BMC Minerals (No.1) Ltd

2016 10 28

City of Whitehorse
2121 Second Avenue
Whitehorse, YT Y1A 1C2

ATTENTION: Christine Smith

Re: BMC Minerals Project Overview

Dear Christine,

I am sending you a copy of BMC's Project Overview so that you may prepare for the BMC consultation meeting on November 16.

We're looking forward to seeing all of you at this meeting.

Sincerely,

Rob McIntyre
Senior Advisor

BMC Minerals (No.1) Ltd
Incorporated in British Columbia, Canada, Reg No. BC 1014247
Vancouver Office: Suite 530, 1130 West Hastings St, Vancouver, BC V6E 4A4,
Phone +1 778 379 9262, Website www.bmcminerals.com

BMC Minerals (No.1) Ltd

2016 10 28

Town of Faro
PO Box 580
Faro, YT   Y0B 1K0

ATTENTION: Ian Dunlop, CAO

Re: BMC Minerals Project Overview

Dear Ian,

I am sending you a copy of BMC's Project Overview so that you may prepare for the BMC consultation meeting on November 15.

We're looking forward to seeing all of you at this meeting.

Sincerely,

Rob McIntyre
Senior Advisor

BMC Minerals (No.1) Ltd

2016 10 28

Town of Watson Lake

ATTENTION: David Steele, CAO

Re: BMC Minerals Project Overview

Dear David,

I am sending you a copy of BMC's Project Overview so that you may prepare for the BMC consultation meeting on November 17.

We're looking forward to seeing all of you at this meeting.

Sincerely,

Rob McIntyre
Senior Advisor

BMC Minerals (No.1) Ltd
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Phone +1 778 379 9262, Website www.bmcminerals.com

CKRW Radio advertising:

To run 15 times, 3xday from Nov. 2 to Nov. 14

BMC Minerals is holding a series of Community Open Houses between November 14th and 18th in Ross River, Faro, Whitehorse, and Watson Lake. Each community's open house begins at 6:30pm, and presentations include an outline of the Project Plan for the BMC Minerals Kudz Ze Kayah Mine project, followed by a poster session allowing one-on-one interaction with member of the BMC team. For more information on the KZK Project and the upcoming open houses, visit kudz ze kayah dot com.

Radio Ads for Dec 6/16 Ross River Open House

Radio spots to run Dec. 2, 5 and 6 – 3 x day (9 spots) in the top spots morning, noon and end of day.

BMC Minerals invites all residents of Ross River to it's Community Open House for Dinner, Presentation and Discussion Period on Tuesday, December 6 from 5:30 to 7:30 at the Ross River Hope Centre.

The presentation will include an outline of the Project Plan for the BMC Minerals Kudz Ze Kayah Mine project, followed by a poster session which will allow one-on-one interaction with members of the BMC team. The KZK project is a proposed open pit zinc copper mine, and is located approximately 110 km SE of Ross River, and 24 km S of Finlayson Lake.
More information on the KZK Project and the upcoming open houses can be obtained by visiting kudzzekayah.com.

From: **Rob McIntyre** robm@bmcminerals.com
Subject: RE: FW: Meeting and open house in Ross River next week
Date: December 5, 2016 at 10:51 AM
To: Derrick Redies dredies.rrdc@gmail.com
Cc: Jenny Caesar jennycaesar53@gmail.com, Jack Caesar jackcaesar21@gmail.com, kat.suza@northwestel.net, vernanukon@gmail.com, Kelli Bergh kellib@bmcminerals.com, Nancy McIntyre nancy@resourcestrategies.ca, dorothy.dick@gmail.com

---

Hi Derrick,
As discussed by phone, we are happy to accommodate your travel schedule. I hope your Vancouver meetings are positive & productive for you and Council. We will go ahead with the Community Presentation tomorrow night, overnight in Faro & come back to Ross River Wednesday December 7th to meet with Chief & Council.

Kelli will be taking an afternoon flight from Whitehorse to Vancouver on the 7th, so we will need to leave Ross by 10:00 a.m. Can we therefor meet with you no later than, say, 8:30?

In terms of the presentation tomorrow night in Ross, this is the same information we presented in Faro, Watson Lake and Whitehorse November 15-18 2016. You can find all the presentation materials on our website www.kudzzekayah.com

Also, we will be providing RRDC with the financial capacity to retain a technical consultant to review our Project Proposal before we submit to YESAB.

See you Wednesday morning,
Rob

From: Derrick Redies [mailto:dredies.rrdc@gmail.com]
Sent: December 5, 2016 9:53 AM
To: Rob McIntyre <robm@bmcminerals.com>
Cc: Jenny Caesar <jennycaesar53@gmail.com>; Jack Caesar <jackcaesar21@gmail.com>; kat.suza@northwestel.net; vernanukon@gmail.com; Kelli Bergh <kellib@bmcminerals.com>; Nancy McIntyre <nancy@resourcestrategies.ca>; dorothy.dick@gmail.com
Subject: Re: FW: Meeting and open house in Ross River next week

I understand that this is very short notice, but can we postpone for a day?

On Dec 5, 2016 9:46 AM, "Derrick Redies" <dredies.rrdc@gmail.com> wrote:

> Hi Rob,
>
> I will be commuting from Vancouver on the 6th. My apologies for not being able to attend. I was hoping to possibly meet for a briefing once you all return to Whitehorse.
>
> Mahsi cho
>
> Derrick Redies
> Councilor-RRDC
> Ph [telephone numbers redac
>
> On Nov 30, 2016 4:08 PM, "Rob McIntyre" <robm@bmcminerals.com> wrote:
>
>> Sorry, my mistake in last email about meeting time: we are **meeting Chief & Council at 2:00 p.m**. not 4:00 p.m.
>> See you then, Cheers,
>> Rob

From: Rob McIntyre
Sent: November 30, 2016 3:59 PM
To: 'jackcaesar21@gmail.com' <jackcaesar21@gmail.com>; 'dredies.rrdc@gmail.com' <dredies.rrdc@gmail.com>; 'jenny' <caesar53@gmail.com>; 'vernanukon@gmail.com' <vernanukon@gmail.com>
Cc: 'Dorothy Dick' <dorothy.dick@gmail.com>; Scott Donaldson <scottd@bmcminerals.com>; Kelli Bergh <kellib@bmcminerals.com>; 'Kathlene Suza' <kat.suza@northwestel.net>; Jim Newton <jimn@bmcminerals.com>
Subject: Meeting and open house in Ross River next week

Chief Caesar and Council,

Thank you for agreeing to meet with us at 4:00 pm on December 6th to present information and hear your views regarding the KZK Project. We attach the proposed agenda for ease of reference; I also understand you may have some other items you wish to speak about.

We will also be holding a public Open House for residents of Ross River from 5:30 to 7:30 pm at the Hope Centre. At the Open House we will be giving a detailed presentation on the KZK mine plan; we also offer to give this presentation to Chief & Council if you wish.

Best Regards,
Rob

Robert L. McIntyre | Vice President, External Affairs
BMC Minerals (No. 1) Ltd. www.bmcminerals.com
530 - 1130 West Pender St. Vancouver, BC V6E 4A4
robm@bmcminerals.com Cell: 867-336-3537

BMC Minerals (No.1) Ltd

October 21, 2016

City of Whitehorse

ATTENTION: Christine Smith, City Manager

Re: Request for Meeting November 16 regarding Kudz Ze Kayah Project

Dear Ms. Smith,

Now that we have completed the technical studies to support our Prefeasibility Study on the Kudz Ze Kayah Project, BMC is planning another round of community consultations with all affected First Nations and residents of affected communities. As part of this process, we would like to suggest a meeting with the Mayor and Council and yourself from 3:00 to 4:00 on November 16, 2016. Following this meeting, we are proposing to conduct a community Open House at the High Country Inn from 6:30 to 8:30.

We will soon be sending you a copy of our Project Overview document, which provides details about the Kudz Ze Kayah Project Proposal, so that you may have an opportunity to review the document and be prepared to discuss the Project at our meeting.

We would appreciate you circulating this notice to your Mayor and Council, and we will call you next week to discuss and hear how many of you will be available for this important meeting.

Sincerely,

Rob McIntyre, Senior Advisor
BMC Minerals

BMC Minerals (No.1) Ltd

October 21, 2016

Town of Faro

ATTENTION: Ian Dunlop, CAO

Re: Request for Meeting November 15 regarding Kudz Ze Kayah Project

Dear Mr. Dunlop,

Now that we have completed the technical studies to support our Prefeasibility Study on the Kudz Ze Kayah Project, BMC is planning another round of community consultations with all affected First Nations and residents of affected communities. As part of this process, we would like to suggest a meeting with yourself and other interested town officials from the Town of Faro from 3:00 to 4:00 on November 15, 2016. Following this meeting, we are proposing to conduct a community Open House at the Faro Rec. Centre from 6:30 to 8:30.

We will soon be sending you a copy of our Project Overview document, which provides details about the Kudz Ze Kayah Project Proposal, so that you may have an opportunity to review the document and be prepared to discuss the Project at our meeting.

We would appreciate you circulating this notice to your Mayor and Council, and we will call you next week to discuss and hear how many of you will be available for this important meeting.

Sincerely,

Rob McIntyre, Senior Advisor
BMC Minerals

BMC Minerals (No.1) Ltd

October 21, 2016

Town of Watson Lake

ATTENTION: David Steele, CAO

Re: Request for Meeting November 17 regarding Kudz Ze Kayah Project

Dear Mr. Steele,

Now that we have completed the technical studies to support our Prefeasibility Study on the Kudz Ze Kayah Project, BMC is planning another round of community consultations with all affected First Nations and residents of affected communities. As part of this process, we would like to suggest a meeting with the Mayor and Council and yourself from 2:00 to 3:00 on November 17, 2016. Following this meeting, we are proposing a meeting with LFN and KDC, followed by a community Open House at the Watson Lake Rec. Centre from 6:30 to 8:30.

We will soon be sending you a copy of our Project Overview document, which provides details about the Kudz Ze Kayah Project Proposal, so that you may have an opportunity to review the document and be prepared to discuss the Project at our meeting.

We would appreciate you circulating this notice to your Mayor and Council, and we will call you next week to discuss and hear how many of you will be available for this important meeting.

Sincerely,

Rob McIntyre, Senior Advisor
BMC Minerals

BMC MINERALS

INVITATION TO PARTICIPATE IN COMMUNITY ENGAGEMENT

Kudz Ze Kayah Mine Project

COMMUNITY TOUR NOV. 14 – NOV. 18, 2016

BMC Minerals is continuing community engagement regarding the proposed Kudz Ze Kayah Mine Project.

With the technical studies and engineering work to support our Pre-feasibility Study of the Kudz Ze Kayah Project complete, BMC Minerals is preparing a Project Proposal for submission to the Executive Committee of YESAB early next year. In support of the development of that submission, BMC has prepared a Project Overview.

Members of our project team are hosting a series of community meetings. You can provide feedback and learn more about the project by: Attending a community meeting (see schedule below); Calling: 867-336-3537; Providing a written submission by email: robm@bmcminerals.com or Mail: # 530-1130 West Pender Street, Vancouver, BC V6E 4A4.

For more complete project information, or to view a copy of the Project Overview document, please visit **www.kudzzekayah.com**

Nov. 14	Presentation and Open House	6:30-8:30	Ross River Hope Centre
Nov. 15	Presentation and Open House	6:30-8:30	Faro Rec. Centre
Nov. 16	Presentation and Open House	6:30-8:30	Whitehorse, High Country Inn
Nov. 17	Presentation and Open House	6:30-8:30	Watson Lake Rec Centre

KUDZ ZE KAYAH

PROJECT OVERVIEW

BMC Minerals (No. 1) Ltd.

BMC Minerals (No. 1) Ltd.

Yukon Business Registration No. 636056

Mailing Address: 530 - 1130 West Pender Street

Vancouver, BC, Canada V6E A4A

PREFACE

This document is intended to provide an overview of the Kudz Ze Kayah (KZK) mine project (the Project), including the existing environmental and socioeconomic conditions, potential effects and proposed mitigative measures. The intent of the document is to provide the Yukon Environmental and Socio-economic Assessment Board (YESAB) Executive Committee with a "Project Overview" in summary form, yet with sufficent detail so as to provide a knowledgeable overview. BMC Minerals (No.1) Ltd ("BMC" or the "Company") intends to submit it's complete Project Proposal to YESAB early in the new year and this Pre-project Proposal Report has been prepared in part after consultation with YESAB and others. BMC's strategy for early engagement with YESAB is intended to facilitate the scoping of the Project Proposal with respect to identification of potential data gaps; the communities required for consultation, and other such aspects. Through early engagement with YESAB, BMC's intent is to support an efficient and streamlined review and assesment of its Project Proposal. BMC is looking forward to engaging with YESAB during the review of this document to provide further information as required to support a thorough environmental assessment.

For clear understanding this document refers to "Kaska" and "Kaska Nation" as meaning collectively, Ross River Dena Council, Liard First Nation, Daylu Dena Council, Dease River First Nation and Kwadacha First Nation people. The Project lies entirely within the traditional territory of the Kaska Nation. Under the Kaska Collaboration Agreement (KCA) of October 2011, for each negotiation on a project carried out pursuant to the KCA, a Lead Community will be identified by the Kaska Nation from the jurisdiction (Yukon or B.C.) in which the project is located. For the KZK Project the two primary Kaska communities are Liard First Nation and Ross River Dena Council (RRDC) with RRDC acknowledged as the lead agency under the KCA.

BMC will be using the Project Overview as a platform upon which to base detailed consultation with our Kaska partners about the KZK Project; it's potential impacts, and the proposed mitigative measures prior to submission of the Project Proposal.

Please note that by its very nature and as the result of feedback and ongoing consultation, elements of the final Project Proposal, as finally submitted, may differ from this preliminary summary. In any case the final formal submission shall be taken as the definitive document.

EXECUTIVE SUMMARY

Project Proponent

The Project is proposed by BMC Minerals (No.1) Ltd who own the mineral claims over the Project area.

Project Overview

The KZK Project is a proposed open pit and underground copper, lead, zinc, silver and gold mine located approximately 115 km southwest of Ross River, Yukon. The Project was licensed for mining, mineral processing and related activites in 1998, and BMC is the holder of a Class A Water Licence QZ97-026 issued for these purposes.

BMC is proposing mining, construction and mineral processing activities for the ABM Deposit, of which there are two zones; the ABM Zone and the Krakatoa Zone. The ABM Deposit, is a polymetallic volcanogenic massive sulphide (VMS) deposit containing economic concentrations of copper, lead, zinc, gold and silver. Mining is planned to be conducted utilizing both open pit and underground mining methods, with ore processed into separate copper, lead and zinc concentrates via sequential flotation through a processing plant that will treat an average 2.0 million tonnes per annum (Mtpa). Tailings will be deposited in a purpose built dry stack tailings storage facility on the western slope of the Geona Creek valley, while waste rock will be classified according to acid generation and metal leaching potential and stored in purpose built waste storage facitlities. Strongly acid generating material will be co-disposed with the tailings or alternatively stored as cemented paste backfill in the mined out underground workings. Other waste rock material will be placed within the surface storage facilities noted above.

The mine is planned to operate for a minimum of 10 years, producing an average 180,000 tonnes (t) zinc, 35,000 t copper, and 25,000 t lead concentrates annually. Concentrate will be transported to the port of Stewart in British Columbia for sale to export market in North America, Europe and Asia.

The Project will provide jobs and economic opportunities for local Kaska and local communities, providing economic benefit for not only these communities but to the Yukon Territory and Canada in general.

The pre-production capital cost estimated in the prefeasibility study is approximately CAD$ 378 million. Detailed engineering is continuing in an effort to optimize environmental outcomes, improve the Project economics, and decrease investor and stakeholder risk.

Project Setting

BMC has undertaken comprehensive environmental and socio-economic baseline studies over the Project area to support the Project design. These studies have received extensive input from Kaska, the local communities, and various stakeholders. The baseline studies have been conducted in the Project area since 1995 and will continue as the Project progresses.

The ABM Deposit is approximately 24 killometres (km) south of Finlayson Lake on the northern edge of the Pelly Mountains. The area drainage includes Finlayson Creek and its tributaries, and the Finlayson River which flows into the Frances River, which in turn empties into the Liard River. Geona Creek is a tributary to Finlayson Creek and flows across the sub-crop of the ABM Deposit. The mean annual temperature recorded at the Project site for the period September 2015 to August 2016 was -0.47°C and extremes ranged from -26.28°C to 19.89°C. Precipitation falls fairly evenly throughout the year, predominantly as rain from May through September, and snow for the balance of the year.

The region exhibits intermittent permafrost with moist depression areas containing peat plateaus, patterned fen and bog complexes. The Project area is mostly a forest region, except for topographic peaks which are in the tundra region. White and black spruce are the most common tree types. Black spruce is usually dominant in wetter areas while white spruce dominates in drier areas. Paper birch, aspen, balsam and lodgepole pine also occur. Alpine fir occurs at the treeline (1,350 to 1,500 metres above sea level (masl)). In dense coniferous stands, feathermoss dominates the understorey but in more open areas willows and heath-like shrubs become prevalent. Sedge or sphagnum tussocks are common in wetlands and under black spruce.

Regionally significant wildlife resources occur in the Project area, notably the Finlayson caribou herd. The uplands around the ABM Deposit form a portion of the seasonal range for the herd from spring through the fall. Caribou and moose are a important wildlife resource for Kaska providing a valuable food source as well as an economic resource to sport hunters and the guiding industry. Furbearer populations are also utilized by the local Kaska in this region. Fish in the larger lakes, including Finlayson Lake, and streams include arctic grayling, whitefish, lake trout and possibly dolly varden char.

The Project is in the Traditional Territory of the RRDC and Liard First Nation (LFN). Land use in the region includes hunting, fishing, and recreation for First Nations, Yukoners and visitors to local lodges.

Historic and modern mines in the region have included the Wolverine Mine, Ketza River Mine, Sa Dena Hes mining operation, and True North Gems operation.

Economic Benefits

The Project will employ an average of 300 personnel on a year round basis over it's life. The Project will contribute to Yukon and Federal Governments by way of tax revenues, royalties and direct employment. These benefits and payments will vary over the life of the Project according to tax structure, metal prices and mine operating parameters, however, it is anticipated BMC's payment of corporate taxes and royalties alone will average between CAD$ 75-85 million annually over the 10-year life of the Project. Significant benefits will be available for Kaska in the form of direct employment, business development and opportunities, training and education funding, and direct financial payments through the application of the socio-economic participation agreement (SEPA).

Consultation

BMC considers community engagement and consultation to be fundamental for the success of the Project. BMC's consultation and engagement efforts commenced in 2014 prior to purchase, followed by consultation with First Nations, stakeholders and interested parties during the preparation of the exploration permit application and initiation of the environmental and socio-economic baseline studies.

BMC has also engaged with government agencies, boards, First Nations, various stakeholder groups and interested parties to introduce the company and has engaged and consulted with these parties regarding the proposed Project, the Project planning and design, Project Proposal content and permitting strategies. This has consisted of regular, numerous and ongoing meetings with appropriate agencies and RRDC leadership, including four community meetings in Ross River, one community meeting in each of

Faro, Whitehorse, and Watson Lake, development of a Project website and production of a quarterly newsletter.

Potential Environmental and Social Impacts

The Project has the potential to affect social and environmental conditions in the Project area including temporary changes to watershed drainage, fish and fish habitat, wildlife and wildlife habitat, water flow and water quality, and vegetation. In consultation with regulatory agencies and stakeholders, BMC has proposed strategies in the form of design modification, mitigation measures and compensation packages to reduce or eliminate impacts on the environment.

The community and social impacts of a mining project can be very favourable as new, long term opportunities are created for local and regional workers and the out-migration to larger centers is reduced. BMC has been working with the RRDC to maximize benefits through employment and business opportunities, training and skills development programs during its exploration activities and will continue to do so throughout construction and operations of the proposed Project. As part of it's Community Engagement Stratgy, BMC has launched a Scholarship program aimed at providing enhanced opportunities for local Kaska citizens to achieve higher education with the aim to qualify some Kaska for technical and managerial positions at the mine. In January 2016, BMC initiated a highly successful mentor program to assist Kaska to become 'job ready' and provide support for Kaska employed at the mine site.

Economic growth such as that which will occur during the initial construction and operation of the Project could create strains on local community infrastructures such as roads, social services and medical systems. BMC's approach to mitigating these strains will be through coordinated planning with local communities, stakeholders and government agencies. Ongoing consultation and communication will provide a strong framework for early, joint identification of adverse effects and finding acceptable solutions while enhancing the potential benefits for the region.

Regulatory Requirements

The *Yukon Environmental and Socio-economic Assessment Act* (YESAA) mandates a public process for assessing the Project's potential socio-economic and environmental impacts. The YESAA screening at the

Executive Committee level has been triggered by the proposed ore production capacity of greater than 1,500 tonnes per day.

The *Waters Act* and Waters Regulations (territorial), under which the deposit of waste and the use of water for processing (greater than 100 tonnes per day) requires issuance of a Type A Water Licence. This licence is issued by the Yukon Water Board.

The Project also requires a Quartz Mining Licence under section 135 of the Yukon's *Quartz Mining Act* (QMA).

There are also numerous ancilliary permits and licences that will be necessary to authorize various specific aspects of the project such as building permits and explosives storage licence; these will be secured as required.

While the Project has previously been permitted for mining and has a Water Licenece issued (QZ97-026), subsequent changes to the mining assessment and permitting process have occurred. In addition, the Company has modified the Project output and life. It is therefore appropriate for the project to be re-licenced under the new, modern regime.

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ABBREVIATIONS AND ACRONYMS

Abbreviation/Term	Definition
ABA	Acid base accounting
ABM	A.B. Mawer
ARD	Acid rock drainage
AP	Acid potential
BCMoE	British Columbia Ministry of the Environment
BMC	BMC Minerals (No1.) Ltd.
CCME	Canadian Council of Ministers of the Environment
CEP	Community Engagement Plan
CIM	Canadian Institute of Mining
COPCs	Constituents of potential concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	CSA Global Pty Ltd
DDH	Diamond drill hole
DFO	Department of Fisheries and Oceans
EGL	Effective grinding length
Equity	Equity Exploration Consultants Ltd
EM	Electromagnetic
ExCom	Executive Committee
FCH	Finlayson Caribou Herd
FEL	Front End Loader
GJ	Gigajoule
GNRI	Global Natural Resource Investments
HRIA	Heritage Resource Impact Assessment
HDPE	High Density Polyethylene
ICP	Inductively coupled plasma
IEE	Initial Environmental Evaluation
ISQG	Interim Sediment Quality Guideline
kHz	Kilohertz
km	Kilometre
kV	kilovolt
KZK	Kudz Ze Kayah
l	Litre
LFN	Liard First Nation
LiDAR	Light Detection and Ranging (system)
LNG	Liquefied natural gas
masl	Metres above sea level
Mtpa	million tonnes per year
m	Metre
m^3	Cubic metre
mm	Millimetre
Mm^3	Million cubic metre
m^3/hr	Cubic metre per hour

Abbreviation/Term	Definition
MoU	Memorandum of Understanding
MW	Mega Watt
M	Million
m/s	Metres per second
NAD	North American Datum
NRCan	Natural Resources Canada
NP	Neutralization potential
NPR	neutralization potential ratio
PFS	Prefeasibility Study
PAC	Potentially Acid Consuming
PEL	Probable Effects Level
P_{80}	The size that 80% of the particles pass through the nominated aperture size
QML	Quartz Mining Licence
RRDC	Ross River Dena Council
RCP	Reclamation and closure plan
ROM	Run of Mine
SAB	Comminution circuit consisting of SAG mill and ball mill
SAG	Semi-autogenous grinding
SEPA	Socio-economic Participation Agreement
SSWQO	Site specific water quality objectives
SFE	Shake flask extraction
SMD	Stirred Media Detritor
SPAG	Strongly Potentially Acid Generating
SWE	Snow Water Equivalent
TDS	Total dissolved solids
Teck Cominco	Teck Cominco Metals Limited
Teck	Teck Resources Ltd
t	Tonne
TK	Traditional knowledge
tpd	tonne per day
TSS	Total suspended solids
tph	Tonne per hour
µm	Micrometre / micron
UTM	Universal Transverse Mercator
VMS	Volcanogenic massive sulphide
WPAG	Weakly Potentially Acid Generating
YBGO	Yukon Big Game Outfitters
YCS	Yukon Conservation Society
YG	Yukon Government
YT	Yukon Territory
YESAA	Yukon Environmental and Socio-economic Assessment Act
YESAB	Yukon Environmental and Socio-economic Assessment Board

1. INTRODUCTION

BMC is a Canadian-based company with its primary office in Vancouver, British Columbia. BMC owns the KZK Project located in southeast Yukon Territory (YT), Canada, having purchased the Project from Teck Resources Ltd. (Teck) in January 2015. Since that time, BMC has actively engaged in a program of assessing historical work completed on the Project, resource drilling, economic assessment, baseline environmental studies and First Nations and community engagement. The outcome of this work has been to prepare a prefeasibility study (PFS) to define the Project, understand the Project economics, and identify and manage the risks and impacts of the Project.

The Project is a proposed open pit and underground copper, lead and zinc mine located approximately 115 km southeast of Ross River, YT (**Figure 1**).

The Project encompasses the A.B. Mawer (ABM) Deposit, of which there are two zones, the ABM Zone and the Krakatoa Zone. The ABM Deposit is a polymetallic volcanogenic massive sulphide (VMS) deposit containing economic concentrations of copper, lead, zinc, gold and silver. Mining is planned to be conducted via both open pit and underground mining methods, with ore processed into separate copper, lead and zinc concentrates via sequential flotation through a processing plant treating an average of 2 Mtpa over the project life. Dry stack tailings will be deposited in a purpose built Class A Storage Facility on the western slope of the Geona Creek valley while waste rock will be placed in different purpose built storage facilities based on the assessed potential for generation of acidic drainage and metal leaching. Strongly acid generating material will be codiposed with tailings or alternatively stored in mined out areas of the open pit and underground workings. Other waste rock material will be placed into engineered surface storage facilities.

The mine is expected to operate approximately for ten years, producing an average of 180,000 t zinc, 35,000 t copper, and 25,000 t lead concentrates annually. Concentrate will be transported to the port of Stewart, BC for sale to market.

The Project will provide jobs and significant economic opportunities for Kaska as well as other citizens of the Yukon Territory and Canada.

The total pre-production capital cost estimated in the prefeasibility study is approximately CAD$ 378 million. Detailed engineering is continuing in an effort to optimize environmental outcomes, improve the Project economics, and decrease investor and stakeholder risk.

2. GENERAL INFORMATION AND CONTACTS

2.1 General Description of the Project

The scope of the KZK Project includes developing on-site and off-site surface infrastructure to support open pit and underground mining activities, required to extract mineral reserves from the ABM Deposit. The Project will have a capacity of 6,000 tonne per day (tpd) throughput and will process an average of 5,500 tpd over an expected 10-year mine life.

On-site surface infrastructure will include:

- Open-pit and underground mine;
- Processing plant and associated structures;
- Dry stack tailings, waste rock storage, and associated water collection facilities;
- Overburden and topsoil storage facilities;
- Water treatment facility and Operations Water Management Ponds;
- Liquefied natural gas and diesel power generation facility;
- Paste back fill plant;
- Site roads;
- Core shack and storage; and
- Mine camp, incorporating maintenance facilities, sewage treatment, and waste disposal facilities.

Off-site infrastructure will include upgrades to the existing 24 km tote road from the Robert Campbell Highway to the Project site and upgrades to the Finlayson airstrip located approximately 40 km from the site.

2.2 BMC Minerals (No 1.) Ltd. Information

2.2.1 BMC Overview

BMC is a private company, incorporated in Canada (BC Registration number BC 1014247), and through its parent company BMC (UK) Limited, is supported by Global Natural Resource Investments (GNRI). BMC is engaged in the assessment, acquisition and development of base metals projects which the Directors believe to be of a quality that is capable of maintaining a mining project that is economically robust and likely to have a positive legacy outcome for both the company and the local community.

2.2.2 Corporate Address and Contact Information

BMC corporate office is located at: Suite 530, 1130 West Pender Street, Vancouver, British Columbia.

2.2.3 Directors and Management

The BMC (UK) Limited Board is a team with a track record in delivering successful mining operations outside of the framework of industry majors. The BMC (UK) Limited Board has a clear objective to identify and acquire metals assets with real economic viability and efficiently progress projects through defined stages such as Joint Ore Reserves Committee, National Instrument 43-101, prefeasibility, bankable feasibility, development and into production.

The BMC (UK) Limited Board comprise:

Gary Comb – Chairman

Mr. Comb has 35 years of experience in the international mining industry. As Managing Director of Jabiru Metals Ltd (Jabiru) he oversaw the acquisition, feasibility study and construction of the Jaguar copper/zinc/silver mine in Western Australia and the emergence of Jabiru to be a respected mid-tier mining company in Australia before it was taken over by Independence Group NL. He is currently a Non-Executive Director of a number of other resource based public companies and Chairman of ASX listed Finders Resources Ltd.

Scott Donaldson – CEO & Executive Director

A qualified mining engineer with a graduate diploma in business, Mr. Donaldson brings 30 years of experience in the mining industry in Australia and New Zealand.

An experienced company director, he has also successfully managed and developed from prefeasibility to construction, commissioning and production, a number of Australian mining and mineral processing projects over the last 15 years including the Jaguar copper/zinc/silver project with Jabiru Metals, Western Metals' Pillara lead-zinc project, Tectonic Resources' Rav8 nickel project, and the Coobina chromite project with Consolidated Minerals.

Neil Martin – Executive Director, Exploration and Development

Mr. Martin is a geologist with nearly 30 years of experience in mineral exploration and mining across a range of commodities including gold and base metals. His experience has included project generation, through to near mine exploration and mining.

The holder of a PhD in geology from the University of Tasmania (CODES), he has a successful career in the mining and exploration industry. An experienced company director, he has also held senior executive roles as Exploration Manager of Jabiru Metals Ltd, Chief Geologist of Independence Group NL, and previous Senior Geologist and District Geologist roles with Acacia Resources Ltd, MIM Exploration, and Dominion Mining Limited.

Other Directors

In addition to the above, GNRI are also entitled to appoint representatives to the Board and they currently have three non-executive directors on the Board, including David Ellis, Managing Director of GNRI.

Management

Julian Tambyrajah – Chief Financial Officer

Mr. Tambyrajah is a global mining executive, a qualified Accountant and Chartered Company Secretary with 24 years professional experience in the resources (mining, oil & gas) and manufacturing industries, working in different environments such as operator, service contractor, explorer, construction, joint ventures and alliances. Mr. Tambyrajah has covered diverse roles in the areas of treasury, financing, accounting, supply & logistics, acquisitions, project evaluation, feasibility, life of mine modelling and operations. An experienced CFO, Julian has held roles with DRDGold Ltd, Central Petroleum Ltd, Hills Industries, Brown & Root, Woodside, Normandy Mining, Crescent Gold Ltd, Rusina Gold Ltd.

George Smith – Group Mining Engineer

An experienced mining engineer Mr. Smith is an Executive Director of BMC Minerals (No.1) Ltd. Mr. Smith has been involved in the international mining community for approximately 25 years in Australia and Canada. Most recently he was the Chief Mining Engineer with Barrack Gold in Toronto with previous roles as, Chief Mining Engineer with Tectonic Resources (Australia) and Senior Engineer with McMahan Contractors (Australia).

2.2.4 Principal Contact Person for Purposes of Project Proposal

The principal contact person for the purposes of the environmental assessment is Ms. Kelli Bergh.

Ms. Bergh's contact information is as follows:

Kelli Bergh, BSc, MET, RP Bio

Environmental Manager

Email: kellib@bmcminerals.com Telephone: 778-233-7058

2.2.5 Corporate Policies

BMC operates under a Business Integrity Framework (BIF) which all subsequent policies comply to. The purpose of the Framework is to ensure that BMC meets several important objectives:

- Complies with Relevant Legislation.
- Conducts its business with the level of integrity and ethics that would be expected by business partners, employees, investors, finance providers, regulators, lawmakers and the people and communities impacted by the BMC's activities.
- Defines responsibilities of BMC's personnel.
- Defines a control and reporting framework to ensure compliance is properly monitored and associated risks are managed.

To achieve these objectives, BMC is committed to uphold the Framework at all times, both in internal matters and decision-making and in BMC's interaction with external parties. BMC is also committed to developing a culture among its personnel and external counterparties in which the importance of business integrity is actively promoted. When dealing with external parties, including business partners, government bodies and officials, and the people and communities impacted by the BMC's activities, it is critical that BMC's personnel ensure that the relevant external parties understand the vital role of business integrity for the Company.

BMC has a number of Corporate Policies that have been adopted for the Project. These include:

- Company Management and Operating Policies;
- Occupational Health and Safety;
- Fitness for Work;
- Environment;
- Community Relations;
- Employment and Anti-Discrimination; and
- Personnel Management.

Additional existing policies that are specific to the Project include:

- No Hunting/ No Fishing Policy;
- No Fire Arm Policy;
- No Feeding of Animals Policy; and
- Heritage Protection Policy.

As the Project moves towards a construction decision, these policies will be enhanced through the development of appropriate plans, standards, procedures, protocols and programs to fulfil BMC's commitments under the policies.

3. PROJECT INFORMATION

3.1 Project History

3.1.1 Ownership

The first mineral claims were staked by Cominco in the immediate vicinity of the ABM Deposit in 1993. Additional mineral claims were staked in 1994 subsequent to drilling of the ABM discovery hole, and further claims were staked by Cominco across the district until 1997 after which staking by Cominco effectively ceased.

In March 2000, Expatriate Resources Ltd. (Expatriate) signed a purchase arrangement with Cominco for acquisition of the Project. During 2001, Cominco merged with Teck Corporation to form Teck Cominco Metals Limited (Teck Cominco). In September 2001, Expatriate declined to proceed with the purchase after which the Project was returned to Teck Cominco. In 2008, Teck Cominco was renamed as Teck Resources Limited (Teck).

BMC purchased the Project from the wholly owned Teck subsidiary, Teck Worldwide Holdings Limited., in January 2015.

3.1.2 Previous Exploration Activity

The significant mineral potential of the Project area was first recognized in 1992 when a program of grass roots (reconnaissance) silt and soil sampling by Cominco confirmed and expanded upon an anomalous silt sample identified by a Geological Survey of Canada regional geochemistry program. Follow-up prospecting and geological mapping by Cominco in 1993 resulted in the discovery of well-mineralized rock in the anomalous creek drainage. The suspected host rocks were recognized to disappear beneath valley fill resulting in electromagnetic (EM) geophysical surveys were deployment to image possible massive sulphide bodies. Results were prospective consequently claims were staked and more detailed geochemical and geophysical surveys defined a target worthy of drill-testing late in the 1993 field season.

Early in the 1994 field season, Cominco tested the target with the first diamond drill hole – a true discovery hole that returned 22.5 m of massive sulphide (i.e., metal-bearing) rock which analyses showed contained 10.0% zinc and 2.8% lead as well as significant silver, gold and copper. Cominco's geologists named this massive sulphide body the ABM Deposit in recognition of geologist A.B. Mawer who discovered the mineralized rock the year before.

Cominco completed significant geological, geophysical, metallurgical, environmental and archaeological work on the KZK claims over the ensuing four years (1995 – 1998) including drilling nearly 200 diamond drill holes to define the extents of the massive sulphide body.

No further work of significance was completed on the Project until BMC acquired the KZK claims from Teck in January 2015 and commenced exploration activities in July 2015.

Following its purchase of the Project, BMC embarked on an aggressive exploration program that included upgrading and building new exploration infrastructure, compiling historical data, re-logging historical drill core, LiDAR surveying, differential global positioning system surveying of the tote road and historical drill collars, geophysical surveying (including airborne, ground-based and downhole), resource and exploration drilling, metallurgical drilling and sampling, petrographic studies, geotechnical drilling and engineering, hydrogeological drilling and environmental studies.

3.1.3 Previous Development Studies

Cominco completed a prefeasibility study for the ABM Deposit in June 1995 (Cominco, 1995) which envisioned open pit mining of 11.3 Million tonne (Mt) ore at a rate of 1.08 Mtpa over a period of 10.5 years. Waste mined totaled 106 Mt, for a life of mine strip ratio of 9.4:1. Ore would be processed in a conventional flotation plant, producing separate copper, lead and zinc concentrates by sequential flotation. Tailings would be stored in a valley fill style dam in Geona Creek, permanently covered by water during both operations and on closure. This study formed the basis for issuance of Water licence QZ97-026.

Approximately 5% of waste rock mined was assessed, during the Cominco study, as having strong potential for acid generation and would be stored subaqueously within the tailings storage facility. Another 35% of waste rock mined was assessed to have weak acid generation potential. Two thirds of this material was to be placed in a surface storage facility and rehandled back into the mined pit on closure. The remaining one third would be backfilled in the pit as it was mined, removing any requirements for rehandling. The remaining 60% of the waste rock mined was assessed as acid consuming and was planned to be stored in a surface storage facility.

Baseline environmental data collection commenced prior to the prefeasibility study and continued following study completion. The Project was considered economic and Cominco completed an Initial Environmental Evaluation under the *Canadian Environmental Assessment Act* in 1996 and subsequently secured a Type A Water Licence (in 1998).

Further studies continued with a feasibility level geotechnical assessment completed in 1996 (Golder Associates, 1996); however, a final feasibility study report was not completed and the Project did not ultimately proceed to development, due to a significant reduction in commodity prices.

In 2000, Expatriate completed a new prefeasibility study assessing the combination of the Project with the Wolverine Deposit (Hatch Associates Ltd, 2000). This study considered open pit mining at the ABM Deposit of 11.1 Mt ore at a rate of 1.1 Mtpa in a little over ten years. Waste mining requirements were reduced to 75 Mt for a life of mine strip ratio of 6.7:1. Ore would be processed through a 1.55 Mtpa flotation plant constructed in the Geona Creek valley, with the balance of ore requirements produced by the Wolverine mine. A new haul road was proposed to link the Wolverine Project to the processing plant. Strategies for the management of tailings and waste rock remained unchanged from that proposed in the Cominco prefeasibility study.

In 2001, Expatriate terminated the acquisition agreement with Cominco and more detailed development studies did not progress.

3.2 Location

The Project is located on the northern flank of the Pelly Mountain Range, 260 km northwest of Watson Lake and 115 km southeast of Ross River, Yukon (**Figure 1**). The Project area lies approximately 24 km south of Finlayson Lake and 25 km west of the Wolverine Mine, in the upper portion of the Geona Creek valley, at approximate Universal Transverse Mercator (UTM) coordinates of 415,000 mE, 6,815,500 mN, Zone 9 NAD 83. The Project area is a located at approximately 1,400 metres above sea level (masl) elevation in a broad, gently sloping valley.

The Project is in the Traditional Territory of the Kaska Nation.

3.3 Access

The Project area is accessed via the all-weather Robert Campbell Highway which links the towns of Watson Lake on the paved Alaska Highway, and Carmacks on the paved Klondike Highway. Distances from Watson Lake and Carmacks to the site tote road are 349 km and 232 km, respectively. The road between Watson Lake and the site tote road is currently being upgraded in places by widening and chip sealing; however, the road is gravel between Watson Lake and Faro, and sealed between Faro and Carmacks. Road access to the site is off the Robert Campbell Highway at Finlayson Lake, and approximately 24 km south along a 4 m wide, private controlled access, all weather tote road. The gatehouse that controls access to the Project area, is located on the site tote road, adjacent to the turnoff from the Robert Campbell Highway.

3.4 Mineral Tenure

The KZK property comprises 879 mineral claims covering 231.4 km^2, centred on latitude 61° 28′ 55″ N longitude 130° 21′07″ W (UTM NAD83 Z9 – 428,000 mE 6,817,200 mN), located on National Topographic System (NTS) map sheets 105G/07-10 and in the Watson Lake Mining District, containing the KZK Claims (**Figure 2**).

3.5 Main Project Components and Activities

The proposed Project consists of three main components: access road, mine site, and Finlayson airstrip (**Figures 3 though 6**).

Figures 3 and 4 show the proposed mine plan in Year 1 and in Year 10, including but not limited to locations of the open pit, Class A, B and C storage facilities, overburden and organic soil stockpiles, processing facilities, paste plant, camp, water collection ponds, Operations Water Management Ponds and dams, pit rim pond, site roads and workshop. **Figure 5** presents the access road alignment.

Figure 6 presents the existing Finlayson airstrip footprint and proposed extension.

BMC proposes to transport the concentrate by truck to the Port of Stewart via the Robert Campbell Highway to Watson Lake and then to Stewart via Highway 37.

3.5.1 Location of First Nations, National Parks and Environmentally Sensitive Areas

Trapping rights over the western portion of the Project are held by the RRDC under Group, Trapline #405, while F. Charlie and T. Charlie jointly hold trapping rights over the rest of the Project under Single Holder, Trapline #250 (**Figure 7**). The whole of the Project forms part of Outfitter Concession #20, held by Yukon Big Game Outfitters, identified in **Figure 8**. There are several parcels of land in the vicinity of the Project which have been reserved for a future land claim settlement with the RRDC. Most importantly, a parcel of Interim Protected Land (RRDC-R15A) adjoins the southern boundary of the Project and covers the along-strike continuation of stratigraphy which hosts the GP4F deposit some 4 km away from the proposed mine at ABM.

There are no national parks in close proximity to the Project.

Regionally significant wildlife resources occur in the Project area, notably the Finlayson caribou herd (FCH). The uplands around the ABM Deposit form a portion of the seasonal range for the herd from spring through to fall. The FCH are a important wildlife resource for Kaska providing a valuable food source as well as an economic resource to sport hunters and the guiding industry. The FCH has been the subject of a significant management and monitoring effort by the Yukon government since the early 1980s.

3.5.2 Photographs of Work Locations

Photos 1 through **4** show the current KZK exploration camp, topography, and exploration areas.

Photo 1. Kudz Ze Kayah Exploration Camp - Summer 2016

Photo 2. Landscape Hosting the ABM Deposit in the Project Area

Photo is looking northwest (in the direction of streamflow at this location). Creek flowing down the Geona Creek valley.

Photo 3. KZK Exploration Area (East Side of ABM Deposit) – Summer 2016

Photo 4. KZK Exploration Area (West Side of ABM Deposit) – Summer 2016

4. PROJECT PURPOSE AND RATIONALE

4.1.1 Project Justification

BMC proposes to develop a 20-25 Mt copper, zinc, lead ore resource project, with an expected mine life of approximately 10 years. The Project will employ an average of 300 personnel on a year round basis. Preliminary estimates of the pre-production capital costs are currently estimated to average approximately CAD$ 378 million. The Project will contribute to Yukon and Federal Governments by way of sales tax revenue, licensing fees, employment and income taxes. These benefits and payments will vary over the life of the Project according to tax structure, metal prices and mine operating parameters, BMC's payment of corporate taxes and royalties alone will average between CAD$ 75-85 million annually over the life of the Project. Significant benefits will be available for the Kaska Nations in the form of direct employment, business development and opportunities, training and education funding, and direct financial payments through the application of the SEPA.

The proposed Project will be constructed, operated, and progressively reclaimed and decommissioned in compliance with applicable legislation using appropriate modern environmental practices. The Project will contribute positively to the sustainability of the communities in this area, and Yukon in general, by providing economic stimulus and facilitating the acquisition of job and business skills that can be applied to mining and other sectors in the future.

4.1.2 Estimated Resource

The mineral resources of the Project are classified as having a reasonable expectation of economic extraction, according to the Canadian Institute of Mining (CIM) definition standards and best practices referred to in NI 43-101. The qualified person for the mineral resource estimate was Aaron Green (Member of the Australian Institute of Geoscientists) of CSA Global Pty Ltd (CSA).

The Mineral Resource Estimate has an effective date of September 2016. The mineral resource estimate is 19.2 Mt with an average grade of 0.9% copper, 1.9% lead, 6.3% zinc, 148grams per tonne (g/t) silver, and 1.4 g/t gold, and includes ore reserves.

The ABM Deposit Mineral Resource estimate is reported by Zone and classification in **Table 1** and **Table 2,** respectively. The Mineral Resource has not been reported above a cut-off grade as the mineralization Zone is well defined by geology and contains significant grades of copper (Cu), lead (Pb), zinc (Zn), gold (Au) and silver (Ag) well above background levels.

Table 1. ABM Deposit Global Mineral Resource Estimate by Zone – September 2016

Zone	Tonnes Mt	Cu %	Pb %	Zn %	Au g/t	Ag g/t	Cu Metal kt	Pb Metal kt	Zn Metal kt	Au kOz	Ag MOz
ABM	15.0	1.0	1.6	6.1	1.3	132	146.7	234.9	904.4	626.6	63.5
Krakatoa	4.2	0.6	3.0	7.4	1.7	205	26.8	125.1	309.4	231.8	27.7
Total	**19.2**	**0.9**	**1.9**	**6.3**	**1.4**	**148**	**173.6**	**360.1**	**1,213.7**	**858.4**	**91.2**

g/t = gram/tonne, kt = thousand tonnes, kOz = thousand ounces, MOz = million ounces

Table 2. ABM Deposit Global Mineral Resource Estimate by Classification – September 2016

Classification	Tonnes Mt	Cu %	Pb %	Zn %	Au g/t	Ag g/t	Cu Metal kt	Pb Metal kt	Zn Metal kt	Au kOz	Ag MOz
Indicated	18.3	0.9	1.9	6.3	1.4	148	164.4	346.5	1,154.8	828.1	87.4
Inferred	0.9	1.1	1.6	6.9	1.1	138	9.2	13.6	58.9	30.3	3.8

4.1.3 Capital Cost and Taxation

The PFS estimates the pre-production capital costs at approximately CAD$ 378 million.

Included in the capital estimates are costs for the initial mining equipment, pre-production stripping, a nominal 5,500 tpd processing plant, shop, camp, infrastructure, indirect costs associated with the design engineering, and construction, commissioning, contingency, and owner's costs (**Table 3**).

Table 3. KZK Pre-feasibility Capital Costs

Capital Cost Summary	Pre-production (CAD, in millions)
Open Pit Mining	$23
Underground Mining	$0
Processing	$127
Infrastructure	$152
Owners and Indirects	$46
Subtotal	**$348**
Contingency	$30
Total Capital Cost	**$378**

5. PROJECT OVERVIEW

5.1 Mining Methods

Within the ABM Deposit there are two zones: the ABM Zone and the Krakatoa Zone. The majority of the ABM Deposit will be mined by open pit mining methods. The pit will be developed in two separate but connected lobes. The larger portion of the open pit will mine the ABM Zone while the smaller lobe will mine the upper portion of the Krakatoa Zone. Due to the large proportion of open pit mining, surface waste rock storage requirements are higher than what would be realized in an underground mining operation, and surface storage designs have allowed this larger storage requirement to set the expected upper limit as a conservative estimate.

5.2 Life of Mine Schedule

The provisional life of mine schedule, showing production from both open pit and underground sources is shown in **Table 4.** The schedule will be updated prior to submission of the Project Proposal to incorporate updated mineral resource estimates and the resulting updated mine plan.

Table 4. Life of Mine Schedule

	Units	Total	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Open Pit Waste Mined	'000 t	134,964	5,334	19,158	21,083	21,742	21,067	20,596	16,458	6,222	2,650	658	-
Open Pit High Grade Ore Mined	'000 t	15,375	487	1,416	1,804	1,868	1,699	1,480	1,685	1,662	1,876	1,402	-
Cu	%	0.9	0.5	0.6	0.8	0.9	1.0	1.0	0.8	0.7	0.9	1.2	-
Pb	%	1.6	2.1	1.9	1.5	1.3	1.1	1.3	1.6	1.9	1.9	1.4	-
Zn	%	5.6	6.8	6.5	6.1	5.7	4.8	5.1	5.4	5.7	5.6	5.3	-
Au	g/t	1.2	1.8	1.6	1.3	1.0	1.0	1.0	1.2	1.3	1.4	1.2	-
Ag	g/t	130	170	160	130	100	100	110	130	150	140	130	-
Underground Waste Mined	'000 t	415	-	-	112	178	69	13	19	8	18	-	1
Underground High Grade Ore Mi	'000 t	1,883	-	-	-	29	415	523	358	198	180	148	35
Cu	%	0.5	-	-	-	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6
Pb	%	2.8	-	-	-	3.1	2.8	2.8	2.8	2.9	2.8	2.9	2.9
Zn	%	6.6	-	-	-	5.9	6.2	6.8	6.7	6.2	6.4	7.1	7.3
Au	g/t	1.5	-	-	-	1.7	1.4	1.5	1.5	1.5	1.5	1.5	1.6
Ag	g/t	190	-	-	-	210	180	190	190	180	180	200	200
Total Waste Mined	'000 t	135,379	5,334	19,158	21,195	21,920	21,135	20,609	16,477	6,230	2,667	658	1
Total High Grade Ore Mined	'000 t	17,257	487	1,416	1,804	1,896	2,114	2,003	2,043	1,860	2,056	1,550	35
Cu	%	0.80	0.50	0.60	0.80	0.90	0.90	0.90	0.80	0.70	0.90	1.10	0.60
Pb	%	1.70	2.10	1.90	1.50	1.30	1.40	1.70	1.80	2.00	2.00	1.50	2.90
Zn	%	5.70	6.80	6.50	6.10	5.70	5.10	5.50	5.60	5.70	5.60	5.50	7.30
Au	g/t	1.30	1.80	1.60	1.30	1.00	1.10	1.20	1.20	1.40	1.40	1.30	1.60
Ag	g/t	130	170	160	130	110	110	130	140	150	150	130	200
Low Grade Ore Mined	'000 t	695	39	61	81	88	59	37	148	129	37	20	-
Cu	%	0.30	0.30	0.20	0.20	0.20	0.40	0.30	0.30	0.30	0.40	0.30	-
Pb	%	0.20	0.20	0.20	0.20	0.20	0.10	0.20	0.30	0.20	0.30	0.30	-
Zn	%	0.80	0.70	0.60	0.80	0.70	0.60	1.00	1.10	0.60	0.80	0.80	-
Au	g/t	0.20	0.30	0.30	0.30	0.20	0.10	0.20	0.30	0.30	0.20	0.10	-
Ag	g/t	30	20	30	30	30	20	20	40	40	20	20	-

5.3 Mine Site Layout and Facilities

The Project General Arrangement is shown in **Figures 3** and **4**. Key items of infrastructure include:

- Open pit mine (and underground mine not shown in figure);
- Assay laboratroy;
- Processing facility and associated run of mine (ROM) and other low grade stockpile facilities;

- Paste backfill plant;
- Three waste storage facilities for tailings and waste rock. Waste rock will be placed in different purpose built storage facilities based on the assessed potential for generation of acidic drainage and metal leaching;
- Overburden and topsoil stockpiles that will be reclaimed during operations and on closure;
- Water management infrastructure, including a pit rim pond for mine dewatering, water collection ponds, Operations Water Management Ponds and surface water diversion ditches;
- Camp facilities;
- Core shack and core storage; and
- General mine infrastructure including explosives facilities, workshops, fuel facilities, and power generation facility.

5.3.1 Open Pit

Mining of the open pit will be undertaken in four separate phases to manage overall waste stripping requirements and capital outlay. All open pit mining is currently planned to be completed by a mining contractor with the pit mined with a common mining fleet. Open pit mining is planned to be completed over a period of approximately nine years, with a nominal six month pre-production period building sufficient ore stocks to maintain continuity of ore to the processing plant.

The main access ramp has been designed to exit the pit to the north, in the base of the valley. Additional ramp access has been included on the southern wall of the ABM open pit to maintain access to the Krakatoa Zone.

Due to the broad zones of mineralization evident in the ABM Zone, and in accordance with Yukon Occupational Health and Safety Regulations, it is expected that a bench height of 10 m will generally be adopted during mining. Mining of smaller benches may be required in specific locations where greater selectivity is required due to the orientation and width of mineralization.

All truck haulage is anticipated to be completed with a 90 t class rear dump truck fleet.

Haul roads in the pit have been designed to be 22 m wide at a 1:9 gradient. Surface haul roads have been designed to be nominally flat where possible to maximize hauling productivities. Haul trucks will have right of way on all surface and in pit haul roads. Detailed engineering designs will be carried out prior to production with the final trucking fleet and mine design purpose matched to optimize productivity and safety outcomes.

5.3.2 Underground

Underground mining has only been considered for deeper parts of the Krakatoa Zone of the Deposit, to fit with the planned open pit mining of the majority of the ABM Zone.

Underground development will use standard mechanized mining equipment and methods, and will be nominally 5 m wide by 5 m high with an arched back. Utilities including compressed air, water and waste water pump lines will be installed as the headings progress and electrical cable and paste fill line will be installed as required.

Haulage is proposed to be completed with standard 40-50 t underground haul trucks (Sandvik TH540, Cat AD 45 or similar). Trucks will be loaded by 14 t underground loaders (CAT R1700G, Sandvik LH514 or similar). These loaders will all be fitted with remote capabilities allowing for safe mucking in stopes and the loading of trucks.

5.3.3 Processing Plant

The process plant and associated service facilities will process ROM ore at a nominal rate of approximately 2 Mtpa, to produce separate copper, lead and zinc concentrates and tailings. The design availability of the plant is nominally 93% (after ramp-up) with an allowance for standby equipment in most areas to achieve this availability.

The process consists of crushing and grinding of the ore, separate sequential pre-float, rougher and cleaner flotation of copper, lead and zinc and regrind of copper, lead and zinc rougher concentrates. Concentrates will be thickened, filtered and stockpiled on site prior to being loaded onto trucks for transport to third party smelters. The flotation tailings will be dewatered by thickening and vacuum filtration before the tailings are transported either for disposal at the Class A Storage Facility or combined with cement to produce backfill paste for the underground mine. The proposed flowsheet is summarized in **Figure 9.** A more detailed description of the mineral processing is presented in **Section 5.4**.

5.3.4 Waste Rock Management and Facilities

Waste rock will be classified as Class A, B or C, based on its potential to produce acid drainage and metal leaching characteristics, over short and long term time periods, once placed in a waste storage facility. The testwork completed for the identification of the different classes of waste rock is discussed in **Section 6.3.**

Class A waste rock is defined as potentially acid generating and metal leaching in the near term. It is likely that classification of this material during operations will be based on on site laboratory analysis for sulphur content and neutralization potential. This material will be placed in a storage facility with controlled drainage during operations and will be progressively reclaimed (encapsulated) as the waste storage facility is developed to minimize contact with oxygen and water.

Class B waste rock is defined as potentially being acid generatiing with metal leaching potential over the longterm (after cessation of mining activities). The identification of this material will be by on site laboratory analysis for sulphur content and neutralization potential. Storage of this material will require controlled drainage during operations, although encapsulation during operations will not be required due to the lower reactivity of the rock in comparison to Class A waste rock. Encapsulation will be required after cesstation of mining as part of the reclaimation plan.

Class C waste rock is defined as potentially not being acid generating, or potentially acid consuming, and having low metal leaching potential. This material is suitable for construction purposes around the site as well as capping material for progressive reclamation during operations and as closure requirements. Classification of this material in the field will be based on site laboratory analysis for sulphur content and neutralization potential.

5.3.4.1 Class A Waste Storage Facility

The Class A Waste Storage Facility is designed to contain filtered tailings and Class A waste rock. Class A material will be acid generating and metal leaching in the near term and therefore requires encapsulation to prevent contact with oxygen and water.

The facility is proposed to be located on the western hillside of Geona Creek, north of the processing plant. The annual footprint of the Class A Waste Storage Facility will be cleared of trees and topsoil which will be removed and stored for use during progressive and final future reclamation. A one metre layer of glacial till will be placed and compacted in smaller lifts, to provide a very low permeability seepage barrier beneath the facility. Basin underdrains will be constructed from Class C material on top of the very low permeability barrier layer to provide a pathway for seepage beneath the low permeability tailings material (**Figure 10**). The facility will be graded to collect and convey water to the Class A Collection Pond. A Class C material buttress will be constructed for confinement at the downstream slope of the Class A Waste Storage Facility, which will improve the overall factor of safety of the facility. There is a surplus of Class C material on site, therefore, the embankment will be constructed with selectively sourced Class C material.

The buttress will be constructed with a nominal 2.5H:1V upstream slope and nominal 3H:1V downstream slope. Filtered tailings material will be placed and compacted in controlled lifts, progressively covering previously deposited tailings to limit the extent of exposure to oxygen. The facility will be constructed at an overall slope of nominal 4H:1V, which approximates the existing valley sideslope, and will be progressively reclaimed with an engineered very low permeability cover layer to prevent oxygen ingress, and approximately three meters of Class C material for frost protection (**Figure 11**). The facility will be capped with growth media and be revegetated up to a pre-determined elevation to mimic the current site conditions.

The Class A Storage Facility has been conservatively designed to have a nominal capacity of 15 million cubic metres (Mm^3). This will be sufficient for storage of all tailings (approximately 10 Mm^3) and Class A waste rock (approximately 5 Mm^3). Consideration has been given to potential variations in actual volumes that may be encountered in operations as practical experienced is gained in the identification and management of the different classes of waste rock.

5.3.4.2 Class B Waste Storage Facility

The Class B Storage Facility is designed to contain Class B waste rock which will have acid generation and metal leaching potential over the longer term (after cessation of mining activities). The strategy for handling Class B material requires encapsulation to limit contact with oxygen and water. The facility is proposed to be located north of the open pit, along the western slope of Geona Creek (**Figure 3**).

The Class B Storage Facility footprint will be cleared of trees and topsoil stripped, exposing the relatively thin layer of glacial till overburden and weathered bedrock. A one metre layer of glacial till will be placed and compacted, to provide a seepage barrier beneath the facility. The foundation will be graded to collect and convey waste rock seepage to the Class B Collection Pond.

The Class B Storage Facility will be constructed with an overall nominal slope of 3H:1V for long-term physical stability and to allow for recontouring for closure and reclamation. The facility will be progressively reclaimed with a compacted one metre layer of glacial till material, approximately three metres of Class C material for frost protection and topsoil material for revegetation.

The Class B Storage Facility has been designed to have a nominal capacity of 24 Mm^3, sufficient for storage of all Class B waste rock. Similar to the Class A Storage Facility, additional capacity has been allowed to consider variations in Class B waste rock volumes that may be experienced during operations and as understanding and identification of the different classes of waste rock grows.

5.3.4.3 Class C Waste Storage Facility

The Class C Storage Facility is designed to contain Class C waste rock. This material will not be acid generating and could potentially be acid consuming, and have low metal leaching potential. For this reason specific acid rock drainage (ARD) management strategies are not required. The Class C Storage Facility is proposed to be located in a small hanging valley along the east side of the Project area.

The footprint of the facility will be cleared and topsoil stripped for use in reclamation. The facility will be constructed with an overall nominal slope of 3H:1V for long-term physical stability and to allow for recontouring for closure and reclamation. The facility will be progressively reclaimed with overburden material and topsoil to promote revegetation of the slopes.

The Class C Waste Storage Facility has been designed to have a nominal capacity of 42 Mm^3, sufficient for storage of all Class C waste rock.

5.3.5 Overburden Stockpile

Overburden from the open pit will be excavated and stockpiled at strategic locations to facilitate progressive reclamation and final mine closure. Glacial till material will be selectively sourced from the stockpile and used as the low permeability foundation and closure cover layers for the Class A, Class B and Class C Storage Facilities, and for construction of the Water Management and Collection Ponds.

The main stockpile is proposed to be located north of the Class C Storage Facility, along the eastern slope of the Project area. The footprint of the facility will be cleared and topsoil removed. The stockpile is a temporary structure and will be constructed at a nominal slope of 2.2H:1V.

The main Overburden Stockpile has been designed to have a nominal capacity of 8 Mm^3. It will be utilized during the mine life for progressive reclamation material. Any material remaining at the end of mine life will be used for final reclamation and closure.

5.3.6 Topsoil Stockpiles

Topsoil will be stripped from the Overburden Stockpile, Class A, B, and C Storage Facilities and the open pit footprint areas during construction. Topsoil stockpiles will be strategically located to facilitate progressive reclamation and final mine closure and reclamation. The average topsoil thickness is approximately 0.2 m thick, although localized variations throughout the Project area show topsoil layers as thick as 0.5 m.

The total estimated volume of topsoil, based on the average thickness, is approximately 1.8 Mm^3, which will be placed in localized stockpiles and windrows around site. Material will be placed and contoured to a nominal 4H:1V slope. The stockpile surfaces will be revegetated during operations to stabilize the slope surfaces, control erosion from runoff, and maintain a viable seed bank within the soil.

5.3.7 Water Management and Facilities

BMC has designed the water management systems and associated facilities for the Project with the following objectives:

1. Keep clean water clean, and
2. Re-use water on site, where ever practicable, to reduce the volume required for discharge.

Water management will include: water collection; conveyance; storage; treatment and release. Runoff will be controlled to minimize erosion in areas disturbed by construction activities and to prevent the release of sediment laden water to the receiving environment. This includes the collection and diversion of surface water runoff, and sediment and water collection ponds and pumping systems. This section outlines the water management strategies and infrastructure for the construction, operation and closure periods.

5.3.7.1 Drainage Catchments

The Project is situated in the Geona Creek catchment which is part of the Finlayson Creek watershed. The Geona Creek sub-catchments include the ABM open pit, Class A Storage Facility, Class B Storage Facility, Class C Storage Facility, Overburden Stockpile, Process Plant, northwest diversion, northeast diversion, Upper Operations Water Management Pond and Lower Operations Water Management Pond. The Project also extends into the South Creek catchment with the south diversion which includes the diversion of Fault Creek into South Creek.

5.3.7.2 Precipitation

Table 5. presents the monthly precipitation estimates based on the mean regional distribution and the estimated snow vs. rainfall distribution for the Project.

In 2016, pan evaporation measurements were taken daily between 21 May and 5 September, as conditions allowed. Monthly total pan evaporation for 2016 after adjustments for rainfall are shown in Table 5. The Campbell Scientific datalogger program incorporates the calculation of potential evapotranspiration using the American Society of Civil Engineers standardized reference evapotranspiration equation (Penman-Monteith) for a flat grassland. The calculated total potential evapotranspiration (PET) values for the KZK meteorological station have also been provided in Table 5.

Table 5. Estimated Annual Precipitation Distribution

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Total (mm)	36.2	27.1	24.0	16.7	32.2	52.8	67.8	59.9	55.0	41.9	41.7	38.1	493.4
Rain (%)	0	0	0	0	50	100	100	100	100	20	0	0	
Rain (mm)	0.0	0.0	0.0	0.0	16.1	52.8	67.8	59.9	55.0	8.4	0.0	0.0	260.0
Snow (%)	100	100	100	100	50	0	0	0	0	80	100	100	
Snow (mm)	36.2	27.1	24.0	16.7	16.1	0.0	0.0	0.0	0.0	33.5	41.7	38.1	233.4
Total PET (mm)	2.2	7.4	25	51.3	84.5	106.2	76.5	59.5	34	14.1	5	-1	464.7
Pan Evaporation (mm)	-	-	-	-	-	138.5	111.5	80.2	-	-	-	-	330.19

5.3.7.3 Water Management Strategy

The Project will have a positive water balance, therefore active water management including water treatment and discharge to the receiving environment will be required. The KZK water management strategy is illustrated in **Figure 12**. The strategy includes diverting as much clean water as practicable for release to minimize the volume of contact water requiring management in the Project footprint.

The goal of the water management plan is to re-use water in the Project area to the maximum practicable extent, with a particular focus on re-use of the dirtiest water. Surplus water will be stored on site during operations in the Upper and Lower Water Management Ponds and used for ore processing (as required), with the excess water being released to Geona Creek and piped to Finlayson Creek.

The key components of the water management strategy are summarized below:

- Ditches and diversions will be established during the initial construction phase and will be maintained through operations. Three main diversions will be constructed, including the south diversion, northwest diversion and northeast diversion (**Figure 12**).
- Runoff and seepage from the Class A, Class B and Class C Storage Facilities and Overburden Stockpile will be collected in a pond at the base of each storage facility. The routing of the water from each facility will be based on its quality.

- A water treatment plant, located at the processing plant, will be in place primarily to treat the runoff from the Class A Storage Facility, but will be sized to also treat water from the ore stockpile, the process plant pad, low grade ore stockpile and/or the pit rim pond as required to maintain dischargeable water quality in the Lower Water Management Pond.
- The water collected at the Class B Storage Facility Pond will be directed to the Upper Water Management Pond, where it may be used for processing or released to the Lower Water Management Pond for discharge to the receiving environment depending on operational requirements and water quality.
- The Class C Storage Facility and Overburden Stockpile runoff water will be conveyed from their collection ponds directly to Geona Creek downstream of the Lower Water Management Pond as it is predicted to meet the Geona Creek water quality objectives.

- A two-stage water management pond will be constructed in the Geona Creek valley where the Upper Water Management Pond will be used to manage contact water as required and the Lower Water Management Pond will be used for settling and polishing prior to discharge to the receiving environment.
- Water will be discharged to both Geona and Finlayson Creeks, at established treated water quality standard concentrations and at a nominal discharge volume ratios no less than 3:1 (receiving water volume: treated water volume) to meet water quality objectives in the receiving environment. Energy dissipation structures such as rip rap channels will be constructed below the discharge locations to both Geona and Finlayson Creeks.
- Groundwater and surface water intercepted during the construction and operation of the ABM open pit will be collected and pumped to the pit rim pond. The water may be conveyed to the process plant for use, to the water treatment plant or to the Upper Water Management Pond prior to the release to the receiving environment depending on its quality and operational requirements.

5.3.7.4 Project Water Balance

A water balance model has been prepared to provide information to guide the development of the water management strategy for the Project. **Table 6** provides the annual operations water volumes for year 9 for a dry (1:10 year drought event), mean and wet year (1:50 year storm event).

Water sources for the Project include precipitation runoff from mine storage facilities, groundwater used for camp and ore processing and water (groundwater and surface water) collected from the ABM open pit.

Table 6. Operations Water Volumes

Average Case Precipitation Scenario																				
Month	No Treatment		Treatment Potentially Needed							Total Surplus	Process Water Use			Lower WMP Discharge		Total Output	Non-Contact Water Diverted Around Site			
	Upper WMP[1]	Lower WMP[2]	Underground Workings	Open Pit Dewatering			Mill Site Runoff	Class A	Class B		GW Well	WTP	Open Pit Water	To Geona Creek	To Finlayson Creek		South	North		
			GW	GW	Surface	Total												Class C	Overburden Stockpile	Remainder
Jan	11,000	24,000	16,000	27,000	20,000	63,000	3,000	5,000	15,000	121,000	4,000	5,000	15,000	52,000	-	76,000	24,000	13,000	4,000	13,000
Feb	8,000	17,000	16,000	27,000	14,000	57,000	2,000	3,000	11,000	98,000	4,000	5,000	15,000	30,000	-	54,000	16,000	9,000	3,000	9,000
Mar	7,000	15,000	16,000	27,000	13,000	56,000	2,000	3,000	9,000	92,000	4,000	5,000	15,000	28,000	-	52,000	15,000	8,000	2,000	8,000
Apr	15,000	32,000	16,000	27,000	28,000	71,000	4,000	6,000	20,000	148,000	4,000	5,000	15,000	22,000	-	46,000	32,000	17,000	5,000	17,000
May	105,000	225,000	16,000	27,000	191,000	234,000	26,000	128,000	132,000	850,000	4,000	5,000	15,000	450,000	800,000	1,274,000	221,000	118,000	36,000	120,000
Jun	57,000	125,000	16,000	27,000	111,000	154,000	15,000	64,000	72,000	487,000	4,000	5,000	15,000	257,000	225,000	506,000	128,000	68,000	20,000	70,000
Jul	33,000	74,000	16,000	27,000	68,000	112,000	9,000	30,000	41,000	299,000	4,000	5,000	15,000	190,000	121,000	335,000	79,000	42,000	12,000	43,000
Aug	43,000	94,000	16,000	27,000	82,000	126,000	11,000	42,000	52,000	368,000	4,000	5,000	15,000	185,000	125,000	334,000	95,000	51,000	15,000	52,000
Sep	49,000	106,000	16,000	27,000	91,000	134,000	12,000	49,000	58,000	408,000	4,000	5,000	15,000	250,000	125,000	399,000	104,000	56,000	17,000	57,000
Oct	35,000	75,000	16,000	27,000	64,000	107,000	9,000	28,000	48,000	302,000	4,000	5,000	15,000	145,000	100,000	269,000	74,000	40,000	12,000	40,000
Nov	19,000	41,000	16,000	27,000	35,000	78,000	5,000	8,000	26,000	177,000	4,000	5,000	15,000	52,000	-	76,000	40,000	22,000	7,000	22,000
Dec	15,000	33,000	16,000	27,000	28,000	71,000	4,000	6,000	21,000	150,000	4,000	5,000	15,000	55,000	-	79,000	32,000	17,000	5,000	17,000
Annual (m^3/yr)	397,000	861,000	192,000	324,000	745,000	1,263,000	102,000	372,000	505,000	3,500,000	48,000	60,000	180,000	1,716,000	1,496,000	3,500,000	860,000	461,000	138,000	468,000

1:50 Year Wet Precipitation Scenario																				
Month	No Treatment		Treatment Potentially Needed							Total Surplus	Process Water Use			Lower WMP Discharge		Total Output	Non-Contact Water Diverted Around Site			
	Upper WMP[1]	Lower WMP[2]	Underground Workings	Open Pit Dewatering			Mill Site Runoff	Class A	Class B		GW Well	WTP	Open Pit Water	To Geona Creek	To Finlayson Creek		South	North		
			GW	GW	Surface	Total												Class C	Overburden Stockpile	Remainder
Jan	16,000	35,000	16,000	27,000	29,000	72,000	4,000	7,000	22,000	156,000	4,000	5,000	15,000	70,000	-	94,000	34,000	18,000	6,000	18,000
Feb	11,000	24,000	16,000	27,000	20,000	63,000	3,000	5,000	15,000	121,000	4,000	5,000	15,000	45,000	-	69,000	23,000	12,000	4,000	13,000
Mar	10,000	21,000	16,000	27,000	18,000	61,000	3,000	4,000	13,000	112,000	4,000	5,000	15,000	40,000	-	64,000	21,000	11,000	3,000	11,000
Apr	21,000	45,000	16,000	27,000	39,000	82,000	5,000	9,000	29,000	191,000	4,000	5,000	15,000	50,000	-	74,000	45,000	24,000	7,000	25,000
May	150,000	321,000	16,000	27,000	271,000	314,000	37,000	192,000	192,000	1,206,000	4,000	5,000	15,000	665,000	1,000,000	1,689,000	313,000	168,000	51,000	170,000
Jun	84,000	181,000	16,000	27,000	158,000	201,000	22,000	101,000	107,000	696,000	4,000	5,000	15,000	379,000	399,000	802,000	182,000	97,000	29,000	99,000
Jul	50,000	108,000	16,000	27,000	97,000	140,000	13,000	53,000	62,000	426,000	4,000	5,000	15,000	260,000	250,000	534,000	112,000	60,000	18,000	61,000
Aug	63,000	135,000	16,000	27,000	117,000	160,000	16,000	70,000	77,000	521,000	4,000	5,000	15,000	250,000	150,000	424,000	134,000	72,000	22,000	73,000
Sep	71,000	152,000	16,000	27,000	129,000	172,000	18,000	80,000	87,000	580,000	4,000	5,000	15,000	380,000	150,000	554,000	148,000	80,000	24,000	81,000
Oct	50,000	107,000	16,000	27,000	91,000	134,000	13,000	50,000	68,000	422,000	4,000	5,000	15,000	205,000	130,000	359,000	105,000	56,000	17,000	57,000
Nov	27,000	59,000	16,000	27,000	50,000	93,000	7,000	17,000	37,000	240,000	4,000	5,000	15,000	80,000	-	104,000	57,000	31,000	9,000	31,000
Dec	22,000	47,000	16,000	27,000	40,000	83,000	5,000	9,000	29,000	195,000	4,000	5,000	15,000	75,000	-	99,000	45,000	24,000	7,000	25,000
Annual (m^3/yr)	575,000	1,235,000	192,000	324,000	1,059,000	1,575,000	146,000	597,000	738,000	4,866,000	48,000	60,000	180,000	2,499,000	2,079,000	4,866,000	1,219,000	653,000	197,000	664,000

1:10 Year Dry Scenario																				
Month	No Treatment		Treatment Potentially Needed							Total Surplus	Process Water Use			Lower WMP Discharge		Total Output	Non-Contact Water Diverted Around Site			
	Upper WMP[1]	Lower WMP[2]	Underground Workings	Open Pit Dewatering			Mill Site Runoff	Class A	Class B		GW Well	WTP	Open Pit Water	To Geona Creek	To Finlayson Creek		South	North		
			GW	GW	Surface	Total												Class C	Overburden Stockpile	Remainder
Jan	9,000	20,000	16,000	27,000	16,000	59,000	2,000	4,000	12,000	106,000	4,000	5,000	15,000	37,000	-	61,000	19,000	10,000	3,000	10,000
Feb	6,000	14,000	16,000	27,000	11,000	54,000	2,000	3,000	8,000	87,000	4,000	5,000	15,000	18,000	-	42,000	13,000	7,000	2,000	7,000
Mar	6,000	12,000	16,000	27,000	10,000	53,000	1,000	2,000	8,000	82,000	4,000	5,000	15,000	17,500	-	41,500	12,000	6,000	2,000	6,000
Apr	11,000	25,000	16,000	27,000	22,000	65,000	3,000	5,000	16,000	125,000	4,000	5,000	15,000	16,000	-	40,000	26,000	14,000	4,000	14,000
May	83,000	179,000	16,000	27,000	153,000	196,000	21,000	98,000	104,000	681,000	4,000	5,000	15,000	365,000	700,000	1,089,000	176,000	94,000	29,000	96,000
Jun	45,000	98,000	16,000	27,000	89,000	132,000	12,000	47,000	56,000	390,000	4,000	5,000	15,000	200,000	183,000	407,000	102,000	55,000	16,000	56,000
Jul	26,000	57,000	16,000	27,000	55,000	98,000	8,000	20,000	30,000	239,000	4,000	5,000	15,000	140,000	90,500	254,500	63,000	34,000	10,000	34,000
Aug	34,000	74,000	16,000	27,000	66,000	109,000	9,000	29,000	39,000	294,000	4,000	5,000	15,000	130,000	100,000	254,000	76,000	41,000	12,000	41,000
Sep	39,000	84,000	16,000	27,000	73,000	116,000	10,000	35,000	45,000	329,000	4,000	5,000	15,000	187,000	100,000	311,000	83,000	45,000	13,000	45,000
Oct	28,000	60,000	16,000	27,000	51,000	94,000	7,000	18,000	38,000	245,000	4,000	5,000	15,000	100,000	100,000	224,000	59,000	32,000	10,000	32,000
Nov	15,000	33,000	16,000	27,000	28,000	71,000	4,000	6,000	21,000	150,000	4,000	5,000	15,000	40,000	-	64,000	32,000	17,000	5,000	17,000
Dec	12,000	27,000	16,000	27,000	22,000	65,000	3,000	5,000	17,000	129,000	4,000	5,000	15,000	45,000	-	69,000	25,000	14,000	4,000	14,000
Annual (m^3/yr)	314,000	683,000	192,000	324,000	596,000	1,112,000	82,000	272,000	394,000	2,857,000	48,000	60,000	180,000	1,295,500	1,273,500	2,857,000	686,000	369,000	110,000	372,000

5.3.7.5 Open Pit and Underground Workings Water

Pit Dewatering

Overburden dewatering in the open pit area will occur during the pre-production period to facilitate mining activity in the pit. The overburden dewatering design incorporates a series of trenches, sumps and bores which will be used to collect water for pumping to the pit rim pond for sediment settlement. Clear water will then be pumped downstream to Geona Creek for discharge to the environment.

Water management in the open pit operation will be managed by a combination of surface interception, dewatering wells and inpit sumps, and localized drains. Once the overburden has been effectively drained, these trenches will be mined out by the open pit development, with any recharge of the overburden flowing into the mined open pit excavation.

In parallel with the overburden dewatering trenches, dewatering wells will be constructed to lower water levels in the three major water-bearing fault structures below the operating pit floor.

Horizontal drains will be utilized in the open pit where required to drain localized water that could affect open pit wall stability, while temporary inpit sumps will be maintained to ensure that dry conditions are available at the operating pit floor. Water from within the pit will be collected in these sumps and pumped to the pit rim pond for settling of sediments and subsequent reuse, treatment or discharge as may be appropriate.

Underground Dewatering

As in the strategy for pit dewatering, the dewatering strategy for the underground workings involves the collection of seepage water augmented by horizontal drains, as needed to reduce bedrock saturation near the tunnel face in the event of elevated flow rates or structural instability. Drainage from the walls and horizontal drains will be conducted to a series of sumps to be located at appropriate locations within the workings. Collected water will be pumped from the sump to the surface pit rim pond where it can be routed for subsequent reuse, treatment or discharge as may be appropriate.

5.3.7.6 Processing and Mine Water Requirements

The four primary sources of water usage for process plant make-up water are:

- Open pit water from the pit rim pond water;
- Process plant site runoff;
- Class A Storage Facilicity Collection Pond water;
- A groundwater well(s) at the process plant.

Alternative water sources include water from the Class B Collection Pond and operations Water Management Ponds. Surface runoff water from the process plant footprint (including the run of mine and low grade ore stockpiles) will be collected in perimeter sumps within the process plant footprint and pumped to the water treatment plant. Surface water will generally only be collected between April and October when runoff is occurring.

Water will be required for other components of the mine operations including dust suppression, jumbo drill rigs, wash bays, and paste-fill production. Dust suppression will utilize water from the Class B Storage Facility pond or the Lower Operations Water Management Pond. The water quality of both facilities will be monitored regularly to ensure that water quality is suitable for use. Dust suppression will only be required during the snow free months and will occur as required to maintain air quality for the Project.

5.3.7.7 Paste Plant Water Requirements

A paste plant will be constructed near the ABM open pit to provide paste backfill using cement and tailings in the underground mine. The source water for the paste plant will be from the pit rim pond or the dewatering wells upgradient of the ABM open pit and used at a rate up to 25 m^3/hour.

5.3.7.8 Camp Water

The Project includes a 250 person camp during operations with an additional 100 person camp for construction. The camp will be supplied with potable water from a groundwater well at a nominal rate of up to 3.7 m^3/hour (up to 350 people at 250 l/day). The water will be pumped into a storage tank in camp and treated as required. The camp will be constructed with a sewage treatment plant that will include a septic field that will eventually discharge treated water into Geona Creek.

Potable water for the processing plant and mine offices will be supplied by a groundwater well and treated as required. Potable water requirements for facilities remote from the camp, including the mining workshop, paste fill plant and bulk explosives facility will be met via water tanker.

5.3.7.9 Mine Water Treatment

A water treatment plant will be constructed at the process plant facility to treat contact water from the Class A Storage Facility collected in its water collection pond, the runoff from the process plant area collected in the perimeter sumps, and will have additional capacity to treat water pumped from the pit rim pond as required. The water treatment plant will be designed to treat up to a nominal volume of 2,318,000 m^3/year. The treated water from the water treatment plant will either be discharged to the Lower Water Management Pond or to the receiving environment.

5.3.7.10 Fire Suppression Water

A fire water distribution system will be installed around the processing plant site and camp area with wall hydrants at strategic locations, capable of delivering at a nominal rate of 400 m^3/hr of water for a two hour period. Fire water will be drawn from the raw water tank and will be provided by a skid-mounted system incorporating an electric main pump and jockey pump and diesel back-up pump.

5.3.7.11 Water Management Structures

Diversions

Diverting clean water around the Project is one of the main objectives of the water management strategy. Reducing the volume of contact water requiring management and treatment is critical to the success of the water management strategy for the Project. The Project includes three major diversions:

- The Fault Creek and associated southern diversions temporarily re-routes water that would otherwise flow into the ABM open pit and diverts it to South Creek during operations;
- The northwestern diversion routes water above the Class A Storage Facility; and
- The Class B Storage Facility past the Operations Water Management Ponds into Geona Creek.

The northeastern diversion redirects water above and the runoff from the Class C Storage Facility and Overburden Stockpile, which is directed into Geona Creek below the Lower Operations Water Management Pond. The water balance has assumed the diversions have a nominal 50% efficiency rating other than the Fault Creek diversion which has assumed a nominal 100% efficiency rating. Air photo interpretation suggests that in recent geologic times Fault Creek has flowed to the South via paleo channel, located where the temporary diversion would be developed. All diversion ditches will be designed to manage a one in 200 year flood event.

Ponds

The Class A, Class B and Class C Storage Facilities have each been designed with runoff collection ponds to both store a storm event and provide settling of solids prior to water conveyance to other facilities or prior to discharge. The pond design specifications are provided in **Table 7.**

Table 7. Pond Design Specifications

Parameter	Class A storage facility Pond	Class B storage facility pond	Class C storage facility pond	Overburden Stockpile pond	Lower Water Management Pond	Upper Water Management Pond	Pit rim pond
Design Volume	60,000 m^3	40,000 m^3	50,000 m^3	20,000 m^3	500,000 m^3	250,000 m^3	60,000 m^3
Design Threshold	1:200 year 24 hour storm event and freshet inflow	1:200 year 24 hour storm event and freshet inflow	1:10 year 24 hour storm event, freshet inflow and 30 days of storage	1:10 year 24 hour storm event, freshet inflow and 30 days of storage	1:200 year 24 hour storm event	1:200 year 24 hour storm event	1:100 year 24 hour storm event
Design Freeboard	1 m	1 m	1 m	1 m	1 m	1 m	1 m

The Class A and Class B Storage Facility Collection Ponds will be constructed with geosynthetic liners. The ponds have been sized to manage a one in 200-year, 24-hour storm event (including a 1 m freeboard allowance) and the projected freshet inflow.

The Overburden Stockpile and Class C Storage Facility Collection Ponds will be constructed with a compacted glacial till (low permeability) liner. The ponds have been designed to provide 30 days storage from seepage and surface runoff for the one in 10-year, 24-hour storm event (including a 1 m freeboard allowance) and the projected freshet inflow. Flow from the ponds will be conveyed downstream of the Lower Water Management Pond and discharged into Geona Creek.

Water collected from the Class A pond will be directed to the water treatment plant which will be located at the process plant. Treated water will either be directed to the Lower Water Management Pond or directly to the receiving environment. The Class B pond water will be pumped to the Upper Water Management Pond for re-use or discharged to the receiving environment. Water from the Class C Pond and the Overburden Stockpile Pond will be directed to Geona Creek as it is predicted to meet the water quality objectives for Geona Creek.

The Upper Water Management Pond will temporarily store site runoff water from areas surrounding the process plant site, and the east side of Geona Creek including runoff from the Overburden Stockpile and Class C Facility that is unsuccessfully diverted around site. Settling of sediment and metals will occur in the Upper Water Management Pond and the clean water will be decanted to the larger Lower Water Management Pond where it will be stored for use as reclaim water for the process plant, or discharged to the environment.

There will be a single point of discharge from the Lower Water Management Pond, which will either be discharged to Geona Creek or piped to Finlayson Creek. Water will be discharged year-round to Geona Creek at a minimum 3:1 ratio (receiving water: treated water) and piped to Finlayson Creek from April to October at a rate no less than 3:1 ratio with Finlayson Creek (receiving water: treated water).

5.3.8 Reagent Handling and Storage

Reagents requiring handling, mixing, and distribution systems are summarized in **Table 8**.

Dry reagents will be stored under cover, then mixed in reagent tanks and transferred to distribution tanks for process use. The reagent storage shed will be a steel framed structure with metal roofing; metal siding will be installed to keep reagents dry and protected from the sun. The floors will be slab-on-grade concrete with concrete containment walls to capture spills.

Table 8. Process Plant Reagents

Reagent	Use in Plant	Storage Location	Probable Product Delivered Size
Lime	pH modifier	Lime silo	40 t bulk delivery
Sodium Metabisulphite	Copper circuit depressant	Reagent storage shed	1,000 kg bulk bags
Zinc Sulphate	Lead circuit depressant	Reagent storage shed	1,200 kg bulk bags
3418A	Lead circuit collector	Reagent storage shed	1,000 l bulk liquid box
Copper Sulphate	Zinc circuit activator	Reagent storage shed	1,200 kg bulk bags
A208	Zinc circuit collector	Reagent storage shed	1,000 l bulk liquid box
Flocculant	Flocculant	Reagent storage shed	750 kg bulk bags
Sodium Cyanide	Lead circuit depressant	Reagent storage shed	1,000 kg bulk bags
A3894	Copper circuit collector	Reagent storage shed	1,000l bulk liquid box
MIBC	Frother	Reagent storage shed	1,000l bulk liquid box

5.3.9 Paste Fill Plant

Construction of the paste fill plant will commence in year three of operations. Dry tailings will be transported from the process plant to the paste plant site and stockpiled for producing backfill paste. The volume of paste required per annum is approximately 250,000 cubic metres (m^3). At this paste plant production rate, a paste plant utilization of 43% is required leaving scope for an increase in utilization if the opportunity arises.

When the paste plant is in operation, the dry tailings will be reclaimed by a front end loader (FEL) into a dump hopper, which will feed the tails to a pug type paste mixer. The tails filter cake will be combined with cement (and / or binder) and water before being transferred into a paste collection hopper for delivery underground by gravity assisted by pumps.

5.3.10 Assay and Metallurgical Laboratory

An onsite laboratory has been included in the administration and processing plant facilities. The laboratory will be responsible for completing all assay requirements for ongoing exploration, mine grade control, mine waste classification and the processing plant control. Additional exploration and environmental assay requirements will be met by on independent offsite laboratory.

Laboratory equipment is expected to include drying, crushing, splitting and pulverizing equipment for sample preparation, equipment for sample analysis, and other ancillary equipment such as balances.

Grade control samples will be assayed for copper, lead, zinc, gold, silver and iron. Processing plant control samples will assay for a similar suite, with the addition of moisture of each concentrate. Concentrates will also be assayed for penalty elements including arsenic, mercury, bismuth, antimony, cadmium and fluoride. Waste rock samples will be assayed for sulphur and calcium.

5.3.11 Power Distribution

The Project power supply will be a site based bi-fuel (natural gas and/or diesel) fueled power plant, located adjacent to the processing plant facilities. The power plant will consist of six 4.2 megawatt (MW) continuous rated generators in an N+2 configuration. The engines will run a variable ratio of natural gas (NG) to diesel from 100% diesel to 99% NG giving great flexibility in fuel usage depending on fuel prices or for times of road closure or supply difficulties. The generators will be rated 3 phase, 60 Hz, 4,160 volts.

The generators will be connected to a switchgear assembly of between 3 to 11 kilovolt (kV), also located in the power plant. The power plant will contain all of the equipment required to operate and control each generator. This will include generator governor controls, voltage regulators, synchronization equipment, annunciator panels, and other ancilliary control systems.

Heat recovery from the generators has been designed to provide heat to the process plant during winter.

The Project's 24 hour average electrical requirements per is year is expected to be approximately 15,000 kiloWatt (kW) while the annual estimated consumption is 120,000 MW depending on weather conditions.

Installations requiring power supply include the camp, offices, underground mine, paste fill plant, truck shop, pit dewatering bores and the explosives facility. Power will be distributed to these locations via buried electrical cables from the power plant. Small pumping facilities for surface water collection sumps may be powered by the power plant if buried power distribution permits, otherwise small stand alone diesel generators will be used.

Power required for generator auxiliaries on black start operation will be from a purpose sized black start generator of 100-500kW. The accommodation complex will also be equipped with a 1,000 kW emergency generator.

5.3.12 Mine Site Haul Roads

Mine site haul roads will be radio controlled and constructed within the mine footprint to connect key parts of the site infrastructure.

Haul roads have been designed at a maximum gradient of 1:9, with widths to suit the use of 90 t class haul trucks (11 m for single lane ramps and 22 m for double lane, inclusive of safety windrows and drains, as illustrated in **Figure 13)**. Haul road design may be modified from time to time to suit local conditions and fleet change in accordance with appropriate engineering practises. All haul roads will be constructed in accordance with safety requirements such as roll over berms, as set out in the Yukon Occupational Health and Safety Regulations.

5.3.13 Borrow Sources

Pre-stripping of the open pit is expected to provide sufficient materials for mine construction; therefore, no borrow sources for the mine site are currently planned.

5.3.14 Explosives Storage Facility

Bulk and packaged explosives and blasting agents will be utilized for all mining activities and will be stored on the mine site at permitted locations as per the *Explosives Act*.

Explosives will be stored in secure, fenced facilities separate from the main activity areas, adjacent to the Overburden Stockpile as shown in **Figure 4**. Bulk explosives for open pit blasting purposes will be stored in the bulk explosives compound. A packaged explosive magazine will store all explosive requirements for the underground mine as well as cast boosters and other explosive products required for open pit operations. A separate detonator magazine will be available for storage of all detonators.

The design of all storage facilities will meet government regulations and will be located according to required separation distances as regulated by the Explosives Regulatory Division of Natural Resources Canada (NRCan). The minimum separation distance from inhabited buildings has been assessed as 960 m and the selected storage sites exceed this distance.

Bulk ammonium nitrate prill and bulk ammonium nitrate emulsion will be transported to site in 25 t bulk transport trailers and 20 t tanker trailers respectively. Bulk products will be stored in separate prill and emulsion silos in the bulk explosive compound. The bulk explosive compound will also have a garage for the explosives loading trucks and a small office for explosives personnel.

Packaged explosives and detonators will be delivered by approved explosives freight trucks.

Explosives will not be manufactured on site; however, the explosives trucks for the open pit operation will be capable of mixing ammonium nitrate prill and emulsion in varying ratios as required to meet the specific requirements of each blast including the presence of wet holes and variations in explosive density.

5.3.15 Solid and Waste Water Management Facilities

Table 9 summarizes the proposed waste storage locations and disposal methods for the Project.

The Project will have a Solid Waste Managment Facility. The location of the facility is presented on **Figure 4** and will contain all waste, recyclables and contaminated materials, excluding waste oil (which will be stored in a tank by the Mine Workshop). Also in the compound will be an incinerator, a small Land Treatment Facility and a small landfill area. The Waste Storage Facility will be surrounded by a wildlife proof fence.

Camp combustible refuse will be segregated and burned daily in an incinerator to limit wildlife attraction associated with the disposal of food and other wastes.

Table 9. Waste Storage Locations and Disposal Method

Type	On-site Storage Location	Disposal
Solid Waste		
Kitchen Waste	Bear-proof containers	Incinerator
Beverage Containers and other recyclables	Recycling Bins	Off-site disposal
Office and Camp Garbage	Garbage Bins/Bear-proof containers	Incinerator
Untreated Wood	Open Burn Area	Open burned
Treated Wood	Waste Storage Facility	Incinerator
Heavy Plastics	Waste Storage Facility	Incinerator
Light Plastics/Cardboard	Waste Storage Facility	Open burned /Incinerator
Steel / Copper / Rubber	Waste Storage Facility	Off-site Disposal facility
Ash from Incinerator/Open burn area	Ash Bin	Class A Facility, For use in Paste Plant
Tires	Waste Storage Facility	Off Site Disposal
Special Waste		
Waste Oil: used crankcase oil, used automatic transmission fluid, used hydraulic oil, used fuel oils #2, #4 and #5	Storage Tank by Mine Workshop	Waste Oil Burner (CleanBurn CB 3500 or CB 5000)
Batteries	Waste Storage Facility	Shipped to licenced recycle or disposal facility on regular basis
Antifreeze (& used containers)	Waste Storage Facility	Shipped to licenced recycle or disposal facility on regular basis
Solvents (& used containers)	Waste Storage Facility	Shipped to licenced recycle or disposal facility on regular basis
Sewage		
Sewage and Grey water	Sewage treatment plant at camp and processing plant	Treated water to in-ground septic field Biosolids dried and either incinerated or added to approved landfill
Contaminated Wastes		
Contaminated soils and snow	Waste Storage Facility	Land Treatment Facility

5.3.16 Communications

The two principal design options considered for communication links to site were terrestrial microwave and satellite. The communication system selected for the Project is the terrestrial microwave licensed option.

From the full path analysis, a single intermediate repeater site was chosen to optimize link capacity located approximately 2 km south from the camp.

As part of the required infrastructure, one remote shelter will be built near the Project office and a second at the remote repeater location. The purpose of the remote shelters will be to integrate networking and radio communications through mining and site activities. A generator will be the principal source of power at the repeater to enable communications.

Site radio communications on the property will be linked to the proposed remote repeater through the terrestrial microwave. The overview of radio coverage consists of a channel plan to reflect site requirements and road coverage, base station radios situated through major infrastructure, and an underground leaky feeder radio system.

Telephone and facsimile services will be integrated through major site and office buildings. Internet and cable television will be provided to each dormitory and at the main accommodation building.

5.3.17 Fuel Storage

A number of fuel sources will be required for the Project including LNG, diesel, gasoline and propane, with natural gas and diesel being the primary fuel sources.

As described in Section 5.3.11, LNG will be used for power generation. Due to the high capital costs of LNG, vapourization and required storage facilities, two days site storage capacity will be available, with diesel to maintain continuity of power should an interruption to LNG supply arise. LNG will be stored in two 132,000 litre Type C vacuum insulated tanks. Tanks will be located within a containment berm, lined with an HDPE liner, sized to hold 110% of the tank volume.

LNG can currently be sourced from Dawson Creek, BC, although by the time that the Project is likely to be in production, additional LNG facilities may be available at Fort Nelson, BC. From either of these locations, LNG will be transported to site via bulk tankers. At a 99% LNG / 1% diesel fuel mix for power generation, five tankers of LNG will be required to be delivered every two days. To facilitate this, it is expected that a staging area will be established at Watson Lake to keep truck travel times at reasonable levels. One truck fleet will transport LNG tankers between Dawson Creek and Watson Lake, while a second fleet will transport between Watson Lake and the Project.

Diesel for power generation will be stored in a 700,000 litre facility in purpose designed tanks, sufficient for 10 days operation at a 0% LNG / 100% diesel fuel mix. Diesel consumption is expected to be significantly lower than this with the use of LNG and will be resupplied on an as required basis. The storage tank will be located within a containment berm, lined with an HDPE liner and sized to hold 110% of the tank volume.

Diesel for mining operations will be stored in a separate facility closer to the mine. Four 100,000 litre tanks will provide sufficient storage capacity for ten days supply for open pit and underground mining operations. The tanks will be located within a containment berm, lined with an HDPE liner and sized to hold 110% of the tank volume.

Diesel will be delivered by bulk tanker, nominally in 48,000 litre deliveries. Approximately 18 fuel deliveries will be required each week to meet the mining fuel requirements.

A 30,000 litre gasoline tank will be maintained on site for ancillary gasoline use. Storage will be within a lined containment berm.

A small supply (nominally 5,000 litres) of aviation fuel will be maintained on site for exploration activities requiring helicopter support. It will also serve as a fuel supply for emergency helicopter evacuation should the need arise. Aviation fuel will be stored adjacent to the helipad, at camp, in a single fuel tank within a lined containment berm.

Diesel or natural gas will be required for heating of air entering the underground mine during the winter months, heating of the camp facilities and available for supplementary heating of the processing facility if insufficient heat is available from the heat reclaim system on the power generation equipment.

5.3.18 Camp, Administration and Maintenance Facilities

The camp will be operated on a hotel style basis. As employees arrive on site for their scheduled work roster, they will be allocated a room for the duration of their current roster. At the end of the roster, they will be required to vacate the room and remove all personal effects as the room will then be allocated to another person. Secure lockers will be provided for employees to store their personal effects when they check out of their room.

BMC's Camp Manager will be responsible for the overall operation of the camp facility, with a contractor engaged to manage the day to day functions of catering, room cleaning and camp maintenance. The Camp Manager will also manage maintenance and upkeep of the Finlayson airstrip, helipad and site access road, including removal of snow and ice in the winter.

The camp is planned to be located in the vicinity of the current exploration camp (**Figure 3**). This will ensure that workers who are off shift will not be adversely impacted by the day to day operations of the mine and processing facility.

The accommodation facilities will most likely be of modular construction, prefabricated off site. The majority of modules will be transported to the prepared site via truck and placed on blocking and skirted. Connections between the separate accommodation blocks will be via enclosed 'arctic' corridors. Site preparation and infrastructure will consist of providing grading, storm drainage and all weather surface gravelling. Utility connection will be via underground service including potable and fire protection water, sanitary sewage collection, electrical and communications.

The long term accommodation facility has been designed to accommodate a maximum of 250 people. Forty rooms will be available with ensuite bathroom facilities while the remaining rooms will utilize shared facilities located on each floor of the accommodation building. During the construction phase a futher 100 people may be employed and require temporary accommodation.

Additional facilities in the camp complex include:

- Kitchen and mess facilities;
- Administration office;
- Recreational facilities, comprising a weight / exercise room and a TV / entertainment room;
- Laundry facilities; and
- Lockers and storage facilities.

The camp complex will be bordered by a wildlife barrier to reduce the potential for wildlife interactions.

5.4 Mineral Processing

The proposed process plant design is based on a flowsheet (**Figure 9**) with unit operations that are well proven in the international base metals industry, incorporating the following unit process operations:

- Primary crushing using a jaw crusher to produce a crushed product size of nominally 80% passing (P_{80}) 75-120 mm based on the nature of the ore;
- Stacking of ore onto a conical, covered stockpile with a nominal 12-16 hour live capacity;

- Semi-autogenous grinding (SAG) / ball mill configuration (SAB) comminution circuit to produce a P_{80} grind size of 70-80 µm;
- Gravity gold recovery on part of the cyclone underflow in the grinding circuit using a centrifugal concentrator, with secondary upgrade in the goldroom with a shaking table;
- Sequential flotation of copper, lead and zinc using conventional pre-float, rougher and cleaner flotation cells;
- Regrinding of copper, lead and zinc rougher concentrate with fine grinding mills;
- Thickening and pressure filtration of the separate copper, lead and zinc concentrates;
- Storage of the concentrate and load-out via front end loader (FEL) and truck;
- Dewatering of the flotation tailings by thickening and vacuum filtration prior to trucking to either the Class A Storage Facility for disposal or the paste plant for backfill paste production; and
- Concentrator water and air services and associated infrastructure.

5.4.1 Crushing

Run of mine (ROM) ore will be transported from the open pits and underground to the ROM pad stockpiles by mine haul trucks. ROM ore will be reclaimed from the stockpiles by FEL and fed into a ROM bin that nominally provides 20 minutes live capacity. ROM will be withdrawn from the bottom of the bin by an apron feeder.

The primary crusher will be an open circuit jaw crusher of approximately 1.1-1.4 m, capable of handling an ore top size of approximately 900 mm.

A dust suppression system with a baghouse filter will be installed in the crushing system and discharge conveying system to minimize dust. Spray nozzles will also be used around the ROM bin and transfer points.

The primary crusher will have an availability of approximately 75% based on similar installations., The primary crusher will discharge onto a conveyor then onto a stockpile feed conveyor. Tramp steel will be removed from the crushed ore stream at the conveyor transfer point between the primary crusher discharge conveyor and the crushed ore stockpile feed conveyor by a fixed self-cleaning magnet.

The crushed ore stockpile will provide a minimum of 3,000 t of live storage capacity with two reclaim apron feeders located in an under-pile tunnel. The stockpile will provide approximately 12 to 16 hours storage capacity at the nominal SAG mill feed rate. Each apron feeder will be capable of providing the nominal SAG mill feed rate of 245 tph. The stockpile will be conical in shape and covered to minimize dust generation.

5.4.2 Grinding

The grinding circuit will comprise a single open circuit SAG mill and single ball mill in closed circuit with cyclones to produce a final product of P_{80} 70-80 µm at approximately 245 tph. The SAG mill will be a grate discharge, steel-lined mill, most likely driven by a 2-3 MW single pinion drive. The ball mill will be driven by a variable speed drive with a range of 60% to 80% of critical speed. The ball mill will operate with a nominal ball charge of 10% and a total charge of approximately 30% of mill volume.

The SAG mill will discharge over a trommel screen. Trommel oversize (pebbles and steel scats) will be returned to the mill feed conveyor via three return conveyors. A tramp metal magnet will remove steel scats from the transfer point between the first and second return conveyors to minimize that amount of undersize steel in the SAG mill.

The ball mill will be an overflow discharge, rubber-lined mill driven by a 2-3 MW single pinion drive. The mill will be driven by a fixed speed drive and will operate at nominally 75% of critical speed. The mill will operate with a nominal ball charge of 30% of mill volume. The ball mill will discharge over a trommel screen, with the oversize discharging into a bunker for regular collection and disposal by a FEL or skid-steer loader. The trommel screen undersize will gravitate into the combined mill discharge hopper.

The SAG mill trommel screen undersize will also gravitate to the mill discharge hopper, where the combined mill discharge will be diluted with process water and pumped via duty/stand-by pumps to a hydrocyclone cluster for classification. The cluster consists a cyclone bank in a N+1 configuration. The overflow from the cluster will flow by gravity to the flotation feed trash screen, to remove any trash prior to flotation. The cyclone underflow will gravitate to a splitter box, with part of the underflow reporting to a gravity circuit for recovery of free gold prior to reporting to the ball mill with the balance of the cyclone underflow stream for further grinding.

The total recirculating load for the circuit will be approximately 300%, to allow for 250% which is typical of SAB circuits, plus 50% for the return of the gravity circuit tails to the mill discharge hopper. A portion of the cyclone underflow can be directed to the SAG mill to facilitate balancing of the grinding in the SAG and ball mills as the SAG mill will generally have spare capacity on most ore types.

A common liner handler will be used to facilitate removal and installation of the SAG and ball mill liners during planned mill relines.

An overhead gantry crane will be provided for maintenance of the mills and cyclones. Monorails will be provided where access is denied to the gantry crane.

The portion of the cyclone underflow that will be directed to the gravity gold circuit will first pass over a scalping screen, with the oversize material reporting to the gravity concentrator tails hopper for return to the mill discharge hopper. Scalping screen undersize will flow by gravity to a Knelson QS30 concentrator or similar. Tails from the concentrator will gravitate to the gravity concentrator tails hopper, the concentrate will be dewatered prior to being delivered to the gold room for secondary concentration and smelting. Secondary concentration will be achieved using a Wilfley table and the final upgrade to bullion will be via a standard direct smelt.

5.4.3 Flotation

Ball mill cyclone overflow will be pumped to the first of two agitated conditioning tanks. Plant air will be added to the first of the conditioning tanks to provide aeration; reagents will be added to the second tank. A total of 10.5 minutes residence time will nominally be provided by the two tanks. The flotation circuit will be a sequential circuit, with copper, lead and zinc recovered from the circuit in that order. All flotation cells will be agitated, forced air conventional cells.

5.4.3.1 Copper Flotation

Conditioned slurry will flow by gravity to the first of the copper flotation cells with concentrate being removed from the first cell as a pre-float rougher stage. This concentrate will be pumped to a single pre-float cleaner cell, where the concentrate will be upgraded and directed straight to the final concentrate hopper. Tailings will flow by gravity, where they will be combined with the copper rougher concentrate collected from the subsequent rougher cells, and pumped via duty/stand-by pumps to the copper regrind cyclone cluster for classification and regrinding. Tailings from the copper rougher cells will flow by gravity to the copper flotation tails hopper.

Combined copper rougher flotation concentrate and pre-float cleaner tails will be classified in a cluster of cyclones, with the cyclone overflow having a P_{80} of 25-40 μm. Cyclone overflow will gravitate to the copper cleaning circuit, while the underflow will gravitate to the copper regrind mill. The copper regrind mill will nominally be a Stirred Media Detritor (SMD) and will draw approximately 180-200 kW of installed power.

Reground rougher copper concentrate will flow by gravity to a copper cleaning circuit. The copper cleaner flotation circuit will consist of three stages of cleaning, with cleaner scavenging on the first stage.

The first copper cleaning stage will consist of a number of cleaner cells in series. Concentrate from the first copper cleaning stage will be pumped to the second copper cleaning stage, with tailings flowing by gravity to copper cleaner-scavenger cells. Concentrate from the copper cleaner scavenger cells will be pumped to the copper rougher flotation concentrate hopper for regrinding. Tails from the copper cleaner-scavenger cells will flow by gravity to a conditioning tank, where lead flotation reagents will be added. The overflow from the conditioning tank will flow by gravity to the copper flotation tails hopper, where it will be combined with the copper rougher tailings and pumped to the lead flotation circuit.

The second stage of copper cleaning flotation will consist of five cleaner cells in series. Concentrate from the second copper cleaner stage will be pumped to the third copper cleaning stage, with tailings pumped to the copper rougher flotation concentrate hopper for regrinding.

The third stage of copper cleaning flotation will consist of four cleaner cells in series. Concentrate from the third copper cleaner stage will be pumped to the final concentrate hopper, where it is combined with the copper pre-float cleaner concentrate before pumping to concentrate dewatering, and tailings will flow by gravity to the second stage of copper cleaning flotation.

5.4.3.2 Lead Flotation

Tails from the copper flotation circuit will be pumped to the first of two agitated lead conditioning tanks, where reagents will be added. A total of 5-10 minutes residence time will nominally be provided by the two tanks. Conditioned slurry will flow by gravity to the first of five lead flotation cells in series, with concentrate removed from the first cell as a pre-float rougher stage. This concentrate will be pumped to a single pre-float cleaner cell, where the concentrate will be upgraded and directed straight to the final concentrate hopper. Tailings will flow by gravity, where they will be combined with the lead rougher concentrate collected from the subsequent four rougher cells and pumped via duty/stand-by pumps to the lead regrind cyclone cluster for classification and regrinding. Tailings from the lead rougher cells will flow by gravity to the lead flotation tails hopper.

Combined lead rougher flotation concentrate and pre-float cleaner tails will be classified in a cluster of cyclones, with the cyclone overflow having a P_{80} of 20-40 µm. Cyclone overflow will gravitate to the lead cleaning circuit, while the underflow will gravitate to the lead regrind mill. The lead regrind mill will nominally be a Metso SMD and will draw approximately 180-200 kW of the installed power. This unit is the same size as the copper regrind mill, allowing commonality of spares.

Re-ground rougher lead concentrate will flow by gravity to a lead cleaning circuit. The lead cleaner flotation circuit will consist of two stages of cleaning, with cleaner scavenging on the first stage.

The first lead cleaning stage will consist of a number of cleaner cells in series. Concentrate from the first lead cleaning stage will be pumped to the second lead cleaning stage for recleaning, and tailings will flow by gravity to two lead cleaner-scavenger cells. Concentrate from the lead cleaner-scavenger cells will be pumped to the lead rougher flotation concentrate hopper for regrinding. Tails from the lead cleaner-scavenger cells will flow by gravity to the lead flotation tails hopper, where it will be combined with the lead rougher tails and pumped to the zinc flotation circuit.

The second stage of lead cleaning flotation will consist of several cleaner cells in series. Concentrate from the second stage will be pumped to the final concentrate hopper, where it will be combined with the lead pre-float cleaner concentrate before pumping to concentrate dewatering. Tailings will be pumped to the lead rougher flotation concentrate hopper for regrinding.

5.4.3.3 Zinc Flotation

Tails from the lead flotation circuit will be pumped to the first of two agitated zinc conditioning tanks, where reagents will be added. A total of 6-10 minutes residence time will nominally be provided by the two tanks.

Conditioned slurry will flow by gravity to the first in the bank of zinc rougher flotation cells in series, with concentrate removed from the first cell as a pre-float rougher stage. This concentrate will be pumped to the pre-float cleaner cells, where the concentrate will be upgraded and directed straight to the final concentrate hopper. Tailings will flow by gravity, where they will combine with the zinc rougher concentrate collected from the subsequent rougher cells and pumped via duty/stand-by pumps to the zinc regrind cyclone cluster for classification and regrinding. Tailings from the zinc rougher cells will flow by gravity to the tails hopper.

Combined zinc rougher flotation concentrate and pre-float cleaner tails will be classified in a cluster of cyclones, with the cyclone overflow having a P_{80} of 30-40 µm. Cyclone overflow will gravitate to the zinc cleaning circuit, while the underflow will gravitate to the zinc regrind mill. The zinc regrind mill will nominally be a Metso SMD and will draw approximately 330-380 kW of installed power. These unit is the same size as the copper and lead regrind mills, allowing commonality of spares.

Re-ground zinc concentrate will flow by gravity to a zinc cleaning circuit. The zinc cleaner flotation circuit will consist of three stages of cleaning, with cleaner scavenging on the first stage.

The first zinc cleaning stage will consist of a number of cleaner cells in series. Concentrate from the first zinc cleaning stage will be pumped to the second zinc cleaning stage, with tailings flowing by gravity to the zinc cleaner-scavenger cells. Concentrate from the zinc cleaner scavenger cells will be pumped to the zinc rougher flotation concentrate hopper for regrinding. Tails from the zinc cleaner scavenger cells will flow by gravity to the tails hopper.

The second stage of zinc cleaning flotation will consist of several cleaner cells in series. Concentrate from the second zinc cleaner stage will be pumped to the third zinc cleaning stage, and tailings will be pumped to the zinc rougher flotation concentrate hopper for regrinding.

The third stage of zinc cleaning flotation will consist of additional 16 m^3 cells in series. Concentrate from the third zinc cleaner stage will be pumped to concentrate dewatering, and tailings flow by gravity to the second stage of zinc cleaning flotation.

5.4.4 Product Dewatering

Copper, lead and zinc final concentrates will be thickened in high-rate thickeners. The overflow from each thickener will flow to a common thickener overflow tank, where the streams will be combined and pumped to the process water pond. Thickened concentrates, at nominally 60% solids weight per weight (w/w) will be stored in agitated storage tanks providing 24 hours of residence time.

Thickened concentrates will be dewatered using plate and frame pressure filters to nominally 9-10% moisture. A common size 40-45 m^2 filter will be used for all three duties, with single filters required for copper and lead and two filters required for the zinc duty. Filtered concentrates will be dumped into bunkers directly below the respective filter.

Filtered concentrate will be removed by FEL and stacked inside a storage shed, with nominally 7-10 days storage capacity for each concentrate. Copper and zinc concentrate will be bulk loaded into trucks for transport off site for further processing, lead will be transported in 30 t sealed containers.

5.4.5 Tailings Dewatering

Zinc flotation tailings will be collected in a tails hopper before the tailings are pumped to a single 18 m high rate thickener for dewatering. The tailings thickener overflow will flow by gravity to the process water pond for reuse. Thickener underflow, that has been dewatered to nominally 60% solids w/w, will be fed to a splitter box which evenly distributes the flow between two notionally 750 m^3 agitated filtration feed tanks. Each filtration tank will feed a vacuum disc filter which dewaters the tailings to a produce a filter cake with a moisture content of approximately 15% with the assistance of flocculant. The filtrate will flow by gravity back to the tailings thickener, while the filter cake will be stockpiled for reclaim and transport by truck to either the Class A Waste Storage Facility or the paste plant.

5.5 Off-site Facilities

5.5.1 Access Road

5.5.1.1 Existing Tote Road

The lease for the Kudz Ze Kayah Tote Road, Lease 105G07-001, was re-issued to BMC on April 20, 2015.

The tote road was originally licenced and constructed in 1995 and was used extensively by Cominco for the Project during the mid to late 1990s. The tote road is approximately 24 kilometres in length and extends from the Robert Campbell Highway, south to the Project site. The tote road was originally constructed as a winter road and was one of three possible routes reviewed by Cominco.

The tote road generally follows the gentle benches and ridges above the valley bottom leading to the Project site. Slopes are gentle with many flat swampy areas dissected by low winding ridges. There is one bridge crossing (Finlayson Creek) in a broad gentle draw (at approximately the 17 km marker). There are a number of small streams and low, wet swales along the tote road. The alignment climbs slowly from approximately 1,040 masl to 1,400 masl at the Project site.

Soils are predominantly sand and gravel deposits intersected by areas of silty soils with a large component of gravel to boulder sized material derived from the local schist outcrops.

In 2015, the tote road was repaired to return it to a safe standard suitable for the ongoing exploration program. Washouts were fixed, culverts replaced, the road prism was re-established and the bridge deck at the 17 km mark was replaced. The L100 Bridge has a Gross Vehicle Weight rating of 91 tonnes, and will be adequate up to and including the construction and operations phases.

Access to site is currently controlled with a gatehouse located on the tote road, immediately after turning off the Robert Campbell Highway.

5.5.1.2 Upgrade of Tote Road to Access Road

The tote road in its present state is not suitable for the vehicle traffic anticipated during construction and operations phases.

Onsite Engineering (Onsite) were engaged to assess the work required to upgrade the road to meet future requirements. Photogrammetry was not available for the entire tote road at the time ot this report but will be available in fall of 2016 for a complete assessment.

Detailed contours were available for km 14.5 to km 24.85 and designs were prepared for this section. The parameters used were:

- The road will be completely radio controlled (i.e., all vehicles will also have radio communication and there will be base stations at the gatehouse and security station at site near the camp).
- The road will be constructed to have a 5 m wide running surface, single lane, with pullouts at designated distances and where required.
- The current designs were prepared with a maximum speed of 50 km/hr.

Figures **14** to **15** illustrate the typical road sections of the KZK access road design.

Based on the preliminary assessment by Onsite, the upgrades to the tote road will be within the existing road alignment. New bridge or bridge replacements are not required for the upgrades. As mentioned the only bridge on the existing tote road is at the Finlayson Creek crossing, which was repaired in 2015 prior to commencing exploration activities, and considered adequate for use during the Project's construction, operations and closure phases.

The following information will be included (but not limited to) in the pending 2016 tote road upgrade assessment:

- Borrow areas for the tote road upgrades (including suitability assessment of the materials);
- Location of pullouts and culvert replacements; and
- Right-of-way width.

5.5.2 Finlayson Airstrip

5.5.2.1 Existing Finlayson Airstrip

The Finlayson Airstrip, located 12 km from the KZK tote road entrance, is owned and controlled by the Airport Branch of the Yukon Transportation Department, and is currently used to service the Project.

It is proposed that this airstrip be utilized for future servicing of the Project. Contingency plans will be in place due to the variability of weather which affect flight conditions in the Yukon throughout the year, these include busing or landing in Ross River.

5.5.2.2 Airstrip Upgrade

An extension of Finlayson airstrip was originally proposed in 2007, by the Yukon Department of Transport. The extension is currently proposed by BMC to accommodate an 18 person aircraft and allow for crew changes. The main scope of the upgrades will be to lengthen the airstrip from 1,800 ft (549 m) to 3,000 ft (914 m) to the south east (**Figure 6**) with an approximate area of new disturbance of 14,000 m^2. Extending the airstrip to the northwest to cater for aircraft of a suitable size and capability is not viable due to drainage from "Unnamed" Lake, and a ridge that lies in the flight line.

Preliminary discussions with Yukon Government Department Transportation of Highways, Transportation and Public Works has indicated that BMC will be responsible for the upgrades and associated permitting.

A LiDAR topographic survey of the Finlayson airstrip has been obtained in order to develop an engineering plan for airstrip modifications and liaison with the Yukon Transportation Department for construction design, timing and materials.

The engineering plan will also have to take into consideration that:

- Construction and designs will need to be approved by the Yukon Transportation Department;
- Construction timing is independent of the KZK Project permitting and could be commenced at any time, once the appropriate permits are in place; and
- the work required will not be within 30 m of the "Unnamed" Lake.

During construction of the extension it is intended that materials from two Yukon Government borrow pits on the Robert Campbell Highway approximately 2 km from the Finlayson airstrip will be utilized.

It is estimated that total siteworks cut and fill requirements will be approximately 24,000 tonnes of material.

5.5.3 Concentrate Transport to Port of Stewart

BMC proposes to transport copper and zinc concentrates to Stewart Port using Convey-Ore Transportation Equipment, while lead concentrates will be transported using containerised bulk carriers to meet the handling requirements of the preferred Port facility. Convey-Ore Transportation Equipment will be Tridem (three axle) tractor matched with bulk carriers on Super B style trailer.

The proposed route and road type to the Stewart port is summarized in **Table 10**.

Table 10. Proposed Haul Route

Route	Road Type (km)				Total One way (km)	Total Round Trip (km)
	Gravel Road	Gravel Highway	Seal coat / asphalt narrow highway	Double lane, asphalt highway		
Stewart Port Hwy 4 south (Robert Campbell Highway) to Watson Lake, Hwy 37 south to Stewart	24	172	411	303	**911**	**1,822**

During the spring thaw break up period, certain portions of the Robert Campbell Highway currently have a 75% legal axle load limit imposed by the territorial government. This allows the winter frost to thaw and the road structure materials to restore to their natural load bearing capacity. This restriction varies from year to year but typically occurs for a six week period between early April and early June. This will reduce the payload of the concentrate haulage system by 50% for approximately six weeks each year.

To manage this, BMC has a number of mitigation strategies available, including:

- Scheduling processing facility maintenance shutdowns for this period;
- Allowing concentrate stocks to temporarily build up in the processing plant circuit;
- Storage of concentrate in bulk containers (as used for transportation of lead concentrate) on site outside the processing plant building;
- Scheduling processing of lower grade ores during this period to reduce the quantity of concentrate produced;
- Negotiate an agreement with Yukon Transportation to upgrade the relevant sections of the Robert Campbell Highway to achieve 100% legal axle loading; and
- Operating a reload facility closer to Watson Lake beyond the 75% weight restricted road section. During seasonal restrictions, truck units would transport from the mine site to the reload facility at

75%. Concentrate would be reloaded to “top-up” to maximize loads to 100% for the balance of the route.

BMC expects that concentrate haulage requirements will be fulfilled by one or more surface haulage contractors. Staging locations along the transportation route will be established by the contractor(s) to enable continuity of haulage operations to be maintained while meeting legal operating hour requirements. These staging locations will also form the base for tractor and trailer maintenance services as well as break down support.

5.6 Transportation Volumes

During construction, the estimated vehicles per day on the Robert Campbell Highway will be 14 while the estimated weekly flights to the Finlayson airstrip will be six.

During operations, the number of trucks on the roads between the site and the port of Stewart is estimated to be 52 at any given time. **Table 11** presents the estimated numbers based on one-way traffic and thus an equivalent amount of traffic will be entering and leaving the Project site. Where practical, loads will be backhauled from the mine site including recyclables and materials to be disposed of. The traffic volumes include, but is not limited to vehicles transporting crews from the Finlayson airstrip, explosives, LNG, diesel, gas, reagents, concentrate, supplies and cement.

Table 11. Estimated Operations Traffic Volume

Year 2-Year 9 average	Annual Requirement	Load/ Truck (average)	Trucks/ year	Trucks/ Month	Trucks/ day
Reagents (t)	15,400	20	770	64	2.1
Operations Fuel (l)	10,201,000	43,900	232	19	0.6
Generator LNG (GJ)	991,200	1,500	661	55	1.8
Explosives (t)	6,400	20	320	27	0.9
Underground Paste Cement (t)	13,300	40	333	28	0.9
Miscellaneous (t)	5,000	20	250	21	0.7
Subtotal			**2,566**	**214**	**7.1**
Concentrates					
Cu/Zn -Convey-Ore System Trucking	250,000	44	5,682	473.5	15.8
Pb-Containerized Trucking	36,500	33	1,106	92.2	3.1
Subtotal			**6,788**	**566**	**19**
Total			**9,354**	**780**	**26**

During operations approximately seven flights will be required each week.

During the initial closure period, vehicle and flight volumes will be in the same range as construction. Post closure, traffic will be in the range of 2 vehicles per week and flights will be limited to approximately 1 every two weeks.

The bulk of the traffic during construction, operations and closure is expected to occur between Watson Lake and the turn-off to the site on the Robert Campbell Highway, as Watson Lake is along the proposed concentrate route and the majority of the supplies will be shipped through this location.

5.7 Closure, Decommissioning and Reclamation

The Reclamation and Closure Plan (RCP) addresses the long-term physical and chemical stability of the site, including decommissioning of the processing plant and other facilities, reclamation of waste facilities and surface disturbances, and treatment of mining impacted waters. The RCP includes, a program for site management and monitoring both during implementation of the closure activities, and after decommissioning and reclamation measures are completed.

The RCP also contains a cost estimate for the implementation of the proposed closure measures as well as the long-term monitoring and maintenance of the site, and is the basis for establishing the financial security that will be required for the Project.

The overall goal of the RCP is to ensure all site facilities are designed to take into consideration closure conditions, so as to ultimately achieve physical and chemical stability after decommissioning with no need for ongoing active operation and minimum maintenance. This will be achieved through clearly defining and implementing closure objectives for each facility and component of the Project. The closure objectives and measures for each site component are described below.

At the end of mine life, all buildings, offices and associated infrastructure will be removed or demolished and buried to return land to original wildlife land use with no active operation or maintenance. Remaining chemicals, reagents, and hydrocarbons will be removed from site. The process plant and ore pad areas will be excavated where required to remove any contaminated material and placed within the Class A Storage Facility. Excavated areas will be backfilled with material from the Overburden Stockpile as required and the process plant and ore pad areas will then be regraded and revegetated. Nonessential roads will be reclaimed by scarifying and reseeding to promote natural revegetation. Key or essential roads will be identified as part of development of a plan to minimize the advance of invasive plant species.

Water retention and sediment control structures, and appurtenances will be decommissioned or upgraded in such a way as to ensure that drainage at, and adjacent to the site, is stable in the long term. Additionally, flows will be conveyed into and throughout the mine footprint, and off the site in a controlled, stable fashion under a reasonable range of anticipated conditions. This will be accomplished by maintaining suitable gradients to permit flow and reduce infiltration and erosion. Facilities will be designed to minimize contact of surface flow with mine influenced soils. Modifications will be performed to flow patterns at site to achieve enhanced stability or accommodate water quality objectives. Temporary (operational) structures, including stream crossings and diversions, such as the Fault Creek diversion, will be removed. The Class A and Class B water collection ponds will be pumped back to the Water Treatment Plant until such time that water quality is suitable for passive release perpetually through wetland treatment (**Figure 16 and 17**).

Upon closure the open pit will be allowed to flood as dewatering will cease and Fault Creek will be redirected to the open pit. For the objective of minimizing contaminant loading from the pit, the closure measures will include batch treatment of the pit lake (ABM Lake) by adding approximately 3,000 tonnes of lime with the initial filling of the pit to address flushing of secondary mineralization related metal concentrations, with a contingency of wetland treatment in Geona Creek. The construction of an engineered spillway will control outflow from the ABM Lake. The objective of ensuring safety of people and terrestrial animals in the pit area will be accomplished with berms around the open pit excavation, at a setback from the crest. Slopes and benches will be stabilized with a high factor of safety which will assist in preventing erosion and minimize the suspension of sediments. To ensure safe egress from the pit, the haul road will be left open for walking but blocked to vehicle access.

Waste rock will be stored in three purpose designed storage facilities. The Class A Storage Facility will contain tailings co-deposited with strongly potentially acid generating waste rock. The Class B Storage Facility will contain weakly potentially acid generating waste rock. The Class C Storage Facility will contain potentially acid consuming waste rock. The Class A Storage Facility will be constructed, and waste deposited, such that it has an overall nominal slope of 4H:1V to ensure long term stability. This facility will be progressively reclaimed with an engineered very low permeability barrier to provide encapsulation and prevent contact with oxygen as well as to provide a barrier from people and terrestrial animals. Approximately three metres of Class C materials will also be placed for frost protection. The Class B Storage Facility will be constructed similarly to the Class A facility. The Class B Storage Facility will be progressively reclaimed with approximately a one metre layer of compacted glacial till from the overburden stockpile. The Class C Storage Facility will be progressively reclaimed with approximately a 30 centimetre layer of compacted glacial till. All three facilities will have topsoil placed on top and will be revegetated to reduce erosion and to meet the end land use objective of returning the area the current wildlife habitat. The quick establishment of vegetation may require a preliminary revegetation prescription for stabilization, with slower growing native community establishment to follow.

The Overburden Stockpile is anticipated to be utilized during the mine life as foundation material for the Class A and Class B Storage Facilities and for construction of the Water Management and Water Collection Ponds and during closure for use as covers. Upon closure, any remaining materials will be re-contoured to stable slopes and the area will be revegetated with a layer of topsoil and reseeding.

Monitoring of closure components will continue for 35 years or until such a time that closure objectives have been met. Monitoring programs will consist of three phases:

- Assessment – Baseline conditions of ecosystems that will potentially be impacted by the Project;
- Operational – confirms or refutes accuracy of predictions on impact of the Project that were made during the environmental assessment; and
- Transition – monitoring that will begin with the start of the approved decommissioned and reclamation activities.

5.8 Labour Requirements

5.8.1 Construction

The labour requirements for construction are approximately 350.

5.8.2 Operations

During operations, two work rosters will be utilized on the site. Most staff positions will be employed on a 9 day on, 5 day off roster, while regular shift workers and certain staff will be employed on a 2 week on, 1 week off roster. Estimated total employee numbers, with the planned roster arrangements are detailed at a summary level in **Table 12**.

Table 12. Site Labour Requirements

Department	Roster	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Open Pit	9/5	0	0	0	0	0	0	0	0	0	0	0
	2/1	133	152	152	152	152	152	152	122	111	106	0
Underground	9/5	0	0	0	0	0	0	0	0	0	0	0
	2/1	0	0	31	37	64	64	64	64	52	38	38
Processing	9/5	0	12	12	12	12	12	12	12	12	12	12
	2/1	0	62	62	62	62	62	62	62	62	62	62
Administration (including camp, road maintenance, contractors)	9/5	17	17	17	17	17	17	17	17	17	17	17
	2/1	26	26	26	26	26	26	26	26	26	26	26
Total by Roster	9/5	17	29	29	29	29	29	29	29	29	29	29
	2/1	159	240	271	277	304	304	304	274	251	232	126
Total Personnel		**176**	**269**	**300**	**306**	**333**	**333**	**333**	**303**	**280**	**261**	**155**
Total on site at one time		117	179	199	203	221	221	221	201	186	175	102

5.8.3 Closure

During closure, two work rosters will be utilized on the site. Most staff positions will be employed on a 9 day on, 5 day off roster, while regular shift workers and certain staff will be employed on a 2 week on, 1 week off roster. Total employee numbers, with the planned roster arrangements are estimated at up to 50 people depending on the season.

5.8.4 Post Closure

During post closure, most staff positions will be employed on a 2 week on, 1 week off roster. Total employee numbers are estimated between 6 to 10 people depending on the season.

6. EXISTING ENVIRONMENTAL AND SOCIOECONOMIC CONDITIONS

6.1 Overview

Baseline environmental and socio-economic studies for the Project were originally completed in 1994-1995 to support the Initial Environmental Evaluation (IEE) (submitted for regulatory review in March 1996 and approved in December 1997). These studies included evaluations on: climate and hydrology; surface water and groundwater quality; stream sediment quality; aquatic resources (fish, benthic invertebrate and zooplankton characterization); vegetation and terrain mapping; wildlife; archaeological investigation; and, socio-economic data collection. A limited amount of additional baseline studies were conducted in 1996 to support the water licence application for the Project (Licence QZ97-026), which was subsequently approved in December 1998. Since the regulatory approvals were received, subsequent baseline studies have been conducted that meet the requirements of the exisiting Class A water licence. Surface water quality, fish, and benthic invertebrates have been collected every two years since 2002. BMC initiated a new baseline studies program in April 2015 and the studies have been ongoing through 2016.

The following provides a brief summary of the environmental baseline conditions of the Project area as well as a brief overview of the ongoing environmental programs.

6.2 Climate and Air Quality

Climatic and meteorological conditions at site have been characterized using regional data available through Environment Canada and Environment Yukon. Site specific meteorological data was collected on site in 1995, and is currently collected at a new meteorological station commissioned in late August 2015.

The mean annual temperature recorded at KZK site for the period September 2015 to August 2016 was -0.47°C with minimum and maximum temperatures of -26.28°C and 19.89°C respectively.

The 2015 to 2016 site data returned a reduced diurnal range with temperatures that are warmer in winter (October to April) and cooler in summer (May to September) when compared to both the longer term and recent (2015-2016) regional data.

Total precipitation measured at the Project site for the period September 1, 2015 to August 31, 2016 was 343.3 mm. This is less than mean of annual precipitation recorded at all regional stations except Ross

River and Faro, for a period of record ranging from 10 to 63 years depending on the station. Some of the additional precipitation measured at KZK relative to the Faro and Ross River stations can accounted for by the higher elevation of the KZK station. However, other factors such as the geographic position on the northeast side of the Pelly Mountains likely play a greater role in determining the precipitation received on site.

The 2016 snow survey data at five regional stations indicate that 2016 was a below average snow year. Snow Water Equivalent (SWE) values in April ranged from 62% to 93% of normal with a mean of 78% compared to the long term average and in April ranged from 0% to 91% of normal with a mean of 44% of average.

Snow surveys conducted at the Project site in January, February and March 2016 returned lower SWE values than those recorded at regional stations, although sampling was not carried out at the same time of year. Similarly, the 2016 snow survey data at the Project site generally indicates a lower snow year when compared to snow surveys results collected from the KZK site in 1995.

The prevailing wind direction at the Project site is from the northwest to northeast with relatively high average and maximum wind speeds. Relative humidity and barometric pressure at the Project site are generally consistent with regional patterns. Pan evaporation measurements and evapotranspiration calculations at the Project site for the 2015-2016 period are generally consistent with 1995 measurements and estimates. Solar radiation peaks in July and is at a minimum in December.

6.3 Terrain

The Project is in the Pelly River and Pelly Mountain ecoregions. It is located in the northern foothills of the Pelly Mountains of the Yukon Plateau, on the east side of the divide between the Pelly River and the Liard River drainage basin. The topography of the area consists of rolling hills, with ponds and lakes locally occupying valley bottoms (**Photo 2**).

The Project area was glaciated and bedrock exposures typically occur only in deep ravines or on steep slopes where post-glacial erosion removed overburden. Valley bottoms are covered with till and glaciofluvial sediments that are locally overlain by alluvial fan sediments. Colluvial apron sediments are also common. The Project is located in the discontinuous but widespread permafrost zone, with permanent ice typically within approximately 2 m of the surface. The deepest ice occurs on valley slopes and likely exceeds 15 m thickness (Geo-engineering, 2000).

6.4 Metal Leaching and Acid Rock Drainage

6.4.1 Historical Assessment

A geochemical characterization program for the ABM Deposit was completed in 1996 by Norecol, Dames and Moore, based on diamond drill programs and metallurgical testing conducted by Cominco in 1994 and 1995. The characterization program consisted of static geochemical characterization of 273 samples from four diamond drill holes (DDH's) including acid-base accounting (ABA) (all 273 samples), carbonate speciation (45 of 273 samples) and petrography (101 of 273 samples). Detailed elemental characterization Inductive Coupled plasma metal scans were conducted on 2,400 samples from 37 DDH's. Carbonate speciation and ABA analyses were also conducted on five samples of tailings.

Kinetic testing was completed on select materials from the four DDH's involved in static testing as well as the tailings samples. A total of 40 kinetic tests were conducted including humidity cell and subaqueous column tests.

Based on the findings of the geochemical characterization program, Cominco's mine plan included segregating waste rock into three waste types:

1. Strongly Potentially Acid Generating (SPAG): Rock containing very high concentrations of sulphide minerals and expected to be acid generating, requiring subaqueous disposal in the tailings pond;
2. Weakly Potentially Acid Generating (WPAG): Rock containing lower concentrations of sulphide minerals and not expected to be acid generating in the mine life. This material would be stockpiled during operations and eventually backfilled into the completed pit to be flooded upon closure; and
3. Potentially Acid Consuming (PAC): Rock containing low concentrations of sulphide minerals and not expecting to be acid generating to be disposed of sub-aerially.

Management criteria were developed for the waste rock. WPAG was differentiated from SPAG if acid potential (AP) was less than 92 kg $CaCO_3$/t (or less than 2.9% Sulphur) and neutralization potential (NP) was greater than 18 kg $CaCO_3$/t. PAC was differentiated from WPAG if the neutralization potential ratio (NPR = NP/AP) was greater than 1.7.

6.4.2 Current ML/ARD Program

BMC has initiated a new geochemical characterization program for the ABM deposit to bolster and expandon the previous work started by Cominco. The results of this work will form a significant portion of the forthcoming detailed engineering design, however, the program is in progress at the time of this report and therefore only the preliminary results and approach are described below. To date static testing of 203 samples of new core drilled from the ABM deposit in 2015 has been completed and undergoing review.

BMC approached the ML/ARD program by defining volumes of rock anticipated to have similar geochemical characteristics as inferred from certain geological features. In total ten geodomains (Table 13) that, in general, show a similar spatial relationship to the ABM Deposit were defined. These ten domains were then used as a basis for sampling and characterization based on their relative abundance and location relative to proposed mining. The main geological features considered in the geodomain interpretation include, lithology, carbonate content (calcite, ankerite), disseminated sulphide minerals, muscovite and chlorite.

Paste pH analyses of all the core samples returned circumneutral to alkaline pH values. The lack of acidic paste pH is in line with the very low sulphate-sulphur concentrations (typically ≤0.03 wt.%) in the samples, indicative of limited weathering/oxidation of the rock. Concentrations of total sulphur, present almost exclusively as sulphide-sulphur, and associated AP were highest in the CARB MDS/RHY, MU PY RHY, PY RHYc and PY RHYv geodomains (median 0.68 to 0.72 wt.%), and lowest in the footwall CA CL MAF geodomain (geodomains are described in **Table 13**).

Table 13. Geodomain Characteristics

Geodomain ID	Features	Comments
AK RHYc	Moderate-strong ankeritic coherent rhyolite	Strong ankeritic zone in upper parts of hanging wall that crosses lithology
AK RHYv	Moderate-strong ankeritic volcaniclastic rhyolite	Strong ankeritic zone in upper parts of hanging wall that crosses lithology
CA CL MAF	Calcite-chlorite mafic intrusive	Distinct unit in footwall of deposit interpreted to be an intrusive. Consistently calcite-bearing
CARB MDS/RHY	Felsic volcanic rock (coherent and volcaniclastic) with carbonaceous material and associated with thin mudstone intervals. Generally with disseminated pyrite and muscovite, locally minor ankerite	Carbonaceous mudstone/rhyolite dominated intervals lumped together
MDS	Upper, thick mudstone package	Within fault offset (down-dropped) block; confined to southeastern corner of deposit
MU PY RHY	Moderate-strong muscovite-altered rhyolite with disseminated pyrite	Generally proximal to massive sulphide, characterized by coarse sericite (muscovite)
PY AK RHYc	Moderate-strong ankeritic coherent rhyolite with disseminated pyrite	Below AK RHYc/v in disseminated pyrite halo to deposit
PY AK RHYv	Moderate-strong ankeritic volcaniclastic rhyolite with disseminated pyrite	Below AK RHYc/v in disseminated pyrite halo to deposit
PY CL RHY	Chloritic rhyolite coherent and volcaniclastic rhyolite with disseminated pyrite	Smaller unit proximal to massive sulphide in hanging wall characterized by chlorite
RHYi	Hard, siliceous, fine-grained felsic intrusive typically with 2-3% disseminated pyrite	Confined to Krakatoa Zone

The CA CL MAF unit had the highest neutralization potential (NP; median 216 kg $CaCO_3$/t) due to its calcite content; the AK RHYc and AK RHYv geodomain samples also exhibited elevated NP (median 83 to 87 kg $CaCO_3$/t) relative to the other geodomains. NP correlated closely with the combined calcium and magnesium content of the samples, indicating the majority of the NP was derived from calcite and dolomite minerals.

The neutralization potential ratio (NPR) is often used as an indicator of the acid generation potential of a material, with NPR greater than 2 generally accepted as a cut-off above which acid generation is considered unlikely (Price, 2009). A median NPR greater than 2 was observed for all geodomains with the exception of CARB MDS/RHY (median NPR equalt to 0.8) and MU PY RHY (median NPR equal to 1.4), suggesting these two geodomains are potentially acid generating. Overall, the pattern of ABA characteristics is comparable to that reported for historic geochemical characterization (NDM, 1996).

Aqua regia digestion of the rock samples followed by ICP analysis indicated that arsenic, antimony, bismuth, cadmium, lead, selenium, sulphur, silver, and zinc were present in greater than 5% of samples at concentrations that exceeded ten times crustal abundance. As such, these elements have been provisionally identified as constituents of potential concern (COPCs). Shake flask extraction (SFE) analysis, which gives an indication of the soluble metal(loid)s component of a sample, was performed on 40 rock samples with variable ABA and metal content. SFE leachate concentrations of bismuth and silver were typically below detection, suggesting that these elements may not be particularly mobile.

Of the preliminary list of COPCs, only arsenic, antimony, and selenium had more than three samples that returned SFE leachate concentrations in excess of site specific water quality objectives (SSWQO). The concentrations of cadmium, copper, lead, nickel, silver, uranium and zinc exceeded their respective SSWQOs only sporadically (between one and three samples), but have been retained as COPCs at this time. Aluminium exceeded its SSWQO in the majority of SFE samples; SFE aluminium concentrations were positively correlated with SFE pH, suggesting that pH is the controlling factor in aluminum leaching, rather than rock type or metal content. The CARB MDS/RHY, MU PY RHY and PY CL RHY geodomains accounted for the majority of SSWQO exceedances for most elements. CA CL MAF comprised the bulk of the elevated arsenic concentrations in the SFE testing, in line with the elevated arsenic content of this material. Indeed, SFE leachate concentrations of arsenic, antimony, selenium and uranium were positively correlated with the rock metal (loid) content.

Kinetic testing (humidity cell and trickle leach columns) was initiated in February 2016 and is ongoing. Data obtained from kinetic testing will provide a more comprehensive identification of the COPCs. As such, the list of COPCs will be revised as the kinetic testing program progresses.

6.5 Noise Levels

The Project is located in a remote wilderness area, noise levels are assumed to be quiet and dominated by sounds of nature (e.g., wind, rustling of vegetation, chirping birds etc.). There are no residences in the Project area therefore noise from the Project will not cause human disturbance. The camp site will be located approximately 3 km from the open pit which will ensure quiet off-shift and sleeping condtions for employees.

6.6 Hydrology

The Project lies inthe Geona Creek watershed central to which is the Genoa Creek, a north flowing tributary to Finlayson Creek. Finlayson Creek meets the outflow of Finlayson Lake below the Robert Campbell Highway and flows east to eventually join the Frances River and ultimately the Mackenzie River.

The Geona Creek watershed covers approximatley 26 km^2, has a median elevation of 1,479 metres above sea level (masl) and spans from the alpine to some sparsely forested areas at lower elevations. The Finlayson Creek catchment area is approximately 35 km^2 above the confluence with Geona Creek and grows to 211 km^2 where it flows under the Robert Campbell highway and shortly before it joins the outflow of Finlayson Lake. The southern watershed divide between Geona Creek and South Creek is located immediatley south of the ABM deposit and is characterized by several small lakes, locally referred to as "South Lakes".

Fault Creek is the most significant tributary to Geona Creek in the deposit area, emptying into Geona Creek immediately south of the ABM deposit. The catchment area for Fault Creek is approximately 2 km^2 with a median elevation of 1,708 masl and consists of steep slopes and small trees and shrubs in the creek valley draining alpine areas west of the project

Previous local hydrometric data collection occurred in 1995 and was re-initiated in May 2015. The current monitoring network includes several stations that are continuously monitored (**Figure 18**) and provide estimates for various hydrological parameters at Fault Creek (KZ-2), Geona Creek below the mine infrastructure (KZ-9), Geona Creek above the confluence with Finlayson Creek (KZ-17), Finlayson Creek below the confluence with Geona Creek (KZ-15) and Finlayson Creek at the Robert Campbell Highway (KZ-26).

Table 14. Hydrological statistics for various catchments in the Project area

	Site/Catchment				
	KZ-2	**KZ-9**	**KZ-15**	**KZ-17**	**KZ-26**
Mean annual runoff (mm)	610	388	386	373	249
Mean annual flow (m^3/s)	0.037	0.202	0.745	0.304	1.664
Mean summer flow (m^3/s)	0.064	0.316	1.161	0.474	2.567
Mean annual low flow (monthly) (m^3/s)	0.003	0.037	0.106	0.043	0.385
Mean annual low flow (daily) (m^3/s)	0.003	0.028	0.104	0.044	0.358
Mean summer low flow (monthly) (m^3/s)	0.050	0.270	0.918	0.374	1.912
Mean summer low flow (daily) (m^3/s)	0.029	0.161	0.594	0.241	0.997
Mean annual flood (daily) (m^3/s)	0.339	1.063	3.731	1.630	12.288
Mean summer flood (daily) (m^3/s)	0.141	0.386	1.249	0.576	3.804

Peak flows typically occur in May in these smaller catchments, though they can occur in summer months in years when significant snow melt generated peaks are less significant. Low flows occur late winter in March, April or even early May depending on the melt cycles and snowpack in any given year. None of the creeks were observed to freeze completely and some flow was observed in all months of the 2015-2016 monitoring program.

6.7 Groundwater

6.7.1 Monitoring Network and Data Collection

Groundwater monitoring wells were installed at KZK in 1995 as part of geotechnical site investigations conducted by Cominco. Data from these monitoring wells were also used for baseline groundwater characterization as part of the environmental assessment completed for the Project in the late 1990s.

The network of historical monitoring wells was re-assessed in 2015 for its condition and suitability to meet the current mine design and requirements of a Project Proposal submission under YESAA. In addition to the upgrade and re-development of selected historical wells, 17 new monitoring wells were installed in 2015 and 2016 to provide proper monitoring locations for conducting a hydrogeological baseline and effects assessment as part of the Project Proposal.

The current network consists of 43 monitoring wells and includes 10 wells completed as nested installations with a shallow piezometer completed in the overburden aquifer and a deeper piezometer completed in bedrock. **Figure 19** shows the locations of the monitoring wells relative to the proposed mine infrastructure

All monitoring wells installed between 1995 and 2015 have been sampled quarterly starting in summer 2015 with monthly sampling conducted from May 2015 through to October 2016. To characterize baseline groundwater quality including seasonal changes data has been used from the most recent sampling campaigns as well as some sporadic groundwater quality data from 1995. Eight new wells were installed in 2016 and monthly monitoring was conducted at these wells from August to October 2016. All wells currently in the groundwater monitoring network are presented in **Table 15**.

Table 15. Monitoring Well Network at KZK

Well ID	Easting	Northing	Date Drilled	Aquifer Monitored	Stick-up	Well Depth	Screen Interval	
	UTM Nad83, Zone 9				m above ground	m below top of casing	From	To
							m below ground	
MW15-01	414472	6816559	August 11, 2015	Bedrock	1.29	20.03	10.0	18.8
MW15-02	414808	6816270	August 12, 2015	Bedrock	1.26	32.97	23.0	31.7
MW15-03S	416317	6816052	August 17, 2015	Overburden	0.99	8.42	4.1	7.1
MW15-03D	416317	6816052	August 17, 2015	Bedrock	0.99	16.94	10.1	16.0
MW15-04S	415786	6816156	August 15-16, 2015	Overburden	1.04	15.10	11.2	14.1
MW15-04D	415786	6816156	August 15-16, 2015	Bedrock	1.05	32.30	27.1	32.9
MW15-05S	415852	6816872	August 14, 2015	Overburden	1.07	8.09	4.6	7.6
MW15-05D	415852	6816872	August 14, 2015	Bedrock	0.00	28.56	22.4	29.8
MW15-06	415460	6816722	August 14, 2015	Overburden	0.98	10.02	6.5	9.4
MW15-07S	414922	6817784	August 13, 2015	Overburden	0.90	11.01	8.1	11.0
MW15-07D	414922	6817784	August 13, 2015	Bedrock	0.91	33.14	26.3	32.1
MW15-08S	414904	6818518	August 12, 2015	Overburden	1.09	12.66	8.7	11.6
MW15-08D	414904	6818518	August 12, 2015	Bedrock	1.06	36.89	29.8	35.6
MW15-09S	414709	6819177	August 10, 2015	Overburden	0.59	18.98	11.4	17.3

Well ID	Easting	Northing	Date Drilled	Aquifer Monitored	Stick-up	Well Depth	Screen Interval	
	UTM Nad83, Zone 9				m above ground	m below top of casing	From	To
							m below ground	
MW15-09D	414709	6819177	August 10, 2015	Bedrock	0.57	41.32	35.1	40.9
MW15-10S	414794	6819203	August 11, 2015	Overburden	0.88	10.45	6.6	9.6
MW15-10D	414794	6819203	August 11, 2015	Bedrock	0.88	32.35	25.7	31.5
MW15-11S	415079	6815119	November 6-7, 2015	Overburden	1.09	8.14	4.2	7.1
MW15-11D	415079	6815119	November 6-7, 2015	Bedrock	1.10	36.36	20.6	35.2
MW16-12S	415272	6816527	July 22, 2016	Overburden	1.2	8.0	2.6	4.3
MW16-12D	415277	6816531	July 21, 2016	Bedrock	0.8	28.2	20.5	27.6
MW16-13	414012	6817775	July 6, 2016	Bedrock	0.8	27.9	19.1	27.0
MW16-14D	414776	6818387	July 24, 2016	Bedrock	1.0	30.8	38.8	38.8
MW16-15S	414974	6814700	July 5, 2016	Bedrock	1.0	6.0	3.1	5.3
MW16-15D	414972	6814702	July 5, 2016	Bedrock	1.1	42.2	28.8	36.6
MW16-16D	415394	6817230	July 20, 2016	Bedrock	0.8	40.3	31.5	38.8
MW16-17	414625	6817491	July 10, 2016	Bedrock	0.8	31.1	20.3	27.7
BH95G-2	414341	6819836	May 17, 1995	Bedrock	0.43	19.47	15.2	19.8
BH95G-21	414802	6815641	August 9, 1995	Bedrock	1.12	10.06	6.1	9.1
BH95G-22	414928	6815729	August 9, 1995	Bedrock	0.95	6.56	2.8	5.8
BH95G-23	414906	6815276	August 10, 1995	Overburden	1.21	13.56	9.8	12.8
BH95G-24	415037	6815258	August 11, 1995	Bedrock	0.71	9.12	6.4	9.4
BH95G-25D	415074	6815522	August 12, 1995	Bedrock	1.08	21.08	17.8	20.8
BH95G-25S	415073	6815522	August 12, 1995	Overburden	1.08	12.34	8.5	11.5
BH95G-29	415197	6814543	August 17-18, 1995	Overburden	1.07	16.51	15.6	18.6
BH95G-30	415437	6816766	August 19-21, 1995	Bedrock	0.10	19.20	16.2	19.2
BH95G-31	415199	6816129	August 21, 1995	Bedrock	1.02	8.70	7.0	10.0
BH95G-32	415008	6816134	August 22-23, 1995	Bedrock	1.22	15.83	12.2	15.2
BH95G-33D	415130	6816745	August 24, 1995	Bedrock	1.17	12.92	9.1	12.1
BH95G-33S	415130	6816745	August 24, 1995	Overburden	1.16	6.44	2.8	5.8
BH95-129	414601	6815499	May 12, 1995	Bedrock	1.05	150.90	154.5	160.0
BH95-131	415182	6815377	May 13, 1995	Bedrock	1.07	128.00	123.5	128.0
BH95-146	414898	6815504	May 21, 1995	Bedrock	1.04	137.73	134.1	138.7

6.7.2 Hydrogeologic Setting and Aquifer Properties

The local hydrogeological system in the study area consists of two principal aquifers, a bedrock aquifer that is overlain by a valley aquifer across the valley floor.

Hydraulic response tests located in the area of the proposed open pit were conducted on various overburden monitoring wells as well as a 12 hour constant rate pumping test in overburden. These tests indicate that the hydraulic conductivity of the overburden aquifer ranges from about 1×10^{-5} m/s to 1×10^{-4} m/s.

Results of packer tests conducted in the bedrock aquifer ranged from about 1×10^{-6} m/s to 1×10^{-5} m/s in weathered and more fractured bedrock to 1×10^{-8} m/s to 1×10^{-7} m/s in deeper and relatively massive bedrock. In addition, results of a 24 hour constant rate pumping test was conducted in shallow bedrock in the area of the proposed open pit suggestedan inferred bedrock hydraulic conductivity of about 2×10^{-6}m/s.

6.7.3 Occurrence and Flow

Groundwater elevations relative to the surface are variable across the study area with the water table at or very near surfacein the valleys, while beneath the mountains the water table may be greater than 200m below surface.

The groundwater flow is mainly controlled by the area's topographic features moving from the topographically high mountain tops and slopes on either side of the valley toward discharge zones along the valley floors. This flow regime was confirmed by piezometric elevations collected from nested monitoring wells and vibrating wire piezometers across the study area.

6.7.4 Permafrost Interaction

The Project is located in an area with discontinuous permafrost. Cominco (1996) noted that permafrost is present on north and west facing slopes along the Geona Creek valley, especially above 1,400 masl. Permafrost was observed to be mostly absent on the east facing walls of the Genoa Creek as well as in the area of the proposed open pit, except for some localized ice lenses. Where present, permafrost acts as a confining or semi-confining layer depending on the spatial extent and thickness, thereby limiting recharge to the aquifer. This causes the groundwater table to be located at greater depth on the west facing slopes compared to the east facing slopes where permafrost is believed to be mostly absent.

6.7.5 Surface Water Interaction

Groundwater discharges to receiving water bodies along the valley floors, with Geona Creek being the primary discharge feature in the study area. The amount of baseflow, i.e., groundwater seepage into the creeks, depends on the hydraulic gradient and hydraulic conductivity of the shallow overburden aquifer in the vicinity of the receiving stream.

In general, the fraction of baseflow in the creek will be much larger in the winter when there is little or no surface runoff or shallow subsurface runoff (also referred to as interflow). The baseflow is best estimated from the (late) winter creek discharge as it amounts to nearly 100% of the total discharge observed during this time of the year.

6.7.6 Groundwater Quality

Groundwater quality has been assessed at a total of 43 wells during the 1995 and 2015/16 field programs, with samples analyzed for general chemical parameters, total and dissolved metals, and nutrients.

Groundwater quality varies considerably across the study area, likely due to the large extent of the study area (over 5 km north to south) Additional sources of variability in the groundwater quality data include multiple groundwater flow systems and recharge sources (east and west of Geona Creek), and the potential for differing chemistry in the vicinity of the ABM deposit.

General Chemistry

Background field pH values ranged from 5.7 to 8.6 units and averaged a slightly alkaline 7.4 in both overburden and bedrock aquifers across the whole study area. Dissolved hardness concentrations are variable across the site, ranging from 78.9 to 2,108 mg/l. The maximum dissolved hardness concentration was reported in a bedrock well located at the northern end of the study area and was over three times higher than the next highest concentration (in a bedrock well close to the southern end of the site).

Average and maximum dissolved hardness concentrations were typically higher in bedrock wells than overburden wells and appear to increase in concentration with depth in the bedrock aquifer.

Groundwater has an average total dissolved solids (TDS) concentration of 379 mg/l across the study area with an average concentration of 406 mg/l in bedrock wells and 306 mg/l in overburden wells. The highest TDS (1,960 mg/l) was recorded in a bedrock well at the northern extent of the study area and was over twice as high as the TDS concentration at any other well in the study area.

Sulfate concentrations averaged 68 mg/l across the study area, with an average of 67 mg/l in overburden wells and 69 mg/l in bedrock wells. Sulphate concentrations were highest in wells in the vicinity of the ABM Deposit and showed a general trend of increasing concentration with depth in the vicinity of the ABM Deposit. The slightly elevated sulphate concentrations near the mineral deposit relative to the site wide average can likely be attributed to the oxidation of sulphide minerals in the deposit area.

Many monitoring wells showed considerable variability in analytical results over the course of the monitoring program suggesting there may be a seasonal influence on groundwater chemistry. Ongoing groundwater monitoring will provide additional data to characterize seasonal changes in groundwater quality and quantity.

Dissolved Metals

Zinc, lead and copper are key metals expected to be associated with the massive sulphide ore deposit and consequently, concentrations of these metals may be elevated in areas hydraulically downgradient of where groundwater contacts the deposit. Zinc and lead concentrations were observed to be considerably higher in the vicinity of the deposit than across the rest of the study area. Average zinc and lead concentrations were over 100 times and 25 times higher, respectively, close to the ABM Deposit area than the average across the rest of the study area. On average, both close to the ABM Deposit area and across the study area, zinc and lead concentrations were higher in overburden wells than bedrock wells. Copper concentrations were relatively similar across the study area and concentrations were similar in overburden and bedrock wells.

Dissolved arsenic, cadmium and iron are considered “key parameters” that have been detected at concentrations above guideline values in multiple wells across the site over the monitoring program. The maximum natural arsenic concentration was observed in a deep bedrock well close to the ABM Deposit and average arsenic concentrations in the vicinity of the ABM Deposit were approximately 20 times higher than average values over the entire study area.

The highest iron concentrations were observed in wells at the northern end of the study area where average concentrations are over twice that observed in the ABM Deposit area. Within the central study area, iron concentrations are considerably lower, with average concentrations over 10 times lower than those observed close to the ABM Deposit. Across the study area iron concentrations were similar in both bedrock and overburden monitoring wells.

Cadmium concentrations were observed to be highest in wells close to the ABM Deposit area. Similar to iron concentrations, cadmium concentrations in wells at the northern extent of the study area displayed average and maximum concentrations higher than the central study area.

6.8 Surface Water Quality

Baseline studies for surface water quality were undertaken in 1994 and 1995 under the previous property ownership, followed by biannual water quality monitoring conducted as part Water Licence QZ97-026 between 2002 and 2014. The surface water quality monitoring program was re-evaluated and re-initiated in April 2015, comprising 11 stations sampled on a monthly basis, locations noted in **Table 16**. Natural artesian seeps were also sampled to evaluate their impact on stream water chemistry.

Table 16. Surface Water Quality and Hydrology Monitoring Locations

Station	Description
KZ-26	Finlayson Creek at Robert Campbell Highway
KZ-22	Finlayson Creek 100 m downstream of East Creek
KZ-21	East Creek at Mouth
KZ-16	Finlayson Creek immediately upstream of confluence with Geona Creek
KZ-15	Finlayson Creek 100 m downstream of confluence with Geona Creek
KZ-17	Geona Creek at Mouth. This site is currently flooded due to a beaver dam constructed since 2008. A new sampling station will be re-established as close as possible to the original KZ-17 site
KZ-6	Tributary of Geona Creek where proposed Class C storage facility will be located
KZ-7	Upper Geona Creek near ABM open pit
KZ-9	Geona Creek downstream of Lower Water Management Pond discharge location
KZ-2	Fault Creek
KZ-13	South Creek near mouth
Seeps	
KZ-9 Seep East	Seep approximately 50 m east of Geona Creek at KZ-9
KZ-9 Seep West	Seep approximately 50 m west of Geona Creek at KZ-9
Seep 3	20 m wide seep located on west side of Geona Creek downstream of KZ-7
Seep 4	Wide seep network located on west side of Geona Creek upstream of KZ-7
Seep 5	Seep coming inside side channel of Geona Creek upstream of KZ-9

Surface water samples were analyzed for general chemical parameters, as well as total and dissolved metals, and nutrients. Water quality was compared against the most recently revised water quality guidelines for protection of aquatic life established by the Canadian Council of Ministers of the Environment (CCME) or British Columbia Ministry of the Environment (BCMoE).

Creeks that drain the KZK property were circumneutral to alkaline (pH 6.8 to 8.7; median 7.8) and had a hardness ranging from moderately hard. Dissolved organic carbon ranges from less than 0.5 to 17.2 mg/l, with the highest concentrations measured in Geona Creek. At all surface water stations, naturally occuring nitrogen species (nitrate, nitrite, cyanide, ammonia) were all typically below or marginally above the detection limit, with the exception of nitrate-N, which ranged from median concentrations of 0.01 mg/l in East Creek to 0.125 mg/l in Fault Creek. Nitrate peaks coincided with freshet-period sampling; however, no concentrations exceeded the CCME threshold of 3 mg/l.

Water quality guideline exceedances are observed sporadically for a number of constituents including total concentrations of aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, selenium, and zinc. The majority of these exceedances coincided with freshet, when TSS concentrations were highest and metal(loid)s were largely transported as particulates.

In general, more water quality guideline exceedances were noted for total metal concentrations than their dissolved counterparts, suggesting that a significant portion of the metals were particulate-bound, especially during freshet and/or other periods characterized by elevated total suspended solids (TSS) levels. That dissolved metal concentrations exhibited much less frequent water quality guideline exceedances is important since it is the dissolved fraction that is the most bioavailable (Prothro, 1993).

A comparison of the Cominco 1994-1995 water quality dataset with that collected during the more recent baseline water quality monitoring conducted since 2015 indicated that the majority of constituents shared a similar concentration span, suggesting there were no obvious differences between the two datasets.

6.9 Fish

The ABM Deposit lies in an elevated north-south trending valley that drains to the north and south into the Liard River. A series of three small ponds inhabit the saddle of this valley in a swampy area near the north-south drainage divide. The north flowing outlet is referred to as Geona Creek whereas the southern outflow is unnamed. Several other small creeks, ponds and lakes occur throughout the property. Water in the main tributaries flows continuously through the frost-free season whereas the upper parts of the drainages are intermittent, flowing only in early summer and after rainfall events.

Studies from the 1990s found Geona Creek and the small ponds overlying the ABM Deposit generally have low abundances of fish, containing just a few slimy sculpin (*Cottus cognatus*) and young arctic grayling (*Thymallus arcticus*) and further downstream, adult arctic grayling occur in Finlayson Creek. Larger rivers and lakes in the area host rayling, whitefish, lake trout, burbot and dolly varden char.

Additional baseline fisheries studies were conducted every other year from 2002 to 2014 (Laberge and Can-Nic-A-Nick, 2014), as per the requirements of Water Licence QZ97-026-01. From 2002-2014, slimy sculpin (*Cottus cognatus*) and arctic grayling (*Thymallus arcticus*) dominated the catch in Finlayson Creek, consistent with the 1995 study. Only one grayling was captured at the upper Finlayson sites over seven years of sampling at these sites, suggesting that use of upper Finlayson Creek by grayling is limited to late summer.

The 2015 fisheries baseline environmental study was primarily focused on Geona Creek and Fault Creek. The results of the 2015 investigations are generally consistent with previous findings. Fish were captured in generally low numbers, with the highest Catch Per Unit Effort near the headwaters of Geona Creek. The only species captured in Geona Creek was arctic grayling (*Thymallus arcticus*), with the exception of one slimy sculpin (*Cottus Cognatus*) captured at the confluence with Finlayson Creek.

Additional seasonal fisheries investigations were conducted through 2016 and the results will be summarized in the Project Proposal.

6.10 Aquatics

6.10.1.1 Sediments

Stream sediments were collected in 1994 and 1995 by Cominco as part of the baseline environmental and socio-economic studies for the Project in support of the IEE. In addition, Environment Canada's Environmental Protection Branch collected sediment samples in 1995. After regulatory approvals were received in 1998 (Water Licence QZ97-026), subsequent baseline studies including stream sediments have been conducted every two years since 2002 to meet the requirements of the Water Licence. In 2015 stream sediments were collected on Finlayson Creek, Geona Creek and Fault Creek.

The studies have shown that naturally occuring arsenic levels are high throughout the study area, except in South Creek. Similarly, naturally occuring cadmium levels are also elevated throughout the Project area, except in South Creek and East Creek. Chromium and copper levels are generally below the Interim Sediment Quality Guideline (ISQG), except at the mouth of Geona Creek for chromium and in upper Geona Creek for copper. Lead and mercury show no exceedances of their respective ISQG, while natural zinc levels are generally naturally elevated with Fault Creek and upper Geona Creek exceeding the Probable Effects Level (PEL).

The observed metal concentrations were generally lower in 2015 than historically for most parameters and the magnitude of exceedances was generally lower; however, the parameters showing exceedances are consistent with historical data and indicate that these drainages lies in naturally mineralized zones.

6.10.1.2 Benthic Invertebrates

Benthic invertebrate communities were surveyed and sampled in 1995 in support of the IEE. After regulatory approvals were received in 1997 (IEE) and 1999 (Water Licence QZ97-026), subsequent baseline studies, including benthic invertebrates, have been conducted every two years since 2002 to meet the requirements of the Water Licence. Additional benthic invertebrate samples were collected in 2015 to fill in baseline information gaps (i.e., lack of historical benthic data for Genoa and Fault Creeks) that will support the environmental effects assessment, as well as the development of the Fish Habitat Compensation Plan.

Benthic invertebrate density and diversity have been calculated at each sampling station over the various study periods. Metals in benthic invertebrate tissue have also been analysed.

6.10.1.3 Periphyton

Periphyton studies were not included in the initial baseline studies in 1995 or subsequently as a requirement of the Type A Water Licence. Periphyton is an important component of aquatic ecosystems and can provide a valuable biological monitoring tool to assess potential impacts of nutrient enrichment and metal toxicity, as such periphyton sampling was undertaken in 2015 to fill this information gap. The dominant phylum observed at all sites was Bacillariophyta, with other phyla generally representing less than 1% of the total number of algae.

6.10.1.4 Chlorophyll *a*

Chlorophyll *a* studies were not included in the initial baseline studies in 1995 and are not a requirement of the Type A Water Licence monitoring program. However, as chlorophyll *a* concentrations provide a measure of algae biomass and thus the primary productivity of a given location, chlorophyll *a* samples were collected on Finlayson Creek, Geona Creek and Fault Creek in 2015. Chlorophyll *a* concentrations in the Project area are generally low which is an indication of low productivity systems.

6.11 Vegetation

The 2015 and 2016 baseline studies included: terrestrial ecosystem descriptions, mapping and survey results for rare plants, invasive plants, baseline metal concentrations in soils and vegetation, wetland assessments, and forest productivity and timber volume estimates. The existing setting for vegetation combines historical information from surveys completed during the initial Project assessment and licensing process in the 1990s, and information collected during the re-initiation of the Project baseline surveys in 2015–2016 to support re-assessment and re-licencing.

The Project area lies in the subalpine and alpine vegetation zones with boreal forest predominant in the lower parts of the property grading into shrub and herb dominated areas at higher elevation. Black spruce and subalpine fir are predominant in forest environments whereas tall shrub vegetation types such as dwarf birch and dwarf willow birch predominate higher up. At the highest elevations, vegetation types consist mostly of dwarf willow and alpine dwarf shrubs, in addition to herb vegetation types. Feathermoss dominates the understory in dense coniferous stands whereas sedge or sphagnum tussocks are common in wetlands and under black spruce.

No rare plants were found during the transect surveys or through incidental observations while performing other vegetation field work. Although it is possible rare plants may exist, observations were not expected as the area does not have unique landscape features that typically host rare plants.

Seven non-native species were detected during the 2015–2016 surveys. Most observations were made along the tote road, especially near the gatehouse and laydown area. This is expected as vehicles and clothing inadvertently carry seeds and plant material, which are later deposited and germinate. BMC has implemented an Invasive Species Management Plan to reduce the potential for the spread of these species.

In 2015–2016 a soil and vegetation tissue sampling program was undertaken to provide a snapshot of metal concentrations in vegetation and soils at the pre-development stage of the Project. Metal concentrations in soil samples were compared to CCME soil guidelines for metal concentrations at industrial sites. Of all of the 19 metals in which guidelines have been established, minimal exceedances were occasionally observed for arsenic, copper, selenium, and zinc. A total of 40 vegetation samples were collected from six different vegetation types. These were analyzed for occurrence of 35 different metals with results showing that concentrations of most metals detected at the Project area were in the range of worldwide background concentrations for similar vegetation types.

During the 2015 baseline study, timber plots were located along the existing tote road study corridor at the lower elevations where there was adequate forest cover (greater than 10%). In general, the trees measured are of poor timber quality.

6.12 Wildlife

6.12.1 Caribou

The Finlayson caribou herd has been the subject of a significant management and monitoring effort by the Yukon government since the early 1980s and is ongoing. The studies have included detailed population surveys and radio collaring. In 1994-1995, several detailed population studies were undertaken by Cominco to support the Initial Environmental Evaluation (Cominco, 1996). In 2015, BMC undertook three studies to assess the distribution of the herd at different seasonal periods; a late winter aerial survey in March, post-calving in July and rut surveys in October. The studies to date have shown that the herd's range includes the uplands around the Project area from spring to fall and the lowlands of the Pelly River in the winter. The FCH provide a valuable food source for the Kaska people and are also of economic significance to sport hunters and the guiding industry.

6.12.2 Moose

Moose are also a significant wildlife resource. Data on moose distribution and numbers were obtained through aerial surveys flown in March and November 1995 and 2015, to document late-winter and post-rut distribution. In 2015, the survey areas for both the late winter and the post-rut were expanded, based on discussions with the Yukon government biologist, to include all Game Management Subzone 10-07. Surveys indicated some calving occurs in the upper part of the Geona Creek valley, and moose are dispersed in the Project area during summer and early fall, congregating in post-rut groups in the upper elevations of the Project area. The information indicates that moose may spend early winter in the Project area and may remain into late winter during some years.

6.12.3 Sheep

Environment Yukon has produced a map of wildlife key areas showing the known locations of Stone's sheep seasonal distribution in the general vicinity of the Project . Of particular importance are the lambing areas approximately 13 km southeast near Money Creek, and directly south near Fyre Lake. This population is located outside of the Project boundaries, therefore, Stone's sheep were not formally surveyed in 1995 or in 2015. However, incidental observations made during other wildlife studies in both 1995 and 2015 have been recorded and mapped. The closest siting has been approximately 7 km south east of the ABM Deposit.

6.12.4 Bears

Grizzly bears (*Ursus arctos*) are listed as a COSEWIC (Committee on the Status of Endangered Wildlife in Canada) Species of Special Concern and are listed in Schedule 3 of the federal *Species at Risk Act* (COSEWIC, 2012). Observations recorded in the 1995 Project camp log included one adult grizzly in a basin 2 km south of the camp (June 8, 1995), and one grizzly in the uplands 2 km southeast of the camp (September 7, 1995). No bear den sites were observed during the aerial surveys in 1995 and none were reported during other Project related work in the area.

In 2015, three aerial bear den surveys were conducted. The one-day surveys were spaced at approximately 10 day intervals to cover the grizzly bear hibernation emergence period from late April to mid-May. An active bear den was discovered during the second survey approximately 4.5 km south west of the ABM Deposit. A sow and two yearling cubs were seen heading downslope about 500 m from den site. During the third survey on 15 May 2015, more grizzly tracks were observed. Two of the observed tracks in different areas were made by a single bear in each case.

No species-specific surveys were conducted for black bear, consequently observations were incidental. One mature black bear was observed at the gatehouse in May 2015. During the vegetation survey in July 2015, several bear scat piles were observed at the southern most section of the tote road.

6.12.5 Beaver

The IEE notes that beavers were considered "moderately abundant" and observed in Finlayson, Geona and North Lake drainages. Upper Geona Creek represents poor beaver habitat but the area was still used by beaver. Activity was observed on most of the small ponds in the upper Geona Creek valley and the North Lakes drainage to the south; however, there was no quantifiable data collected during the 1995 wildlife baseline program.

In 2015, a localized beaver habitat and sign survey was completed for the upper Geona Creek valley. The survey yielded 18 observations of beaver signs. Most of the beaver-built structures were of some age, and have been in place long enough to become vegetated or are beginning to deteriorate. Only 4 locations appeared to have been constructed in the last year or two. The only direct sighting of a beaver took place during the breeding bird survey (at a reference site outside of the Project area).

6.12.6 Collared Pika and Marmot

Prior to undertaking surveys in 2015, there was no regional or Project derived information or survey data on distribution or abundance of collared pika or hoary marmot. Neither species are mentioned in the IEE. Collared Pika are a Species of Special Concern (COSEWIC, 2011). In 2015, a survey for pika and marmots was undertaken in four pre-identified locations (based on habitat suitability). Collared pika were observed at one site (approximately 2 km south of the ABM deposit). Habitat suitability was confirmed at all four sites surveyed. Two hoary marmots were also observed at the same site where the Pika were observed. Incidental observations of marmot and pika were also made during the vegetation baseline studies.

6.12.7 Furbearers and Small Mammals

No species-specific surveys were conducted for small mammals other than collared pika and hoary marmot. Small mammals observed at the site in 2015 include porcupine, arctic ground squirrel, and snowshoe hare. Furbearing species present in the area include wolf, wolverine, and red fox and likely lynx, coyote, marten, mink, muskrat, otter and weasel. Fisher may also occur in the area.

6.12.8 Bats

There are no historical survey data for bats (in particular little brown bat, COSEWIC endangered) for the Project area. Prior to undertaking bat studies at the Project site, Environment Yukon databases

(Conservation Data Centre, Wildlife Species Inventory database) were searched for information on bat occurrence in or near the Project site. Contact with the Yukon government small mammal biologist (Thomas Jung) revealed that at the elevation of the Project , 1,350 masl, it was unlikely that the little brown bat would be present; however, if bats were present in the Project area, it was most likely they would be near wetlands due to the presence of aquatic insect food sources.

In order to survey for the presence of bats, an Anabat model remote acoustic recorder unit was set up in a wetland in the Geona Creek valley. Recordings from the Anabat detector were analysed digitally to identify bat calls at high intensity frequencies between 80 and 40 kilohertz (kHz). No bat calls were found on the recording. This was not surprising as bats are associated with lower elevation forested areas near wetlands and riparian corridors where they can feed on insects.

6.12.9 Breeding Birds and Waterfowl

A North American Roadside Breeding Bird Survey route exists for Finlayson Lake (located approximately 30 km northeast of the exploration area) for which data have been collected, non-continuously from, 1992 to 2014, including songbirds, waterfowl and raptors. Although not in the study area for the Project , data from these surveys are applicable for comparison to the Project area.

No breeding bird surveys or focal bird species surveys were conducted for the Project or in the regional or local study areas for the IEE. Ptarmigan were noted as abundant in the upper Geona Creek valley, around the camp, and a large flock was seen in the uplands during the 1995 caribou rut survey. Due to the upland nature of the Project area, the area is of limited suitability to waterfowl. The IEE reports that wetlands in the upper Geona Creek valley were used during migration; however, no direct observations of waterfowl breeding were reported in 1995. Ducks such as mallard, scooters, mergansers and harlequin were seen at the North Lakes drainage and a pair of harlequins were seen on lower East Creek. Trumpeter swans were observed on lakes north of the Project area and North Lakes. A loon was heard from the camp and migrating rednecked phalaropes were seen on wetlands near the camp.

In 2015, a total of 36 species were observed at sites near the proposed mine footprint which is comparable to the 27 species observed on the Finlayson Lake Breeding Bird Survey route. Habitat types surveyed included: open mixed sub-alpine forest on the hill slopes; alpine and alpine wet meadow at higher elevations; riparian areas along Geona Creek; and, wetlands at the headwater of the creek, and at South and North Lakes.

6.12.10 Raptors

The IEE reports a total of 26 golden eagle observations, including possible repeat sightings, during the May caribou calving survey. Golden eagles were also reported in uplands near the camp from early May to mid-June. Bald eagle observations included a sighting in upper Geona Creek valley and a bird fishing in one of the North Lakes. A pair of gyrfalcons were observed southeast of Wolverine Lake during a 1995 aerial survey. Overall, the IEE reported that no raptor nest sites or family groups were found in the immediate Project area in 1995.

In 2015, a fly over of pre-identified potential habitat areas did not detect any signs of raptors. However, during the 2015 breeding bird survey, the sky was scanned for raptors at different periods. Raptors were also surveyed from the ground through visual observations of the sky and through the occurrence of nesting habitat landscapes. A Northern Harrier (*Circus cyaneus*) was seen during the breeding bird survey. In addition, two Golden Eagle (*Aquila chrysaetos*) nests were observed. One, an active nest was located above the historical core shacks, near current exploration operations. The other was an inactive nest in a valley just southwest of the Project area, and outside the Local Study Area.

All wildlife studies conducted in 2015 as described above are being or have been conducted again in 2016.

6.13 Archaeology and Heritage Resources

There are no special land designations in the area of the Project; however, initial discussions with the RRDC have indicated that they have submitted a Draft Land Use Management Plan for their asserted Traditional Territory to the Yukon Energy, Mines and Resources for review and discussion. The status of the review is uncertain. Notwithstanding, details from the Draft Land Use Management Plan, which may be relevant to environmental protection in the Project area, have been requested.

In 1995, a heritage study was conducted in collaboration with the RRDC as part of the Initial Environmental Evaluation. The study identified no cultural materials or features (Rutherford, 1995); however, a review of the oral history, provided by Kaska members, indicates that the Project area was used for subsistence hunting, trapping and fishing, and as an access route to the North Lakes (Rutherford, 1995). In 1996, an additional study for cultural materials was undertaken at a proposed airstrip location (Geo-Engineering, 2000). No cultural materials were identified in this follow-up study. BMC has committed to discussions with the RRDC regarding the potential need for additional traditional use studies of the Project area. The discussions are on-going and will remain open for the duration of the Project.

In 2015, a Heritage Resource Impact Assessment (HRIA) was conducted for the Project . The HRIA assessed the proposed mine site and associated developments, including the proposed open pit, Class A, B and C waste storage facilities, organic storage areas, process plant site, accommodation area, explosives area, 2015 exploration targets, and reviewed the existing access road for likely road improvement areas. Eight landforms were identified as possessing elevated potential for buried cultural materials and were shovel tested. Two of these landforms were found to contain prehistoric lithic sites: JiTp-1 (the Alistair Site – in the proposed location of the Class B Watse Storage Facility); and, JjTp-1 (the Fat Lip Site – adjacent to the existing access road). Additional shovel testing has been conducted in 2016 at both locations to fully characterize/delineate the sites. No built structures, cambium stripped trees, or additional buried cultural materials were identified in the survey footprint, including along the existing access road where future road improvements might be made.

6.14 Traditional Knowledge

Traditional Knowledge (TK) interviews were conducted as part of the 1995 heritage study (Rutherford, 1995). The interviewees identified camps, cabins, and trails; however, none of the sites identified overlapped with the proposed Project infrastructure. Between 1995 and 2015 additional TK studies have been completed by RRDC in the territory. Through the of support of BMC, RRDC is currently conducting an additional Project-specific TK study. This new study along with the previous study results will be combined and provided to BMC, such that BMC can plan to avoid culturally important sites, if present, during planning and development of the Project.

6.15 Socio-economic Conditions

The Project is situated in a remote wilderness area located 115 km southeast of Ross River, 260 km northwest of Watson Lake and 24 km southwest of the Robert Campbell Highway near Finlayson Lake, Yukon (**Figure 1**). Access to the Project is via a 24 km single lane gravel tote road that connects the Project to the Robert Campbell Highway. The Project area is in the asserted Traditional Territory of the RRDC and LFN who, along with three other First Nations people, form the Kaska Dena Council of north-central British Columbia and the southern Yukon. The property adjoins an area of Interim Protected Land that is referred to as an R-Block.

Land use in the immediate area consists primarily of subsistence hunting, fishing and trapping by First Nations people and some recreational hunting and fishing associated with local lodges and outfitters. Previous mines in the region include Sa Dena Hes near Watson Lake, Ketza River near Ross River, Anvil Range at Faro and Wolverine Mine, which is located just approximately 25 km west of the Project.

The community of Ross River lies 350 km from the territorial capital of Whitehorse and 10 km east of the Robert Campbell Highway, along the Canol Road near the junction of the Ross and Pelly Rivers. In 2011, the population of Ross River was 352 (Statistics Canada, 2012a), just slightly above the 2001 population of 337. The 2006 census shows that the inhabitants are predominantly First Nation (87.1%) with an employment rate of 55.6% and median income of $40,100 per year (Statistics Canada, 2007a), which in both cases is lower than Yukon as a whole (70.7% and $60,100, respectively). The primary employment sectors were “other services” followed by “agriculture and other resources-based industries” (Statistics Canada, 2007a), which would include mineral exploration and mining.

Watson Lake is located along the Alaska Highway near the border with British Columbia and lies 440 km from Whitehorse. The 2011 population of Watson Lake was 802 (Statistics Canada, 2012b), approximately 5% less than the 2006 population of 846 (Statistics Canada, 2007b). The 2006 census indicates that Watson Lake is 63.9% non-aboriginal, 71.4% employed and earned a median salary of $60,100 per year, all more-or-less in line with Territory-wide averages. The primary employment sectors are “health care and social services” and “educational services”, followed by “business services” and “agriculture and other resource-based industries” (Statistics Canada, 2007b).

The Project occurs within hunting concession #20, single trap line concession #250 and group trap line concession #405 (**Figures 7 and 8**). The hunting concession is held by Yukon Big Game Outfitters (YBGO), the group trap line is held by the RRDC, and trapline concession #250 is held by two RRDC citizens.

7. POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS AND PROPOSED MITIGATION MEASURES

The following section describes the expected environmental impacts from the Project and the planned measures to mitigate and manage these impacts.

7.1 Air Quality

Project activities that may affect air quality, through the production of either fugitive dust or gaseous emissions, include:

- Development of roads and surface structures through blasting and clearing;
- Operations at the mine site, such as crushing, blasting and hauling;
- Use of diesel/LNG for power production;
- Burning of waste using a solid waste incinerator;
- Transport of equipment and supplies along the Robert Campbell Highway and mine access road; and
- Transport of equipment, supplies and personnel via air.

Effects associated with these activities may contribute to temporary, localized reduced air quality, which may lead to diminished environmental health (through damage to vegetation, soils and wildlife). However, given the remote nature of the Project, as well as the relatively small scale of the operation, effects on the environment and human health will be minimal. In addition, the emissions generated at the mine site are expected to disperse relatively quickly due to its location and sufficient wind movement.

Emissions will be reduced through the following mitigation measures:

- Efficient use of air and ground transportation to minimize fuel usage (i.e., loads will be optimized to reduce the number of trips between the source and destination);
- Dust will be controlled for the duration of the work by watering roads (if it is safe to do so; using water during freezing conditions may create an unsafe road surface for driving) or using an alternate dust suppressant approved by Fisheries and Oceans Canada (DFO) (e.g., calcium chloride);
- Speed limits will be implemented to reduce the generation of fugitive dust emissions;

- Fine grained material vehicle loads will be covered to reduce windblown dispersal; and
- Vehicles and equipment will be maintained according to manufacturers' guidelines. Vehicles and equipment will be inspected regularly by the field crews and will be maintained, as required.

7.2 Noise Levels

The Project is situated in a remote portion of Yukon where the existing background noise is consistent with those of a natural setting. Some additional noise is present during the summer as part of the ongoing exploration activities, such as drilling and use of generators.

Various sources of noise that may be associated with the Project will include:

- Construction of the mine facilities and infrastructure;
- Mine operations;
- Decommissioning the mine site and reclamation of the Project footprint; and
- Ground and air transport of equipment and materials.

Noise associated with the proposed Project will be generated primarily from the use of equipment, facilities, and blasting on the site. Noise will be reduced through the following mitigation measures:

- Efficient use of air and ground transportation to minimize fuel usage (i.e., loads will be optimized to reduce the number of trips between the source and destination);
- Equipment will be subject to regular maintenance programs to maintain good working order;
- If practicable, locate the crushers in sheltered or enclosed locations;
- Where feasible, enclose the conveyors;
- Island gensets will be provided with efficient intake and exhaust silencers; and
- Speed limits will be implemented.

7.3 Surface Water Quality and Quantity

Significant adverse effects on surface water during operations, closure and post-closure associated with the Project are not anticipated. Water quality objectives have been established for South Creek, Geona Creek and Finlayson Creek for contaminants of potential concern based on the baseline surface and groundwater monitoring programs, and geochemical characterization of waste rock and tailings. The water quality objectives were generated using generic guidelines from both CCME and BCMOE, and the background procedure for parameters where the baseline is currently greater then generic guideline. A site specific water quality objective was developed for selenium in Geona Creek and Finlayson due to existing elevated natural baseline concentrations.

Diversion ditches will be constructed to minimize the creation of mine contact water and maximizing keeping clean water out of the mine foot print. A water treatment plant will be constructed to treat mine contact water to ensure the discharge from the Lower Water Management Pond meets the water quality objectives in Geona Creek and Finlayson Creek. These water quality objectives will ensure there will be no significant effects on aquatic life, including fish and benthic invertebrates.

Discharge from the Lower Water Management Pond will be at a minimum ratio to 3:1 (receiving environment: discharge) to both Geona Creek and Finlayson Creek to maintain stream flows similar to baseline conditions. The storage of water in the Operations Water Management Ponds and associated increased discharge during freshet will be offset by the diversion of Fault Creek and the southern diversions to South Creek that would normally be part of the Geona Creek flow.

The diversion of Fault Creek introduces between approximately 300 m^3/day (March) and approximately 10,000 m^3/day (May) of water into South Creek. Fault Creek water contains elevated cadmium, selenium and zinc compared to South Creek, but the water quality modelling shows that these parameters are within generic guidelines or the range of documented baseline water quality concentrations. The incremental flow into South Creek during operations will result in a temporary increase of lake water levels in the upper South Creek catchment.

Covers will be constructed progressively during operations for the Class A, B and C Storage Facilities to ensure geochemical stability of rock and tailings. At closure, the final covers will be revegetated to maximize the reduction of infiltration and to meet land use objectives. During closure the Fault Creek diversion will be decommissioned to redirect streamflow back into ABM open pit in the Geona Creek catchment. During closure Fault Creek will flow into the ABM open pit. Lime or limestone will be added to Fault Creek while the ABM open pit floods to ensure acceptable water quality once ABM Lake reaches an elevation of 1385 masl, where the discharge will enter Geona Creek. A series of wetlands will be constructed to treat water from the Class A Storage Facility, Class B Storage Facility and ABM Lake outflows. As contingency, the water treatment plant will remain on site and functional until the covers and wetlands have proven to meet the closure design objectives including the water quality objectives being met in the receiving environment.

Surface water quality and water management infrastructure (e.g., diversion ditches and ponds) will be monitored during construction, operations, closure and post closure per the Environmental Monitoring, Surveillance and Reporting Plan to confirm predictions and determine if adaptive management measures are required.

7.4 Groundwater Quality and Flow

Potential effects and mitigation measures to reduce the effects on groundwater quality and flow are as follows:

Open Pit and Underground Workings: groundwater in the mine area and draining to the mine workings while the ore is extracted; and, groundwater seepage through the backfilled workings after ore extraction has the potential to impact groundwater quantity and quality.

Dewatering of the mine is necessary for resource extraction. As dewatering will be stopped after mine closure, effects to groundwater quantity will be fully reversed through the natural recharge of the aquifer. Because water levels will be allowed to recover in the vicinity of the mine workings once mining stops, the groundwater discharge to surface water bodies will be fully restored to pre-mining conditions. No mitigation for the anticipated limited effect is proposed.

Following mine closure, groundwater flowing into or through backfilled underground workings from the surrounding rock mass will have low dissolved oxygen concentrations and therefore further oxidation of the backfill will be negligible. Bulkheads and concrete seals will prevent surface water entry and oxygen migration to the underground. The low quantity of acid drainage potentially generated in the mine will mix with the surrounding groundwater by dispersive and advective processes in the rock mass. As such, any acid byproducts in down gradient groundwater discharging to surface water will likely be negligible.

After mine closure, the groundwater quality downstream of the mine workings will be monitored at groundwater observation wells to confirm that no degradation of water quality occurs due to acid mine drainage and/or metals leaching. The same observation wells will also be used to monitor the recovery of the piezometric level after dewatering ceased.

Tailings and Waste Rock Storage Facilities: groundwater quality in the vicinity of waste rock and tailings storage facilities may be potentially affected by recharge from precipitation infiltrating through the waste rock storage areas.

Design mitigation will include the following:

1) The footprint of the Class A and B Waste Storage Facilities will be cleared of trees and topsoil stripped, exposing the relatively thin layer of glacial till overburden and weathered bedrock. A one metre layer of glacial till will be placed and compacted in smaller lifts, to provide a low permeability seepage barrier beneath each facility. Basin underdrains will be constructed from Class C material on top of the low permeability seepage barrier to provide a pathway for seepage beneath the low permeability tailings material. The facility will be graded to collect and convey flows to the Class A and B Water Collection Ponds.

2) The Class A and B Storage Facilities will be progressively reclaimed with an engineered low permeability cover, and approximately three metres of Class C material for frost protection.

3) The facilities will be revegetated up to a pre-determined elevation to mimic the current natural site conditions.

7.5 Aquatic Ecosystems and Resources

Due to the location of the mineral deposit (i.e., at the headwaters of Geona Creek, directly under the creek alignment), impacts to Geona Creek watershed cannot be avoided. However, BMC has substantially reconsidered mine infrastructure design and placement of waste facilities from what was proposed and licensed by the previous owners in the 1990s to "reduce the duration, intensity or extent of adverse effects to fish and fish habitat that cannot be completely avoided". The formerly approved design involved the development of a submerged tailings facility directly in Geona Creek. The facility was designed to receive a wet thickened tailings and required a significant dam structure to retain the material. That type of facility would have negated the option of reverting Geona Creek back into fish habitat at closure and increased the risk of contaminated water discharged into downstream fish habitat. In order to avoid this situation BMC has committed to developing a "dry-stack" tailings facility that will be placed outside the creek alignment.

In addition to design measures to reduce impacts to fish and fish habitat, a number of mitigative measures have been incorporated into the Project to further reduce impacts of the mine's development and operations on fish and fish habitat. The following mitigative measures relate directly to mine development and construction:

- Water conveyance systems will be constructed on the up-gradient side of the various mine structures to convey clean (non-contact) water around them. The water will be directed to the Lower Water Management Pond, which will allow any mobilized sediment to settle out before being discharged in downstream fish habitat.
- Water management structures and treatment systems will be used to manage water flows and quality, ensuring contaminants do not discharge into fish habitat and downstream fish habitat receives adequate flow to support any individuals residing in lower Geona Creek.
- Construction timing windows will be used to the extent practicable to minimize downstream effects of construction activities when it is necessary to work directly in or in close proximity to the creek. For instance, activities requiring working directly in the creek bed will be scheduled to the extent possible during low flow periods. Creek water may also be conveyed around the construction activity by pumping and/or development of temporary bypass channels.
- Sediment and erosion control measures will be employed using standard management practices to minimize mobilization and sediment loading into fish habitat downstream.
- In order to preserve the fisheries resources in Geona Creek and avoid inflicting serious harm to fish as described above (Fisheries Protection Provisions – Section 2.0), the fish currently residing in Geona Creek will be isolated from upper Geona Creek where construction activities will occur. The previous *Fisheries Act* Authorization described a program to salvage fish from the Geona Creek watershed prior to construction initiation in the system and transferring them to barren lakes in

the vicinity of the mine site such as upper East Creek watershed. However, observations of the upper Geona Creek watershed, where the mine impact will occur indicates that salvaging of fish will be very difficult and not practical due to the hyper-braided and/or flat wide stream and pond structure of the creek in this location combined with the soft muddy substrate in the ponds. Therefore, the following is proposed to minimize and mitigate for the direct loss of fish during mine and habitat compensation development:

  - Overwintering habitat investigations conducted during the winter of 2016 indicate that grayling would not be able to survive in upper Geona Creek due to the ponds freezing to the bottom and/or very low flow and dissolved oxygen levels in the ponds. Therefore, it is likely that most, if not all fish, using upper Geona Creek during open water retreat to lower Geona Creek for over-wintering. Thus, there is an opportunity to isolate these fish from the development section of the creek and avoid having to salvage fish there by constructing a barrier that would prevent any upstream migration.
  - The barrier will be placed in a section of the creek downstream of the sediment/polishing pond,where ponds will be developed as part of the offsetting strategy and where the creek is incised adequately in a single channel to allow for easy construction of a temporary barrier.
- Additional mitigation measures already described for receiving water quality (Section 7.3) will also help minimize the effects to aquatic life by minimizing changes to water and sediment.

Despite the design changes and mitigations described, development and operation of the Project will still have direct and indirect impacts to fish habitat. The Project will be situated in the upper portion of the Geona Creek watershed. Structures such as the open pit and Operations Water Management Ponds (including a sediment/polishing pond) will be situated directly in the creek and floodplain. A portion of the creek above the Operations Water Management Ponds will not be altered in a significant way, but will be isolated from fish access as the ponds will have a dam structure controlling water discharge.

In addition, Geona Creek currently flows through the proposed open pit, which includes the Fault Creek watershed, a small headwater tributary to Geona Creek. Fault Creek will be re-directed to an adjacent watershed (South Creek). This will result in reduced flows to Geona Creek and a corresponding increase in flows to South Creek.

Therefore, three major offsetting measures are proposed to compensate for these impacts, which are:

1. Development of pond habitat in lower Geona Creek to replace and offset loss of pond habitat in upper Geona Creek.
2. Development of Arctic grayling spawning habitat at the heads of the ponds to replace and offset loss of grayling spawning habitat in upper Geona Creek.
3. Reconnect fish habitat in Finlayson Creek by replacing a culvert at the Robert Campbell Highway that is currently acting as a barrier to fish passage in lower Finlayson Creek.

The Fish Habitat Compensation Plan is being developed in consulatation with Fisheries and Oceans and RRDC/LFN to compensate for the temporary loss of fish habitat. Upon closure, fish habitat will return to previous capacity, with possible enhancements.

7.6 Vegetation Cover and Composition

Effects on vegetation cover and composition will mainly be associated with clearing vegetation and levelling of terrain to accommodate required infrastructure during the construction phase of the Project (including but not limited to construction of camp, waste rock and tailings storage areas, process plant, open pit, tote road upgrade). Effects on vegetation during the operational phase of the Project are mainly associated with worker activities, maintenance of the road, and dust generation, however all phases of the Project have the potential to introduce or spread invasive species.

Mitigation measures to reduce the impacts on vegetation will include:

- Implementing progressive reclamation, as described in **Section 5.7**;
- Restricting personnel activities to established roads and trails and limiting the recreational use of undisturbed areas at all times;
- Prohibitting personal use of all-terrain vehicles (including ATV's, ETV's and side by sides);

- During road maintenance, piling snow in areas that are less sensitive to mineralization and ensure that any potential salt and sand piles are removed each spring to ensure that build-up and run-off does not occur into adjacent vegetation;
- Following the mitigation measures for the reduction of dust;
- Ensuring any re-contouring, scarification, and reclamation of disturbed areas is conducted with appropriate and approved native seed mixes;
- Implementing the Invasive Species Management Plan; and
- Ensuring revegetation measures are applied in a timely manner so as to restrict the colonization of exposed areas by non-native, invasive plants.

7.7 Wildlife and Wildlife Habitat

Protection of wildlife has been identified as a primary concern in regard to the Project. Project facilities and activities have the potential to affect wildlife in several ways; increase hunting pressure, loss of habitat, and disturbances from operation and transportation activities.

The potential for increased hunting pressure on the Finlayson caribou herd and local moose populations due to the access road is an expressed concern of YG and RRDC. This potential impact was assessed in the environmental review prepared by the Federal Territorial Lands Advisory Committee under the Environmental Assessment Review Process Guidelines Order. That assessment concluded that appropriate mitigation could resolve access concerns. Mitigation includes measures to restrict access on the mine road to authorized personnel (through a manned gate at the access road entrance). After reclamation is completed, road access will be eliminated. Although this review was conducted in the late 1990s, with the mitigation measures applied, the conclusions remain valid today.

The loss and disruption of habitat resulting from the installation of mine facilities and access corridors is another concern. The total area of habitat directly affected by the Project is approximately 482 ha. Two main vegetation communities are directly impacted by mine development:

- scrub birch and willow shrub community; and
- subalpine fir and white spruce forested areas.

The remaining vegetation communities effected are valley bottom sedge/grass and riparian shrub types.

Animal disturbances due to noise and the presence of people and equipment has the potential to affect animal migration and movement between ranges.

The following Sections deal with the potential impacts of the Project on wildlife species in the area, with emphasis on caribou and moose. Mitigation measures presented were developed in consultation with YG biologists and RRDC in the 1990s to minimize potential impacts. BMC will implement the mitigation measures as previously proposed and will also re-engage with the RRDC, YG and other interested parties regarding the potential impacts and mitigation measures during the new environmental assessment and permitting processes.

7.7.1 Caribou

7.7.1.1 Access Effects

Increased access to the traditional range of the Finlayson caribou herd, especially along their migration route to winter range, has been identified as a concern by YG and the RRDC. Access control has already been implemented along the tote road by restricting access. A security station will be maintained near the junction with the Robert Campbell Highway and only authorized vehicles will be allowed on the road. Private possesion of firearms will be strictly forbidden on site and on the road as per BMC's no firearms policy and no hunting fishing policy.

7.7.1.2 Habitat Effects

Development of the Project will remove approximately 94 ha of potential fall (rut) range at the mine site for caribou. The Project's physical footprint does not extend into the higher alpine mountaintops and ridges that caribou use in the spring and summer. However, caribou will use lowlands as travelling corridors to access higher elevation terrain.

Caribou depend on subalpine basins and ridges for calving and on high ridges and plateaus for rutting. Most calving activity occurs outside of the Project area and habitat on rutting ranges adjacent to the development area will not be affected by the Project. The Project will, therefore, have little impact on habitats that are critical to caribou reproductive activities.

Habitat removed by the access road and Finlayson airstrip during operation of the mine is not expected to result in any significant impact on the FCH. After decommissioning and closure, this habitat will return through natural succession to productive winter range.

Overall, direct habitat effects on the regional caribou population are not expected to be significant.

7.7.1.3 Disturbance Effects

Disturbance to sensitive calving, post-calving, and rutting caribou has the potential to affect the welfare of the Finlayson caribou herd. The Project is not expected to interfere with movements of caribou between their winter range in the Pelly River lowlands and their calving, summer and rutting ranges. The mine site will be relatively compact and mining activity restricted to the upper Geona Creek valley. The mine site will not constitute a physical barrier to movements of caribou in the Geona Creek valley. Caribou may stay out of the immediate mine site area but it is unlikely that more than the immediate mine site area would be alienated for caribou during construction and operation of the mine.

The FCH studies suggests that relatively little calving takes place in the Project area. The main calving and post-calving aggregation areas are to the south of the Project area, therefore, interference with these activities from the Project is not likely to be significant.

Movements to rutting ranges on adjacent uplands (mostly to the west of the mine site) start by early September and the rut is well underway by early October. Caribou disperse after the rut and inhabit the uplands and lower slopes into mid-November. During these times, caribou occur in varying numbers in the vicinity of the mine site.

Noise from open pit blasting (which will occur on average four times per week during mining) may well travel a considerable distance and will be heard in the adjacent uplands. The actual effect of blasting on caribou during the rut is difficult to predict. The main shock of the blast will dissipate by the time it reaches the rutting areas, and only the diminished noise of the blast should reach caribou on the adjacent ridges and plateaus.

Mining activities other than blasting also have a potential to cause impacts on caribou rutting.

Given the distance between the mine site and the rutting areas on the uplands nearby (approximately 2.5 km), the majority of development and mining related activity (truck traffic, machinery, heavy equipment operation, and camp/office operation) should not interfere with caribou movements or rutting activity.

Reaction of caribou on the rutting areas will be monitored for the first few years of mining activity. Information from this program will provide on-site data that can be used to further evaluate impact.

In the area of the Finlayson airstrip, there is a potential for disruption of movements of caribou which move from the north and cross Finlayson Lake to rutting grounds south of the Robert Campbell Highway. However, the small aircraft involved (18 passenger size) should have enough manoeuvrability to avoid flying over caribou.

7.7.1.4 Road Traffic Effects

The potential for increased caribou mortality and disturbance have been identified as concerns by YG and RRDC. These aspects are discussed separately for the access road and Robert Campbell Highway.

Access Road

Vehicle and truck traffic along the access road have the potential to affect caribou through collisions and interference with movements of caribou between their seasonal ranges.

Measures to reduce the potential for collisions will include:

- Construction of the Access Road to involve optimal 'lines of sight' to reduce potential for collisions.
- Implementing the Fitness for Work Policy.
- Implementing driver education.
- Restricting access to authorized vehicles only.
- Setting and enforcing speed restrictions during the migration periods.
- Posting warning signs at locations with the greatest potential for animal collisions.
- Reporting animal locations by radio to the security gate and other drivers; and
- adjusting speed and frequency of traffic during particularly high risk periods.

Traffic along the access road has the potential to disrupt caribou migrations from their post-rutting range to their winter range. Monitoring of the access road during the mid-November to early January and April/May periods is the key to providing site specific data for managing this potential impact.

Robert Campbell Highway

Hauling concentrate along the Robert Campbell Highway during the winter has been identified as a concern by YG. The increase in heavy truck traffic has the potential to affect caribou on their winter range through direct mortality and through disturbance.

Hauling along the highway between the access road and the Ross River area will increase the risk of animal-vehicle collisions. Measures to reduce the potential impact related to traffic will be the same as many of those proposed for the mine Access Road.

Monitoring of the highway during the mid-November to mid-May period is the key to providing site specific data for managing this potential impact. However, potential effects on caribou are expected to be minimal as historical information indicates that caribou are not common along this portion of the Robert Campbell Highway, which is largely why the southern route was selected.

7.7.2 Moose

7.7.2.1 Access Effects

Increased access has been identified by YG as a concern for local and regional moose populations. The full Project footprint overlaps productive moose habitat. The Genoa Creek and its tributaries are utilized by moose, particularly as late winter habitat and as a movement corridor. Tall willow, a primary food source in winter, are plentiful along the subalpine waterways and lower slopes. In the summer, moose cows and calves are often observed using the wetlands and creeks in the Genoa Creek valley.

This potential impact can be managed by controlling access, as outlined above for caribou.

7.7.2.2 Habitat Effects

Direct habitat loss is expected to have a minimal impact on moose. The area comprising the mine site provides spring, summer and fall habitat for moose. As with the caribou habitat, the removal of this small amount of moose range in the mine area is not expected to be significant.

The small amount of boreal forest habitat removed for the access road during operation of the mine will not have a significant impact on the regional moose population. These habitats will readily return to suitable moose habitat after decommissioning.

7.7.2.3 Disturbance Effects

A potential exists for alienation of moose from habitat in the upper Geona Creek valley as a result of construction and mining activities. Moose may react by staying out of the mine site and immediately adjacent area, however, moose will still be able to travel through the Geona Creek valley to access the upper subalpine basins, which are used during the rut and post-rut.

The lower portions of these subalpine basins and the lower valley slopes are used by moose for calving and will also still be accessible to moose travelling through or inhabiting the Geona Creek valley.

7.7.2.4 Road Traffic Effects

Mortality from collisions with vehicles along the access road and the Robert Campbell Highway has a potential to impact the regional moose population. Measures to mitigate and manage this potential impact on moose are the same as those outlined above for caribou.

7.7.3 Bears

The reduction of habitat at the mine site and access road should not significantly affect the regional grizzly bear population. Based on home range size in other parts of Yukon (26 km^2 in southwestern Yukon, Pearson 1975), the actual amount of habitat affected for the period of operation would not affect more than 12% of the home range of one or possibly two grizzlies, and likely a much smaller percentage. The habitat types affected by the Project are common in the region.

Removal of a small amount of boreal forest along the access road is not expected to have a significant impact on black bears.

Access control will minimize the potential for increased hunting pressure on both black bears and grizzly bears.

The potential for direct mortality of bears through encounters with construction and mine site workers will be reduced through implementation of the following practices:

- Recording of all bear sightings;
- Posting warning signs and circulating information for workers in the event that bears are regularly observed near the camp and mine site; and
- Containing of food wastes in suitable, bear proof containers, daily incineration of food wastes and hauling of residue to a land fill.

Persistent bear problems will be reported to YG and any bear control will be dealt with by them.

7.7.4 Smaller Carnivores and Furbearers

Impacts on smaller carnivores and furbearers are related to reduction in available habitat. The access road will remove a small amount of boreal forest habitat that is used by upland furbearers for example foxes, marten, and weasel. The access road will readily return to productive habitat once it is decommissioned and natural succession occurs.

The mine site area provides some marginal habitat for beavers in small ponds on upper Geona Creek, and these particular habitats will be lost in the long term. Mitigation for this loss is not considered necessary, given that the present habitat is marginal for beaver.

7.7.5 Birds

The most significant bird species that rely on the mine site area for habitat is ptarmigan. In terms of direct habitat removal, the mine development will affect willow ptarmigan who breed in the willow, birch and mixed shrub units in the upper Geona Creek valley bottom.

Densities of breeding willow ptarmigan can vary widely, ranging from 4-5 pairs/km^2 in low years to 25-30 pairs/km^2 in high years. Assuming the upper density figure (30 pairs/km^2), the maximum number of willow ptarmigan potentially displaced during mine operation (covering an area of 3.0 km^2) is estimated at 90 pairs. The amount of habitat lost in the long term, will result in a potential reduction in breeding habitat for a maximum of 60 pairs of willow ptarmigan.

Small numbers of migrating waterfowl (diving ducks) and shorebirds will be displaced from the small ponds that lie within the mine site. Displacement will be short term as the tailings impoundment and open pit will provide permanent water bodies that will replace existing small ponds. Some loss of habitat potential will still occur as the pit will not have a naturally vegetated, shallow shoreline.

Impacts to raptors (mostly golden eagles and gyr falcon) are not expected to be significant. The short term reduction of hunting terrain is not likely to impact local or regional populations of these two species.

The Tintina Trench is a major migration corridor of continental significance for very large numbers of migrating ducks, geese, swans and sandhill cranes. Increased traffic due to commuter flights to the Finlayson airstrip will increase the risk of bird strikes. Bird strikes could have serious consequences for aircraft and occupants. This impact potential will be mitigated by restricting flights during periods of poor visibility during migration periods.

7.8 Heritage Resources

In 2015, eight landforms were identified as possessing elevated potential for buried cultural materials and were shovel tested. Two of these landforms were found to contain prehistoric lithic sites: JiTp-1 (the Alistair Site – in the area of the Class B Waste Rock Storage area); and, JjTp-1 (the Fat Lip Site – along the access road). Both sites have been flagged and are no work zone areas. In addition to subsurface testing at the eight landforms discussed above, surficial survey was conducted at high elevation exploration zones, resulting in the recovery/documentation of heritage resources at three localities (Ice Patch #1, #2, and #3).

For JjTp-1, at this time there are no specific proposed impacts to the site area; however, if the site will be impacted in the future due to changes in the proposed development plan, additional shovel testing and test unit excavation will be undertaken to determine the sites significance.

At the location of JiTp-1, additional shovel testing and test unit excavation was undertaken in 2016 to determine the sites significance. Once the significance has been determined, appropriate mitigation measures will be developed. Follow-up work at JiTp-1 included additional shovel testing (n=41) and 6 m^2 of excavation divided between two blocks (4 m^2 and 2 m^2) centered on positive shovel tests. Three of the 41 shovel tests excavated in 2016 were positive for heritage resources (each containing a single lithic flake) and the excavation blocks yielded 88 lithic artifacts.

Additional areas surveyed in 2016 included those associated with access roads, ditching, revised Overburden Stockpile areas, Class A, B, and C storage facilities, open pits, topsoil stockpiles, drill holes, a process plant site, potential construction laydown areas, and Operations Water Management Ponds.

At this time, the only potential heritage impact that has been identified is at the JiTp-1 site where the Class B facility is proposed.

The site is well understood at this point and a representative sample of artifacts has been recovered and analysed. No further heritage resource work is recommended at JiTp-1 prior to the commencement of development activities.

Impacts to potentiall unidentified hertiage resources will be mitgated through the Chance Find Procedure.

7.9 Social and Community Impact

7.9.1 First Nations and Communities Affected by Project

7.9.1.1 Overview

Section 6.15 presented a high level description of the local communities in the vicinity of the Project.

The Project will have socio-economic effects in most southern Yukon communities. It is expected most of the employees will come from Ross River, Faro, Watson Lake and Whitehorse. Since the major impact of the Project will be on these communities, they have been reviewed in detail.

7.9.1.2 Potential Socio-economic Effects

The potential for socio-economic impacts are influenced by the relatively remote location of the mine and commitments made by BMC to maximize local benefits and minimize impacts on communities and existing land uses.

The socio-economic impacts that arise from potential environmental impacts have been identified by BMC resulting in the following socio-economic impacts objectives:

- Reduce the land area affected, thus minimizing the disturbance of wildlife habitat.
- Control the access to the area and implement a 'no-hunting' policy by employees to eliminate potential for increased hunting pressure on the Finlayson caribou herd.
- Reduce the vehicle traffic thus minimizing the interference with wildlife migration paths.
- Work with RRDC, trapline holders and local outfitters to ensure the long term conservation of the hunting, fishing, trapping and guiding base in the area.
- Utilize existing infrastructure compatible with current use and long term development plans.

- Employ the mine workforce from local communities including Ross River, Watson Lake, Faro and Whitehorse to maximize local employment opportunities; and
- Prefirentially award contracts to local employers.

Specific commitments BMC have made to minimize impacts include the following:

- The SEPA between the Kaska and BMC is intended to maximize local job and procurement benefits while minimizing the impact on the environment.
- The primary mine workforce point of hire will be Whitehorse with secondary points at Ross River and Watson Lake. Workers will be flown directly to the site, drawing on mainly local residents from Whitehorse, Watson Lake, Faro, and Ross River.
- The mine access road from the Robert Campbell Highway is a private, controlled road (with a gatehouse and gatekeeper). Employees will not be allowed to drive their vehicles on the access road, and will travel to the mine site by bus from the Finlayson airstrip. Personal use of vehicles for commuting will be discouraged.
- A policy of no guns in camp and no hunting by employees in the immediate Project area will continue to be implemented. In addition, personal use of all-terrain vehicles (including ATV's, ETV's and side by sides) for access around the mine area that could disturb wildlife or lead to overfishing in North Lakes will be prohibited.
- On completion of mining and mine closure, the access road will be removed and obstructions put in place to deter vehicle access.

The Project has substantial potential to provide positive long term benefits on employment, income, training and education for local communities and throughout Yukon.

Assessed impacts and mitigation measures, where appropriate, are discussed in the following sections for land use, transportation, workforce and income, community issues and heritage resources.

Landuse

Subsistence hunting and trapping will be temporarily affected by Project development. The group Trapline managed by RRDC in the Project area will be impacted; however, these impacts are mitigated by a land use interruption supplement as part of the Socio-economic Participation Agreement (SEPA).

Additional impacts will be mitigated through ongoing communication with BMC and RRDC/LFN. As part of the SEPA, BMC will hire two liaisons/mentors; one position from LFN and one from RRDC. The position (in part) will include communicating environmental and socio-economic concerns that might arise from the Kaska, for instance concerns regarding traditional land use disruption and proposing mutually acceptable solutions.

In regard to commercial guiding and hunting, the Project is in the guiding territory of Yukon Big Game Outfitters. Impacts on commercial guiding may result from low level helicopter (if required for construction) or from blasting during construction and operations. Such activities may decrease the wilderness experience of clients. Yukon Big Game Outfitters is concerned about greater numbers of people in their guiding area leading to greater hunting pressures. The Project will mitigate direct impacts by:

(1) controlling road access;
(2) enforcing a policy of no guns and no hunting along the access road and in the general mine area;
(3) limiting employee access to North Lakes;
(4) limiting use of helicopters during mine development and operations; and
(5) maintaining good communications between BMC and Yukon Big Game Outfitters to identify mining activities that could impact guiding use.

Impacts on fishing use are expected to be minor as there is limited fly-in use of the area for recreational fishing. Impact to fish stock will be minimized as mentioned previously in Section 7.5 and through BMC enforcing it's no hunting / no fishing policy. The potential for direct impacts for increased recreational fisheries use is considered minor.

Transportation

There are two transportation systems in Yukon, air and road, both will be used to service the Kudz Ze Kayah Project.

Air

As described in this document, BMC plans to upgrade the Finlayson Airstrip adjacent to the Robert Campbell Highway located approximately 15 km away from the turnoff to the Project site. This airstrip will be used by the twin engine commuter airplanes moving mine employees in and out Whitehorse and the local communities.

Finlayson Caribou Herd are known to occasionally frequent the lake adjacent to the Finlayson airstrip in in the winter. However, flight operations of the airstrip are not expected to have a significant impact on wildlife as the estimated number of flights will be less than one per day (on average).

The Finlayson airstrip is located on the eastern margin of the Tintina Trench which is a migration route for several varieties of large waterfowl. During the migration period, the charter airline would implement procedures to reduce collisions with birds, such as restricting flights in periods of poor visibility.

Transport of personnel by air will minimize road traffic on the Robert Campbell Highway.

Road

Truck transportation of concentrates and supplies will result in increased traffic on the Yukon highways. Impacts may include slowing traffic movement, increasing the potential for accidents, increased noise in communities along the highways and collisions with wildlife; however, these transportation requirements will also provide additional employment for Yukon (estimated 120 direct jobs) and a need for additional services along the trucking route.

The Project transportation requirements will result in a minimal percentage increase in load on the Alaska and Klondike Highways. The resulting traffic volume will remain within the design parameters for both these highways. The Robert Campbell Highway from the Faro junction to the Klondike highway junction at Carmacks has previously been upgraded and will also remain well within the design parameters.

The increase in traffic load on the Robert Campbell Highway between the site and Watson Lake will be approximately threefold, with concentrate haulage contributing the major proportion of the trucking requirements. The impacts of the increased truck transportation due to concentrate haulage may be mitigated by contracting with a qualified trucking firm/firms that will:

- Use only experienced, professional drivers;
- Equip all trucks with two-way radio communications; and,

- Implement design, safety and operating procedures proven by similar trucking systems utilized in Yukon.

Road Upgrading

Truck transportation of concentrate and supplies on the Robert Campbell highway, south from the site, does not require upgrading sections of the road. An upgrading of the Robert Campbell Highway, while beneficial to the Project, is not an essential ancillary component of the Project which has been confirmed in discussions with YG. Consequently, potential effects associated with any future decision by YG to upgrade the highway are not within the scope of this study.

Workforce and Income

Construction Phase

The construction workforce will be provided by contractors and will peak at approximately 350 people. Gross labour earnings during the construction phase have been estimated to total approximately CAD$ 64 million.

Operational Phase

The mine operation will require approximately 176 people in Year 1, with a nominal peak of 333 people in Year 5. The estimated annual earnings of the mine workforce will range between CAD$ 30-43 million, depending on the levels of mining activity each year, with an average of approximately CAD$ 38 million.

In addition, the concentrate trucking contractor would employ a further 120 people. Total estimated earnings from concentrate haulage, including drivers, supervisors, managers, maintenance and clerical staff is approximately CAD$ 14 million per year.

The total estimated annual earnings will therefore range between CAD$ 42-57 million, with an estimated average of CAD$ 52 million.

Community Issues

Impacts on communities are expected to be mainly positive through increased employment income and through opportunities for local businesses to provide or receive services. The potential negative impacts include creating pressure on housing, schools, and water and sewer systems. Indirect impacts may include community disruption by bringing in outsiders to a small community, or social problems such as alcohol or substance abuse.

The Project is not expected to exert significant impacts on existing community infrastructures as employees will come from several communities. The indirect effects on Ross River are addressed by BMC's SEPA with the Kaska.

Ross River

Ross River is the closest community and will receive benefits from mine development as set out in the SEPA. Employment preference will be given first to Ross River Kaska residents, then to Kaska First Nation members, then to non-aboriginal Ross River residents before other Yukon and non-Yukon residents.

However, the need for highly skilled labour for many functions will require recruitment from outside Ross River. The agreement also provides for specific contracting opportunities to be made available to the Ross River Kaska Dena as well as training.

The population of Ross River is approximately, 404, of which 87% are First Nations and it is assumed that the majority of the First Nations are RRDC citizens. Through the SEPA, the community will see significant economic benefits with the Project development.

Potential for negative impacts on Ross River could result from:

- An influx of new residents to Ross River;
- Social-disruption from personnel during construction activities; and

The potential for an influx of new residents to Ross River for mine employment will be minimized by the limited availability of houses and land.

Some growth in services to support the Project may occur, although the growth will likely be mainly limited to expansion of existing underutilized services that will result in economic benefits. Locating new service facilities in Ross River will only be promoted by BMC with agreement with RRDC and the support of the local community.

The potential for negative impacts on Ross River from construction crews is expected to be limited as construction workforce will be flown into the Finlayson airstrip or bused from local towns and housed in camp facilities on the Project site. Private vehicles will be prohibited on the mine access road. The construction workforce will work a 7-day week, probably rostered as 21 days on and 7 days off. Exsisting Ross River residents are expected to be involved in the construction workforce.

It is not anticipated that the trucking will negatively impact Ross River as the haul route will go south torwards Watson Lake.

Watson Lake

Watson Lake will potentially benefit from mine development by employment at the mine and by transportation of concentrates as the majority of the 120 person workforce for hauling and truck maintenance are expected to reside in the Watson Lake area. It is estimated that about 10% to 15% of the mine workforce will reside in Watson Lake.

Watson Lake, with a population of 1,451 (as of 2016) and a housing vacancy rate of 20% (in 2015), is expected to be able to absorb any new in-migration workforce.

Whitehorse

Whitehorse will likely see a significant positive impact. It is expected that the majority of the workforce will reside in Whitehorse. It cannot be estimated very precisely what percentage of the mine workforce will reside in Whitehorse but it will likely be more than 60%. Some of the employees will likely be new residents moving to Yukon to fill certain skilled job requirements at the mine. Whitehorse and it's surrounds is understood to have the capacity to absorb the in-migration of workers and the demand for services.

7.9.2 Existing SEPA and Other Agreements

Cominco Ltd. and the Ross River Dena Development Corporation entered into a SEPA in March 1995. In April 2004, RRDC and Teck Cominco Ltd. amended and replaced the SEPA to include all Kaska First Nations and not be limited to RRDC. In accordance with the provisions of the SEPA it was assigned to BMC upon purchase of the Project and followed the provisions of the SEPA which states that any third party who wishes to have an Interest in the Project must first agree in writing to be bound by the existing SEPA.

The existing SEPA provides a framework for BMC and Kaska (as represented by RRDC) to work together to minimize risks of environmental impact and advance social and economic development of Kaska First Nations. BMC and Kaska have agreed to work together to modernize the 2004 SEPA in order to provide improved certainty and better economic outcomes for the benefit of both parties. These discussion have commenced and are expected to be completed in 2017 prior to Project development commencing.

Highlights of the existing Agreement are set out below:

- **Contracting Opportunities -** BMC will make contracting opportunities stemming from the Kudz Ze Kayah Project available to Kaska businesses. Kaksa will be provided with an initial opportunity to submit work proposals and be able to bid on contracts put out for tender.
- **Employment and Training –** BMC and Kaska will work together in the areas of employment and training to develop a skilled Project workforce.
- **Aboriginal Employment Liaison -** Initially a liaison function will be provided by the Ross River Dena Development Corporation. If the Project proceeds, BMC will employ a Human Resources Officer to function as an aboriginal employment liaison (to be selected jointly).
- **Environment -** BMC has made a commitment to the Kaska to provide responsible environmental management of the Project and to comply with the rules and requirements of the Yukon Water Board and other applicable regulatory bodies. BMC and Kaska have agreed to establish a cooperative environmental consultation process. Kaska will give early and clear information on any environmental concerns that they may have. BMC have agreed to provide the Kaska with all the environmental baseline reports prepared for government organizations and to provide regular briefings.
- **Management Advisory Committee -** Co-chaired by a representative from each of BMC and Kaska, the committee will be established to implement the Agreement and to serve as the body which will endeavour to resolve areas of mutual concern.
- **Scholarships for Kaska Members -** BMC will provide funding for scholarships for qualified Kaska members. The scholarships will be provided for each year the mine is in operation.

- **Land Use Interruption Supplement -** BMC agrees to pay a supplement for interruption of the use of the land in consideration to Ross River Kaska Dena members who hold trapping rights under the registered group trapline and operated trap lines in the lands of Project site. The sum will be paid to the RRDC who will be responsible for determining eligibility and for the distribution of the funds.

The existing items above provide the starting point for discussions on modernizing and improving the SEPA. Throughout 2016, BMC and RRDC have been negotiating an Exploration Memorandum of Understanding (MoU), which will apply to all Exploration Activities outside of the Project area covered by the SEPA. The Exploration MoU is intended to achieve certainty with respect to our respective rights and relationships with one another, respecting the Exploration Activities, and to promote and establish a framework for maintaining a cooperative and mutually respectful relationship concerning the exploration of the Company's current and future mining claims and mineral tenures located in Kaska Traditional Territory. The Exploration MoU contains a TK protocol which is applicable to all of BMC's claims in the Kaska Traditional Territory.

As part of BMC's growing involvement in Kaska territory, an initial three-year bursary program has been established, aimed at supporting students that wish to commence, continue or complete secondary or post-secondary studies and who require financial assistance to do so. The program, entitled "BMC-Kaska Scholarship Program and Study Assistance", suppliments the program identified in the SEPA. The scholarship and bursary inititive is designed, in part, to ensure that Kaska citizens have the technical skills to be consolidated for technical, supervisory and management roles at the Project when a decision is made to develop.

BMC has also implemented a Kaska mentoring program for the exploration activities and will continue to mentor on-site through construction, operations, closure, and post closure.

8. FIRST NATIONS ENGAGEMENT AND STAKEHOLDER CONSULTATION

8.1 Community Engagement and Consultation Plan

An Initial Environmental Evaluation for the KZK Project was submitted for regulatory review in March 1996 and was approved in December 1997. A Water Licence Application for the Project was submitted for regulatory approval in 1997. The Type A Water Licence (QZ97-026) was issued in December 1998 and is valid until September 2018. Throughout these two regulatory processes, Teck Resources (formerly Cominco) undertook an extensive consultation and engagement program which informed Project design and helped develop the mitigation and management strategies for the Project.

BMC is currently building on the strong existing relationship that has as its foundation nearly 20 years of consultation and engagement. BMC's consultation and engagement efforts commenced prior to purchase of the Project and subsequently maintained through consultation with stakeholders and interested parties during the preparation of the exploration permit application and initiation of the environmental and socio-economic baseline studies.

BMC has initiated consultation and engagement with government agencies, First Nations, various stakeholder groups, and interested parties to introduce the company and to engage and consult these parties regarding the proposed Project. This has consisted of numerous meetings with appropriate agencies and RRDC leadership, several community meetings in Ross River, and community meeting in each of the towns of Faro, Whitehorse, and Watson Lake. BMC has also produced a quarterly newsletter to keep the local communities abreast of the Projects developments..

BMC has developed a Consultation and Engagement Plan (CEP) that describes the path forward as the Project moves through the new environmental assessment process, feasibility, and permitting.

The CEP sets out the tools, techniques and context for consulting with the entire suite of governments, agencies, boards, organizations and stakeholder groups with whom BMC will continue to engage to support assessment and eventual licensing and operating of the Project. Techniques described in the CEP will ensure that assessment, licensing and operations, and closure of the proposed mine is underpinned by thorough, formal consultation.

8.2 First Nations Engagement and Consultation

8.2.1 Ross River Dena Council

Prior to BMC's decision to purchase of the Project , BMC met with RRDC twice and continues to meet with RRDC on a regular basis. BMC keeps a communication tracking log where all meetings, discussions and communications are logged. BMC also prepares a community newsletter on a quarterly basis which is distributed to RRDC citizens via email and hard copy. BMC has generated a website for the Project where RRDC citizens can obtain more detailed information about the Project and employment opportunities. Topics discussed at some of the key meetings that have been held to date are summarized below.

On October 29th, 2014, BMC representatives and a representative from Teck Resources met with RRDC Chief Brian Ladue, Council Members and RRDC employees at the Council's chambers in Ross River. The primary purpose of the meeting was for Teck Resources to introduce to RRDC the purchaser (BMC) of the Project. The topics discussed included:

- An overview of the RRDC experiences with government and exploration companies in the past and the concerns they have based on those experiences;
- RRDC's capacity to participate in the Project activities (*i.e.,* labour, trades and contracting capacity);
- cultural and etiquette training for Project employees working with the RRDC; and
- invitation for BMC to return at a later date to provide a presentation about BMC and the plans for the Project to the greater community.

On November 26th, 2014, BMC representatives and representatives from Equity Exploration Consultants Ltd ("Equity") met with RRDC Chief Brian Ladue and several Council members at Council's chambers in Ross River to further discuss the proposed KZK exploration Project . The topics discussed included:

- The 2004 Socio-economic Participation Agreement (between Teck Resources and RRDC);
- hiring community members for the Project;
- repairs required on the existing tote road;
- RRDC capacity concerns;
- RRDC concerns based on experience with other exploration and mining companies in the Traditional Territory (primarily socio-economic);

- RRDC companies and Kaska contractor companies;
- the draft Land Use Management Plan prepared by RRDC;
- existing traditional knowledge for the Project area and the potential for undertaking additional studies;
- existing caribou data for the Project area and the potential for undertaking winter aerial surveys; and
- BMC's intent to submit a draft exploration permit for their review and comment prior to submission to the regulatory agency.

On December 18, 2014, Equity provided a draft copy of the Class 3 QML permit submission to the RRDC. Another hard copy was received by RRDC citizen Dorothy Dick on January 12, 2015, who replied on January 23, 2015, with some suggestions that were incorporated into the Project planning and permit submission documents.

On April 8, 2015, BMC representatives and representatives from Equity held a community dinner and presentation in Ross River for RRDC citizens. The content of the presentation included: an overview of BMC; the plans for the exploration Project; the status of the exploration permit application; and, an overview of the environmental study and exploration programs. Employment opportunities for the 2015 field program were also discussed. A list of concerns and BMC responses were compiled in the consultation log. BMC also obtained email addresses from community members who are interested in receiving the KZK newsletter.

On April 8, 2015, BMC and Equity representatives met with the RRDC Chief and Councillors at the RRDC band office. The topics discussed were similar to those discussed at the community meeting later that day.

Between April 10, 2015 and December 30, 2016 BMC have held several face to face meetings with the RRDC Chief and Councillors, RRDC Traditional Knowledge Team, Liard First Nation, Yukon Government departments including YESAB. All meetings and related correspondences have been logged to provide information to inform the Project development. BMC's commitment to community engagement is a key cornerstone for the Project acceptance within the local communities.

On January 11, 2016, BMC and RRDC Chief and Council met in Whitehorse to discuss the following topics: 2016 exploration program; ongoing prefeasibility study; cultural awareness training; consultation and engagement plan; and, traditional knowledge agreement. It was agreed that any action items from the meeting would be discussed in Vancouver during the Mineral Exploration Roundup Conference (January 23 to 26, 2016).

On January 12, 2016, BMC hosted a community dinner and presentation in Ross River. Questions at the meeting focussed on: the exploration plans; land use and access; wildlife; jobs; fish barrier at the YG culverts where Finlayson Creek flows under the Robert Campbell Highway; and, fish habitat compensation. It is noted that most of the questions at the meeting were related to development plans for the Project rather than the exploration activities. All questions and responses have been added to BMC's consultation record. For concerns that were not addressed, BMC committed to returning and addressing them, once the pre-feasibility study was complete.

Throughout the 2015 and 2016 field seasons, the Exploration Camp Managers visited Ross River on a bi-weekly basis to have in-person discussions with the RRDC contractors, suppliers, employees and Chief and Council (if available) to ensure the exploration Project ran smoothly and to establish long term relationships with RRDC citizens.

In 2016, BMC hired a Kaska liaison/mentor who is an RRDC citizen. The position (in part) includes communicating environmental and socio-economic concerns that might arise (*i.e.*, concerns regarding traditional land use disruption). Through ongoing communication, unforeseen residual effects will be mitigated in a timely manner. The Kaska liaison spends part of her time in the community working with exploration employees on job readiness and works the other part of her time in camp working with exploration employees on job retention.

In the summer of 2016, BMC hosted three site tours at KZK for RRDC Elders and Chief and Council representatives. The tours included:

- A summary of BMC's exploration activities in 2015 and 2016;
- Vehicle tour and helicopter fly over of the exploration site; and
- Tour of the KZK core processing area.

BMC was invited to two Elders meetings in 2016 (June 1 and July 13). Both meetings were well attended with questions and discussions regarding BMC's plans for the Project. BMC followed up on a number of those questions at the third Elders meeting which was held on September 27th.

All questions and responses to date have been added to BMC's consultation record.

The most common concerns that have been raised during the meetings with RRDC citizens have been:

- Long term effects on water quality; and
- Access to the tote road for traditional use purposes.

BMC has described the preliminary water management designs and strategies for minimizing the potential impacts to water quality and have committed to ongoing discussions with RRDC regarding the the final designs, mitigation measures and modelling results.

With respect to provisions to use the tote road for traditional use purposes, BMC has described the conditions of the Tote Road Licence as "no unauthorized use" as primary concern is safety of the public and workers. However, BMC has acknowledged that the use of the tote road by RRDC citizens has been raised at several meetings and and is open to participating in developing a solution with RRDC, YG and other land users.

8.2.2 Discussions with Trapline Concession #250 Holders

In January 2016, BMC representatives had introductory telephone discussions and subsequent face to face meeting with trapline concession #250 holders. In February 2016, BMC emailed a summary of the 2016 exploration plans to one of the two Trapline #250 Concession holders and in April 2016, a BMC representative met with both Trapline concession #250 holders to discuss the 2016 explorations plans. The discussion focussed on the current land use of the trapline area by the trapline concession holders and the plans they have for the area. There was also a discussion around the land use disruption payments that BMC provides to RRDC as part of the SEPA obligations. This payment is distributed by the RRDC and does not transfer directly to the trapline holders. BMC and the trapline holders agreed to negotiate a land disruption payment once more is understood about the land use and long term plans for the Project in the #250 trapline area. At the Elders site tour in August, BMC also agreed to provide the trapline holders with an update after hunting season in 2016.

8.2.3 Liard First Nation

On April 13, 2015, BMC representatives met with LFN Chief and Council and LFN's TK lead. The meeting was introductory in scope with BMC providing a high level overview of the Project and BMC's current plans. There was verbal confirmation that RRDC would take the lead on the Exploration Memorandum of Understanding negotiations. The discussion then focussed on specific topics, including what type of mine it would be, haul routes and job opportunities. Concerns regarding impacts to wildlife and water quality were also raised. Several additional attempts by BMC to have in-person meetings with LFN Chief and Council have been unsuccessful.

8.2.4 Kaska Dena Council

On January 27, 2016, BMC representatives met with Kaska Dena Council Chiefs and Elders, and representatives of all other Kaska councils. There was a general update of BMC's activities at KZK as well as an update by the RRDC negotiators regarding the progress on the negotiations of the Exploration Memorandum of understanding and the modernizing of Kudz Ze Kayah SEPA.

8.3 Community Engagement and Consultation

8.3.1 Summary of Community Consultation

On January 11, 12, 13, and 14, 2016, BMC hosted community presentations in Faro, Ross River, Whitehorse and Watson Lake, respectively. All questions and responses have been added to BMC's consultation record. Questions generally related to job and contracting oportunities, hiring policies, haul route, access on the tote road, water quality, tailings storage, and general environmental protection. For concerns that were not addressed, BMC committed to returning to the community to address them, once the prefeasibility study was complete.

8.3.2 Other Stakeholder Consultation

8.3.2.1 Yukon Conservation Society

On April 8, 2015, a BMC representative met with Mr. Rifkind of the Yukon Conservation Society (YCS). The meeting was introductory in scope, with BMC providing a high level overview of the Project and BMC's current plans. Mr. Rifkind indicated that YCS would be reviewing the Project Proposal and the subsequent Water Licence Application and that the initial thoughts were that maintaining water quality would be one of the main concerns that YCS would have. It was also recommended by Mr. Rifkind that BMC make as much Project information as possible available to the public.

8.3.2.2 Discussions with YG Lands Department and Yukon Big Game Outfitters

In 2016, BMC had several discussions with YG Lands Department and Yukon Big Game Outfitters (YBGO) regarding a potential agreement for YBGO to utilize the BMC tote road twice per year to take his horses to his guide outfitting camps. Initial correspondence from YG Lands has indicated that a permit amendment would not be granted. Subsequent correspondence has indicated that there is a mechanism available for granting non-mineral exploration or mining use of land in restricted circumstances. BMC has shared the correspondence with YBGO and has enforced no public access of the tote road.

8.4 Common Concerns

Through the consultation to date, the main concerns that have been raised are:

- job opportunities;
- water quality; and,
- access to the tote road.

9. PERMITTING MANAGEMENT PLAN

BMC has prepared a Permitting Management Plan to proactively manage the permitting process, as detailed in the following Sections. The goal of the plan is to secure authorizations for the Project in an efficient and timely manner with commercially viable terms and conditions and with the support of governments, First Nations, stakeholders, and the general public.

The Permitting Management Plan has been developed to secure necessary authorizations for the Project in accordance with current legislation, regulations, policies, and procedures. The Project, as proposed, will require major authorizations issued under two territorial statutes and two federal statutes, as set out below.

1. ***Yukon Environmental and Socio-economic Assessment Act* (YESAA)** and various regulations (federal), which mandates a public process for assessing the Project's potential socio-economic and environmental impacts. YESAA screening at the Executive Committee (ExCom) level is triggered by ore production capacity of greater than 1,500 tonnes per day.

   The Yukon Environmental and Socio-economic Assessment Board (YESAB) process requires that Project Proposals are first deemed to be adequate before they are accepted for public review and YESAB screening; once deemed adequate, the proposal undergoes a multi stage public review process. A key strategic element during the ExCom process is to never be the source of delay, as legislated timelines under YESAA are put on pause when waiting for response to questions or requests for additional information from the proponent.

   At the end of this process, YESAB will issue a Screening Report to the Department of Energy, Mines and Resources's Decision Body. The Decision Body will review the Screening Report and issue a Decision Document in which the Department will either accept, reject or vary each recommendation. The Water Board may not reject or vary the YESAB recommendations. Under YESAA, the Water Licence and the Quartz Mining Licence and the Fisheries Authorization can only be issued after the Decision Document is issued.

2. ***Quartz Mining Act*,** and Mining Land Use Regulations (territorial), prescribes a Quartz Mining Licence (QML) for commercial mineral production. The Quartz Mining Licence will be issued in a phased approach, first authorizing site preparation/construction activities under a Phase I Construction Management Plan. This will allow for at least one and possibly two seasons of site preparation activities while the Type A Water Licence process is underway. The Phase II QML (for operations) will set out requirements for routine monitoring and reporting, and will include a number of adaptive management plans for different aspects of the mine and its potential impacts (eg Waste Rock Management Plan and Spill Contingency Plan).

   The amount of security bonding required to offset Governments' liability will be assessed and secured under this licence. The determination of the amount of security is made through development of the detailed, costed Decommissioning and Reclamation Plan ("closure plan") for current conditions. A bond for the security is typically paid in tranches in accordance with

Governments' determination of amount required to offset its liability based on current site conditions. Annual operational reports and biannual updates to the closure plan can result in an additional security requirement beyond the initial amount.

3. ***Waters Act*** and Waters Regulations (territorial), under which the deposit of waste and the use of water for processing (greater than 100 tonnes per day) requires issuance of a Type A Water Licence. This licence is issued by the Yukon Water Board, which follows a quasi-judicial review process including a formal public hearing.

   The Water Licence Application process also requires that applications are deemed 'adequate' before they are accepted for public review and licensing determination. Type A licence applications undergo a Public Hearing prior to the licence being written.

   Current exploration activities are authorized under a Schedule III Notice as well as the existing Type A Licence QZ97-026, which will expire on September 28, 2018. A new Type B licence will be secured for two purposes: i) this licence will prevent an unlicensed gap that would otherwise occur between expiry of the existing Type A and issuance of of the new Type A; and, ii) this licence can be easily amended to coincide with Phase I of the Quartz Mining Licence, issued to authorize site preparation and mine construction (post YESAB) as outlined above.

   Water Licences, issued for a maximum of 25 years, will include various operational management plans, terms and conditions of water use and deposit of waste, and monitoring and reporting requirements. Although not normally utilized, the *Waters Act* provides for the posting of security should the Water Board determine that additional security beyond the amount assessed by Quartz Mining Licence. Although the Water Board technical and administrative staff will be involved during the main YESAB process, the formal Water Board process commences only once the YESAB has issued the Decision Document.

4. ***Fisheries Act*****,** and Metal Mine Effluent Regulations (federal), under which a Fish Habitat Compensation Plan will be developed in collaboration with the federal Department of Fisheries and Oceans (DFO), to offset the temporary disruption of upper Geona Creek during operations.

Any proposed construction measures (associated with the Fish Habitat Compensation Plan) must be incorporated in the Project Proposal for review by YESAB, and DFO may not issue the final authorization for the plan until the Decision Document is issued under that process. Community consultation about the proposed plan is a required component of DFO's regulatory process.

Also, the Metal Mine Effluent Regulations will prescribe monitoring and reporting requirements during operations through the adoption of an Environmental Effects Monitoring program. There is a requirement to continue this program post closure until the mine is designated closed by DFO upon application by BMC.

There are also numerous 'minor' permits that will be required (e.g., building permits) which are secured as and when they are needed and typically do not affect the overall Project development schedule and do not represent significantly costly operational considerations. The numerous minor permits are relatively straightforward tactical elements where the strategy is to apply for them them as required Minor permits processes occur concurrently during major permits strategic permitting.

It is noted that while the Government of Yukon is currently advancing a Mine Licensing Improvement Initiative which seeks to streamline the permitting process, at the time of writing, it remains unclear how BMC's KZK permitting might benefit from this initiative. Therefore, the approach discussed here reflects the current reality.

10. PROPOSED DEVELOPMENT SCHEDULE

10.1 Permitting

A preliminary breakdown of anticipated permitting related activities is provided in **Table 18**.

Table 17. Preliminary Schedule of Permitting Related Activities

Milestone	Date
Complete PFS	October 2016
Complete Project Description	October 2016
Community Meetings	November 2016
Submit Project Proposal to Executive Committee	January 2017
Prepare and Present Quartz Mining Licence Application: Operations	October 2017
Prepare and Present Type A Water Licence Application	January 2018
Decision Document issued by Dept of Energy, Mines & Resources	September 2018
Water Board Issue of Type A Licence	April 2020
Energy Mines and Resources Issue of Final QML Licence: Operations	April 2020

10.2 Construction

The construction of the Project up to commissioning of the process plant will take approximately 20 months.

10.3 Operations

The operational phase of the Project will be approximately 10 years, this is contingent on material changes that could arise during the continued exploration work, process refinement, or throughput modifications.

10.4 Decommissioning and Closure

Decommissioning and closure activities will take approximately three years to complete. The filling of the ABM open pit to the 1,385 masl elevation via the re-directed Fault Creek will take approximately 23 years. An additional 10 years of post-closure monitoring will be conducted after the ABM lake commences discharge to Geona Creek.

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Statistics Canada, 2007b. Watson Lake, Yukon Territory (Code6001003) (table). 2006 Community Profiles. 2006 Census. , Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007.

Statistics Canada, 2012a. Ross River, Yukon (Code 6001037) and Yukon, Yukon (Code 6001) (table). Census Profile. 2011 Census, Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012.

Statistics Canada, 2012b. Watson Lake, Yukon (Code 6001003) and Yukon, Yukon (Code 6001) (table). Census Profile.2011 Census. , Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012.

Figure 1. Kudz Ze Kayah Project Location

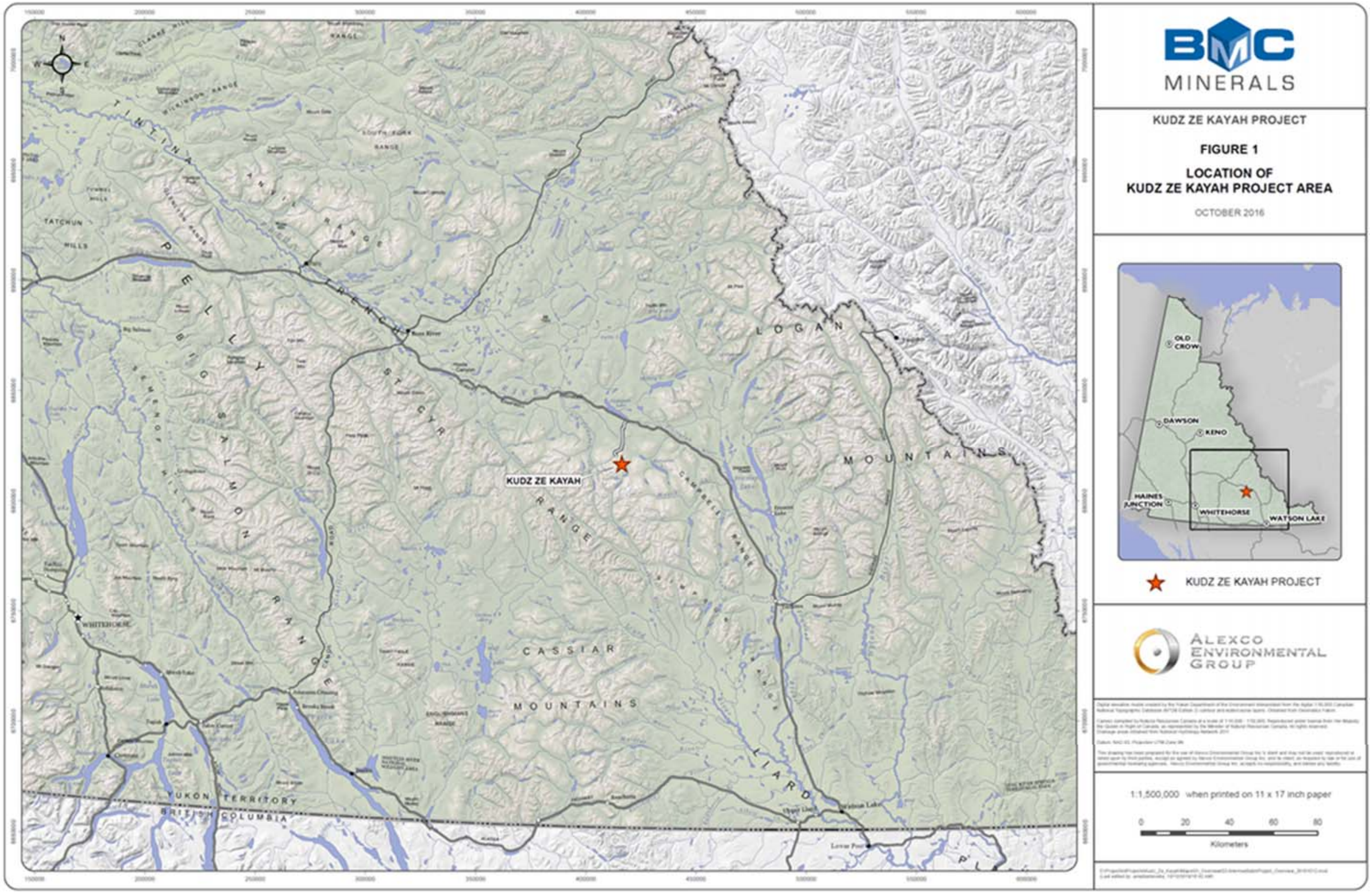


Figure 2. KZK Project - Mineral Tenure

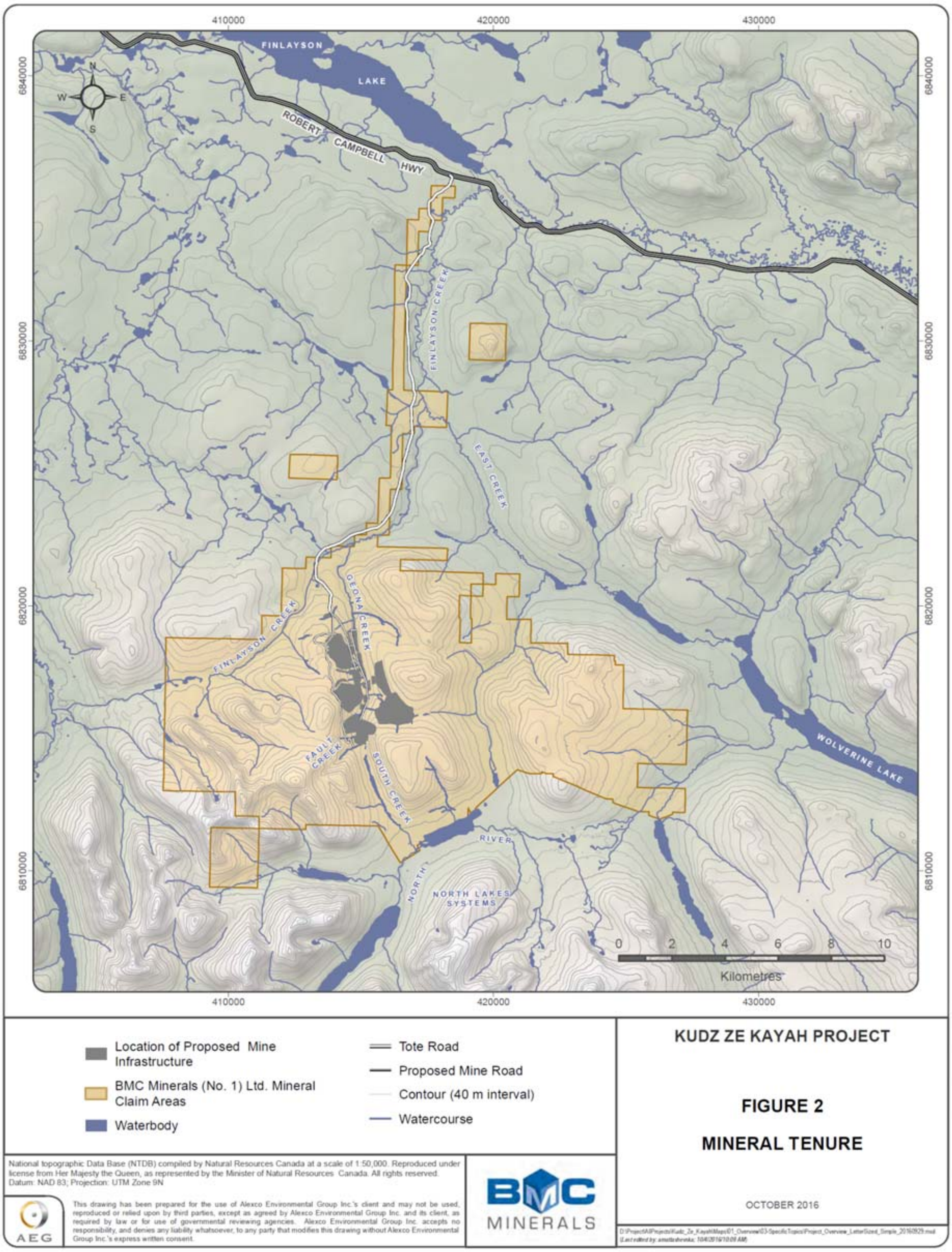


Figure 3. KZK Project Mine Site Layout (Year 1)

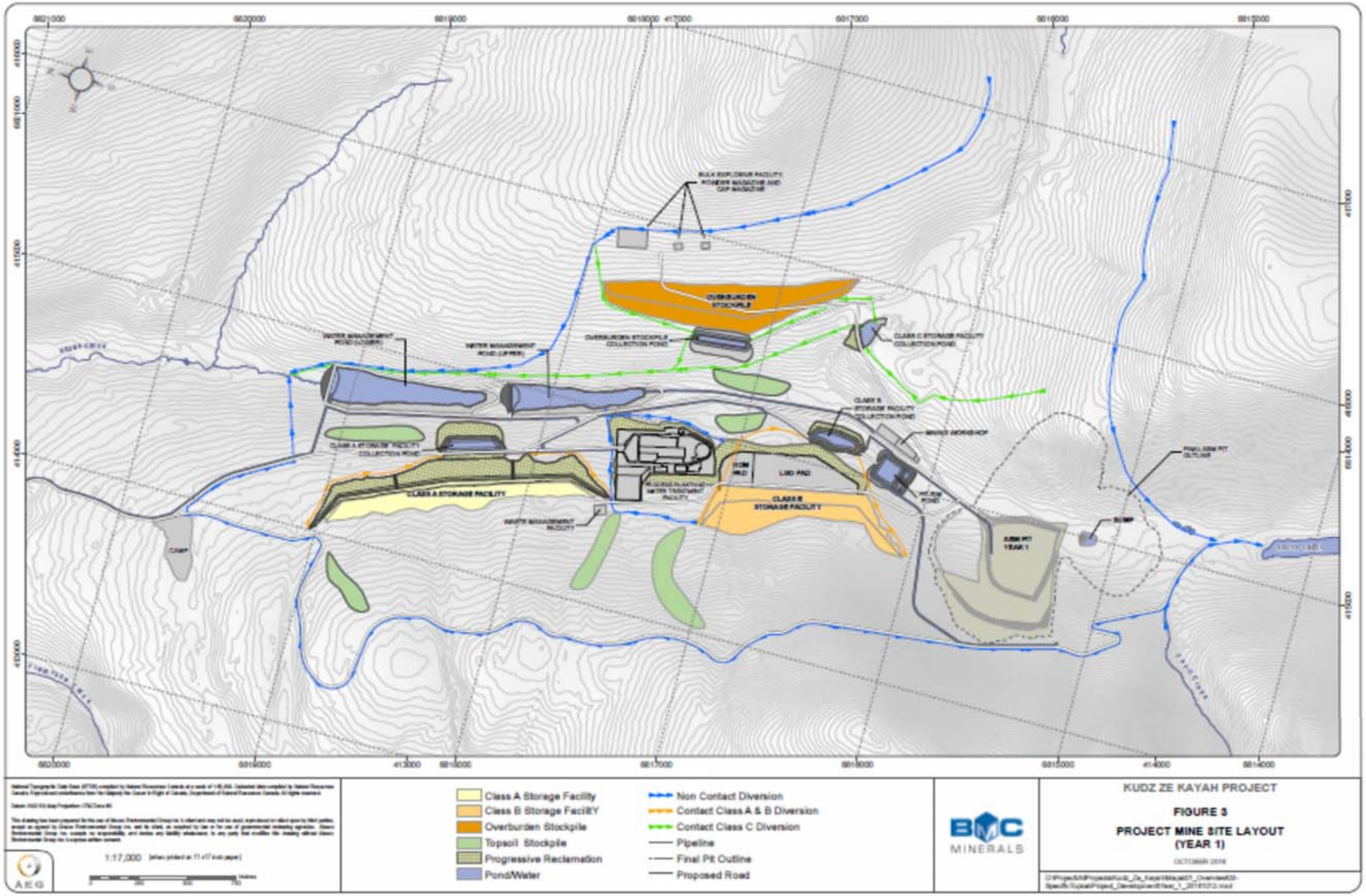


Figure 4. KZK Mine Site Layout (Year 10)

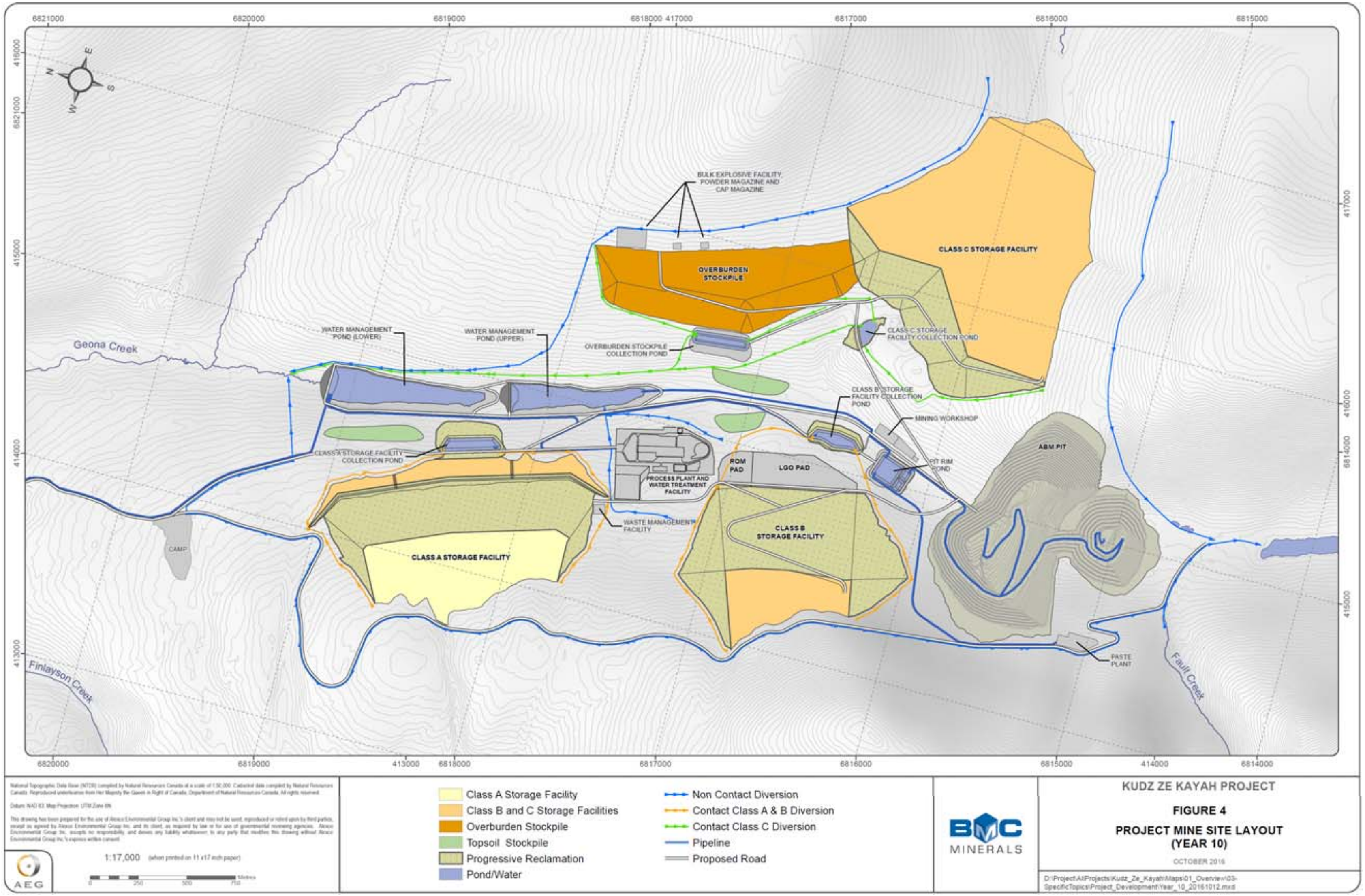


Figure 5. KZK Project - Access Road Alignment

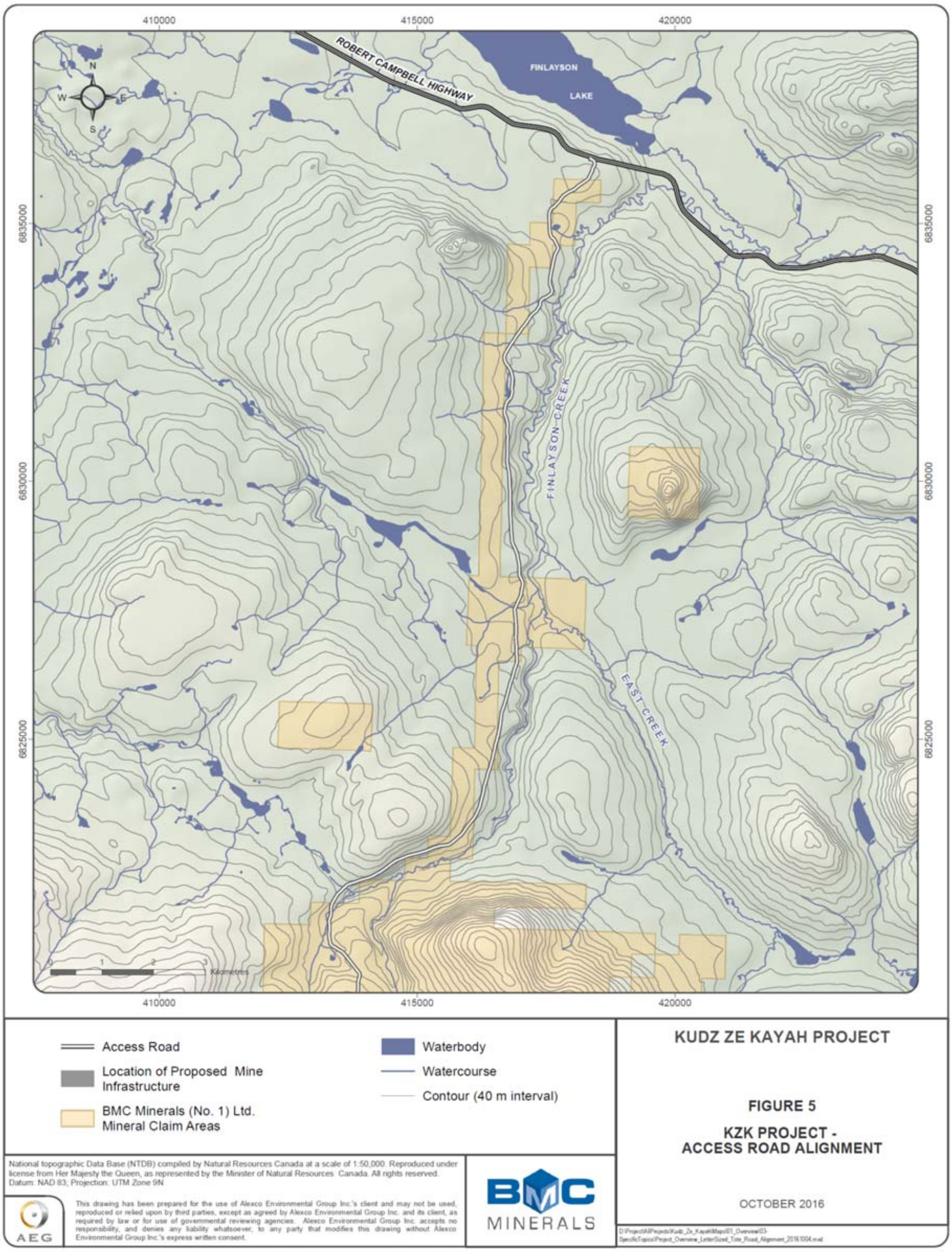


Figure 6. Finlayson Airstrip Location and Proposed Extension

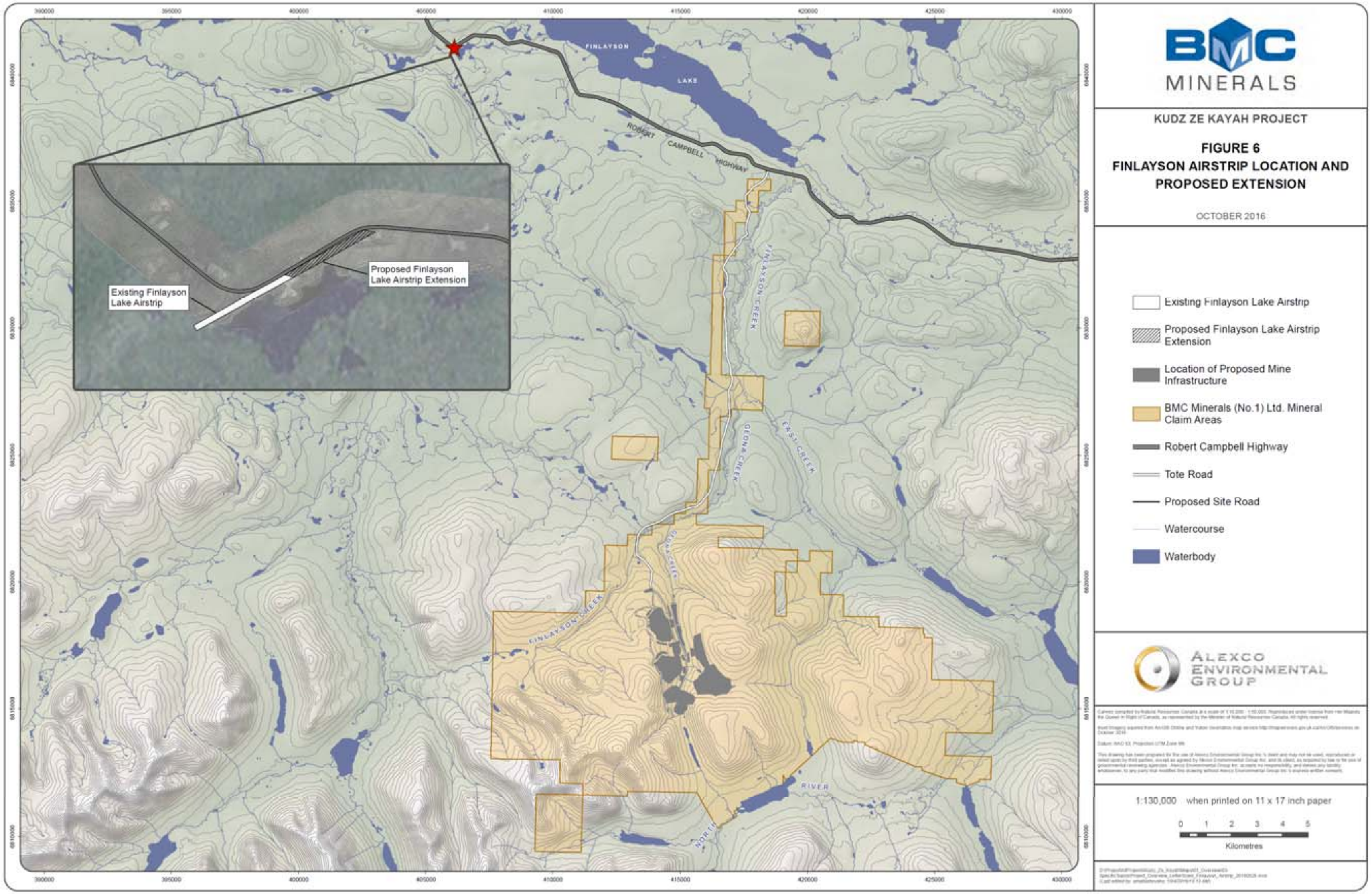


Figure 7. KZK Mineral Tenure and Trapline Consessions (#405 and #250)

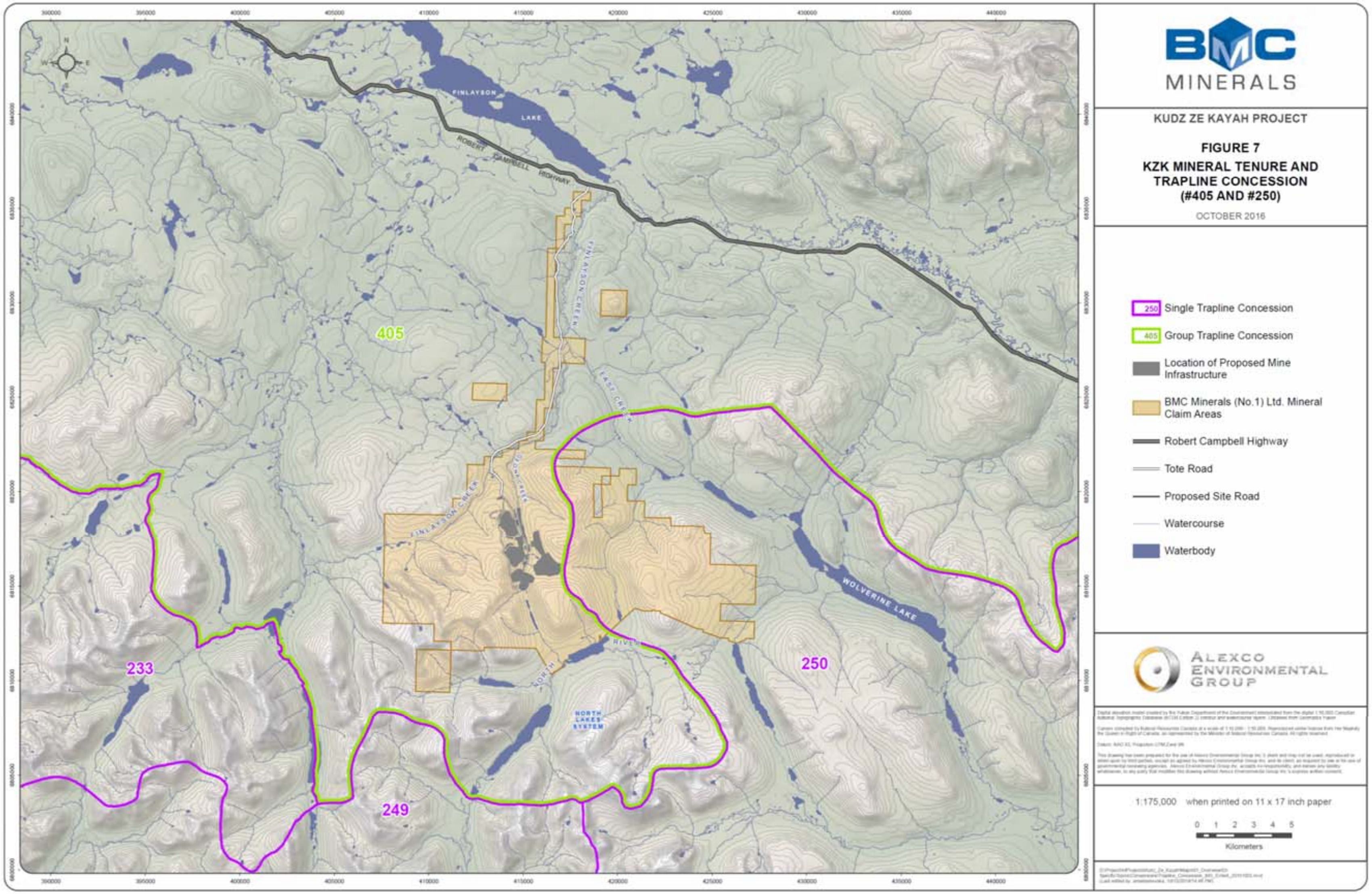


Figure 8. Guide Outfitter Concession #20.

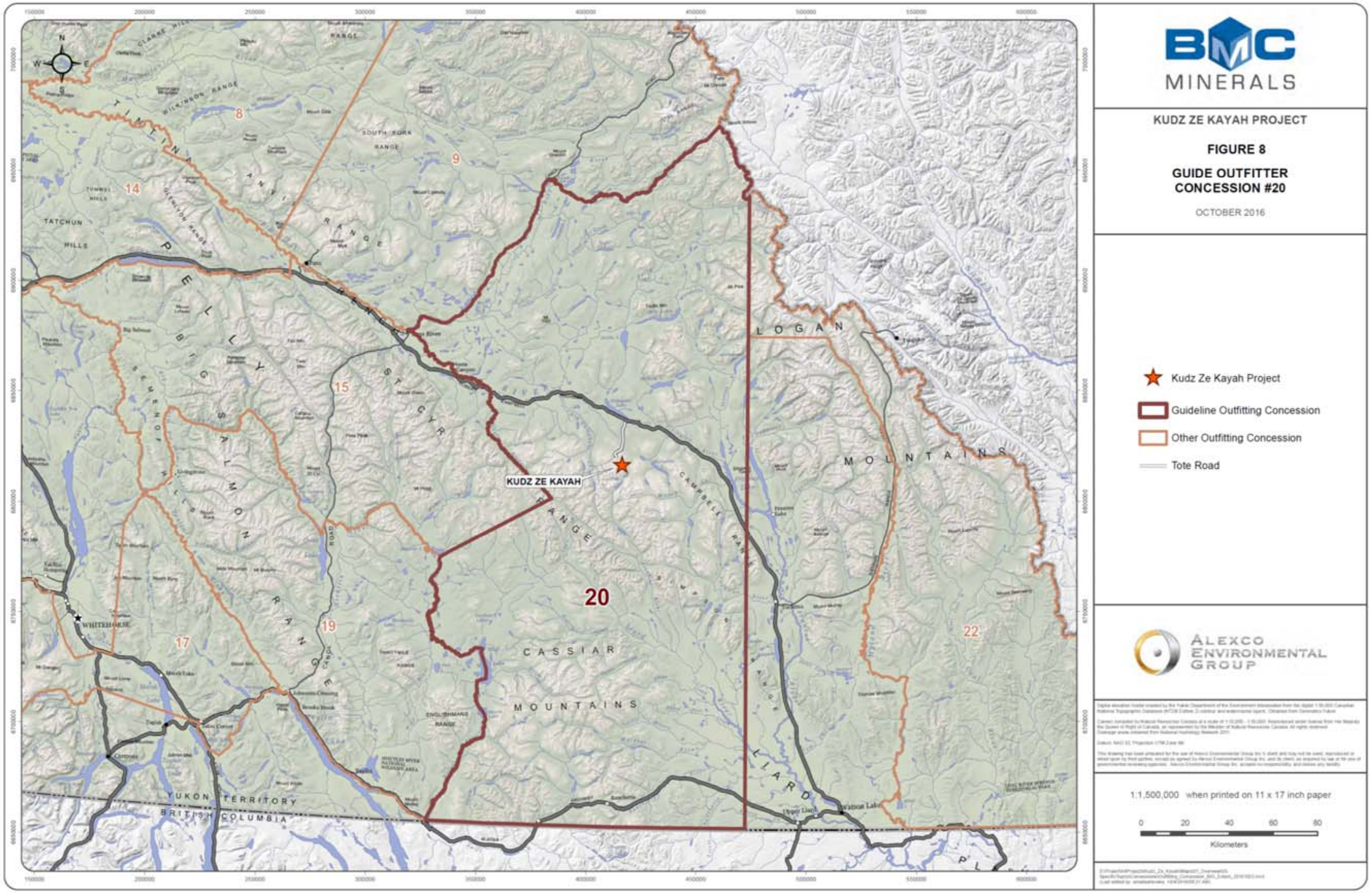


Figure 9. Kudz Ze Kayah Process Flow Sheet

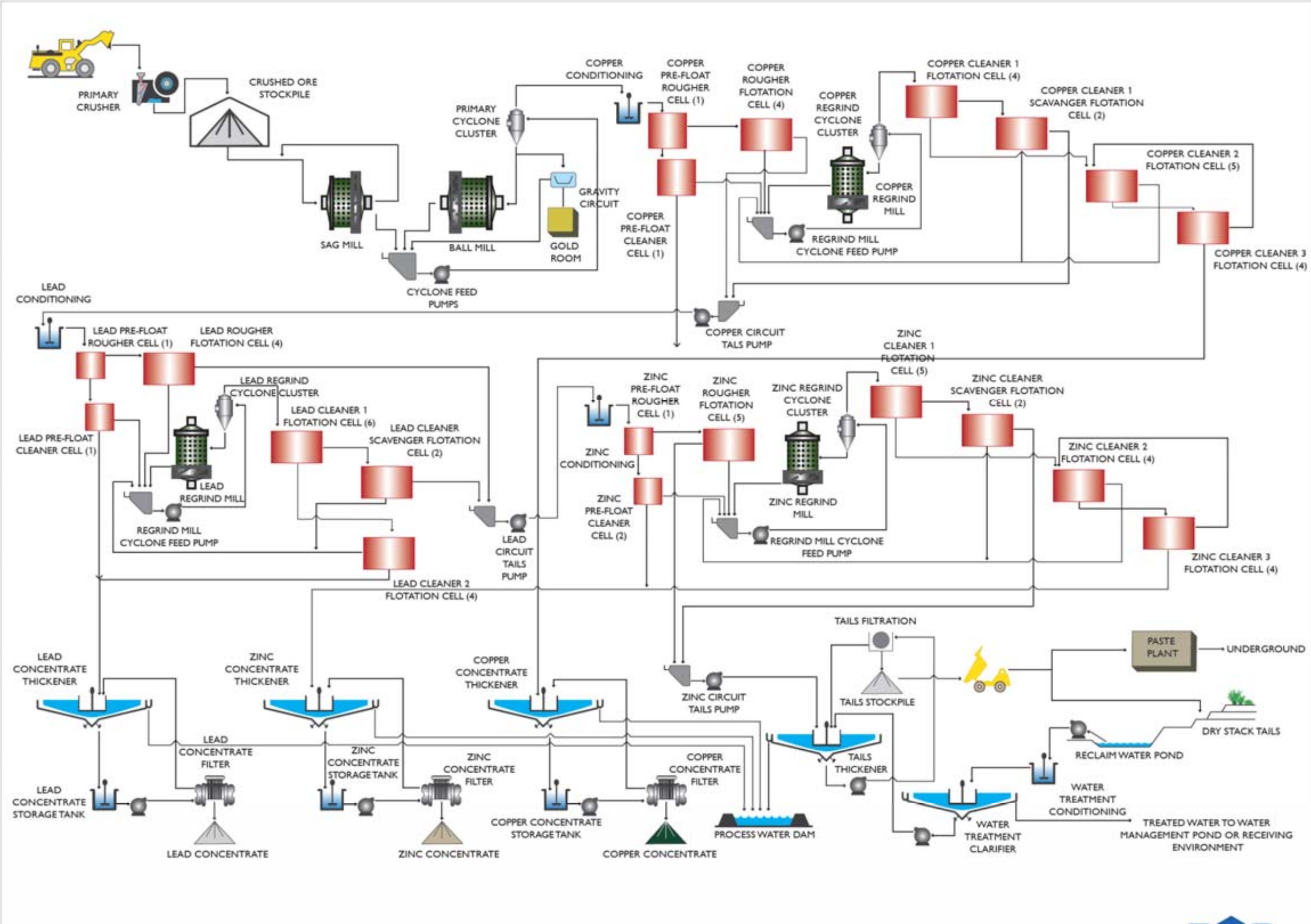


FIGURE 9 KUDZ ZE KAYAH PROCESS FLOWSHEET

Figure 10. Cross Section of Class A Storage Facility

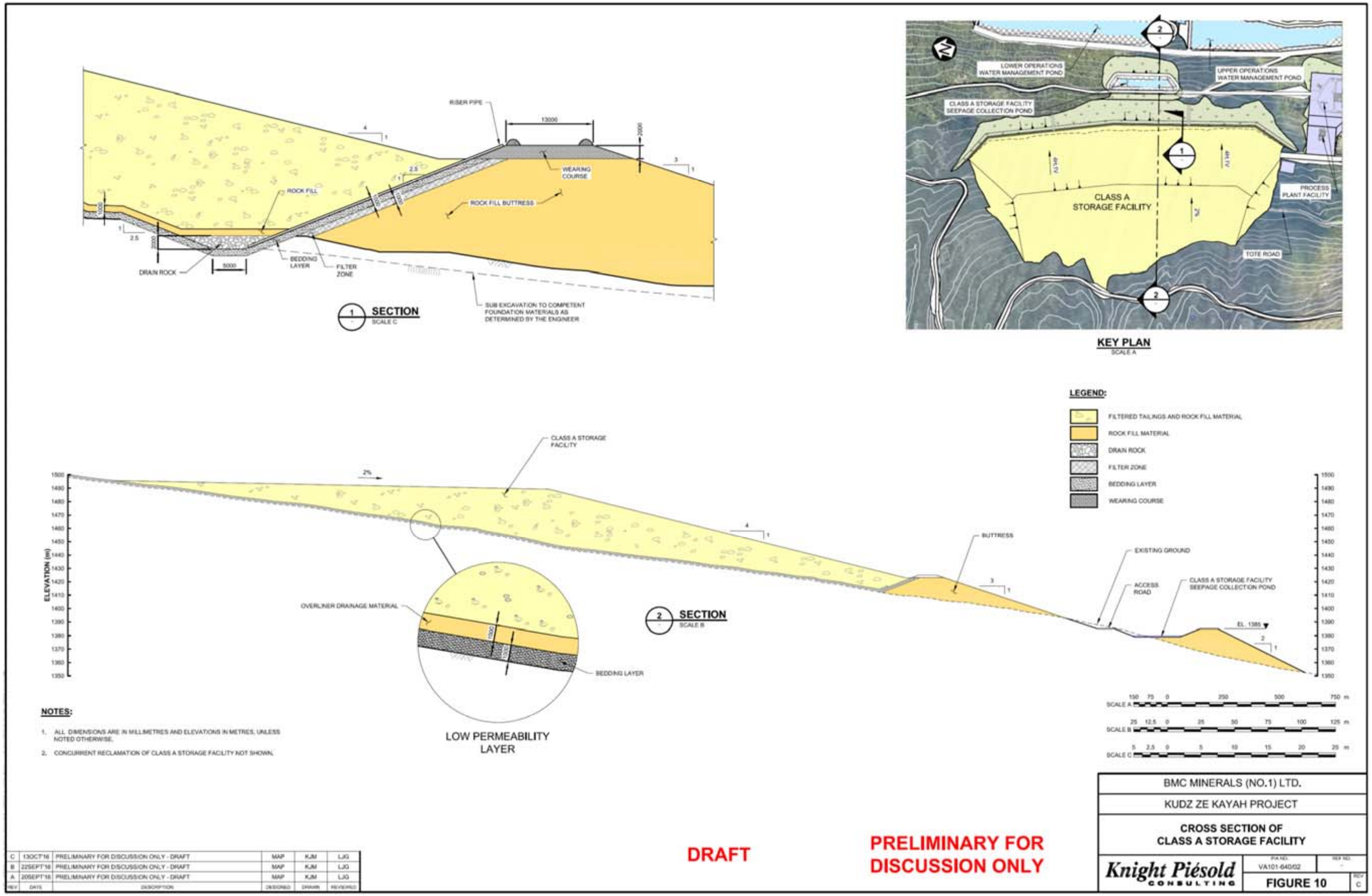


Figure 11. Cross Section of Class A Storage Facility - Progressively Reclaimed

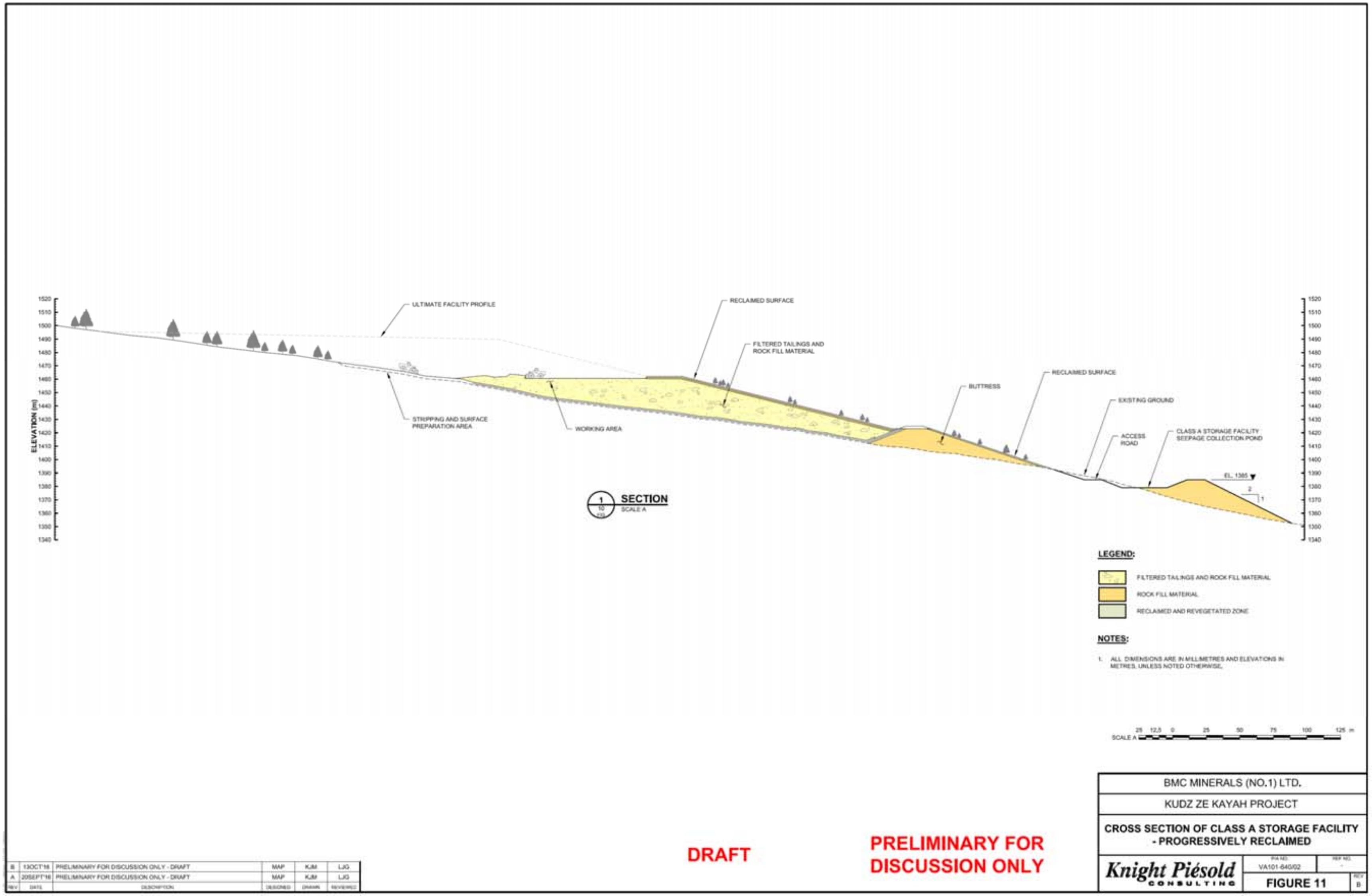


Figure 12. Operational Water Management Plan

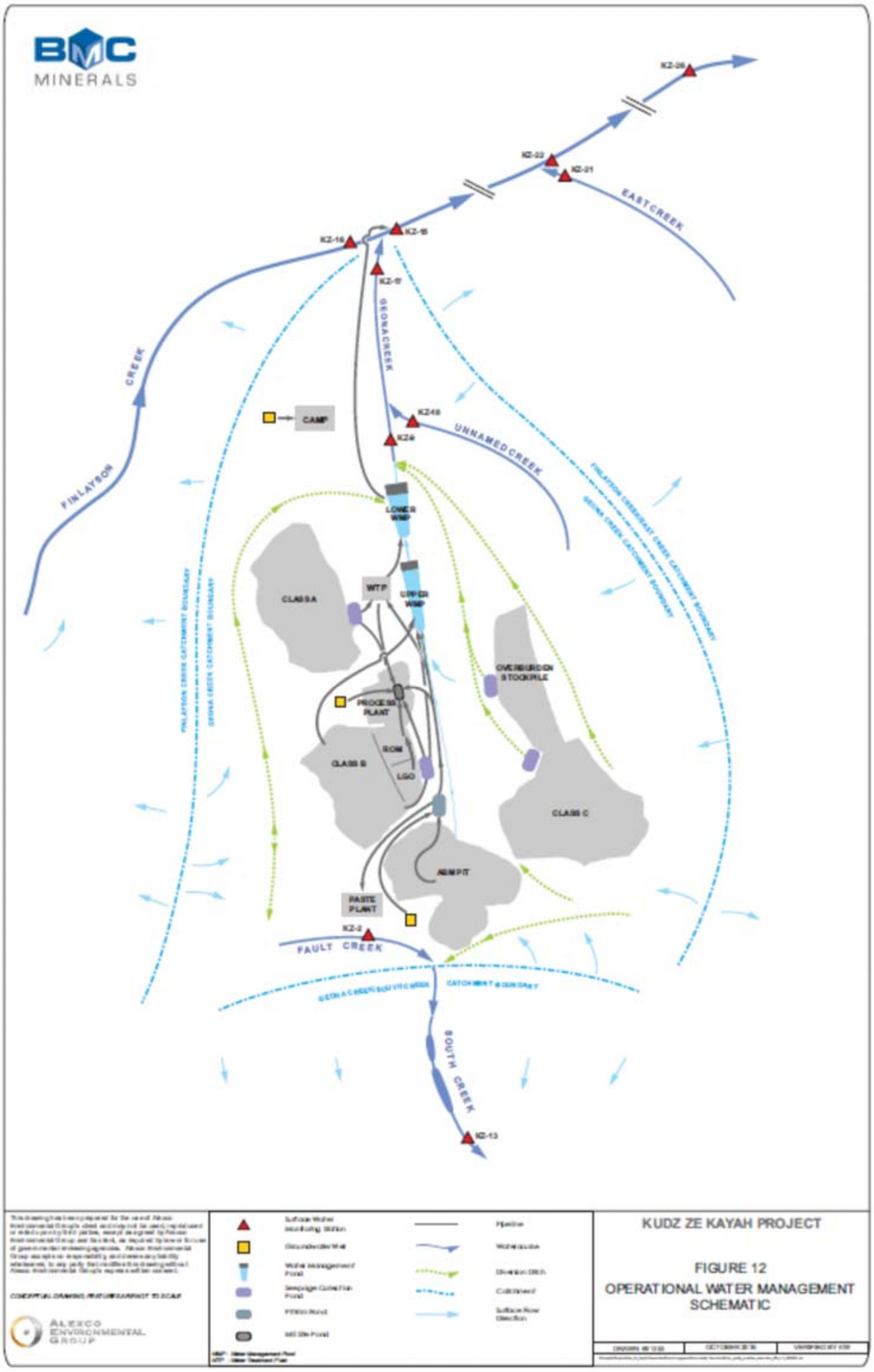


Figure 13. Indicative Haul Road Design

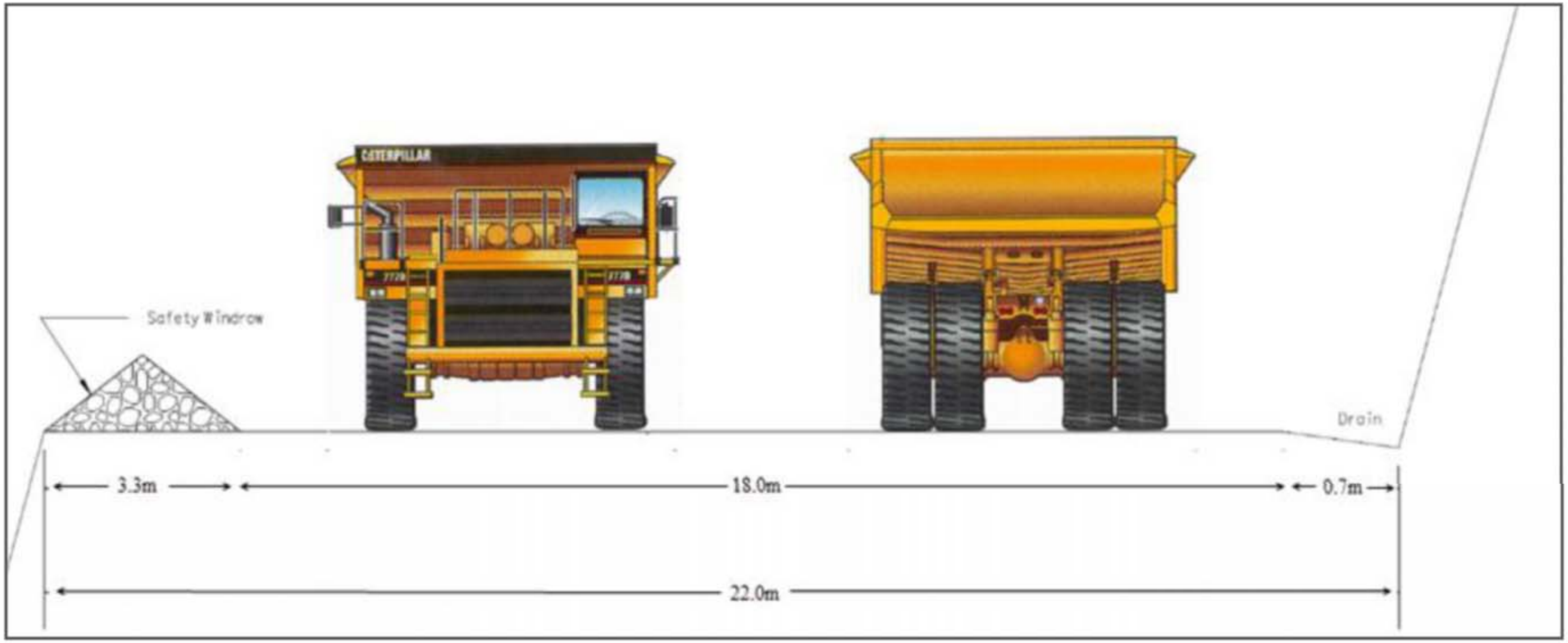


Figure 14. Typical Access Road Design (Flat Surface)

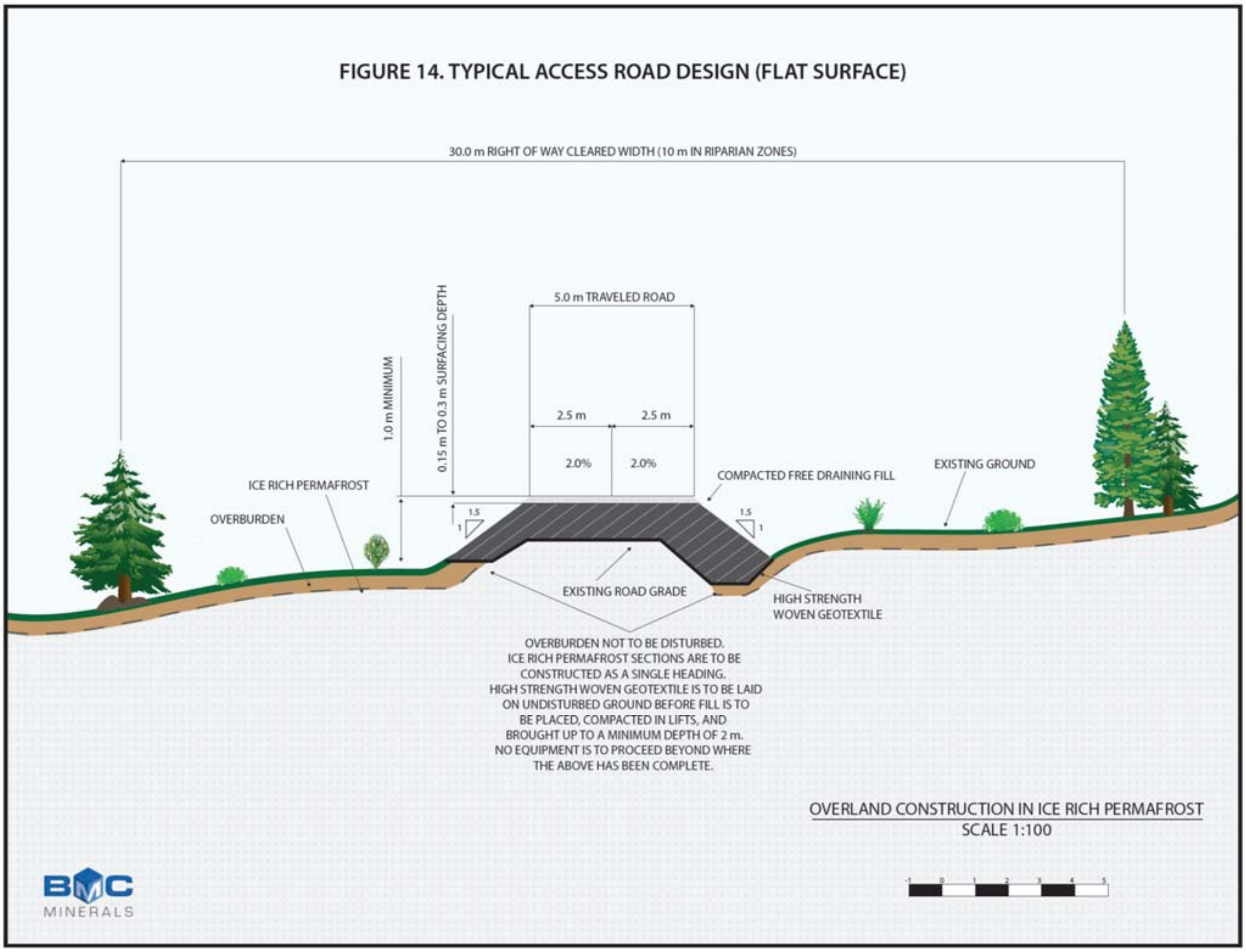


Figure 15. Typical Access Road Design (Adjacent to Slope)

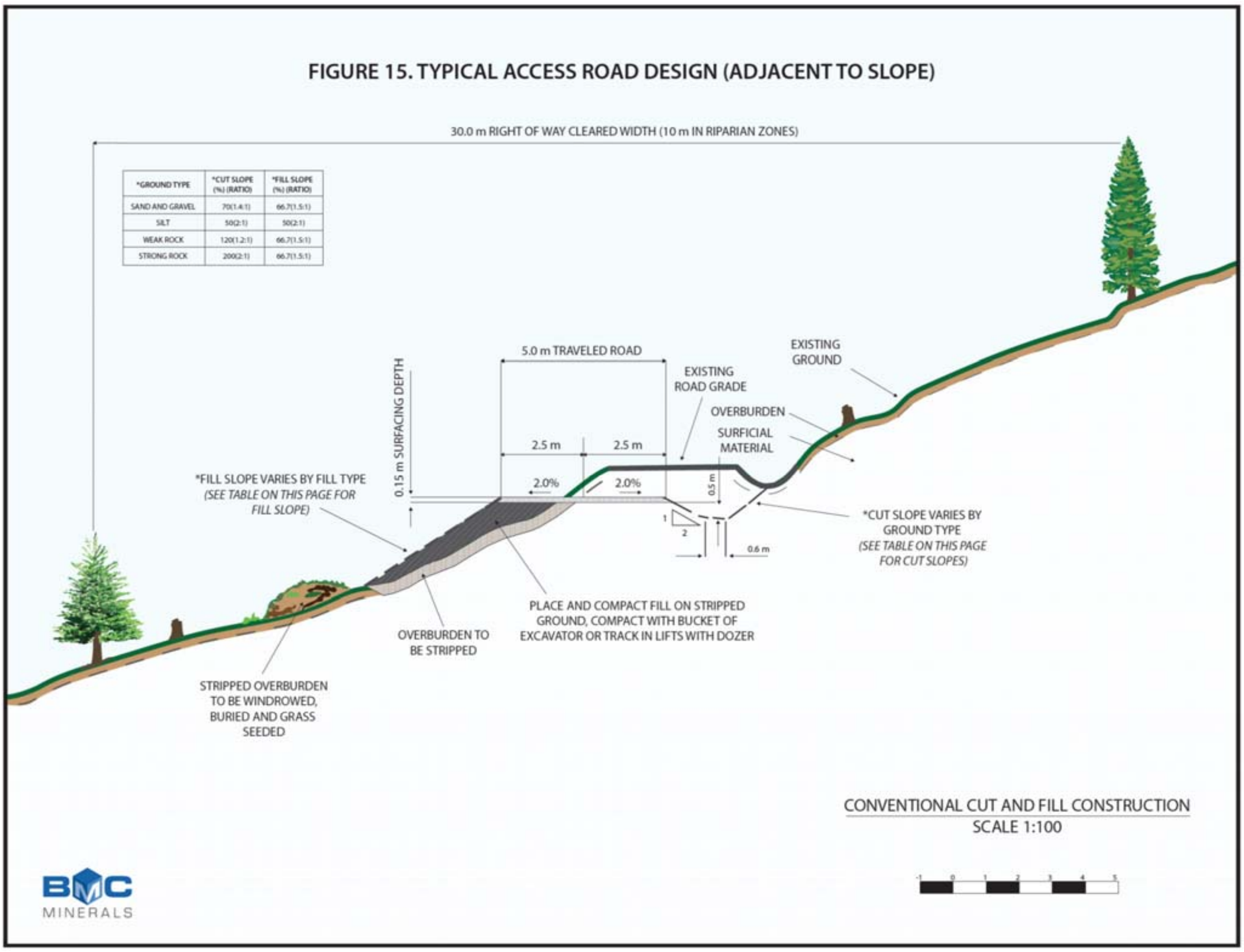


Figure 16. General Arrangement Closure

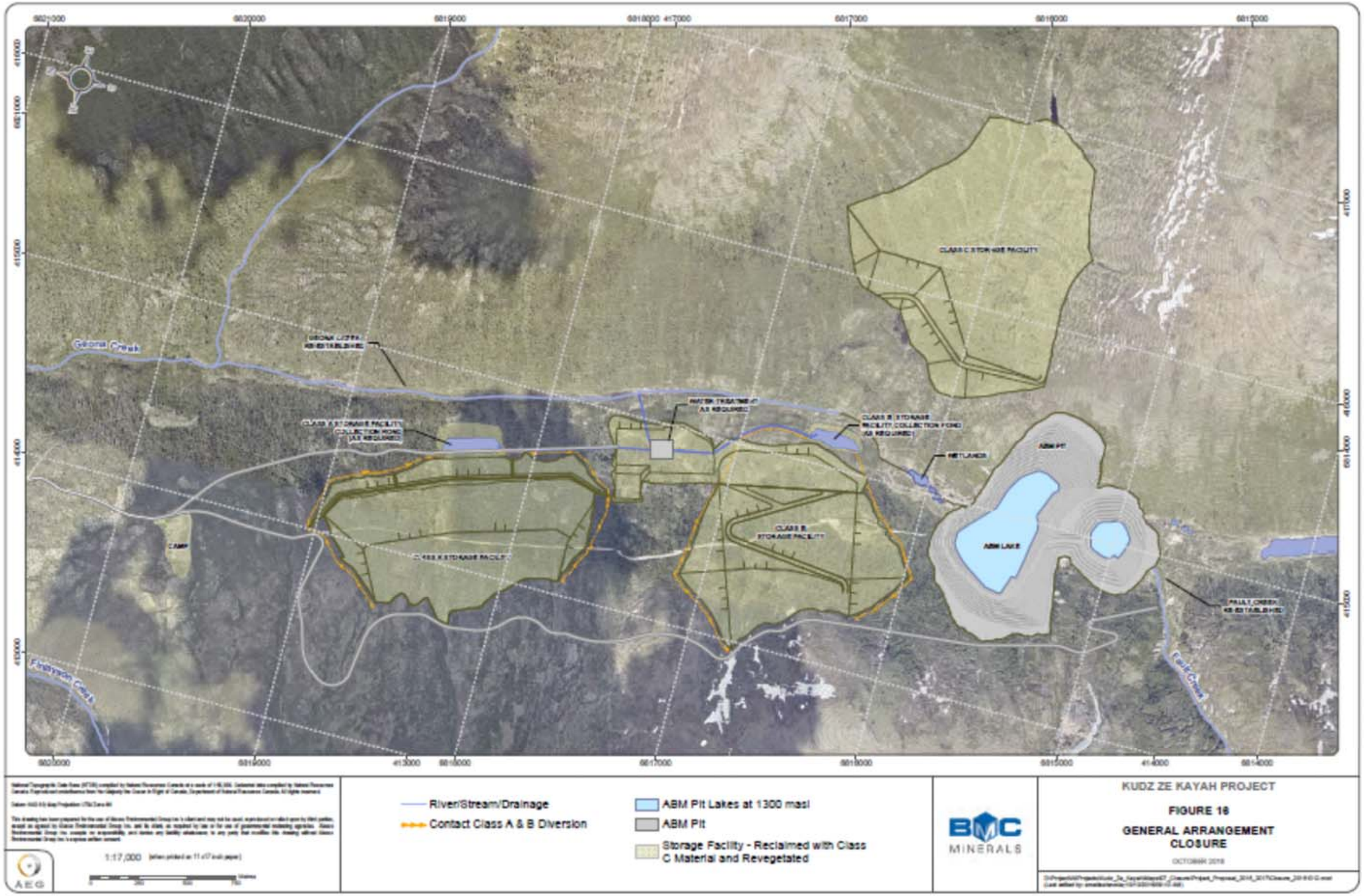


Figure 17. General Arrangement Post Closure

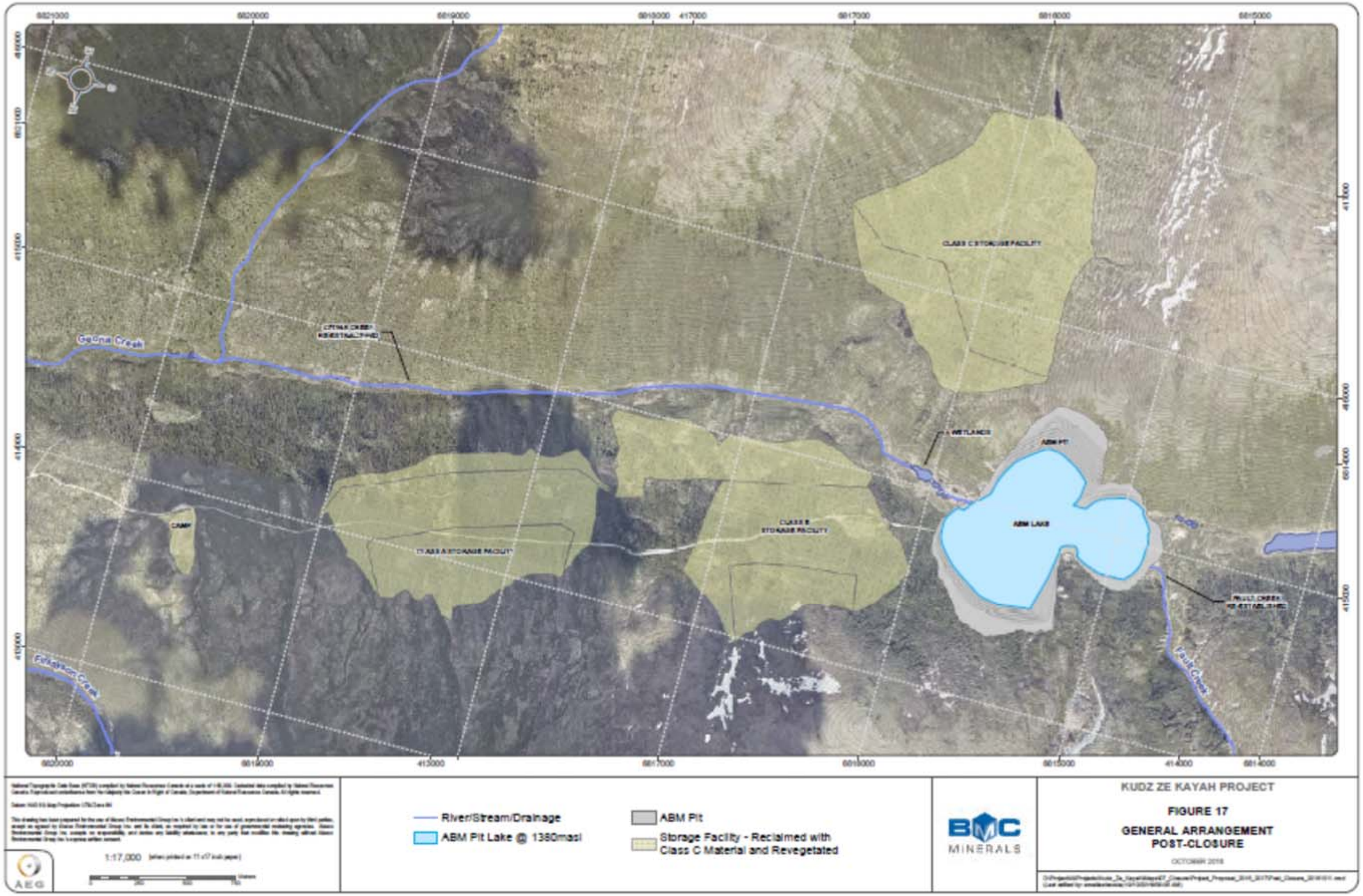
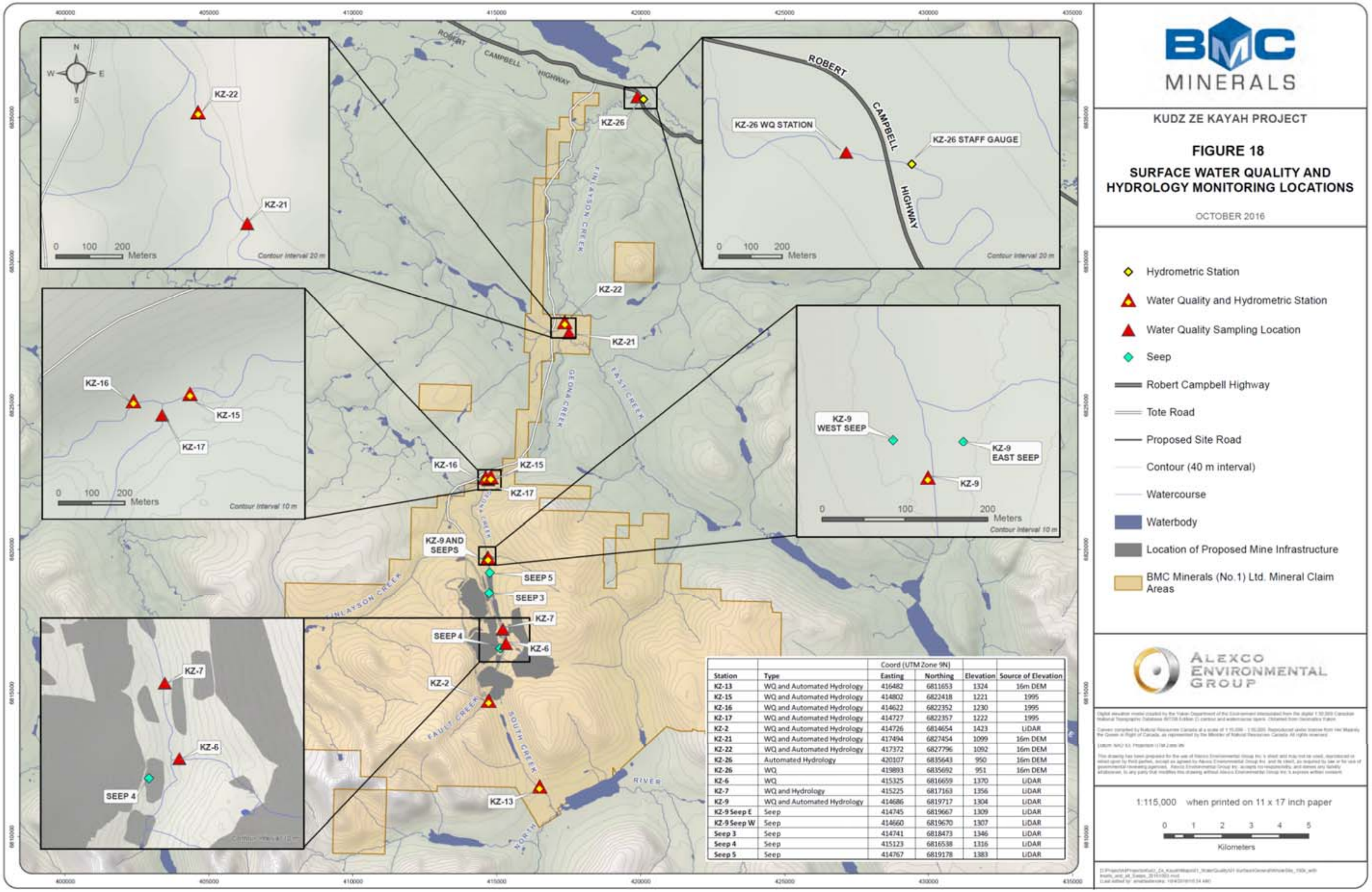
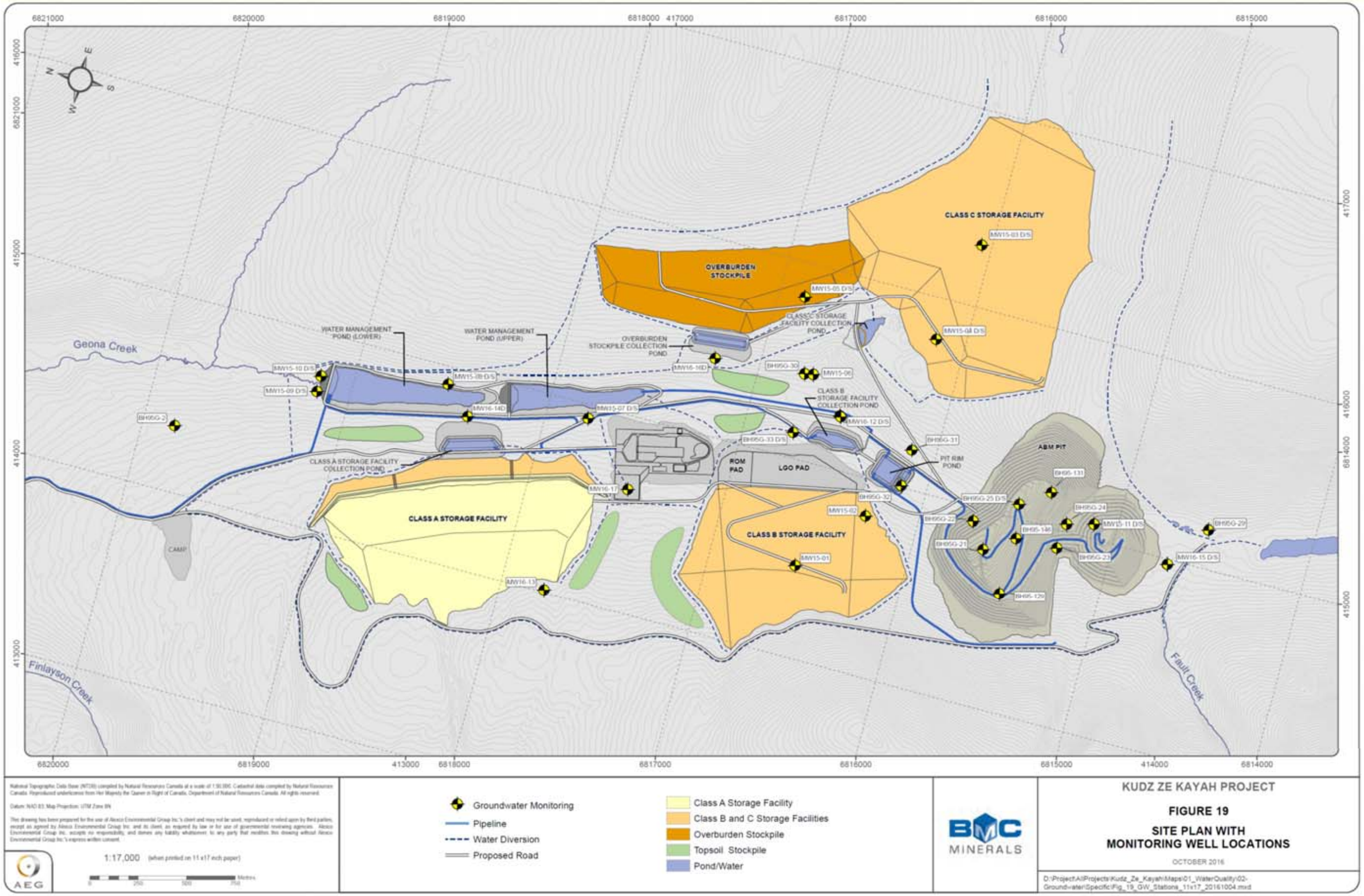


Figure 18. Surface Water Quality and Hydrology Monitoring Locations



Station	Type	Coord (UTM Zone 9N) Easting	Northing	Elevation	Source of Elevation
KZ-13	WQ and Automated Hydrology	416482	6811653	1324	16m DEM
KZ-15	WQ and Automated Hydrology	414802	6822418	1221	1995
KZ-16	WQ and Automated Hydrology	414622	6822352	1230	1995
KZ-17	WQ and Automated Hydrology	414727	6822357	1222	1995
KZ-2	WQ and Automated Hydrology	414726	6814654	1423	LiDAR
KZ-21	WQ and Automated Hydrology	417494	6827454	1099	16m DEM
KZ-22	WQ and Automated Hydrology	417372	6827796	1092	16m DEM
KZ-26	Automated Hydrology	420107	6835643	950	16m DEM
KZ-26	WQ	419893	6835692	951	16m DEM
KZ-6	WQ	415325	6816659	1370	LiDAR
KZ-7	WQ and Hydrology	415225	6817163	1356	LiDAR
KZ-9	WQ and Automated Hydrology	414686	6819717	1304	LiDAR
KZ-9 Seep E	Seep	414745	6819667	1309	LiDAR
KZ-9 Seep W	Seep	414660	6819670	1307	LiDAR
Seep 3	Seep	414741	6818473	1346	LiDAR
Seep 4	Seep	415123	6816538	1316	LiDAR
Seep 5	Seep	414767	6819178	1383	LiDAR

Figure 19. Site Plan with Monitoring Well Locations



Kudz Ze Kayah Community Presentation

November 2016

Ross River . Faro . Whitehorse . Watson Lake

BMC Minerals (No.1) Ltd
Incorporated in British Columbia, Canada, Reg No. BC 1014247
Suite 530, 1130 West Pender St, Vancouver, BC V6E 4A4

BMC MINERALS

Presentation Overview

- BMC Minerals (No 1) - Company Overview
- Kudz Ze Kayah Deposit & BMC's Regional Exploration
- Kudz Ze Kayah Proposed Mine Plan
- Environmental Management
- Maximizing Socioeconomic Benefits
- Permitting and Proposed Timeline

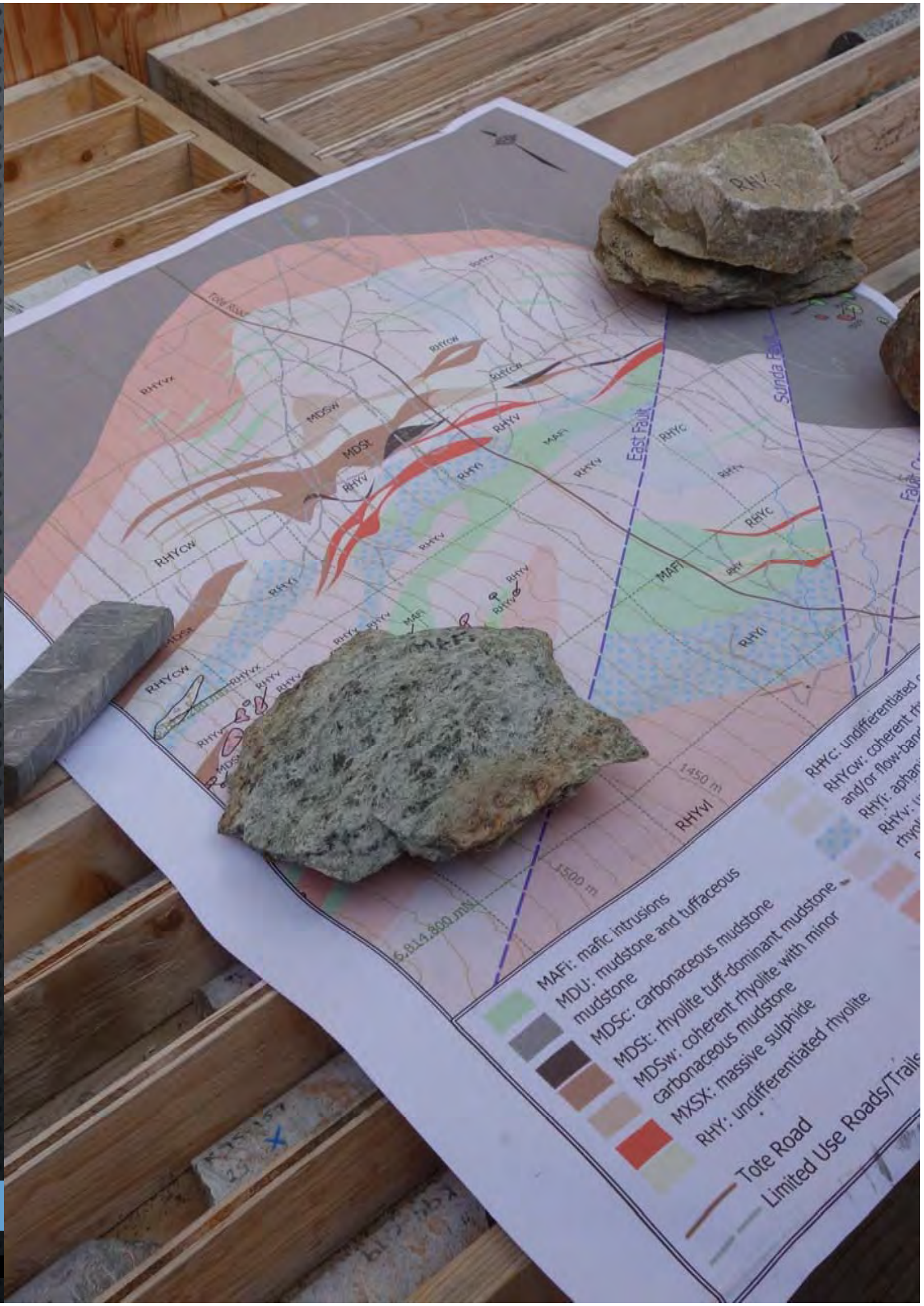
BMC MINERALS

BMC Minerals (No 1) Ltd

"BMC is a privately funded company managed by an experienced team of mine developers & mine operators."

- Gary Comb – Chairman
- Scott Donaldson – CEO
- Neil Martin – Executive Director, Exploration and Development
- Julian Tambyrajah – Chief Financial Officer
- George Smith – Group Mining Engineer
- Jim Newton – Chief Mining Engineer
- Robin Black – VP Exploration
- Kelli Bergh – Environmental Manager
- Rob McIntyre – VP External Affairs

Kudz Ze Kayah Deposit and Regional Exploration



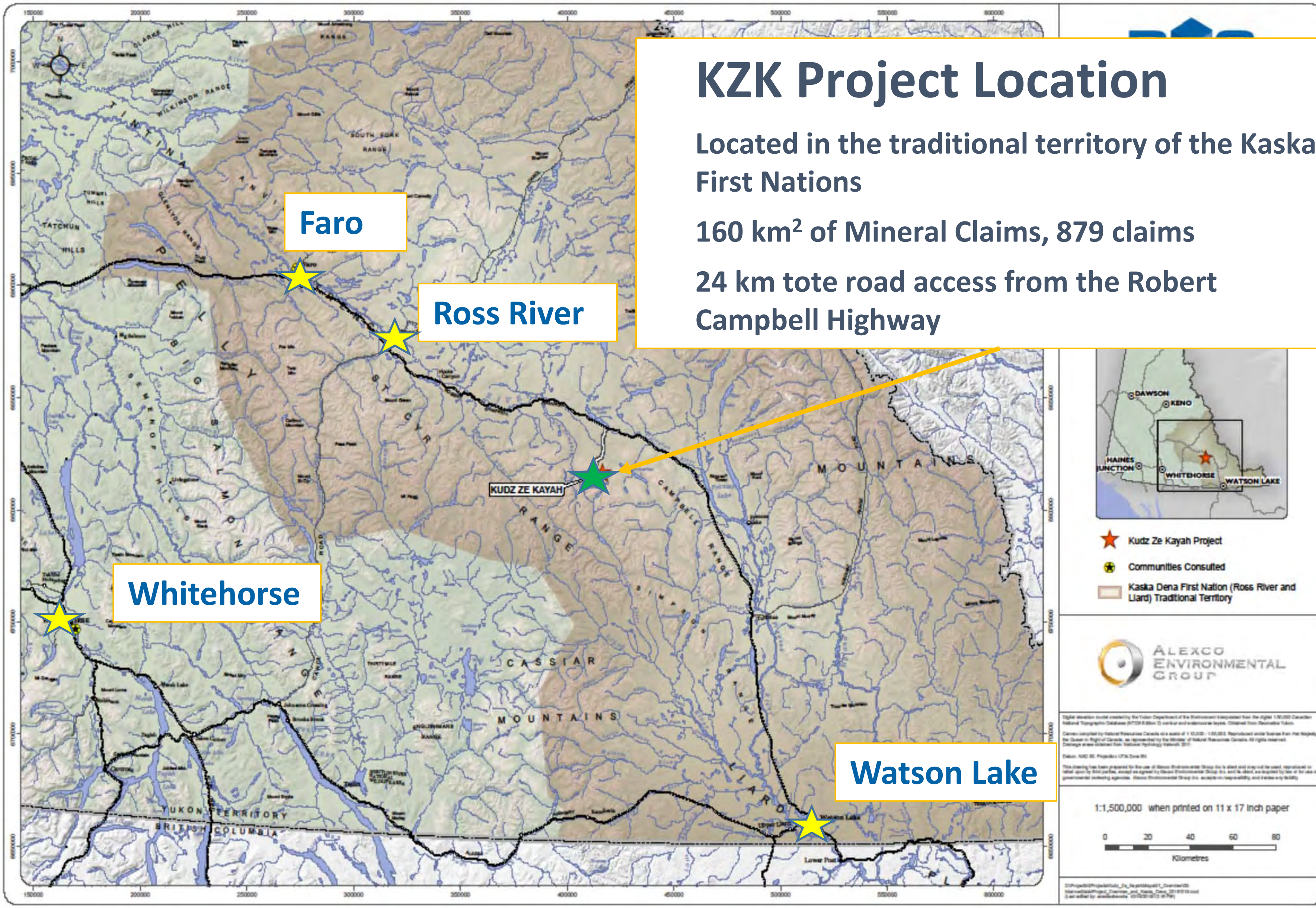
BMC MINERALS

KZK Project Location

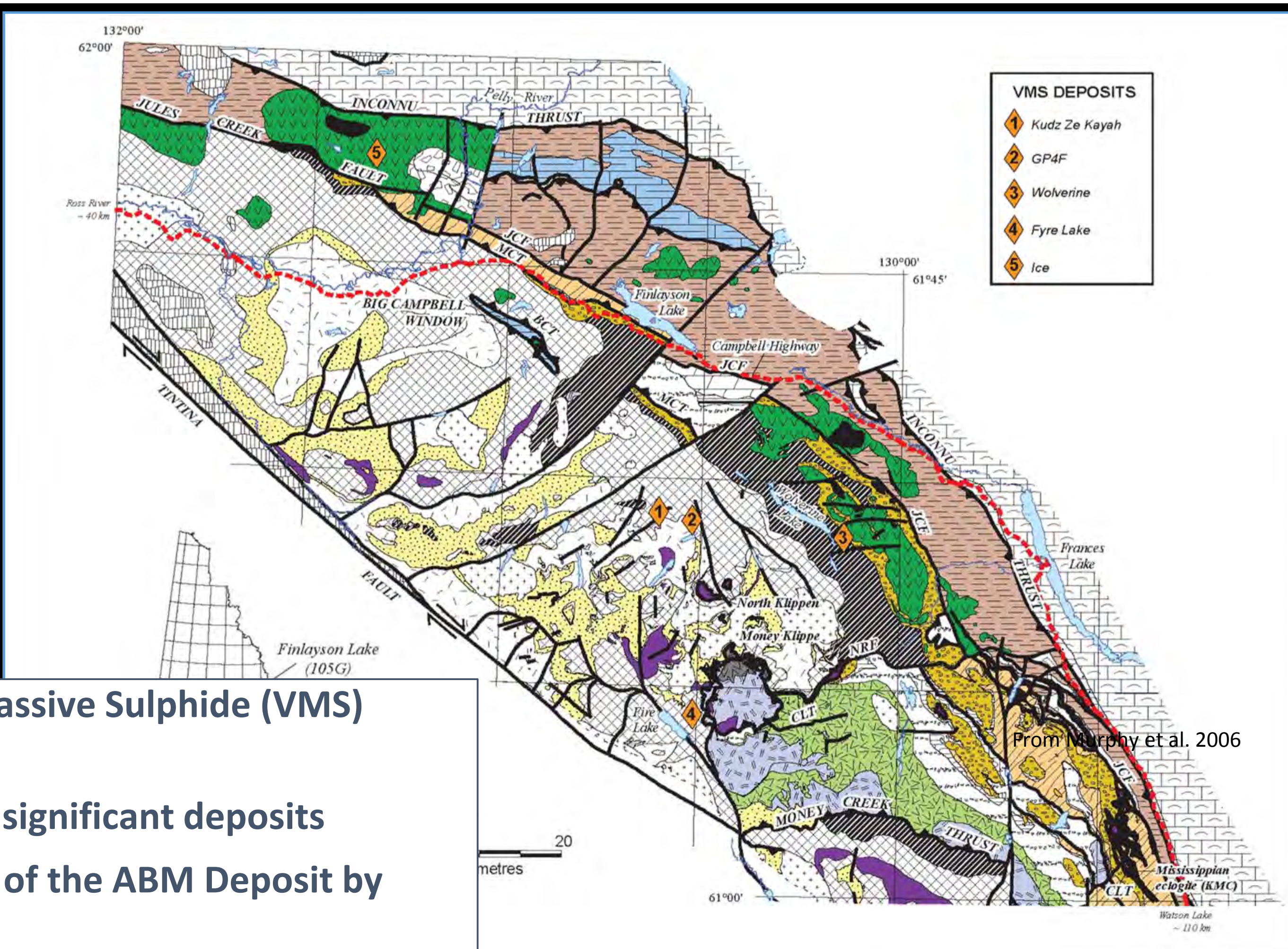
Located in the traditional territory of the Kaska First Nations

160 km^2 of Mineral Claims, 879 claims

24 km tote road access from the Robert Campbell Highway



Project History



From Murphy et al. 2006

- Finlayson Volcanic Massive Sulphide (VMS) District
  - Host to at least 5 significant deposits
- Grassroots Discovery of the ABM Deposit by Cominco in 1994
- Mine proposal permitted in 1997, but project not built
- Cominco-Teck merger stopped development
- BMC purchased property from Teck in 2015

BMC MINERALS

Property Work Completed

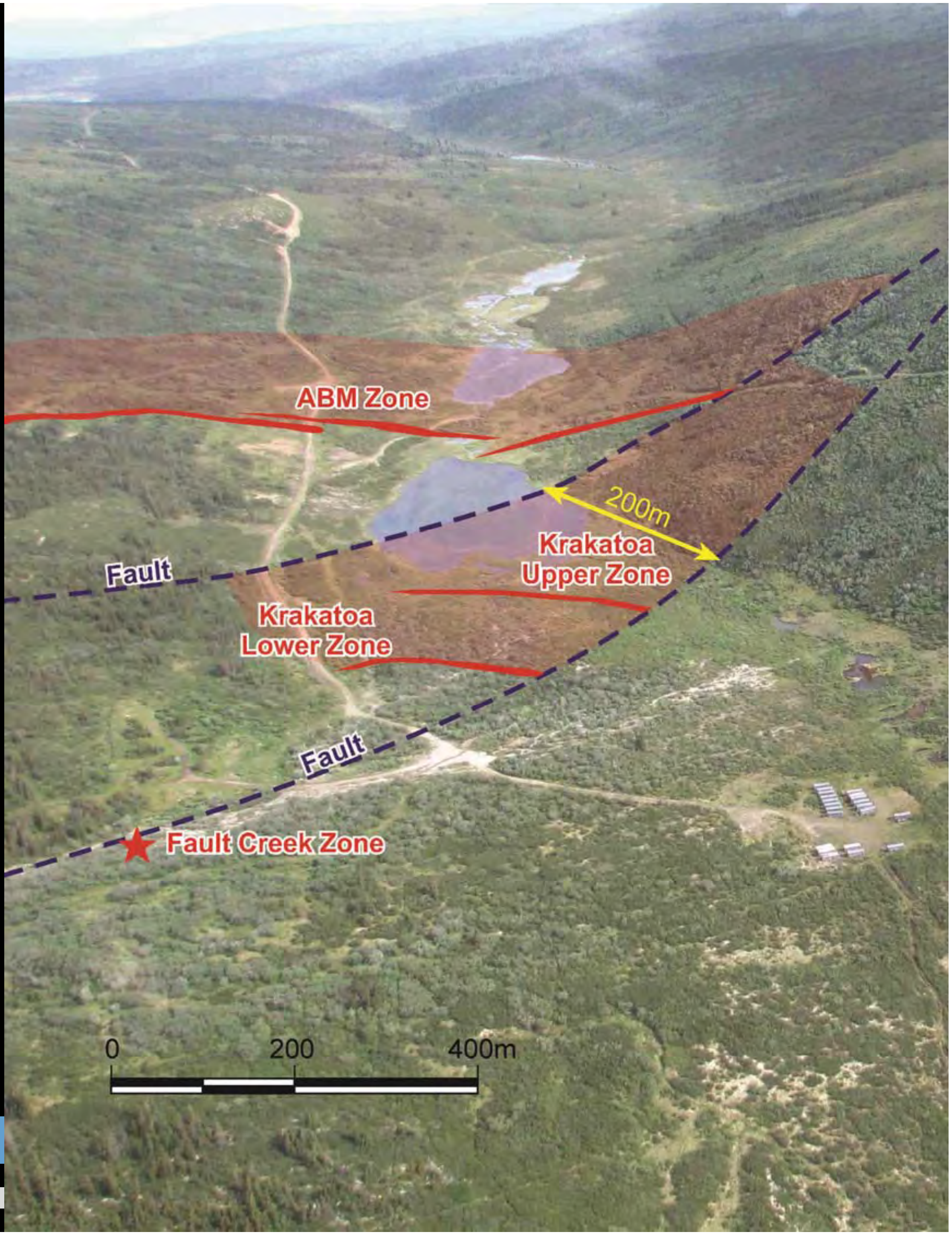
2015

- **$17.5 M invested, ~ $5.1 M Yukon businesses and local wages**
- **drilled ~25,000 m, airborne & ground geophysics, metallurgical studies commenced**
- **First Resource January 2016**

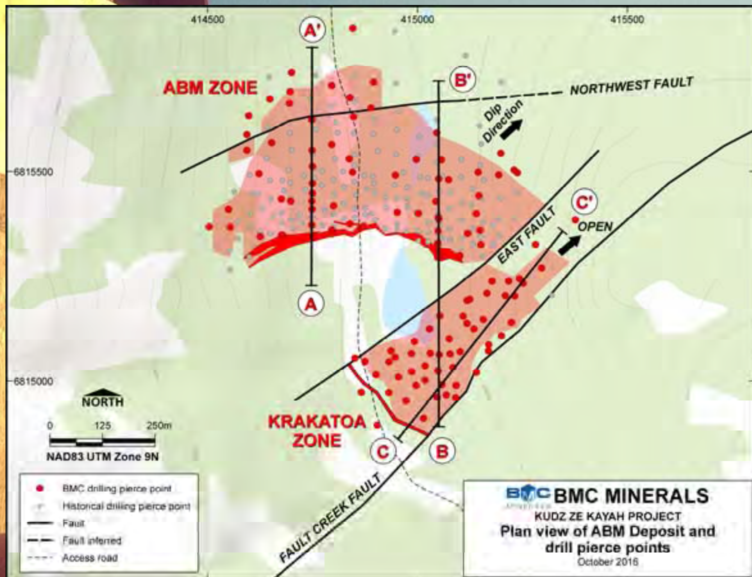
2016

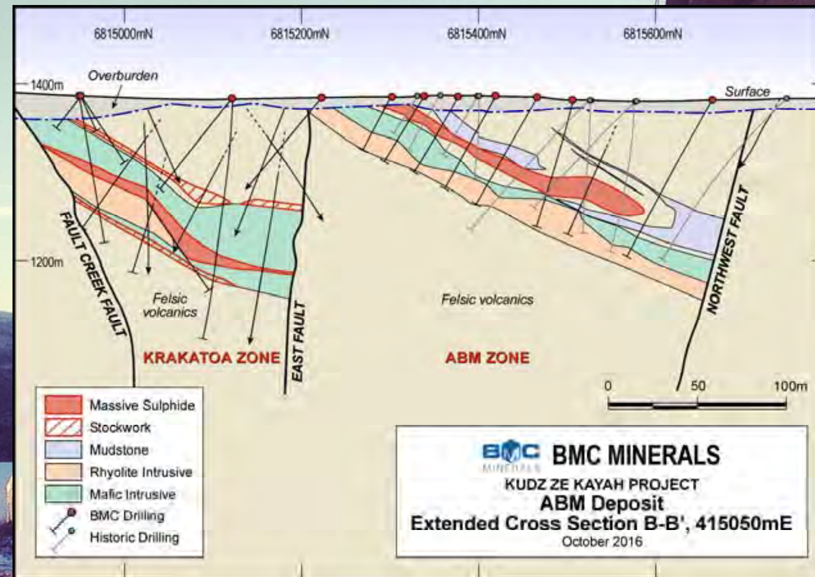
- **$15 M invested, ~ $5.7 M Yukon businesses and local wages**
- **drilled ~19,000 m, airborne & ground geophysics, geological & geotechnical studies**
- **Updated Resource November 2016**

BMC MINERALS



ABM Deposit



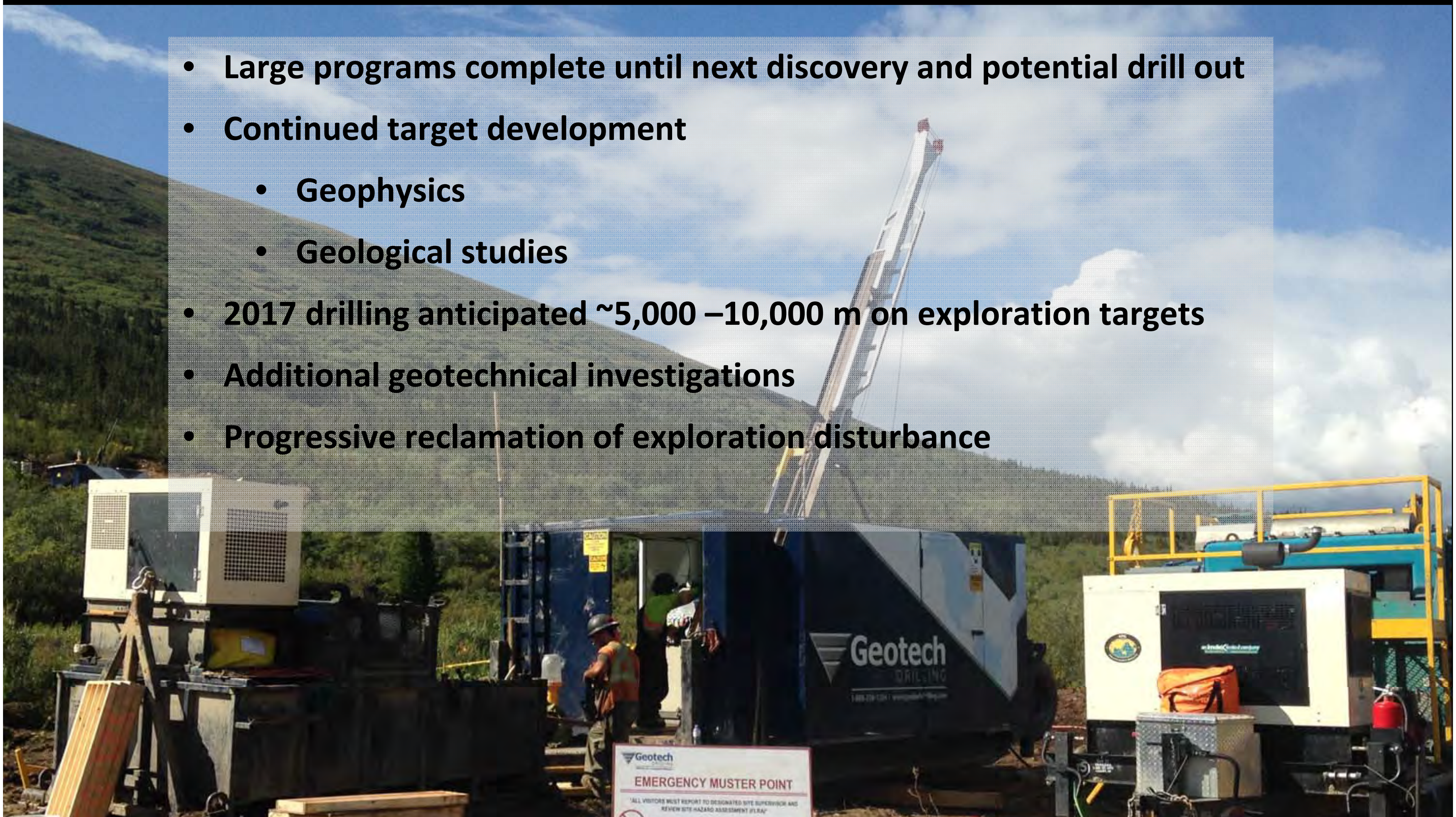


	Tonnes	Cu	Pb	Zn	Au	Ag	Contained Base Metal (kt)			Au	Ag
	Mt	%	%	%	g/t	g/t	Cu	Pb	Zn	kOz	MOz
ABM Zone											
Indicated	14.6	1.0	1.6	6.1	1.3	132	141.2	229.7	888.9	615.0	62.2
Inferred	0.4	1.5	1.4	4.2	1.0	107	5.5	5.2	15.5	11.6	1.3
Total	**15.0**	**1.0**	**1.6**	**6.0**	**1.3**	**132**	**146.7**	**234.9**	**904.4**	**626.6**	**63.5**
Krakatoa Zone											
Indicated	3.7	0.6	3.1	7.2	1.8	211	23.1	116.7	265.9	213.1	25.2
Inferred	0.5	0.8	1.7	8.9	1.2	161	3.7	8.4	43.5	18.7	2.5
Total	**4.2**	**0.6**	**3.0**	**7.4**	**1.7**	**205**	**26.8**	**125.1**	**309.4**	**231.8**	**27.7**
ABM Deposit											
Indicated	18.3	0.9	1.9	6.3	1.4	148	164.4	346.5	1154.8	828.1	87.4
Inferred	0.9	1.1	1.6	6.9	1.1	138	9.2	13.6	58.9	30.3	3.8
Total	**19.2**	**0.9**	**1.9**	**6.3**	**1.4**	**148**	**173.6**	**360.1**	**1213.7**	**858.4**	**91.2**

**Minor errors due to rounding*

Exploration Future

- **Large programs complete until next discovery and potential drill out**
- **Continued target development**
  - **Geophysics**
  - **Geological studies**
- **2017 drilling anticipated ~5,000 –10,000 m on exploration targets**
- **Additional geotechnical investigations**
- **Progressive reclamation of exploration disturbance**

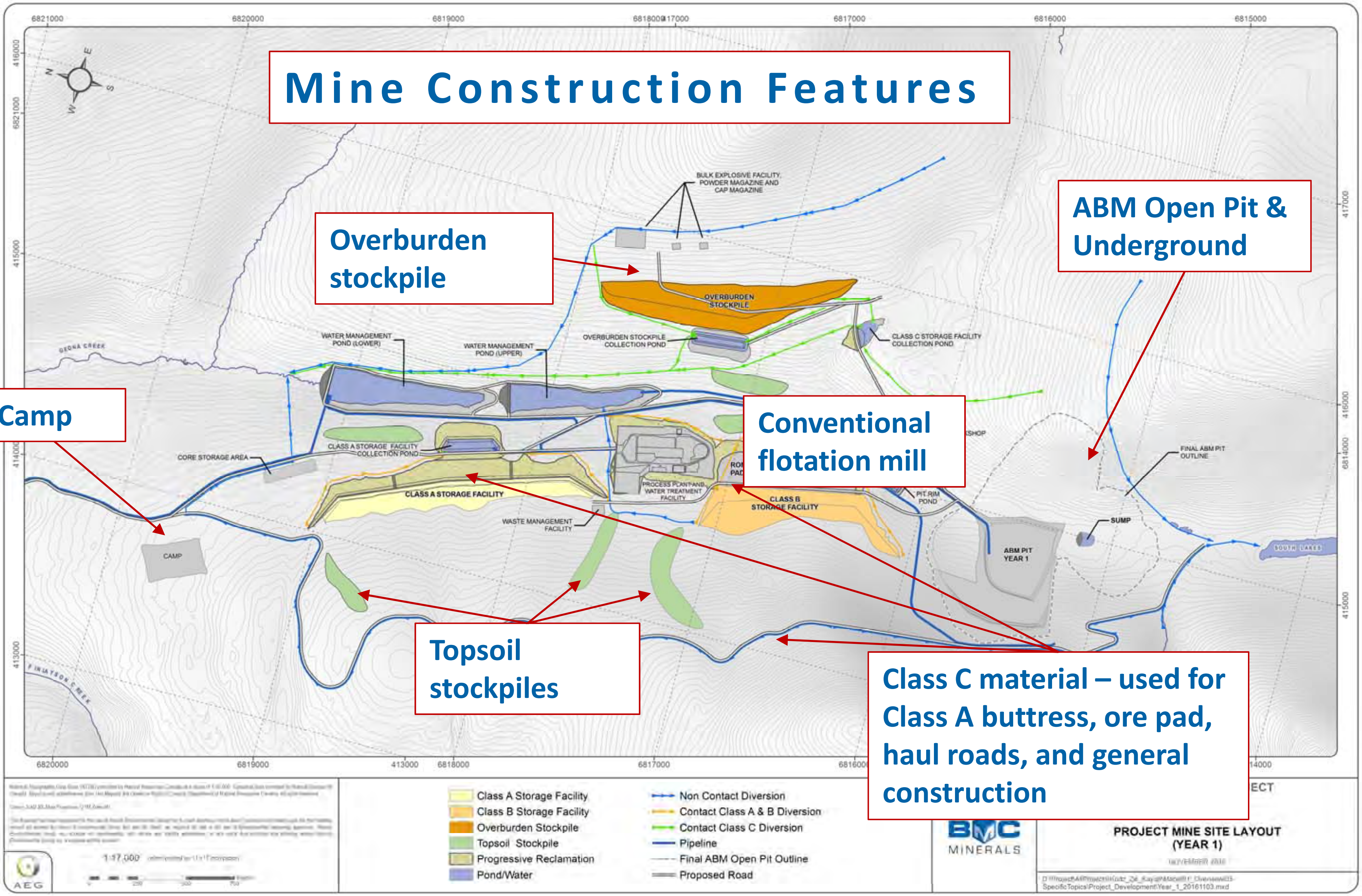


BMC MINERALS

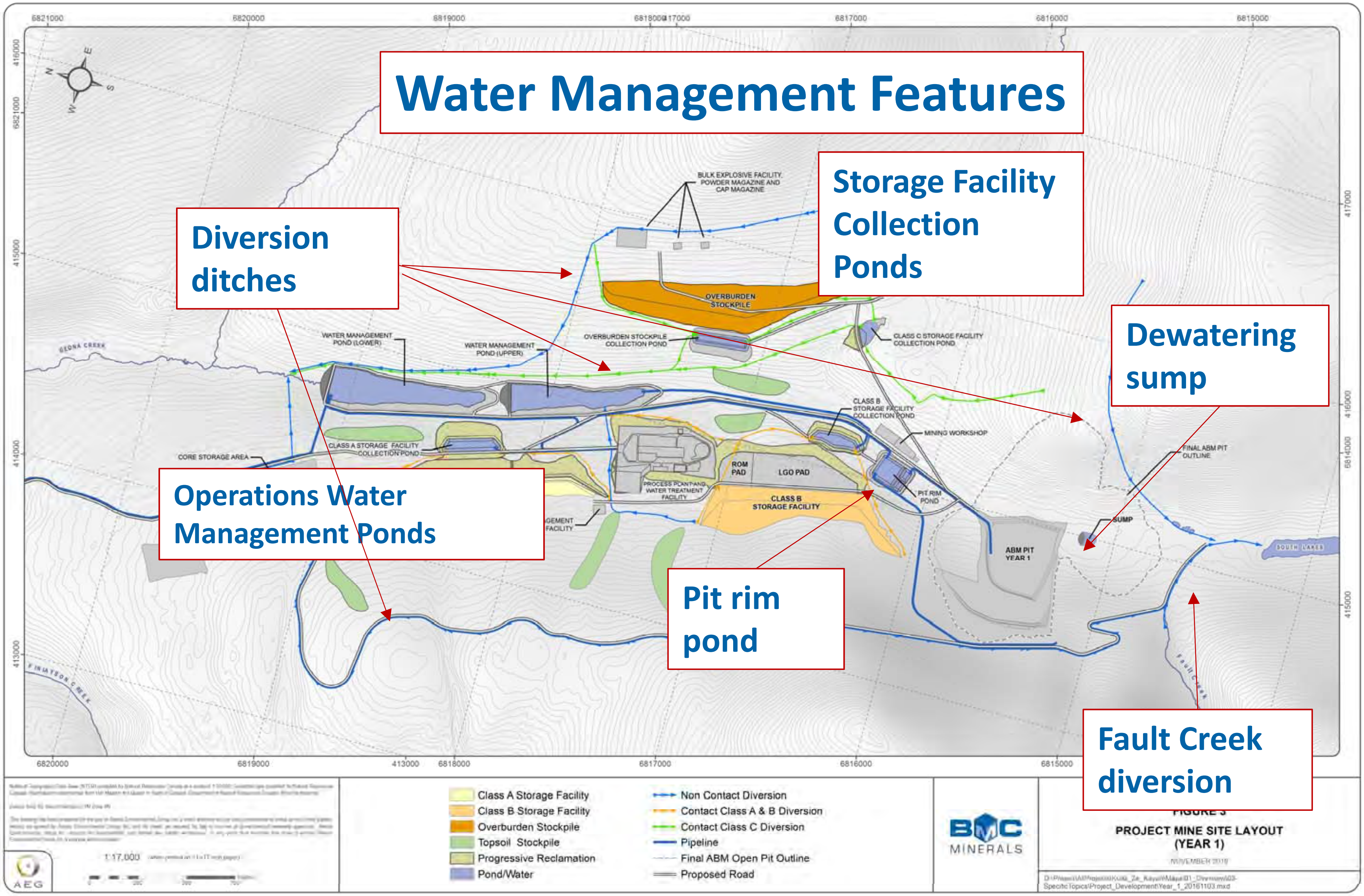
Kudz Ze Kayah Proposed Mine Plan

At this point in the presentation a video of the proposed Project was presented that showed a fly over of the Project through all Project phases.

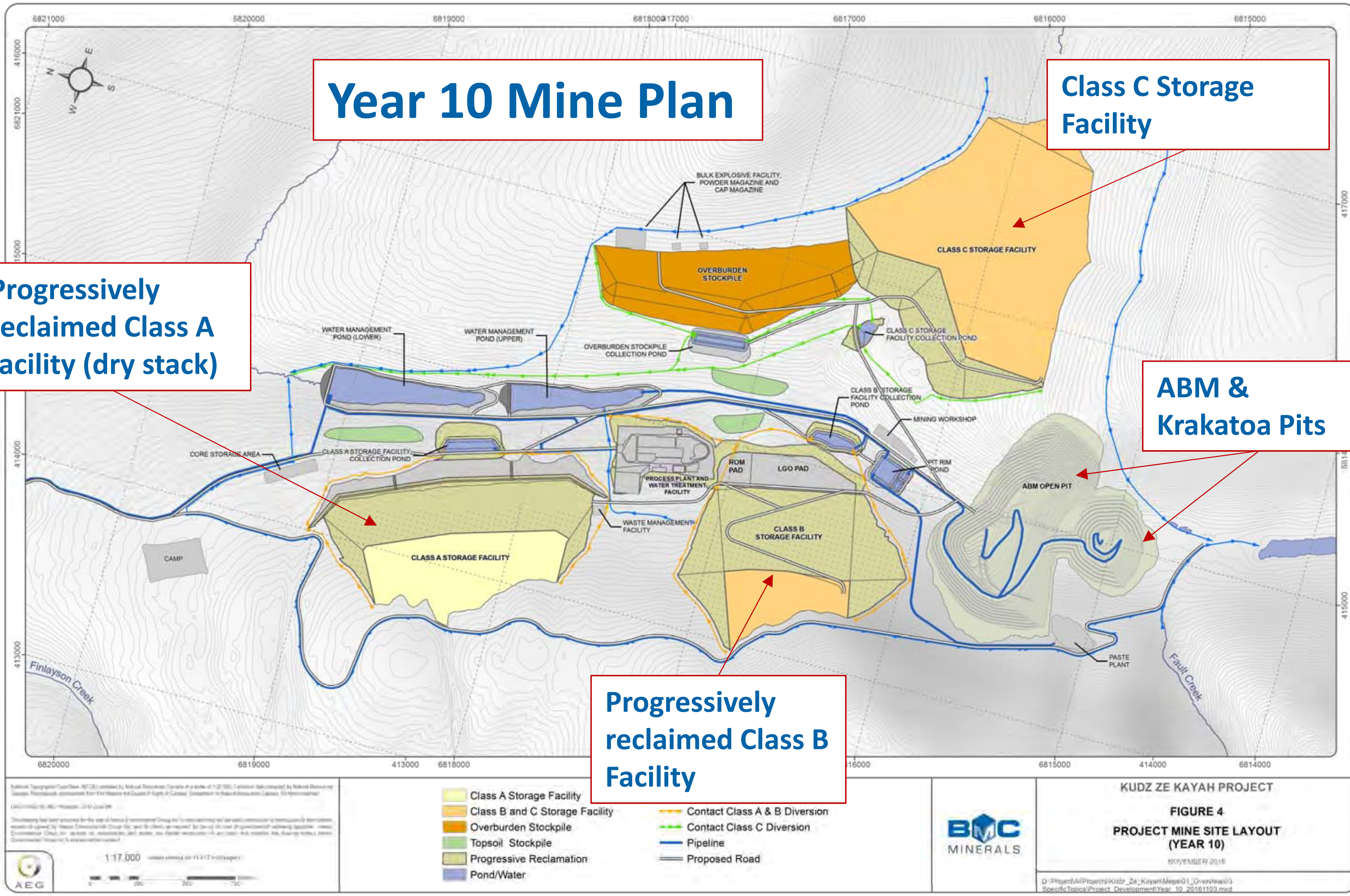
Mine Construction Features



Water Management Features

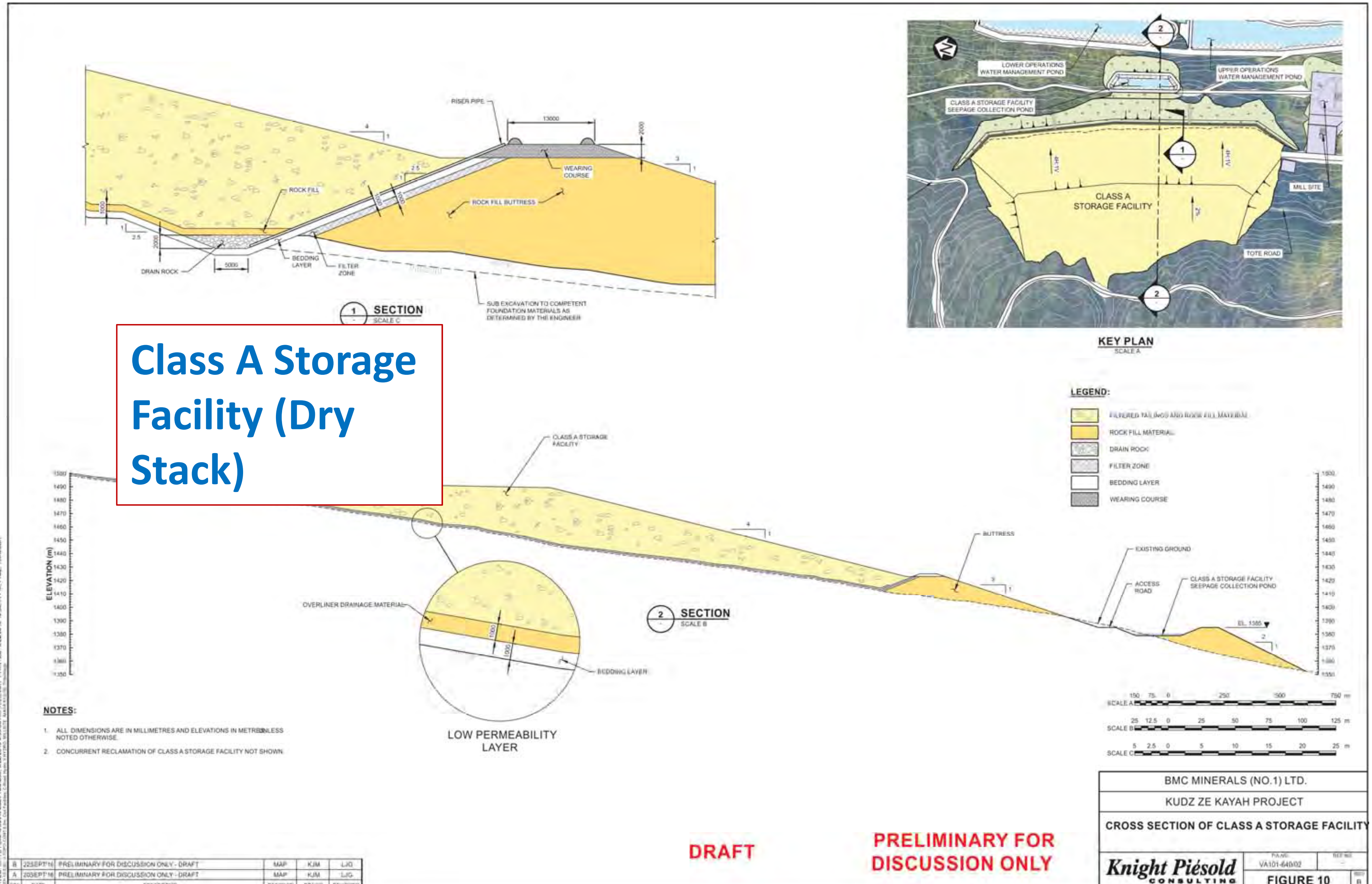


Year 10 Mine Plan



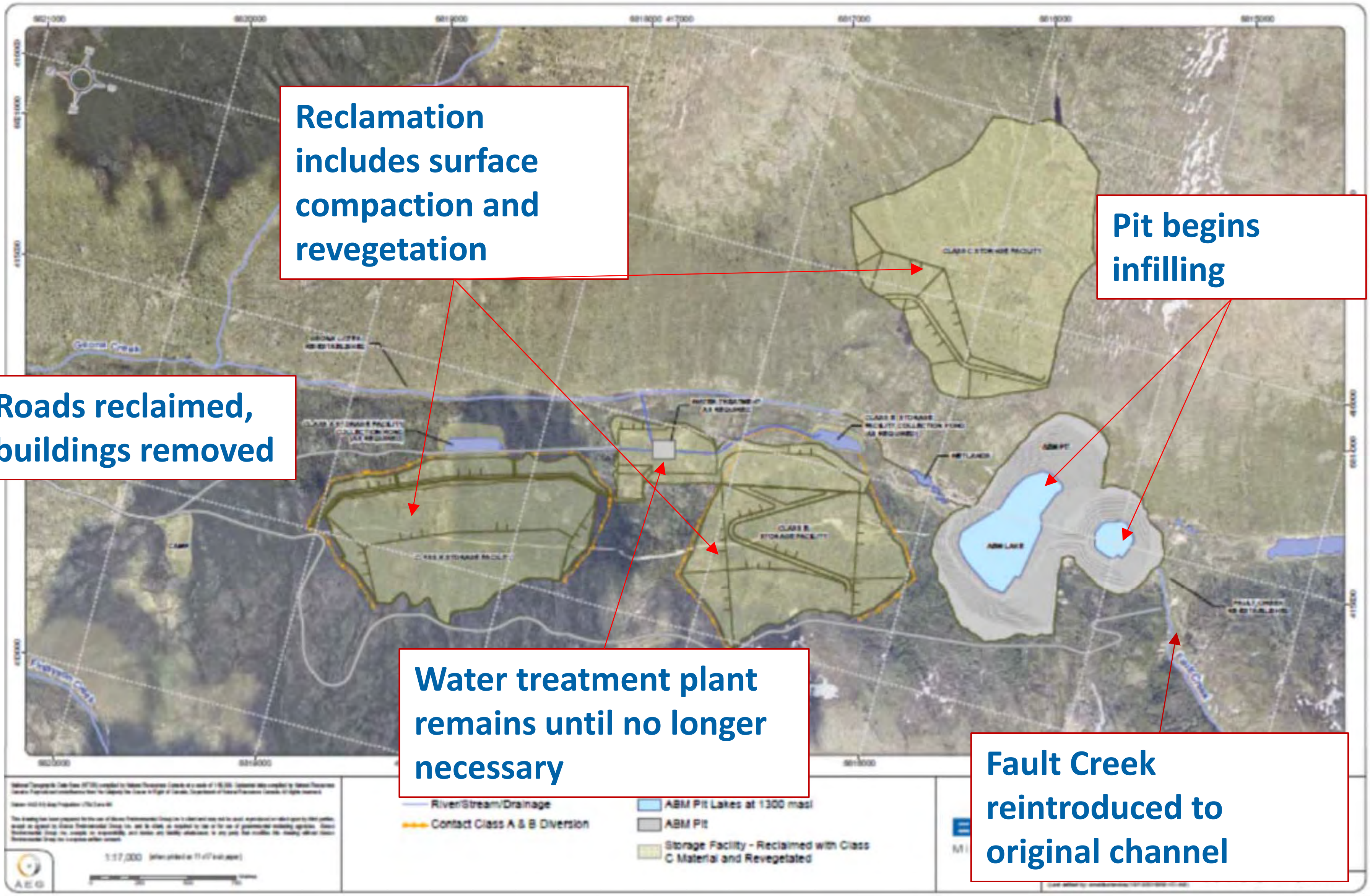
BMC MINERALS

Class A Storage Facility (Dry Stack)

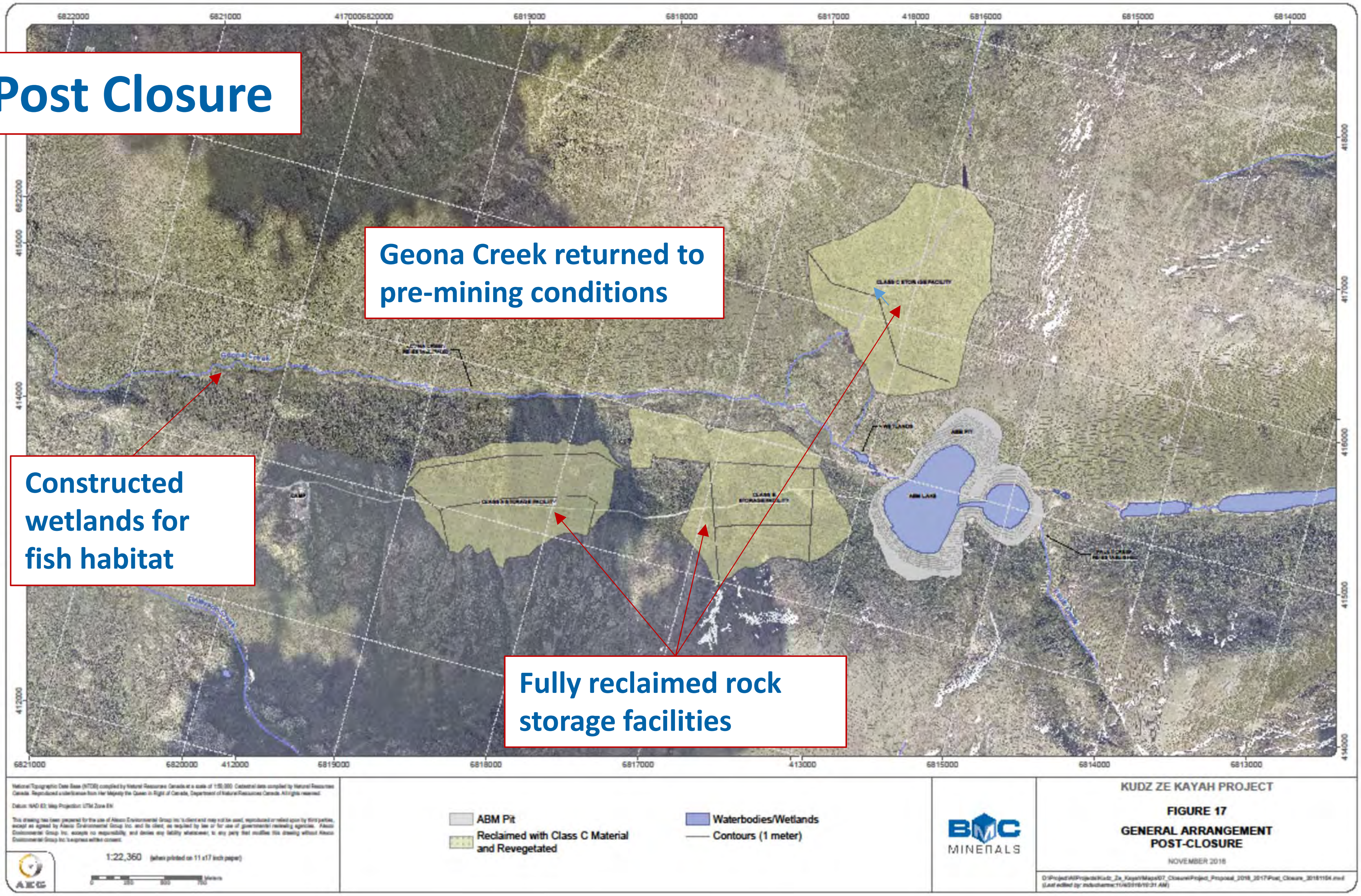


BMC MINERALS

Figure 16. General Arrangement Closure



Post Closure

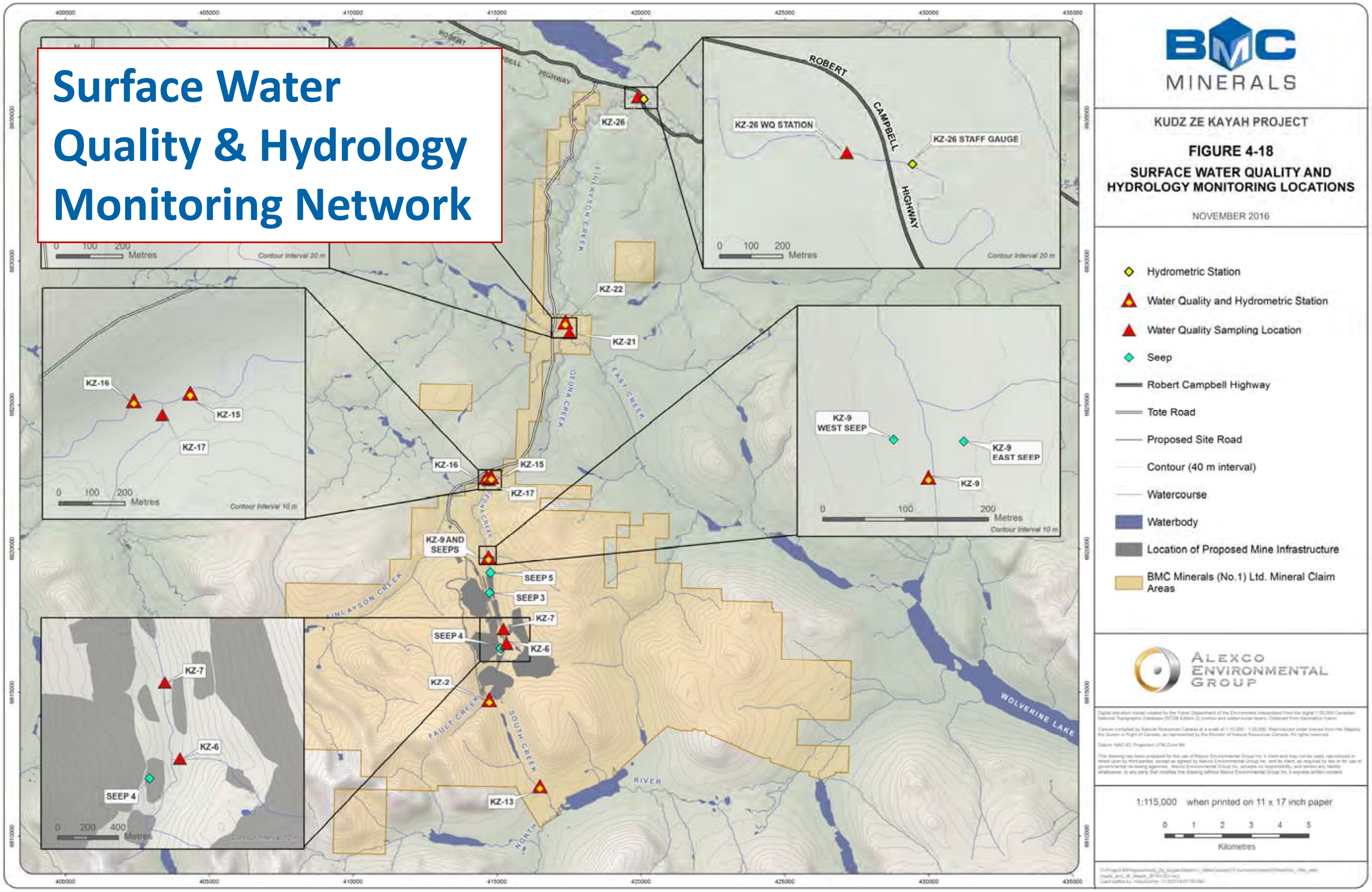


Environmental Management

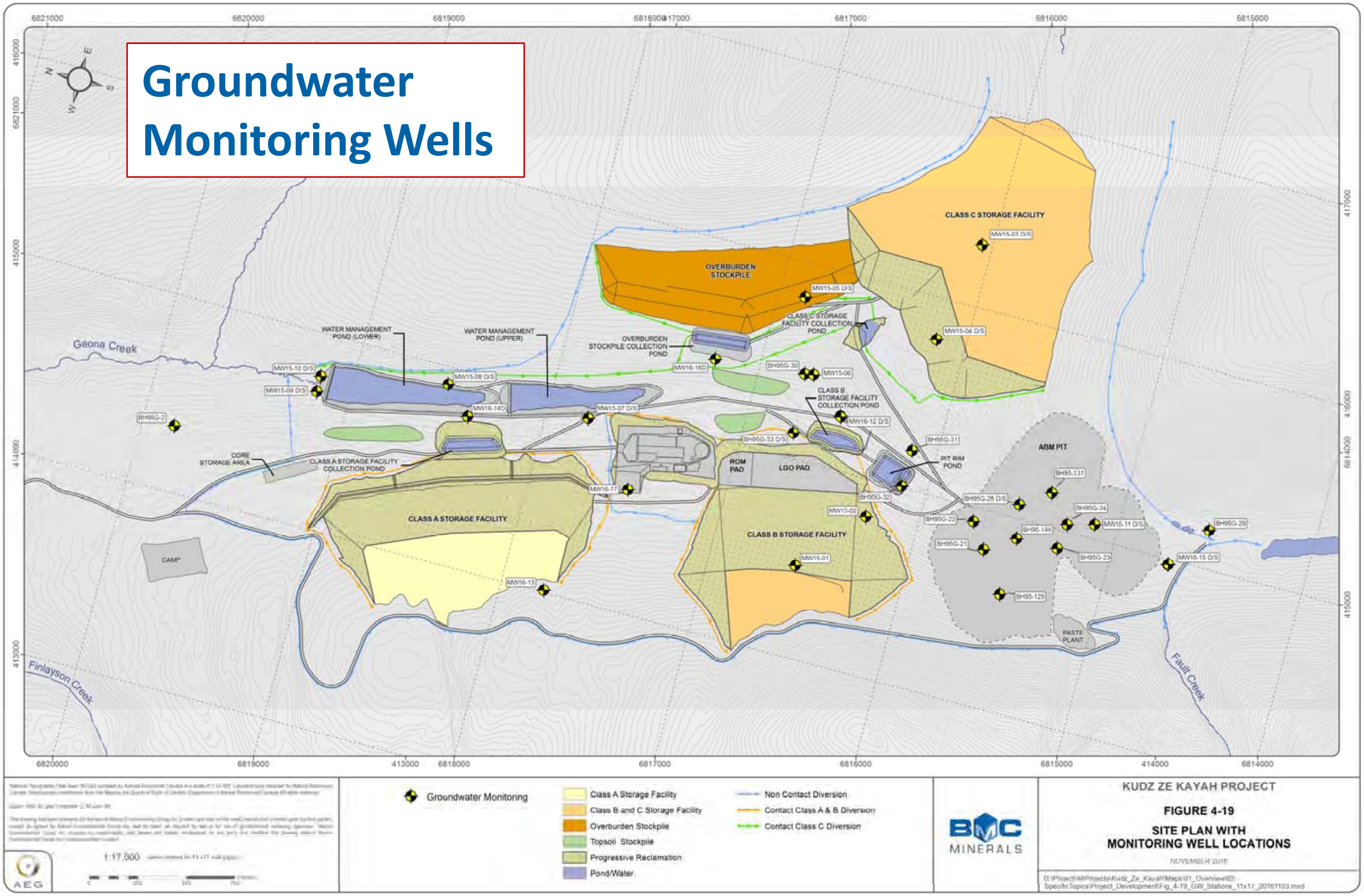
Environmental and Socioeconomic Baseline Studies

- **Climate and Air Quality**
- **Noise Levels**
- **Surface Water Quality and Quantity**
- **Groundwater Quality and Flow**
- **Aquatic Ecosystems and Resources**
- **Terrain and Soils**
- **Vegetation Cover and Composition**
- **Wildlife and Wildlife Habitat**
- **Heritage Resources**
- **Socio-Economics**

Surface Water Quality & Hydrology Monitoring Network



Groundwater Monitoring Wells



Environmental Protection Plans

- Waste Management Plan
- Hazardous Materials Management Plan
- Surface Water Management Plan
- Spill Contingency Plan
- Sediment and Erosion Plan
- Wildlife Protection Plan
- Invasive Plant Management Plan
- Fisheries and Aquatic Resources Protection Plan
- Adaptive Management Plan
- Environmental Monitoring, Surveillance and Reporting Plan

Operational Management Plans

- Mine Development and Operations
- Process Plant Facility Development and Operations
- Tailings Management
- Waste Rock and Overburden Management
- Road Construction
- Reclamation and Closure

Socioeconomic Management Plans

- Consultation and Engagement
- Noise Management
- Air Quality Management
- Traffic Management
- Heritage Resources Management
- Socio-economic Effects Management
- Health, Safety and Emergency Response

Maximizing Socioeconomic Benefits

- Innovative scholarship programs
- Preferential hiring of local contractors
- On-the-job training
- Culturally relevant employee mentoring with job retention focus

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Long term Capacity Building- Education Assistance:

Pre-Mining Phase Scholarship Program:

This fall, we awarded seven post-secondary scholarships and twenty high school student assistance packages.

Mining Phase Scholarship Program:

Once we begin development of Kudz Ze Kayah, our SEPA with Kaska provides for a further annual scholarships for the life of the mine.

Estimated Mine Expenditures and Employment

Construction Phase (2 years):

- Estimated between $370-$400 million to build the Project over a two year construction period;
- Approximately 250 full-time-equivalent jobs each year;

Operations Phase (10 years):

- Estimated annual site expenditures + concentrate haul approximately $175-$185 million/year;
- Approximately 300 jobs per year.

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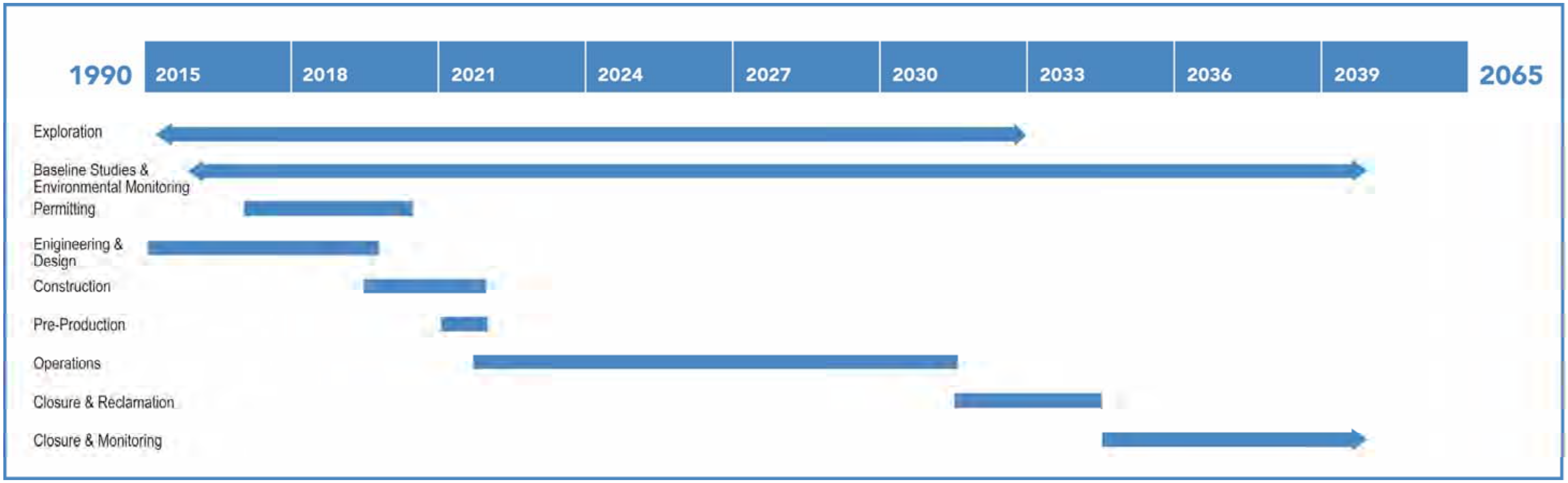
Permitting & Proposed Project Timeline

Permitting

We will be pursuing these four permits to operate Kudz Ze Kayah:

- Positive socioeconomic assessment - YESAB Executive Committee;
- Quartz Mining Licence - Yukon Government;
- Type A Water Licence - Yukon Water Board;
- Social Licence to Operate – Yukoners.

Proposed Project Timeline:



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Thank You

Mashi Cho

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