previously reported, repairs or modifications were performed. But no work was observed to have occurred in the following areas, where, in previous years water was observed or inferred to be flowing through the rockfill:

- Near culvert R-04 at approximately km 11+950;
- Adjacent to culvert R-05A at km 15+645 (one culvert was added near km 13+900 in 2011);
- Culvert PC-9 at km 35+690;
- Culvert R-14 at km 67+840 and the southern culvert (both show signs of erosion around the inlet);
- Approach fill to Bridge 7 – R16 approximately at km 73+800;
- Culvert R-17 at km 77+440;
- Near Quarry 18 at approximately km 80+400 (no culvert is present); and
- Right abutment approach fills of Bridge 9 – R19 approximately at km 83+150.

These listed zones do not require immediate repairs, but AEM should continue to monitor and observe. If major flow through the rockfill occurs in these zones, AEM should perform maintenance accordingly. During higher flow and runoff periods in spring and early summer, it is expected that water may flow through additional portions of the road fill material other than those identified above.

AEM has been conducting regular and event-based visual inspections of the fish-bearing water crossing locations along the access road. A draft copy of the "AWPR Turbidity and Erosion Monitoring: 2011 Summary" document, including results from AEM's visual inspections was provided to Golder for review at the time of the inspection. To assist with future annual inspections, it is recommended that photographic logs be collected during AEM's visual inspections to document conditions during high flow periods and to record high water marks. This data should continue to be reviewed to confirm the structural integrity and hydraulic function of the crossings, soil and permafrost stability, the adequacy of crossing locations with respect to the watercourses, and minimal impact to fish habitat.

It is understood that AEM's monitoring program includes an assessment of sedimentation and potential erosion issues at the major bridge crossings. Consideration should be given to expanding AEM's monitoring program to include all culverts and bridges along the road to assess whether all crossings are providing adequate capacity during the freshet and large precipitation events.

5.1 Culverts

In general, the culverts were in good condition at the time of the inspection. Most were unobstructed and had relatively uniform gradients along their length.

A photographic log of the inspected culverts is provided in Appendix D1. Culverts in the following discussion, and in the photographic log, have been identified by name (e.g., R-24) consistent with those indicated on the as-built drawings provided by AEM and as shown on Figure 5. Some of the new culverts installed in 2010 and 2011 are not shown on Figure 5. Each culvert is also identified by the approximate kilometre location (e.g., km 98+250) along the road alignment.

AEM installed two additional large diameter culverts near km 8+830 to increase capacity of drainage during high flow events, in particular during the freshet. The area near R02 (Bridge 1) has experienced road washout problems in the past. Geotextile was observed on the streambed at the outlet of the newly installed culverts a. As geotextile will not provide adequate protection for the streambed during high flow events, it is recommended that cobbles and smaller boulders be placed on top of the geotextile. AEM should also consider adding protection for the existing fine granular material placed around the upstream side of the culverts on the side slope to reduce the chances of erosion during the next freshet. It is also recommended that these culverts be inspected during the freshet period and cleaned of any snow or potential ice blockage if judged to be a potential problem. With the installation of substantially larger diameter culverts, this may be less of an issue than noted in previous years.

At the time of the inspection, it was observed that 3 new culvert crossings were installed at the following locations:

- Near km 8+830, two 1800 mm diameter culverts;
- Near km 13+900, one 600 mm diameter culvert; and
- Near km 20+480, two 600 mm diameter culverts.

Moderate signs indicating that some erosion might have occurred were observed downstream of the culvert outlets at PC-7 (km 20+505), PC-11 (km 39+865), and R14 (67+840) at the time of the inspection. It is recommended that AEM monitor the water level at these locations during high flow events, and if overtopping and/or erosion occurs, either coarser material be placed on top of the existing fine crushed material or the capacity to drain water be increased through the installation of additional culverts. No signs of erosion were noted at the outlet of these culverts where larger sized cobbles and boulders protect the streambed.

Potential culvert obstructions were observed at several locations during the inspection. In many cases the obstructions are related to inlets and/or outlets becoming partially or completely obstructed by accumulated rockfill and road bed material. The following describes the conditions observed:

- PRC-1, km 0+430, consisting of a single 600-mm diameter culvert. A rock was observed near the culvert invert. Sand from the lake, along with rocks from road work were observed at the culvert outlet. Some crushing of the culvert has occurred at the outlet. Clean up of the culvert inlet and outlet is recommended along with monitoring of the crossing during high flow periods to ensure the culvert provides adequate capacity in its current condition;
- PC-13 km 12+745, consisting of a single 600-mm diameter culvert. Inlet partially collapsed and a few crushed rocks were observed inside the inlet;
- PC-2, km 13+405, consisting of a single 600-mm diameter culvert. Rocks observed near the inlet and outlet;
- PC-4, km 14+910, consisting of a single 600-mm diameter culvert. Rocks observed near the outlet;
- PC-8, km 29+785, consisting of a single 600-mm diameter culvert. Rocks observed inside and outside the outlet;
- PC-10, km 36+865, consisting of a single 600-mm diameter culvert. Rocks observed inside the outlet;
- PC-11, km 39+552, consisting of a single 600-mm diameter culvert. Crushed rock inside the inlet;
- PC-16, km 55+048, consisting of a single 600-mm diameter culvert. Inlet was substantially blocked by road fill material and outlet was entirely buried;
- R18-A, km 81+045, consisting of three 1200-mm diameter culverts. Minor obstruction (cobble) in front of one inlet;
- R20, km 85+490, consisting of a single 1200-mm diameter culvert. Few crushed rocks observed inside the culvert near the outlet creating minor obstruction; and
- R-26, km 104+710, consisting of three 1200-mm diameter culverts. Although not considered a significant barrier to flow, a few rocks were observed near the inlet of the southern culvert.

It is recommended that AEM monitor water level upstream and flow through the culvert during high flow events (e.g., freshet) at the culvert locations listed above. It is recommended to clear the obstructions (when safe to do so) if insufficient capacity to handle the flows is observed.

There was no increase in the number of damaged culverts observed during the 2011 inspection compared to 2010. The following culverts were still observed to have partial collapses or damage within the culverts during the 2011 inspection:

- R-00A, km 2+550, consisting of a single 600-mm diameter culvert. Inlet partially collapsed, outlet entirely collapsed, one hole in the culvert visible from the crest of the road. AEM should monitor to see if flow occurs at this location, i.e., during the freshet. If no flow is observed, then it is recommended to remove the culvert. If monitoring indicates a culvert is necessary at this location, then it is recommended that AEM replace the culvert and provide adequate backfill around the culvert to protect the new installation;
- PC-14, km 4+260, consisting of two 600-mm diameter culverts. Inlet of one culvert is collapsed and there is an accumulation of road material inside the culvert creating an obstruction. AEM should monitor to see if the one functioning culvert provides adequate capacity, and if insufficient, the damaged culvert should be replaced;
- PC-13, km 12+745, consisting of a single 600-mm diameter culvert. Some crushing/damage on haunch and side near upstream end was observed reducing the culvert capacity. The capacity of the culvert should be monitored and consideration given to replacing the culvert, if needed;
- R-14, km 67+840, consisting of three 1200-mm diameter culverts. Crushing/dents were observed within the middle culvert, along with a puncture of the culvert wall through which a rock was protruding. Also, there is a joint within this culvert that has become separated at its base. AEM should consider replacing this culvert or initiating a regular monitoring program to observe conditions and detect further deterioration before flow is impeded. Adjacent culverts are in good condition with only minor dents observed;
- R-18A, km 81+045, consisting of three 1200-mm diameter culverts. Two of the three culverts at this location have dents along the haunch. The central culvert also has dents on the side and base. The capacity of the culverts should be monitored;
- R-23, km 93+600, consisting of a single 1200-mm diameter culvert. The outlet is partially crushed near the haunch. The capacity of the culvert should be monitored to determine if adequate drainage is being provided during high flow conditions;
- R-24, km 98+250, consisting of two 1200-mm diameter culverts. Both culverts have dents on the base and sides, and some damage along the haunch. Bedding material around the culverts appears to be coarser, angular, gravel and cobbles. The capacity and condition of the culverts should be monitored during higher flow events;
- R-25, km 102+050, consisting of two 600-mm diameter culverts. One of the culverts has a non uniform grade, as the outlet is bent upwards. This condition should be monitored during higher flow events to determine if adequate drainage is being provided; and
- R-26, km 104+710, consisting of three 1200-mm diameter culverts. One of the three culverts shows minor damage.

The single 600-mm diameter culvert PC-3, km 13+865 was installed below the stream bed. High velocity flow through the culvert was observed during the 2009 inspection and no evidence of erosion was noted. No evidence of change was observed during the 2010 inspection or during the 2011 inspection; however, this should continue to be monitored especially during the freshet. The inlet of the 1200-mm diameter culvert at km 15+645, R-05A, was installed above the stream bed and/or erosion has occurred below the base of the culvert. No further erosion was observed at the inlet during the 2010 or 2011 inspections; however, the potential for further erosion exists and should continue to be monitored.

It was noted that the inlet elevations are not equal at the following locations where multiple culverts have been installed:

- R-14, km 67+840;
- R-24, km 98+250; and
- R-25, km 102+050.

This may be beneficial to allow flow to occur in one culvert if the other is not flowing (e.g., frozen).

During the 2011 inspection, the following observations regarding flow through the culverts were noted:

- PC-17, km 8+830, consisting of two 1200-mm diameter culverts. Flow was occurring through these culverts and not through the rockfill road. Since the 2010 inspection, coarser rocks were observed to have been placed on top of the fine bedding material to reduce erosion potential. Water was observed to be ponding below one culvert invert, and no flow was observed downstream, which indicates that no flow was passing through the road fill material;
- Unnamed culvert, km ~13+900, consisting of a single 600-mm diameter culvert. Culvert installed with an invert above the base flow elevation. Water was observed to be ponding upstream and downstream of the culvert, with minimal flow through the culvert. No defined streambed exists to promote drainage;
- PC-11, km 39+552, consisting of a single 600-mm diameter culvert. The culvert inlet elevation appeared to be lower than the outlet, which does not facilitate flow. Water was observed to be ponding upstream and midway along the culvert but no flow was observed at the outlet;
- PC-12, km 41+410, consisting of a single 600-mm diameter culvert. Water level upstream was near the same elevation as downstream; culvert was almost full, no flow was observed to be occurring through the culvert;
- R-21 at km 87+500 where two 1200-mm diameter culverts are installed within a boulder field with their invert above the base flow area. Flow would likely pass through the rockfill below the base of the culverts when water levels are lower than the base of the invert; and
- R-23 at km 93+600 consisting of one 600-mm diameter culvert. Water was observed to be flowing through the culvert and not inside the rockfill adjacent to the culvert.

5.2 Bridges

Nine bridges are located along the AWPR: 4 Acrow Panel bridges; and 5 Rapid Span bridges. All bridges in general are in good geotechnical condition. All embankments also appeared to be in good geotechnical condition. A structural and/or mechanical assessment of the bridges was not conducted and was beyond the scope of the geotechnical inspection. The photographic log of the bridges is included in Appendix D2.

The bridges have been identified in sequence, increasing in number along the road from Baker Lake to Meadowbank, (e.g., from Bridge 1 to Bridge 9) and name (e.g., R02), consistent with the as-built drawings of the AWPR provided by AEM. Each bridge is also identified by their approximate kilometre location (e.g., km 8+750).

Due to the general low lying terrain between Baker Lake and Meadowbank, water flow typically occurs in broad areas and not in well defined channels. The majority of water crossings spanned by bridges have increased channelization of flow as embankment fill has encroached on the crossing. No significant visual signs of erosion of the embankments were observed at the time of the inspection. Embankments have generally been constructed with coarse rockfill and therefore little to no sediment from the embankments was observed to be entering the water course.

The following observations were made at the bridge locations during the inspection:

- Bridge 1, R02 at about km 8+750; some crushing of the rockfill containment structures on each embankment beneath the bridge structure was observed. Repair of the left abutment containment “binwalls”, on downstream side occurred since the 2010 inspection. Normal flow was observed at the time of the inspection. In 2011, two additional culverts of 1800 mm in diameter were installed to increase drainage capacity during high flow events and prevent washout of the road or bridge. During the inspection it was apparent that several larger blocks had been eroded from the right embankment armouring and were now resting on the base of the channel. At present, there is still adequate armouring on the bridge abutments, but this should continue to be monitored and additional large boulders added if necessary. The high water mark appears to be 1 to 1.5 m below the road surface. AEM indicated that snow and ice accumulation in the vicinity of the bridge contributed to the high water levels observed during the freshet. It is understood that AEM removes snow and ice at this location and other bridges in advance of the freshet and will continue this practice in the future;
- Bridge 2, R05 at about km 17+600; some damage to the wooden decking was observed, likely from grader operation as part of ongoing road maintenance. Minor damage of the rock containment structures on the embankments was also observed, which appears to have occurred during construction and snow removal activities. Some thin cracks were observed on the crest of the south abutment, near the west edge. Voids were also observed near the tie-in of the bridge span and bin-wall on the south abutment. Continuous visual observation and monitoring of the cracks and voids is recommended. Stabilization work of the south abutment will be required if cracks and voids continue to progress (open). Neither observation impacts the geotechnical integrity of the bridge or embankments. Construction of the road and bridge has served to concentrate flows. Higher flows were observed along the left abutment but no evidence of erosion was observed. The stream bed consists primarily of cobbles some gravel and a few boulders and grasses towards the perimeter of the channel;

- Bridge 3, R06 at about km 23+100; Construction of the bridge has concentrated flow in this area. No signs of erosion or turbidity were observed at the time of the inspection. The high water mark appears to be 2 to 2.5 m below the road. During 2010, a road accident occurred near the bridge that involved a fuel truck which turned over sideways and resulted in a significant spill of diesel fuel. Emergency procedures were taken soon after the accident to minimize contamination of the environment, which included the construction of sediment basins near the left abutment of the bride, installation of a spill containment curtain and silt fence across the water course. No impact on the bridge or on the left abutment seems to have occurred as a result of the accident. Following that event, AEM installed an environmental emergency seacan near each bridge crossing. Each seacan contains emergency equipment and supplies if another incident of this type was to occur near bridge crossings.

- Bridge 4, R09 at approximately km 48+500; construction of initial road on upstream side of bridge has assisted in concentrating the flow from two channels into a single channel prior to reaching the bridge. The right abutment appears to have been constructed of a mixture of gravel to boulder size particles. There is some evidence of larger boulders being dislodged, possibly by the erosion of underlying finer particles, likely during the freshet. Armouring of the right embankment should continue to be monitored and upgraded, if necessary. Scouring beneath the bridge has created a small depression in the stream bed. No signs of turbidity were observed at the time of the inspection. The high water mark appears to be about 1.5 m below the road. Monitoring of this crossing is recommended to determine its adequacy in conveying the required flow during the freshet and to measure high water marks.

- Bridge 5, R13 at about km 62+060; the south abutment of the 12-m rapid span bridge was damaged and settled during the 2011 freshet. At the time of the inspection, it was observed that the bridge span was supported on a much lower abutment crest which created a very short sag curve and, therefore, required vehicles to considerably reduce speed when approaching this crossing. It is understood that AEM repaired the abutment in October 2011. All flow was observed to be passing beneath the bridge at the time of the inspection. Some deeper depressions (scouring) in the base of the channel were observed beneath the bridge and on the downstream side of the bridge. The stream bed within the depressions consists of cobbles and some boulders along with grasses. No sign of turbidity was apparent at the time of the inspection. The high water mark on the north abutment was very near the bridge deck level/road, but it is assumed that following the repair done in October, the north abutment is now higher than it was at the time of inspection. Rigorous monitoring of this crossing is recommended to determine its adequacy in conveying the required flow during the freshet and to measure high water marks;

- Bridge 6, R15 at about km 69+200; no evidence of erosion or turbidity was observed at the time of the inspection. Minor damage to the rock embankment containment structures was observed, likely as a result of snow removal activities. The damage is minor and does not impact the geotechnical integrity of the bridge or embankments;

- Bridge 7, R16 at about km 73+800; woven geotextile was observed to be hanging on each embankment, but it is not considered a concern. Construction of the bridge has served to concentrate flow in this area;

- Bridge 8, R18 at about km 79+500; road base fill was observed to fall below the bridge and onto the abutments as traffic passed over the bridge, but does not reveal significant geotechnical concern. The bridge spans a boulder field. No flow was observed passing beneath the bridge at the time of the inspection; and

- Bridge 9, R19 at about km 80+200; steel plates with pipe anchors are installed along both embankments of this bridge. Some damage (bending) of the steel containment plates and on one pile was observed, which may be associated with snow removal activities. The damage is minor and currently does not impact the geotechnical integrity of the bridge or embankment. No turbidity or erosion was observed at the time of the inspection. Some water was observed seeping under the right (south) abutment. AEM should monitor the water quality and assess if this seepage induces turbidity in the water draining under the right (south) road fill abutment.

6.0 QUARRIES

Twenty-two quarries were developed along the AWPR to provide material for its construction. An additional quarry was developed near the airstrip at Meadowbank to provide further construction materials. All quarries were inspected and a photographic log is contained in Appendix E. Quarries have been numbered sequentially from 1 to 22 starting near Baker Lake and increasing towards Meadowbank, in accordance with the as-built drawings and signage along the AWPR. The airstrip quarry is also referred to as Quarry 23.

At the time of the inspection, the majority of quarries were dry with some containing small stockpiles of material for future use in maintaining the AWPR. No blasting or aggregate crushing production has occurred since the summer of 2010. Most of the aggregate used in 2011 for road maintenance activities was generate at the mine. A temporary crushing facility was set up in Quarry 3 at the time of the inspection but was not in operation. Some quarries are also being used for storage of other materials as follows:

- Quarry 5 – contaminated soil from accidental spill that occurred on the road nearby.
- Quarry 22 –contaminated soil; and
- Quarry 23 – drill core on racks, diamond drill contractor drill rigs and equipment, and miscellaneous items including: sea containers, pipes, and culverts.

In 2011, AEM moved all contaminated soil previously stored in Quarry 6 to Quarry 22. AEM has indicated that a portion of the contaminated soil stored in Quarry 22 exceeds the industrial criteria and therefore will likely be shipped to southern Canada for treatment and disposal. It is also understood that AEM plans to transport portions of the contaminated soil with concentrations less than the industrial limit to the Portage Rock Storage Facility at Meadowbank for disposal, where it will be covered by at least 1.5 m of waste rock.

Additional observations were made for the following:

- Quarry 4 and Quarry 14 are flooded; and
- Quarry 13, 15 and Quarry 23 (Airstrip Quarry) contained some ponded water. Pools were approximately 30 cm deep.

It is understood that the Closure and Reclamation Plan prepared in accordance with water licenses 2AM-MEA0815 and 8BC-TEH0809 requires that all quarries and borrow sources developed during the construction of the AWPR be reclaimed following use. The closure plan further requires that all quarry slopes be left at an angle of 45 to 50 degrees. All twenty-three quarries will require some work to re-slope existing walls. As road maintenance is required on an ongoing basis throughout the operational life of the mine, some quarries

will remain active. It is understood AEM is currently evaluating which quarries will be required and which can be progressively closed.

AEM has collected water samples from the quarries and results are presented in AEM's Annual Report. Quarry 4 and Quarry 14 are flooded and it is understood that AEM is evaluating how to eliminate the ponding of water within these quarries as much as possible. Other quarries that contain some ponded water should be monitored to assess if ponding persists and, if necessary, ditches should be developed to facilitate the drainage of this water.

7.0 BULK FUEL STORAGE FACILITIES

7.1 Baker Lake Tank Farm

A photographic log of the Baker Lake Tank Farm is included in Appendix F1. The Baker Lake Tank Farm consists of six large capacity tanks (10 million litres each) that have been constructed within three bermed areas. The first two tanks constructed, Tank 1 and Tank 2, are within the first containment area, which is located on the east side of the fuelling area. The second two tanks constructed, Tank 3 and Tank 4, are within a second containment area located adjacent to the first. A central berm is located between the two containment areas. The last two tanks, constructed in 2010, Tank 5 and Tank 6, are within the third containment area which is located north and upslope of Tanks 3 and 4. Tank 5 and Tank 6 are situated within an entirely separate containment berm.

Each containment area has been lined with a 1.5-mm high density polyethylene (HDPE) geomembrane to provide secondary containment. Visual inspection of most of the liner was not possible as it is covered with granular fill material to provide protection. Access ramps into the bermed areas were observed. An exposed liner area (1 m x 0.5 m) was observed on the internal west slope, west of Tank 1. It was observed that a part of the geotextile sitting on top of the HDPE had been damaged and was removed. There was also no longer any granular protection on top of the liner. To minimize potential damage to the liner, it is recommended that a protection, either geotextile or granular material or both, be placed on the exposed liner.

Ponded fluid, likely rainwater, was observed in the southwest corner of the second and third containment areas. Water sampling of the ponded fluid was ongoing at the time of the inspection and AEM confirmed by mid-October the ponded fluid was removed. No sump or pump was visible in this area during the site visit.

The embankments around the tank farm containment areas appeared stable. The embankments have been constructed of coarse rockfill and, therefore, runoff from the area is not expected to contain sediment that could potentially enter Baker Lake. Tension cracks were observed on the upper bench north of Tanks 3 and 4 and south of Tanks 5 and 6. This may have resulted from the steep side slopes. No mitigation work is required but it is recommended that regular inspection be performed to monitor the cracks. Any changes to the cracks (e.g., lengthening, deepening, widening) should be noted and repairs performed if necessary. The slope instability observed appears surficial and does not appear to pose a threat to the lower tanks.

The containment area for Tank 5 and Tank 6 has been subexcavated into the hill slope above the existing tank farm area. Water diversion berms exist around the north and east sides. An access road exists around the perimeter of the upper slopes. The slopes down into the containment area, especially on the north side, are relatively high and steep, but appear stable. Given the relative steep slope, the sand and gravel cover may be

prone to erosion, but during the inspection, no sign of erosion was observed. AEM should continue to monitor for signs of erosion and repairs performed if necessary.

On the west side of the tank farm is a fuelling station that consists of two containers and a pumping system. The fuelling area is covered by granular road base material.

There is an aboveground pipeline between the barge dock, located to the South of the tanks, and the tank farm. It is understood that the pipeline is used for the transport of fuel from barges to the tanks. The pipeline is located immediately adjacent to the access road that connects the dock and the tank farm. There are small orange flags adjacent to the pipeline, but no physical protection, such as a berm, exists between the road and the pipeline. AEM has stated that the pipeline is only seasonally used to unload fuel from the barges. Each year prior to use, it is understood that AEM tests the pipeline for leaks, and they also visually inspect the line throughout the unloading process. Nevertheless, consideration should also be given to constructing a berm or similar structure to provide some physical protection / separation between the pipeline and road.

The capacity of the three secondary containment areas was not verified as part of this inspection.

7.2 Meadowbank Tank Farm

Appendix F2 contains a photographic log of the Meadowbank Tank Farm. The Meadowbank Tank Farm consists of a single large capacity tank (5.6 million litres) constructed within an area that has been subexcavated to provide a volume for secondary containment. The area has been lined with a 1.5-mm HDPE geomembrane. The liner could not be visually inspected as it is covered with granular fill material for protection. An access ramp into the bermed area was observed.

Ponded fluid, likely rainwater, was observed within the tank farm covering approximately one fifth of the area base, primarily in the northeast corner. Water was being pumped out during the inspection. This is considered to be a good practice and should continue until the cold weather arrives.

The side slopes of the tank platform have started to deteriorate. Ongoing monitoring shall be performed so as to keep appropriate distance between the tank perimeter and the pad side slopes.

A fuelling station is located on the north side of the tank farm. The fuelling area is covered by granular road base material. AEM indicated that a geomembrane liner was installed below the refuelling area, although this could not be observed at the time of the inspection due to the presence of the cover.

As the tank farm area has been subexcavated, runoff from the tank farm is not anticipated to occur. The side slopes into the tank area are shallow and all appear stable.

The capacity of the secondary containment area was not verified as part of this inspection.

8.0 OTHER MEADOWBANK FACILITIES

8.1 Site Roads

Additional roads have been established on site since the 2010 annual inspection. The following haul roads were observed at the time of the inspection:

- East Road – between North Portage Pit and East Dike;
- West Road – between North Portage Pit and the plant;
- North Portage Pit and the Portage Rock Storage Facility, connecting from the West Road to provide access to the rock storage facility. This haul road terminates near the north abutment of Stormwater Dike;
- North Portage Pit and the crushed materials stockpiles ,starting from the north end of East Road, following the northern perimeter of Portage Pit and connecting to the West Road; and
- South Portage Pit and the ore stockpile\crushing facility at the plant), connecting the West Road to ore stockpile\crushing facility at the plant.

These haul roads appeared to be of adequate width and had appropriate berms at the time of the inspection. No geotechnical concerns were identified with the site haul roads.

Appendix G1 contains photographs of select site roads.

Temporary roads developed for construction purposes were not inspected.

8.2 Landfill

The Meadowbank landfill is located on the northeast side of the TSF and within the Portage Rock Storage Facility area. It is progressively being constructed and filled. Waste material is being dumped within a bermed area on a pad constructed using waste rock from the open pit. The waste is then covered with a thin layer of rockfill to reduce windblown debris. It is understood that waste is segregated and only those items approved for disposal are transported and placed in the landfill. Organics are incinerated and not placed within the landfill. AEM reports that the system of waste segregation is working well. It is understood that no compaction of the landfill waste is occurring. Consideration should be given to compacting waste as it is disposed to help reduce the area required for waste disposal.

Appendix G2 contains photographs of the landfill.

8.3 Stormwater Management Ponds

8.3.1 Stormwater Pond 1

Stormwater Pond 1 is located near the main camp and is being used for storage of various site waters and sewage on an interim basis. Appendix G3 contains a photographic log of Stormwater Pond 1. No runoff from the pond was observed at the time of the inspection. If the banks of the pond were to overflow, or there was a breach in the embankments, the water would remain within the mine area and would not be released into either Second Portage Lake or Third Portage Lake. Due to the proximity of the crusher ramp to the pond, it is recommended that regular geotechnical inspections of the crusher ramp be conducted by AEM.

8.3.2 Other Ponds and Sumps

There are several small channels dug adjacent to the airstrip to divert water into small excavations or “ponds”. The channels and ponds are unlined, and the ponds have no designed outlet structure. In general, these ponds would serve to collect water and allow some suspended sediments to settle out before the water would overflow into other vegetated areas and/or infiltrate depending on the thermal state of the soils. These areas were dry at

the time of the inspection. An evaluation of the effectiveness of these facilities in removing suspended sediment from the surface water runoff was outside the scope of this geotechnical inspection.

Multiple ponds and sumps are regularly constructed within the open pit and follow the pit development. At the time of the inspection, five temporary ponds were present in the pit to capture all runoff and other water inflows. Prior to the summer of 2011, water from those sumps\ponds was pumped to the Attenuation Pond. During the summer of 2011, pumping was diverted to the North Cell of the Tailings Storage Facility.

9.0 SUMMARY AND RECOMMENDATIONS

The following presents a summary of the key findings and recommendations of the geotechnical inspection.

9.1 Dewatering Dikes

- It is understood that AEM is preparing an Operation, Maintenance and Surveillance (OMS) Manual and Emergency Preparedness Plan (EPP) to cover all dewatering dikes.

East Dike

- No visual signs of slope instability or erosion were observed on the upstream or downstream rockfill slopes;
- No signs of tension cracks were observed along the cutoff wall alignment;
- Regular monitoring and assessment of the monitoring data: piezometric, thermal, inclinometer, seismograph (associated with blasting) and seepage occurs and should continue;
- It is recommended that survey techniques be reviewed to improve the accuracy of the survey monuments;
- A seepage collection system downstream of the East Dike is required to capture seepage such that the volume can be measured, water quality visually observed (turbidity), and the water removed (pumped) on a year round basis. AEM has indicated that they are looking into modifying the existing seepage collection system;
- At the time of the site inspection, and based on the instrumentation data collected up to that time, the condition of the East Dike generally appears stable;
- The condition of the East Dike is regularly being visually inspected and this should continue; and
- AEM is currently conducting a risk assessment for the East Dike to determine if a mitigation program is warranted and if yes, to aid in the selection of an appropriate remediation program. The design engineer and Meadowbank Dike Review Board should support the selected program prior to it being implemented.

West Channel Dike and South Camp Dike

- No geotechnical concerns related to the integrity of the West Channel or South Camp dikes were identified;
- Instrumentation monitoring at the South Camp dike should continue on a regular basis and the damaged thermistor replaced at South Camp Dike; and
- It is understood that an as-built report for the South Camp Dike is in preparation.

Bay-Goose Dike

- No visual signs of slope instability or erosion were observed on the exposed upstream or the downstream rockfill slopes;
- Currently the dike crest surface, near the cutoff wall centreline, is highly irregular which limits visual observation of potential deformations, settlement, and/or cracking. At Bay-Goose, to assist in regular visual inspection of the dike by AEM personnel, it is recommended to smooth the existing surface 3 m (one dozer blade width) on either side of the dike centerline. It is understood that the thermal cap is currently not in place to facilitate access to existing casings and instrumentation in the event that remediation work be required in the next year. Once the thermal cap would be placed, it is recommended to smooth the surface, 3 m on either side of the thermal cap;
- Regular monitoring and assessment of the monitoring data (piezometric, thermal, inclinometer, seismograph [associated with blasting] and seepage) occurs and should continue;
- During the inspection, it was observed that the jet grouting spoils are still present over the rockfill platform. It is recommended to remove the spoils and dispose of them in a suitable location to reduce the potential influence of leachate from the spoils from reporting to Third Portage Lake. Alternatively, covering the spoils with suitable granular materials may be possible as it will reduce erosion of the spoil and minimize potential leachate to Third Portage Lake.
- A seepage collection system downstream of Bay-Goose Dike will be required to capture seepage such that the volume can be measured, water quality visually observed (turbidity) and the water removed (pumped) on a year round basis. It is assumed that this will be constructed once dewatering is complete;
- At the time of the site inspection, and based on the instrumentation data collected up to that time, the condition of the Bay-Goose Dike generally appears stable; the investigation performed in mid-September 2011 did not reveal any concerns regarding the zone where CSB overlies SB;
- Visual monitoring of the condition of the Bay-Goose Dike is regularly occurring and this should continue during operation;
- It is understood that an as-built report for the Bay-Goose Dike is in preparation.

9.2 Tailings Storage Facility

- At the time of the inspection, the North Cell was performing properly, namely, containing tailings and water. However, it was noted that the TSF contained a significant volume of water which presents challenges to the tailings deposition, performance of the containment structures, operation, and beach maintenance. The design and proper performance of the facility requires that water is not ponded directly against the perimeter containment structures (i.e., the saddle dams). The addition of non-slurry transport water to the TSF further challenges the proper operation and performance of the TSF. At the time of the inspection, it was observed that the pond was impounded directly against Stormwater Dike and Saddle Dam 1; it is recommended that beaches be established at these structures prior to the onset of winter. It is understood that water management options (e.g., construction of diversion ditches and increasing reclaim amounts) intended to reduce the amount of water within the TSF are being evaluated by AEM. Golder recommends AEM consider the possibility of treating and releasing the TSF water prior to closure.
- AEM is preparing an Operations, Maintenance and Surveillance (OMS) Manual and Emergency Response Plan (EPP) for the TSF. The OMS Manual and EPP should cover all aspects related to facility operation and management, including, but not limited to:
  - Tailings deposition and reclaim pond management;
  - Saddle Dams;
  - Stormwater Dike;
  - Seepage collection, monitoring, and pump back systems; and
  - Tailings and reclaim pipelines.

  Once the plan is prepared, it should be reviewed and revised as necessary, at least on an annual basis.
- An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared which includes a risk assessment of potential failures for the Central Dike, Saddle Dams, and Stormwater Dike. The risk assessments should be regularly reviewed and updated, acknowledging existing conditions of each structure, and current information related to the operation of the TSF;
- It is understood that AEM will construct a permanent seepage collection and pump back system on the downstream side of all permanent dikes or dams around the TSF following completion of construction activities at each facility. Since the Saddle Dam 1 and Saddle Dam 2 are currently storing tailings and supernatant water, permanent seepage collection and pump back systems are required at these locations as soon as practicable; and
- It is understood that the as-built reports for the Stormwater Dike, Saddle Dam 1 and Saddle Dam 2 will be completed in 2012.

Saddle Dam 1

- At the time of the inspection, the tailings pond was impounded directly against the upstream face of Saddle Dam 1. At the time of the inspection, AEM indicated that they planned to resume tailings discharge near

Saddle Dam 1 in mid-October to re-establish the beach to maintain the tailings pond away from the structure, thereby providing the geomembrane liner protection from potential ice damage. As the LLDPE geomembrane was exposed on Saddle Dam 1 above elevation 140 m, a continuous tailings beach is required throughout the operational life of the structure and into closure to meet the design requirements (seepage control and to prevent ice loading and ice-induced damage to the geomembrane liner).

- Significant wrinkles were observed in the liner just above the current water level at the time of the inspection. AEM has informed Golder that repairs to remove the wrinkles were performed following the inspection;
- No visual signs of slope instability or erosion were observed on the downstream or upstream rockfill slopes;
- No tension cracks were observed;
- Collection and regular review of thermal data obtained from the structure should continue;
- Regular visual inspection should continue;
- Adequacy of liner ballasting should be regularly reviewed and supplemented if deemed necessary; and
- Displacement monitoring locations should be established and regularly monitored.

Saddle Dam 2

- No geotechnical concerns have been identified;
- Displacement monitoring locations should be established and regularly monitored;
- No visual signs of slope instability or erosion were observed on the downstream or upstream rockfill slopes;
- No tension cracks were observed;
- Regular visual inspection should continue; and
- Collection and regular review of thermal data obtained from the structure should continue.

Stormwater Dike

- No tension cracks were observed during the inspection, but depressions were observed between Sta. 10+700 to 10+900. AEM should to continue monitoring these depressions and for the presence of any tension cracks;
- The current method for supporting the tailings pipe at Stormwater Dike has caused damage to the liner. AEM are encouraged to develop and utilize alternative pipe supports or discharge systems to reduce or eliminate potential damage on surrounding permanent structures; and

- Tailings were being discharged through the end of the pipe near the southwest corner of the facility at the time of the inspection. It was noted that the discharge was submerged. The end of the tailings discharge pipe should be above the pond elevation to promote the development of a beach.

Reclaim Pond

- No geotechnical concerns were identified with respect to the rockfill causeway or reclaim barge facility;
- Reclaim pond water volumes should continue to be regularly surveyed for comparison with the design volume of the facility.

Cofferdam

- No geotechnical concerns were identified with respect to the cofferdam construction.

9.3 AWPR

- No geotechnical issues were identified for the AWPR at the time of the inspection related to thermal degradation of the permafrost, thaw settlement, erosion of the road materials, or sediment migration from the road into adjacent watercourses;
- Regular inspections and maintenance of the road by AEM should continue;
- AEM has been conducting regular and event-based inspections of the fish-bearing water crossing locations along the road and these should continue in order to confirm the structural integrity and hydraulic function of the crossings, soil and permafrost stability, the adequacy of crossing locations with respect to the watercourses, and minimal impact to fish habitat. Consideration should be given to expanding the AEM inspections to include cursory monitoring of flow and high water marks at all crossings during freshet and peak flow events, and to compiling a photographic log during each inspection to visually aid in documenting peak flows and high water information;
- Some upgrades of the road were made in 2011, including the installation of two culverts in the area of Bridge 1 (R02, Sta. 8+750) and repairs of the north abutment of Bridge 5 (R13, 62+060).
- The capacity of Bridge 4 (R09) to adequately convey flow during the freshet should be monitored with particular attention paid to noting high water marks and their relation to the road.
- The high water mark on the north abutment of Bridge 5 (R13) was very near the bridge deck level/road at the time of inspection, but it is assumed that following the repair done in October, the north abutment is now higher than it was at the time of inspection. Rigorous monitoring of this crossing is recommended to determine its adequacy in conveying the required flow during the freshet and to measure high water marks and if additional capacity should be installed nearby.

- For some culvert locations, it is recommended that AEM monitor to see if flow is actually occurring, i.e., during the freshet. If insufficient capacity to handle the flows is observed, then it is recommended to clear the obstructions; particular attention should be paid to PRC-1 (km 0+430), PC-13 (km 12+745), PC-2 (km 13+405), PC-4 (km 14+910), PC-8 (km 29+785), PC-10 (km 36+865), PC-11 (km 39+552), PC-16 (km 55+048), R18-A (km 81+045), R20 (km 85+490) and R-26 (km 104+710).
- There was no increase in the number of damaged culverts observed during the 2011 inspection compared to 2010. However, the condition of the culverts should continue to be monitored;
- Some thin cracks were observed on the crest of the south abutment, near the west edge at the Bridge 2, R05 at about km 17+600. Voids were also observed near the tie-in of the bridge span and bin-wall on the south abutment. Continuous visual observations and monitoring of the cracks and voids is recommended. Stabilization work of the south abutment will be required if cracks and voids continue to progress (open). Neither observation impacts the geotechnical integrity of the bridge or embankments.
- No geotechnical issues were identified for the remaining 8 bridges inspected or their embankments.

9.4 Quarries

- It is understood that AEM is developing a plan for progressively closing some of the quarries along the AWPR while maintaining others for storage of materials and for provision of materials supply for ongoing road maintenance;
- Quarry 4 and Quarry 14 are flooded and it is understood that AEM is evaluating how best to eliminate the ponding of water within these quarries, if possible; and
- It is understood that the contaminated soil temporarily contained in Quarry 5 and Quarry 22 will be removed in part to the Portage Rock Storage Facility with the remainder to southern Canada for treatment and disposal.

9.5 Bulk Fuel Storage Facilities

- Ongoing removal of fluids that accumulate within the secondary containment facilities should continue to be managed appropriately;
- At the Baker Lake fuel tank farm, an exposed liner area (1 m x 0.5 m) was observed on the internal west slope, west of the southern tanks. To minimize potential damage to the liner, it is recommended that protection, either geotextile or granular protection or both, be placed on the exposed liner;
- At the Baker Lake fuel tank farm, tension cracks were observed on the upper bench, north of Tanks 3 and 4 and south of the Tanks 5 and 6. This may have resulted from the steep side slopes. No mitigation work is required, but regular inspection should be performed to monitor the cracks. Any changes to the cracks (e.g., lengthening, deepening, widening) should be noted and provided to the design engineer. At the time of the inspection, the slope instability observed appeared surficial and was not considered a threat to the lower tanks;

- AEM's implemented controls to protect the pipeline between the Baker Lake tank farm and barge unloading area should continue, and if necessary, consideration should be given to construct a berm to physically separate the road and the pipeline;
- At the Meadowbank fuel tank farm, the side slopes of the tank platform have begun to deteriorate. Ongoing monitoring should be performed to maintain an appropriate distance between the tank perimeter and the pad side slopes.

9.6 OTHER MEADOWBANK FACILITIES

Meadowbank Site Roads

- Haul roads currently in operation appear to be of adequate width and have appropriate berms. No geotechnical concerns were identified with the haul roads observed at the time of the inspection. AEM should conduct regular geotechnical inspections of all haul roads.

Landfill

- Expansion of the landfill is an ongoing process to ensure capacity. Consideration should be given to compacting waste as it is disposed to help reduce the area required for waste disposal; and
- No geotechnical concerns related to the landfill were identified at the time of the inspection.

Stormwater Management Ponds

- No geotechnical issues regarding Stormwater Pond 1, or other ponds near the airstrip or inside the pit were identified at the time of the inspection; and
- The crusher ramp is in close proximity to Stormwater Pond 1 and, therefore, the geotechnical stability of the crusher ramp should be inspected regularly by AEM.

10.0 CLOSURE

This report was prepared to summarize the findings from the 2011 geotechnical inspection conducted between September 12 and September 19, 2011 to comply with the requirements of AEM's Type A Water License Permit No. 2AM-MEA0815, Part I, Item 12. An inspection of the pit walls is reported under separate cover (Golder, 2011b).

We trust the above information is sufficient for your current needs. Should you require additional information or further clarification, please contact us.

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Table 1.: Facilities Along the All-Weather Private Road

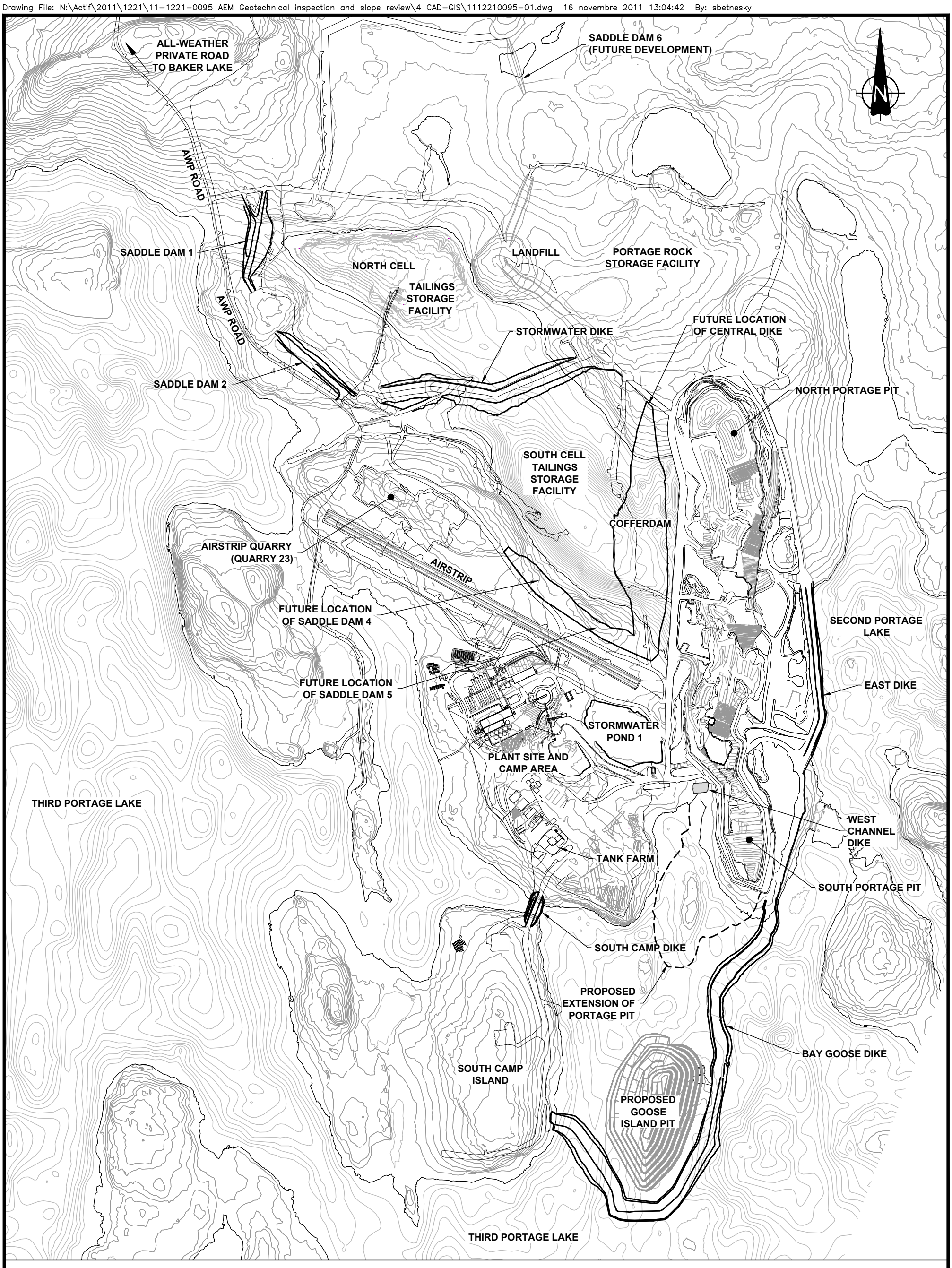
STATION	NAME	STRUCTURE DESCRIPTION	COMMENTS
0+430	PRC1	1x600 mm CSP	Outlet halfway buried. AEM should monitor water levels upstream and flow through the culvert during freshet. If culvert does not function adequately, then cleanup of the outlet is recommended.
0+470	PRC2	2x600 mm CSP	
1+380	PRC3	1x600 mm CSP	
2+550	R-00A	1x600 mm CSP	Inlet partially collapsed, outlet entirely collapsed, one hole in the culvert visible from the crest of the road. AEM should monitor if the culvert receives some flow during the freshet. If no flow, then recommend removing the culvert. If monitoring indicates a culvert is necessary at this location, then it is recommended that AEM replace the culvert and provide adequate backfill around the culvert to protect it.
4+260	PC-14	2x600 mm CSP	Inlet of one culvert is collapsed, accumulation of road material inside the culvert creating obstruction. AEM should monitor water levels upstream and flow through the damaged culvert during the freshet. If no flow through the damaged culvert during the freshet, no work is required, but if the other culvert, currently in acceptable condition, does not support the level of water flowing in this area, it is recommended to replace the damaged culvert.
5+200	Quarry 1		
~5+700	unnamed	1x600 mm CSP	
8+750	R02 Centre Bridge	30m Acrow Panel Bridge	
8+830	PC-17A	2X1800 mm CSP	This area was faced with road washout problems in the past and 2 new large diameter (1.8m) culverts were installed this year to improve drainage in the area during high flow events, in particular during the freshet. The current geotextile placed at the outlet, will not provide adequate protection of the streambed during high flow events. It is recommended that cobbles and smaller boulders be placed on top of the geotextile. AEM should consider adding protection for the existing fine granular material placed around the culvert on the side slope to reduce the chances of erosion during the next freshet. During the freshet in this area, it is also recommended to continue inspecting and cleaning any snow ice blockage if this is causing backup problems. With the installation of substantially larger diameter culverts in 2011, this may be less of an issue than in previous years.
8+850	PC-17	2x1200 mm CSP	
9+952	PC-1	1x600 mm CSP	
10+580	R-03	1x600 mm CSP	
12+050	R-04	1x1200 mm CSP	
12+745	PC-13	1x600 mm CSP	Inlet partially collapsed, few crushed rocks inside the inlet. AEM should monitor water levels upstream and flow through the culvert during the freshet. If the culvert does not function adequately, it is recommended to clean up the inlet.
13+250	Quarry 2		
13+405	PC-2	1x600 mm CSP	Obstruction at the inlet and outlet. AEM is to monitor water levels upstream and flow through the culvert during the freshet. If the culvert does not function adequately during the freshet, it is recommended to clean up the inlet and outlet.
13+685	PC-3	1x600 mm CSP	

STATION	NAME	STRUCTURE DESCRIPTION	COMMENTS
13+950	unnamed	1x600 mm CSP	
14+910	PC-4	1x600 mm CSP	
15+645	R-05A	1x1200 mm CSP	
17+600	R05 Center Bridge	30m Acrow Panel Bridge	Bin wall of both abutments were observed to be slightly damaged. Some thin cracks were observed on the crest of the south abutment, near the west edge. Voids were also observed near tie-in of bridge span and binwall on the south abutment. Visual observation and monitoring of the cracks and voids is recommended. Stabilization work of the south abutment will be required if cracks and voids continue to progress (open).
18+280	PC-5	1x600 mm CSP	
19+075	PC-6	1x600 mm CSP	AEM identify the area near km 19 of the road as being at risk for washing out during the freshet. In 2011, AEM excavated the road to improve drainage in these locations and minimize road wash-out. It is therefore recommended that AEM considers installing additional capacity near km 19.
20+495	PC-7A	2x600 mm CSP	
20+505	PC-7	1x600 mm CSP	
23+100	R06 Center Bridge	30 m Acrow Panel Bridge	
23+700	Quarry 3		
25+900	R-07	1x1200 mm CSP	
29+785	PC-8	1x600 mm CSP	Obstruction at the outlet. AEM should monitor water levels upstream and flow through the culvert during the freshet. If the culvert does not function adequately, it is recommended to clean up the outlet.
31+300	Quarry 4		Quarry flooded
34+650	Quarry 5		Storage of contaminated soil
35+690	PC-9	1x600 mm CSP	Some rock inside the culvert, but not enough to create obstruction.
36+470	Quarry 6		
36+865	PC-10	1x600 mm CSP	Obstruction at the outlet and inlet. Signs of erosion of fine rock inside the outlet. AEM should monitor water levels upstream and flow through the culvert during the freshet. If culvert does not function adequately during the freshet, it is recommended to clean up the inlet and outlet, and if water flows over top and creates erosion, it is recommended to place coarser rock above the downstream side slope.
39+552	PC-11	1x600 mm CSP	Obstruction at inlet. Signs of erosion of fine rock upstream and downstream. AEM should monitor water levels upstream and flow through the culvert during the freshet. If culvert does not function adequately during the freshet, it is recommended to clean up the inlet, and if water flows over top and creates erosion, it is recommended to place coarser rocks above the downstream side slope to minimize erosion.
39+800	Quarry 7		
41+410	PC-12	1x600 mm CSP	
42+950	Quarry 8		
44+600	Quarry 9		
48+500	R09 Center Bridge	12m Rapid Span Bridge	
48+900	Quarry 10		

STATION	NAME	STRUCTURE DESCRIPTION	COMMENTS
53+500	Quarry 11		
55+048	PC-16	1x600 mm CSP	Inlet partially obstructed, outlet entirely obstructed. AEM should monitor if water accumulates in this area and if a culvert is required. If water accumulates, then the culvert should be cleaned to make it operational or replaced with another culvert.
58+300	Quarry 12		
62+060	R13 Center Bridge	12 m Rapid Span Bridge	
62+350	Quarry 13		Contained some ponded water
65+700	Quarry 14		Quarry flooded
67+600	Quarry 15		Contained some ponded water
67+840	R-14	3x1200 mm CSP	Middle culvert has been damaged (collapsed) inside, below the road, but it is anticipated that this culvert will continue to perform well. Northern culvert has a boulder inside the culvert, but it is anticipated that it will not create a big obstruction to the flow. The upstream side of the southern culvert may indicate signs of erosion. AEM should monitor chances of erosion during the next freshet. If yes, it is recommended to add protection for the existing fine granular material placed around the culvert and on the side slope and around the culvert to reduce erosion.
69+200	R15 Centre Bridge	30 m Acrow Panel Bridge	Binwalls of both abutments were observed to be damaged. Regular monitoring should be performed by AEM.
70+400	Quarry 16		
72+800	Quarry 17		
73+800	R16 Centre Bridge	12m Rapid Span Bridge	
77+440	R-17	1x1200 mm CSP	
79+500	R18 Centre Bridge	12 m Rapid Span Bridge	
80+200	Quarry 18		
81+045	R-18A	3x1200 mm CSP	Minor obstruction (cobble) in front of one inlet. AEM should monitor water levels upstream and flow through the culvert during the freshet. If the culvert does not seem to function well during the freshet, it is recommended to clean up the inlet.
83+150	R19 Centre	12m Rapid Span Bridge	One pile of the upstream abutment protection is damaged, but surrounding piles seem to hold the metal sheet in place (protecting the abutment backfill). Some water was observed seeping under the right (south) abutment.
84+300	Quarry 19		
85+490	R-20	1x1200 mm CSP	Few crushed rocks are inside the culvert near the outlet, creating minor obstruction. AEM should monitor flow through the culvert during the freshet. If culvert does not function well, it is recommended to clean up the outlet
87+500	R-21	2x1200 mm CSP	
89+550	Quarry 20		
93+400	Quarry 21		
93+600	R-23	1x1200 mm CSP	

STATION	NAME	STRUCTURE DESCRIPTION	COMMENTS
98+250	R-24	2x1200 mm CSP	
99+200	Quarry 22		Storage of contaminated soil
102+050	R-25	2x600 mm CSP	One culvert is angling up toward the downstream end and natural drainage by gravity does not occur. However, during the freshet, because the water level is high, the culvert will evacuate the flow from upstream to downstream. A second culvert alongside is well installed and should drain water for the remainder of the season.
104+710	R-26	3x1200 mm CSP	Obstruction at inlet. AEM should monitor flow through the culvert during the freshet. If the culvert does not seem to function well during the freshet, it is recommended to clean up the inlet

Drawing File: N:\Actif\2011\1221\11-1221-0095 AEM Geotechnical inspection and slope review\4 CAD-GIS\1112210095-01.dwg 16 novembre 2011 13:04:42 By: sbetnesky



NOTES

1) TOPOGRAPHIC CONTOUR INTERVAL 2M.
2) GRID REFERENCE: NAD 83, UTM ZONE 14

0 150 300 450 600 750

SCALE IN METRES

REFERENCES

1) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN "MEADOWBANK.DWG" DATED SEPTEMBER 14, 2011.
2) GOOSE ISLAND PIT DESIGN BY AEM, NOVEMBER, 2011.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

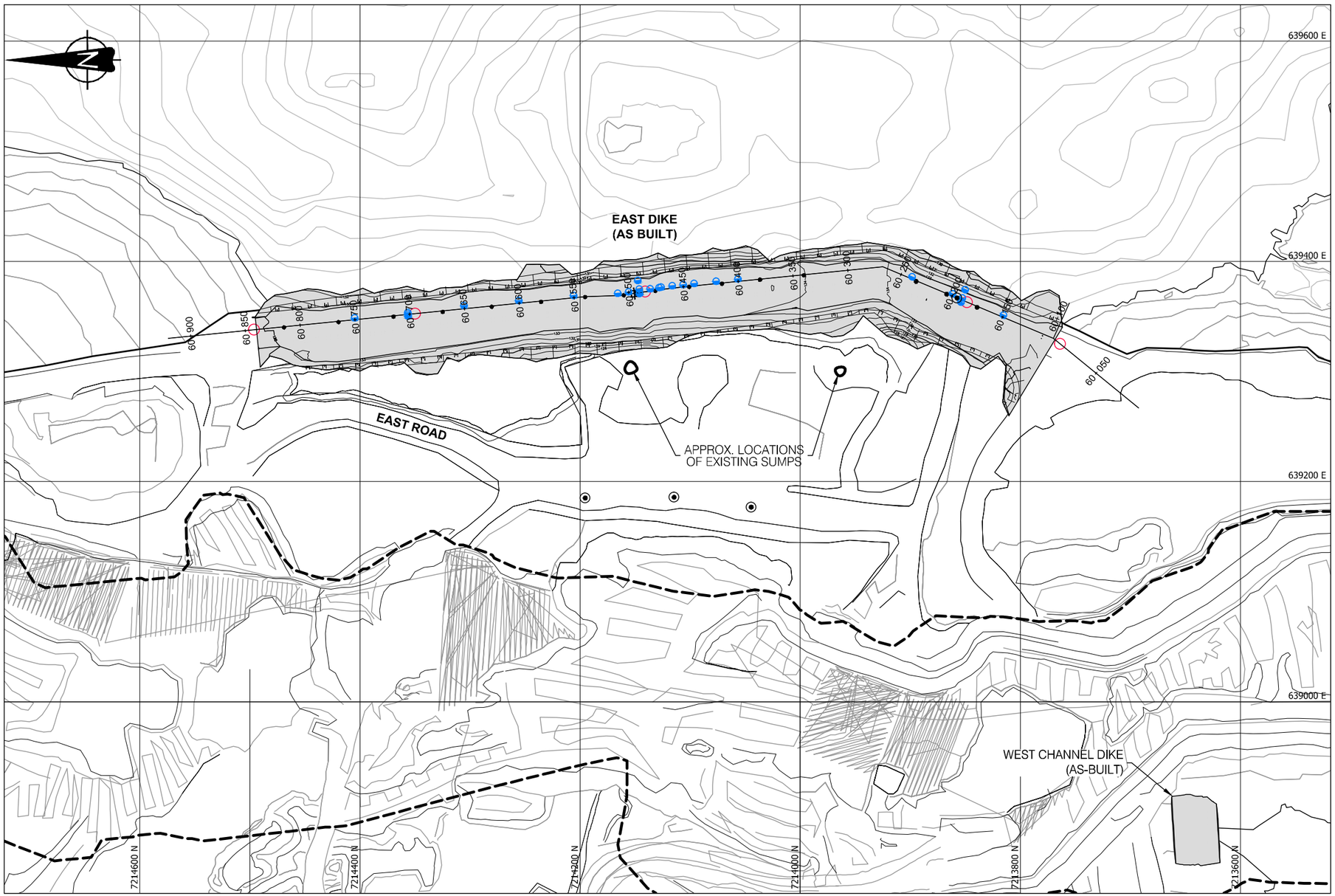
TITLE

MEADOWBANK MINE SITE 2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates
Greater Vancouver Office, BC

PROJECT No. 11-1221-0095			PHASE No.		2100
DESIGN	KD	09NOV11	SCALE 1 : 15 000	REV.	-
CADD	SB	09NOV11			
CHECK					
REVIEW					

FIGURE 1



0 40 80 120 160 200

SCALE IN METRES

LEGEND

- BATHYMETRIC MAJOR CONTOURS
- LAND - BASED TOPOGRAPHY AS PER SEPTEMBER 2011
- SHORE LINE
- PORTAGE PIT RIM (FUTURE DEVELOPMENT - APPROXIMATE)
- EXISTING THERMISTOR
- SURVEY MONUMENT LOCATION
- PIEZOMETER
- INCLINOMETER
- BLAST MONITORING POINT

NOTES

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (MASL) UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14.
4) CONTOUR INFORMATION ON LAND SUPPLIED BY AGNICO-EAGLE MINES LIMITED (AEM), MEADOWBANK DIVISION.
5) LAKEBED SURFACE INTERPOLATED FROM 2006 BATHYMETRY DATA. DETAILED BATHYMETRY (0.5m INTERVAL) BASED ON 2008 SURVEY.
6) LAKE CONTOURS ARE BASED ON SURVEYED LAKE SURFACE ELEVATION: SECOND PORTAGE LAKE = 133.1m.

REFERENCES

1) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN “MEADOWBANK.DWG” DATED SEPTEMBER 14 2011.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE AND WEST CHANNEL DIKE LOCATION 2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates
Greater Vancouver Office, BC

PROJECT No. 11-1221-0095			PHASE No.		2100
DESIGN	KD	09NOV11	SCALE	1 : 4 000	REV. –
CADD	SB	09NOV11			
CHECK					
REVIEW					

FIGURE 2

Drawing File: N:\Active\2011\1221\11-1221-0095_AEM Geotechnical inspection and slope review\4 CAD-GIS\11122100 95-02.dwg 16 novembre 2011 13:03:58 By: sbetnesky

THIRD PORTAGE LAKE

BAY GOOSE DIKE

PROPOSED PORTAGE PIT

PROPOSED GOOSE ISLAND PIT

SOUTH CAMP DIKE

SOUTH CAMP ISLAND

639200 E

639000 E

638800 E

638400 E

638200 E

7213200 N

7213000 N

7212800 N

7212600 N

7212400 N

7212200 N

7212000 N

0 50 100 150 200 250

SCALE IN METRES

NOTES

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (MASL), UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14.
4) CONTOUR INFORMATION ON LAND SUPPLIED BY AEM.
5) LAKEBED SURFACE BASED ON BATHYMETRIC SURVEYS BY GOLDER ASSOCIATES LTD., 2006 AND DETAILED (0.5m CONTOUR INTERVAL) 2008.
6) SURVEY LAKE SURFACE ELEVATION: THIRD PORTAGE LAKE = 134.1m (2008).

LEGEND

- PIT RIM
- BATHYMETRY CONTOUR
- LAND - BASED TOPOGRAPHY AS PER SEPTEMBER 2011
- SHORELINE
- 70m OFFSET FROM PIT RIM
- BLAST MONITORING POINT
- SURVEY MONUMENT
- THERMISTOR
- SURVEY CONTROL MONUMENT
- PIEZOMETER
- INCLINOMETER

REFERENCE

1) PORTAGE PIT DESIGN BY AEM, MARCH, 2009.
2) GOOSE ISLAND PIT DESIGN BY AEM, NOVEMBER, 2011.
3) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN “MEADOWBANK.DWG” DATED SEPTEMBER 14 2011.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE AND SOUTH CAMP DIKE LOCATION 2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates
Greater Vancouver Office, BC

PROJECT No.	11-1221-0095		PHASE No.	2100	
DESIGN	KD	09NOV11	SCALE	1 : 5 000	REV. –
CADD	SB	09NOV11			
CHECK					
REVIEW					

FIGURE 3

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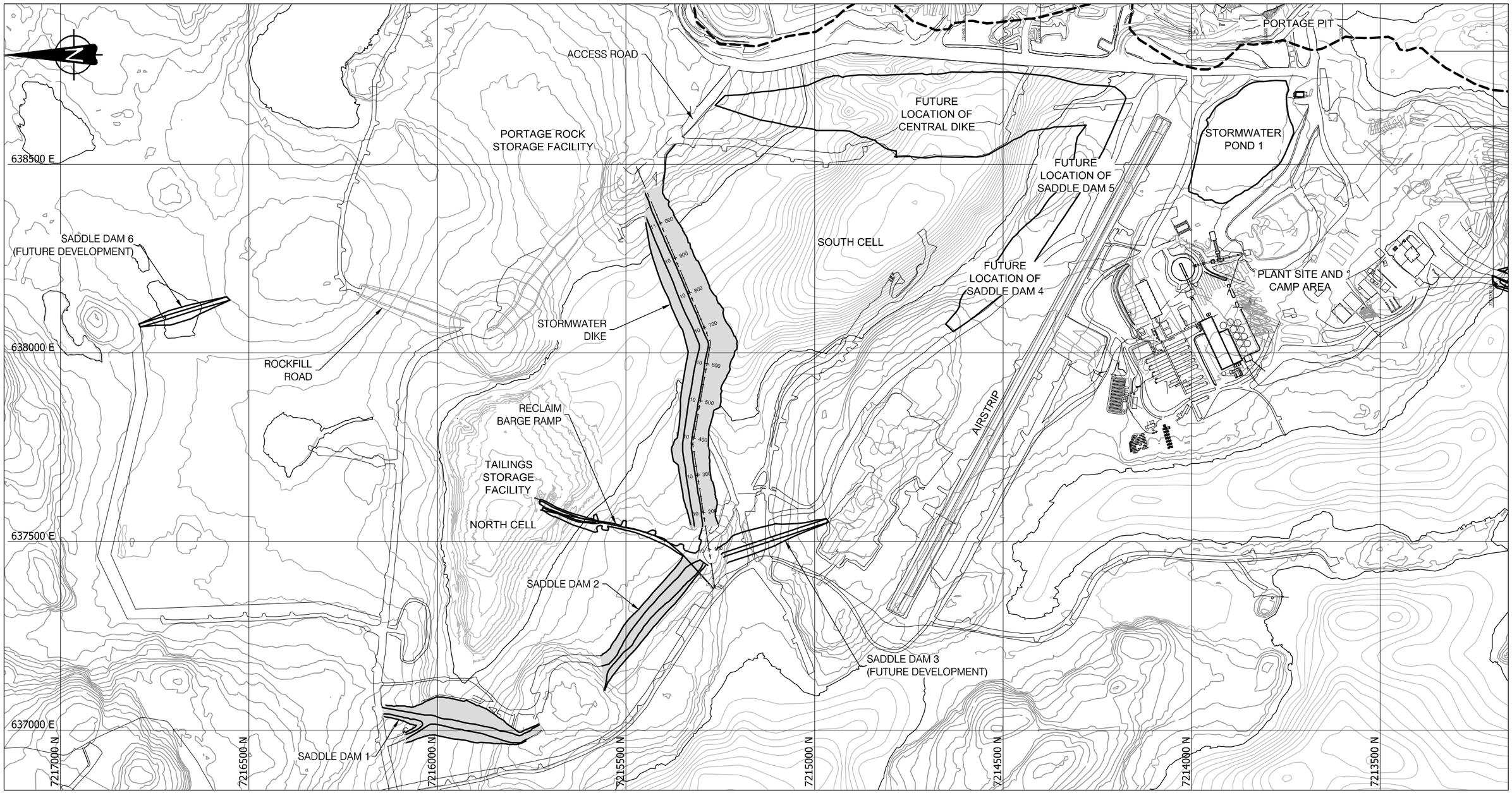

LEGEND

- PIT RIM
- BATHYMETRY CONTOUR
- SHORELINE
- LAND - BASED TOPOGRAPHY AS PER SEPTEMBER 2011

REFERENCES

1) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN "MEADOWBANK.DWG" DATED SEPTEMBER 14 2011.

0 100 200 300 400 500

SCALE IN METRES

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

TAILINGS STORAGE FACILITY
2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates
Greater Vancouver Office, BC

PROJECT No.	11-1221-0095		PHASE No.	2100	
DESIGN	KD	09NOV11	SCALE 1 : 10 000	REV.	–
CADD	SB	09NOV11			
CHECK					
REVIEW					

FIGURE 4

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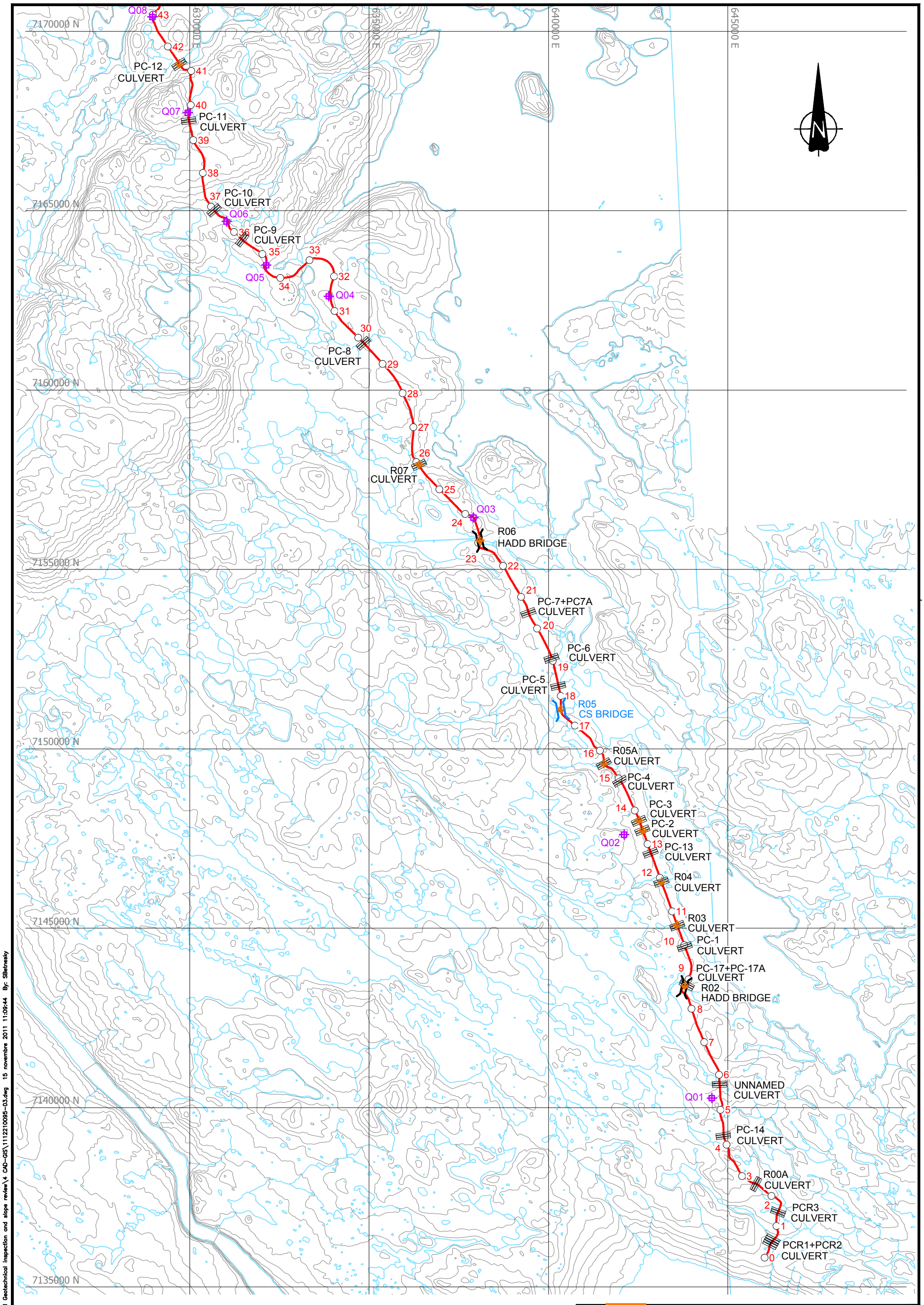


LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- EXISTING QUARRY
- ○10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

ALL-WEATHER PRIVATE ROAD
2011 ANNUAL GEOTECHNICAL INSPECTION

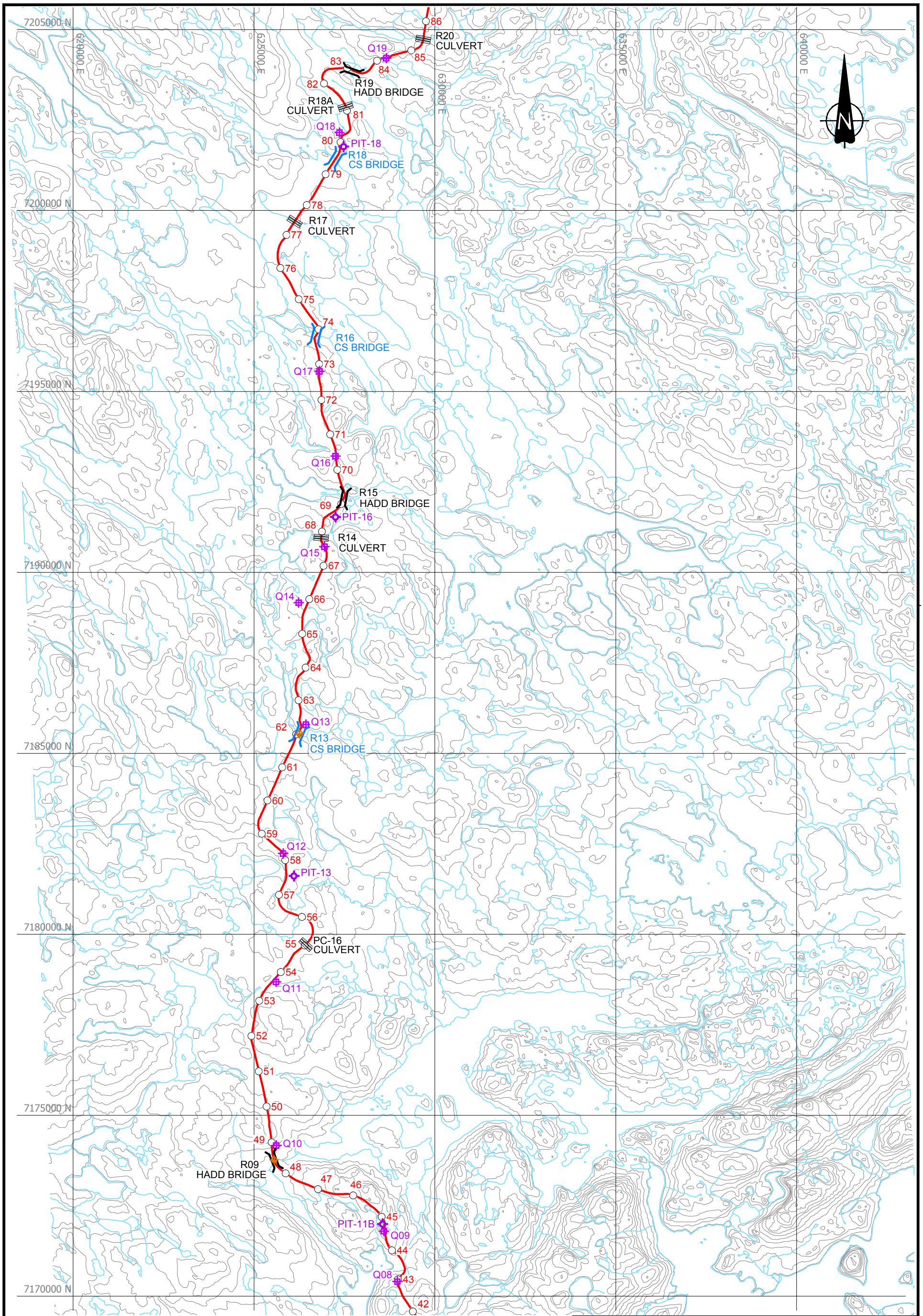
Golder Associates

PROJECT No.	11-1221-0095	PHASE No. 2100
DESIGN	KD	09NOV11
CADD	SB	09NOV11
CHECK		
REVIEW		

SCALE 1 : 100 000 REV. –

FIGURE 5A

Drawing File: N:\Actif\2011\1221\11-1221-0095 AEM Geotechnical inspection and slope review\4 CAD-GIS\1112210095-03.dwg 15 novembre 2011 11:09:44 By: SBetnesky



LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- EXISTING QUARRY
- 10 KILOMETER MARKER
- PIT INVESTIGATED

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT: AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

ALL-WEATHER PRIVATE ROAD
2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.	11-1221-0095	PHASE No. 2100
DESIGN	KD 09NOV11	SCALE 1 : 100 000 REV. –
CADD	SB 09NOV11	FIGURE 5B
CHECK		
REVIEW		

Drawing File: N:\Actif\2011\1221\11-1221-0095 AEM Geotechnical inspection and slope review\4 CAD-GIS\111221009S-04.dwg 11 novembre 2011 07:46:31 By: sbetnesky

620000 E
625000 E
630000 E
635000 E
640000 E
7230000 N
7225000 N
7220000 N
7215000 N
7210000 N
7205000 N
7200000 N
N
101
R25
CULVERT
102
103
104
100
Q22
99
R26
CULVERT
R24
CULVERT
98
PIT-22
97
96
95
R23
CULVERT
94
Q21
93
92
91
90
Q20
89
88
R21
CULVERT
87
86
R20
CULVERT
Q19
85
84
83
82
R19
CLEAR SPAN BRIDGE
R18A
CULVERT
81
Q18
80
R18
CS BRIDGE
79
78
R17
CULVERT
77
76
75
R16
CS BRIDGE
74

LEGEND

- CULVERT
- HADD BRIDGE
- CLEAR-SPAN BRIDGE
- EXISTING QUARRY
- ○10 KILOMETER MARKER

REFERENCES

1) ROAD ALIGNMENT, BRIDGE, CULVERT AND QUARRY LOCATIONS FROM NUNA M&T SERVICES LTD.
2) BASE DRAWING FROM GOLDER ASSOCIATES LTD.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

ALL-WEATHER PRIVATE ROAD
2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates

PROJECT No.	11–1221–0095		PHASE No.	2100	
DESIGN	KD	09NOV11	SCALE	1 : 100 000	REV. –
CADD	SB	09NOV11	FIGURE 5C		
CHECK					
REVIEW					

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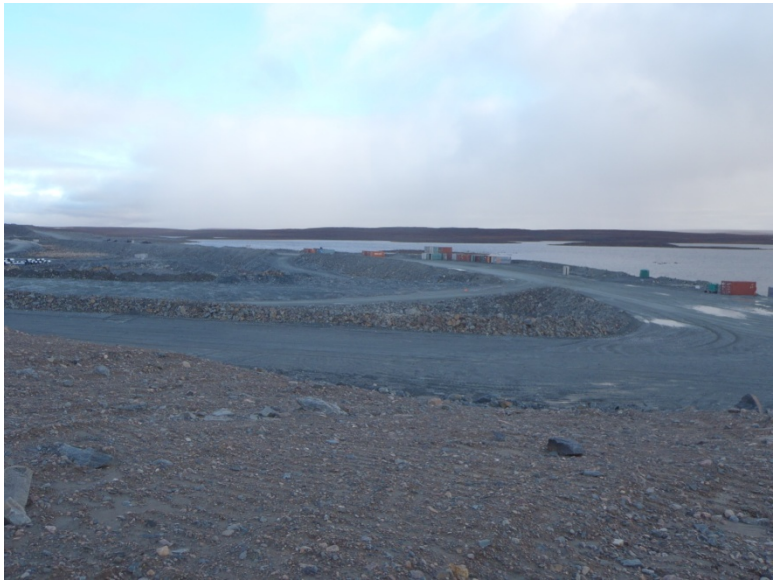
APPENDIX A

Dewatering Dikes

APPENDIX A1

East Dike Photographic Log and Record of Inspection



Photograph A1-1 East Dike

Date: September 13, 2011 **Photo Number**: P9130019

Description: Overview of East Dike, looking north

Photograph A1-2 East Dike

Date: September 13, 2011 **Photo Number**: P9130021

Description: Upstream of East Dike, from south abutment

Photograph A1-3 East Dike

Date: September 13, 2011 **Photo Number**: P9130022

Description: From about Sta. 60+ 150 looking north along centreline

Photograph A1-4 East Dike

Date: September 13, 2011 **Photo Number**: P9130024

Description: From about Sta. 60+ 220 looking north along centreline

Photograph A1-5 East Dike

Date: September 13, 2011 **Photo Number**: P9130025

Description: From about Sta. 60+ 270 looking north at upstream slope

Photograph A1-6 East Dike

Date: September 13, 2011 **Photo Number**: P9130027

Description: Looking south from about Sta. 60+400. Note containers present upstream of centerline.

Photograph A1-7 East Dike

Date: September 13, 2011 **Photo Number**: P9130028

Description: Looking north from about Sta.60+450 at centreline. Note tires placed around the instrumentation for protection.

Photograph A1-8 East Dike

Date: September 13, 2011 **Photo Number**: P9130029

Description: Looking south from about Sta. 60+ 540 at centerline looking at instrumentation placed in old sinkhole area.

Photograph A1-9 East Dike

Date: September 13, 2011 **Photo Number**: P9130031

Description: From Sta. 60+700 looking north at upstream slope

Photograph A1-10 East Dike

Date: September 13, 2011 **Photo Number**: P9130036

Description: From north abutment, looking at downstream side of East Dike. Note multiple access ramp built near the downstream toe.

Photograph A1-11 East Dike

Date: September 13, 2011 **Photo Number**: P9130037

Description: From about Sta. 60+750, looking south at downstream toe.

Photograph A1-12 East Dike

Date: September 13, 2011 **Photo Number**: P9130039

Description: From about Sta. 60+ 670 looking north at downstream toe. Note important presence of natural boulders in this area.

Photograph A1-13 East Dike

Date: September 13, 2011 **Photo Number**: P9130041

Description: From about Sta. 60+700 looking south at downstream toe. Note ponded water present near rockfill platform (about Sta. 60+550 – 60+600).

Photograph A1-14 East Dike

Date: September 13, 2011 **Photo Number**: P9130054

Description: Close up of water seepage and ponding near downstream toe at about Sta. 60+580. Seepage is minimal

Photograph A1-15 East Dike

Date: September 13, 2011 **Photo Number**: P9130042

Description: Looking at downstream toe, near existing sump (inside seacan container) located near Sta. 60+500. Construction of another sump in process during inspection (e.g. TTOG and excavated sump)

Photograph A1-16 East Dike

Date: September 13, 2011 **Photo Number**: P9130045

Description: Looking downstream at existing sump (inside seacan container) located near Sta. 60+300.

Photograph A1-17 East Dike

Date: September 13, 2011 **Photo Number**: P9130050

Description: From about Sta. 60+300, looking north at downstream toe. Note important presence of rockfill in this area.

APPENDIX A1
RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 13, 2011
Location:	East Dike	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with a soil bentonite cutoff wall and downstream filters		
Weather Conditions:	Mostly overcast	**Temperature:**	5°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	+/-136.5 cutoff 136.1m		Design thermal cap crest revised in 2011 to El. 136.5 m (Golder 2011a)
1.2 Reservoir Level	+/- 133.1 m upstream 98.0 m downstream		
Current Freeboard	3.4 m		Design 4 m.
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at time of inspection		At time of inspection, no surface cracking was observed. In 2009, cracking was observed in sinkhole area near Sta. 60+472 upstream of the cutoff wall, parallel and perpendicular.
1.5 Unexpected Settlement	Not at time of inspection		Survey monuments have indicated a maximum settlement near Sta. 60+766 of about 0.07m and near Sta.60+235 of about 0.03m. No obvious signs were detected in these two regions during the inspection. From the survey monument data provided it appears that the accuracy of data is not sufficient A sinkhole did exist in July 2009 (Sta. 60+472) and has since been filled in.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1.6 Lateral Movement	Not apparent		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 1.6H:1V	A1-2, 5, 9	Rockfill
2.2 Signs of Erosion	Stable		
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Not applicable		
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx.1.6H:1V	A1-10 to 17	Rockfill. Fine grained material from cleaning of the road has been pushed over the embankment slope on to surface of rockfill at periodic locations. Fill has been placed on downstream side slope of the south and north abutment.
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	Not apparent		
3.6 Vegetation Growth	None observed		
3.7 Other Unusual Conditions	None		
4. DOWNSTREAM TOE AREA			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4.1 Seepage from Dam	Yes	A1-15	Seepage downstream of Sta. 60+450, where a sump was installed (Sump located in container on the photo). From pumping test: flow is about 10 l/s. Non-continuous pumping was performed during the inspection. The system observed was not going to provide year-round pumping. Multiple holes excavated, containing water was observed near the sump.
		A1-16	Seepage downstream near Sta. 60+225 where a sump was installed (Sump located in container on the photo). From pumping test: flow is about 4 l/s. Non-continuous pumping was performed during the inspection. The system observed was not going to provide year-round pumping. Multiple holes excavated, containing water was observed near the sump.
		A1-13	Seepage occurring downstream between Sta. 60+550 to 60+700. Surface of lakebed soils is moist and has moss growing on it.
		A1-14	A small defined seepage was observed near Sta. 60+580.
4.2 Signs of Erosion	Not observed		
4.3 Signs of Turbidity in Seepage Water	No. Clear flow.		
4.4 Discoloration/staining	No		
4.5 Outlet operating problem (if applicable)	Not applicable		
4.6 Other Unusual Conditions	None		Some rockfill has been placed over the original downstream ground surface to create ramps, roads, sump pads, and for various other reasons. Visual observation of the condition at the downstream toe is therefore difficult to perform Some seepage was observed near the east wall in Portage Pit (wall adjacent to East Dike). The origin of this seepage is unknown.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		Low relief region, stable upstream and downstream of dike. Portage Pit is being developed on the downstream side of the dike.
6.2 Distance to Nearest Slide (if applicable)	None observed		
6.3 Estimate of Slide Volume (if applicable)	Not applicable		
6.4 Floating debris	None observed		
6.5 Other Unusual Conditions	None		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	Yes		See section 4.0 of the report
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See section 4.0 of the report
8.4 Settlement Monuments	Survey monuments		See section 4.0 of the report
8.5 Seismograph	Periodic		Periodic monitoring of blasting from open pit operations is conducted.
8.6 Inclinometer	Yes		
8.7 Weirs and Flow Monitors	No		From pumping tests performed, flow seems stable and similar to previous years (about 14 L/s), and water is clear.
8.8 Data logger(s)			
8.9 Other			
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	Draft		Not implemented. AEM is currently revising/updating plan.
9.1.2 OMS Plan reflects current dam conditions	No		AEM is currently revising/updating plan. Current draft OMS does not take into account the new condition of the cutoff wall near sinkhole event of 2009 nor does it reflect seepage rates.
9.1.3 Date of last revision	Feb. 2009 Draft		
9.2 Emergency Preparedness Plan (EPP)			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
9.2.1 EPP exists	Draft		AEM is currently revising/updating the EPP
9.2.2 EPP reflects current conditions	No		AEM is currently revising/updating the EPP
9.2.3 Date of last revision	Feb. 2009 Draft		

10. NOTES

The seepage collection system downstream of East Dike appears to capture most of the seepage in the 2 main seepage zones. Volume can be measured but year round pumping system is not currently operational. Water quality (turbidity) can only be visually observed by collecting water sample.

Inspector's Signature		**Date:**	

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: T Lepine *Report No.:* East Dike-IR-001 *Inspection Date:* 08-06-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ East Dike Crest Elevation: 136.5 U/S Pond Elevation 133.1
D/S Pond Elevation:

DAM / BERM

A) Crest

cracking	☐ none	☒	Small perpendicular crack on top of rolling surface related to frozen/unfrozen period.
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Have a look a comments in page 3 and pictures and plan view in annexe.
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
seepage	☐ none	☒	location 1: South East Dike – Station 190 aprox. (photo X)
			rate: ☐ damp ☐ trickle ☒ steady 4 (L/s)
			clarity: ☒ clear ☐ muddy
			sample taken: ☐ yes ☒ no
			location 2: Middle of the Dike - Station 650-700 (Photo X)
			rate ☐ damp ☐ trickle ☒ steady 8 (L/s)
			clarity ☒ clear ☐ muddy
			sample taken ☐ yes ☒ no
			type:
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced	☐ surface runoff	
			location(s):		
			degree	☐ minor	☐ moderate	☐ severe
geomembrane	☒ none	☐	Good		
settlement	☒ none	☐			
bulging	☒ none	☐			
sloughing	☒ none	☐			
slope protection	☒ good	☐			
sinkholes	☒ none	☐			
tailings surface	☐ water covered	☒			

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☒ piezometers	☒	☐	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors	☒	☐	☐

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

The two seepages observe at the downstream side of the dike are the same who have been observe in 2010. No evolution of the flow has been observed. The first one in the south portion of the dike has a flow of 4 L/Sec and the second one in the middle of the dike have a flow of 8 L/Sec. The total volume per day flowing trough the dike is estimated at 1000 cubic meters. Contingency plan is currently on is way to manage those seepages.

☒ Action Required:	☐ none	☒ further monitoring	☐ immediate remediation
☒ Plan or Sketch Attached	View annexe 2		
☒ Photographs (number)	View annexe 1	(locate all photographs on plan)	

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ ***none***

ANNEXE 1 - PHOTOS

Photo 1: Seepage at approx station 60 + 190

Photo 2: Seepage at approx station 60 + 700

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

ANNEXE 2 – PLAN VIEW

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: R. Morel, E. Voyer *Report No.:* East Dike-IR-002 *Inspection Date:* 26-07-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ East Dike Crest Elevation: 136.5 U/S Pond Elevation 133.1
D/S Pond Elevation:

DAM / BERM

A) Crest

cracking	☒ none	☐	
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Have a look a comments in page 3 and pictures and plan view in annexe.
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
seepage	☐ none	☒	location 1: South East Dike – Station 190 aprox. (photo X)
			rate: ☐ damp ☐ trickle ☒ steady __ (L/s)
			clarity: ☒ clear ☐ muddy
			sample taken: ☐ yes ☒ no
			location 2: Middle of the Dike - Station 650-700 (Photo X)
			rate ☐ damp ☐ trickle ☒ steady __ (L/s)
			clarity ☒ clear ☐ muddy
			sample taken ☐ yes ☒ no
			type:
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced	☐ surface runoff		
			location(s):			
			degree	☐ minor	☐ moderate	☐ severe
geomembrane	☒ none	☐	Good			
settlement	☒ none	☐				
bulging	☒ none	☐				
sloughing	☒ none	☐				
slope protection	☒ good	☐				
sinkholes	☒ none	☐				
tailings surface	☐ water covered	☒				

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☒ piezometers	☒	☐	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors	☒	☐	☐

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

The two seepages observe at the downstream side of the dike are the same who have been observe in 2010. The two seepages have been dug up to the till. (Photos 1 and 2) These have a direct effect on the flow of the water and the structural integrity of the East dike. In the last inspection the first one in the south portion of the dike had a flow of 4 L/Sec and the second one in the middle of the dike had a flow of 8 L/Sec. A third seepage is beginning to flow from under the dike and is starting to form a small pond. (Photo 3) The total volume per day flowing trough the dike was estimated at 1000 cubic meters. A new study of the volume flowing through the dike should be done to make sure that the situation is not getting worse. Contingency plan is currently on is way to manage those seepages.

☒ Action Required: ☐ none ☒ further monitoring ☒ immediate remediation
☒ Plan or Sketch Attached View annexe 2
☒ Photographs (number) View annexe 1 (locate all photographs on plan)

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ ***none***

ANNEXE 1 - PHOTOS

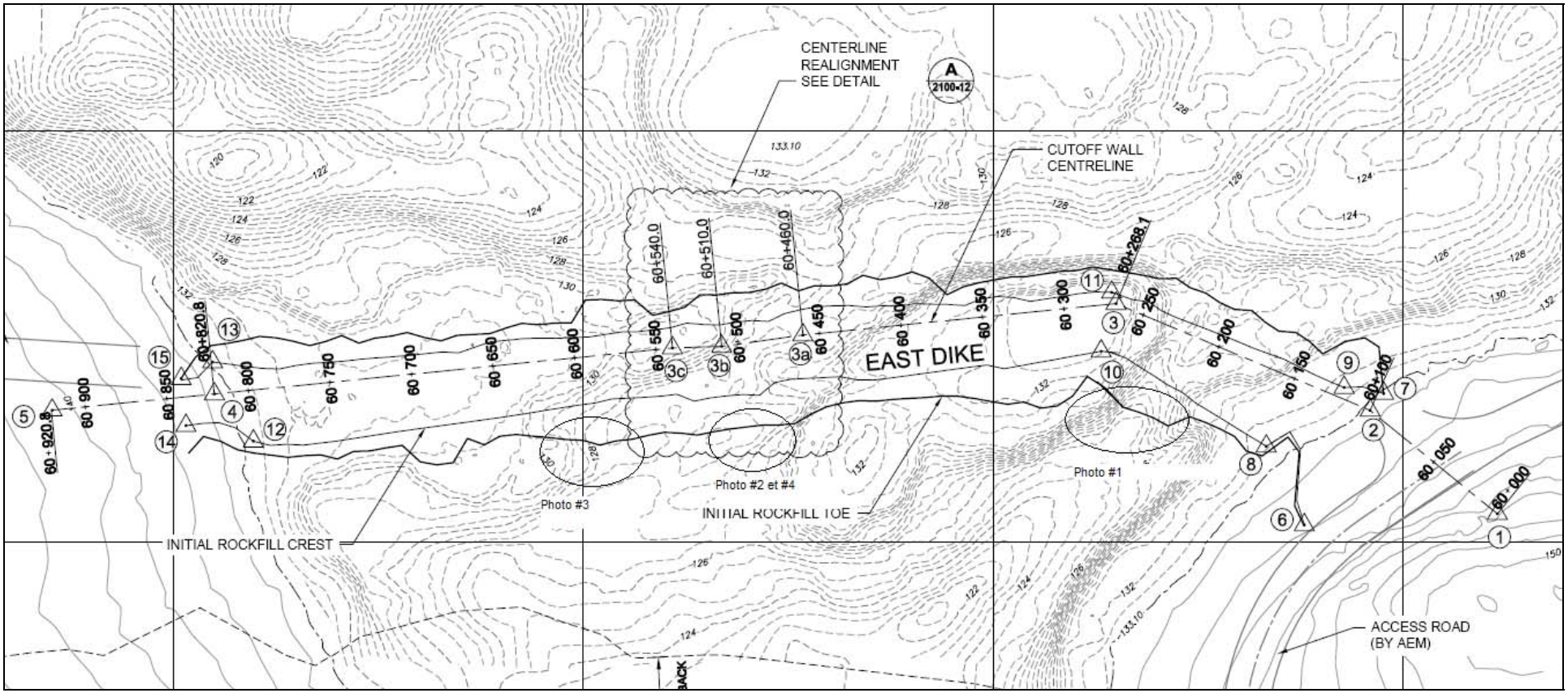
Photo 1: Seepage at approx station 60 + 200

Photo 2: Seepage at approx station 60 + 500

Photo 3: Beginning of seepage at approx station 60 + 600

Photo 4: Seepage at 60+500 (Remedial excavation)

ANNEXE 2 – PLAN VIEW



APPENDIX A2

West Channel Dike Photographic Log and Record of Inspection

Photograph A2-1 West Channel Dike

Date: September 15, 2011 **Photo Number**: P9150024_pano

Description: Overview of West Channel dike looking north at upstream side.

Photograph A2-2 West Channel Dike

Date: September 15, 2011 **Photo Number**: P9150025

Description: From west abutment, looking east at downstream slope

Photograph A2-3 West Channel Dike

Date: September 15, 2011 **Photo Number**: P9150027

Description: From west abutment, looking east at upstream slope

Photograph A2-4 West Channel Dike

Date: September 15, 2011 **Photo Number**: P9150029

Description: From east abutment, looking west at crest.

Photograph A2-5 West Channel Dike

Date: September 15, 2011 **Photo Number**: P9150032

Description: From east abutment, looking at Bay-Goose Dike. Note water level far from upstream side. Dewatering of Bay-Goose Basin was in progress during inspection.

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 15, 2011
Location:	West Channel Dike	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with till core and downstream filter		
Weather Conditions:	Mostly overcast	**Temperature:**	8°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	± El. 137.6 m (surchage) ± El. 135.6 m (till core)		
1.2 Reservoir Level	132.6 m upstream 98.0 m downstream		Dewatering of Bay-Goose basin upstream was in progress at the time of the inspection
Current Freeboard	5.0 m		Design: 4.0 m
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at the time of inspection		
1.5 Unexpected Settlement	None at the time of inspection		
1.6 Lateral Movement	Not apparent		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 1.6V: 1H		Rockfill

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
2.2 Signs of Erosion	Stable		
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Not applicable		
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx. 1.6V: 1H		Rockfill
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	Not apparent		No water was impounding against West Channel Dike at the time of the inspection
3.6 Vegetation Growth	No		
3.7 Other Unusual Conditions	None		
4. DOWNSTREAM TOE AREA			
4.1 Seepage from Dam	None observed		No water was impounding against West Channel Dike at the time of the inspection
4.2 Signs of Erosion	None observed		
4.3 Signs of Turbidity in Seepage Water	Not applicable		
4.4 Discoloration/staining	None observed		
4.5 Outlet operating problem (if applicable)	Not applicable		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4.6 Other Unusual Conditions	None		
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		
6.2 Distance to Nearest Slide (if applicable)	Not applicable		
6.3 Estimate of Slide Volume (if applicable)	None observed		
6.4 Floating debris	None		
6.5 Other Unusual Conditions			Low relief region, stable upstream and downstream of dike. Portage Pit development is in close proximity to the dike. Bay-Goose Basin was being dewatered at the time of the inspection. Once dewatering is complete, West Channel Dike is no longer required. For further information on pit slope stability, refer to Golder Doc. No 1314.
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	No		
8.4 Settlement Monuments	No		
8.5 Seismograph	No		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		
8.8 Data logger(s)	No		
8.9 Other	No		
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM is currently developing one

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
9.1.2 OMS Plan reflects current dam conditions	Not applicable		
9.1.3 Date of last revision	Not applicable		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM is currently developing one
9.2.2 EPP reflects current conditions	Not applicable		
9.2.3 Date of last revision	Not applicable		
10. NOTES			
Inspector's Signature		**Date:**	

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APPENDIX A3

South Camp Dike Photographic Log and Record of Inspection

Photograph A3-1 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130003

Description: Overview of South Camp Dike, from south abutment looking north

Photograph A3-2 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130009

Description: From south abutment, looking north at upstream slope and thermistor instrumentation set-up

Photograph A3-3 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130011

Description: From north abutment, looking south at downstream slope. Note downstream toe was exposed during the inspection as dewatering of Bay-Goose basin was in progress.

Photograph A3-4 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130013

Description: From south abutment, looking north at exposed the downstream toe.

Photograph A3-5 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130017

Description: Close-up at exposed the downstream toe. No sign of seepage visible

Photograph A3-6 South Camp Dike

Date: September 13, 2011 **Photo Number**: P9130018

Description: Looking south at downstream south abutment

APPENDIX A3
RECORD OF DAM INSPECTION

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 13, 2011
Location:	South Camp Dike	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill shell with upstream filter, a bituminous geomembrane liner and protective cover.		
Weather Conditions:	Mostly overcast	**Temperature:**	7°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST			
1.1 Crest elevation	± El. 137.0 m (rockfill) ± El. 134.7 m (liner)		
1.2 Reservoir Level	Upstream ± El.133.7m Downstream ± 132.6	A3-2 A3-4	Downstream elevation at time of inspection. Bay-Goose Basin was being dewatered during the inspection.
Current Freeboard	3.3 m (rockfill crest) 1 m (liner crest)		Design: 4.0 m. Current rockfill crest elevation is adequate.
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at the time of inspection		
1.5 Unexpected Settlement	None at the time of inspection		
1.6 Lateral Movement	Not apparent		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 1.3V: 1H	A3-2	

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
2.2 Signs of Erosion	None observed		
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Liner not visible at the time of the inspection		Bituminous geomembrane liner. Compacted granular material mixed with bentonite was placed above the liner, followed by a thermal cap layer covering the entire liner face.
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx. 1.4V: 1H	A3-4	
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	Not apparent		
3.6 Vegetation Growth	No		
3.7 Other Unusual Conditions	None		
4. DOWNSTREAM TOE AREA		A3-5	
4.1 Seepage from Dam	None observed		
4.2 Signs of Erosion	None observed		
4.3 Signs of Turbidity in Seepage Water	Not applicable		
4.4 Discoloration/staining	No		
4.5 Outlet operating problem (if applicable)	Not applicable		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4.6 Other Unusual Conditions	None		Dewatering of the Bay-Goose basin was in progress at the time of the inspection
5. ABUTMENTS		A3-3 & 6	
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		
6.2 Distance to Nearest Slide (if applicable)	Not applicable		
6.3 Estimate of Slide Volume (if applicable)	None observed		
6.4 Floating debris	None		
6.5 Other Unusual Conditions			Low relief region, stable upstream and downstream of dike. Bay-Goose Basin was being dewatered at the time of the inspection, therefore, the inside side slope of the basin was not visible
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	Yes	A3-2	See section 4.0 of the report, one broken since July 2011
8.4 Settlement Monuments	No		
8.5 Seismograph	No		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		
8.8 Data logger(s)	No		
8.9 Other	No		
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM is currently developing one
9.1.2 OMS Plan reflects current dam conditions	Not applicable		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
9.1.3 Date of last revision	Not applicable		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM is currently developing one
9.2.2 EPP reflects current conditions	Not applicable		
9.2.3 Date of last revision	Not applicable		
10. NOTES			
Inspector's Signature		**Date:**	

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APPENDIX A4

Bay Goose Dike Photographic Log and Record of Inspection

Photograph A4-1 Bay Goose Dike

Date: September 12, 2011 **Photo Number**: Overview of Bay-Goose Dike.png

Description: Overview of Bay-Goose Dike, looking east, from South Camp Island

Photograph A4-2 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9120005

Description: Dewatering ramp, and pump setup

Photograph A4-3 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9120009

Description: Flow meter installed to monitor volume pumped

Photograph A4-4 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150034

Description: From north abutment, looking south along centreline. Note container present near centreline.

Photograph A4-5 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150035

Description: From north abutment, looking at downstream slope. Note small portion of exposed toe at time of inspection.

Photograph A4-6 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150036

Description: Close-up on exposed downstream toe, near north abutment.

Photograph A4-7 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150038

Description: Looking south along dike centerline, from north abutment. Note irregular crest surface around centerline, mainly following instrumentation trenching work.

Photograph A4-8 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150040

Description: From about St. 30+200, looking at dike centerline, note irregular crest surface.

Photograph A4-9 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150041

Description: From about St. 30+250, looking recently installed thermistors T3', T4' and T5'.

Photograph A4-10 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150042

Description: From about St. 30+250, looking at downstream side of dike, in the area where CSB overlies SB material in the cutoff wall.

Photograph A4-11 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150044

Description: From about St. 30+350, looking north at downstream side of dike.

Photograph A4-12 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150046

Description: From about Sta. 30+460, looking south along centerline

Photograph A4-13 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150047

Description: From about Sta. 30+550, looking south at downstream toe exposed, near Goose Island.

Photograph A4-14 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150048

Description: At about Sta. 30+550, cavity observed, upstream of the cutoff wall. Cavity more likely form due to instrumentation cable trenching construction activities.

Photograph A4-15 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150050

Description: Near Sta. 30+600, looking at exposed downstream toe.

Photograph A4-16 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150053

Description: Near Sta. 30+800, looking at dike centerline. Note levelled crest platform here.

Photograph A4-17 Bay Goose Dike

Date: September 15, 2011 **Photo Number**: P9150054

Description: Near Sta. 30+850, looking at upstream access road.

Photograph A4-18 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150055

Description: Near Sta. 31+050, looking at a cavity existing around casing. Cavity may have formed during casing installation or grouting work.

Photograph A4-19 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150058

Description: From about Sta. 31+170, looking south at downstream toe

Photograph A4-20 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150062

Description: From about Sta. 31+450, looking downstream, Note Channel 3 in the back of the picture, still impounding water.

Photograph A4-21 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150064

Description: From about Sta. 31+500, looking west at jet grouting spoil covering the upstream access road.

Photograph A4-22 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150067

Description: From about Sta. 31+500, near one deep channel (Channel 3) looking west at downstream side.

Photograph A4-23 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150068

Description: From about Sta. 31+500, near one deep channel (Channel 3) looking east at downstream exposed toe.

Photograph A4-24 Bay-Goose Dike

Date: September 15, 2011 **Photo number**: P9150070

Description: From about 31+850, looking at one centerline section treated by jet grouting. Note uneven crest platform near centerline.

Photograph A4-25 Bay-Goose Dike

Date: September 15 2011 **Photo number**: P9150071etP9150072

Description: From about Sta. 32+000, looking at jet grouting spoil covering the upstream access road.

Photograph A4-26 Bay-Goose Dike

Date: September 15 2011 **Photo number**: P9150076

Description: From west abutment, looking east at Bay-Goose dike with upfront view of upstream side.

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 15, 2011
Location:	Bay-Goose Dike	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with a cutoff wall (soil-bentonite, cement-soil-bentonite and jet grouting columns) and downstream filters		
Weather Conditions:	Mostly overcast	**Temperature:**	8°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST		A4-8, 9, 12, 16 & 24	
1.1 Crest elevation	+/-136.5 cutoff 136.1m		Design 138.1m. Thermal cap to be added following completion of dewatering.
1.2 Reservoir Level	133.7 m upstream 132.6 m downstream		Dewatering in progress at time of inspection.
Current Freeboard	2.8 m		Design 4.0 m
1.3 Distance To Tailings Pond (if applicable)	Not applicable		
1.4 Surface Cracking	None at the time of inspection		Currently the dike crest surface, near the cutoff wall centreline, is highly irregular which limits visual observation of potential deformations, settlement, and/or cracking.
1.5 Unexpected Settlement	None at time of inspection	A4-14 & 18	Some depressions were observed, but could not determine timing or cause. They could have occurred during construction or dewatering.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1.6 Lateral Movement	Not apparent.		
1.7 Other Unusual Conditions	None	A4-4	Seacans placed on top of the crest, in some places, (e.g., near north abutment) upstream of centerline, limiting visual inspection of the crest near the cutoff wall
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 1.6H:1V		Rockfill
2.2 Signs of Erosion	Stable		
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	Not applicable		
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE		A4-5, 10, 11, 19, 22 & 23	
3.1 Slope angle	Approx.1.6H:1V		
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	Not apparent		
3.6 Vegetation Growth	None observed		
3.7 Other Unusual Conditions	None		Dewatering was in progress. Downstream slope was not exposed for the most part.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4. DOWNSTREAM TOE AREA		A4-6, 13, 15 & 20	
4.1 Seepage from Dam	None observed		As dewatering was underway at the time of the inspection, most of the downstream toe was not exposed. Toe was exposed in small sections near both abutments and Goose Island. No seepage, erosion, turbidity, or discoloration signs were observed in the exposed zones.
4.2 Signs of Erosion	None observed		
4.3 Signs of Turbidity in Seepage Water	No.		
4.4 Discoloration/staining	No		
4.5 Outlet operating problem (if applicable)	Not applicable		
4.6 Other Unusual Conditions	None		
5. ABUTMENTS		A4-26	
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		
6.2 Distance to Nearest Slide (if applicable)	None observed		
6.3 Estimate of Slide Volume (if applicable)	Not applicable		
6.4 Floating debris	None observed		
6.5 Other Unusual Conditions	None		Low relief region, stable upstream and downstream of dike. Dewatering of Bay-Goose basin was underway at the time of the inspection, so the downstream slope, below elevation 132.6 m was not visible.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	Yes		See section 4.0 of the report
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See section 4.0 of the report
8.4 Settlement Monuments	Survey monuments		See section 4.0 of the report
8.5 Seismograph	Periodic		Periodic monitoring of blasting from open pit operations is conducted.
8.6 Inclinometer	Yes		See section 4.0 of the report
8.7 Weirs and Flow Monitors	Yes		Flow meters were installed to track the pumped volume during dewatering.

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
8.8 Data logger(s)	Yes		
8.9 Other			
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM is currently preparing the plan
9.1.2 OMS Plan reflects current dam conditions	Not applicable		
9.1.3 Date of last revision	Not applicable		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM is currently preparing the EPP
9.2.2 EPP reflects current conditions	Not applicable		
9.2.3 Date of last revision	Not applicable		
10. NOTES			
Inspector's Signature		**Date:**	

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: E. Voyer, P. Gagnon *Report No.:* BG-IR-001 *Inspection Date:* 08-10-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ Bay Goose Crest Elevation: App.137.1 Third Portage Lake 133.7m
Bay Goose Pit: 131.23m

DAM / BERM

A) Crest

cracking	☒ none	☐	Road surface on crest uneven and muddy in some area (especially in South Portion). See pictures in Appendix I.
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Downstream slope and toe inspected from approx. 30+500 to 31+800 in area free of water • small water pond at approx. 31+265 from snow /ice melting • water pond (lower elevation, can't drain) at approx. 31+000, elevation of the pond at 132.74 (Oct 2nd)
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none		
seepage	☒ none	☐	location 1: rate: ☐ damp ☐ trickle ☐ steady __ (L/s) clarity: ☐ clear ☐ muddy sample taken: ☐ yes ☐ no location 2: rate ☐ damp ☐ trickle ☐ steady ___ (L/s) clarity ☐ clear ☐ muddy sample taken ☐ yes ☐ no
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

Dam ☐ Dyke ☒ Bay Goose

C) Upstream Slope

erosion	☒ none	☐	wave induced location(s):	☐ surface runoff
			degree	☒ minor ☐ moderate ☐ severe
Coletanche	☒ none	☐		
settlement	☒ none	☐		
bulging	☒ none	☐		
sloughing	☒ none	☐		
slope protection	☒ good	☐		
animal burrows	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☒ NA	☐		

Third Portage Lake started to freeze (thin ice along the upstream toe). At the moment of the inspection, ice partially covered the toe…

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☒ piezometers	☒	☐	☒ (Daily)
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other (Therm., inclino.)	☒	☐	☒ (Daily, monthly (inclino)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

Dam ☐ Dike ☒ Bay Goose Dike

COMMENTS AND RECOMMENDATIONS:

Downstream toe:

- Limited access due to water level still too high in certain area
- No settlement or erosion observed during inspection
- No water seepage was observed during inspection

Upstream side:

- Limited access due to Third Portage Lake thin ice sheet
- No settlement or cracks were observed on the berm during inspection

Crest:

- Road surface on the crest is really uneven, muddy. Grader work needed to restore surface before freezing.

Instrumentation:

- 7 multiplexers are functional
- No instrumentation damaged since installation
- 3 new thermistors added near multiplexer 2 for follow up on CSB/SB temperature interface

☒ Action Required: Grader ☐ none ☐ further monitoring ☐ immediate remediation
☒ Plan or Sketch Attached Appendix II
☒ Photographs Appendix I (locate all photographs on plan)

Oct 25th 2011

Review Officer: Review Agency: Date Reviewed: 30-10-2011 (DD/MM/YR)

REVIEW COMMENTS: ☐ none

NEXT INSPECTION DUE TO: _____

APPENDIX I : Photographs

a)

b)

c)

d)

Photos 1 : Views of the water-free downstream toe of Bay Goose Dike. a) looking West from 31+550 to 31+800, b) looking East from 31+550 to 31+150, c) looking North from 31+150 to 30+950, d) looking North from 30+900 to 30+450. No seepage was seen during this inspection over the exposed area.

Photo 2: View of the water covered downstream toe, looking South from 31+900 to 31+800. No damages to report on the structure on all toe sections still submitted to winds and waves action.

Photo 3: View of the rolling surface on top of Bay Goose Dike. Road surface need to be levelled with grader before freezing.

ANNEXE II : Plan views

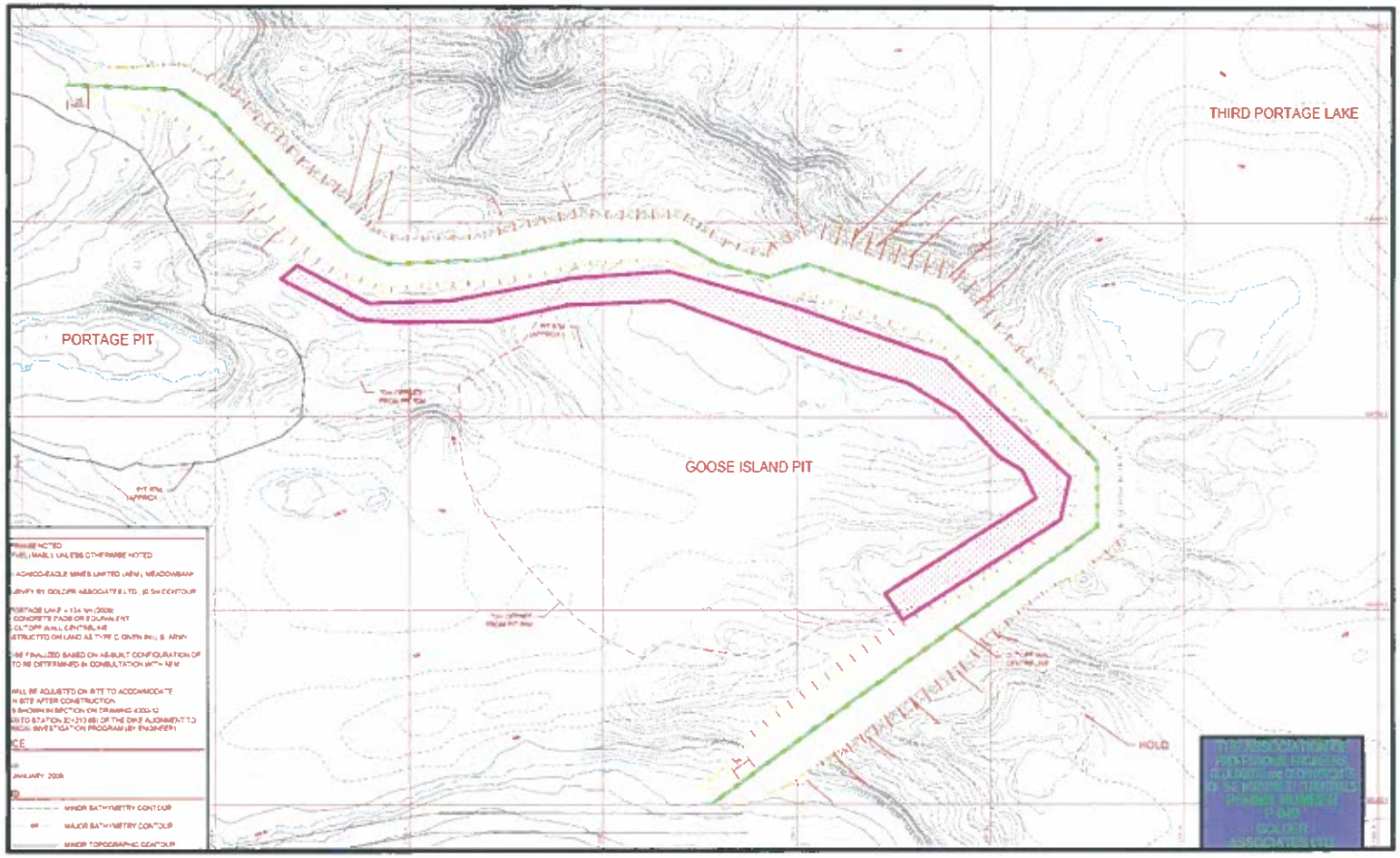


Figure 1: Plan view Bay Goose Dike. Areas subjected to the downstream toe inspection are outlined in pink. Other sections were still under water at the moment of the inspection and couldn't be closely inspected.

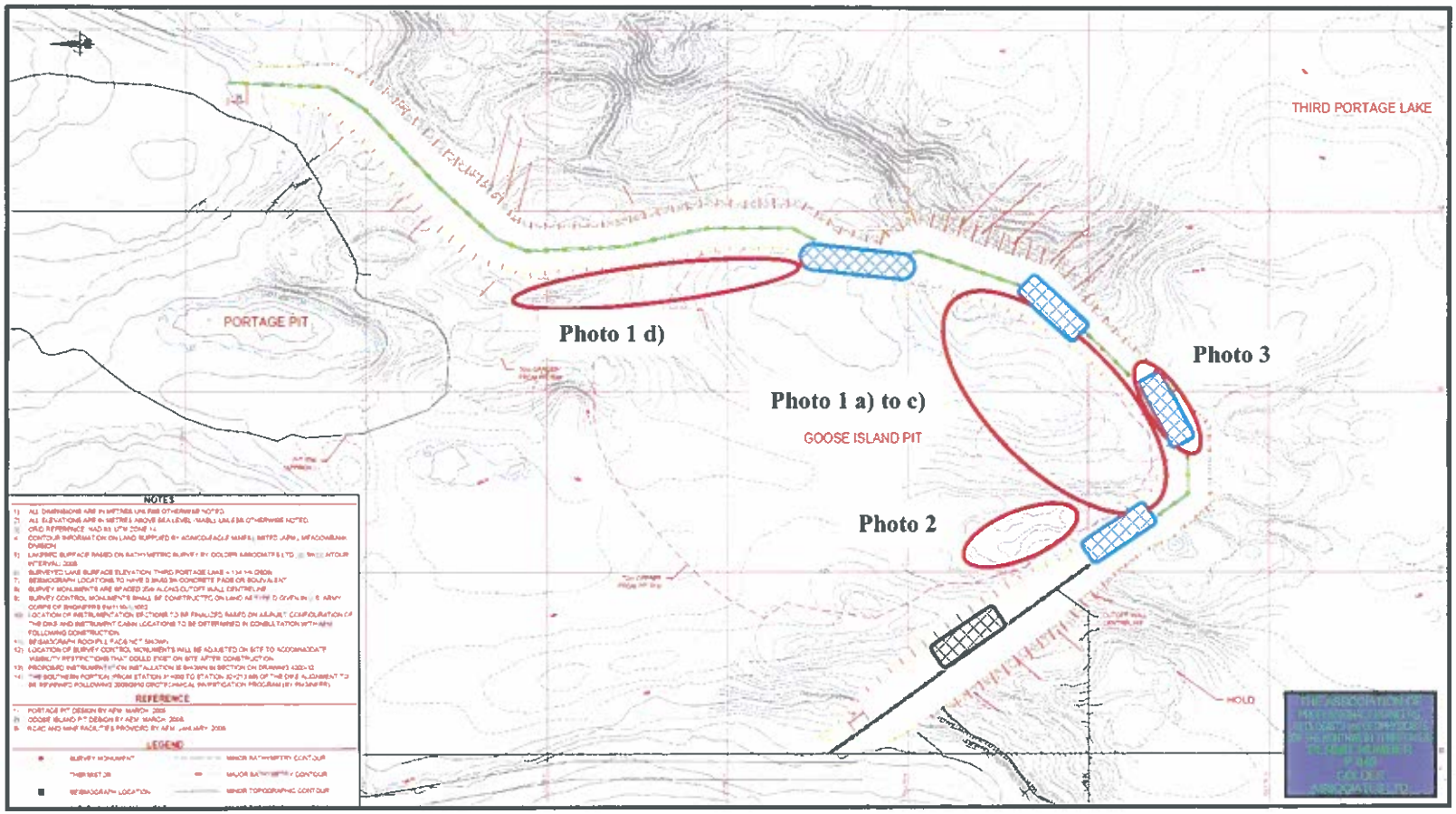


Figure 2: Plan view Bay Goose Dike with pictures location. In red, views from the downstream toe and in dashed blue, areas where surface road need to be repaired.

APPENDIX B

Tailings Storage Facility

APPENDIX B1

Tailings Facility Photographic Log

Photograph B1-1 Tailings Storage Facility

Date: September 15, 2011 **Photo Number**: Overview of TSF.png

Description: From junction between Saddle Dam 2 and Stormwater Dike, looking at the North Cell of the Tailings Storage Facility.

n:\actif\2011\1221\11-1221-0095 aem geotechnical inspection and slope review\5 preparation of deliverables\doc 1305 1112210095 1114_11 2011 geotechnical inspection\appendix b-tailings storage facility\appendix b1 - tsf photographic log.docx

APPENDIX B2

Saddle Dam 1 Photographic Log and Record of Inspection

Photograph B2-1-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140098.jpg

Description: From south abutment, looking at upstream side of Saddle Dam 1. Note tailings beach not well define and pond is against upstream face. Note also that crushed material protection layer on top of the liner exist up to Elevation 140 m.

Photograph B2-2-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140100.jpg

Description: From south abutment, looking at tailings beach and pond.

Photograph B2-3-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140101.jpg

Description: From south end, looking at exposed upstream liner. Note ballasting placed over liner to protect from wind uplift. The presence of ballasting increases towards the north abutment.

Photograph B2-4-Saddle Dam 1

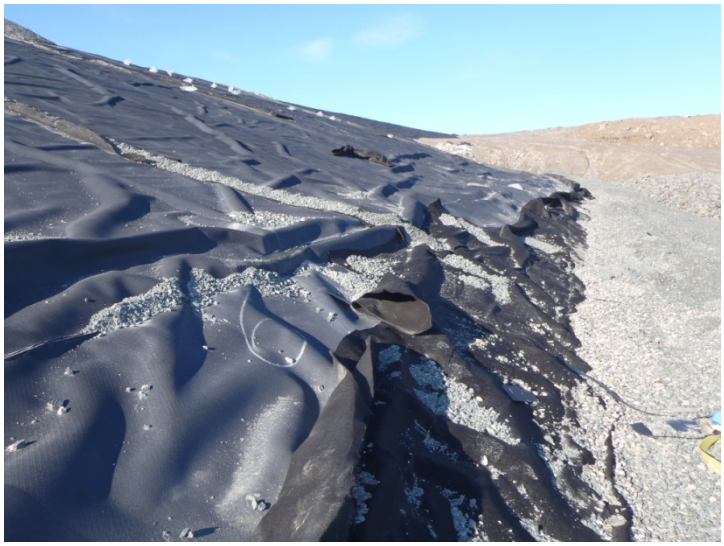
Date: September 14, 2011 **Photo Number**: P9140105.jpg

Description: Close up view of the tailings beach. Note presence of water channel and ponds near the liner face.

Photograph B2-5-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140106.jpg

Description: Close-up view of observed wrinkles in liner present just above the protective layer (crushed rocks), near center of SD1



Photograph B2-6-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140114.jpg

Description: Close-up view of observed wrinkles in liner present just above the protective layer (crushed rocks), near north abutment

Photograph B2-7-Saddle Dam 1

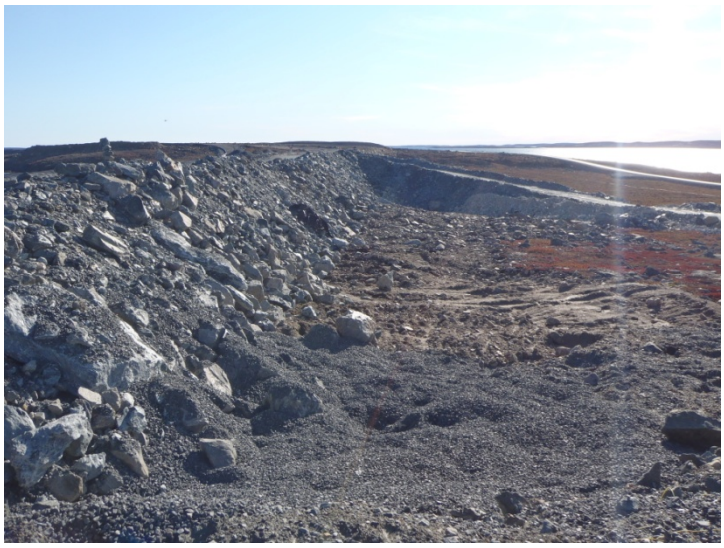
Date: September 14, 2011 **Photo Number**: P9140118.jpg

Description: From North abutment, looking at the upstream liner face.

Photograph B2-8-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140119.jpg

Description: From North abutment, looking South at the crest



Photograph B2-9-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140120.jpg

Description: From North abutment, looking South at downstream side of SD1

Photograph B2-10-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140121.jpg

Description: Looking at downstream toe, near Sta. 0+100. No visible signs of seepage

Photograph B2-11-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140123.jpg

Description: Looking at downstream toe, between about Sta. 0+200 to 0+350. Note water pooling along the downstream toe.

Photograph B2-12-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140126.jpg

Description: Looking at downstream toe, near Sta. 0+250. Pump installed, but was not in operation at the time of the inspection.

Photograph B2-13-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140128.jpg

Description: From South abutment, looking north at downstream side

Photograph B2-14-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140129.jpg

Description: Looking downstream at South abutment

Photograph B2-15-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140130.jpg

Description: From South abutment, looking North at crest

Photograph B2-16-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140131.jpg

Description: Looking at minor depression on the crest near Sta. 0+100

Photograph B2-17-Saddle Dam 1

Date: September 14, 2011 **Photo Number**: P9140133.jpg

Description: Looking at thermistors readi-out stations

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 14, 2011
Location:	Saddle Dam 1	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with inverted filter on base, upstream filters, a geomembrane liner and protective cover.		
Weather Conditions:	Mostly overcast	**Temperature:**	6°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST		B2-8, 15	
1.1 Crest elevation	150 m		Design 150 m
1.2 Reservoir Level	138.3		
Current Freeboard	11.7 m		Design 2 m
1.3 Distance To Tailings Pond (if applicable)	Between 0 and 20 m	B2-1, 2 & 4	Reclaim Pond was directly against the dam upstream face, near both abutments. Pond was approximately 20 m away, near to the middle of the dam.
1.4 Surface Cracking	None at time of inspection		
1.5 Unexpected Settlement	Yes	B2-16	Few minor cavities observed on the crest near Sta. 0+100 and 0+300, not of significant concern.
1.6 Lateral Movement	Not apparent		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE			
2.1 Slope angle	Approx. 3H:1V		Rockfill
2.2 Signs of Erosion	None observed		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
2.3 Signs of Movement (Deformation)	None observed		
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	LLDPE with geotextile below. Reclaim Pond ponding against liner	B2-1, 2 & 4	Beaches are a design requirement for these structures for proper performance and to protect the exposed liners from potential ice damage.
	Presence of wrinkles	B2-5 & 6	Significant wrinkles in the liner just above the current water level were observed at the time of the inspection. The design intent is that the geomembrane liner is to be in intimate contact and lie in a relaxed state on top of the fine filter. Any large wrinkles that have the potential to fold over should be repaired as these locations will tend to concentrate stress in the liner and become a point of weakness thereby increasing the likelihood for seepage in these locations.
2.6 Other Unusual Conditions	None		
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx.1.2H or 1.3 H:1V variable		Rockfill
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	None observed on slope		Water pooling at downstream toe
3.6 Vegetation Growth	None observed		
3.7 Other Unusual Conditions	None		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4. DOWNSTREAM TOE AREA			
4.1 Seepage from Dam	Uncertain		Water pooling was observed at downstream toe. Water pool was also observed during the past inspection, before the reclaim pond level was greater than the elevation of the downstream toe. To date, water quality sampling results for the pool at the downstream toe do not exceed regulation limits. Assessment to determine if water pooling comes from natural drainage or seepage from the tailings facility should continue.
4.2 Signs of Erosion	None observed		
4.3 Signs of Turbidity in Seepage Water	Not applicable		
4.4 Discoloration/staining	No		
4.5 Outlet operating problem (if applicable)	Not applicable		
4.6 Other Unusual Conditions	Temporary pumping system was not observed to be in operation.		Water pool was not being pumped out at the time of the inspection. Water pool has the potential to thaw the frozen soils within the dam foundation, thereby increasing the likelihood of settlement with the potential for liner damage and seepage through the structure
5. ABUTMENTS			
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		Low relief region, stable upstream of dam. Portage Rock Storage Facility is being developed on east side of the Tailings Storage Facility. At present, height of waste rock slope is becoming significant, monitoring of its stability should be performed by AEM.
6.2 Distance to Nearest Slide (if applicable)	None observed		
6.3 Estimate of Slide Volume (if applicable)	Not applicable		
6.4 Floating debris	None observed		
6.5 Other Unusual Conditions	No		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See Section 4.0 of the report
8.4 Settlement Monuments	No		Construction drawings show settlement monuments to be installed on Stage 2 crest.
8.5 Seismograph	No		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		Construction drawings indicate a seepage collection system is to be constructed. A downstream collection system with a temporary pumping system was observed at the time of the inspection; however, it was not operational. AEM indicated they are in the process of establishing a power supply such that a permanent system to pump back water will be in place. It is anticipated that a weir or other device will be installed to measure flow.
8.8 Data logger(s)	No		
8.9 Other			
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM is currently preparing the plan.
9.1.2 OMS Plan reflects	Not applicable		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
current dam conditions			
9.1.3 Date of last revision	Not applicable		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM is currently preparing the EPP
9.2.2 EPP reflects current conditions	Not applicable		
9.2.3 Date of last revision	Not applicable		
10. NOTES			
Inspector's Signature		**Date:**	

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DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: T Lepine *Report No.:* SD1-IR-001 *Inspection Date:* 06-06-2011

DAM/DIKE INFORMATION:

Dam ☒ Dike ☐ Saddle Dam 1 Crest Elevation: 150 Head Pond Elevation 138.5
Tail Pond Elevation: 137.5

DAM / BERM

A) Crest

cracking	☒ none	☐	Water ponding, surface slightly ondulating (see plan view annexe 2)
settlement	☐ none	☒	Small hole/cavity → approx. 7m x 2.5m x0.5m depth (refer to plan view in annexe 2)
erosion	☐ none	☒	Fine material eroded in surface (Rolling surface)
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Small seepage visible under the snow on a portion of the downstream (see photo 1 and plan view in annexe)
settlement	☒ none	☐	Overall downstream slope is good
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☐ none	☒	location 1: Photo 1 in annexe 1, see comments on page 3
			rate: ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity: ☒ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2: **NONE**
			rate ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced	☐ surface runoff
			location(s):	
			degree	☐ minor ☐ moderate ☐ severe
geomembrane	☐ none	☒	LLDPE, Large rinkle visible in non protected area (see photo 2 and plan view in annexe, see comments in page 3 for more details)	
settlement	☒ none	☐		
bulging	☐ none	☒		
sloughing	☒ none	☐		
slope vegetation	☒ none	☐		
animal burrows	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☒ water covered	☐		

DAM / DIKE INSTRUMENTATION:

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☐ piezometers	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors (4)	☒	☐	☒

DESCRIPTION OF INSTRUMENTS RESULTS (Thermistors):

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

Overall, the performance of the dike is good.

There's a rinkle visible on the liner on the north of the upstream side. (photo 2) That one will be follow to make sure that there's no evolution on it. This summer, liner crew will repair the rinkle.

The seepage is created by the inclination of the natural ground towards the upstream. Run-off and infiltration create an amount of water on the upstream feet of the dike and inside as well. To prevent water pressure through the liner a 2 inches pump will be place on the downstream feet to pump water and send it on the lake (have a look at figure 2 in annexe for more details.)

☐ Action Required: ☐ none ☒ further monitoring ☐ immediate remediation
☒ Plan or Sketch Attached Annexe 2
☒ Photographs (number) Annexe 1

AEM geotechnical eng: _____ AEM eng superintendant: _____

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☒ none

ANNEXE 1 – PHOTO

Photo 1: Seepage on downstream side

Photo 2: Rinkle on upstream slope

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

ANNEXE 1 – PLAN VIEW

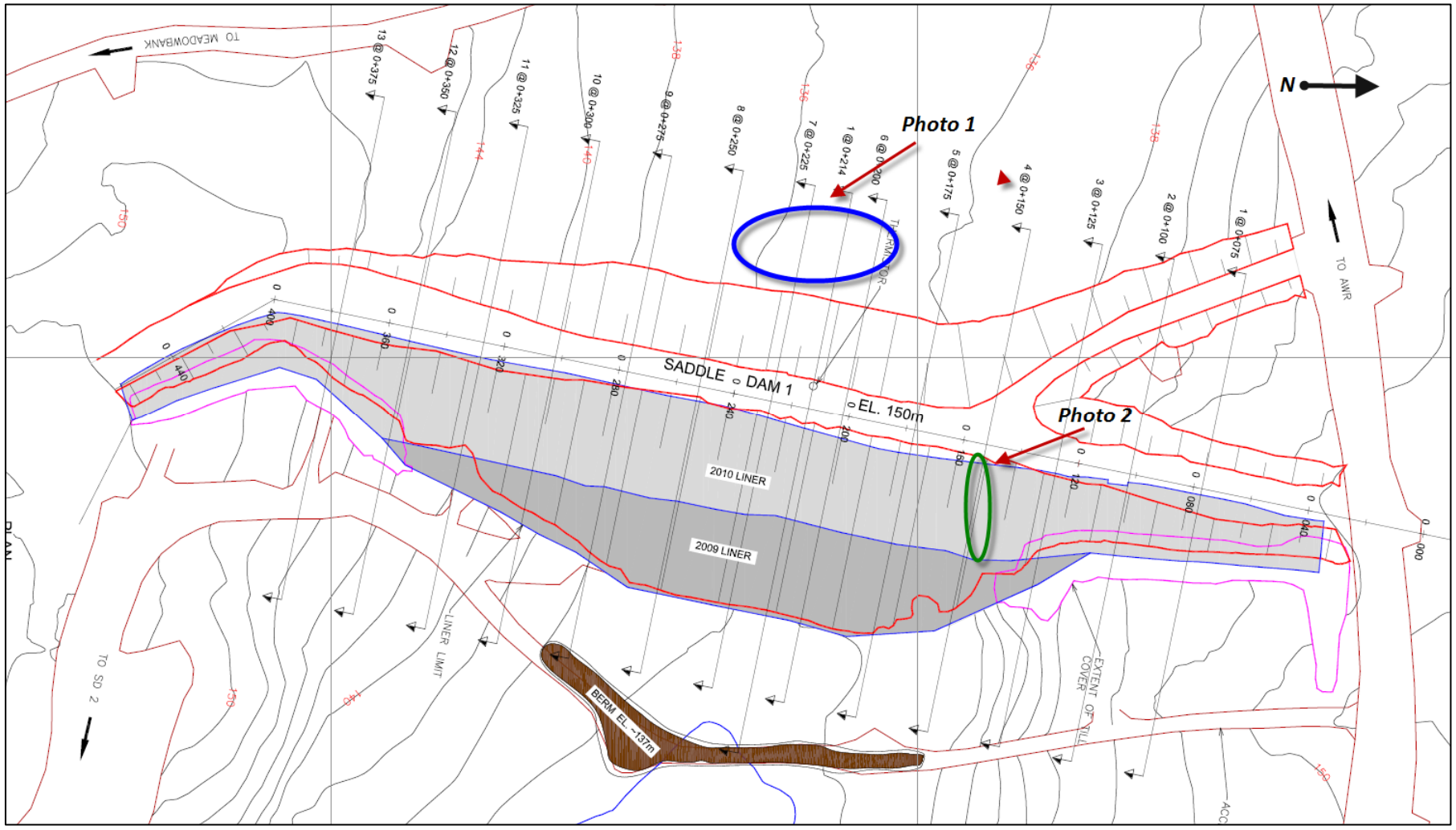


Figure 1: Plan view SD1 with pictures locations

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: P. Gagnon *Report No.:* SD1-IR-002 *Inspection Date:* 07-12-2011

DAM/DIKE INFORMATION:

Dam ☒ Dike ☐ Saddle Dam 1 Crest Elevation: 150 Head Pond Elevation 138.5
Tail Pond Elevation: 134.58

DAM / BERM

A) Crest

cracking	☒ none	☐	Water ponding during the thawing period (early to mid-june, surface slightly ondulating (see plan view annexe 2).
settlement	☐ none	☒	
erosion	☐ none	☒	Fine material eroded in surface (rolling surface)
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Seepage visible at downstream have been pumped (see photo 1 and plan view in annexe) Overall downstream slope is good.
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☒ none	☐	location 1: Photo 1 in appendix 1, see comments on page 3
			rate: ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity: ☒ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2: **NONE**
			rate ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced	☐ surface runoff
			location(s):	
			degree	☐ minor ☐ moderate ☐ severe
geomembrane	☐ none	☒	LLDPE, A large wrinkle visible in non protected area (see photo 2 and plan view in appendix, see comments in page 3 for more details). Water has accumulated inside the wrinkle at two different location, one smaller to the north and a bigger one at the south (see photographs). Two small holes have been punched in the membrane and have to be fixed by the repair crew in august (see photo 3).	
settlement	☒ none	☐		
bulging	☐ none	☒		
sloughing	☒ none	☐		
slope vegetation	☒ none	☐		
animal burrows	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☐ water covered	☒	Taillings was being pumped at the toe of the dike at the moment of the inspection. (see photo 4).	

DAM / DIKE INSTRUMENTATION:

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☐ piezometers	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors (4)	☒	☐	☒ every 2 days

DESCRIPTION OF INSTRUMENTS RESULTS (Thermistors):

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

Overall, the performance of the dike is good.

There's a wrinkle visible on the liner on the upstream side. (photo 2) That one is followed to make sure that there's no evolution on it. This august, liner crew will repair the wrinkle and get rid of the water.

The seepage is created by the inclination of the natural ground towards the upstream. Run-off and infiltration create an amount of water on the downstream feet of the dike. To prevent water pressure through the liner, a 4 inches pump has been placed on the downstream feet to pump water and send it on the taillings (have a look at figure 2 in annexe for more details.) A monitoring post have been installed to monitor the water level at the downstream foot of the dike.

All the membrane's seams have been closely inspected and they are all in good shape, despite of last month's windy period.

During the last month, sample bags filled with ¾ materials have been placed on top of the membrane to protect it against the lifting caused by the NW winds. Additional bags are required near the top at station

☐ Action Required: ☐ none ☒ further monitoring ☐ immediate remediation

☒ Plan or Sketch Attached Annexe 2

☒ Photographs (number) Annexe 1

AEM geotechnical eng: _____ AEM eng superintendant: _____

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☒ none

APPENDIX 1 – PHOTOGRAPHS

Photo 1: Seepage on downstream side. A monitoring post was installed to follow water level variations.

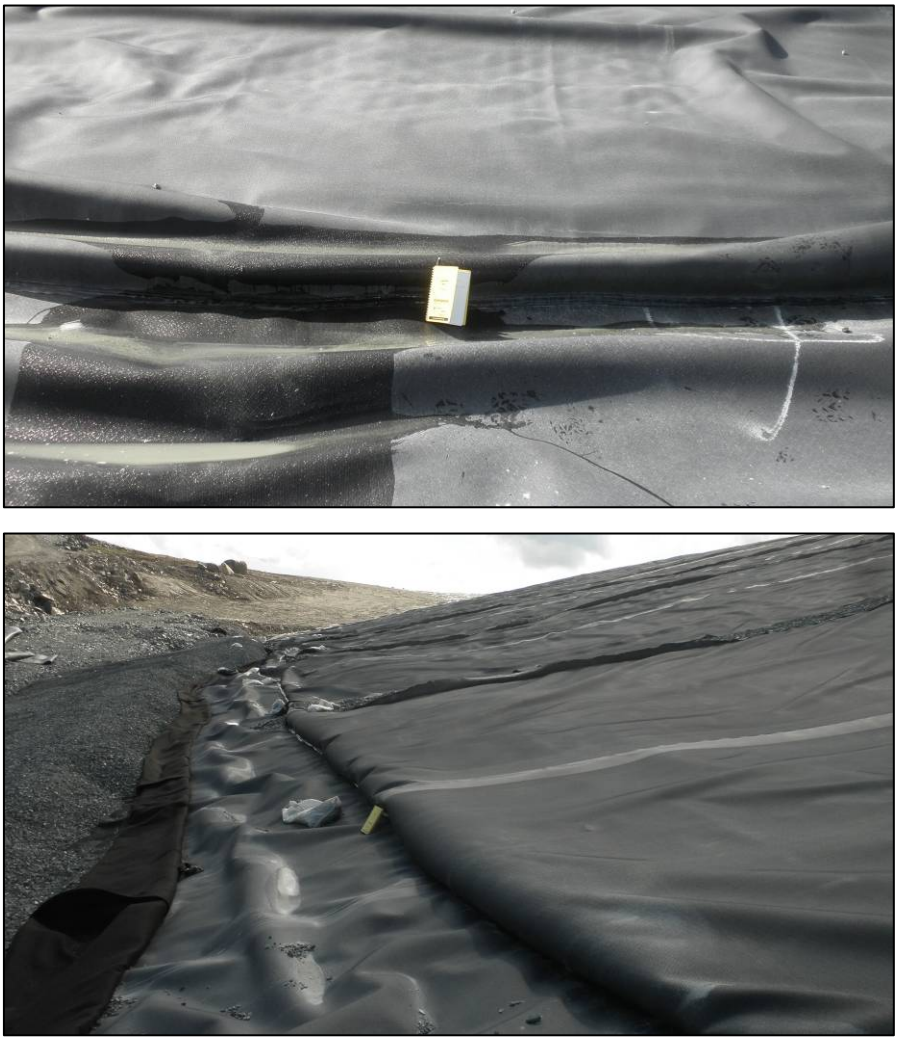


Photo 2: Wrinkles visible on the upstream LLDPE membrane. Note that water is accumulating inside the wrinkle, in two different locations.

Photo 3: Example of a hole punched through the LLDPE membrane.

Photo 4 : View of the upstream toe of the dike and the tailings layer covering the foundation.

ANNEXE 1 – PLAN VIEW

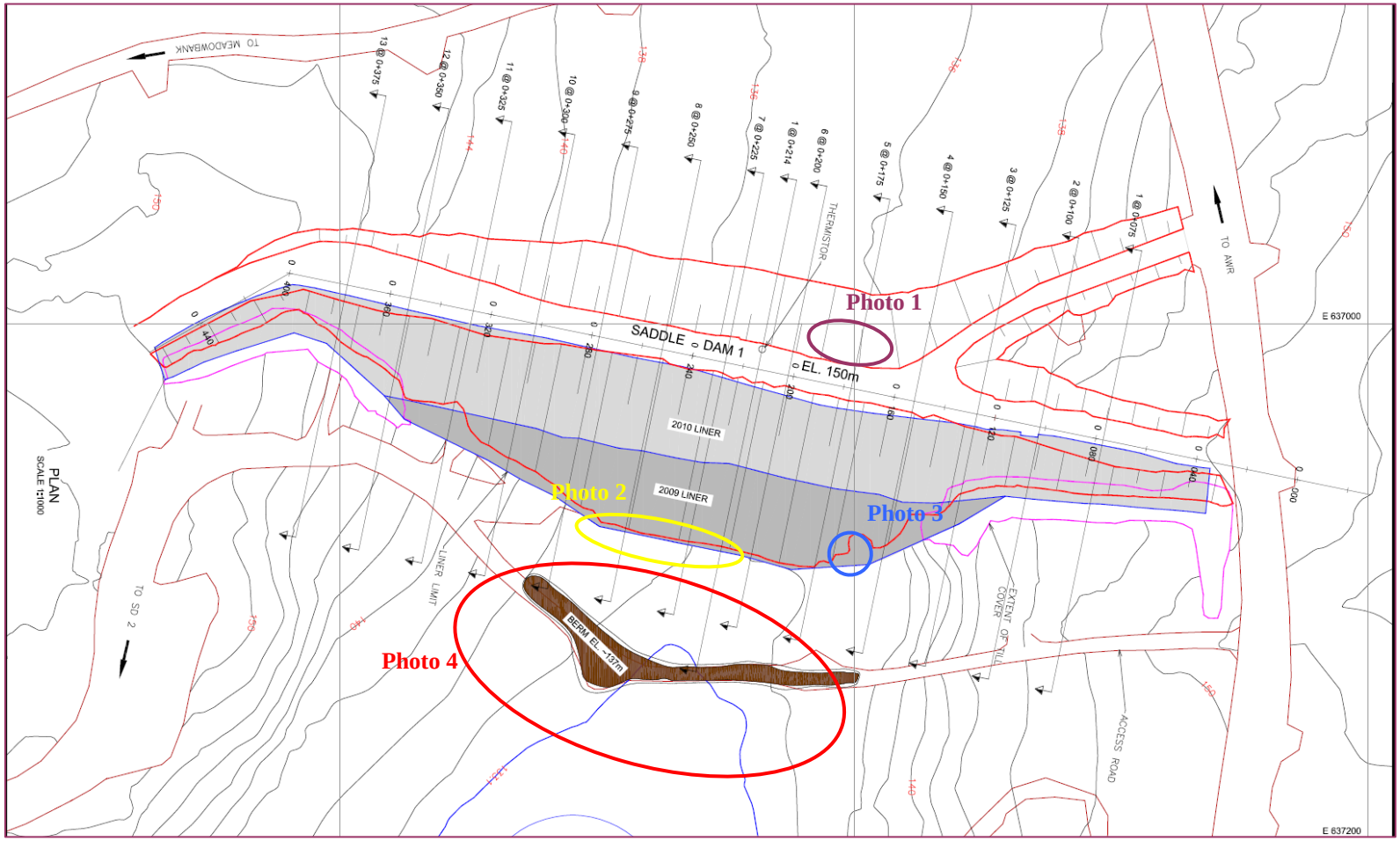


Figure 1: Plan view SD1 with pictures locations

APPENDIX B3

Saddle Dam 2 Photographic Log and Record of Inspection

Photograph B3-1-Saddle Dam 2

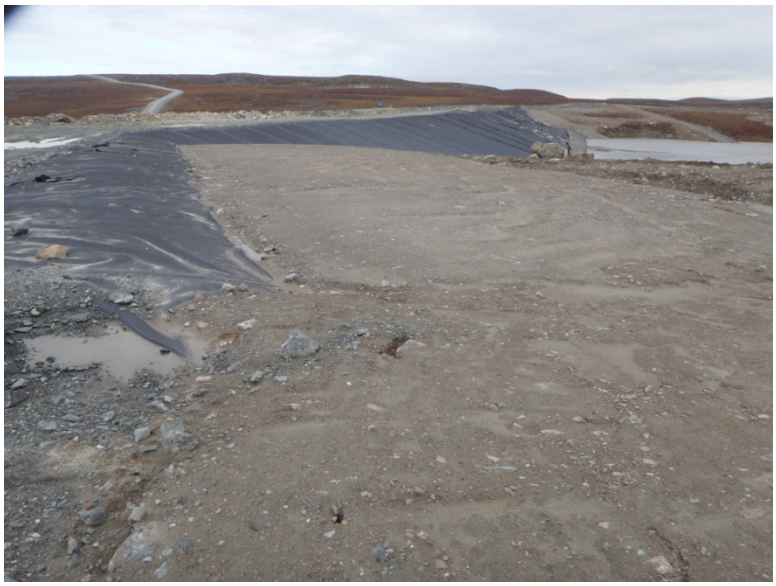
Date: September 14, 2011 **Photo Number**: P9140041

Description: Overview of Saddle Dam 2 (SD2) upstream face, portion where liner was just finished being installed.

Photograph B3-2-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140047

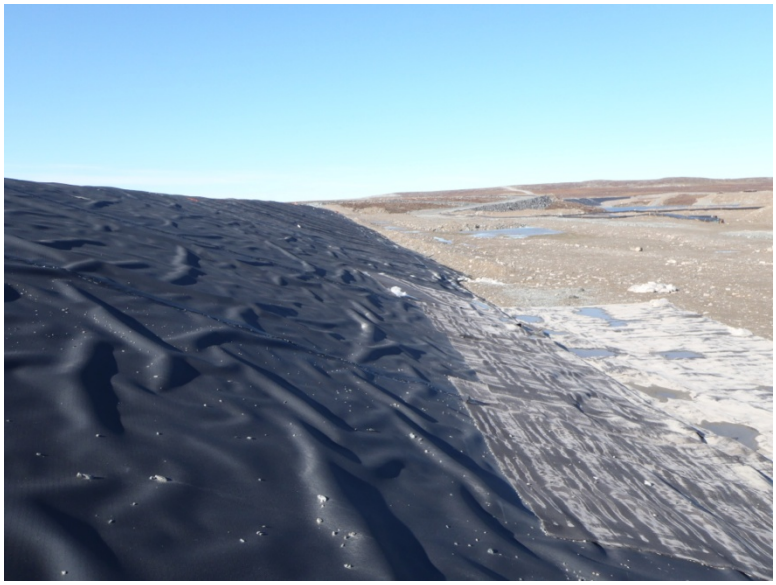
Description: From northwest abutment, looking at upstream slope and exposed liner.



Photograph B3-3-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140048

Description: From southeast abutment, looking at upstream slope



Photograph B3-4-Saddle Dam 2

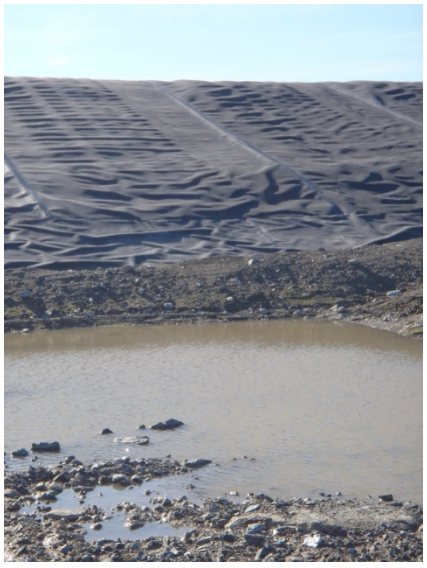
Date: September 14, 2011 **Photo Number**: P9140059

Description: Close-up view of the liner, recently installed.

Photograph B3-5-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140094

Description: From northwest end, looking at upstream face, where a till bench was placed over Stage 1 liner. Note water pool, in the right bottom corner.



Photograph B3-6-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140093

Description: Looking at upstream liner face, near northwest abutment, water ponding over the till bench. Crushed rock protection over liner is not continuous, and thickness seems thin.

Photograph B3-7-Saddle Dam 2

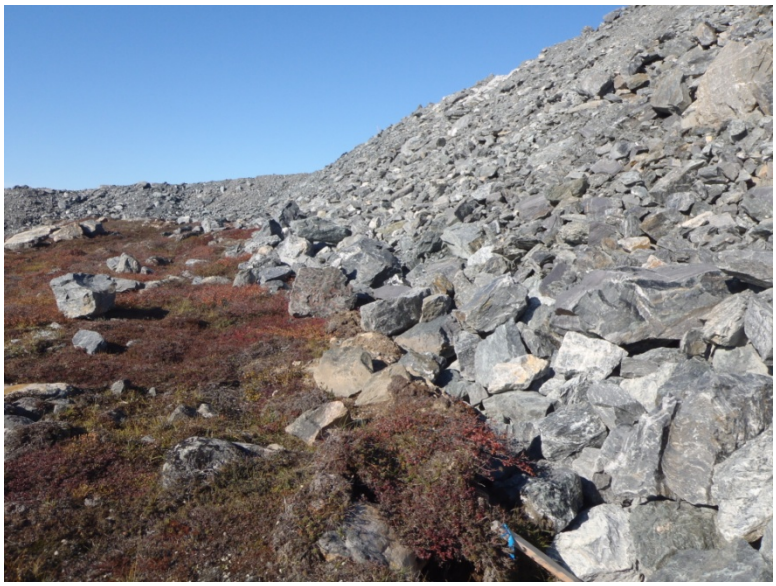
Date: September 14, 2011 **Photo Number**: P9140045

Description: From crest, near Sta.0+250, looking south-east at downstream slope.

Photograph B3-8-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140046

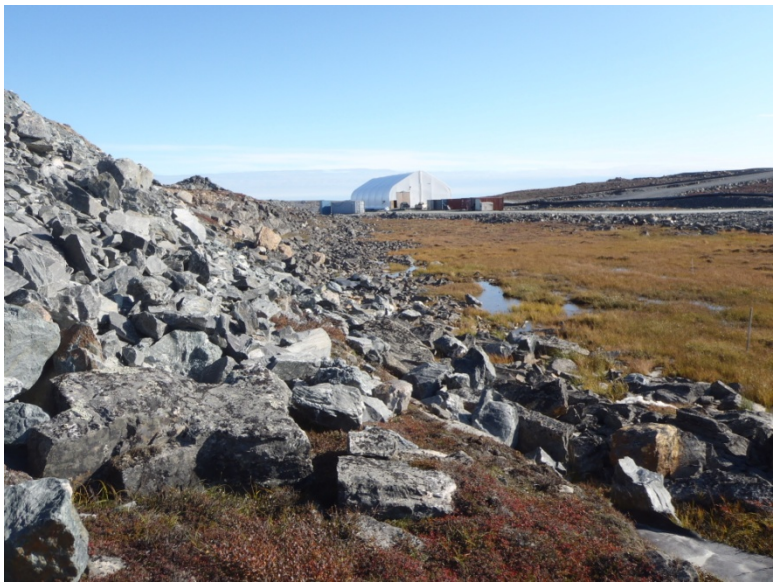
Description: From crest, near Sta.0+250, looking northwest at downstream slope.



Photograph B3-9-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140062

Description: Looking northwest at downstream toe of SD2, near Sta. 0+500. No seepage visible.



Photograph B3-10-Saddle Dam 2

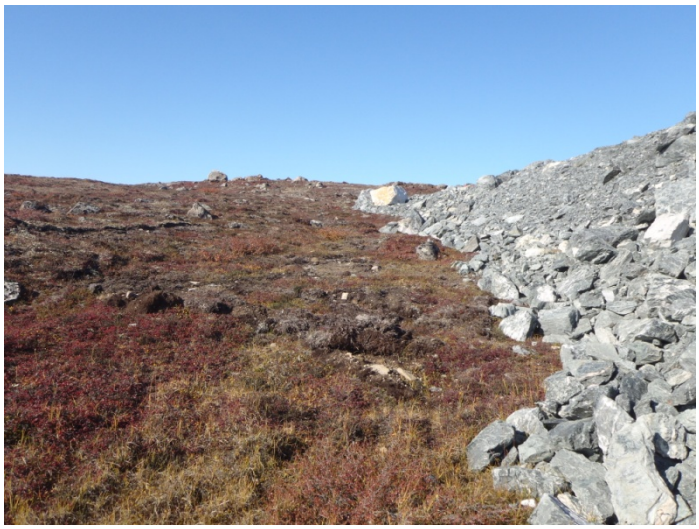
Date: September 14, 2011 **Photo Number**: P9140061

Description: Looking at downstream toe of SD2, near southeast abutment. Note water pooling near toe. Reclaim pond lower than elevation of downstream toe. Pools not believed to be from seepage.

Photograph B3-11-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140067

Description: Looking northwest at downstream toe of SD2, near Sta. 0+200. Note no visible sign of seepage.



Photograph B3-12-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140069

Description: Looking at northwest abutment, downstream toe.

Photograph B3-13-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140070

Description: From northwest abutment, looking southeast at crest

Photograph B3-14-Saddle Dam 2

Date: September 14, 2011 **Photo Number**: P9140071

Description: From southeast abutment, looking northwest at crest

Client:	AEM	**By:**	Karine Doucet
Project:	Meadowbank	**Date:**	September 14, 2011
Location:	Saddle Dam 2	**Reviewed:**	Fiona Esford

GENERAL INFORMATION			
Dam Type:	Rockfill embankment with inverted filter on base, upstream filters, a geomembrane liner and protective cover.		
Weather Conditions:	Mostly overcast	**Temperature:**	6°C approximately

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
1. DAM CREST		B3-13 &14	
1.1 Crest elevation	150 m		Design 150 m
1.2 Reservoir Level	138.3		
Current Freeboard	11.7 m		Design 2 m
1.3 Distance To Tailings Pond (if applicable)	More than 80 m away		Reclaim pond was near the elevation of the bottom of upstream key-in trench.
1.4 Surface Cracking	None at time of inspection		
1.5 Unexpected Settlement	None observed		
1.6 Lateral Movement	Not apparent		
1.7 Other Unusual Conditions	None		
2. UPSTREAM SLOPE		B3-1 & 3	
2.1 Slope angle	Approx. 3H:1V		Rockfill
2.2 Signs of Erosion	None observed		
2.3 Signs of Movement (Deformation)	None observed		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
2.4 Cracks	None observed		
2.5 Face liner condition (if applicable)	LLDPE with geotextile below.	B3-5 B3-2&4	Stage 1 of the liner covered by a till blanket Stage 2 liner was under construction at the time of the inspection.
2.6 Other Unusual Conditions	Water pool	B3-6	Minor water pool on top of the till blanket and ponding against upstream face. It is recommended to drain all ponded water present over the liner before ice forms to protect the liner from potential ice damage
3. DOWNSTREAM SLOPE			
3.1 Slope angle	Approx.1.2H or 1.3 H:1V variable	B3-8	Rockfill
3.2 Signs of Erosion	None observed		
3.3 Signs of Movement (Deformation)	None observed		
3.4 Cracks	None observed		
3.5 Seepage or Wet Areas	None observed on slope		
3.6 Vegetation Growth	None observed		
3.7 Other Unusual Conditions	None		
4. DOWNSTREAM TOE AREA		B3-9, 10 &11	
4.1 Seepage from Dam	No	B3-7	Minor water pool at downstream toe. Reclaim Pond elevation is lower than the downstream toe by about 6 m. Pool is not believed to be from seepage
4.2 Signs of Erosion	None observed		
4.3 Signs of Turbidity in Seepage Water	Not applicable		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
4.4 Discoloration/staining	No		
4.5 Outlet operating problem (if applicable)	Not applicable		
4.6 Other Unusual Conditions			
5. ABUTMENTS		B3-12	
5.1 Seepage at contact zone (abutment/embankment)	None observed		
5.2 Signs of Erosion	None observed		
5.3 Excessive Vegetation	No		
5.4 Presence of Rodent Burrows	None observed		
5.5 Other Unusual Conditions	None		
6. RESERVOIR			
6.1 Stability of Slopes	Stable		Low relief region, stable upstream of dam. Portage Rock Storage Facility is being developed on east side of the Tailings Storage Facility. At present, height of waste rock slope is becoming significant, monitoring of its stability should be performed by AEM.
6.2 Distance to Nearest Slide (if applicable)	None observed		
6.3 Estimate of Slide Volume (if applicable)	Not applicable		
6.4 Floating debris	None observed		
6.5 Other Unusual Conditions	No		
7. EMERGENCY SPILLWAY/ OUTLET STRUCTURE			
7.1 Surface Condition	No spillway or outlet structure exists, only dewatering pump.		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
7.2 Signs of Erosion			
7.3 Signs of Movement (Deformation)			
7.4 Cracks			
7.5 Settlement			
7.6 Presence of Debris or Blockage			
7.7 Closure mechanism operational			
7.8 Slope Protection			
7.9 Instability of Side Slopes			
7.10 Other Unusual Conditions			
8. INSTRUMENTATION			
8.1 Piezometers	No		
8.2 Settlement Cells	No		
8.3 Thermistors	Yes		See Section 4.0 of the report
8.4 Settlement Monuments	No		Construction drawings show settlement monuments to be installed on Stage 2 crest.
8.5 Seismograph	No		
8.6 Inclinometer	No		
8.7 Weirs and Flow Monitors	No		Construction drawings indicate a seepage collection system is to be constructed. AEM has indicated they plan to construct a seepage collection and pumpback system. It is anticipated that a weir or other device will be installed to measure flow.
8.8 Data logger(s)	No		

INSPECTION ITEM	OBSERVATIONS DATA	PHOTO	COMMENTS & OTHER DATA
8.9 Other			
9. DOCUMENTATION			
9.1 Operation, Maintenance and Surveillance (OMS) Plan			
9.1.1 OMS Plan exists	No		AEM is currently preparing the plan.
9.1.2 OMS Plan reflects current dam conditions	Not applicable		
9.1.3 Date of last revision	Not applicable		
9.2 Emergency Preparedness Plan (EPP)			
9.2.1 EPP exists	No		AEM is currently preparing the EPP
9.2.2 EPP reflects current conditions	Not applicable		
9.2.3 Date of last revision	Not applicable		
10. NOTES			
Inspector's Signature		**Date:**	

n:\actif\2011\1221\11-1221-0095 aem geotechnical inspection and slope review\5 preparation of deliverables\doc 1305 1112210095 1114_11 2011 geotechnical inspection\appendix b-tailings storage facility\appendix b3 - rdi-saddle dam 2 ver. b.docx

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: T Lepine *Report No.:* SD2-IR-001 *Inspection Date:* 08-06-2011

DAM/DIKE INFORMATION:

Dam ☒ Dike ☐ SD2 Crest Elevation: 150 Head Pond Elevation ?
Tailing elevation 137.5

DAM / BERM

A) Crest

cracking	☒ none	☐	
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	
settlement	☐ none	☒	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
animal burrows	☒ none	☐	
seepage	☒ none	☐	location 1:
			rate: ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity: ☐ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2:
			rate ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
			type:
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced		☐ surface runoff	
			location(s):			
			degree	☐ minor	☐ moderate	☐ severe
geomembrane	☐ none	☒				
settlement	☐ none	☒				
bulging	☒ none	☐				
sloughing	☒ none	☐				
slope protection	☒ good	☐				
slope vegetation	☒ none	☐				
animal burrows	☒ none	☐				
sinkholes	☒ none	☐				
tailings surface	☒ water covered	☐				

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☐ piezometers	☐	☐	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors (3)	☒	☐	☐

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

☐ Action Required: ☒ none ☐ further monitoring ☐ immediate remediation
☒ Plan or Sketch Attached
☒ Photographs (number) _____ (locate all photographs on plan)

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☒ ***none***

ANNEXE 1 PHOTO

Photo 1: Hole on liner on U/S side created by pipe move

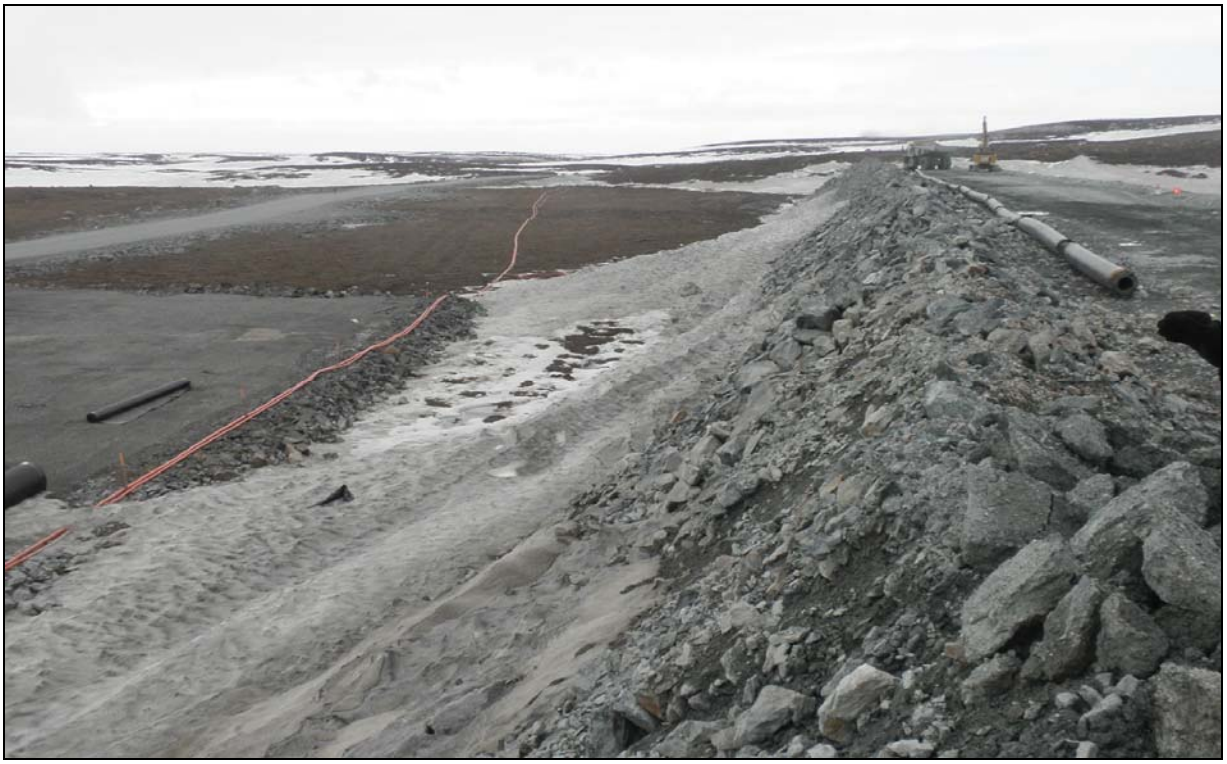


Photo 2: D/S side general view

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

ANNEXE 2 PLAN VIEW

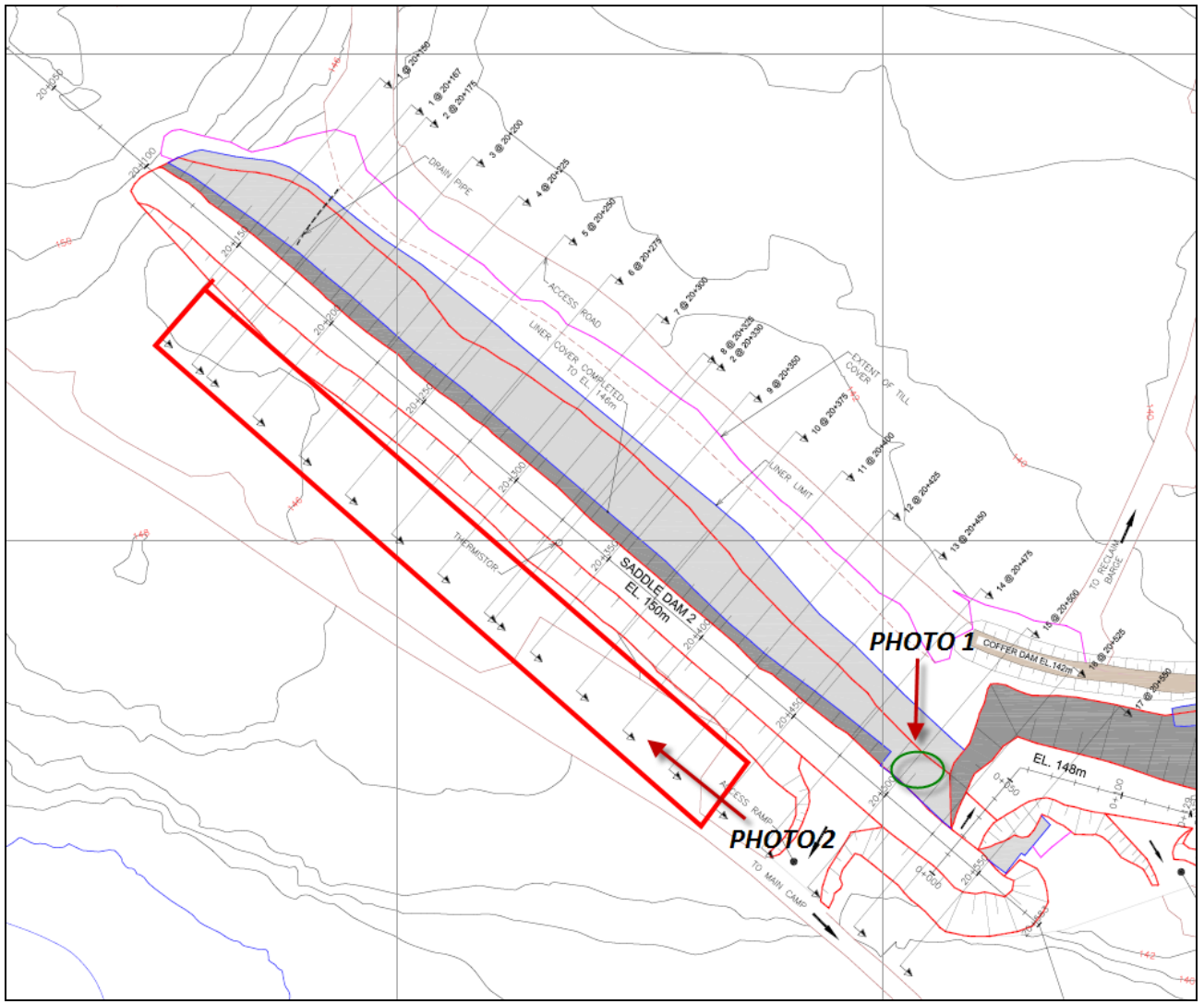


Figure 1: Plan view with pictures location

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: P. Gagnon *Report No.:* SD2-IR-002 *Inspection Date:* 19-07-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ SD2 Crest Elevation: 150 Head Pond Elevation ?
Tailing elevation ?

DAM / BERM

A) Crest

cracking	☒ none	☐	Nothing to report on the crest. Permanent installation for the 3 thermistors to be done this fall once the membrane completed…
settlement	☒ none	☐	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	Water is present within the dike foundation (see photo 1). Clear water from snow melt accumulating in a large pond of about 100 m long between boulders. Settlement visible near the crest.
settlement	☐ none	☒	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
animal burrows	☒ none	☐	
seepage	☒ none	☐	location 1:
			rate: ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity: ☐ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2:
			rate ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
			type:
sand boils	☒ none	☐	location(s)

C) Upstream Slope and Tailings Surface

erosion	☒ none	☐	wave induced	☐ surface runoff
			location(s):	
			degree	☐ minor ☐ moderate ☐ severe
geomembrane	☐ none	☒	The small exposed portion of the membrane is in good shape except for a punch hole and damages caused by tailing pipe movement on the membrane (see photo 2 a-b). Repairs to be done by contractor this fall. Numerous small wrinkles visible on the lower exposed section.	
settlement	☐ none	☒		
bulging	☒ none	☐		
sloughing	☒ none	☐		
slope protection	☒ good	☐		
slope vegetation	☒ none	☐		
animal burrows	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☒ water covered	☐		

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☐ none	☐	☐	☐
☐ piezometers	☐	☐	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☒ other Thermistors (3)	☒	☐	☐ every 2 day during thawing

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

COMMENTS AND RECOMMENDATIONS:

☐ Action Required: ☒ none ☐ further monitoring ☐ immediate remediation
☒ Plan or Sketch Attached
☒ Photographs (number) _____ (locate all photographs on plan)

Review Officer: _____ Review Agency: _____ Date Reviewed: _____
(DD/MM/YR)

REVIEW COMMENTS: ☒ ***none***

APPENDIX 1 : PHOTOGRAPHS

Photo 1: View of the downstream toe. Note the water puddle at the base of the dike.

Photo 2: Upstream membrane hole caused by tailing pipe movement

Photo 3: Upstream membrane defects caused by tailing pipe movement, on the lower exposed portion.

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

APPENDIX 2 : PLAN VIEW

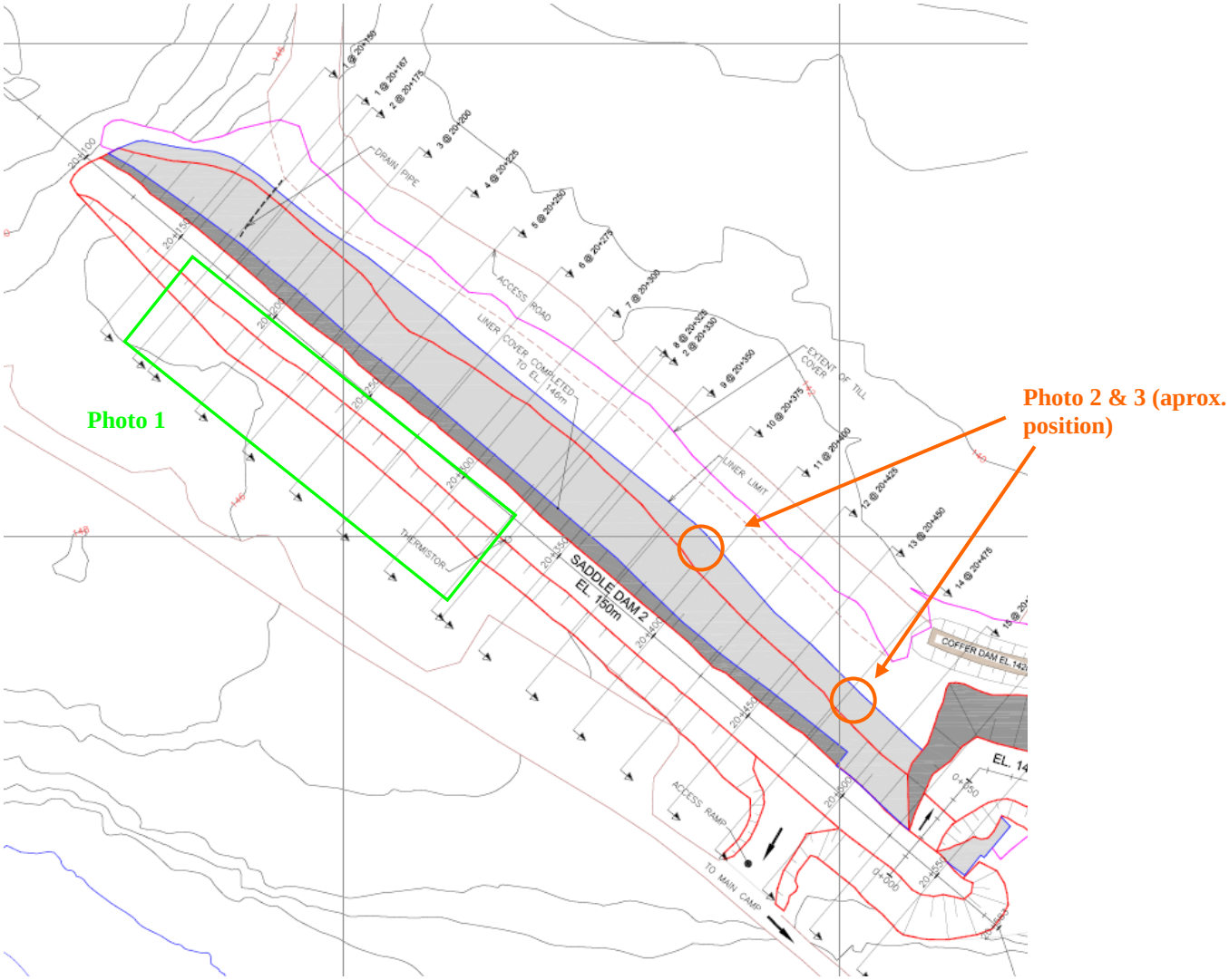


Figure 1: Plan view with pictures location

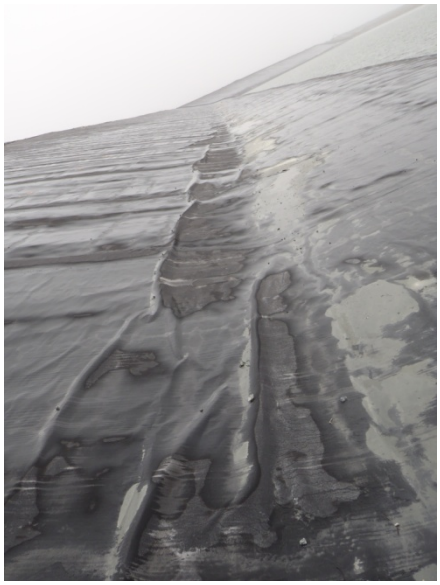
APPENDIX B4

Stormwater Dike Photographic Log, Record of Inspection and a plan view of observed depressions and pools of water

Photograph B4-1 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140005.jpg

Description: Stage 2 bituminous liner and connection at bench (El. 140m) with Stage 1 liner. Dike crest at 148 m; looking from East abutment, at upstream slope.



Photograph B4-2 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140009.jpg

Description: Minor wrinkles observed upslope from the bench (El. 140 m), about 150 m west of East abutment

Photograph B4-3 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140010.jpg

Description: Small wrinkles observed near the junction of Stage 1 and the bench. Note water ponding against liner. No tailings beach observed along the upstream liner face of the east portion.

Photograph B4-4 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140014.jpg

Description: Looking at tailings beach formed near the tailings discharge point. Note spigot discharge point below tailings and pond level.

Photograph B4-5 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140015.jpg

Description: Looking at spigot pipes placed over the liner, near the west end of SWD.

Photograph B4-6 Stormwater Dike

Date: September 16, 2011 **Photo Number**: P9160027.jpg

Description: Looking at hole in the liner, beside the spigot pipe.

Photograph B4-7 Stormwater Dike

Date: September 16, 2011 **Photo Number**: P9160032.jpg

Description: Looking at spigot supports placed directly on top of the liner. Note tension made to the liner.

Photograph B4-8 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140016.jpg

Description: Looking at the North Cell of TSF, from West abutment of SWD. Beach is not very visible as the pond level is near the tailing beach crest level.

Photograph B4-9 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140017.jpg

Description: From West abutment, looking at downstream slope

Photograph B4-10 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140018.jpg

Description: Looking at pools of water observed at the downstream toe, near Sta. 10+250. No channel connecting the toe to these pools was observed

Photograph B4-11 Stormwater Dike

Date: September 14 2011 **Photo Number**: P9140021.jpg

Description: Sign of erosion at the downstream toe near Sta. 10+500. The channel was dry during inspection. May be generated by surface water coming from the downstream side of Stormwater dike during high flow event, may not be seepage from SWD.

Photograph B4-12 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140023.jpg

Description: Overview of the downstream slope and toe, from Sta. 10+650, looking west

Photograph B4-13 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140024.jpg

Description: Overview of the downstream slope and toe, from Sta. 10+650, looking east

Photograph B4-14 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140026.jpg

Description: Pools of water observed at the downstream toe near Sta. 10+800 to 10+900. No water flowing to these ponds was observed from the downstream toe.

Photograph B4-15 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140030.jpg

Description: Cavity observed near Sta. 10+850, near the downstream side of the crest.

Photograph B4-16 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140033.jpg

Description: Depression observed near Sta. 10+850, near the downstream side of the crest.

Photograph B4-17 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140036.jpg

Description: Depression observed near Sta. 10+720, near the downstream side of the crest.

Photograph B4-18 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140038.jpg

Description: Looking at downstream slope from Sta. 10+750, looking east. Note slope looks steeper, in areas where depressions on the crest were observed.

Photograph B4-19 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140043.jpg

Description: Looking at the tie-in of Stormwater Dike (SWD) and Saddle Dam 2 (SD2). Upstream face of SD2 is visible in the back of the photo. On the left of the photo is the prepared upstream face of SWD.

Photograph B4-20 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140042.jpg

Description: From Saddle Dam 2 upstream side, looking at the upstream prepared face of SWD for bituminous liner placement. In the back of the photo is SWD and the spigot pipes previously seen on Photograph B4-5 and B4-8.

Photograph B4-21 Stormwater Dike

Date: September 14, 2011 **Photo Number**: P9140053.jpg

Description: Looking at exposed and damaged bituminous liner, near the tie-in with Saddle Dam 2. On the left of the photo is the prepared liner face.

Photograph B4-22 Stormwater Dike

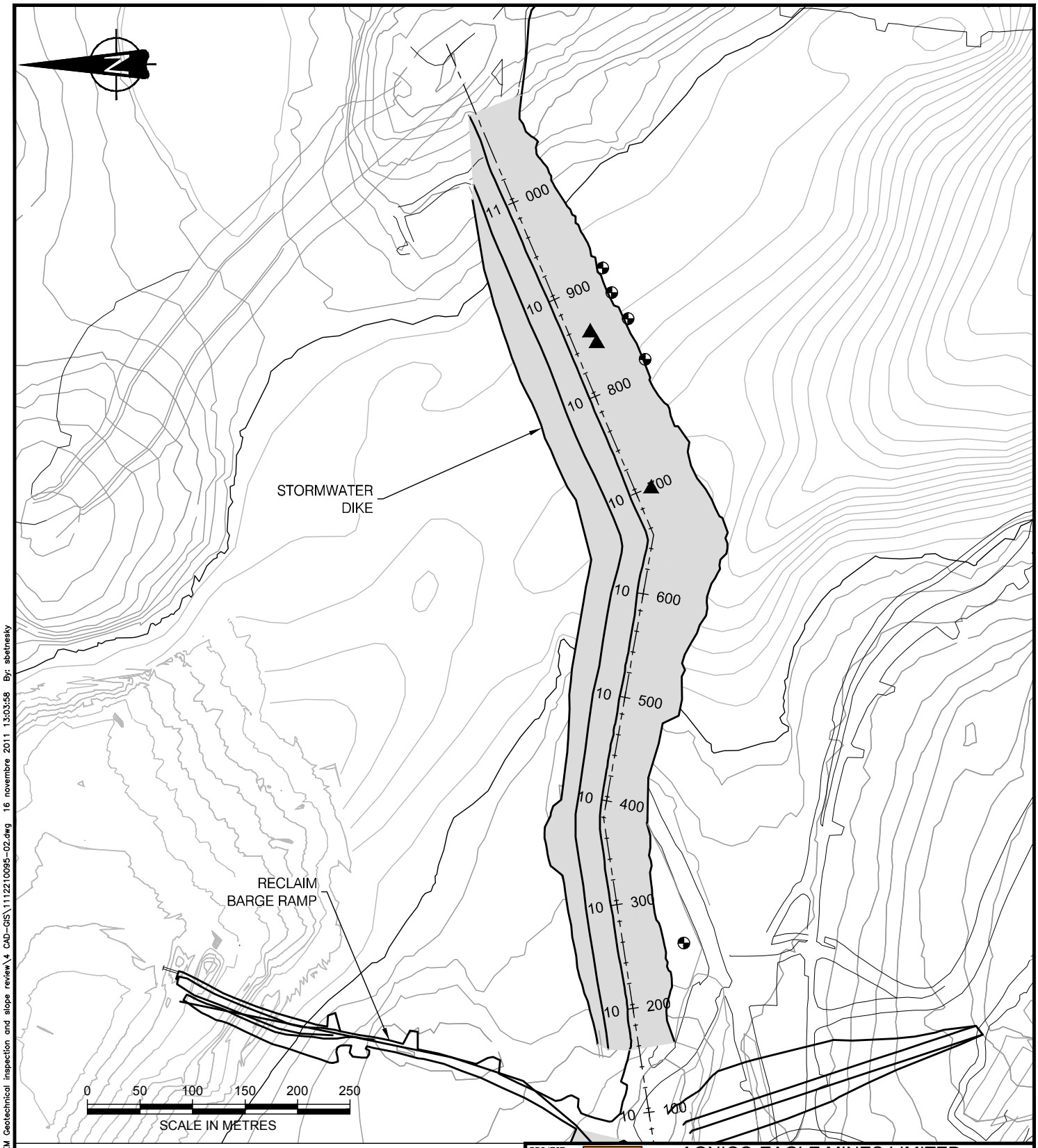
Date: September 14, 2011 **Photo Number**: P9140057.jpg

Description: Looking at exposed and damaged bituminous liner, near the tie-in with Saddle Dam 2

Photograph B4-23 Stormwater Dike

Date: September 16, 2011 **Photo Number**: P9160026.jpg

Description: Workers excavating existing till placed over the liner, to expose some part of the liner, and make the tie-in and perform repairs on damaged liner.(Photograph B4-21 and B4-22)



LEGEND

- PIT RIM
- BATHYMETRY CONTOUR
- SHORELINE
- LAND - BASED TOPOGRAPHY AS PER SEPTEMBER 2011
- APPROXIMATE LOCATION OF OBSERVED PONDED WATER
- APPROXIMATE LOCATION OF OBSERVED CREST SETTLEMENT

REFERENCES

1) DRAWING BASE PROVIDED BY AEM LTD., MEADOWBANK DIVISION IN "MEADOWBANK.DWG" DATED SEPTEMBER 14 2011.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

STORMWATER DIKE
2011 ANNUAL GEOTECHNICAL INSPECTION

Golder Associates
Greater Vancouver Office, BC

PROJECT No. 11-1221-0095			PHASE No.	2100
DESIGN	KD	09NOV11	SCALE 1 : 5 000	REV. –
CADD	SB	09NOV11		
CHECK				
REVIEW				

FIGURE B4

Drawing File: N:\Actif\2011\1221\11-1221-0095 AEM Geotechnical inspection and slope review\4 CAD-GIS\1112210095-02.dwg 16 novembre 2011 13:03:58 By: sbetnesky

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: T Lepine, R Morel *Report No.:* SWD-IR-001 *Inspection Date:* 09-06-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ Stormwater Dike Crest Elevation: 148 Head Pond Elevation 136.325
Tailing Elevation: 137.00

DAM / BERM

A) Crest

cracking	☒ none	☐	See comments in page 3. Photo 1 in annexe
settlement	☐ none	☒	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	The downstream slope area is in a good shape. No signs of infiltration.
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☐ none	☒	location 1: Might be due to freshet
			rate: ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity: ☐ clear ☐ muddy
			sample taken: ☐ yes ☐ no
			location 2: **NONE**
			rate ☐ damp ☐ trickle ☐ steady ___ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
sand boils	☒ none	☐	location(s)

Dam ☐ Dyke ☒ Stormwater Dike

C) Upstream Slope and Tailings Surface

erosion	☐ none	☒	wave induced	☐ surface runoff
			location(s):	See plan view in annexe
			degree	☐ minor ☒ moderate ☐ severe
Coletanche	☐ none	☒	See comments in page 3. Photo 2 to 6 in annexe	
settlement	☐ none	☒		
bulging	☒ none	☐		
sloughing	☒ none	☐		
slope protection	☒ good	☐		
animal burrows	☒ none	☐		
sinkholes	☒ none	☐		
tailings surface	☒ water covered	☐		

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☒ none	☐	☐	☐
☒ piezometers	☐	☒	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☐ other	☐	☐	☐

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

Dam ☐ Dyke ☒ Stormwater Dike

COMMENTS AND RECOMMENDATIONS:

Small depressions have been observed along the crest of Stormwater dike. These depressions are related with erosion of the rolling surface due to spring season and truck. Look at photo 1 in annexe.

Some holes in the coletanche have been observed during the inspection. These one have been created during the displacement of the tailing pipe, some with the shovel and other with the pipe. These holes have been repair by the Meadowbank dike crew on the 10/06/2011. It will be very important to have better coordination between the dike crew and the people in charge of moving these pipes to avoid this kind of problem.

Small settlement above 140 elevation, and moderate under (photos 2 and 3)

Small holes have been observe in the coletanche (photo 4, 5 and 6) and water pressure coming from the top of the dike (photo 5)

Also, some settlement has been observed at the bottom of the 140 bench. The Meadowbank dike crew will need to follow the evolution of the situation. For the moment, no action is required.

☒ Action Required: ☐ none ☐ further monitoring ☒ immediate remediation
☒ Plan or Sketch Attached Annexe 1
☒ Photographs Annexe 1 (locate all photographs on plan)

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ none

NEXT INSPECTION DUE TO: _____

ANNEXE 1 Photo

Photo 1: Crest depression along the rolling surface

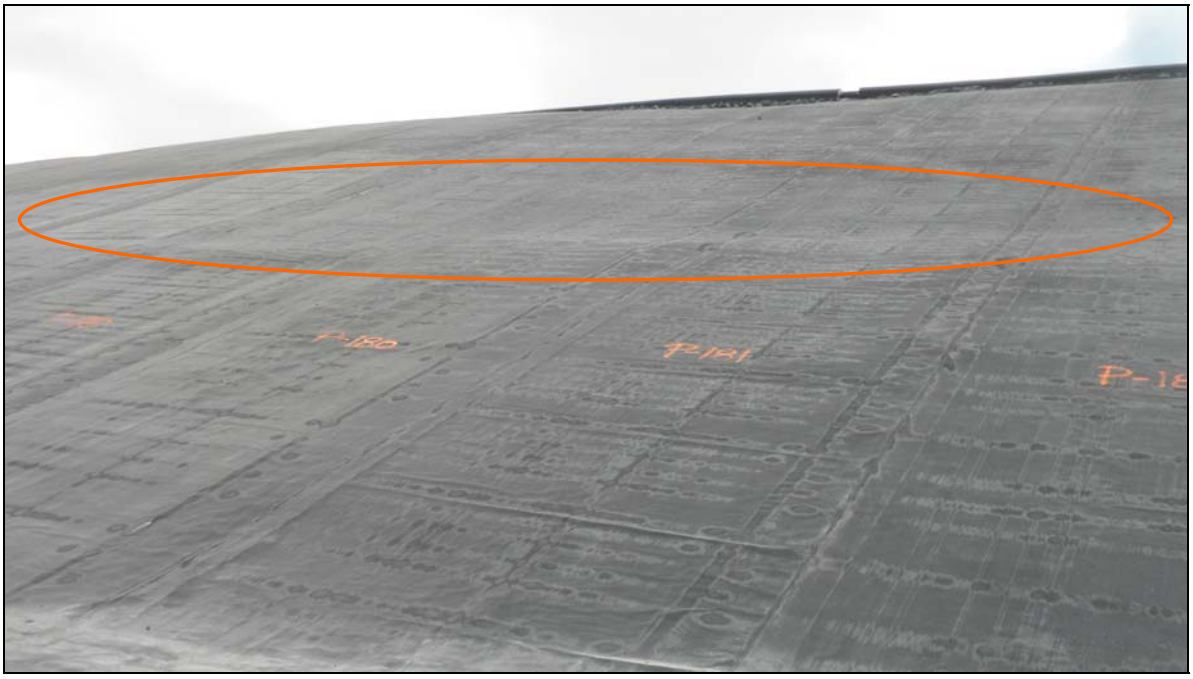


Photo 2: U/S slope settlement above 140 elevation (see plan view fir location)

Photo 3: U/S slope settlement under 140 elevation

Photo 4: Holes in coletanche (U/S slope)

Photo 5: Holes in coletanche, water pressure from top of the dike (U/S slope)

Photo 6: Holes in coletanche (U/S slope)

ANNEXE 2 Plan view

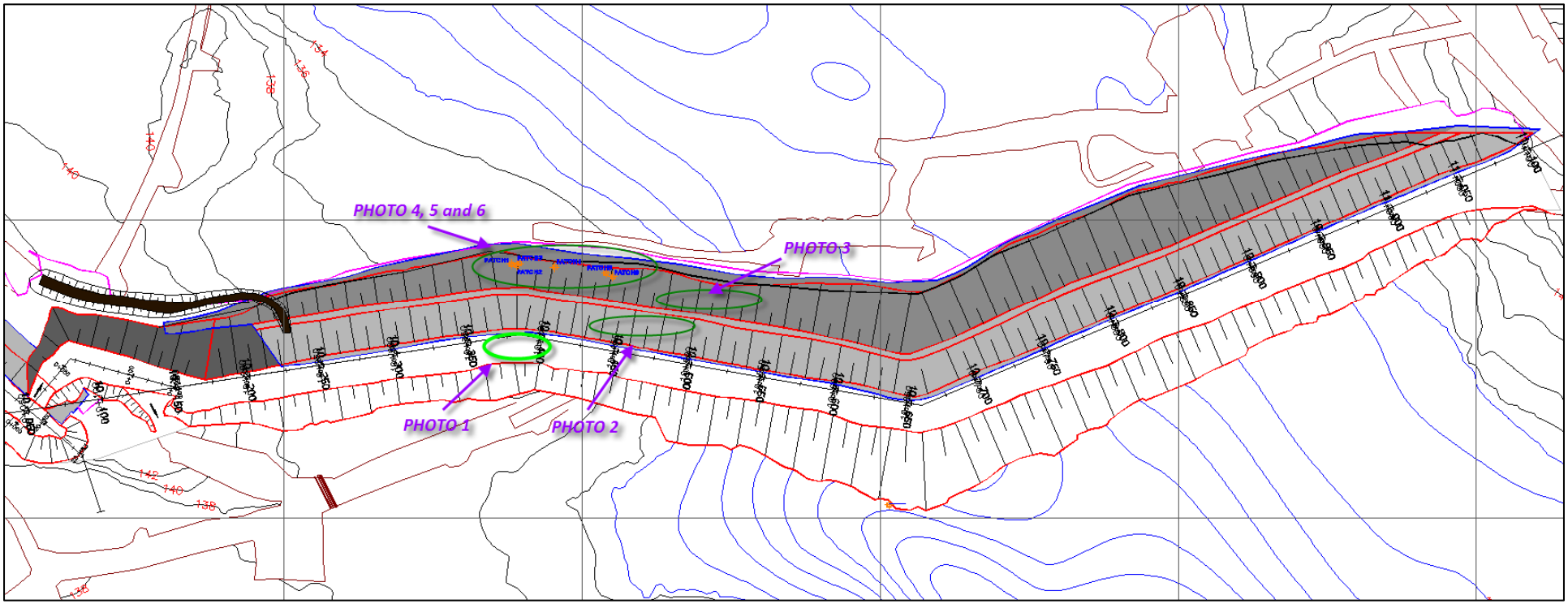


Figure 1: Plan view Stormwater Dike with pictures locations

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

All parts of this inspection form should be completed. Adverse conditions should be described and location stated. Additional information and relevant photographs should be attached.

Inspecting Officer: R Morel *Report No.:* SWD-IR-002 *Inspection Date:* 25-07-2011

DAM/DIKE INFORMATION:

Dam ☐ Dike ☒ Stormwater Dike Crest Elevation: 148 Head Pond Elevation 136.325
Tailing Elevation: 137.00

DAM / BERM

A) Crest

cracking	☒ none	☐	See comments in page 3. Photo 1 in annexe
settlement	☐ none	☒	
erosion	☒ none	☐	
other movement	☒ none	☐	

B) Downstream Slope and Toe Area

erosion	☒ none	☐	The downstream slope area is in a good shape. See comments at page 3. Photo 6 and 7 in annexe
settlement	☒ none	☐	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
slope vegetation	☒ none	☐	
animal burrows	☒ none	☐	
seepage	☐ none	☒	location 1: Might be due to freshet
			rate: ☐ damp ☒ trickle ☐ steady ??? (L/s)
			clarity: ☐ clear ☐ muddy
			sample taken: ☐ yes ☒ no
			location 2: **NONE**
			rate ☐ damp ☐ trickle ☐ steady ____ (L/s)
			clarity ☐ clear ☐ muddy
			sample taken ☐ yes ☐ no
sand boils	☒ none	☐	location(s)

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

Dam ☐ Dyke ☒ Stormwater Dike

C) Upstream Slope and Tailings Surface

erosion	☐ none	☐	wave induced ☒ surface runoff
			location(s): See plan view in annexe
			degree ☐ minor ☒ moderate ☐ severe
Coletanche	☐ none	☒	See comments in page 3. Photo 1 to 5 in annexe
settlement	☐ none	☒	
bulging	☒ none	☐	
sloughing	☒ none	☐	
slope protection	☒ good	☐	
animal burrows	☒ none	☐	
sinkholes	☒ none	☐	
tailings surface	☒ water covered	☐	

DAM / DIKE INSTRUMENTATION: (plot any newly installed instrumentation on relevant plans and cross-sections)

	Operational	Damaged	Measurement Taken
☒ none	☐	☐	☐
☒ piezometers	☐	☒	☐
☐ monitoring well	☐	☐	☐
☐ survey stakes	☐	☐	☐
☐ other	☐	☐	☐

DETAILED FIELD INSPECTION FORM A
TSF DAM / DIKE INSPECTION REPORT
MEADOWBANK GOLD PROJECT

Dam ☐ Dike ☒ Stormwater Dike

COMMENTS AND RECOMMENDATIONS:

A hole in the coletanche has been observed during the inspection. (Photo 1) Some water seems to be flowing from the hole but not in great quantity. This hole is related to the separation of the weld between two membranes. This hole has been repaired by the Meadowbank dike crew on the 28/07/2011.

Small settlement above 140 elevation (photos 2). No further settlement since last inspection. Settlement is stable.

Also, some settlement has been observed at the bottom of the 140 bench. (Photo 3) This settlement can be seen all along Stormwater dike under the bench. The Meadowbank dike crew will need to follow the evolution of the situation. For the moment, no action is required.

Erosion under the coletanche membrane caused by running water from freshet. (Photo 4) This is creating a void between the coletanche and the granular material. Trampoline effect that could cause future damage when tailing will rise.

Slight punctual depression on top of crest. Hole about half a meter in diameter. (Photo 5)

Formation of a small canal from water coming out of the toe of the dike on the downstream side. Further investigation is necessary to prevent the erosion from getting worse. (Photo 6)

☒ Action Required:	☐ none	☐ further monitoring	☒ immediate remediation
☒ Plan or Sketch Attached	Annexe 1		
☒ Photographs	Annexe 1	(locate all photographs on plan)	

Review Officer: _____ Review Agency: _____ Date Reviewed: _____ (DD/MM/YR)

REVIEW COMMENTS: ☐ none

NEXT INSPECTION DUE TO: _____

ANNEXE 1 Photo

Photo 1: Hole in Coletanche between welds at chain 10+225 (See plan for location)

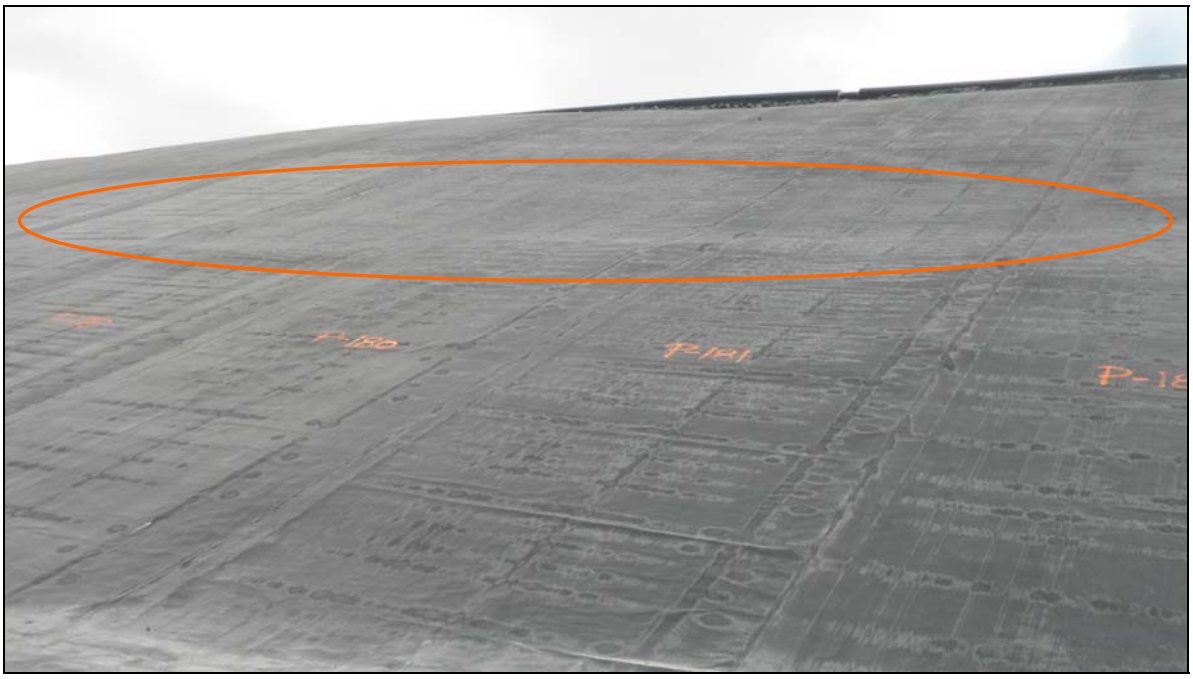


Photo 2: U/S slope settlement above 140 elevation (see plan view for location)

Photo 3: Settlement under 140 elevation (U/S slope)

Photo 4: Erosion under coletanche creating void between coletanche and granular material (U/S slope)

Photo 5: Slight punctual depression on crest at chain 10+900 (U/S slope)

Photo 6: Formation of a canal from water coming out of toe of dike at chain 10+800 (D/S slope)

ANNEXE 2 Plan view

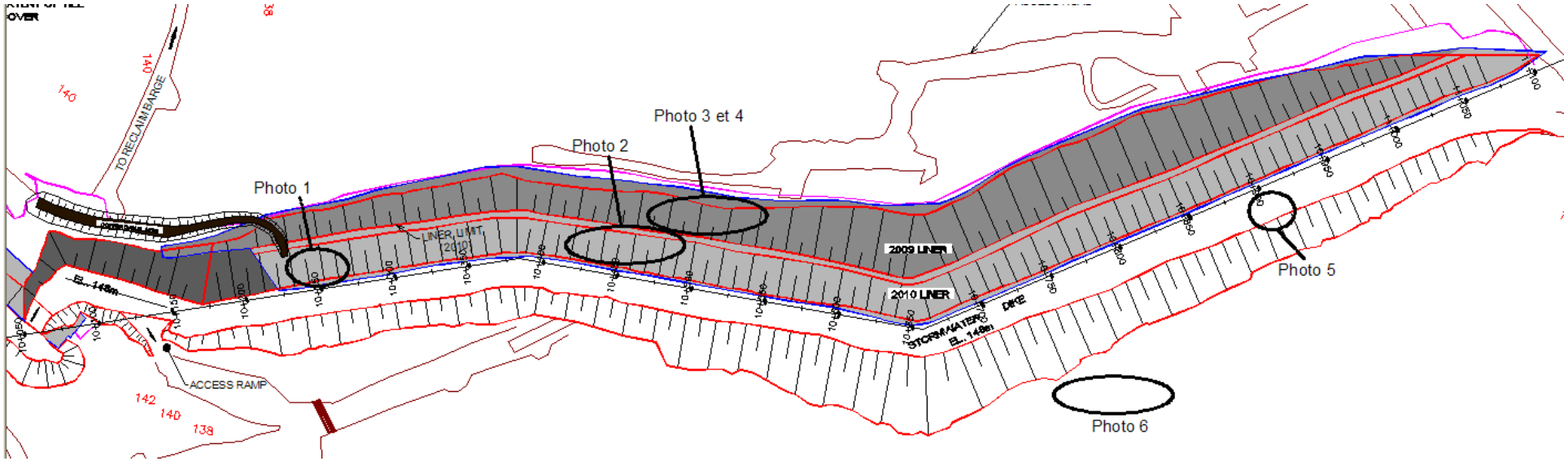


Figure 1: Plan view Stormwater Dike with pictures locations

APPENDIX B5

Reclaim Pond Photographic Log

Photograph B5-1-Reclaim Pond

Date: September 14, 2011 **Photo Number**: P9140072.jpg

Description: Overview of the reclaim access ramp.

Photograph B5-2-Reclaim Pond

Date: September 14, 2011 **Photo Number**: P9140073.jpg

Description: Looking at reclaim access ramp.

Photograph B5-3-Reclaim Pond

Date: September 14, 2011 **Photo Number**: P9140083.jpg

Description: Looking at reclaim access ramp.

Photograph B5-4-Reclaim Pond

Date: September 14, 2011 **Photo Number**: P9140090.jpg

Description: Looking at reclaim barge.

APPENDIX B6

Cofferdam: Photographic Log

Photograph B6-1 Cofferdam

Date: September 16, 2011 **Photo Number**: P9160043

Description: Overview of the cofferdam, under construction. Looking west, from West Road.

Photograph B6-2 Cofferdam

Date: September 16, 2011 **Photo Number**: P9160044

Description: Overview of the south end of cofferdam, under construction.

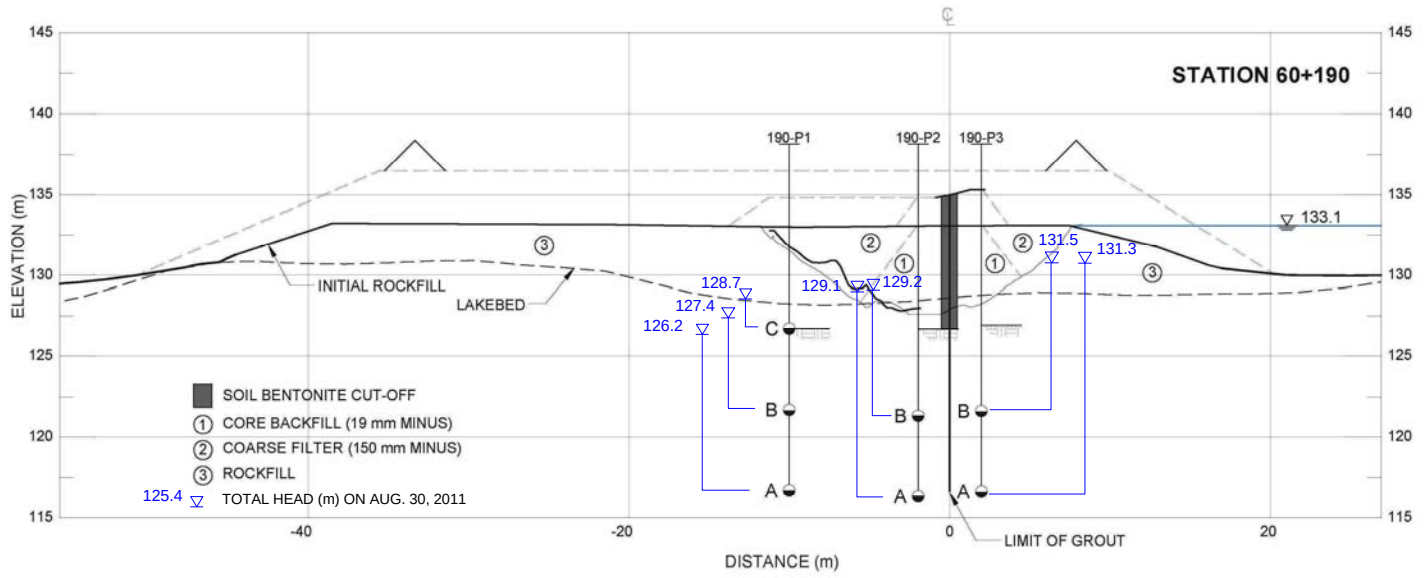
APPENDIX C

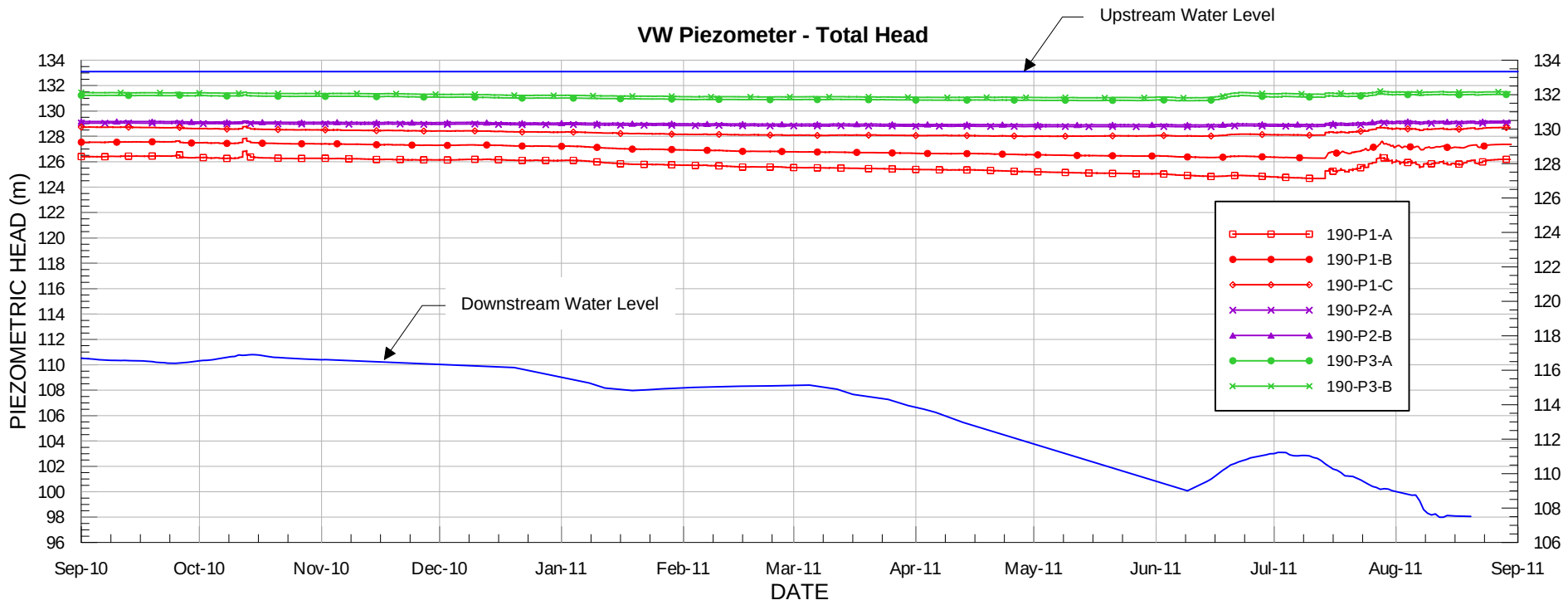
Geotechnical Instrumentation Data

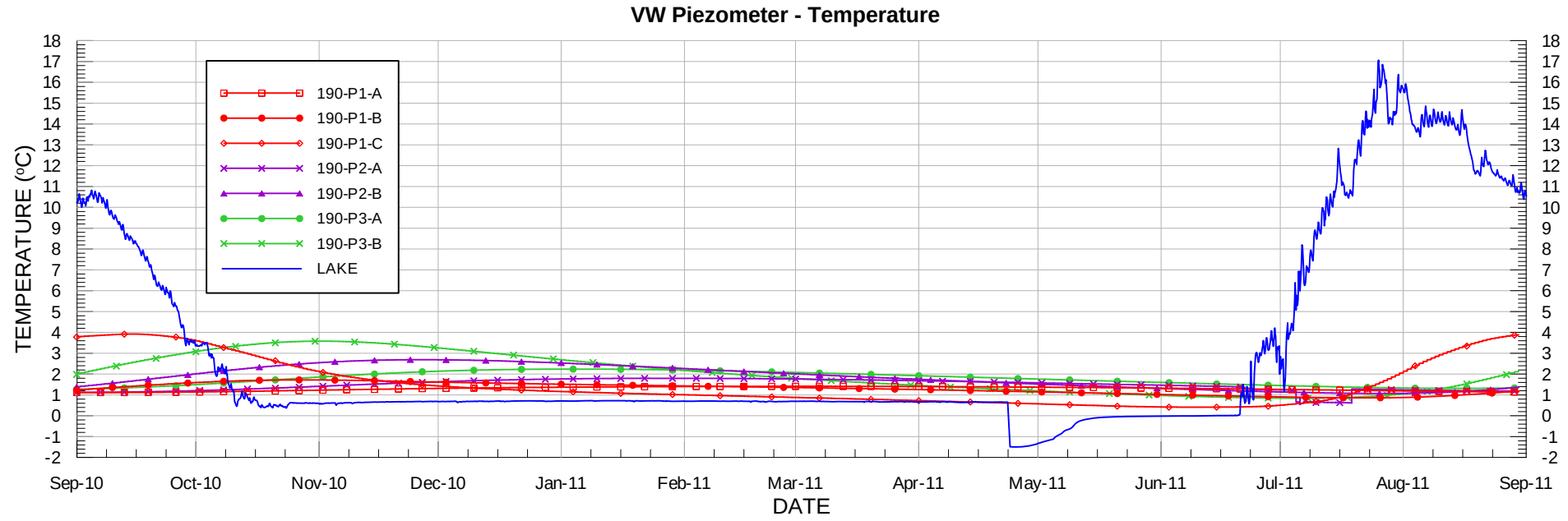
APPENDIX C1

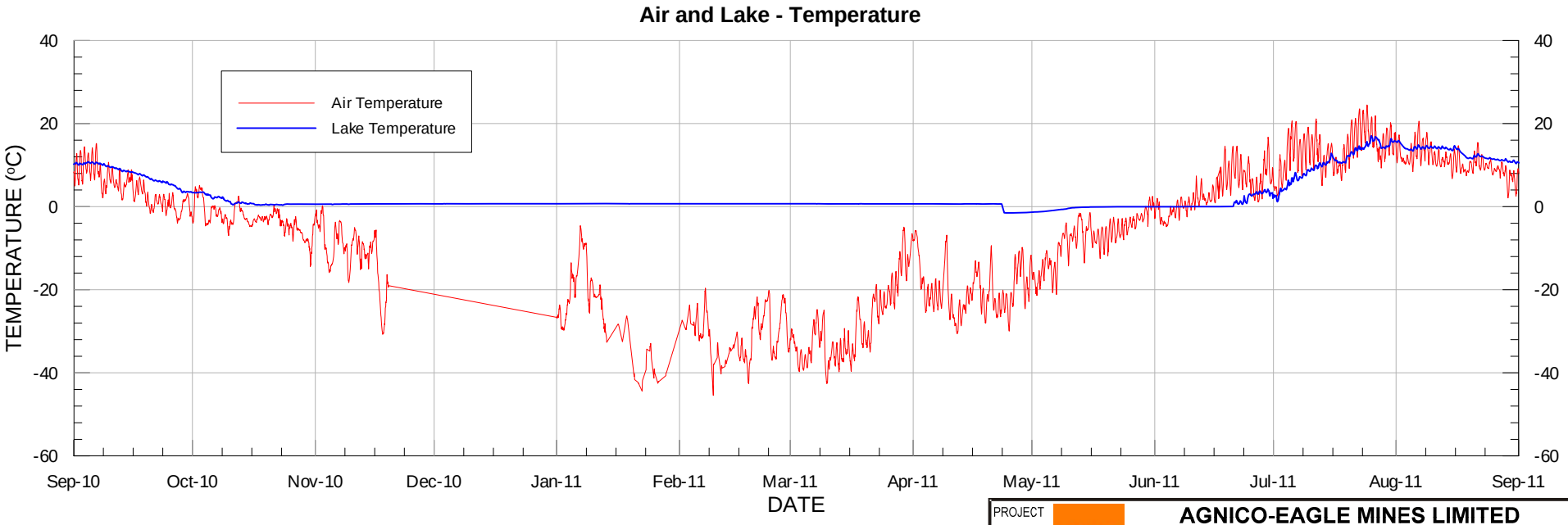
East Dike Piezometric, Thermistor, Inclinometer and Survey Monuments

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/190-piezometric data.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

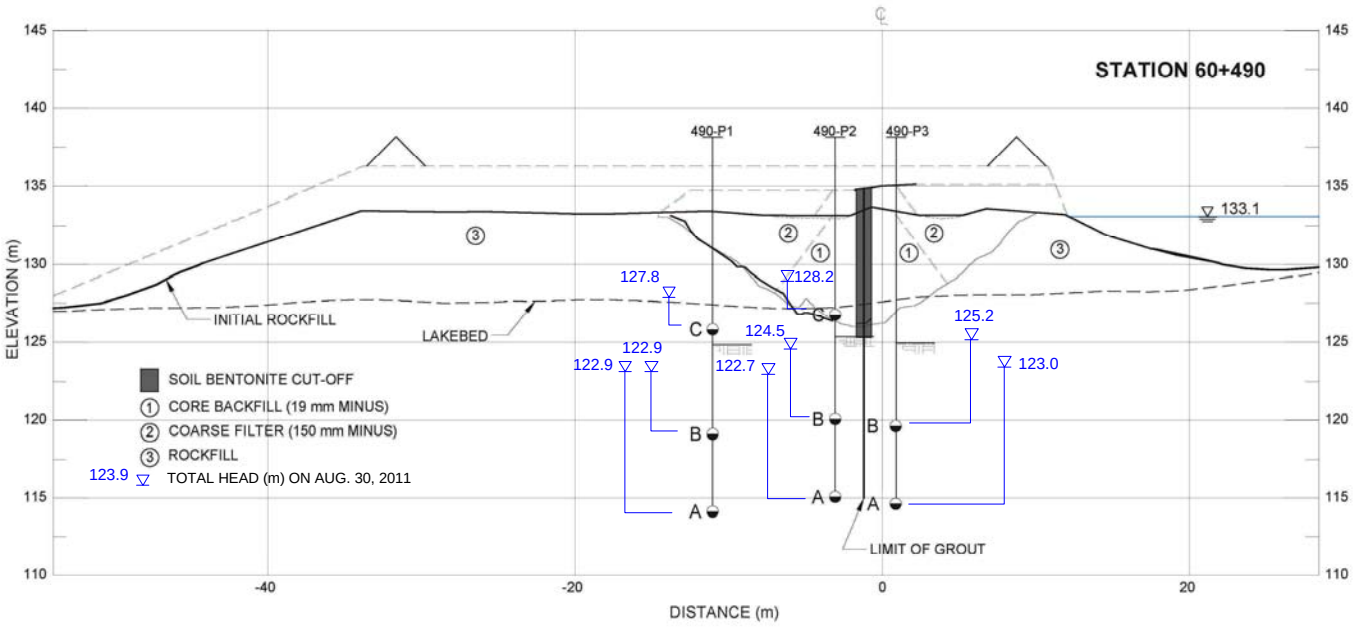
TITLE

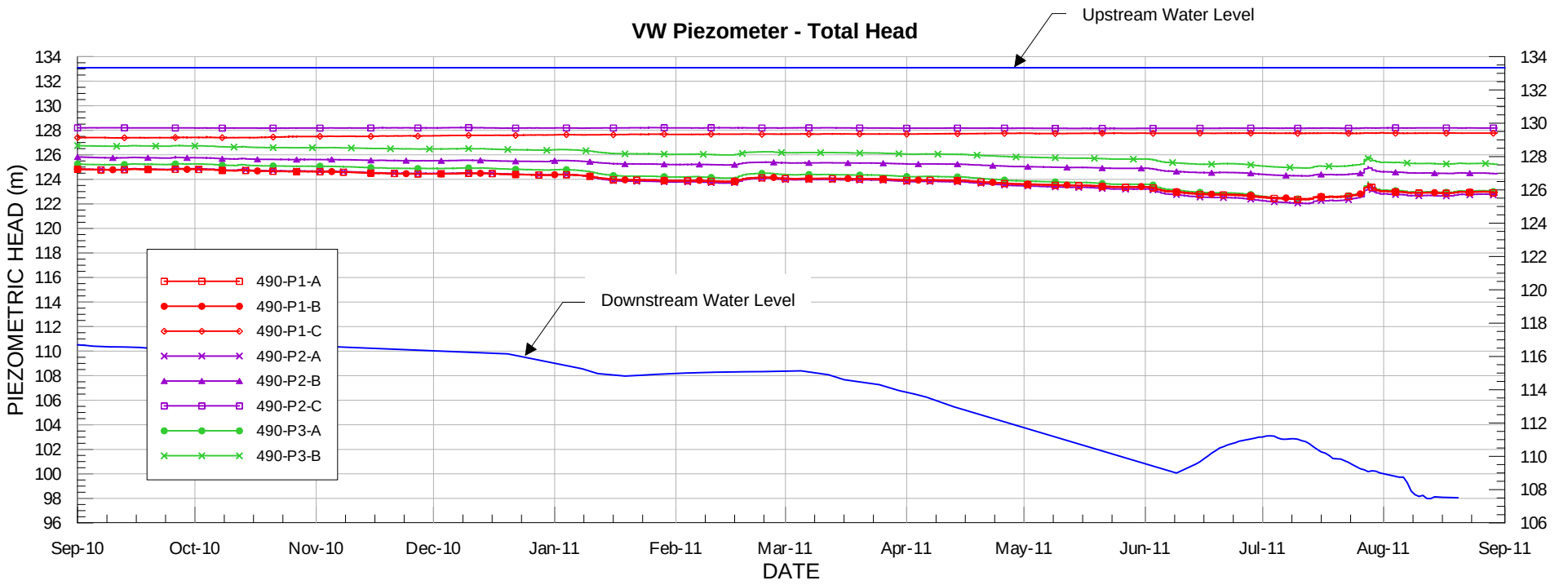
EAST DIKE - SECTION 60+190 PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

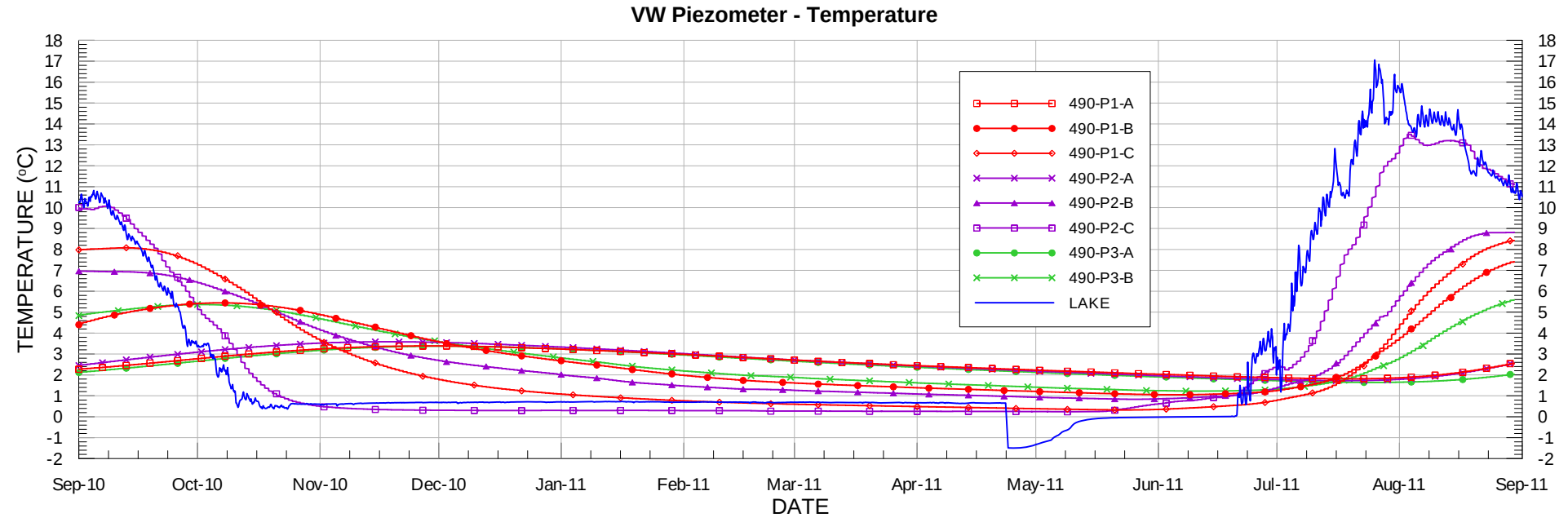
Golder Associates

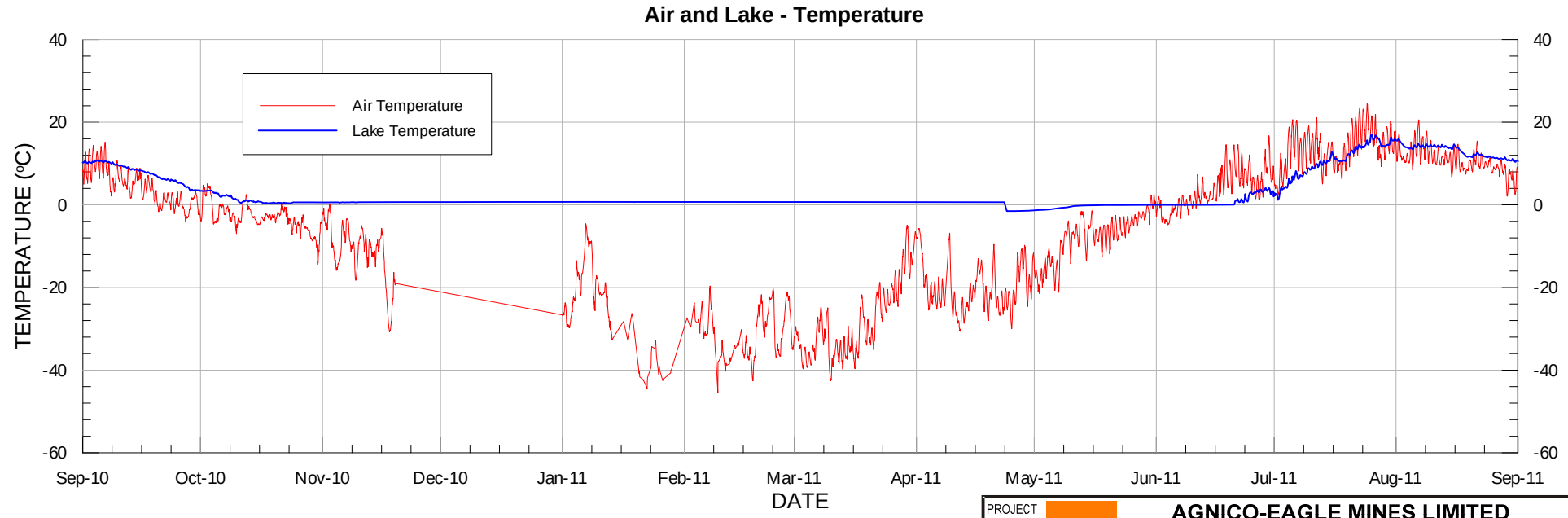
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK			**FIGURE C1-2**	
REVIEW				

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/490-piezometric data.grf









PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

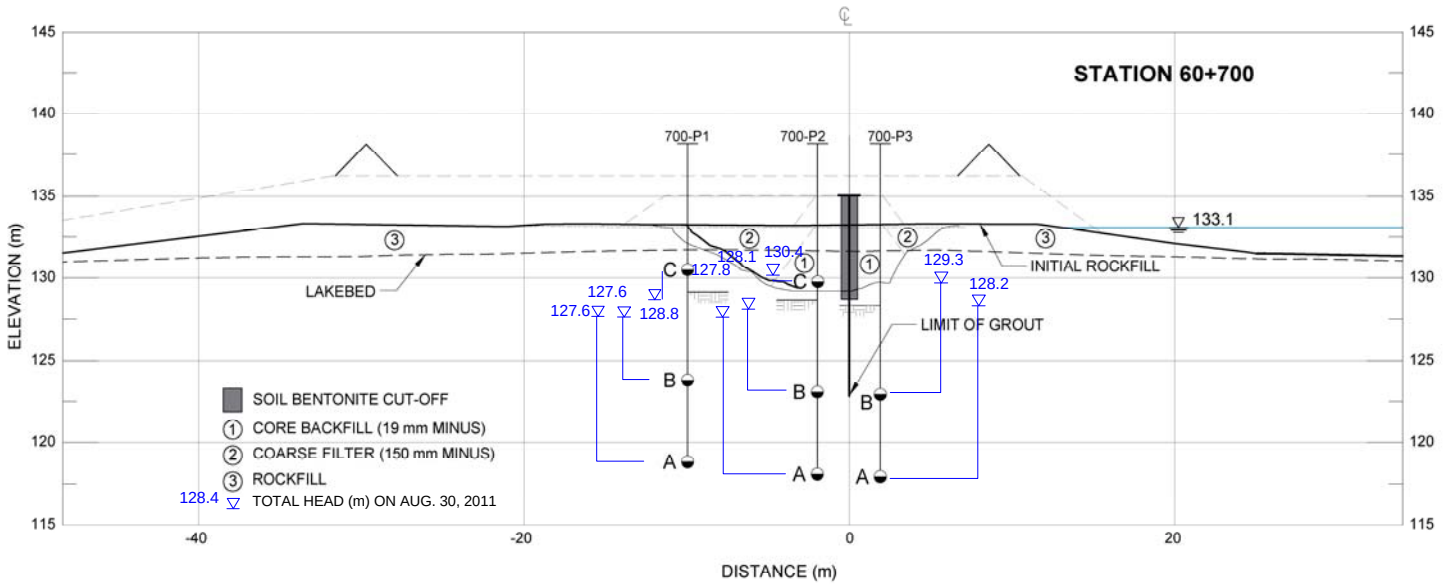
EAST DIKE - SECTION 60+490 PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

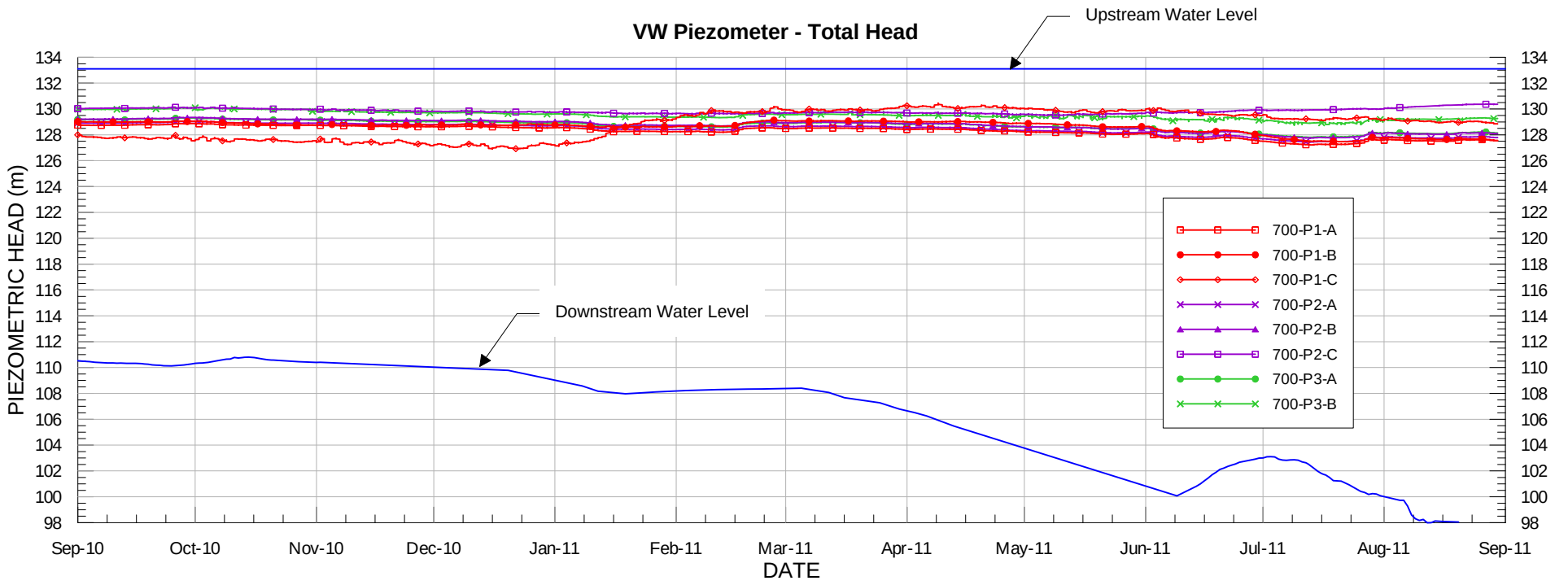
Golder Associates

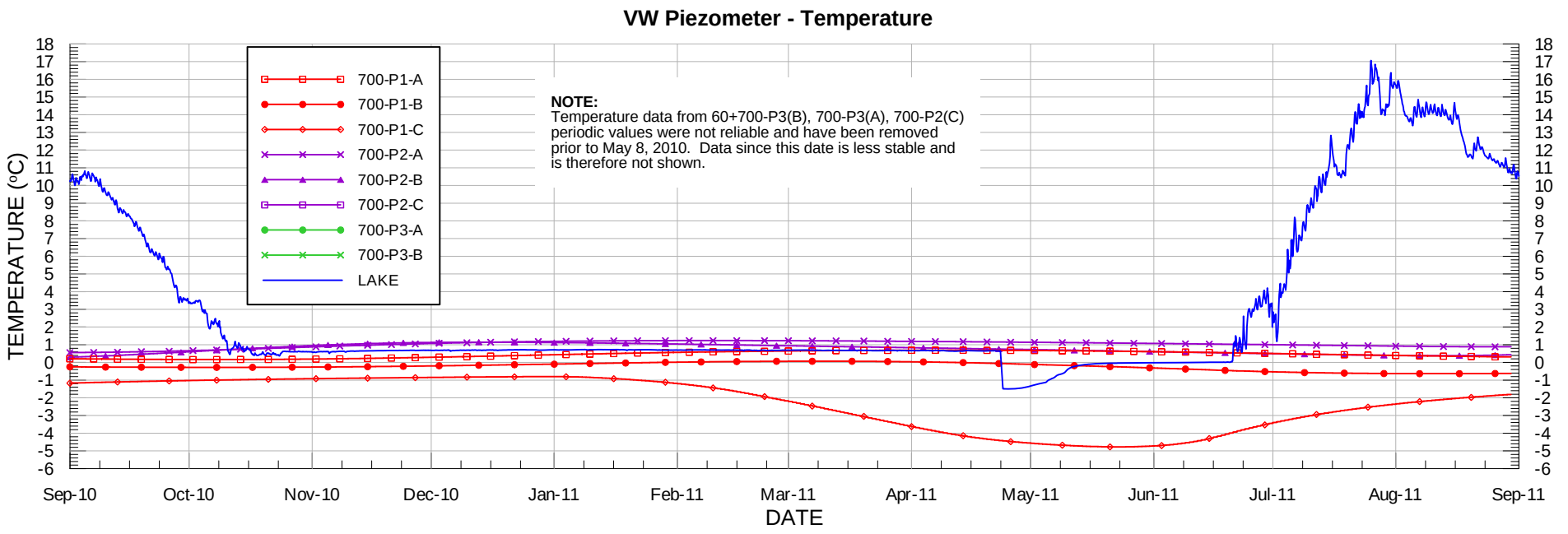
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK				
REVIEW				

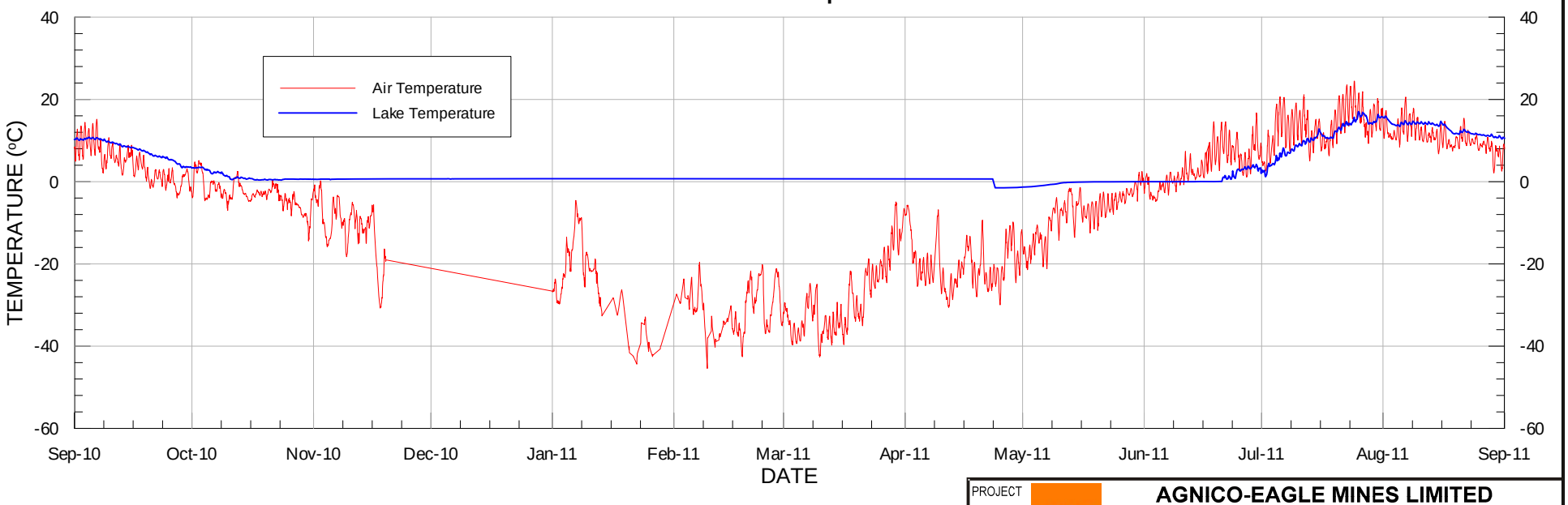
FIGURE C1-3

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/700-piezometric data.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

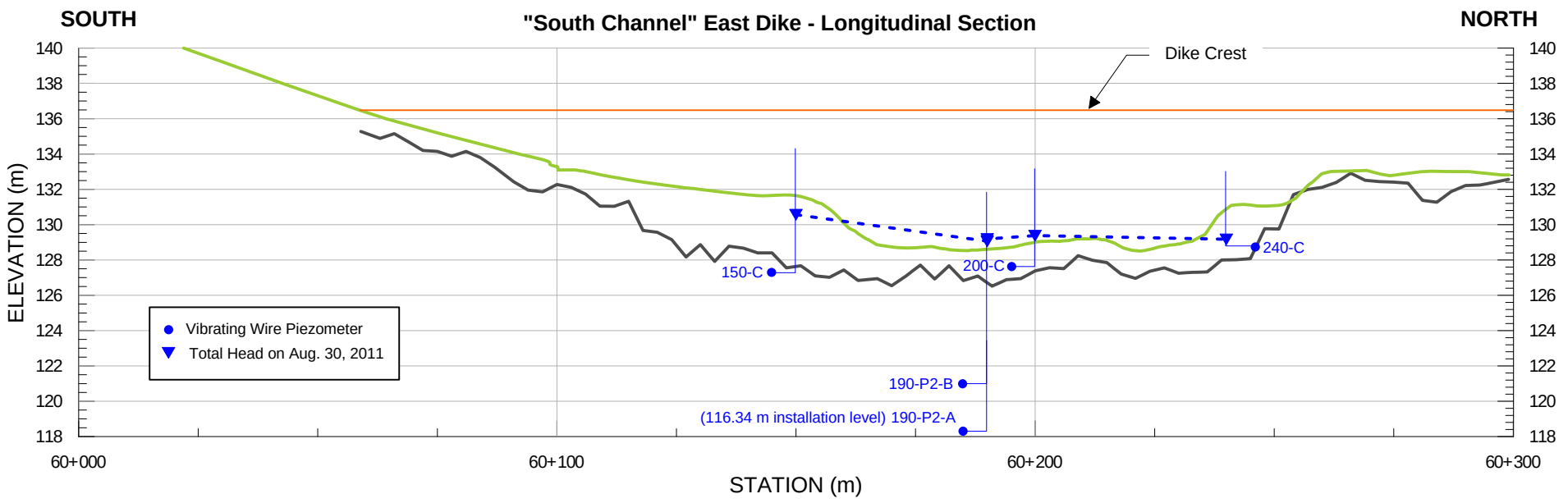
EAST DIKE - SECTION 60+700 PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

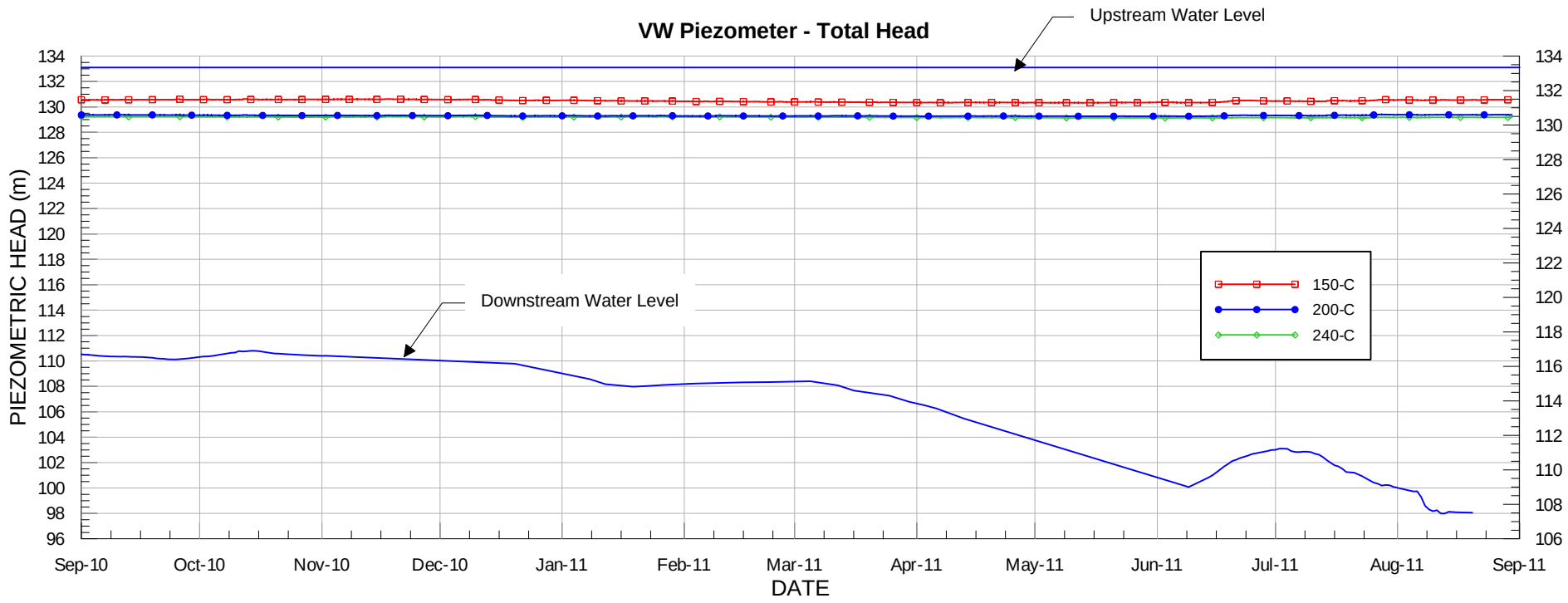
Golder Associates

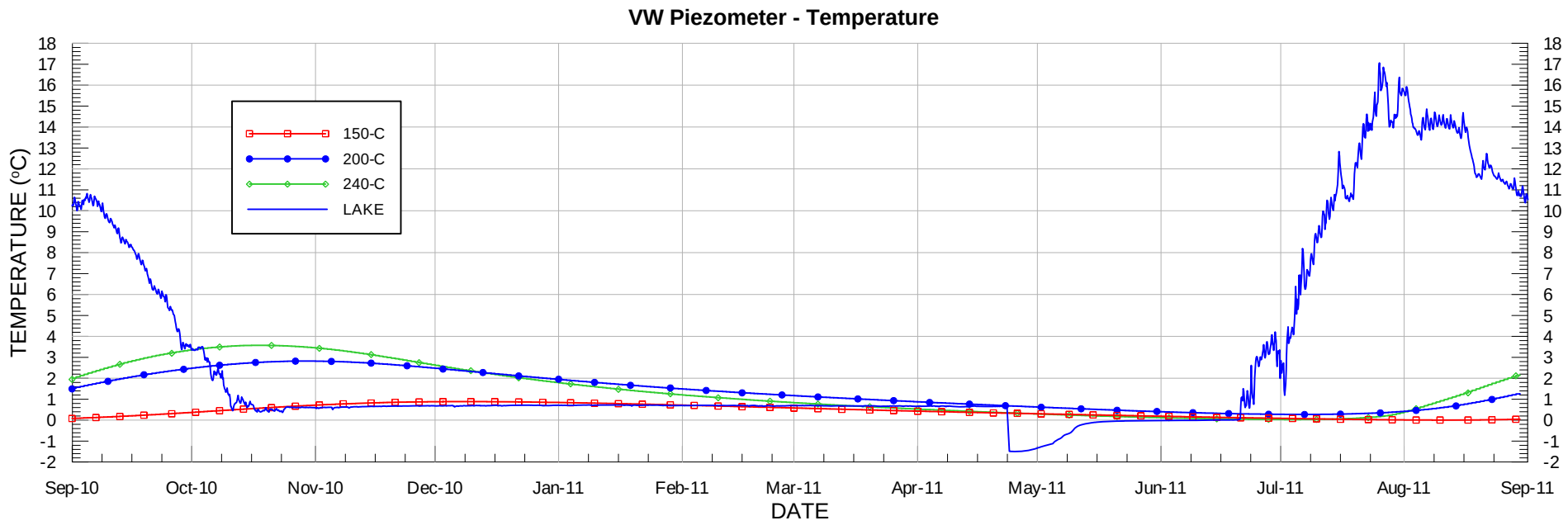
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK				
REVIEW				

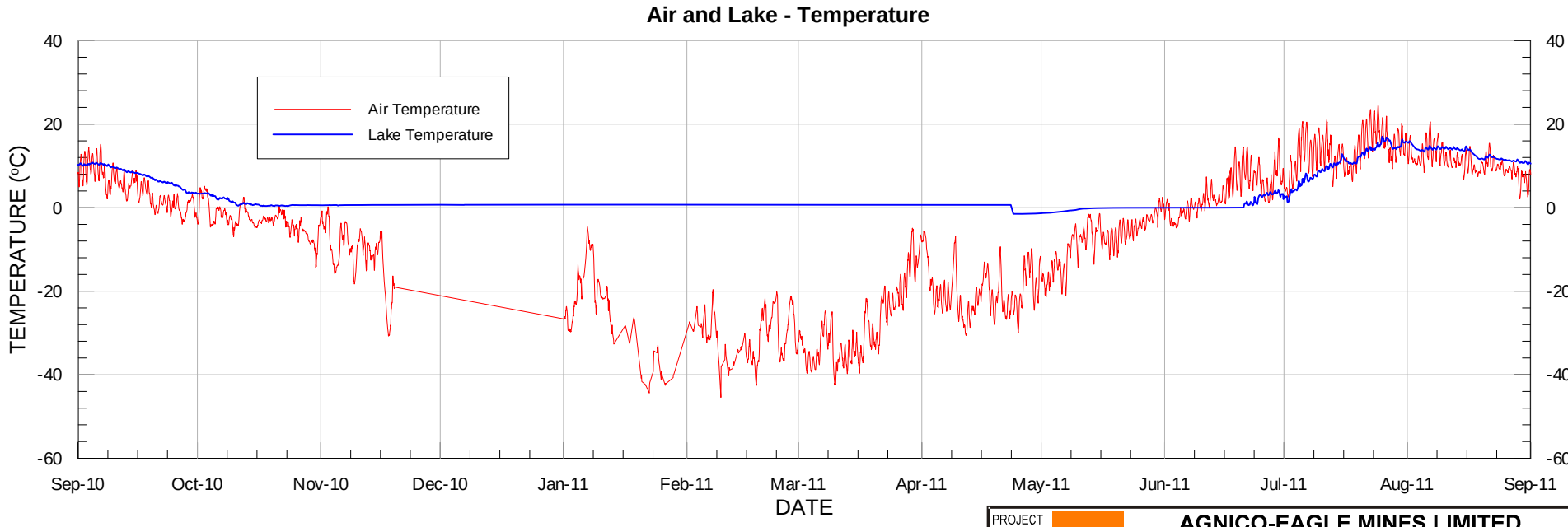
FIGURE C1-4

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/south channel 0-300.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

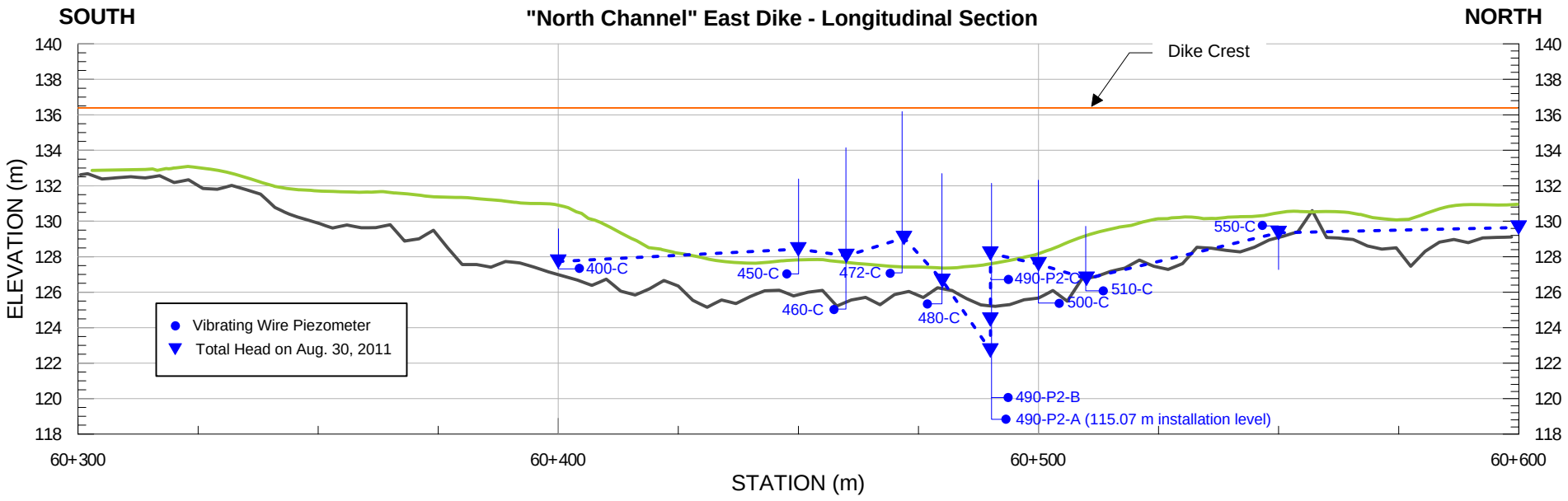
TITLE

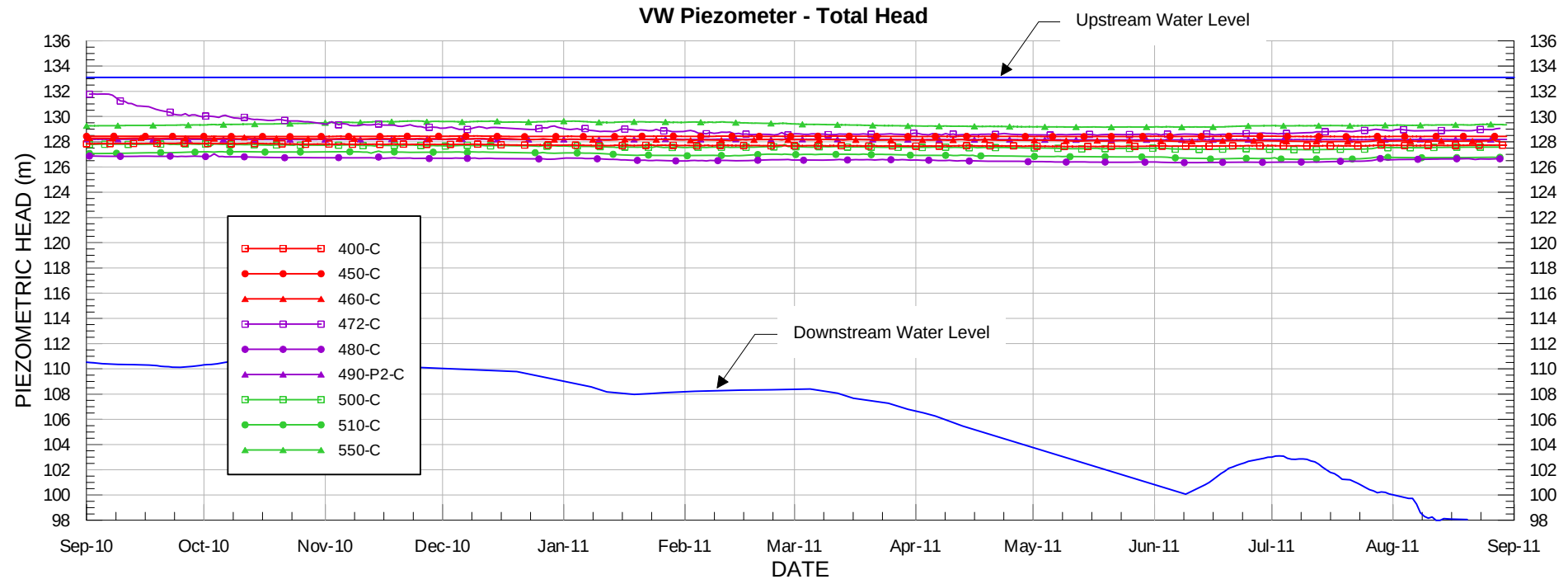
EAST DIKE - "SOUTH CHANNEL" PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

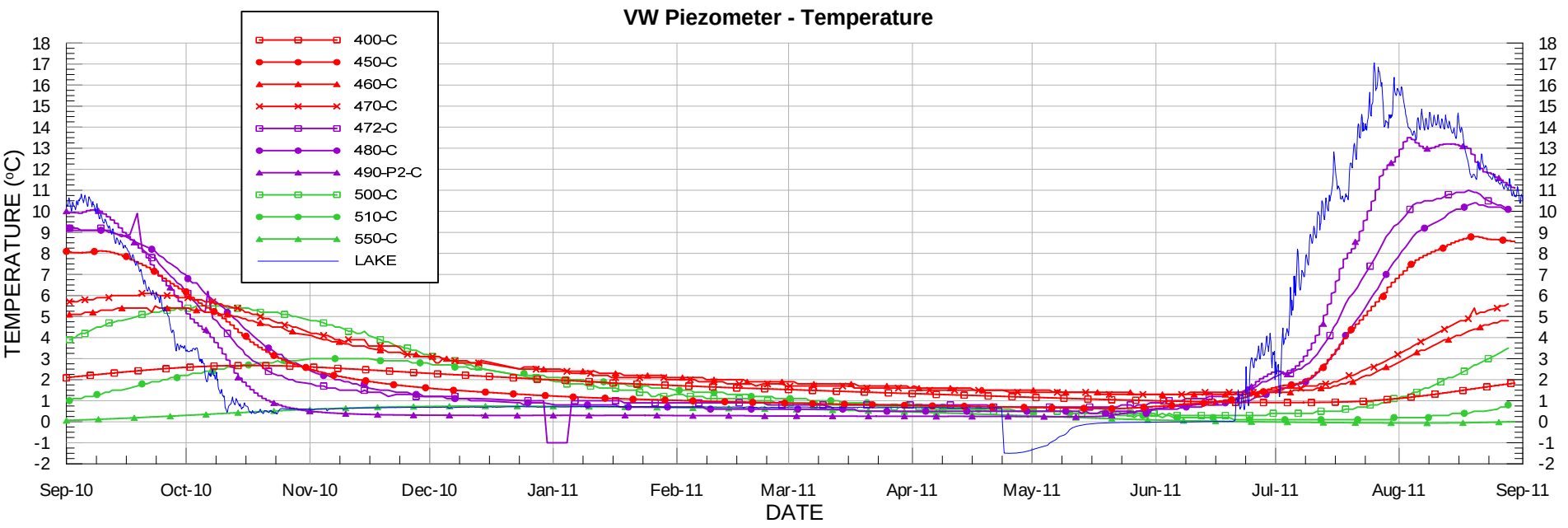
Golder Associates

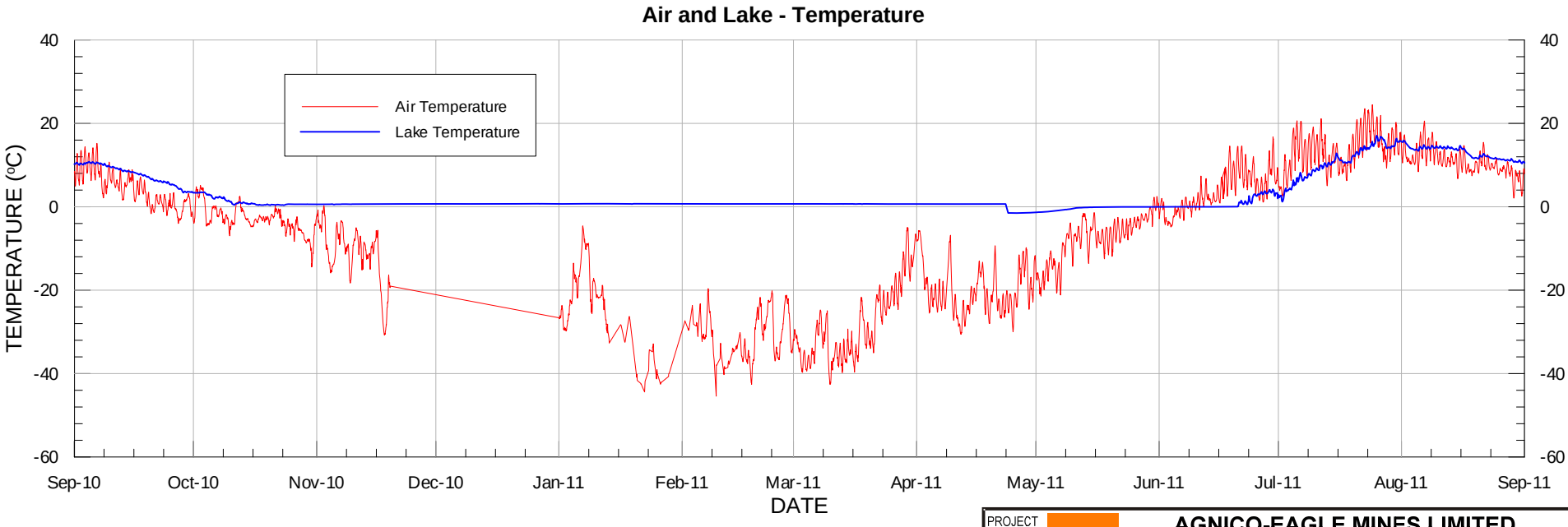
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK			**FIGURE C1-5**	
REVIEW				

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/north channel 300-600.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

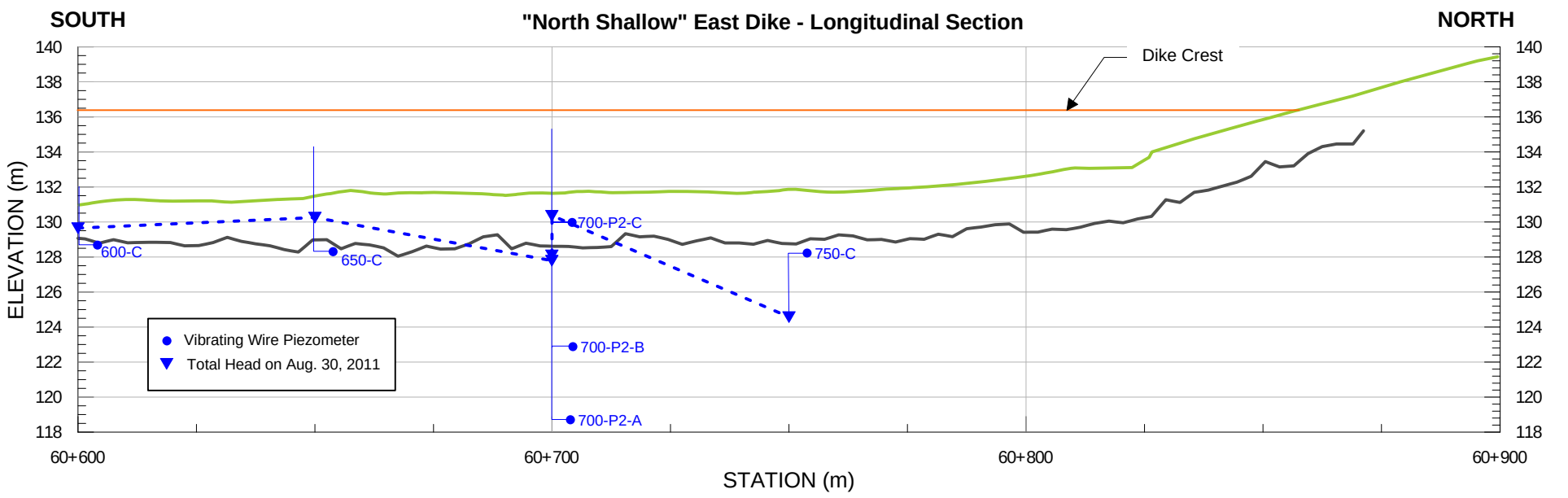
TITLE

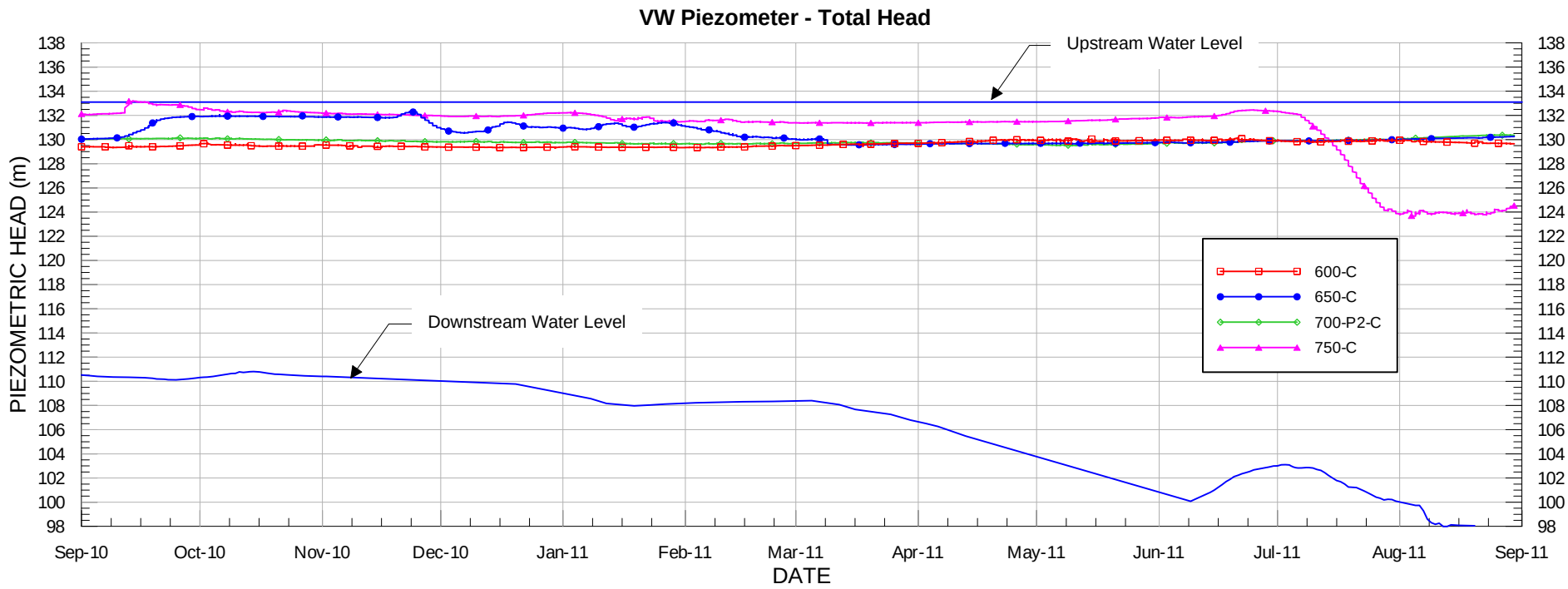
EAST DIKE - "NORTH CHANNEL" PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

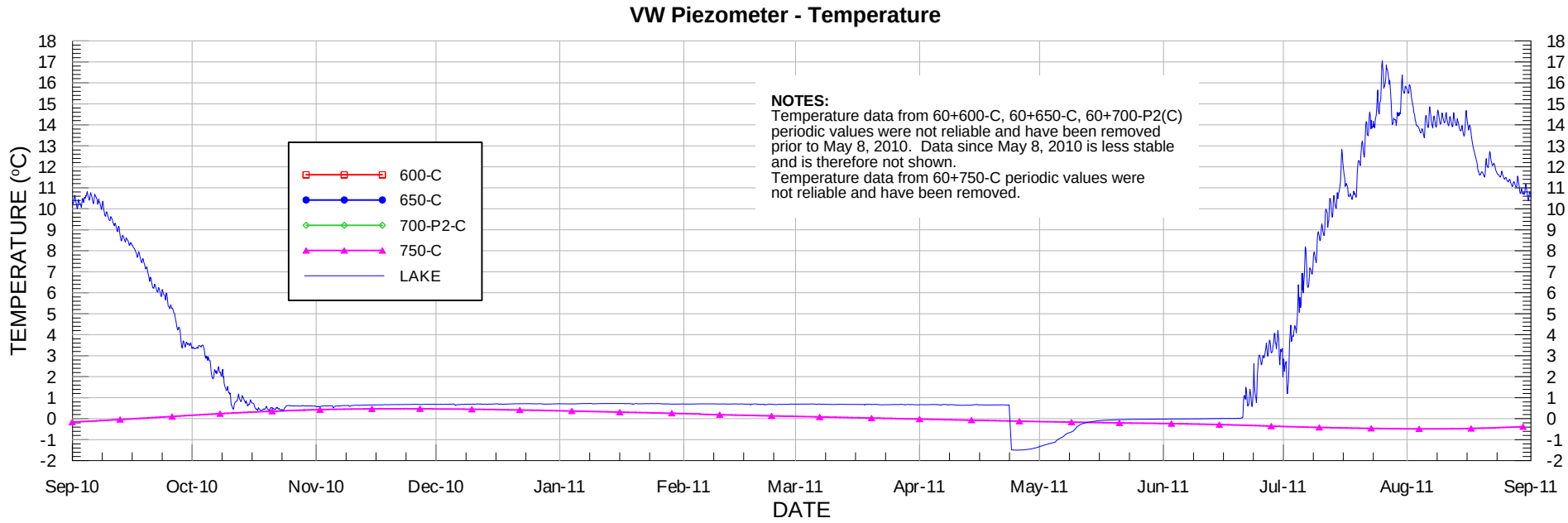
Golder Associates

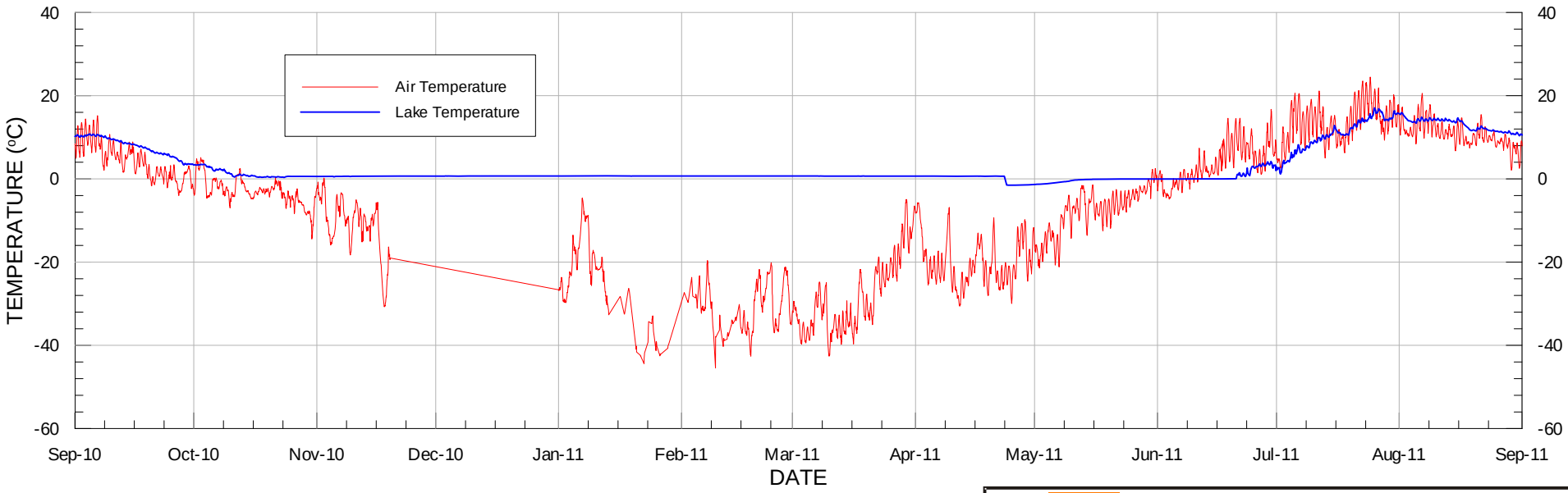
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK			**FIGURE C1-6**	
REVIEW				

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/north shallow 600-900.grf









PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - "NORTH SHALLOW" PIEZOMETRIC DATA (SEP. 2010 TO SEP. 2011)

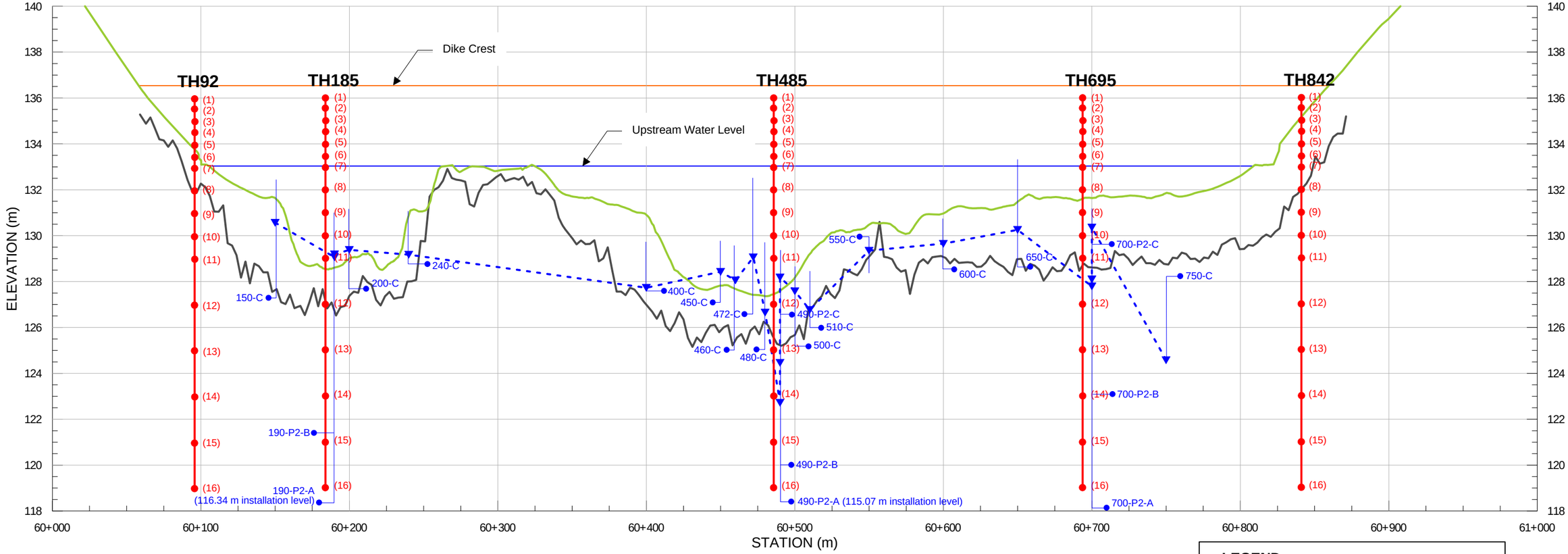
Golder Associates

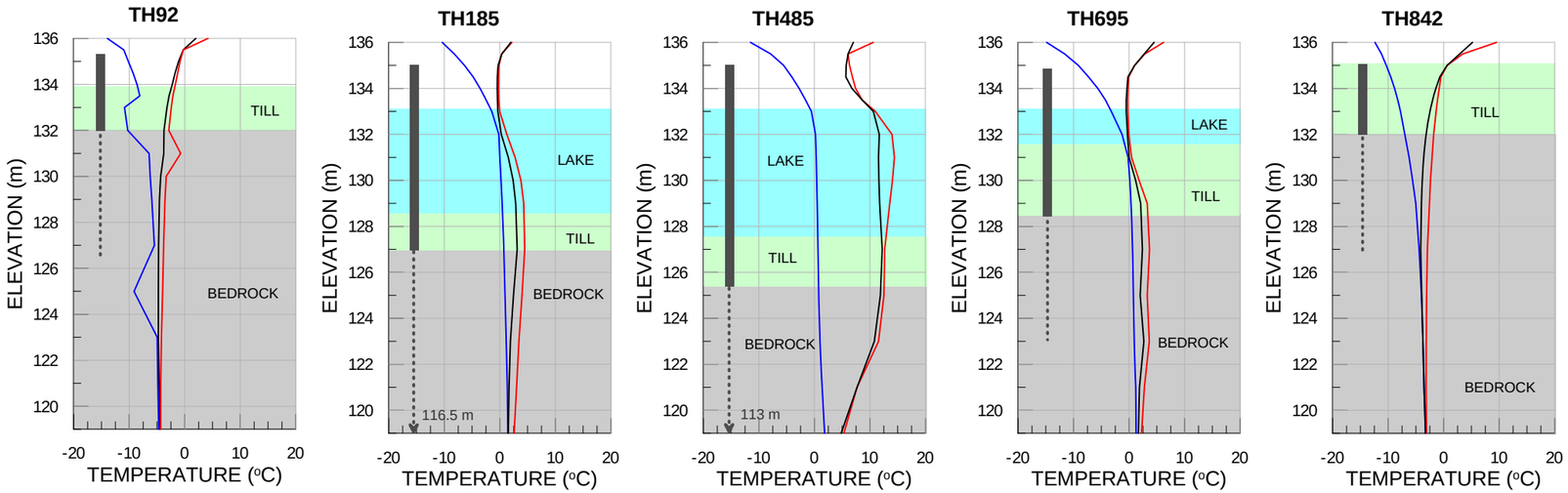
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK			FIGURE C1-7	
REVIEW				

SOUTH

East Dike - Longitudinal Section

NORTH





NOTE: TH92 node(9) at elevation 131, data not reported since May 1, 2010 as it appears not to be functioning.

T min (SEP. 2, 2010 to AUG. 30, 2011) T max (SEP. 2, 2010 to AUG. 30, 2011) T current (AUG. 30, 2011)

LEGEND

- BEDROCK
- LAKE BED
- PIEZOMETRIC HEAD IN DOWNSTREAM PIEZOMETERS ON AUG. 30, 2011
- LAKE
- TILL
- BEDROCK
- (6) (7) (8) (9) THERMISTOR WITH BEAD LOCATIONS
- SOIL-BENTONITE CUTOFF WALL
- GROUT CURTAIN
- VIBRATING WIRE PIEZOMETER

PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - LONGITUDINAL SECTION AND TEMPERATURE PROFILES (SEP. 2010 TO SEP. 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000		
DESIGN	FE	25APR11	SCALE AS SHOWN		REV.
CADD	GG	25APR11			
CHECK					
REVIEW					

FIGURE C1-8

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/profile.grf

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/nodal thermal timelines.grf

PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

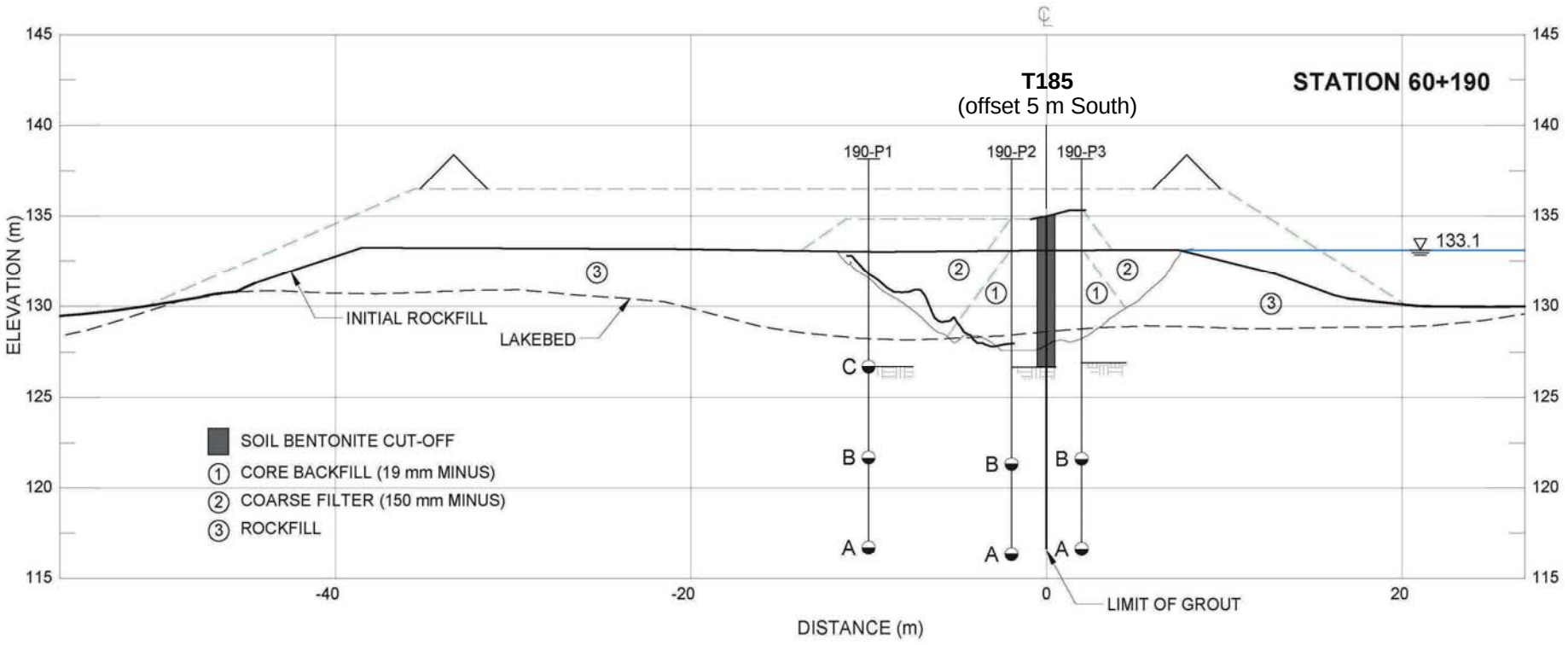
EAST DIKE - NODAL THERMAL TIMELINES (SEP. 2010 TO SEP. 2011)

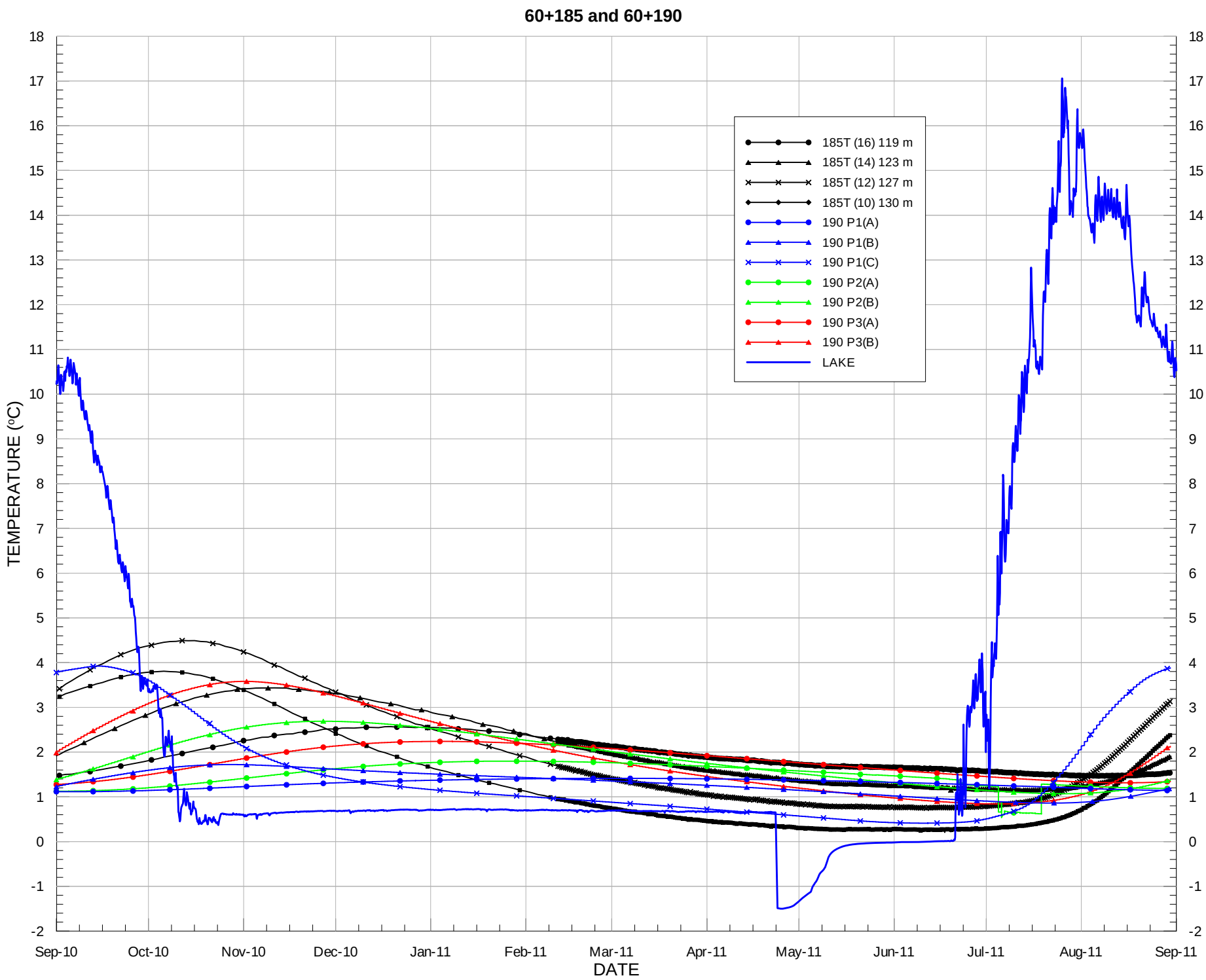
Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	04APR11	SCALE AS SHOWN	REV.
CADD	GG	04APR11		
CHECK				
REVIEW				

FIGURE C1-9

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/185-190-thermal data.grf





PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

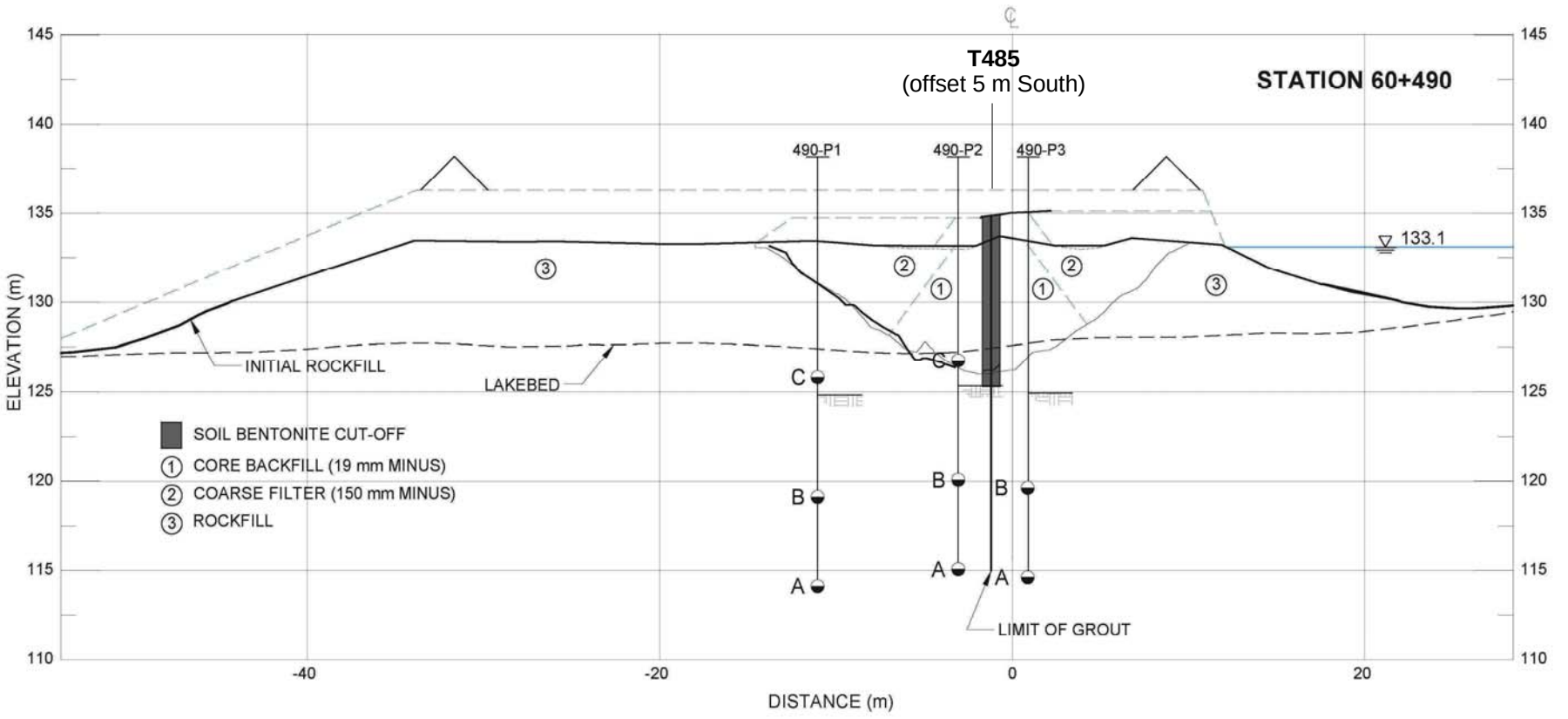
TITLE

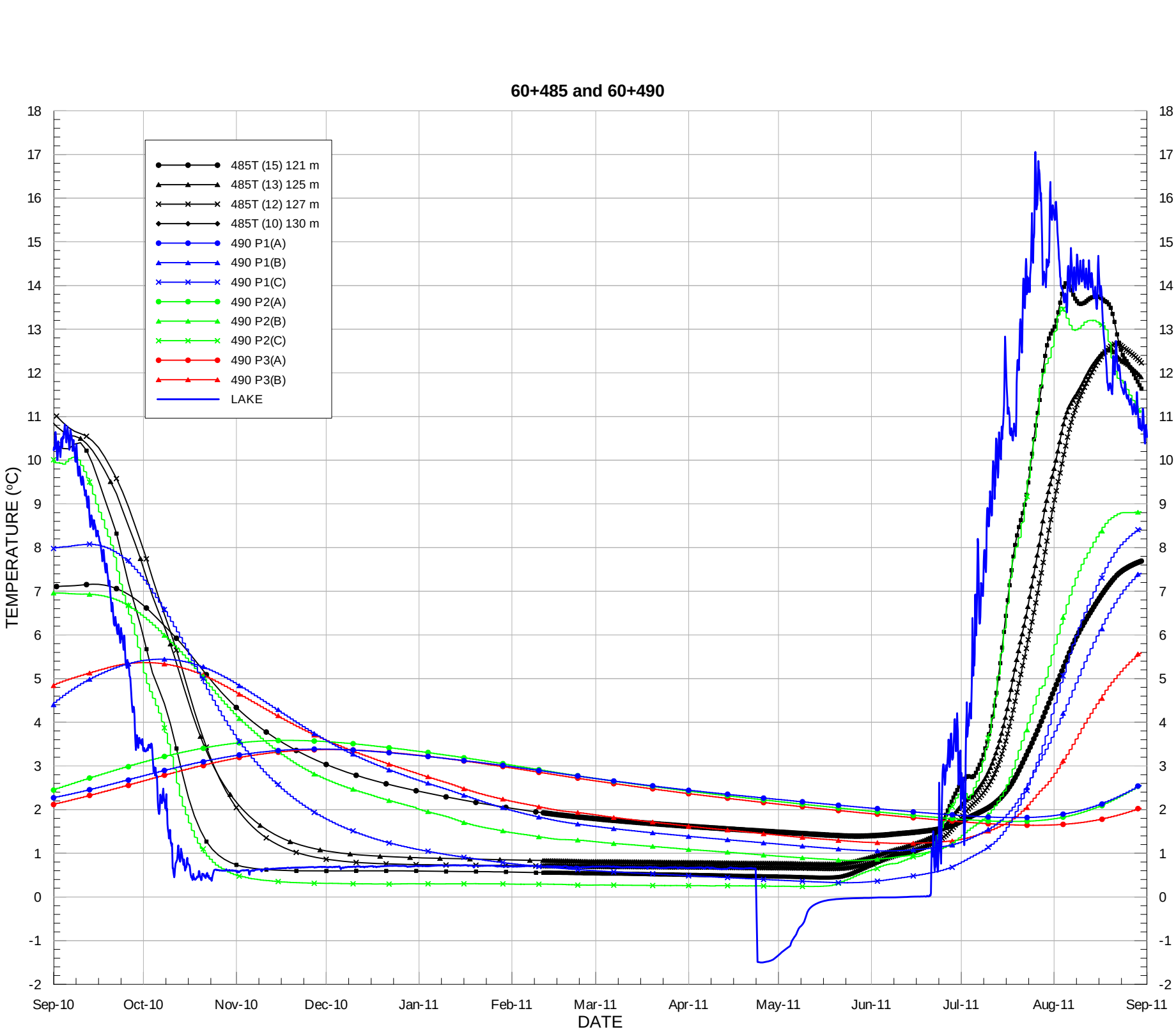
EAST DIKE - THERMAL CROSS SECTION 60+185 AND 60+190 (SEP. 2010 TO SEP. 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11		
CHECK			**FIGURE C1-10**	
REVIEW				

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/485-490-thermal data.grf





PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

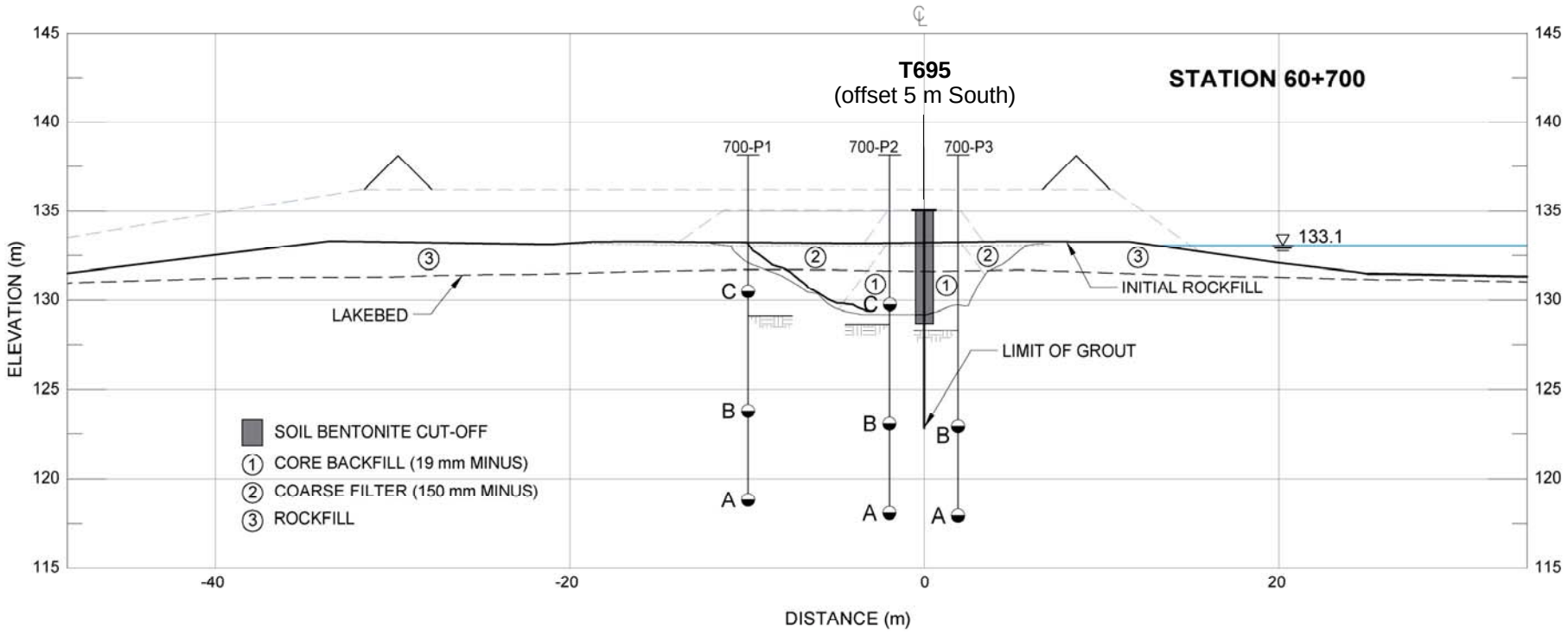
TITLE

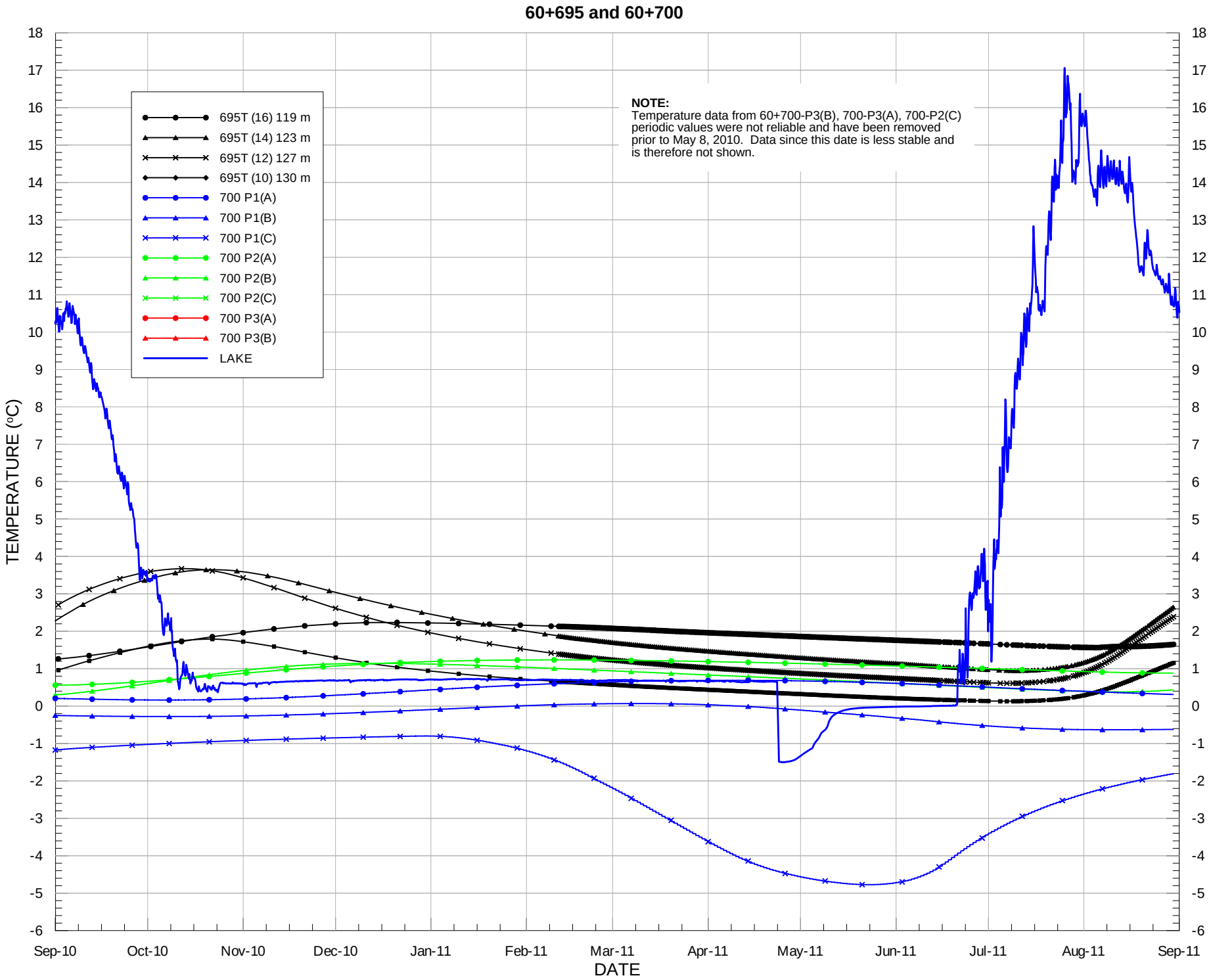
EAST DIKE - THERMAL CROSS SECTION 60+485 AND 60+490 (SEP. 2010 TO SEP. 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000		
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.	
CADD	GG	25APR11			
CHECK			FIGURE C1-11		
REVIEW					

REVISION DATE: 01NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/695-700-thermal data.grf



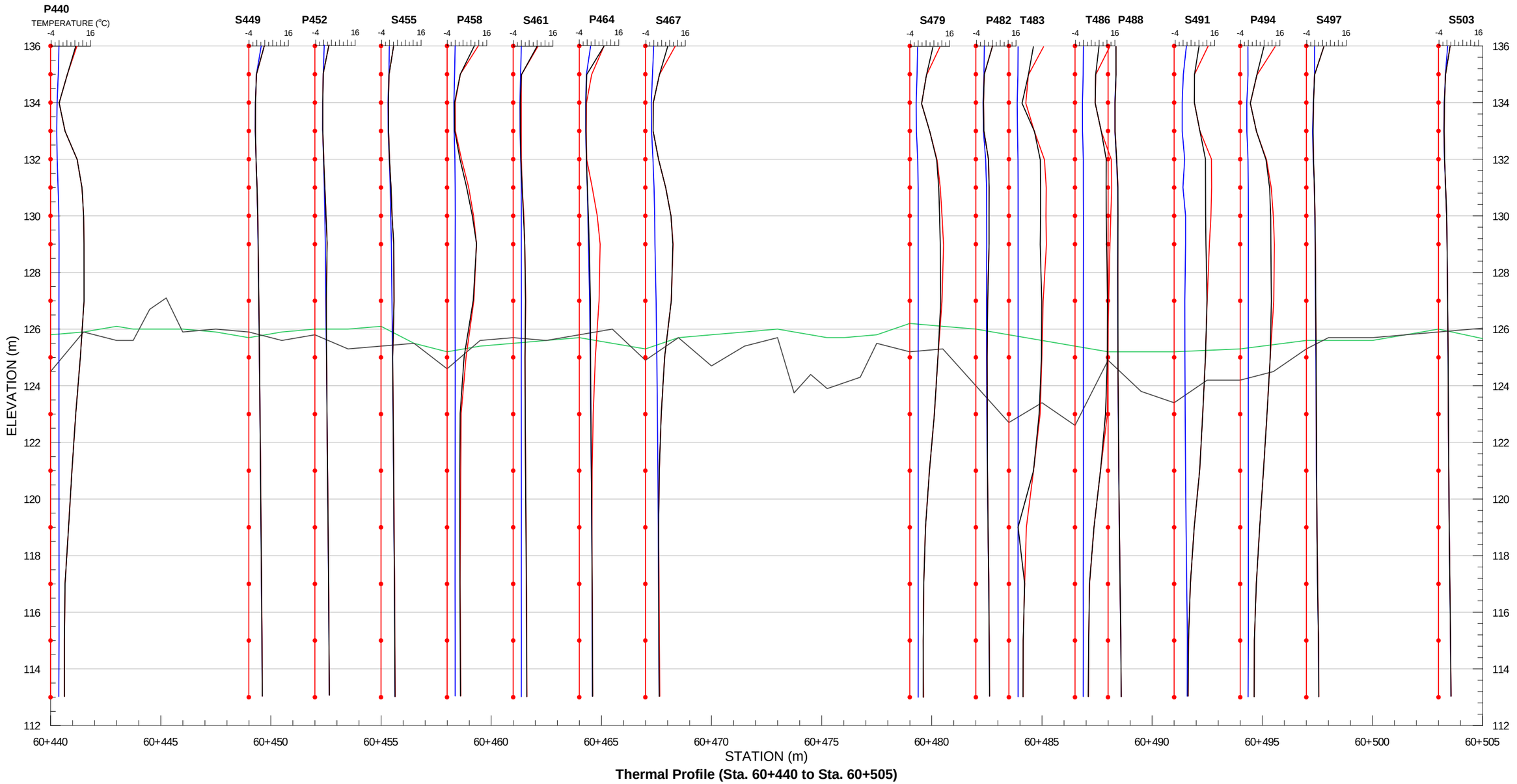


PROJECT AEM AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE EAST DIKE - THERMAL CROSS SECTION
60+695 AND 60+700
(SEP. 2010 TO SEP. 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	25APR11	SCALE AS SHOWN	REV.
CADD	GG	25APR11	FIGURE C1-12	
CHECK				
REVIEW				



Thermal Profile (Sta. 60+440 to Sta. 60+505)

LEGEND

- Base of SB
- Bedrock
- Thermistor
- T min
- T max
- T current

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

EAST DIKE - TEMPERATURE PROFILES IN SINKHOLE AREA (2011 DATA)

Golder Associates

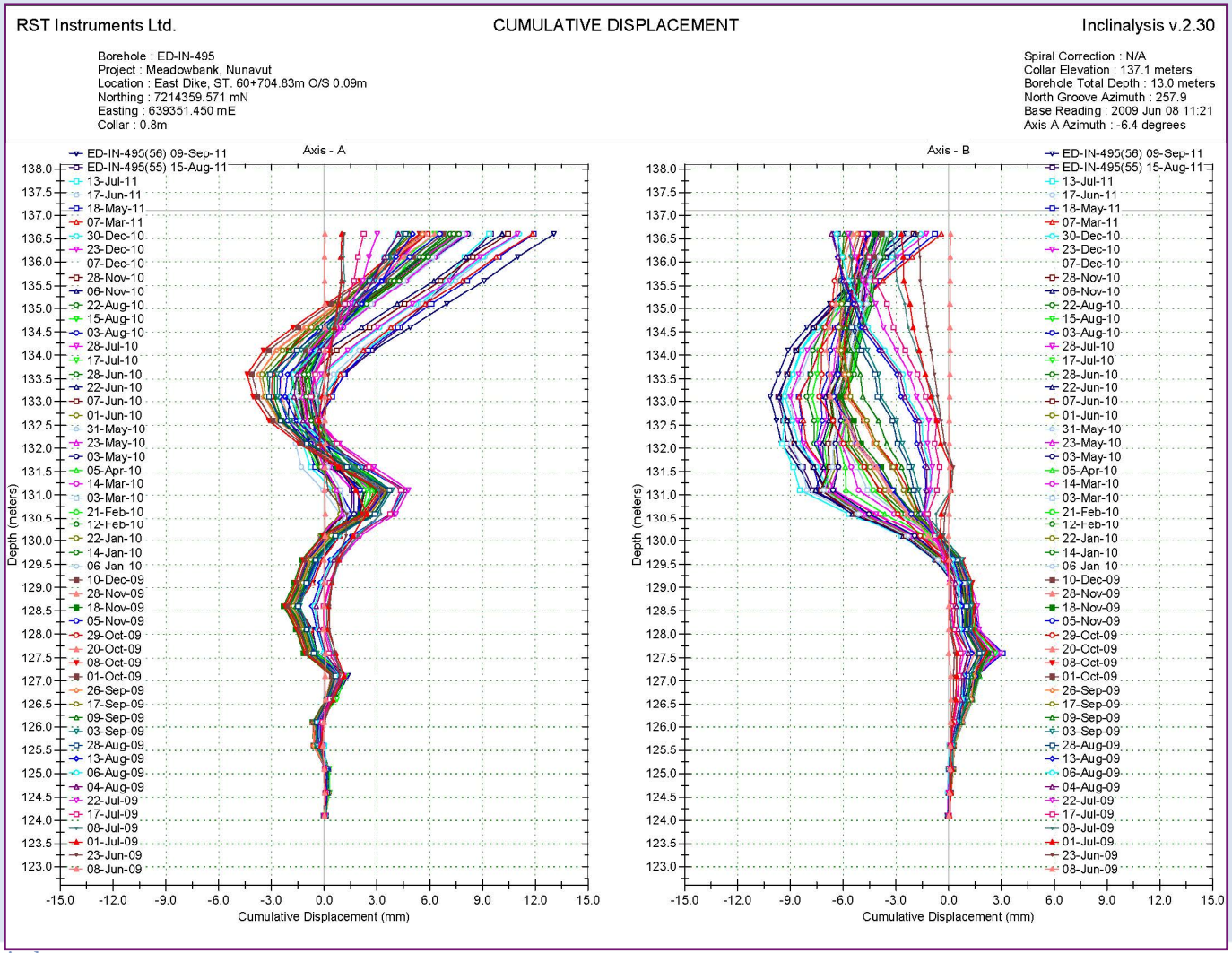
PROJECT No. 09-1428-5007			PHASE No. 3000	
DESIGN	FE	12SEP11	SCALE AS SHOWN	REV.
CADD	GG	12SEP11		
CHECK				
REVIEW				

FIGURE C1-8

REVISION DATE:12SEP11 BY:GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/3000/DATA-DEC09-Current/SINKHOLE-T-profile.grf

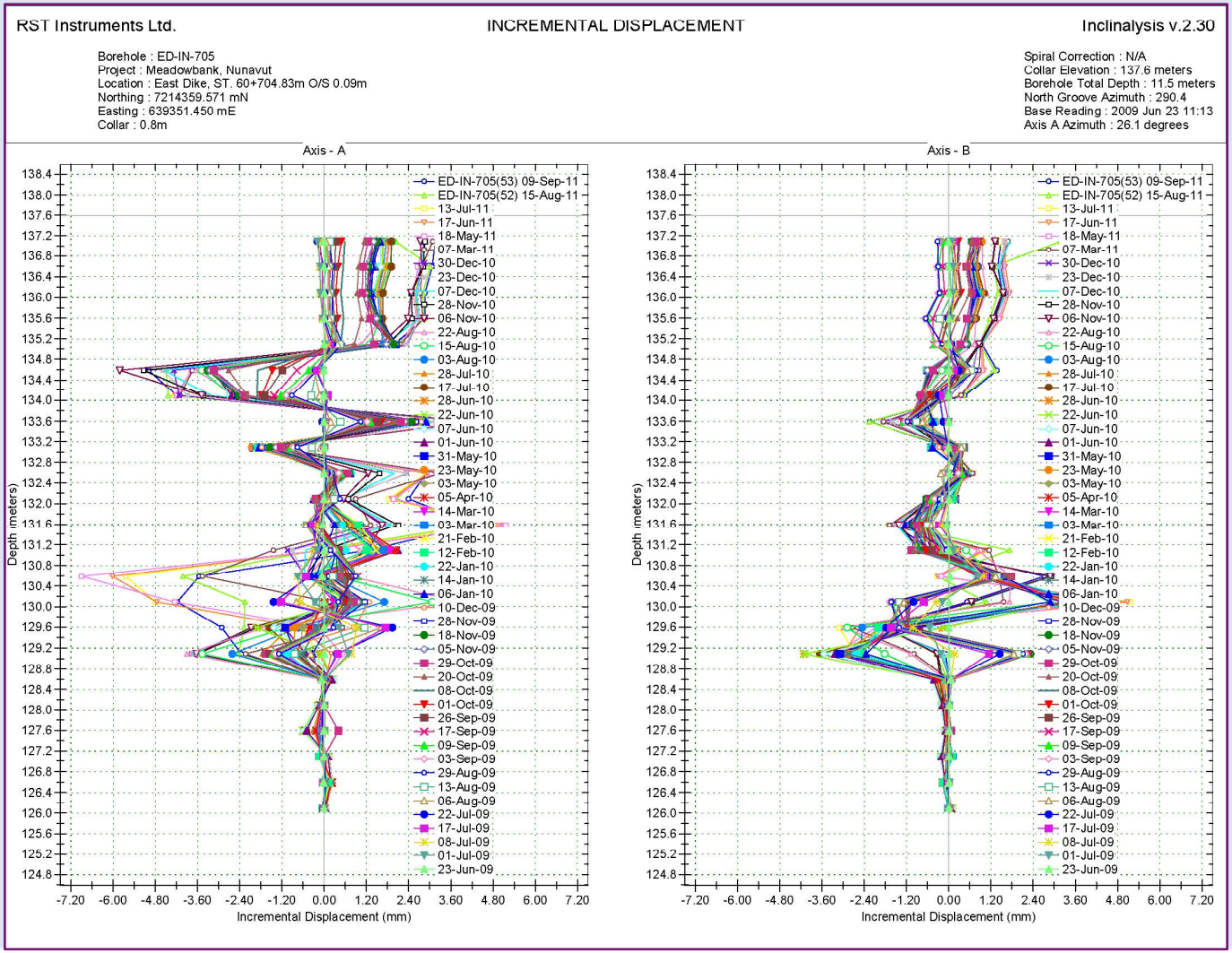
East Dike - Inclinometers

Station 60+495 - CUMULATIVE



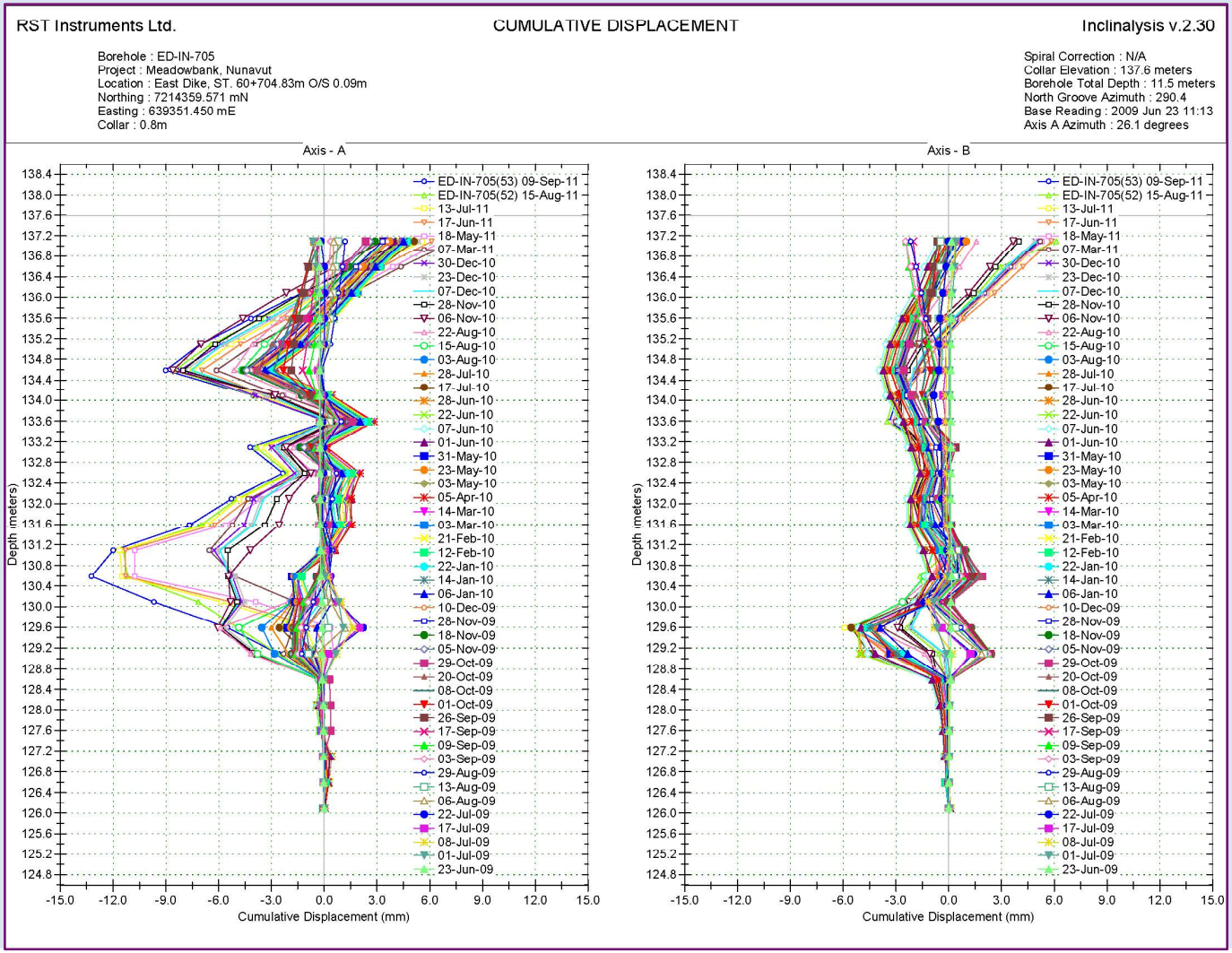
East Dike - Inclinometers

Station 60+705 - INCREMENTAL



East Dike - Inclinometers

Station 60+495 - CUMULATIVE

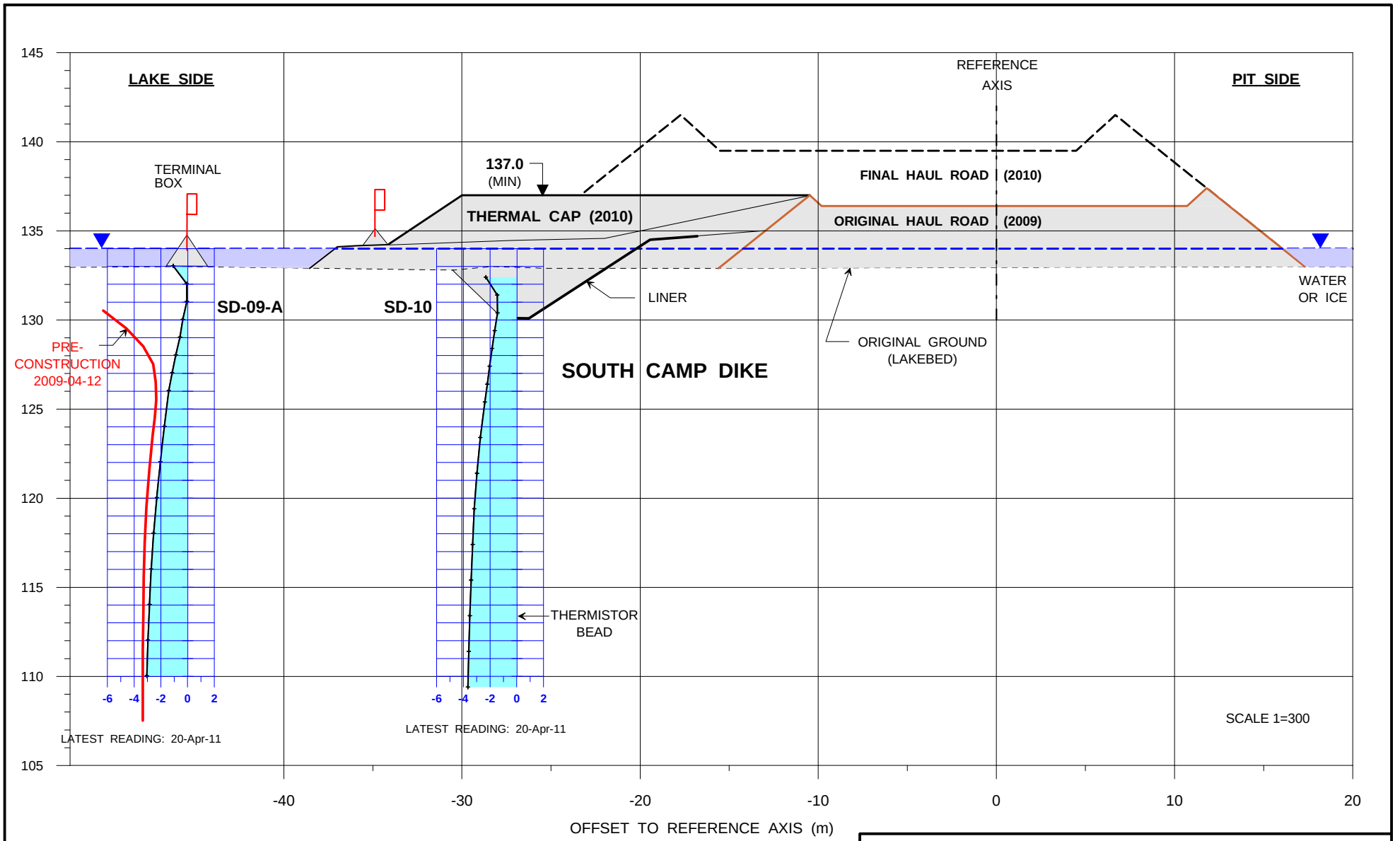


DIKE SURVEY MONUMENTS

FIXED COORDINATES				COMPARED COORDONATES				RESULTS		
2011/09/10 SRV1				DATE	2011/09/10 SRV2			delta x	delta y	delta z
2	639345.064	7214419.52	137.824	2	639345.083	7214419.518	137.893	-0.019	0.001	-0.069
3	639350.015	7214369.74	137.989	3	639350.023	7214369.739	137.989	-0.008	0.001	0
4	639354.435	7214324.9	137.961	4	639354.442	7214324.897	137.951	-0.007	0.001	0.01
6	639363.502	7214235.44	137.687	6	639363.505	7214235.441	137.69	-0.003	0.001	-0.003
7	639367.401	7214195.56	138.079	7	639367.404	7214195.56	138.074	-0.003	0.001	0.005
8	639369.23	7214160.51	137.721	8	639369.233	7214160.514	137.731	-0.003	0	-0.01
10	639379.921	7214071.26	137.968	10	639379.929	7214071.254	137.964	-0.008	0.002	0.004
11	639383.514	7214036.42	138.001	11	639383.52	7214036.418	138.003	-0.006	0.002	-0.002
12	639387.367	7213996.57	138.087	12	639387.371	7213996.572	138.08	-0.004	0.001	0.007
13	639381.864	7213894.76	137.864	13	639381.87	7213894.756	137.896	-0.006	0.001	-0.032
14	639370.179	7213867.08	137.896	14	639370.186	7213867.078	137.895	-0.007	0.003	0.001
16	639347.069	7213811.67	138.104	16	639347.068	7213811.668	138.094	0.001	0	0.01
17	639335.376	7213784.08	137.971	17	639335.378	7213784.078	137.97	-0.002	0.001	0.001
				DATE	2011\09\12			delta x	delta y	delta z
				2	639345.077	7214419.522	137.822	-0.013	-0.003	0.002
				3	639350.033	7214369.742	138.019	-0.018	-0.002	-0.03
				4	639354.443	7214324.902	137.993	-0.008	-0.004	-0.032
				6	639363.504	7214235.443	137.689	-0.002	-0.001	-0.002
				7	639367.403	7214195.564	138.081	-0.002	-0.003	-0.002
				8	639369.23	7214160.517	137.723	0	-0.003	-0.002
				10	639379.926	7214071.258	137.982	-0.005	-0.002	-0.014
				11	639383.518	7214036.422	138.014	-0.004	-0.002	-0.013
				12	639387.365	7213996.576	138.091	0.002	-0.003	-0.004
				13	639381.865	7213894.759	137.875	-0.001	-0.002	-0.011
				14	639370.18	7213867.083	137.905	-0.001	-0.002	-0.009
				16	639347.063	7213811.672	138.104	0.006	-0.004	0
				17	639335.374	7213784.082	137.979	0.002	-0.003	-0.008

APPENDIX C2

South Camp Dike Thermistor Data



NOTE: COORDINATES FOR REFERENCE AXIS:
638,211 E 7,213,186 N
638,174 E 7,213,075 N

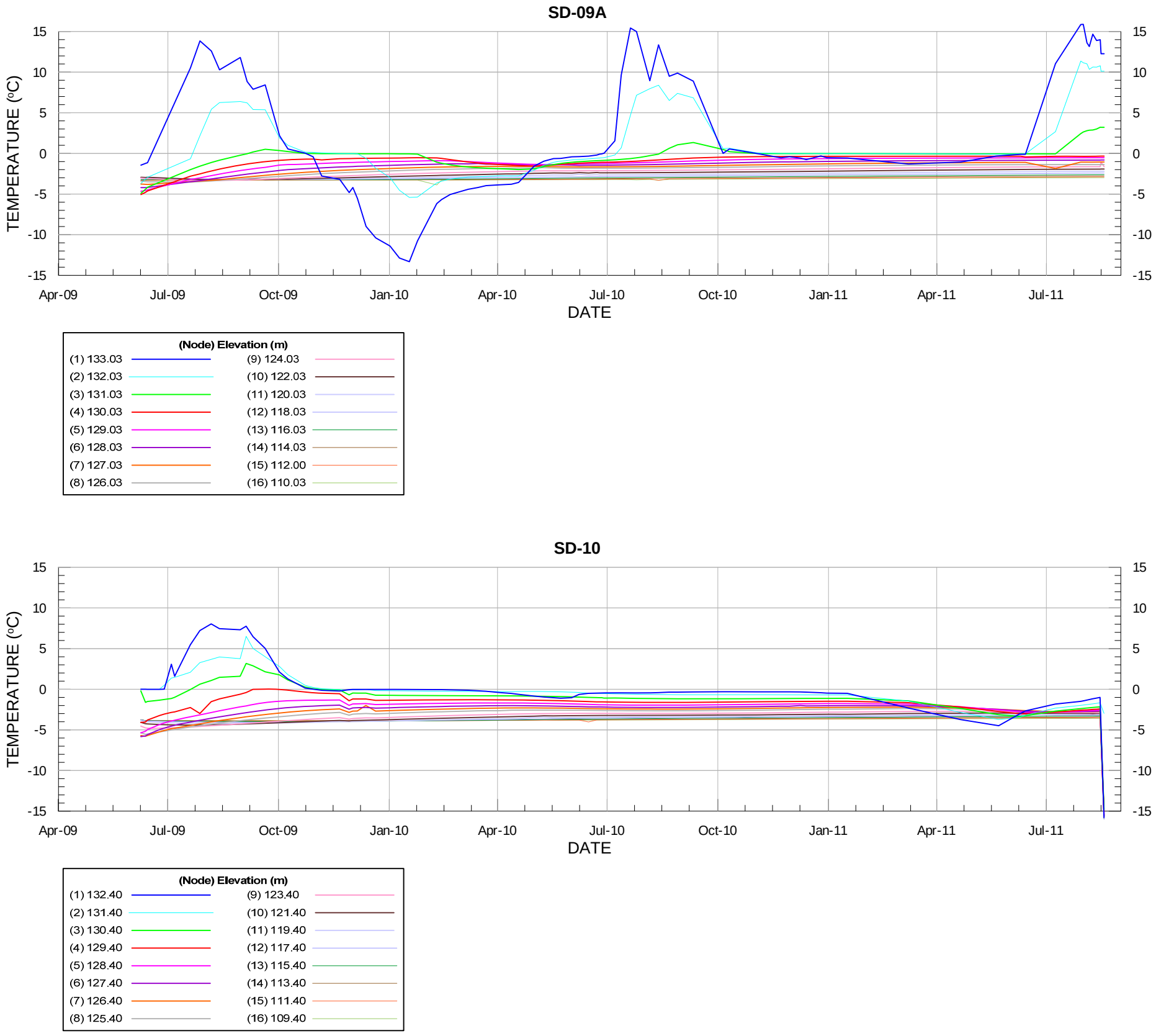
AGNICO-EAGLE MINES LIMITED - MEADOWBANK DIVISION

SOUTH CAMP DIKE CONSTRUCTION

TEMPERATURE MONITORING IN DIKE FOUNDATION

TEMPERATURE PROFILES AT SD1.GRF

REVISION DATE: 15AUG11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-South Camp Dike.grf



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

SOUTH CAMP DIKE
NODAL THERMAL TIMELINES
(APR. 2009 TO AUG. 2011)

Golder Associates

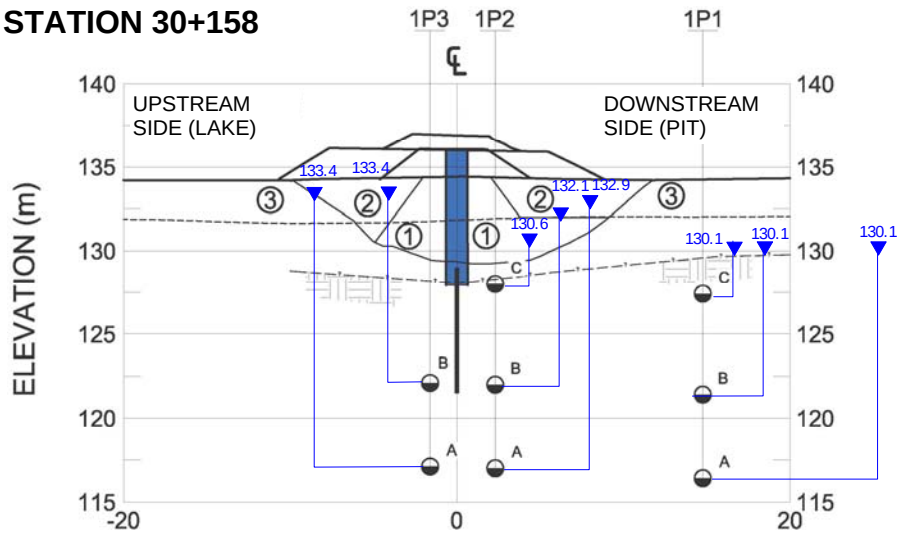
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11	**FIGURE 9**		
CHECK					
REVIEW					

APPENDIX C3

Bay-Goose Dike Piezometric, Thermistor and Inclinometer

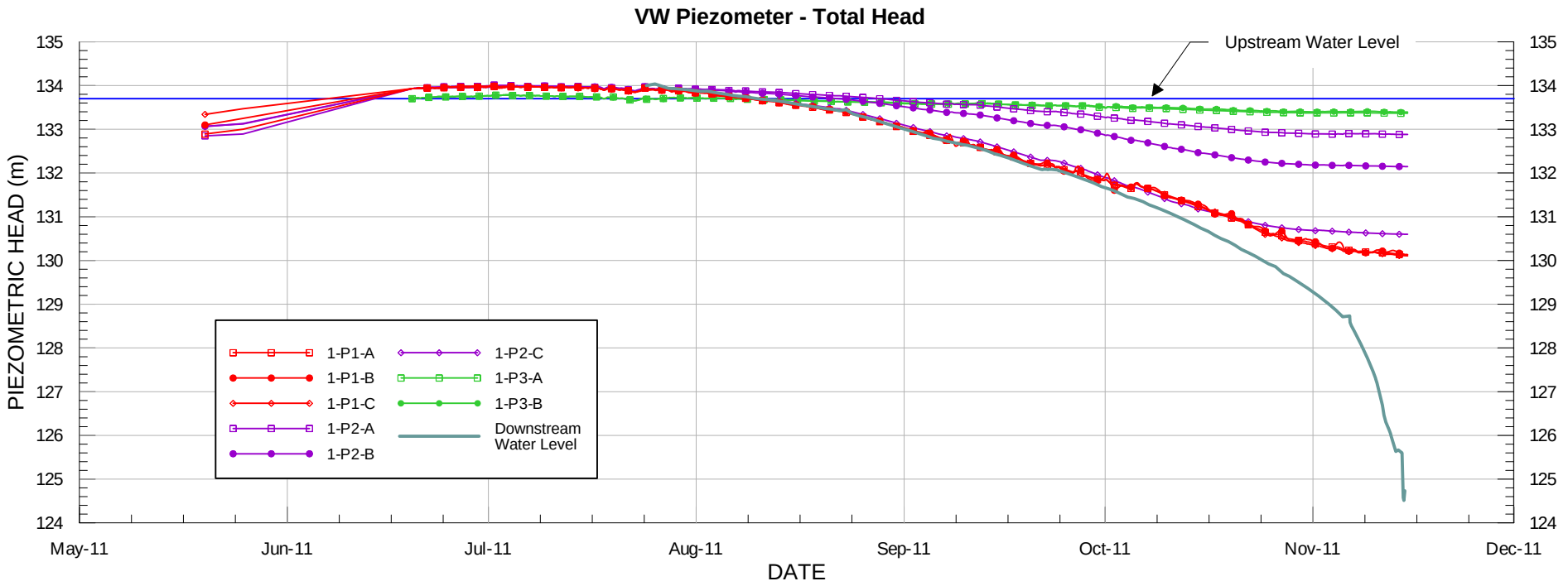
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/30+158-piezometric data.grf

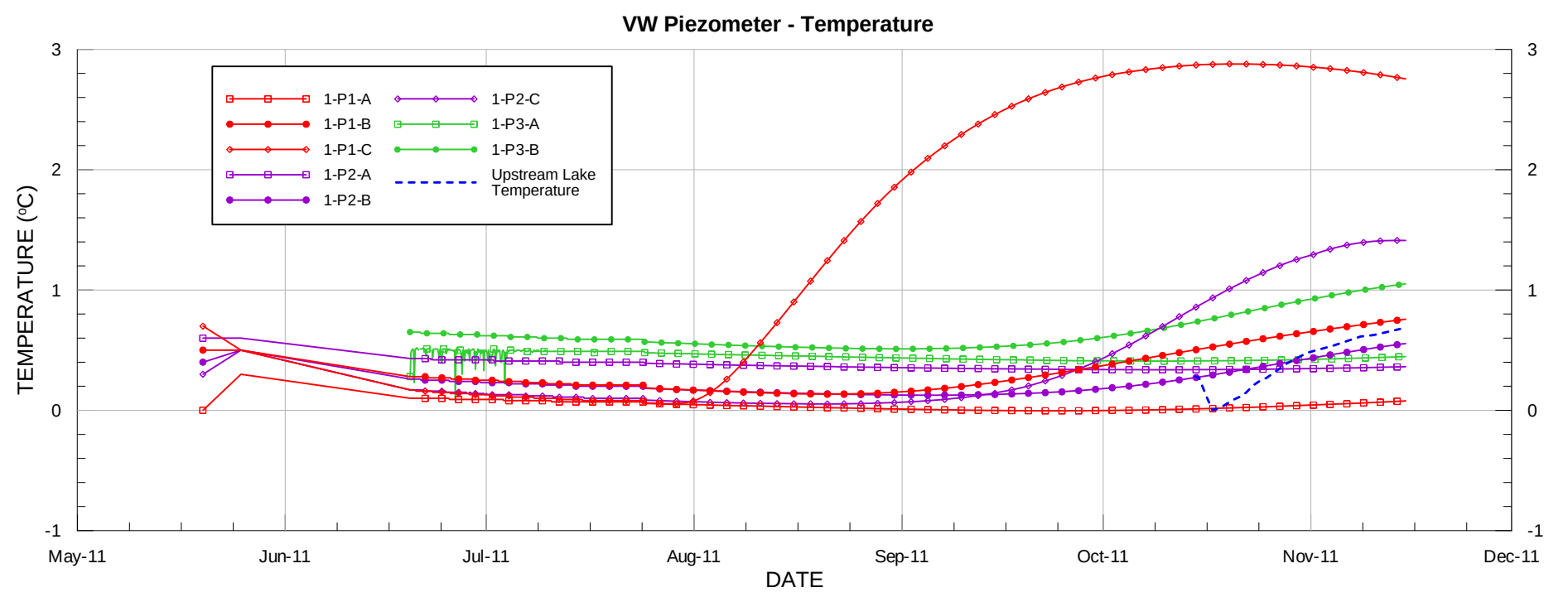
STATION 30+158

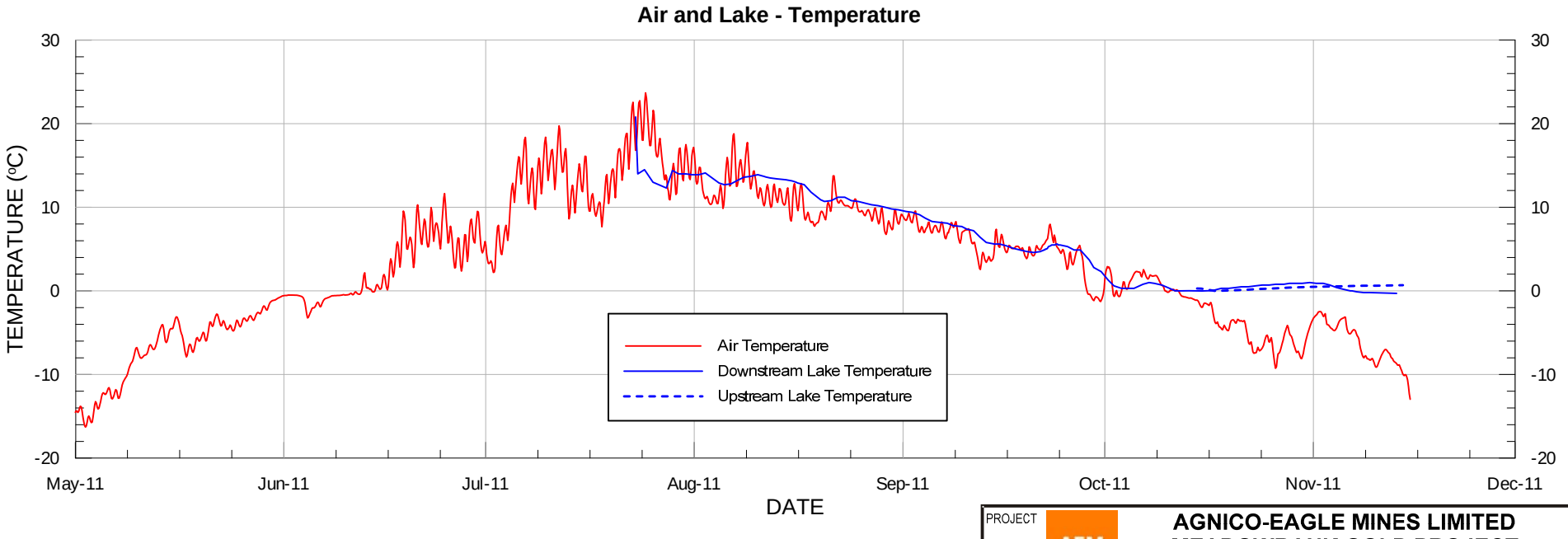


LEGEND

- CUTOFF (CSB)
- CUTOFF (SB)
- INITIAL ROCKFILL
- LAKEBED
- BEDROCK
- JET GROUT
- GROUT
- ① CORE BACKFILL (19 mm MINUS)
- ② COARSE BACKFILL (15mm MINUS)
- ③ ROCKFILL
- ④ FINE ROCKFILL
- 130.4 ▼ TOTAL HEAD (m) ON NOV. 15, 2011







NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

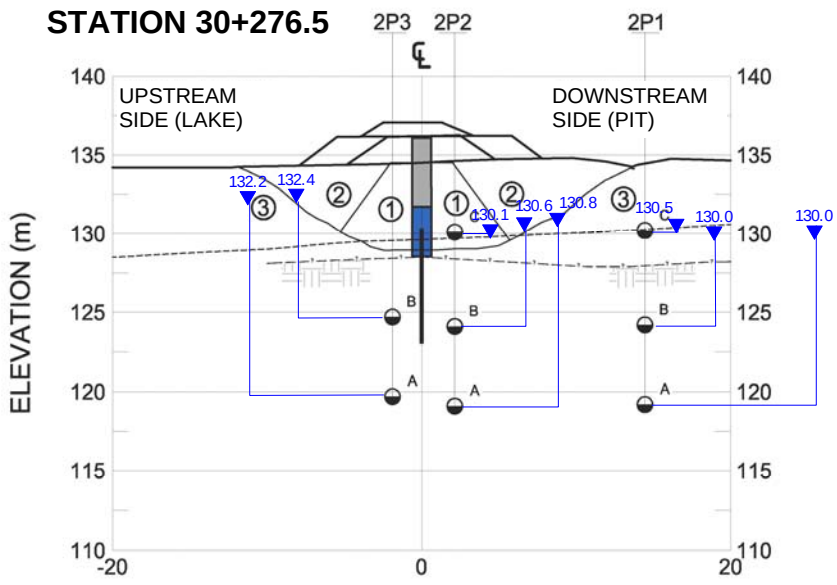
BAY-GOOSE DIKE - SECTION 30+158 PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

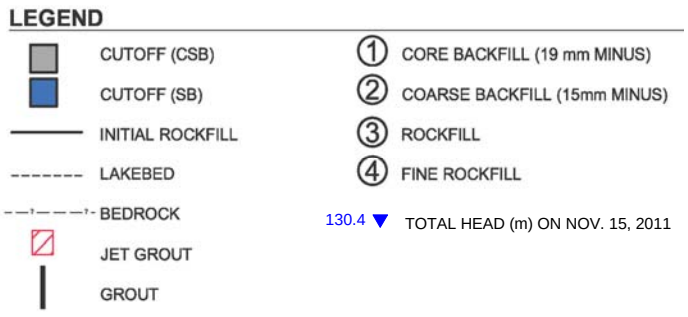
Golder Associates

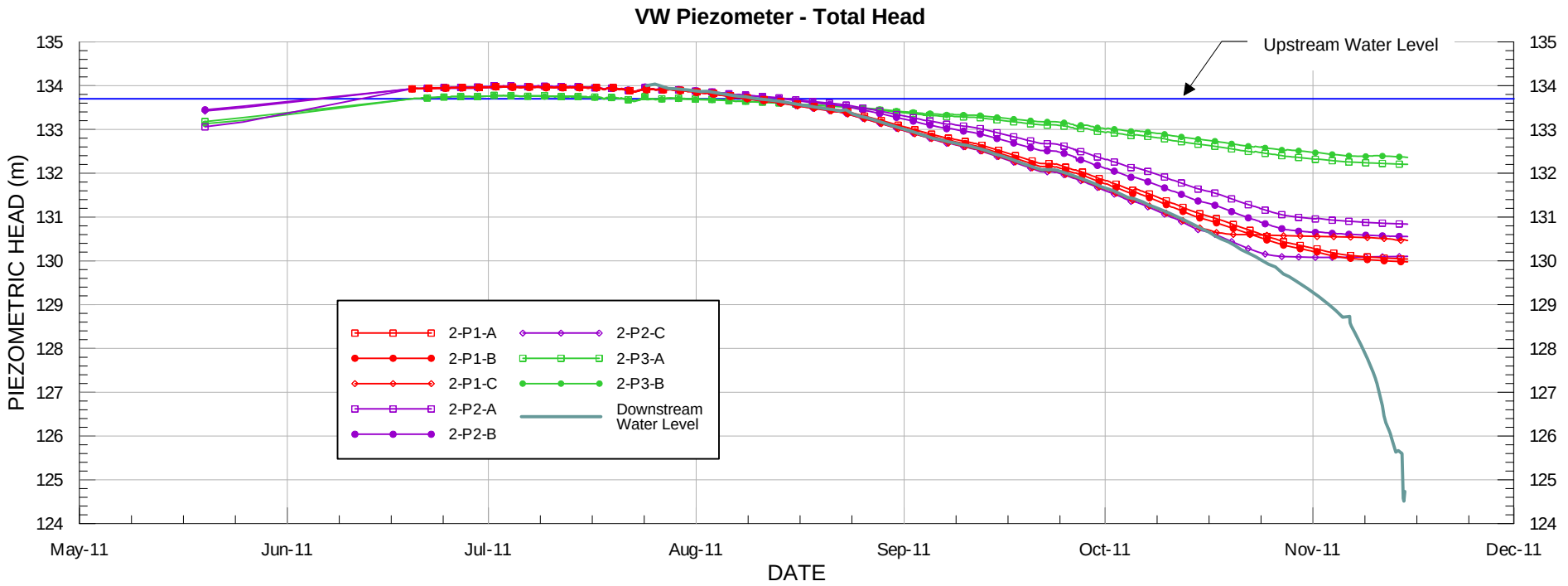
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK				
REVIEW				

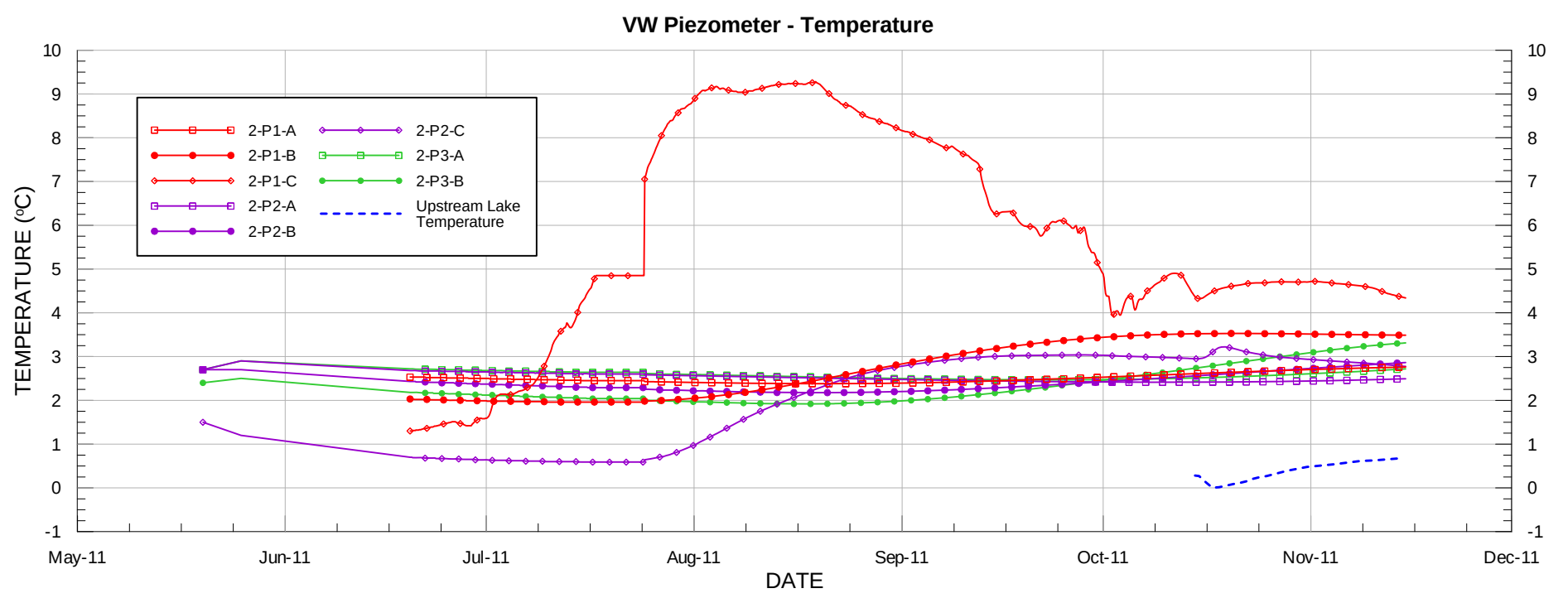
FIGURE 4A

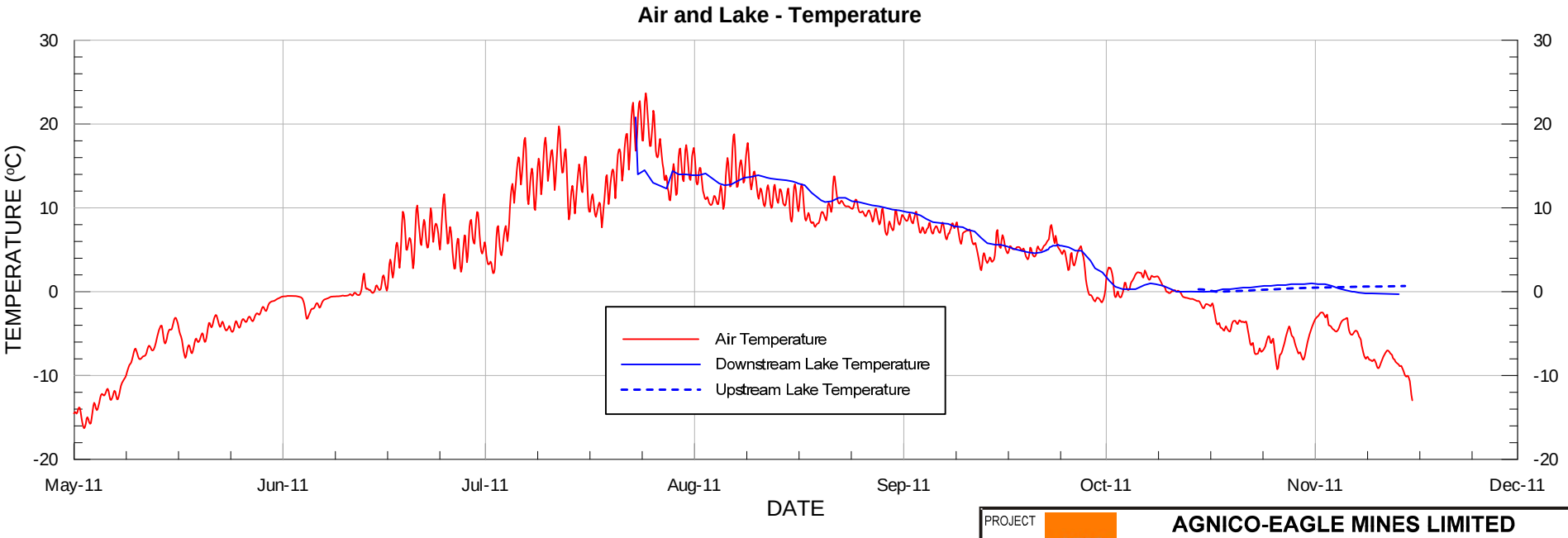
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/30+276.5-piezometric data.grf











NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

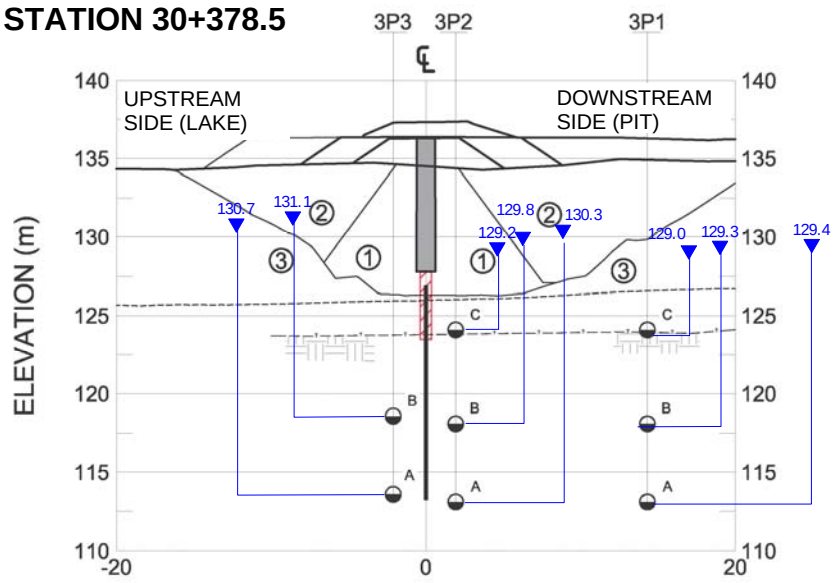
BAY-GOOSE DIKE - SECTION 30+276.5 PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.	
CADD	GG	15AUG11	**FIGURE 4B**		
CHECK					
REVIEW					

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/30+378.5-piezometric data.grf

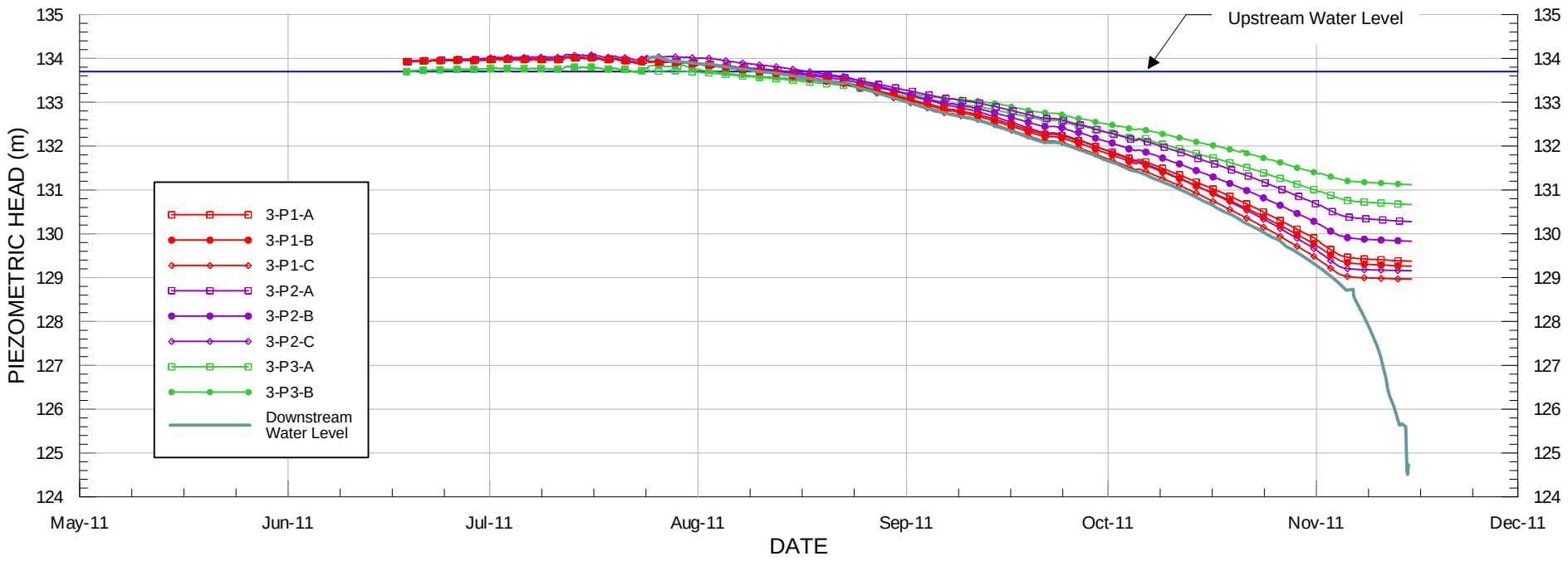
STATION 30+378.5



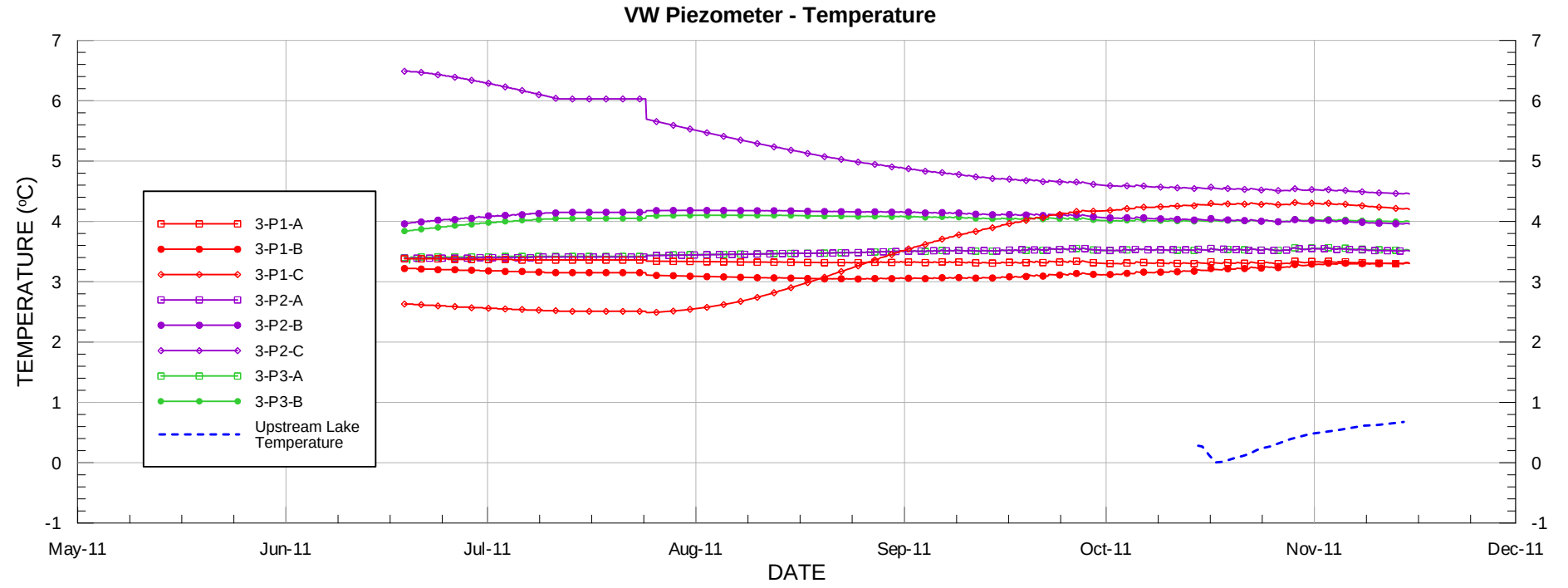
LEGEND

- CUTOFF (CSB)
- CUTOFF (SB)
- INITIAL ROCKFILL
- LAKEBED
- BEDROCK
- JET GROUT
- GROUT
- ① CORE BACKFILL (19 mm MINUS)
- ② COARSE BACKFILL (15mm MINUS)
- ③ ROCKFILL
- ④ FINE ROCKFILL
- 130.4 ▼ TOTAL HEAD (m) ON NOV. 15, 2011

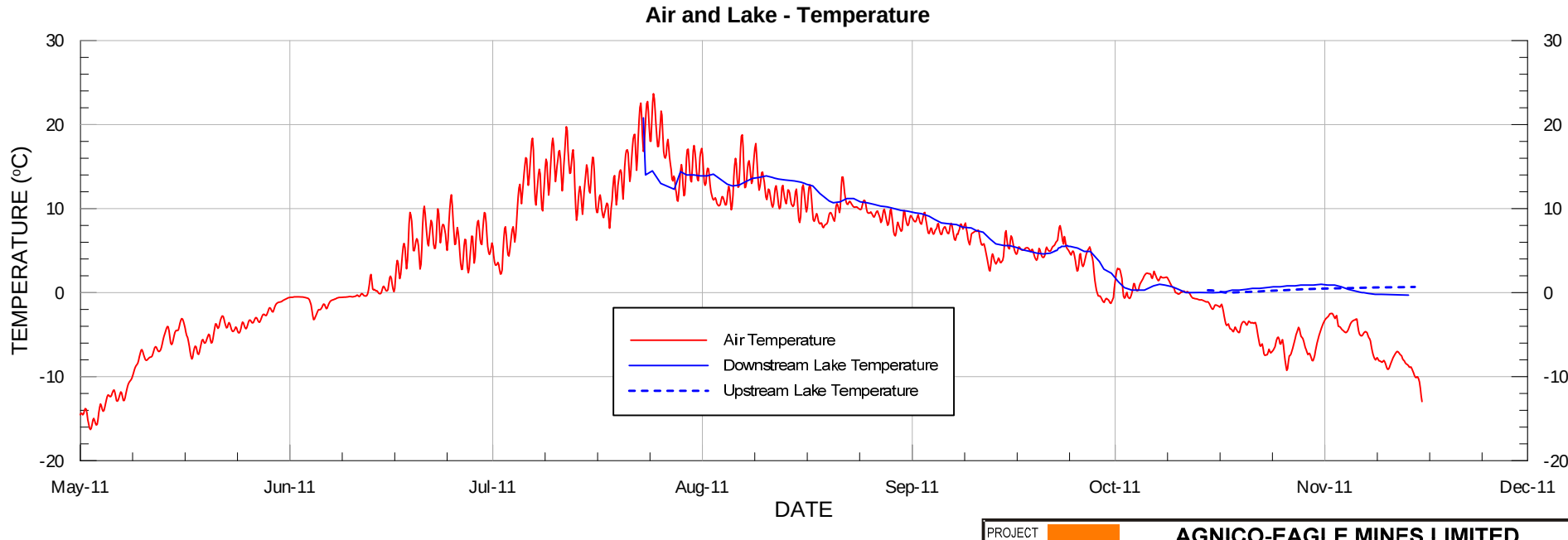
VW Piezometer - Total Head



VW Piezometer - Temperature



Air and Lake - Temperature



NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

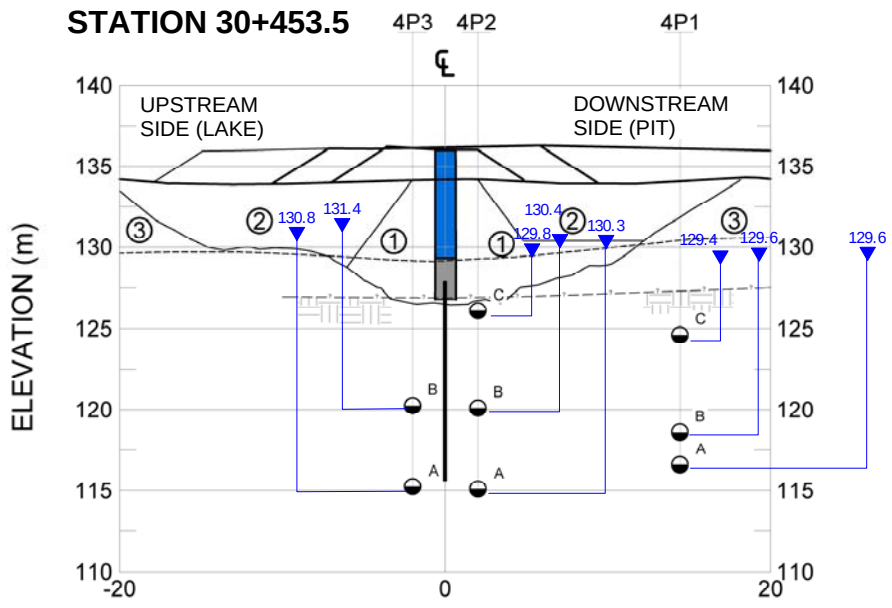
TITLE

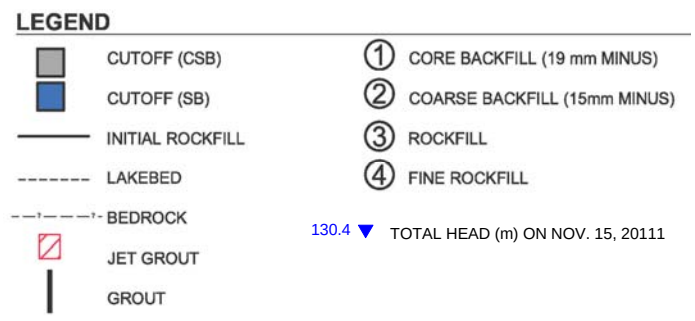
BAY-GOOSE DIKE - SECTION 30+378.5 PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

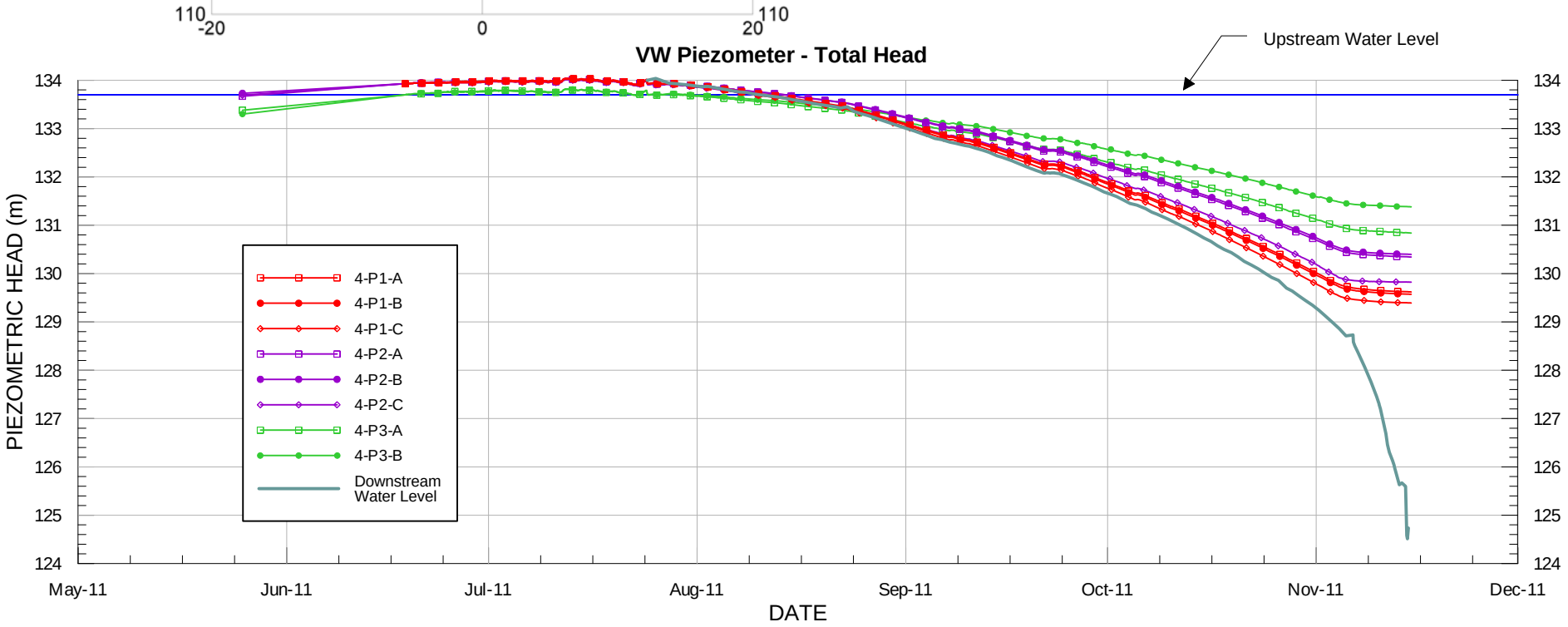
Golder Associates

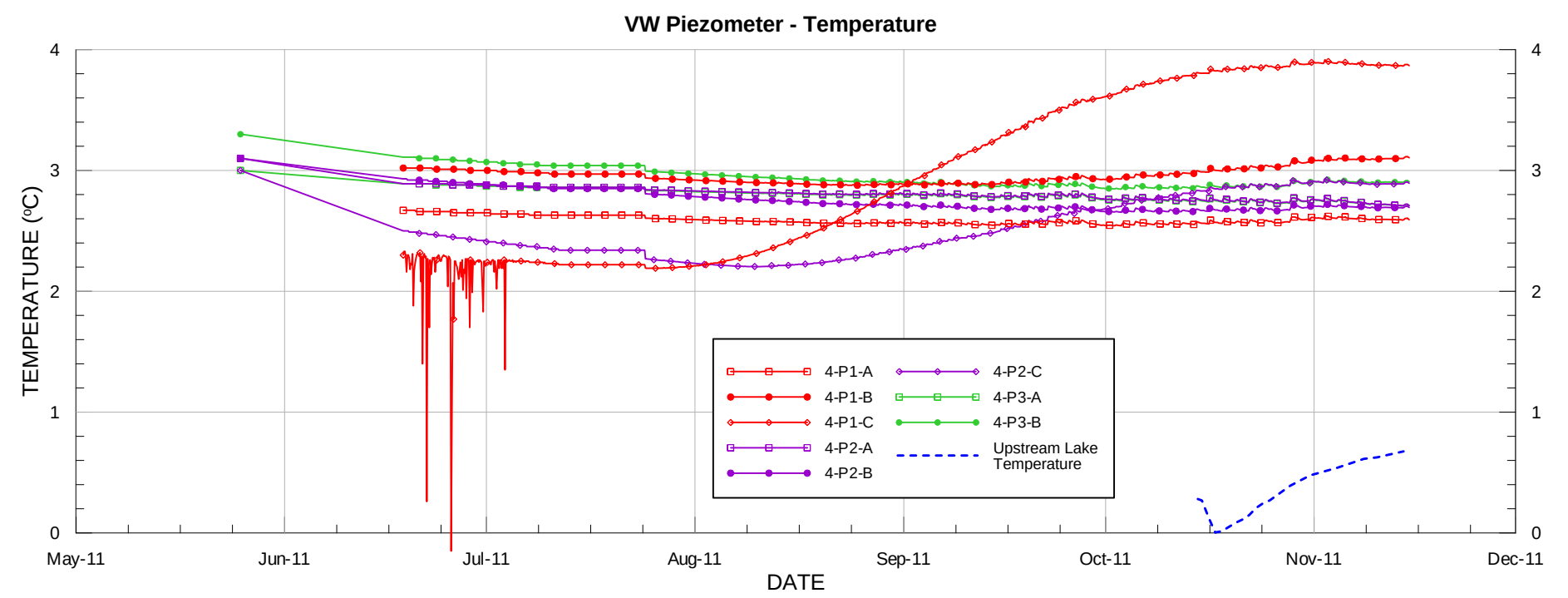
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			FIGURE 4C	
REVIEW				

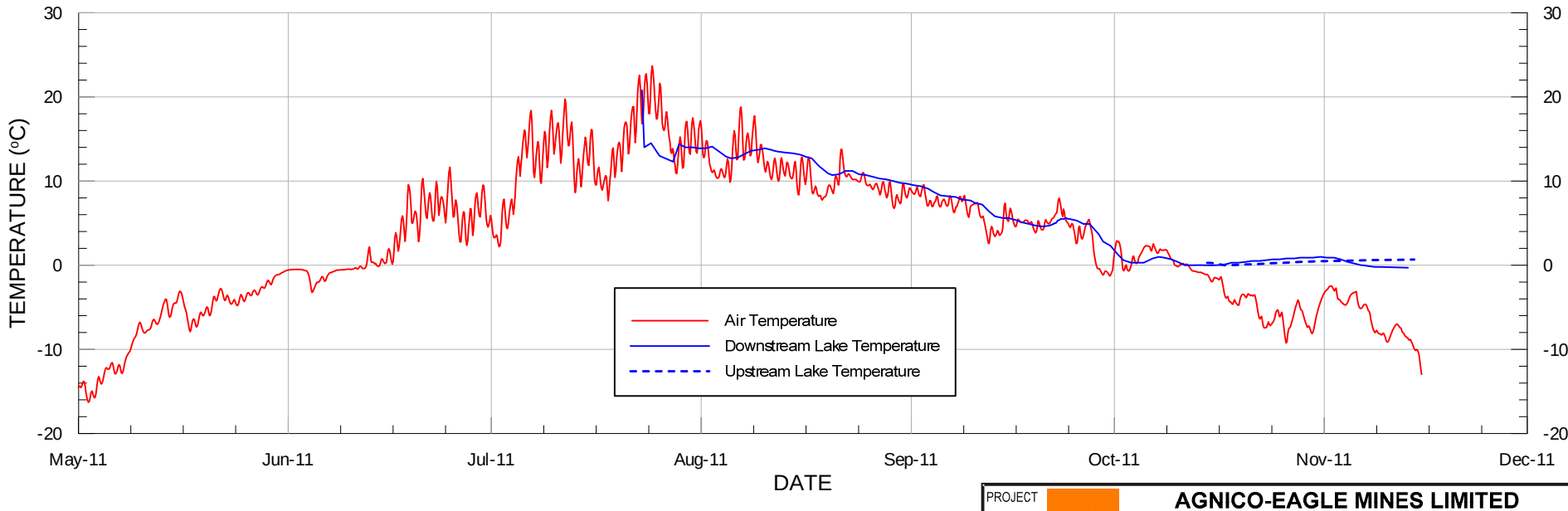
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/30+453.5-piezometric data.grf











NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

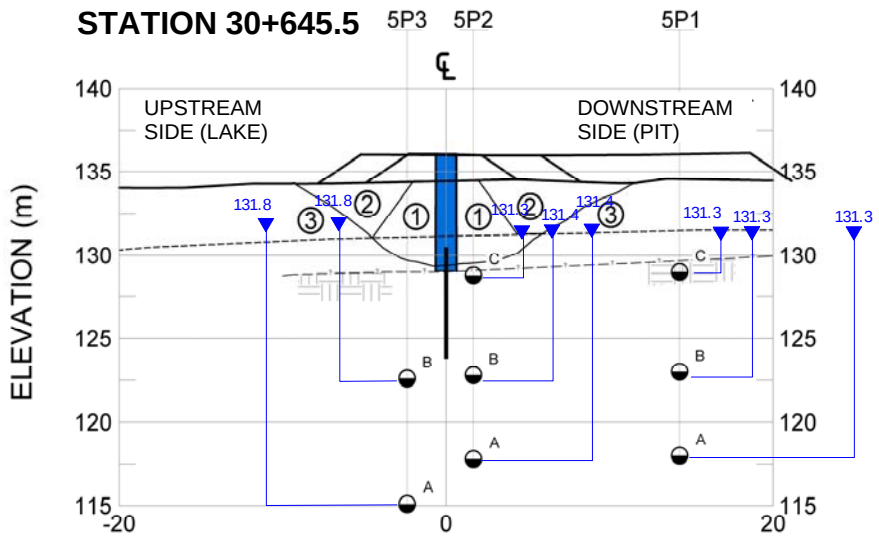
TITLE

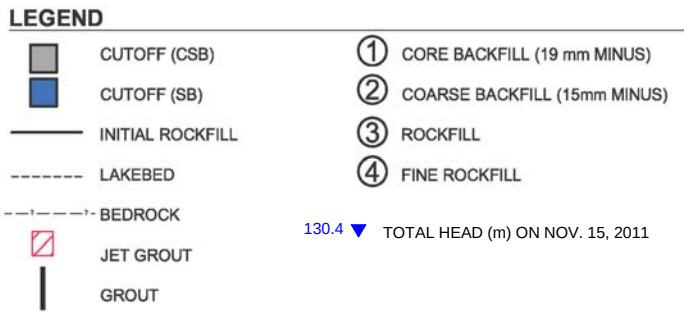
BAY-GOOSE DIKE - SECTION 30+453.5 PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

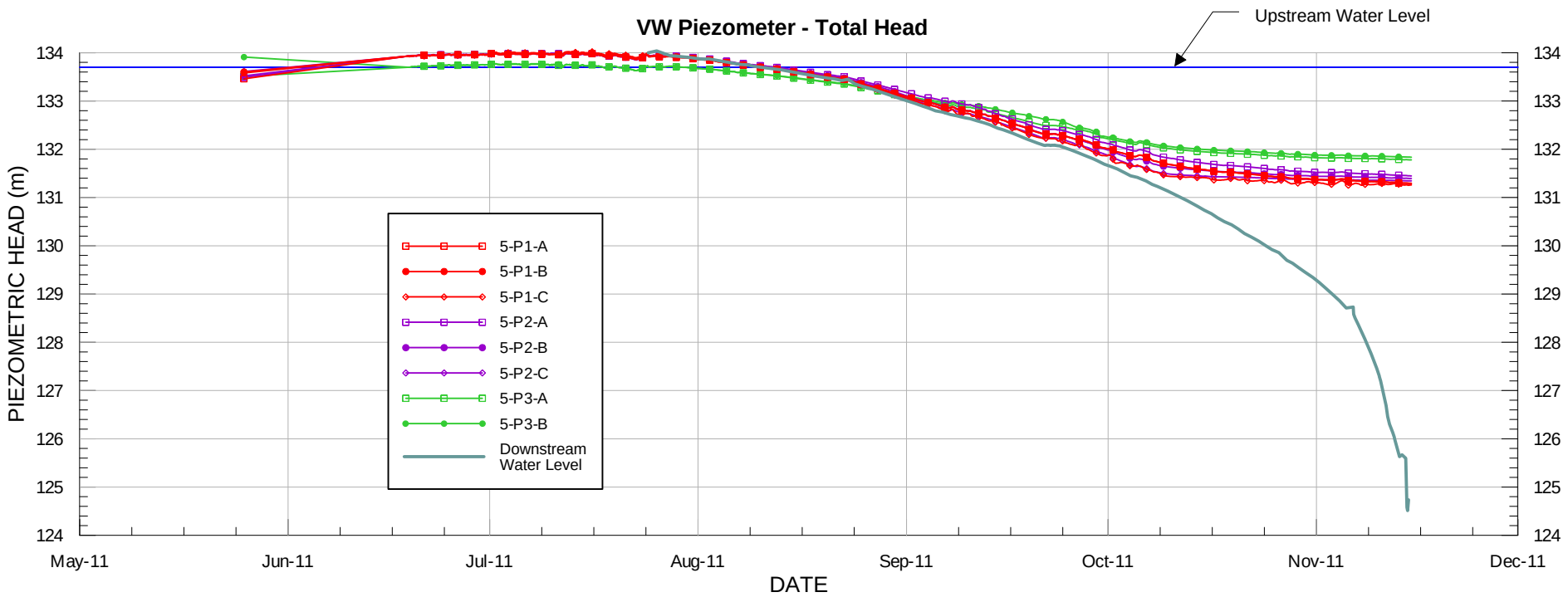
Golder Associates

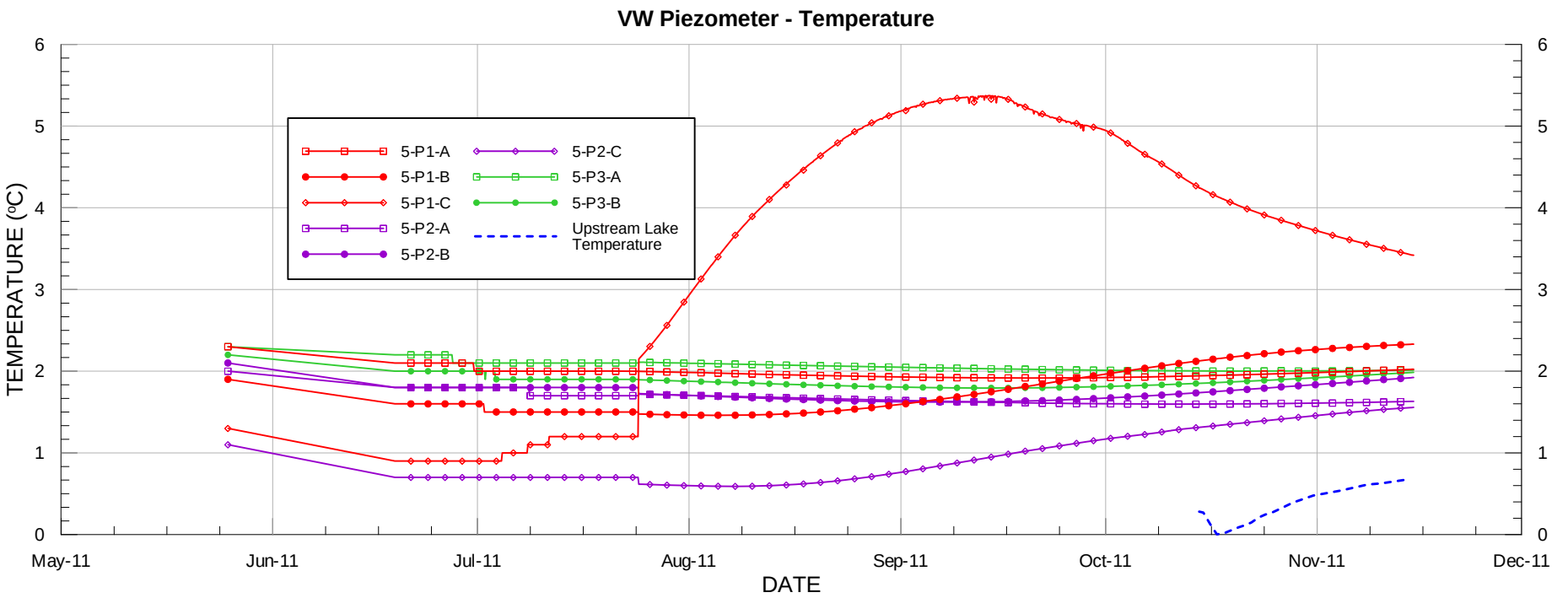
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			FIGURE 4D	
REVIEW				

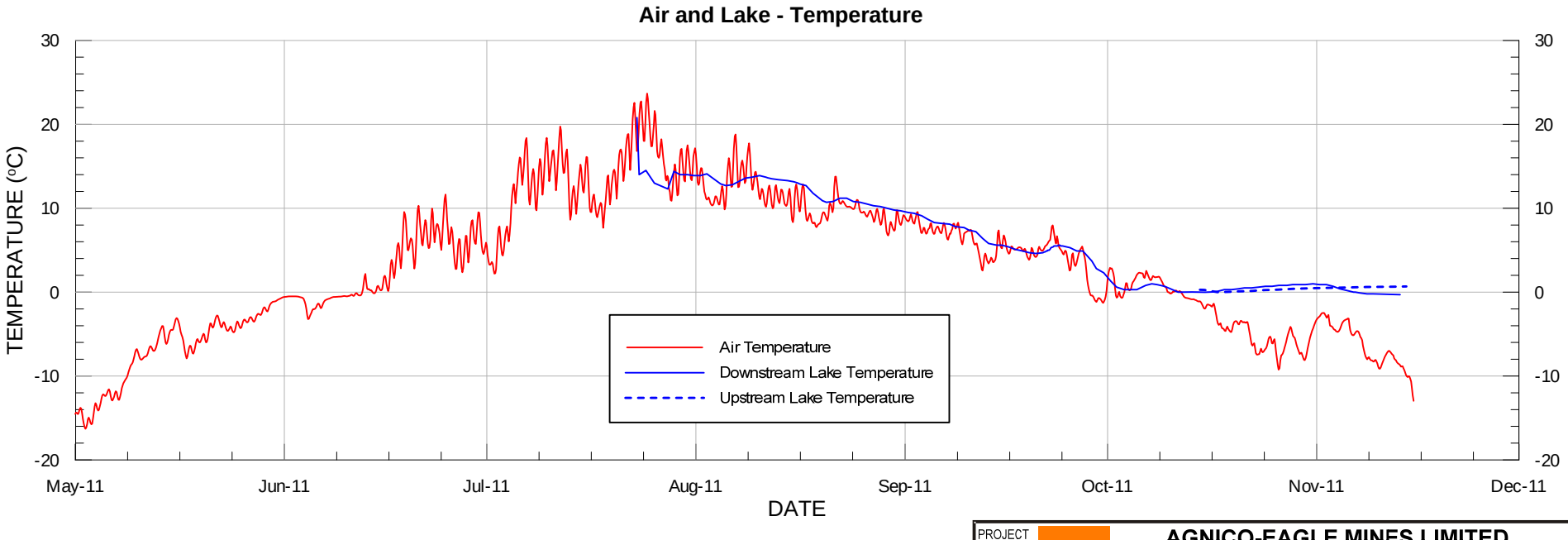
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/30+645.5-piezometric data.grf











NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

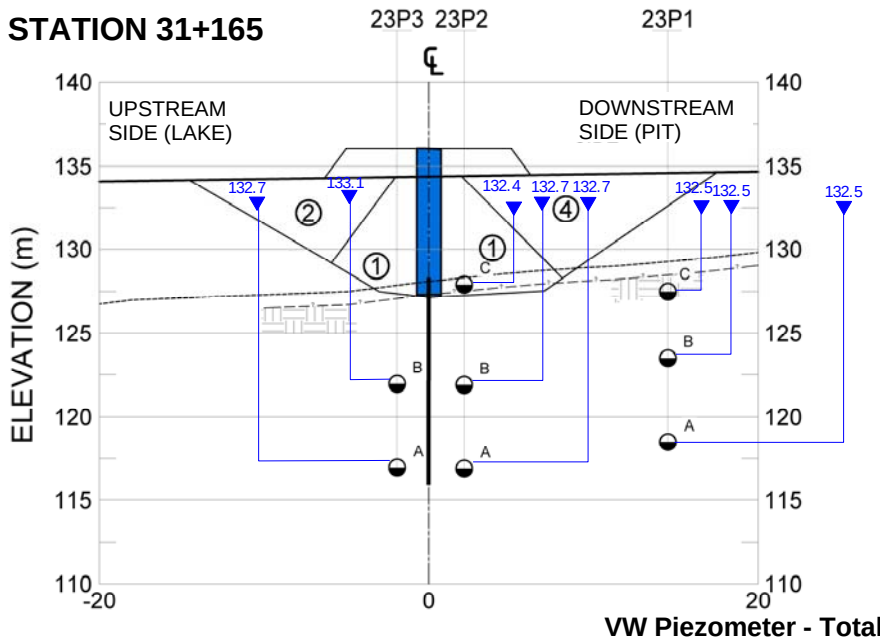
TITLE

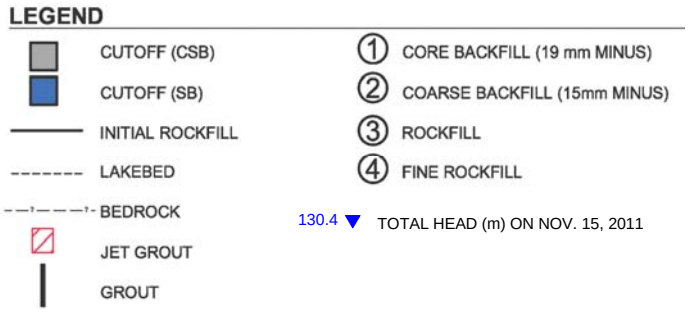
BAY-GOOSE DIKE - SECTION 30+645.5 PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

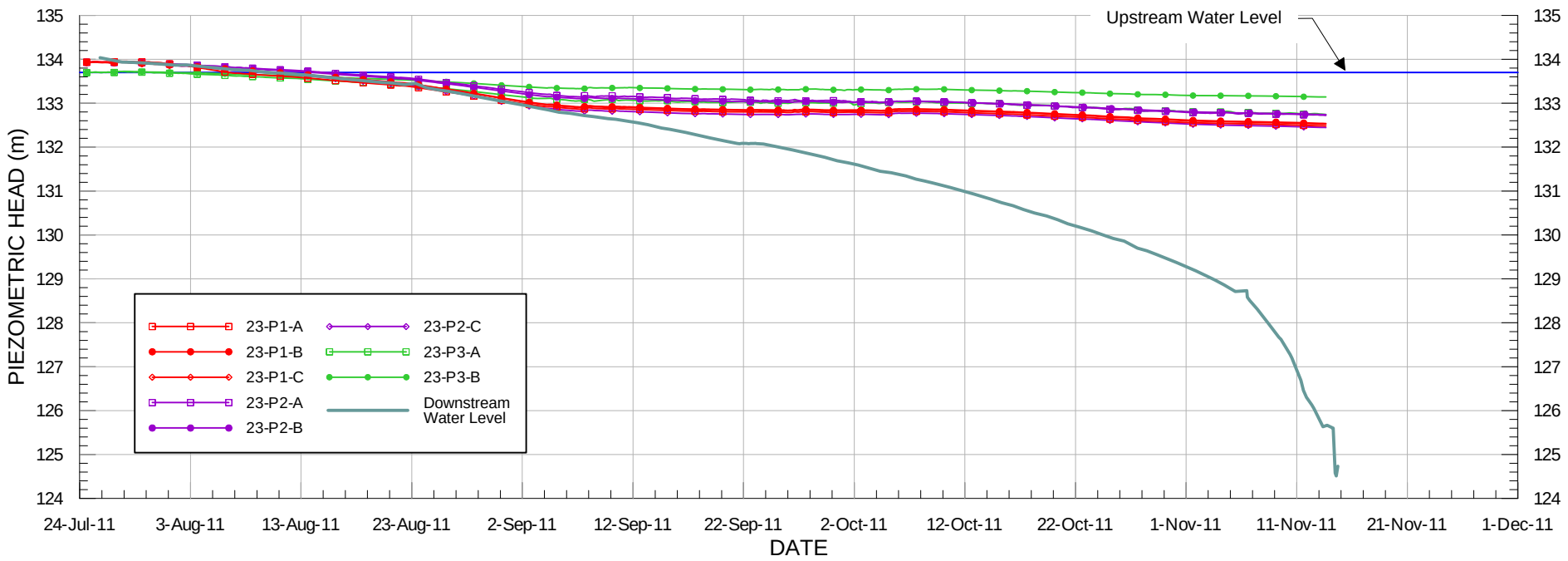
Golder Associates

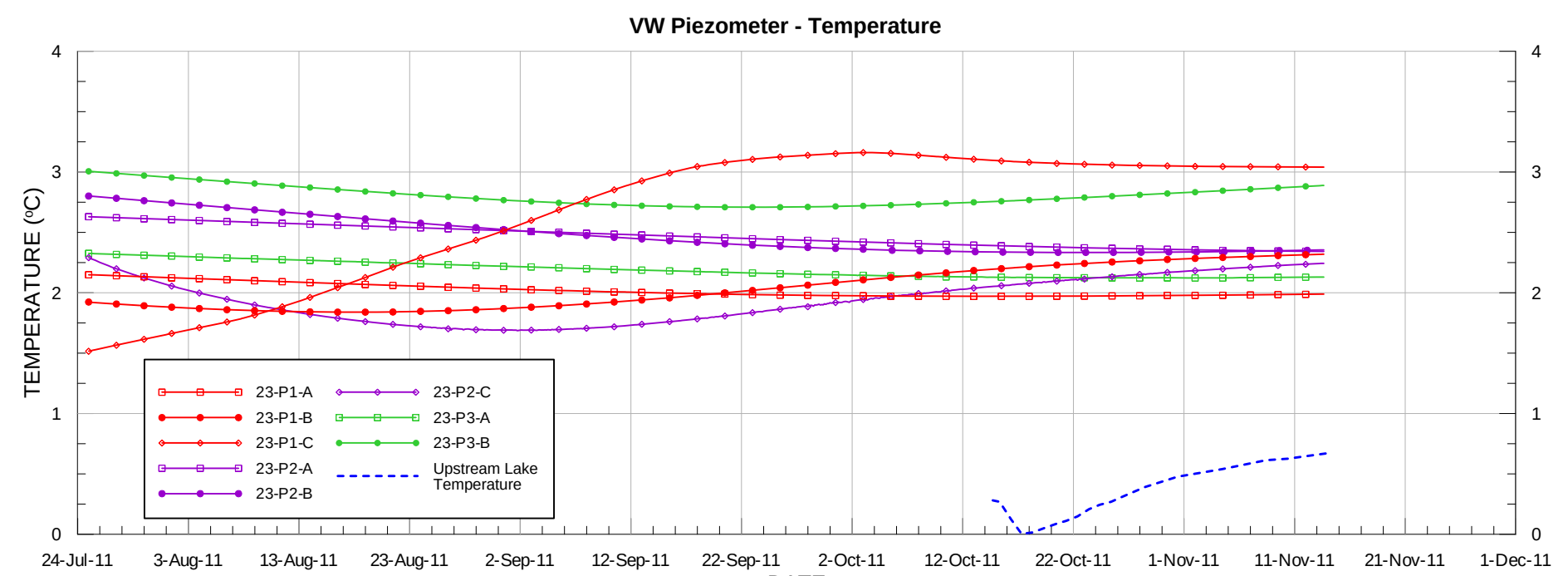
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.	
CADD	GG	15AUG11	**FIGURE 4E**		
CHECK					
REVIEW					

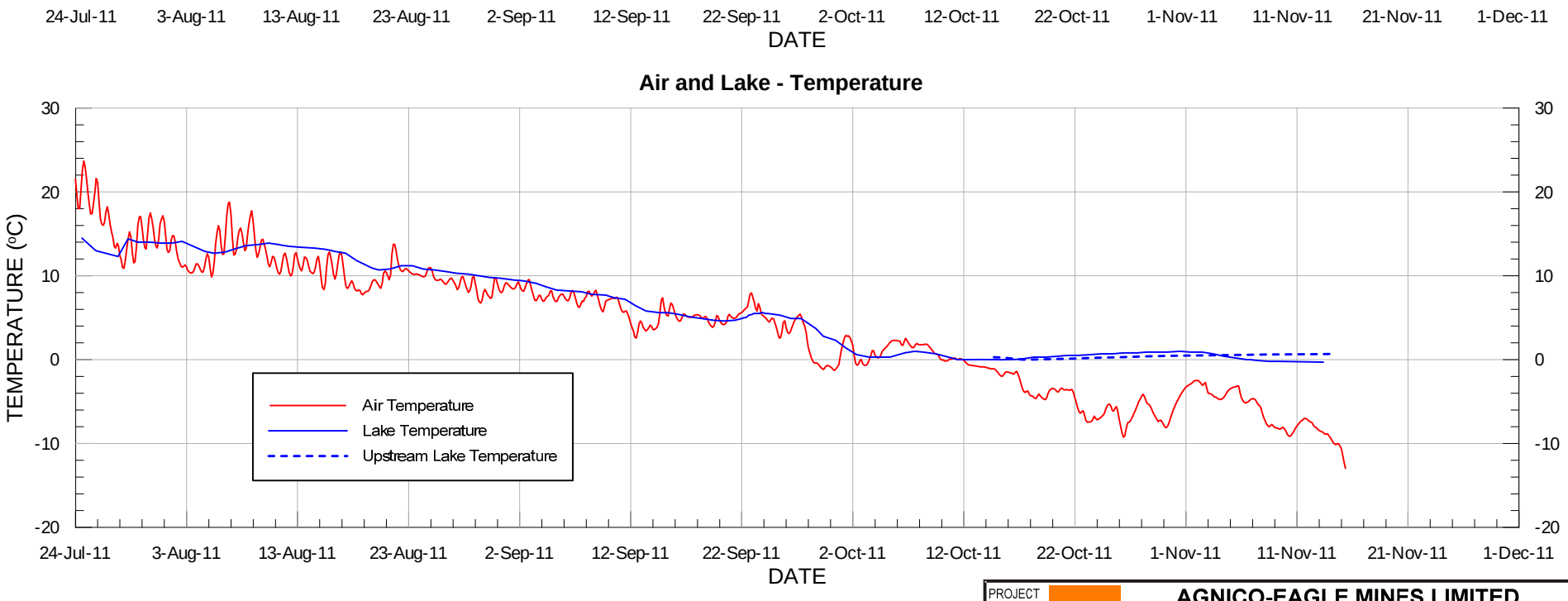
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/31+165-piezometric data.grf











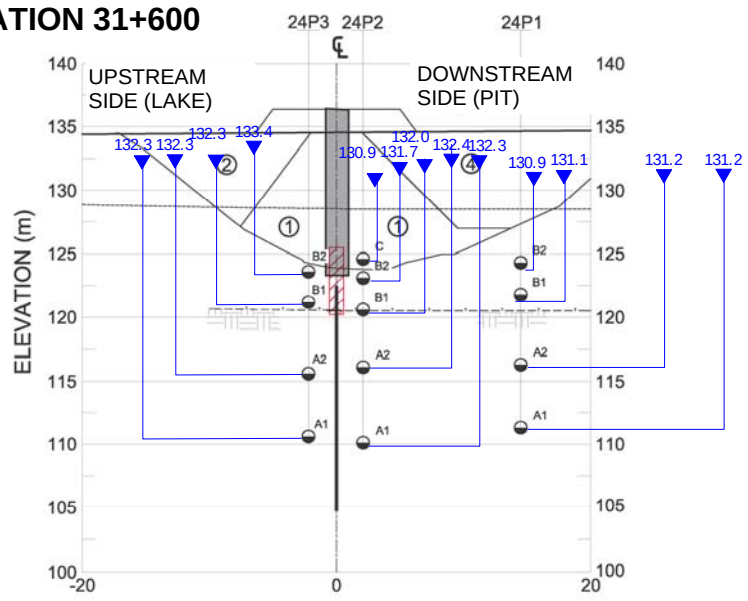
PROJECT	AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT NUNAVUT
TITLE	BAY-GOOSE DIKE - SECTION 31+165 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

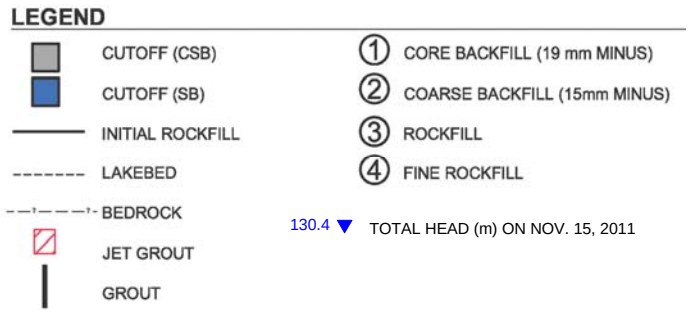
Golder Associates

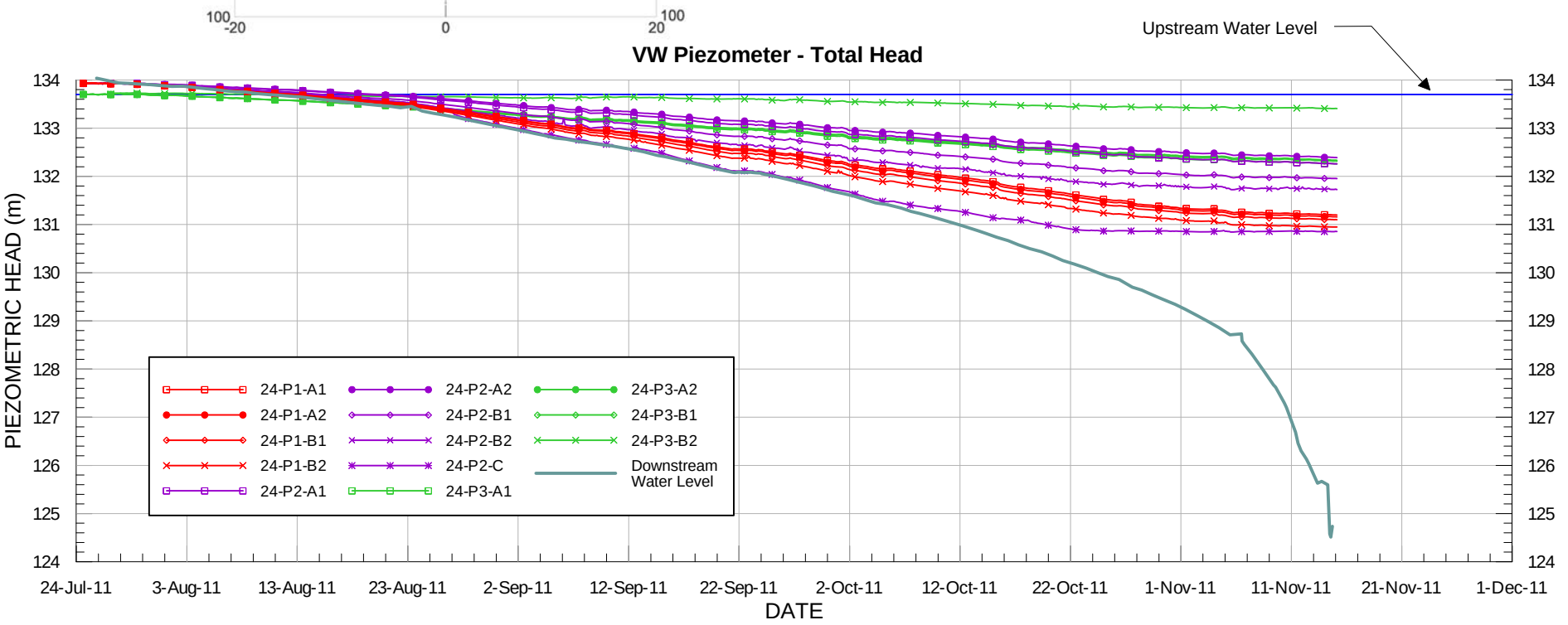
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11	FIGURE 4F	
CHECK				
REVIEW				

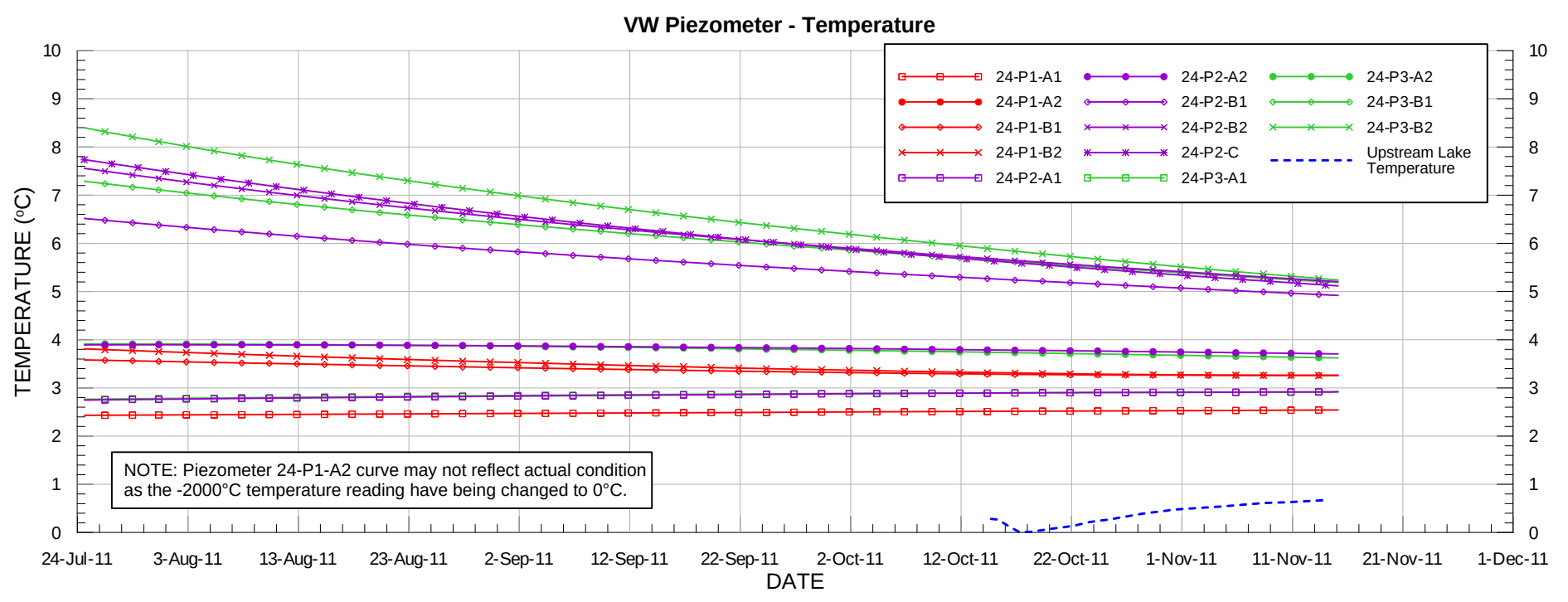
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/31+600-piezometric data.grf

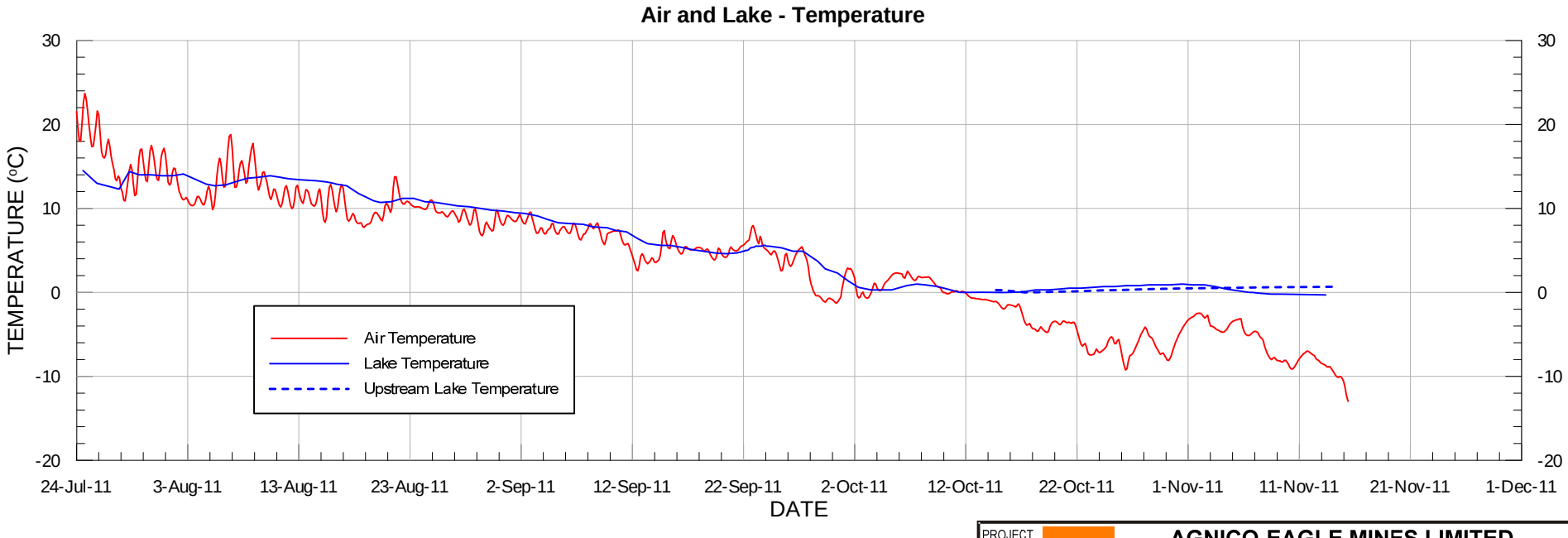
STATION 31+600











PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

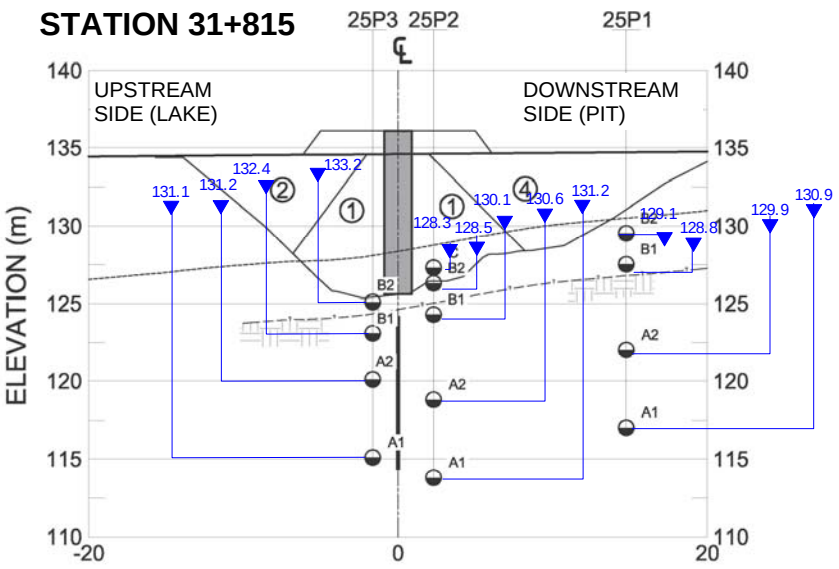
TITLE

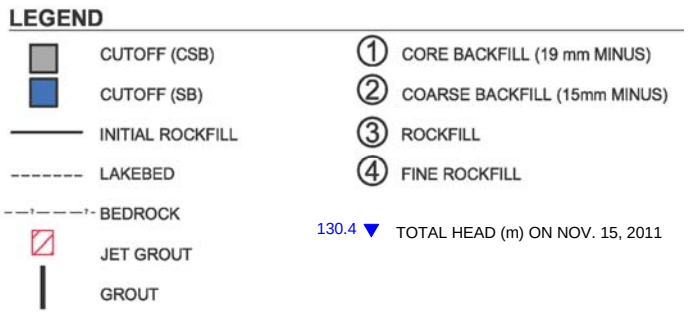
BAY-GOOSE DIKE - SECTION 31+600 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

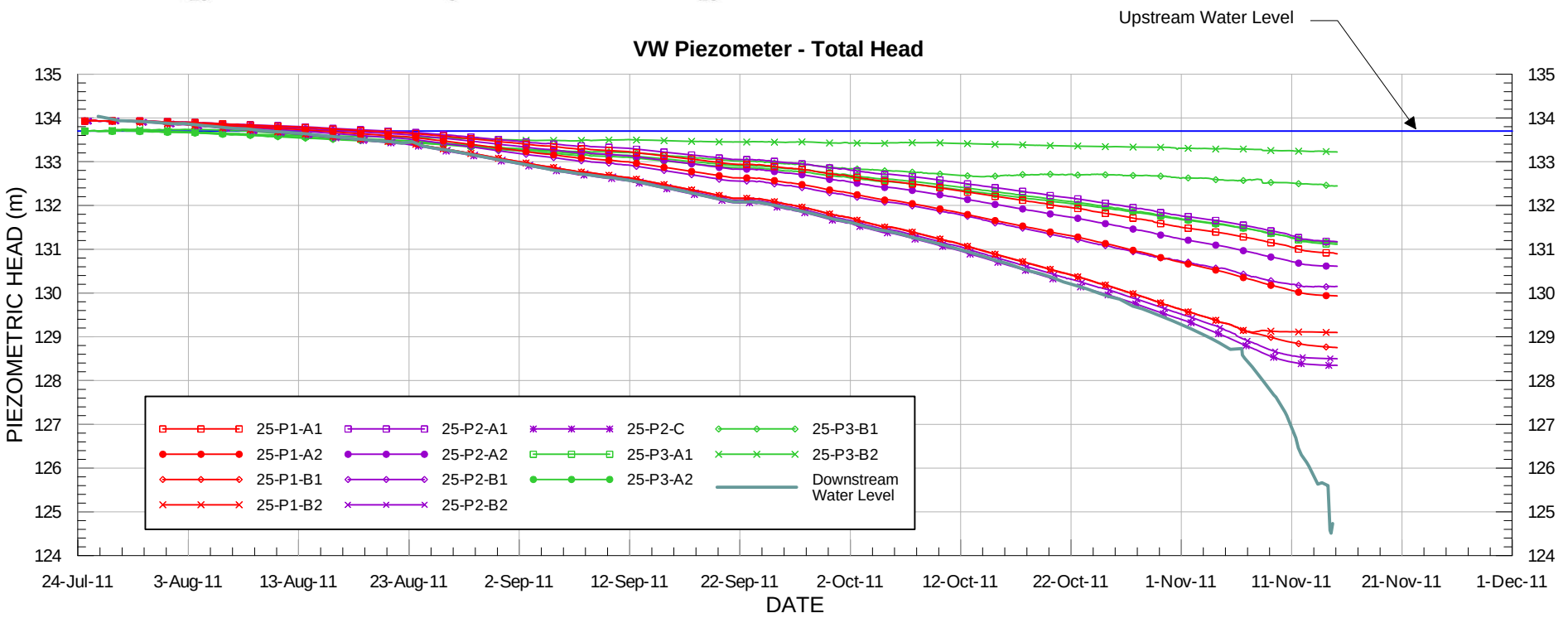
Golder Associates

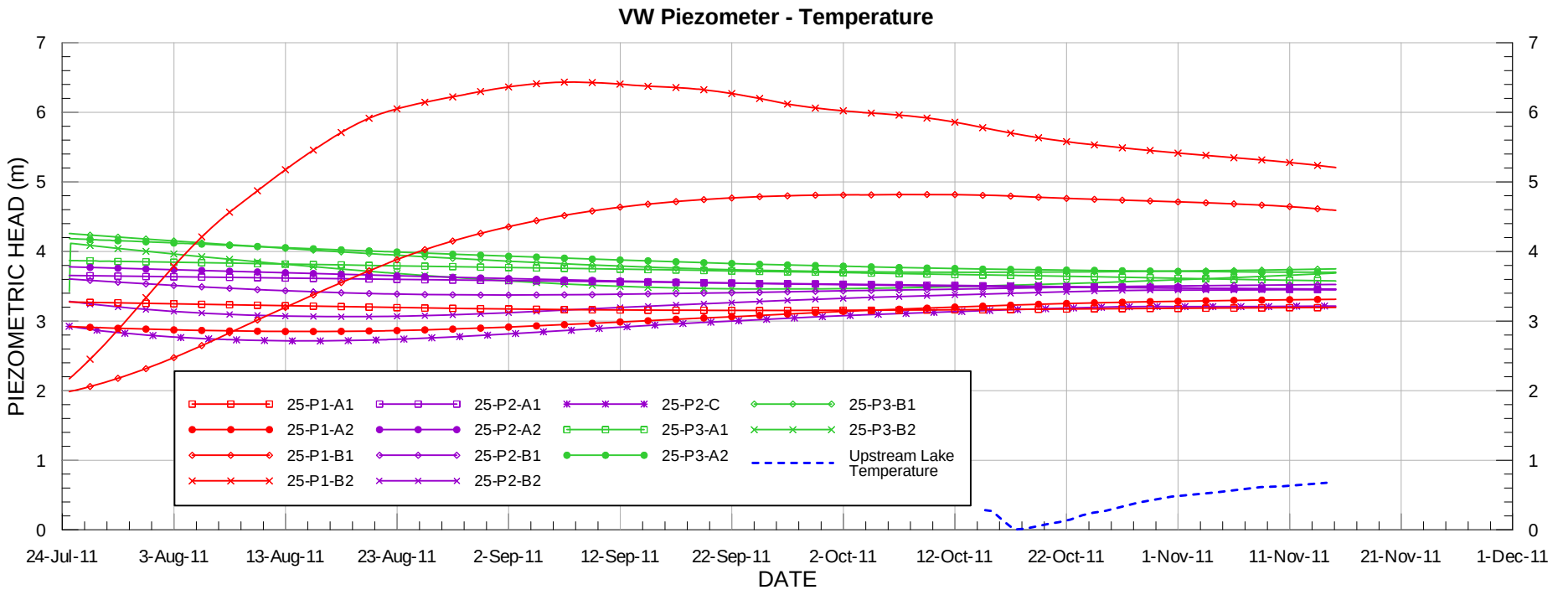
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			**FIGURE 4G**	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/31+815-piezometric data.grf









PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

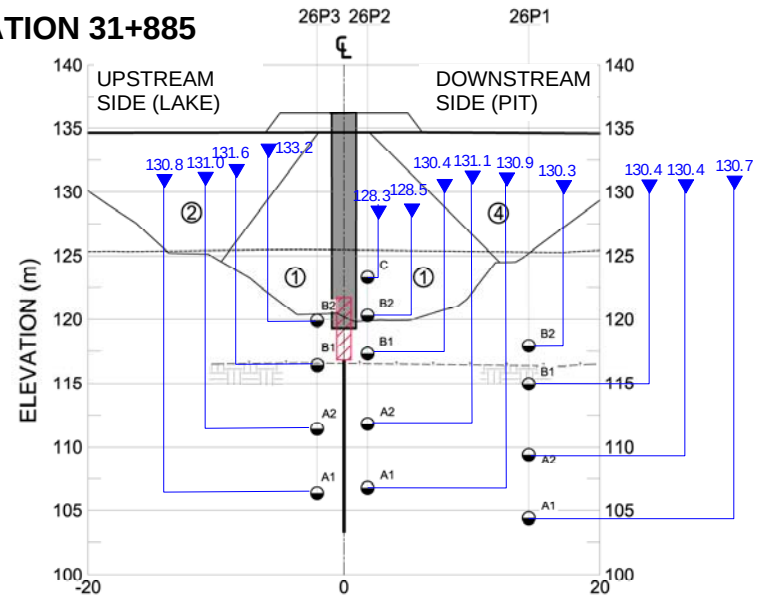
BAY-GOOSE DIKE - SECTION 31+815 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			**FIGURE 4H**	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/31+885-piezometric data.grf

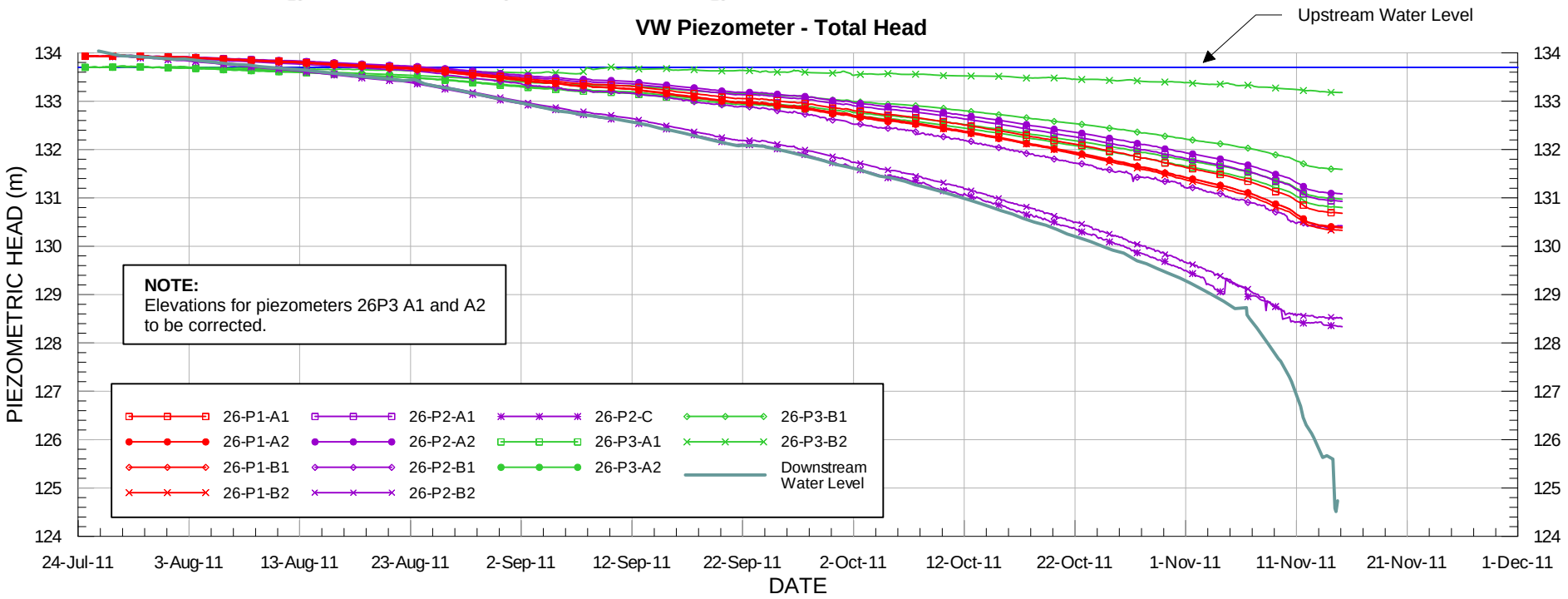
STATION 31+885



LEGEND

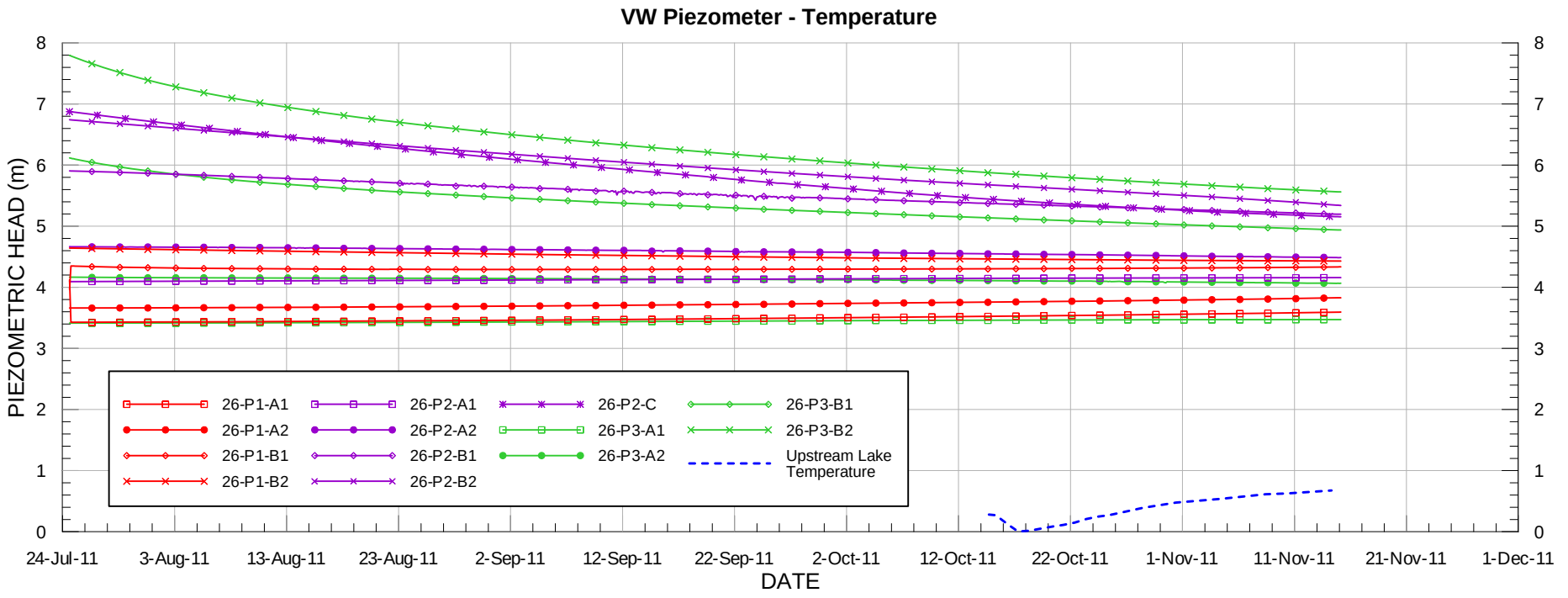
- CUTOFF (CSB)
- CUTOFF (SB)
- INITIAL ROCKFILL
- LAKEBED
- BEDROCK
- JET GROUT
- GROUT
- ① CORE BACKFILL (19 mm MINUS)
- ② COARSE BACKFILL (15mm MINUS)
- ③ ROCKFILL
- ④ FINE ROCKFILL
- 130.4 ▼ TOTAL HEAD (m) ON NOV. 15, 2011

VW Piezometer - Total Head



NOTE:
Elevations for piezometers 26P3 A1 and A2 to be corrected.

VW Piezometer - Temperature



Air and Lake - Temperature

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

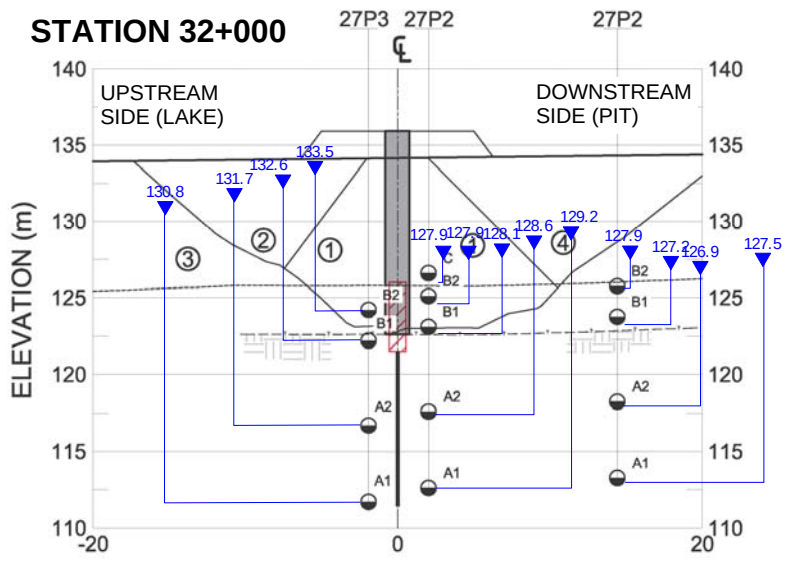
TITLE

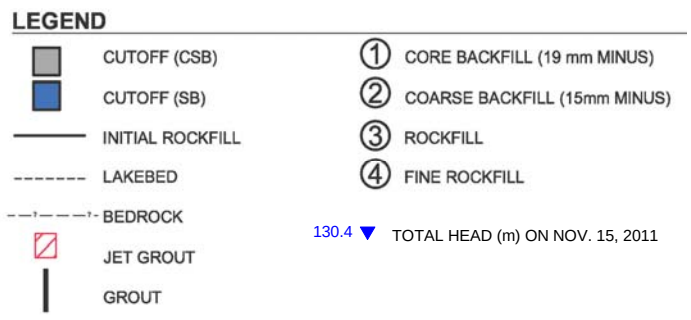
BAY-GOOSE DIKE - SECTION 31+885
PIEZOMETRIC DATA
(JUL. 2011 TO NOV. 15, 2011)

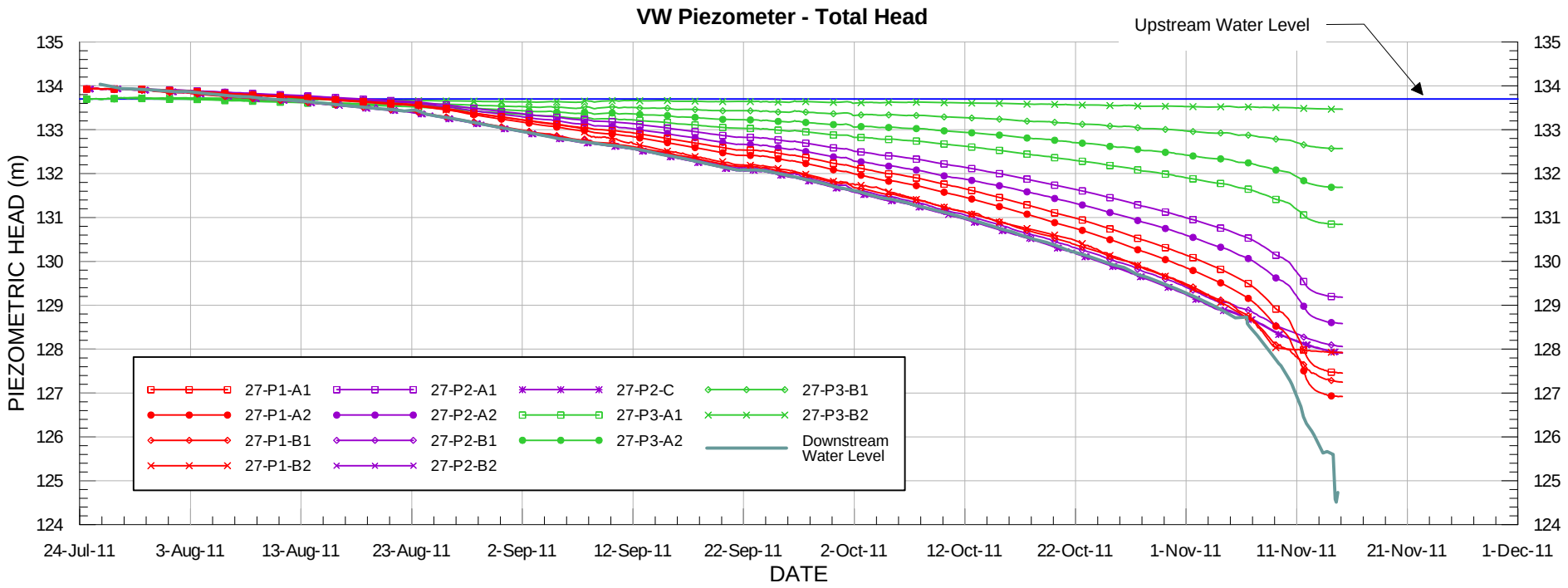
Golder Associates

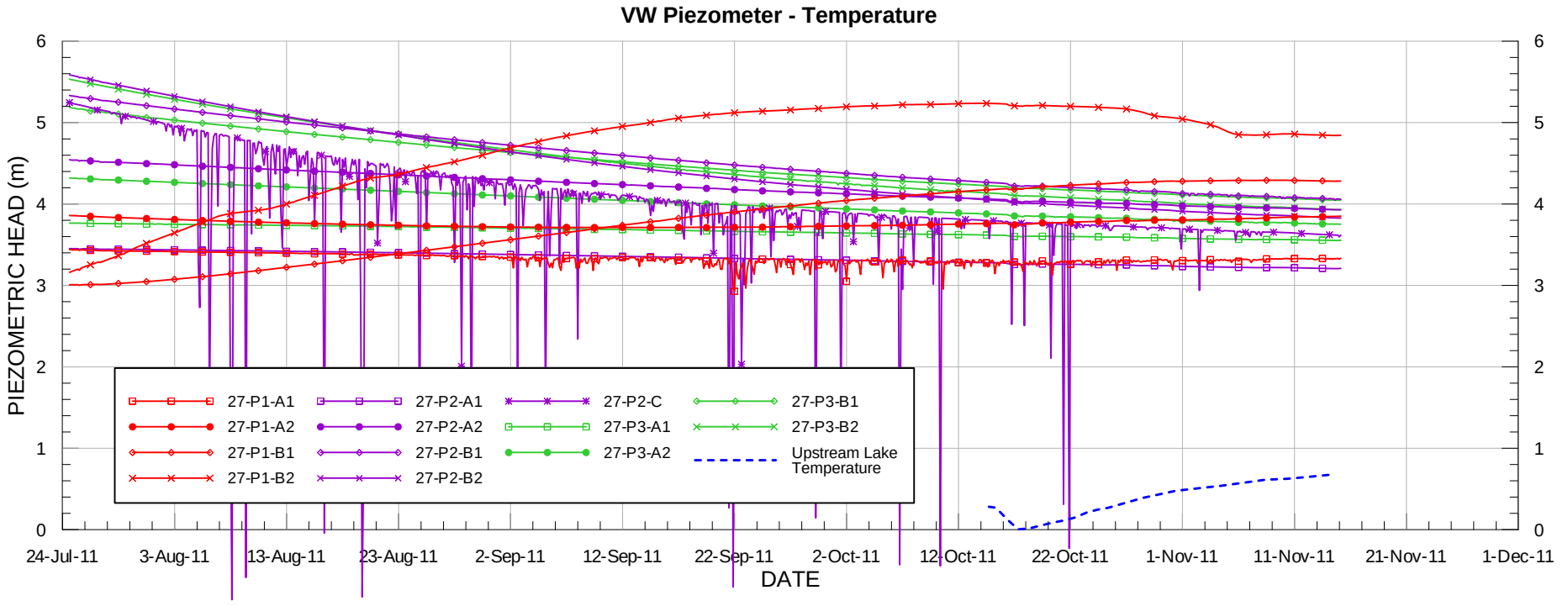
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			**FIGURE 4I**	
REVIEW				

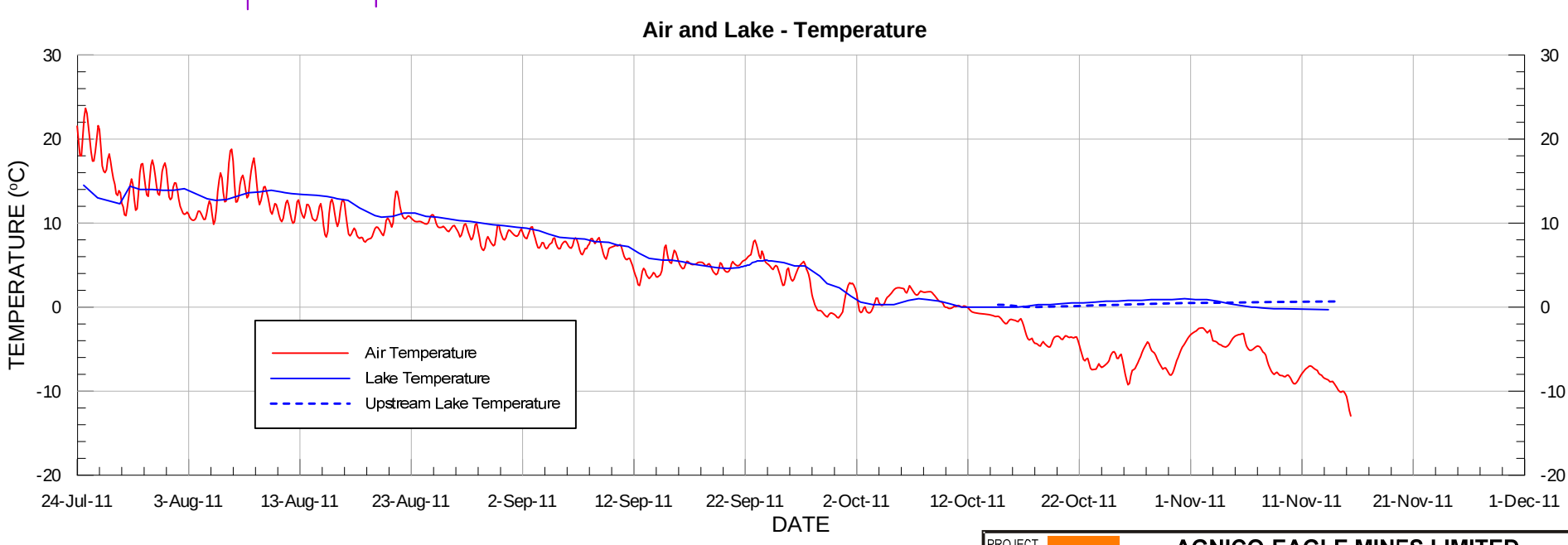
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/32+000-piezometric data.grf











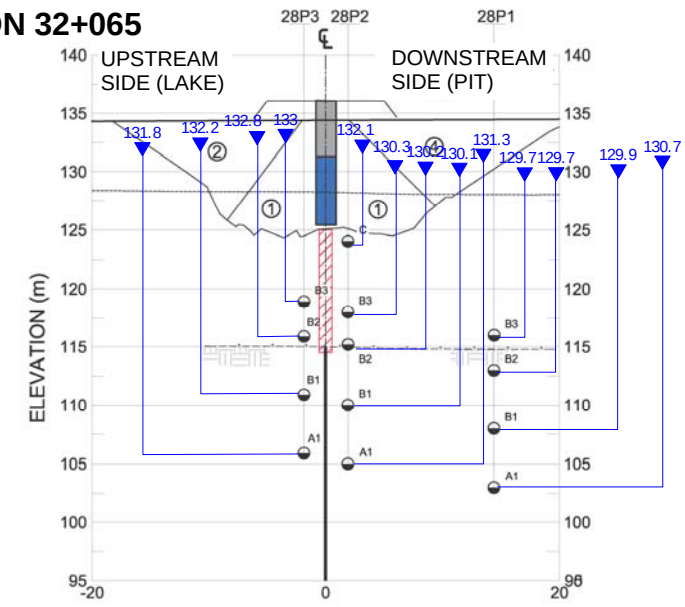
PROJECT	AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT NUNAVUT
TITLE	BAY-GOOSE DIKE - SECTION 32+000 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

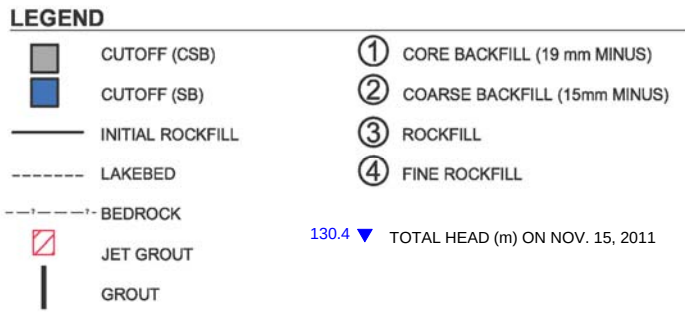
Golder Associates

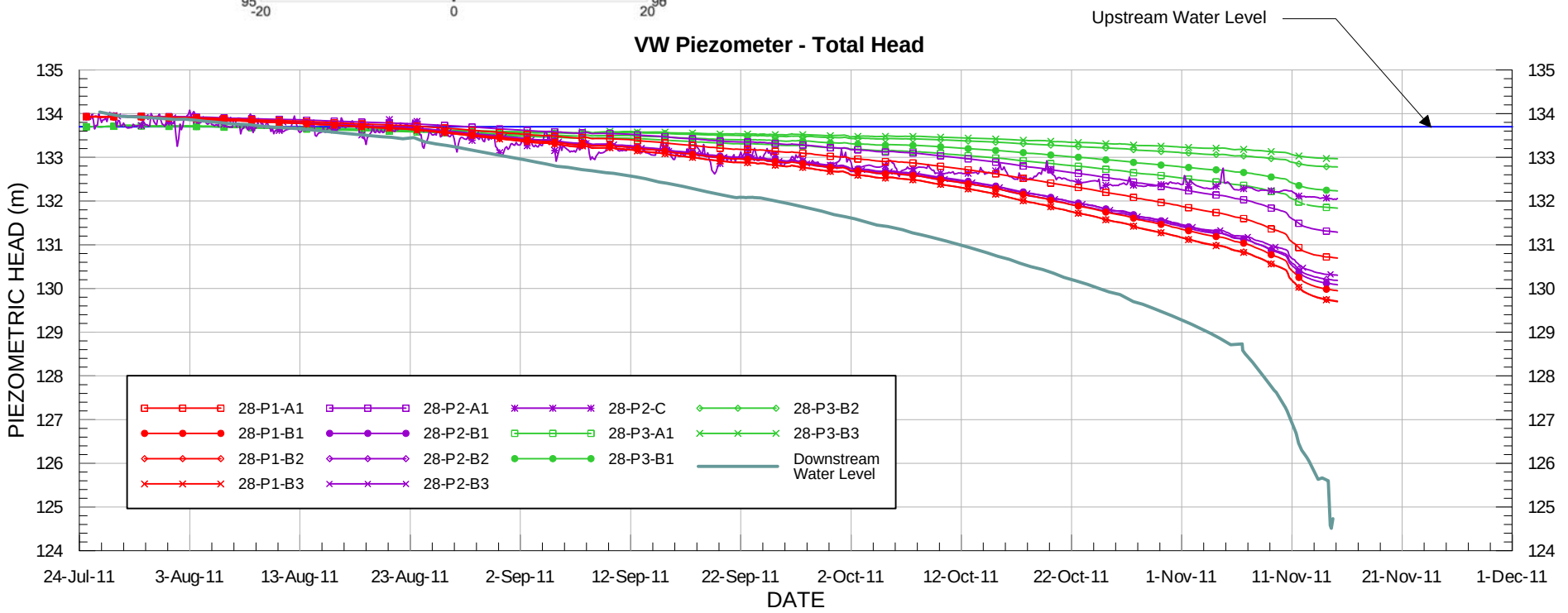
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11	FIGURE 4J	
CHECK				
REVIEW				

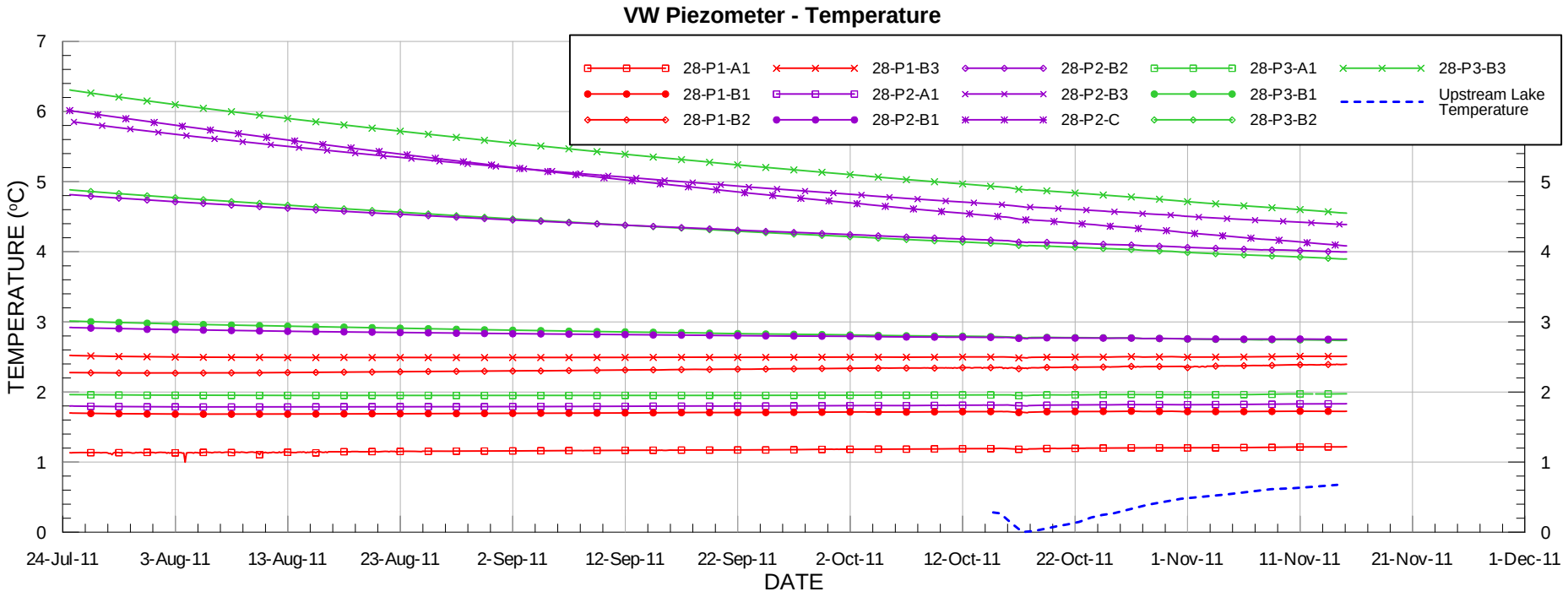
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/32+065-piezometric data.grf

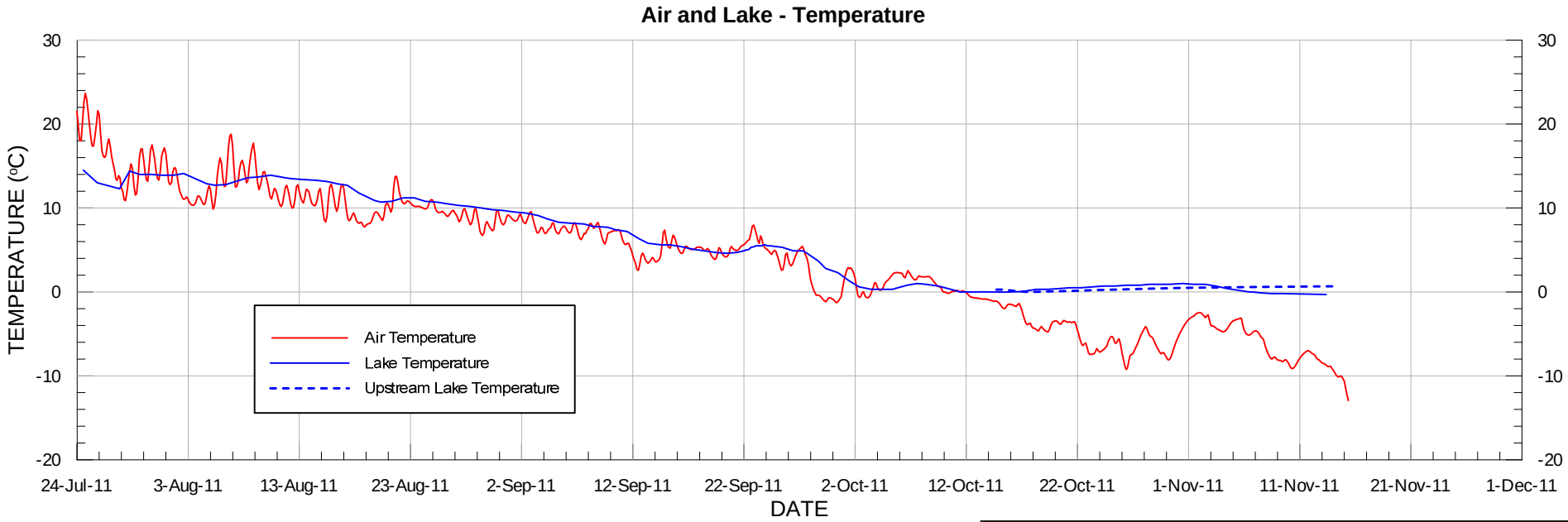
STATION 32+065











PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

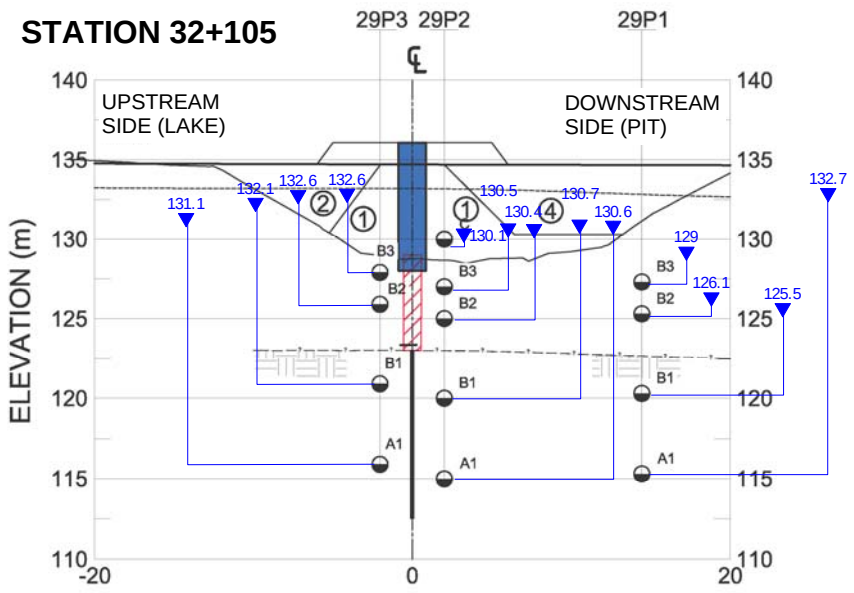
TITLE

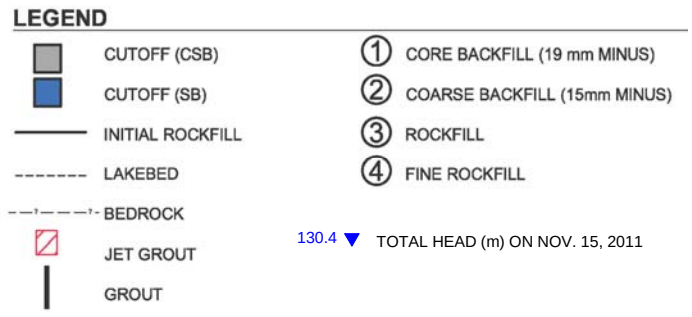
BAY-GOOSE DIKE - SECTION 32+065 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

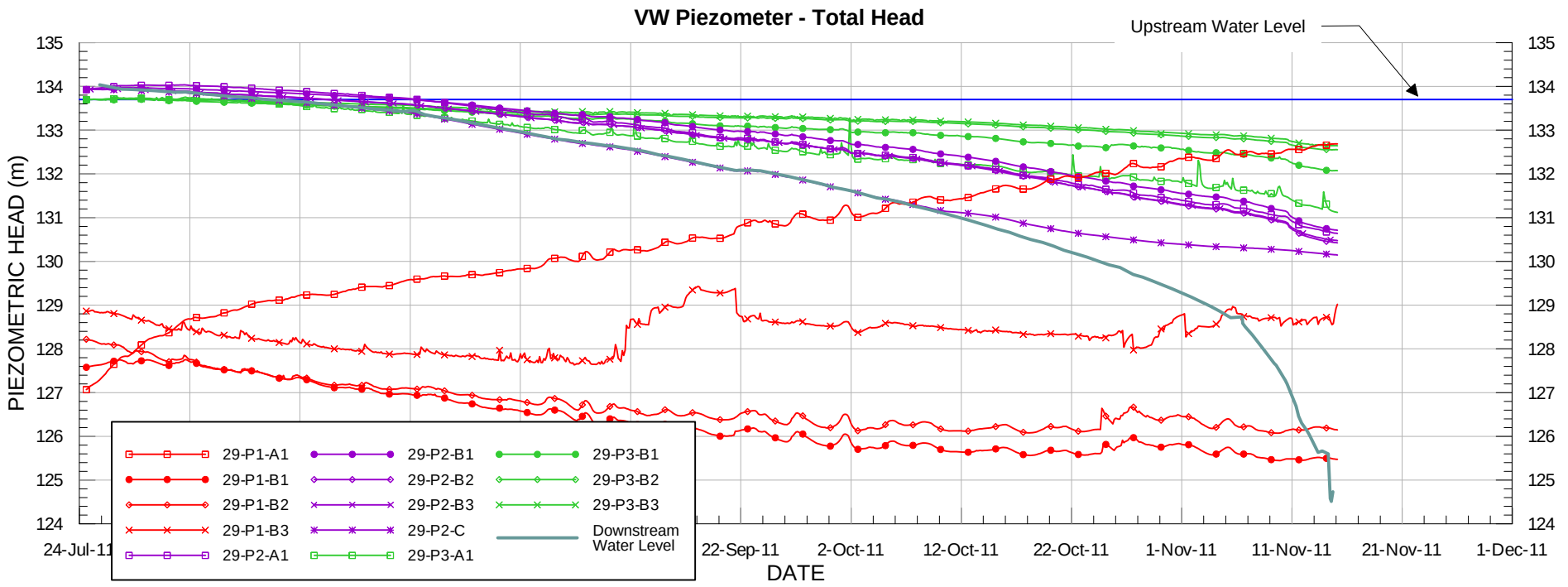
Golder Associates

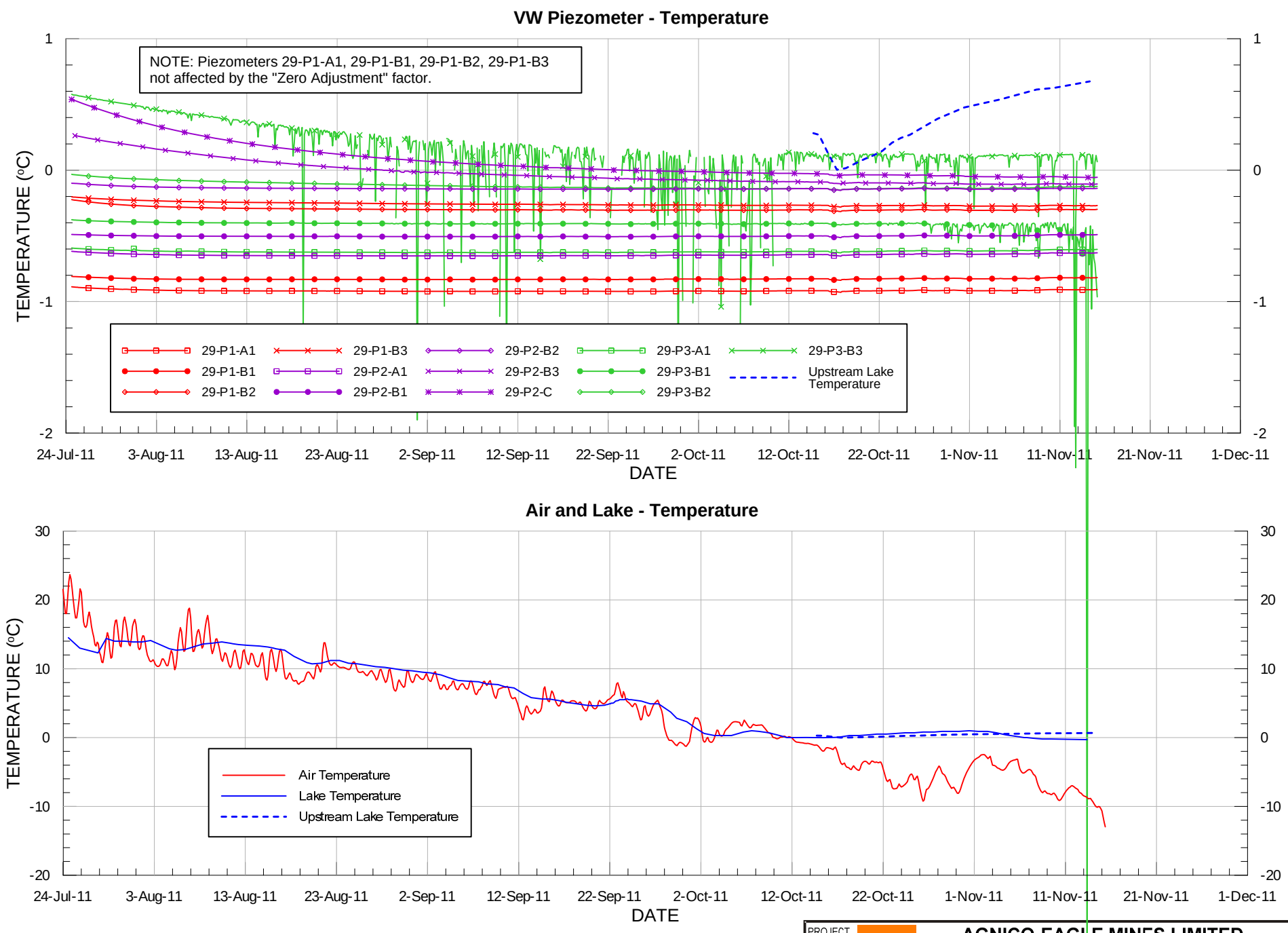
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			FIGURE 4K	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/32+105-piezometric data.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

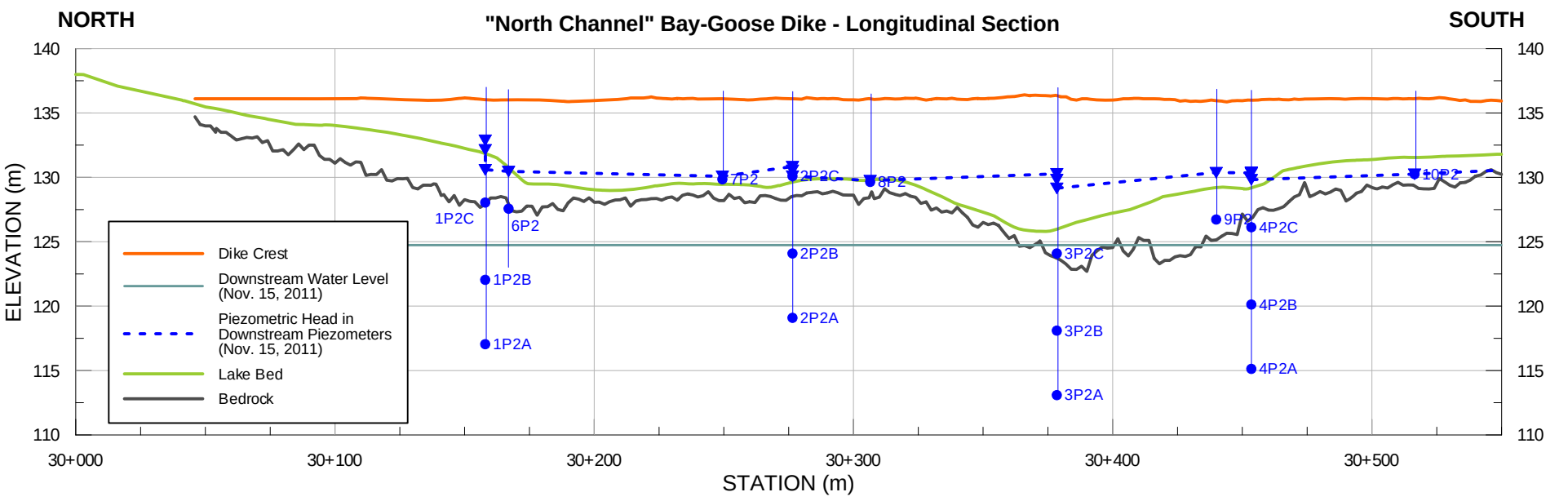
TITLE

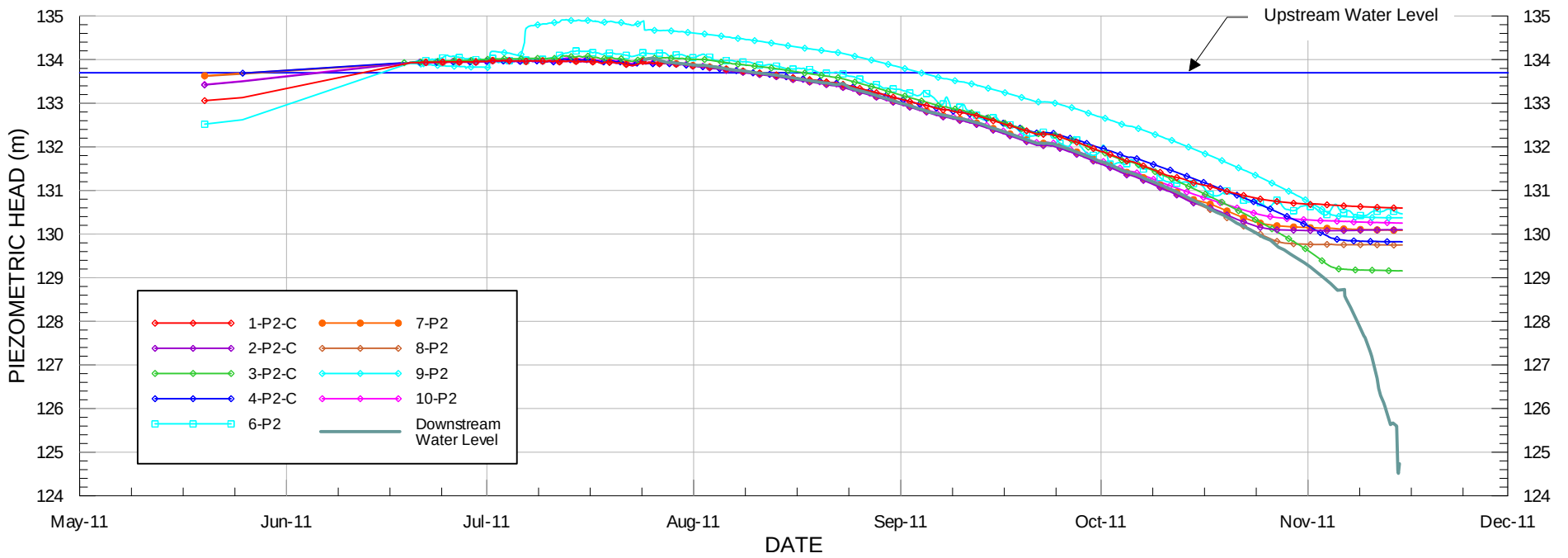
BAY-GOOSE DIKE - SECTION 32+105 PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

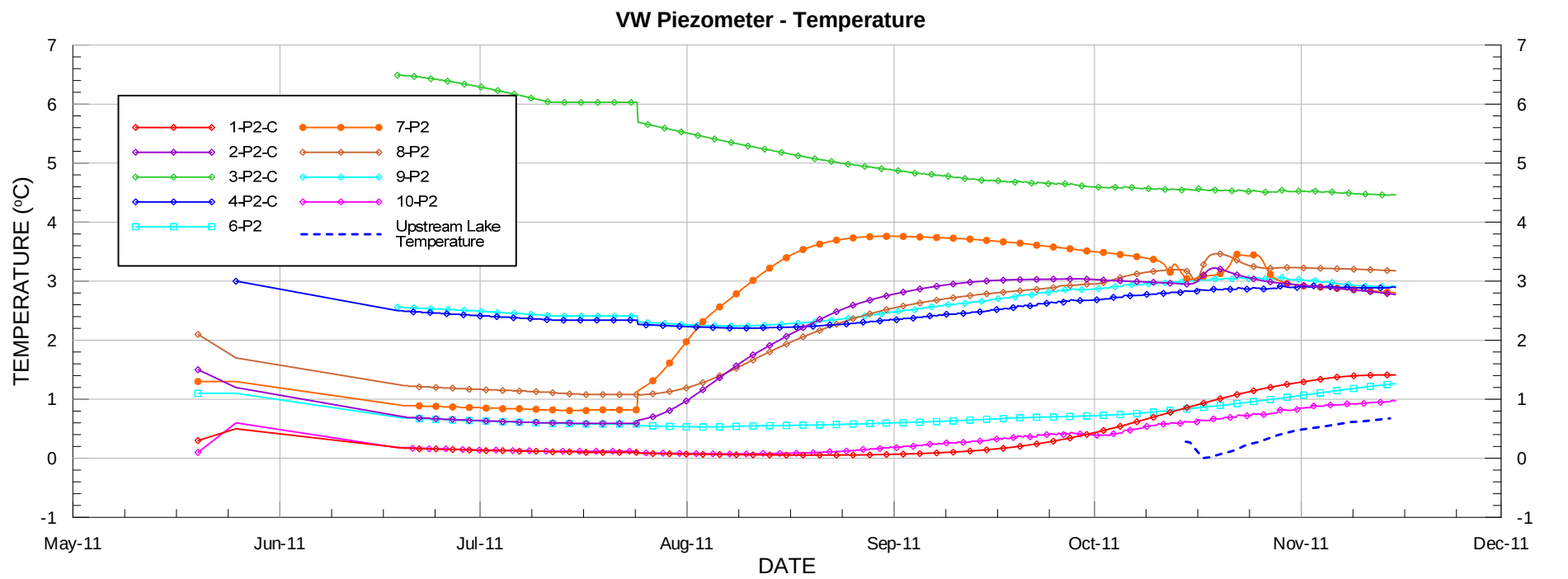
Golder Associates

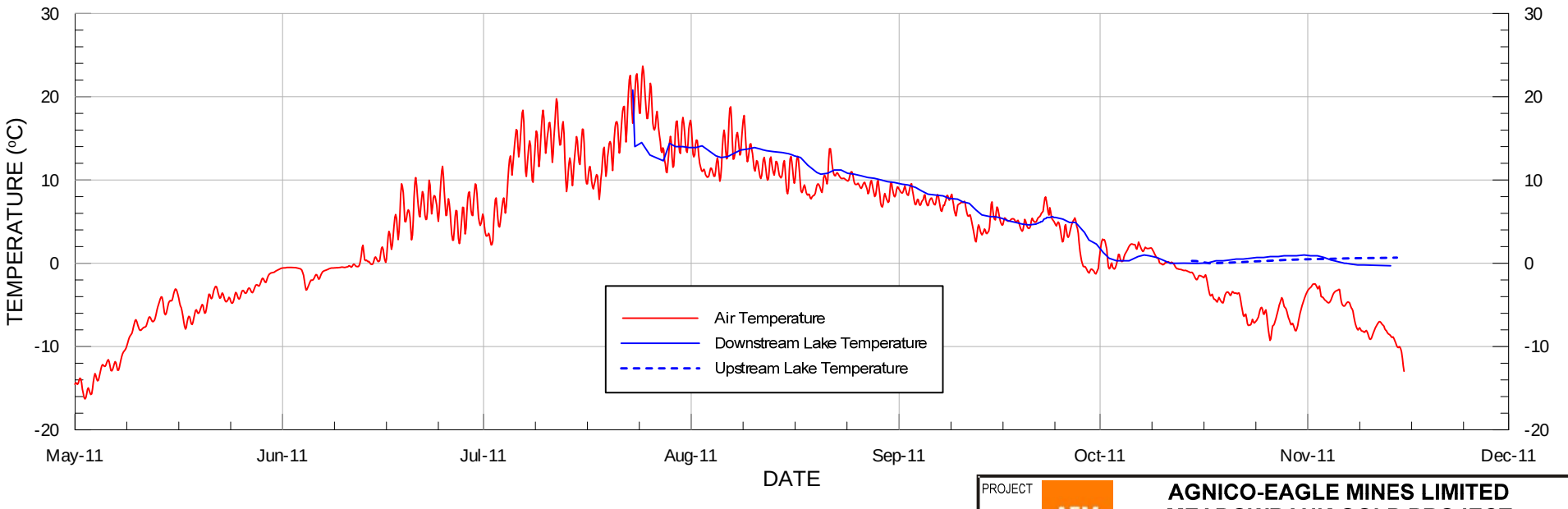
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	FE	15AUG11	SCALE AS SHOWN	REV.
CADD	GG	15AUG11		
CHECK			**FIGURE 4L**	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 30+000 to 30+550.grf









NOTE:
Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

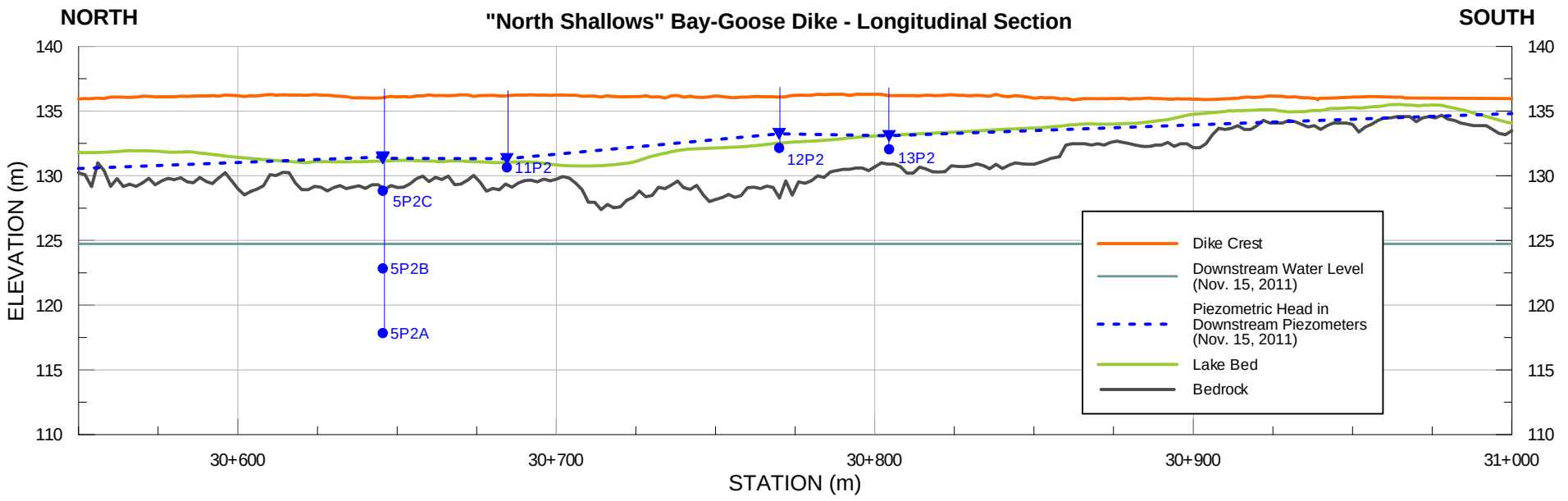
BAY-GOOSE DIKE
30+000 to 30+550 - PIEZOMETRIC DATA (MAY 2011 TO NOV. 15, 2011)

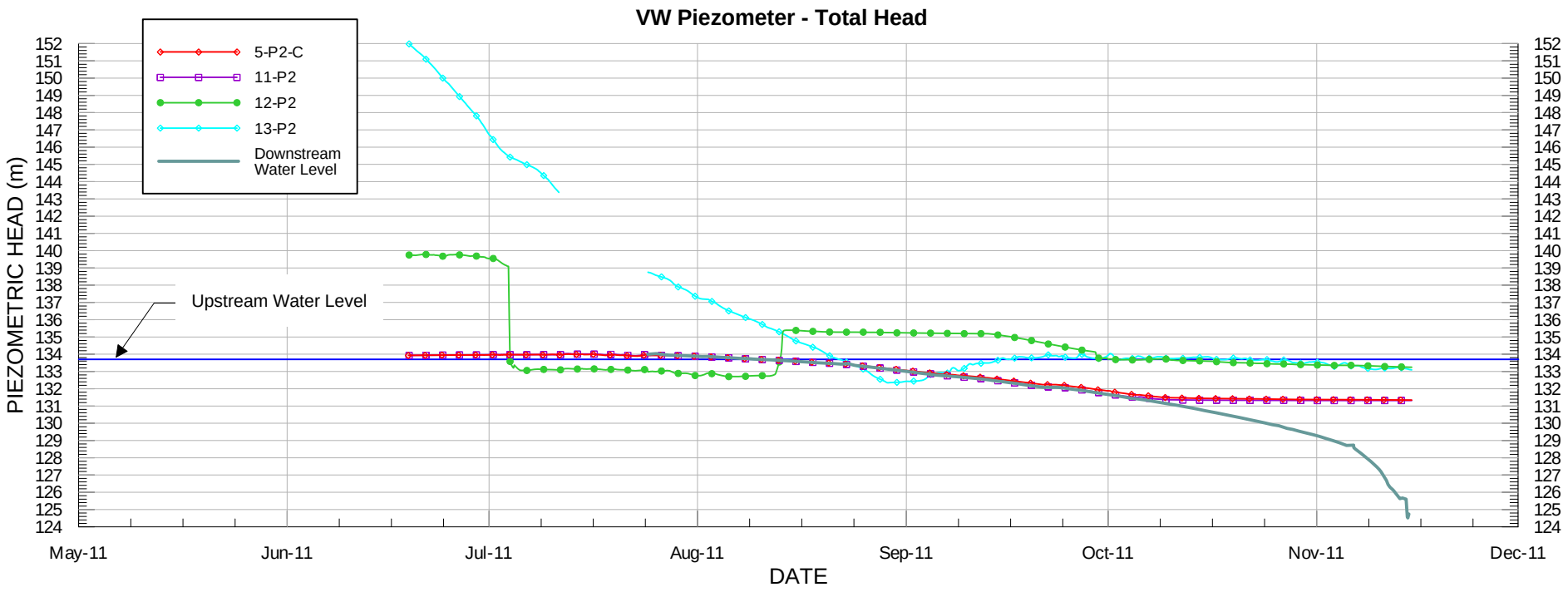
Golder Associates

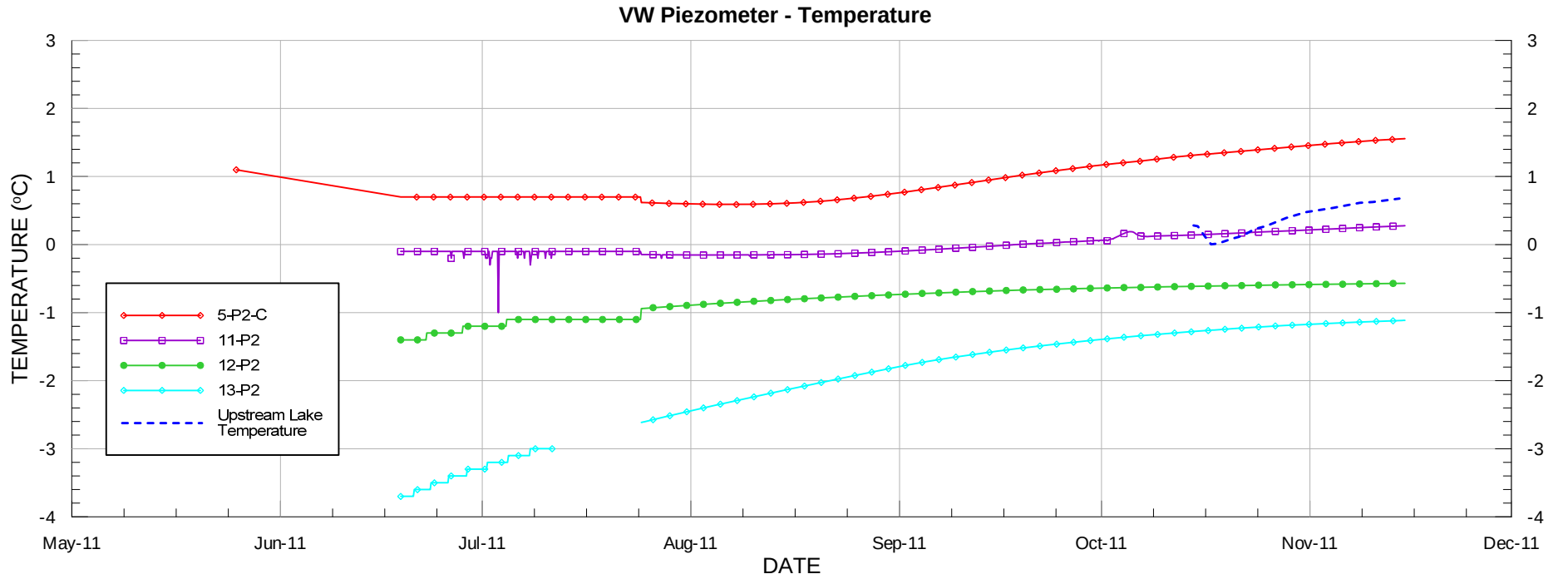
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK				
REVIEW				

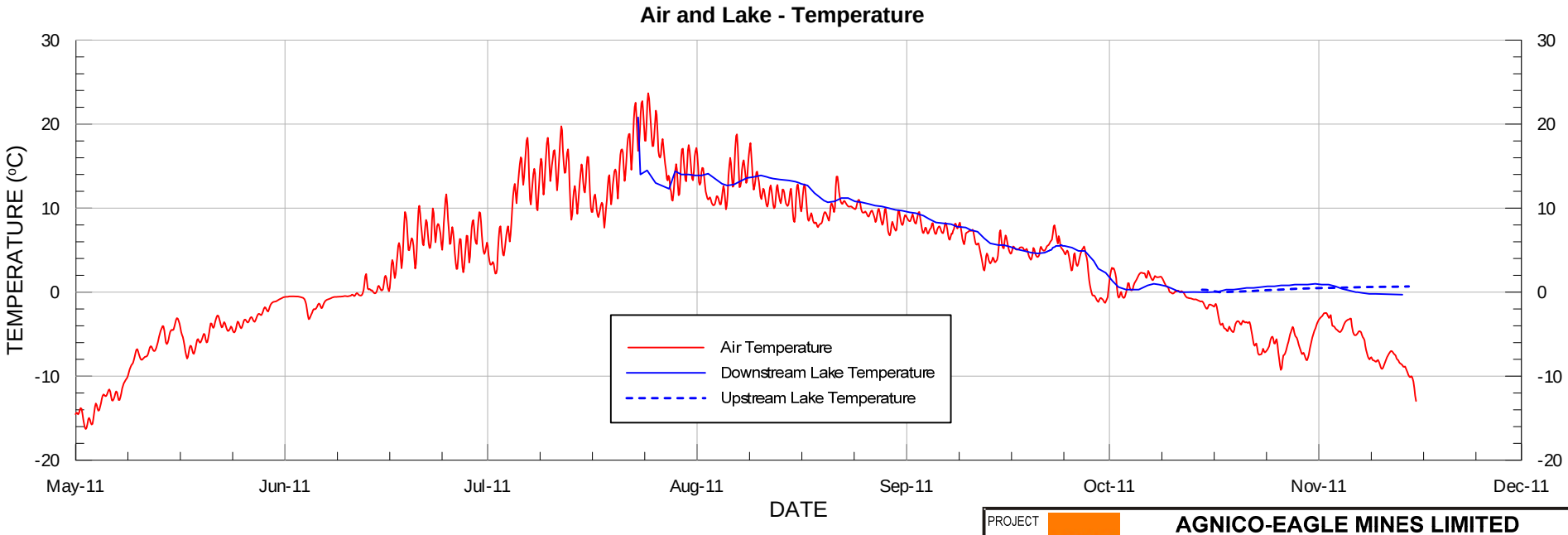
FIGURE 5A

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 30+550 to 31+000.grf









NOTES:
1. Piezometers 12-P2 and 13-P2 are not affected by the "Zero Adjustment" factor.
2. Piezometer 13-P2 is reading -2000°C from July 11 to July 24, 2011, therefore data for this period is not shown on the piezometric head and temperature graphs.
3. Piezometric head and temperature jumps observed on July 24, 2011 are due to the incorporation of data readings prior to dewatering.

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

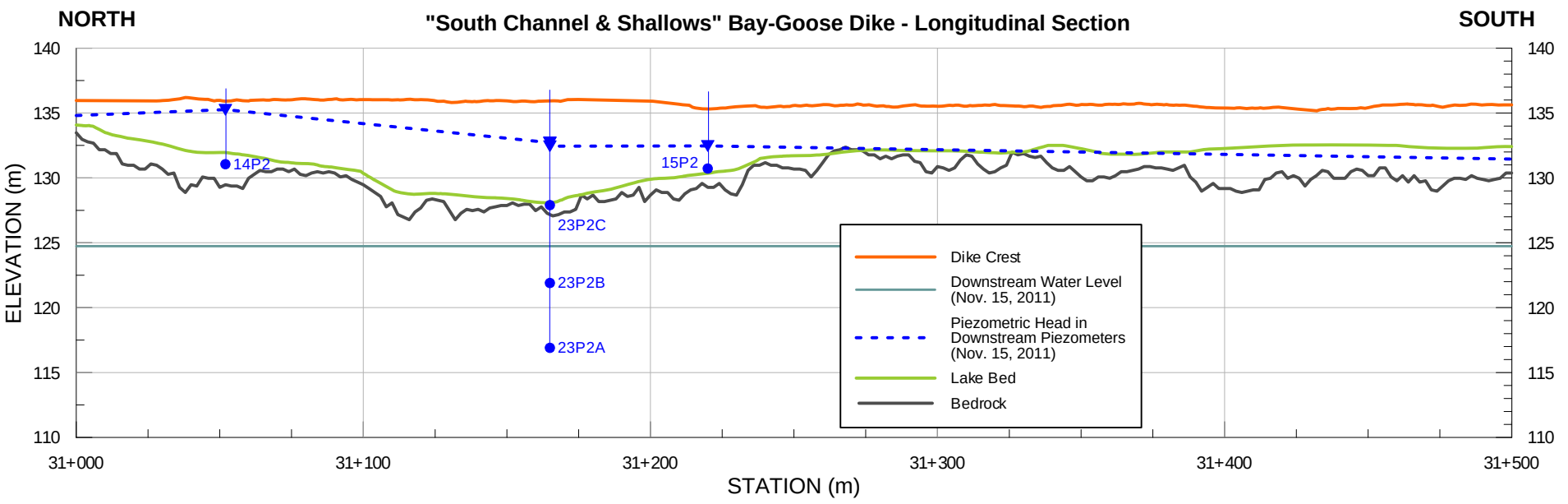
BAY-GOOSE DIKE
30+550 to 31+000 - PIEZOMETRIC DATA
(MAY 2011 TO NOV. 15, 2011)

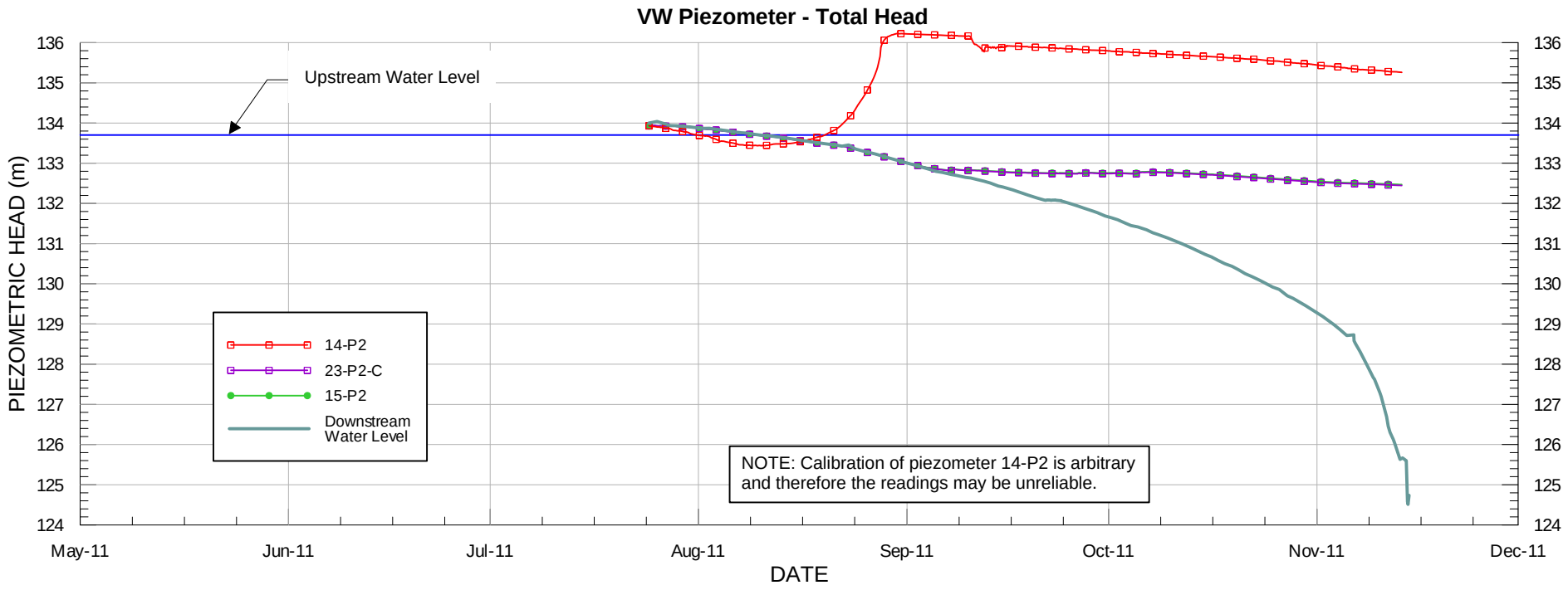
Golder Associates

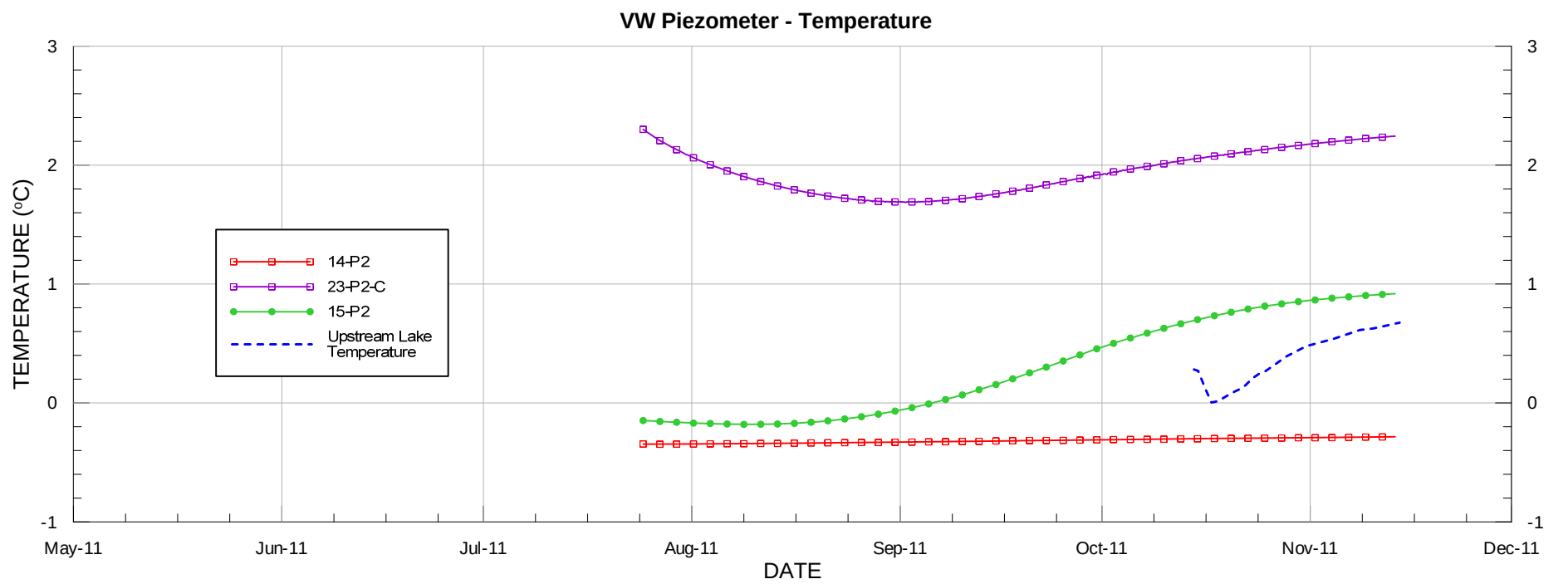
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK				
REVIEW				

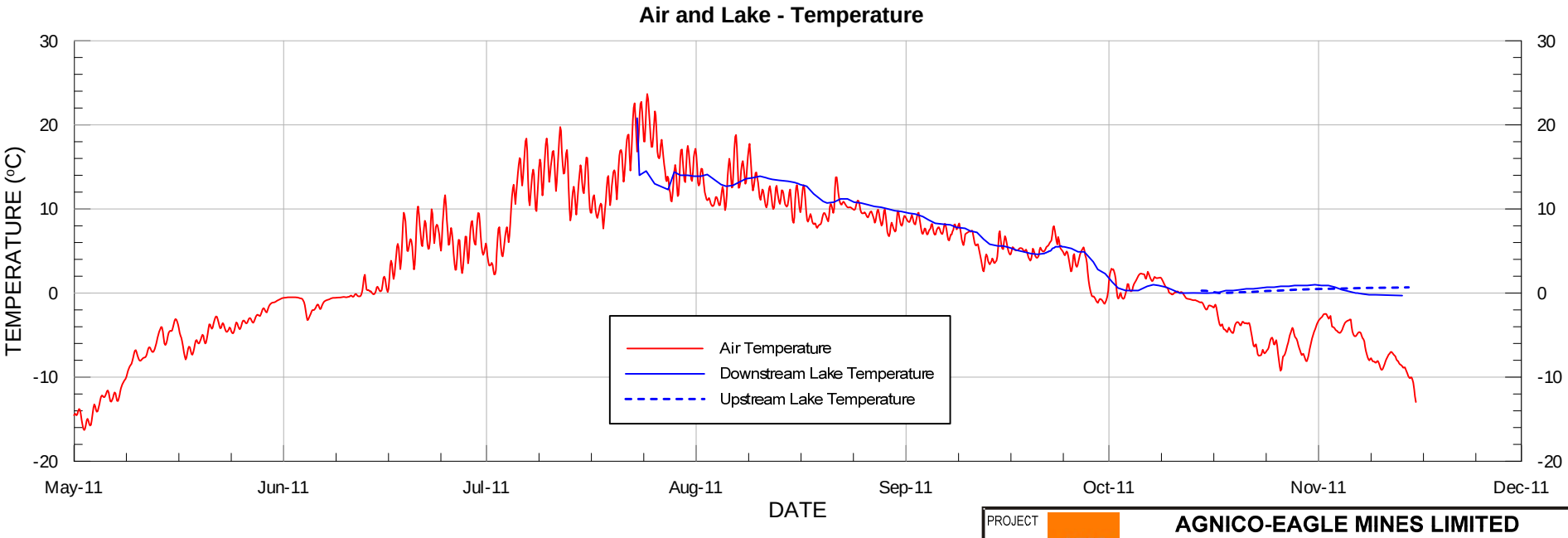
FIGURE 5B

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 31+000 to 31+500.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

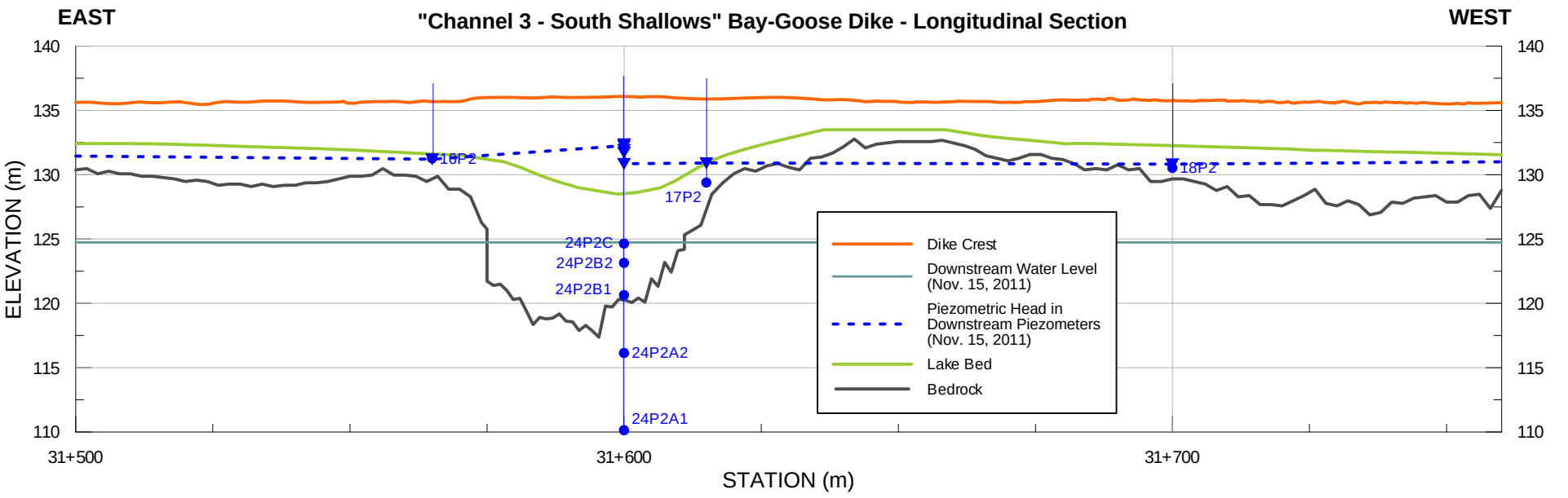
BAY-GOOSE DIKE
31+000 to 31+500 - PIEZOMETRIC DATA
(MAY 2011 TO NOV. 15, 2011)

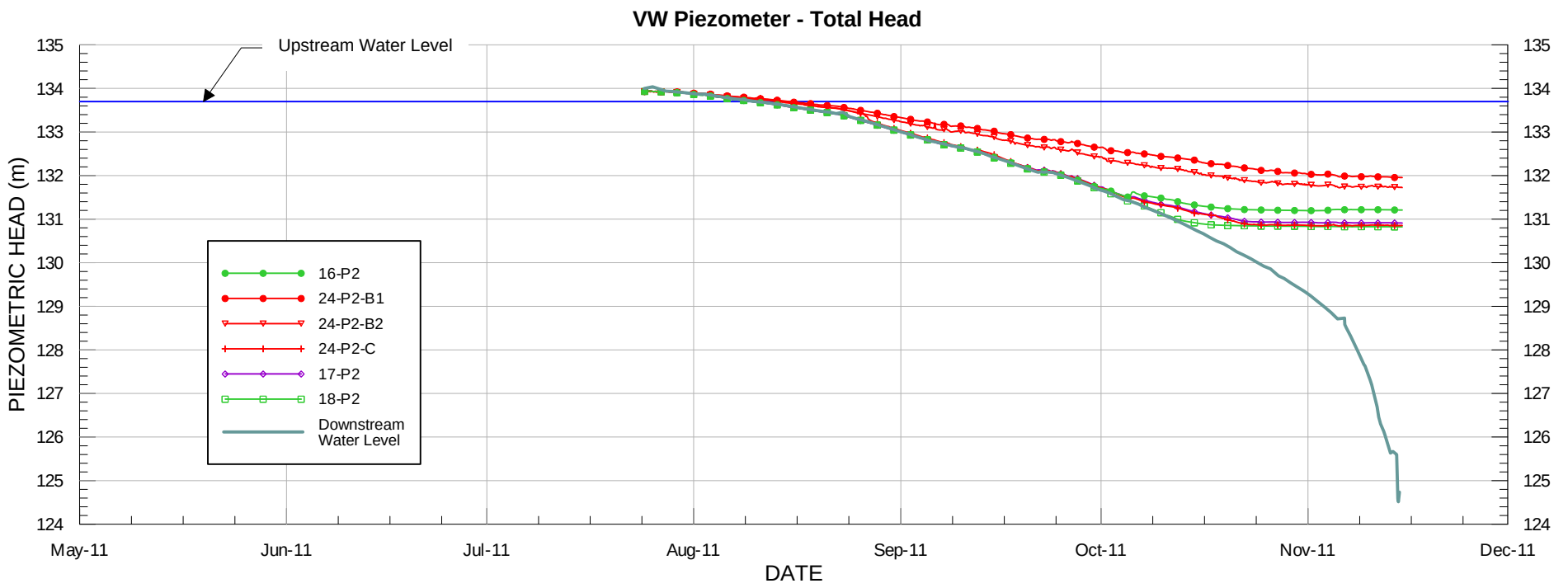
Golder Associates

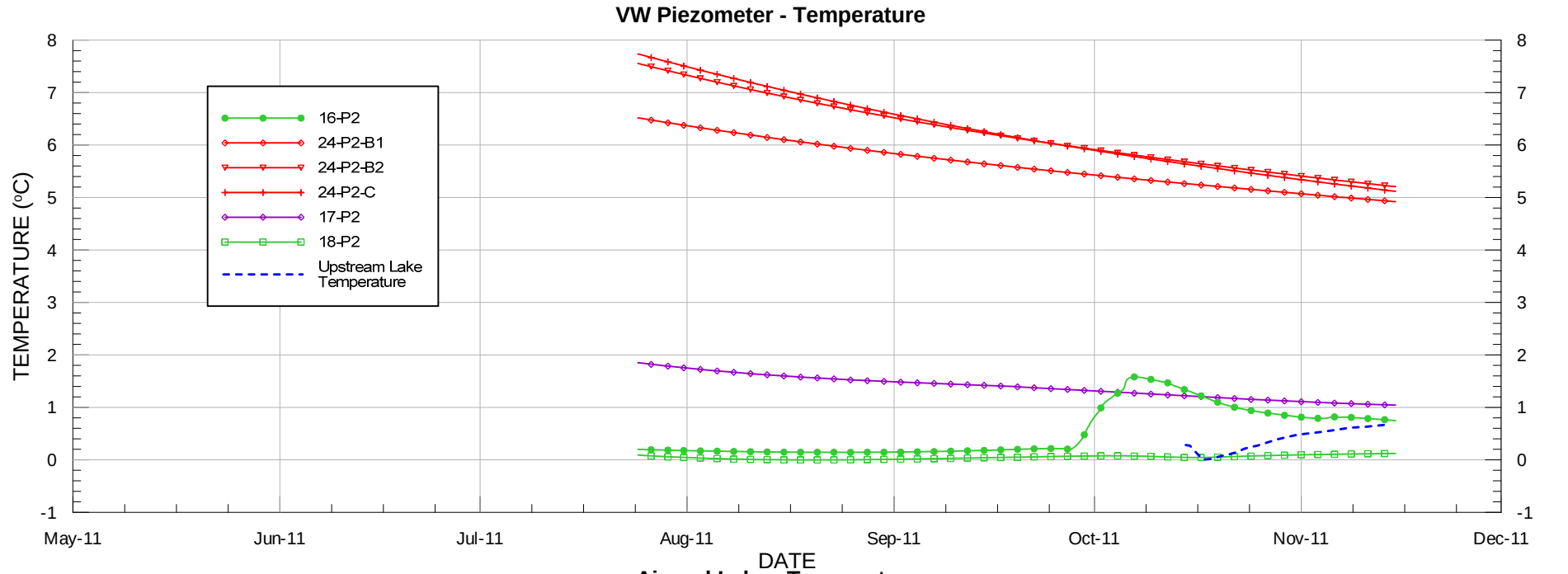
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK				
REVIEW				

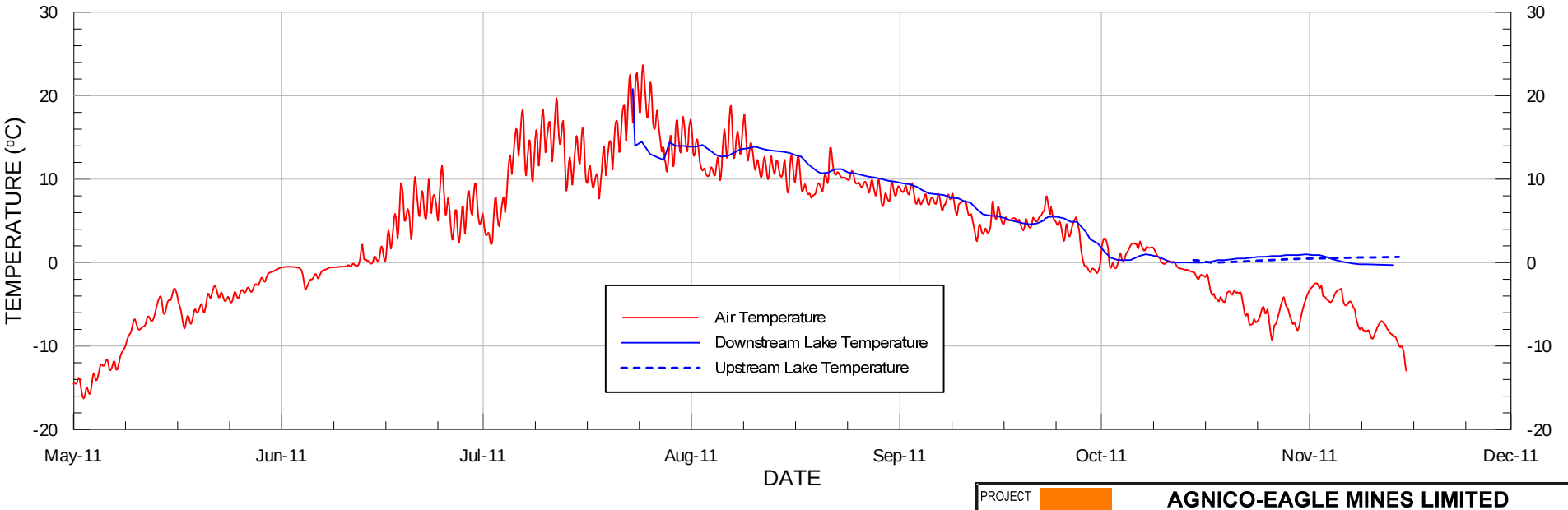
FIGURE 5C

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 31+500 to 31+760.grf









PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

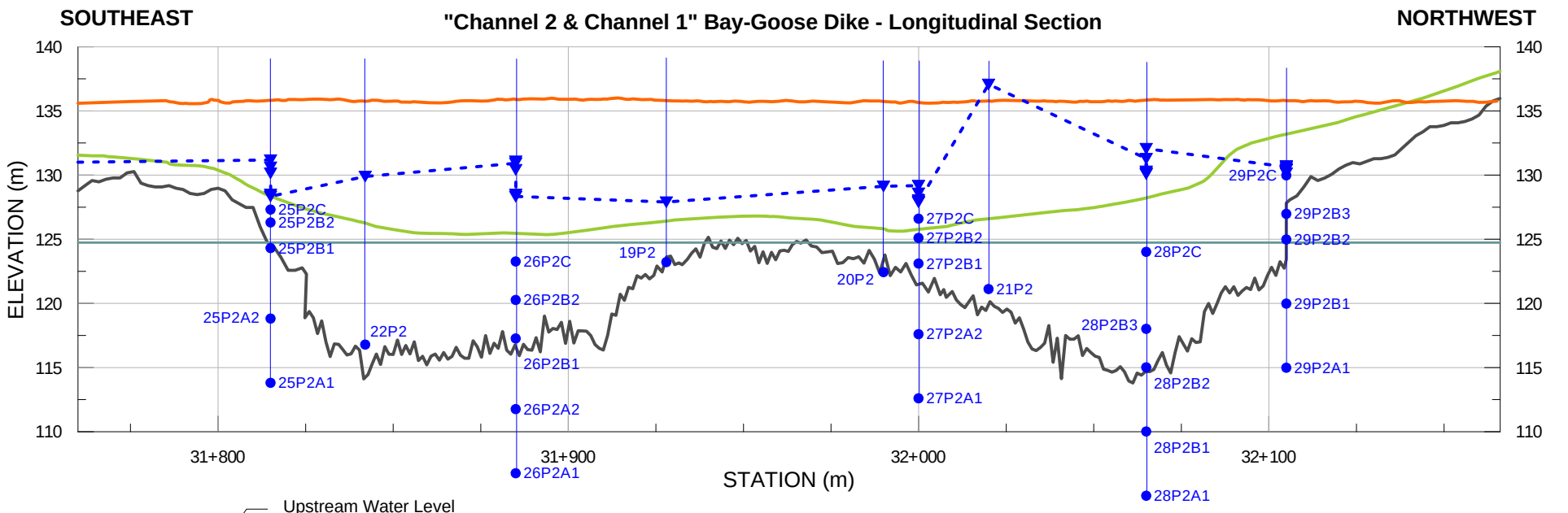
BAY-GOOSE DIKE
31+500 to 31+760 - PIEZOMETRIC DATA
(JUL. 2011 TO NOV. 15, 2011)

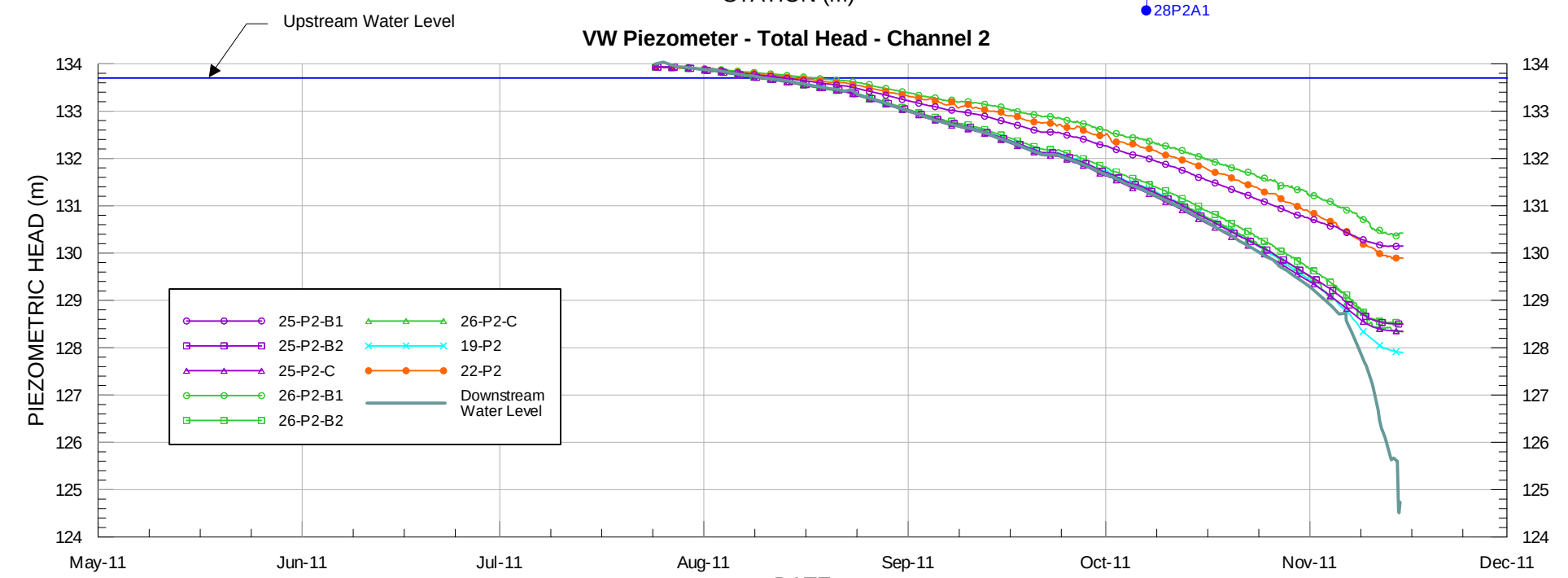
Golder Associates

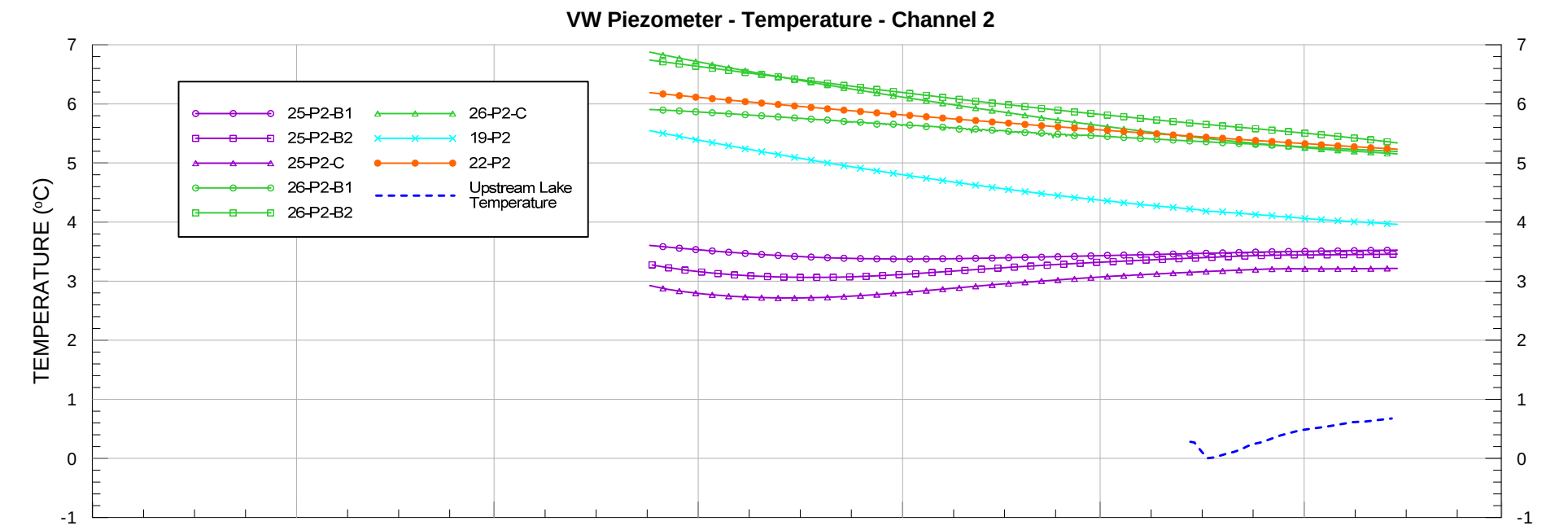
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK				
REVIEW				

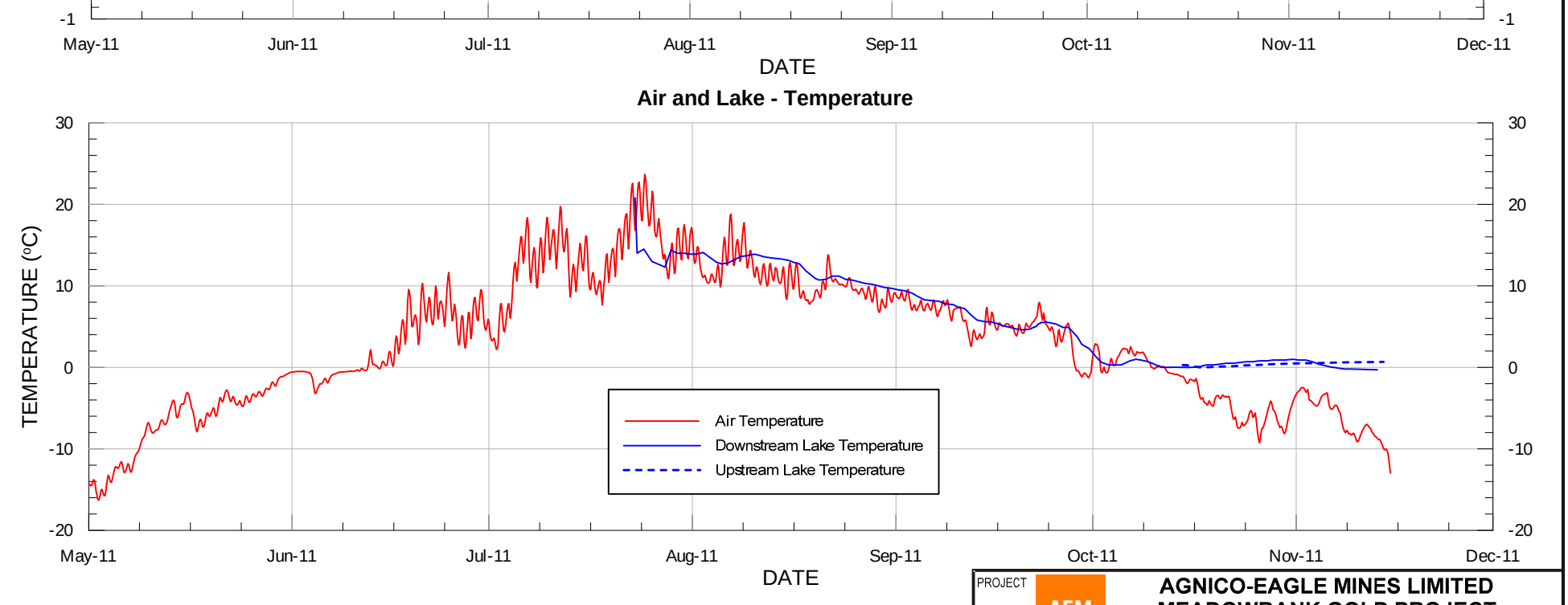
FIGURE 5D

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 31+760 to 32+166-channel 2.grf









Dike Crest
Downstream Water Level (Nov. 15, 2011)
Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
Lake Bed
Bedrock

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

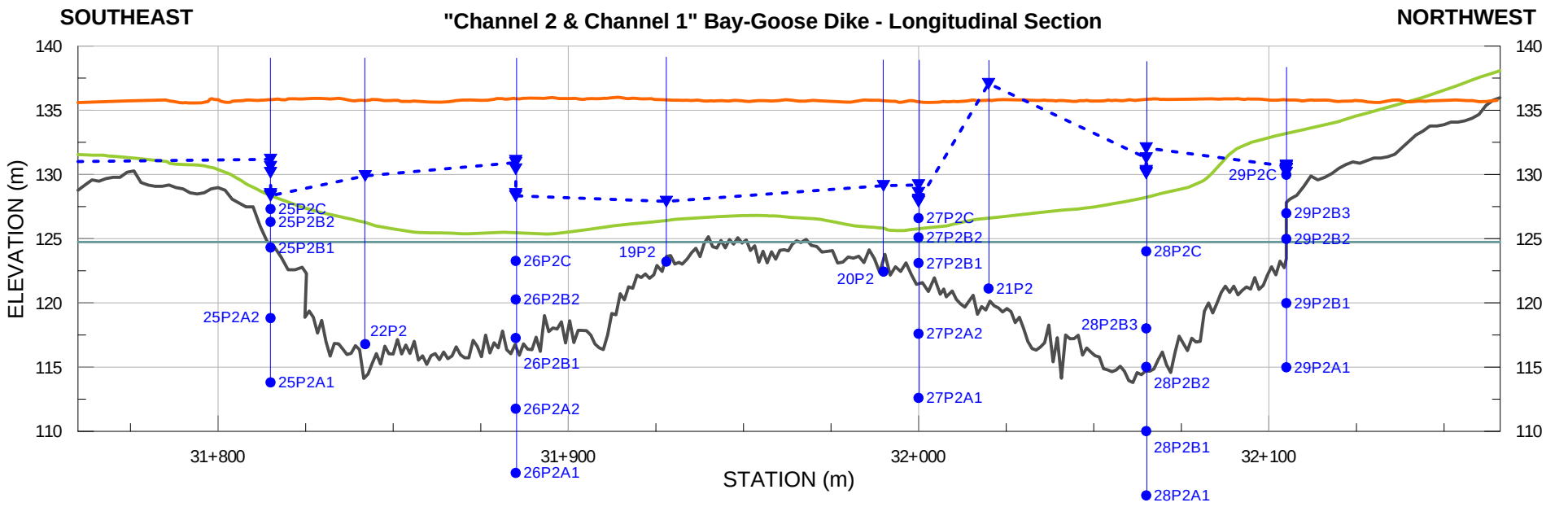
BAY-GOOSE DIKE
31+760 to 32+166 - CHANNEL 2, PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

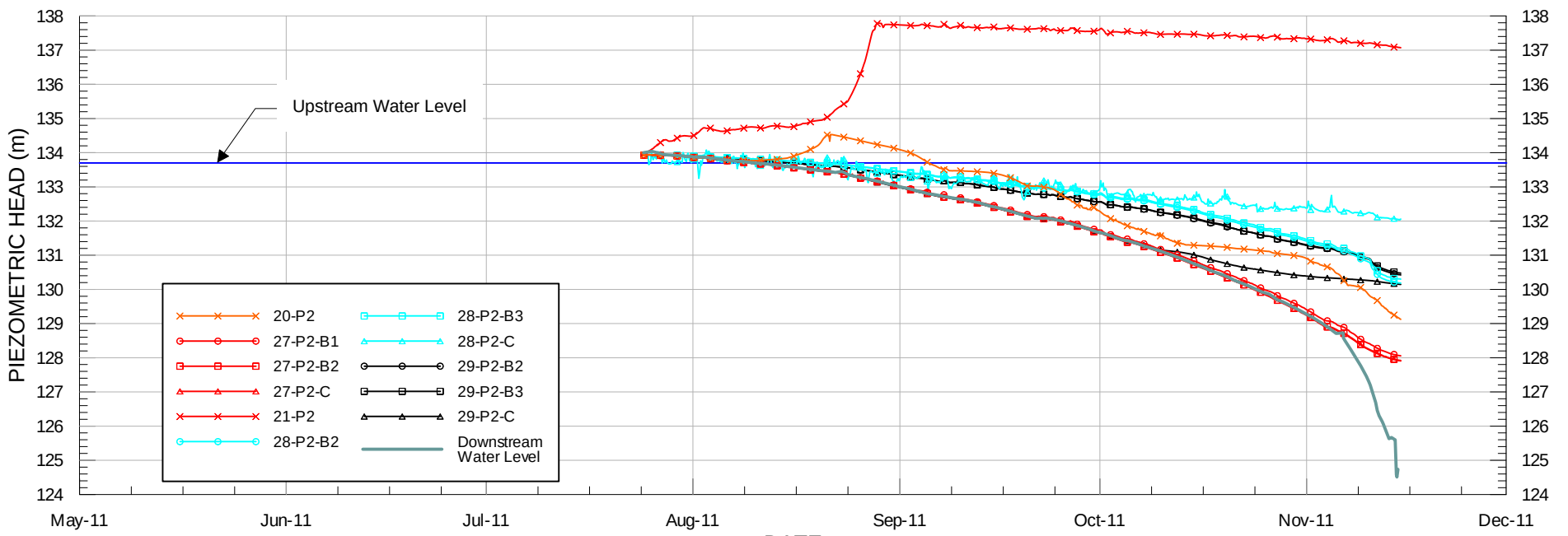
Golder Associates

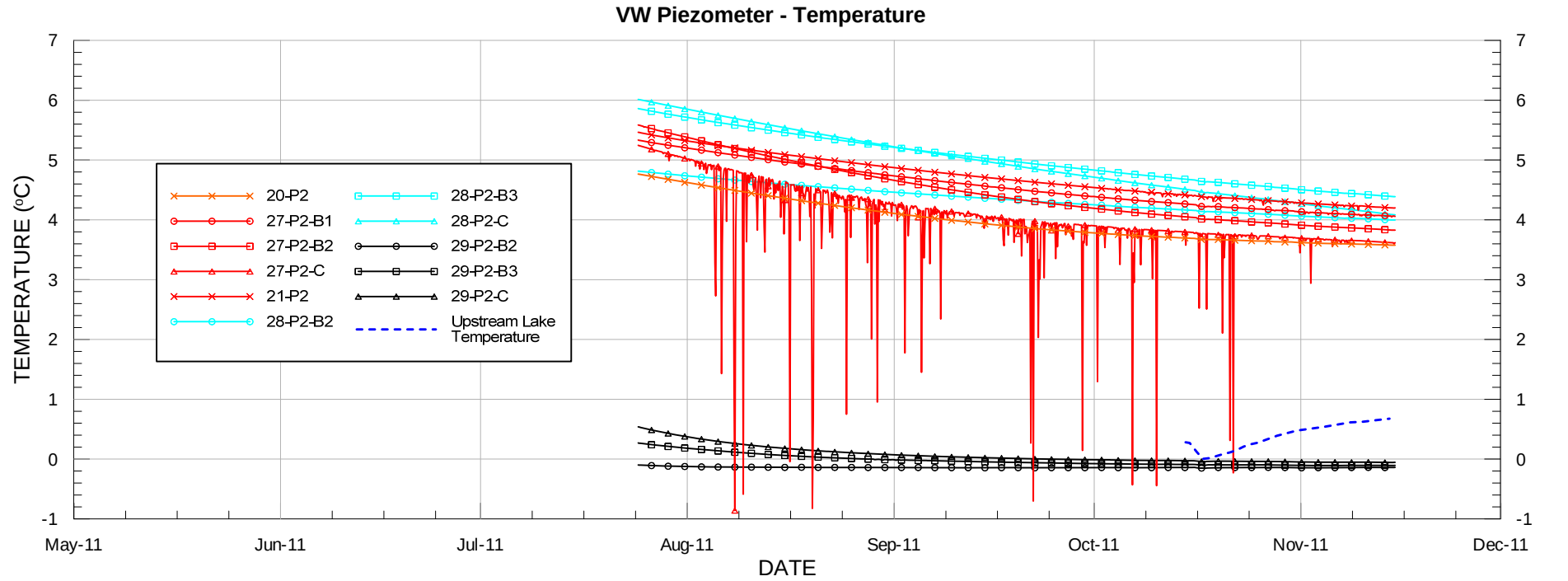
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.	
CADD	GG	16AUG11			
CHECK					
REVIEW					

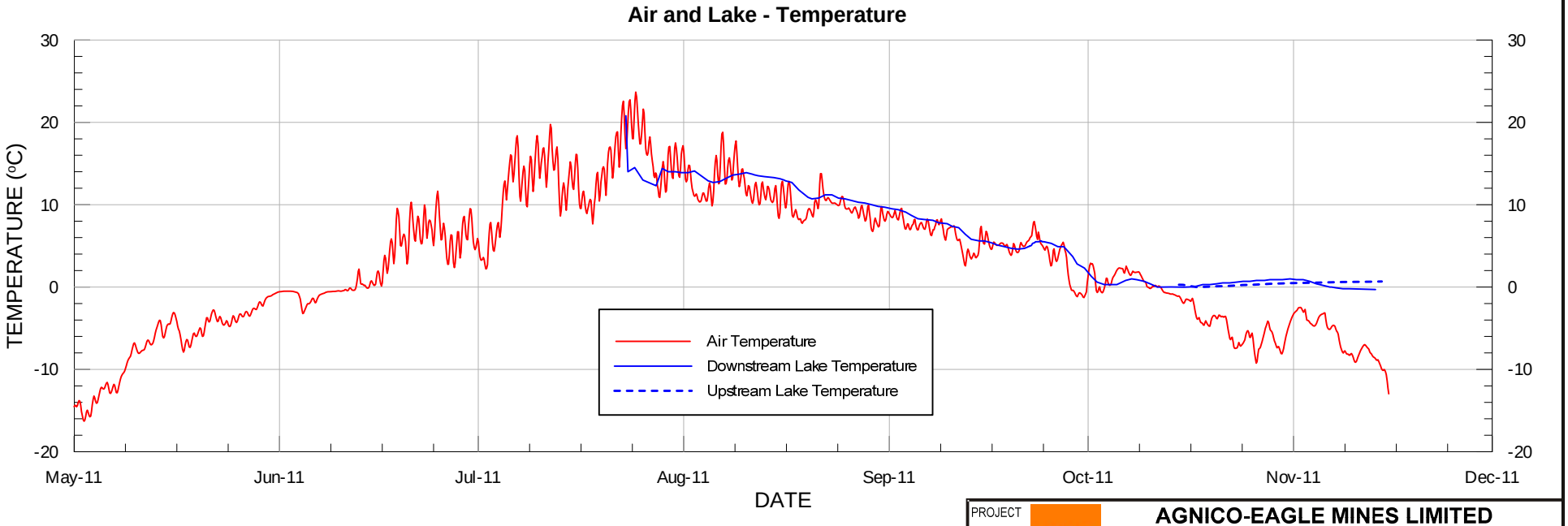
FIGURE 5E

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/H-profile 31+760 to 32+166-channel 1.grf









Dike Crest
Downstream Water Level (Nov. 15, 2011)
Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
Lake Bed
Bedrock

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE
31+760 to 32+166 - CHANNEL 1, PIEZOMETRIC DATA (JUL. 2011 TO NOV. 15, 2011)

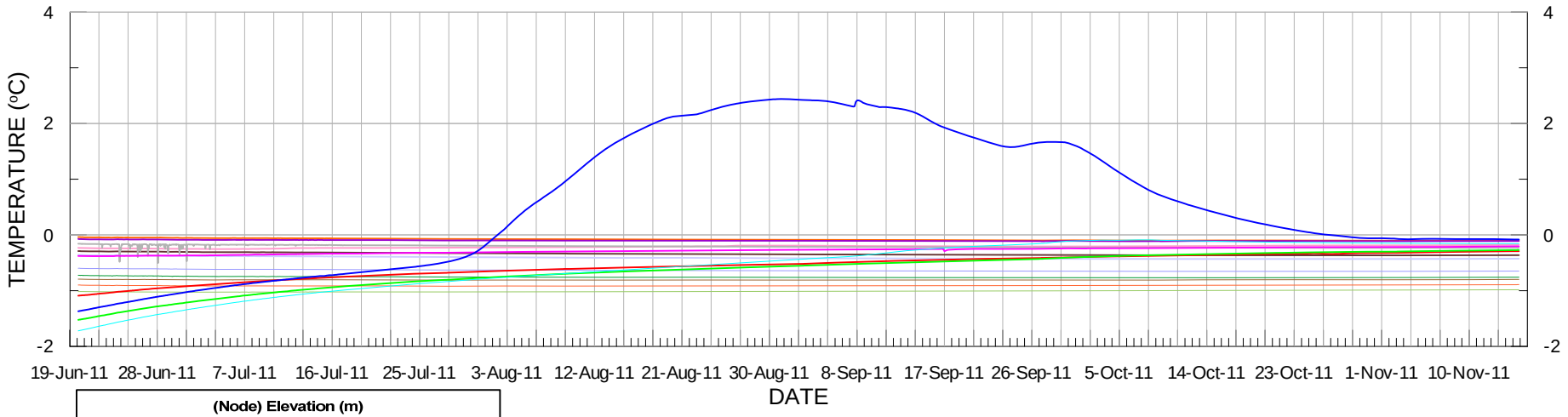
Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.	
CADD	GG	16AUG11			
CHECK					
REVIEW					

FIGURE 5F

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T1-T4.grf

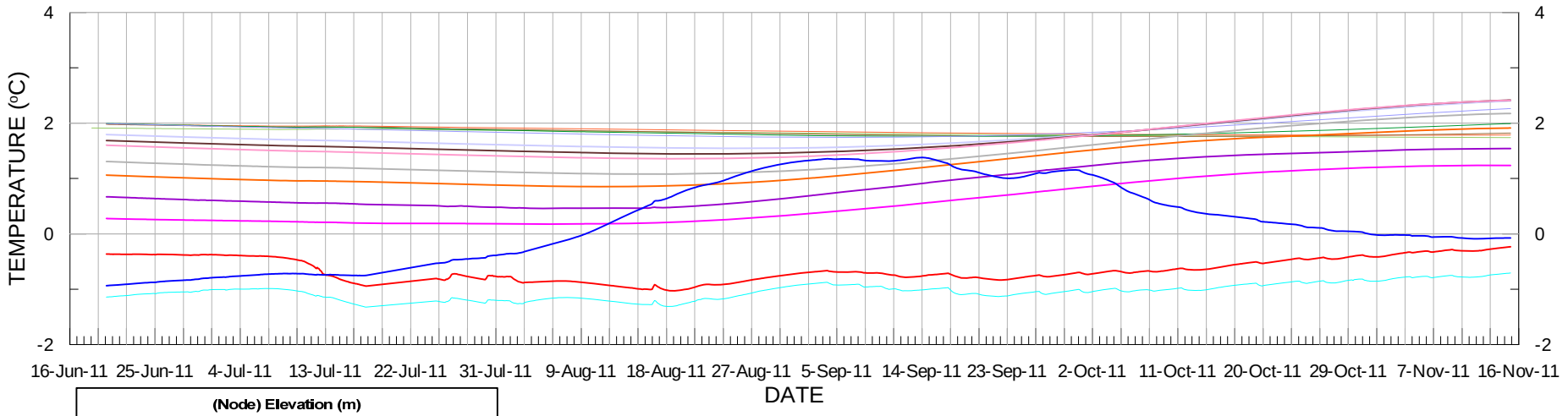
T1 (30+134)



(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

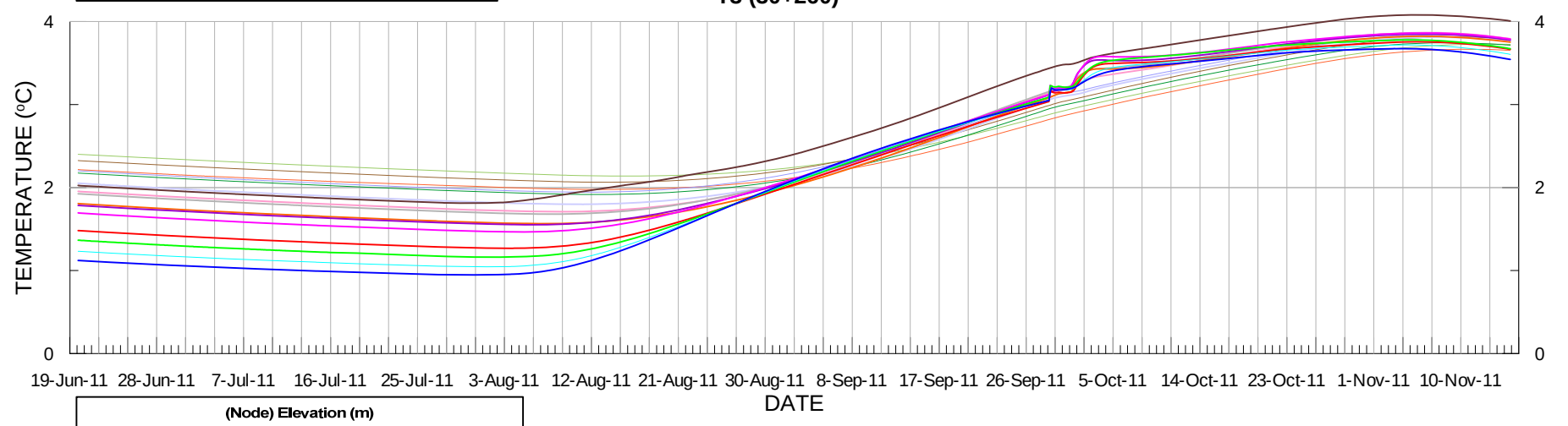
NOTES:
1. T1 (30+134) - values less than -0.5°C are not shown for Node 8 at elevation 128 m from June 24, 2011 to June 30, 2011 as these values are believed to be inaccurate.
2. Third node of thermistor T2 (elevation 135 m) is not functional.
3. T4 (304+272) - value equal 1.06°C is not shown for Node 13 at elevation 126.4 m on July 8, 2011 as this value is believed to be inaccurate.

T2 (30+185)



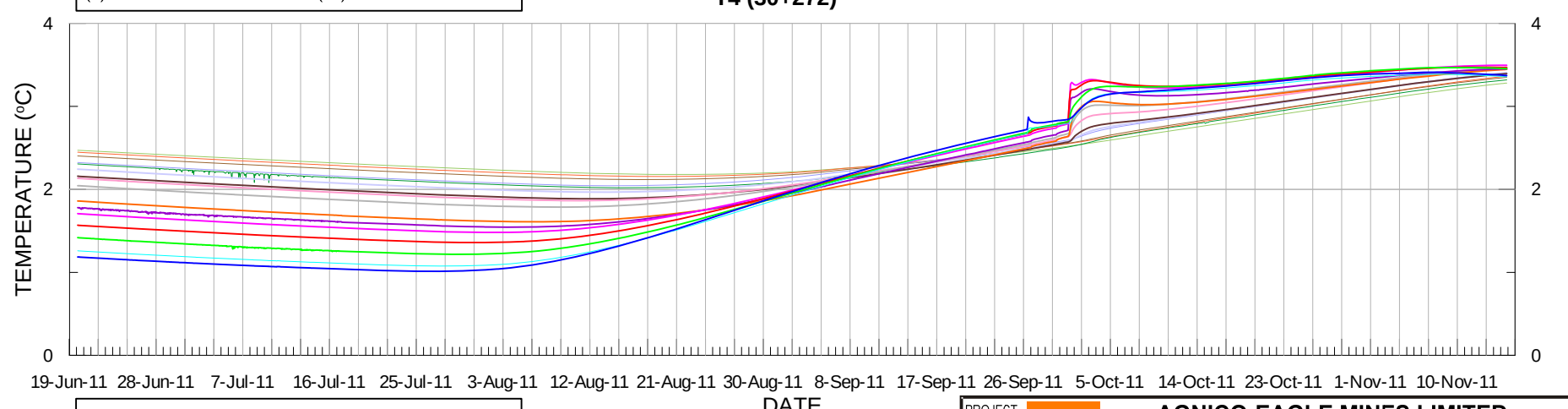
(Node) Elevation (m)			
(1) 135		(10) 126	
(2) 134		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	
(9) 127			

T3 (30+260)



(Node) Elevation (m)			
(1) 130		(9) 127.6	
(2) 129.7		(10) 127.3	
(3) 129.4		(11) 127	
(4) 129.1		(12) 126.7	
(5) 128.8		(13) 126.4	
(6) 128.5		(14) 126.1	
(7) 128.2		(15) 125.8	
(8) 127.9		(16) 125.5	

T4 (30+272)



(Node) Elevation (m)			
(1) 130		(9) 127.6	
(2) 129.7		(10) 127.3	
(3) 129.4		(11) 127	
(4) 129.1		(12) 126.7	
(5) 128.8		(13) 126.4	
(6) 128.5		(14) 126.1	
(7) 128.2		(15) 125.8	
(8) 127.9		(16) 125.5	

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

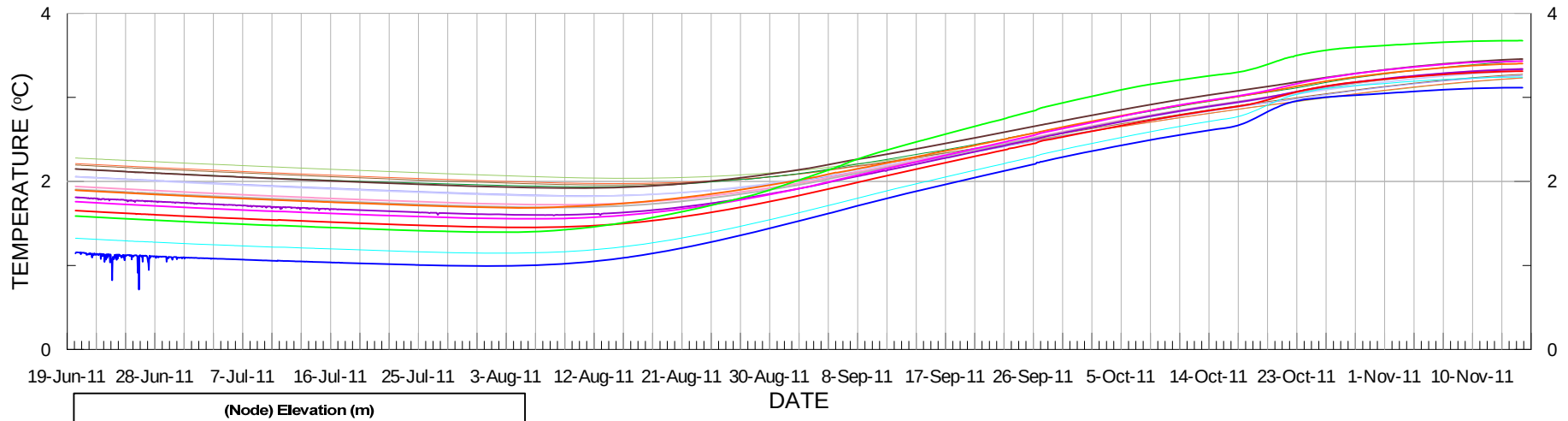
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.
CADD	GG	18AUG11		
CHECK			**FIGURE 6A**	
REVIEW				

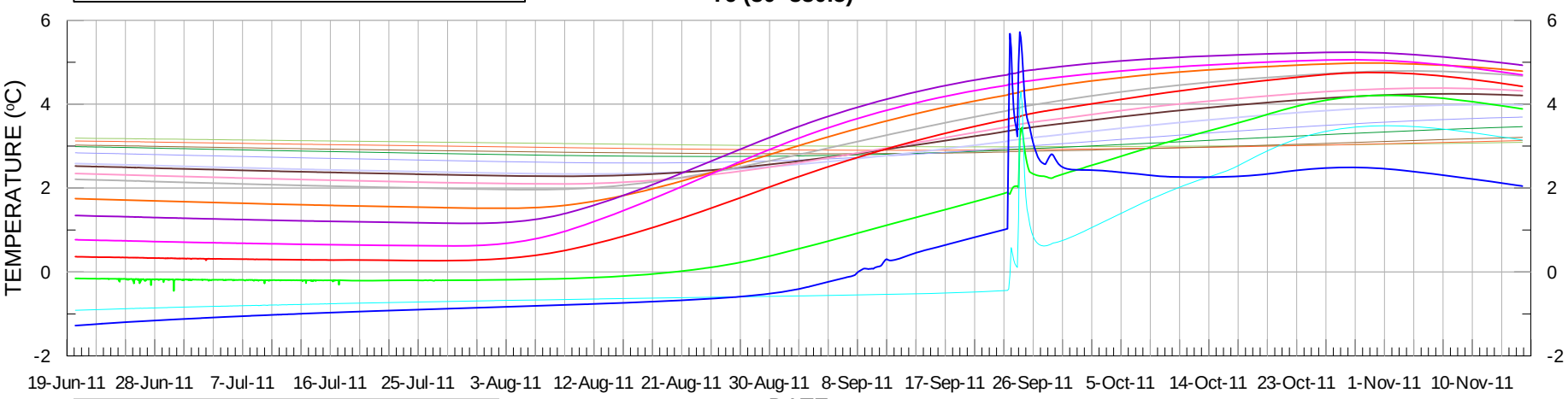
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T5-T8.grf

T5 (30+288.5)



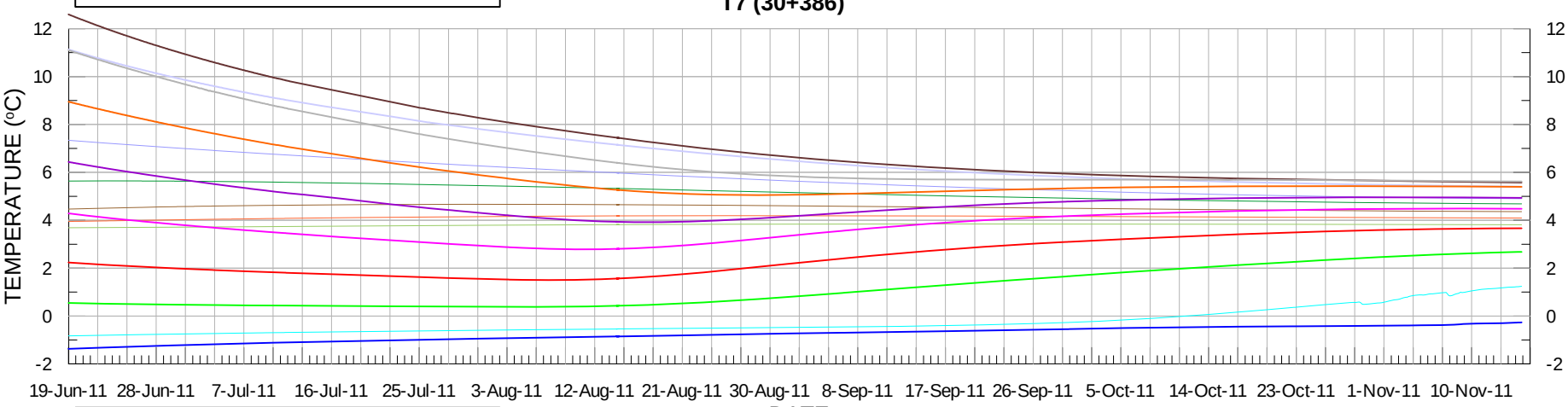
(Node) Elevation (m)			
(1) 130		(9) 127.6	
(2) 129.7		(10) 127.3	
(3) 129.4		(11) 127	
(4) 129.1		(12) 126.7	
(5) 128.8		(13) 126.4	
(6) 128.5		(14) 126.1	
(7) 128.2		(15) 125.8	
(8) 127.9		(16) 125.5	

T6 (30+330.5)



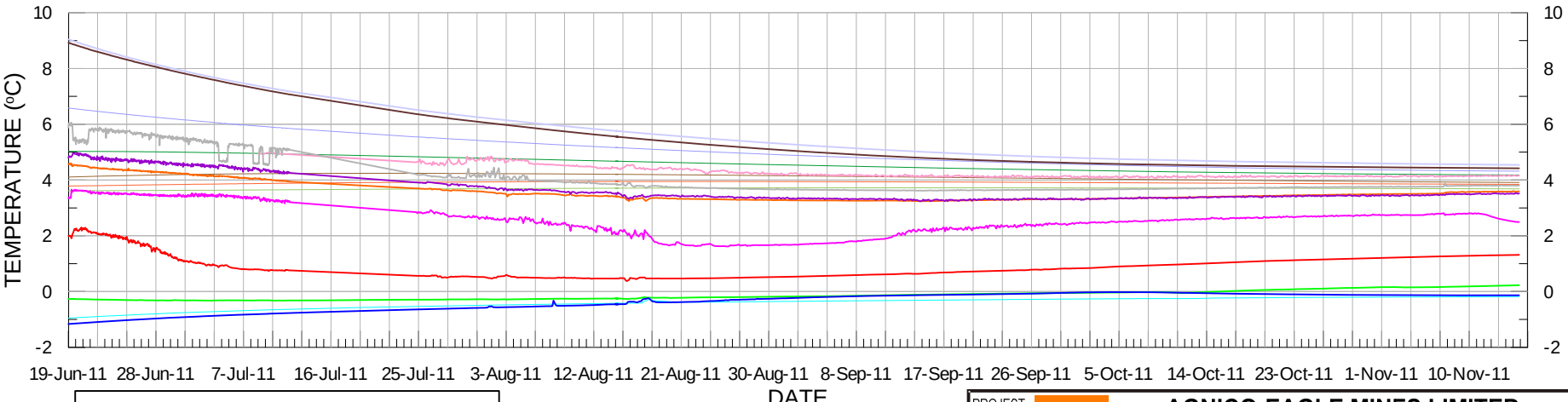
(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

T7 (30+386)



(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

T8 (30+417.5)



(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

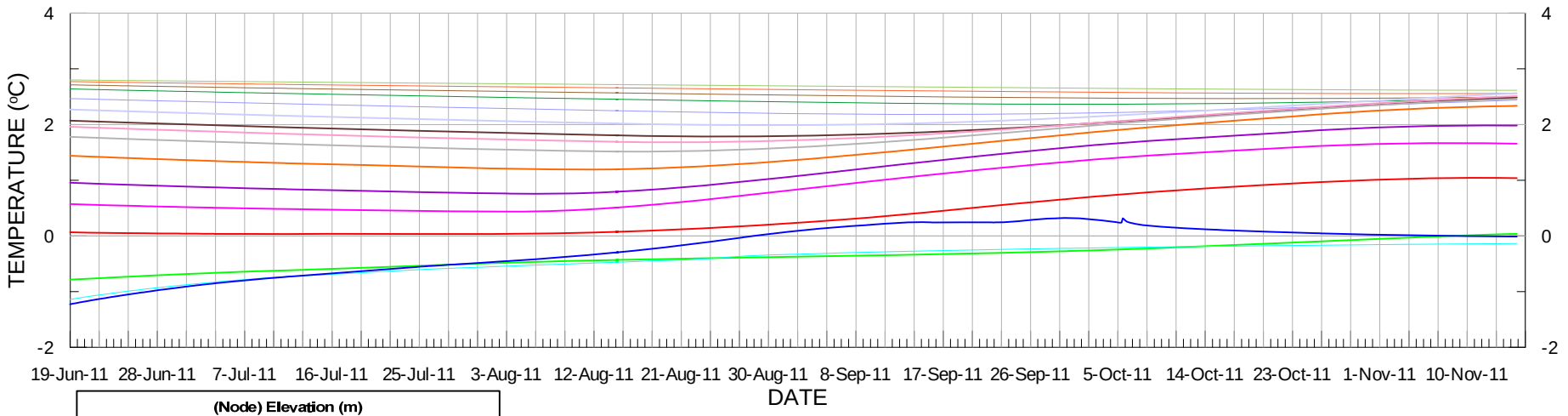
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

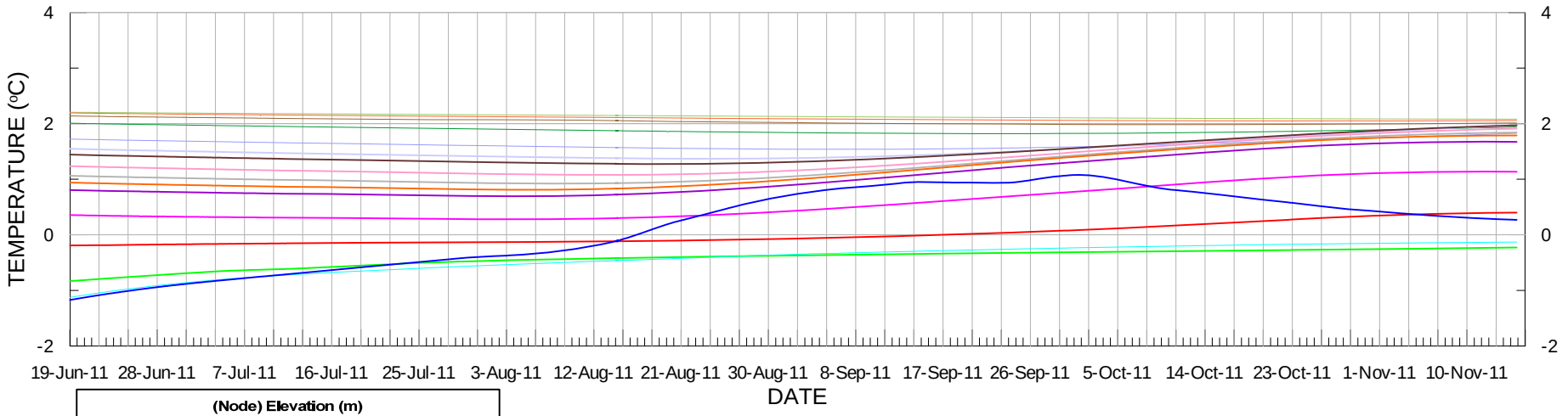
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.
CADD	GG	18AUG11	**FIGURE 6B**	
CHECK				
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T9-T12.grf

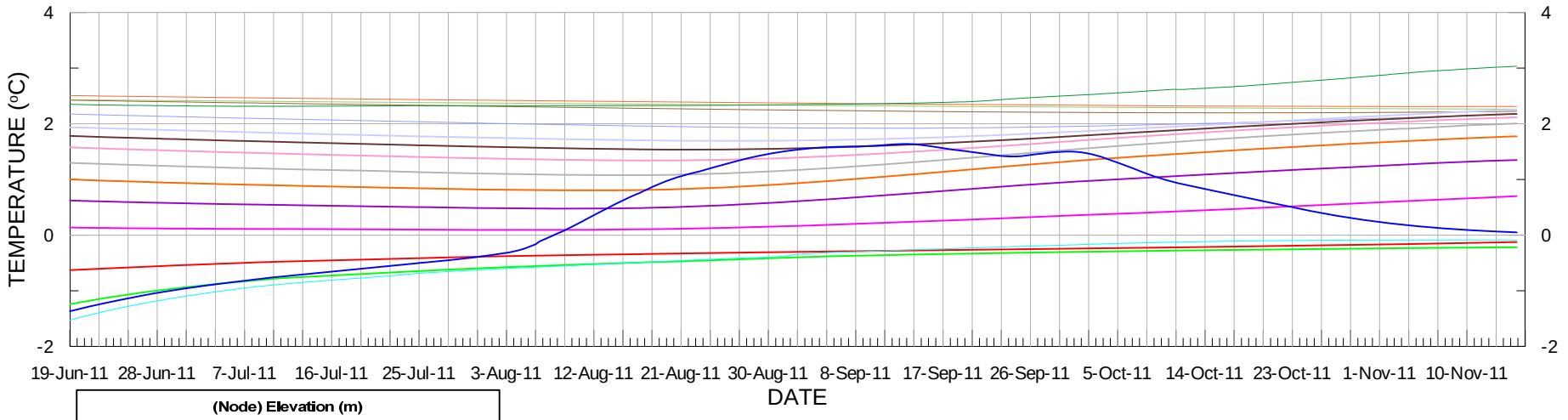
T9 (30+489.5)



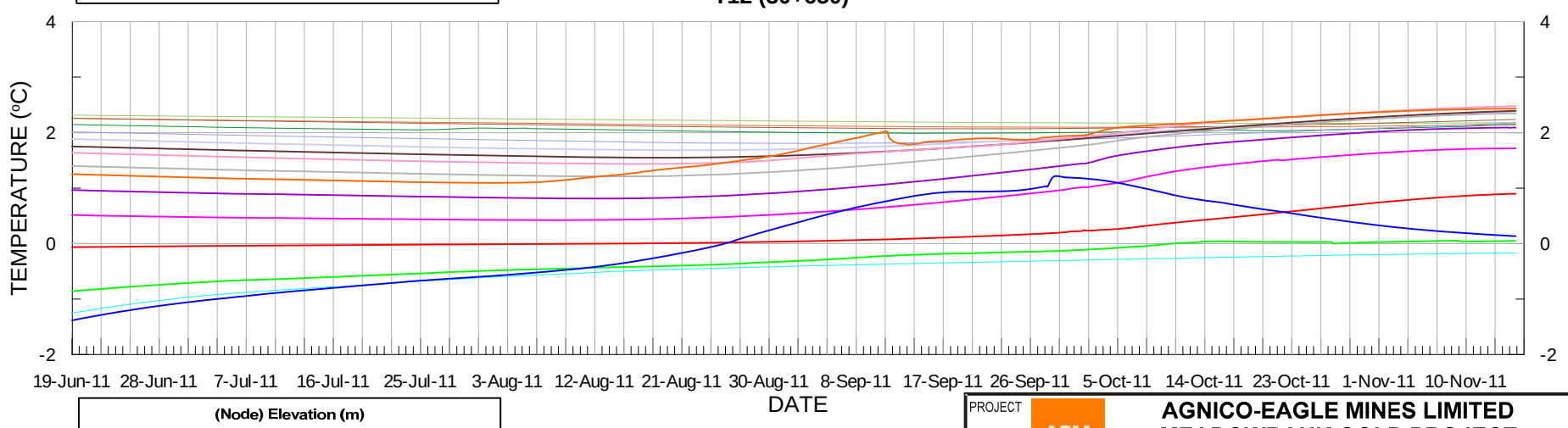
T10 (30+553.25)



T11 (30+621.5)



T12 (30+650)



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

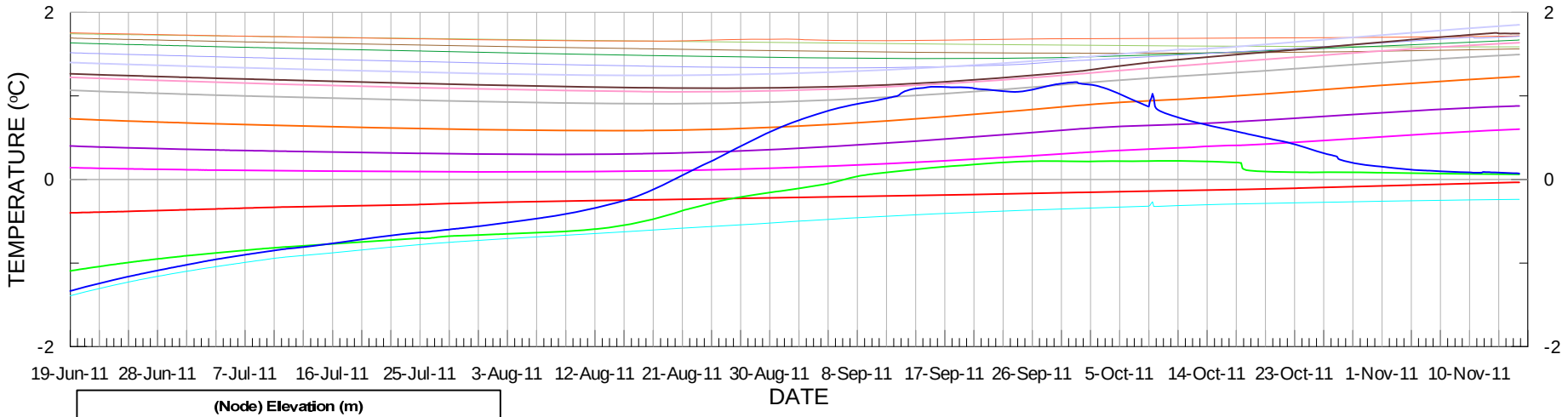
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11	**FIGURE 6C**		
CHECK					
REVIEW					

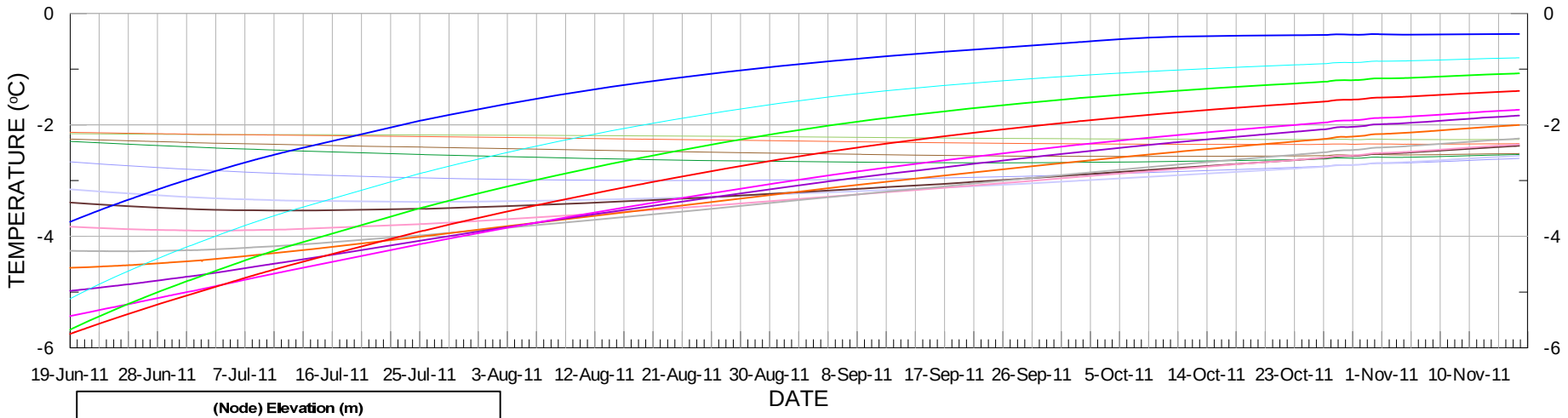
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T13-T16.grf

T13 (30+713)



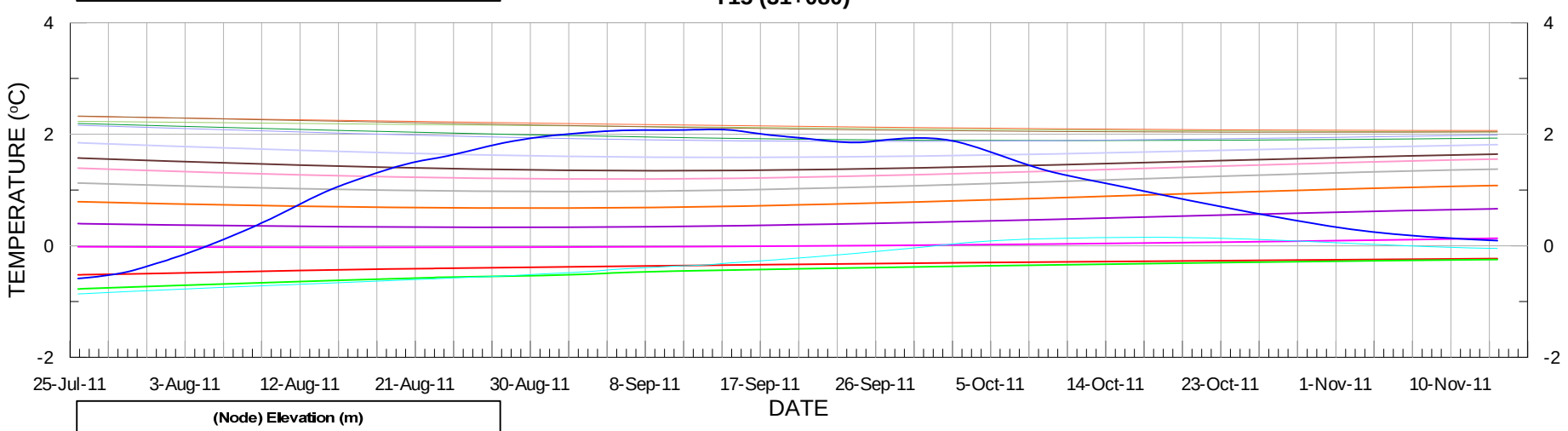
(Node) Elevation (m)			
(1)	135	(9)	127
(2)	134	(10)	126
(3)	133	(11)	125
(4)	132	(12)	123
(5)	131	(13)	121
(6)	130	(14)	119
(7)	129	(15)	117
(8)	128	(16)	115

T14 (30+827)



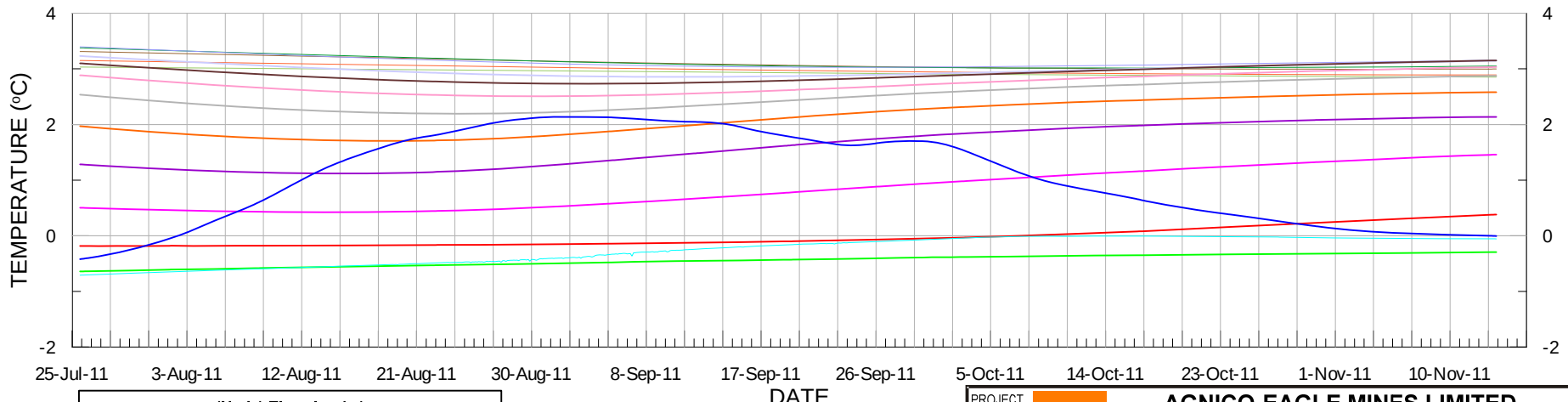
(Node) Elevation (m)			
(1)	135	(9)	127
(2)	134	(10)	126
(3)	133	(11)	125
(4)	132	(12)	123
(5)	131	(13)	121
(6)	130	(14)	119
(7)	129	(15)	117
(8)	128	(16)	115

T15 (31+080)



(Node) Elevation (m)			
(1)	135	(9)	127
(2)	134	(10)	126
(3)	133	(11)	125
(4)	132	(12)	123
(5)	131	(13)	121
(6)	130	(14)	119
(7)	129	(15)	117
(8)	128	(16)	115

T16 (31+134.5)



(Node) Elevation (m)			
(1)	135	(9)	127
(2)	134	(10)	126
(3)	133	(11)	125
(4)	132	(12)	123
(5)	131	(13)	121
(6)	130	(14)	119
(7)	129	(15)	117
(8)	128	(16)	115

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

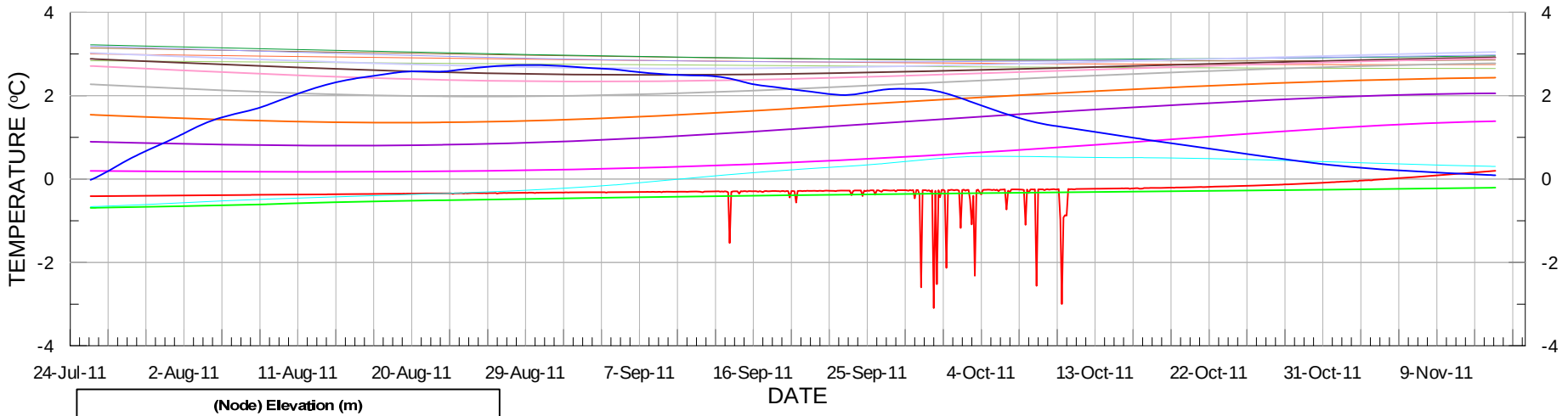
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11	**FIGURE 6D**		
CHECK					
REVIEW					

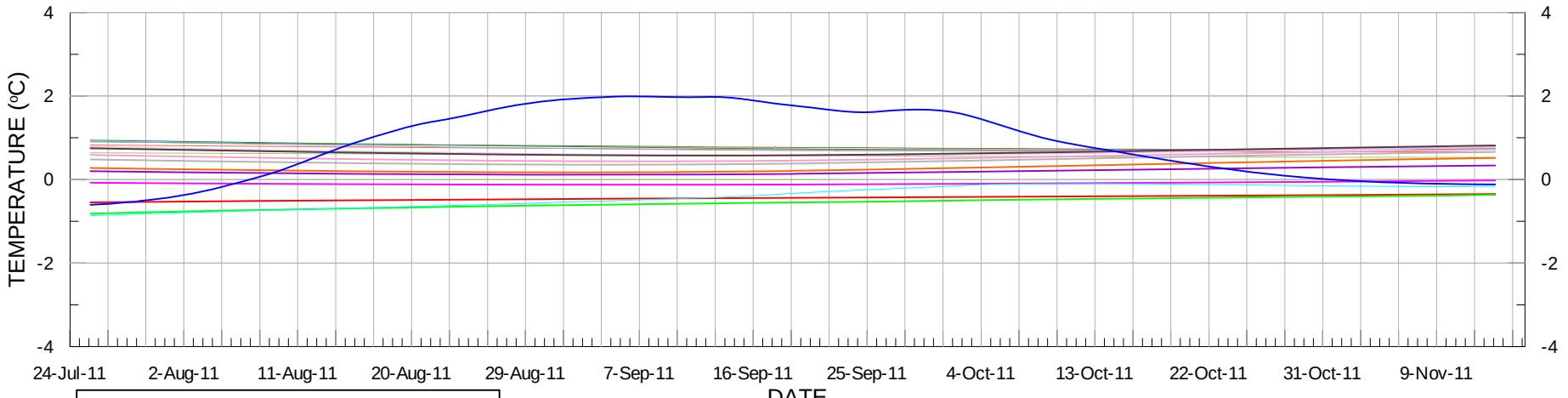
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T17-T20.grf

T17 (31+170)



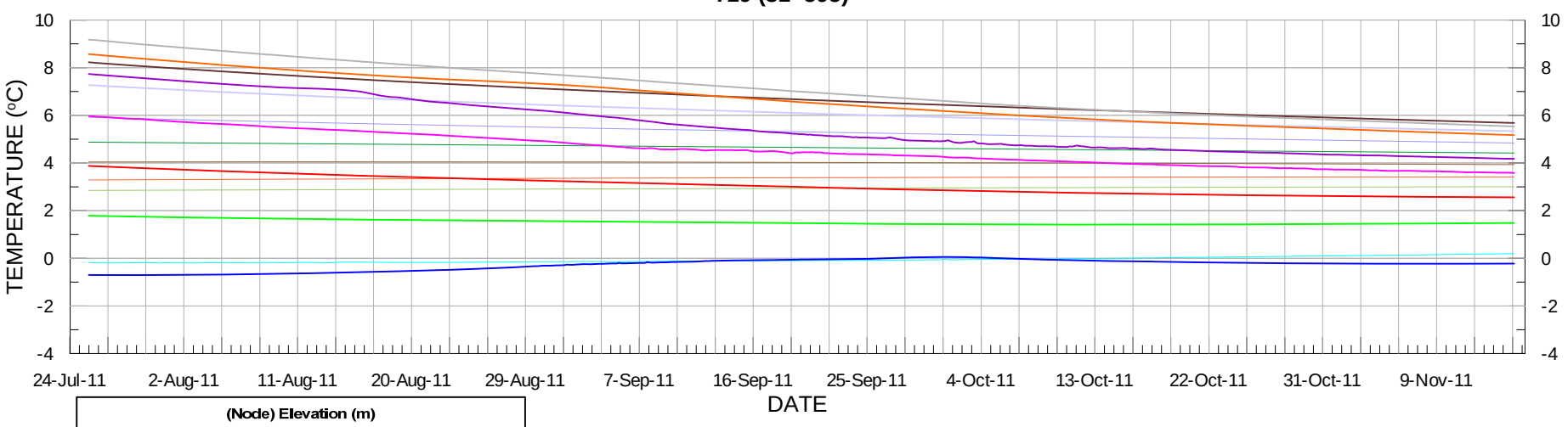
(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

T18 (31+352)



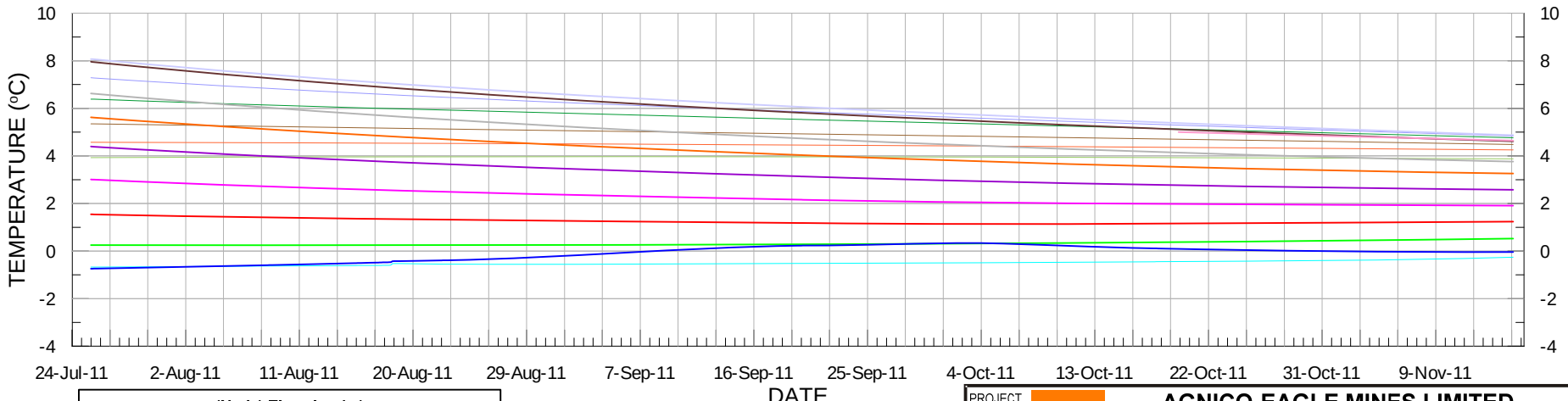
(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

T19 (31+595)



(Node) Elevation (m)			
(1) 135		(9) 123	
(2) 133.5		(10) 121.5	
(3) 132		(11) 120	
(4) 130.5		(12) 118	
(5) 129		(13) 116	
(6) 127.5		(14) 114	
(7) 126		(15) 111	
(8) 124.5		(16) 108	

T20 (31+605)



(Node) Elevation (m)			
(1) 135		(9) 127	
(2) 134		(10) 126	
(3) 133		(11) 125	
(4) 132		(12) 123	
(5) 131		(13) 121	
(6) 130		(14) 119	
(7) 129		(15) 117	
(8) 128		(16) 115	

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

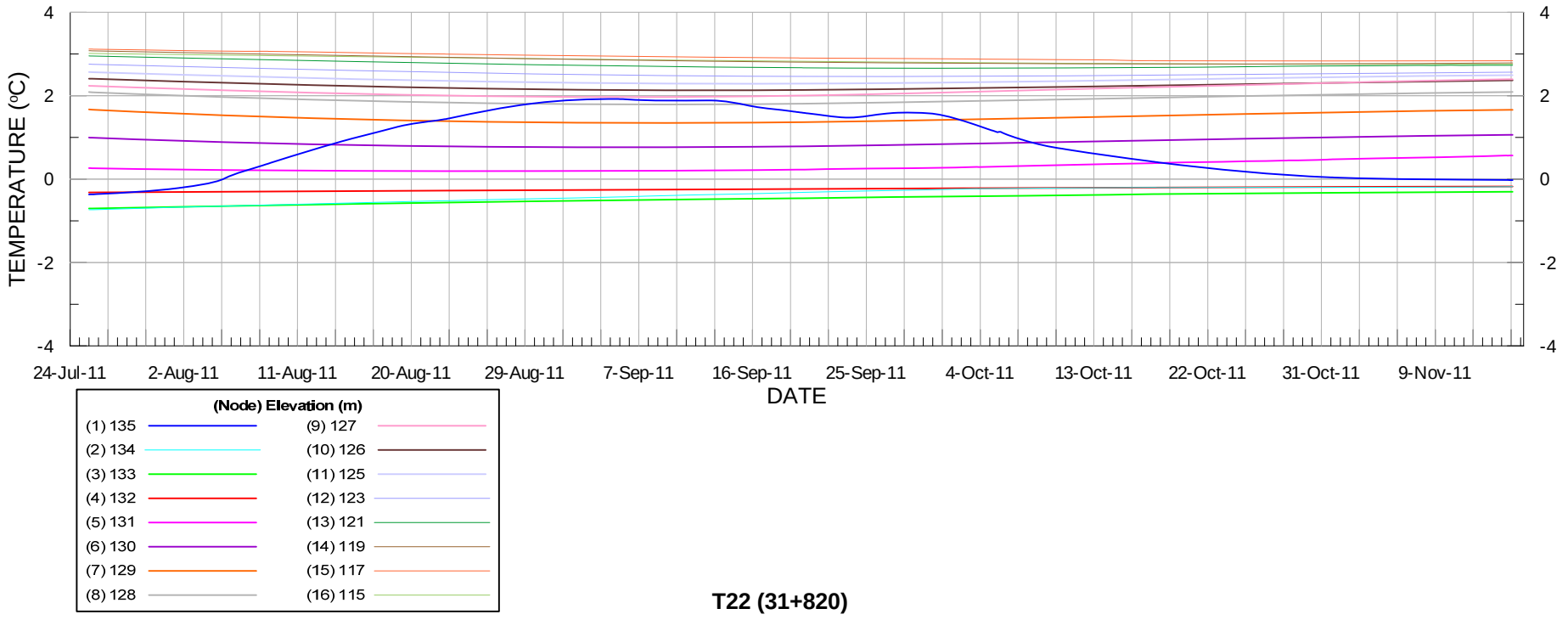
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

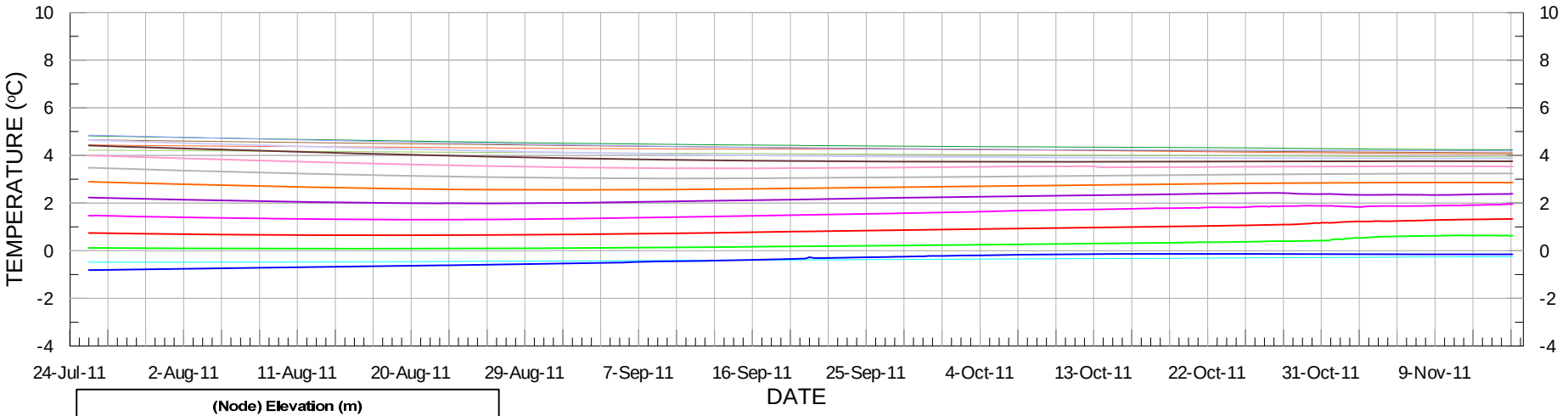
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11	**FIGURE 6E**		
CHECK					
REVIEW					

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T21-T24.grf

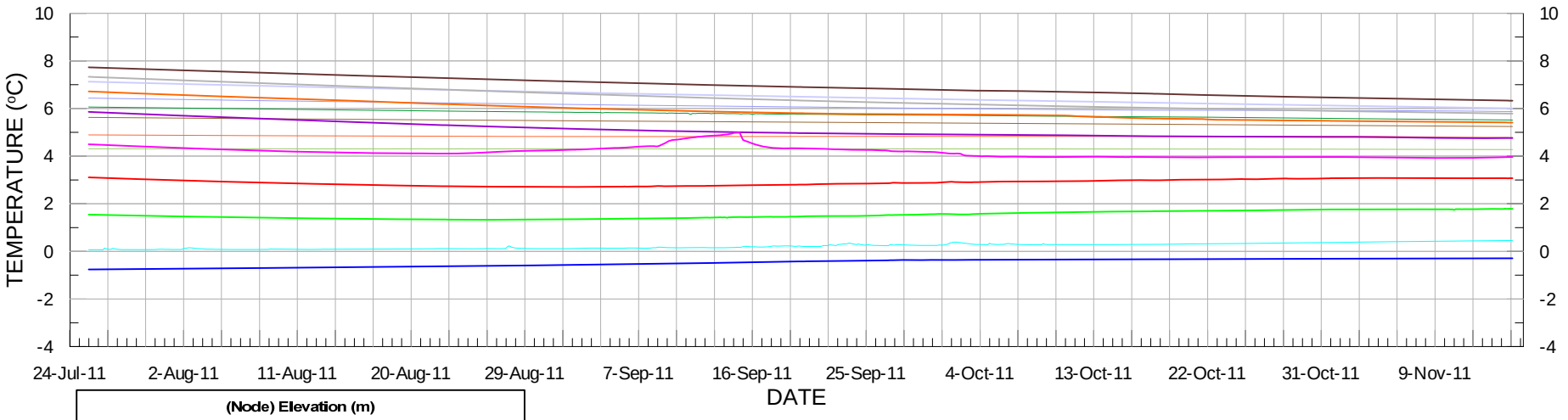
T21 (31+752.5)



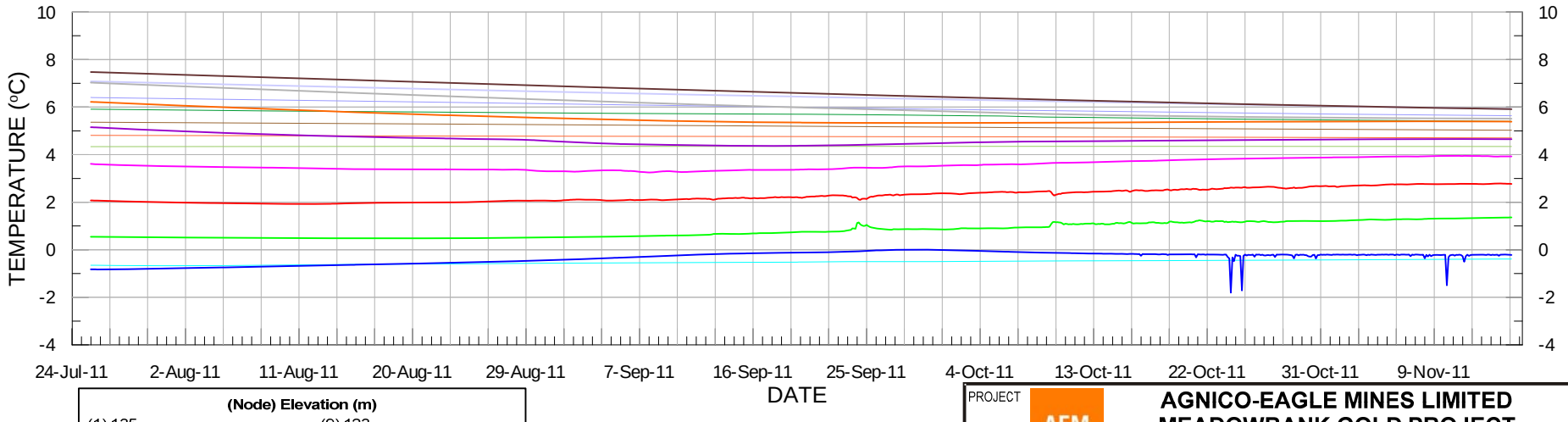
T22 (31+820)



T23 (31+850)



T24 (31+880)



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

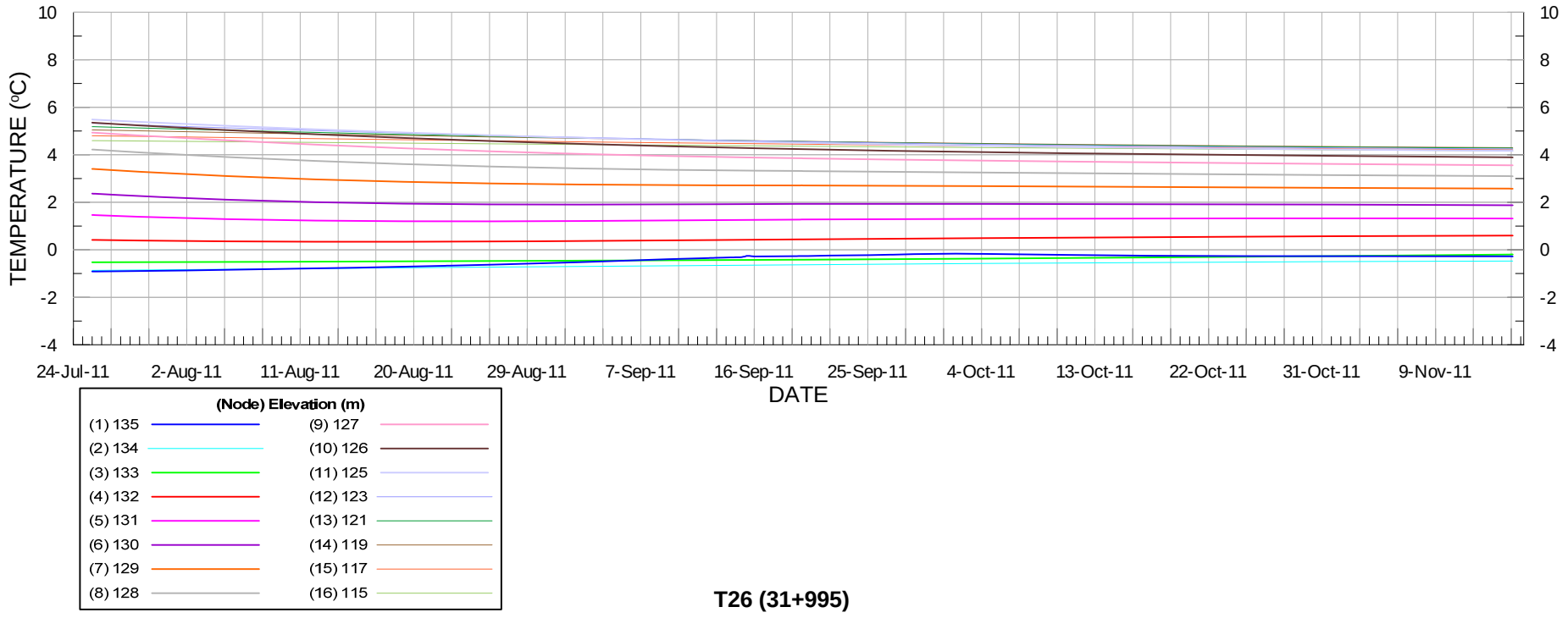
Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11			
CHECK					
REVIEW					

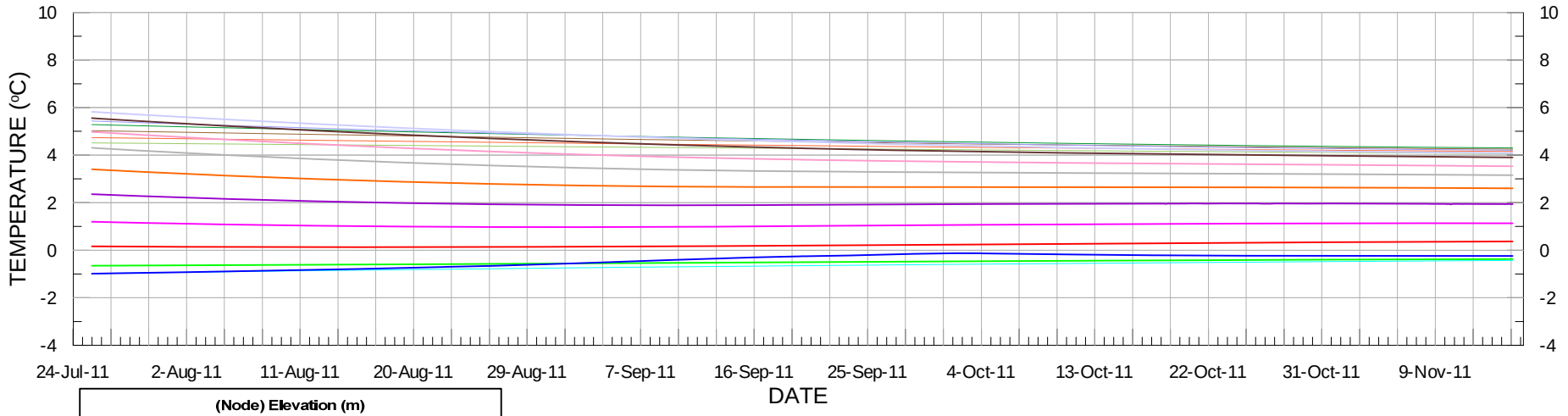
FIGURE 6F

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T25-T28.grf

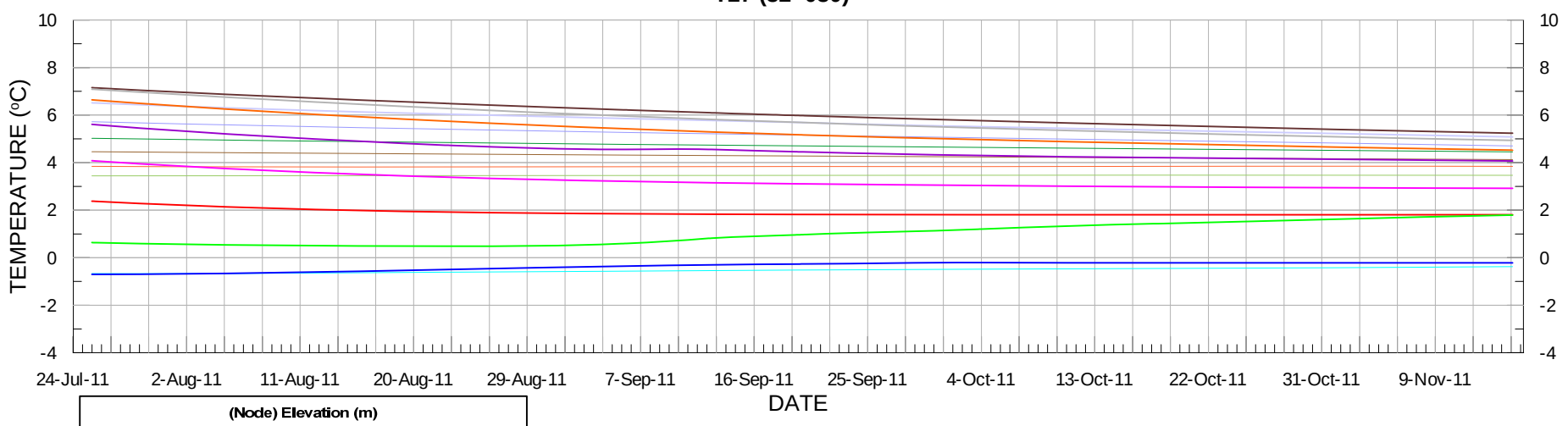
T25 (31+960)



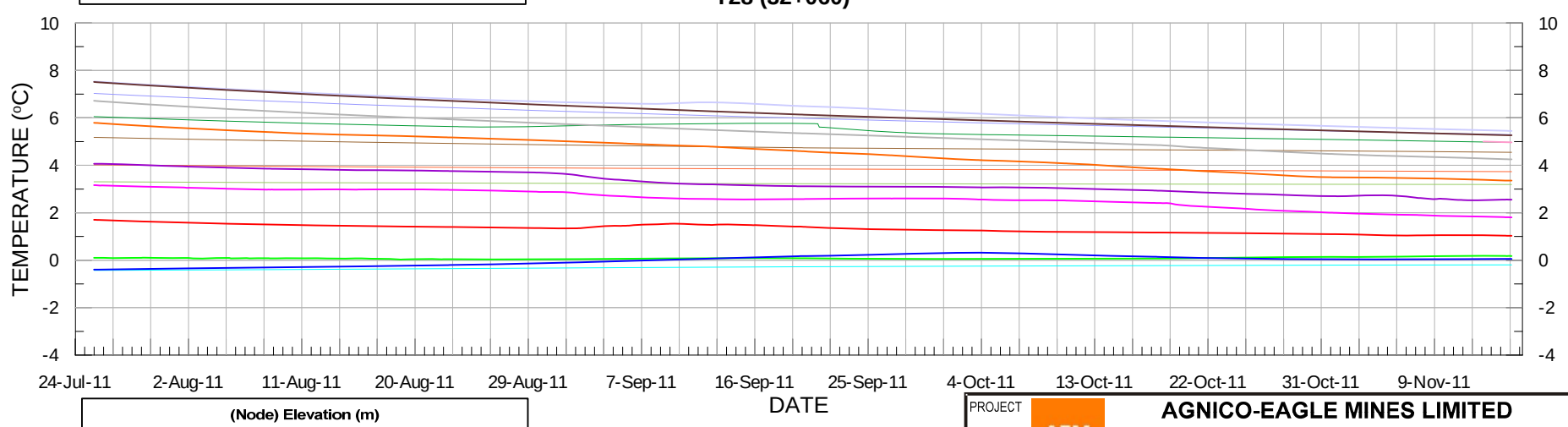
T26 (31+995)



T27 (32+030)



T28 (32+060)



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

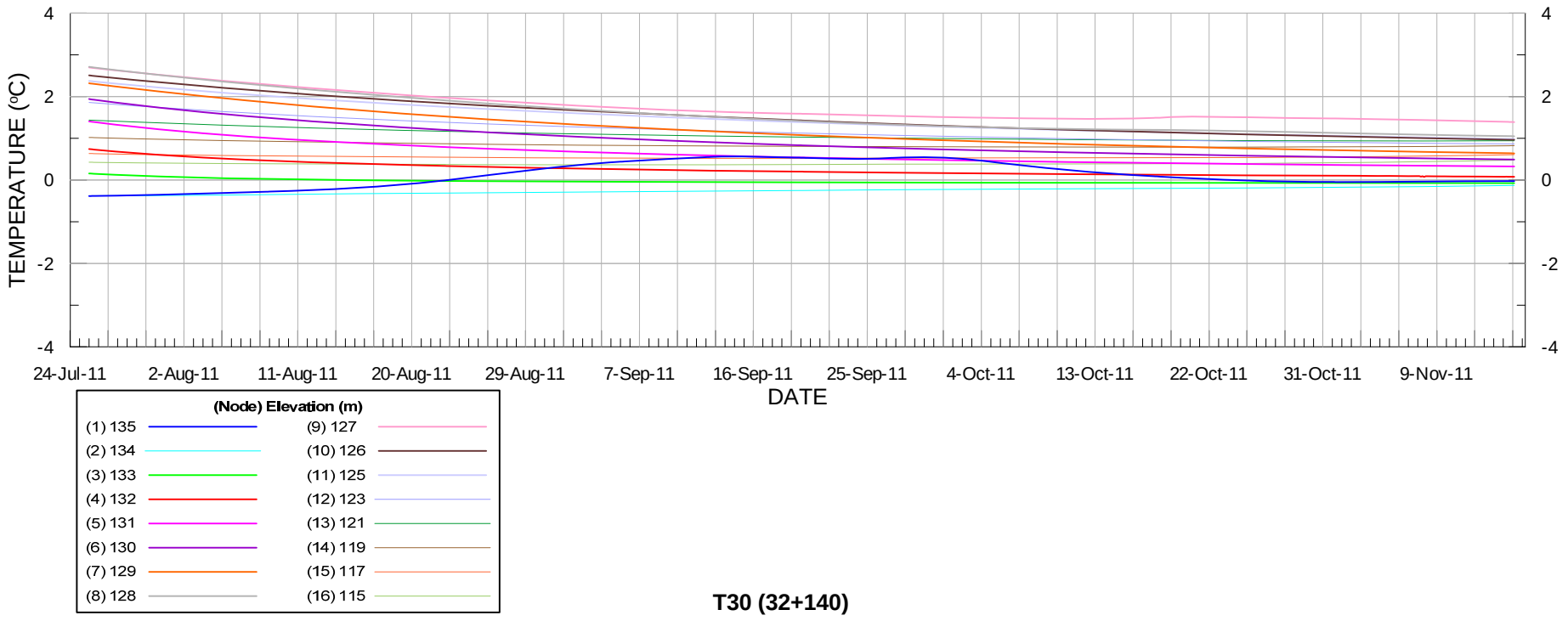
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

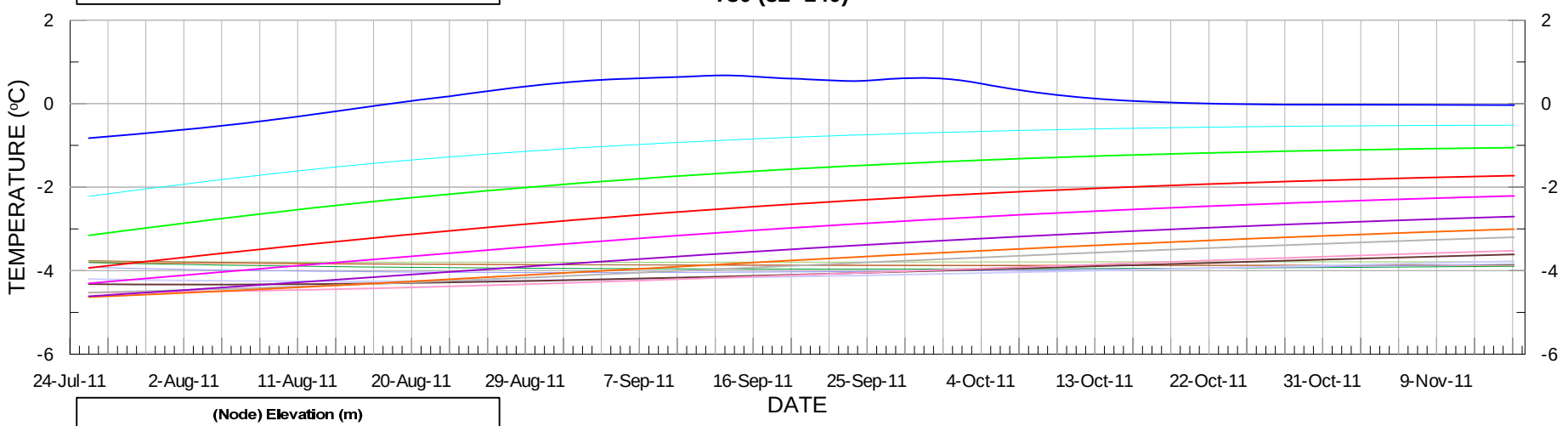
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.	
CADD	GG	18AUG11	**FIGURE 6G**		
CHECK					
REVIEW					

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-T29-T30.grf

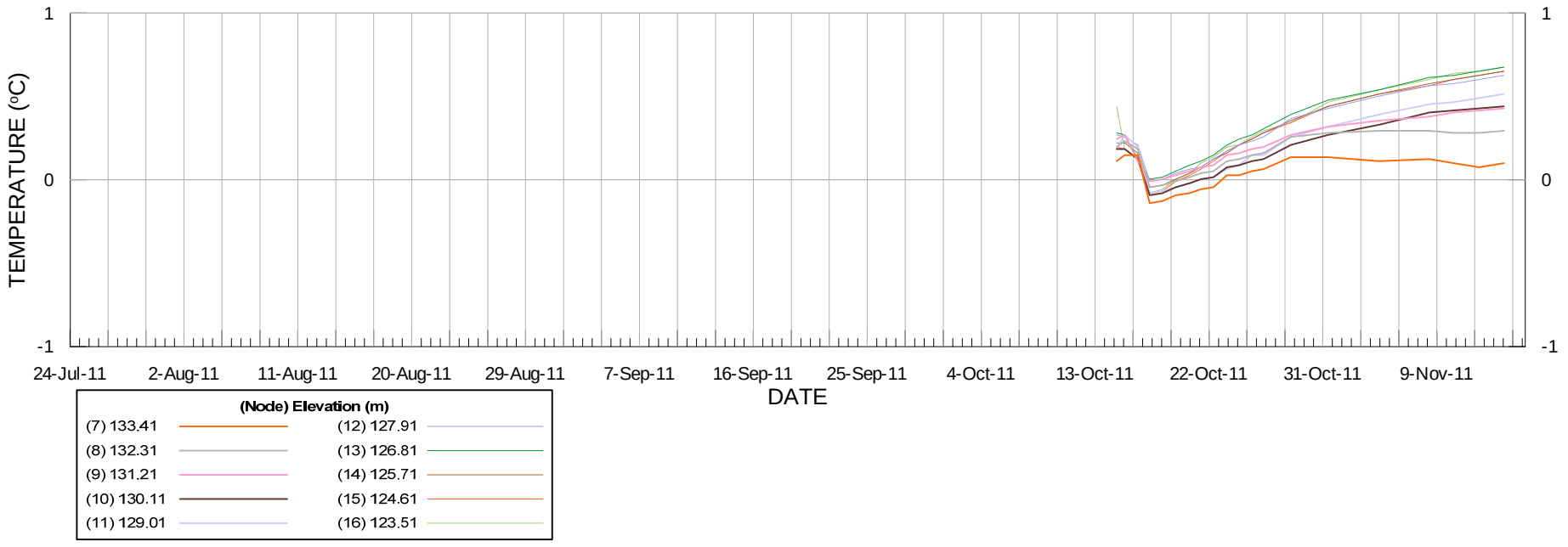
T29 (32+100)



T30 (32+140)



3PL - UPSTREAM LAKE (31+065 Approx.)



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

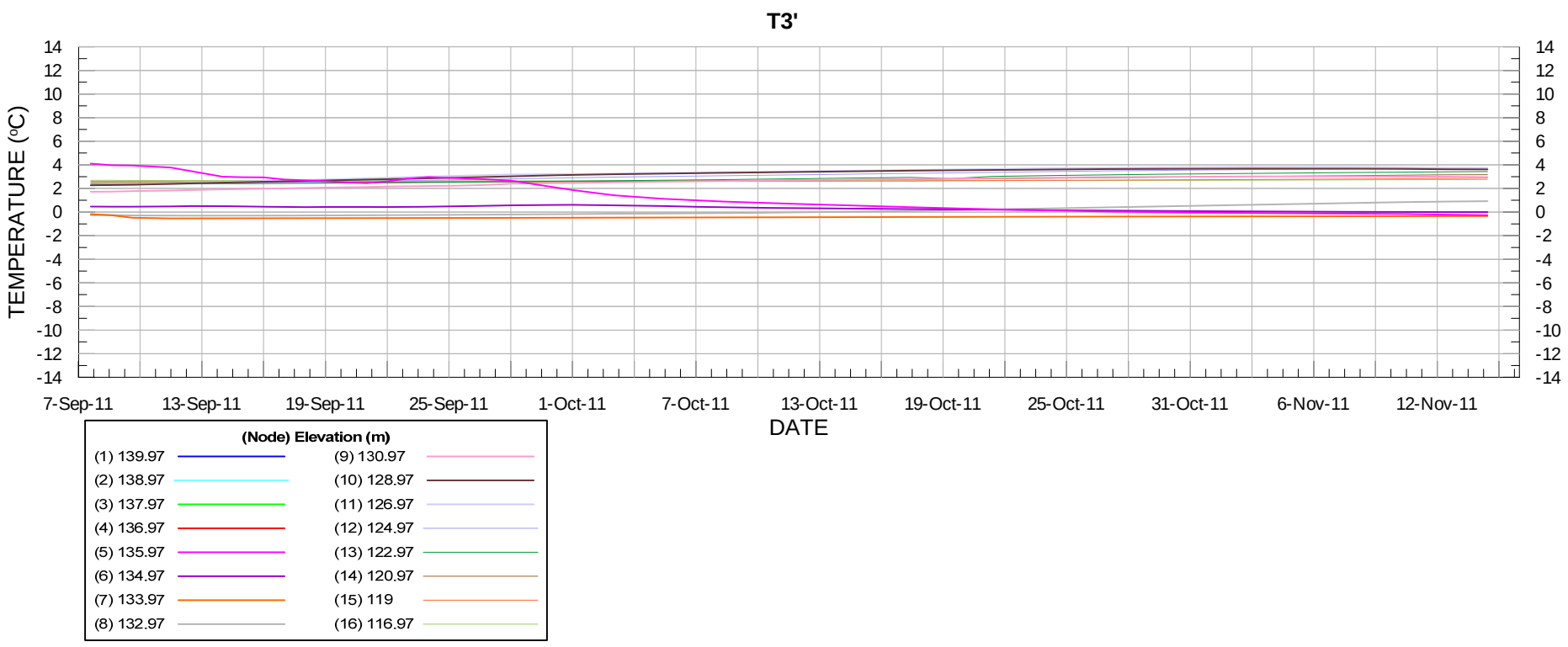
TITLE

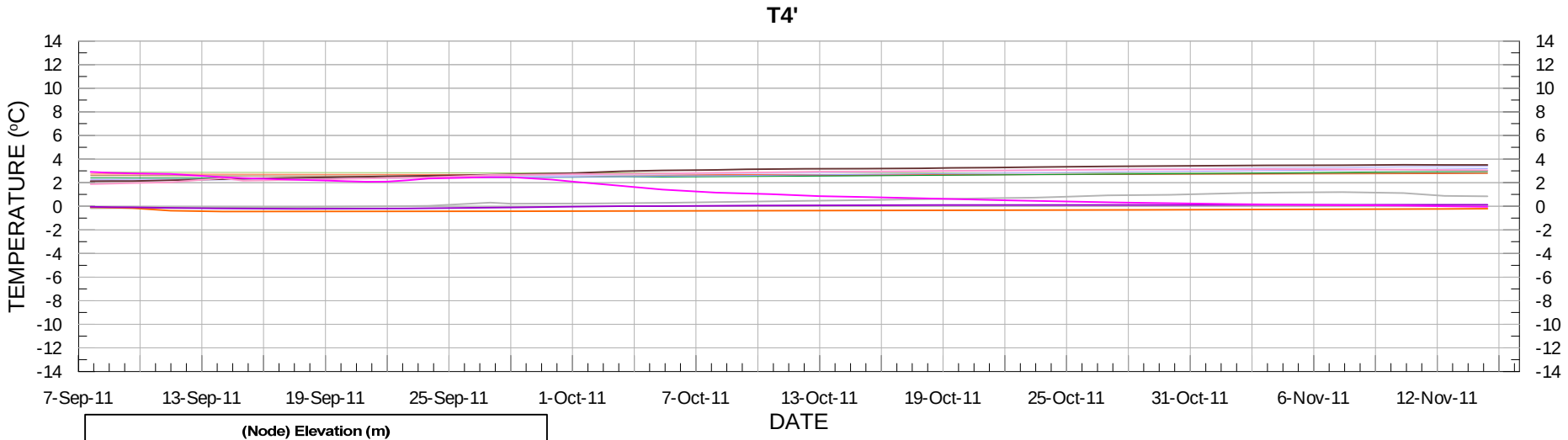
BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(JUL. 2011 TO NOV. 15, 2011)

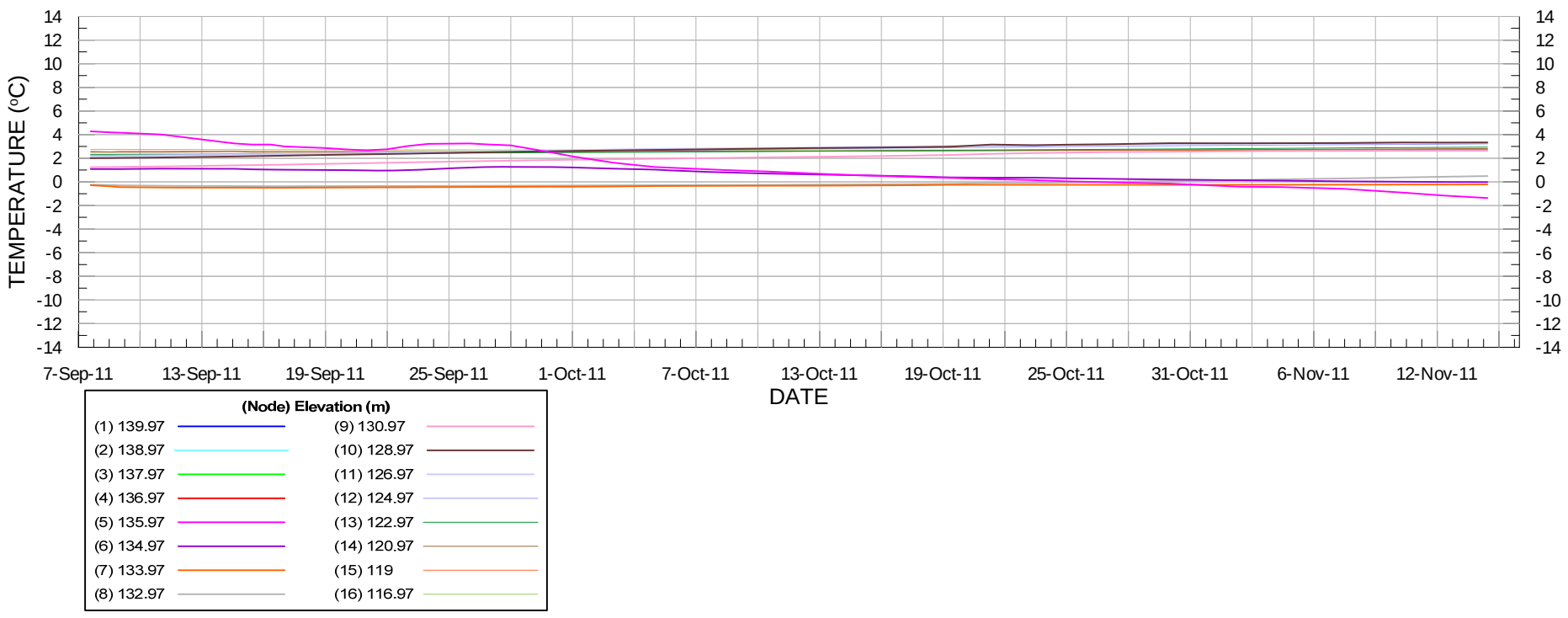
Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.
CADD	GG	18AUG11		
CHECK			**FIGURE 6H**	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/NT-nodal thermal timelines-manual thermistors.grf







PROJECT AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

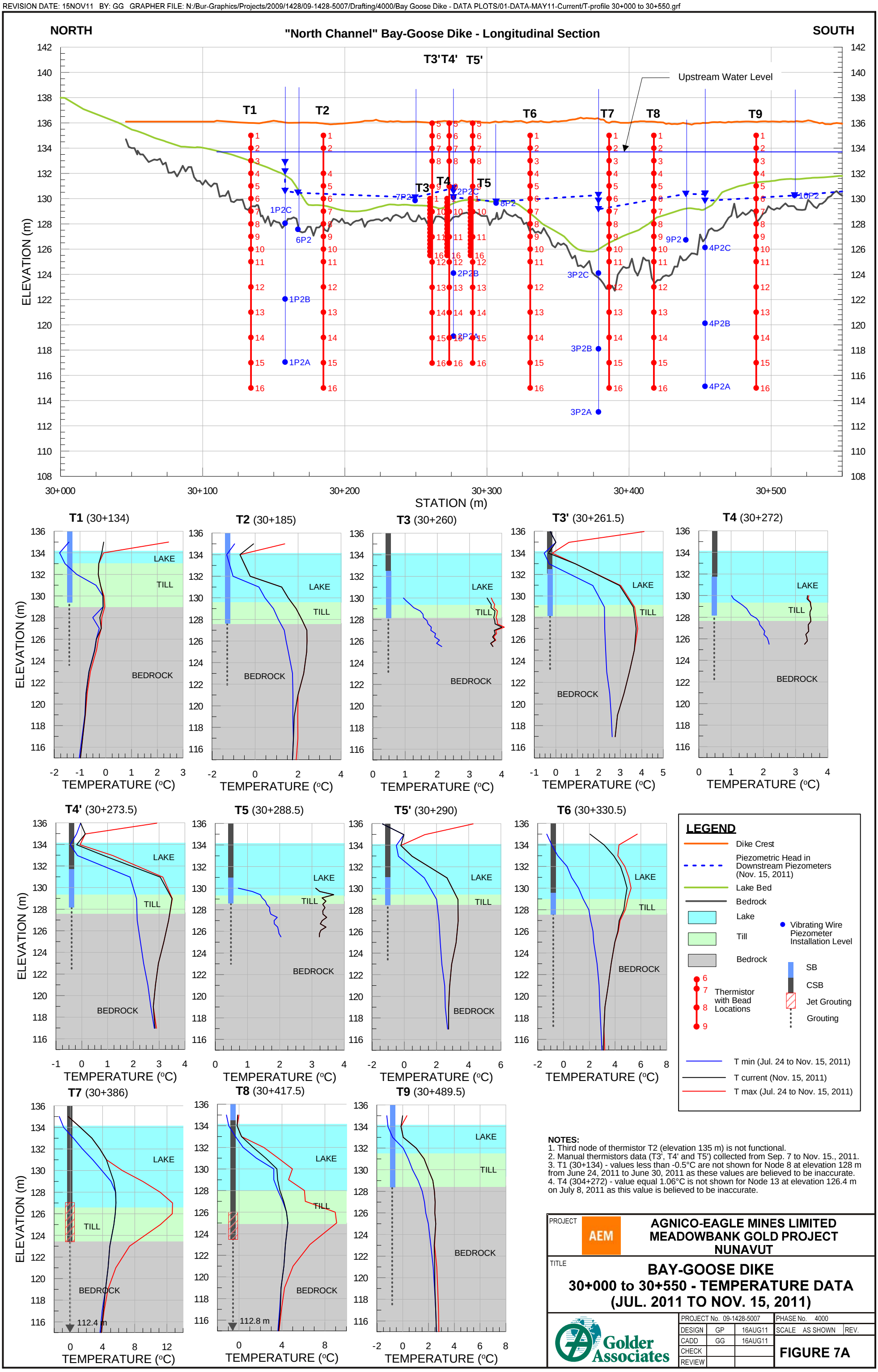
TITLE

BAY-GOOSE DIKE
NODAL THERMAL TIMELINES
(SEP. 7 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	18AUG11	SCALE AS SHOWN	REV.
CADD	GG	18AUG11		
CHECK			**FIGURE 6I**	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/T-profile 30+000 to 30+550.grf



NOTES:
1. Third node of thermistor T2 (elevation 135 m) is not functional.
2. Manual thermistors data (T3', T4' and T5') collected from Sep. 7 to Nov. 15., 2011.
3. T1 (30+134) - values less than -0.5°C are not shown for Node 8 at elevation 128 m from June 24, 2011 to June 30, 2011 as these values are believed to be inaccurate.
4. T4 (304+272) - value equal 1.06°C is not shown for Node 13 at elevation 126.4 m on July 8, 2011 as this value is believed to be inaccurate.

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE
30+000 to 30+550 - TEMPERATURE DATA (JUL. 2011 TO NOV. 15, 2011)

Golder Associates

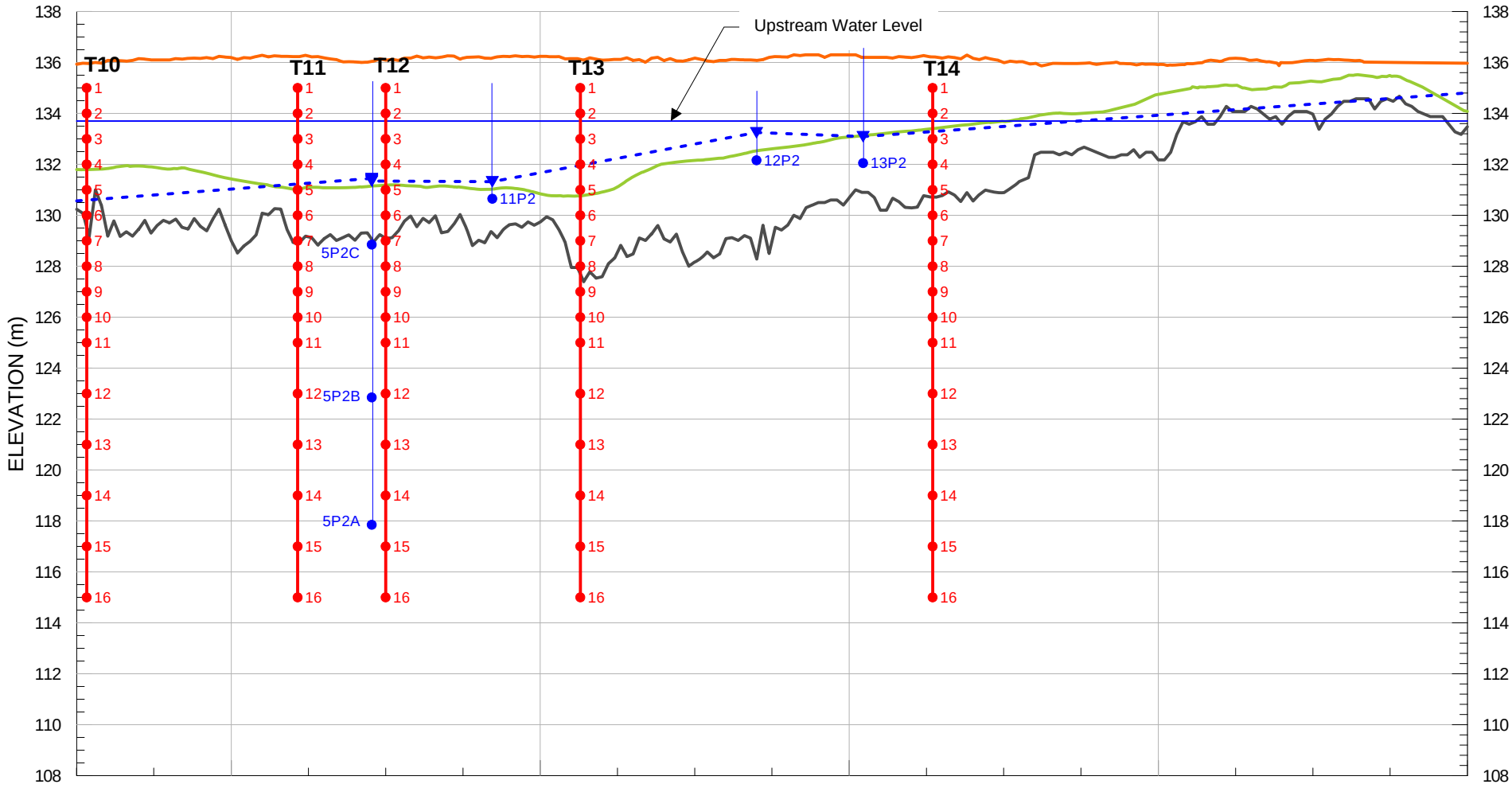
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK			**FIGURE 7A**	
REVIEW				

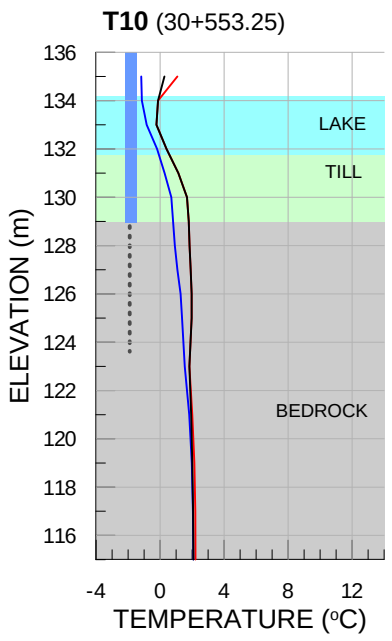
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/T-profile 30+550 to 31+000.grf

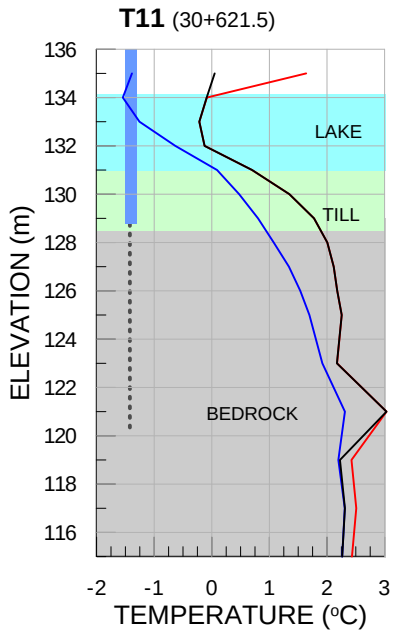
NORTH

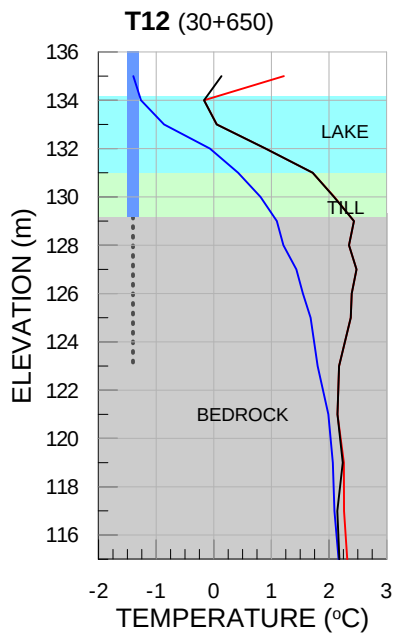
"North Shallows" Bay-Goose Dike - Longitudinal Section

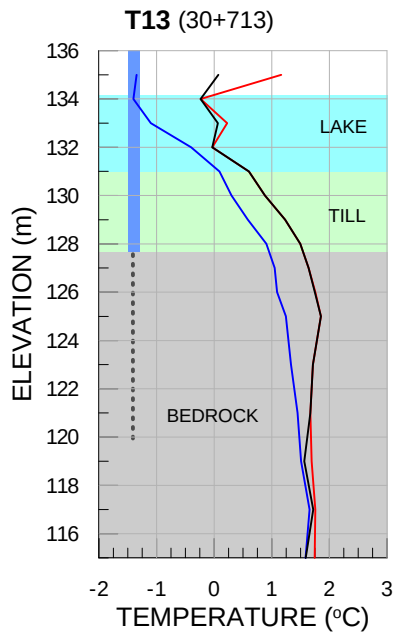
SOUTH

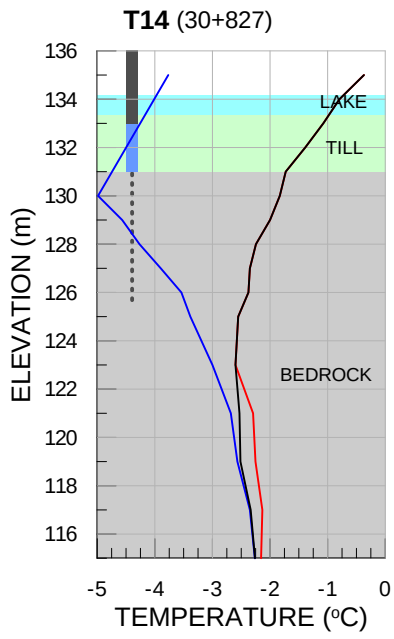












LEGEND

- Dike Crest
- Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
- Lake Bed
- Bedrock
- Lake
- Till
- Bedrock
- Thermistor with Bead Locations
- Vibrating Wire Piezometer Installation Level
- SB
- CSB
- Jet Grouting
- Grouting

- T min (Jul. 24 to Nov. 15, 2011)
- T current (Nov. 15, 2011)
- T max (Jul. 24 to Nov. 15, 2011)

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

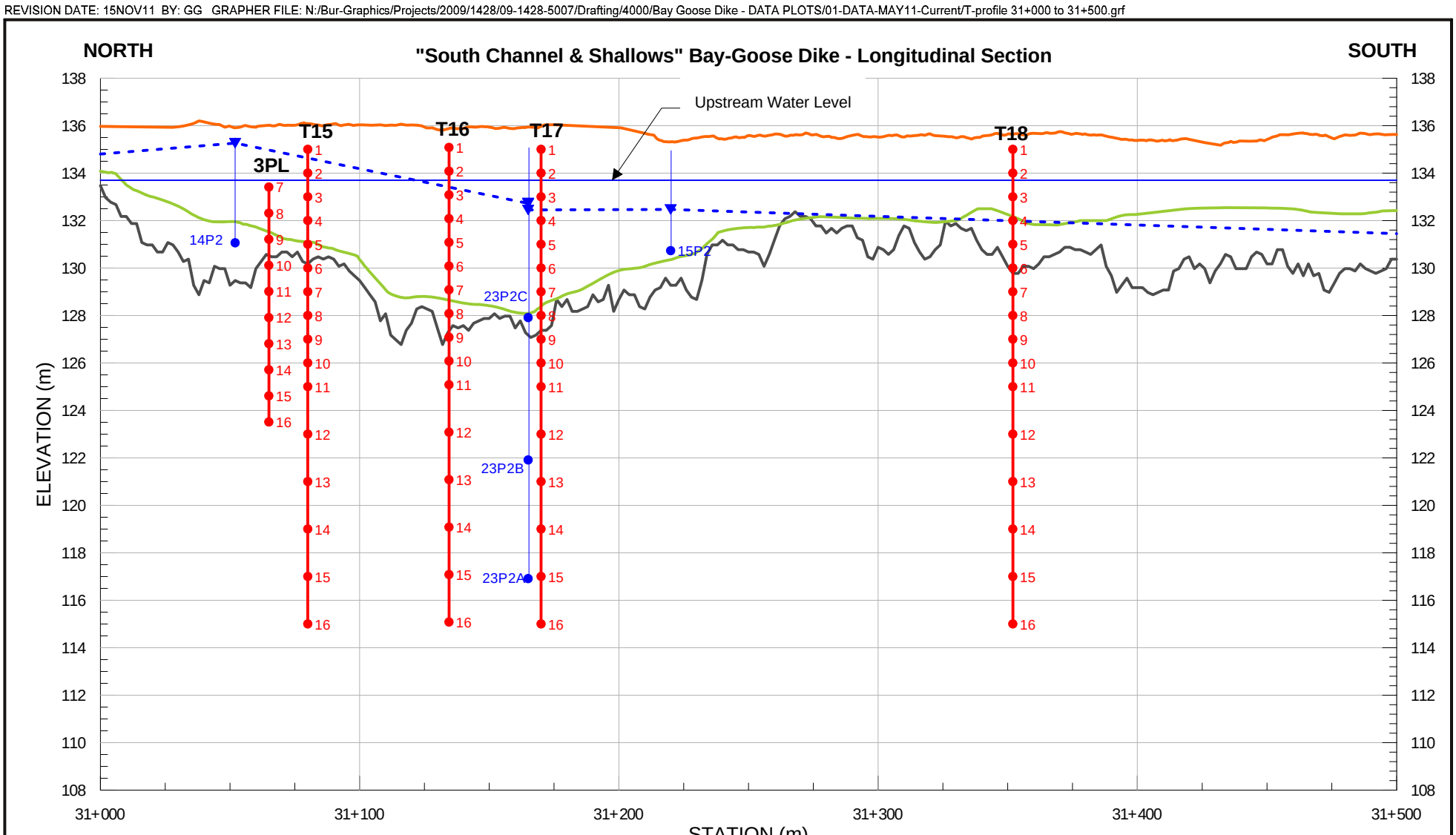
BAY-GOOSE DIKE
30+550 to 31+000 - TEMPERATURE DATA
(JUL. 2011 TO NOV. 15, 2011)

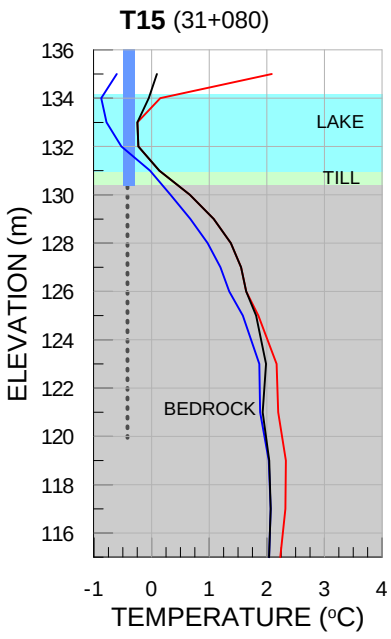
Golder Associates

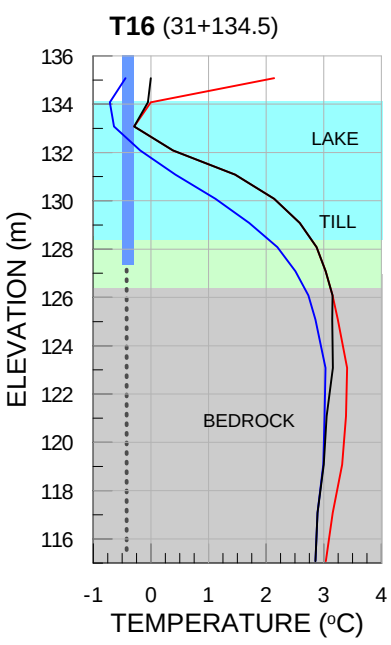
PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.	
CADD	GG	16AUG11			
CHECK					
REVIEW					

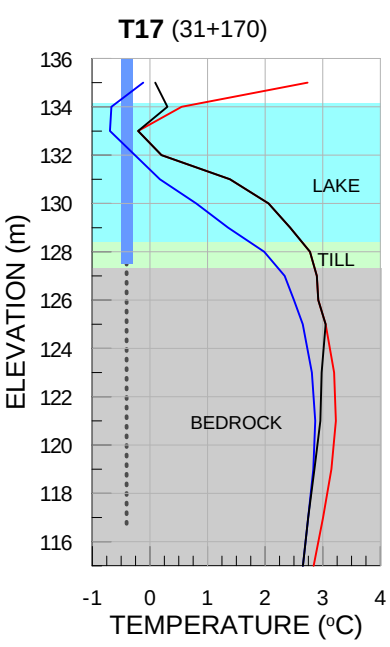
FIGURE 7B

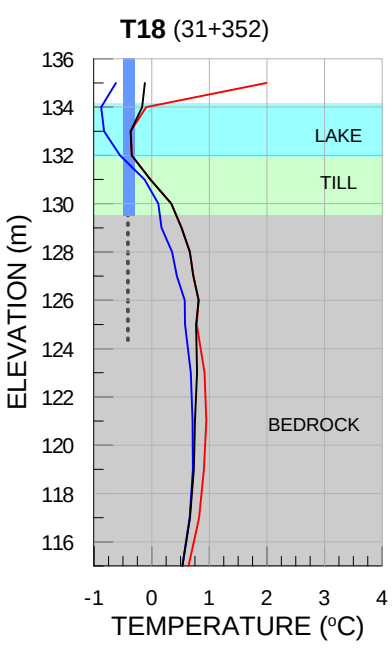
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/T-profile 31+000 to 31+500.grf











3PL - UPSTREAM LAKE
(31+065 Approx.)

LEGEND

- Dike Crest
- Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
- Lake Bed
- Bedrock
- Lake
- Till
- Bedrock
- Thermistor with Bead Locations
- Vibrating Wire Piezometer Installation Level
- SB
- CSB
- Jet Grouting
- Grouting

- T min (Jul. 24 to Nov. 15, 2011)
- T current (Nov. 15, 2011)
- T max (Jul. 24 to Nov. 15, 2011)

NOTES:
1. Thermistor 3PL is installed upstream of the dike within Third Portage Lake.
2. Thermistor 3PL's data collected from Oct. 14 to Nov. 15., 2011.

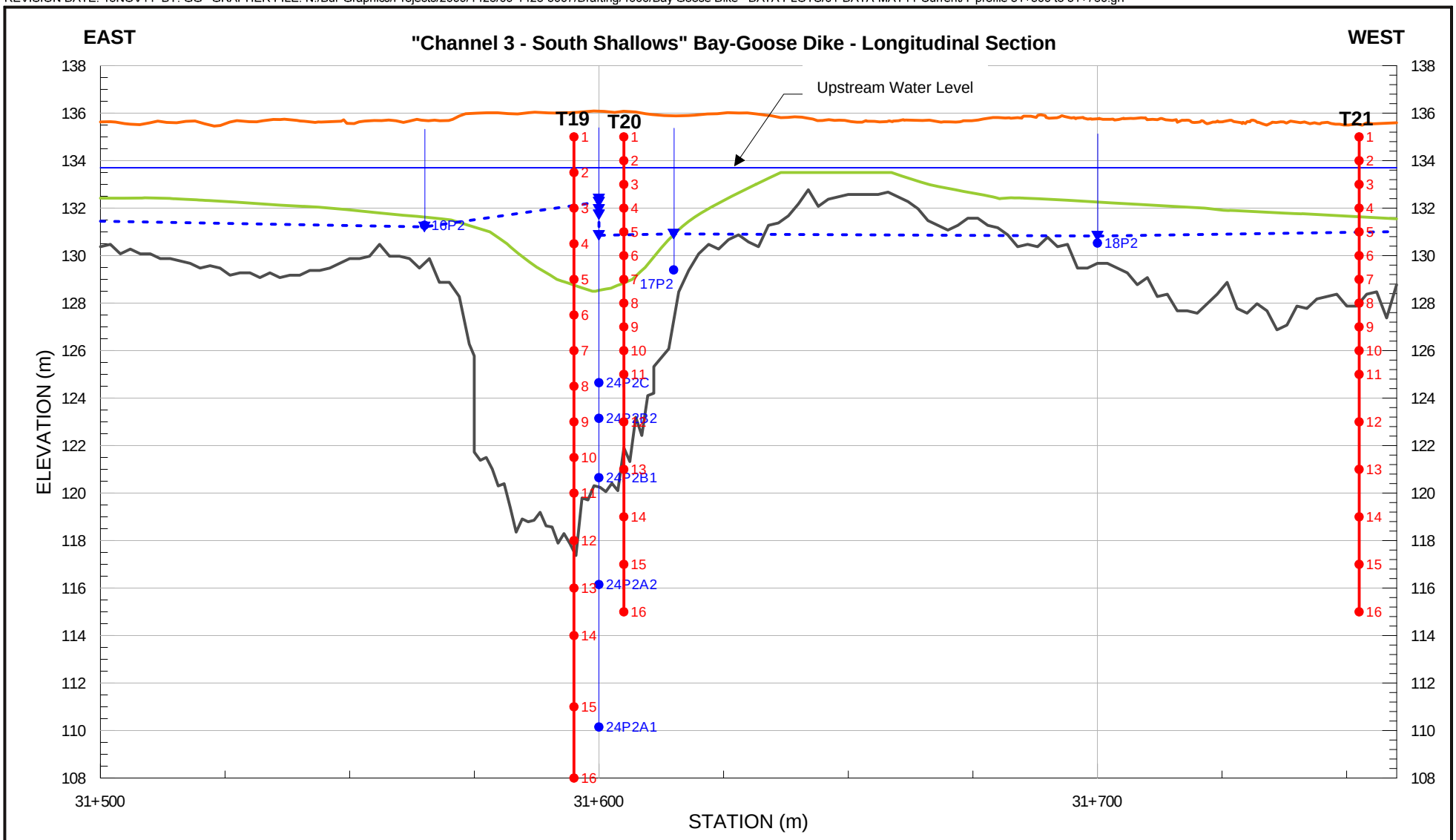
PROJECT AEM
AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

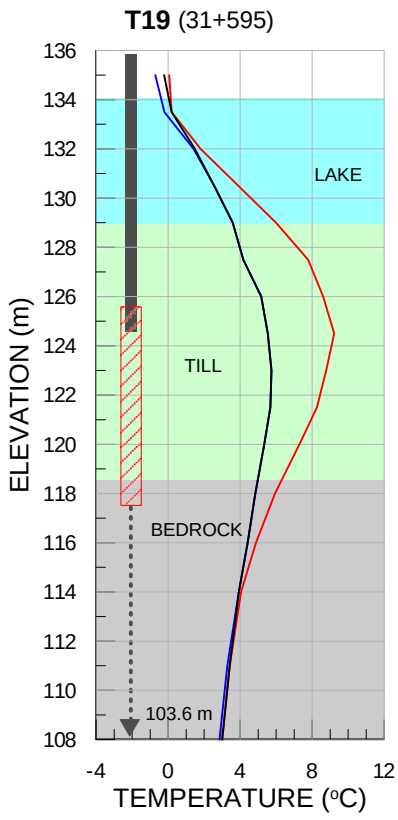
TITLE
BAY-GOOSE DIKE
31+000 to 31+500 - TEMPERATURE DATA (JUL. 2011 TO NOV. 15, 2011)

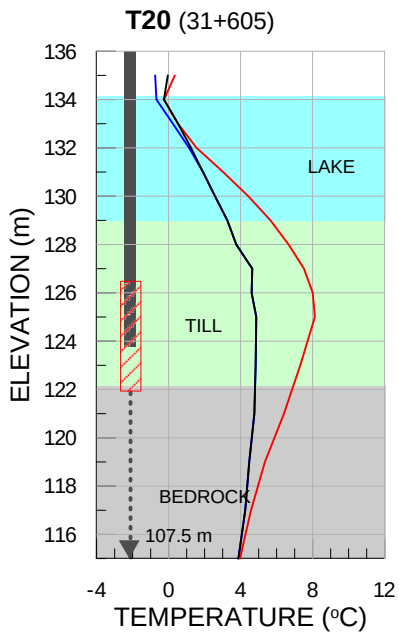
Golder Associates

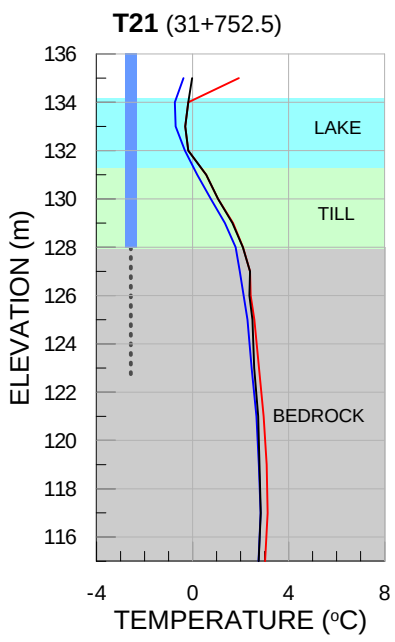
PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK			FIGURE 7C	
REVIEW				

REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/T-profile 31+500 to 31+760.grf









LEGEND

- Dike Crest
- Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
- Lake Bed
- Bedrock
- Lake
- Till
- Bedrock
- Thermistor with Bead Locations
- Vibrating Wire Piezometer Installation Level
- SB
- CSB
- Jet Grouting
- Grouting

- T min (Jul. 24 to Nov. 15, 2011)
- T current (Nov. 15, 2011)
- T max (Jul. 24 to Nov. 15, 2011)

PROJECT

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE
31+500 to 31+760 - TEMPERATURE DATA (JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000		
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.	
CADD	GG	16AUG11			
CHECK					
REVIEW					

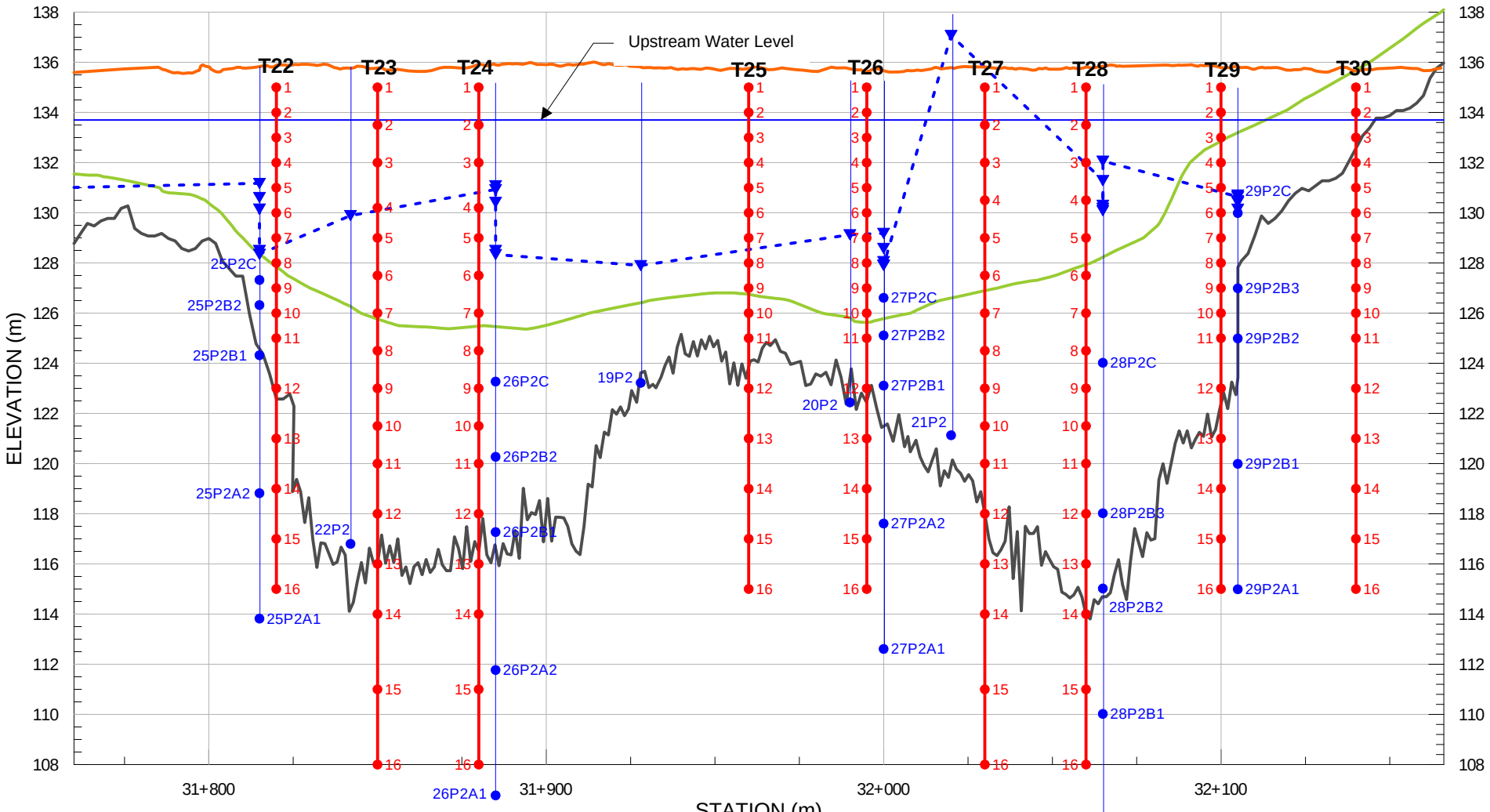
FIGURE 7D

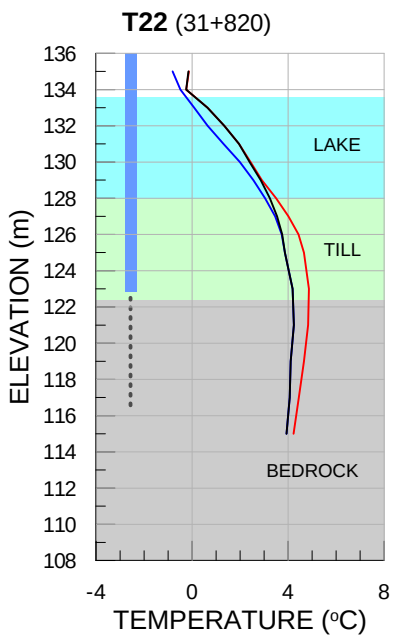
REVISION DATE: 15NOV11 BY: GG GRAPHER FILE: N:/Bur-Graphics/Projects/2009/1428/09-1428-5007/Drafting/4000/Bay Goose Dike - DATA PLOTS/01-DATA-MAY11-Current/T-profile 31+760 to 32+166.grf.grf

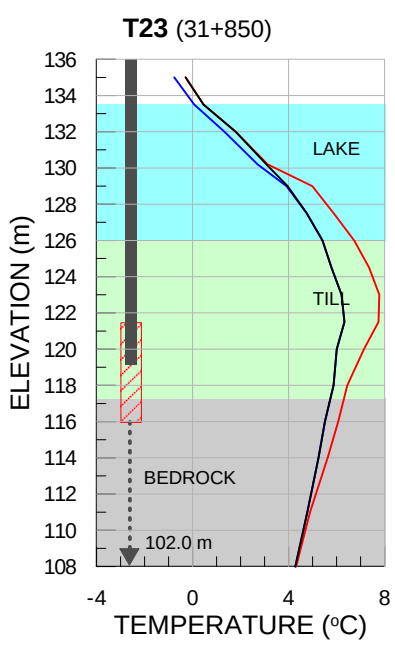
SOUTHEAST

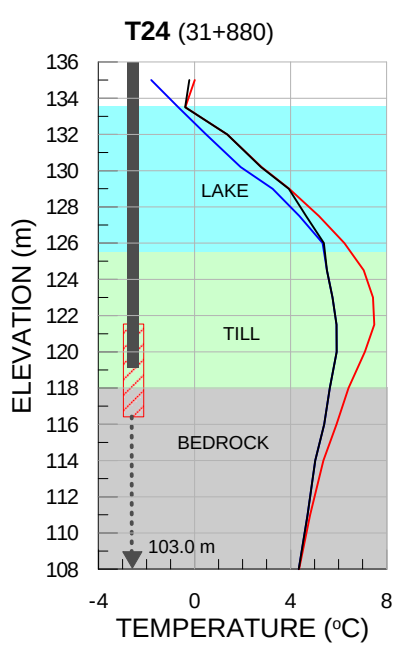
"Channel 2 & Channel 1" Bay-Goose Dike - Longitudinal Section

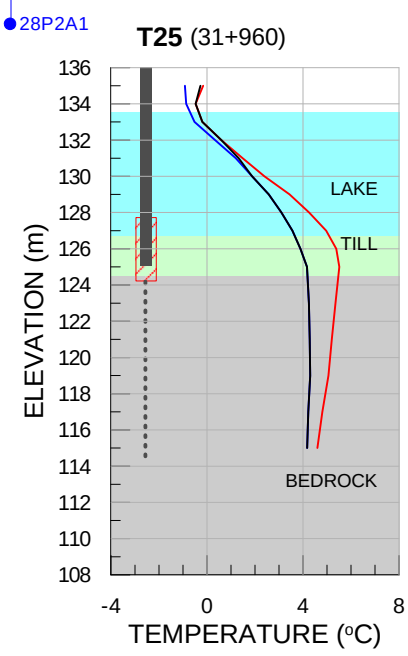
NORTHWEST

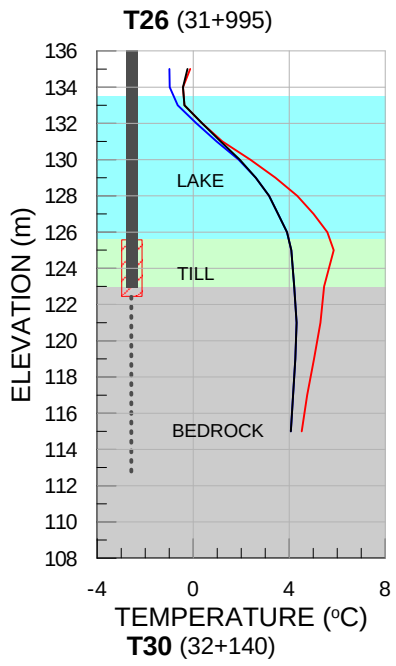


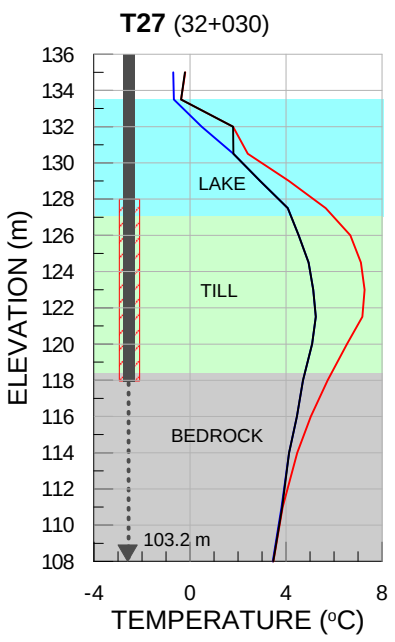


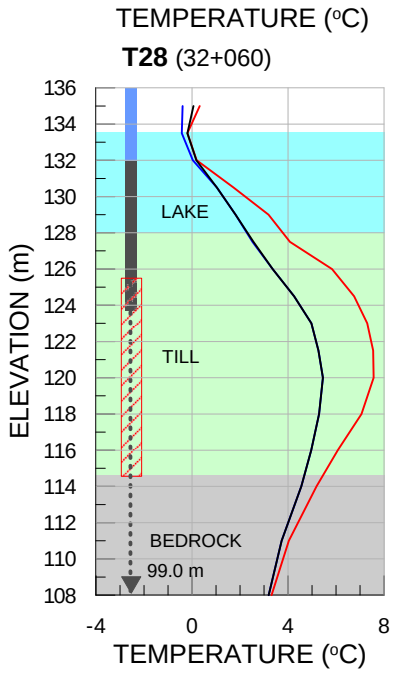


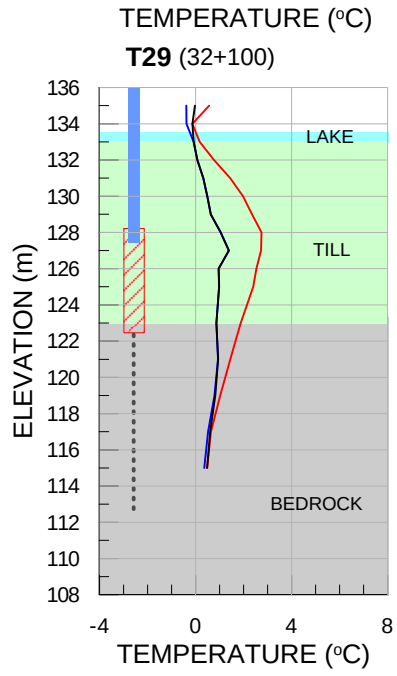


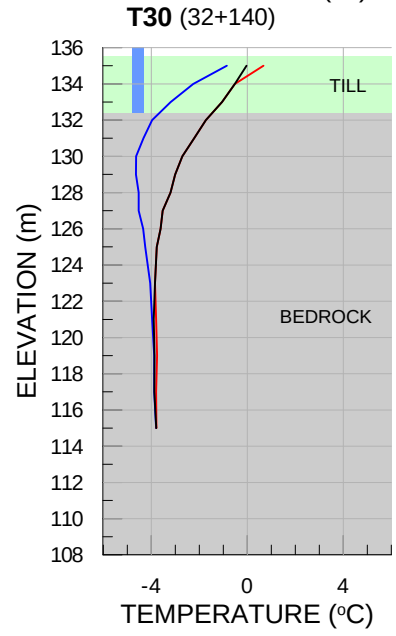












LEGEND

- Dike Crest
- Piezometric Head in Downstream Piezometers (Nov. 15, 2011)
- Lake Bed
- Bedrock
- Lake
- Till
- Bedrock
- Thermistor with Bead Locations
- Vibrating Wire Piezometer Installation Level
- SB
- CSB
- Jet Grouting
- Grouting

- T min (Jul. 24 to Nov. 15, 2011)
- T current (Nov. 15, 2011)
- T max (Jul. 24 to Nov. 15, 2011)

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

BAY-GOOSE DIKE
31+760 to 32+166 - TEMPERATURE DATA
(JUL. 2011 TO NOV. 15, 2011)

Golder Associates

PROJECT No. 09-1428-5007			PHASE No. 4000	
DESIGN	GP	16AUG11	SCALE AS SHOWN	REV.
CADD	GG	16AUG11		
CHECK				
REVIEW				

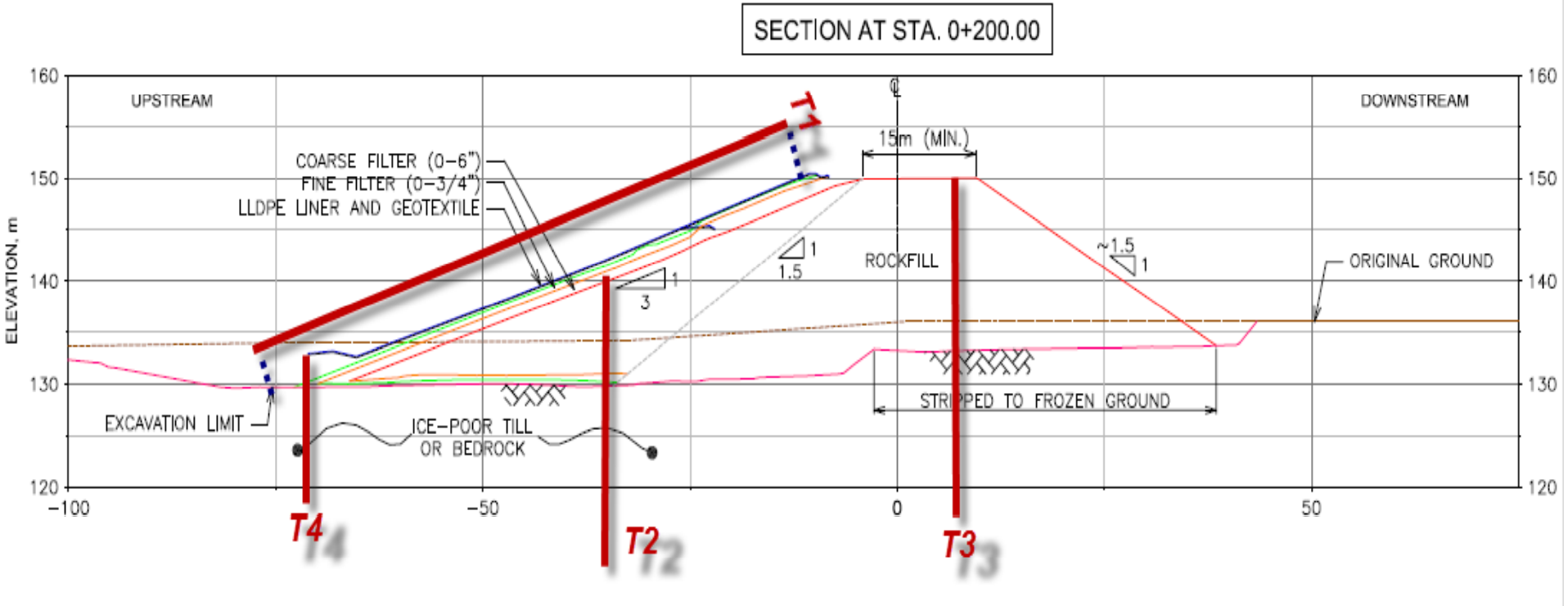
FIGURE 7E

APPENDIX C4

Saddle Dam 1 Thermistor Data

Saddle Dam 1 – Review of instrumentation

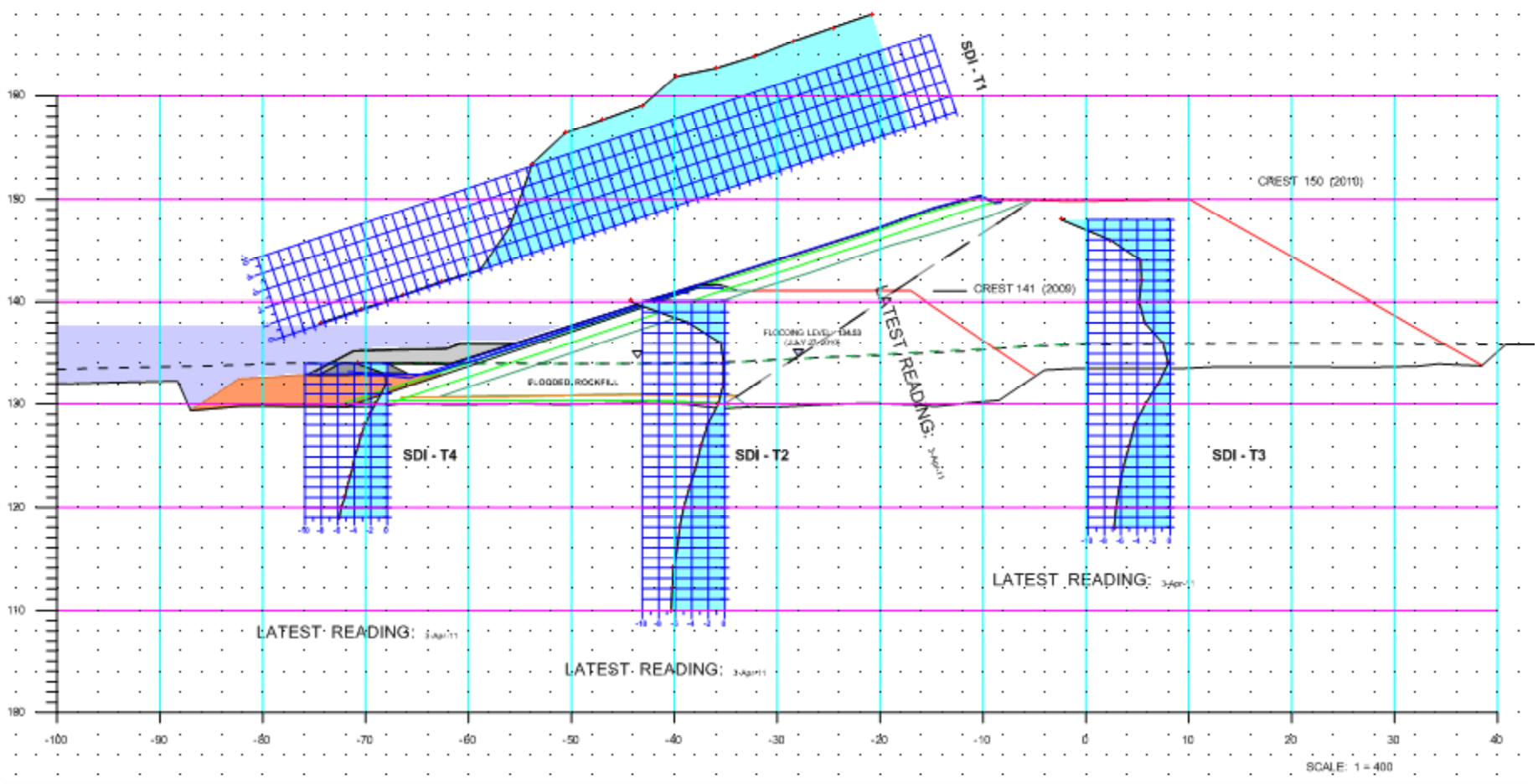
Thermistors emplacement – T1, T2, T3 and T4



Saddle Dam 1 – Review of instrumentation

GRAPHER PROFILE – SD1

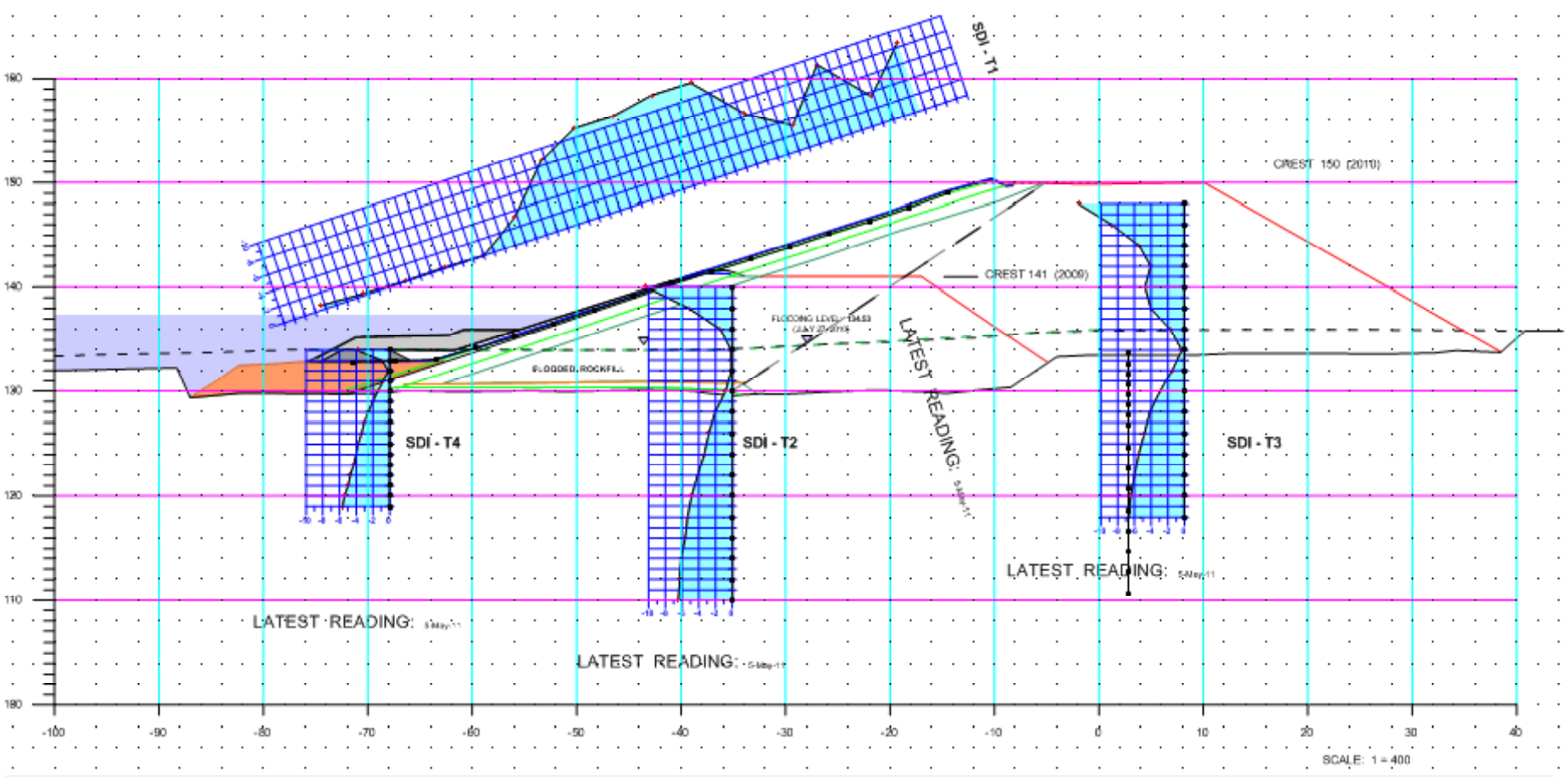
MONTH: ***APRIL***



Saddle Dam 1 – Review of instrumentation

GRAPHER PROFILE – SD1

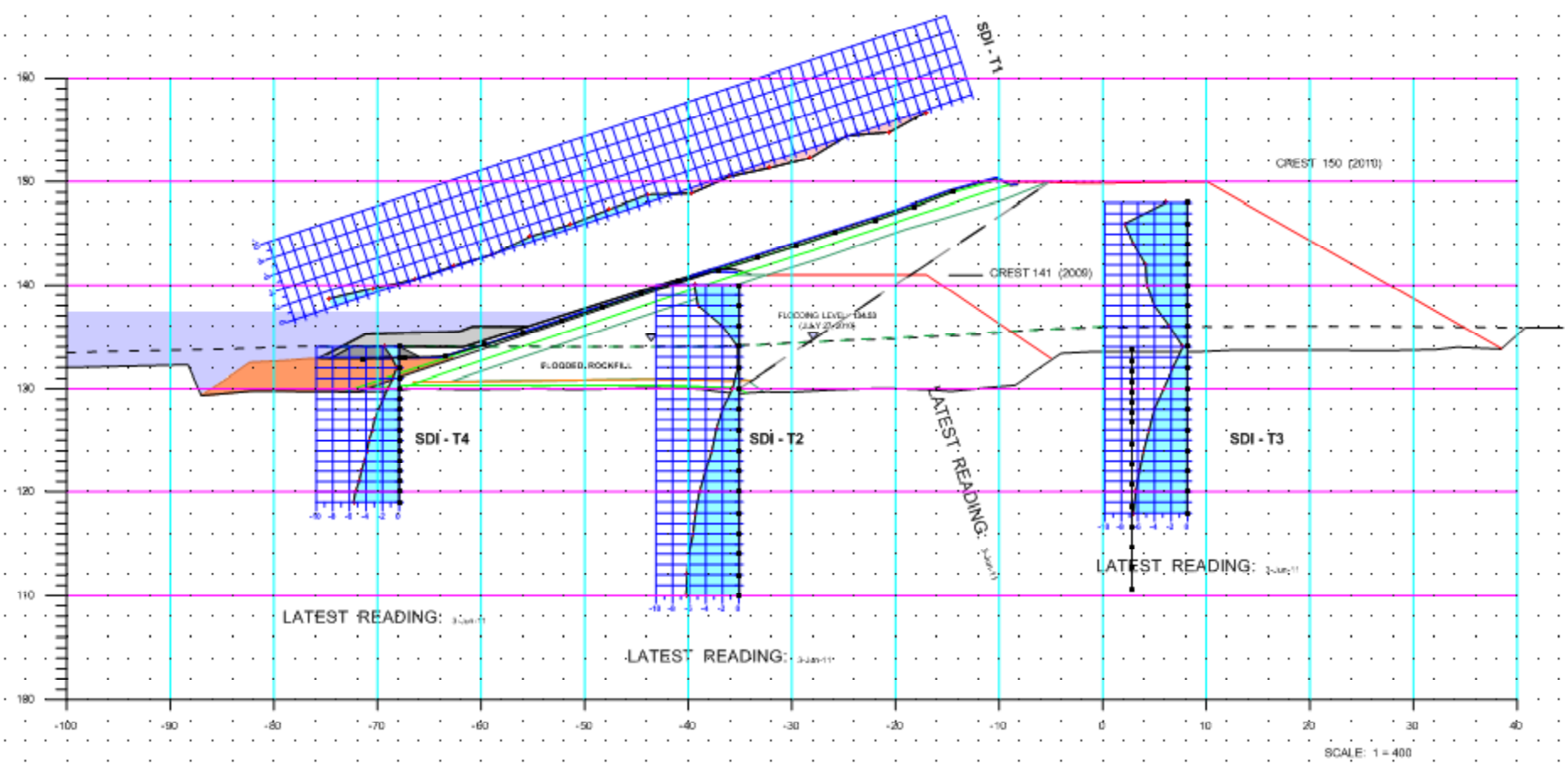
MONTH: MAY



Saddle Dam 1 – Review of instrumentation

GRAPHER PROFILE – SD1

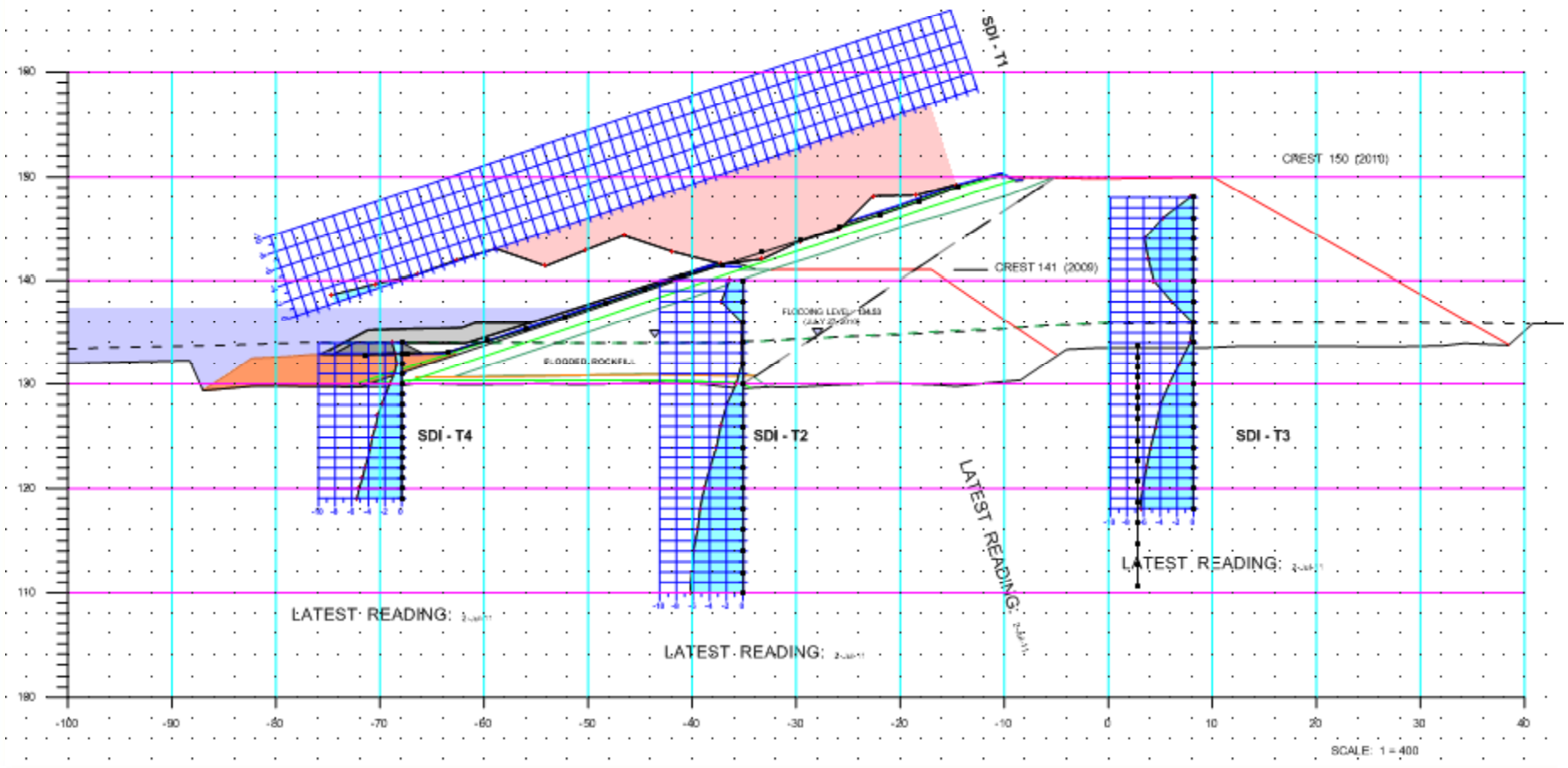
MONTH: JUNE



Saddle Dam 1 – Review of instrumentation

GRAPHER PROFILE – SD1

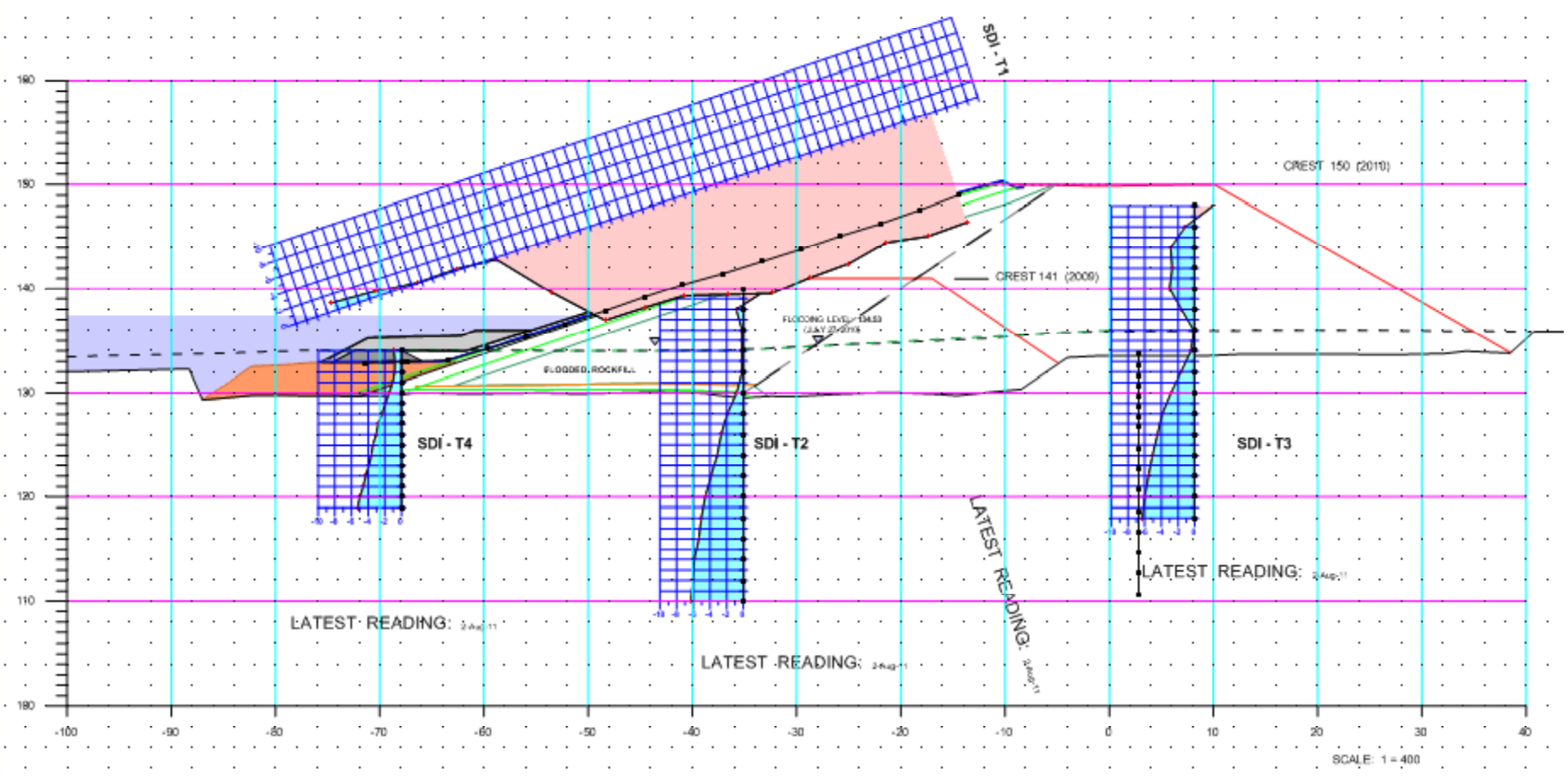
MONTH: JULY



Saddle Dam 1 – Review of instrumentation

GRAPHER PROFILE – SD1

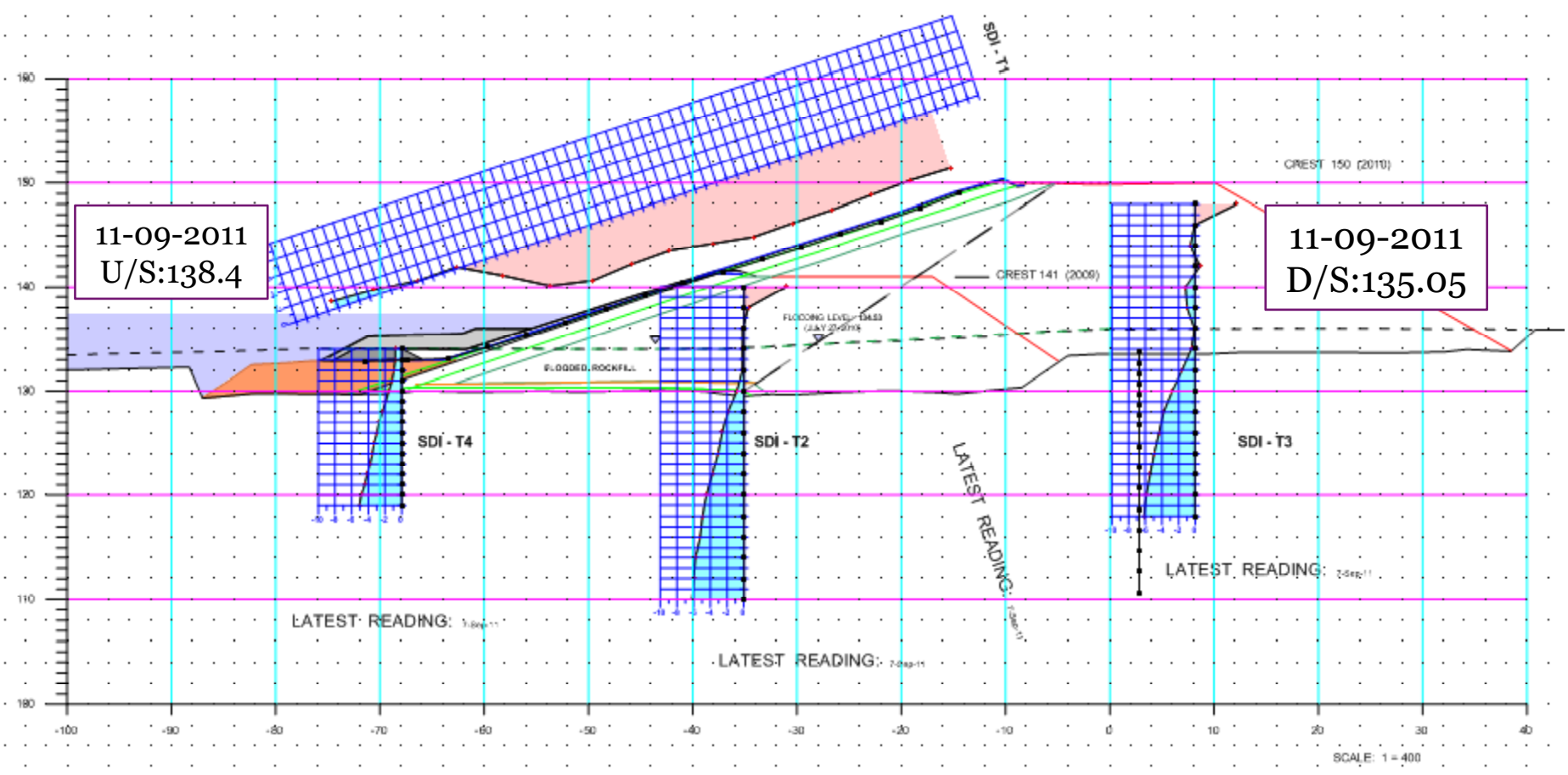
MONTH: **AUGUST**

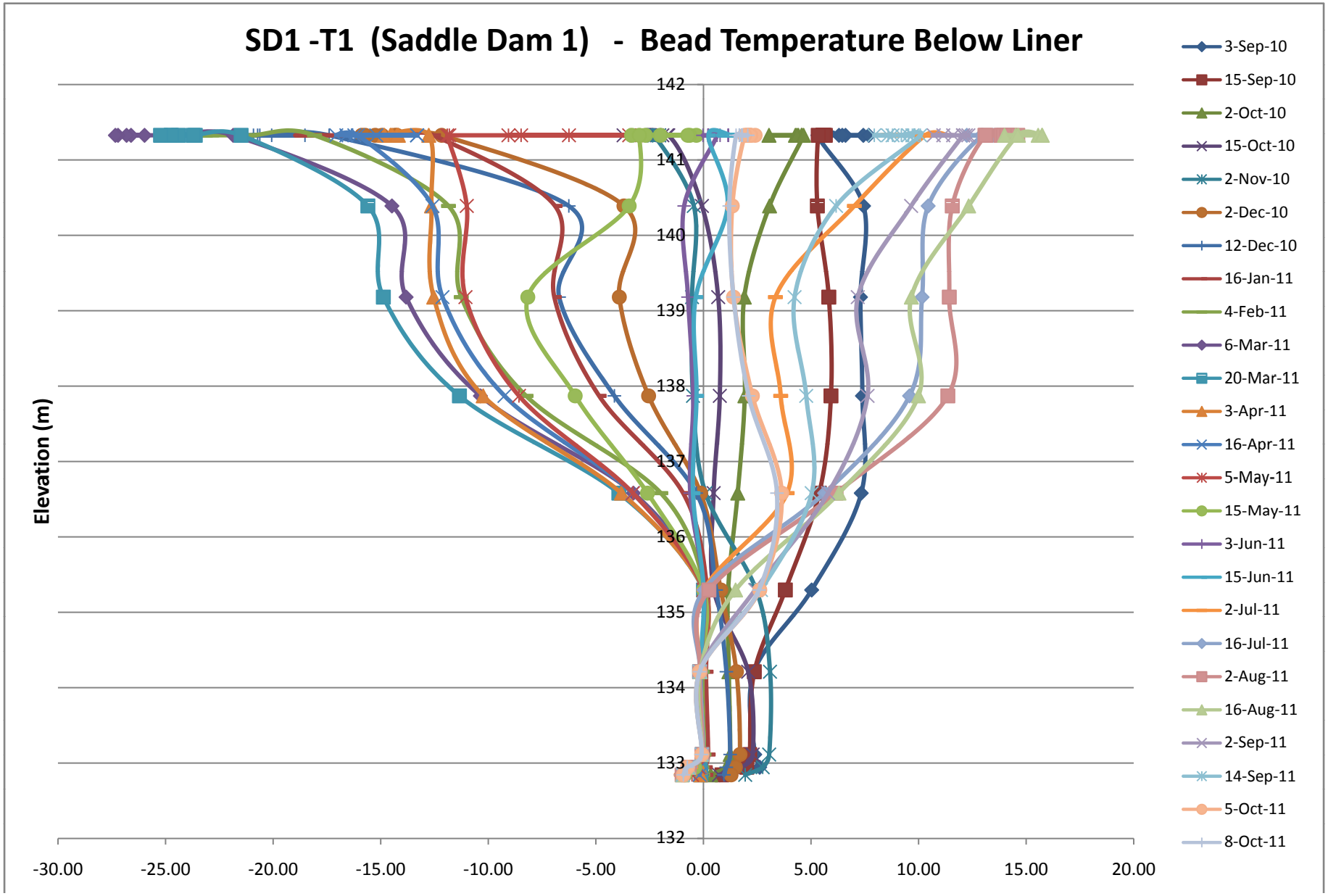


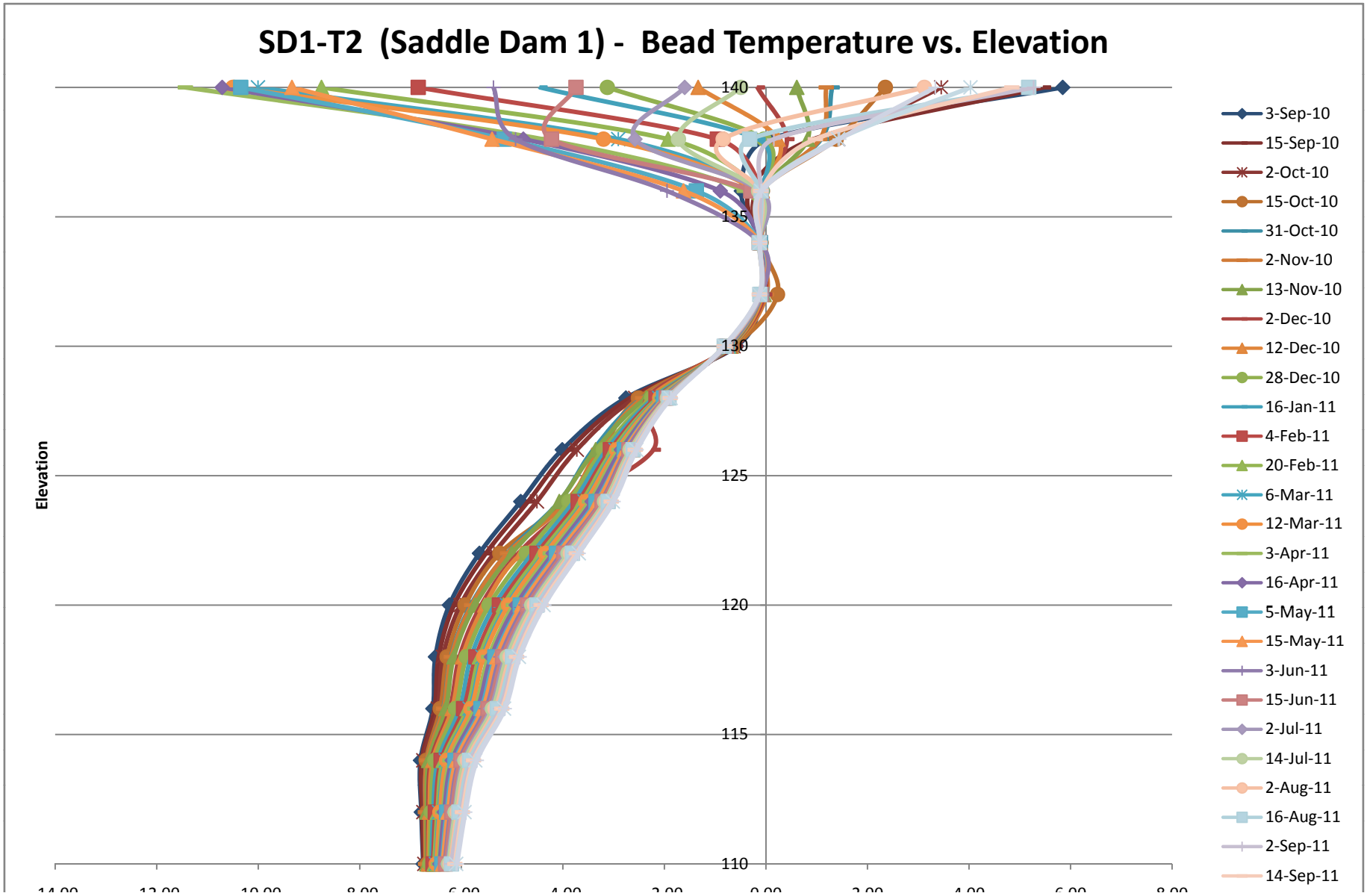
Saddle Dam 1 – Review of instrumentation

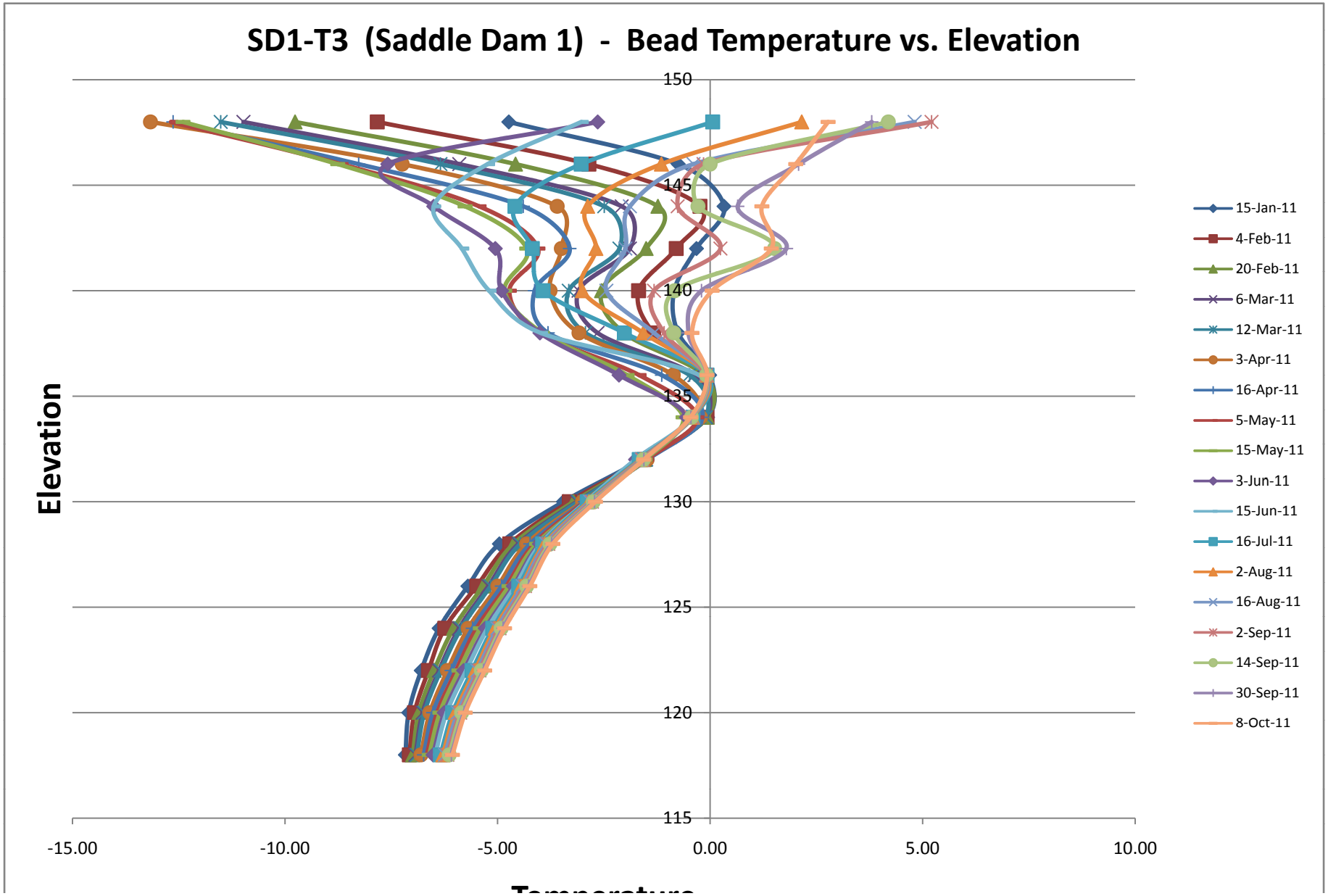
GRAPHER PROFILE – SD1

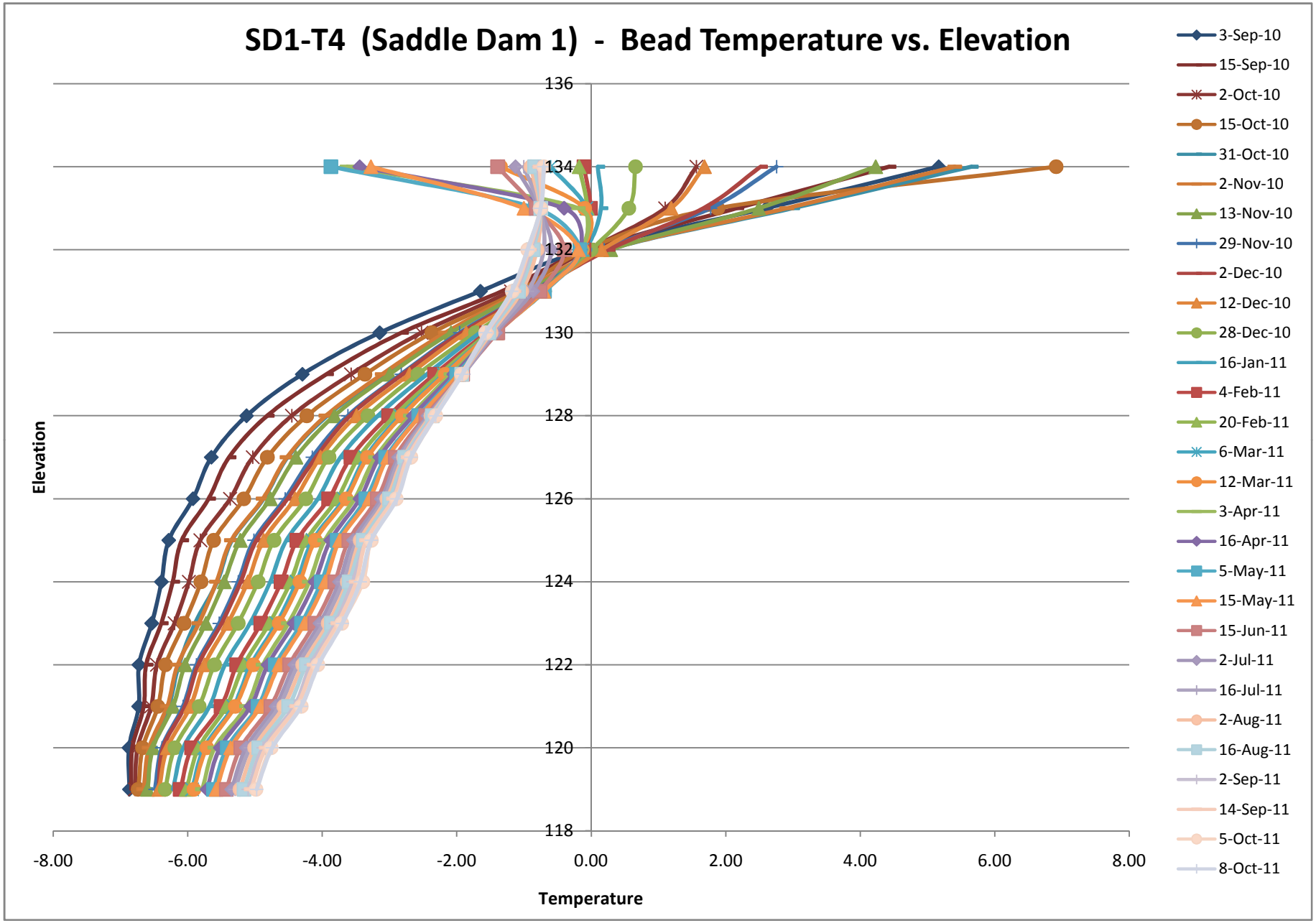
MONTH: **SEPTEMBER**




SD1 -T1 (Saddle Dam 1) - Bead Temperature Below Liner
Elevation (m)
142
141
140
139
138
137
136
135
134
133
132
-30.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
3-Sep-10
15-Sep-10
2-Oct-10
15-Oct-10
2-Nov-10
2-Dec-10
12-Dec-10
16-Jan-11
4-Feb-11
6-Mar-11
20-Mar-11
3-Apr-11
16-Apr-11
5-May-11
15-May-11
3-Jun-11
15-Jun-11
2-Jul-11
16-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11
5-Oct-11
8-Oct-11


SD1-T2 (Saddle Dam 1) - Bead Temperature vs. Elevation
Elevation
140
135
130
125
120
115
110
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
2.00
4.00
6.00
8.00
3-Sep-10
15-Sep-10
2-Oct-10
15-Oct-10
31-Oct-10
2-Nov-10
13-Nov-10
2-Dec-10
12-Dec-10
28-Dec-10
16-Jan-11
4-Feb-11
20-Feb-11
6-Mar-11
12-Mar-11
3-Apr-11
16-Apr-11
5-May-11
15-May-11
3-Jun-11
15-Jun-11
2-Jul-11
14-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11


SD1-T3 (Saddle Dam 1) - Bead Temperature vs. Elevation
Elevation
150
145
140
135
130
125
120
115
-15.00
-10.00
-5.00
0.00
5.00
10.00
15-Jan-11
4-Feb-11
20-Feb-11
6-Mar-11
12-Mar-11
3-Apr-11
16-Apr-11
5-May-11
15-May-11
3-Jun-11
15-Jun-11
16-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11
30-Sep-11
8-Oct-11

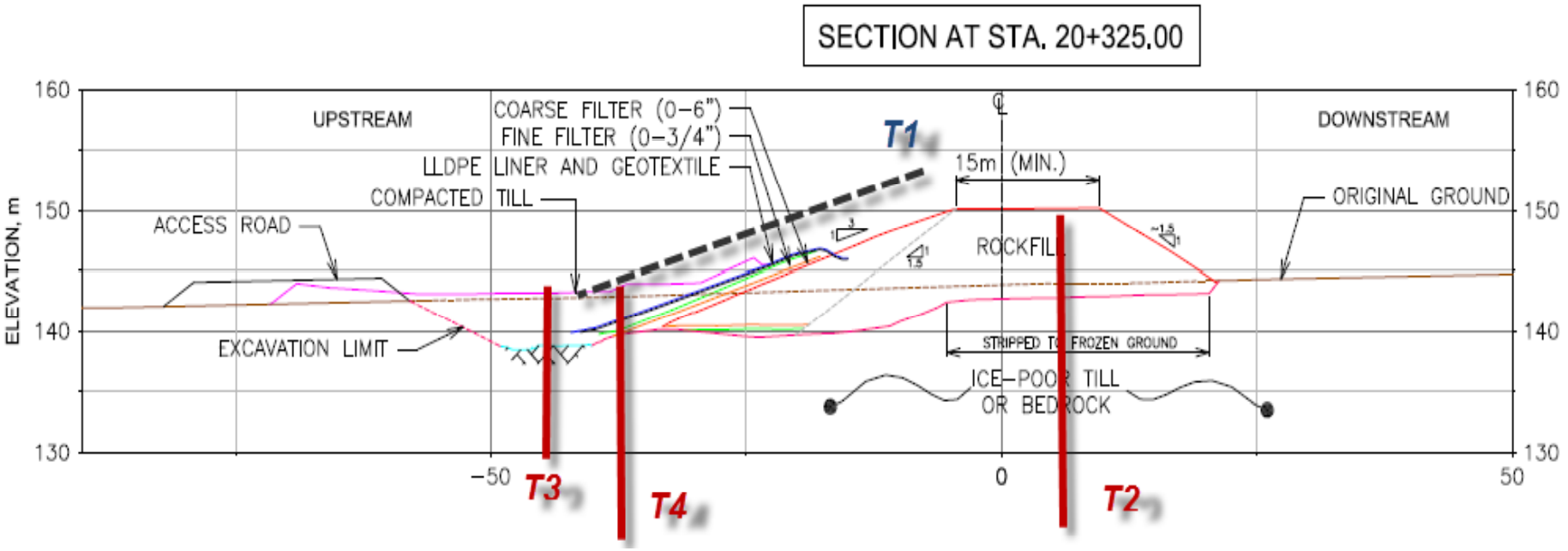

SD1-T4 (Saddle Dam 1) - Bead Temperature vs. Elevation
Elevation
136
134
132
130
128
126
124
122
120
118
-8.00
-6.00
-4.00
-2.00
0.00
2.00
4.00
6.00
8.00
Temperature
3-Sep-10
15-Sep-10
2-Oct-10
15-Oct-10
31-Oct-10
2-Nov-10
13-Nov-10
29-Nov-10
2-Dec-10
12-Dec-10
28-Dec-10
16-Jan-11
4-Feb-11
20-Feb-11
6-Mar-11
12-Mar-11
3-Apr-11
16-Apr-11
5-May-11
15-May-11
15-Jun-11
2-Jul-11
16-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11
5-Oct-11
8-Oct-11

APPENDIX C5

Saddle Dam 2 Thermistor Data

Saddle Dam 2 – Review of instrumentation

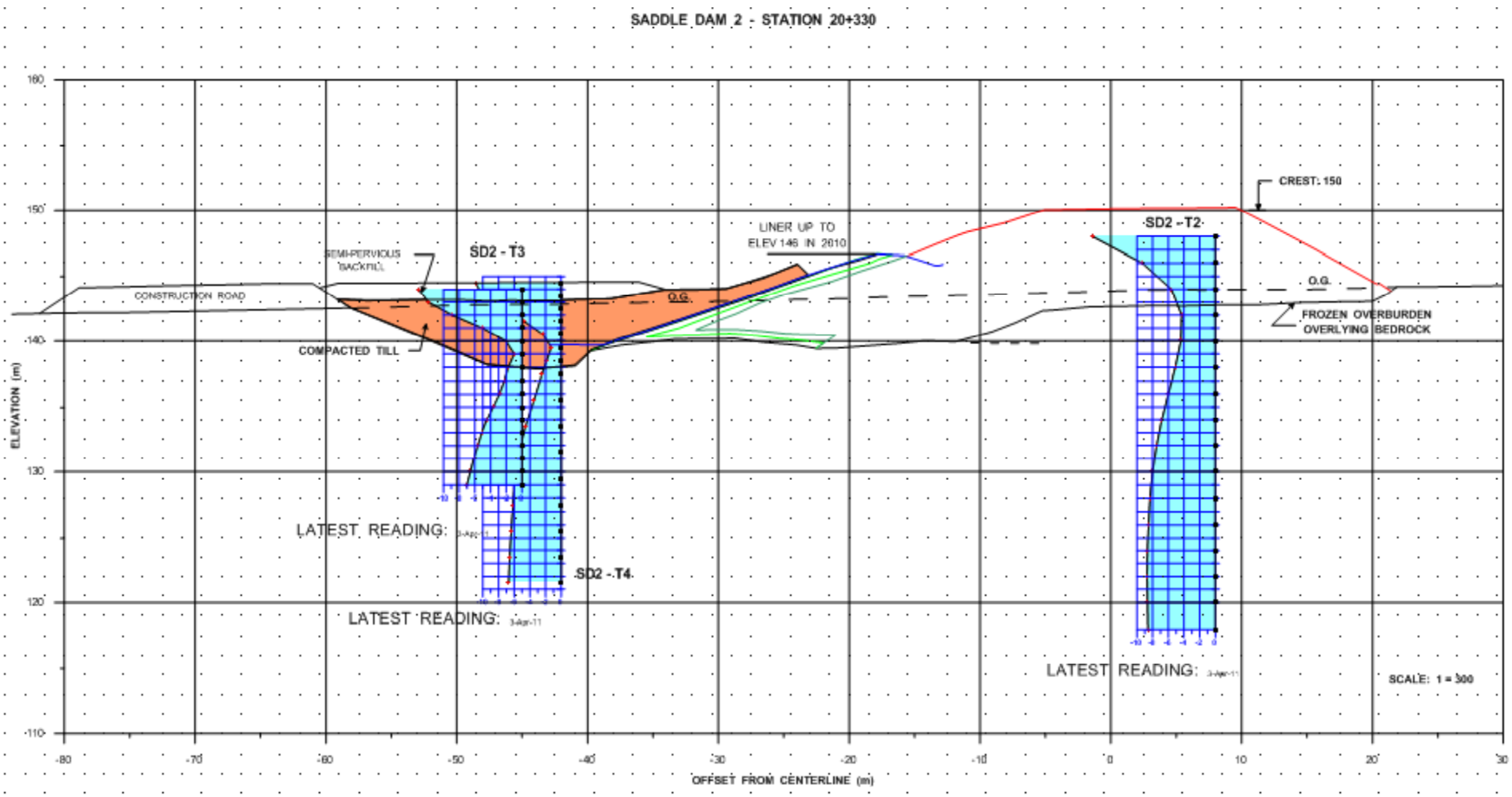
Thermistors emplacement – T1, T2, T3 and T4



Saddle Dam 2 – Review of instrumentation

GRAPHER PROFILE – SD2

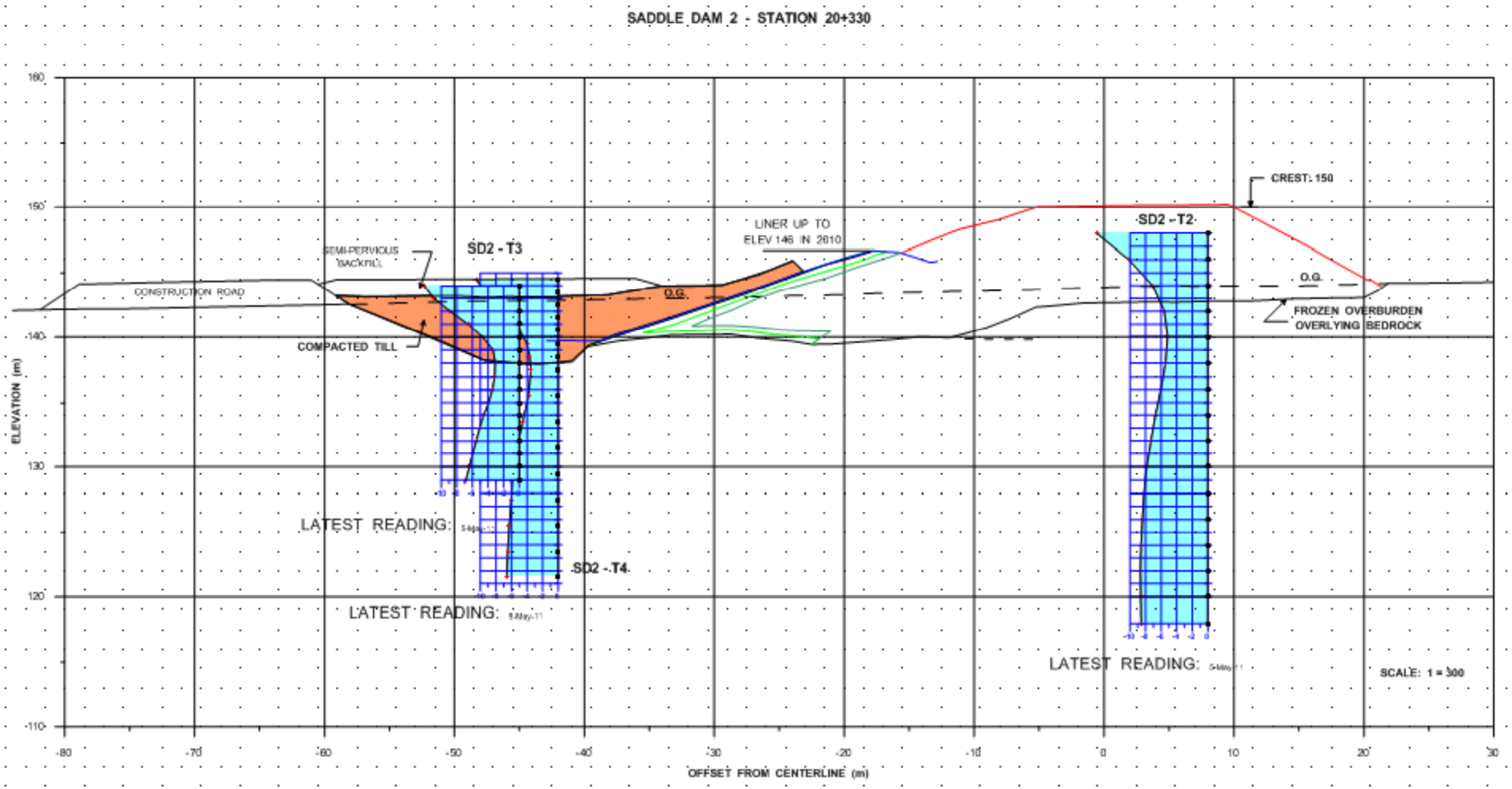
MONTH: APRIL



Saddle Dam 2 – Review of instrumentation

GRAPHER PROFILE – SD2

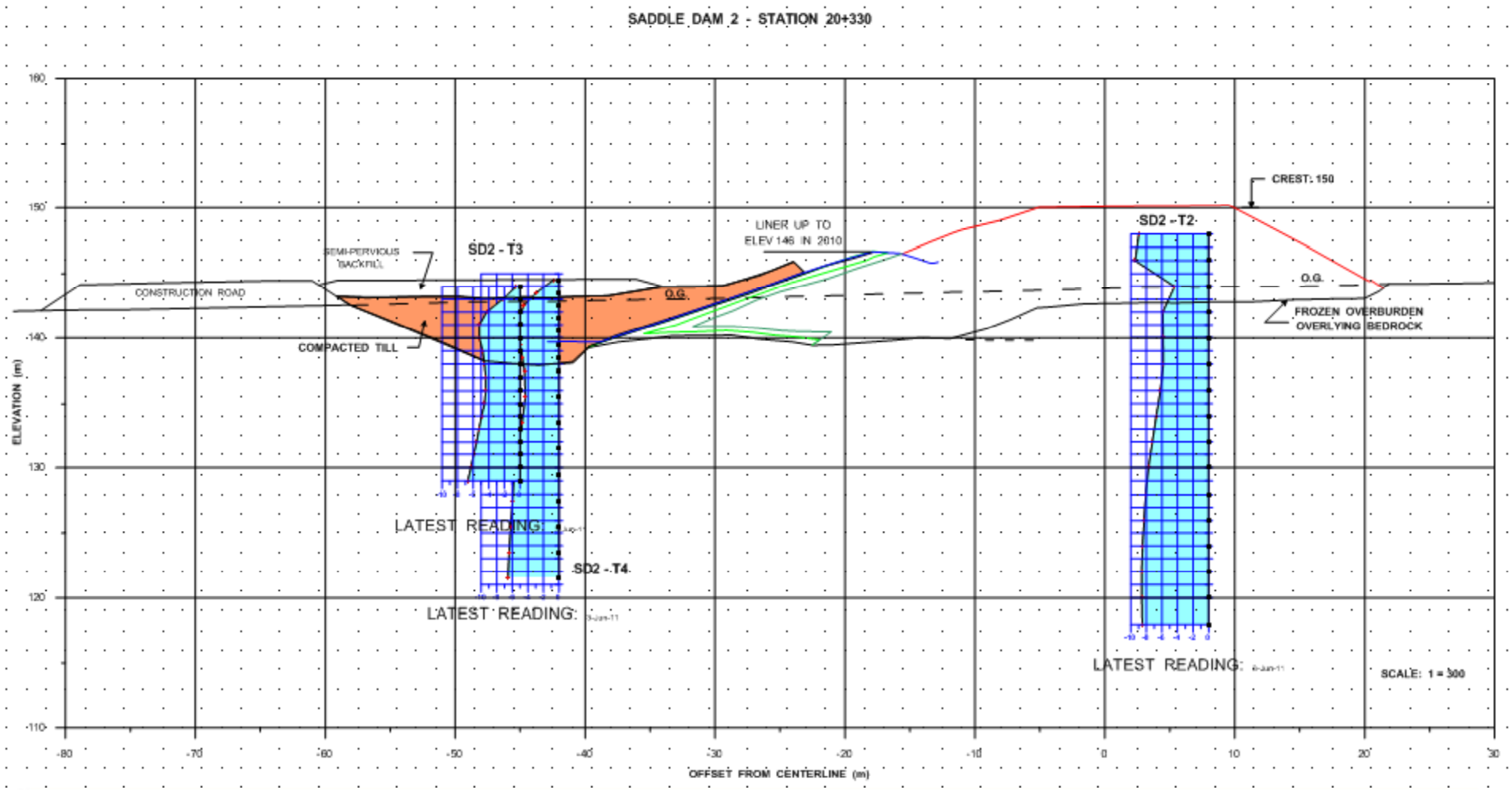
MONTH: MAY



Saddle Dam 2 – Review of instrumentation

GRAPHER PROFILE – SD2

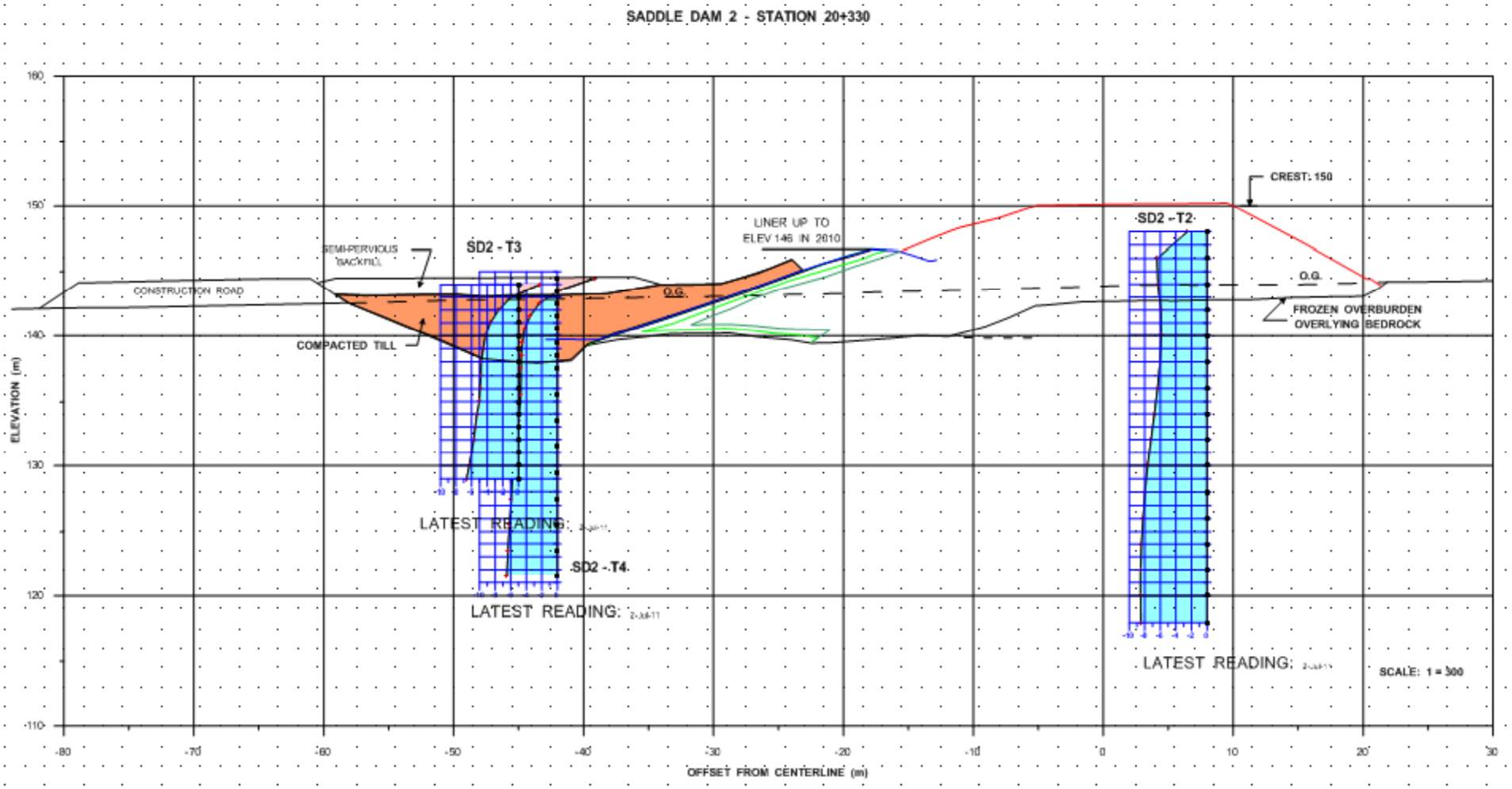
MONTH: JUNE



Saddle Dam 2 – Review of instrumentation

GRAPHER PROFILE – SD2

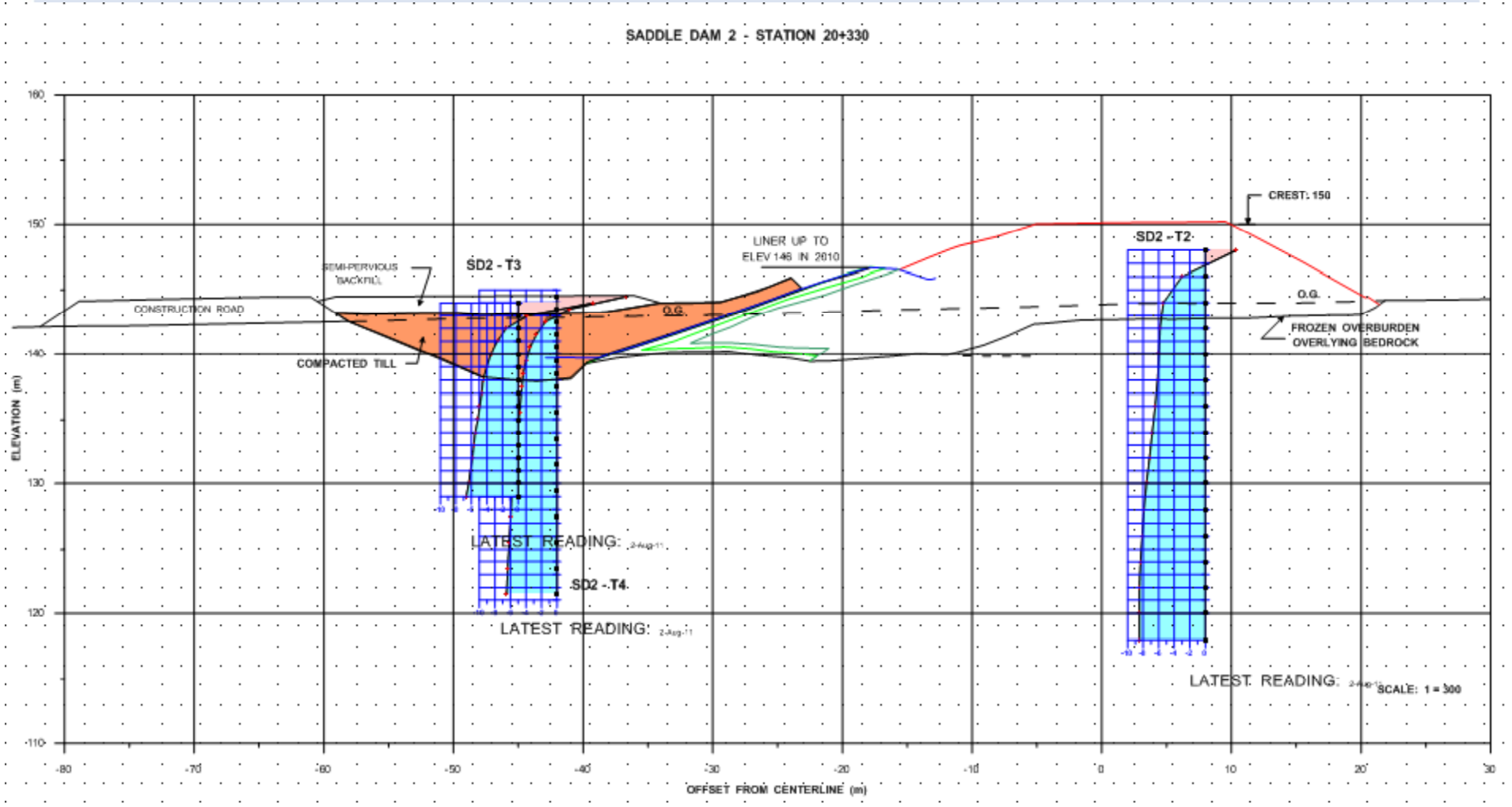
MONTH: JULY



Saddle Dam 2 – Review of instrumentation

GRAPHER PROFILE – SD2

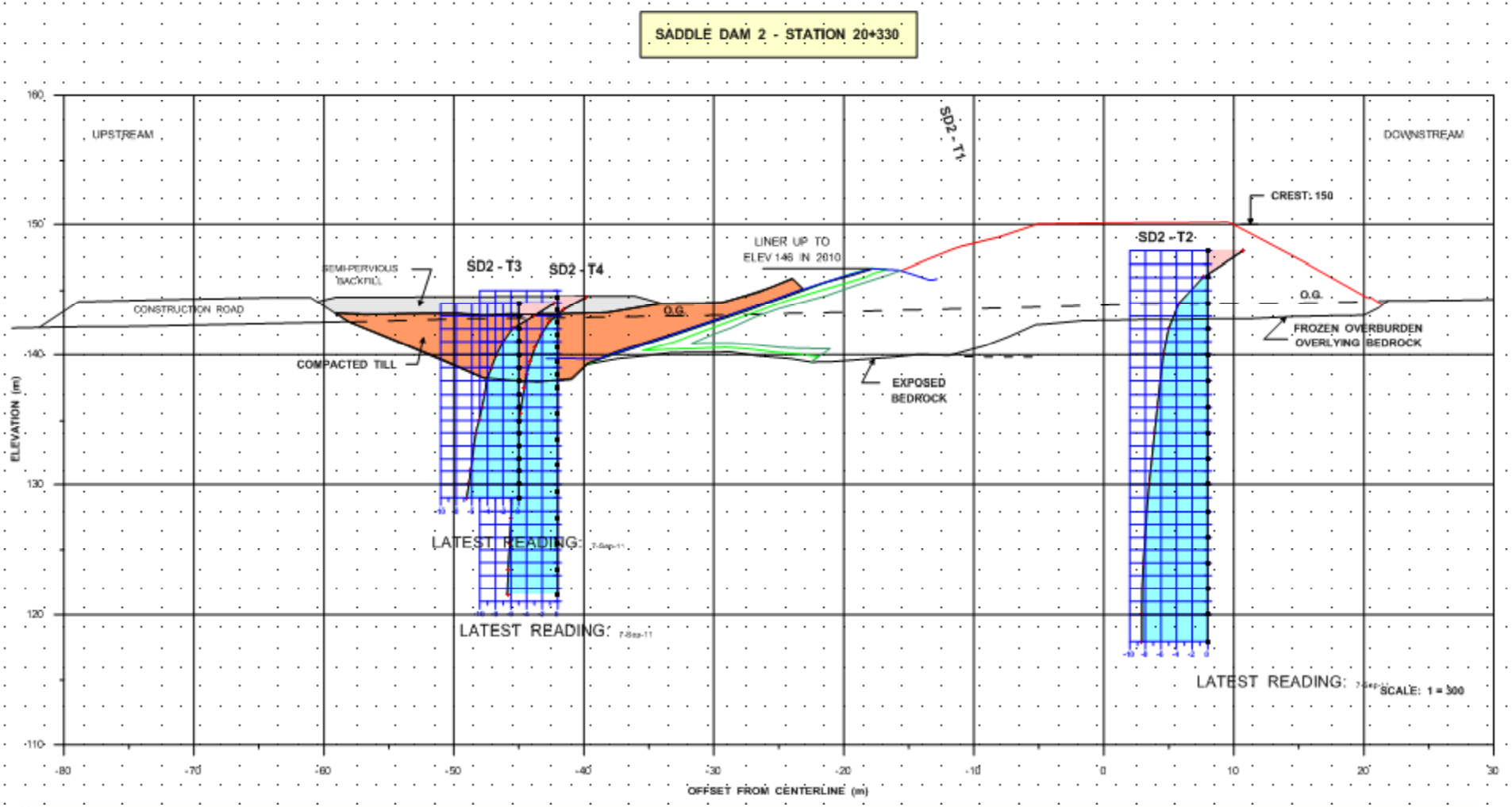
MONTH: AUGUST

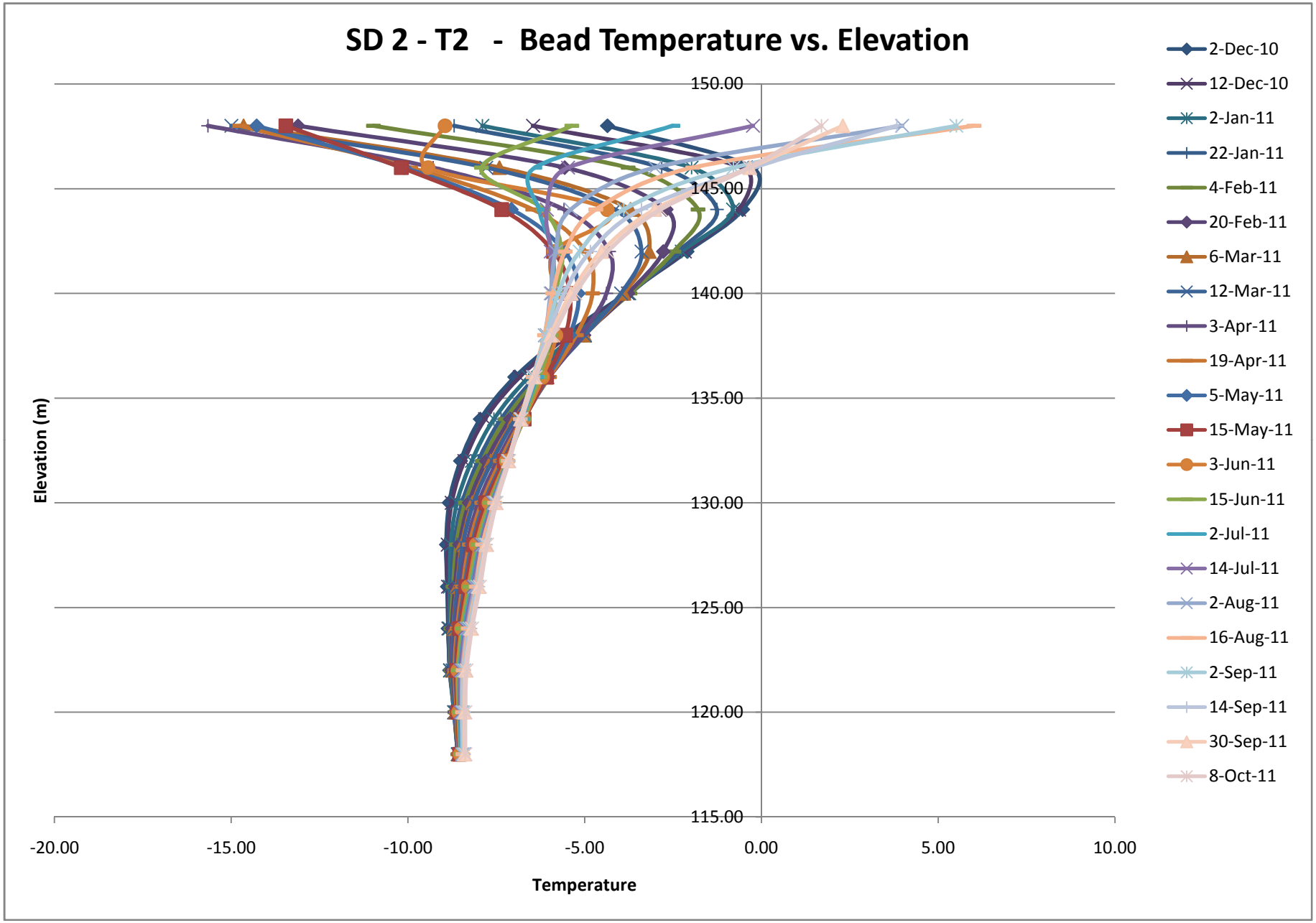


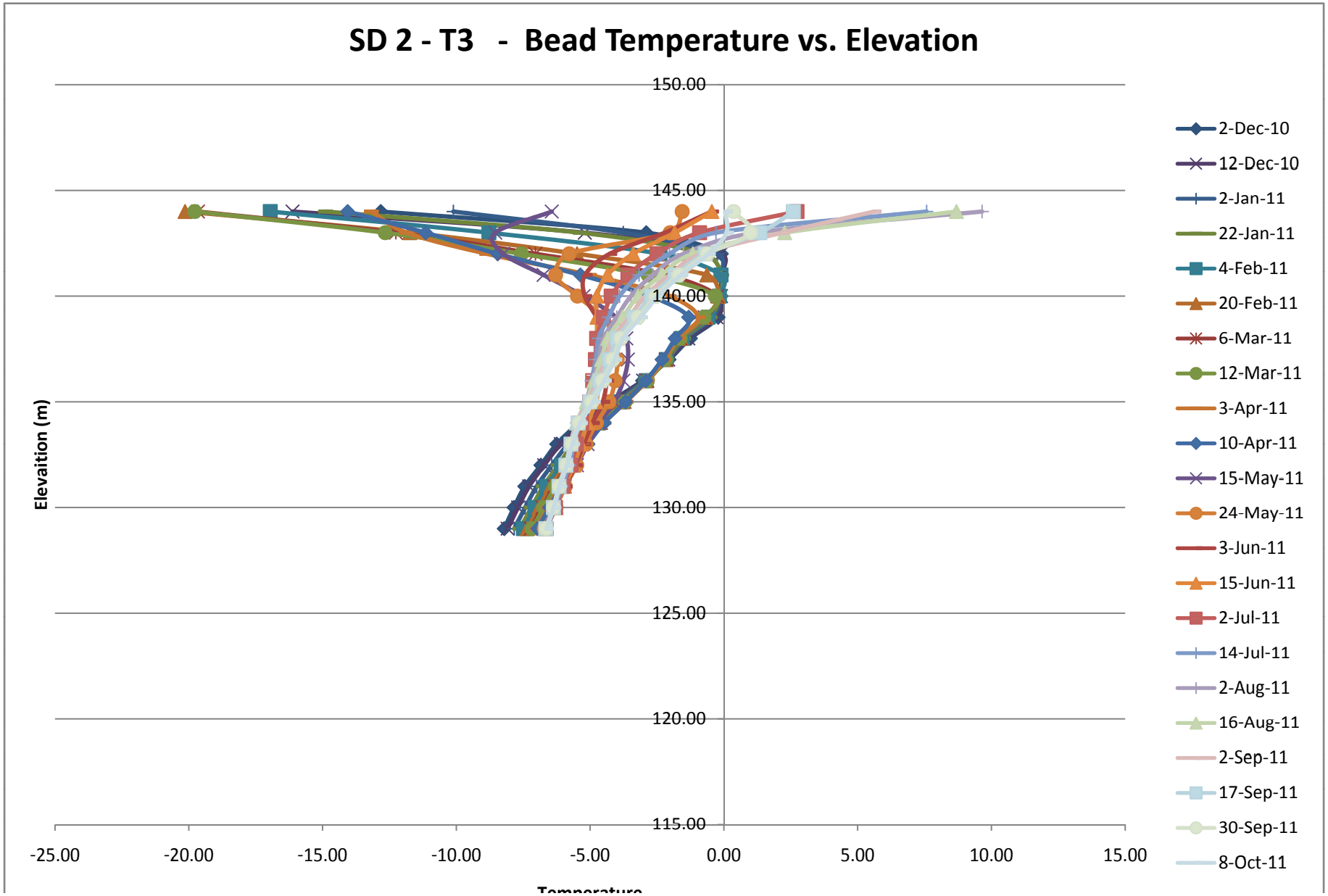
Saddle Dam 2 – Review of instrumentation

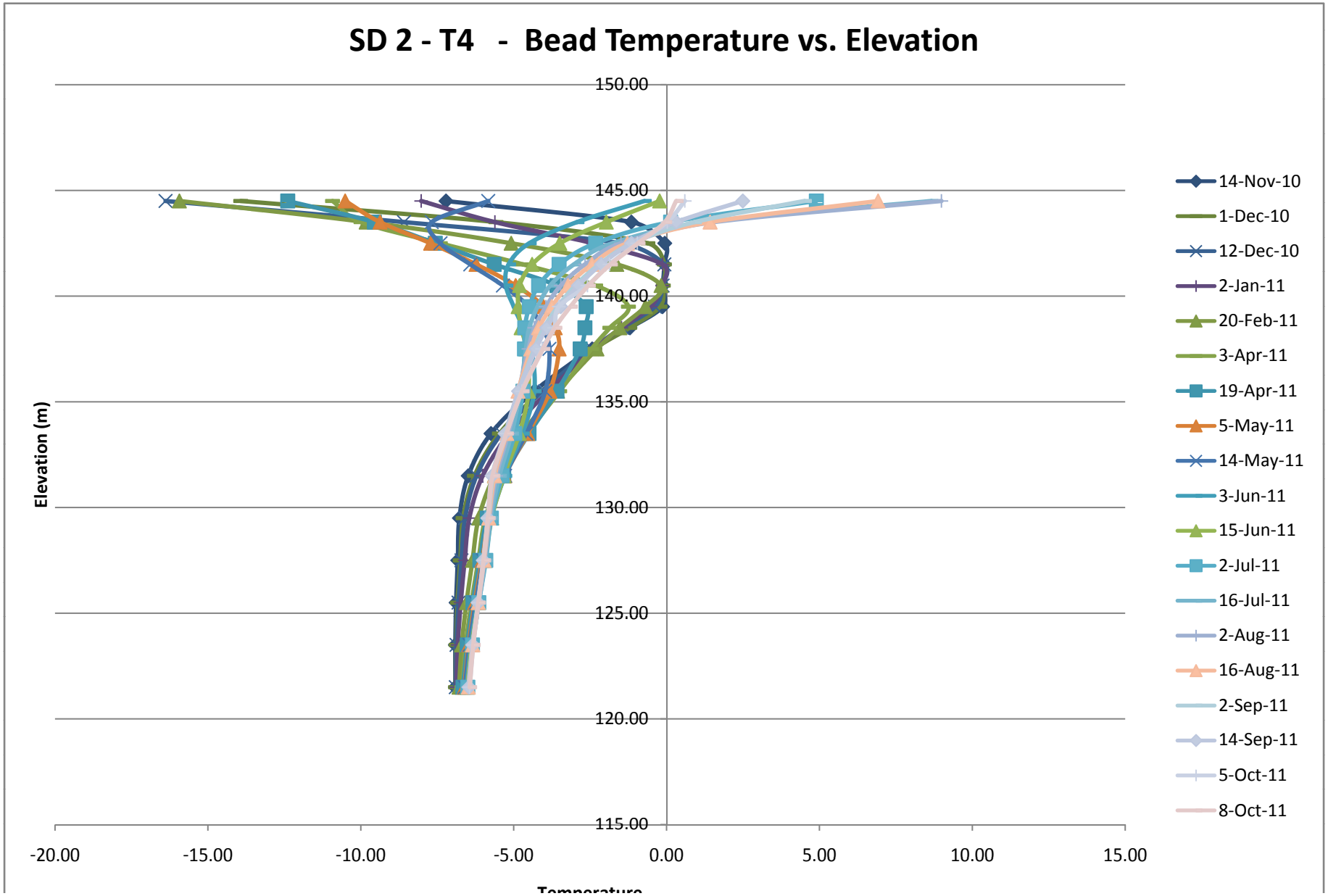
GRAPHER PROFILE – SD2

MONTH: SEPTEMBER




SD 2 - T2 - Bead Temperature vs. Elevation
Elevation (m)
150.00
145.00
140.00
135.00
130.00
125.00
120.00
115.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
Temperature
2-Dec-10
12-Dec-10
2-Jan-11
22-Jan-11
4-Feb-11
20-Feb-11
6-Mar-11
12-Mar-11
3-Apr-11
19-Apr-11
5-May-11
15-May-11
3-Jun-11
15-Jun-11
2-Jul-11
14-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11
30-Sep-11
8-Oct-11


SD 2 - T3 - Bead Temperature vs. Elevation
Elevaition (m)
150.00
145.00
140.00
135.00
130.00
125.00
120.00
115.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
Temperature
2-Dec-10
12-Dec-10
2-Jan-11
22-Jan-11
4-Feb-11
20-Feb-11
6-Mar-11
12-Mar-11
3-Apr-11
10-Apr-11
15-May-11
24-May-11
3-Jun-11
15-Jun-11
2-Jul-11
14-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
17-Sep-11
30-Sep-11
8-Oct-11


SD 2 - T4 - Bead Temperature vs. Elevation
Elevation (m)
150.00
145.00
140.00
135.00
130.00
125.00
120.00
115.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
14-Nov-10
1-Dec-10
12-Dec-10
2-Jan-11
20-Feb-11
3-Apr-11
19-Apr-11
5-May-11
14-May-11
3-Jun-11
15-Jun-11
2-Jul-11
16-Jul-11
2-Aug-11
16-Aug-11
2-Sep-11
14-Sep-11
5-Oct-11
8-Oct-11

APPENDIX D

All Weather Private Road

APPENDIX D1

Culverts Photographic Log

Photograph D1-1: PRC1 km 0+430

Date: September 18, 2011 **Photo Number**: P9180041

Description: Upstream view of culvert. Inlet cleaned. Low flow observed.

Photograph D1-2: PRC1 km 0+430

Date: September 18, 2011 **Photo Number**: P9180042

Description: From downstream looking at culvert. Rocks and sand from lake are blocking outlet: recommendation to cleanup the outlet.

Photograph D1-3: PRC2 0+470

Date: September 18, 2011 **Photo Number**: P9180043

Description: Downstream view of culverts. No obstruction. Flow of about 20L/s observed during the inspection

Photograph D1-4: PRC2 0+470

Date: September 18, 2011 **Photo Number**: P9180045

Description: Upstream view of culverts. No obstruction.

Photograph D1-5: PRC3 1+380

Date: September 18, 2011 **Photo Number**: P9180046

Description: Downstream view of culvert. Outlet cleaned. Low flow going through when inspected.

Photograph D1-6: R-00A 2+550

Date: September 18, 2011 **Photo Number**: P9180048

Description: Downstream view of culvert. Outlet is crushed and culvert has a hole on haunch, road bead cover is inadequate to protect the culvert.

Photograph D1-7: R-00A 2+550

Date: September 18, 2011 **Photo Number**: P9180049

Description: Collapse outlet. Road bed cover over culvert is too thin to provide protection. Uniform grade through culvert observed.

Photograph D1-8: R-00A 2+550

Date: September 18, 2011 **Photo Number**: P9180050

Description: From upstream looking at culvert. No defined channel, cobbles on base of ground. Uniform grade, good condition other than damage at inlet. Note no flow.

Photograph D1-9: PC-14 4+260

Date: September 18, 2011 **Photo Number**: P9180051

Description: From downstream looking at culvert. No defined channel, grass on base of ground. Good condition.

Photograph D1-10: PC-14 4+260

Date: September 18, 2011 **Photo Number**: P9180053

Description: From upstream looking at culvert. Culvert on right in photo is filled with gravel, crushed and damaged. Culvert on the left outlet partially crushed, but still functions.

Photograph D1-11: PC-14 4+260

Date: September 18, 2011 **Photo Number**: P9180054

Description: Zoomed on part of inlet filled with gravel

Photograph D1-12: Unnamed culvert 5+700

Date: September 18, 2011 **Photo Number**: P9180057

Description: New culvert installed in 2011. Looking at upstream. Good condition, uniform grade, no obstruction.

Photograph D1-13: Unnamed culvert 5+700

Date: September 18, 2011 **Photo Number**: P9180058

Description: Looking downstream. Good condition, uniform grade, no obstruction.

Photograph D1-14: PC-17A 8+830

Date: September 18, 2011 **Photo Number**: P9180075

Description: Downstream view of the culverts. Gravel placed around and on culvert. No obstruction observed, geotextile placed below culvert to protect streambed. Current geotextile is believed to not provide adequate protection of the streambed during high flow events. It is recommended to add cobbles and small boulders on top of geotextile.

Photograph D1-15: PC-17A 8+830

Date: September 18, 2011 **Photo Number**: P9180076

Description: Upstream view of the culverts. Geotextile and crushed material placed around and on the culvert. It is recommended to add protection for the existing fine granular material placed around the culvert and on the side slope to reduce the chances of erosion during the next freshet.

Photograph D1-16: PC-17A 8+830

Date: September 18, 2011 **Photo Number**: P9180077

Description: Inlet of southern culverts. No obstruction. No sign of erosion beneath the culvert.

Photograph D1-17: PC-17 8+850

Date: September 18, 2011 **Photo Number**: P9180078

Description: From upstream looking at culvert inlet. Good condition other than damaged observed at inlet.

Photograph D1-18: PC-17 8+850

Date: September 18, 2011 **Photo Number**: P9180074

Description: Looking downstream at culvert outlets. Coarse material placed above gravel. No signs of erosion.

Photograph D1-19: PC-1 9+952

Date: September 18, 2011 **Photo Number**: P9180081

Description: Looking downstream at culvert outlet. Good condition, no obstruction, no sign of erosion.

Photograph D1-20: PC-1 9+952

Date: September 18, 2011 **Photo Number**: P9180083

Description: Looking upstream at culvert inlet. Good condition, no obstruction.

Photograph D1-21: R-03 10+580

Date: September 18, 2011 **Photo Number**: P9180084

Description: Looking downstream at culvert outlet. Good condition, no obstruction, no sign of erosion.

Photograph D1-22: R-03 10+580

Date: September 18, 2011 **Photo Number**: P9180085

Description: Looking upstream at culvert inlet. Good condition, minor obstruction: a few big rocks near inlet could be removed.

Photograph D1-23: R-04 12+050

Date: September 18, 2011 **Photo Number**: P9180086

Description: Looking downstream at culvert outlet. Good condition, no obstruction. A few big rocks are inside the culvert but should not generate flow problems.

Photograph D1-24: R-04 12+050

Date: September 18, 2011 **Photo Number**: P9180088

Description: Looking upstream at culvert inlet. Good condition, no obstruction.

Photograph D1-25: PC-13 12+745

Date: September 18, 2011 **Photo Number**: P9180089

Description: Looking at downstream at culvert outlet. Crushed at top midway under road, not visible on the photo. No obstruction at outlet.

Photograph D1-26: PC-13 12+745

Date: September 18, 2011 **Photo Number**: P9180090

Description: Looking upstream at culvert inlet. Culvert partially crushed, a few rocks at inlet creating obstruction.

Photograph D1-27: PC-2 13+405

Date: September 18, 2011 **Photo Number**: P9180093

Description: Looking downstream at culvert outlet. Cleanup at culvert outlet to remove cobbles from road construction is recommended.

Photograph D1-28: PC-2 13+405

Date: September 18, 2011 **Photo Number**: P9180094

Description: Looking upstream at culvert inlet. Culvert half-way buried. Clean up in front of the culvert is required to not obstruct inlet.

Photograph D1-29: PC-3 13+685

Date: September 18, 2011 **Photo Number**: P9180095

Description: Looking downstream at culvert outlet. Note flow of about 5L/s observed. Good condition, no obstruction.

Photograph D1-30: PC-3 13+685

Date: September 18, 2011 **Photo Number**: P9180096

Description: Looking upstream at culvert inlet. Good condition, no obstruction. Streambed slightly above culvert inlet, water flows down into culvert

Photograph D1-31: Unnamed 13+900

Date: September 18, 2011 **Photo Number**: P9180097

Description: Looking downstream at culvert outlet. Good condition, no obstruction, no sign of erosion

Photograph D1-32: Unnamed 13+900

Date: September 18, 2011 **Photo Number**: P9180098

Description: Looking upstream at culvert inlet. Good condition, no obstruction.

Photograph D1-33: PC-4 14+910

Date: September 18, 2011 **Photo Number**: P9180099

Description: Looking downstream at culvert outlet. Large rocks from road piled around outlet.

Photograph D1-34: PC-4 14+910

Date: September 18, 2011 **Photo Number**: P9180100

Description: Looking upstream at culvert inlet. Good condition, no obstruction. No flow observed.

Photograph D1-35: R-05A 15+645

Date: September 18, 2011 **Photo Number**: P9180101

Description: Looking downstream at culvert outlet. Minor flow observed. Outlet at base discharges to a pool with sediment on streambed and grass surrounding.

Photograph D1-36: R-05A 15+645

Date: September 18, 2011 **Photo Number**: P9180102

Description: Looking upstream at culvert inlet. Note culvert set above base. Pool 20 cm deeper.

Photograph D1-37: PC-5 18+280

Date: September 18, 2011 **Photo number**: P9180111

Description: Looking downstream at culvert outlet. No obstruction, good condition.

Photograph D1-38: PC-5 18+280

Date: September 18, 2011 **Photo Number**: P9180112

Description: Looking upstream at culvert inlet. No obstruction, good condition.

Photograph D1-39: PC-6 19+075

Date: September 18, 2011 **Photo Number**: P9180113

Description: Looking downstream at culvert outlet. A few rocks at bottom inside the outlet creating small obstructions, no sign of erosion.

Photograph D1-40: PC-6 19+075

Date: September 18, 2011 **Photo number**: P9180114

Description: Looking upstream at culvert inlet. No obstruction, good condition.

Photograph D1-41: PC-7A 20+450

Date: September 18, 2011 **Photo Number**: P9180115

Description: Looking downstream. No obstruction, in general good condition except south (left on the photo) inlet slightly crushed on the side.

Photograph D1-42: PC-7A 20+480

Date: September 18, 2011 **Photo Number**: P9180116

Description: Looking upstream at culvert inlets. No obstruction.

Photograph D1-43: PC-7 20+505

Date: September 18, 2011 **Photo Number**: P9180117

Description: Looking upstream at culvert inlet. No obstruction, inlet slightly deformed but in generally good condition. Minor flow (less than 1L/s) observed.

Photograph D1-44: PC-7 20+505

Date: September 18, 2011 **Photo Number**: P9180118

Description: Looking at downstream at culvert outlet. A few rocks at bottom inside the outlet. Recommendation to clean outlet. Streambed covered by road material, may be caused by erosion. New culverts, south were installed in 2011.

Photograph D1-45: R-07 25+900

Date: September 18, 2011 **Photo Number**: P9180135

Description: Looking downstream at culvert outlet. Good condition, no obstruction. Flow of about 5L/s observed.

Photograph D1-46: R-07 25+900

Date: September 18, 2011 **Photo Number**: P9180136

Description: Looking upstream at culvert inlet. No obstruction, good condition.

Photograph D1-47: PC-8 29+785

Date: September 17, 2011 **Photo Number**: P9170128

Description: Looking downstream at culvert outlet. Good condition, small obstruction. Photo does not show, but a few rocks are present inside and outside of outlet, creating small obstruction. No sign of erosion

Photograph D1-48: PC-8 29+785

Date: September 17, 2011 **Photo number**: P9170127

Description: Looking upstream at culvert inlet. No obstruction, good condition.

Photograph D1-49: PC-9 35+690

Date: September 17, 2011 **Photo Number**: P9170118

Description: Looking downstream at culvert outlet. Good condition, no obstruction.

Photograph D1-50: PC-9 35+690

Date: September 17, 2011 **Photo Number**: P9170117

Description: Looking upstream at culvert inlet. Good condition, some rock inside culvert near inlet, but should no obstruct flow.

Photograph D1-51: PC-10 36+865

Date: September 17, 2011 **Photo Number**: P9170112

Description: Downstream view of culvert. Good condition, some rock slide down on streambed, maybe from erosion. Cleanup near the outlet should be performed.

Photograph D1-52: PC-10 36+865

Date: September 17, 2011 **Photo Number**: P9170111

Description: Looking upstream at culvert inlet. Big boulder present near inlet creating obstruction and it is recommended to be cleaned.

Photograph D1-53: PC-11 39+552

Date: September 17, 2011 **Photo Number**: P9170110

Description: Looking at culvert inlet. Inlet half way buried, need to clean up.

Photograph D1-54: PC-11 39+552

Date: September 17, 2011 **Photo Number**: P9170109

Description: Looking downstream at culvert outlet. Gravel present in front of the outlet, maybe as a result of erosion. It is recommended to place cobbles or boulders on top of crushed material along the downstream slope to reduce erosion.

Photograph D1-55: PC-12 41+410

Date: September 17, 2011 **Photo Number**: P9170106

Description: Looking at culvert inlet. Culvert practically submerged. No obstruction.

Photograph D1-56: PC-12 41+410

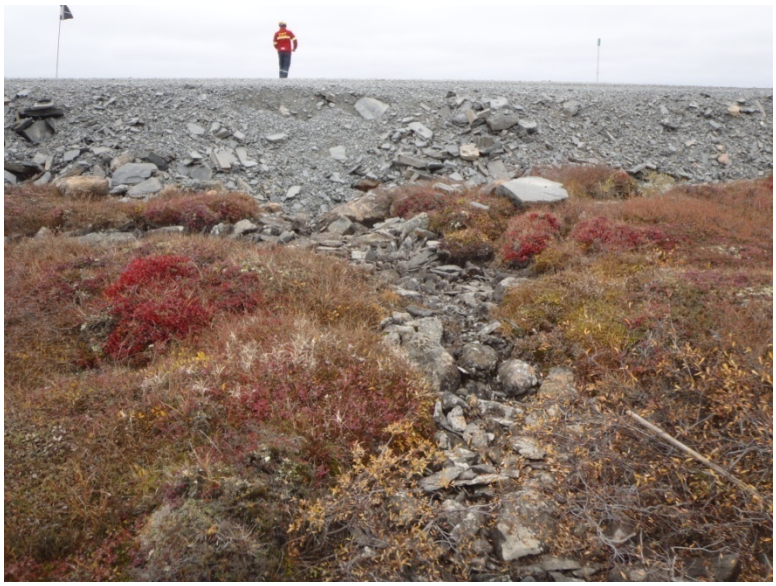
Date: September 17, 2011 **Photo Number**: P9170107

Description: Looking downstream. Culvert practically submerged, no gradient to help the flow.

Photograph D1-57: PC-16 55+048

Date: September 17, 2011 **Photo Number**: P9170088

Description: Looking at culvert inlet, half way buried by road material.



Photograph D1-58: PC-16 55+048

Date: September 17, 2011 **Photo Number**: P9170091

Description: Looking at downstream streambed. Note that outlet is entirely buried. Need important clean up.

Photograph D1-59: R-14 67+840

Date: September 17, 2011 **Photo Number**: P9170066

Description: Looking at outlet of middle culvert of three. Note inside of culvert near top is damaged.

Photograph D1-60: R-14 67+840

Date: September 17, 2011 **Photo Number**: P9170068

Description: Looking at southern culvert, near inlet. Sign of erosion on the right side.

Photograph D1-61: R-17 77+440

Date: September 17, 2011 **Photo Number**: P9170042

Description: Looking at outlet. In good condition, no obstruction.

Photograph D1-62: R-17 77+440

Date: September 17, 2011 **Photo Number**: P9170044

Description: Looking at inlet, in good condition, no obstruction.

Photograph D1-63: R-18A 81+045

Date: September 17, 2011 **Photo Number**: P9170029

Description: Looking at culvert inlets, in good condition, vegetation present upstream but does not create obstruction

Photograph D1-64: R-18A 81+045

Date: September 17, 2011 **Photo Number**: P9170030

Description: Looking at culverts outlets, in good condition except one crushed near the top.

Photograph D1-65: R-20 85+490

Date: September 17, 2011 **Photo Number**: P9170015

Description: Looking upstream at culvert inlet. In good condition, no obstruction.

Photograph D1-66: R-20 85+490

Date: September 17, 2011 **Photo Number**: P9170016

Description: Looking at culvert outlet. In good condition, some gravel inside, at the bottom of culvert, but does not create obstruction.

Photograph D1-67: R-21 87+500

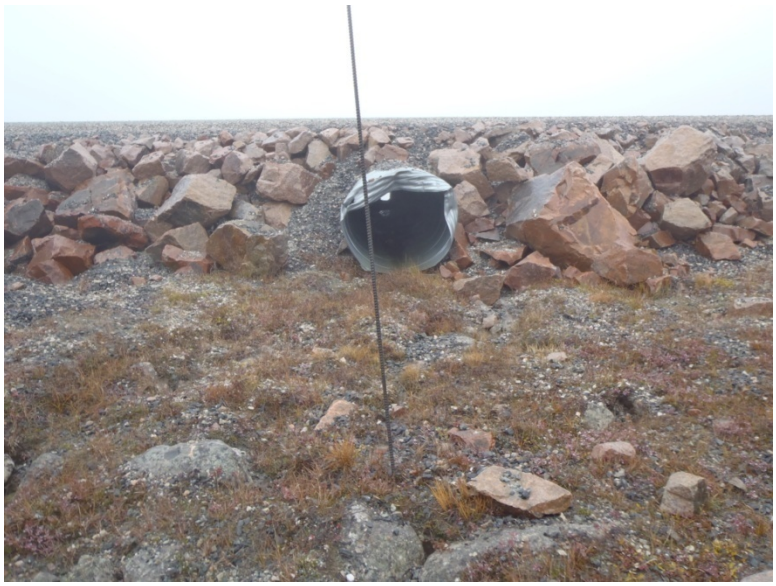
Date: September 17, 2011 **Photo Number**: P9170013

Description: Looking upstream at culvert inlets, in good condition, no obstruction.

Photograph D1-68: R-21 87+500

Date: September 17, 2011 **Photo Number**: P9170014

Description: Looking at culvert outlets, in good condition, no obstruction.



Photograph D1-69: R-23 93+600

Date: September 17, 2011 **Photo Number**: P9170009

Description: Looking upstream at culvert outlet. Inlet has a minor damage near the top, but still in good condition.

Photograph D1-70: R-23 93+600

Date: September 17, 2011 **Photo Number**: P9170110

Description: Looking upstream at culvert inlet, in good condition, no obstruction.

Photograph D1-71: R-24 98+250

Date: September 17, 2011 **Photo Number**: P9170007

Description: Looking upstream at culvert inlets. One inlet has minor damage near the top, but still in good condition.

Photograph D1-72: R-24 98+250

Date: September 17, 2011 **Photo Number**: P9170008

Description: Looking upstream at culvert outlets, in good condition, no obstruction.

Photograph D1-73: R-25 102+050

Date: September 17, 2011 **Photo Number**: P9170003

Description: Looking upstream at culvert inlets, in good condition, no obstruction.

Photograph D1-74: R-25 102+050

Date: September 17, 2011 **Photo Number**: P9170005

Description: Looking at culvert outlets. The northern culvert (right on the photo) is angling up toward the downstream end so that natural drainage by gravity does not occur. However, during freshet, because the current will be high, the culvert will evacuate the flow from upstream to downstream. A second culvert beside the first is well installed and will drain water for the rest of the season.

Photograph D1-75: R-26 104+710

Date: September 17, 2011 **Photo Number**: P9170001

Description: Looking at culvert inlets. Cleanup is recommended to remove rocks present in the northern inlet (the one closer on the photo).

Photograph D1-76: R-26 104+710

Date: September 17, 2011 **Photo Number**: P9170002

Description: Looking at culvert outlets. No sign of erosion, no obstruction

APPENDIX D2

Bridges Photographic Log

Photograph D2-1: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180060

Description: View from road looking at downstream side of bridge and valley. 30 m Acrow Panel Bridge

Photograph D2-2: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180061

Description: Upstream to downstream view of right abutment.

Photograph D2-3: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180062

Description: Upstream to downstream view of left abutment.

Photograph D2-4: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180063

Description: Close up view of beneath the bridge, looking at left abutment

Photograph D2-5: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180070

Description: Downstream to upstream view of left abutment containment. Bent deteriorated since the 2010 inspection. (Refer to Doc. 1216, Appendix D, Photo D3-9)

Photograph D2-6: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180064

Description: Close up view of beneath the bridge, looking at right abutment, from upstream side

Photograph D2-7: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180069

Description: Close up view of beneath the bridge, looking at right abutment, from downstream side

Photograph D2-8: Bridge 1 - R02 km 8+750

Date: September 18, 2011 **Photo Number**: P9180066

Description: Downstream left abutment containment in good condition, repaired since the 2010 inspection. No more damaged on the bin wall visible.

Photograph D2-9: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180103

Description: Downstream to upstream view, looking at right abutment

Photograph D2-10: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180104

Description: Downstream to upstream view, looking at left abutment

Photograph D2-11: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180105

Description: Upstream to downstream view, looking at right abutment

Photograph D2-12: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180108

Description: Thin cracks observed at the west edge of the right abutment.

Photograph D2-13: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180106

Description: Thin cracks observed at the west edge of the right abutment. Unfortunately, the cracks are not well visible on this photo.

Photograph D2-14: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180107

Description: Voids observed at the west edge of the right abutment, near the tie-in tie with the bridge span.

Photograph D2-15: Bridge 2 - R05 km 17+600

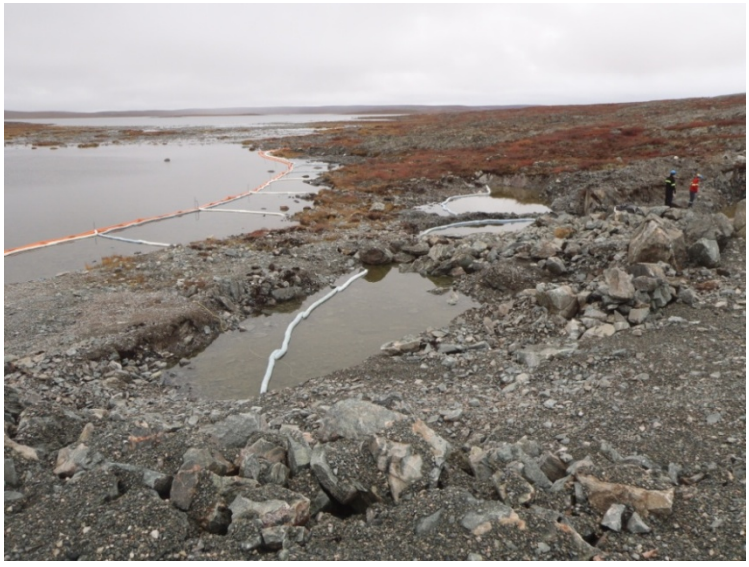
Date: September 18, 2011 **Photo Number**: P9180109

Description: From upstream side, looking at left abutment. Damage of the bin wall likely caused during snow removal activities.

Photograph D2-16: Bridge 2 - R05 km 17+600

Date: September 18, 2011 **Photo Number**: P9180110

Description: From downstream side, looking at left abutment. Damage of the bin wall likely caused during snow removal activities.



Photograph D2-17: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180119

Description: Looking upstream of left abutment, at sediment basins excavated following the accident of a fuel truck. Containment curtains deployed in the streambed to contain the fuel.

Photograph D2-18: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180120

Description: Looking from upstream to downstream at left abutment. Note the extension of containment curtains and silt fences.

Photograph D2-19: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180121

Description: Looking from upstream at right abutment.

Photograph D2-20: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180122

Description: Close-up of the left abutment. In good condition, the accident occurred 100 m north of the bridge and did not impact the bridge or abutments.

Photograph D2-21: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180123

Description: Looking from downstream at right abutment

Photograph D2-22: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180128

Description: Close-up view of the upstream side of the right abutment.

Photograph D2-23: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180129

Description: Close-up view of the upstream side under the bridge near right abutment.

Photograph D2-24: Bridge 3 - R06 km 23+100

Date: September 18, 2011 **Photo Number**: P9180131

Description: From downstream, looking at left abutment.

Photograph D2-25: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170095

Description: From upstream, looking at left abutment

Photograph D2-26: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170096

Description: From upstream, looking at right abutment

Photograph D2-27: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170097

Description: From upstream to downstream, looking at stream

Photograph D2-28: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170098

Description: From downstream side, looking at left abutment

Photograph D2-29: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170099

Description: From downstream side, looking at right abutment

Photograph D2-30: Bridge 4 - R09 km 48+500

Date: September 17, 2011 **Photo Number**: P9170101

Description: Looking at one environmental emergency seacan, installed following the fuel truck accident, near every bridge crossings.

Photograph D2-31: Bridge 5 - R13 km 62+060

Date: September 17, 2011 **Photo Number**: P9170074

Description: Looking at the right abutment, note the depression in the road near the tie-in with the bridge span

Photograph D2-32: Bridge 5 - R13 km 62+060

Date: September 17, 2011 **Photo Number**: P9170076

Description: From downstream side, looking at the right abutment, note the bridge span is supported by the road fill depression in the road near the tie-in with the bridge span.

Photograph D2-33: Bridge 6 - R15 km 69+200

Date: September 17, 2011 **Photo Number**: P9170055

Description: Right abutment, looking from upstream to downstream, deterioration of the bin wall condition since the 2010 geotechnical inspection, likely caused by the snow removal activities.

Photograph D2-34: Bridge 6 - R15 km 69+200

Date: September 17, 2011 **Photo Number**: P9170059

Description: Looking from downstream to upstream at right abutment.

Photograph D2-35: Bridge 6 - R15 km 69+200

Date: September 17, 2011 **Photo Number**: P9170061

Description: Looking from upstream to downstream at left abutment.

Photograph D2-36: Bridge 6 - R15 km 69+200

Date: September 17, 2011 **Photo Number**: P9170062

Description: Looking from upstream to downstream at right abutment.

Photograph D2-37: Bridge 6 - R15 km 69+200

Date: September 17, 2011 **Photo Number**: P9170063

Description: Looking upstream at stream

Photograph D2-38: Bridge 7 - R16 km 73+800

Date: September 17, 2011 **Photo Number**: P9170046

Description: From upstream to downstream looking at stream

Photograph D2-39: Bridge 7 - R16 km 73+800

Date: September 17, 2011 **Photo Number**: P9170047

Description: From upstream, looking at right abutment

Photograph D2-40: Bridge 7 - R16 km 73+800

Date: September 17, 2011 **Photo Number**: P9170050

Description: From upstream to downstream, looking at geotextile condition of right abutment. Note that the geotextile is slightly damaged near the middle.

Photograph D2-41: Bridge 7 - R16 km 73+800

Date: September 17, 2011 **Photo Number**: P9170051

Description: From downstream to upstream, looking at right abutment

Photograph D2-42: Bridge 8 – R18 km 79+500

Date: September 17, 2011 **Photo Number**: P9170033

Description: View from upstream, right abutment, looking at streambed

Photograph D2-43: Bridge 8 – R18 km 79+500

Date: September 17, 2011 **Photo Number**: P9170037

Description: View from downstream looking at right abutment

Photograph D2-44: Bridge 8 – R18 km 79+500

Date: September 17, 2011 **Photo Number**: P9170038

Description: View from downstream looking at left abutment

Photograph D2-45: Bridge 8 – R18 km 79+500

Date: September 17, 2011 **Photo Number**: P9170039

Description: View of right abutment, downstream side. Note important amount of gravel from the road bed fallen down onto geotextile.

Photograph D2-46: Bridge 8 – R18 km 79+500

Date: September 17, 2011 **Photo Number**: P9170041

Description: View of left abutment. Note gravel from the road surface on top of the geotextile.

Photograph D2-47: Bridge 9 - R19 km 83+100

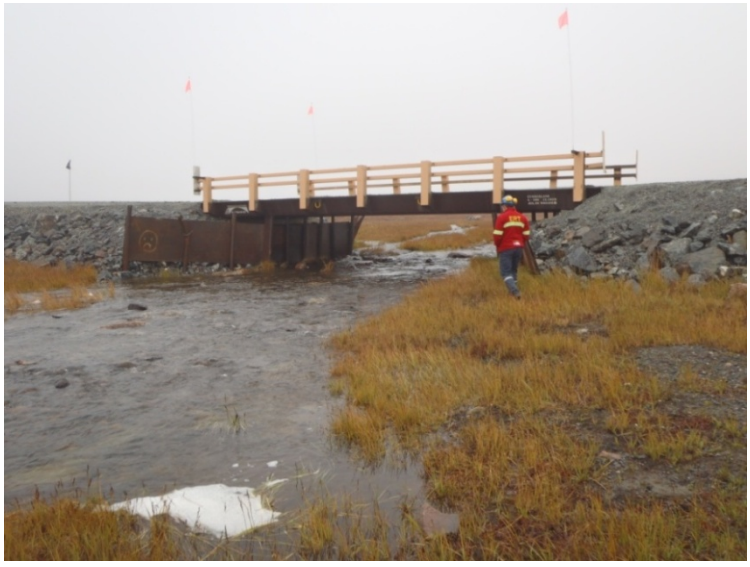
Date: September 17, 2011 **Photo Number**: P9170022

Description: From upstream to downstream, looking at left abutment. Note one pile folded.

Photograph D2-48: Bridge 9 - R19 km 83+100

Date: September 17, 2011 **Photo Number**: P9170021

Description: From upstream to downstream, looking at stream



Photograph D2-49: Bridge 9 - R19 km 83+100

Date: September 17, 2011 **Photo Number**: P9170018

Description: From downstream, looking at the bridge

Photograph D2-50: Bridge 9 - R19 km 83+100

Date: September 17, 2011 **Photo Number**: P9170019

Description: From downstream, looking at left abutment

Photograph D2-51: Bridge 9 - R19 km 83+100

Date: September 17, 2011 **Photo Number**: P9170024

Description: Looking at water accumulation, downstream, due to seepage occurring under the right (south) abutment.

APPENDIX E

Quarries Photographic Log

Quarry 1 km 5+200

Date: September 17, 2011 **Photo Number**: P9180055

Description: View of west wall

Quarry 1 km 5+200

Date: September 17, 2011 **Photo Number**: P9180056

Description: View of south and east wall

Quarry 2 km 13+250

Date: September 17, 2011 **Photo Number**: P9180091

Description: Looking west at south and west wall

Quarry 2 km 13+250

Date: September 17, 2011 **Photo Number**: P9180092

Description: View of north wall

Quarry 3 km 23+700

Date: September 17, 2011 **Photo Number**: P9180133

Description: View of southwest wall

Quarry 3 km 23+700

Date: September 17, 2011 **Photo Number**: P9180134

Description: View of southeast wall.

Quarry 4 km 31+350

Date: September 17, 2011 **Photo Number**: P9170126

Description: View of Quarry 4, quarry is flooded, south and east wall not exposed.

Quarry 5 km 34+650

Date: September 17, 2011 **Photo Number**: P9170119

Description: View of northwest wall

Quarry 5 km 34+650

Date: September 17, 2011 **Photo Number**: P9170120

Description: View of northeast wall

Quarry 5 km 34+650

Date: September 17, 2011 **Photo Number**: P9170121

Description: View of southeast wall

Quarry 6 km 36+500

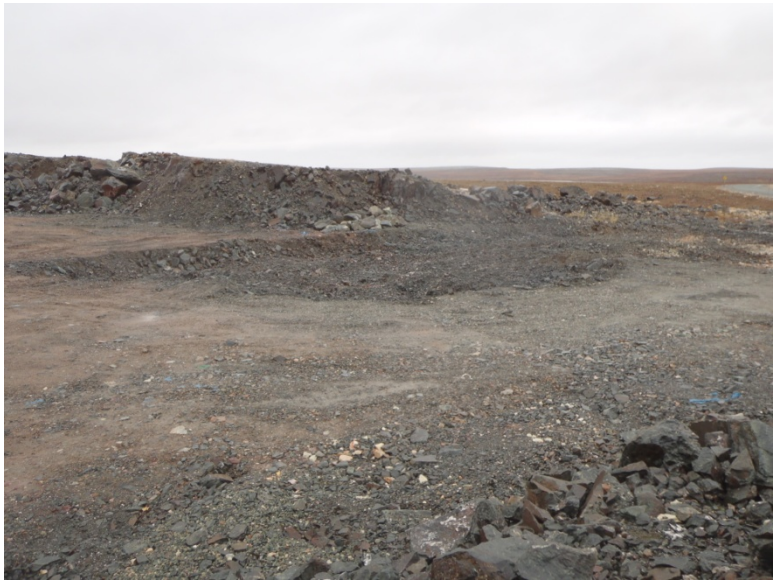
Date: September 17, 2011 **Photo Number**: P9170114

Description: View of east wall

Quarry 6 km 36+500

Date: September 17, 2011 **Photo Number**: P9170115

Description: View of north wall



Quarry 6 km 36+500

Date: September 17, 2011 **Photo Number**: P9170116

Description: View of west wall

Quarry 7 km 39+800

Date: September 17, 2011 **Photo Number**: P9170108

Description: Panoramic view of the quarry looking west

Quarry 8 km 42+950

Date: September 17, 2011 **Photo Number**: P9170105

Description: Panoramic view of the quarry looking southwest

Quarry 9 km 44+600

Date: September 17, 2011 **Photo Number**: P9170103

Description: View of southwest and west wall

Quarry 9 km 44+600

Date: September 17, 2011 **Photo Number**: P9170104

Description: View of northeast wall and north end of the west wall

Quarry 10 km 48+900

Date: September 17, 2011 **Photo number**: P9170093

Description: View of north wall and northern part of the east wall

Quarry 10 km 48+900

Date: September 17, 2011 **Photo number**: P9170094

Description: Overview of the quarry looking north

Quarry 11 km 53+500

Date: September 17, 2011 **Photo number**: P9170093

Description: Overview of the quarry looking north

Quarry 12 km 58+300

Date: September 17, 2011 **Photo number**: P9170086

Description: View of southwest wall

Quarry 12 km 58+300

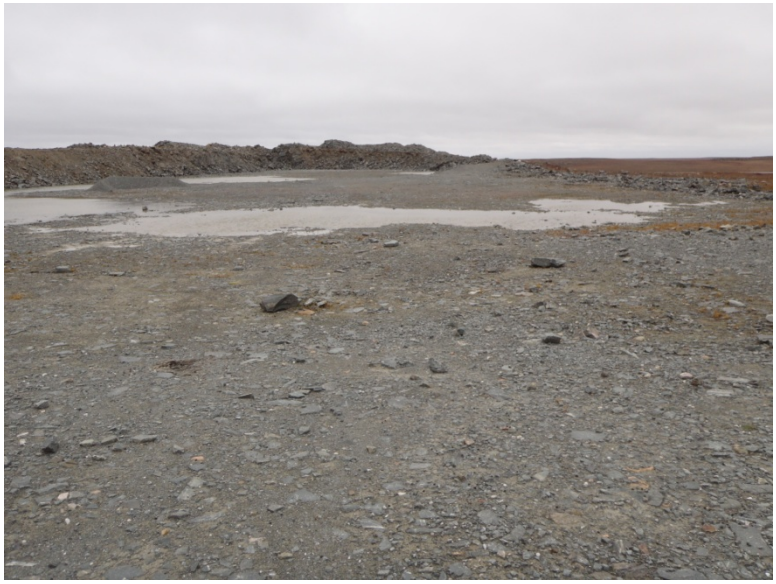
Date: September 17, 2011 **Photo number**: P9170087

Description: Overview of the quarry looking south

Quarry 13 km 62+350

Date: September 17, 2011 **Photo number**: P9170072

Description: View of northeast wall, looking north



Quarry 13 km 62+350

Date: September 17, 2011 **Photo number**: P9170073

Description: Looking east

Quarry 14 km 65+700

Date: September 17, 2011 **Photo number**: P9170070

Description: Looking west

Quarry 14 km 65+700

Date: September 17, 2011 **Photo number**: P9170071

Description: Looking northwest

Quarry 15 km 67+600

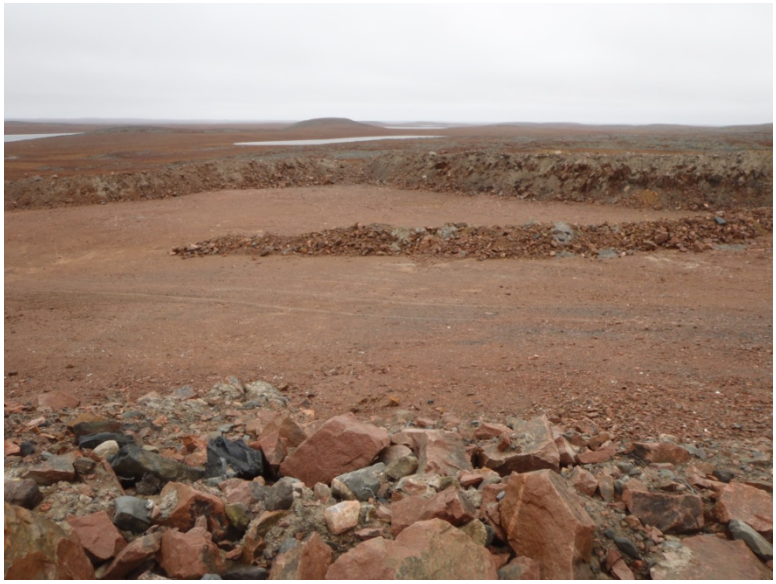
Date: September 17, 2011 **Photo number**: P9170069

Description: Looking south

Quarry 16 km 70+400

Date: September 17, 2011 **Photo number**: P9170054

Description: Overview of the quarry looking south



Quarry 17 km 72+800

Date: September 17, 2011 **Photo number**: P9170052

Description: Looking east

Quarry 17 km 72+800

Date: September 17, 2011 **Photo number**: P9170053

Description: Looking northeast at north wall

Quarry 18 km 80+200

Date: September 17, 2011 **Photo number**: P9170032

Description: View of west wall, looking northwest

Quarry 19 km 84+300

Date: September 17, 2011 **Photo number**: P9170017

Description: View of west and north walls

Quarry 20 - km 89+550 –& Quarry 21 – km 93+400

Date: September 17, 2011

No clear photo available because the fog was too thick during the inspection of those quarries.

Quarry 22 – km 93+400

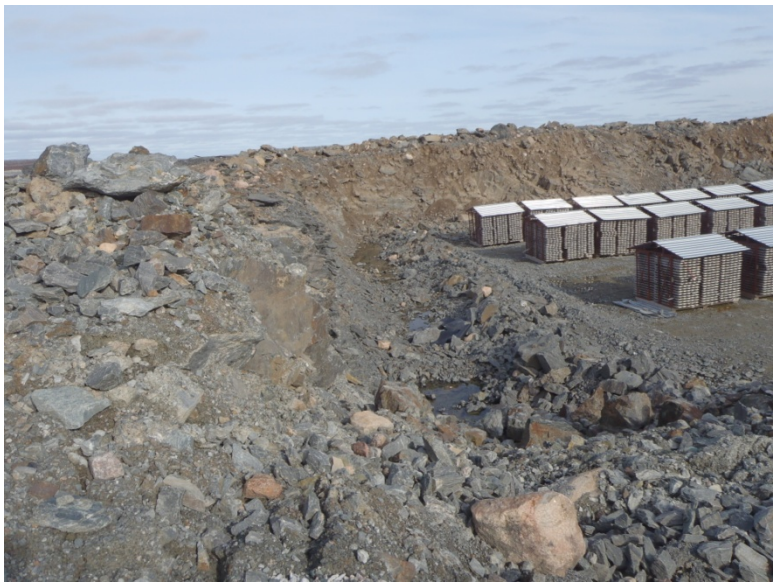
Date: September 17, 2011 **Photo number**: P9170006

Description: Overview of the quarry, looking northwest. Note contaminated soil temporary stored inside the quarry.

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160008

Description: From airstrip, looking Northeast at quarry south edge



Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160015

Description: Looking northeast at northeast wall (west side)

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160016

Description: Looking east at northeast wall

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160017

Description: Looking southeast at southwest wall

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160018

Description: Looking southwest at southwest wall (west side)

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160019

Description: Looking southeast at southeast wall (south side)

Quarry 23 (Airstrip Quarry)

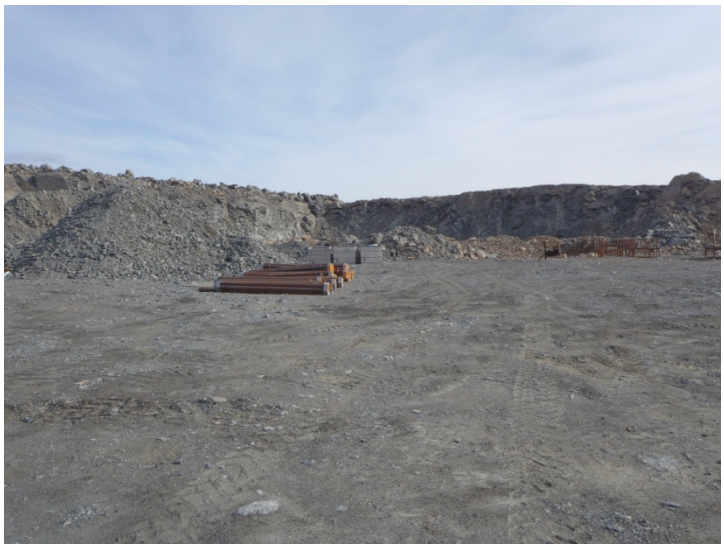
Date: September 16, 2011 **Photo number**: P9160020

Description: Looking east at southeast and northeast walls

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160021

Description: Looking northwest at northeast wall



Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160022

Description: Looking northeast at northeast wall (east side)

Quarry 23 (Airstrip Quarry)

Date: September 16, 2011 **Photo number**: P9160023

Description: Looking northwest at northeast wall

N

95 Bench
N:7140229
E:644646

Area 12

Area 11

Area 10

Quarry 1
(blasted boundaries)

5+400

5+300

5+200

5+100

Inukshuk

101 Bench
N:7140167
E:644722

Quarry 1 - 1m contour intervals				
Bench Elevation	Design Volume Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
95 & 101	93,260	Not Available	Not Available	April 3, 2007

N

Pit-4

Quarry 2
N:7147611
E:6642097

13+500

13+400

13+300

13+200

1 x 600mm x 13.5m csp
PC-2

Quarry 2 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
86	94,047	16,743	12,112	Oct. 22, 2007

24+100

24+000

23+900

23+800

23+700

23+600

Quarry 3
N:7156420
E:638009

N

Pit-6

Quarry 3 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
90	126,791	20,597	13,127	Oct. 21, 2007

Quarry 4
N:7162510
E:633883

31+400

31+300

31+200

N

Quarry 4 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
119	25,315	6,437	4,935	Jun. 3, 2007

GOLDER DATA

- Lfla-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

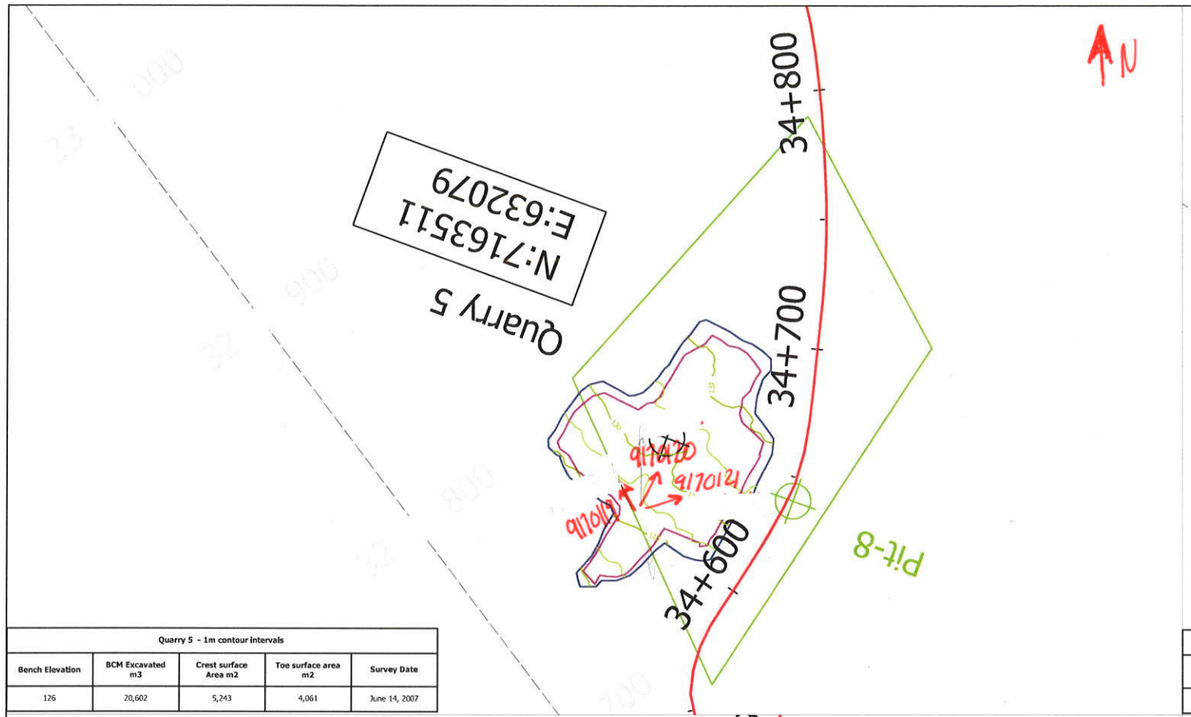
NOTES:

Quarry Data Summarized in Table 1
100m stations are referenced to 0+000 N 7135821.224 E 646026.187

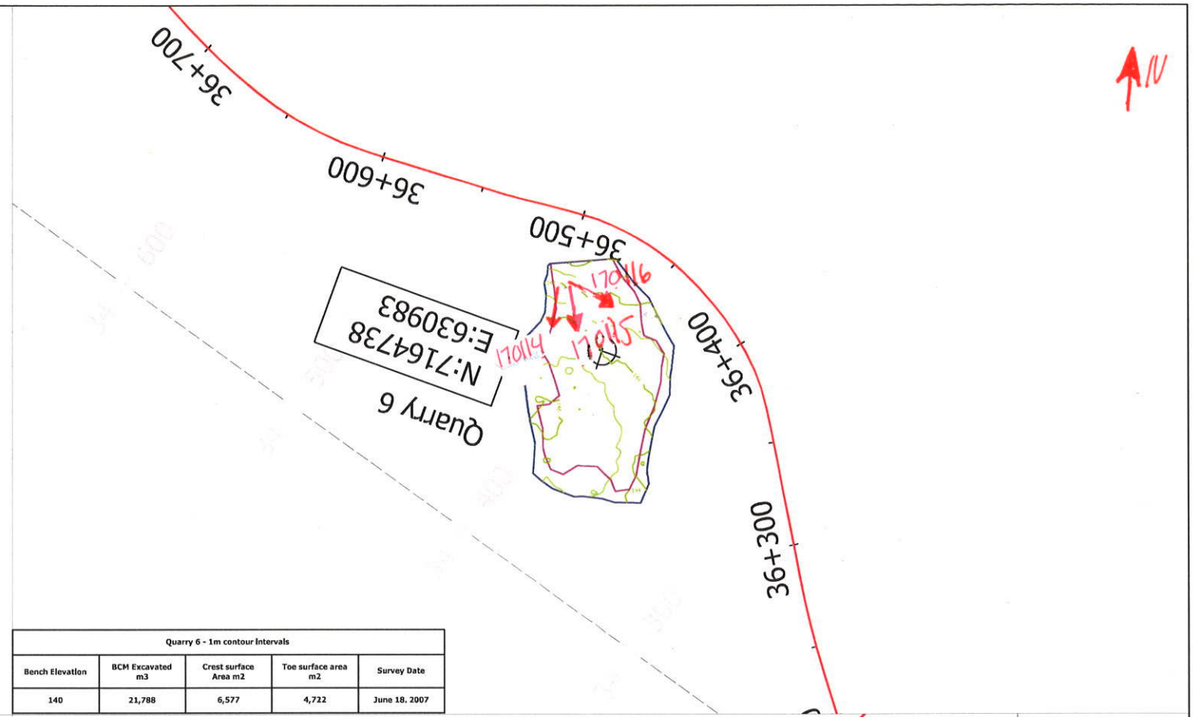
Agnico-Eagle Mines Ltd
NUNAVUT
Meadowbank Gold Project
Tehek Access Road Construction
As constructed Quarry Drawing Figure 1
Drawing Title: Quarry 1 to Quarry 4

NUNA W & T SERVICES LTD.

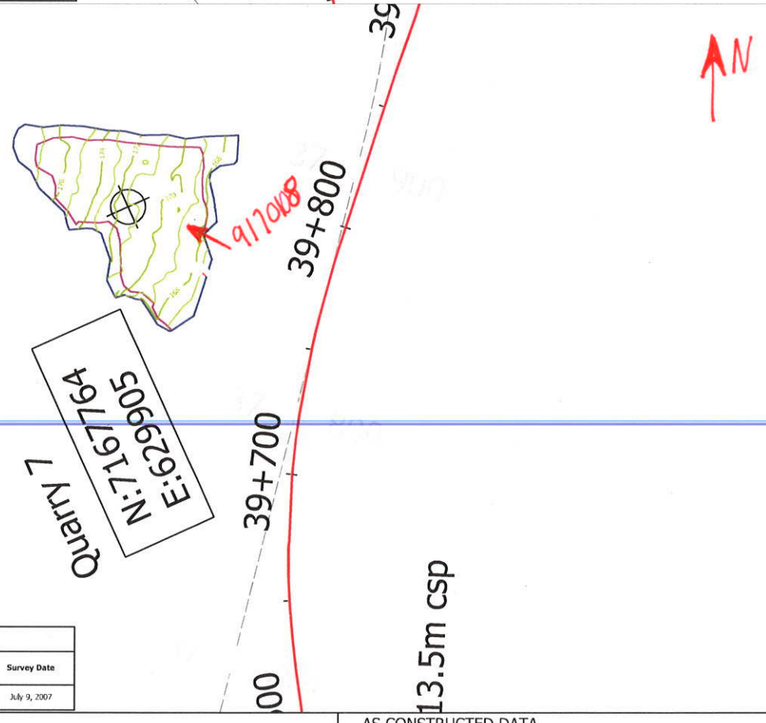
Scale	Design by	Drawn by	Date
NTS	MC	CG/HB	March 31, 2008



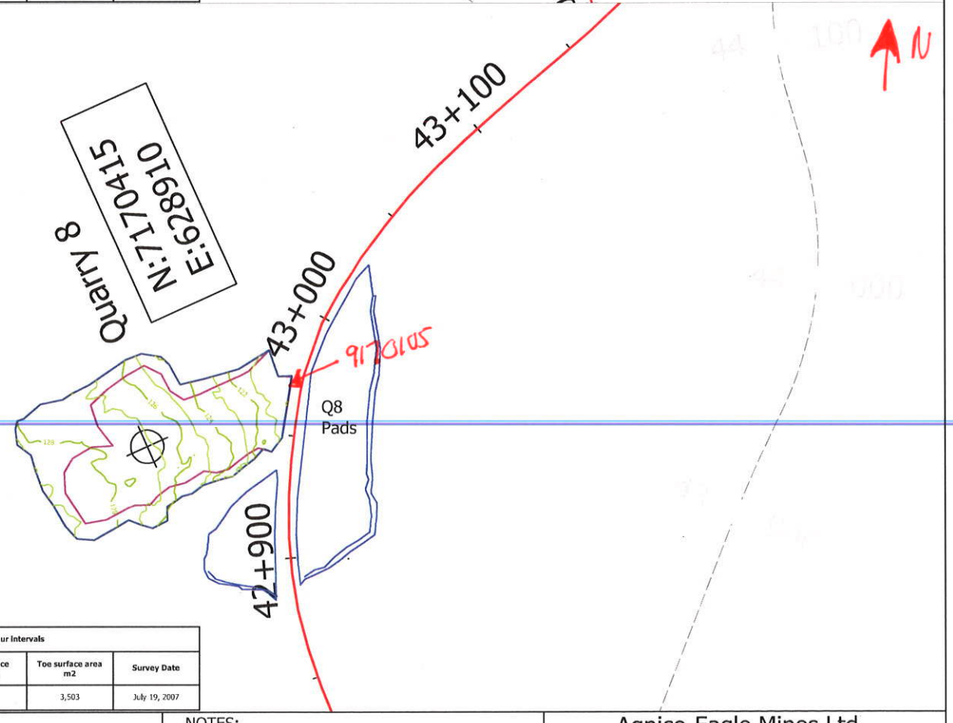
Quarry 5 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
126	20,602	5,243	4,061	June 14, 2007



Quarry 6 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
140	21,788	6,577	4,722	June 18, 2007



Quarry 7 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
165	20,298	4,046	3,045	July 9, 2007



Quarry 8 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
120	22,765	5,368	3,503	July 19, 2007

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd — NUNAVUT

Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 2

Drawing Title: Quarry 5 to Quarry 8

Scale	Drawn By	Checked By	Date
NTS	MC	CG/HB	March 31, 2008

NUNA M & E SERVICES LTD.

DRAWING NO.

FORMAT ANSI E-PORTRAIT

N.

QUARRY 11

Quarry 11

N:7178687
E:625321

9170093

BLIN

GENERAL NOTES

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO-EAGLE

DRAWN BY
DESIGNED BY
APPROVED BY
PROJECT NO.
DATE

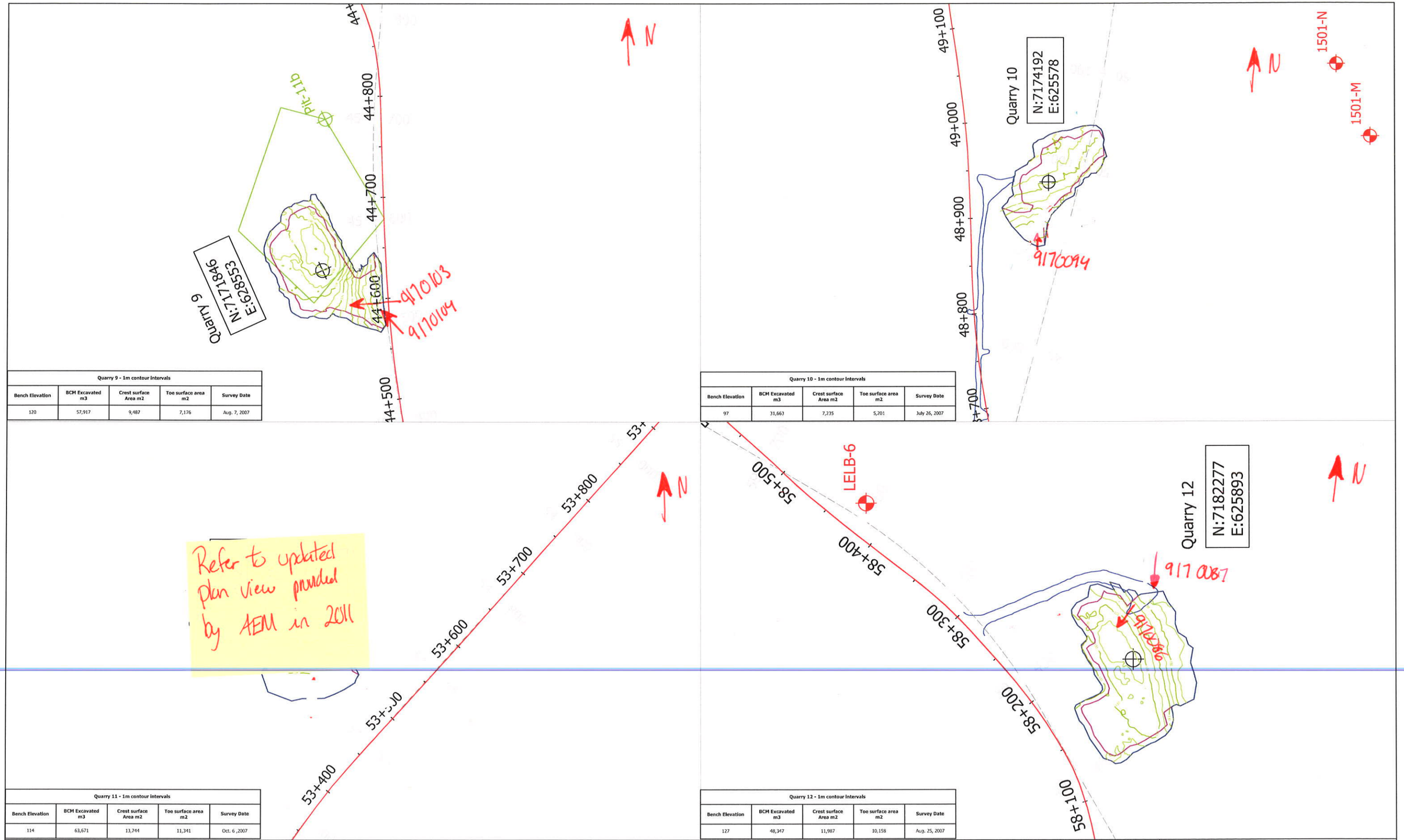
AGNICO-EAGLE – MEADOWBANK DIVISION
SURFACE
PLANNING
MEADOWBANK SURFACE PLAN

SCALE 1:5000 FILE .DWG

DRAWING NO. MEADOWBANK_PLANNING REVISION SHEET 1/1

FILE NO. .DWG

K:\13 - DRAWINGS\MEADOWBANK PLANNING.dwg, 18 Apr 2011



Quarry 9 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
120	57,917	9,487	7,176	Aug. 7, 2007

Quarry 10 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
97	31,663	7,235	5,201	July 26, 2007

Quarry 11 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
114	63,671	13,744	11,341	Oct. 6 ,2007

Quarry 12 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
127	48,347	11,987	10,158	Aug. 25, 2007

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd — NUNAVUT

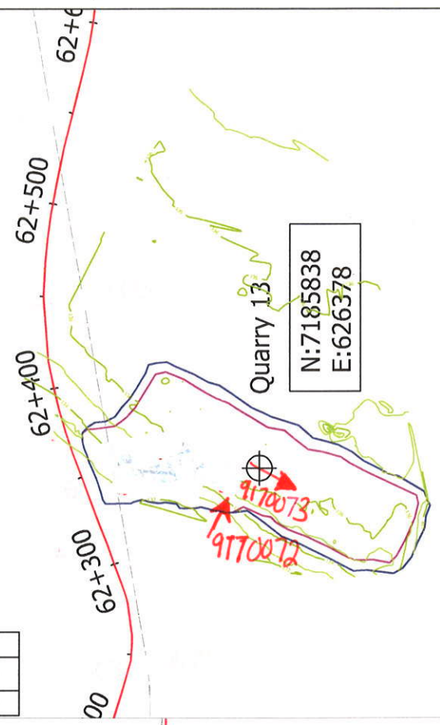
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 3

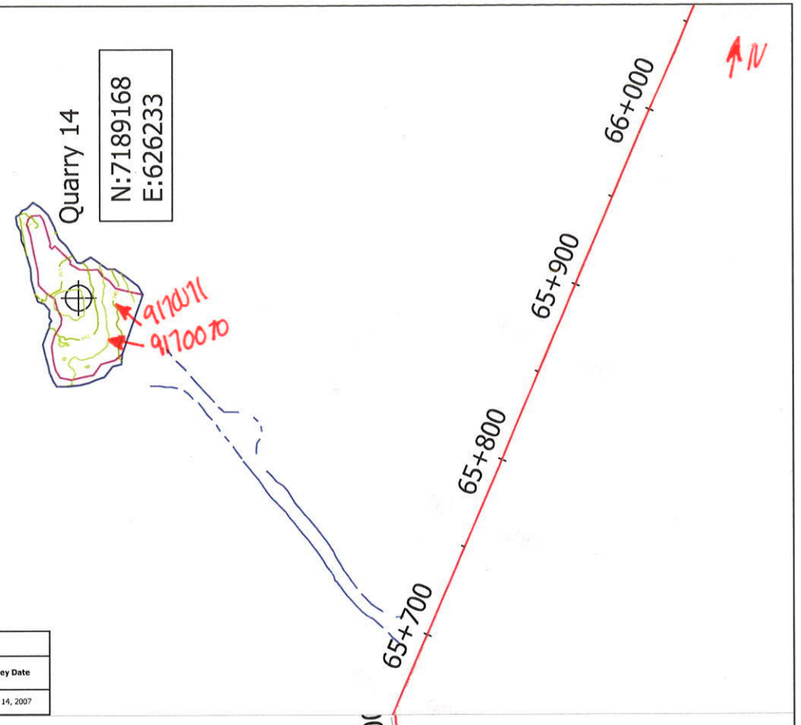
Quarry 9 to Quarry 12

NUNA M & T SERVICES LTD.

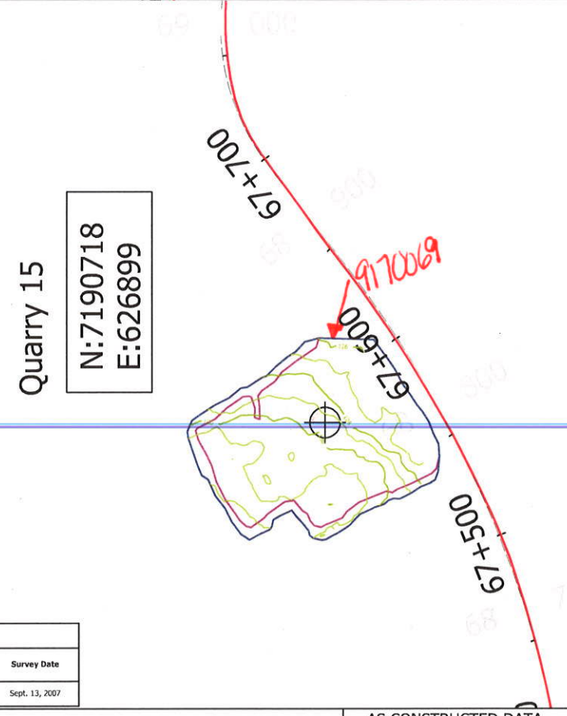
Scale	Drawn	Checked	Date
NTS	MC	CG/HB	March 31, 2008



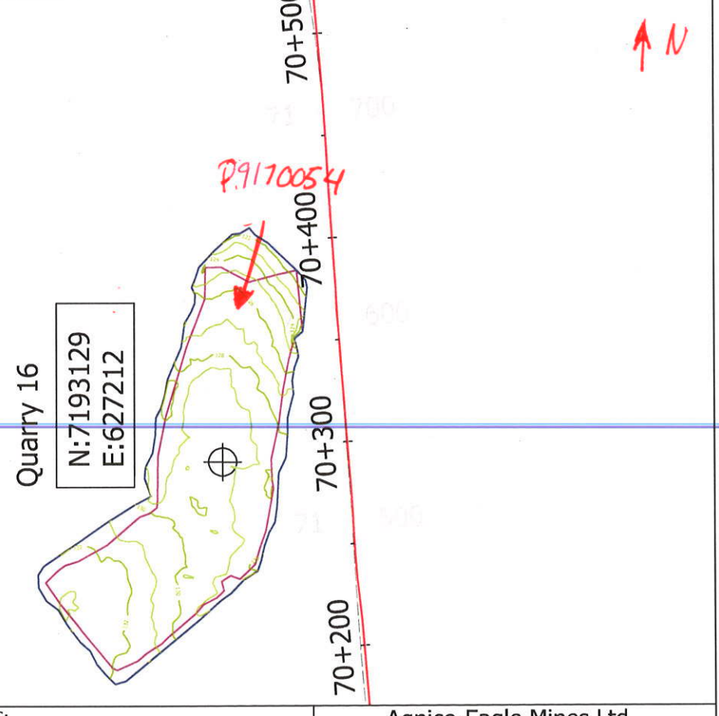
Quarry 13 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
132	36,106	10,778	8,979	Aug. 26, 2007



Quarry 14 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
136	16,295	3,375	2,427	Sept. 14, 2007



Quarry 15 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
125	30,201	6,940	5,958	Sept. 13, 2007



Quarry 16 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
121	88,714	13,634	10,958	May 3, 2008

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd — NUNAVUT

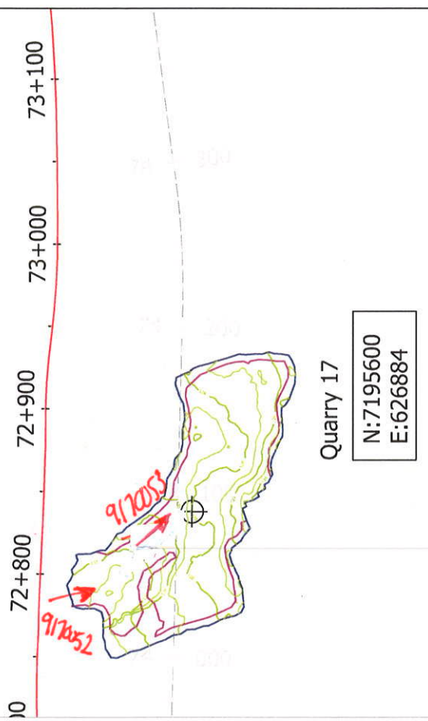
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 4

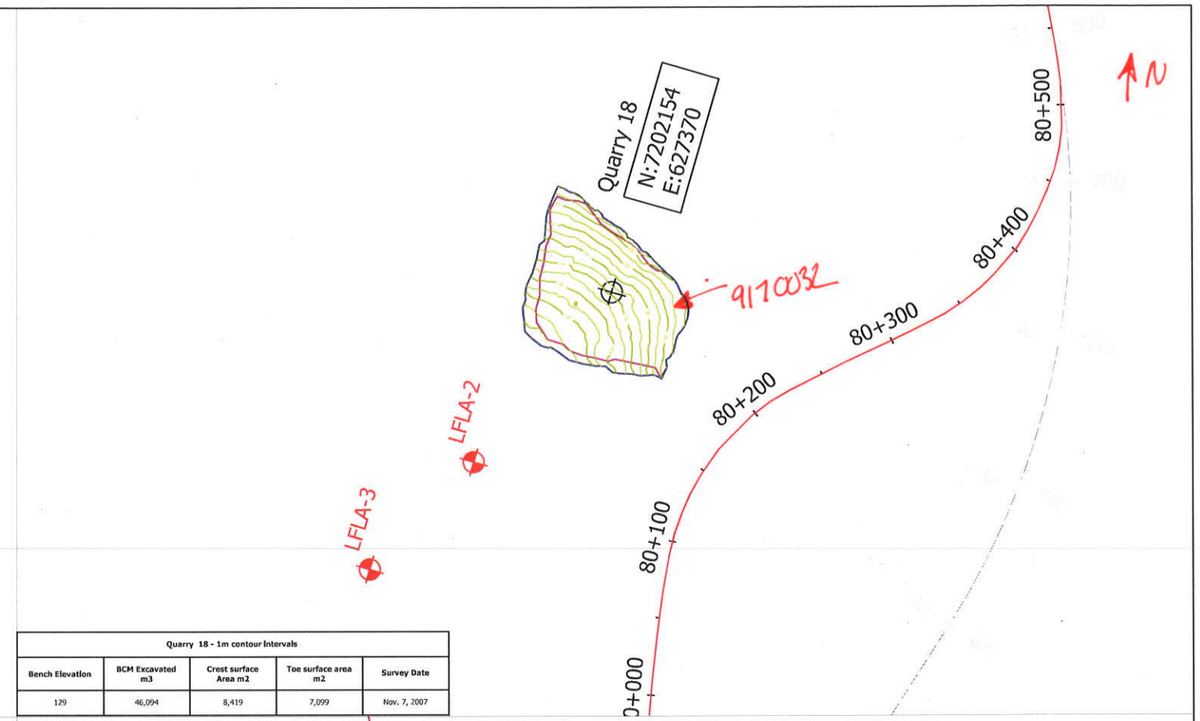
Quarry 13 to Quarry 16

NUNA M & T SERVICES LTD.

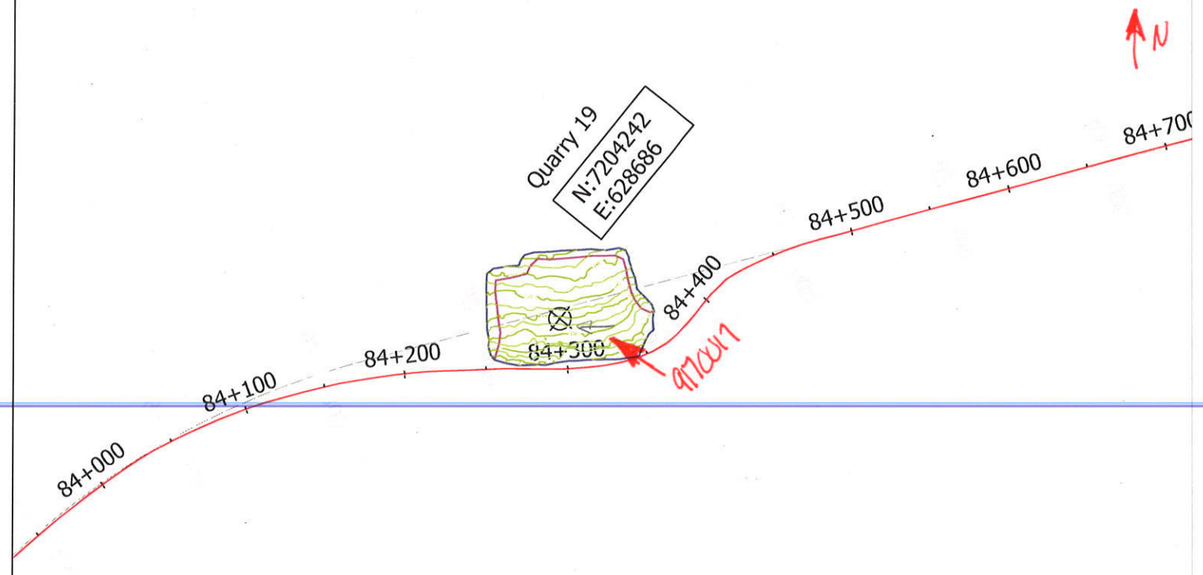
Scale	Drawn By	Checked By	Date
NTS	MC	CG/HB	May 3, 2008



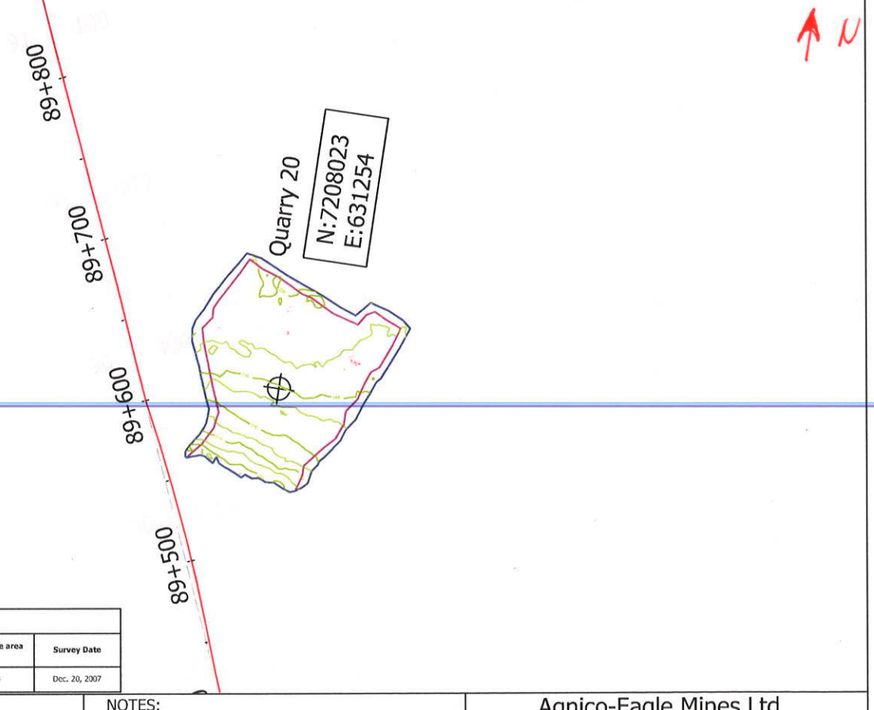
Quarry 17 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
124	48,539	12,363	10,958	Oct. 17, 2007



Quarry 18 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
129	46,094	8,419	7,099	Nov. 7, 2007



Quarry 19 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
133	34,480	6,230	5,286	Dec. 1, 2007



Quarry 20 - 1m contour intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
191	53,388	11,660	9,674	Dec. 20, 2007

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd — NUNAVUT

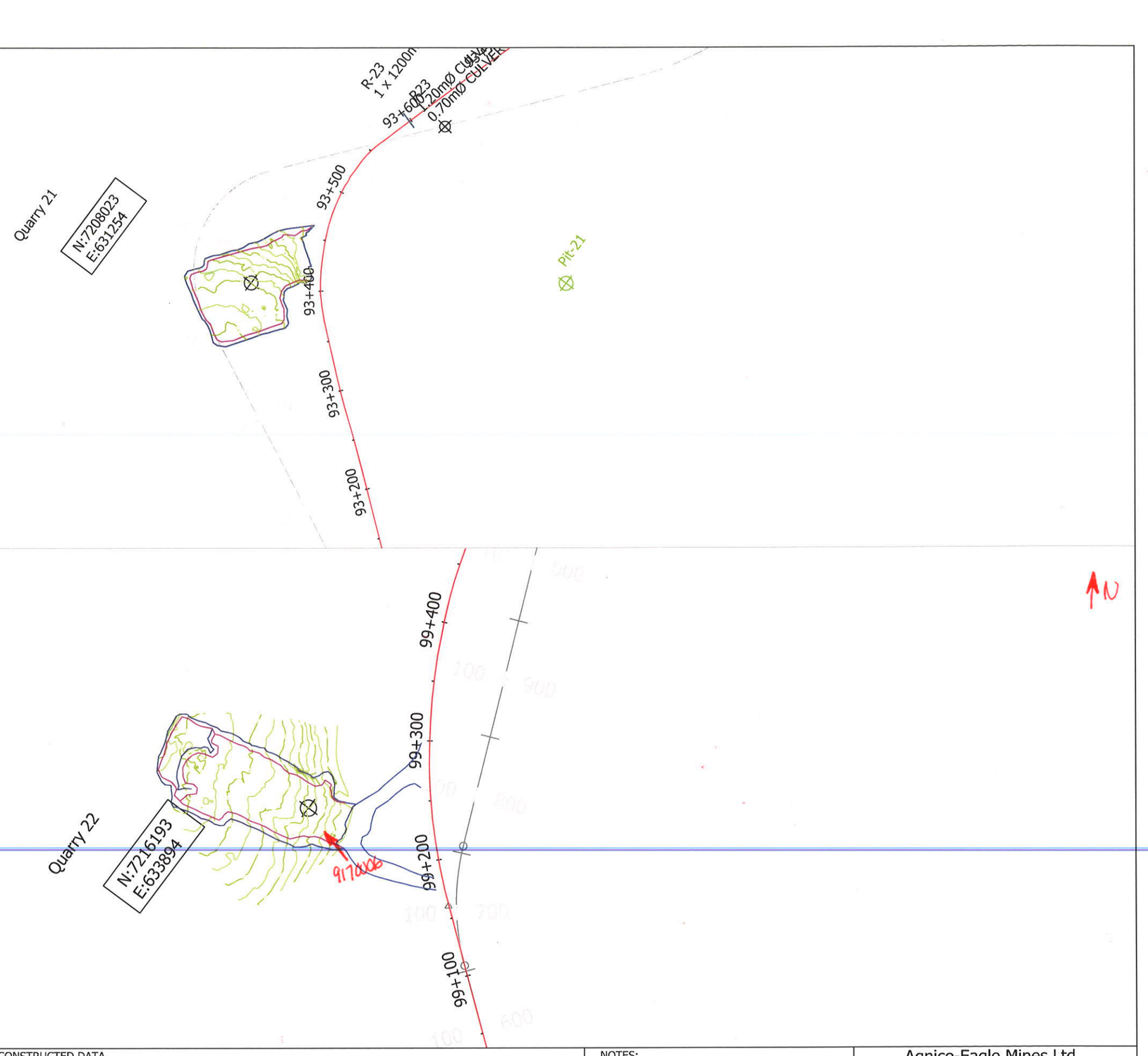
Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 5

Drawing Title: Quarry 17 to Quarry 20

NUNA M & T SERVICES LTD.

Scale	Drawn	Checked	Date
NTS	MC	CG/HB	March 31, 2008



Quarry 20 - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
167	55,360	9,096	7,732	Feb. 5, 2008

Quarry 22 Active Pit - 1m contour Intervals				
Bench Elevation	BCM Excavated m3	Crest surface Area m2	Toe surface area m2	Survey Date
147	65,049	10,440	8,634	May 4, 2008

GOLDER DATA

- LfLa-3 — Existing Archeological site
- Pit-13 — Proposed Quarry Site
- Existing Lake/Stream
- R02 — River crossing (crossing structure and dimension)
- 120 — Existing major contour (10m Topo)
- Existing minor contour (interpreted)
- 1+000 — Proposed centerline of road

AS CONSTRUCTED DATA

- 172 — Quarry original ground 2m major contour
- Quarry original ground 1m minor contour
- Crest boundary of quarry limit at original ground
- Toe boundary of quarry excavation at bench grade
- 1+200 — Centerline of road with 100m stations
- R20 PC-1 — River crossing-culvert 600mm/1200mm dia
- R02 — River Crossing-12m30m bridges

NOTES:

Quarry Data Summarized in Table 1

100m stations are referenced to 0+000 N 7135821.224 E 646026.187

Agnico-Eagle Mines Ltd

NUNAVUT

Meadowbank Gold Project
Tehek Access Road Construction

As constructed Quarry Drawing Figure 6

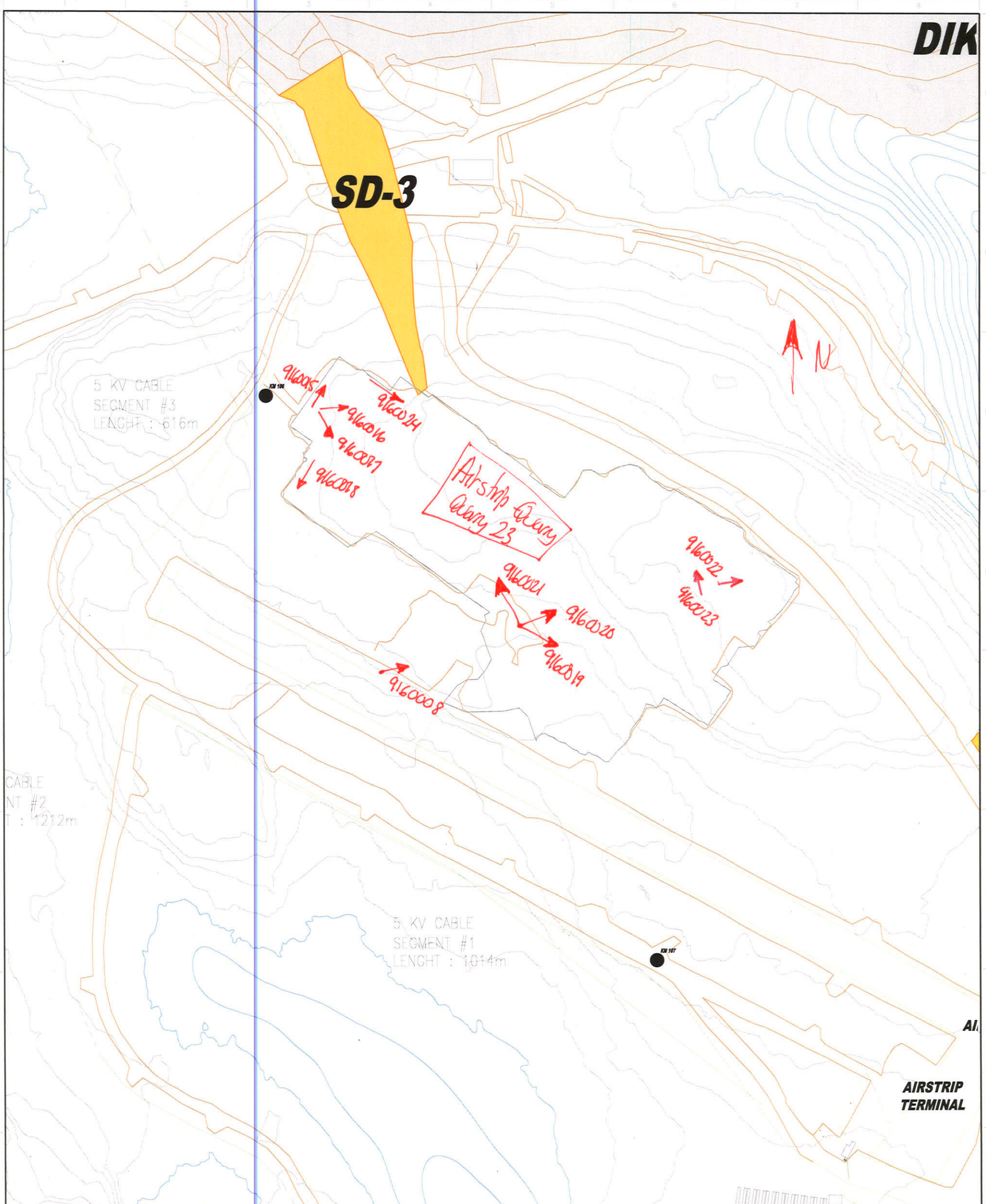
Quarry 21 to Quarry 22

NUNA M & T SERVICES LTD.

Scale	Drawn	Checked	Date
NTS	MC	CQ/HB	May 4, 2008

DRAWING NO.

FORMAT ANSI E-PORTRAIT



GENERAL NOTES

TITLE	# DWG
REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE	BY
	REVISIONS		

AGNICO-EAGLE

DESIGN BY
DRAWN BY
APPROVED BY
PROJECT NO.
DATE

AGNICO-EAGLE – MEADOWBANK DIVISION
SURFACE
PLANNING
MEADOWBANK SURFACE PLAN

SCALE 1:5000 TYPE .DWG

DRAWING NO. MEADOWBANK_PLANNING REVISION SHEET 1/1

FILE NO. .DWG

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APPENDIX F

Bulk Fuel Storage Facilities

APPENDIX F1

Baker Lake Photographic Log

Photograph F1-1: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180001

Description: View of staging area, unloading a barge

Photograph F1-2: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180003

Description: Looking west at access bridge of staging area

Photograph F1-3: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180006

Description: Entrance of the fuel. Note supports of the pipe over gravel pad

Photograph F1-4: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180005

Description: Pipeline from staging area to fuel tanks

Photograph F1-5: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180007

Description: Pipeline from staging area to fuel tanks. Note gravel bench created beneath pipeline support

Photograph F1-6: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180010

Description: From southeast corner of southern tanks, looking southeast. Note water pooling over the tank floor

Photograph F1-7: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180011

Description: From southeast corner of southern tanks, looking northeast.

Photograph F1-8: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180012

Description: Looking northwest at exposed liner. Note no granular protection or geotextile over the LLDPE membrane.

Photograph F1-9: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180015

Description: From northwest corner of the southern tanks, looking southeast

Photograph F1-10: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180018

Description: Looking southwest in between Tank #1 and #2

Photograph F1-11: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180019

Description: Looking southeast, from southeast corner of Tank #2

Photograph F1-12: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180020

Description: Looking northeast, in between Tank #2 and #3

Photograph F1-13: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180021

Description: Looking southeast of Tank #3 and #4

Photograph F1-14: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180022

Description: Looking northwest of Tank #2 and #1

Photograph F1-15: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180023

Description: Looking northeast of Tank #3 and #4

Photograph F1-16: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180024

Description: Looking southwest in between Tank #3 and #4

Photograph F1-17: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180025

Description: Looking from southeast corner of southern tanks, looking northwest

Photograph F1-18: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180026

Description: Looking from southeast corner of southern tanks, looking northeast

Photograph F1-19: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180028

Description: Looking from northeast corner of southern tanks, looking northwest

Photograph F1-20: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180030

Description: Looking on upper bench separating the southern to the northern tank. From southeast corner of the northern tank, looking northwest at tension cracks

Photograph F1-21: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180029

Description: Looking at tension cracks present on the upper bench between Tank # 6 and #4

Photograph F1-22: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180032

Description: From southeast corner of the northern tanks, looking northeast

Photograph F1-23: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180033

Description: From southeast corner of the northern tanks, looking northwest

Photograph F1-24: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180034

Description: From northeast corner of northern tanks, looking northwest

Photograph F1-25: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180035

Description: Looking southwest in between Tank #5 and #6

Photograph F1-26: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180036

Description: From southwest corner of the northern tanks, looking southeast

Photograph F1-27: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180037

Description: From southwest corner of the northern tanks, looking northeast

Photograph F1-28: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180038

Description: Looking on upper bench separating the southern to the northern tank. From southwest corner of the northern tank, looking south at tension cracks

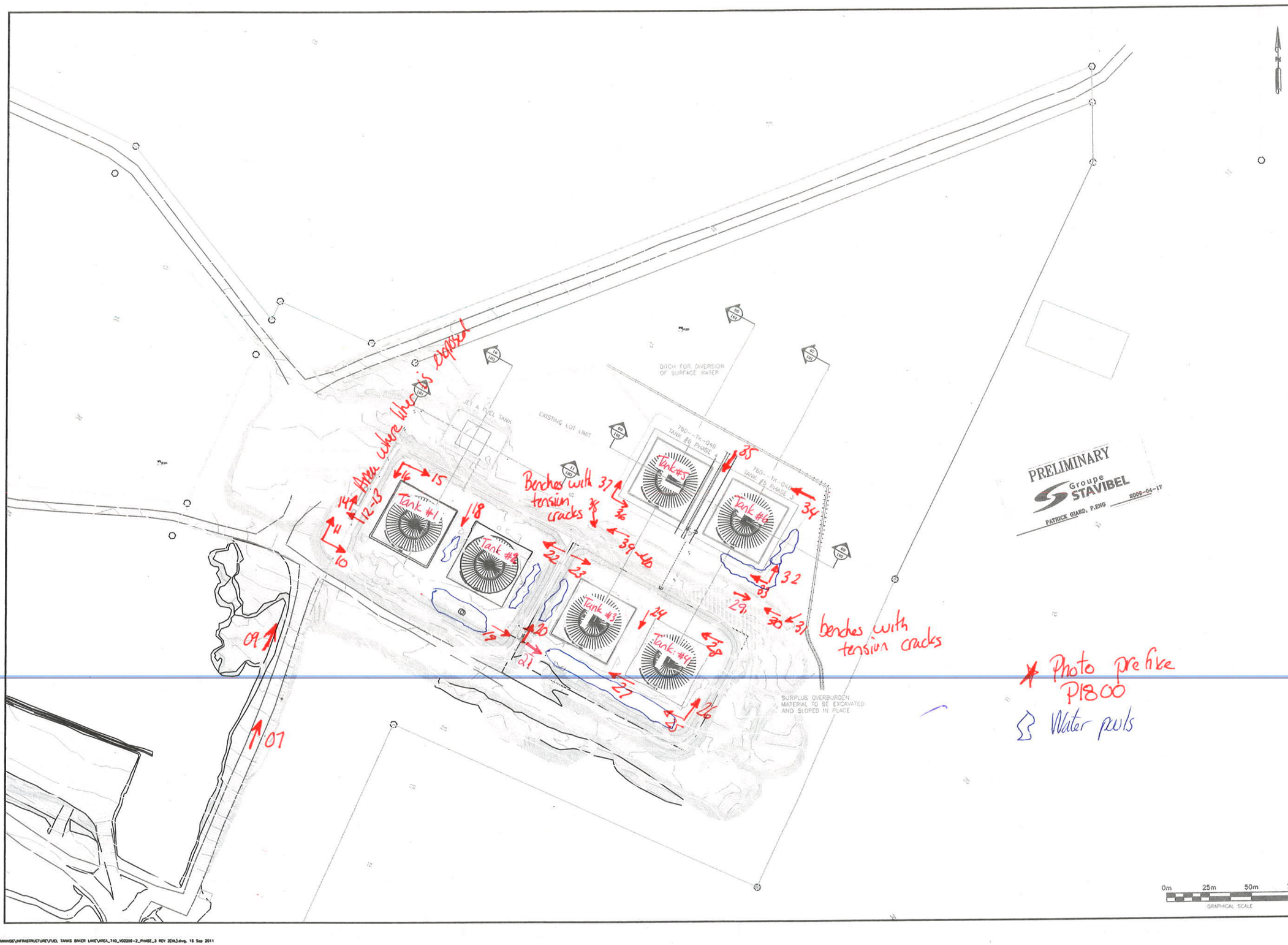
Photograph F1-29: Baker Lake Tank Farm

Date: September 18, 2011 **Photo Number**: P9180039

Description: Looking at tension cracks present on the upper bench between Tank # 5 and #3

DRAWING NO.

FORMAT ARCH D – LANDSCAPE



PRELIMINARY

Groupe STAVIBEL

PATRICK GIARD, P.ENG 2009-04-17

* Photo pre fire P1800

Water pools

KEY PLAN

GENERAL NOTES

Groupe STAVIBEL
Consultants en Ingénierie
1271, 7e Rue
Val-d'Or (Québec) J9P 3S1
Tél: (819) 825-2333 Télec: (819) 825-1329
Courriel: stavibel-val@stavibel.qc.ca
Site Internet: www.stavibel.qc.ca

TITLE	# DWG

REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	BY	APP.	CLIENT
2	09-04-17	FOR ENVIRONMENTAL REVIEW	F.R.	P.G.	
1	09-04-03	FOR COMMENT	F.R.	P.G.	

REVISIONS

AGNICO-EAGLE MEADOWBANK DIVISION

TITLE
AGNICO-EAGLE – MEADOWBANK DIVISION
BAKER LAKE AREA 740

GENERAL LAYOUT
PHASE 3 (2009)

DRAWN BY	FRANCIS ROSE, TECH	DATE 2009-04-17
CHECKED BY	PATRICK GIARD, P.ENG	2009-04-17
APPROVED BY	BERTHO CARON, ENG	
SCALE	1:1000	DATE 2009-04-17
DRAWING NO.	VD2259-BKL-100	
PROJECT NO.	VD2259-2	REVISION 2
		SHEET 1/7

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FILE NO. .DWG

APPENDIX F2

Meadowbank Photographic Log

Photograph F2-1: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150001

Description: From southwest bench, looking north

Photograph F2-2: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150002

Description: From southwest bench, looking east

Photograph F2-3: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150006

Description: From south corner looking northeast

Photograph F2-4: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150008

Description: From east corner looking northwest

Photograph F2-5: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150010

Description: From north corner looking southwest. Note tank pad side slopes deterioration.

Photograph F2-6: Meadowbank Tank Farm

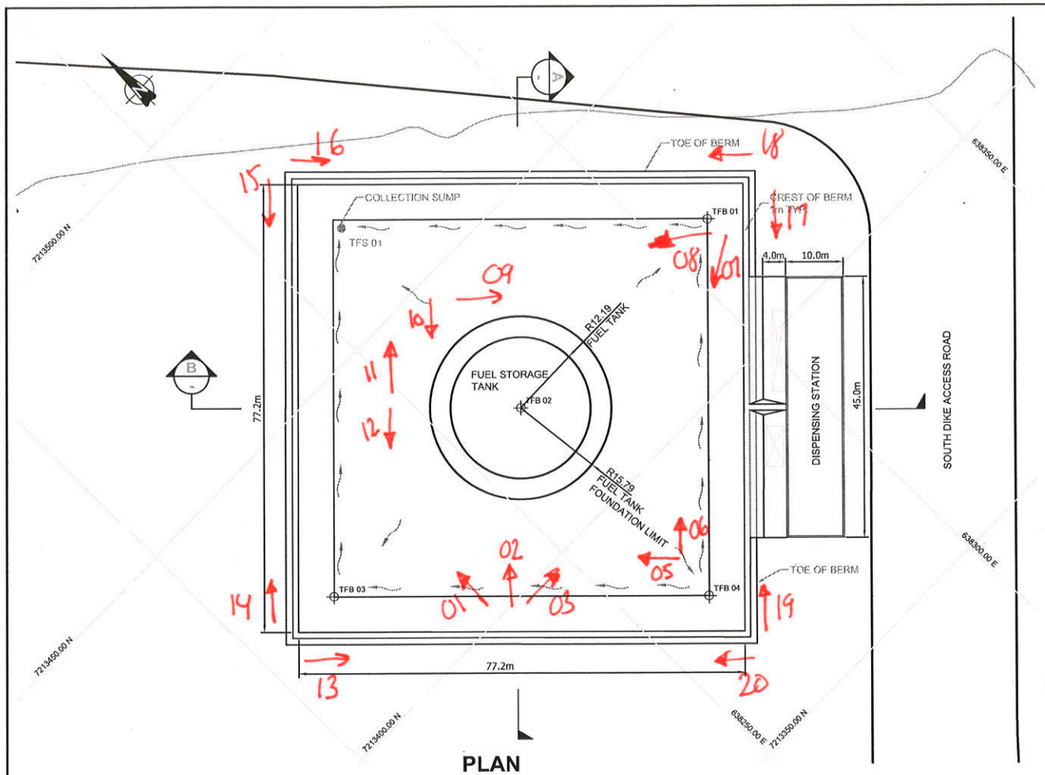
Date: September 15, 2011 **Photo Number**: P9150018

Description: From east corner, looking at side slope in good condition

Photograph F2-7: Meadowbank Tank Farm

Date: September 15, 2011 **Photo Number**: P9150015

Description: From north corner, looking at side slope (northwest facing) where deterioration of the slope condition was noted.



PLAN

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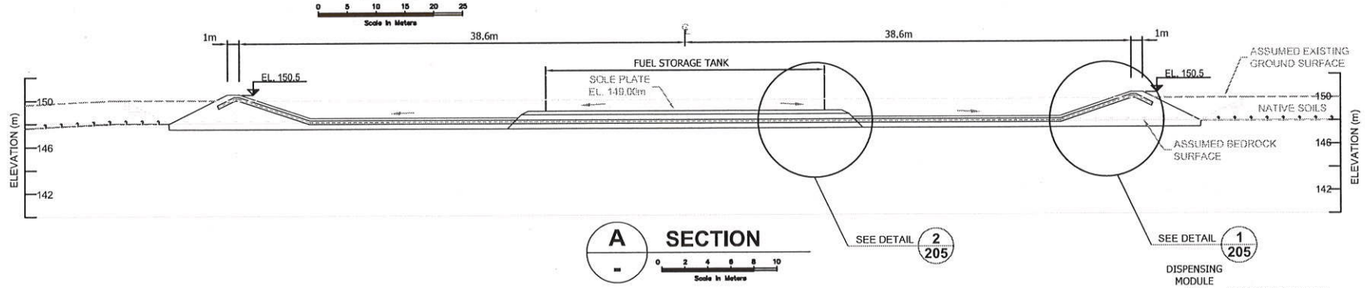

A SECTION

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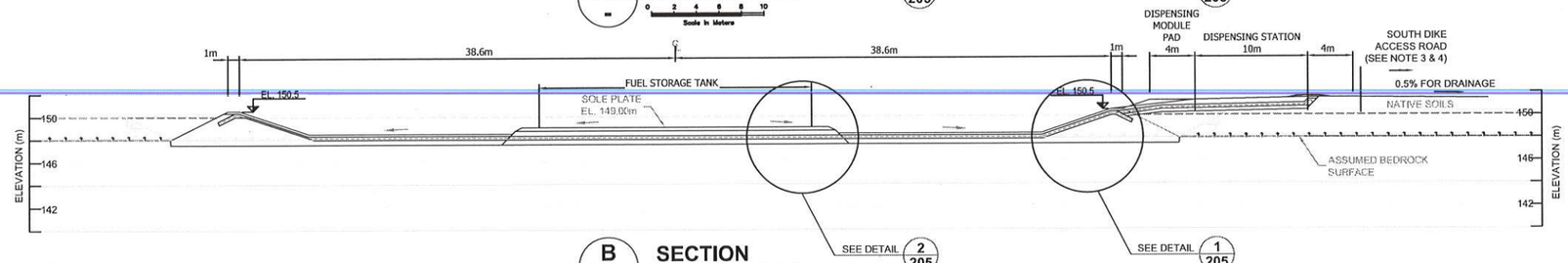

B SECTION

Scale in Meters 0 2 4 6 8 10

TANK FARM BACKFILL LAYOUT CONTROL POINTS			
ID	EASTING	NORTHING	ELEVATION
TFB 01	638,308.75	7,213,422.19	148.17
TFB 02	638,262.79	7,213,422.63	149.00
TFB 03	638,216.83	7,213,423.06	148.17
TFB 04	638,262.35	7,213,376.67	148.45
TFS 01	638,263.21	7,213,466.61	147.88

Photo prefix P91500...

LEGEND

- TFS 01 — TANK FARM SUMP LAYOUT CONTROL POINT.
- TFB 03 — TANK FARM BACKFILL LAYOUT CONTROL POINT.
- PROPOSED BACKFILL LIMITS.

NOTES

1) NORTHING AND EASTING ARE IN METRES REFERENCED TO UTM ZONE 14, NAD83.
2) ALL DIMENSIONS AND ELEVATIONS ARE IN METRES REFERENCED TO GEODETIC DATUM, UNLESS OTHERWISE NOTED.
3) ACCESS ROAD TO DISPENSING STATION BY OTHERS. DETAILS NOT SHOWN FOR CLARITY.
4) SOUTH DIKE ACCESS ROAD BY OTHERS. BARRIER BETWEEN SOUTH DIKE ACCESS ROAD AND DISPENSING STATION BY OTHERS.
5) SURFACE WATER TO DRAIN AWAY FROM DISPENSING STATION AND PERIMETER DIKES TO PERIMETER DRAINAGE DITCHES, NOT SHOWN FOR CLARITY.

REFERENCE

1) BASE PLAN INFORMATION IS PROVIDED BY CUMBERLAND DATED FEBRUARY 03, 2006.

REV	D/M/Y	REVISION	DR	CHK	CHK	APP	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR
										D	28APR06	–	CONSTRUCTION
										B	20APR06	–	FIRE MARSHALL INITIAL REVIEW
										A	10APR06	–	CLIENT REVIEW

REF	NUMBER	REFERENCES TITLE
	–	

STAMP/SEAL

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APPROVED FOR CONSTRUCTION

CLIENT PROJECT MGR.	ENGINEERING MGR.	PROJECT MGR.
–	–	–

PROJECT NO.	ACTIVITY NO.	PACKAGE CODE
–		

PROJECT PHASE

SCALE		BY	DD/MMM/YY
AS SHOWN	DSN.	WJP	28 APR 06
	DRN.	JK	28 APR 06

PROJECT

TITLE

TANK FARM BACKFILL PLAN AND SECTIONS MEADOWBANK FUEL TANK FARM

Golder Associates

PROJECT No.	FILE No.
– 06-1413-009	061413009_SK-204
DRAWING NO. 3000-C-204	REV. 0

REVISION DATE: 05/04/28 12:51PM By: jkownoski
CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-009\Drafting\cad\06-1413-009_SK-204.dwg

APPENDIX G

Other Site Facilities

APPENDIX G1

Site Roads Photographic Log

Photograph G1-1 Haul Roads

Date: September 16, 2011 **Photo Number**: P9160042

Description: Looking at haul road linking the Portage Pit to the Portage Rock Storage Facility

Photograph G1-2 Haul Roads

Date: September 16, 2011 **Photo Number**: P9160046

Description: Looking at West Road. Portage Pit is located at the right of the photo

Photograph G1-3 Haul Roads

Date: September 16, 2011 **Photo Number**: P9160048

Description: Looking at East Road. Portage Pit is located on the right side of the photo. Second Portage Lake is on the left side of the photo.

APPENDIX G2

Landfill Photographic Log

Photograph G2-1 Landfill

Date: September 16, 2011 **Photo Number**: P9160038

Description: Looking at the landfill, looking west

Photograph G2-2 Landfill

Date: September 16, 2011 **Photo Number**: P9160040

Description: Looking at the landfill, looking northeast

APPENDIX G3

Stormwater Management Pond 1 Photographic Log

Photograph G3-1 Stormwater Pond 1

Date: September 16, 2011 **Photo Number**: P9160052_53_54

Description: Overview of Stormwater Pond 1 (Tear Drop Pond), looking northeast

Photograph G3-2 Stormwater Pond 1

Date: September 16, 2011 **Photo Number**: P9160051

Description: Looking southwest, at Stormwater Pond 1. Note crushed ramp in the back, steep side slope and slope near the edge of Stormwater Pond 1.

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

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North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

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