



**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
REPORT ON 2008 ANNUAL INSPECTION  
(REF. NO. VA101-1/24-1)**

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**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
REPORT ON 2008 ANNUAL INSPECTION  
(REF. NO. VA101-01/24-1)**

**EXECUTIVE SUMMARY**

The Mount Polley copper and gold mine is owned by Mount Polley Mining Corporation (MPMC). It is located 56 kilometres northeast of Williams Lake, in central British Columbia. Mr. Les Galbraith, P. Eng., of Knight Piésold completed an annual inspection of the Tailings Storage Facility Inspection and associated works on September 25, 2008 in the company of Mr. Matthew Silbernagel.

The Tailings Storage Facility (TSF) consists of the Main, Perimeter, and South Embankments. The TSF consists of earthfill embankments with a low permeability core zone constructed with locally borrowed fine grained glacial till materials. The tailings embankments have been designed for staged expansion using the modified centreline construction method. The Stage 6a construction program, which involved raising the TSF embankments to an elevation of 954 m, was in process at the time of the inspection. The Main Embankment is the highest of the three embankments at approximately 41 m high.

The Canadian Dam Association updated their 'Dam Safety Guidelines' in 2007. The updated classification of the TSF is now "significant", which is analogous to the previous "low" classification. The update has not changed the design criteria for the Mt. Polley TSF.

The TSF embankments were in good condition with no geotechnical issues outstanding. No major unexpected or uncontrolled seepage was observed from the embankments.

The TSF is required to have sufficient live storage capacity for containment of runoff from the 72-hour PMP at all times, plus 0.7 m of freeboard for wave run-up. MPMC has operated the tailings pond within these tolerances over the past year. The site water balance is updated regularly by MPMC with periodic reviews by Knight Piésold.

The TSF instrumentation currently consists of four slope inclinometers installed at the Main Embankment and 68 operating vibrating wire piezometers installed in the Main, Perimeter and South Embankments. The piezometers monitor the pore pressures in the foundation materials, embankment fill materials, the tailings mass, and the embankment drains. There have been no significant deviations in the inclinometers and no unexpected or anomalous pore pressures reading in the vibrating wire piezometers. However, inclinometer SI01-02 is showing slight deviations at an approximate depth of 10 m below ground in the lacustrine silts. The short term recommended action is to increase the monitoring frequency of the instrumentation to weekly, with weekly reporting to Knight Piésold, and increasing the buttress at the Main Embankment.

The Southeast Sediment Pond, Millsite Sump, and South Bootjack Dam were observed to be in good condition with no geotechnical issues outstanding. The Southeast Sediment Pond is no longer in service and runoff that previously reported to the Southeast Sediment Pond is now being routed to the Perimeter Embankment Seepage Collection Pond.

The Operations, Maintenance and Surveillance Manual (OMS Manual) and the Emergency Preparedness and Response Plan are updated on a regular basis to remain current with the development of the mine site.

A Dam Safety Review (DSR) was performed in 2006. The next Dam Safety Review should be carried out by 2011, or during detailed closure design, whichever is earlier.

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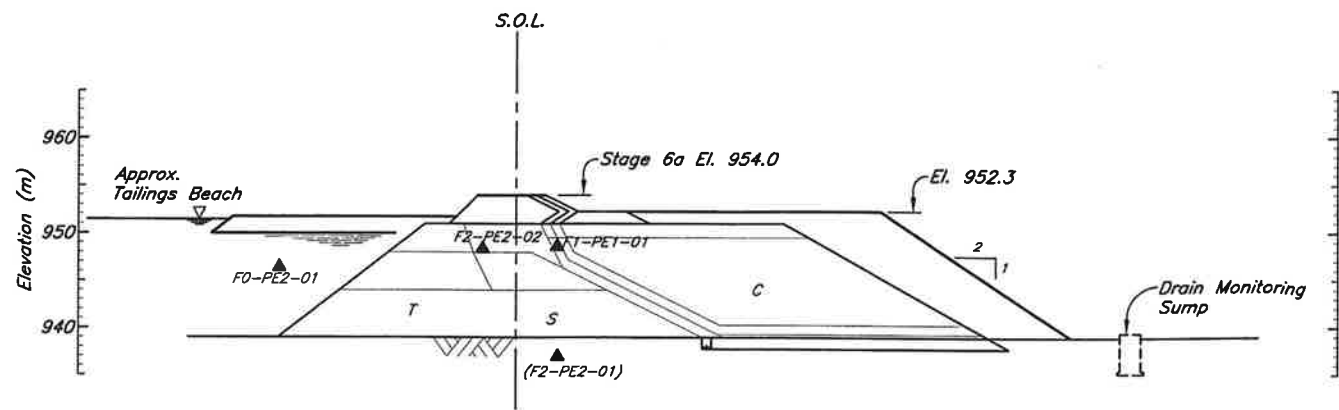
Figure 1.1 Rev 0	Aerial Photograph of Mount Polley Mine – Looking Northwest
Figure 1.2 Rev 0	Aerial Photograph of Mount Polley Mine – Looking South
Figure 3.1 Rev 0	Foundation Drain Flows
Figure 3.2 Rev 0	Upstream Toe Drain Flows

**DRAWINGS**

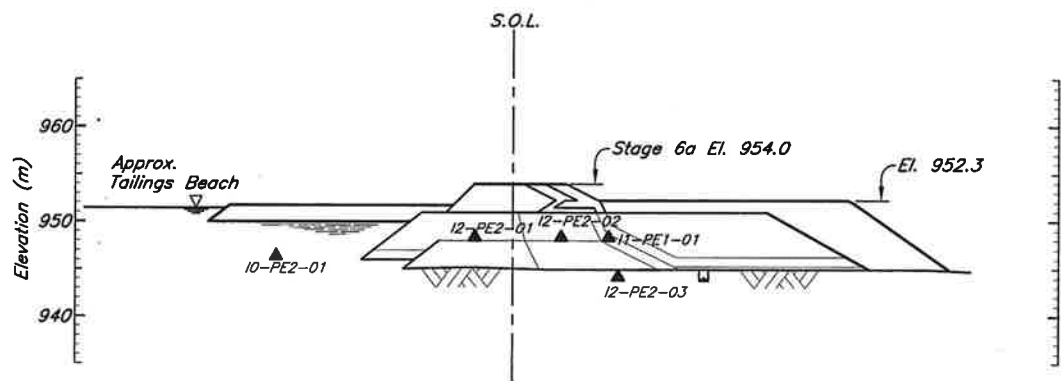
VA101-1/18-100 Rev 0	Overall Site Plan
VA101-1/18-102 Rev 0	General Arrangement
VA101-1/18-210 Rev 1	Stage 6 Main Embankment - Plan
VA101-1/18-215 Rev 1	Stage 6 Main Embankment – Section
VA101-1/18-216 Rev 0	Stage 6 Main Embankment – Detail
VA101-1/18-220 Rev 1	Stage 6 Perimeter Embankment - Plan
VA101-1/18-225 Rev 1	Stage 6 Perimeter Embankment – Section
VA101-1/18-226 Rev 0	Stage 6 Perimeter Embankment – Detail
VA101-1/18-230 Rev 1	Stage 6 South Embankment - Plan
VA101-1/18-235 Rev 1	Stage 6 South Embankment – Section 1
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VA101-1/24-356 Rev 0	Stage 6 Instrumentation Main Embankment –Planes A and B
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VA101-1/24-359 Rev 0	Stage 6 Instrumentation South Embankment –Planes F and I

**APPENDICES**

APPENDIX A	Piezometer Records
APPENDIX B	Inclinometer Data
APPENDIX C	Overview of 2006 Dam Safety Review
APPENDIX D	2008 Annual Inspection Photographs



PLANE F/255

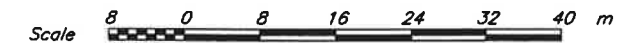


PLANE I/255

LEGEND

- Plane I.D. (A, B etc.)
- Area (0-Tailings, 1-Drain, 2-Embankment)
- AO-PE1-01 — Number I.D.
- Pressure Rating (1-Low, 2-High)
- Type of Instrumentation (PE-Piezometer electric, SM-Survey Monument)

- A2-PE2-03 ▲ Installed Piezometer
- (F2-PE2-01) ▲ Piezometer no longer functioning



XREF FILE: IMAGE FILE(0):

258	STAGE 6a INSTRUMENTATION - PERIMETER EMB.-PLANES D, G & H
257	STAGE 6a INSTRUMENTATION - MAIN EMB. - PLANES C AND E
256	STAGE 6a INSTRUMENTATION - MAIN EMB. - PLANES A AND B
255	TSF-STAGE 6a-INSTRUMENTATION-PLAN VIEW OF PIEZOMETER PLANES

DRG. NO.	DESCRIPTION	REV.	DATE	DESIGN	DRAWN	CHK'D	APP'D
REFERENCE DRAWINGS							
REVISIONS							

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D	
1	16MAR'09	AS BUILT FOR STAGE 6a CONSTRUCTION	LJG	JY	RB	YJB	
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB	
REVISIONS							

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MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
 STAGE 6a - INSTRUMENTATION  
 SOUTH EMBANKMENT  
 PLANES F AND I

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**TAILINGS STORAGE FACILITY  
REPORT ON 2008 ANNUAL INSPECTION  
(REF. NO. VA101-1/24-1)**

**SECTION 1.0 - INTRODUCTION**

**1.1 PROJECT DESCRIPTION**

The Mount Polley Copper and gold mine is owned by Mount Polley Mining Corporation (MPMC). It is located 56 kilometres northeast of Williams Lake, in central British Columbia. The project site is accessible by paved road from Williams Lake to Morehead Lake and then by gravel road for the final 12 km. Mount Polley Mine started production in 1997 and had milled approximately 27.5 million tonnes of ore prior to suspending operations from October 2001 to March 2005. MPMC is currently mining the South East Zone, Springer and Wight Pits, having closed the Bell Pit in early September 2008. The tailings material from the operation is deposited as slurry into the Tailings Storage Facility (TSF). Process water is collected and recycled back to the mill for recycle in the milling process. The mine throughput is approximately 20,000 tpd. Aerial photographs of the Mount Polley Mine obtained in October 2005 are shown on Figures 1.1 and 1.2. The overall site plan showing the Stage 6 footprint of the Tailings Storage Facility is shown on Drawing 101-1/18-100. The Stage 6 TSF General Arrangement is shown on Drawing 101-1/18-102.

**1.2 SCOPE OF REPORT**

Mount Polley Mining Corporation requested that Knight Piésold complete an annual inspection of the Tailings Storage Facility and prepare an Annual Inspection Report that meets the guidelines outlined by the Ministry of Energy, Mines and Petroleum Resources (MEMPR). Mr. Les Galbraith, P. Eng., conducted the 2008 annual inspection on September 25, 2008 in the company of Mr. Matthew Silbernagel of MPMC. This report presents the results of the annual inspection. The inspection involved making visual observations of the Tailings Storage Facility and includes a review of the TSF instrumentation records. This report also includes a review of the ancillary works, which includes the tailings and reclaim pipelines, the millsite sump, the Southeast Sediment Pond and the South Bootjack Dam.

The Stage 6a construction program, which involves raising the TSF embankments to an elevation of 954m, was in progress at the time of the inspection. Knight Piésold has provided the design, technical specifications, and QA/QC for all of the Stages of the TSF, including the current Stage 6a construction program.

Regular on-going inspections of the Tailings Storage Facility (TSF) and Ancillary Works have been completed by Knight Piésold to ensure the safety and security of the system. Previous annual inspections of the TSF by Knight Piésold were completed in 2001 (KP Ref. 11162/14-2),

2002 (KP Ref. VA101-00001/3-1), 2004 (KP Ref. VA101-00001/7-1), 2005 (KP Ref. VA101-00001/11-1), and 2007 (KP Ref. VA101-01/20-1)

A Dam Safety Review (DSR) for the Tailings Storage Facility was completed in October 2006. The results of the DSR were issued in a report to Imperial Metals Corporation in December 2006. The DSR review concluded that the Mount Polley TSF is adhering to an excellent dam safety program and confirmed that the TSF is performing as designed and meets or exceeds the guidelines set forth by the appropriate guidelines for dam safety. The DSR also provided recommendations concerning the hazard classification, design storm, pond and beach management, instrumentation, and the foundation stability at the Main Embankment. The Dam Safety Review recommendations and the Knight Piésold comments are included in Appendix C.

The Canadian Dam Association updated their 'Dam Safety Guidelines' in 2007. The update has not changed the design criteria for the Mt. Polley TSF however the dam is now classified in the 'Significant' category rather than the low. The new classification table is shown on Table 2.1.

Selected photographs taken during the site inspection are included in Appendix D.



## SECTION 2.0 - TAILINGS STORAGE FACILITY

### 2.1 GENERAL

The principal objectives of the TSF are to provide secure containment for tailings solids and to ensure that the regional groundwater and surface water flows are not adversely affected during or after mining operations. The design and operation of the TSF is integrated with the overall water management objectives for the entire mine development, in that surface runoff from disturbed catchment areas is controlled, collected and contained on site. An additional requirement for the TSF is to allow for effective reclamation of the tailings impoundment and associated disturbed areas at closure.

The TSF at Mount Polley includes the Perimeter, Main, and South Embankments. The Stage 6a construction program, which involved raising the TSF embankments to an elevation of 954 m, was in progress at the time of the inspection. The heights of the TSF embankments corresponding to a crest elevation of 954 m will be approximately 23 m, 41 m, and 13 m for the Perimeter Embankment, Main Embankment and the South Embankment respectively. The TSF Stage 6a plan and section drawings for the Main, Perimeter, and South Embankments are shown on the following drawings:

- VA101-1/18-210 Rev 1      Stage 6 Main Embankment Plan
- VA101-1/18-215 Rev 1      Stage 6 Main Embankment – Section
- VA101-1/18-216 Rev 0      Stage 6 Main Embankment – Detail
- VA101-1/18-220 Rev 1      Stage 6 Perimeter Embankment – Plan
- VA101-1/18-225 Rev 1      Stage 6 Perimeter Embankment – Section
- VA101-1/18-226 Rev 0      Stage 6 Perimeter Embankment – Detail
- VA101-1/18-230 Rev 1      Stage 6 South Embankment – Plan
- VA101-1/18-235 Rev 1      Stage 6 South Embankment – Section 1, and
- VA101-1/18-236 Rev 0      Stage 6 South Embankment – Section 2.

### 2.2 TAILINGS STORAGE FACILITY HAZARD CLASSIFICATION

The classification of the TSF, which was previously rated as "HIGH", was reviewed as part of the Dam Safety Review in 2006. The Dam Safety Review concluded that the hazard classification be reviewed assuming that the owner's costs are not included in the rating selection. This was discussed with MPMC and it was agreed that the owner's costs should not be included in the classification of the TSF embankments. The hazard classification for the TSF embankments was therefore reduced to "LOW" based on the 1999 Canadian Dam Association (CDA) and the British Columbia Dam Safety Regulation guidelines.

The CDA updated their 'Dam Safety Guidelines' in 2007. The updated classification of the TSF is now "SIGNIFICANT", which is analogous to the previous "LOW" classification. The update has not changed the design criteria for the Mt. Polley TSF. Table 2.1 shows the 2006 revised CDA classifications.

### 2.3 TAILINGS STORAGE FACILITY COMPONENTS

The main components of the TSF are as follows:

- The TSF embankments, incorporate the following zones and materials:
  - Zone S Core zone - fine grained glacial till.
  - Zone U Upstream shell zone – parameters vary depending on material availability.
  - Zone CS Upstream shell - cycloned or spigotted tailings sand.
  - Zone B Embankment shell zones - fine grained glacial till.
  - Zone F Filter, drainage zones, and chimney drain - processed sand and gravel.
  - Zone T Transition filter zone - select well-graded fine-grained rockfill.
  - Zone C Downstream shell zone – rockfill.
- A low permeability basin liner (natural and constructed) covers the base of the entire facility, at a nominal depth of at least 2 m. The low permeability basin liner has proven to be effective in minimizing seepage from the TSF as there have been no indications of adverse water quality reporting to the groundwater monitoring wells.
- A foundation drain and pressure relief well system located downstream of the Stage 1B Main Embankment. The foundation drain and pressure relief well system prevent the build-up of excess pore pressure in the foundation and transfer groundwater and/or seepage to the Main Embankment Seepage Collection Pond.
- Embankment drainage provisions, which include foundation drains, Chimney, Longitudinal and Outlet Drains, and upstream toe drains.
- Seepage collection ponds located downstream of the Main and Perimeter Embankments and a seepage collection sump located downstream of the South Embankment. The ponds and sump were excavated in low permeability soils and collect water from the embankment drains and from local runoff.
- Instrumentation in the tailings, earthfill embankments and embankment foundations. This includes vibrating wire piezometers and slope inclinometers.
- A system of groundwater quality monitoring wells installed around the TSF.

The tailings embankments have been designed for staged expansion using the modified centreline construction method.

### 2.4 TAILINGS AND RECLAIM PIPELINES

The tailings pipeline comprises 7 km of HDPE pipe of varying diameters and pressure ratings extending from the mill down to the crest of the tailings embankment. The tailings pipeline has a design flow of 20,000 tpd at 35% solids by dry weight. The reclaim pipeline system returns water from the TSF to the mill site for re-use in the process. The system comprises a pump barge, a reclaim pipeline and a reclaim booster pump station.

### 2.5 TSF CONSTRUCTION ACTIVITIES DURING PAST YEAR

The construction activities at the TSF during the past year were related to the Stage 6a expansion that involved raising the crest elevation to 954 m, an increase of 3 m from the Stage 5

crest elevation. The diversion ditch located on the west side of the TSF, which routes clean runoff from the undisturbed catchment area above the TSF, was also relocated to higher ground. The Stage 6a program was in progress at the time of the inspection. Details of the Stage 6a construction programs will be issued in the construction report following the Stage 6a construction program.

## 2.6 ANCILLARY WORKS

Ancillary works that are key to the operation of the TSF include the following:

- Mill Site Sump. Runoff from the Mill Site is routed and stored in the Mill Site Sump. Excess water from the sump is routed into the tailings pipeline near the mill for storage in the TSF.
- Southeast Sediment Pond. Runoff from the Southeast Rock Disposal Site and the dewatering from the Northeast Zone and associated waste dumps was previously directed to the Southeast Sediment Pond. Water from the Southeast Sediment Pond was routed to the reclaim pipeline at the reclaim booster pump station. The Southeast Sediment Pond was drained in 2008 and runoff that was previously routed to the Southeast Sediment Pond is currently being routed to the Perimeter Embankment Seepage Collection Pond via a newly constructed diversion ditch.

## SECTION 3.0 - 2008 ANNUAL INSPECTION

### 3.1 WATER MANAGEMENT

#### 3.1.1 General

MPMC mine personnel complete on-going surface water monitoring and water management activities to ensure compliance with the current mine permits. The Annual Inspection evaluated the physical aspects of the water management program at the TSF. Knight Piésold has not reviewed the geochemical characteristics of the water management operations. This report instead focuses on the aspects of the water management plan that are significant from a dam safety perspective.

#### 3.1.2 Surface Water Control

Surface water control at the mine site comprises the interception of runoff from disturbed (and some undisturbed) catchment areas for diversion into the TSF. Surface water control structures include the following:

- The Bell and Cariboo Pits, and the Mill Site Area - Surface water from the Bell and Cariboo Pits and Mill Site Area is routed into the Mill Site Sump where it is transferred to the TSF via the tailings pipeline.
- Southeast Rock Disposal Site - Surface water is intercepted by runoff collection ditches and transferred to the Perimeter Embankment Seepage Collection Pond via a diversion ditch.
- North East Zone Pit and Waste Dumps – Surface and groundwater from the North East Zone and Waste Dumps are directed to the Perimeter Embankment Seepage Collection Pond via a diversion ditch.
- Tailings Storage Facility Area - Clean surface water runoff from the undisturbed catchment area above the impoundment is routed around the TSF to reduce the accumulation of water within the impoundment. The diversion ditch on the west side of the TSF was relocated to higher ground in 2008. The diversion ditch was unobstructed at the time of the inspection and the water flowing in the ditch was clear.

#### 3.1.3 Water Balance Review

MPMC mine personnel complete on-going surface water monitoring and water management activities to ensure compliance with the current mine permits. The water balance for the TSF is updated regularly by MPMC with periodic reviews by Knight Piésold.

The mine site is currently operating with a water surplus, as total inflows from precipitation and surface runoff exceed losses from evaporation, void retention in the tailings mass in the TSF, and seepage removal. Site surplus water is currently being stored in the TSF and the Cariboo Pit. MPMC is currently exploring ways to discharge

water from the site to reduce the increasing site storage requirements in the TSF and the Cariboo Pit.

The Mount Polley Mine has undergone considerable development in the last couple of years. The water balance is reviewed and updated by MPMC on a monthly basis to ensure that it is current with the on-going development of the mine site.

#### 3.1.4 Impoundment Freeboard Requirements

The design basis for the TSF includes a freeboard allowance to contain the 72-hour PMP event, which corresponds to approximately 1,070,000 m<sup>3</sup>. This would result in an increase in the TSF pond elevation of approximately 0.6 m. The freeboard requirement for wave run-up is approximately 0.8 m, for a total freeboard requirement of 1.4 m. The supernatant pond was at elevation 949.9 m at the time of Mr. Galbraith's inspection on September 25, 2008. The freeboard requirement of 1.4 m has been maintained during the previous year by MPMC.

#### 3.1.5 Drain Flow Data

The upstream toe drain and foundation drains at the Main Embankment flow into the sump at the Main Embankment Seepage Collection Pond where the flows are measured. The flow rates have been measured since July 2000; however the flow rates from the drains were not monitored during the Care and Maintenance Period as the drain outlets were submerged within the sump. This condition was anticipated as flow monitoring is only possible during operations when the seepage pond level has been pumped down. The seepage pond was pumped down in when the mining operations started up again in December 2005 and flow measurements resumed.

The upstream toe drain at the Perimeter Embankment drains into the Perimeter Embankment Seepage Collection Pond via a ditch. The flow rates are currently measured at the end of the pipe which exits the concrete encasement.

The water from the foundation drains and upstream toe drains is pumped back into the TSF. The flow rates for the foundation drains are shown on Figure 3.1. The flow rates for the upstream toe drains are shown on Figure 3.2. The flows from foundation drains FD-1 to FD-5 have remained fairly constant during the past year at less than 0.4 l/s. The flows at the ME Corner foundation drain have decreased in the last year due to the development of a tailings beach in this area. The flows from the upstream toe drains fluctuate throughout the year in response to the tailings deposition location and the tailings pond location. The flow from the Main Embankment upstream toe drain averaged approximately 11 l/s during 2008 with the flow from the Perimeter upstream toe drain averaging approximately 3 l/s during 2008. The flows from the upstream toe drains have remained relatively constant, with the total flow increasing due to the commissioning of the Perimeter Embankment upstream toe drain. The water flowing from the upstream toe drains was clear.

Samples from the Foundation Drains and the Upstream Toe Drains are collected by MPMC for water quality testing. The results are available from MPMC and are reported in the Annual Environmental Reports.

### 3.1.6 Seepage Collection Ponds

The Main and Perimeter Embankment seepage collection ponds are located immediately downstream of their respective embankments. These ponds were excavated in low permeability glacial till materials in 1996 and collect water from the embankment drain systems and from local runoff. The seepage collection ponds were observed to be in good condition with no observed erosion activity.

The South Embankment sump was excavated in 2006. The water flowing into the sump at the South Embankment is currently limited to runoff from the downstream slope of the embankment. The water was being released to a vegetated area down gradient of the access road at the time of the inspection.

Photos of the Seepage Collection Ponds and the South Embankment sump are included in Appendix D.

### 3.1.7 External Water

MPMC staff carries out water quality monitoring of external water regularly. The water being monitored includes surface water from ditches, streams, creeks and lakes, as well as groundwater from monitoring wells. The results of the site water quality monitoring are reported by Mount Polley in the Annual Environmental and Reclamation Report. This report is submitted to the appropriate Agencies (Ministry of Environment and the Ministry of Energy, Mines and Petroleum Resources).

## 3.2 TAILINGS STORAGE FACILITY

Pertinent observations regarding the condition of the TSF were as follows:

- Tailings sand is currently being used as an upstream Zone U construction material. Zone U forms the upstream shell zone immediately adjacent to Zone S (low permeability core zone) and is required to provide upstream support of the Zone S material during modified centerline construction. The sand cell construction method involves discharging tailings into constructed cells along the upstream side of the embankment. The sand cell construction was taking place at the Perimeter Embankment at the time of the inspection. Prolonged discharge of tailings from the Perimeter Embankment has previously resulted in the tailings pond migrating over to the Main Embankment, which has resulted in increased flows reporting to the Main Embankment upstream toe drain. MPMC purchased additional HDPE pipe in 2007 to facilitate the deposition of tailings around the entire facility without having to relocate the

tailings pipeline and are now able to quickly develop tailings beaches in response to the pond encroaching on the embankments.

- No signs of instability were observed in the embankment fill slopes.
- No major unexpected or uncontrolled seepage was observed from the embankments, including fill slope and foundations.

The TSF was observed to be in good condition with no geotechnical issues outstanding. Selected photographs of the TSF are presented in Appendix D. The Operations, Maintenance and Surveillance Manual (OMS Manual) and the Emergency Preparedness and Response Plan (EPP document) for the TSF are live documents that are revised as necessary by MPMC.

### 3.3 ANCILLARY WORKS

#### 3.3.1 Tailings and Reclaim Pipelines

The tailings pipeline was in operation at the time of the inspection with tailings being discharged at the Perimeter Embankment for construction of the sand cells. There have been no reported problems with the tailings pipeline under normal operating conditions.

The reclaim pipeline was recycling supernatant water back to the mill for use in the process at the time of the inspection. There have been no reported problems with the reclaim pipeline and the pipeline was observed to be in sound condition.

#### 3.3.2 Mill Site Sump

Surface water from the Bell and Cariboo Pits and Mill Site Area is routed into the Mill Site Sump where it is transferred to the TSF via the tailings pipeline. The embankments at the Mill Site Sump were observed to be in good condition, and no cracks, seepage or slumping was noted. The emergency overflow culvert was clear of obstructions.

Photos of the Mill Site Sump and the Mill Site Sump spillway are included in Appendix D.

#### 3.3.3 Southeast Sediment Pond

The Southeast Sediment Pond is no longer in service and runoff that previously reported to the Southeast Sediment Pond is now being routed to the Perimeter Embankment Seepage Collection Pond.

Observations made at the Southeast Sediment Pond and Southeast Rock Disposal Site runoff ditch include:

- The embankment fill slopes (inside and outside) were in good shape, with no signs of instability. No cracks were observed on the crest. No seepage or slumping of the slopes was observed.
- Grassy re-vegetation has become well established on the downstream embankment slopes.

Photos of the Southeast Sediment Pond and the route of the new ditch are included in Appendix D.

3.3.4 South Bootjack Dam

The South Bootjack Dam was observed to be in good condition at the time of the inspection. Observations include the following:

- The water level was low.
- Both upstream and downstream fill slopes were in good condition, with no evidence of seepage or slumping.
- No cracks were observed on the dam crest.
- The spillway contained some minor vegetation, but was generally unobstructed.

A photo of the South Bootjack Dam is included in Appendix D.



## SECTION 4.0 - INSTRUMENTATION

### 4.1 PIEZOMETER DATA

#### 4.1.1 General

Vibrating wire piezometers have been installed at the TSF along nine planes, designated as monitoring planes A to I. Monitoring planes A, B, C and E are located on the Main Embankment, monitoring planes D, G, and H are located on the Perimeter Embankment, and monitoring planes F and I are located on the South Embankment. The location of the TSF monitoring planes are shown on Drawing 345. The Monitoring Planes are shown in section on Drawings 356, 357, 358, and 359. The piezometers are grouped into tailings, foundation, fill and drain piezometers. The results from each group are discussed below. The timeline plots for the piezometers are included in Appendix A.

#### 4.1.2 Tailings Piezometers

A total of 19 piezometers have been installed in the tailings mass of which 11 remain in operation. Timeline plots of the tailings piezometer data are included in Appendix A1.

The pore pressures in three tailings piezometers located below the elevation of the Main Embankment upstream toe drain show a slight increasing trend as the pond and tailings elevation increases; however the pore pressures are below the pond level in the TSF.

#### 4.1.3 Embankment Foundation Piezometers

A total of 21 piezometers have been installed in the embankment foundations of which 12 remain in operation. Timeline plots of the embankment foundation piezometers are included in Appendix A2.

Artesian conditions are present in 4 of the 10 foundation piezometers installed under the Main Embankment. This is consistent with baseline data, and no changes have occurred. The piezometers installed in this area are used to monitor the pore pressures and to confirm that they remain below the threshold level of 6 m above ground level (KP Ref. No. 1162/7-2). No unexpected high pore pressure increases were noted during the reporting period with the artesian pressures ranging from 0.23 m to 3.37 m above ground. The artesian head values (above ground surface level) measured in September 2008 are summarized in Table 4.1.

#### 4.1.4 Embankment Fill Piezometers

A total of 32 piezometers have been installed in the embankment fill materials of which 22 remain in operation. Timeline plots of the embankment fill piezometer data are included in Appendix A3.

There have been no significant changes in the trends for most of the embankment fill piezometers. Piezometer A2-PE2-O3, which is located at the Main Embankment, shows a slight increase in pore pressures corresponding to the placement of fill during the Stage 6 construction program. This trend has been observed in the past with this piezometer and it is anticipated that the slightly elevated pore pressures will dissipate following the construction programs as they have previously.

#### 4.1.5 Drain Piezometers

A total of 20 piezometers have been installed in the embankment drains, including foundation drains, chimney drain and outlet drains, of which 15 remain in operation. Timeline plots for the drain piezometers are shown in Appendix A4.

The majority of the drain piezometers showed near-zero pore pressures, indicating that the drains are functioning as intended. Piezometer A1-PE1-04 showed an increase in pore pressures starting in approximately June 2006. This piezometer is located in the upstream toe drain at the Main Embankment and the increased pressures are a result of the tailings pond being in close proximity to the Main Embankment. The positive trend of the pore pressures coincides with the increased flow rates measured from the Main Embankment upstream toe drain.

#### 4.2 SLOPE INCLINOMETERS

Three new slope inclinometers were installed downstream of the toe of the Main Embankment during the Stage 4 construction program. One of the inclinometers installed in 2001 (SI01-01) was damaged during the placement of the shell zone material and is no longer functioning. The last reading for SI01-01 was March 2006. There are four functioning inclinometers installed at the Main Embankment.

The results of the inclinometer readings indicate that there have not been any significant deviations measured in the three of the inclinometers since their installation. However, inclinometer SI01-02 is showing slight deviations at an approximate depth of 10 m below ground in the lacustrine silts. This is being closely monitored by MPMC; the recommended action involves increasing the monitoring frequency of the inclinometers to a weekly basis and increasing the buttress at the Main Embankment. Additional inclinometers may also be installed if required. The results of the readings for inclinometers are included in Appendix B.

#### 4.3 SURVEY MONUMENT DATA

There are currently no survey monuments installed on the TSF embankment crests due to the ongoing construction of the TSF embankments.

## SECTION 5.0 - SUMMARY AND RECOMMENDATIONS

Mr. Les Galbraith, P. Eng., of Knight Piésold completed an annual inspection of the Tailings Storage Inspection and associated works on September 25, 2008 in the company of Mr. Matthew Silbernagel. The TSF at Mount Polley includes the Perimeter, Main, and South Embankments. The embankments are zoned earthfill embankments that are constructed using the modified centreline construction method. The heights of the TSF embankments corresponding to a crest elevation of 954 m will be approximately 23 m, 41 m, and 13 m for the Perimeter, Main and South Embankment respectively.

The Canadian Dam Association updated their 'Dam Safety Guidelines' in 2007. The updated classification of the TSF is now "significant", which is analogous to the previous "low" classification. The update has not changed the design criteria for the Mt. Polley TSF.

The TSF embankments were observed to be in good condition. No seepage or slumping was observed and no signs of instability were observed in the embankment fill slopes. No major unexpected or uncontrolled seepage was observed from the embankments.

The minimum required freeboard requirements for the TSF were achieved during the past year. The recommended minimum tailings beach widths were generally being achieved by MPMC. MPMC purchased additional HDPE pipe in 2007 to facilitate the deposition of tailings around the entire facility without having to relocate the tailings pipeline and are now able to quickly develop tailings beaches in response to the pond encroaching on the embankments.

The instrumentation at the TSF consists of vibrating wire piezometers and inclinometers. There have been no unexpected or anomalous pore pressures reading in the vibrating wire piezometers installed in the TSF Embankments. There are four operating inclinometers installed through the lacustrine unit at the Main Embankment. The inclinometer readings indicate that there have not been any significant deviations measured in the inclinometers since their installation. However, inclinometer SI01-02 is showing slight deviations at an approximate depth of 10 m below ground in the lacustrine silts. The short term recommended action is to increase the monitoring frequency of the instrumentation to weekly, with weekly reporting to Knight Piésold, and increasing the buttress at the Main Embankment.

The Southeast Sediment Pond, Millsite Sump, and South Bootjack Dam were observed to be in good condition with no geotechnical issues outstanding. The Southeast Sediment Pond is no longer in service and runoff that previously reported to the Southeast Sediment Pond is now being routed to the Perimeter Embankment Seepage Collection Pond.

### **Recommendations for on-going operations of the TSF are summarized below:**

- Increasing the monitoring frequency of the instrumentation at the Main Embankment to weekly until the minor deflections in inclinometer SI01-12 have stabilized.
- Increasing the buttress at the Main Embankment (volume to be determined).

- Ensure that the instrumentation is being monitored at the required frequency, as reported in the Operations, Maintenance and Surveillance Manual, (KP Ref. No. 101-1/9-1). This includes readings of the piezometers and inclinometers.
- Continue to update the Operations, Maintenance and Surveillance Manual and the Emergency Preparedness and Response Plan Manuals as required.
- Continue with the deposition of tailings from around the facility to facilitate the development of tailings beaches and manage the location of the tailings pond.
- Continue regular monitoring of the water quality and levels in the surrounding groundwater wells.
- Continue regular monitoring of the tailings pond elevation. The TSF is required to have sufficient live storage capacity for containment of runoff from the 72-hour PMP, in addition to regular inflows from other precipitation runoff, including the spring freshet, while maintaining the minimum freeboard requirements.
- Review the Water Management Plan and site water balance on a regular basis to ensure they are consistent with updated plans for ongoing operations and development of the mine site.

A Dam Safety Review was completed in 2006. The next Dam Safety Review should be carried out by 2011, or during detailed closure design, whichever is earlier.

**SECTION 6.0 - CERTIFICATION**

This report was prepared and approved by the undersigned.



Prepared by:

---

Les Galbraith, P.Eng.  
Senior Engineer

Approved by:

A handwritten signature in black ink, appearing to read "K. Brouwer".

---

Ken J. Brouwer, P.Eng.  
Managing Director

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TABLE 2.1

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
DAM CLASSIFICATION

Print Feb/24/09 11:21:03

Dam Class	Population at risk <sup>1</sup>	Incremental losses		
		Loss of life <sup>2</sup>	Environmental and cultural values	Infrastructure and economics
Low	None	0	Minimal short-term loss No long-term loss	Low economic losses; area contains limited infrastructure or services
Significant	Temporary only	Unspecified	No significant loss or deterioration of fish or wildlife habitat Loss of marginal habitat only Restoration or compensation in kind highly possible	Losses to recreational facilities, seasonal workplaces, and infrequently used transportation routes
High	Permanent	10 or fewer	Significant loss or deterioration of <i>important</i> fish or wildlife habitat Restoration or compensation in kind highly possible	High economic losses affecting infrastructure, public transportation, and commercial facilities
Very high	Permanent	100 or fewer	Significant loss or deterioration of <i>critical</i> fish or wildlife habitat Restoration or compensation in kind possible but impractical	Very high economic losses affecting important infrastructure or services (e.g., highway, industrial facility, storage facilities for dangerous substances)
Extreme	Permanent	More than 100	Major loss of <i>critical</i> fish or wildlife habitat Restoration or compensation in kind impossible	Extreme losses affecting critical infrastructure or services (e.g., hospital, major industrial complex, major storage facilities for dangerous substances)

NOTES:

1. DEFINITIONS FOR POPULATION AT RISK:

**NONE** - THERE IS NO IDENTIFIABLE POPULATION AT RISK, SO THERE IS NO POSSIBILITY OF LOSS OF LIFE OTHER THAN THROUGH UNFORESEEABLE MISADVENTURE.

**TEMPORARY** - PEOPLE ARE ONLY TEMPORARILY IN THE DAM-BREACH INUNDATION ZONE (E.G., SEASONAL COTTAGE USE, PASSING THROUGH ON TRANSPORTATION ROUTES, PARTICIPATING IN RECREATIONAL ACTIVITIES).

**PERMANENT** - THE POPULATION AT RISK IS ORDINARILY LOCATED IN THE DAM-BREACH INUNDATION ZONE (E.G., AS PERMANENT RESIDENTS). THREE CONSEQUENCE CLASSES (HIGH, VERY HIGH, EXTREME) ARE PROPOSED TO ALLOW FOR MORE DETAILED ESTIMATES OF POTENTIAL LOSS OF LIFE (TO ASSIST IN DECISION-MAKING IF THE APPROPRIATE ANALYSIS IS CARRIED OUT).

2. IMPLICATIONS FOR LOSS OF LIFE:

**UNSPECIFIED** - THE APPROPRIATE LEVEL OF SAFETY REQUIRED AT A DAM WHERE PEOPLE ARE TEMPORARILY AT RISK DEPENDS ON THE NUMBER OF PEOPLE, THE EXPOSURE TIME, THE NATURE OF THEIR ACTIVITY, AND OTHER CONDITIONS. A HIGHER CLASS COULD BE APPROPRIATE, DEPENDING ON THE REQUIREMENTS. HOWEVER, THE DESIGN FLOOD REQUIREMENT, FOR EXAMPLE, MIGHT NOT BE HIGHER IF THE TEMPORARY POPULATION IS NOT LIKELY TO BE PRESENT DURING THE FLOOD SEASON.

M:\1101\00001\24\Report\Tables\Table 2.1.xls\Table 2.1

0	19FEB09	ISSUED WITH REPORT VA101-1/24-1	LJG	LJG	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

TABLE 4.1

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY PROJECT

TAILINGS STORAGE FACILITY 2008 ANNUAL INSPECTION  
MAXIMUM ARTESIAN HEAD VALUES FOR EMBANKMENT FOUNDATION PIEZOMETERS

Print Feb/24/09 11:23:41

Piezometer	Piezometer Elevation (m)	Surface Elevation (m)	Sept 2008 Pressure Elevation (m)	Sept 2008 Artesian Pressure (m)
A2-PE2-01	903.68	912.67	No Longer Functioning	-
A2-PE2-02	909.77	912.67	No Longer Functioning	-
A2-PE2-06	898.01	912.91	No Longer Functioning	-
A2-PE2-07	902.81	912.91	915.91	3.00
A2-PE2-08	907.56	913.36	912.49	-0.87
B2-PE1-03	914.05	915.55	915.55	0.00
B2-PE2-01	901.98	916.98	No Longer Functioning	-
B2-PE2-02	909.51	916.98	920.35	3.37
B2-PE2-06	914.59	916.89	No Longer Functioning	-
C2-PE1-03	912.59	-	No Longer Functioning	-
C2-PE2-02	910.53	915.71	916.64	0.93
C2-PE2-06	906.84	915.99	914.82	-1.17
C2-PE2-07	912.29	915.99	No Longer Functioning	-
C2-PE2-08	914.03	915.99	914.37	-1.62
D2-PE2-02	927.32	930.92	931.15	0.23
E2-PE2-01	914.21	918.81	917.19	-1.62
E2-PE2-02	909.66	918.81	916.48	-2.33

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**NOTE:**

1. PHOTO TAKEN IN OCTOBER 2005.

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
AERIAL PHOTOGRAPH OF MOUNT POLLEY MINE LOOKING NORTHWEST	
P/A NO. VA 101-1/24	REF NO. 1
<b><i>Knight Piésold</i></b> CONSULTING	
<b>FIGURE 1.1</b>	
	REV 0

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REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



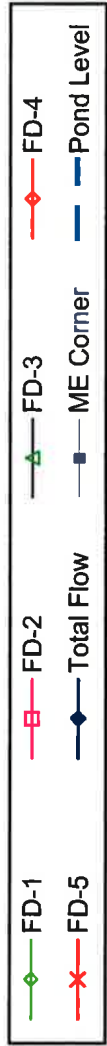
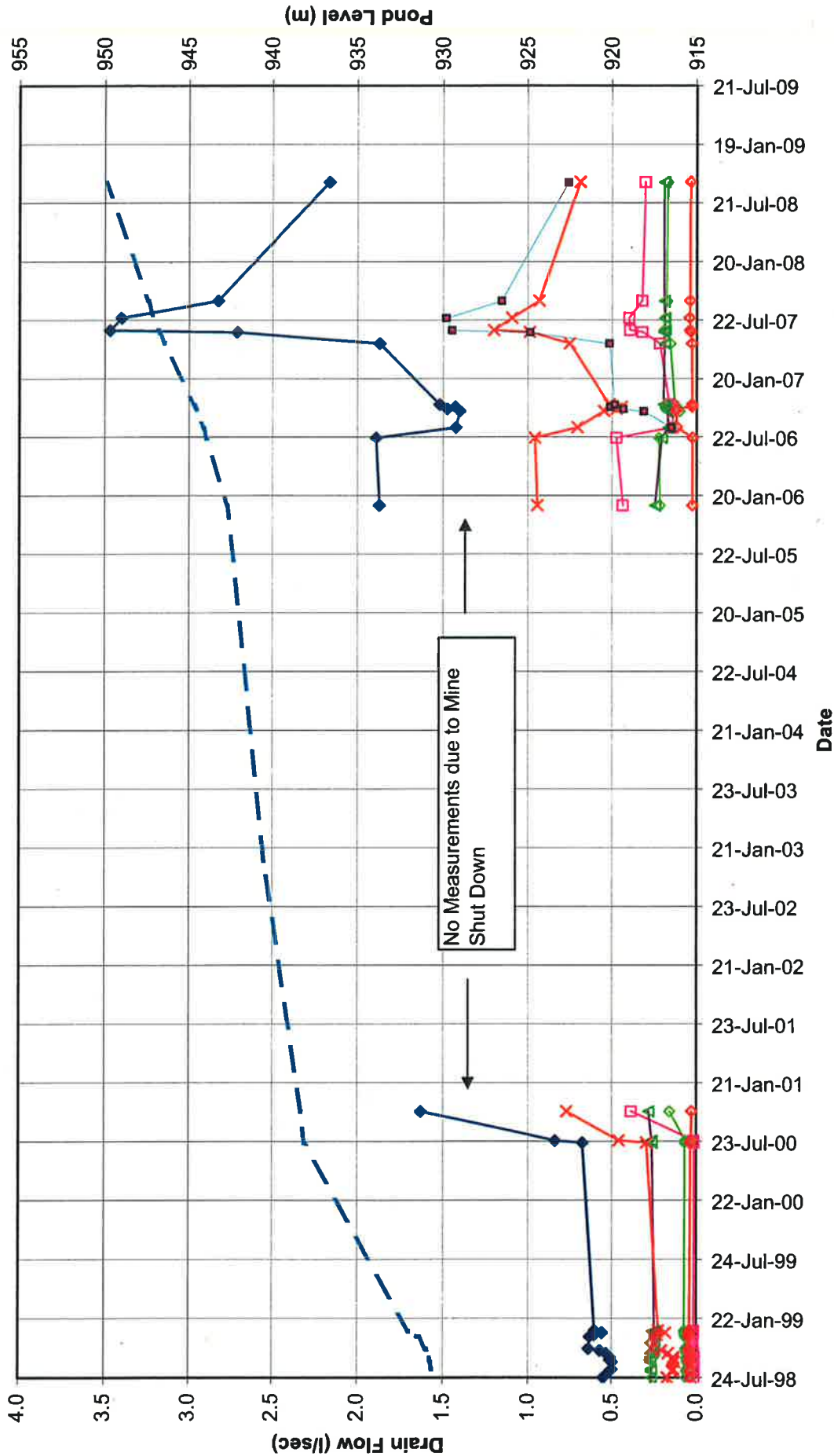


**NOTE:**

1. PHOTO TAKEN IN OCTOBER 2005.

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MOUNT POLLEY MINE							
AERIAL PHOTOGRAPH OF MOUNT POLLEY MINE LOOKING SOUTH							
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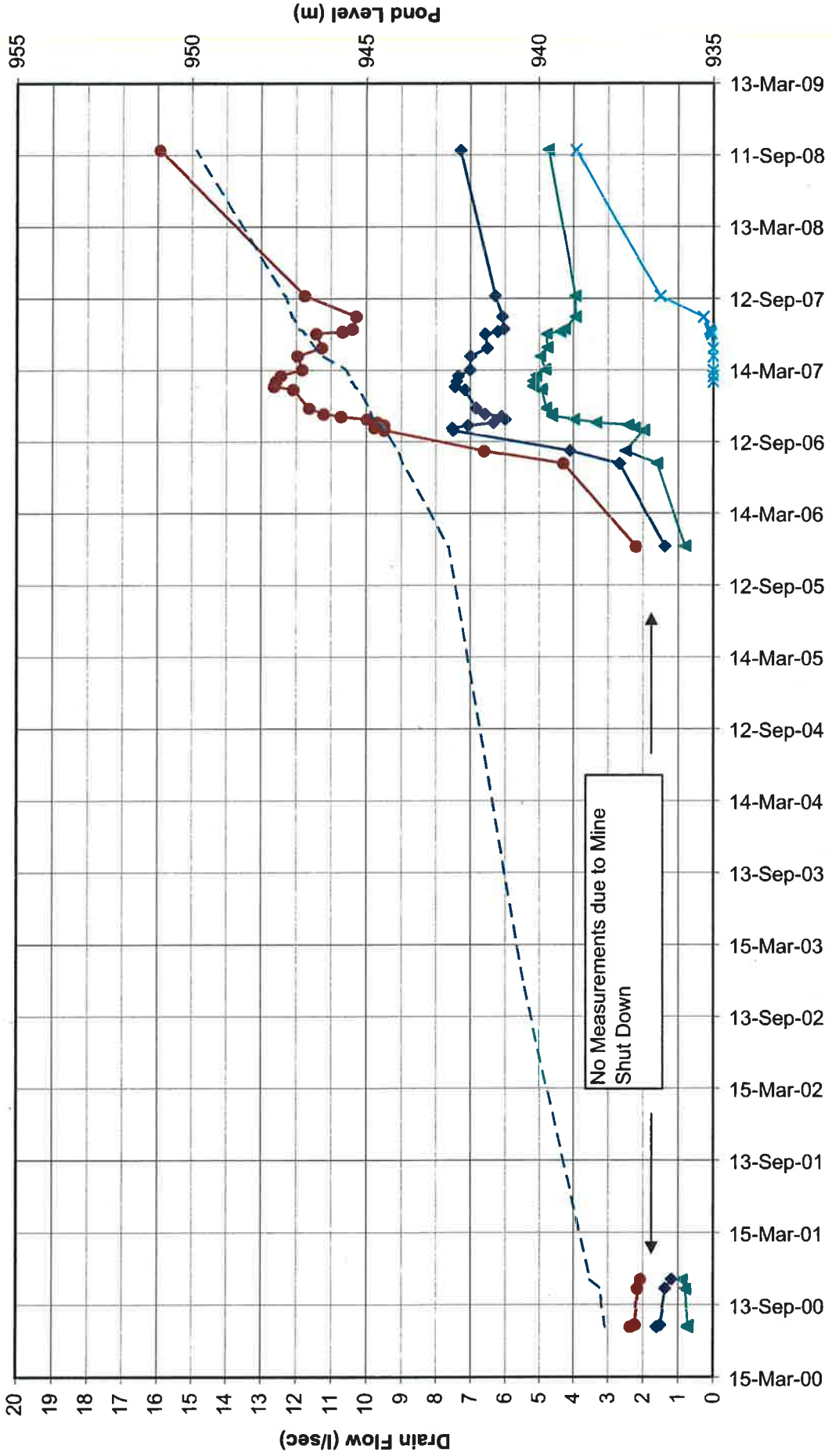
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REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



**NOTE:**  
 1. EACH DRAIN FLOW POINT IS THE AVERAGE OF THE PREVIOUS 3 MEASUREMENTS. THE TOTAL FLOW IS THE SUM OF THE FLOWS FOR ALL DRAINS.

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
<b>FOUNDATION DRAIN FLOWS</b>	
<b><i>Knight Piésold</i></b> CONSULTING	
PIA NO. VA101-124	REF NO. 1
<b>FIGURE 3.1</b>	
REV 0	REV 0

REV	DATE	ISSUED WITH REPORT VA101-1/23	DESCRIPTION	JIM PREP'D	LJG CHK'D	LJG APP'D
0	03DEC08					



**NOTES:**  
 1. EACH DRAIN FLOW POINT IS THE AVERAGE OF THE PREVIOUS 3 MEASUREMENTS. THE TOTAL FLOW IS THE SUM OF THE FLOWS FOR ALL DRAINS.  
 2. PE TOE DRAIN (INSTALLED JULY 2006) EL. = 946.3 m ME TOE DRAIN EL. = 937 m

MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE

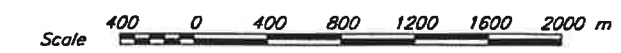
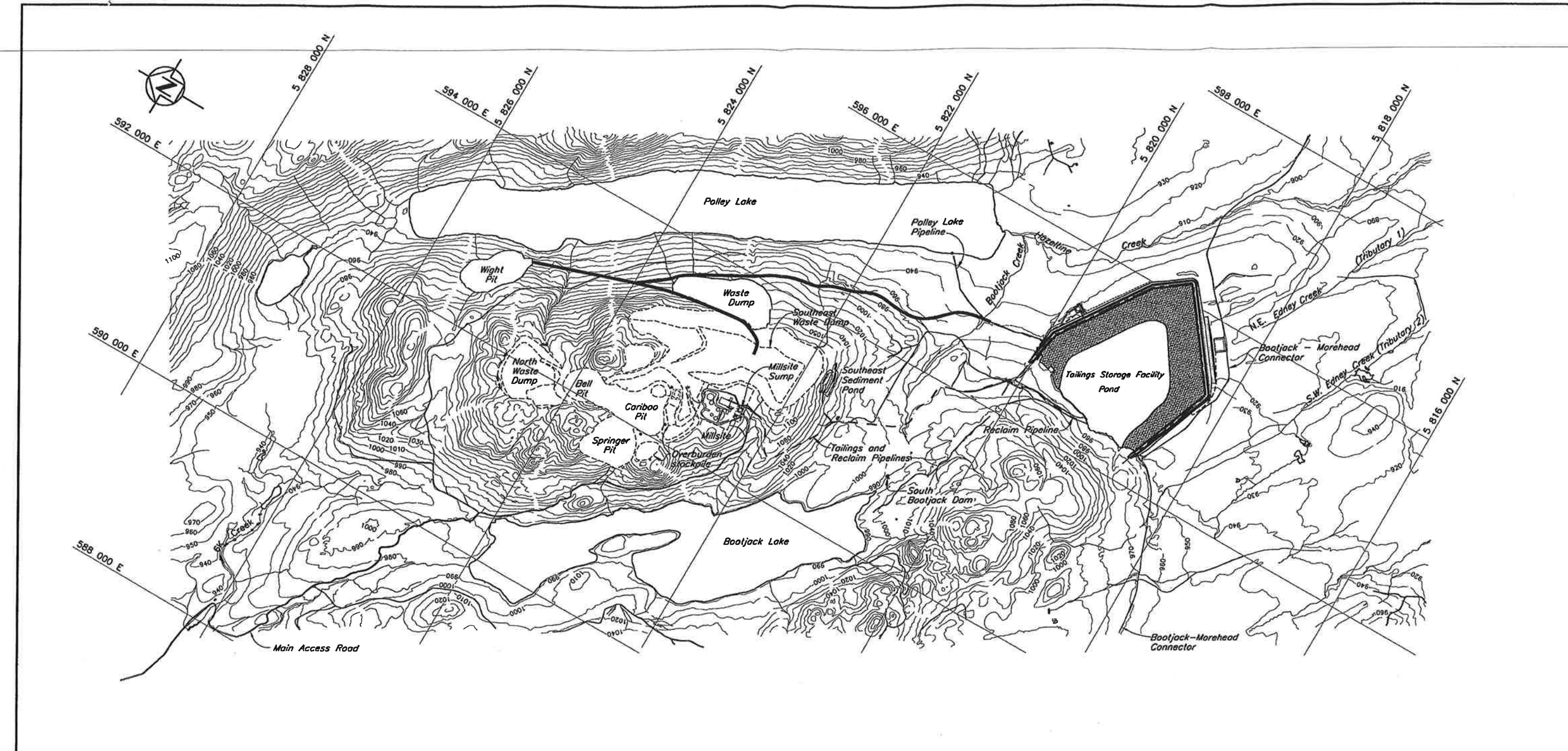
**UPSTREAM TOE DRAIN FLOWS**

**Knight Piésold CONSULTING**

REF. NO. VA/101-1/24  
 REF. NO. 1

FIGURE 3.2  
 REV 0

REV	DATE	DESCRIPTION	JIM PREPD	LJG CHKD	LJG APPD
0	19DEC08	ISSUED WITH REPORT VA/101-1/24			



**NOT FOR CONSTRUCTION**

**NOTES**

1. Open Pits and Waste Dumps are shown in their final configurations.
2. Topography at TSF generated from points and break lines sent from MPMC in July 1999. The topography outside the TSF area is from 1997 flyover. UTM, NAD83, ZONE 10.
3. Drawing is for reference only.

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 L.J. GIBBATH  
 15493  
 BRITISH  
 ENGINEER

**Knicht Piésold CONSULTING**

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
 STAGE 6 TAILINGS EMBANKMENT  
 OVERALL SITE PLAN**

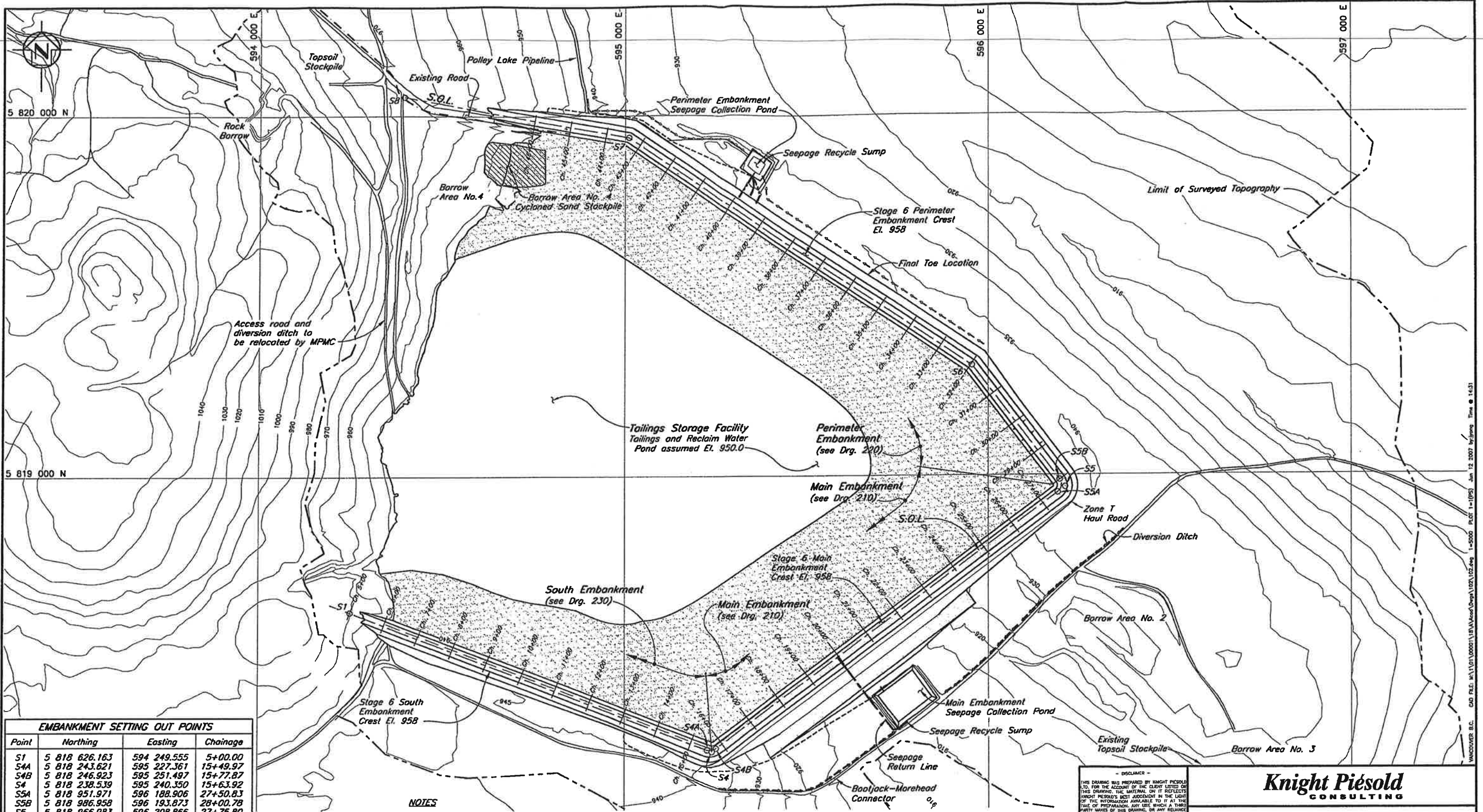
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	REFERENCE DRAWINGS							
				REVISIONS				

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
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		REVISIONS				

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EMBANKMENT SETTING OUT POINTS			
Point	Northing	Easting	Chainage
S1	5 818 626.163	594 249.555	5+00.00
S4A	5 818 243.621	595 227.361	15+49.97
S4B	5 818 246.923	595 251.497	15+77.87
S4	5 818 238.539	595 240.350	15+63.92
S5A	5 818 951.971	596 188.906	27+50.83
S5B	5 818 986.958	596 193.873	28+00.78
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

**NOTES**

1. Topography at TSF generated from points and break lines sent from MPMC in July 1999. The topography outside the TSF area is from 1997 flyover. UTM, NAD83, Zone 10.
2. Stage 6 crest El. 958.0.



**NOT FOR CONSTRUCTION**

DRG. NO.	DESCRIPTION
220	T.S.F. - STAGE 6 PERIMETER EMBANKMENT - PLAN
210	T.S.F. - STAGE 6 MAIN EMBANKMENT - PLAN
230	T.S.F. - STAGE 6 SOUTH EMBANKMENT - PLAN AND SECTION

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
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**Knicht Piésold CONSULTING**

**MOUNT POLLEY MINING CORPORATION**

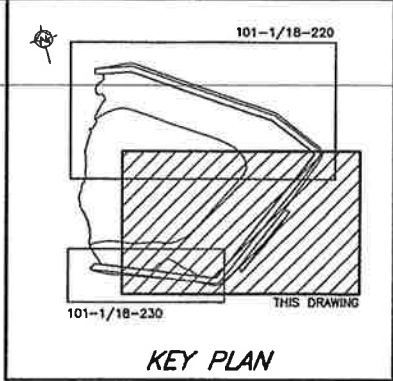
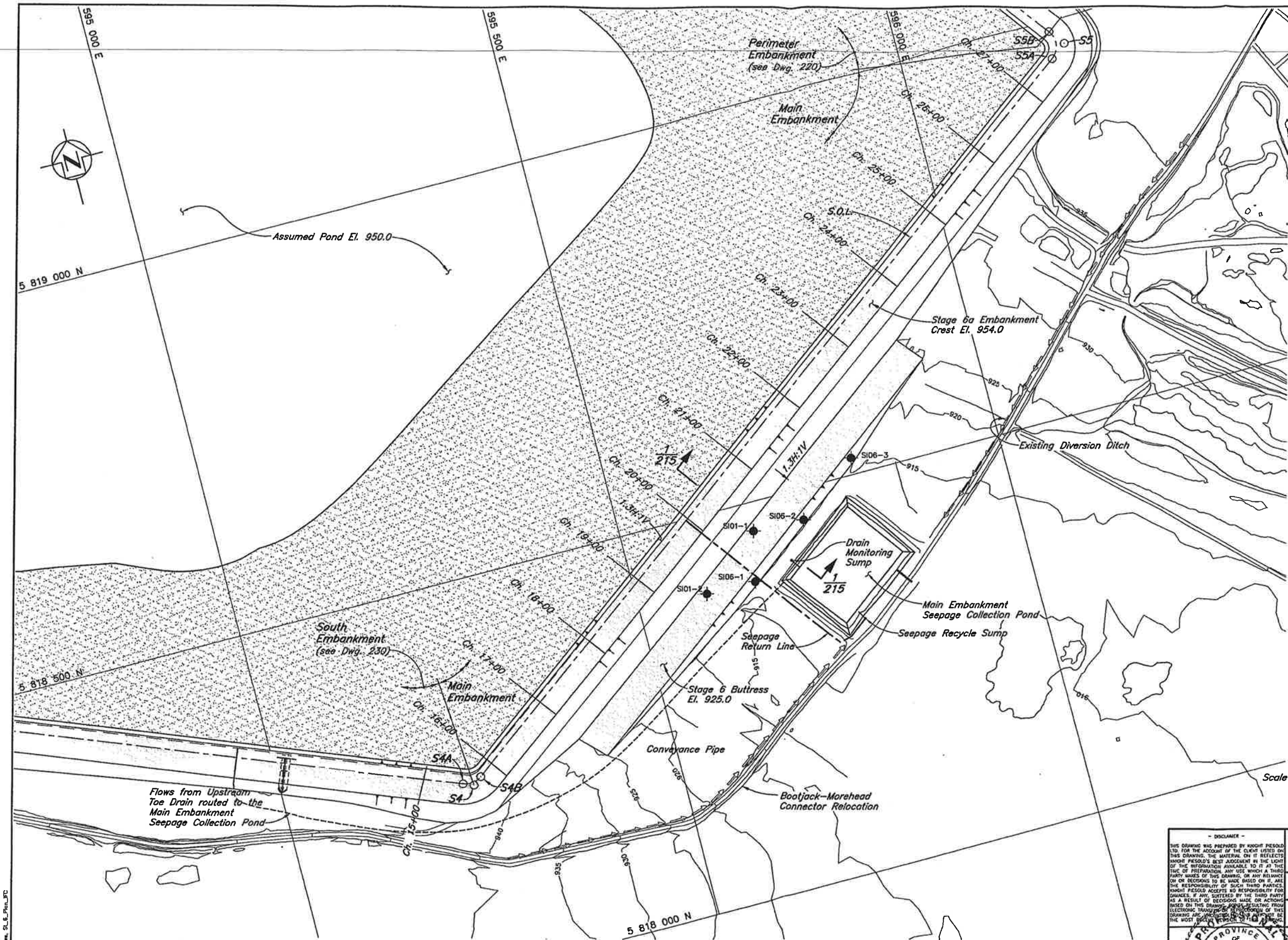
**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY**  
**STAGE 6 TAILINGS EMBANKMENT**  
**GENERAL ARRANGEMENT**

PROJECT/ASSIGNMENT NO.	DRAWING NO.	REVISION
VA101-1/18	102	0

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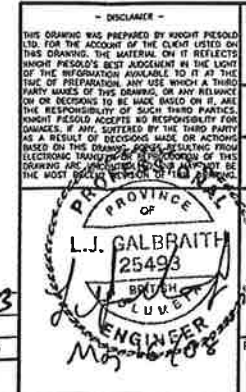
**NOTES:**  
 1. Topography from 2004 flyover  
 2. All dimensions in millimetres and elevations in metres, unless noted otherwise.



DRG. NO.	DESCRIPTION
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220	STAGE 6 PERIMETER EMBANKMENT - PLAN
215	STAGE 6 MAIN EMBANKMENT - SECTION

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
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**Knicht Piesold**  
CONSULTING

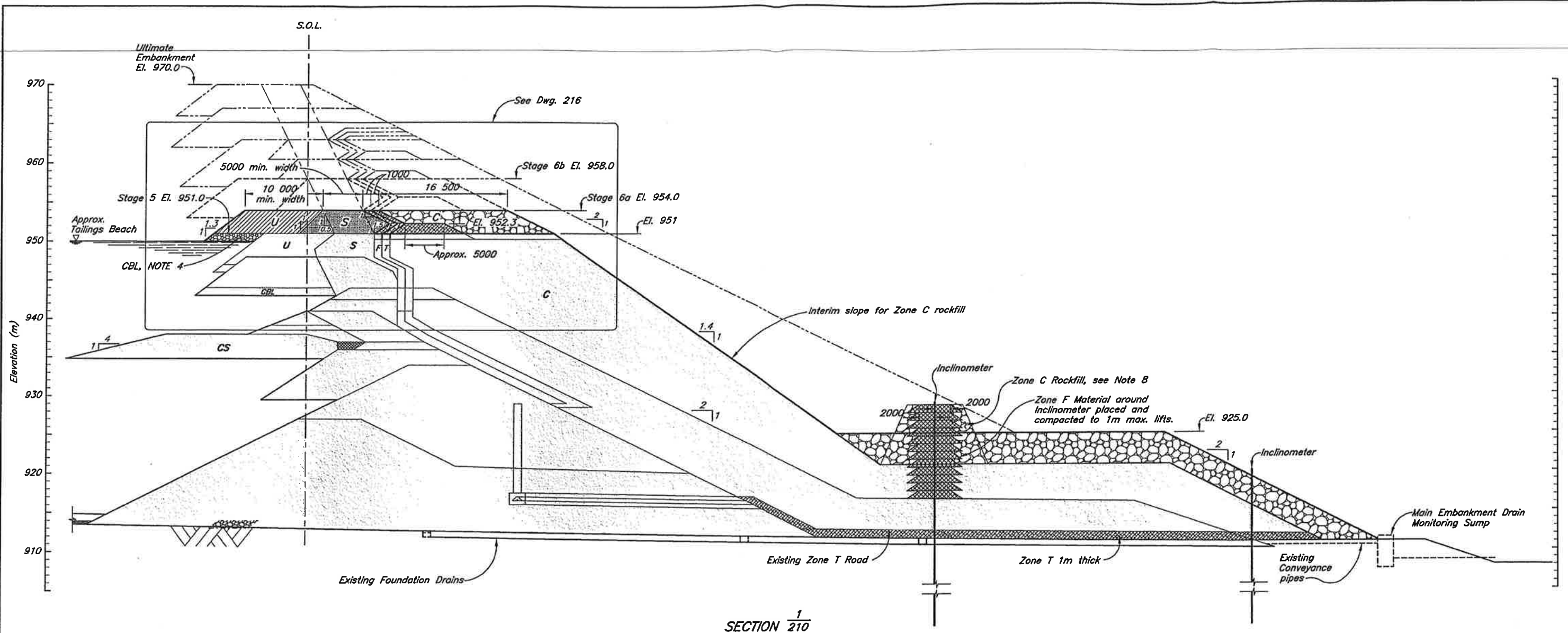
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 MAIN EMBANKMENT  
PLAN

PROJECT/ASSIGNMENT NO. VA101-1/18	DRAWING NO. 210	REVISION 1
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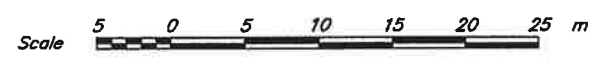
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SECTION 1/210

**NOTES:**

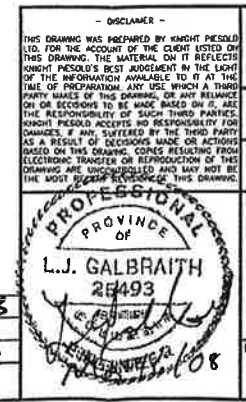
1. For material specifications and legend see Drg. 104.
2. All dimensions in millimetres and elevations in metres, unless noted otherwise.
3. Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
4. Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement on the Zone U material.
5. The width of the Zone U material assumes sand cell construction using tailings sand.
6. Zone S to have a minimum 5 m width above elevation 951.
7. Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.
8. Zone C and Zone F materials were placed around inclinometers SI01-1 and SI01-2 during Stage 5 to form a mound to offer protection from boulders during placement of Zone C.



215	STAGE 6 MAIN EMBANKMENT - DETAIL
210	STAGE 6 MAIN EMBANKMENT - PLAN
104	MATERIAL SPECIFICATIONS
DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
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REVISIONS						



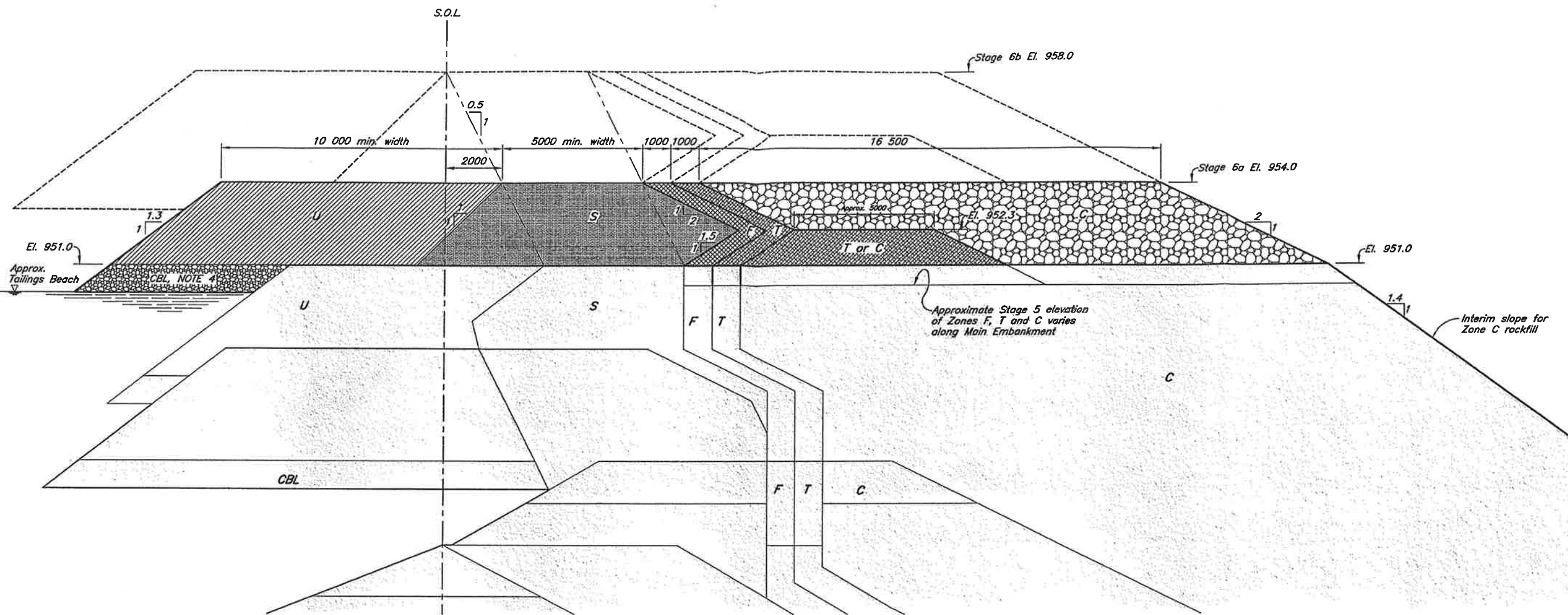
**Knight Piésold**  
CONSULTING

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 MAIN EMBANKMENT  
SECTION

PROJECT/ASSIGNMENT NO. VA101-1/18	DRAWING NO. 215	REVISION 1
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CAD FILE: M:\1\00001\VA101-1\Drawings\Stage6\215.dwg 1-250 Plot: 1-1(10) May 7, 2008 10:58 AM VANCOUVER BC



DETAIL A/215

NOTES:

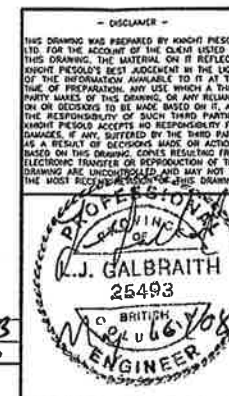
1. For material specifications and legend see Drg. 104.
2. All dimensions in millimeters and elevations in meters, unless noted otherwise.
3. Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
4. Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement on the Zone U material.
5. The width of the Zone U material assumes sand cell construction using tailings sand.
6. Zone S to have a minimum 5 m width above elevation 951.
7. Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.



215	STAGE 6 - MAIN EMBANKMENT - SECTION
210	STAGE 6 - MAIN EMBANKMENT - PLAN
104	STAGE 6 - MATERIAL SPECIFICATIONS
DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

0	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	RJB
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						



**Knights Piesold**  
CONSULTING

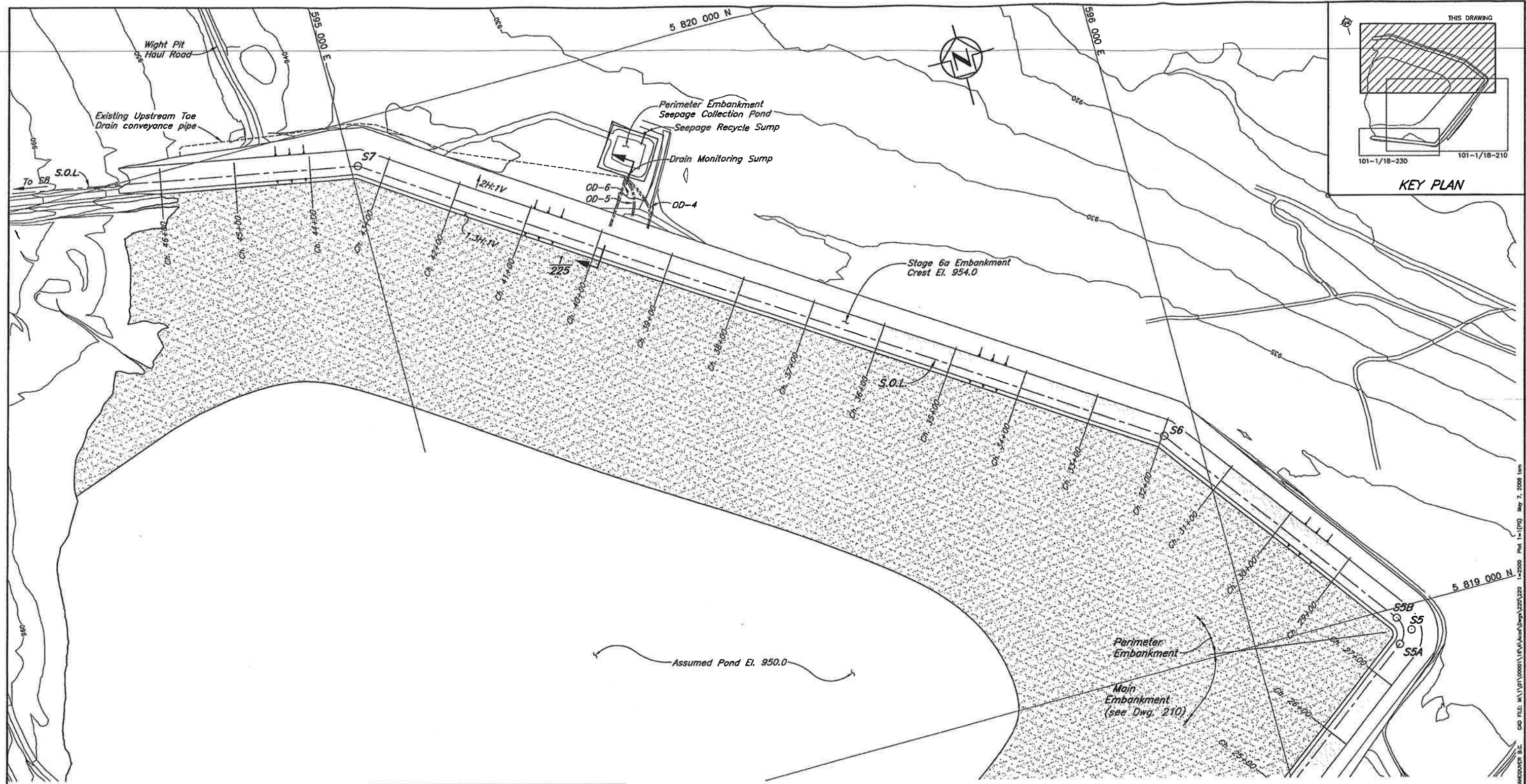
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 MAIN EMBANKMENT  
DETAIL

PROJECT/ASSIGNMENT NO. VA101-1/18	DRAWING NO. 216	REVISION 0
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D:\PROJECTS\VA101\000001\100\A\Drawings\Drawings\215\215.dwg 1=500 PRG: 1=1[PS] Plot 12, 2008 10m

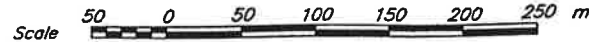




EMBANKMENT SETTING OUT POINTS			
Point	Northing	Easting	Chainage
S1	5 818 626.163	594 249.555	5+00.00
S4A	5 818 243.621	595 227.361	15+49.97
S4B	5 818 246.923	595 251.497	15+77.87
S4	5 818 238.539	595 240.350	15+83.92
S5A	5 818 951.971	596 188.906	27+50.83
S5B	5 818 986.958	596 193.873	28+00.78
S5	5 818 966.983	596 208.866	27+75.80
S6	5 819 304.035	595 955.881	31+97.23
S7	5 819 939.748	595 010.249	43+36.69
S8	5 820 053.034	594 396.471	49+60.83

**NOTES:**

1. Topography from 2004 flyover.
2. All dimensions in millimetres and elevations in metres, unless noted otherwise.



DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
240	STAGE 6 PERIMETER EMBANKMENT - UPSTREAM TOE DRAIN							
230	STAGE 6 SOUTH EMBANKMENT - PLAN							
225	STAGE 6 PERIMETER EMBANKMENT - SECTIONS							
210	STAGE 6 MAIN EMBANKMENT - PLAN							
REFERENCE DRAWINGS								

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
1	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	JY	BB	KJB
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB
REVISIONS						

DISCLAIMER

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PROFESSIONAL ENGINEER  
 L.B. GALBRAITH  
 25493  
 2008/08  
 ENGINEER

**Knicht Piésold**  
CONSULTING

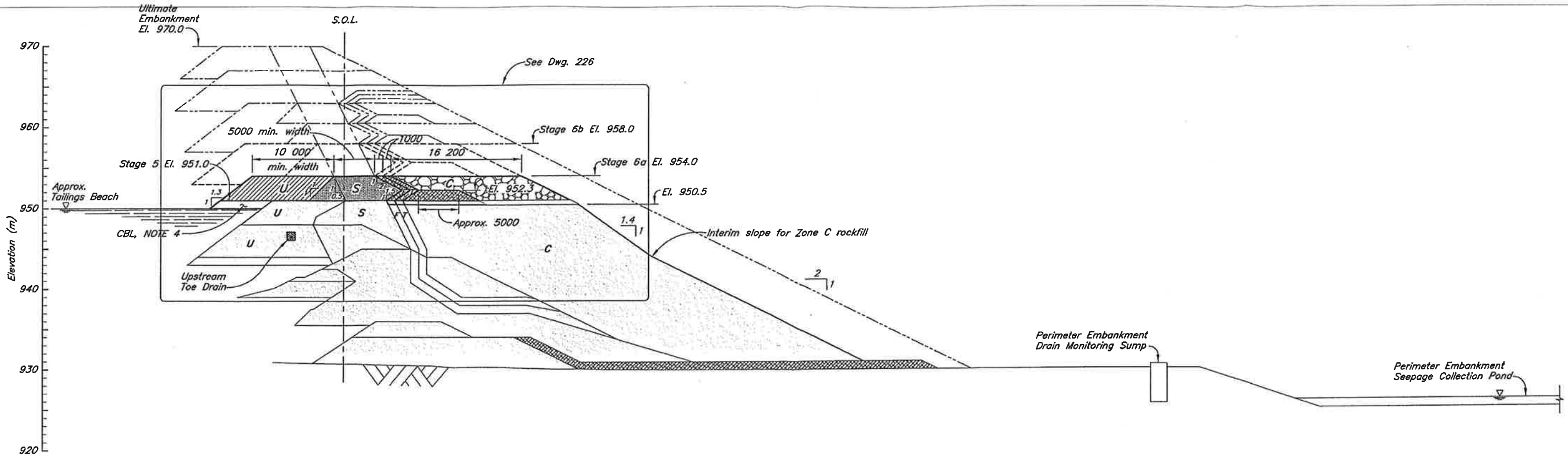
MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 PERIMETER EMBANKMENT  
PLAN

PROJECT/ASSIGNMENT NO. VA101-1/18  
DRAWING NO. 220  
REVISION 1

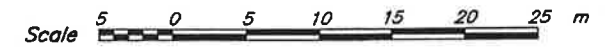
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CAD FILE: M:\1\01\000001\18\VA\Asset\Drawn\220\220 1-22000 Plot: 1=1(P)0, May 7, 2008 10m



SECTION 1/220

- NOTES:**
1. For material specifications and legend see Drg. 104.
  2. All dimensions in millimetres and elevations in metres, unless noted otherwise.
  3. Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
  4. Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement of the Zone U material.
  5. The width of the Zone U assumes sand cell construction using tailings sand.
  6. Zone S to have a minimum 5 m width above elevation 951.
  7. Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.



DRG. NO.	DESCRIPTION
226	STAGE 6 - PERIMETER EMBANKMENT - DETAIL
220	STAGE 6 - PERIMETER EMBANKMENT - PLAN
104	STAGE 6 - MATERIAL SPECIFICATIONS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
1	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	KJB
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB
REVISIONS						

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**Knicht Piesold CONSULTING**

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

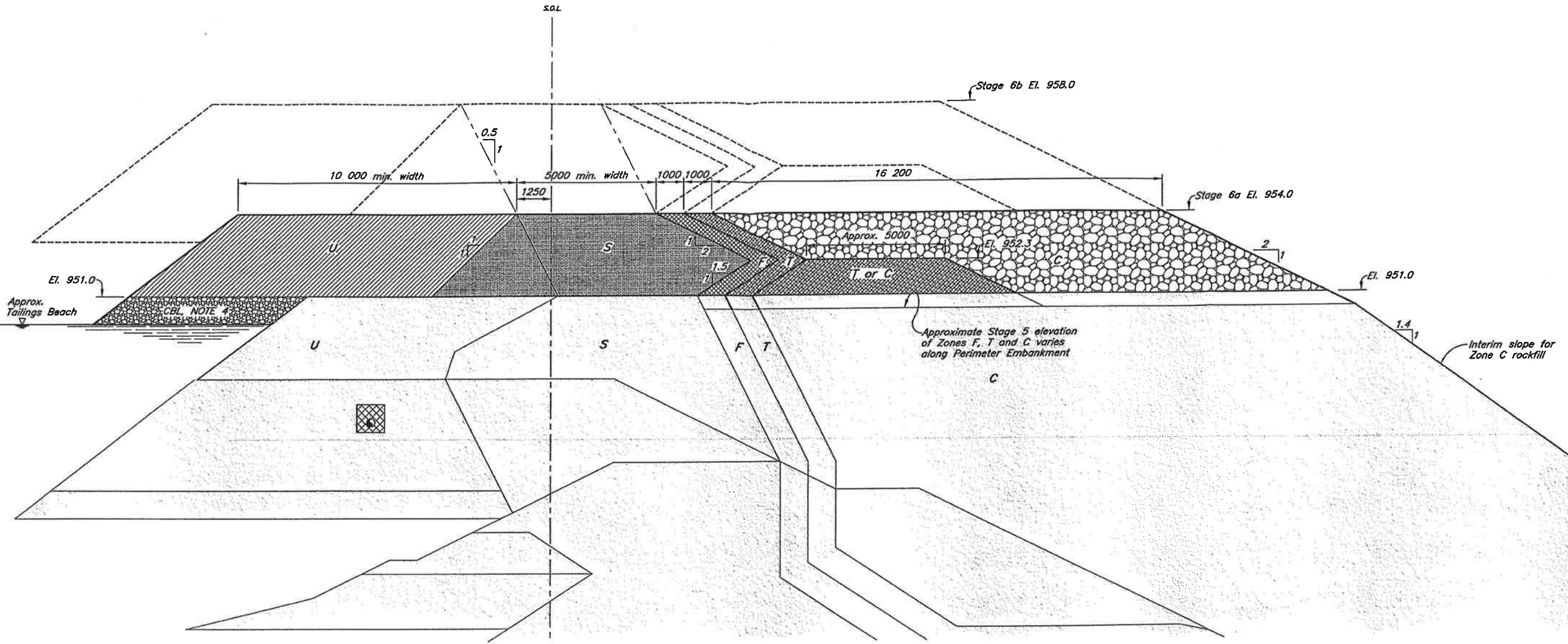
TAILINGS STORAGE FACILITY  
STAGE 6 - PERIMETER EMBANKMENT  
SECTION

PROJECT/ASSIGNMENT NO. VA101-1/18  
DRAWING NO. 225  
REVISION 1

PROFESSIONAL ENGINEER  
J. GALBRAITH  
MAY 26 2008  
BRITISH COLUMBIA

REF. FILE: -

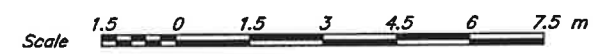
CAD FILE: \\A:\01\00001\01\A\Head\Draw\225\225\_1-250\_Plot\_1-(PS)\_May 7, 2008.dwg  
WASCORP B.C.



DETAIL A/225

**NOTES:**

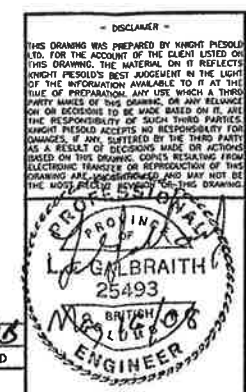
1. For material specifications and legend see Drg. 104.
2. All dimensions in millimeters and elevations in meters, unless noted otherwise.
3. Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
4. Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement on the Zone U material.
5. The width of the Zone U material assumes sand cell construction using tailings sand.
6. Zone S to have a minimum 5 m width above elevation 951.
7. Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.



225	STAGE 6 - PERIMETER EMBANKMENT - SECTION
220	STAGE 6 - PERIMETER EMBANKMENT - PLAN
104	STAGE 6 - MATERIAL SPECIFICATIONS
DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

0	07MAY07	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	KJS
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						



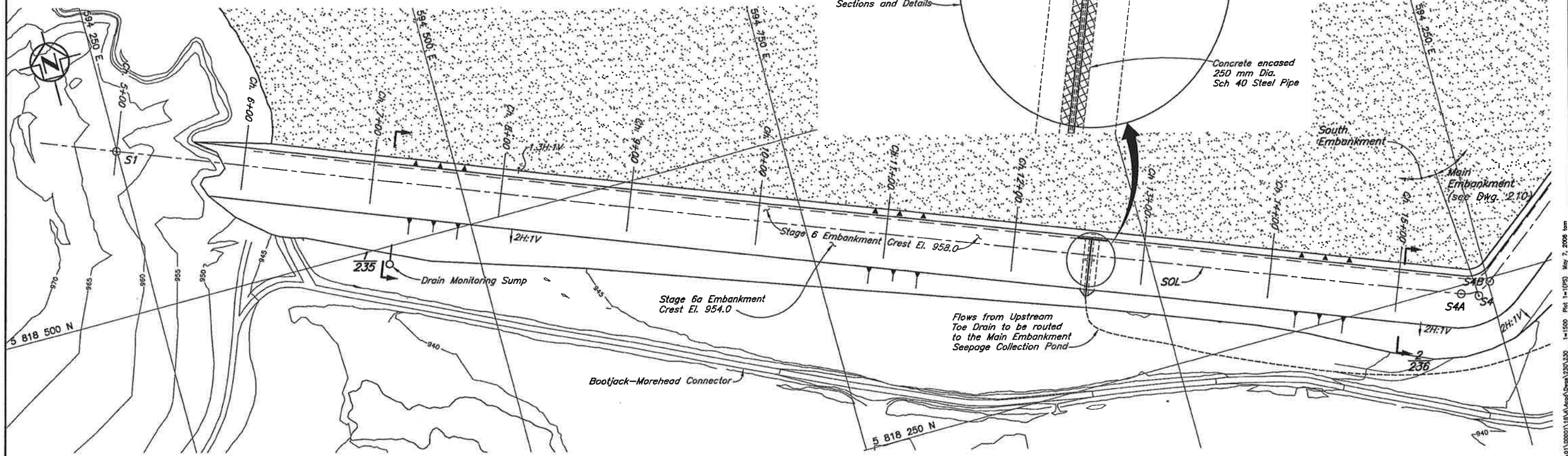
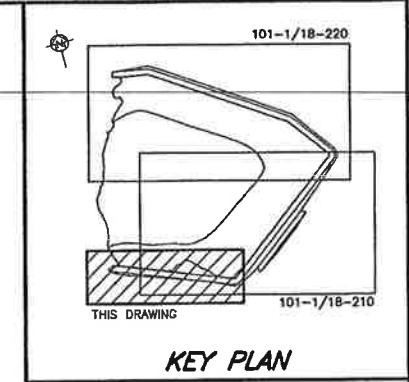
**Knicht Piésold**  
CONSULTING

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

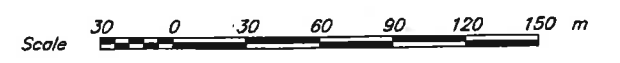
TAILINGS STORAGE FACILITY  
STAGE 6 PERIMETER EMBANKMENT  
DETAIL

PROJECT/ASSIGNMENT NO.	DRAWING NO.	REVISION
VA101-1/18	226	0

W:\WORKING FILES\PROJECTS\2007\11\VA\Account\Drawings\225\225.dwg 1=50 Plot 1=1[PS] May 7, 2008 1:08 PM



**PLAN**



- NOTES:**
1. Topography from 2004 flyover.
  2. All dimensions in millimetres and elevations in metres, unless noted otherwise.

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APPROVED  
OF  
L. GALBRAITH  
25493  
REGISTERED  
ENGINEER

**Knicht Piésold**  
CONSULTING

**MOUNT POLLEY MINE CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY**  
**STAGE 6 SOUTH EMBANKMENT**  
**PLAN**

PROJECT/ASSIGNMENT NO. <b>VA101-1/18</b>	DRAWING NO. <b>230</b>	REVISION <b>1</b>
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DRG. NO.	DESCRIPTION
235/236	STAGE 6 SOUTH EMBANKMENT - SECTIONS
220	STAGE 6 PERIMETER EMBANKMENT - PLAN
210	STAGE 6 MAIN EMBANKMENT - PLAN
104	STAGE 6 TAILINGS EMBANKMENT - MATERIAL SPECIFICATIONS

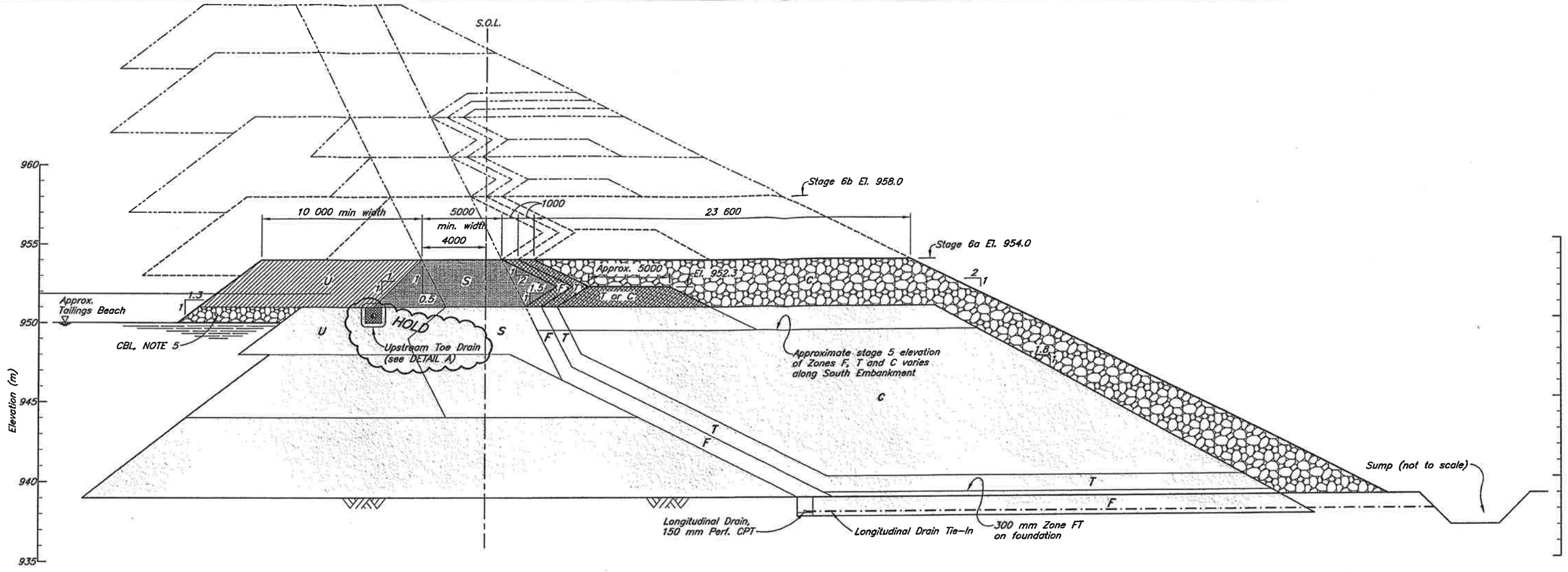
REFERENCE DRAWINGS

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
1	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	KJB
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB

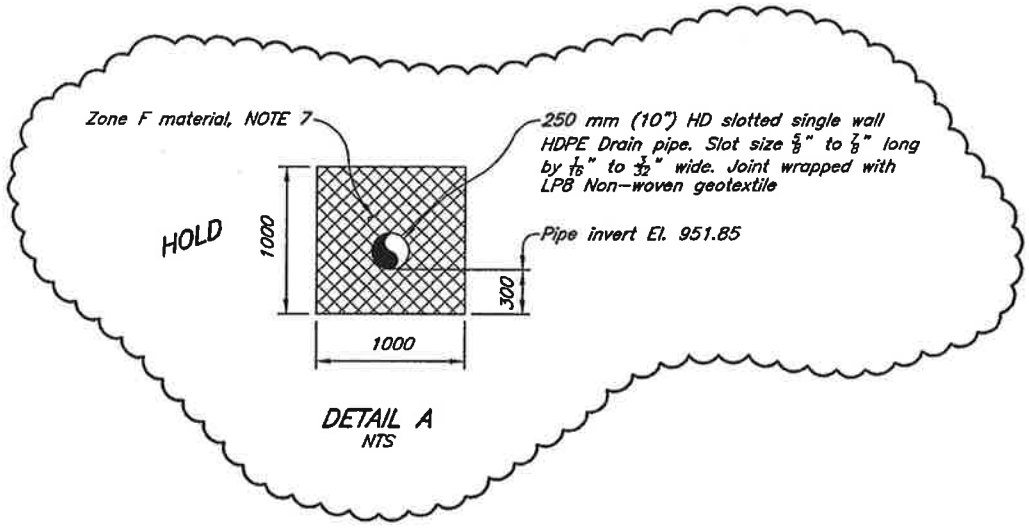
REVISIONS

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WANDONGER, B.C.

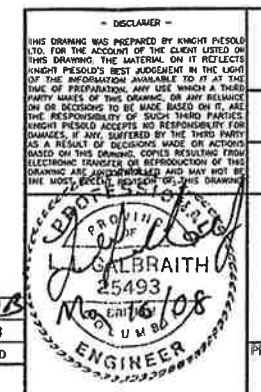


SECTION 2/30



NOTES:

- For material specifications and legend see Drg. 104.
- All dimensions in millimetres and elevations in metres, unless noted otherwise.
- Zone S to have a minimum 5 m width above El. 951.
- Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
- Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement on the Zone U material.
- Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.
- Zone F material to be placed and compacted in maximum 300 mm lifts.



**Knicht Piésold CONSULTING**

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 SOUTH EMBANKMENT  
SECTION 1

DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
236	STAGE 6 SOUTH EMBANKMENT -- SECTION 2							
230	STAGE 6 SOUTH EMBANKMENT -- PLAN							
104	STAGE 6 TAILINGS EMBANKMENT -- MATERIAL SPECIFICATIONS							

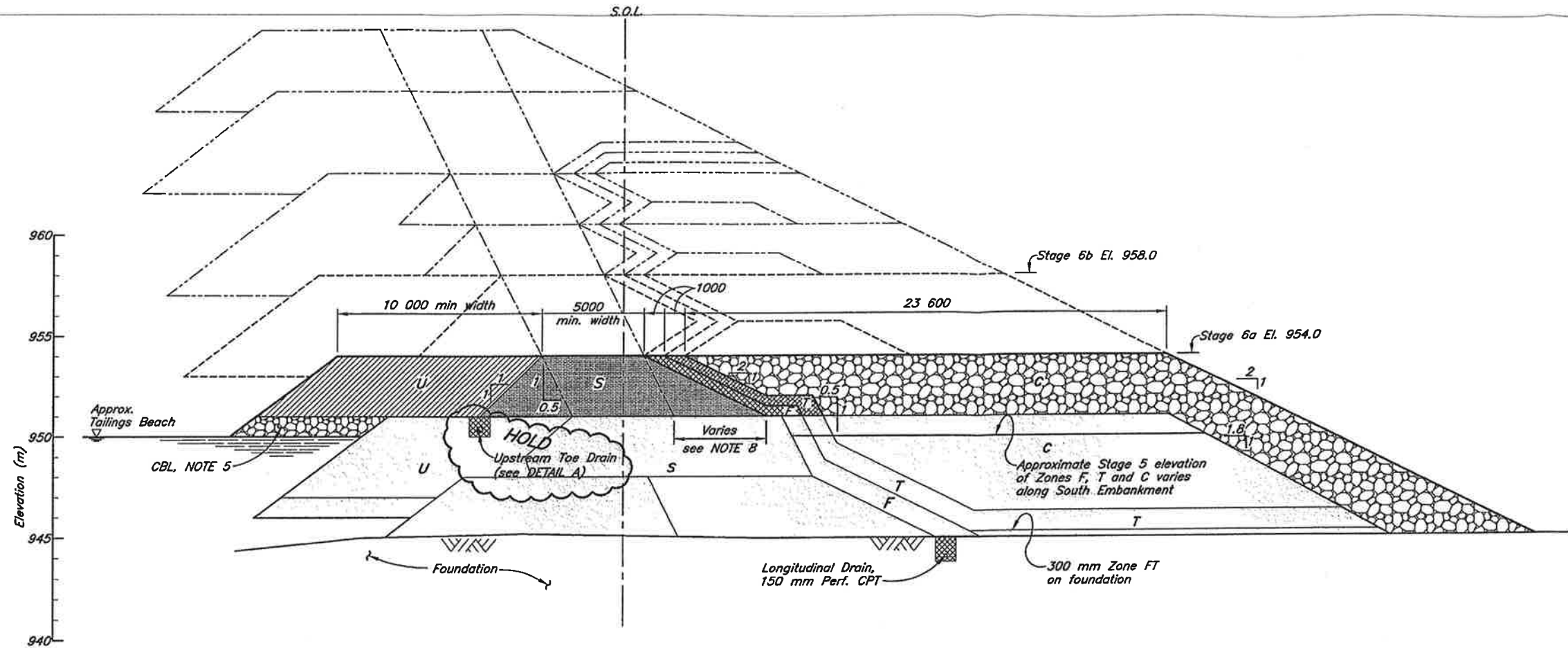
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
1	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	KJB
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
1	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	TAM	BB	KJB
0	08JUN'07	ISSUED FOR STAGE 6 PERMITTING	LJG	JY	BB	KJB

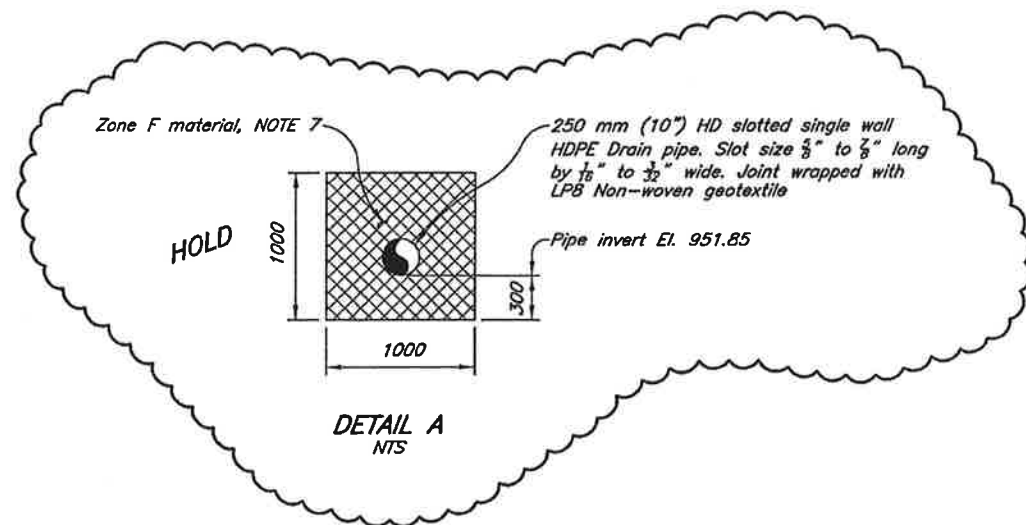
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VA101-1/18	235	1

XREF FILE :

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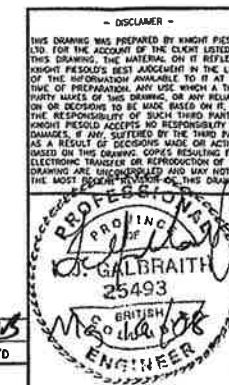


SECTION 2/230



NOTES:

1. For material specifications and legend see Drg. 104.
2. All dimensions in millimetres and elevations in metres, unless noted otherwise.
3. Zone S to have a minimum 5 m width above El. 951.
4. Minimum lines and grades shown. Lines and grades may be extended upstream and downstream during Stage 6 construction.
5. Coarse bearing layer may be required on tailings beach adjacent to the embankment to create a competent surface for placement on the Zone U material.
6. Appropriate filter relationships required between all embankment zones and materials as required by the Engineer.
7. Zone F material to be placed and compacted in maximum 300 mm lifts.
8. Maximum dimension of 4500 at Ch. 15+00 and gradually decreased to 0 at Ch. 13+50.



DISCLAIMER

**Knight Piésold**  
CONSULTING

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY  
STAGE 6 SOUTH EMBANKMENT  
SECTION 2

PROJECT/ASSIGNMENT NO. VA101-1/18

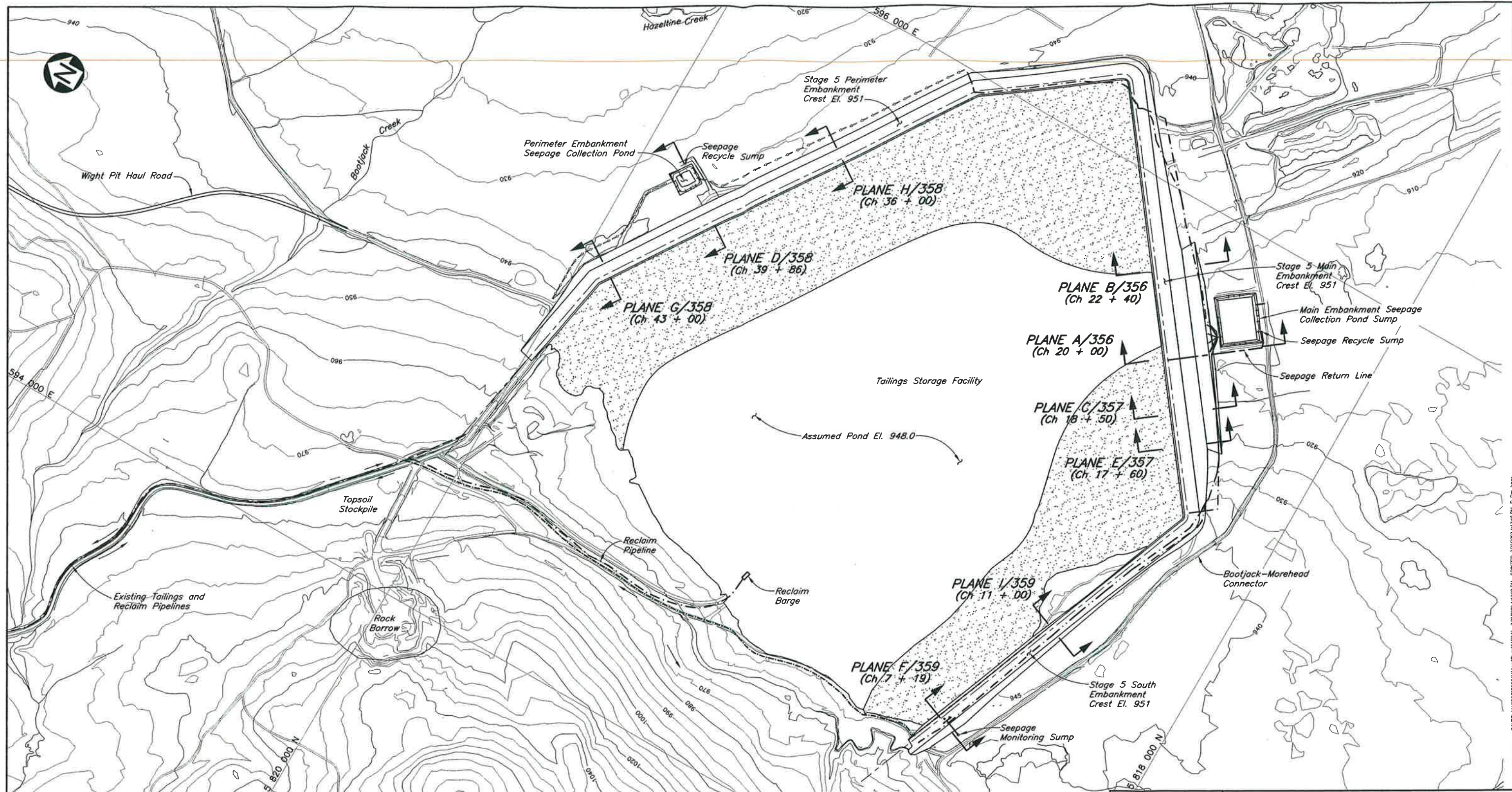
DRAWING NO. 236

REVISION 0

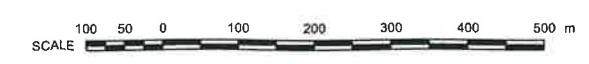
235	STAGE 6 SOUTH EMBANKMENT - SECTION 1
230	STAGE 6 SOUTH EMBANKMENT - PLAN
104	STAGE 6 TAILINGS EMBANKMENT - MATERIAL SPECIFICATIONS
DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						

0	07MAY'08	ISSUED FOR CONSTRUCTION	LJG	JY	BB	KIS
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHK'D	APP'D
REVISIONS						



- NOTES:**
1. TOPOGRAPHY FROM 2004 FLYOVER.
  2. ALL DIMENSIONS IN MILLIMETRES AND ELEVATIONS IN METRES, UNLESS NOTED OTHERWISE.



**DISCLAIMER**  
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*[Professional Engineer Seal]*

**Knicht Piesold CONSULTING**

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
 STAGE 6a - INSTRUMENTATION  
 PLAN VIEW OF PIEZOMETER PLANES**

PIA NO. **VA101-1/24** DRAWING NO. **345** REVISION **0**

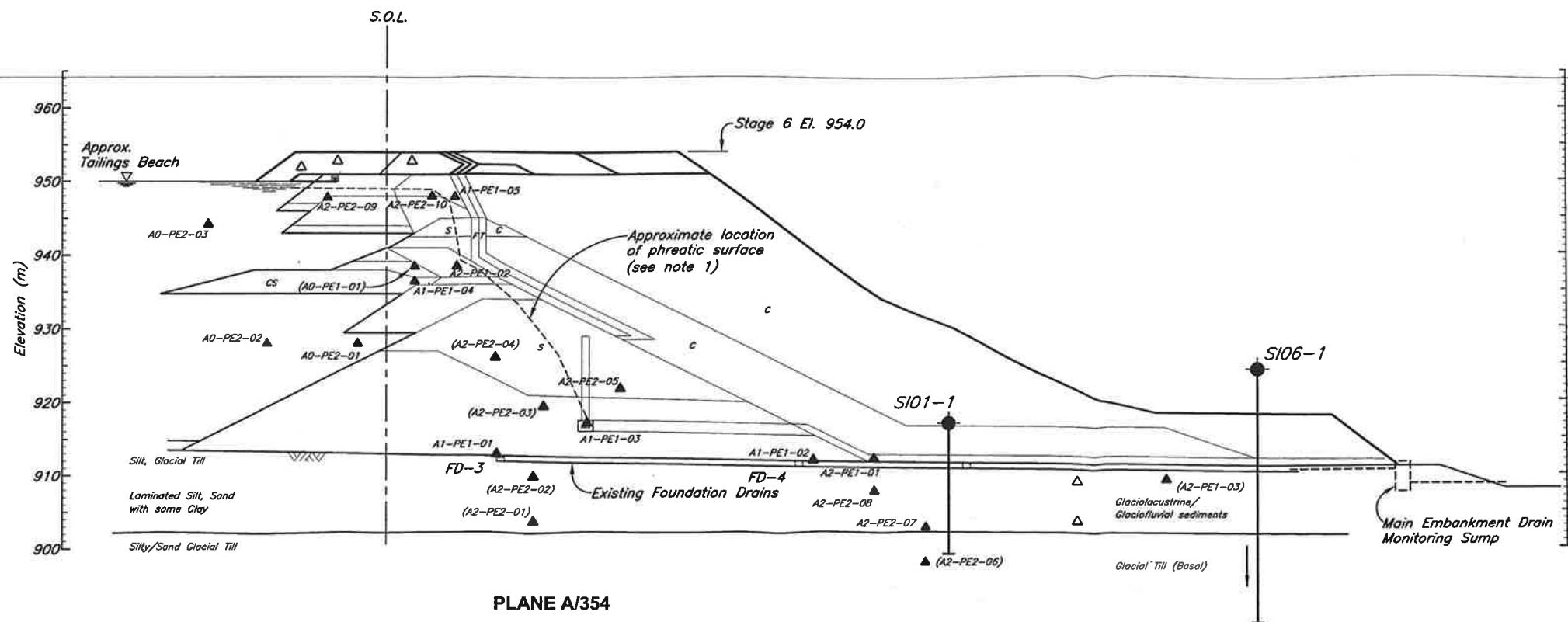
349	STAGE 6a INSTRUMENTATION - SOUTH EMB. - PLANES F & I
348	STAGE 6a INSTRUMENTATION - PERIMETER EMB. - PLANES D, G & H
347	STAGE 6a INSTRUMENTATION - MAIN EMB. - PLANES C & D
346	STAGE 6a INSTRUMENTATION - MAIN EMB. - PLANES A & B

DRG. NO.	DESCRIPTION	REV.	DATE	DESIGN	DRAWN	CHKD	APPD
REFERENCE DRAWINGS							
REVISIONS							

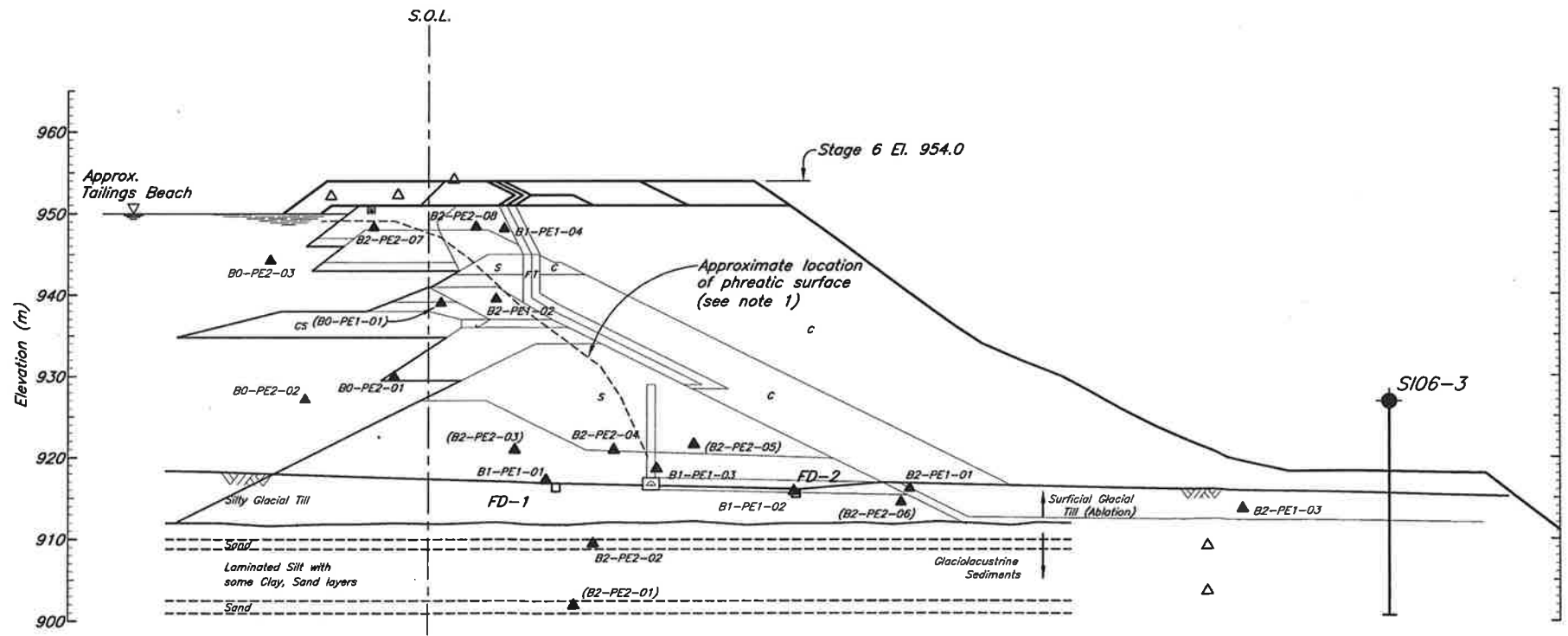
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
0	23FEB09	ISSUED WITH REPORT 101-1/24 - 1	LJG	JY	MACS	<i>[Signature]</i>
REVISIONS						

XREF FILES: TOPO.DWG, Features: Stage\_6a.mxd

SAVED: M:\101\1000101\24\VA101-1/24.dwg PRINTED: 2022/08/05 11:17:57 PM



PLANE A/354



PLANE B/354

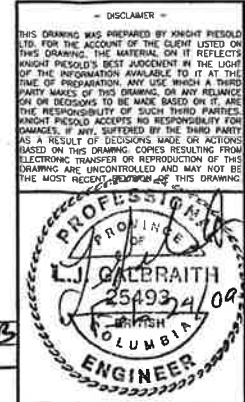
**NOTE:**

- PHREATIC SURFACES DETERMINED THROUGH DATA COLLECTED BY VIBRATING WIRE PIEZOMETERS.

**LEGEND:**

- PLANE I.D. (A, B, etc.)
- AREA (0-TAILINGS, 1-DRAIN, 2-EMBANKMENT)
- NUMBER I.D.
- PRESSURE RATING (1-LOW, 2-HIGH)
- TYPE OF INSTRUMENTATION (PE-PIEZOMETER ELECTRIC, SM-SURVEY MONUMENT)

- A2-PE2-03 ▲ PREVIOUSLY INSTALLED PIEZOMETER
- ▲ PROPOSED STAGE 6a PIEZOMETERS



**Knights Piesold CONSULTING**

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
STAGE 6a - MAIN EMBANKMENT  
INSTRUMENTATION - PLANES A AND B**

DISCLAIMER: THIS DRAWING WAS PREPARED BY KNIGHT PIESOLD LTD. FOR THE ACCOUNT OF THE CLIENT LISTED ON THIS DRAWING. THE MATERIAL ON IT REFLECTS KNIGHT PIESOLD'S BEST JUDGEMENT IN THE LIGHT OF THE INFORMATION AVAILABLE TO IT AT THE TIME OF PREPARATION. ANY USE BY A THIRD PARTY MAKES OF THIS DRAWING OR ANY RELIANCE ON OR DECISIONS TO BE MADE BASED ON IT ARE THE RESPONSIBILITY OF SUCH THIRD PARTIES. KNIGHT PIESOLD ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY THE THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THIS DRAWING. COPIES RESULTING FROM ELECTRONIC TRANSFER OR REPRODUCTION OF THIS DRAWING ARE UNCONTROLLED AND MAY NOT BE THE MOST RECENT REVISION OF THIS DRAWING.

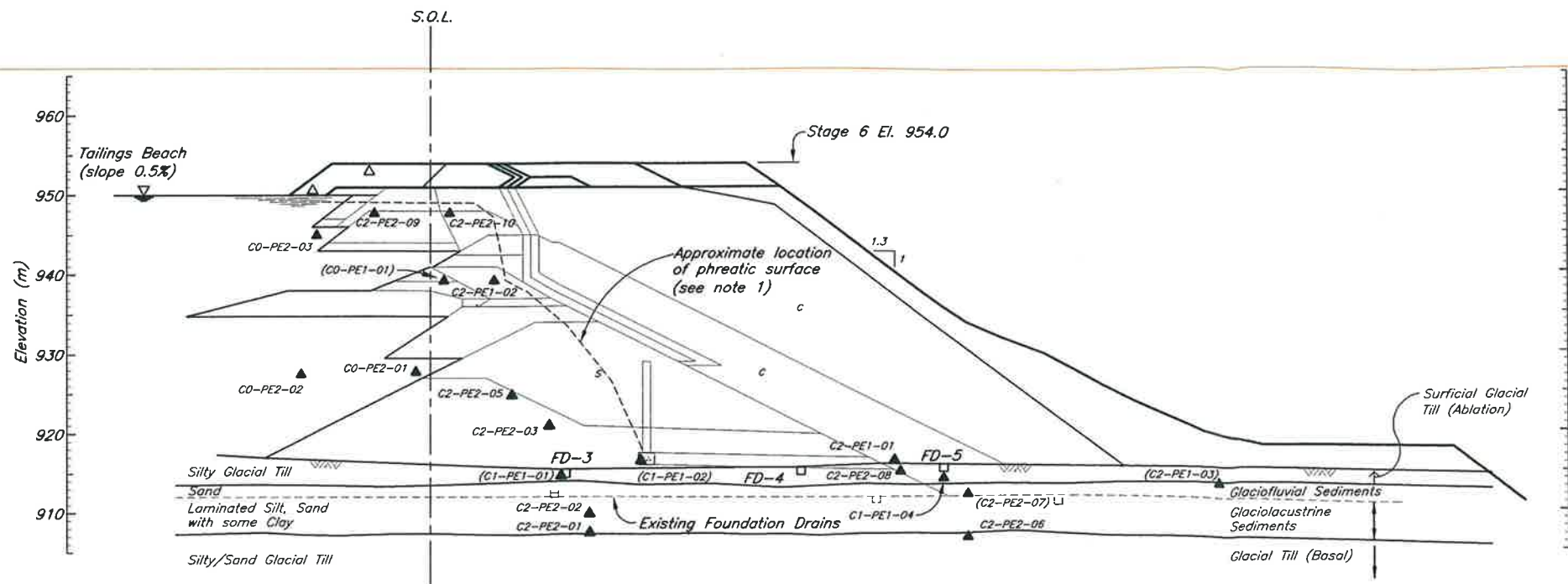
PIA NO. **VA101-1/24** DRAWING NO. **356** REVISION **0**

345	STAGE 6a - MAIN EMBANKMENT - INSTRUMENTATION - PLAN	0	23FEB09	ISSUED WITH REPORT 101-1/24 - 1	LJG	JY	MACS	WJS
DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
REFERENCE DRAWINGS		REVISIONS			REVISIONS			

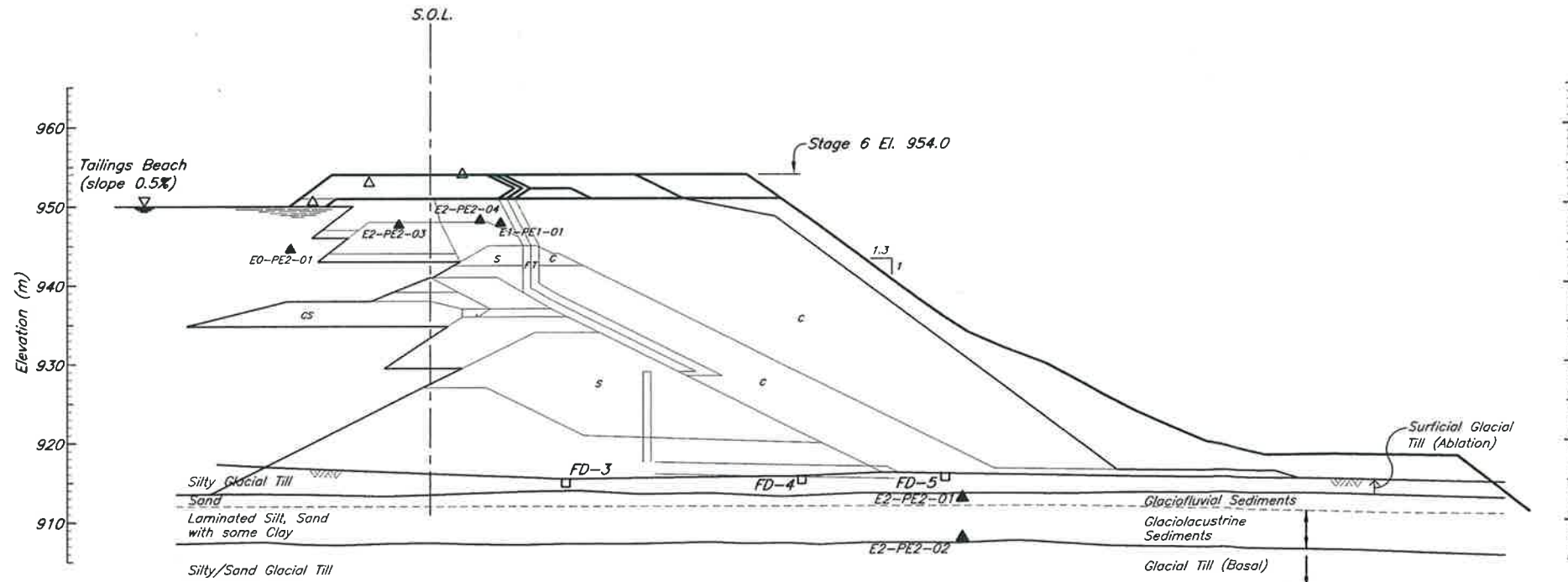
XREF FILES: MAKE FILES

SAVED: \\1110100012\kmac\dwg\101-1/24-1.dwg PRINTED: 2/25/2009 1:26:10 PM 2/25/2009 1:26:10 PM D. Dng, jwng





PLANE C/345



PLANE E/345

**NOTE:**  
 1. PHREATIC SURFACES DETERMINED THROUGH DATA COLLECTED BY VIBRATING WIRE PIEZOMETERS.

**LEGEND:**  
 PLANE I.D. (A, B, etc.)  
 AREA (0-TAILINGS, 1-DRAIN, 2-EMBANKMENT)  
 A0-PE1-01 NUMBER I.D.  
 PRESSURE RATING (1-LOW, 2-HIGH)  
 TYPE OF INSTRUMENTATION (PE-PIEZOMETER ELECTRIC, SM-SURVEY MONUMENT)  
 A2-PE2-03 ▲ PREVIOUSLY INSTALLED PIEZOMETER  
 ▲ PROPOSED STAGE 6a PIEZOMETERS



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**Knicht Piesold CONSULTING**

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

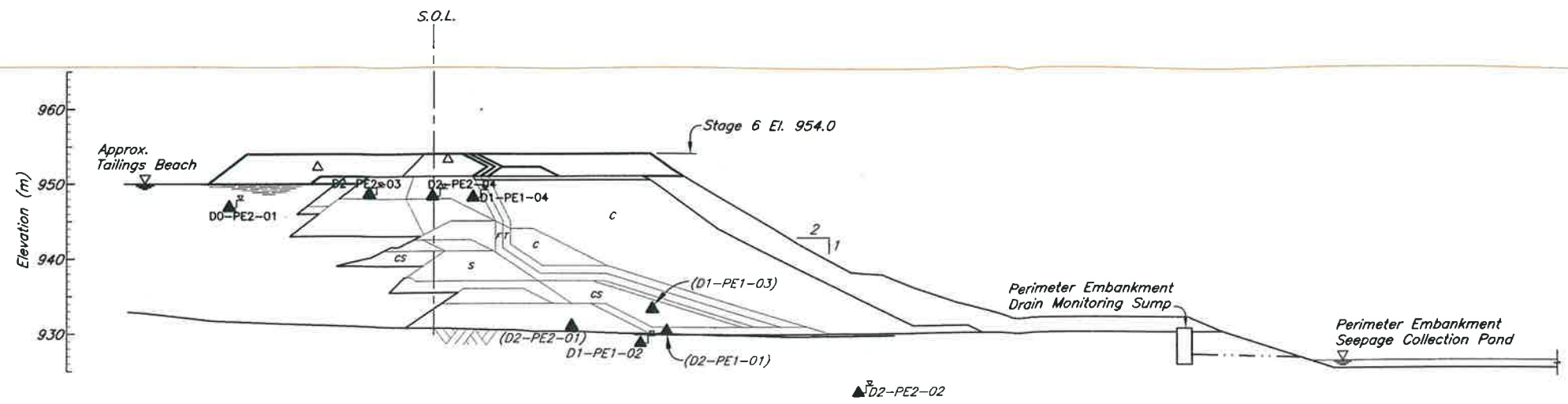
**TAILINGS STORAGE FACILITY STAGE 6a - MAIN EMBANKMENT INSTRUMENTATION - PLANES C AND E**

P/A NO. **VA101-1/24** DRAWING NO. **357** REVISION **0**

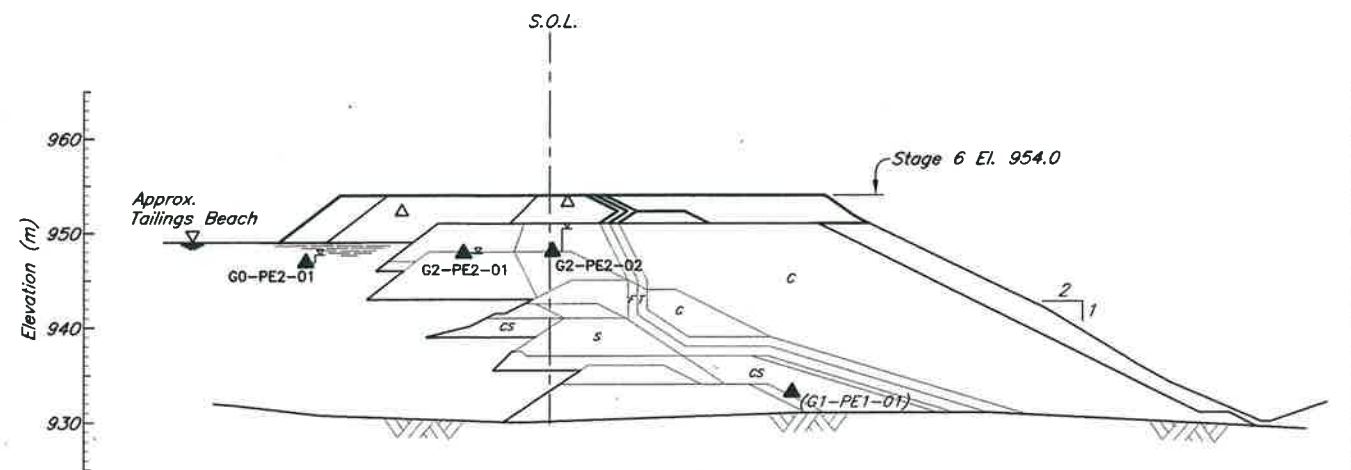
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345	STAGE 6a INSTRUMENTATION - MAIN EMBANKMENT - PLAN	0	23FEB09	ISSUED WITH REPORT 101-1/24 - 1	LJG	JY	MACS	KJB
DRG. NO.	DESCRIPTION	REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
	REFERENCE DRAWINGS			REVISIONS				
				REVISIONS				

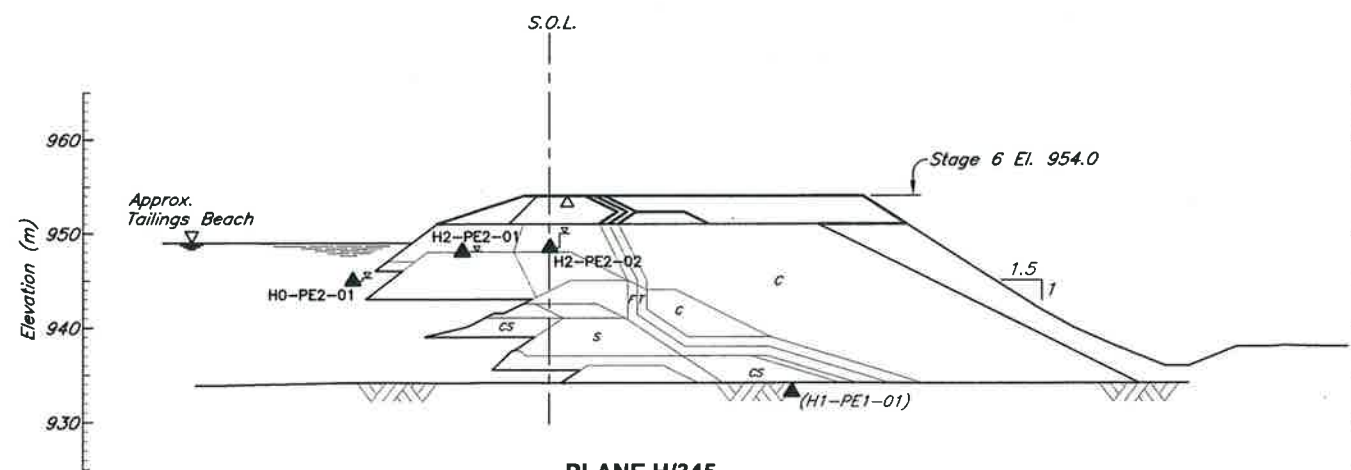
VANCOUVER B.C. PRINTED: 2/23/2009 1:26:45 PM, D: C:\p\m\g



PLANE D/345



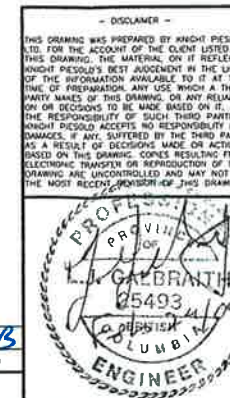
PLANE G/345



PLANE H/345

**LEGEND:**

- PLANE I.D. (A, B, etc.)
- AREA (0-TAILINGS, 1-DRAIN, 2-EMBANKMENT)
- A0-PE1-01 — NUMBER I.D.
- PRESSURE RATING (1-LOW, 2-HIGH)
- TYPE OF INSTRUMENTATION (PE-PIEZOMETER ELCTRIC, SM-SURVEY MONUMENT)
- A2-PE2-03 ▲ PREVIOUSLY INSTALLED PIEZOMETER
- ▲ PROPOSED STAGE 6a PIEZOMETERS



**Knight Piésold**  
CONSULTING

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

**TAILINGS STORAGE FACILITY**  
**STAGE 6a - PERIMETER EMBANKMENT**  
**INSTRUMENTATION - PLANES D, G, AND H**

345	STAGE 6a - PERIMETER EMBANKMENT - INSTRUMENTATION - PLAN
DRG. NO.	DESCRIPTION
REFERENCE DRAWINGS	

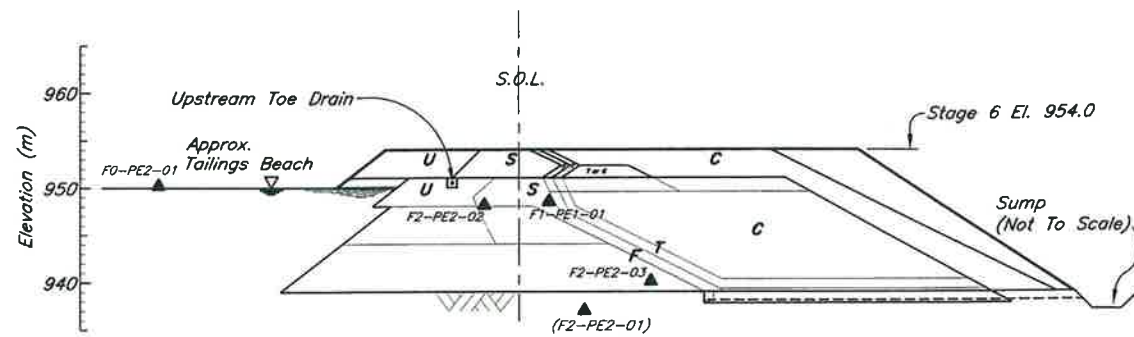
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
REVISIONS						

0	23FEB09	ISSUED WITH REPORT 101-1/24 - 1	LJG	JY	MACS	KJS
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
REVISIONS						

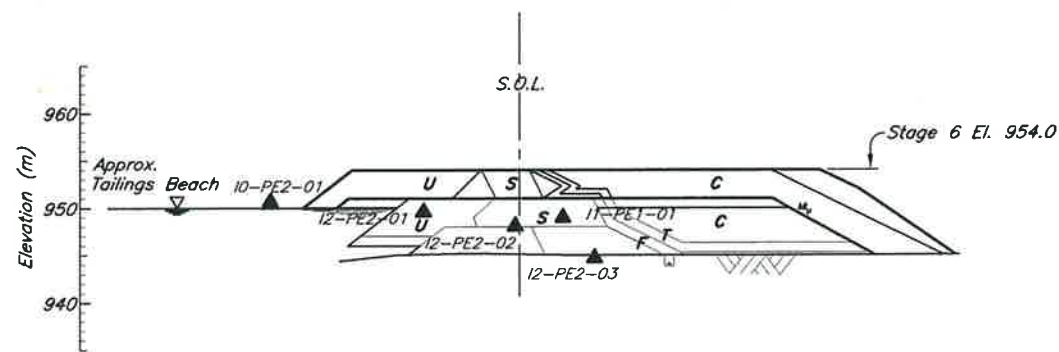
PIA NO.	DRAWING NO.	REVISION
VA101-1/24	358	0

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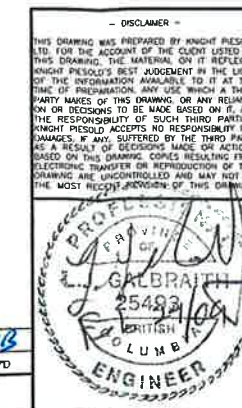
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PLANE F/345



PLANE I/345



**Knight Piésold**  
CONSULTING

**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**TAILINGS STORAGE FACILITY  
STAGE 6a - SOUTH EMBANKMENT  
INSTRUMENTATION - PLANES F AND I**

PIA NO	DRAWING NO	REVISION
<b>VA101-1/24</b>	<b>359</b>	<b>0</b>

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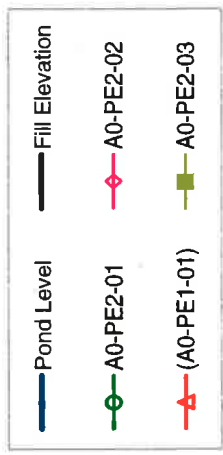
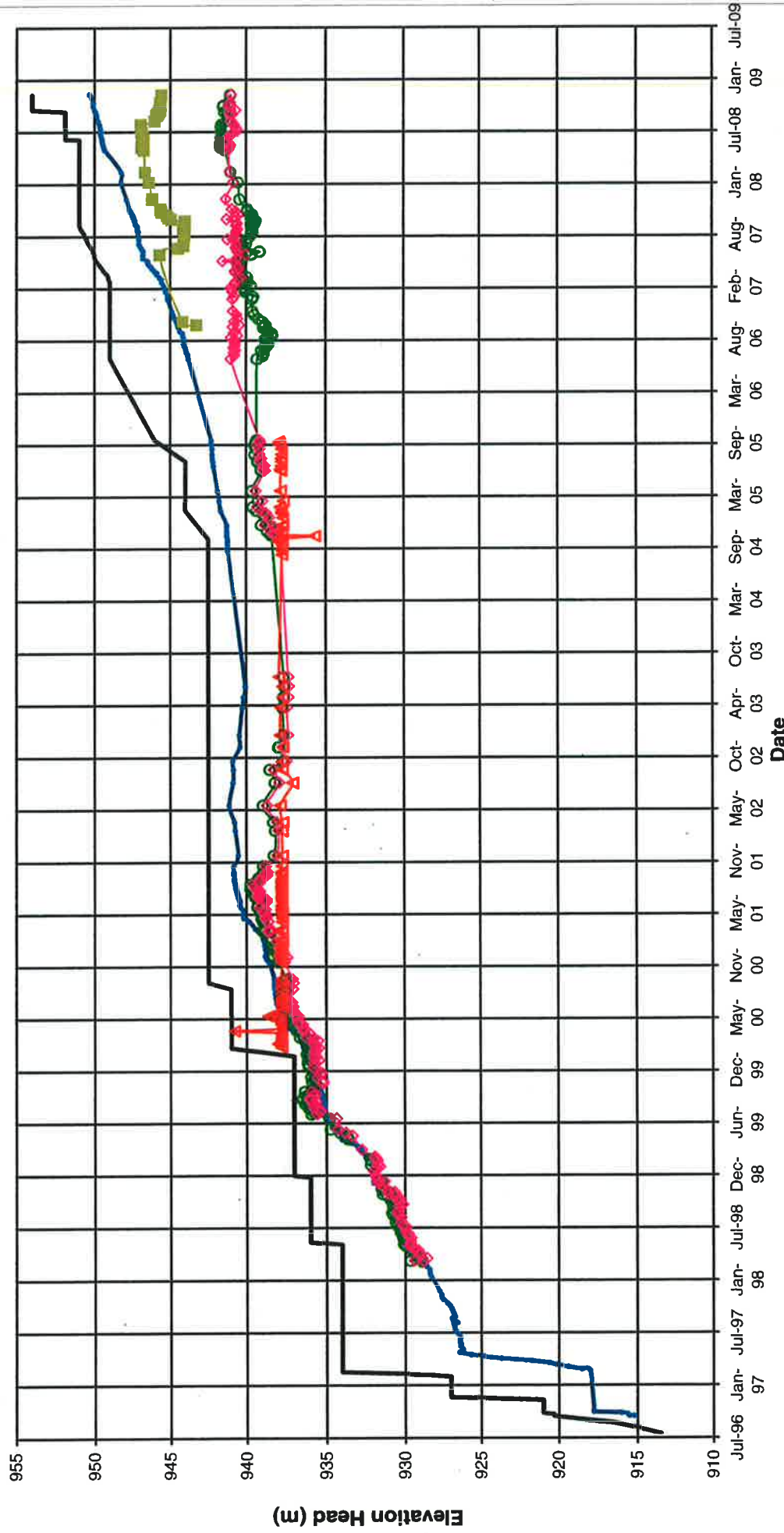
345	STAGE 6a - SOUTH EMBANKMENT - INSTRUMENTATION - PLAN	0	23FEB09	ISSUED WITH REPORT 101-1/24 - 1	LJG	JY	MACS	KIB
DRG NO.	DESCRIPTION	REV	DATE	DESCRIPTION	DESIGN	DRAWN	CHKD	APPD
	REFERENCE DRAWINGS			REVISIONS				
				REVISIONS				

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**APPENDIX A**

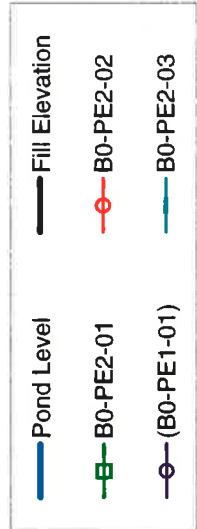
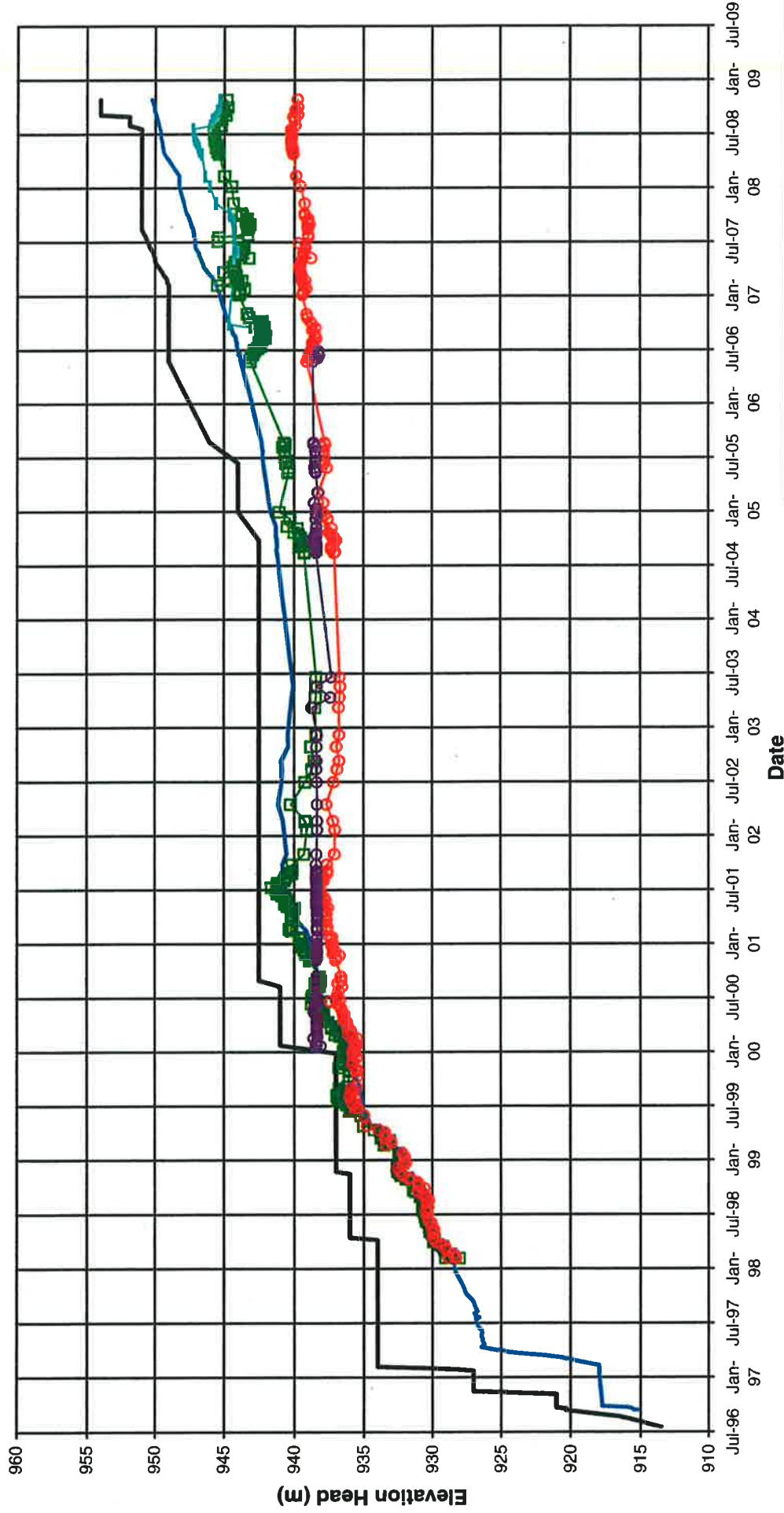
**PIEZOMETER RECORDS**

- Figures A1-1 to A1-9      Tailings Piezometers
- Figures A2-1 to A2-7      Foundation Piezometers
- Figures A3-1 to A3-9      Fill Piezometers
- Figures A4-1 to A4-8      Drain Piezometers



MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE A TAILINGS PIEZOMETERS ELEVATION HEAD vs. TIME	
<b>Knight Piésold</b> CONSULTING	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A1-1</b>	
REV	0

REV	DATE	DESCRIPTION	JIM PREP'D	MACS CHK'D	LJG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

PLANE B TAILINGS PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piesold**  
CONSULTING

P/A NO.  
VA101-1/24

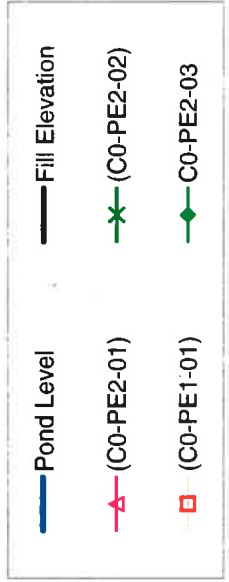
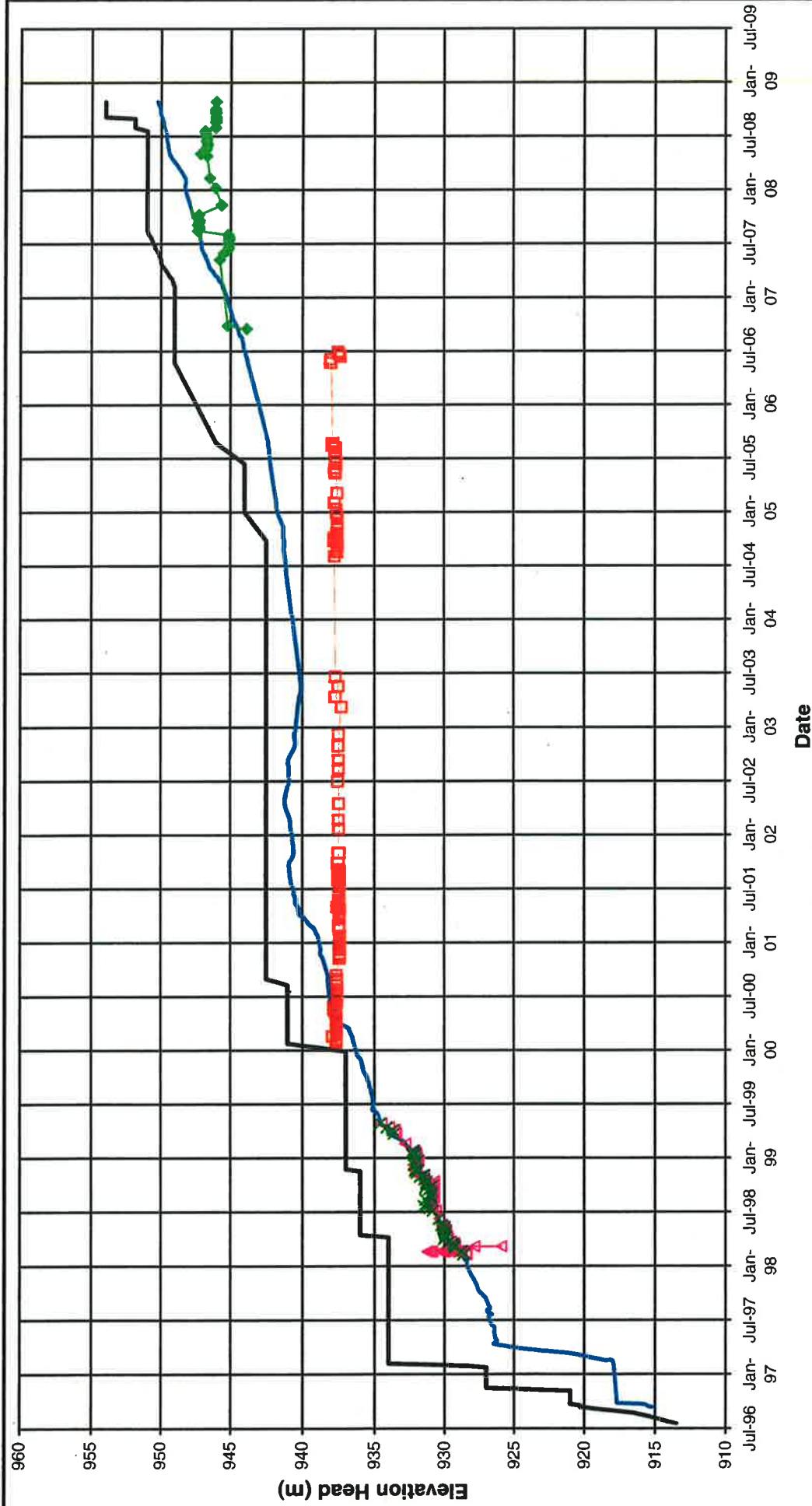
REF. NO.  
1

FIGURE A1-2

REV 0

Note:  
Piezometers in parentheses no longer functioning

REV	DATE	ISSUED WITH REPORT	DESCRIPTION	JIM PREPD	MACS CHKD	LIG APPD
0	19DEC08	VA101-1/24-1				



Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

PLANE C TAILINGS PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piésold**  
CONSULTING

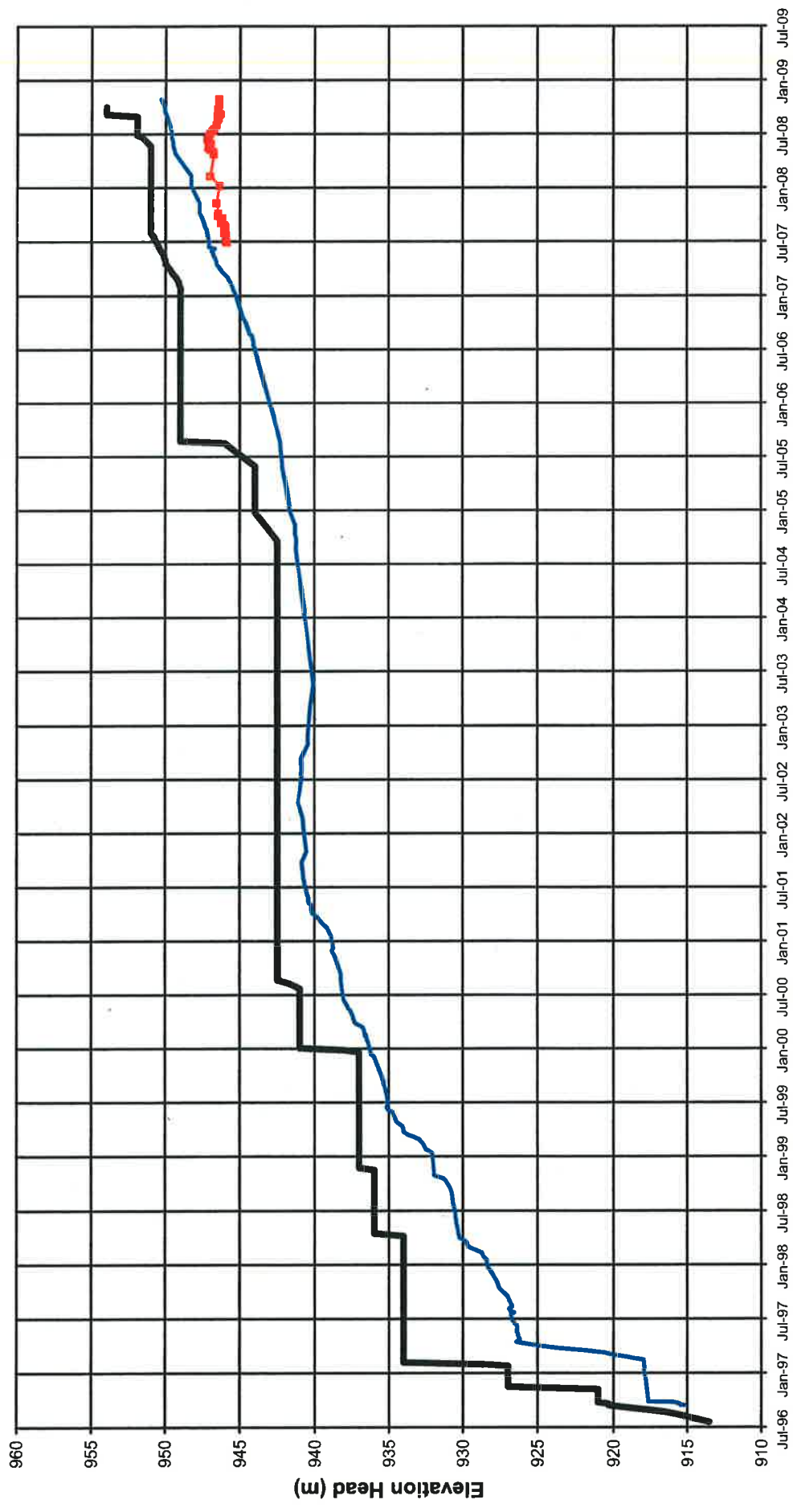
P/A NO.  
VA101-1/24

REF NO.  
1

FIGURE A1-3

REV  
0

REV	DATE	DESCRIPTION	JIM PREP'D	MACS CHK'D	LJG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



Date

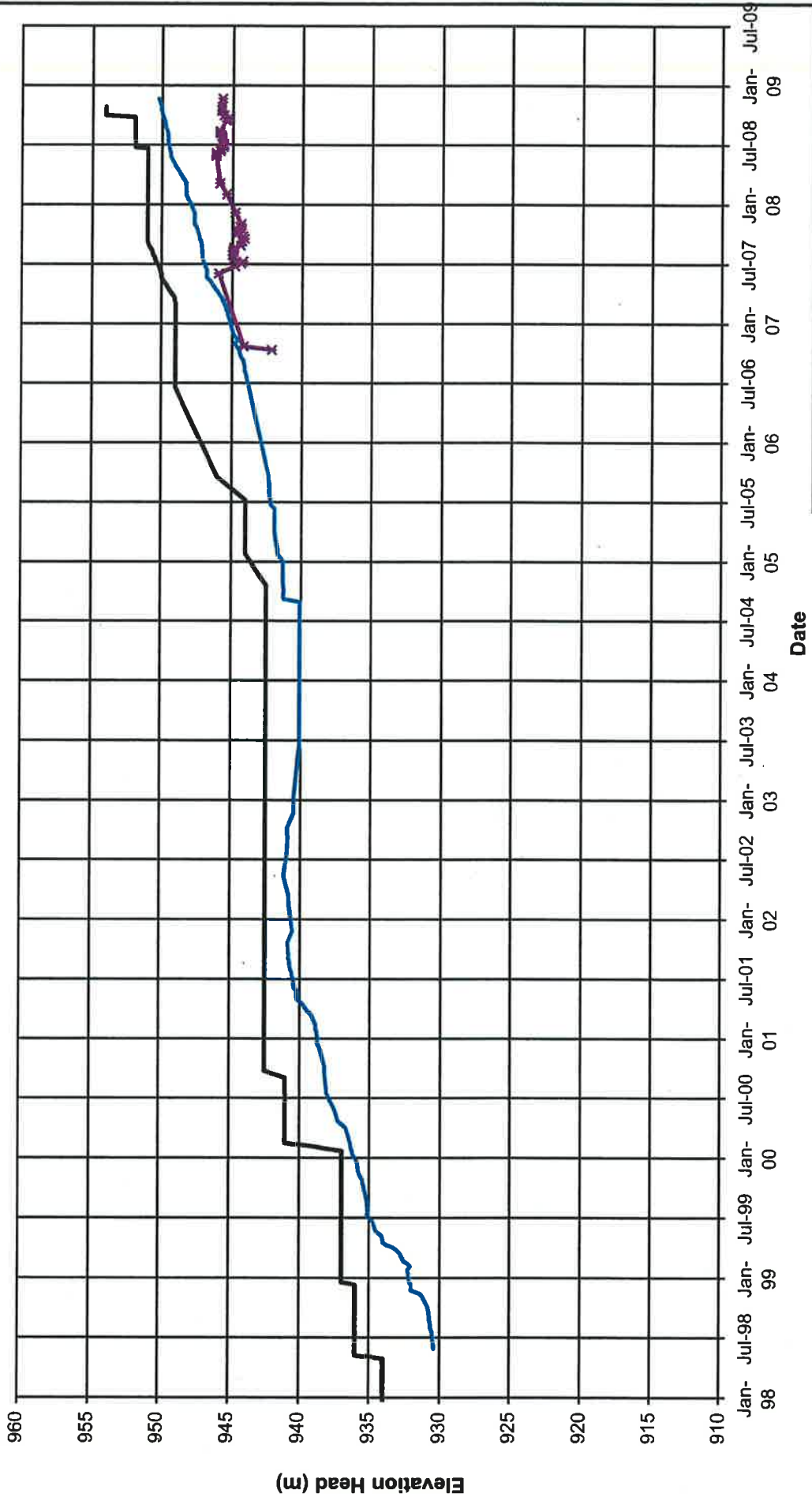
— Pond Level  
- - - D0-PE2-01  
— Fill Elevation

Note:  
Piezometers in parentheses no longer functioning

<b>MOUNT POLLEY MINING CORPORATION</b>	
<b>MOUNT POLLEY MINE</b>	
<b>PLANE D TAILINGS PIEZOMETERS</b>	
<b>ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piésold</i></b>	
<b>CONSULTING</b>	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A1-4</b>	
REV 0	

0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D





Note:  
Piezometers in parentheses no longer functioning

—	Pond Level	—	Fill Elevation
—*	E0-PE2-01		

MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

PLANE E TAILINGS PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piesold**  
CONSULTING

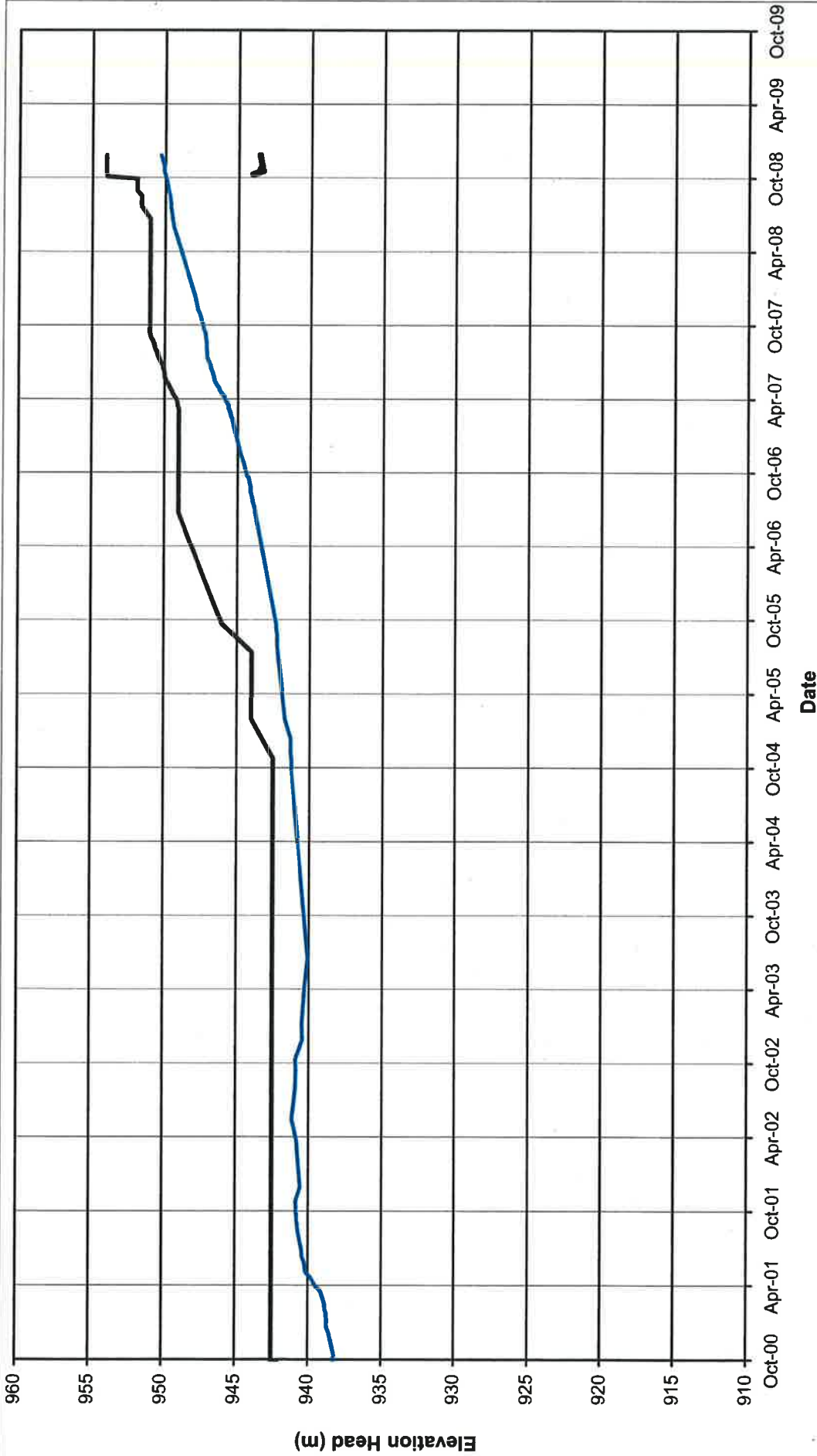
P/A NO.  
VA101-1/24

REF NO.  
1

FIGURE A1-5

REV 0

REV	DATE	DESCRIPTION	JIM	MACS	LJG
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	PREPD	CHKD	APPD

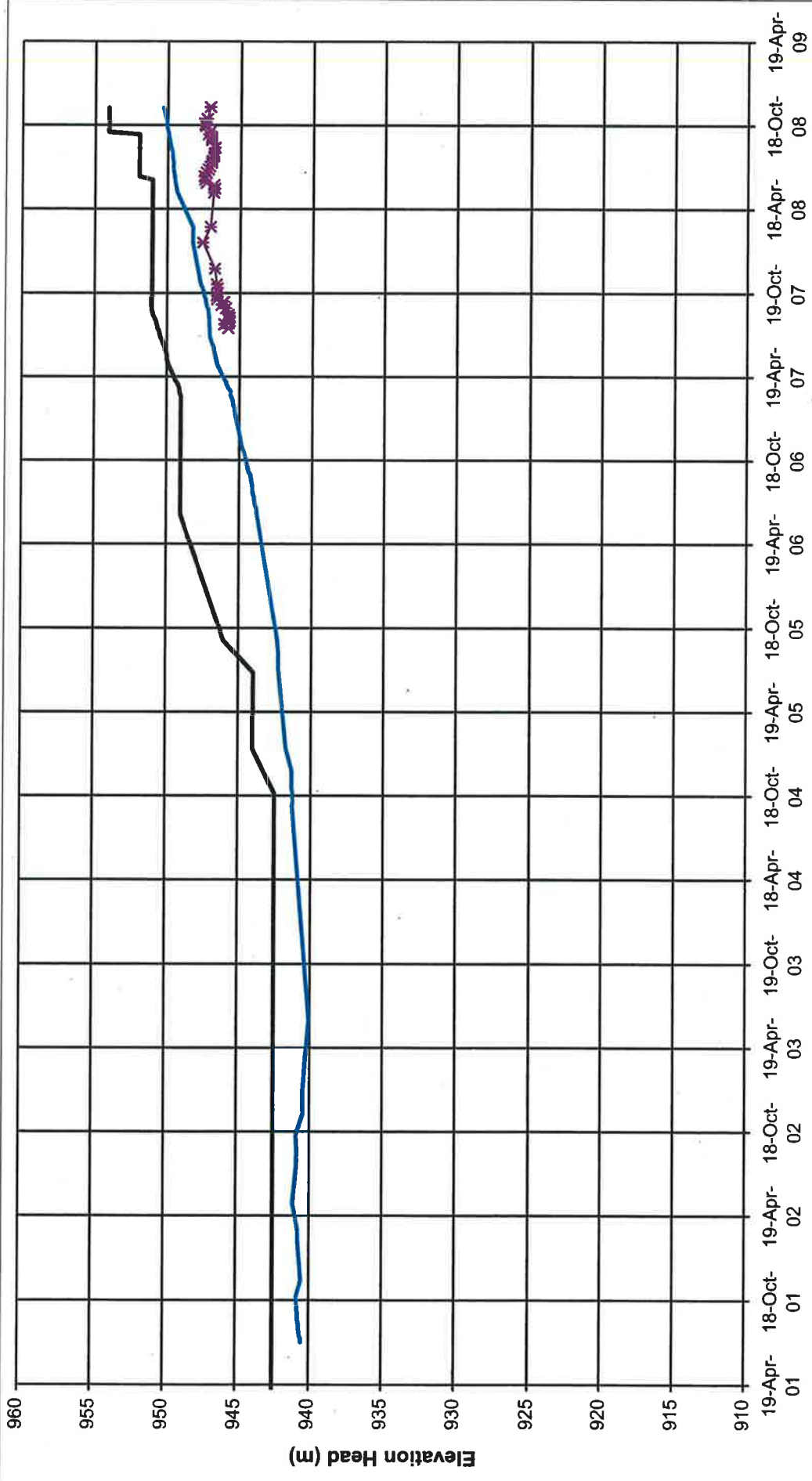


Date



MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE F TAILINGS PIEZOMETERS ELEVATION HEAD vs. TIME	
<b><i>Knight Piésold</i></b> CONSULTING	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A1-6</b>	
REV	0

0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREPD	CHK'D	APP'D



MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

PLANE G TAILINGS PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piésold**  
CONSULTING

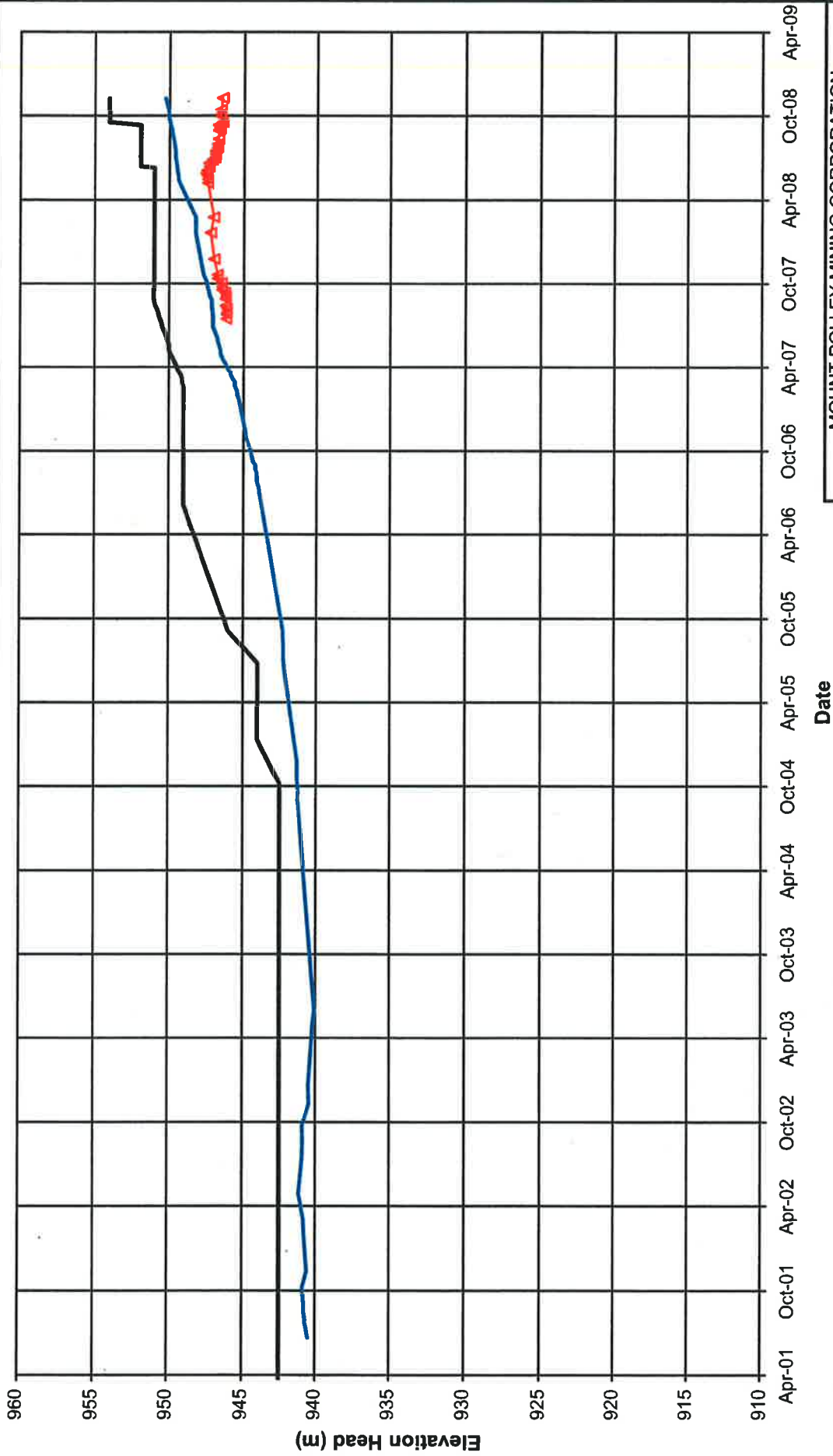
PIA NO. VA101-1/23 REF NO. 1  
REV 0

**FIGURE A1-7**

Legend:

- Pond Level
- Fill Elevation
- \* G0-PE2-01

REV	DATE	ISSUED WITH REPORT VA101-1/24-1	JIM PREP'D	MACS CHK'D	LJG APP'D	DESCRIPTION
0	19DEC08					



Date

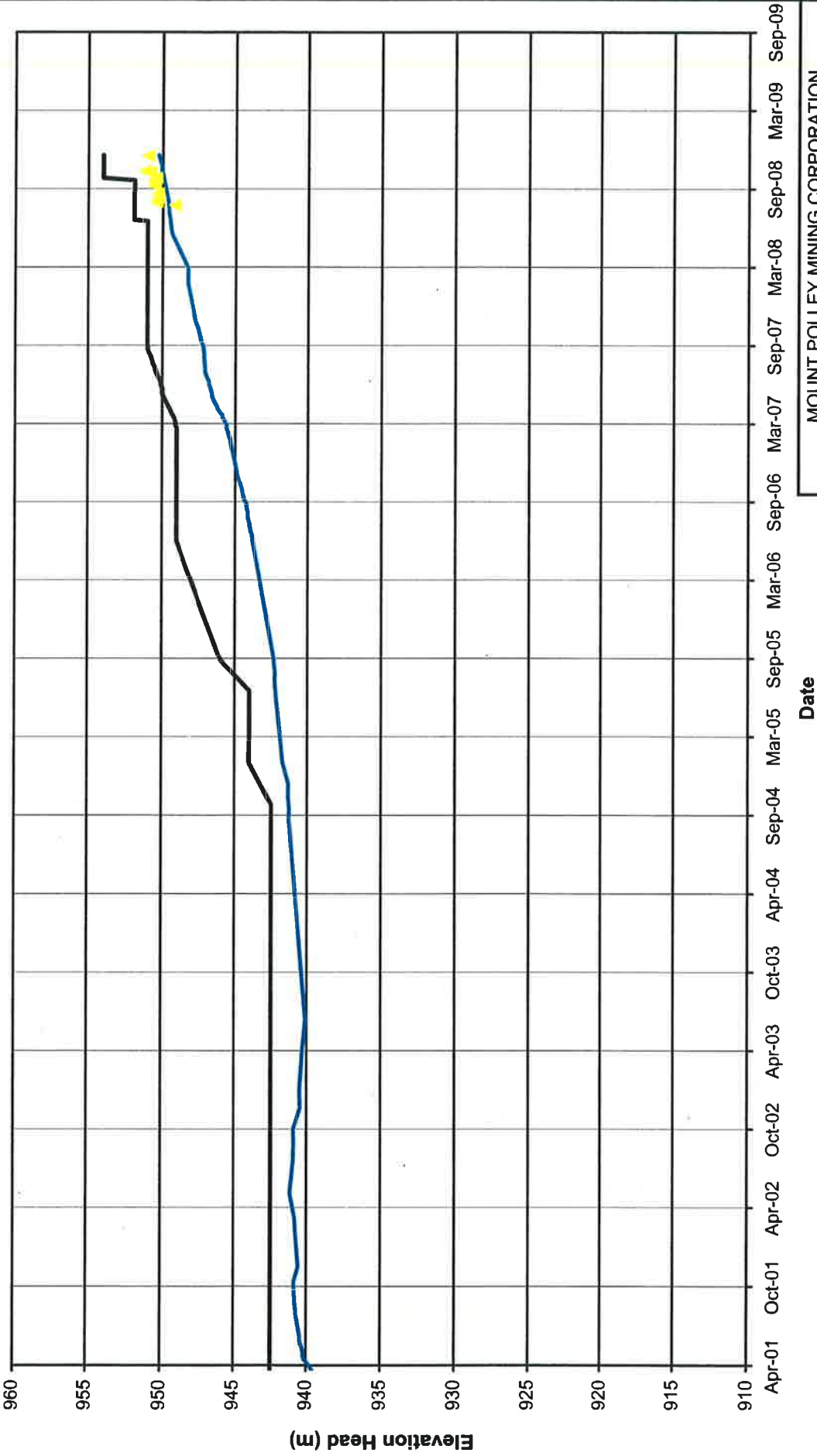


Note:

Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE H TAILINGS PIEZOMETERS ELEVATION HEAD vs. TIME	
<b>Knight Piésold</b> CONSULTING	
P/A NO. VA101-1/24	REF. NO. 1
<b>FIGURE A1-8</b>	
REV 0	REV 0

REV	DATE	DESCRIPTION	JIM PREPD	MACS CHK'D	LJG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



**MOUNT POLLEY MINING CORPORATION**  
MOUNT POLLEY MINE

**PLANE I TAILINGS PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold***  
CONSULTING

P/A NO.  
VA101-1/24

REF NO.  
1

**FIGURE A1-9**

REV  
0

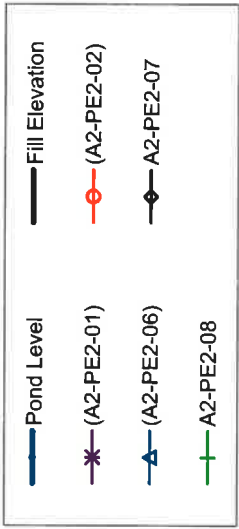
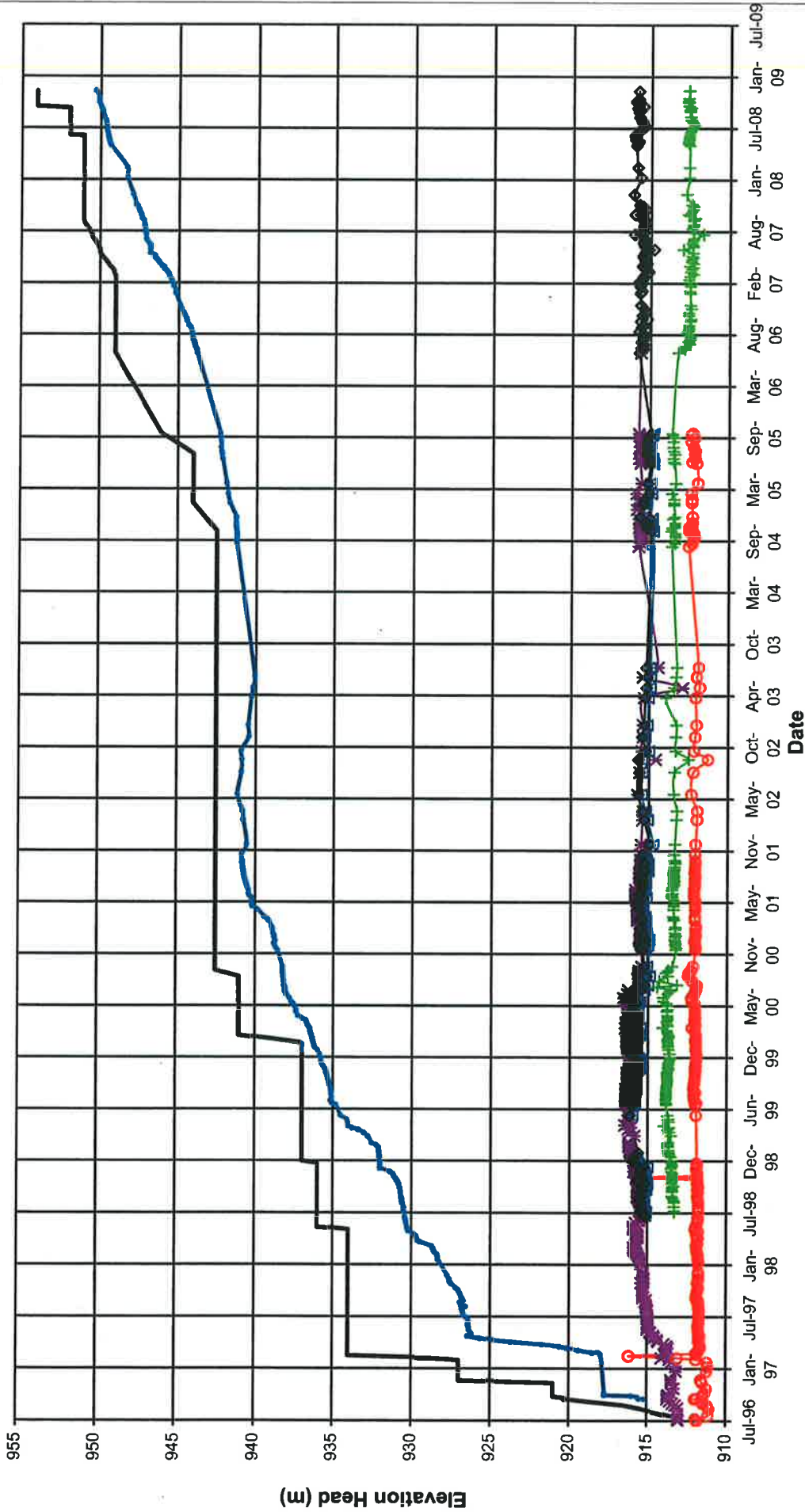
**Date**

— Pond Level      — Fill Elevation

▲ 10-PE2-01

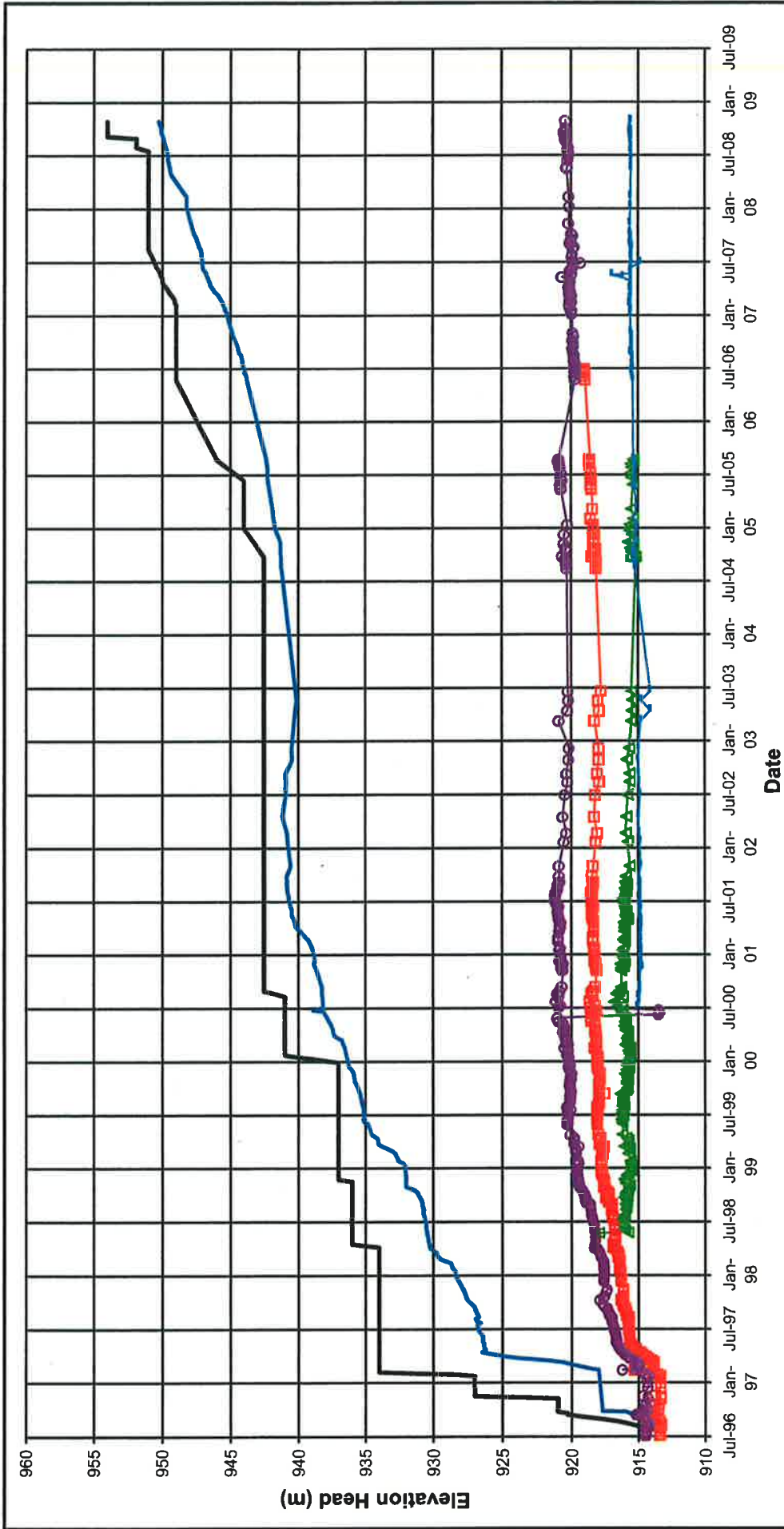
Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	JIM PREPD	MACS CHK'D	LJG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE A FOUNDATION PIEZOMETERS ELEVATION HEAD vs. TIME	
<b><i>Knight Piésold</i></b> CONSULTING	
P/A NO. VA101-1/24-1	REF NO. 1
<b>FIGURE A2-1</b>	
REV 0	REV 0

0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD



**Legend:**

- Pond Level (Blue line)
- Fill Elevation (Black stepped line)
- (B2-PE2-01) (Red squares)
- (B2-PE2-02) (Purple circles)
- (B2-PE1-03) (Green triangles)

Note:  
Piezometers in parentheses no longer functioning

**MOUNT POLLEY MINING CORPORATION**  
MOUNT POLLEY MINE

**PLANE B FOUNDATION PIEZOMETERS**  
ELEVATION HEAD vs. TIME

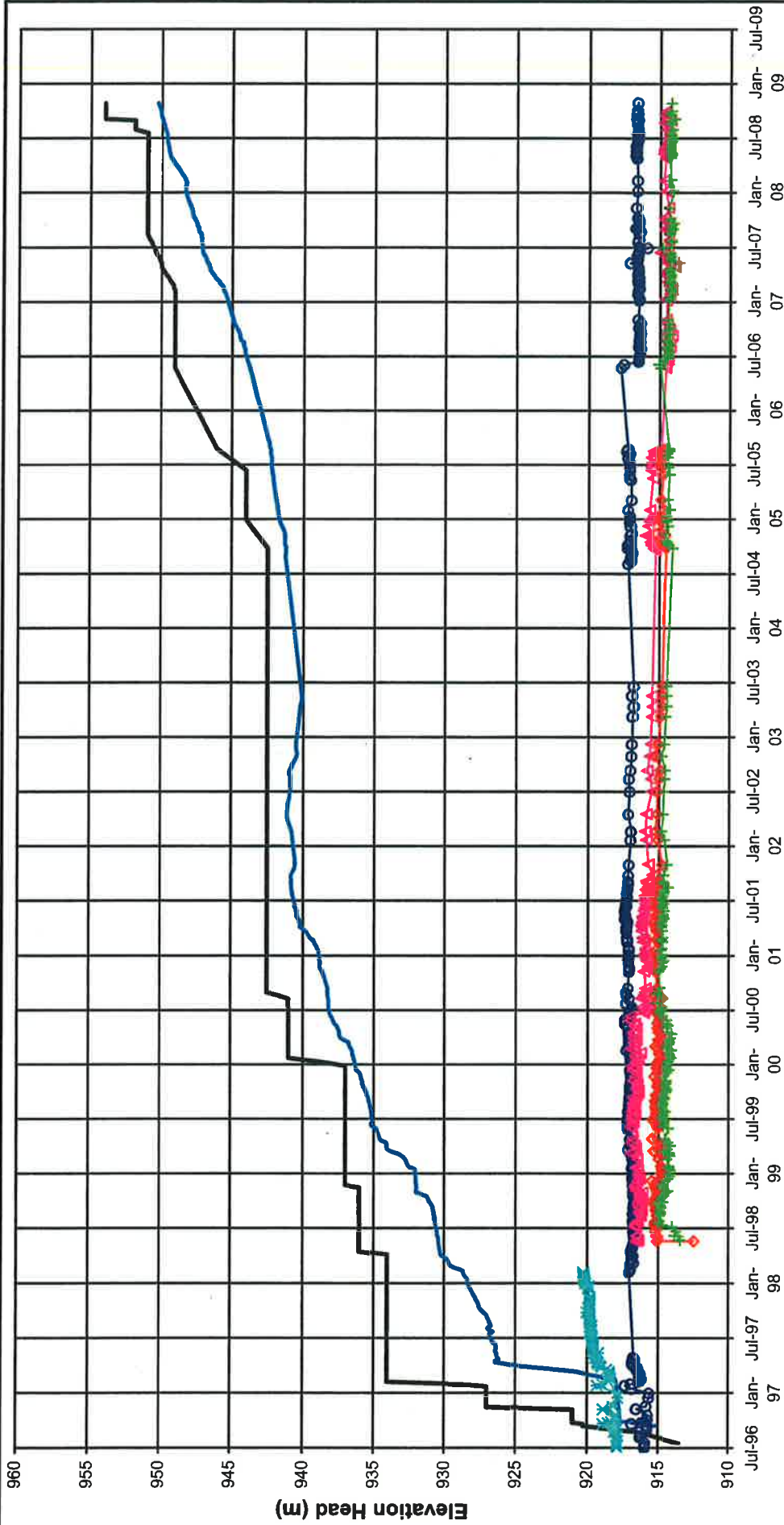
**Knight Piésold**  
CONSULTING

P/A NO. VA101-1/24  
REF. NO. 1

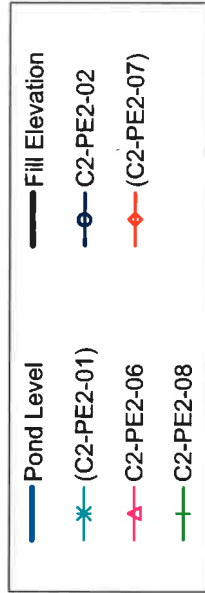
**FIGURE A2-2**

REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG



Date

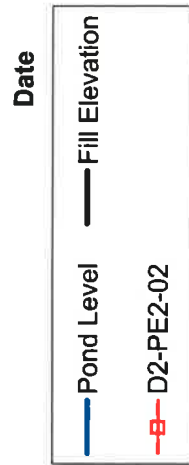
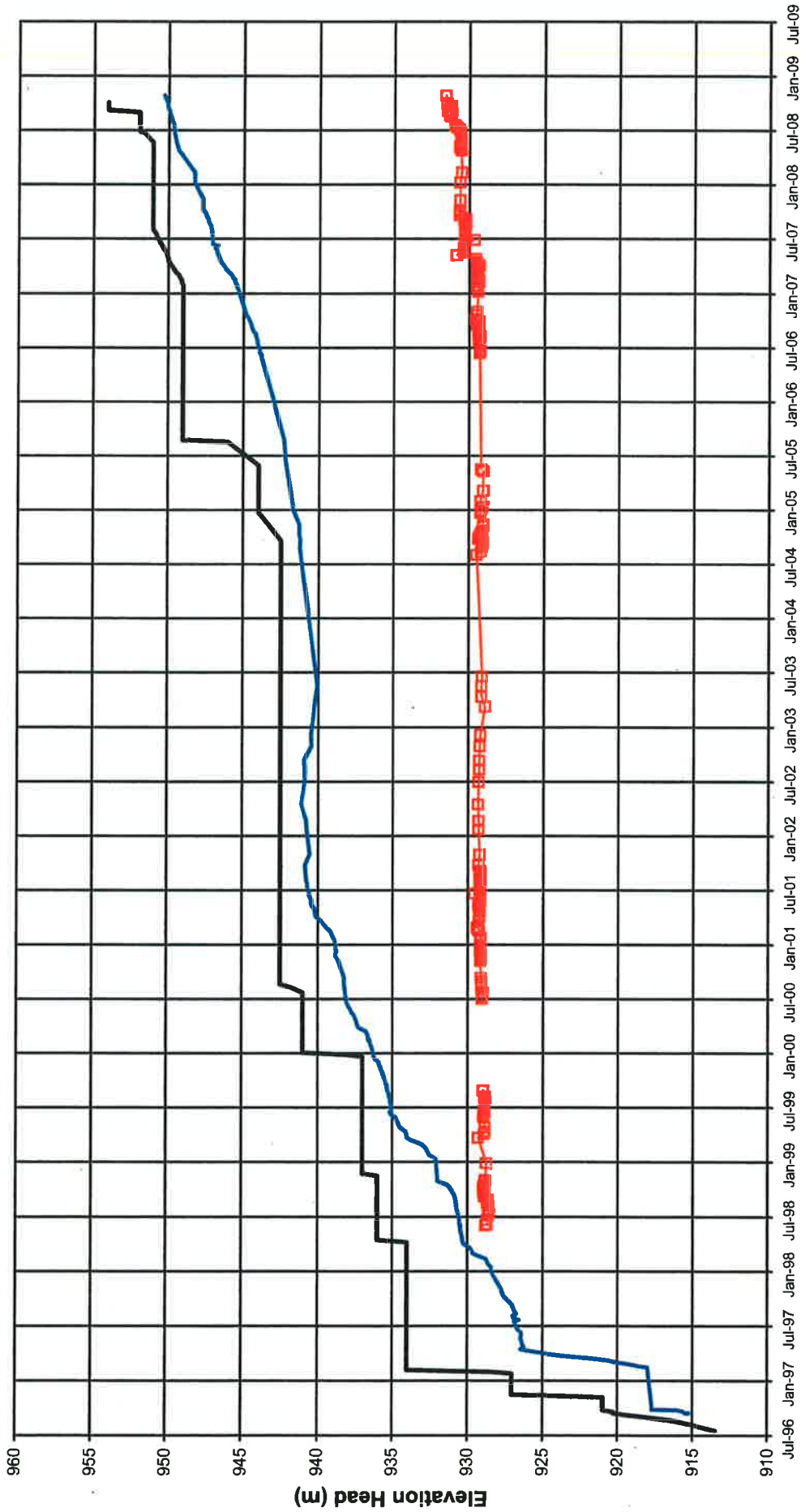


Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE C FOUNDATION PIEZOMETERS ELEVATION HEAD vs. TIME	
<b><i>Knight Piésold</i></b> CONSULTING	
P/A NO. VA101-1/24	REF. NO. 1
FIGURE A2-3	
REV	0

REV	DATE	DESCRIPTION	JIM	MACS	L/JG
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	PREPD	CHKD	APPD

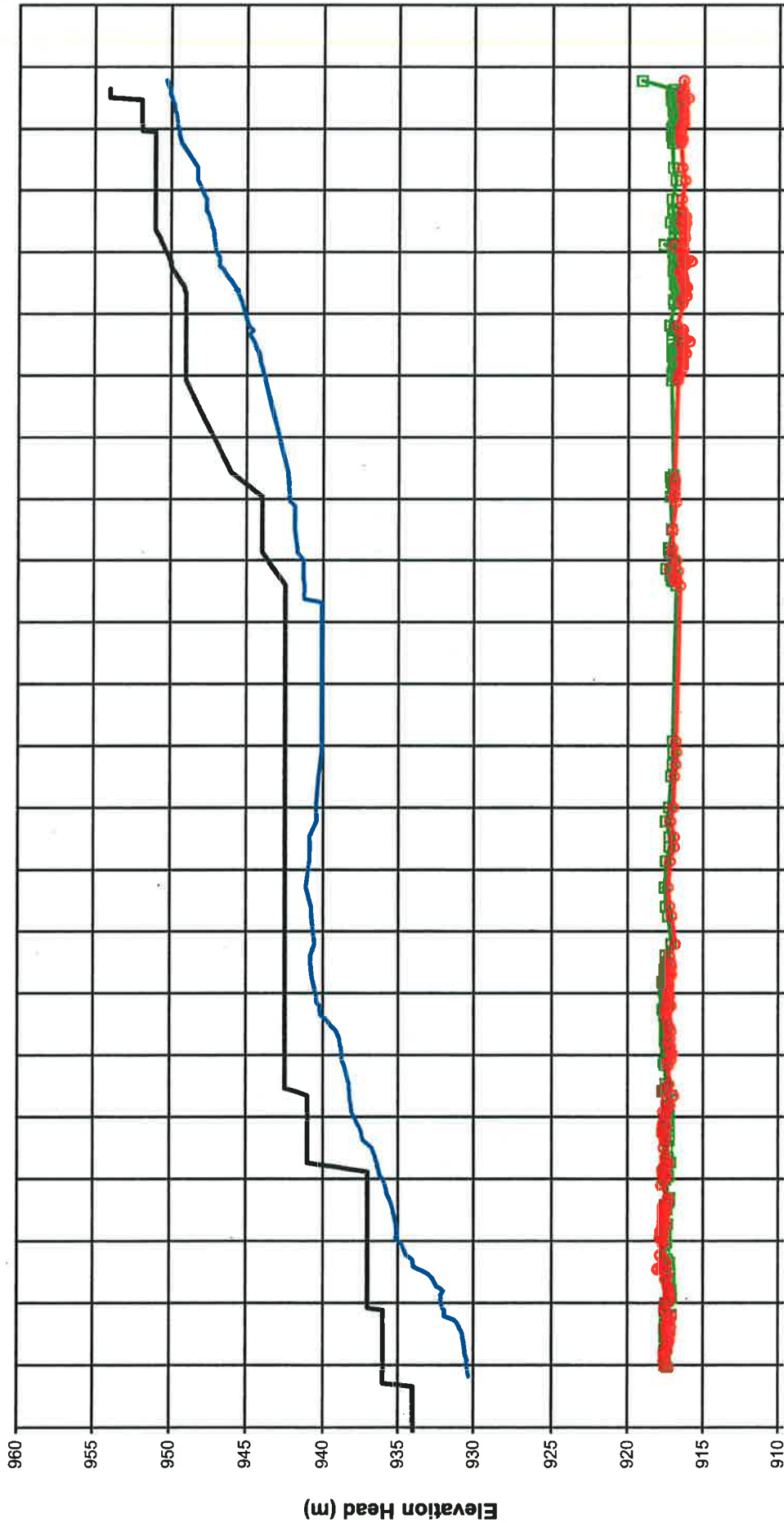




Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	PREP'D	CHK'D	MACS	LIG	APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM				

<b>MOUNT POLLEY MINING CORPORATION</b>	
MOUNT POLLEY MINE	
<b>PLANE D FOUNDATION PIEZOMETERS ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piésold</i> CONSULTING</b>	
PIA NO. VA101-1/24	REF NO. 1
<b>FIGURE A2-4</b>	
REV 0	



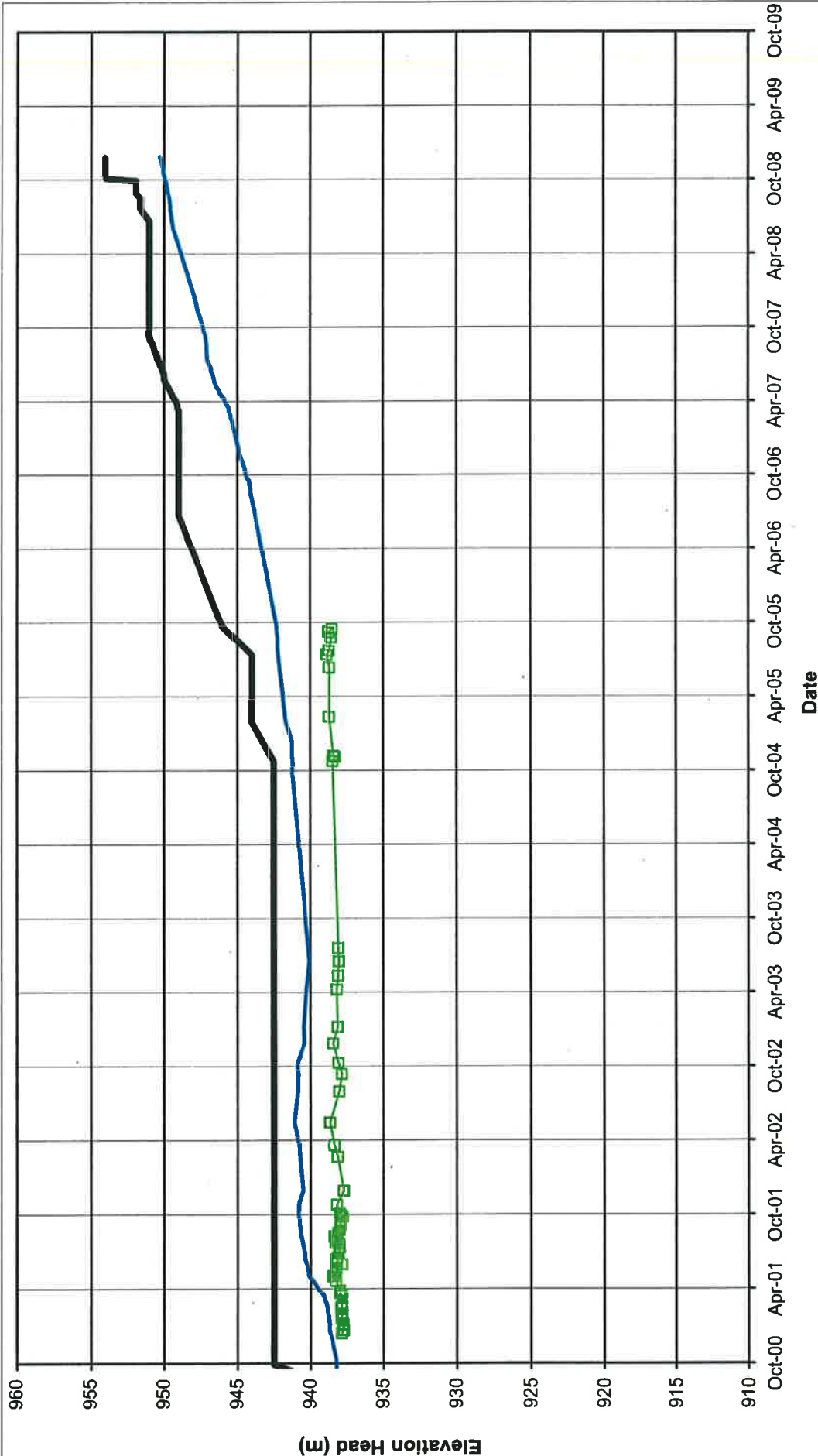
Date

— Pond Level  
— Fill Elevation  
—■ E2-PE2-01  
—● E2-PE2-02

Note:  
Piezometers in parentheses no longer functioning

<b>MOUNT POLLEY MINING CORPORATION</b>	
<b>MOUNT POLLEY MINE</b>	
<b>PLANE E FOUNDATION PIEZOMETERS ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piésold</i> CONSULTING</b>	
P/A NO. VA101-124	REF NO. 1
<b>FIGURE A2-5</b>	
REV 0	REV 0

REV	DATE	ISSUED WITH REPORT VA101-124-1	JIM PREP'D	MACS CHK'D	LIG APP'D
0	19DEC08				
		DESCRIPTION			



Date

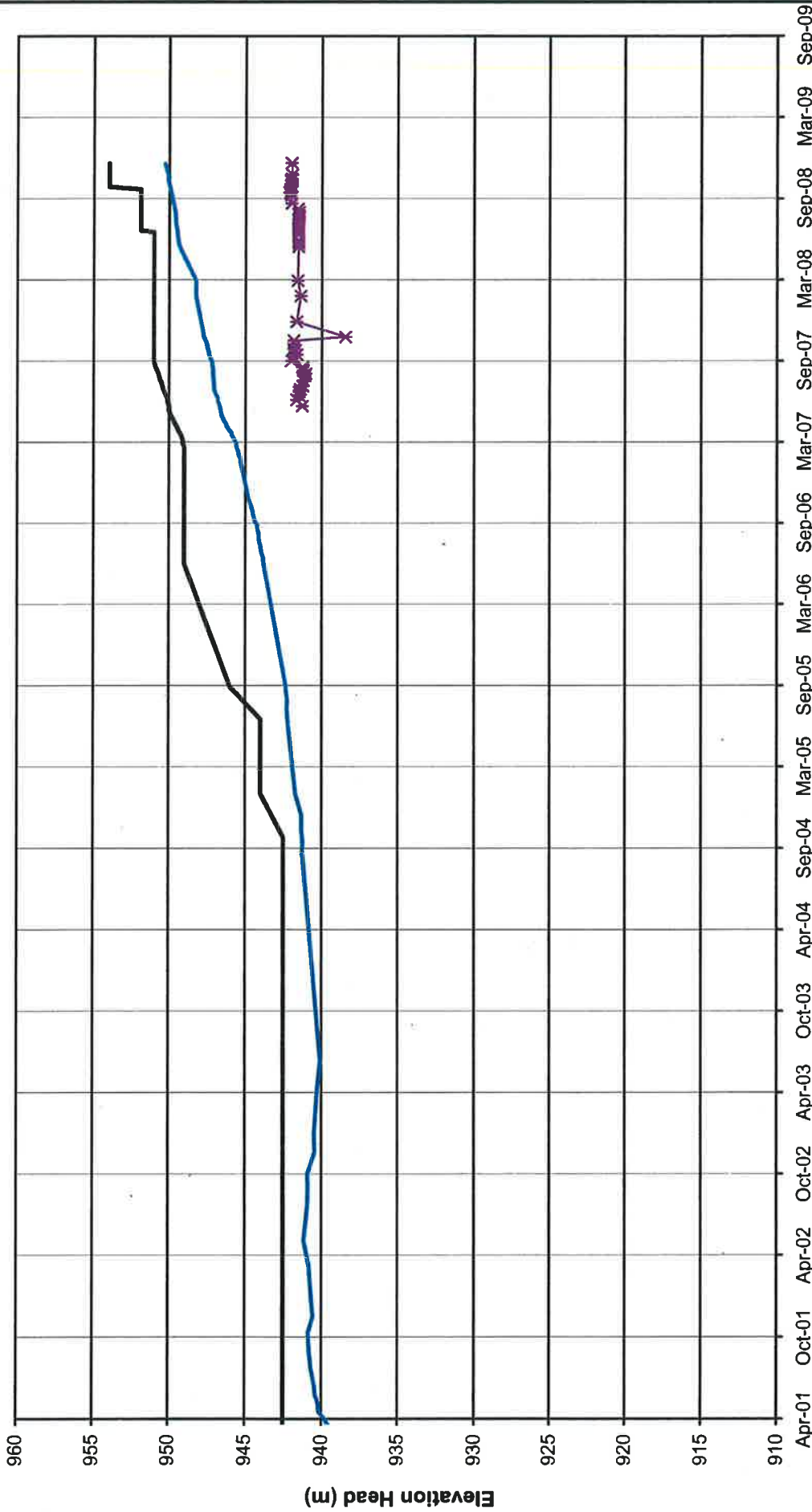
— Pond Level

— Fill Elevation

—□— (F2-PE2-01)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
<b>PLANE F FOUNDATION PIEZOMETERS ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piésold</i> CONSULTING</b>	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A2-6</b>	
REV	REV
0	0

0	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	PREP'D	CHK'D	APP'D
	DESCRIPTION			



MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

**PLANE I FOUNDATION PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold***  
CONSULTING

PIA NO.  
VA101-1/24

REF NO.  
1

**FIGURE A2-7**

REV  
0

**Date**

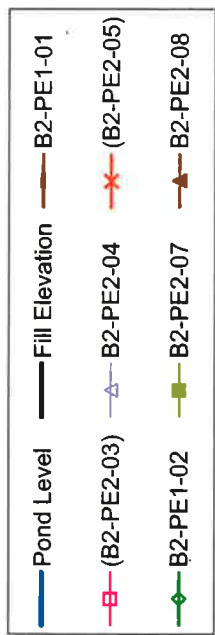
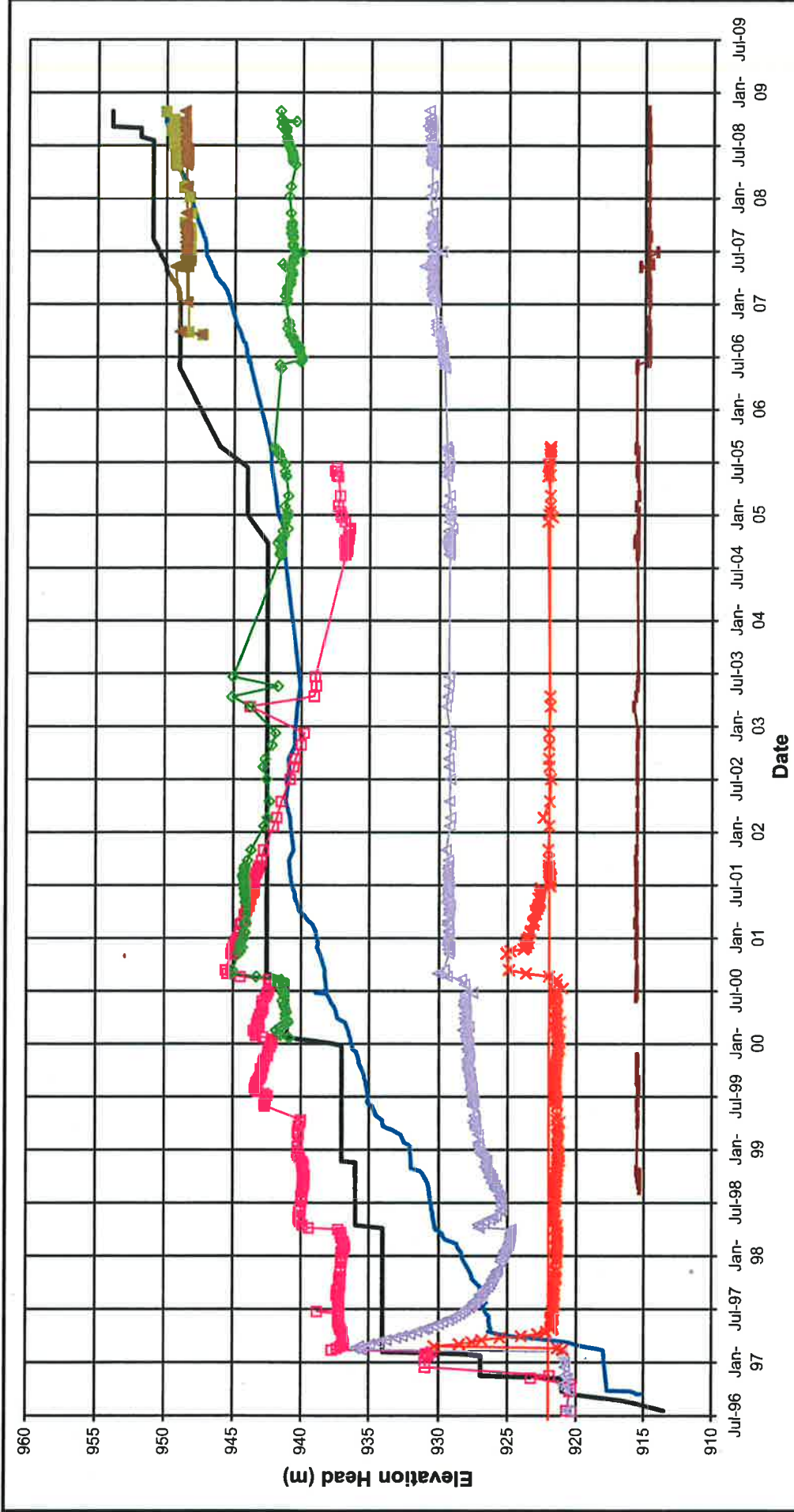
— Pond Level      — Fill Elevation

—\*— I2-PE2-03

Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	JIM PREPD	MACS CHKD	LJG APPD
0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1			

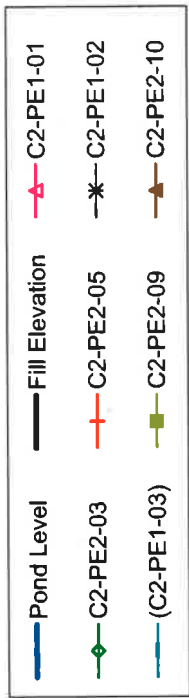
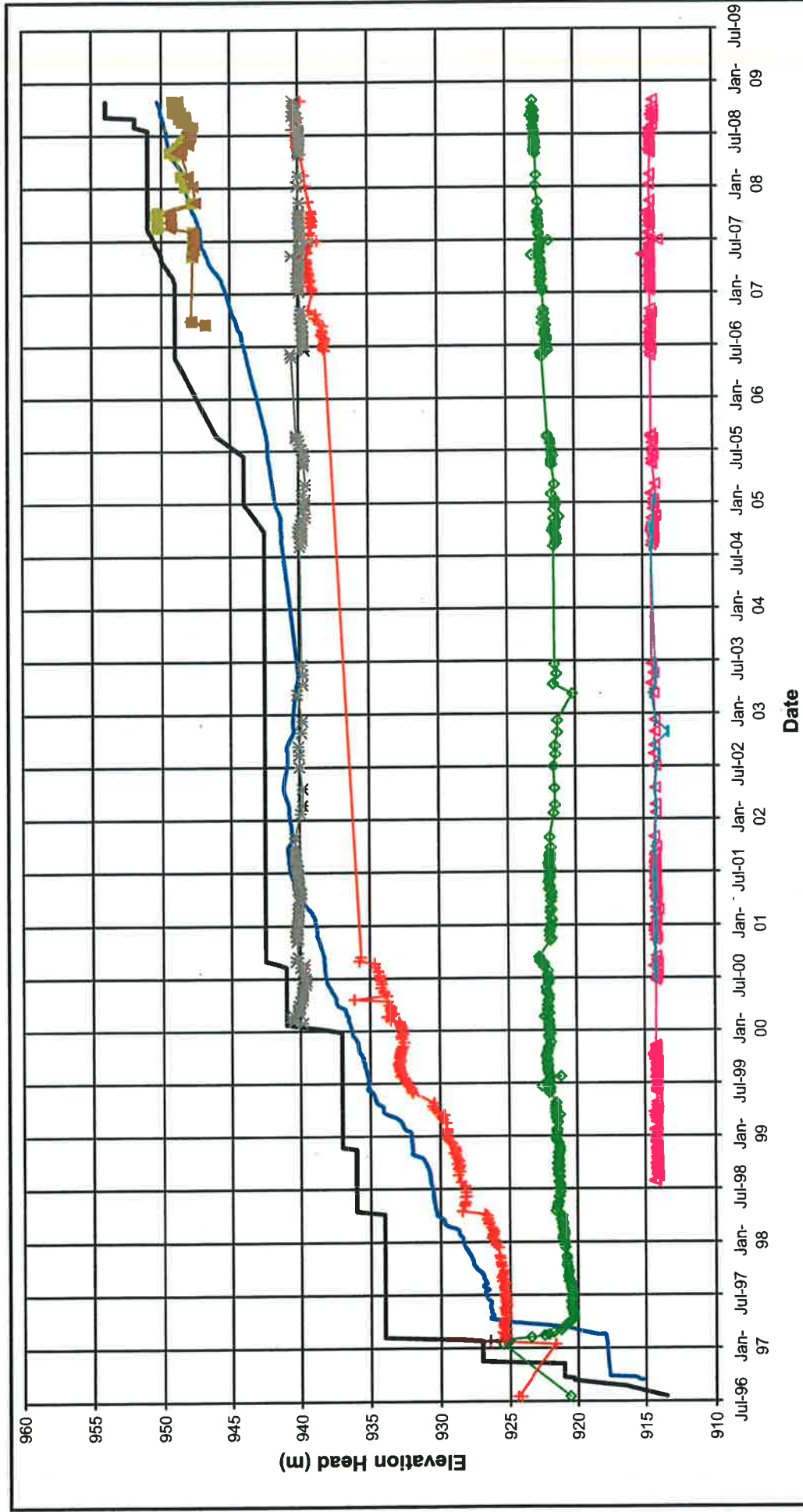




Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE B FILL PIEZOMETERS ELEVATION HEAD vs. TIME	
<b>Knight Piésold</b> CONSULTING	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A3-2</b>	
REV 0	REV 0

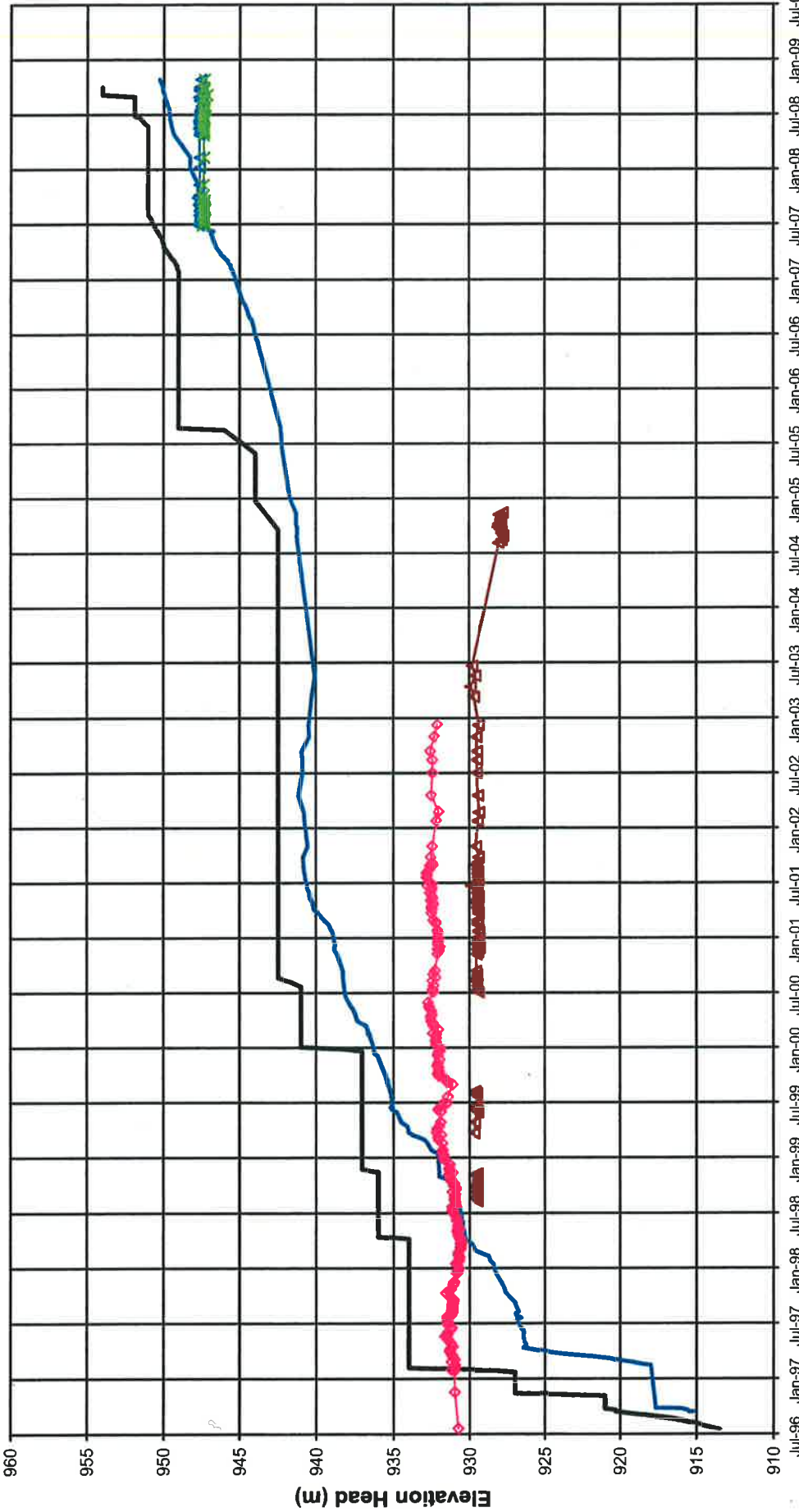
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE C FILL PIEZOMETERS ELEVATION HEAD vs. TIME	
<b>Knight Piésold</b> CONSULTING	
P/A NO. VA101-1/24-1	REF NO. 1
<b>FIGURE A3-3</b>	
REV	REV
0	0

0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD



Date

- Pond Level
- Fill Elevation
- (D2-PE1-01)
- (D2-PE2-04)

Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

PLANE D FILL PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piésold**  
CONSULTING

P/A NO.  
VA101-1/24

REF NO.  
1

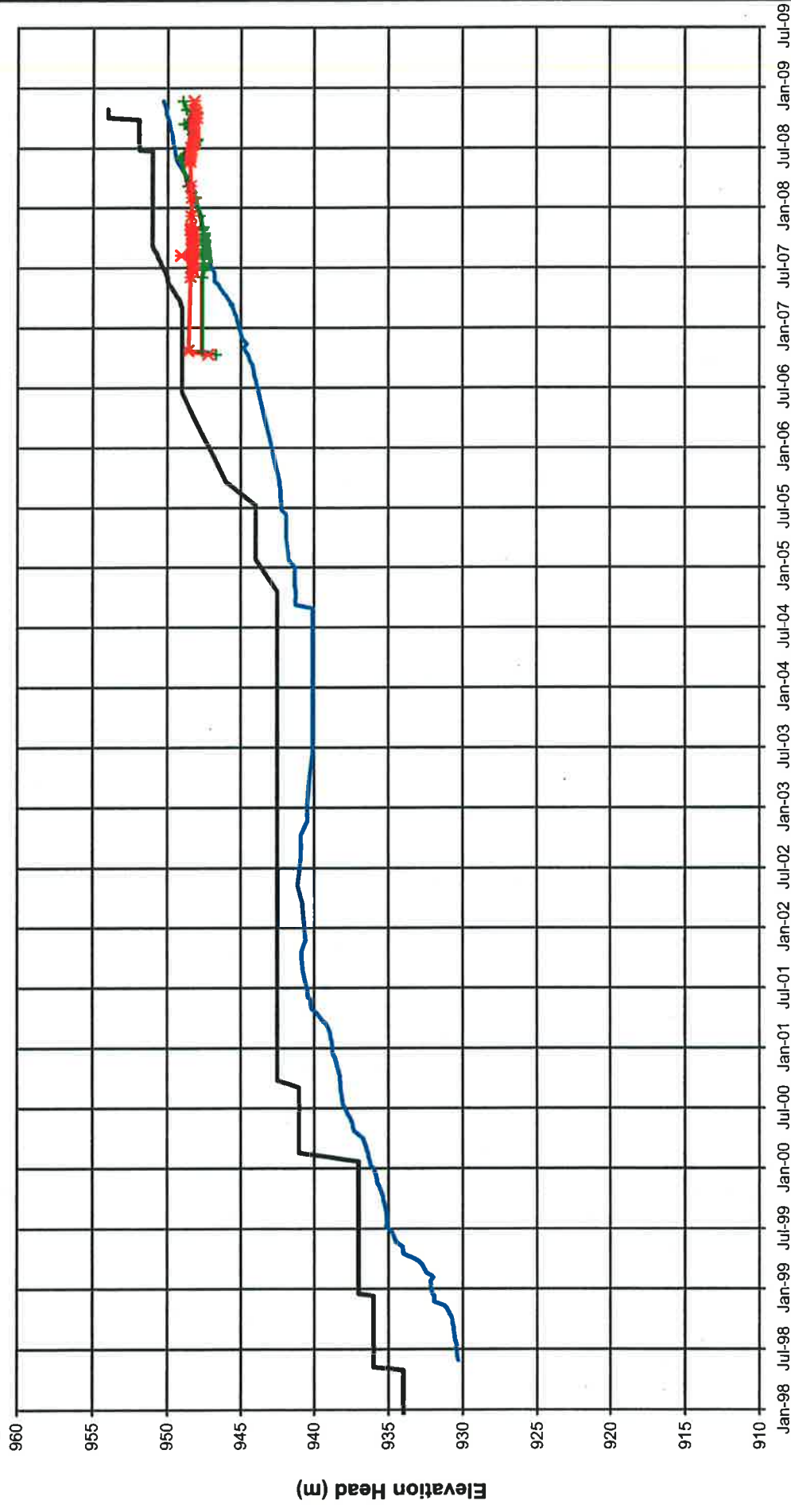
FIGURE A3-4

REV

0

REV	DATE	DESCRIPTION	JIM PREP'D	MACS CHK'D	LG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			





**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**PLANE E FILL PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold*  
CONSULTING**

P/A NO.  
VA101-1/24

REF NO.  
1

**FIGURE A3-5**

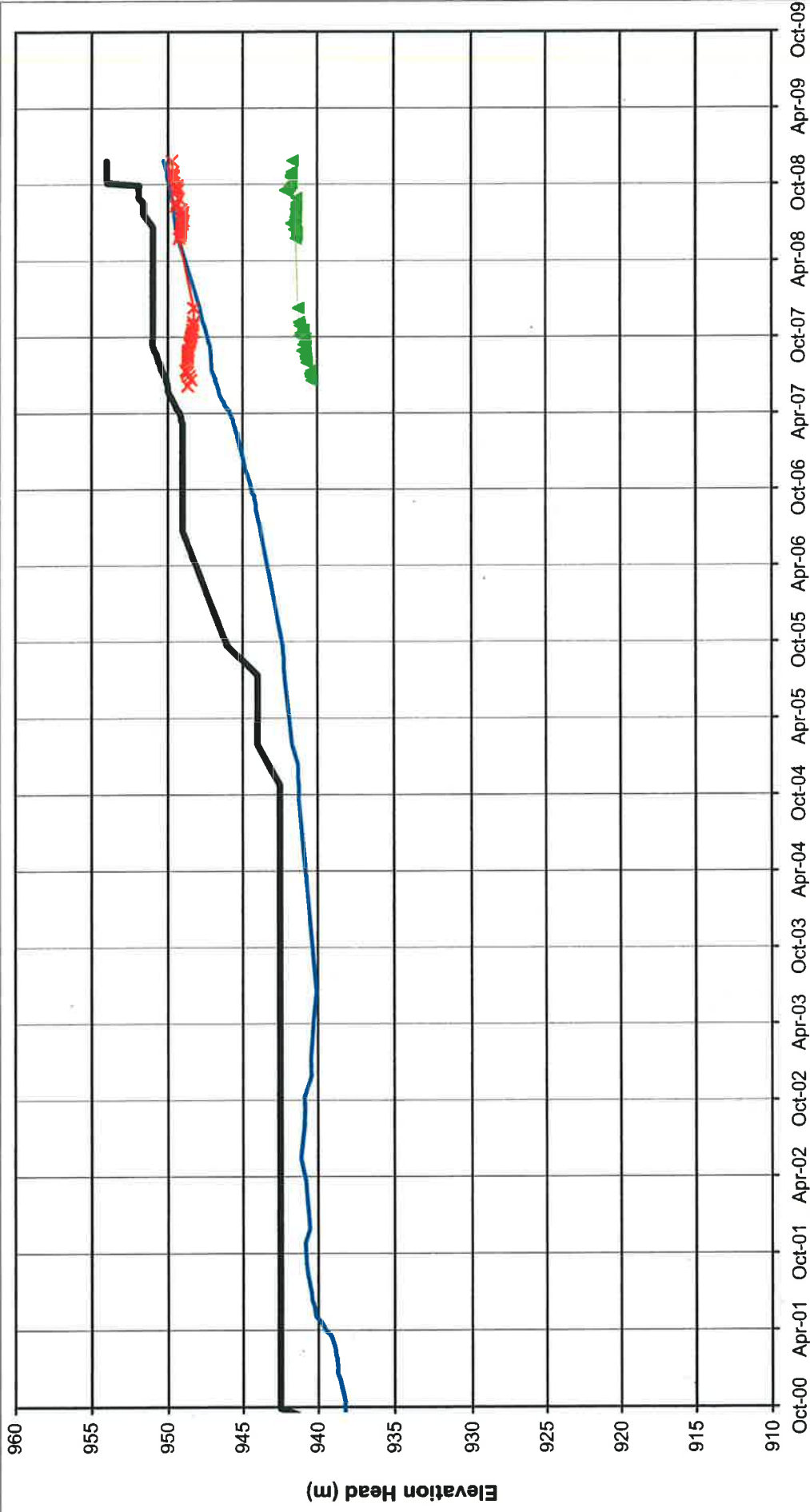
REV  
0

**Date**

- Pond Level
- Fill Elevation
- + E2-PE2-03
- \* E2-PE2-04

Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG



**Legend**

- Pond Level (Blue line)
- Fill Elevation (Black line)
- F2-PE2-02 (Red line with 'x' markers)
- F2-PE2-03 (Green line with triangle markers)

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

PLANE F FILL PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knights Piesold**  
CONSULTING

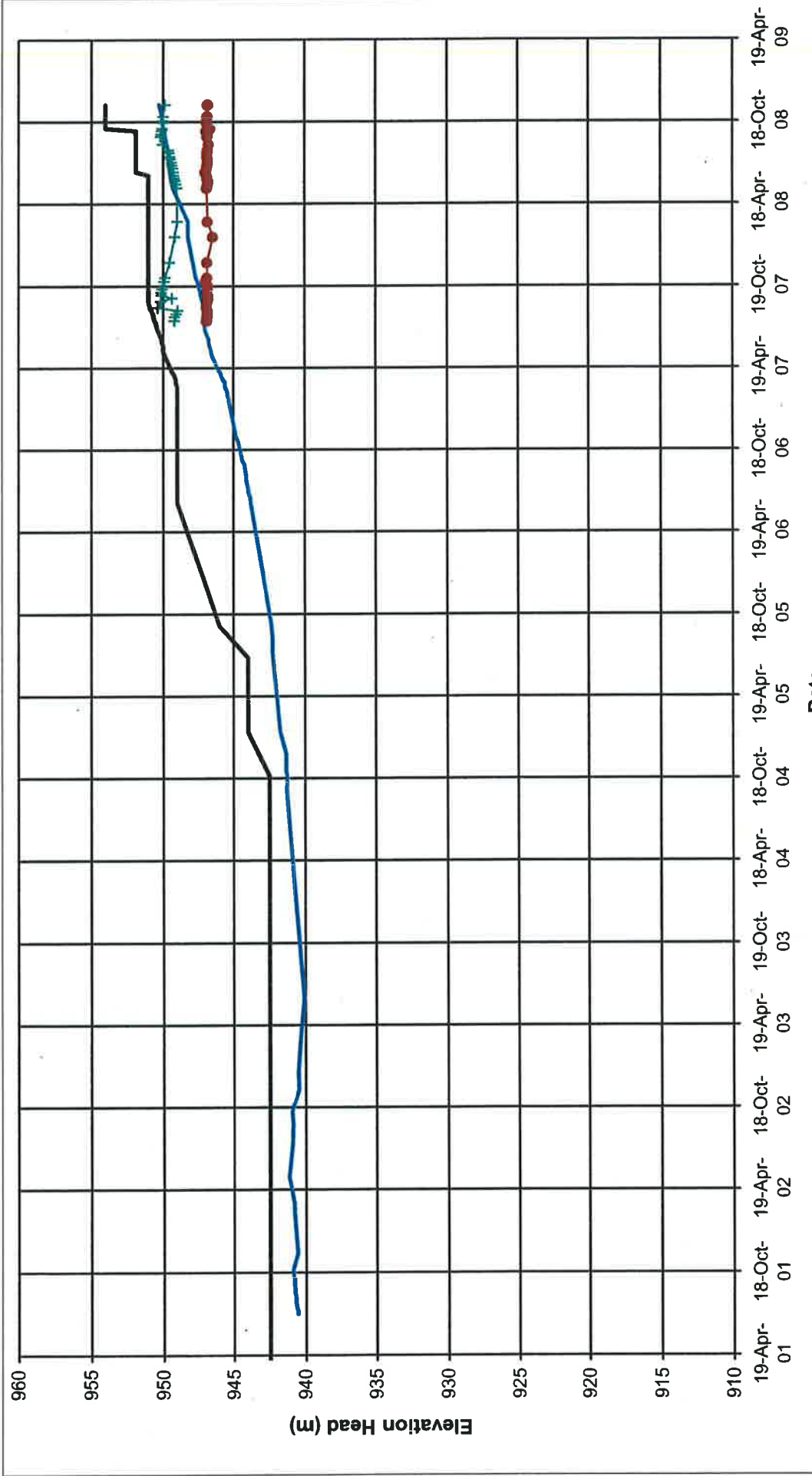
P/A NO.  
VA101-1/24

REF NO.  
1

**FIGURE A3-6**

REV 0

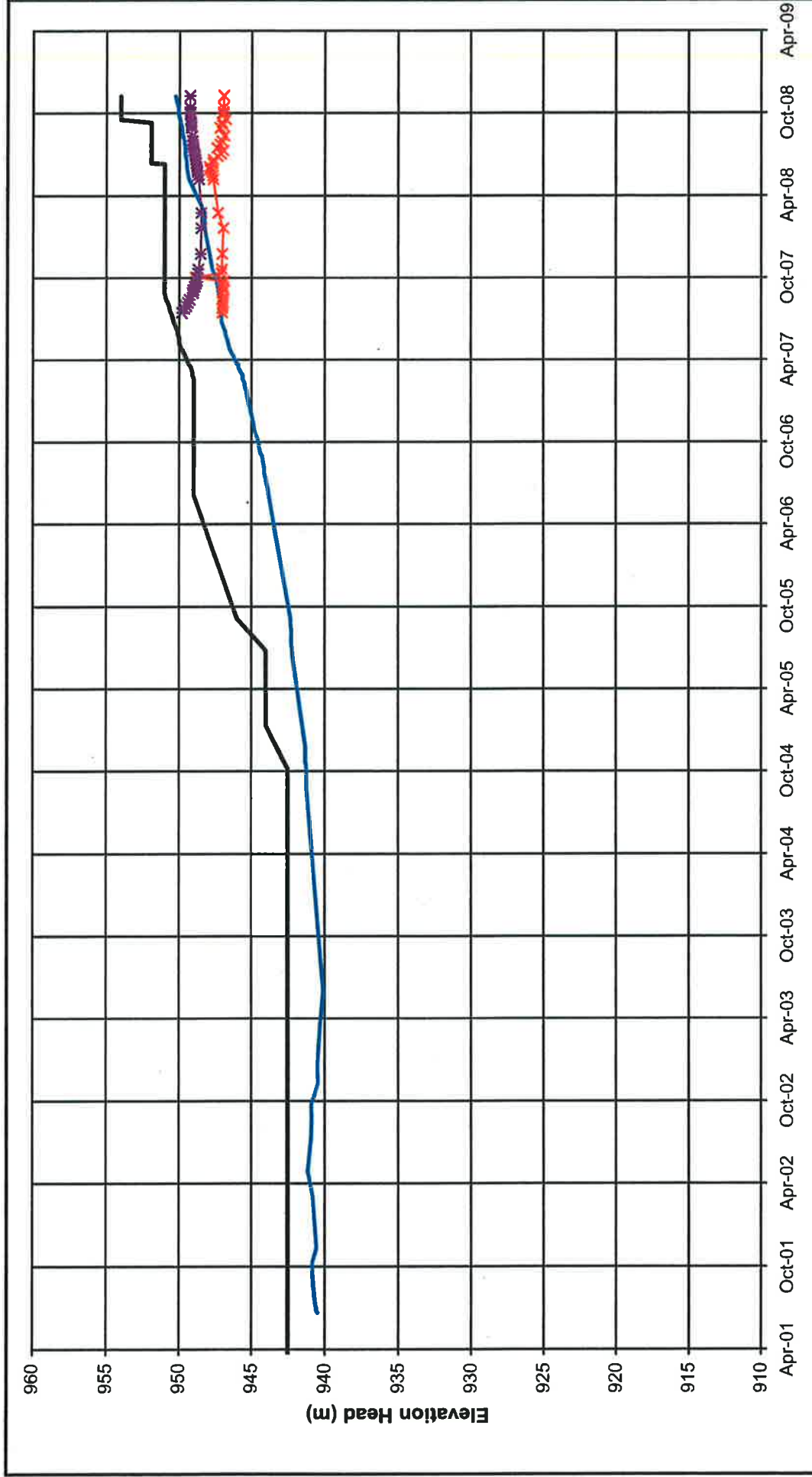
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



<b>MOUNT POLLEY MINING CORPORATION</b>	
MOUNT POLLEY MINE	
<b>PLANE G FILL PIEZOMETERS ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piésold</i></b> CONSULTING	
P/A NO. VA101-1/23	REF NO. 1
<b>FIGURE A3-7</b>	
REV 0	

REV	DATE	ISSUED WITH REPORT VA101-1/24-1	JIM PREP'D	MACS CHK'D	LIG APP'D
0	19DEC'08	DESCRIPTION			



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**PLANE H FILL PIEZOMETERS  
ELEVATION HEAD VS. TIME**

***Knight Piésold***  
CONSULTING

P/A NO.  
VA101-1/24

REF NO.  
1

**FIGURE A3-8**

REV  
0

**Date**

— Pond Level

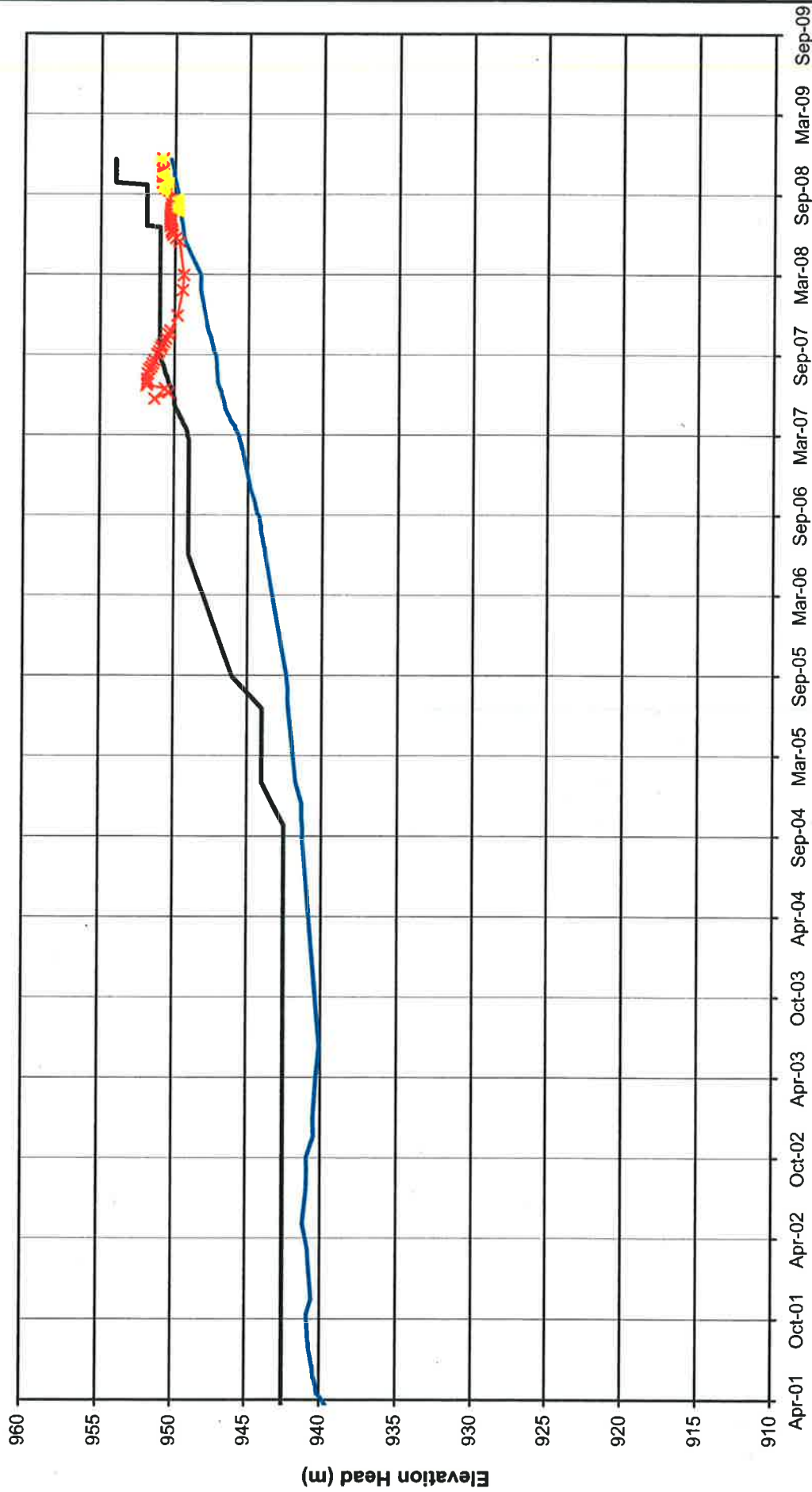
— Fill Elevation

—\*— H2-PE2-01

—\*— H2-PE2-02

Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	JIM PREP'D	MACS CHK'D	LIG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**PLANE I FILL PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold*  
CONSULTING**

P/A NO.  
VA101-1/24

REF NO.  
1

**FIGURE A3-9**

REV  
0

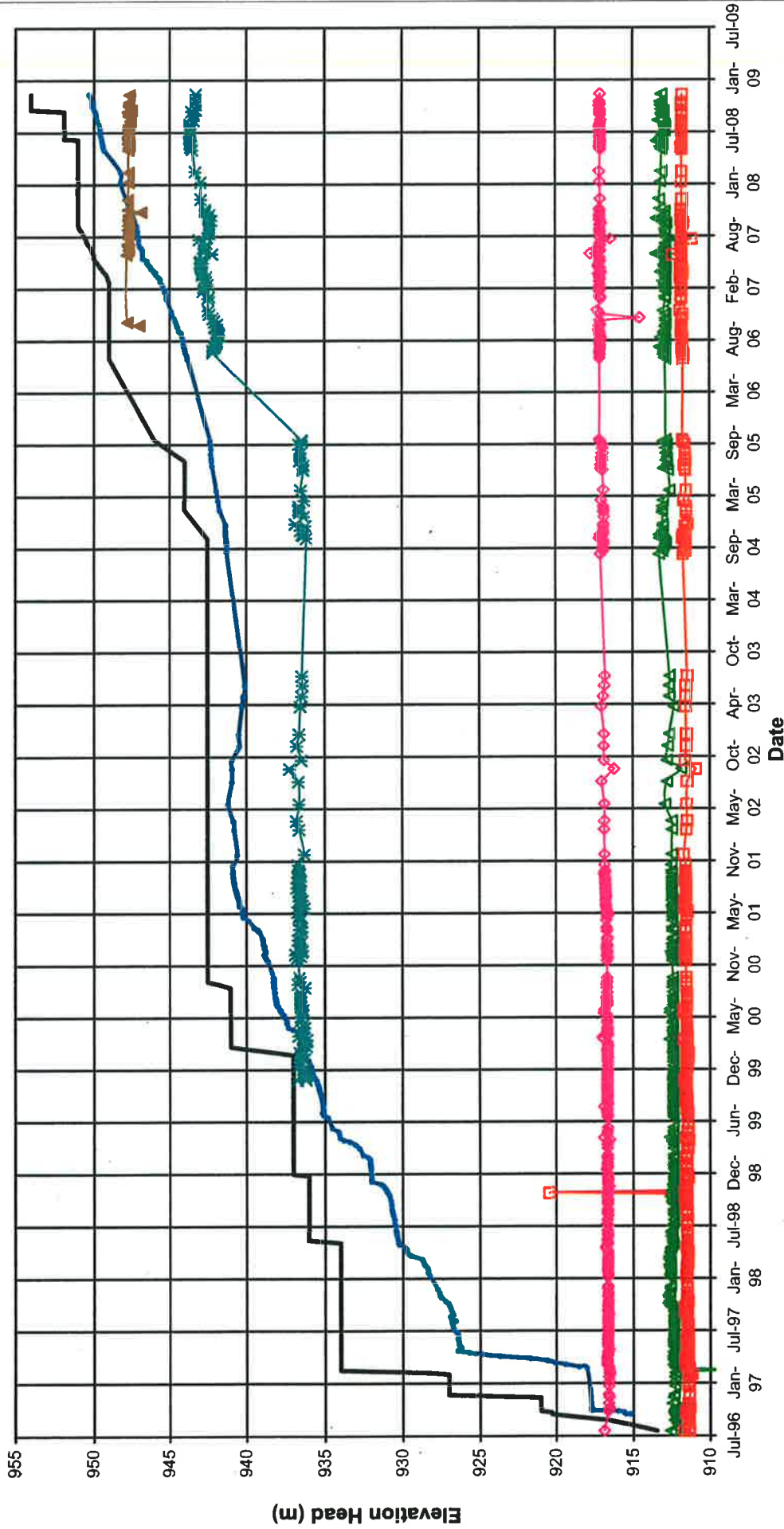
**Date**

— Pond Level      — Fill Elevation

—\*— I2-PE2-02      ▲ I2-PE2-01

Note:  
Piezometers in parentheses no longer functioning

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG



MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE

PLANE A DRAIN PIEZOMETERS  
ELEVATION HEAD vs. TIME

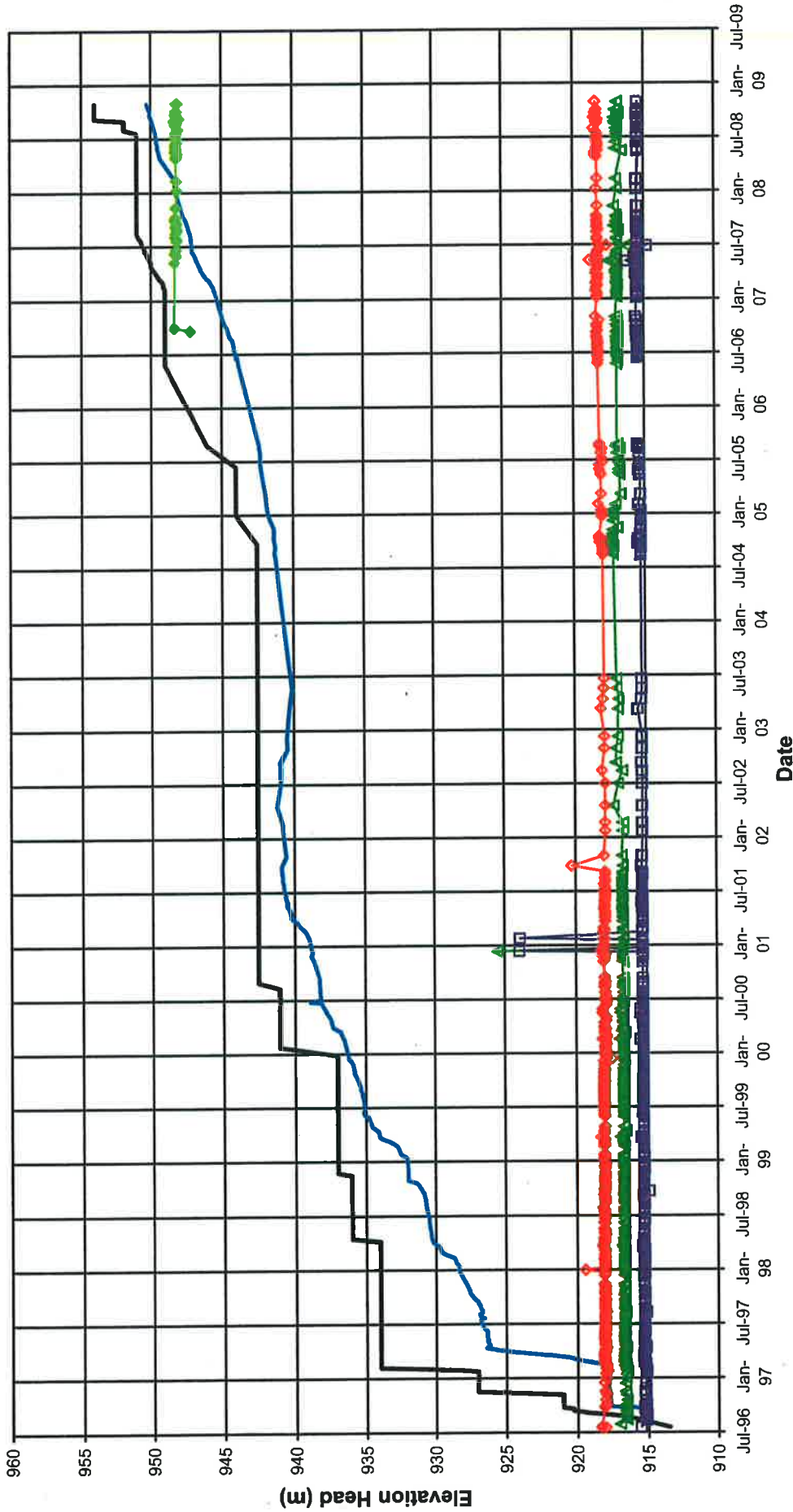
**Knight Piésold**  
CONSULTING

PIA NO. VA101-1/23  
REF NO. 1

FIGURE A4-1

REV 0

0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LIG
REV	DATE	DESCRIPTION	PREPD	CHK'D	APPD



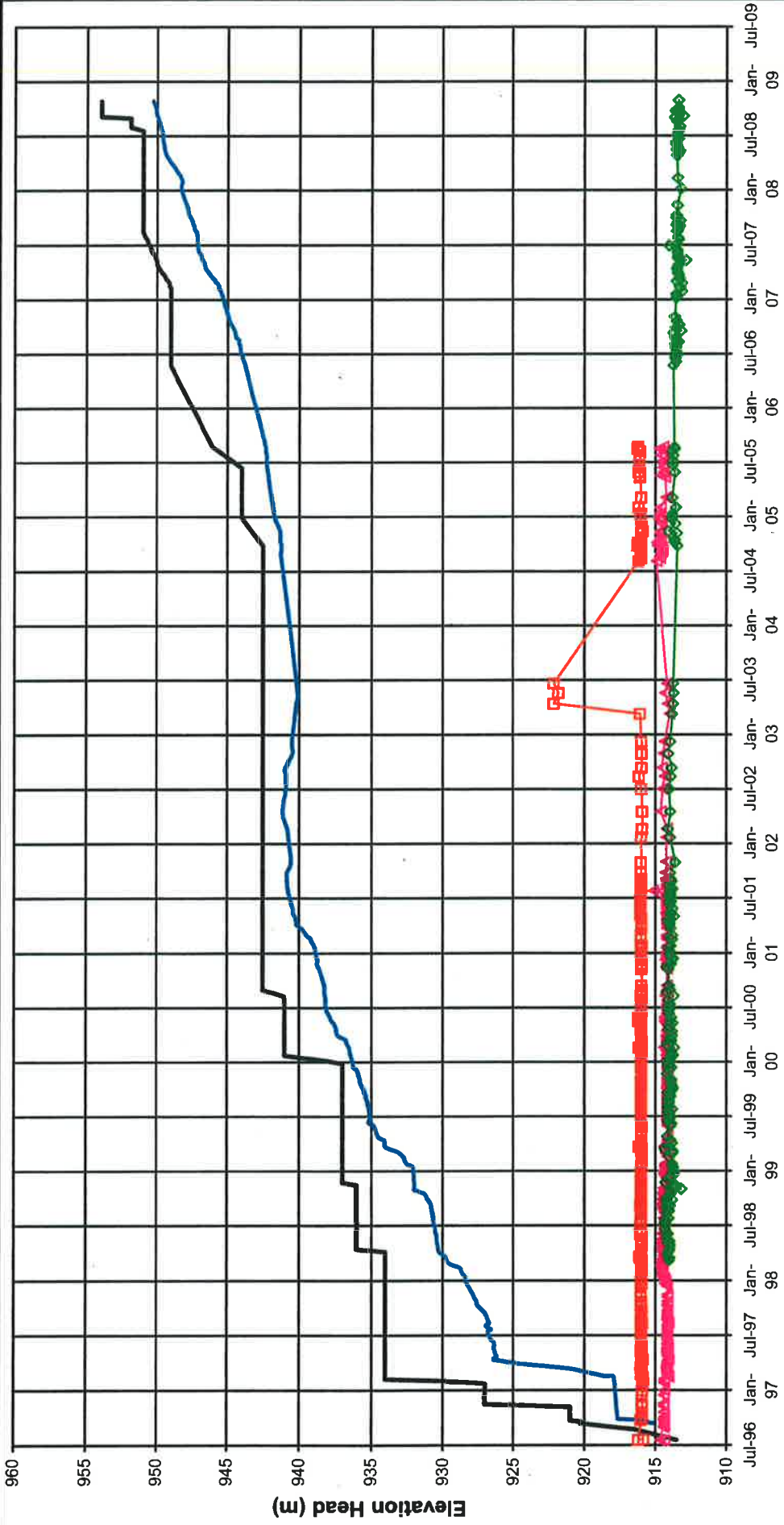
Date

— Pond Level	— Fill Elevation
—▲ B1-PE1-01	—■ B1-PE1-02
—◇ B1-PE1-03	—◇ B1-PE1-04

Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE B DRAIN PIEZOMETERS ELEVATION HEAD vs. TIME	
<b>Knight Piesold</b> CONSULTING	
P/A NO. VA101-1/24	REF. NO. 1
FIGURE A4-2	
REV 0	REV 0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG



Date

Legend:

- Pond Level (Blue line with diamond markers)
- Fill Elevation (Black line with square markers)
- (C1-PE1-01) (Red line with triangle markers)
- (C1-PE1-02) (Pink line with square markers)
- C1-PE1-04 (Green line with diamond markers)

Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

PLANE C DRAIN PIEZOMETERS  
ELEVATION HEAD vs. TIME

**Knight Piésold**  
CONSULTING

P/A NO.  
VA101-1/24-1

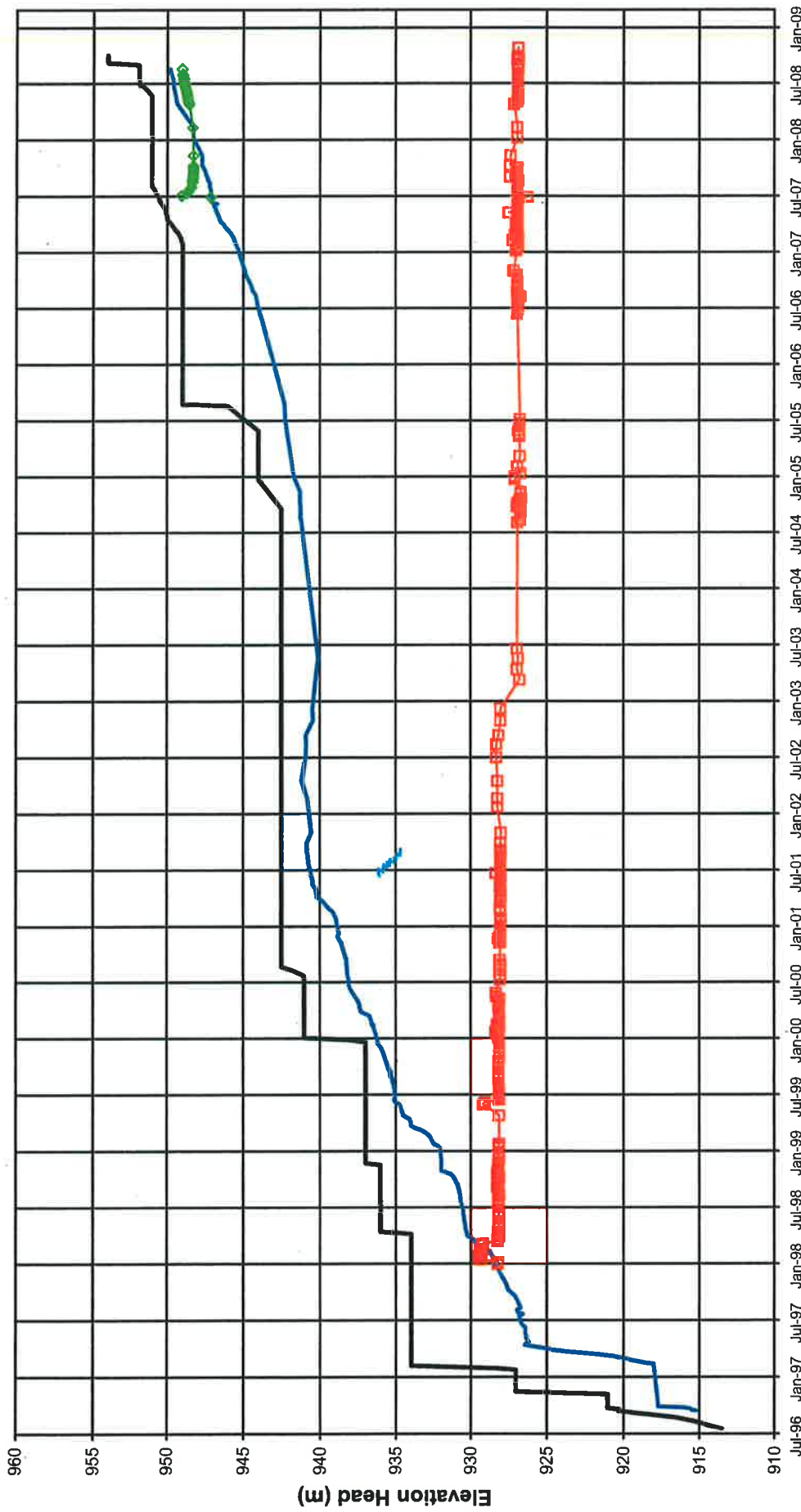
REF NO.  
1

**FIGURE A4-3**

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D	LJG
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS		
			PREP'D	CHK'D	APP'D	

REV 0





Date

— Pond Level  
— D1-PE1-02  
— D1-PE1-04  
— Fill Elevation  
— (D1-PE1-03)

Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION

MOUNT POLLEY MINE

**PLANE D DRAIN PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold***  
CONSULTING

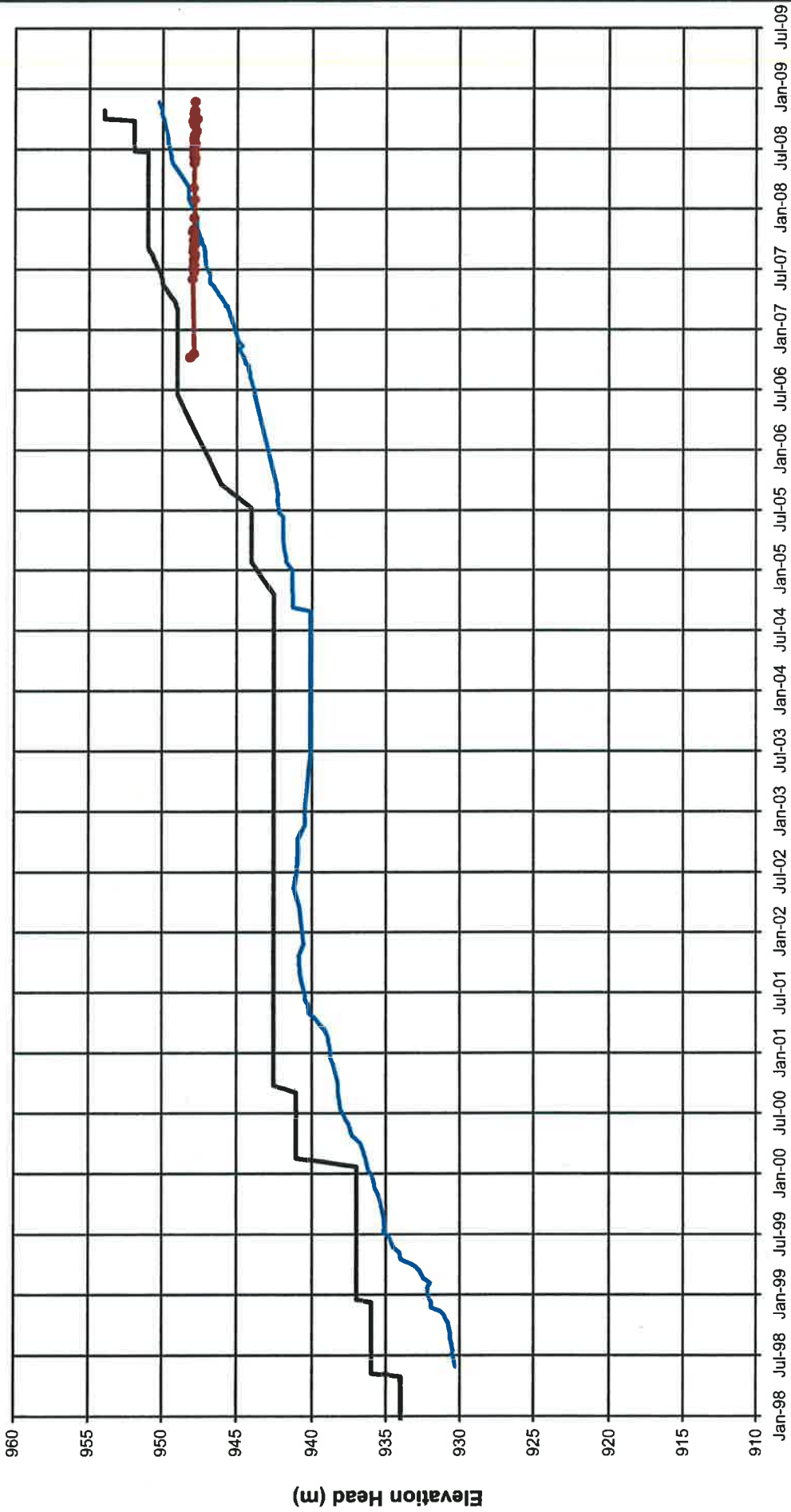
P/A NO.  
VA101-1/24

REF. NO.  
1

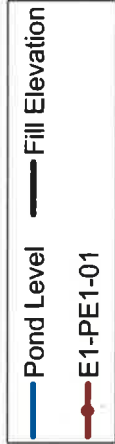
**FIGURE A4-4**

REV  
0

REV	DATE	DESCRIPTION	JIM PREPD	MACS CHK'D	LJG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



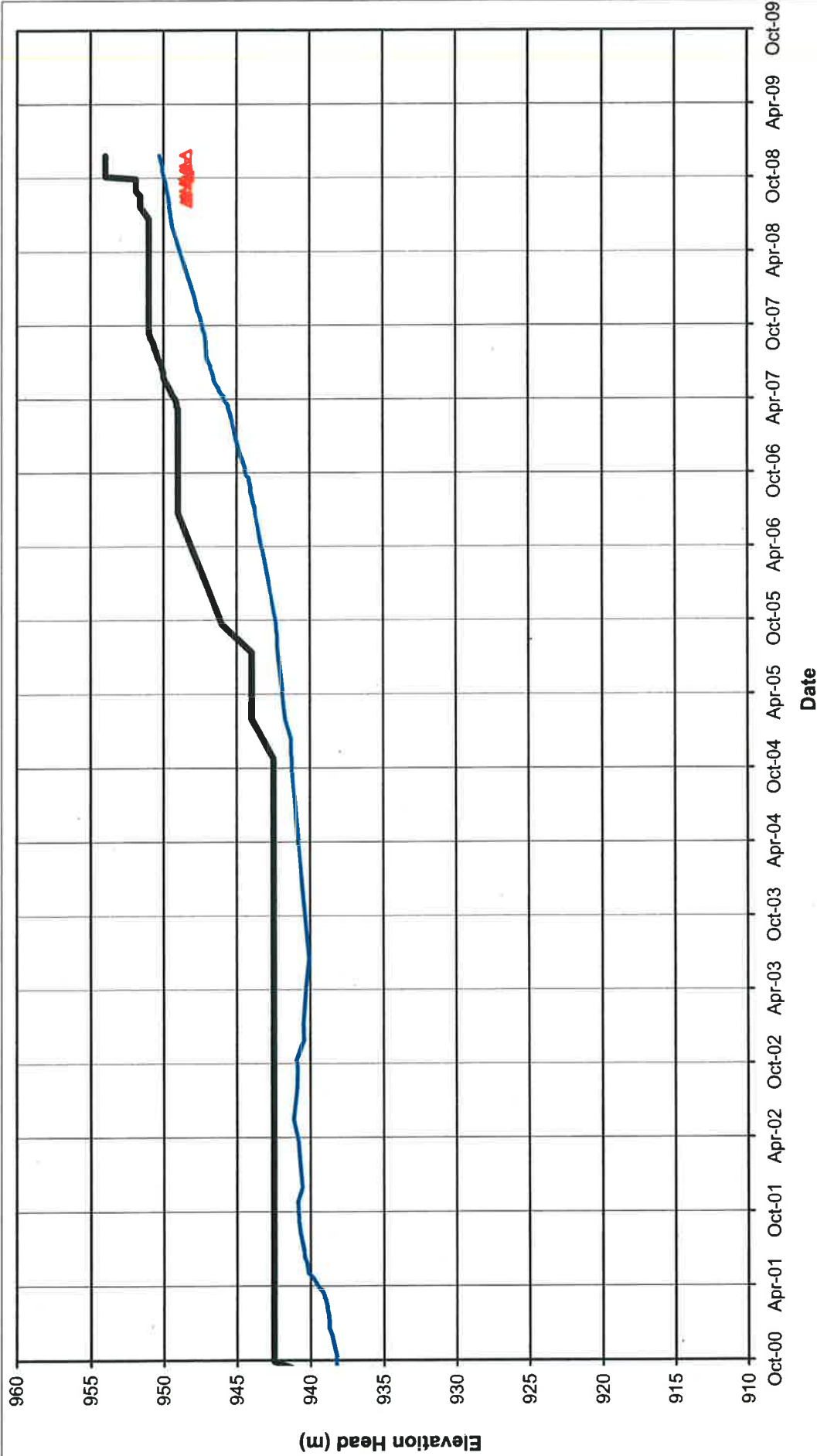
Date



Note:  
Piezometers in parentheses no longer functioning

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
PLANE E DRAIN PIEZOMETERS ELEVATION HEAD VS. TIME	
<b>Knight Piesold</b> CONSULTING	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A4-5</b>	
REV	REV
0	0

REV	DATE	DESCRIPTION	PREP'D	CHK'D	LJG	APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG	APP'D



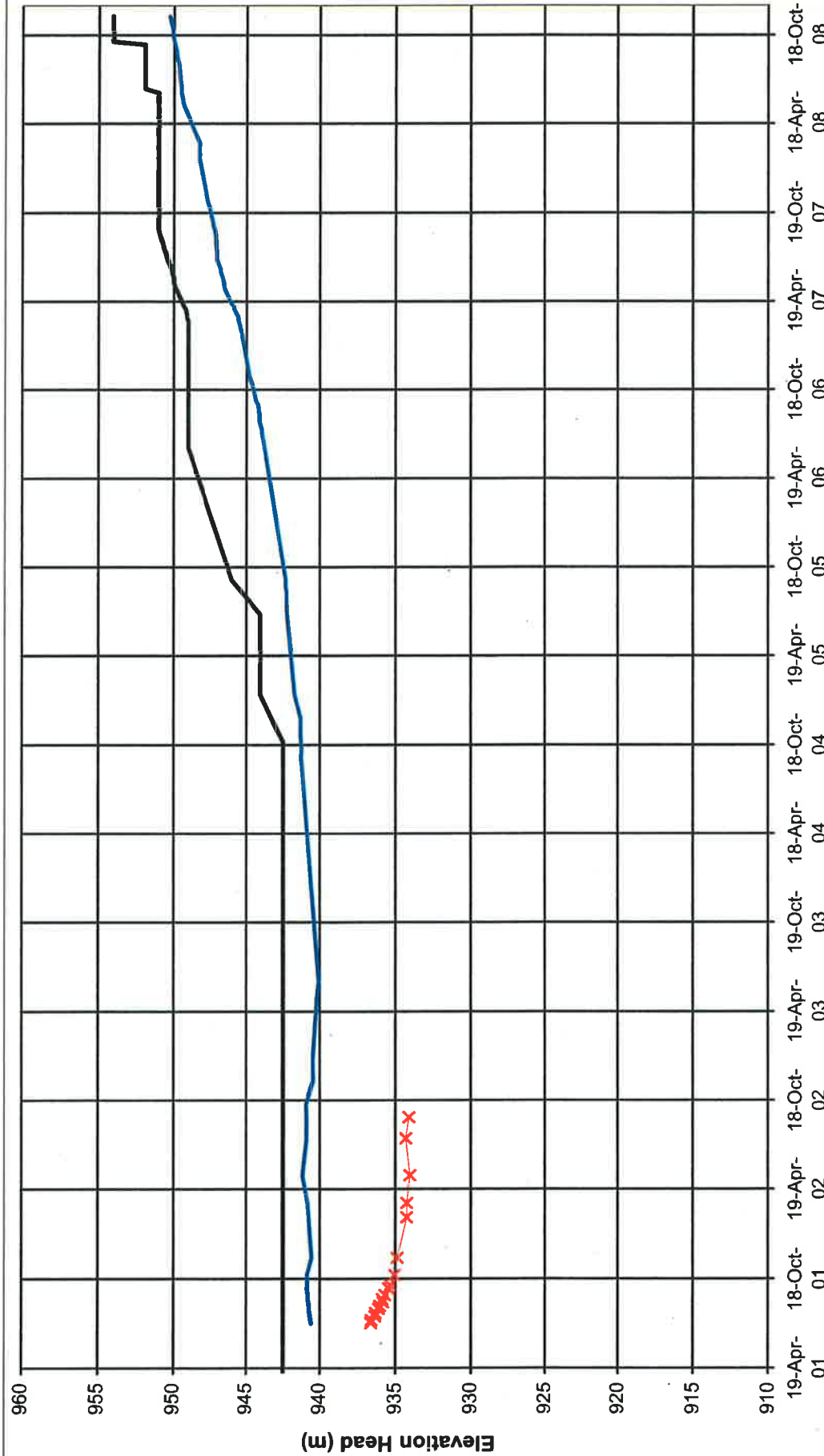
— Pond Level  
— Fill Elevation  
—X— F1-PE1-01

MOUNT POLLEY MINING CORPORATION  
 MOUNT POLLEY MINE  
**PLANE F DRAIN PIEZOMETERS  
 ELEVATION HEAD vs. TIME**  
***Knight Piesold***  
 CONSULTING

P/A NO.  
 VA101-1/24  
 REF NO.  
 1

**FIGURE A4-6**  
 REV 0

0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREPD	CHKD	APPD

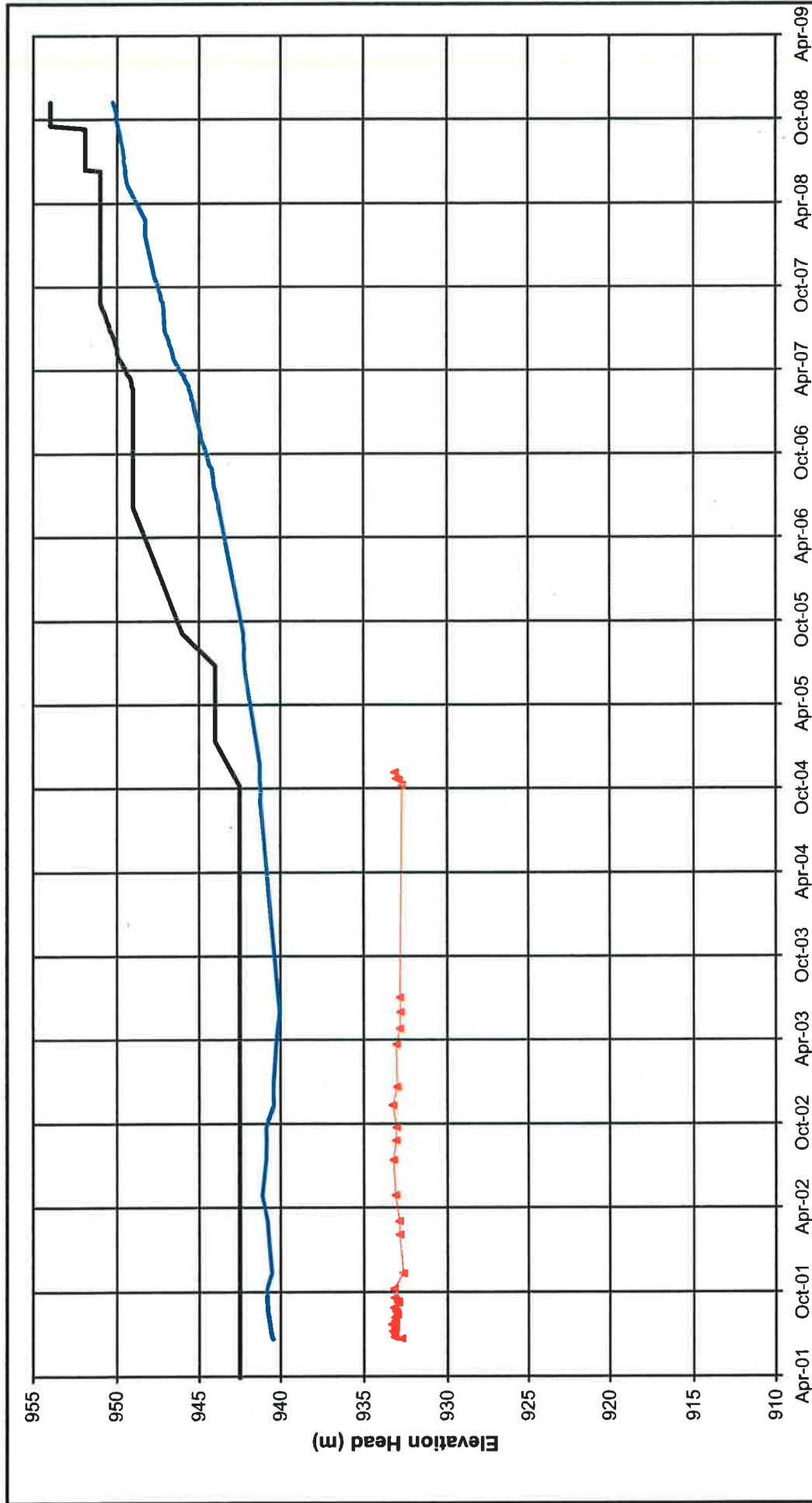


Date

— Pond Level  
— Fill Elevation  
x (G1-PE1-01)

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
<b>PLANE G DRAIN PIEZOMETERS ELEVATION HEAD vs. TIME</b>	
<b><i>Knight Piesold</i> CONSULTING</b>	
P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE A4-7</b>	
REV 0	

REV	DATE	DESCRIPTION	JIM PREP'D	MACS CHK'D	LIG APP'D
0	19DEC08	ISSUED WITH REPORT VA101-1/24-1			



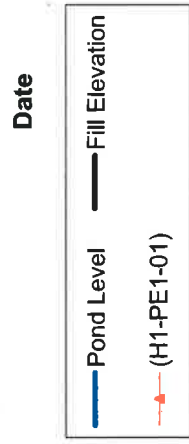
**MOUNT POLLEY MINING CORPORATION**

**MOUNT POLLEY MINE**

**PLANE H DRAIN PIEZOMETERS  
ELEVATION HEAD vs. TIME**

***Knight Piésold***  
CONSULTING

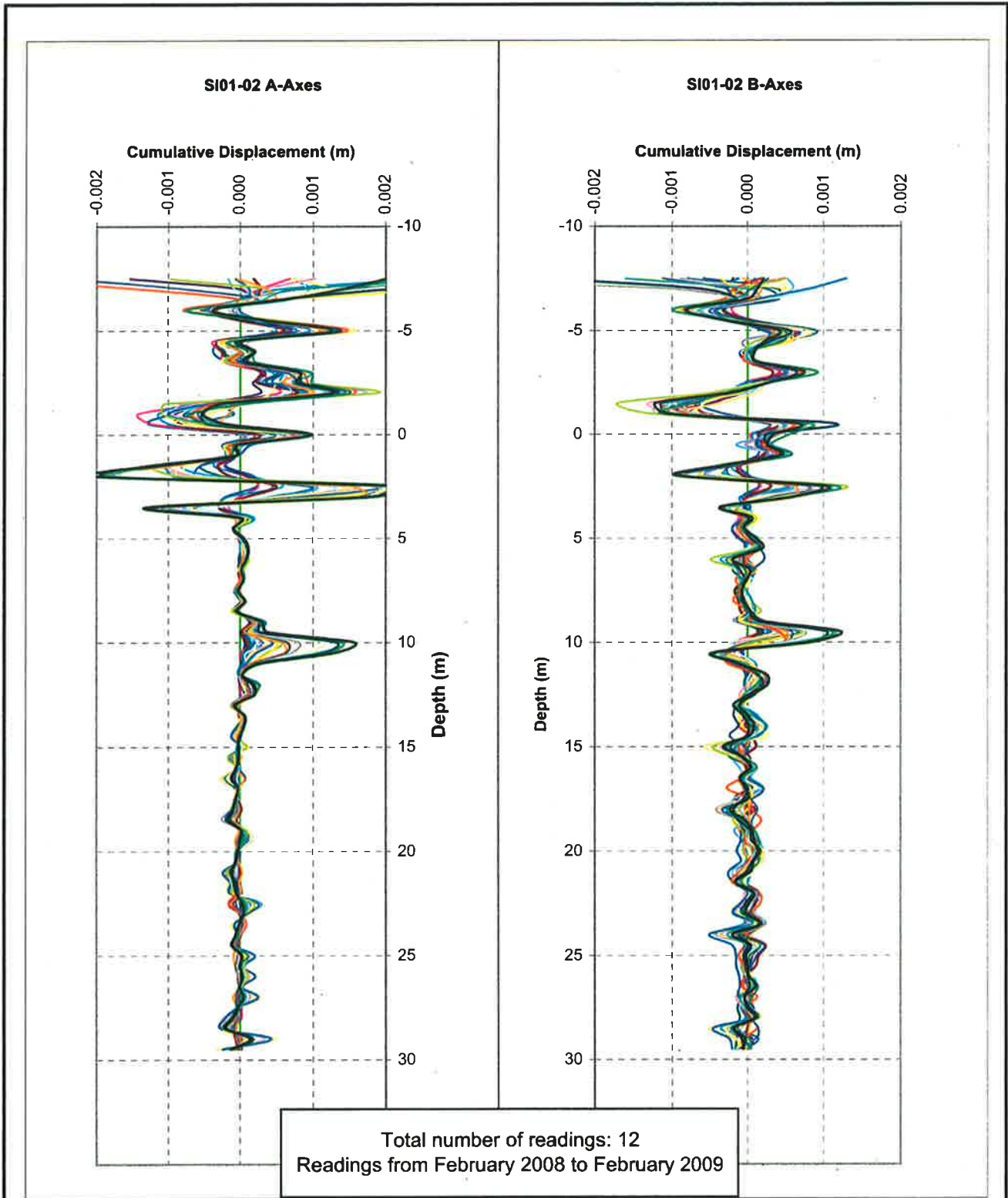
PIA NO. VA101-1/24	REF NO. 1
<b>FIGURE A4-8</b>	



Note:  
Piezometers in parentheses no longer functioning

0	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	PREP'D	CHK'D	APP'D
	DESCRIPTION			

**APPENDIX B**  
**INCLINOMETER DATA**  
(Figures B-1 to B-4)

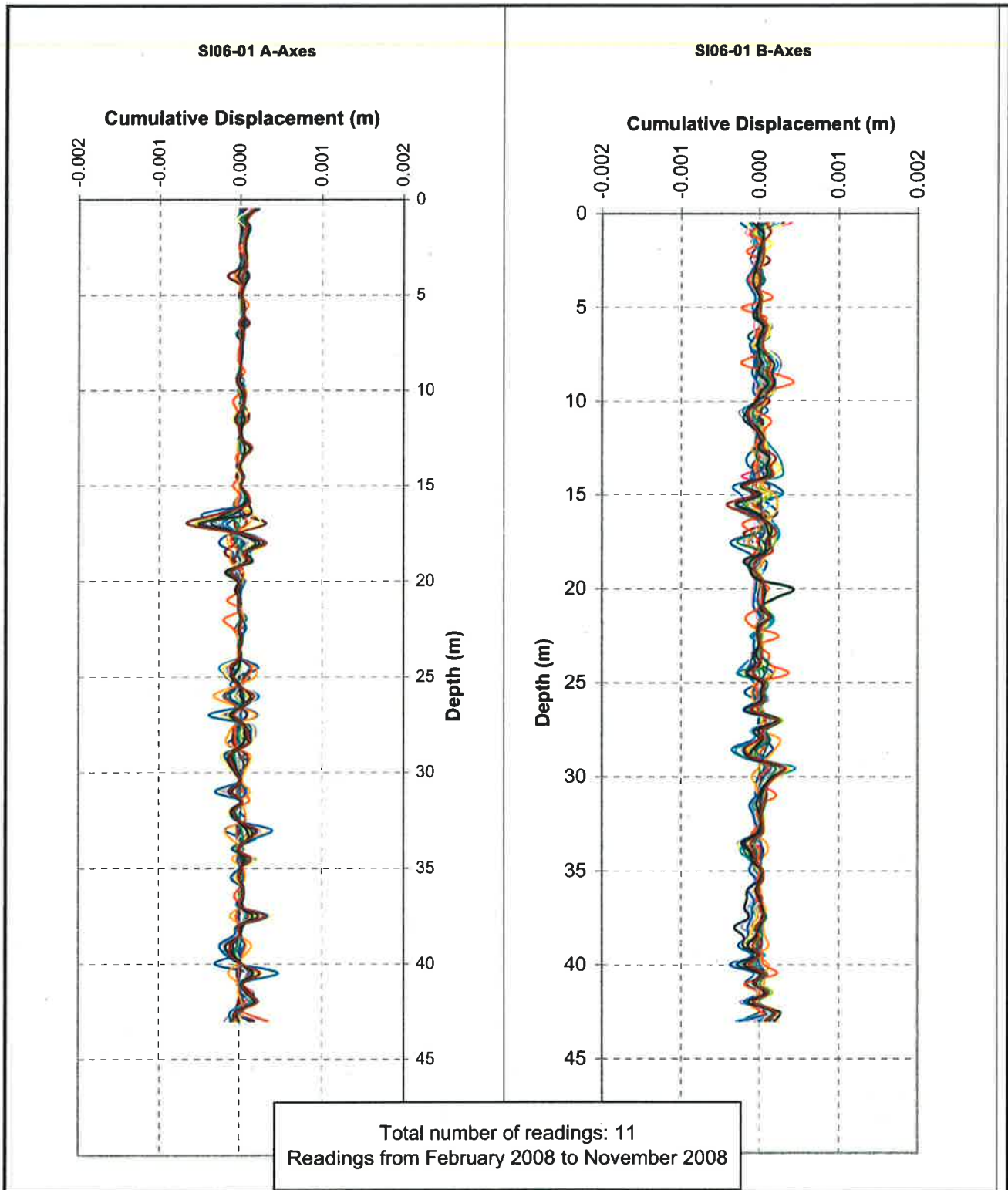


**NOTES:**

1. DISPLACEMENT IS CALCULATED BASED ON THE INITIAL DATA SET.
2. NEW DATA STARTED IN FEBRUARY 2007 AS A NEW PROBE WAS PURCHASED.

MOUNT POLLEY MINING CORPORATION			
MOUNT POLLEY MINE			
<b>DOWN HOLE INCLINOMETER DISPLACEMENT</b> SI01-02			
<i><b>Knight Piésold</b></i> CONSULTING		P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE B-1</b>			REV 0

0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



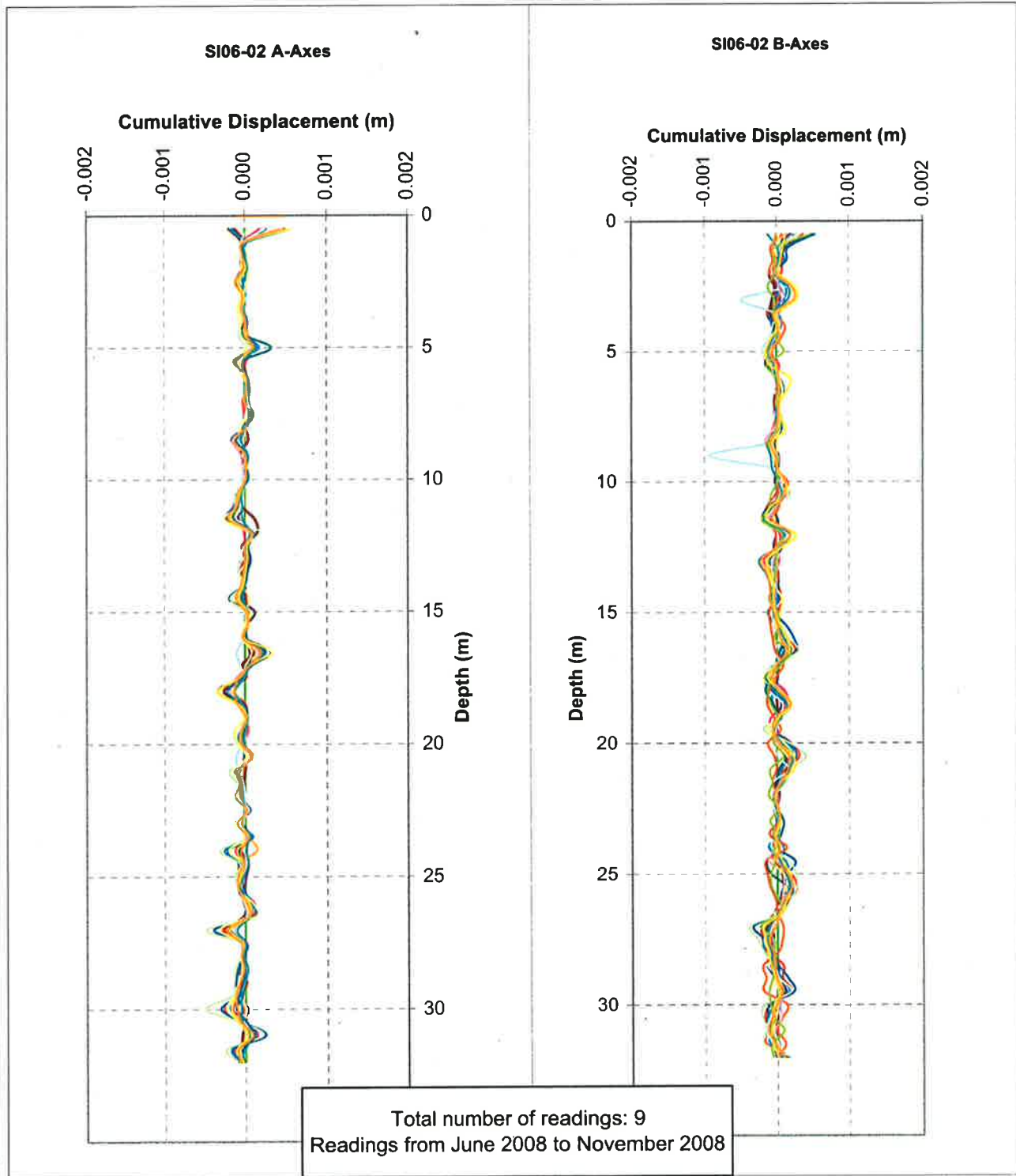
**NOTES:**

1. DISPLACEMENT IS CALCULATED BASED ON THE INITIAL DATA SET.
2. NEW DATA STARTED IN FEBRUARY 2007 AS A NEW PROBE WAS PURCHASED.

MOUNT POLLEY MINING CORPORATION			
MOUNT POLLEY MINE			
<b>DOWN HOLE INCLINOMETER DISPLACEMENT</b>			
<b>SI06-01</b>			
<i><b>Knight Piésold</b></i>		P/A NO. VA101-1/24	REF NO. 1
<b>CONSULTING</b>		<b>FIGURE B-2</b>	REV 0

0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



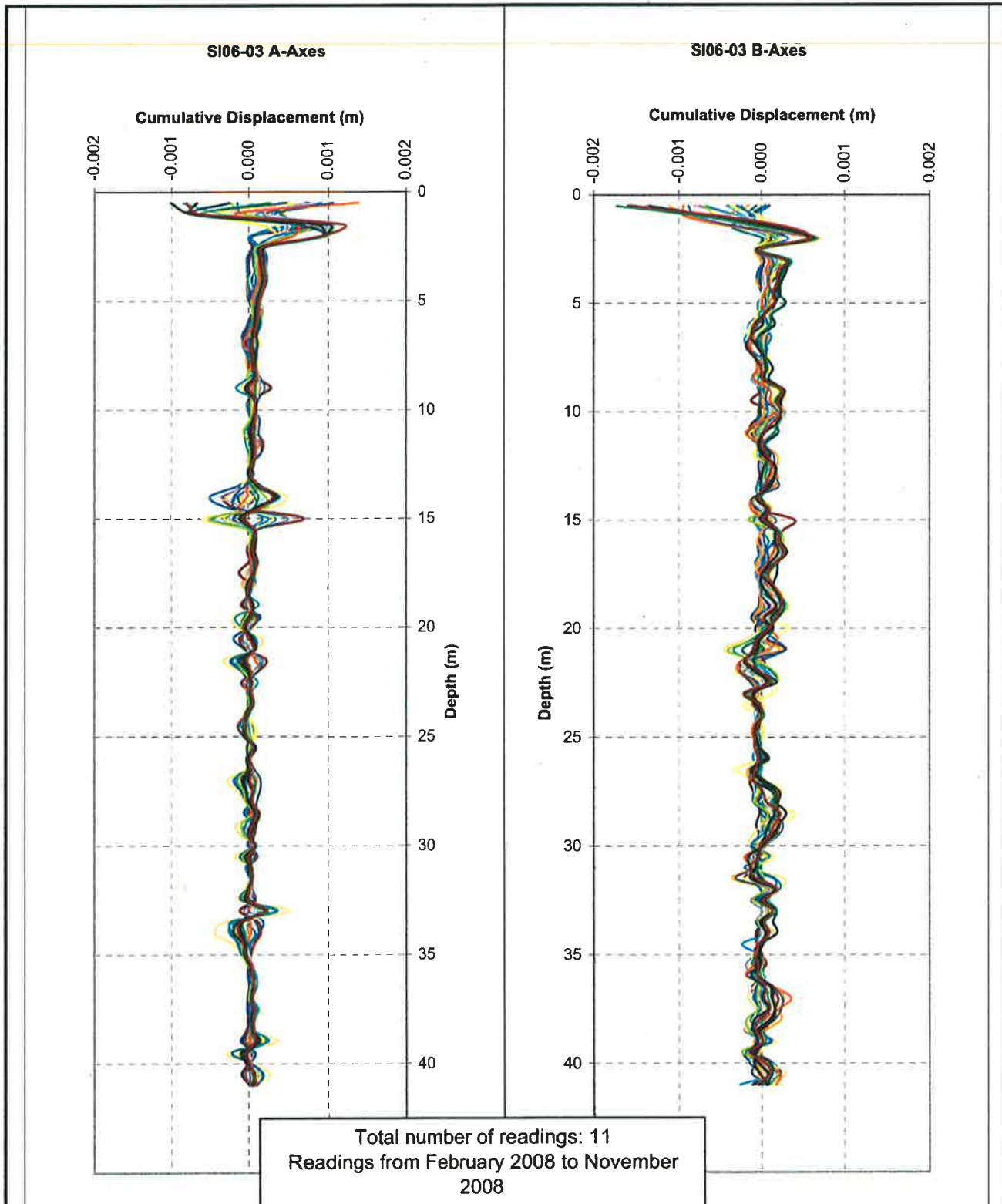


**NOTES:**

1. DISPLACEMENT IS CALCULATED BASED ON THE INITIAL DATA SET.
2. NEW DATA STARTED IN FEBRUARY 2007 AS A NEW PROBE WAS PURCHASED.

MOUNT POLLEY MINING CORPORATION	
MOUNT POLLEY MINE	
<b>DOWN HOLE INCLINOMETER DISPLACEMENT SI06-02</b>	
<i><b>Knight Piésold</b></i> CONSULTING	P/A NO. VA101-1/24
REF NO. 1	
<b>FIGURE B-3</b>	
REV 0	

0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



**NOTES:**

1. DISPLACEMENT IS CALCULATED BASED ON THE INITIAL DATA SET.
2. NEW DATA STARTED IN FEBRUARY 2007 AS A NEW PROBE WAS PURCHASED.

MOUNT POLLEY MINING CORPORATION			
MOUNT POLLEY MINE			
<b>DOWN HOLE INCLINOMETER DISPLACEMENT</b> <b>SI06-03</b>			
<i><b>Knight Piésold</b></i> <b>CONSULTING</b>		P/A NO. VA101-1/24	REF NO. 1
<b>FIGURE B-4</b>			REV 0

0	19DEC'08	ISSUED WITH REPORT VA101-1/24-1	JIM	MACS	LJG
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

**APPENDIX C**

**OVERVIEW OF 2006 DAM SAFETY REVIEW**

**(Pages C1 to C4)**

APPENDIX C

OVERVIEW OF 2006 DAM SAFETY REVIEW

General

A Dam Safety Review (DSR) for the Tailings Storage Facility at Mount Polley Mine was completed by AMEC in October 2006. The results of the DSR were issued in a report to Imperial Metals Corporation in December 2006. The DSR indicated that "the three embankments that impound the Mount Polley Tailings are well designed and well constructed entities from a dam safety perspective. Each of the three dams has demonstrated similar good performance behaviour with little indication of potential concerns in the future provided the design, continuance of past construction practices, and inspection procedures remain in place".

However, there were a few operational issues raised in the DSR, as discussed below:

1. *Operating criteria for pond and beach management are presently at odds with the optimal dam seepage performance and stated closure objectives, with the latter issue being of greatest concern.*

A beach width of at least 20 m is to be maintained along the abutments of the embankments (where the embankment contacts natural ground) and at least 10 m width elsewhere to keep the pond away from the embankments. Knight Piésold has recommended that MPMC develop a plan and schedule to enable the minimum target beach widths to be re-established within a 2 week period should they be infringed upon. MPMC shall increase the frequency of measurements to at least once per week for embankment instrumentation systems (piezometers and foundation drains - flow rate and turbidity) during any periods that ponded water encroaches within the minimum target beach widths.

The use of tailings sand is currently being used as upstream Zone U construction material. Zone U forms the upstream shell zone immediately adjacent to Zone S (low permeability core zone) and is required to provide upstream support of the Zone S material during modified centerline construction. The sand cell construction method involves discharging tailings into constructed cells along the upstream side of the embankment. Prolonged discharge of tailings from the Perimeter Embankment has resulted in the tailings pond migrating over to the Main Embankment, which has resulted in increased flows reporting to the Main Embankment upstream toe drain. MPMC has recently purchased additional HDPE pipe to facilitate the deposition of tailings from around the entire facility without having to relocate the tailings pipeline. This will allow MPMC to quickly develop tailings beaches in response to the pond encroaching on the embankments.

The current mine plan has the mine operating at 20,000 tpd for the next 8 years. It is recognized that improvements in tailings deposition will be beneficial for optimizing beach development round the facility but this is only a minor consideration for closure planning. The current tailings deposition practices are not particularly relevant for the closure plan unless one considers sudden pre-mature mine closure during the next few months which is extremely unlikely (impossible?) given current metal prices and excellent operating performance of the Mount Polley Mine. This

concern, expressed in the DSR with respect to satisfying closure objectives are not particularly relevant during the current stage of mine operations. The closure objectives for the TSF are currently under review by MPMC. The tailings pond will continue to be managed in accordance with the TSF closure objectives in the later years of the mine life.

- 2. As the facility has no operating spillway, the selection of the 24-hour PMP event may not be appropriately conservative. The amount of wave induced freeboard being allowed for is likely excessive by a factor of two.*

The previous design basis required the TSF to have sufficient live storage capacity for containment of runoff from the 24-hour PMP volume of 679,000 m<sup>3</sup> at all times, which would result in an incremental rise in the tailings pond level of approximately 0.4 m. The 24-hour PMP allowance was in addition to regular inflows from other precipitation runoff, including the spring freshet. The TSF design also incorporated an additional allowance of 1 meter of freeboard for wave run-up, for total freeboard requirement of 1.4 m.

The design basis has been updated to include storm water freeboard for the 72-hour PMP event. The volume of water associated with the 72-hour PMP event is approximately 1,070,000 m<sup>3</sup>, which would result in an increase in the TSF pond elevation of approximately 0.6 m. The freeboard requirement for wave run-up has been reduced to 0.7 m, for total updated freeboard requirement of 1.3 m, which is consistent with the previous freeboard requirement. However, MPMC has elected to maintain the previous freeboard requirement of at least 1.4 m for the remaining mine life. The freeboard requirement post closure will be reviewed as part of the closure and reclamation plans as they are updated.

- 3. The lack of potential of the nature of pre-shearing in the glaciolacustrine foundation leads to uncertainty in terms of present and post closure stability. There is an uncertainty in the need, or lack thereof, of the closure berm.*

Knight Piésold has been studying the lacustrine unit at the Main Embankment and investigating the potential for a weak layer within this unit since the initial design of the TSF embankments. The upper portion of this unit was investigated thoroughly by Knight Piésold during the excavation of the Main Embankment Seepage Collection Pond during the initial construction program in 2006, and no evidence of a pre-shear or a weak layer within this unit was discovered. The Lacustrine unit was also investigated in 1996 (CPT drilling) and in 2001 and 2006 when the inclinometers were installed. The results of the investigations indicate that the lacustrine unit is typically comprised of very stiff silt and clay. However, this does not prove that a pre-sheared or weak layer could not exist within the unit and it is therefore prudent to incorporate suitable contingency features in the design of the embankment. This has resulted in the installation of five inclinometers (of which four are still functioning) at the Main Embankment and the inclusion of a downstream closure buttress. The inclinometers are read on a regular basis during construction programs with an inclinometer probe and no deviations have been observed to date. The results of the readings for the inclinometers are shown in Appendix B.

The Stage 6 design of the TSF includes provisions to ensure stability in the event that a weak layer exists in the lacustrine material. A buttress at the Main Embankment has been included in the design to ensure that the integrity of the Main Embankment is not compromised by a

potentially weak layer in the lacustrine unit, even though there is no direct evidence that indicates that such a feature is present.

A study comparing the drained residual strength to the clay content, liquid limit, and effective normal stress was completed by Stark and Eid (1995). The results of the study indicate that the residual strength of a material with a clay content ranging from 25 to 50%, with a liquid of 40%, and an effective normal stress of 700 kPa is in the order of 24 degrees. Samples of the lacustrine material have recently been collected for direct shear testing, as recommended in the DSR, however the testing had not been completed at the time this report was issued. The results of the direct shear tests will be reviewed once received and the design of the Stage 6 buttress will be adjusted if required.

- 4. The hazard classification of the TSF embankments is "HIGH" and is based on the economic and social loss category. The classification based on the Loss of Life and Environmental Loss Categories is LOW. The DSR recommends that the hazard classification be reviewed assuming that the owner's costs are not included.*

The classification of the TSF has been assessed using the Canadian Dam Association and the British Columbia Dam Safety Regulation guidelines. These guidelines look at the consequences of failure and consider life safety, economic and social losses, and environmental and cultural losses. The life safety category considers the potential for multiple loss of life after ascertaining the degree of development within the inundation area. The economic and social loss category considers damage to infrastructure, public and commercial facilities that are in and beyond the inundation area. This includes damage to railways, highways, powerlines, residences etc. The environmental and cultural loss considers damage to fish habitat at the regional, provincial, and national level, wildlife habitat, including water quality, and unique landscapes or sites of cultural significance.

Previous assessments of the TSF have resulted in a "HIGH" hazard classification (or consequence category) based on the economic and social loss category. The classification for the life safety and environmental and cultural loss categories is "LOW", as there is low potential for loss of life, the inundation area is typically undeveloped, and there is unlikely to be loss or significant deterioration of provincially or nationally important fish habitat. However, the estimated costs associated with repairing any damage to the TSF, loss of service to the mine, and the potential economic impact on Imperial Metals, could exceed \$1,000,000, which placed the TSF into the "HIGH" economic and social losses category under the British Columbia Dam Safety Regulation guidelines.

The hazard classification of the TSF was discussed with MPMC and it was agreed that the owner's costs should not be included in the classification of the TSF embankments. The hazard classification for the TSF embankments has therefore been reduced to "LOW", based on the Canadian Dam Association and the British Columbia Dam Safety Regulation guidelines.

The maximum design earthquake (MDE) for the TSF with a LOW hazard classification is the 1 in 1000 year event. This corresponds to a peak ground acceleration of 0.096, based on the 2005 National Building Code Seismic Hazard Classification.

5. *There were "about the right" number of piezometers installed in the embankment dams, however there is nothing in the way of much redundancy and any lost instrument locations need to be re-established with a new installation.*

A total of 57 vibrating wire piezometers have been installed at the TSF as of the end of the Stage 4 construction program. The piezometers are grouped into tailings, foundation, embankment fill and drain piezometers. A total of 22 piezometers were accidentally destroyed during the Stage 4 construction program, and six additional piezometers have previously stopped functioning. MPMC and Knight Piésold attempted to locate and splice the damaged piezometers and successfully repaired five of them. The number of functioning piezometers at the end of the Stage 4 construction program was 34. Additional piezometers will be installed in the tailings and embankment fill materials and tailings during the Stage 5 construction program, which is currently in progress.

No unexpected or anomalous pore pressures have been observed while monitoring the vibrating wire piezometers during the TSF construction programs. The timeline plots for the piezometers on planes A through I are provided in Appendix A. The timeline plots indicate that the pore pressures increased slightly in piezometers A2-PE2-03, B2-PE2-03, and B2-PE1-02, which are fill piezometers installed in the Zone S glacial till. These pore pressure increases were expected as these piezometers have shown similar trends in previous construction programs where the pore pressures have increased during fill placement activities and subsequently decreased following the construction programs as the pore pressures dissipate. The pore pressures have also increased in the piezometers installed in the tailings, which is a direct result of the increase in elevation of the tailings pond. There has been no increase in the pore pressures in the foundation piezometers.

Although a number of piezometers are no longer functioning at the TSF, replacing all of them is not practical nor considered necessary at this time as there are functioning piezometers in the vicinity of most that were damaged. However, five of the damaged piezometers were foundation piezometers at the Main Embankment, where there are slight artesian conditions (less than 3.0 m). Additional piezometers will be installed in the Main Embankment foundation materials during Stage 6 to offset those that are no longer functioning. The foundation piezometers at the Main Embankment will have a trigger level of 15 m above ground, which corresponds to the elevated pore pressure that reduces the factor of safety to 1.1.

**APPENDIX D**

**2008 ANNUAL INSPECTION PHOTOGRAPHS**

(Pages D-1 to D-9)





**PHOTO 1** – Components of the TSF, Zone S (left) Zone U (centre) and Tailings Beach (right)



**PHOTO 2** – Downstream components of TSF, Zone C (foreground), Truck is placing Zone T on top of Zone F, Excavator is sitting on Zone S at 954m

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**



**PHOTO 3** – Main Embankment Foundation Drain flows from the ME/SE Corner.



**PHOTO 4** – Perimeter Embankment Toe Drain flow running clear

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**



**PHOTO 5** – Main Embankment Seepage Pond



**PHOTO 6** – Main Embankment Seepage Pond Return Pipe

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**



**PHOTO 7** – Main Embankment looking west



**PHOTO 8** – Perimeter Embankment looking south, showing access ramp to PE seepage pond

**MOUNT POLLEY MINING CORPORATION  
MOUNT POLLEY MINE**



**PHOTO 9** – Perimeter Embankment Zones U and S. The Zone U on the left was constructed using tailings sand cells.



**PHOTO 10** – Upstream toe drain outlet at the South Embankment. To be completed in 2009.

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**MOUNT POLLEY MINE**



**PHOTO 11** – Recently completed Sand Cell



**PHOTO 12** – Pump barge and reclaim pipeline

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**



**PHOTO 13 – Mill Site Sump**



**PHOTO 14 – Mill Site Sump Emergency overflow**

**MOUNT POLLEY MINING CORPORATION  
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**PHOTO 15** – Southeast Sediment Pond



**PHOTO 16** – Southeast Sediment Pond Downstream Slope

**MOUNT POLLEY MINING CORPORATION**  
**MOUNT POLLEY MINE**





**PHOTO 17** – South Bootjack Dam



**PHOTO 18** – South Bootjack Dam

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