MINTO EXPLORATIONS LTD.

WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN PHASE IV DEVELOPMENT

MINTO MINE, YT

REPORT

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1.0 INTRODUCTION

Minto Explorations Ltd. (Minto) is proposing the Phase IV Mine Expansion at the Minto Mine site, located north of Carmacks, YT. According to Minto's Project Proposal (Reference 1), the Phase IV expansion includes development of the Area 2 and Area 118 open pits and underground workings, as well as, associated waste management and other ancillary activities. Minto requested that EBA, a Tetra Tech Company (EBA) prepare a waste rock and overburden management plan for the expansion of existing waste rock and overburden disposal facilities as part of the Phase IV development. The following areas shown on the Drawing WMP-01 are designated for waste disposal as part of this Phase IV Waste Rock and Overburden Management Plan (WROMP):

- The Mill Valley Fill Expansion (MVFE);
- The Southwest Waste Dump Expansion (SWDE);
- The Area 1 South Wall Buttress; and
- Reclamation Material Stockpiles.

This report summarizes the planned waste rock and overburden management activities and associated components that will be required for Phase IV development. As referenced in this report, "waste" consists of overburden and waste rock removed during mining operations. Tailings waste management is discussed in a separate document: "Phase IV Tailings Management Plan Minto Mine, YT". This document also does not address open pit development.

2.0 PROPERTY DESCRIPTION AND BACKGROUND INFORMATION

2.1 General Location and Access

The Minto Mine is located in the Whitehorse Mining District in the central Yukon Territory. The property is located approximately 240 km northwest of Whitehorse, the Yukon capital. The project is centered on NAD 83, UTM Zone 8, coordinates 6945147N, 385443E. The mine is in commercial production, and has a Type B Water License: MS04-227.

The Minto Mine is accessed either by land via the North Klondike Highway and Minto Access Road, or by air. Access by land requires crossing the Yukon River, which is completed by barge in the summer and ice road in the winter. There are periods of time in the spring and fall that land access is not possible, as neither the ice road nor the barge is available for use.

2.2 Topography and Vegetation

The Minto Mine property lies in the Dawson Range, which is part of the Klondike Plateau, an uplifted surface that has been dissected by erosion. Topography in the area consists of rounded rolling hills and ridges. The highest elevation on the property is 975 m (3,200 ft.) above sea level, compared to elevations of 460 m (1,500 ft.) along the Yukon River. The Minto Mine property consists of rolling hills, and slopes are relatively gentle. The hills and ridges often have spines of bedrock outcrops; elsewhere bedrock exposures are limited in the area.

Overburden is typically colluvium primarily made up of sand derived from decomposition of the largely granitic bedrock in the area. The overburden is generally thin but pervasive over the site. In south-facing locations, this material provides a well-drained, sound foundation for buildings and roads. Vegetation in the area is sub-Arctic boreal forest made up of largely spruce evergreen trees and poplar deciduous trees. The trees prefer well-drained south-facing slopes and may be sparse on the north-facing slopes where moss and alder or 'buck brush' prevails. The area has been impacted by several wild fires, the latest of which was in 1995. Many of the burnt trees have blown down and natural regrowth of pine and alder is occurring over much of the property.

2.3 Permafrost

The mine is in a location of widespread discontinuous permafrost. In general, south facing slopes at lower elevations are unfrozen and north facing slopes contain permafrost. The Minto Creek valley bottom contains permafrost on both the north and south sides, particularly in areas with insulating moss cover. Measured ground temperatures are generally warmer than -2 degrees C, with ground ice contents ranging from non-visible-bonded (Nbn) to visible stratified ice (Vs) up to 20% by volume. The thick lacustrine clay/silt may locally contain Vs up to 60% by volume, and is frozen to depths in excess of 50 m below ground surface. Massive ice up to 4 m thick has been encountered in some boreholes.

2.4 Regional Geology

The Minto Project is found in the eastern margin of the Yukon-Tanana Composite Terrain, which is comprised of several metamorphic assemblages and batholiths. It is broadly contemporaneous with the Omineca Belt in nearby British Columbia.

The Minto Property and surrounding area are underlain by plutonic rocks of the Granite Mountain Batholith (Early Mesozoic Age). They vary in composition from quartz diorite and granodiorite to quartz monzonite. The batholith is unconformably overlain by clastic sedimentary rocks of the Tantalus Formation and andesitic to basaltic volcanic rocks of the Carmacks Group, both are assigned a Late Cretaceous age. Immediately flanking the Granite Mountain Batholith, to the east, is a package of undated mafic volcanic rocks, outcropping on the shores of the Yukon River. The structural relationship between the batholith and the undated mafic volcanics is poorly understood because the contact zone is not exposed.

Lithologically the Property is underlain by predominantly igneous rocks of granodiorite composition. In the few available outcrops and drill core, two basic units are distinguished, an equigranular phase and a potassic feldspar megacrystic phase. The equigranular phase is relatively leucocratic, grey to whitish in colour and uniform in texture. The potassic-feldspar megacrystic phase can be slightly darker, may contain more biotite and hornblende, and may be light pink in color. In surface exposures, the latter exhibits a very weak alignment of the feldspar megacrysts, defining an interpreted magmatic foliation.

Other rock types, albeit volumetrically insignificant include dykes of simple quartz-feldspar pegmatite, aplite and an aphanitic textured intermediate composition rock. Bodies of all of these units are relatively thin and rarely exceed one-metre core intersections. These dykes are relatively late, generally postdating the peak ductile deformation event; however, some pegmatite and aplite bodies observed in a rock cut located north of the mill complex are openly folded. Conglomerate and volcanic flows have been logged in drill core by past operators but have not been confirmed by the authors as the drill core from previous campaigns was largely destroyed in forest fires and no new drilling has intersected such rocks.

2.5 Climate

The climate in the Minto region is 'subarctic continental' characterized by long, cold winters and short cool summers. The area experiences moderate precipitation in the form of rain and snow and a large range of temperatures on a yearly basis with a mean annual temperature below 0°C.

2.5.1 Temperature

The mean annual temperature in this region is -1.9°C. The summer period, between late-May and early-September, is characterized by temperatures that range from 10°C to 20°C. The winter period, between October and March, is characterized by a much larger day-to-day variation in air temperatures, ranging from 0°C to -40°C, although typical winter temperatures range from -10°C to -30°C. Diurnal variation in air temperatures tends to be less during the winter period than during the summer. The transitions between Winter and Summer are characterized by a quick rise or fall in air temperatures during March/late May and mid-September/early-October, respectively.

Based on the data record, air temperatures would be expected to remain above zero throughout the day between June and September, while between October and March; air temperatures would typically remain below zero. The maximum air temperature ever recorded was 30.3°C on July 29, 2009. The minimum air temperature ever recorded was -43.2°C on November 27, 2006 and again on January 8, 2009. Air temperatures in excess of 5°C have been observed in every winter month. Sub-zero temperatures have been recorded every month except July and August.

2.5.2 Wind

Severe rime ice build-up on the anemometer cups has resulted in extended periods of recorded zero or diminished wind speeds during the winter (EBA, 2010). In order to remove any uncertainty in the data, all wind speeds recorded below 0°C were omitted from analysis. As a result, the description of winds at the property excludes the majority of observations occurring November through March and does not provide a complete assessment of winds at the property.

Based only on recorded winds at temperatures above 0°C, winds predominantly blow from two directions: the south (including SSW, S, and SSE), 23.5% of the time and the northwest (including NNW, NW, and WNW) 17.8% of the time. Wind speeds are typically low, exceeding 6 m/s only 5% of the time. The mean annual wind speed is 3.4 m/s. Winds are slightly weaker during the summer months however, because the majority of winter winds have either been omitted due to inaccurate measurement or were not recorded due to rime ice, the degree of difference between summer and winter winds has not yet been fully observed.

The annual mean wind gust speed is 7.1 m/s. The highest recorded instantaneous gust was 23.8 m/s although higher wind gusts have likely occurred during the winter and have not been recorded.

2.5.3 Precipitation

Total annual precipitation recorded at Pelly Ranch and Carmacks between 1955 and 2006 were observed to determine the regional trend over central Yukon during the last half of the 20th century. The results showed that the mean annual precipitation is 275 mm. The results also indicated a general increase of 1.1 mm/year and 1.4 mm/year in annual precipitation over the 51-year period at Pelly Ranch and Carmacks, respectively. This equates to more than a 20% increase. The effects of climate change on precipitation patterns are quite complex as they vary locally. The proximity of the Environment Canada stations to the mine site would allow for reasonable confidence in assuming that the observed trends for Pelly Ranch and Carmacks are also applicable to the Minto site, excluding regional variability of precipitation events due to orographic effects or valley orientations.

2.5.4 Solar Radiation

As would be expected at a latitude near 62 °N, a strong seasonal pattern is evident, with maximum solar radiation being received near the summer solstice in late June (daily maximums on the order of 750 W/m^2), and values just slightly above zero around the winter solstice when the site experiences only about 3 hours of direct sunlight. Large fluctuations from the general trend during the summer are due to cloud cover.

2.6 Status

Minto has been in production since June 2007. Development of the Area 1 open pit commenced in April 2006, and currently operates on an ongoing basis with either ore being stockpiled for processing and/or waste materials being disposed of at one of the waste dumps. There are currently four waste dumps permitted at the Minto Mine: the Main Waste Dump (MWD), the Reclamation Overburden Dump (ROD), the Ice-Rich Overburden Dump (IROD), and the Southwest Waste Dump (SWD). The current waste dumps are used to store the following materials:

- MWD — used to store both non ice-rich overburden and waste rock materials;
- ROD — used to store non-ice rich overburden for possible use in future reclamation;
- IROD — used to store ice-rich overburden; and
- SWD — used to store non-ice rich overburden and waste rock materials.

To facilitate future operations and reclamation, Minto is proposing the design and construction of waste management plan components to store mined overburden and waste rock.

2.7 History

The following historical information was gathered from the Capstone Mining Corp. website[1].

[1] http://capstonemining.com/s/Minto.asp?ReportID=343895

The Minto project has a history of exploration and development dating back to the early 1970's. In the mid-1990's, a feasibility study was completed by prior owners, permits obtained and construction of an open pit mine commenced. During that period, the mill foundations were poured, the ball and SAG mills were purchased and moved to site, a permanent camp constructed and the site connected to a permitted Yukon River crossing via a 29 km production standard access road. Construction was suspended in 1997 after expenditures of approximately $10 million due to depressed copper prices.

Capstone's predecessor, Sherwood Copper, acquired the Minto Project in June 2005 and, in just two years from acquisition, re-drilled the deposit to modern reserve standards, completed a bankable feasibility study, arranged project financing, and built a $100 million open pit copper-gold mine. Commercial production commenced on October 1, 2007. The mill was expanded from its initial design throughput of 1,563 tonnes per day (tpd) to 2,400 tpd in March 2008. The mill throughput was again increased to a design level of 3,200 tpd during the latter part of 2008, and the mill achieved the expanded design throughput in March 2009.

3.0 OBJECTIVES OF THE WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN

The objective of this WROMP is to provide guidelines for disposal of overburden and waste rock generated during Phase IV development. Slope stability, surface water drainage, and metal transportation/leaching potential are appraised in this WROMP. Generally accepted engineering design practice including Mined Rock and Overburden Piles Investigation and Design Manual Interim Guidelines (Reference 2) were adopted as the design guidelines.

A summary of the design criteria and objectives is presented in Section 6.

4.0 WASTE CHARATERISTICS AND SEGREGATION

4.1 Types of Waste

During mining operations two types of solid waste are generated: overburden (including both ice-rich and non-ice-rich overburden), and waste rock. Overburden includes all soil above the bedrock. Waste rock consists of rock which is mined from the pit and has less than the cut-off grade (COG) for copper. It should be noted that the COG is dependent on many variables, particularly the market price of copper, and will vary during the life of the mine. Therefore, the concepts and procedures developed for this Waste Management Plan are robust to allow for variations in the COG.

4.2 Waste Characteristics

4.2.1 Overburden

Phase IV overburden waste will be sourced from stripping of the Area 2 and Area 118 open pits.

Based on Minto's Project Proposal (Reference 1), the overburden thickness within the footprint of the Area 2 open pit range from about 5 to 15 m in the southwest portion with up 20 to 45 m along much of the north and east walls reaching a maximum depth of 70 m at the far north. The overburden soil consists primarily of silt and fine sand with occasional lenses of clay and coarse sand to gravel. The soil is high in organic content and is known to contain permafrost.

The majority of the proposed Area 118 open pit footprint is covered with up to approximately 5 m of overburden, except the southwest portion where the soil locally deepens to approximately 16 m.

4.2.2 Waste Rock

The hypogene copper sulphide mineralization at Minto is hosted wholly within the Minto pluton, which is predominantly of igneous rocks of granodiorite composition. The primary mineral assemblage at Area 2 and 118 includes chalcopyrite-bornite-magnetite with minor amounts of pyrite.

Metal leaching (ML) and acid rock drainage (ARD) potential of the mine rocks were studied by SRK based on pre-production testing and operational monitoring. The following paragraphs in italics have been excerpted from the SRK report "Minto Mine Expansion – Phase IV ML/ARD Assessment and Post-closure Water Quality Prediction" (Reference 3):

The ABA (Acid-Base Accounting) characterization of Phase IV waste rock has shown that it has similar characteristics to waste rock that has been produced from the Main Pit. The majority of the waste rock consists of unmineralized granodiorite that has low sulphur content and modest carbonate mineral content; this bulk waste material is uniformly classified as Non-PAG and does not present a risk for generation of ARD.

A minor component of the waste rock consists of mineralized rock that contains sub-economic copper grades and ranges in ARD classification from Non-PAG to PAG. This material will also contain a larger inventory of copper and other trace elements (e.g. arsenic, cadmium, chromium, manganese, molybdenum, nickel, zinc) that could impair downstream water quality if leaching occurs at unacceptable levels. If mixed with bulk waste, the mineralized waste rock would represent a minor risk for development of ARD and a more substantial risk for release of elevated concentrations of trace elements over the long term.

Due to the risk of long-term trace element release from the mineralized waste, MintoEx has developed a mine plan that entails selective handling of most of the mineralized waste stream. Segregation of mineralized waste on the basis of copper content is proposed, with both the risk of ARD and trace element leaching being minimized by storage of mineralized waste under saturated conditions following the completion of closure activities.

4.3 Waste Segregation Protocol

Minto's waste segregation protocol is based on waste material characteristics as presented in Subsection 4.2. Minto tests representative samples of its development rock in advance of the materials being removed from the active mining face. The waste rock is characterized based on the copper content.

Waste rock and overburden handling plans are briefly described below.

Waste Rock

The development of the waste rock classification system for the Minto mine site is based on copper content. A review of the geologic database indicates that, over 90% of the total metals are contained within the rock that grades higher than 0.10% copper. Therefore, waste rock of greater than 0.10% copper will have to be segregated and disposed at separate disposal areas in accordance with the YESAB report "Designated Office Evaluation Report, Minto Mine Phase IV Expansion, Project Assessment 2010-0198".

The waste rock is classified in terms of grade bins. The various waste types, and associated grades, are presented in Table 1 (Reference 4).

Table 1: Waste Rock Grade Bin Definitions and Descriptions

Grade Bins	Description
Zero-grade Waste	Can be utilized for construction projects and dumps located in sensitive areas.
Low-grade Waste	Waste from 0.01 - 0.10%Cu: not of significant concern at closure.
Mid-grade Waste	Waste from 0.10% - 0.36%Cu: copper leaching is a concern at closure: material must be handled separately, but has poor prospects for future milling.
High-grade Waste	Waste from 0.36% – Cut-off Grade: The same disposal requirements apply as do for mid-grade waste, but there is a chance that, if mill throughput or metal prices increase substantially, this material will prove economic.

Note that the COG and the grade 0.36%Cu defining the separation between mid- and high-grade wastes is subject to continuous revision in response to changing mining costs and market conditions. Zero-grade waste" is a succinct description that Minto can use in daily mining operations. However, SRK's report on ML ARD for the Phase IV development actually defines it as material containing less than 50 mg/kg copper (0.005% Cu). In practice, zero-grade waste will be any waste rock material of below the mine's assay detection limit of 0.01% Cu.

Material handling plans are used to instruct the mining operation crews as to where the different rock classes may be placed. The current Minto waste materials handling procedure is summarized as follows:

- Drill cuttings from every blasthole are sampled, bagged, tagged, and sent to the assay laboratory prior to blasting;
- A representative sample of the cuttings is assayed using atomic absorption (AA) to determine the metal content. The assay laboratory, under the supervision of the chief assayer, has the ability to conduct copper, oxide, and silver assays;
- The assay results are sent to the geology department for interpretation;
- The geology department plots the results spatially, then draws polygons enclosing holes with similar assay results to identify regions of similar average grade;
- After blasting, the aforementioned polygons are laid out in the field by the mine surveyor working with the production geologist in order to inform mine operations of where the materials within a polygon are to be taken;
- Field layout is done using stakes and flags of various predefined colours;
- Ore and waste are loaded out and dispatched to the appropriate locations based on the aforementioned flags; and
- These locations are communicated to foremen and operators by the production geologist.

Overburden

At the Minto mine site overburden primarily comprises silt and fine sand with occasional lenses of clay and coarse sand to gravel. Silt and clay are classified as fine-grained soil while sand and gravel are classified as coarse grained soil, in accordance with the Unified Soil Classification System.

Since late 2007, Minto has been hauling overburden to the designated Reclamation Overburden Dump (ROD) for future use as soil cover reclamation material at and leading up to closure. The ROD was expanded in mid-2010 to store much of the overburden sourced from the Stage 5 Main Pit. Although ice-rich material has been segregated from the overburden and stored separately in the Ice-Rich Overburden Dump, the overburden itself has not been further segregated into coarse-grained and fine-grained types. The implementation of a soil cover reclamation system at the Minto Mine is expected to require fine-grained materials. Therefore, segregation and separate disposal of coarse-grained and fine-grained overburden is adopted in this waste rock and overburden management plan.

The results of field investigations conducted in the Area 2 open pit footprint show that approximately 50% of the overburden to be stripped during Phase IV will be fine grained (silty or clayey) materials, which may be better suited for use in soil cover construction. Overburden stripped from Area 2 open pit will be hauled to an expanded Reclamation Overburden Dump and placed into clearly defined sections of the dump based on the characteristics of materials as observed at the digging face. In addition, the two reclamation material stockpiles will be used to store fine-grained materials. Observation of the overburden stripping by qualified personnel will be required in order to achieve the required material segregation.

Samples of material hauled to the fine-grained portion of the ROD and reclamation material stockpiles will be collected and submitted for grain-size analysis to better characterize the materials for their use in soil cover construction as per the Minto Decommissioning and Reclamation Plan (Reference 5). The frequency of sampling should be sufficient to provide information on major sources of fine-grained materials placed into this portion of the dump. It is anticipated that the total number of samples required to accomplish this will be from two to three hundred depending on the actual volume of fine-grained materials encountered during stripping.

5.0 WASTE RELEASE AND DISPOSAL SCHEDULE

5.1 Waste Volumes

Based on Minto's Area 2 and118 open pits, and Portal Cut Release Schedule submitted to EBA on July 8, 2011 (Reference 6), the total expected volume of overburden waste from the Area 2 and Area 118 open pits for Phase IV development is 2.4 million bank cubic metres (BCM). An estimated loose volume of overburden waste is approximately 3.1 million cubic metres (Mm^3) by using a bulking factor of 1.3.

The total expected volume of waste rock from the Area 2 and 118 open pits and underground operations for Phase IV development is 8.7 million BCM for the waste release period between April 1, 2011 and August 1, 2013. An estimated loose volume of the waste rock to be placed in dumpsites is approximately 11.3 mm^3 using a bulking factor of 1.3. A breakdown of the waste rock volumes by grade bin is shown in Table 2, which has been estimated based on a block model constructed from SRK's exploration data.

Table 2: Summary of Waste Rock Volumes by Grade Bin

Grade Bin (% Copper)	Expected Volume (BCM)	Estimated Loose Volume (m^3)
0.00 (Zero-grade Waste)	5,117,000	6,652,000
0.01-0.10 (Low-grade Waste)	353,000	459,000
0.10-0.36 (Mid-grade Waste)	1,697,000*	2,206,000
0.36-COG (High-grade Waste)	1,496,000	1,945,000
Total	8,663,000	11,262,000

* Including all waste rock from the underground workings, which has not been broken down in grade bins as per Minto Explorations.

5.2 Waste Disposal Schedule

Waste will be disposed in the following dumpsites:

- The Mill Valley Fill Expansion (MVFE);
- The Southwest Waste Dump Expansion (SWDE);
- The Area 1 South Wall Buttress; and
- Reclamation Material Stockpile Areas.

Dump and structure footprints are shown on Drawing WMP-01. According to the Phase IV Mine Plan and July 2011 dump schedule (Reference 6), the design volumes, material sources, and schedule for each dump and structure are presented in Table 3 below.

Table 3: Waste Management Component Summary

Structure/Dump	Design Volume ($M\ m^3$)	Waste Type	Material Source	Schedule
Area 1 South Wall Buttress	2.2	Zero-grade Waste Low-grade Waste Mid-grade Waste	Area 2 Open Pit	August 2011 to July 2012
MVFE	1.5	Zero-grade Waste	Area 2 Open Pit	September 2011 to September 2012
SWDE - Overburden Area	2.5	Overburden*	Area 2 and118 Open Pits	April 2011 to August 2013
SWDE – Zero & Low Grade Waste Area	4.9	Zero-grade Waste Low-grade Waste	Area 2 and118 Open Pits and Underground Portal	April 2011 to August 2013
SWDE – Mid-Grade Waste Area	2.0	Mid-grade Waste	Area 2 and 118 Open Pits and Underground Portal	April 2011 to June 2015
SWDE – High-Grade Waste Area	3.0	High-grade Waste	Area 2 and 118 Open Pits	April 2011 to August 2013
Mill Valley Reclamation Material Stockpile	0.1	Overburden*	Area 2 Open Pit	April 2011 to August 2013
Airport Reclamation Material Stockpile	0.9	Overburden*	Area 2 Open Pit	April 2011 to August 2013
Total	17.1	-	-	-

* Only non-ice-rich overburden will be disposed in these dump/stockpile areas; ice-rich overburden will be disposed in the existing Ice-rich Overburden Dump.

The waste disposal schedules for overburden and waste rock are graphically shown on Drawings WMP-02 and WMP-03. It is envisioned that the waste will be transported from the sources to the dump sites according to the scheme shown on WMP-04.

6.0 WASTE DUMP DESIGN

6.1 General Design Criteria

In order to determine the level of design effort required, the waste dumpsites were evaluated and assigned a stability rating in accordance with Mined Rock and Overburden Piles Investigation and Design Manual Interim Guidelines (Reference 2). Main factors affecting dump stability ratings include the dump height, volume, slope, foundation, confinement of dump, dump material, construction method, groundwater and climatic conditions, and seismicity. Stability ratings of the Minto dumpsites are shown in Table 4 below.

Table 4: Stability Rating of Minto Dump Sites

Dump Site	Stability Rating Point
MVFE	250
SWDE	400
Mill Valley Reclamation Material Stockpile	250
Airport Reclamation Material Stockpile	250

Based on the rating points the MVFE, Mill Valley Reclamation Material Stockpile, and Airport Reclamation Material Stockpile were assigned as Class I (i.e. ratings<300) while the SWDE was assigned as Class II (ratings in the range of 300 – 600).

Recommended level of design effort for Classes I and II is presented in Table 5 below.

Table 5: Dump Stability Classes and Recommended Level of Effort*

Dump Stability Class	Failure Hazard	Recommended Level of Investigation, Design and Construction
I	Negligible	▪ Basic site reconnaissance, baseline documentation ▪ Minimal lab testing ▪ Routine check of stability, possibly using charts ▪ Minimal restrictions on construction ▪ Visual monitoring only
II	Low	▪ Thorough site investigation ▪ Testpits, sampling may be required ▪ Limited lab index testing ▪ Stability may or may not influence design ▪ Basic stability analysis required ▪ Limited restrictions on construction ▪ Routine visual and instrument monitoring

*Table 5 is adapted from Table 5.2 in the Mined Rock and Overburden Piles Investigation and Design Manual Interim Guidelines.

The Area 1 South Wall Buttress was not evaluated in this report. The buttress details are provided in EBA's report "Area 1 South Wall Buttress Design Report" (Reference 7).

The design criteria used to develop the WROMP are summarized in Table 6 below:

Table 6: General Design Criteria for Waste Rock and Overburden

Item	Design Criteria
1.0 General	
Waste Generation from the Area 2 and 118 Open Pits and Underground Portal	▪ Overburden 3.1 million loose cubic Metres ▪ Waste Rock 11.3 million loose cubic Metres
Climate	▪ Mean annual precipitation = 275 mm ▪ Mean annual temperature = -1.9°C ▪ Design storm event - 100 year return period
Seismic Design	▪ Peak ground acceleration (PGA) = 0.055g at an annual probability of 1 in 475 years
Dump Stability Class	▪ Class I - MVFE, and Reclamation Material Stockpiles ▪ Class II - SWDE
Factor of Safety (F.S.) for Fill Slope Stability (see Note 1)	▪ Surface Failure = short-term F.S. = 1.0 long-term F.S. = 1.1 ▪ Deep-seated Failure = short-term F.S. = 1.1 long-term F.S. = 1.3 seismic F.S. = 1.0
2.0 Waste Disposal Sites	
Design Volume	▪ MVFE = 1.5 M m^3 ▪ SWDE = 12.4 M m^3 (including overburden and waste rock) ▪ Area 1 South Wall Buttress = 2.2 M m^3 ▪ Mill Valley and Airport Reclamation Material Stockpiles = 1.0 M m^3
Waste Material	▪ MVFE: Zero-grade waste rock ▪ SWDE: Overburden, zero-grade, low-grade, mid-grade, and high-grade waste rock ▪ Area 1 South Wall Buttress: zero-grade, low-grade, mid-grade waste rock ▪ Mill Valley and Airport Reclamation Material Stockpile Areas: Overburden
Topsoil Salvage	▪ Topsoil from site preparation will be stockpiled
3.0 Closure	
General (see Note 2)	▪ Reclamation of disturbed areas where possible ▪ Flooded cover for the Area 1 open pit where potentially neutral metal leaching waste materials and tailings are placed ▪ Soil cover for the other dump sites ▪ Revegetation of dump site surfaces ▪ Remove all pipe works, sumps and pumps ▪ Decommission and reclaim all non-essential access roads and diversion ditches

Notes: 1) Minimum factors of safety adopted from Mined Rock and Overburden Piles Investigation and Design Manual Interim Guidelines; 2) Closure design criteria based on the Minto Decommissioning and Reclamation Plan.

6.2 Closure Considerations

Detailed closure plans for each dumpsite are addressed in the Minto Decommissioning and Reclamation Plan (Reference 4). The closure plan for the waste disposal areas aims to return the dump sites to a state similar to surrounding lands, and to ensure long term physical stability (slope stability) and chemical stability (negligible metal transportation) of the waste. The following are considered in the closure plan:

1. Terraced slopes of the waste dumpsites will be reshaped to better match with the surrounding ground topography at closure.
2. All of the waste rock dumps will be covered by a soil cover to minimize surface water infiltration into the waste and to encourage growth of vegetation.
3. Upgrade the surface drainage system within the waste dump areas to have minimal impact on the surrounding natural drainage system.

6.3 Surface Drainage Considerations

Design of site grading and surface drainage system for the dumpsites is based on Operational Water Management Plan and Conceptual Closure Water Management Plan (Reference 1).

6.4 Mill Valley Fill Expansion

6.4.1 Design Considerations

The Mill Valley Fill Expansion (MVFE) consists of two fills: an extension of the existing Mill Valley fill and an expansion of the existing camp fill pad as shown on Drawing WMP-05. The MVFE will be constructed of zero-grade waste material to reduce the long-term potential for metal leaching.

Primarily, the MVFE is required to reduce ongoing creep movement observed within the Dry Stack Tailings Storage Facility (DSTSF). The DSTSF is located along the south slope of the upper Minto Creek Valley (Drawing WMP-05). In January 2011 EBA performed time-dependent deformation analyses of the DSTSF using FLAC v 6.0. The analyses were undertaken to better understand the on-going creep movement of the DSTSF and develop appropriate mitigation options. The construction of the MVFE as a buttress to the DSTSF was identified as the preferred mitigation option. The analyses indicate that the construction of the MVFE should reduce the rate of slope movement close to the front face of the DSTSF to within acceptable levels within one year. Details of the analyses are presented in EBA's technical memo "Dry Stack Tailings Storage Facility, Time-dependent Creep Deformation Analysis, Minto Mine, YT" dated January 27, 2011.

Based on the geological conditions at the site, the main geotechnical issues are expected to be:

1. Portions of the foundation soil in the MVFE are expected to consist of ice-rich soil. Ground movement due to creep of the ice-rich soil has been observed in the DSTSF area.
2. The site forms a portion of the upper Minto Creek Valley. Surface drainage must be adequately addressed in the design to ensure long-term fill slope stability and surface erosion control.

In order to address the above issues a rock toe key and a free draining layer of coarse rock fill zone directly over the ice-rich soil and below the general waste rock fill are incorporated in the design of the MVFE waste dump. Detailed design considerations are provided in the following Section 6.4.2.

EBA used the following design assumptions in the design of the MVFE:

- Any structures placed on the fill will be temporary and removed prior to closure.
- The waste rock is modeled as a cohesionless soil with a unit weight of 20 kN/m^3 and an internal angle of friction of 35°.
- The existing soils to about 3 m depth are composed of thawed cohesionless soil with a unit weight of 16 kN/m^3 and an internal angle of friction of 27°.
- The existing soils below 3 m depth are composed of frozen cohesionless soil with a unit weight of 18 kN/m^3 and an internal angle of friction of 30° that will behave as a thawed soil in terms of shear resistance.
- A design seismic pseudostatic horizontal acceleration of 0.055g based on an annual probability of 1 in 475 years is used for design.
- Bedrock is 10 m deep at the toe of the expansion.
- The foundation soils will be thawed to about 3 m depth below the fill at the time of placement.

6.4.2 Design Details

The extent of the MVFE can be seen on Drawing WMP-05, and typical sections and details can be seen on Drawing WMP-06. As mentioned above, the construction of the MVFE is intended to provide a toe berm to reduce the ground movement occurring in the DSTSF area. To achieve this objective, the downstream crest of the MVFE will be set at the design elevation of 765.0 m. This will bring up the MVFE surface to intersect the toe of the DSTSF at Elevation 770.0 m, which exceeds the minimum buttress height as determined by EBA's stability analyses. If a higher design elevation (i.e. greater than the design top crest El 765.0 m) is considered in future, EBA should be contacted for additional engineering analysis. The design of the MVFE involves the construction of drainage systems, excavation of the toe key, backfill of the toe key with waste rock, construction of water conveyance structures, placement of a coarse rock fill zone, and placement of general waste rock.

Drainage systems for the MVFE will consist of the coarse rock fill zone placed directly beneath the general waste rock fill to prevent the build-up of porewater pressures within the fill and to allow water to continue to flow down the Minto Creek valley. The plan view and a typical section of the coarse rock fill zone are illustrated on Drawings WMP-05 and WMP-06. The coarse rock fill zone should be constructed in a lift of 10 m with preferential segregation of approximately 3 to 5 m of coarse rock observed at the bottom. Laboratory particle size analyses were performed on two waste rock samples of minus 150 mm by EBA in July 2011. The testing results show that the fines content (<0.075 mm) is approximately 4 percent, and sand contents are in the range of 25 to 35 percent. The actual waste rock on dump sites contains a considerable amount of oversized particles which cannot be practically sampled for laboratory sieve analysis. By estimating the overall material content, the fines and sand contents in the actual waste rock are estimated to be less than 2 percent and 15 percent, respectively. The material is generally considered to be free draining. However, due to variation of waste rock quality, a practical sorting method, such as end-dump segregation, should be implemented during the placement of the coarse rock fill zone to ensure that the material is free draining. The following material sorting procedures may be considered:

- Only coarse waste rock should be dumped within the coarse rock fill zone.
- Waste rock with visible fines should not be used.
- The waste material should be observed by qualified personnel on the blast site prior to loading and hauling to the coarse rock fill zone.
- Before placement, the extents of the coarse rock fill zone should be clearly marked on the valley floor to ensure that only coarse waste rock is placed within these limits.
- End dump waste rock material at the top of the fill and push the waste rock off the edge of the fill.

The toe key (Drawing WMP-06) will extend a minimum of 10 m below the existing ground or to bedrock, whichever is shallowest. The purpose of the toe key is to provide stability against deep-seated failure into the foundation soils. The toe key will be backfilled with coarse rock fill.

W8 and W8a as illustrated on Drawing WMP-05 are locations downstream of the DSTSF used for water quality monitoring. These locations are required to continue to be viable monitoring locations during, and after, construction of the MVFE. In the event that the water quality is determined to be unacceptable, the water will be collected from these locations for treatment. Conceptual designs have been submitted which include a sump, riser and submersible pump (Reference 8). The detailed designs will be provided under a separate cover.

Waste rock and overburden will be placed by the end-dump method and nominally packed with spreading equipment. The rock fill will not meet the specifications for engineered fill; therefore, only temporary structures can be constructed on the completed surface of the MVFE.

The culvert that crosses the existing access road from the W-13a sampling point may be decommissioned. The water currently reporting to W-13a will be reduced following operational modifications.

The MVFE will be graded to drain water from west to east. A grade of 5 percent should be maintained from the crest of the MVFE to the crest of the existing Mill Valley Fill. This grade follows the grade of the existing access road.

The MVFE will be constructed with two benches at Elevations 745 m and 755 m. The faces of the benches will be graded at 26.5° (2H:1V). The stability of the fill slopes was analysed using GeoStudio 2007 Version 7.16. Factors of safety calculated for a typical section of slopes are shown on WMP-06.

6.4.3 Closure Plan

At closure, any buildings temporarily constructed on the MVFE will be removed. The terrace slopes on the downstream face of the MVFE will be re-graded to 4H:1V.

The surface of the zero-grade waste rock fill will be covered with growth media. The finished ground surface will be graded from west to east at approximately 5 percent to allow surface water to drain to the east at closure. The final ground surface will then be vegetated with local vegetation to reduce the potential for erosion.

The surface drainage system will be upgraded at closure. A west-east trunk drainage channel will be constructed to allow water to flow through the valley. Two additional channels connected to the trunk will be installed to the north and south of the trunk channel: the north channel will convey surface runoff from the north slope of the valley; and the south channel will convey surface runoff from the DSTSF. The channels will be lined to minimize water flow into the MVFE. Closure details are provided in the Minto Decommissioning and Reclamation Plan (Reference 5).

6.5 Southwest Waste Dump Expansion

6.5.1 General Description of Waste Disposal

The Southwest Waste Dump Expansion (SWDE) is located immediately to the west and above the existing Southwest Waste Dump. The purpose of the SWDE is to provide additional storage area for overburden and all grades of waste rock mined from the Area 2 and Area 118 open pits and underground workings.

The current data shows movement in the foundation soils at the northeast toe of the existing dump. It is assumed that this movement is likely associated with the instability of the Area 1 south pit wall. EBA is currently analyzing this movement, and a plan will be created to mitigate the movement. In light of the current assumption, and to not affect the stability of the existing dumpsite, Minto has elected to locate the expansion areas as far to the south and west as possible, away from the area of current movement.

Slope monitoring will continue following construction of the Area 1 South Wall Buttress. If the measured movement is at an acceptable rate, Minto may elect to place additional waste material inside the permitted SWD along with the SWDE.

The SWDE consists of:

- Overburden Area: Situated immediately south of the existing Reclamation Overburden Dump, the Overburden Area will be used to store non ice-rich overburden material. It is expected that the overburden comprises approximately 50% of fine-grained soil (silty and clayey soils) which will be suitable for soil cover construction and 50% of sandy soil. Thus these two types of soils will be stored separately.
- Zero and Low Grade Waste Area: Situated immediately to the east of the Overburden Area. This area will contain zero- an low-grade waste.
- Mid-grade Waste Area: Situated in the southwest of the SWDE, This area will contain mid-grade waste.
- High-grade Waste Area: Located immediately to the east of the mid-grade waste dump. This area will contain high-grade waste.

The design volumes of the SWDE are presented in Table 7. As mentioned earlier, the volume of high-grade waste is dependent on the economic cut-off grade determined going forward. The material in the high-grade waste area may be milled before the mine closes if it is economically advantageous. However, along with the milling option, the material may also be capped and covered in place, or transported to one of the pits for sub-aqueous deposition at closure.

Table 7: Southwest Waste Dump Expansion Design Volumes

Dump Area	Design Volume (M m^3)*
Overburden Area	2.5 M m^3
Zero and Low-grade Waste Area	4.9 M m^3
Mid-grade Waste Area	2.0 M m^3
High-grade Waste Area	3.0 M m^3
Total	9.9 M m^3 (waste rock) + 2.5 M m^3 (overburden)

*Calculation of the design volume was based on the pre-development ground surface.

6.5.2 Design Considerations

Engineering properties of materials were based on the 2008 EBA Geotechnical Design Report for the proposed Southwest Waste Dump (Reference 9). The following were adopted in the design of the SWDE:

- The waste rock is modeled as a cohesionless soil with a unit weight of 20 kN/m^3 and an internal angle of friction of 35°.
- The foundation soils are composed of cohesionless soil with a unit weight of 19 kN/m^3 and an internal angle of friction of 28°.
- The foundation soils will behave as an unfrozen soil in terms of shear resistance.
- A design seismic pseudostatic horizontal acceleration of 0.055g based on an annual probability of 1 in 475 years is used.
- The bedrock surface elevations are inferred from Minto exploration data.

6.5.3 Design Details

The plan view of the SWDE is shown on Drawing WMP-07. The SWDE has been designed with 1.5H:1V terrace slopes (benches) with an overall slope of 2H:1V. The bench height is generally 10 m. Typical sections can be seen on Drawing WMP-08. The design surface elevations at the crests of the side slopes are shown in Table 8 below.

Table 8: Southwest Waste Dump Expansion Design Elevations

Dump Area	Design Surface Elevation at the Crest of Top Bench
Overburden Area	El. 920.0 m
Zero and Low-grade Waste Rock Area	El. 910.0 m
Mid-grade Waste Rock Area	El. 915.0 m
High-grade Waste Rock Area	El. 915.0 m

A grade of 2 percent for the dump surface will be maintained to allow surface water to drain to the east during the operational life of the mine.

A layer of low-grade waste rock will be placed directly on the original ground surface prior to disposal of the mid and high-grade waste. The low-grade waste pad will function as a moisture barrier to prevent the mid and high-grade waste from direct contacting with water, and therefore minimize the potential for metal leaching.

The stability of the SWDE design was analysed using GeoStudio 2007 Version 7.16. The factors of safety calculated for two slope sections are shown on Drawing WMP-08.

6.5.4 Closure Plan

It is expected that some of the overburden material will be transported to the other waste disposal areas and closure units for use as surface soil cover material (growth media). Therefore, the final geometry of the overburden dump area will be subject to change at closure.

The volume and footprint of the high-grade waste area are expected to change at mine closure. All of the mid and high-grade waste, if not milled at mine closure, will be capped by a soil cover system, or transported to a mined pit for sub-aqueous disposal. This will be assessed later in the mine life.

At closure all of the terrace slopes in the SWDE will be re-graded to 2H:1V. The waste rock dump surface will be covered by a soil cover to allow for vegetation growth. The overburden will be vegetated with local vegetation to reduce the potential for erosion. The upper surface of the dump will be graded to 2 percent to allow surface water to drain to the east. Final grading may be achieved by placing and compacting additional waste materials in local depression spots in order to minimize water ponding on the dump surface and facilitate run-off.

6.6 Area 1 South Wall Buttress

6.6.1 Design

Construction of a buttress on the south wall of the Area 1 open pit is required to mitigate movement observed on the south wall, which is currently exhibiting creep deformation. Details of the design are provided in EBA's design report "Area 1 South Wall Buttress Design Report, Minto Mine, Yukon" (Reference 7). The design configuration of the buttress was based on slope stability analysis results. For the global stability analyses, a long-term factor of safety value of 1.3 is used. A rapid drawdown analysis was also conducted to determine the effect of instantaneously reducing the maximum spill elevation form 786.0 m to 778.0 m. For rapid drawdown analysis, a short-term factor of safety value of 1.1 is used.

6.6.2 Buttress Construction

The buttress will be constructed using waste rock sourced from Area 2 mining activities. The rock fill may consist of zero-grade, low-grade and mid-grade waste rock depending on the availability of the rock types at the time of construction. The face of the buttress will be at an angle of 4H:1V with a crest width of 50 m. The plan view of the buttress and a typical section are illustrated in Drawing WMP-09.

6.6.3 Closure Plan

The Area 1 open pit will be flooded with water at closure, with a design pond water level elevation of 786.0 m amsl. It is expected that no re-contouring, re-location, or soil cover placement within both the flooded or un-flooded portions of the buttress will be required at closure.

6.7 Reclamation Material Stockpiles

6.7.1 Design Considerations

Two reclamation material stockpiles in addition to the SWDE overburden area are incorporated in this waste management plan. One is located on the north portion of the MVFE, and the other is on the hillside situated to the north of the airport. Construction of the reclamation material stockpiles will provide reclamation material for use as soil cover for the DSTSF and MVFE areas at closure. In addition, the Airport Reclamation Material Stockpile may be used to store excessive overburden material if the Southwest Dump overburden storage capacity is limited. The reclamation material will be sourced from Area 2 and Area 118 open pits.

The Mill Valley Reclamation Material Stockpile will be built on the top of the MVFE. No subsurface information regarding the Airport Reclamation Material Stockpile site is available at the time of this report preparation; however, an investigation program which will include investigation of this area is planned to take place during the late summer/fall of 2011. Following completion of the investigation program the analyses and recommendations presented in this section will be updated as required. The following soil parameters were assumed in the design of the reclamation material stockpiles:

- The reclamation material consists of cohesionless silty sand, silt and sand, and is generally in a loose condition with a unit weight of 18 kN/m^3 and an internal angle of friction of 25°.
- The natural foundation soils to about 3 m depth are composed of thawed cohesionless soil with a unit weight of 18.5 kN/m^3 and an internal angle of friction of 28°.
- The existing soils below 3 m depth are composed of frozen cohesionless soil that will behave like bedrock. However, this assumption will be further reviewed after the late summer/fall 2011 drilling program is completed.
- A design seismic pseudostatic horizontal acceleration of 0.055g based on an annual probability of 1 in 475 years is used for design.

6.7.2 Design Details

The MVFE and Airport reclamation material stockpiles are shown on Drawing WMP-10. The height of the MVFE Reclamation Material Stockpile is 10 m. The side slopes of the stockpile are 3H:1V. The Airport Reclamation Material Stockpile was designed with 3H:1V terrace slopes (benches) with a vertical interval of 10 m and a horizontal setback of 15 m. Typical sections can be seen on Drawing WMP-11.

A grade of 2 percent for the dump surface will be maintained to allow surface water to drain away from the stockpile areas. The stability of the reclamation material stockpiles was checked using GeoStudio 2007

Version 7.16. The factors of safety calculated for the typical cross sections are included on Drawing WMP-11.

6.7.3 Closure Plan

The MVFE Reclamation Material Stockpile will be used as growth medium material for the MVFE. The Airport Reclamation Material Stockpile will be used as soil cover material for the DSTSF and as growth media for the MVFE. Re-grading of the Airport Reclamation Material Stockpile area will be required if any reclamation material is left at the site, following closure. The future ground surface will be vegetated with local vegetation to reduce the potential for erosion.

7.0 GENERAL RECOMMENDATIONS FOR CONSTRUCTION

7.1 Site Preparation During Waste Disposal

It is expected that all waste materials will be trucked to the dumpsites and unloaded using the end-dump method. Bulldozers may be utilized to spread out the materials for rough grading purposes. The dumpsites are to be built up in lifts of approximately 10 m. Rough grading is required for each lift in order to facilitate surface runoff and traffic during construction.

The final lift of waste dump should be spread out and levelled according to the design grades. This could greatly reduce site preparation efforts required at the closure stage.

In the waste rock dump areas it is desirable to minimize surface water infiltration at mine closure. A good site preparation procedure for the final lift of waste rock prior to placement of the soil cover can make a great contribution in reducing infiltration rates. This could be achieved by maximizing trafficking on the final lift by the heavy mining equipment during dump construction.

7.2 Reclamation of Overburden Waste

It is expected that the overburden from Area 2 open pit comprises approximately 50% fine-grained soil (silty and clayey) and 50% coarse-grained soil (sandy), which will be disposed separately. Observation by qualified personnel is required during the excavation of the overburden from Area 2 and 118 open pits to ensure that the overburden materials are separately disposed at the dumpsite. Sampling of the overburden soils is needed for laboratory tests and engineering design of the soil covers.

The reclamation overburden materials disposed at the dumpsites including the reclamation material stockpiles will be re-used as a source for soil cover during reclamation of the closure units as presented in the Minto Decommissioning and Reclamation Plan. Any overburden materials remaining in the dumps after closure and reclamation is completed should be resloped and revegetated according to the Minto Decommissioning and Reclamation Plan (Reference 5).

8.0 MONITORING PROGRAM

The current site monitoring program includes slope stability monitoring of significant earth structures. The water quality monitoring is performed at various onsite and offsite water sampling points. The current monitoring program is expected to continue through the operational life of the mine, and be amended at closure.

Additional instrumentation and visual monitoring of stability of the side slopes on all dumpsites should be incorporated in the above mentioned monitoring program, and should be reviewed on a regular basis. The slope monitoring schedule is expected to be dictated by future waste disposal scheduling.

Maintenance or termination of the monitoring program in post-closure will be decided at closure.

9.0 CLOSURE

We trust this proposal/report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

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Date Sept 9, 2011
PERMIT NUMBER PP003
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REFERENCES

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2 British Columbia Mine Waste Rock Pile Research Committee, 1991. Mined Rock and Overburden Piles Investigation and Design Manual Interim Guidelines.

3 SRK Consulting (Canada) Inc., August 2010. Minto Mine Expansion – Phase IV ML/ARD Assessment and Post-closure Water Quality Prediction.

4 Minto Explorations Ltd., July 13, 2011. Phase IV Dump Plan. Email Correspondence.

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6 Minto Explorations Ltd., July 8, 2011. The Phase IV Schedule. Email Correspondence.

7 EBA Engineering Consultants Ltd., July 26, 2011. Area 1 South Wall Buttress Design Report (Issued for Review).

8 EBA Engineering Consultants Ltd., July 11, 2011. Water Conveyance within Mill Valley Fill Expansion. Technical Memo.

9 EBA Engineering Consultants Ltd., September 2008. Geotechnical Design, Proposed Southwest Waste Dump, Minto Mine, Yukon (Issued for Review).

FIGURES

Figure WMP-01	Overall Site Plan - Waste Storage Components
Figure WMP-02	Overburden Release from Phase IV Mine Expansion
Figure WMP-03	Waste Rock Release from Phase IV Mine Expansion
Figure WMP-04	Waste Flow Charts
Figure WMP-05	Site Plan - Mill Valley Fill Expansion
Figure WMP-06	Sections - Mill Valley Fill Expansion
Figure WMP-07	Site Plan - Southwest Waste Dump Expansion
Figure WMP-08	Section - Southwest Waste Dump Expansion
Figure WMP-09	Area 1 Open Pit South Wall Buttress Plan and Profile
Figure WMP-10	Site Plan – Mill Valley and Airport Reclamation Stockpiles
Figure WMP-11	Sections – Mill Valley and Airport Reclamation Material Stockpiles

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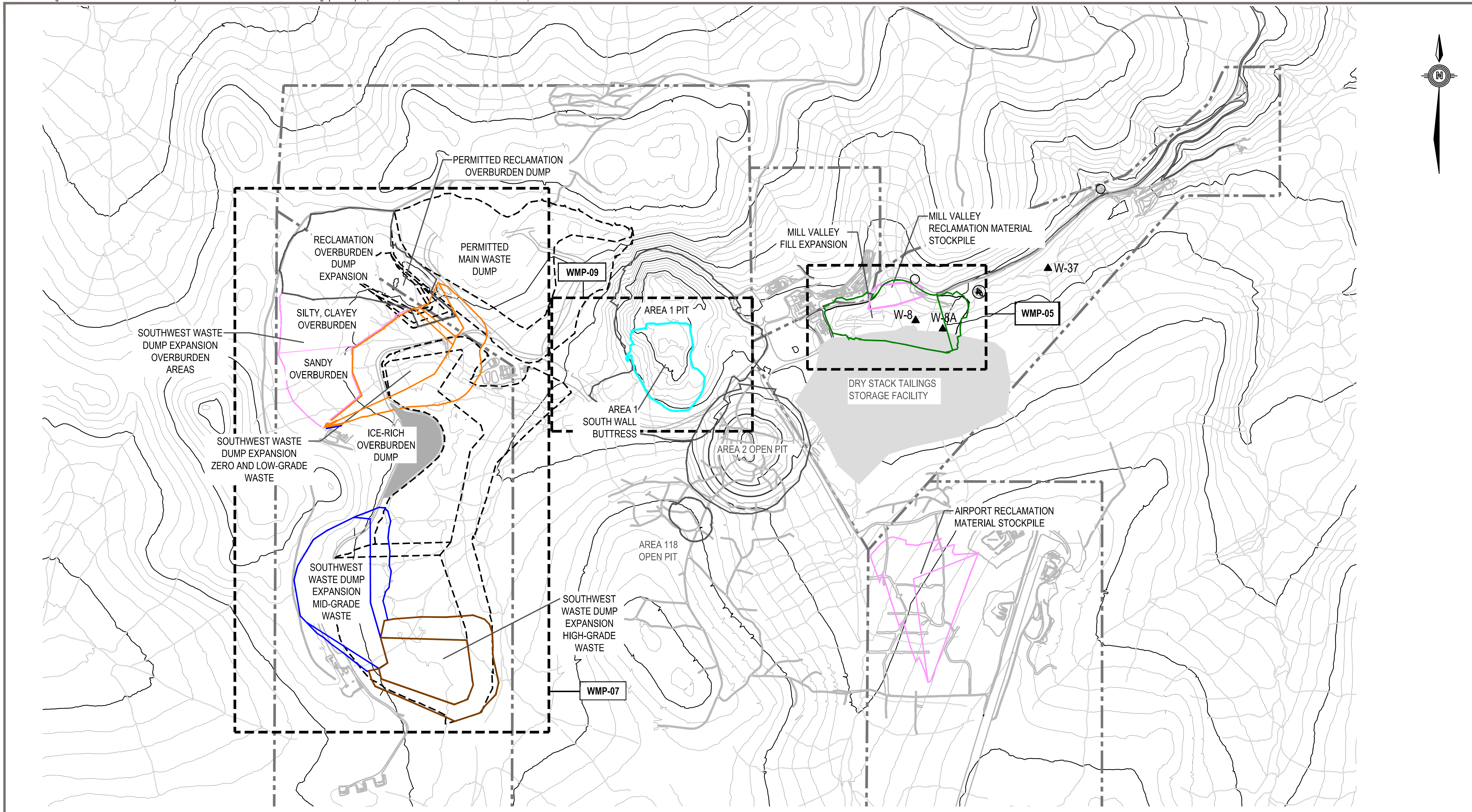


LEGEND

- HIGH-GRADE WASTE
- MID-GRADE WASTE
- LOW-GRADE WASTE
- ZERO-GRADE WASTE
- OVERBURDEN
- AREA 1 SOUTH WALL BUTTRESS OUTLINE
- LEASE BOUNDARY

NOTES
1) 10m INTERMEDIATE AND 50m INDEX CONTOUR DATA SHOWN BASED IN JANUARY 2011 SURVEY. DATA PROVIDED BY MINTO.

ISSUED FOR USE

0 500
Scale: 1: 15 000 (metres)

CLIENT
MINTO EXPLORATIONS LTD.

eba
A TETRA TECH COMPANY

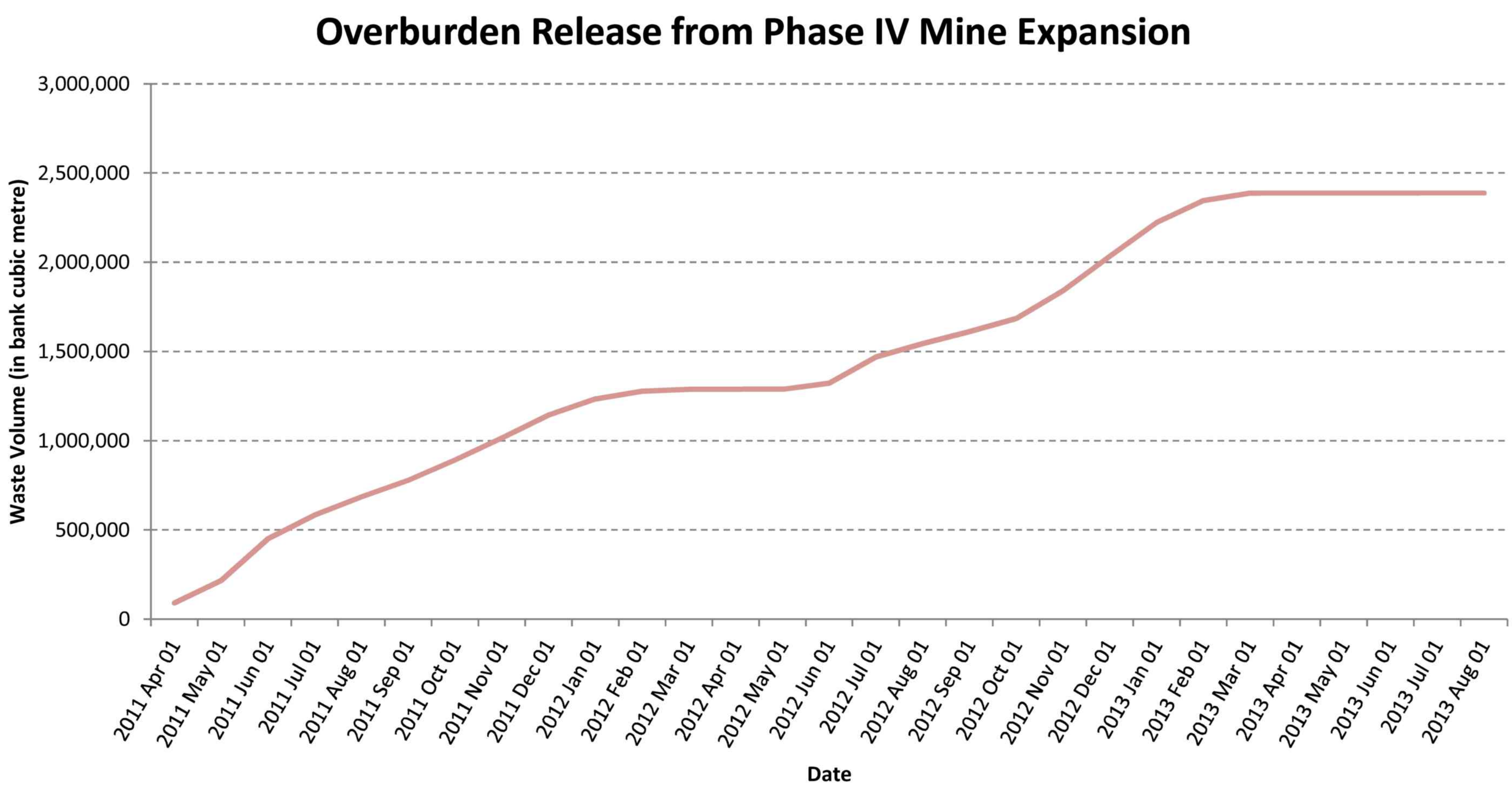
PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

OVERALL SITE PLAN WASTE MANAGEMENT PLAN COMPONENTS

PROJECT NO.	DWN	CKD	REV
W14101068.015	RERH	LD	B

OFFICE	DATE
EBA-KELOWNA	August 25, 2011

WMP-01



LEGEND

OVERBURDEN WASTE

NOTES

SOURCE DATA FROM " AREA 2 AND 118 RELEASE SCHEDULE" PROVIDED BY MINTO IN JULY 2011.

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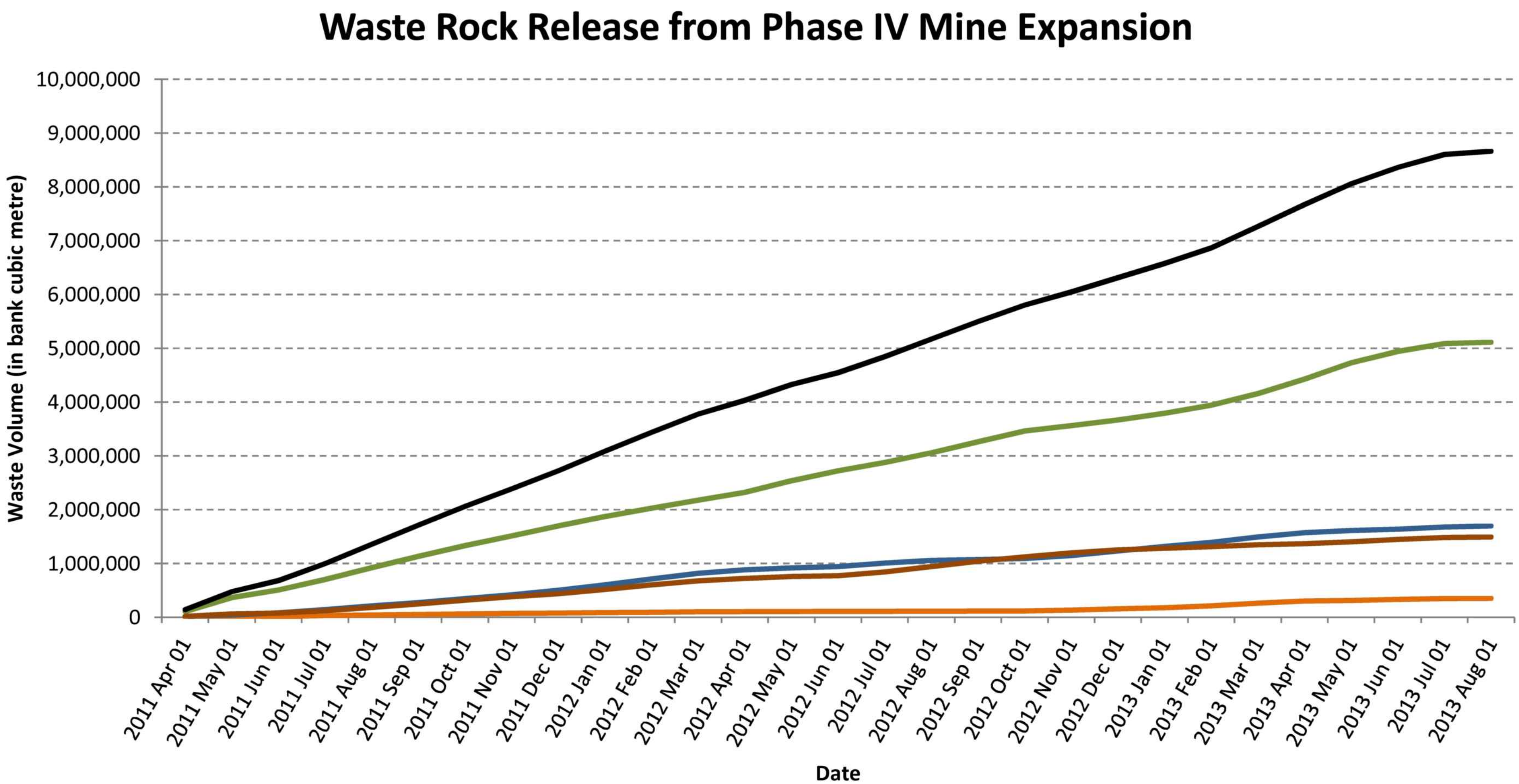
PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

OVERBURDEN RELEASE FROM PHASE IV MINE EXPANSION

PROJECT NO.	DWN	CKD	REV
W14101068.015	LM	LD	3

OFFICE	DATE
EBA-KELOWNA	August 23, 2011

WMP-02



LEGEND

- TOTAL WASTE
- ZERO-GRADE WASTE
- HIGH-GRADE WASTE
- MID-GRADE WASTE
- LOW-GRADE WASTE

NOTES

SOURCE DATA FROM " AREA 2 AND 118 RELEASE SCHEDULE" PROVIDED BY MINTO IN JULY 2011.

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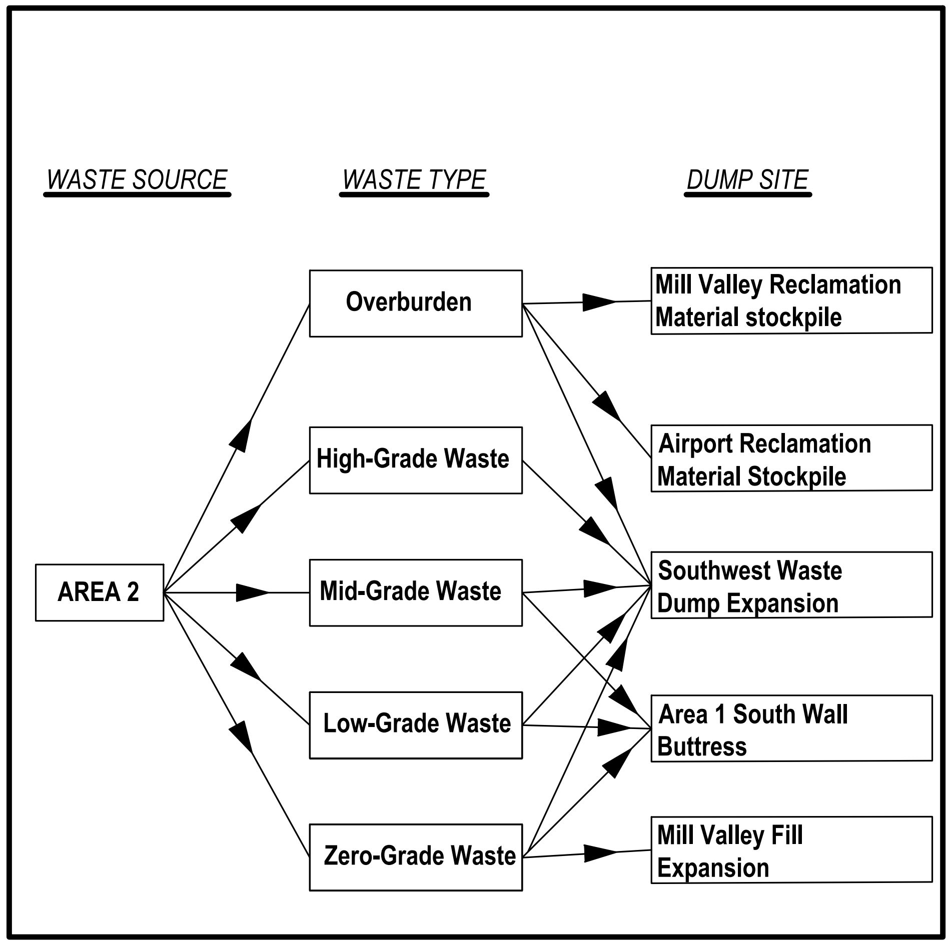
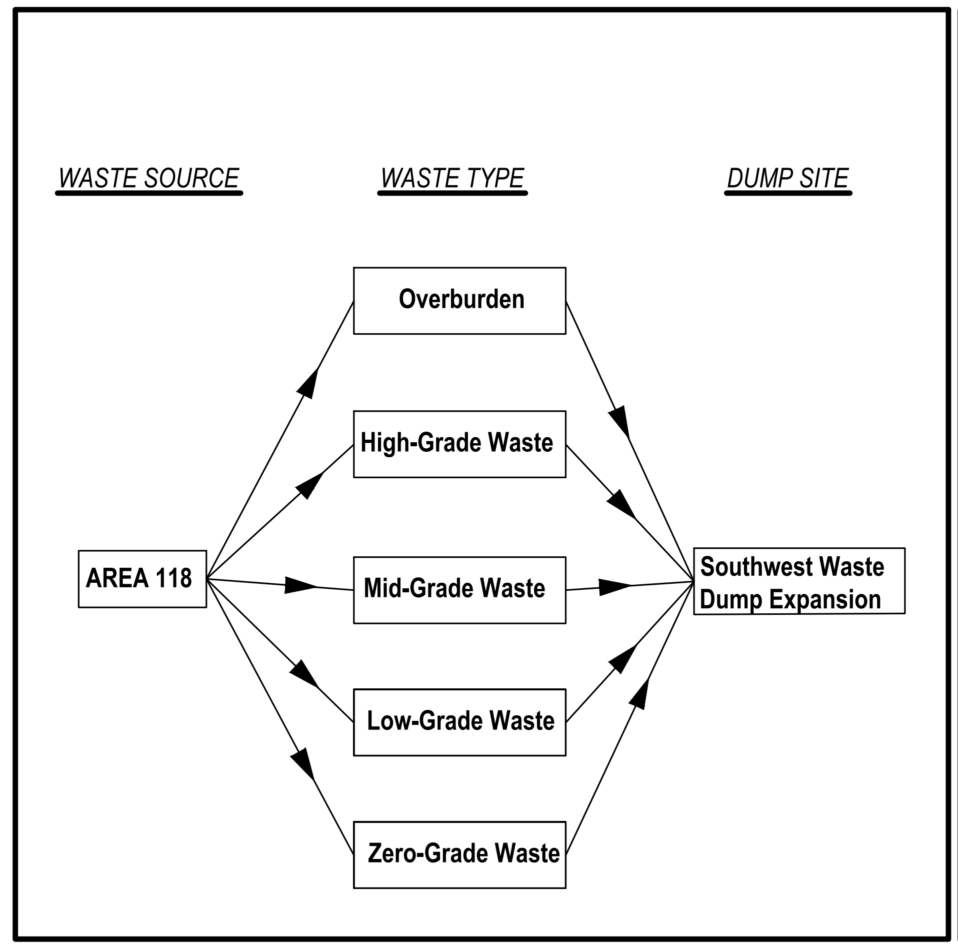
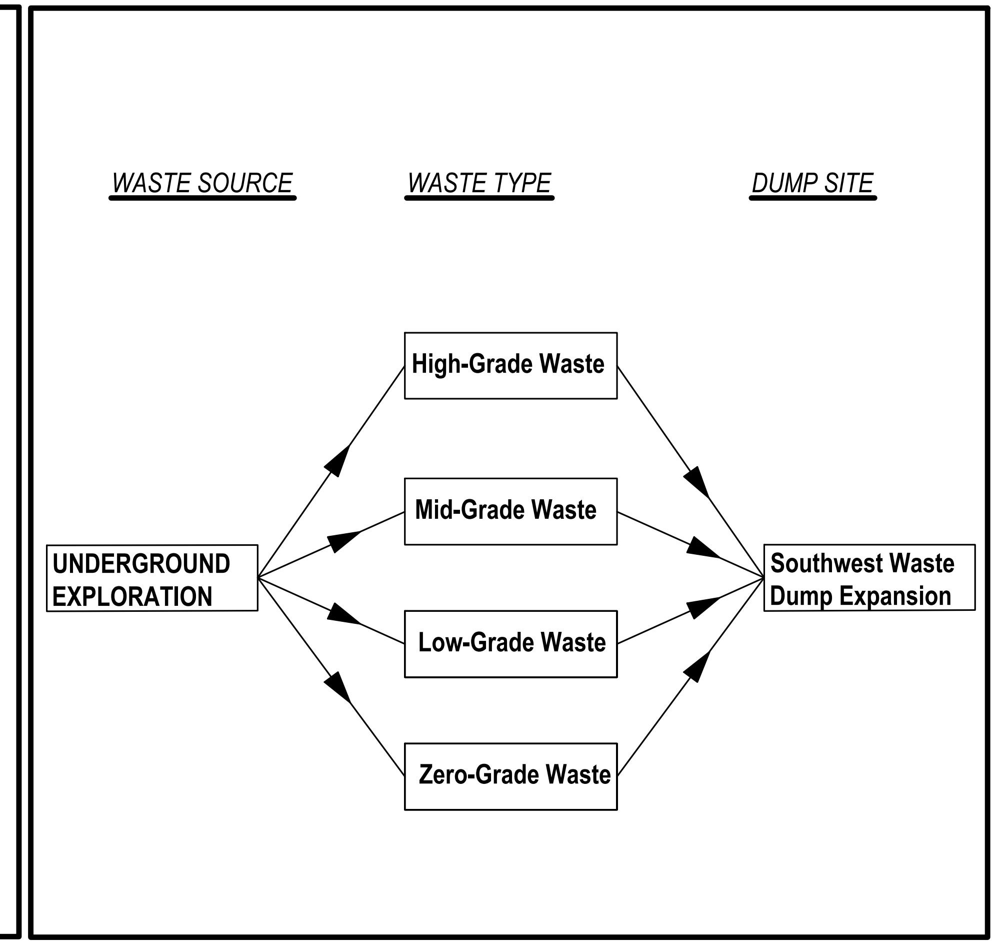
PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

WASTE ROCK RELEASE FROM PHASE IV MINE EXPANSION

PROJECT NO.	DWN	CKD	REV	
W14101068.015	LM	LD	3	**WMP-03**
OFFICE	DATE			
EBA-KELOWNA	August 23, 2011			







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CLIENT
MINTO EXPLORATIONS LTD.

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

WASTE FLOW CHARTS

A TETRA TECH COMPANY

PROJECT NO.	DWN	CKD	REV	
W14101068.015	RERH	LD	0	WMP-04
OFFICE	DATE			
EBA-Kelowna	August 23, 2011			

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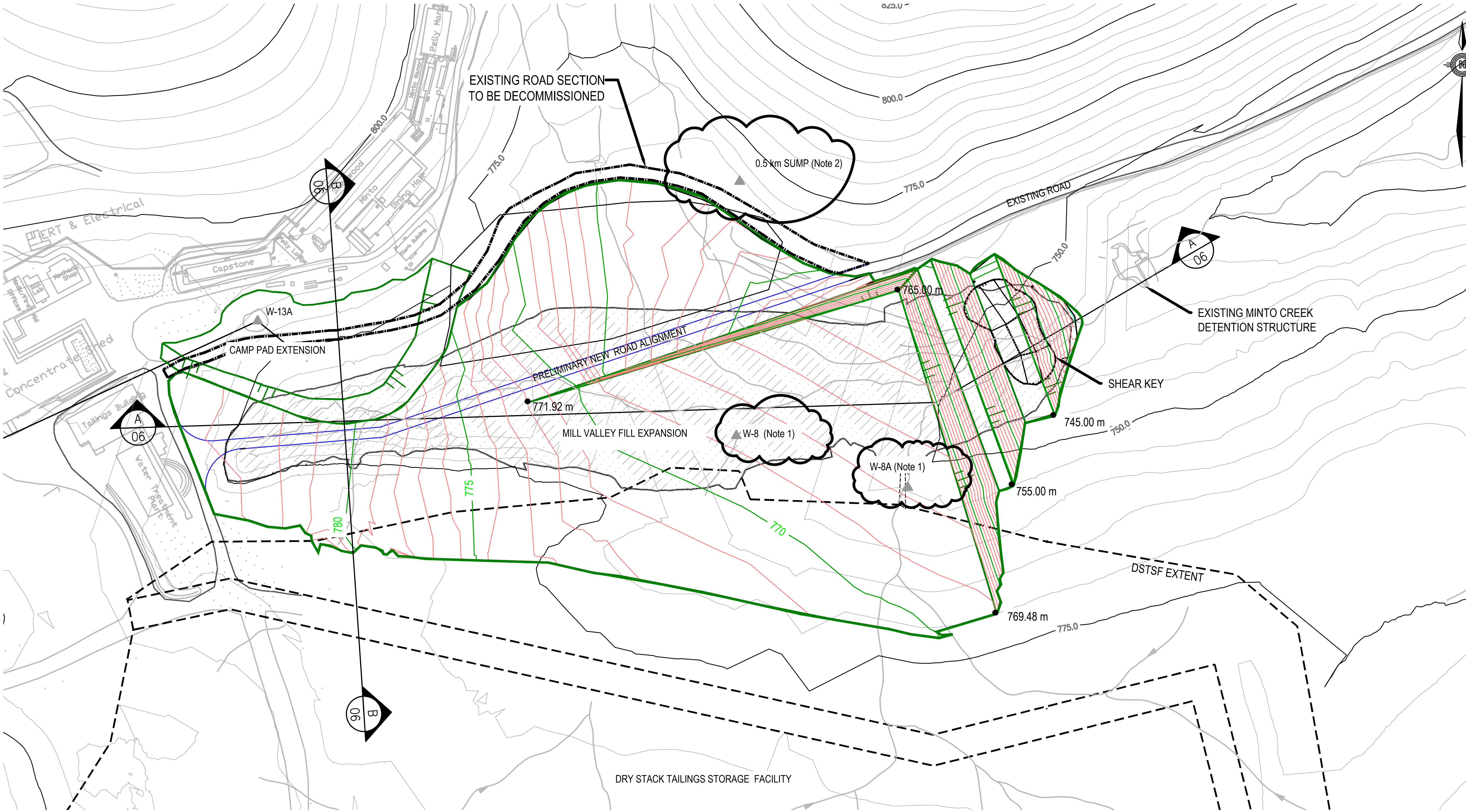


LEGEND

- MILL VALLEY FILL EXPANSION OUTLINE
- MILL VALLEY COARSE ROCK FILL ZONE
- MILL VALLEY EXPANSION INTERMEDIATE CONTOUR (DESIGN)
- 775 MILL VALLEY EXPANSION MAJOR CONTOUR (DESIGN)

NOTES

1) DESIGN DETAILS RELATED TO W-8 AND W-8A TO BE PROVIDED IN A SEPARATE MEMORANDUM.
2) DESIGN OF 0.5 km SUMP WILL BE UPGRADED.
3) 5 m INTERMEDIATE AND 25 m MAJOR CONTOUR DATA SHOWN BASED ON JANUARY 2011 SURVEY DATA PROVIDED BY MINTO.
4) 1 m INTERMEDIATE AND 5 m MAJOR DESIGN CONTOUR DATA SHOWN BASED ON MILL VALLEY EXPANSION SURFACE.

ISSUED FOR USE

0 100
Scale: 1: 2 500 (metres)

CLIENT

MINTO EXPLORATIONS LTD.

eba
A TETRA TECH COMPANY

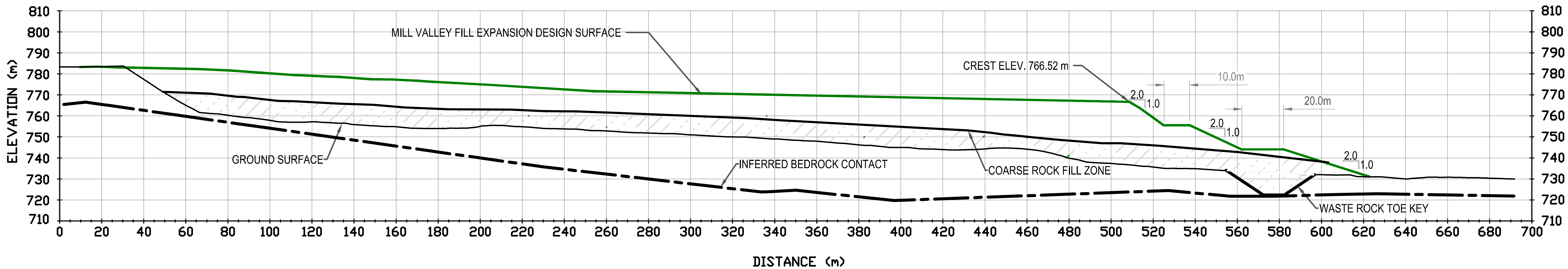
PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

SITE PLAN
MILL VALLEY FILL EXPANSION

PROJECT NO.	DWN	CKD	REV
W14101068.015	RERH	LD	B

OFFICE	DATE
EBA-KELOWNA	August 25, 2011

WMP-05



A
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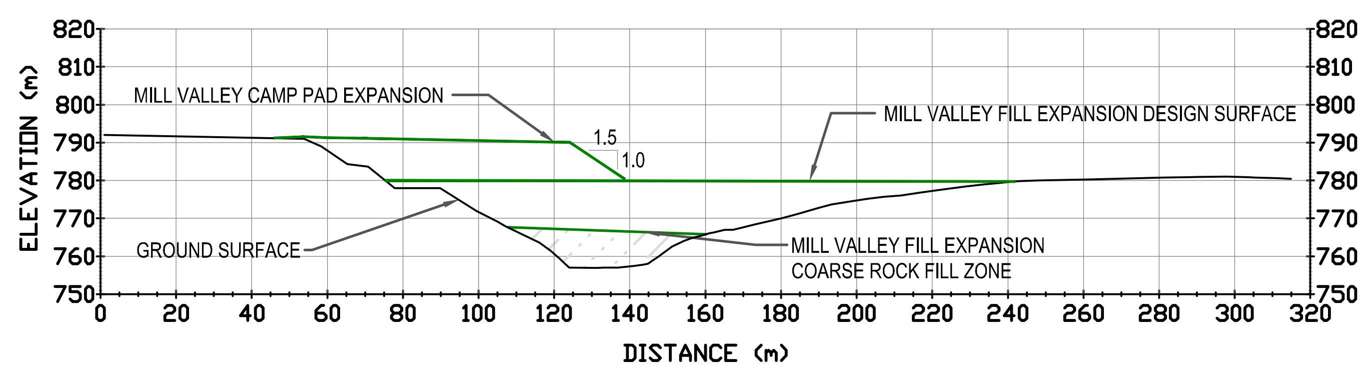


B
05

SLOPE STABILITY		
FAILURE TYPE	FACTOR OF SAFETY	
	CRITERIA	DESIGN
SHALLOW	1.0	1.4
DEEP SEATED (SHORT TERM)	1.1-1.3	1.1
DEEP SEATED (LONG TERM)	1.3	1.4
DEEP SEATED (SEISMIC)	1.0	1.2

ISSUED FOR USE

0 100
Scale: 1: 2 000 (metres)

CLIENT
MINTO EXPLORATIONS LTD.

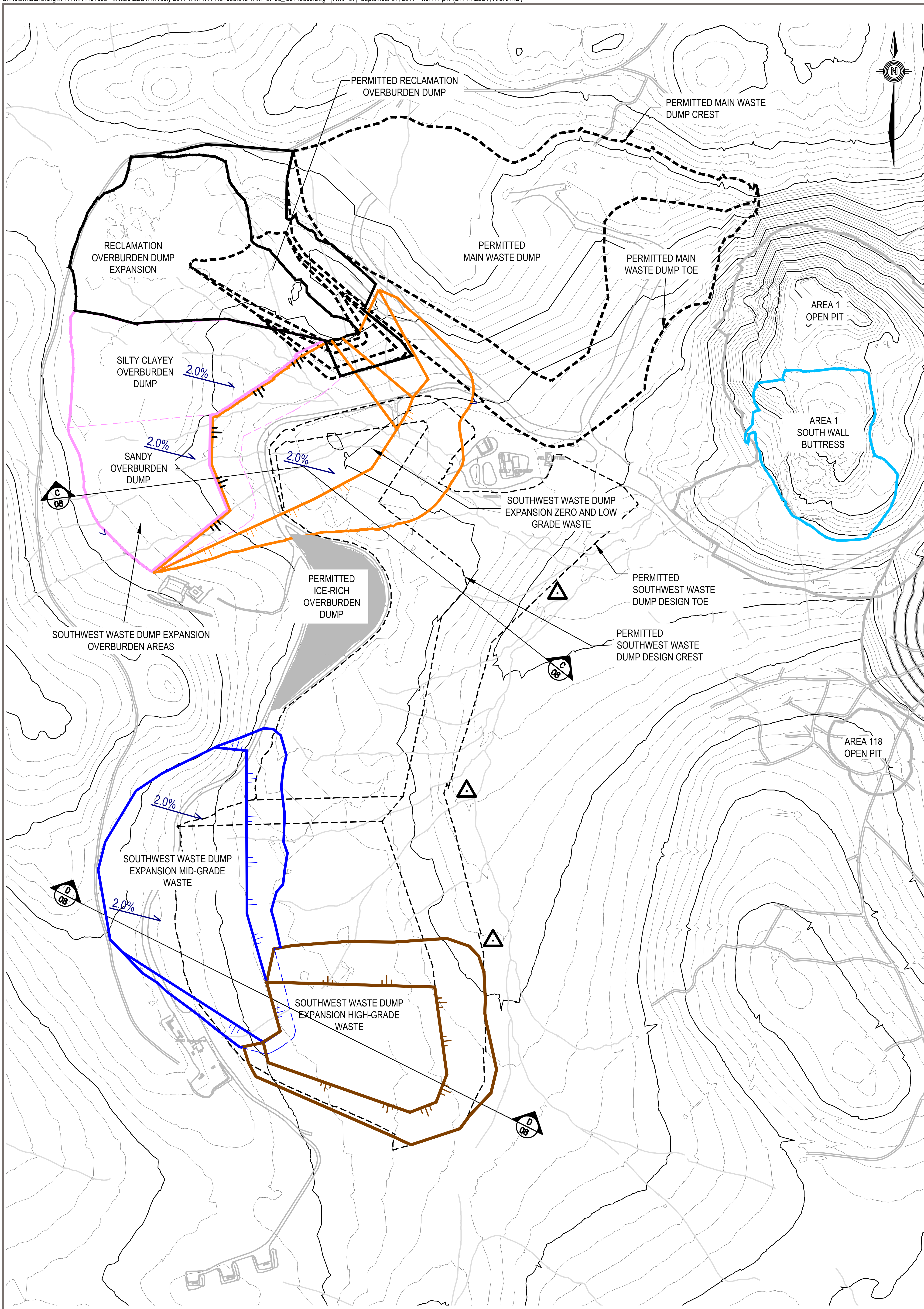
A TETRA TECH COMPANY

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

MILL VALLEY FILL EXPANSION SECTIONS

PROJECT NO.	DWN	CKD	REV
W14101068.015	RERH	LD	B
OFFICE	DATE		
EBA-KELOWNA	August 25, 2011		

WMP-06



LEGEND

- PROPOSED DITCH ALIGNMENT AND DIRECTION

2.0% - PROPOSED GRADING AND DIRECTION

- WATER SAMPLING / MONITORING POINT

0 250

Scale: 1: 7 500 (metres)

NOTES

5 m INTERMEDIATE AND 25 m MAJOR CONTOUR DATA SHOWN, BASED ON JANUARY 2011 SURVEY DATA PROVIDED BY MINTO.

ISSUED FOR USE

CLIENT

MINTO EXPLORATIONS LTD.

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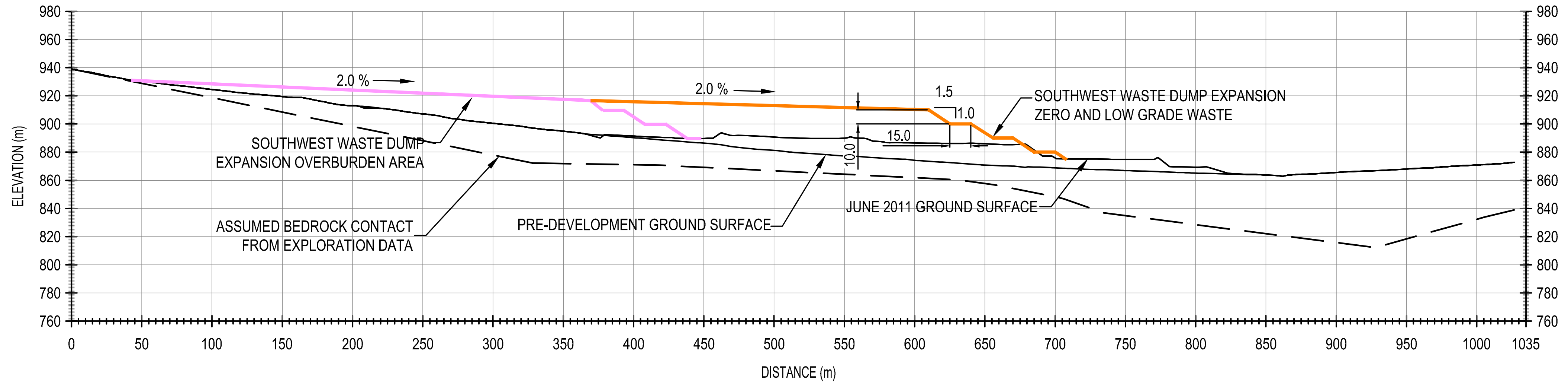
A TETRA TECH COMPANY

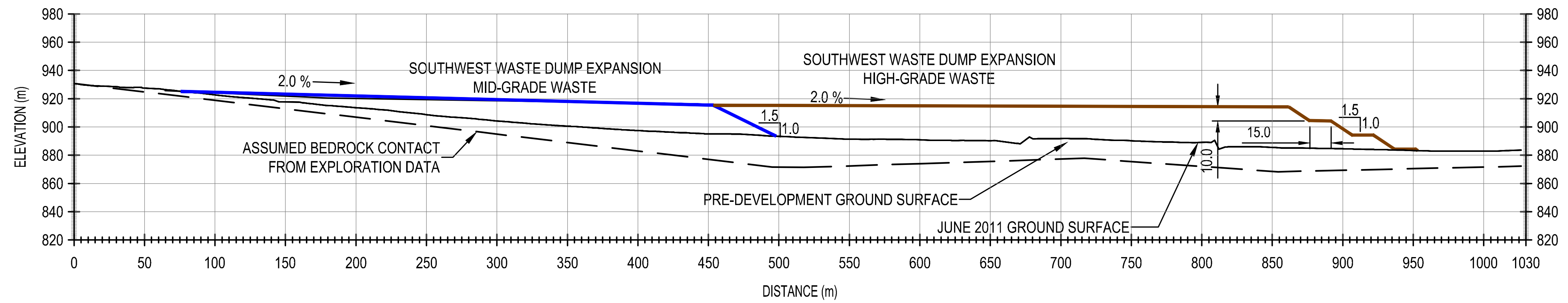
PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

SITE PLAN
SOUTHWEST WASTE DUMP EXPANSION

PROJECT NO.	DWN	CKD	REV	
W14101068.015	RERH	LD	C	**WMP-07**
OFFICE	DATE			
EBA-KELOWNA	August 25, 2011			



C / 07



D / 07

SLOPE STABILITY		
FAILURE TYPE	FACTOR OF SAFETY	
	CRITERIA	DESIGN
SHALLOW	1.0	1.1
DEEP SEATED (SHORT TERM)	1.1-1.3	1.8
DEEP SEATED (LONG TERM)	1.3	2.4
DEEP SEATED (SEISMIC)	1.0	1.8

LEGEND

- HIGH-GRADE WASTE
- MID-GRADE WASTE
- LOW-GRADE WASTE
- OVERBURDEN

NOTE:
A low-grade waste pad has been and will be placed on natural ground prior to placement of mid and high-grade waste material.

ISSUED FOR USE

0 200
Scale: 1: 4 000 (metres)

CLIENT
MINTO EXPLORATIONS LTD.

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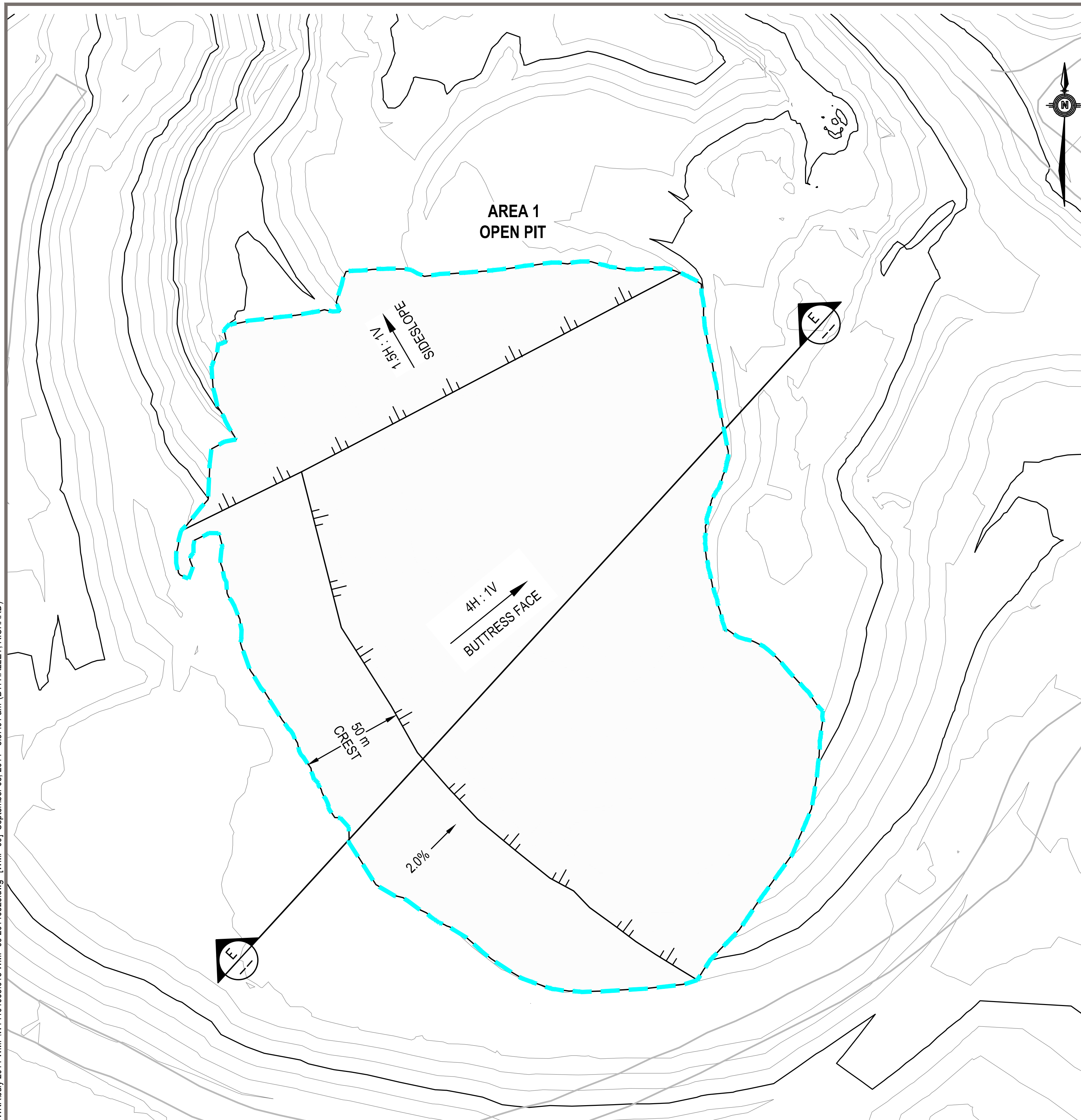
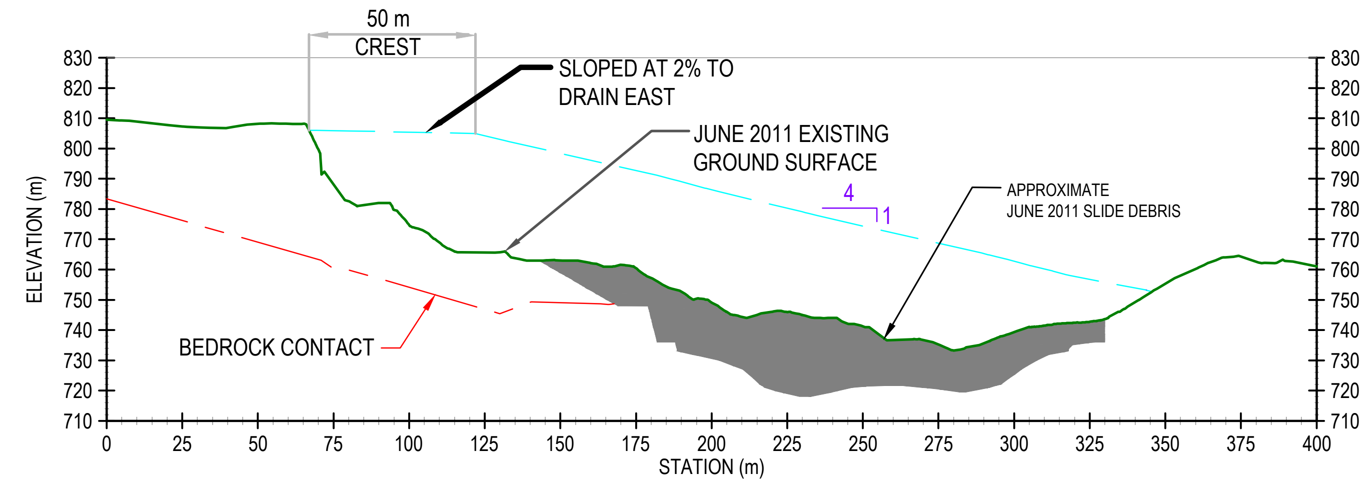
A TETRA TECH COMPANY

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

SOUTHWEST WASTE DUMP EXPANSION SECTIONS

PROJECT NO.	DWN	CKD	REV	
W14101068.015	RERH	LD	C	**WMP-08**
OFFICE: EBA-KELOWNA	DATE: August 25, 2011			





E
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SOUTH WALL BUTTRESS
SCALE 1:2500

LEGEND

- SECTION LINE
- SOUTH WALL BUTTRESS BOUNDARY

NOTES

(1) 5m INTERMEDIATE AND 25m INDEX CONTOUR DATA SHOWN BASED IN JANUARY 2011 SURVEY. DATA PROVIDED BY MINTO.

(2) AREA 1 SOUTH WALL BUTTRESS DESIGN WAS ADOPTED FROM EBA REPORT " AREA 1 SOUTH BUTTRESS DESIGN REPORT, MINTO MINE, YUKON.(DATED July, 2011)"

ISSUED FOR USE

0 100
Scale: 1: 2 500 (metres)

CLIENT
MINTO EXPLORATIONS LTD.

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A TETRA TECH COMPANY

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

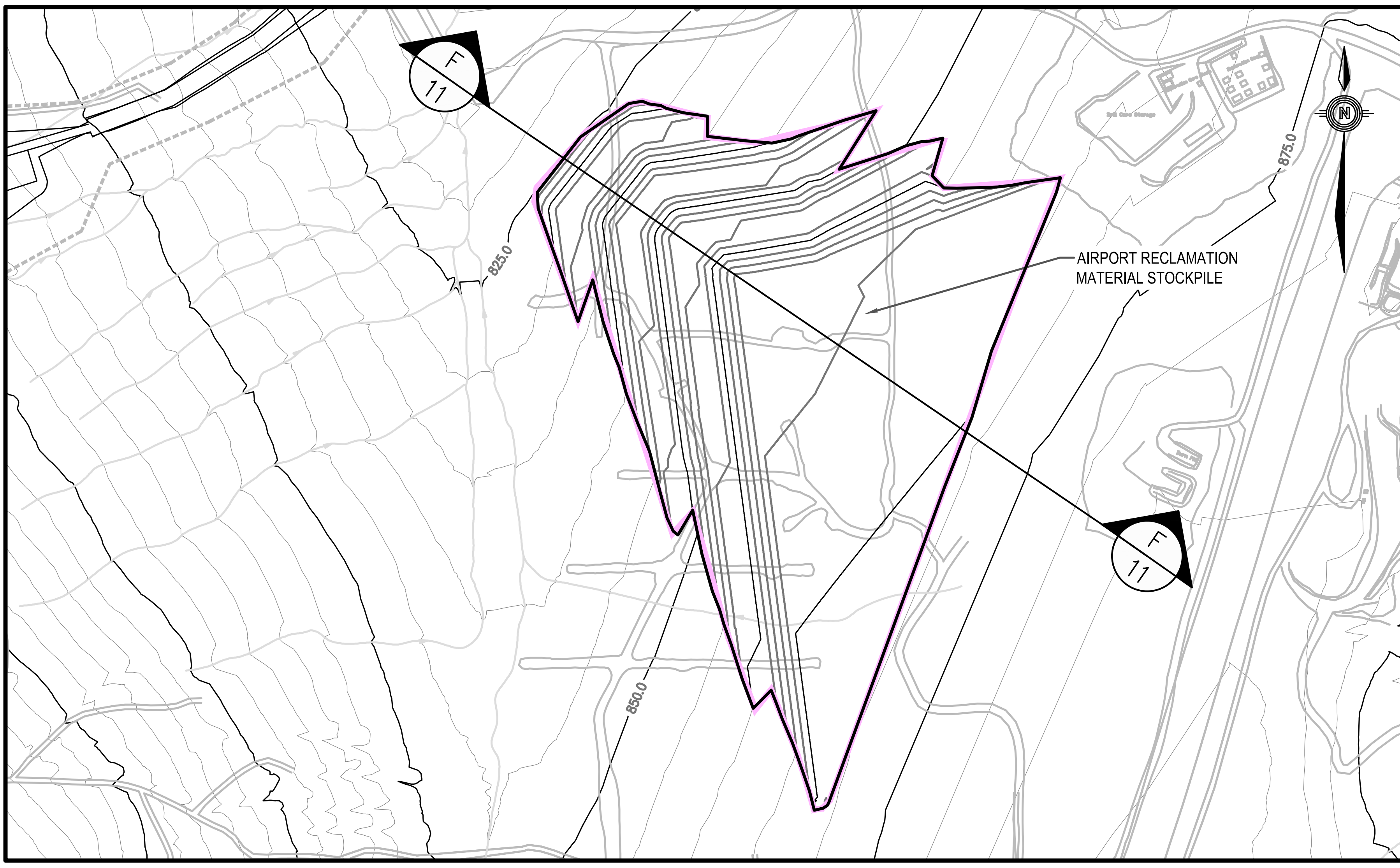
AREA 1 OPEN PIT SOUTH WALL BUTTRESS PLAN & PROFILE

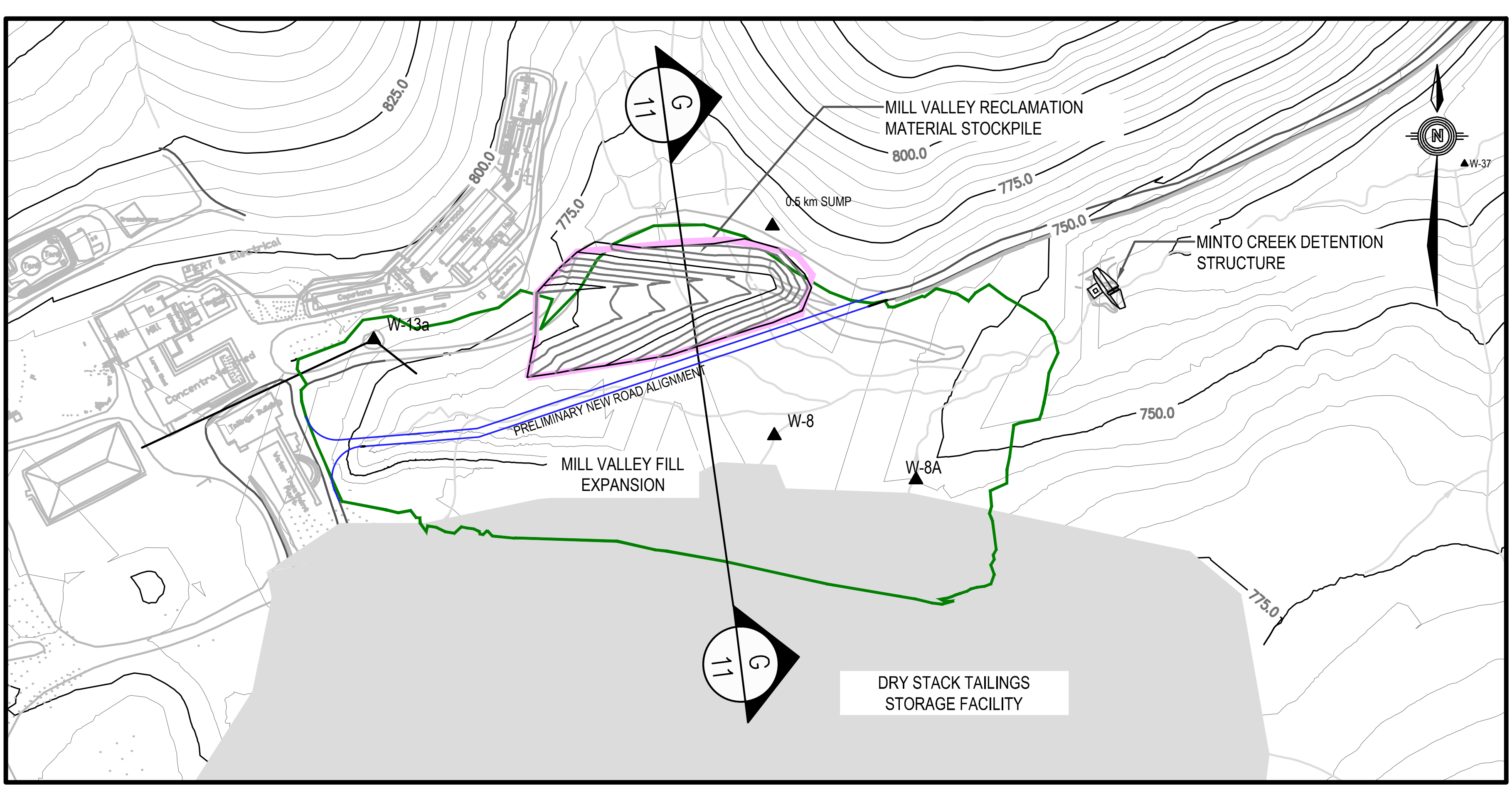
PROJECT NO.	DWN	CKD	REV
W14101068.015	RERH	LD	0

OFFICE	DATE
EBA-Kelowna	July 28, 2011

WMP-09

Q:\Kelowna\Drafting\W141\W14101068 - Minto\KELOWNA\July 2011 WMP\W14101068.015 WMP 09 20110825.dwg [WMP-09] September 08, 2011 - 8:37:01 am (BY: HALLEY, RICHARD)





LEGEND

OVERBURDEN RECLAMATION STOCKPILES
MILL VALLEY FILL EXPANSION

NOTES
(1) 5m INTERMEDIATE AND 25m MAJOR CONTOUR DATA SHOWN, BASED ON JANUARY 2011 SURVEY DATA PROVIDED BY MINTO.
(2) 2m INTERMEDIATE AND 10m MAJOR DESIGN CONTOUR DATA SHOWN.

ISSUED FOR USE

0 250
Scale: 1: 5 000 (metres)

CLIENT

MINTO EXPLORATIONS LTD.

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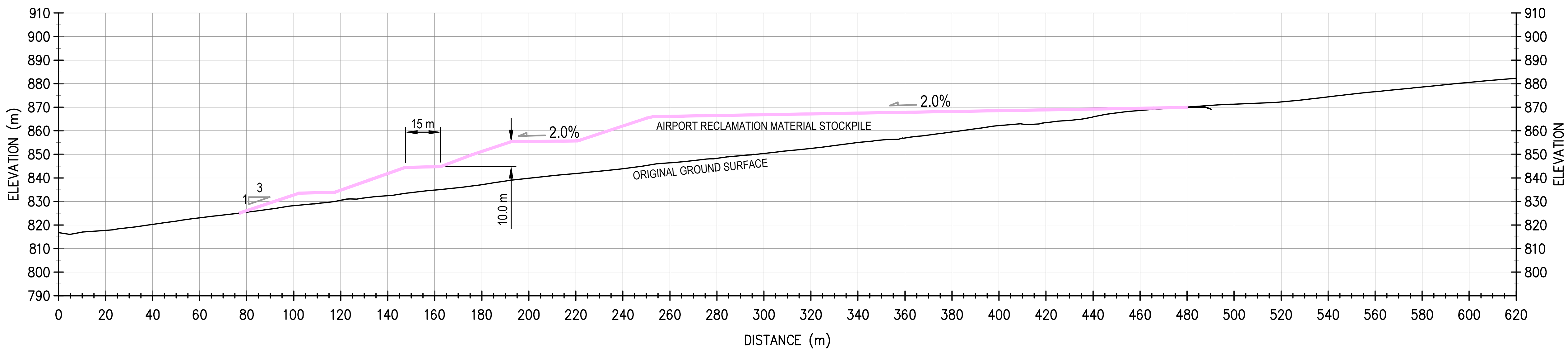
A TETRA TECH COMPANY

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

SITE PLAN - MILL VALLEY AND AIRPORT RECLAMATION STOCKPILES

PROJECT NO.	DWN	CKD	REV	
W14101068.015	RH	LD	0	**WMP-10**
OFFICE	DATE			
EBA-KELOWNA	August 25, 2011			



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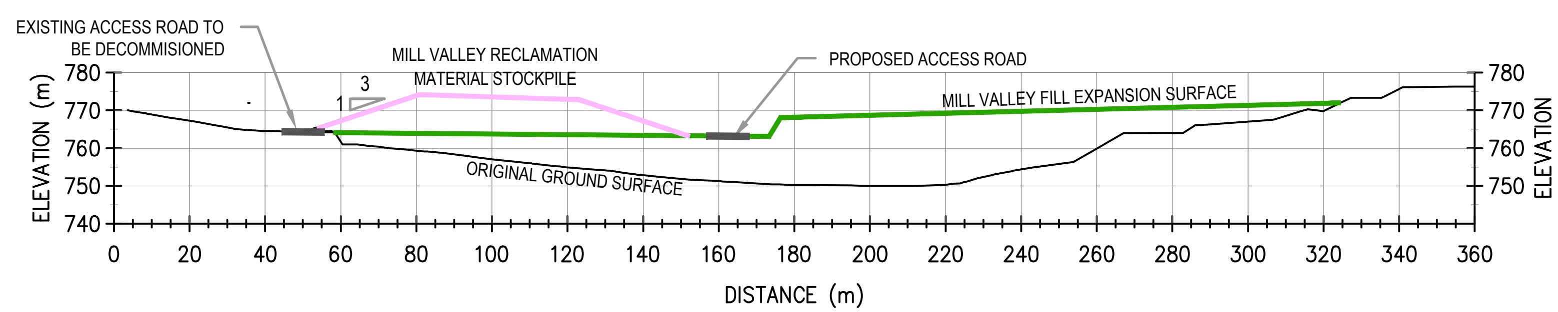
10



G
10

SLOPE STABILITY		
FAILURE TYPE	FACTOR OF SAFETY	
	CRITERIA	DESIGN
SHALLOW	1.0	1.4
DEEP SEATED (SHORT TERM)	1.1-1.3	1.4
DEEP SEATED (LONG TERM)	1.3	1.9
DEEP SEATED (SEISMIC)	1.0	1.6

LEGEND

- OVERBURDEN RECLAMATION STOCKPILES
- ZERO GRADE WASTE MATERIAL

ISSUED FOR USE

0 100
Scale: 1: 2 000 (metres)

CLIENT

MINTO EXPLORATIONS LTD.

A TETRA TECH COMPANY

PHASE IV WASTE ROCK AND OVERBURDEN MANAGEMENT PLAN MINTO MINE, YT

SECTIONS-MILL VALLEY AND AIRPORT RECLAMATION MATERIAL STOCKPILES

PROJECT NO.	DWN	CKD	REV
W14101068.015	RERH	LD	0
OFFICE	DATE		
EBA_KELOWNA	August 25, 2011		

WMP-11

APPENDIX A

APPENDIX A GENERAL CONDITIONS

GENERAL CONDITIONS

GEOTECHNICAL REPORT

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

1.0 USE OF REPORT AND OWNERSHIP

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

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

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

2.0 ALTERNATE REPORT FORMAT

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

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

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

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

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

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

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

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

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

5.0 LOGS OF TESTHOLES

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

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

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

7.0 PROTECTION OF EXPOSED GROUND

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

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

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

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

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

10.0 OBSERVATIONS DURING CONSTRUCTION

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

11.0 DRAINAGE SYSTEMS

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

12.0 BEARING CAPACITY

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

13.0 SAMPLES

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

14.0 INFORMATION PROVIDED TO EBA BY OTHERS

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