



PROPOSED ARCTOS ANTHRACITE PROJECT

Project Description Executive Summary

ENGLISH VERSION



Pursuant to:

British Columbia *Environmental Assessment Act* and the *Canadian Environmental Assessment Act*

Prepared for:

Arctos Anthracite Joint Venture
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Stantec Project No.:

1232-10182

Date:

April 2, 2013

1 GENERAL INFORMATION AND CONTACTS

The Arctos Anthracite Project (the Project) is a proposed anthracite coal mine in northwestern British Columbia. The site is about 90 kilometres southeast of Iskut, 160 kilometres northeast of Stewart and 240 kilometres north of Hazelton.

The Project is owned by the Arctos Anthracite Joint Venture (AAJV) as an unincorporated joint venture of Fortune Coal Limited and POSCO Klappan Coal Limited. The AAJV owns 61 contiguous coal licences located on Crown land on and around the north side of Mount Klappan. The proponent contact information is provided in Table E-1-1. On behalf of the AAJV, Stantec Consulting Ltd. (Stantec) has prepared the attached Project Description to introduce the development plans to Aboriginal groups, agencies, tenure holders, and the general public, and to officially commence the federal and provincial environmental assessment processes. This document is a summary of the Project Description.

It is anticipated that the Project will be subject to an environmental assessment under the *British Columbia Environmental Assessment Act* (BCEAA) and the *Canadian Environmental Assessment Act* (CEAA).

Table E-1-1 Proponent Contact Information

Name of Designated Project	Arctos Anthracite Project
Name of Proponent	Arctos Anthracite Joint Venture (AAJV), an unincorporated joint venture of Fortune Coal Limited and POSCO Klappan Coal Limited
Address	Arctos Anthracite Joint Venture 148 Fullarton Street, Suite 1600 London, Ontario, Canada N6A 5P3
Telephone	(519) 858-8188
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Primary Contact	Dr. Rick Schryer Director of Regulatory and Environmental Affairs rschryer@fortuneminerals.com
Secondary Contact	Carl Kottmeier Project Manager ckottmeier@fortuneminerals.com
Lead Executive of AAJV	Robin Goad President and CEO rgoad@fortuneminerals.com

2 PROJECT OVERVIEW

2.1 Project Description

The Project is a proposed anthracite coal mine in northwestern British Columbia. The proposed mine is within the Cassiar-Iskut-Stikine Land Resource Management Plan (LRMP) and Liard Mining Division. The site of the proposed mine is about 90 kilometres southeast of Iskut, 160 kilometres northeast of Stewart and 240 kilometres north of Hazelton (Figure E-2-1).

The proposed mine is anticipated to produce 3 million tonnes per year of clean anthracite coal over a mine life of approximately 25 years. The final (end-of-mine) areal extent of the open pit mine and other mine infrastructure disturbances is expected to be about 4,000 hectares (ha). The proposed mine plan includes backfilling portions of the open pit with mined rock. This will be done to reduce the size of the mine rock storage facilities adjacent to the open pit and thereby reduce the project's footprint.

As part of the Project, AAJV also proposes to finish a 147 km extension of the partially built rail line between the proposed mine and Canadian National Railway's (CNR) Minaret siding, where the existing rail line terminates (Figure E-2-2). The partially built rail lies within the Fort St. James Land Resource Management Plan (LRMP) and Omineca Mining Division. Completion of the rail line will provide the mine with rail access to the existing CNR rail line and thus a means of transporting coal to Ridley Terminals Inc., in Prince Rupert, BC.

The ultimate areal extent of the open pits will be approximately 730 hectares and the total areal footprint of the external mine rock storage facilities will be approximately 1,350 hectares. Collectively, the total ultimate areal extent of the disturbance area including the open pits, mine rock storage facilities, mine infrastructure and railway load-out, but not including the rail line, is estimated to be less than 4,000 hectares.

The Project will require other facilities and activities associated with the construction, operation and maintenance of the Project and the decommissioning, reclamation and closure of the mine site and its associated facilities. The major Project components are described in the following two sections.

2.1.1 Mine Components

The mine will operate from four component pits within an overall single pit area and have an associated mine infrastructure and rock storage facilities (Figure E-2-4). Specific components include but are not limited to:

- Open pit mine and coal wash plant capable of processing 3 million tonnes per year of coal
- Upgraded surface of the airfield
- Mine haul roads within the mineral property
- Clean coal storage silos and coal rejects bin
- Mine rock, coal rejects, and soil storage facilities

- Borrow pits
- Erosion, sediment control and water management structures
- Reagent handling and storage facilities
- Process water management
- Diesel powered electrical generation
- Mine dry, camp, security, warehouse, maintenance shop, and administration buildings
- Infrastructure facilities and services, including a fuel tank farm, laboratories, potable water supply, sewage treatment and possible waste disposal facilities, and communication, safety and fire protection systems
- Explosives storage facilities
- BC FLNRO (Special Use Permit S24493), upgraded public access road (using the Ealue Lake road and BC Rail right-of-way) to the mine site (Figure E-2-2)

Key components are described in greater detail in the sections below.



Legend

- Proposed Rail Route on Existing Railed
- Existing Railway
- Existing Access Road
- City or Town
- Waterbody
- River or Stream

Project Location

Sources: Base Data: Land Resource Data Warehouse, Government of British Columbia (2012); Terrain Resources Information Management (TRIM) topographic database, Government of British Columbia (2012); National Topographic Database (NTDB), Canvec v.10, Government of Canada (2012).
 Project Data: Arctos Feasibility Study, Golder Associates (2012).

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DATE: 24-JAN-13
 FIGURE ID: 123210182-042
 DRAWN BY: M.WOOD

PROJECTION: UTM - ZONE 9
 DATUM: NAD 83
 CHECKED BY: J. MUCKLOW

PREPARED BY:

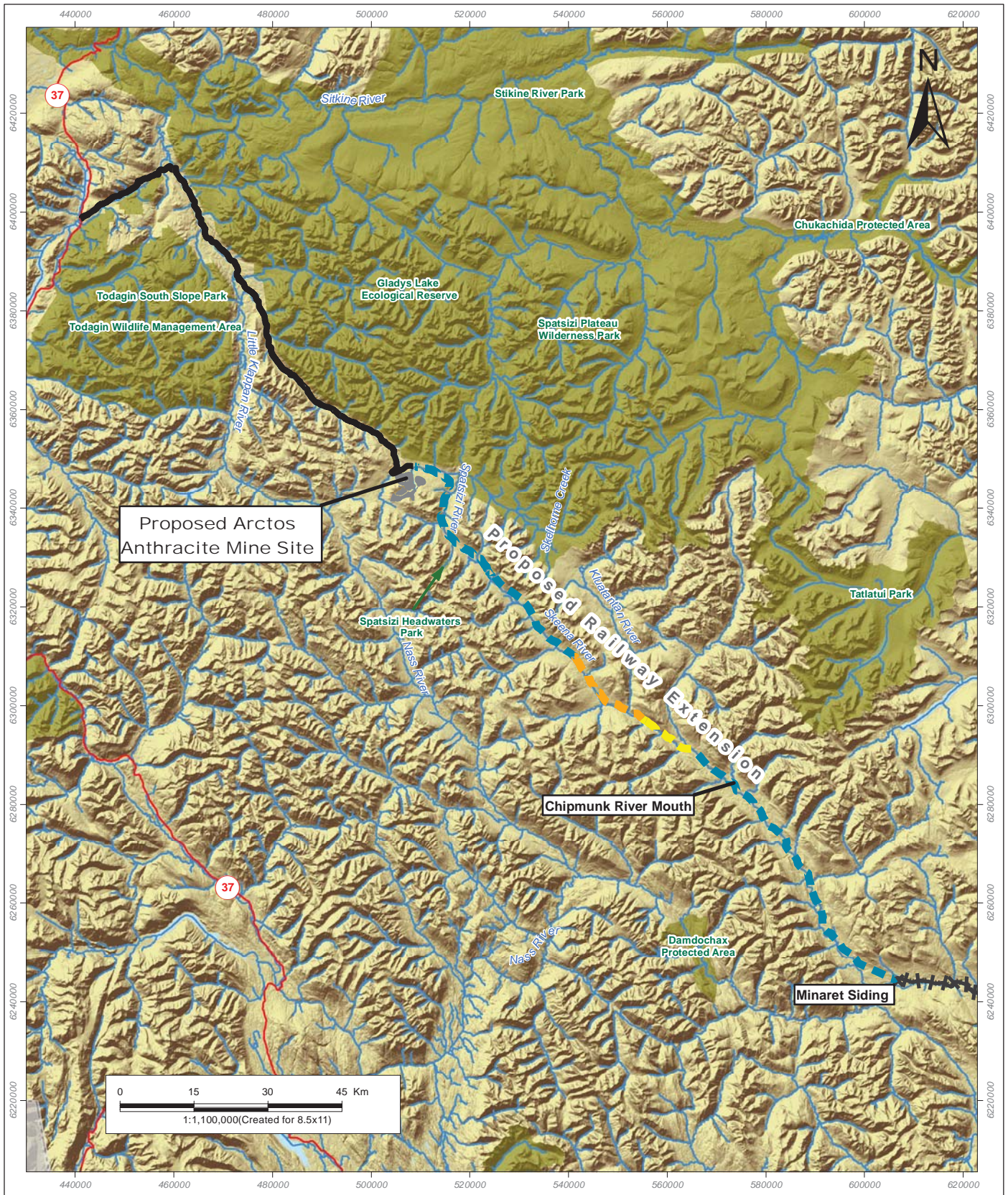


PREPARED FOR:



FIGURE NO:

E-2-1



Legend

- ⊕ Existing Railway
- ▬ Existing Rail Bed
- ▬ Partially Completed Rail Bed
- ▬ Rail Bed Required
- Existing Access Road
- Parks and Ecological Reserves

Railway and Access Road

Sources: Base Data: Land Resource Data Warehouse, Government of British Columbia (2012); Terrain Resource Information Management (TRIM) topographic database, Government of British Columbia (2012); National Topographic Database (NTDB), Canvec v.10, Government of Canada (2012). Project Data: Arctos Feasibility Study, Golder Associates (2012).

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DATE: 25-JAN-13
 FIGURE ID: 123210182-051
 DRAWN BY: M.WOOD

PROJECTION: UTM - ZONE 9
 DATUM: NAD 83
 CHECKED BY: J. MUCKLOW

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FIGURE NO:

E-2-2

2.1.1.1 Mine Rock Storage Facilities

The mine rock storage facilities have been conceptually designed to minimize mine site haulage distances, associated costs and to increase their stability.

This will be accomplished by utilizing the existing topography and backfilling within the mined out pits wherever practical. More detailed geotechnical engineering will inform the detailed design. To minimize overall impacts from mine infrastructure, the mine rock storage facilities will be located entirely within one watershed—the Didene Creek watershed.

2.1.1.2 Mining Operations

Primary mine rock stripping will be conducted with hydraulic shovels loading trucks for haulage to the mine rock storage facilities or for in-pit placement. Backhoe excavators will remove top wedge rock material, coal and rock partings. Blasting operations will be limited to mine rock; the coal seams themselves will not be blasted.

At full production, the mine will produce approximately 5.4 million tonnes of ROM coal annually which will be processed into 3 million tonnes of clean coal. The average stripping ratio over the mine life is estimated to be 11.3 bank cubic metres of mine rock per tonne of clean coal produced. The total stripping volume for the life of the mine is estimated to be 782 million bank cubic metres of mine rock.

The ultimate areal extent of the open pits will be approximately 730 hectares and the total areal footprint of the external mine rock storage facilities will be approximately 1,350 hectares. Collectively, the total ultimate areal extent of the disturbance area including the open pits, mine rock storage facilities, mine infrastructure and railway load-out, but not including the rail line, is estimated to be less than 4,000 hectares.

2.1.1.3 Explosives Use and Storage

Blasting operations will be limited to mine rock; the coal seams themselves will not be blasted. Mine rock will be drilled and blasted using rotary and percussive blasthole drills and ammonium nitrate/fuel oil (ANFO) based explosives. Certified blasters or a certified blasting contractor will perform all blasting operations. Related blasting materials, including detonators, detonating cord, boosters, ANFO and raw materials such as ammonium nitrate prill will be stored on site in a licensed magazine location using only approved magazine facilities for finished explosives and only approved storage containers for raw materials. The magazines will be established in compliance with all pertinent regulations.

2.1.1.4 Water Storage Reservoir

The fresh water impoundment is anticipated to be designed to contain approximately 700,000 cubic metres of water. This volume represents one full year of the mine's make-up water demand, as well as the volume imposed by 2 metres of ice frozen on the reservoir surface. The reservoir would be kept at optimum level during summer months.

2.1.1.5 Camp Water System

The camp water storage tank will be a 600,000 litre vertical steel tank measuring approximately 8 metres in diameter by 12 metres high, installed on a reinforced concrete foundation. This tank volume provides water storage capacity for approximately three days of potable water, and approximately two hours of fire water at a rate greater than 2,000 litres per minute. A potable water filtration and chemical treatment facility will produce potable water at the rate of 136,000 litres per day, with storage tanks to handle the peak demands of the camp.

2.1.1.6 Coal Wash Plant

The coal wash plant will use water and a series of vibratory and stationary sizing screens, heavy media baths and heavy media cyclones, reflux classifiers and dewatering sieves, for the recovery, cleaning and sizing of coal. Flotation cells will be used for the recovery of ultrafine coal which is anticipated to represent less than 10 percent of the coal being cleaned. The coal wash plant will be designed to produce a 10 percent ash anthracite coal product optimally suited for use in PCI processes utilized in many modern steel manufacturing plants.

Coal rejects will either be comingled within the mine rock storage facilities or stored in their own facility pending geochemical analysis to determine metal leaching or acid generating potential. Coal rejects will be segregated and handled in accordance with the approved ML/ARD management plan.

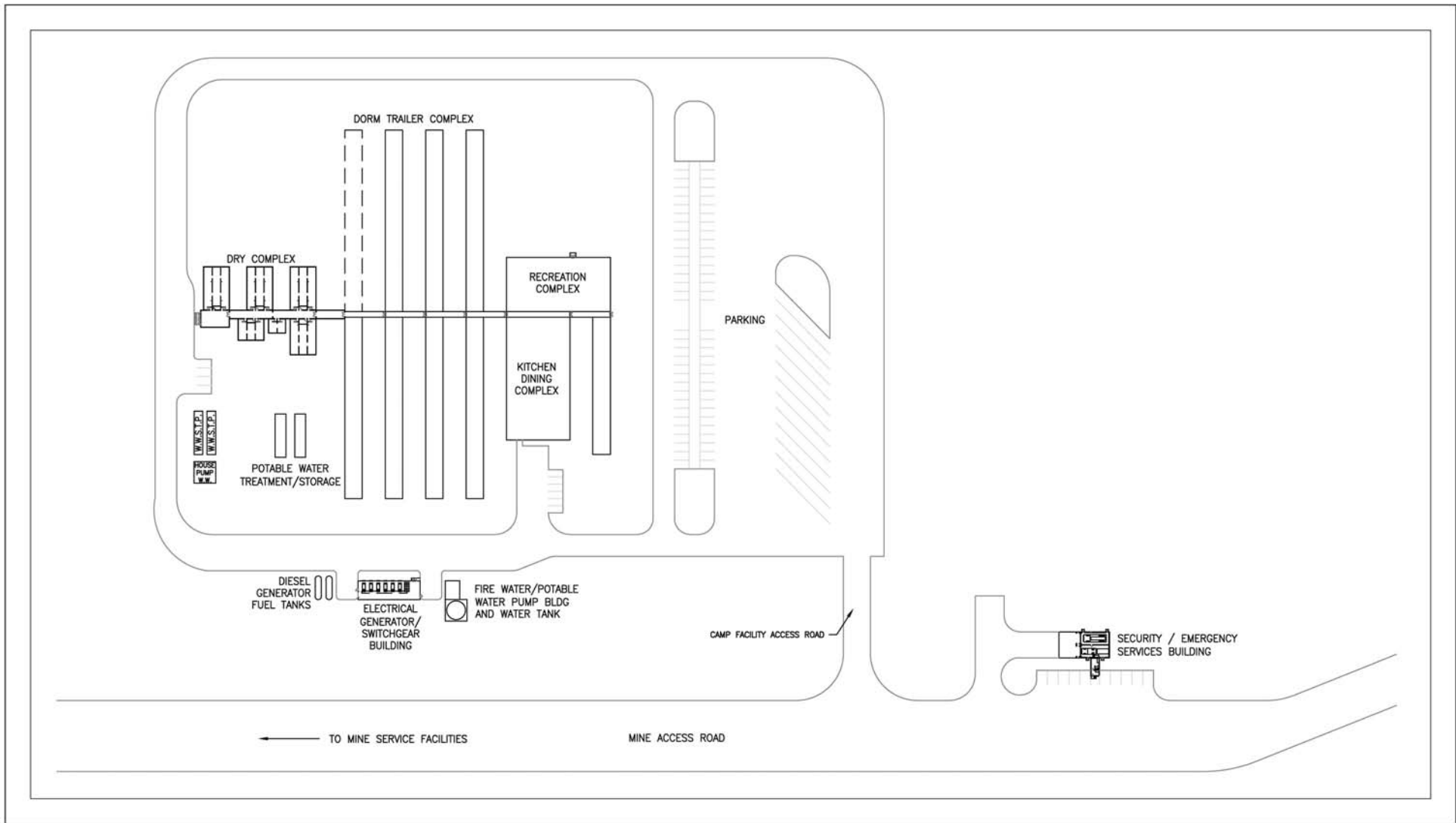
2.1.1.7 Mining Camp



A camp will be constructed to accommodate the work force of approximately 470 employees (up to 580 at peak). Mine personnel are currently proposed to work 12-hour shifts on a rotating schedule of two weeks on and two weeks off. Given the mine's remote location, work crews are proposed to be transported by bus to and from the mine from staging centres in the nearby communities and flown in from communities farther south. The placement of the staging centres will be based on the locations of the work force and preference will be given to locally sourced personnel. It is anticipated that local workers may (but are not limited to) come from Prince George, Smithers and Terrace. The use of buses will minimize the overall traffic on the mine access road by avoiding personal vehicles coming to site.

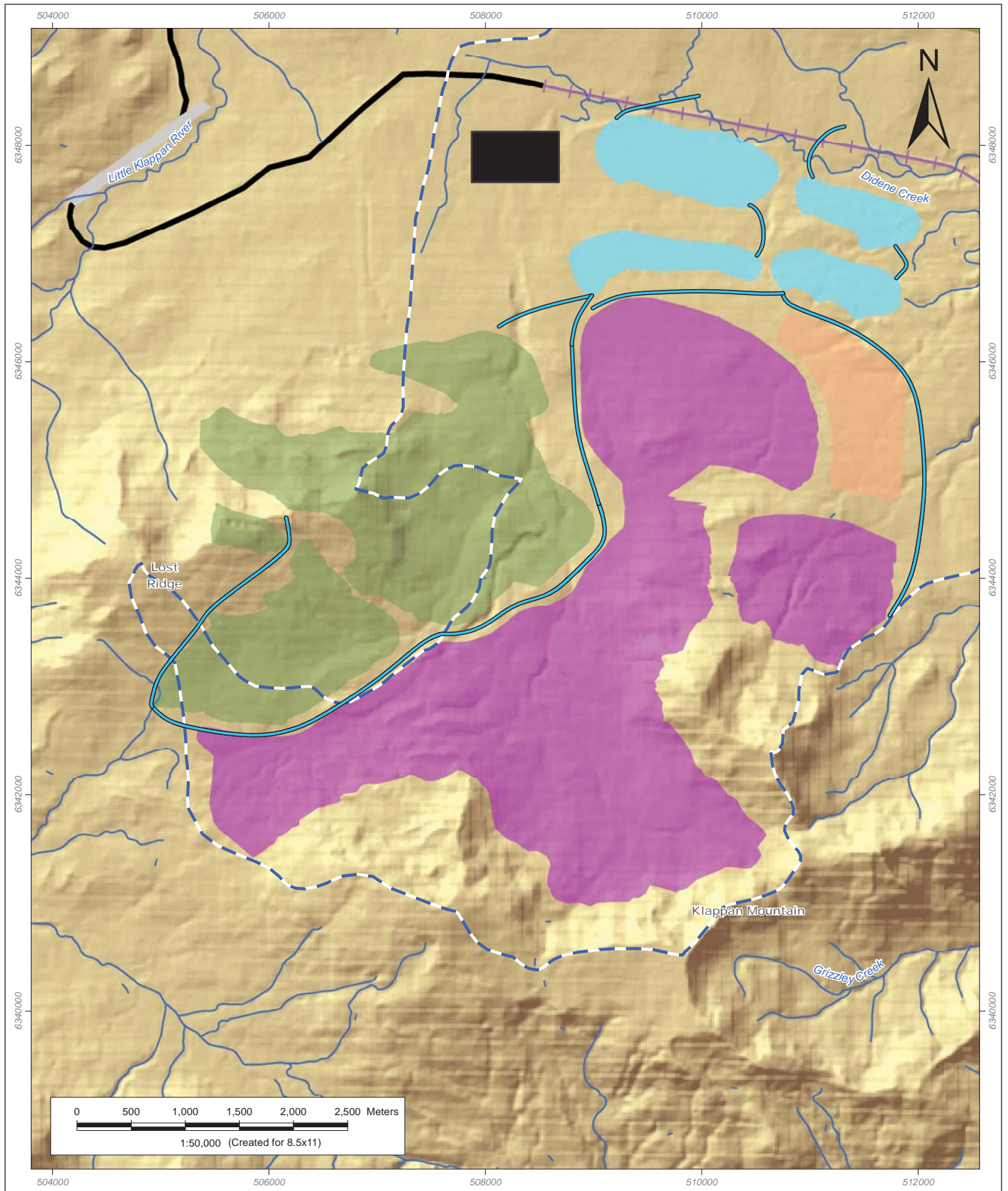
The camp will include lodging and catering facilities for the mine, the mine's security and emergency services building and the mine dry. These facilities will be situated together near the mine entrance to share power, water, sewage treatment and fire-protection services.

It is anticipated that the mining, processing, and coal transportation operations will be scheduled with rotating crews. Maintenance personnel crew shifts will also be staggered with operations personnel crew shifts. As a result, approximately 325 people will rotate in and out of the Arctos site every two weeks. Two pick-up points for employees and/or contractors are envisioned along Hwy 37 - one each to the north and south of the access road to site. Three buses will operate each week transporting personnel; two buses would go northwards to Iskut/Dease Lake and Telegraph Creek, and one south to Meziadin or Bell II. The bus routes will follow numbered provincial highways. The use of highways to transport raw materials and supplies will be predominantly in the construction phases. During operation it is anticipated that the proposed rail will be relied on for the majority of transportation needs.











A general layout of the proposed personnel facilities is shown on Figure E-2-3.



		Mine Camp and Dry		PREPARED BY: 
		Sources: 2012 Update of the Arctos Anthracite Project Mine Feasibility Study, Golder Associates (2012) and CDG Engineers (2012). Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.		PREPARED FOR: 
		DATE: 28-JAN-13 FIGURE ID: 123210182-93	PROJECTION: UTM - ZONE 9 DATUM: NAD 83	DRAWN BY: M.WOOD CHECKED BY: J. MUKLOW
				FIGURE NO: E-2-3



Legend

-  Proposed Rail Route on Existing Railbed
-  Existing Access Road
-  Camp and Processing Facilities
-  Surface Water Collection Ditches
-  Didene Creek Watershed
-  Proposed Sediment Ponds
-  Mine Rock Storage Facility
-  Ultimate Pit Extents
-  Coal Rejects Storage Facility
-  Existing Air Strip
-  Parks and Ecological Reserves

Ultimate Pit Design

Sources: Base Data: Land Resource Data Warehouse, Government of British Columbia (2012); Terrain Resource Information Management (TRIM) topographic database, Government of British Columbia (2012); National Topographic Database (NTDB), Canvec v.10, Government of Canada (2012). Project Data: Arctos Feasibility Study, Golder Associates (2012).

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DATE: 30-JAN-13
 FIGURE ID: 123210182-082
 DRAWN BY: M.WOOD

PROJECTION: UTM - ZONE 9
 DATUM: NAD 83
 CHECKED BY: J. MUCKLOW

PREPARED BY:



PREPARED FOR:



FIGURE NO:

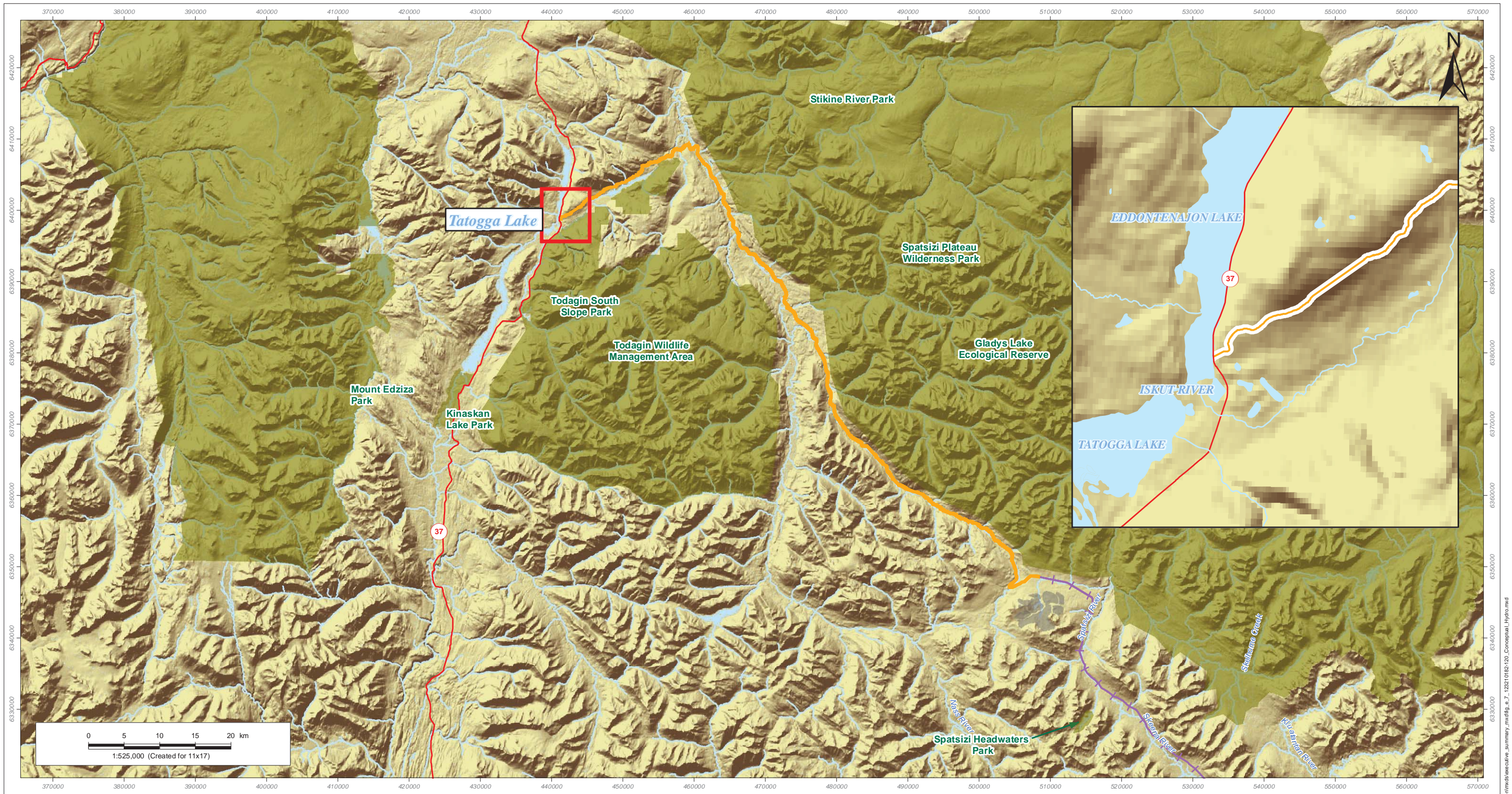
E-2-4

2.1.1.8 Power Supply

The electrical power requirements for all mine facilities including work camp, coal handling, mine facilities/buildings and infrastructure is estimated to have a design load of 8,250 kilowatts with an average demand estimated to be approximately 6,270 kilowatts.

The preferred source of electrical power for the mine is a transmission line that connects to BC Hydro's Northern Transmission Line (NTL) as shown in Figure E-2-5. Given an anticipated mine load of about 20 megawatts, and the expected distances to reach the BC Hydro system, the operating voltage of a proposed mine will likely be 138 or 287 kilovolts. The closest and most logical point of interconnection (POI) to connect to the Northern Transmission Line (NTL) is at Tatogga, BC. From the POI at Tatogga, BC, the transmission line would follow the Ealue Lake service road and then intersect the existing rail bed at which point the transmission line would follow the rail bed to the project site; the total distance is approximately 112 km. The exact width will depend on many factors: terrain (slope), tree height, and existing cleared width (for roads/railway), among others. The corridor proposed will be considerably wider than the final routing; initial tower locations, geohazards evaluation, and considerations of environmental impacts presented will be approximate until further detailed design is available.

An alternate source of electrical power will be considered that would require construction of a power transmission line. The use of natural gas generators (using railway supplied compressed natural gas) will be considered in lieu of diesel generators.



Legend

- Proposed Rail Route on Existing Railbed
- Conceptual Transmission Line Location
- Conceptual Transmission Line 50m Right of Way
- Parks and Ecological Reserves
- River or Stream

Conceptual Location of Transmission Line from Tatogga Lake to Project Site along Ealue Lake Access Road

Sources: Base Data: Land Resource Data Warehouse, Government of British Columbia (2012); Terrain Resource Information Management (TRIM) topographic database, Government of British Columbia (2012); National Topographic Database (NTDB), Canvec v.10, Government of Canada (2012).
Project Data: Arctos Feasibility Study, Golder Associates (2012).

Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.

DATE: 28-MAR-13	PROJECTION: UTM - ZONE 9	DRAWN BY: M.WOOD
FIGURE ID: 123210182-120	DATUM: NAD 83	CHECKED BY: G. CASTAGNER

PREPARED BY:



PREPARED FOR:



FIGURE NO:

E-2-5

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2.1.1.9 Mine Reclamation and Closure

Closure of the proposed mine will be designed to minimize future environmental impacts and liability. Decommissioning of the site will include the reclamation of disturbed surfaces, the removal of buildings and other infrastructure, and the maintenance of infrastructure required post-closure such as water management facilities. Structures will be removed and the foundations will be broken and buried.

Progressive reclamation of mine area features will be conducted as features (or portions thereof) become inactive in the operations phase of the mine. Growth media placement and re-vegetation will take place in these areas where reclamation will be permanent. These progressively reclaimed areas will serve as advance monitoring for reclamation techniques and success.

The primary objective for site reclamation will be to achieve long-term stability of reclaimed areas capable of supporting productive revegetation. Native plants, specifically traditional use plants, will be part of revegetation activities.

The reclamation objectives will aim to meet current and future land use requirements in accordance with appropriate legislations and guidelines of the time. These objectives, will be met through a combination of protecting ecosystems from disturbance where possible, reshaping the landscape to be consistent with the surrounding area, and by planting species suitable for the reclaimed landscape. The end land use objectives developed for the site will be described in terms consistent with traditional knowledge of animal movement and use patterns, and the connectivity of the landscape.

2.1.1.10 Waste Management

The waste management plans will aim to comply with regulations and guidelines associated with the Ministry of Health in the *Health Act*, the Ministry of Environment in the *Environmental Management Act*, and other relevant regulations. Wastes and emissions typically expected at a coal mine with associated coal processing and transport facilities are described below, along with possible mitigation measures.

Air Emissions

Air emissions will be generated primarily as dust and combustion gases. Sources of combustion emissions may include train operations, diesel-electric (possibly natural gas) generators, mobile equipment at mine site and commuting to/from mine site. Low sulphur diesel will be used to minimize issues with combustion gases. Dust emissions will most likely be generated from mobile equipment and mining operations such as digging and truck loading, drilling operations, truck-dumping and crusher operations, which can be managed by water spraying. Blasting in the pit will generate instantaneous gas and dust emissions which dissipate. Venting from laboratories and maintenance activities such as welding, the paint shop and sandblasting equipment for health and safety reasons will generate small quantities of air emissions. Emissions from the camp, mainly from cooking vented outside, should also be minimal.

Water Management

Surface runoff (rain/snowmelt) from mine areas and water from pit dewatering operations will be routed to sedimentation storage ponds for use in the coal washing plant. Excess water would be released to the environment when water quality meets discharge criteria, following testing and treatment. The specifics of the potential treatment have not yet been determined, and will be based on the hydrochemical testing of these sources of water. Should pit water contain trace residues of oils, fuels and grease and dissolved explosives ingredients (ammonium nitrate), they will be treated prior to release.

The coal wash plant recycles most of the water. Primary losses from the recycling circuit include moisture on the clean coal shipped by train to market and on the coal rejects comingled with the mine rock. Fine coal rejects that pass through the coal flotation recovery process will contain residues of the flotation reagents.

Sewage and grey water from the camp/dry and maintenance buildings will be routed to the camp sewage treatment plant. This water is anticipated to be used in the coal washing plant but may be treated and released to the environment when excess water conditions exist. Potential water quality issues associated with the sewage water will be evaluated. The option of directing sewage into holding tanks to be transported to off-site treatment facilities will also be assessed.

Water from shop activities/equipment washing operations will be routed to the mine facility wastewater treatment plant. Once treated, this water will be added to the coal washing circuit. During periods of excess water, the treated wastewater may be released to the environment.

Chemical Management

Used liquid solvents, degreasers, lubricants and oil will be stored for shipment off-site disposal of in accordance with BC MOE regulations. This material is anticipated to be shipped to a receiver that recycles such liquids.

Other Waste Management

Food wastes will be collected and either incinerated by a licensed incinerator or removed from site by train or truck to an approved disposal facility. Recyclable wastes, such as paper, cardboard, plastics, metal, etc. will be sorted and shipped out for recycling to the extent possible. Some combustible wastes such as soiled paper and cardboard may also be incinerated.. Plans will be developed to address other solid wastes that may be generated at the mine site, such as wood, concrete, etc. Options such as on-site or off-site disposal and incineration are being considered.

We anticipate the production of small quantities of potentially hazardous wastes. Protocols will be developed for handling hazardous wastes, and applicable guidelines will be followed

2.1.2 Coal Transportation / Railway Component

The coal product is proposed to be transported from the mine site to Ridley Terminals in Prince Rupert by railway as shown on Figure E-2-2. Rail is considered to be the safest, most energy efficient and cost effective method of transport available for the Project. It is anticipated that the railway would also be used to transport bulk supplies to site, such as fuel and explosives.

Access to Prince Rupert by rail requires completion of a rail extension to link the 147 km section between the mine site and the existing CNR siding at Minaret. Figure E-2-2 depicts the portions of rail between Minaret and the mine site that will require construction and/or maintenance. In order to provide an efficient system for transporting the coal by rail to Ridley Terminals Inc. at Prince Rupert the AAJV needs to access and determine the costs and issues to construct a new load out facility at the mine site to service a 147 km rail extension. The extension will complete the existing partially constructed rail line and bed between the proposed mine and the connection to the existing CNR rail line at Minaret. Once completed it is intended that CNR will operate and maintain the line, as is the case for the existing rail line. Raw materials and supplies will be transported by rail where possible.

The Dease Lake Extension was a project by the Government of British Columbia to construct a rail line to connect Fort St. James and Dease Lake. The line was fully completed up to Minaret beyond that 58 km (north as far as Chipmunk creek) of rail bed and wooden ties laid before construction stopped in April of 1977. Beyond Chipmunk the grade and bridge structures were left in varying stages of design and construction. Although the right-of way (corridor) was designed for railway use, the line north of Minaret has never had any active rail service and has remained untouched since construction was discontinued in 1977.

Most of the rail extension within the 147 km section from the mine site to Minaret will require new rail track installation on existing rail bed however; along a 23 km section construction of new rail bed will also be required.

Coal will be loaded onto trains at the mine site using a rail siding system and rail car hopper loader, which will be designed to load a full train in less than six hours. Subject to more detailed analysis, coal cars will either be fitted with canopies to prevent dust losses, or an ecologically compatible dust suppression material will be applied to the coal in the cars as is currently practiced by several other western Canadian coal mines transporting coal to port locations by rail.

The engineering scoping study will not involve any construction but will involve detailed site inspections and audits of the proposed line north of Minaret. Activities will include:

- Surveying of the route alignment and right of way
- Soil sampling of the subgrade and sub ballast levels
- Culvert and retaining wall inspections
- An approximately 23 km long section of the rail line was only roughed in when the line was constructed in the 1970s; drilling and blasting activities were performed, but the rail bed and sub-base were not constructed. Activities in this section will therefore require more effort in terms of geotechnical evaluation, culvert development at water crossings, and rail base/bed construction using coarse rock aggregates taken from existing borrow pits built in the 1970s
- Bridge inspections, including determining the current condition of steel, abutments and piers
- Establishing appropriate locations (borrowing pits) to source materials that will be required to finalize the track structure

2.1.3 Project Activities

Subject to receipt of regulatory and project approvals, development and construction of the Project is scheduled to commence in 2015, with full-scale production to begin in late 2016. The schedule reflected in focuses on infrastructure during the mine construction and the initial production period. Project design and engineering will begin early and proceed to the stage where contracts can be negotiated, and long-lead materials, such as the processing plant and mining camp, can be ordered.

At the onset of the initial construction season following issuance of the mining permit, project set-up and site development works will begin simultaneously at the mine site. Work will proceed on a fast track basis, with the intention of accelerated completion of critical path items.

The critical construction phase will include:

Mine Site

- Upgrade existing public access road under terms of Special Use Permit S24493 for delivery of construction-related materials and equipment
- Safety and environmental procedures implemented, including finalization of the Environmental Management Plans
- Site clearing, grading, and grubbing
- Construction of sediment control and water management facilities

- Construction of transmission line for construction power and later operations
- Set up of mine infrastructure (camp, power, water supply, office, equipment repair)
- Transportation of construction workers, equipment and supplies to the mine site by rail and/or truck
- Set up of explosives facility
- Development of haul road network and pit preparation/stripping
- Construction of coal washing plant

Coal Transportation System

- Construction of rail extension from mine site to Minaret siding
- Construction of rail load-out facilities

3 PROJECT SCHEDULE

Pending receipt of all necessary regulatory approvals, the proposed schedule for the Project is outlined in Table E-3-1.

Table E-3-1: Summary of Major Milestone Activities

Project Component	Description of Activities	Date
Environmental Baseline Studies	Studies necessary to assess potential project impacts on the biological or social environment	2012 to 2013
Environmental Assessment Process	Steps as outlined by the EAO and CEA Agency	2013 to 2015
Permitting and EMPs	As per provincial and federal legislation	2013 to 2015
Construction	Receive authorization to construct, begin construction; site clearing and preparation, construction of camp and ancillary facilities, pre-stripping and initiate coal transportation system	Q3 2015 to 2016
Operation	Receive authorization to operate; initial mining/full production	Q4 2016
Decommissioning/Closure	Reclamation and Decommissioning Reclamation and Decommissioning (progressive reclamation initiated early in mine life with most activity in 2042. Decommissioning is expected to take approximately 2 years; reclamation may take 3-5 years)	2042 (based on current mine plan)

4 PROJECT PURPOSE AND RATIONALE

The proposed Project will produce anthracite coal, the highest quality metallurgic coal available and for which there is increasing global demand. Metallurgical coal and iron ore are the principal raw materials needed to make steel. Anthracite represents just 1 percent of global coal reserves. It is also the most versatile coal, suitable for use in a broad range of metallurgical, thermal, water purification and composite material products. The global shortage of high quality metallurgical coal is driving innovation in the steel industry as producers are driven to develop new technologies to be globally competitive, reduce greenhouse gas emissions, and diversify their sources of key raw materials. Many of these new technologies use even greater amounts of anthracite.

The Project, as proposed, is expected to be in operation for approximately 25 years. No federal funding will be required for this Project.

5 PROJECT LOCATION

The proposed mine and existing access road lay within the Cassiar-Iskut-Stikine LRMP and Liard Mining Division, and most of the proposed railroad extension lies within the Fort St. James LRMP and Omineca Mining Division. The proposed mine site is about 90 kilometres southeast of Iskut, 160 kilometres northeast of Stewart and 240 kilometres north of Hazelton (centered at approximately 57° 15' N latitude and 128° 53' W longitude, NTS Map Reference 104H, Northing 6344710, Easting 507750, UTM Zone 9, NAD 1983 datum), as seen in photo E-1 .

Photo E-1: Photograph of the Proposed Mine Site.



5.1 Existing Access

The site can be accessed by gravel road from Highway 37, beginning on the Ealue Lake Road approximately 12 kilometres south of Iskut and travelling eastward approximately 25 kilometres to a bridge over the Klappan River which connects to the existing railway bed. The total length of this access road is approximately 112 kilometres.

Fortune Minerals (now the AAJV) has a Special Use Permit (S24493 issued by the BC Ministry of Forests, Lands and Natural Resource Operations [MFLNRO], August 26, 2005) for the access road and will upgrade and repair along the length of the road as needed to support mine traffic. In discussions with government, the AAJV understands that the access road may require some engineered upgrades in select locations, and environmental permits and approvals will be sought as required in connection with these engineered improvements.

An existing gravel air strip, approximately 1,000 metres long and located within the coal licences on a widened section of the railway bed adjacent to the Little Klappan River, provides access for fixed wing aircraft to the site.

6 PROPOSED RAILWAY

The proposed railway transportation component of the Project will start at the new rail load-out located between the Little Klappan and Spatsizi Rivers (at approximately 57° 17' N, 128° 51' W, NTS Map Reference 104H, Northing 6348490, Easting 508670, UTM Zone 9, NAD 1983 datum), and travel south along the Spatsizi and Skeena River valley for approximately 147 kilometres until it reaches the existing tracked terminus at Minaret siding near the confluence of the Sustut and Skeena Rivers (at approximately 56°20' N, 127°16' W, NTS Reference Map 94D06, Northing 6545440, Easting 606380, UTM Zone 9, NAD 1983 datum). Please refer to figure E-2-2 for details. While not considered a ROW, this proposed section of railway would, in effect, be a completion of a section of railway that was under construction 30 years ago.

7 ABORIGINAL TERRITORIAL INTERESTS

The proposed mine site, northern access road and the northern half of the proposed railway extension are located within the asserted traditional territory of the Tahltan Nation. The Iskut First Nation is the closest Tahltan community to the mine site. Two reserves, Iskut No. 6 and Kluachon Lake No. 1, associated with the Iskut First Nation, are located approximately 90 kilometres north-northwest of the proposed mine. The most populated community, Telegraph Creek No. 6 reserve associated with the Tahltan Band, is approximately 150 kilometres northwest of the proposed mine site. A second community, Dease Lake No. 9 reserve associated with the Tahltan Band, is about 150 kilometres north-northwest of the proposed mine. Other reserves associated with the Tahltan Band range from 141 to 190 kilometres generally northwest of the proposed mine.

The southern half of the proposed rail extension is located in the asserted traditional territory of the Gitksan Nation.

8 REGULATORY FRAMEWORK

The Project is anticipated to be subject to the Canadian and British Columbia environmental assessment processes.

The Project does not appear to be in an area that has been subject to a regional environmental study and no federal lands will be required for this project.

There are no proposed federal lands required for this project although the reserve closest to the project area associated with the Gitksan Nation and affiliated with the Kispiox Band is Kuldoe No. 1, is approximately 63 kilometres southwest of Minaret siding and 160 kilometres south-southeast of the proposed mine. Kisgegas Reserve, affiliated with the Gitanmaax Band Council, is about 70 kilometres south of Minaret siding. Both of these reserves are generally not inhabited. The closest populated reserve associated with the Gitksan Nation is Kispiox No. 1, located approximately 110 kilometres south-southwest of Minaret siding.

The nearest reserve lands to the proposed rail line completion are along the existing, operating BCR/CNR railway, and are associated with the Takla Lake First Nation, a member of the Carrier Sekani Tribal Council. The closest of these reserve lands is Bear River No. 3, approximately 20 kilometres east of Minaret. The main Takla Lake First Nation reserve is located approximately 160 kilometres southeast of Minaret siding.

Table E-8-1 depicts the permits, licences, approvals and authorizations that may be required. They have been grouped according to the phase of the Project during which they will be required.

8.1 Environmental Assessment History

Stage I (June 1985) and Stage II (April 1987) environmental assessment reports were submitted by Gulf Canada Resources Limited for review under the former Guidelines for Coal Development. By the mid-1990s, Gulf had completed several iterations of preliminary assessments, pre-feasibility and feasibility studies. Studies considered a surface open pit mine, coal processing plant, site infrastructure, a new haul road to Bell 2 on Highway 37 and an upgraded port facility at Stewart. The studies were based on producing four to five coal products for space heating in Europe and Korea and for specialty metallurgical processes.

In 2002, Fortune Coal Limited purchased the coal licences and in September 2004, submitted a Project Description to the EAO that described its plans to produce 1.5 million tonnes per year of anthracite coal and truck it to the Port of Stewart. The Project was called the Mount Klappan Coal Project at that time. The EAO determined that the proposed Project was reviewable under the BCEAA because it would have a production capacity equivalent to or exceeding 250,000 tonnes per year and, in October 2004, issued a Section 10 Order requiring that the proponent receive an environmental assessment certificate (EAC) before proceeding with the Project. An EAC is required before authorizations to construct or operate the Project may be issued (refer to Section 8). A Section 11 Order was issued in October 2006 describing the scope of the environmental assessment and the procedures and methods for conducting the assessment.

Draft Terms of Reference (dTOR) for an EAC under the BCEAA were submitted to the EAO in November 2006. Public comments on the dTOR were received into early 2007. The Project was also subject to the CEAA, but the federal review process was not formally initiated.

Environmental assessment activities were temporarily suspended by Fortune Coal Limited in 2008 when the company decided to modify its mining plans in order to develop more cost-effective and efficient mine and transportation operations.

8.2 Provincial Interests

The mine is anticipated to produce 3 million tonnes per year of anthracite coal; therefore it is assumed the Project will be subject to the BC Environmental Assessment Act (BCEAA) since it exceeds the BCEAA Reviewable Projects Regulations threshold listed in Section (9) Table 6:

- “Coal Mines— (1) A new mine facility that, during operation, will have a production capacity of $\geq 250,000$ tonnes/year of clean coal or raw coal or a combination of both clean coal and raw coal.”

8.3 Federal Interests

It is anticipated that an environmental assessment pursuant to the *Canadian Environmental Assessment Act* (CEAA) will be required as the Project’s proposed production capacity of 8,200 tonnes per day exceeds the following thresholds identified in *Regulations Designating Physical Activities*:

- Section 15(d): “The construction, operation, decommissioning and abandonment of a coal mine with a coal production capacity of 3,000 tonnes per day or more.”

Further, the mines 147 km rail extension along a primarily existing rail bed is considered to occur on a new right-of-way and therefore exceeds the new right-of way threshold:

- Section 28(a): A railway line more than 32 km in length on a new right-of-way

Under CEAA, the environmental assessment process focuses on potential adverse environmental effects in areas that are within federal jurisdiction, including:

- Fish and fish habitat, as defined in the *Fisheries Act*
- Aquatic species, as defined in the *Species at Risk Act*
- Migratory birds, as defined in the *Migratory Birds Convention Act 1994*
- Federal lands
- Effects that cross provincial or international boundaries
- Effects that impact on Aboriginal peoples, such as their use of lands and resources for traditional purposes; including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

- Changes to the environment that are directly linked to or necessarily incidental to any federal decisions about a project

Although the proposed mine site is located in the Stikine River headwaters area and the Stikine River ultimately flows across an international boundary (Alaska), no effects assessment under the International Rivers Improvement Act will be undertaken, as the distance from the mine site to the Alaskan border (over 500 kilometres along the river system) precludes any measurable impact to Alaskan waters from the mine.

Table E-8-1: Authorizations Potentially required for the Arctos Anthracite Mine Project

Authorization	Legislation	Regulator	Purpose	Approval Period	EA Prep.	Post-EAC	Con.	Ops.
Environmental Approvals								
Federal Assessment	<i>Environmental Assessment Act</i>	CEA Agency	To provide (Canadians with-could omit reference to Canadians) high-quality environmental assessments that contribute to informed decision making, in support of sustainable development.	90 days plus 365 days (Government time)	X			
Environmental Assessment Certificate	<i>BC Environmental Assessment Act</i>	EAO	To provide for the thorough, timely and integrated assessment of the potential environmental, economic, social, heritage and health effects that may occur during the lifecycle of these projects, and provides for meaningful participation by First Nations, proponents, the public, local governments, and federal and provincial agencies	180 days plus up to 45 days for ministerial decision (after application submission)	X			
Land Act Permits								
Investigative Use Permit	<i>Land Act</i>	MFLNRO	Authorization to carry out feasibility level investigations of the proposed rail corridor		X			
Archaeology Permits								
Heritage Inspection Permit	<i>Heritage Conservation Act</i>	MFLNRO – Archaeology Branch	Conduct a field study to assess the archaeological significance of land or other property	45 days	X			
Heritage Investigation Permit	<i>Heritage Conservation Act</i>	MFLNRO – Archaeology Branch	Conduct a systematic data recovery (excavation) to recover information which might otherwise be lost as a result of site alteration or destruction	45 days	X	X		
Site Alteration Permit	<i>Heritage Conservation Act</i>	MFLNRO – Archaeology Branch	Authorizes the removal of residual archaeological deposits once the inspection and investigation are completed	45 days		X	X	
Fish and Fish Habitat Permits								
Permit for Scientific Licence	<i>Fisheries Act</i>	Fisheries and Oceans Canada	Fish salvage for data collection	~ 10 days	X		X	
Fish Collection Permit	<i>Wildlife Act</i>	MFLNRO	Fish salvage for data collection	~ 21 days	X		X	X
Authorization for Works or Undertakings Affecting Fish Habitat	<i>Fisheries Act</i>	Fisheries and Oceans Canada	Harmful alteration, disruption or destruction (HADD) for fish habitat	~ 60 days			X	X
Various Operational Statements	<i>Fisheries Act</i>	Fisheries and Oceans Canada	Operational statements for installing clear-span bridges, temporary stream crossings, bridge and culvert maintenance, overhead line construction, and riparian maintenance	~ 10 days			X	X
Waste Management Permits								
Waste Discharge Permit	<i>Environmental Management Act</i>	Ministry of Environment	Authorization to discharge waste under the <i>Environmental Management Act</i> for mining effluent (sediment, tailings and sewage, discharge from filter plant, air emissions (crushers, concentrator) refuse, and incinerator	6 – 12 months *			X	X
Special Waste Generator Permit (Waste Oil)	<i>Environmental Management Act</i>	Ministry of Environment	Authorization to store, handle and dispose of waste oil generated by mining activities	varies			X	X

Authorization	Legislation	Regulator	Purpose	Approval Period	EA Prep.	Post-EAC	Con.	Ops.
Open Burning Permit	<i>Environmental Management Act</i>	Ministry of Environment	Open Burning Permit for land clearing activities	varies			X	
Water Management Permits								
Authorization	<i>Navigable Waters Protection Act</i>	Transport Canada	Authorizes the construction, placement, repairing or modification of work which will substantially interfere with navigation in, over, under, through or across listed navigable waterway	3 – 6 months*			If needed	
Notifications	<i>Water Act</i>	MFLNRO	Notifications are typically used for works that do not involve diversion of water, may be completed within a short period of time and will have minimal impact on the environment or third parties	45 Days			X	
Approvals	<i>Water Act</i>	MFLNRO	An Approval is a written authorization for changes in and about a stream that are of a complex nature	140 Days			X	
Short Term Water Use Approval	<i>Water Act</i>	MFLNRO	Short Term Water Use	140 Days	If needed		If needed	
Water Use Licence	<i>Water Act</i>	MFLNRO	Authority to divert and use surface water	140 Days	If needed		If needed	X
Wildlife Permits								
Permit to Possess, Take or Destroy Bird Nest and/or Egg	<i>Wildlife Act</i>	MFLNRO	For possessing, taking or destroying a bird / nest	2 – 4 weeks				If needed
Beaver Dam Removal	<i>Wildlife Act</i>	MFLNRO	Destroying beaver dams or muskrat dens	2 – 4 weeks			X	
Wildlife Salvage Permit	<i>Wildlife Act</i>	MFLNRO	For amphibian / small mammal capture and release	2 – 4 weeks	If needed	If needed	If needed	If needed
Construction and Mine / Exploration Permits								
Notice of Work	<i>Mine Act</i>	Ministry of Energy and Mines	Coal exploration permits	varies	X	X	X	
Mine Plan and Reclamation Program Permit	<i>Mines Act</i>	Ministry of Energy and Mines	Approval of mining projects with respect to the <i>Mines Act</i> R.S.B.C. 1996, c. 293 (<i>Mines Act</i>) and its accompanying Health, Safety and Reclamation Code for Mines in British Columbia (Code)	varies			X	
Sand / Gravel Quarry Permit	<i>Mines Act</i>	Ministry of Energy and Mines	For the extraction of sand and gravel and/or quarry materials	<45 days			If needed	If needed
Occupant Licence to Cut	<i>Forest Act</i>	MFLNRO	The right to harvest timber on Crown Land (including transmission line ROWs and Road Corridors)	varies			X	
Special Use Permit	<i>Forest Act</i>	MFLNRO	Access road construction and maintenance	varies			X	X
Road Use Permit	<i>Forest Act</i>	MFLNRO	For use of existing roads	varies			X	X
Forest Service Road	<i>Forest Act</i>	MFLNRO	For use of existing roads	varies			X	X
Highway Access Permit	<i>Highway Act</i>	Ministry of Transportation	Highway access permits are required for accesses	varies			If needed	

Authorization	Legislation	Regulator	Purpose	Approval Period	EA Prep.	Post-EAC	Con.	Ops.
Licence of Occupation	<i>Land Act</i>	Ministry of Energy and Mines	For Borrow and Gravel Pits; Staging Areas	varies			X	X
Surface Lease	<i>Land Act</i>	Ministry of Energy and Mines	Surface leases with property owners	varies			X	X
Crown Land Tenure	<i>Land Act</i>	MFLNRO	Authorization to conduct work on Crown Land	varies				
Right-of-way	<i>Land Act</i>	MFLNRO	For transmission line construction and operations	varies			X	X
Pipeline Permit	<i>Pipeline Act</i>	BC Oil and Gas Commission	For pipeline construction to transfer fuel from rail cars to storage tanks	varies			If needed	If needed
Radio Licences	<i>Radio Communication Act</i>	Industry Canada	Licence for radio frequencies for the Project	varies			If needed	
Explosives Permits								
Explosives Magazine Storage and Use Permit	<i>Explosives Act; Health, Safety, and Reclamation Code for Mines in British Columbia</i>	Ministry of Energy and Mines	For explosive use and storage during construction	varies			X	X
Explosives User Magazine Licence	<i>Explosives Act</i>	Natural Resource Canada	Storage of blasting explosives and other types of industrial explosives (required permits and/or licences to be obtained by explosives vendor)	varies			X	X
Factory Licence	<i>Explosives Act</i>	Natural Resource Canada	Explosives Manufacture (required permits and/or licences to be obtained by explosives vendor)	varies				X
Approval	<i>Canada Transportation Act</i>	Transport Canada	To store ammonium nitrate and ammonium nitrate mixed fertilizers	varies			If needed	If needed
Construction Camp Permits								
Approval	<i>Health Act</i>	Ministry of Health	Regional health permits for food handling and drinking water	varies			If needed	If needed
Camp Operation Permit	<i>Health Act</i>	Ministry of Health	For drinking water, sewage disposal, sanitation and food	varies			If needed	If needed

9 ENVIRONMENTAL SETTING

9.1 Physical Environment

The proposed mine is located in the northern part of the Skeena Mountains, a high rugged mountain range situated between the coastal mountains in the west and the sub-boreal interior plateau to the east in northwestern British Columbia. The proposed mine area lies within a transition zone between a wet coastal region and a drier interior region in the upper drainage basins of the Stikine River (Spatsizi River and Little Klappan River sub-basins).

The region around the coal license area is mountainous with valley elevations of less than 1,100 metres above sea level rising to mountaintops over 2,000 metres above sea level, with tree line typically near 1,500 metres above sea level. The proposed mine lies between 1,300 and 1,840 metres above sea level, with the tree line at approximately 1,600 metres above sea level. The higher elevation vegetation is generally alpine tundra. Scattered coniferous forest, grass, shrubs, meadows and bogs prevail at lower elevations.

Numerous studies will be undertaken to fully evaluate the biophysical characteristics of the proposed mine site and the rail bed. These studies and the potential effects of the Project are summarized below.

9.2 Atmospheric Environment

The atmospheric resources at the proposed mine site and along the transportation route are considered very good due to the lack of industrial activity in the area and the remoteness of the site. There are existing emissions from a well-used public access gravel road and many multiyear established camps, but these are considered minor.

9.2.1 Air Quality

Air quality can be described in terms of its gaseous components and the amount of particulate matter (PM), or dust, that it contains. The key atmospheric resources issue to be addressed during project planning will be to estimate the air emissions from the various activities and transportation routes and their effect on potential human and ecological receptors.

9.2.2 Noise

Project-related noise in the project area will primarily result from the presence of mining activity and the rail line. Much of the area is sparsely populated and back-country noise levels are very low. The construction of the Project will result in short-term increases in noise levels from operation of construction equipment operation.

9.3 Aquatic Environment

9.3.1 Fish and Fish Habitat

Fish habitat in the rivers and streams around the project area is predominantly riffle and cascade, with cobbles and boulders the dominant substrates. Boulders and overhanging cover provides the majority of in stream cover, while riparian cover is almost exclusively restricted to the banks rather than the canopy. Previous investigations assessed fish presence at 30 sites in the proposed mine area: 8 species were captured at 13 of these sites, 2 of which are blue-listed in British Columbia. None of the captured fish species are SARA-listed species. The most common species captured was mountain whitefish, followed by rainbow trout, bull trout (blue-listed), burbot, Arctic grayling, Dolly Varden, cutthroat trout (blue-listed) and longnose sucker. Both Dolly Varden and bull trout were captured in the Little Klappan and Spatsizi rivers. No fish were captured upstream of the Didene Creek waterfall located one kilometre upstream of its confluence with the Spatsizi River. Fox Creek and the majority of Didene Creek are, therefore, considered non-fish-bearing. Although no SARA-listed species have been identified within the area of the proposed mine the AAJV has initiated and will continue more detailed field studies to determine if any SARA-listed species are present within the study area. Appropriate Best Management Practices will be implemented to minimize risk to any critical habitat if identified.

The proposed rail route crosses numerous tributaries ranging in size from small, high-gradient non-fish-bearing streams to rivers, such as the Kluatantan with high quality fish habitat and large populations. Approximately 250 stream crossings have been identified for the rail line. Since most of the proposed railway will be constructed on existing rail bed, most of these streams have already been crossed. In these areas the focus of study will be on the potential for these existing crossings to act as fish migration barriers and on potential for mitigation strategies.

9.3.2 Water Quality and Aquatics

Surface waters in and around the project site are considered generally unaffected by non-natural influences, with natural seasonal fluctuations reflecting base flow winter conditions, spring freshet flows and the transition between the two that are typical for most water bodies in western Canada.

9.4 Terrestrial Ecosystems, Vegetation, and Wildlife

The Project has the potential to affect terrestrial ecosystems as defined by potential impacts to soils, vegetation and wildlife in the mine-site area and along the rail corridor.

9.4.1 Soils

Soils in the area of the proposed mine site, road and rail bed corridor are derived from glacial processes. Periglacial processes and wetlands have also influenced soil development. The proposed mine site is dominated by thin mantles of silty and clayey morainal deposits. These deposits occupy approximately 3,400 hectares of the coal licence area, with areas of colluvial (gravity moved) material at higher elevations, and organic and silty sand and gravel fluvial materials in valley bottoms. Rock outcrops of mudstone, conglomerate, and other sedimentary rocks occur throughout

the area including isolated areas in valley bottoms. Most of the proposed mine area (approximately 98 percent) is flat (0 to 5 percent grade) to gently sloping (6 to 26 percent grade). The remaining area is moderately sloping (27 to 49 percent grade).

9.4.2 Vegetation

The regional study area in the mine-site vicinity lies within ten biogeoclimatic units. The boreal alpine alтай fescue undifferentiated/parkland subzones (BAFAun/unp) cover the largest extent of the regional study area, while the next largest subzone is the lower elevation boreal white and black spruce dry cool subzone—Stikine variant (BWBSdk1). Within the terrestrial ecosystem mapping (TEM) area of the local landscape, the spruce willow birch moist cool scrub subzone (SWBmks) covers the largest area.

One small blue-listed ecological community was identified near the proposed mine. The BC CDC currently identifies 62 blue- or red-listed ecological communities that have the possibility of occurring in the Cassiar portion of the Skeena-Stikine Forest District. Of this total, 26 blue- or red-listed ecological communities are associated with the biogeoclimatic units found in the project regional study area.

9.4.3 Wildlife

Although winter use of the study area may be limited for many species of wildlife due to deep snow and harsh conditions, a broad range of species are known or expected to use habitat in the area. Comprehensive wildlife surveys in the study area between 2005 and 2008 form the basis for the descriptions below characterizing the wildlife of the proposed mine area.

The railway corridor runs along river valleys in mountainous terrain, characterized by coniferous forests with some areas of mixed wood and deciduous forest. The watercourses it crosses and wetlands it passes by are expected to provide high quality habitat for many species of wildlife.

Woodland caribou (northern mountain ecotype; *Rangifer tarandus*), mountain goat (*Oreamnos americanus*), Stone's sheep (*Ovis dalli stonei*) and moose (*Alces alces*) have all been observed within or near the proposed mine and existing road access area. Mule deer (*Odocoileus hemionus*) may also occur in suitable habitat (i.e., abundant shrubby browse) in the area as three individuals were observed adjacent to Ealue Lake road during previous winter aerial surveys. Similar species are anticipated along the proposed railway corridor. Of these ungulates, caribou are of conservation concern at both the federal (special concern on SARA Schedule 1; SRPR 2012) and provincial (blue-listed; MOE 2012) levels.

Several large carnivores are known to occur within or close to the study area, including grizzly bear (*Ursus arctos*), black bear (*Ursus americanus*), grey wolf (*Canis lupus*) and red fox (*Canis vulpes*) (Rescan 2007, 2008a). The project area intersects two grizzly bear population units, the Spatsizi and Finlay-Ospika. Grizzly bears are listed as special concern by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (SRPR 2012) and are blue-listed in British Columbia (MOE 2012). Cougar (*Puma concolor*) and Canada lynx (*Lynx canadensis*) and possibly coyote

(*Canis latrans*) are expected to occur at low densities (E-Fauna BC 2012). Predators are expected to den in the study area as well as forage and raise their young.

The occurrence of mustelids, or weasels, in the study area was been studied in the previous work in the proposed mine site area. One wolverine (*Gulo gulo*; blue-listed in BC (MOE 2012)) was recorded incidentally during previous ungulate surveys. Other mustelids expected to occur in suitable habitat within the study area include: American marten (*Martes americana*), fisher (*Martes pennant*—blue-listed in BC), ermine (*Mustela erminea*), least weasel (*Mustela nivalis*), American mink (*Neovision vision*) and river otter (*Lontra canadensis*) (Eder and Pattie 2001; E-Fauna BC 2012).

Groundhogs, including hoary marmot (*Marmota caligata*) and arctic ground squirrel (*Spermophilus parryii*) have been identified by the Tahltan as a valued resource as a traditional food source. Both have been subject of study in the proposed mine area.

A wide range of birds, both year-round residents and migratory species, including waterfowl, raptors and songbirds, occur in the project area. Two regulations are applicable to the protection of birds and their nests and eggs; the federal *Migratory Birds Convention Act* (MBCA) and the BC *Wildlife Act*. Birds covered under the MBCA and likely to occur in the project area include:

- Waterfowl (e.g., ducks, geese and swans)
- Herons, cranes, rails and coots
- Shorebirds (e.g., plovers and sandpipers)
- Nighthawks, swallows and swifts
- Woodpeckers and hummingbirds
- Most songbirds (e.g., warblers, sparrows, flycatchers, and thrushes)

Wetlands along the existing access road and proposed railway corridor are expected to support breeding and migratory waterfowl and other water bird species, The proposed mine site itself supports little habitat for waterfowl, although dabbling ducks and harlequin duck were observed in 2005.

9.5 Human Environment Setting

The Project is located in an area that is largely wilderness and that has experienced little prior resource development. Land and resource use studies are required because of the potential for project-related interactions with other existing or proposed land and resource uses and tenure holders within or near the project mine site footprint or coal transportation corridor.

Previously identified Aboriginal and non-Aboriginal land use activities within the project area include: hunting, trapping, guide outfitting, guided angling, wilderness-based tourism and recreation, and mineral and placer exploration. No commercial forestry or ranching and agriculture are located in the vicinity of the proposed mine, nor are there any industrial facilities or commercial development. Several residents of Iskut have camps in the Klappan valley and a traditional camp for teaching Tahltan ways is located near the confluence of the Klappan and Little Klappan Rivers. The existing

access road, which uses the British Columbia railway bed constructed in the 1970s, is an access route for the Spatsizi Plateau Wilderness Provincial Park which is located on the north side of the licence area.

The existing access road and the proposed mine area are within the Klappan Zone of the Cassiar Iskut-Stikine LRMP. This zone is recognized as being ecologically sensitive, of high cultural significance to the Tahltan people, and containing high timber and coal values.

The Cassiar Iskut-Stikine LRMP supports mineral exploration and development within the Klappan Zone, subject to standard regulatory approval process and consistent with the general management direction for management direction for mineral and energy resources. Recently, the provincial government established a moratorium on Coal-Bed-Methane development in the region.

Most of the rail corridor between the mine site and the Minaret siding is located within the Fort St. James LRMP. Within this LRMP, the corridor passes through or is adjacent to four resource management zones, which are, from north to south, Groundhog, Skeena, Sustut, and Lower Sustut resource management zones (RMZs).

9.5.1 Archaeological Resources

Although it was a remote wilderness until the unfinished BCR rail grade opened up the region for access in the 1970s, the Klappan River valley and its surrounding peaks have long been used for hunting and trapping, and the Klappan-Skeena valley has been an important travel corridor historically used by Aboriginal people.

Aresco Ltd. (1986) conducted an archaeological assessment of the coal licence area identifying 17 archaeological sites in that original study area. These sites included historic cabins and prehistoric camp sites, as well as cultural depressions, burial sites, blazed trees and lithic scatters. Of the 17 sites located in Aresco's original study area, 5 of these are located in the proposed mine development area and are described as prehistoric obsidian lithic scatters and artifacts.

During the initial Archaeological Impact Assessment (AIA) for Fortune Minerals during the 2005 to 2006 field seasons, an additional 27 archaeology sites were identified by Baseline Consulting within the proposed mine area. These sites comprised surface and subsurface obsidian lithic scatters, artifacts and debitage. Baseline Consulting recommended further AIA-level work required for the mine site that would include surveys of areas not yet covered, as well as additional shovel and evaluative unit testing at some identified archeological sites. These areas include proposed mine rock storage area, coal processing facilities, and potential areas within the footprint of the proposed open pit mine.

Archaeological surveys (1979 to 1983) in the lower Klappan River valley identified 25 archaeological sites and several large trails. In 2008, Rescan completed an Archaeological Overview Assessment (AOA) and an AIA for Shell Canada's proposed coal bed methane project along the existing road access from Ealue Lake in the north to Beirnes Creek at the Skeena River in the south where the northern section of completed rail bed ends. Several areas of archaeological potential were identified along the railway bed where AIAs should be carried out if further land disturbance is anticipated. Two

new sites were recorded during this 2008 survey and several trails were also observed within the study area as well as 46 historic and recent land use locations along the Klappan River.

The archaeological potential for the 23-kilometre section of the proposed railway where rail bed has not been constructed (from Beirnes Creek south to the Kluatantan River) requires evaluation. The archaeological potential for the transportation corridor areas not surveyed in Rescan's study for Shell will also require evaluation. Particular attention will be required in areas of significant water crossings, such as at the Kluatantan River. Areas of potential impact include the approaches to bridges and stream crossings, and areas where new railbed construction is proposed and other land-altering activities associated within the railway corridor are proposed to take place. The location of the proposed rail load-out below the proposed mine will also need to be studied.

9.5.2 Traditional Knowledge and Traditional Land Use

The AAJV recognizes the importance of collecting and incorporating information regarding the potential effects of the Project on the traditional territories and the ecological, cultural and spiritual health of Aboriginal groups in the area. For this reason, the AAJV will either undertake or support TK and traditional land use (TLU) studies for the affected Aboriginal groups.

Issues raised to date by Aboriginal groups, other stakeholder groups, and individuals will be addressed under the TK/TLU study.

- Environment:
 - Potential for impact on fish stocks
 - Global warming issues related to the use of coal for power generation
 - Proximity to Spatsizi Plateau Wilderness Provincial Park—home of Spatsizi caribou herd
 - The potential for long term impact to flora and fauna in the mine area
- Environmental costs versus economic benefits
- Project:
 - A thorough evaluation of alternatives (e.g., power generation, coal port facility, limiting landscape disturbance, avoiding new access road, examining environmental issues for each alternative)
 - Aboriginal land claims in the region have not been settled
- Socio-Cultural:
 - Spiritual significance of the Klappan area to Tahltan people in the region

It is anticipated that further engagement will result in the identification of additional issues related to both the mine site and the railway in the context of the current Project.

10 POTENTIAL PROJECT EFFECTS

The information collected to date has been used to identify potential project effects and issues that will be considered in the environmental assessment. Additional information collected during ongoing baseline studies and through consultation with Aboriginal groups, agencies and stakeholders will be used to further refine the discussion about the this list of potential effects and key issues.

It is anticipated that the scope of the environmental assessment for the Project will include consideration of the potential environmental, social, cultural, economic, health and heritage effects and potential effects on Aboriginal interests. The assessment will also identify and evaluate practical means of avoiding or mitigating potential adverse effects, while maximizing the benefits of the Project to the extent practical.

11 PROPOSED MINE SITE—POTENTIAL KEY ISSUES AND EFFECTS

A preliminary list of potential issues or effects is presented in Table E-11-1. Potential impacts are linked to Construction/Development (D), Mine Operations (O) and/or Closure (C).

Table E-11-1: Preliminary List of Potential Issues or Effects

EA Component	Phase	Issue/Potential Effect
Socio-cultural	D O C	Potential effects on traditional activities and culture, including: <ul style="list-style-type: none"> ▪ Fishing ▪ Gathering plants and medicines ▪ Hunting and trapping (caribou, goats, moose, marmot) ▪ Other cultural activities (e.g., student camps on the land, language preservation and revitalization) ▪ Spiritual importance of the potentially impacted lands
Socio-community	D O C	Potential effects on community services and quality of life, including: <ul style="list-style-type: none"> ▪ Area access ▪ Aesthetics/visual and noise effects of the construction and operation of the mine ▪ Housing and transportation ▪ Public safety ▪ Community health (including substance abuse)
Socio-economic	D O C	Potential effects on region/communities as a result of increased population including: <ul style="list-style-type: none"> ▪ Employment, education/training ▪ Contracting and procurement ▪ Regional economic effects ▪ Effects on other tenure holders (e.g. guides / outfitters, trappers)

EA Component	Phase	Issue/Potential Effect
Land Use	D O	Potential effects with respect to the land tenure, land and resource use, including: <ul style="list-style-type: none"> ▪ Effects on access to resources that are important to other tenure holders or land users ▪ Effects on resources that are important to other tenure holders or land users ▪ Changing the quality of a resource or land use activity that is important to other tenures
Heritage and Archaeological	D	Potential effects on Aboriginal and other archaeological resources <ul style="list-style-type: none"> ▪ Effects on heritage or archaeological resources
Atmospheric Resources	D O	<ul style="list-style-type: none"> ▪ Potential effects on local air quality from mine emissions ▪ Air quality including effects from fugitive greenhouse gas emissions, and dust
Climate	C	<ul style="list-style-type: none"> ▪ Potential effects on long term reclamation and land use ▪ Local climate change and how that effects long-term reclamation
Terrestrial Ecosystems	D O	Potential effects on local and regional bio-physical characteristics including: <ul style="list-style-type: none"> ▪ Change in vegetation and soil ▪ Change in soil quantity, and vegetation community structure ▪ Effects from fugitive dust on soils, plants ▪ Terrain stability/landslides ▪ Wetlands ▪ Migratory Bird Habitat
Wildlife Populations and Habitat	D O	<ul style="list-style-type: none"> ▪ Potential effects on wildlife communities ▪ Change in habitat quality
Surface Water Quality	D O	Potential effects on water quality due to mining and associated activities, including: <ul style="list-style-type: none"> ▪ potential acid rock drainage and metal leaching and surface run off
Surface Water Quantity	D O	<ul style="list-style-type: none"> ▪ Potential effects on surface water flow
Fisheries Habitat	D O	Potential effects on fish and fish habitat including: <ul style="list-style-type: none"> ▪ Change in habitat ▪ Change in fish populations ▪ Change in aquatic biota
Groundwater	D O C	Potential effects on long term local ground water regime including: <ul style="list-style-type: none"> ▪ Change in groundwater quality and quantity ▪ Change in groundwater flow quantity or pattern and any resulting effects on surface water flows

NOTES:

Potential impacts linked to Construction/Development (D), Mine Operations (O), and/or Mine Closure (C).

12 COAL TRANSPORTATION SYSTEM—POTENTIAL KEY ISSUES AND EFFECTS

A preliminary list of potential issues or effects is presented in Table E-12-1.

Table E-12-1: Preliminary list of Potential Issues or Effects

EA Component	Phase	Issue/Potential Effect
Socio-cultural	D O C	Potential effects (due to effect of new rail line or changes in access) on traditional activities and culture, including: <ul style="list-style-type: none"> ▪ Hunting, fishing, trapping ▪ Gathering plants and medicines ▪ Other cultural activities
Socio-community	D O C	Potential effects on community services and quality of life, including: <ul style="list-style-type: none"> ▪ Infrastructure and services ▪ Community health ▪ Public safety ▪ Aesthetics/visual and noise effects of the construction and operation of the new rail line ▪ Non-traditional land use
Socio-economic	D O C	Potential effects on region/communities as a result of increased population including: <ul style="list-style-type: none"> ▪ Employment effects (positive and negative) ▪ Contracting and procurement ▪ Regional economic effects ▪ Effects on other tenure holders (e.g. guides / outfitters, trappers)
Heritage and Archaeological	D	<ul style="list-style-type: none"> ▪ Potential effects on Aboriginal and other archaeological resources ▪ Effects on heritage or archaeological resources
Atmospheric Resources	D O	<ul style="list-style-type: none"> ▪ Potential effects on local air quality from mine emissions ▪ Air quality including effects from fugitive greenhouse gas emissions
Terrestrial Ecosystems	D O	Potential effects on local and regional bio-physical characteristics including: <ul style="list-style-type: none"> ▪ Change in vegetation and soil ▪ Change in soil quality and vegetation community structure ▪ Terrain stability ▪ Pesticide use on rail line
Wildlife Populations and Habitat	D O	<ul style="list-style-type: none"> ▪ Potential effects on wildlife communities ▪ Change in habitat and or reduction in habitat quality (e.g. habitat fragmentation) ▪ Potential for increased hunting due to improved access on wildlife populations ▪ Impact of railway traffic on wildlife populations
Surface Water Quality	D O	<ul style="list-style-type: none"> ▪ Change in water quality and water flow ▪ Change in water quality due to erosion and sedimentation ▪ Change from rail car spills ▪ Stream alterations

EA Component	Phase	Issue/Potential Effect
Fisheries Habitat	D O	Potential effects on fish and fish habitat including: <ul style="list-style-type: none"> ▪ Change in habitat ▪ Increased fishing due to improved access ▪ Change from water crossings ▪ Effects from rail car spills

NOTES:

Potential impacts linked to Construction/Development (D), Mine Operations (O), and/or Mine Closure (C).

12.1 Potential Cumulative Effects

A Cumulative Effects Assessment (CEA) will be undertaken for the Project. The CEA will evaluate the residual environmental and socio-economic effects directly associated with the Project, in combination with the likely residual effects arising from other projects and activities that have been or will be carried out in the project study areas. The other projects and activities to be included in the CEA will be identified as the environmental assessment progresses.

13 ENGAGEMENT AND CONSULTATION

13.1 Aboriginal Engagement

The mine component of the Project is within the asserted traditional territories of the Tahltan Nation. The proposed rail line extension crosses from these traditional territories into the asserted traditional territory of the Gitksan Nation at approximately the half-way point between the proposed mine site and Minaret siding.

Fortune Minerals, from 2005 to 2011, and the AAJV from 2011 onward, have actively engaged Aboriginal groups to discuss and obtain input on the proposed Project and associated studies associated with the environmental assessment process and to better understand the people themselves. The early and most active focus of the engagements has been with the Tahltan Nation because the proposed mine is within its traditional territory. In addition, the Project as originally planned had the proposed road haul route largely within the Tahltan Nation's traditional territory. Some engagement was also undertaken with the Gitksan Nation, the Skii km Lax Ha and the Nisga'a Nation during the original environmental assessment process since part of the road haul route intersected their asserted traditional territories or, in the case of the Nisga'a Nation, the Nass Area (as defined in the Nisga'a Final Agreement) and the Portland Canal with regard to ships accessing the Port of Stewart. The Project, as currently proposed, does not involve a road haul route and does not appear to affect Nisga'a territorial interests.

13.1.1 Proponent Engagement and Consultation with Aboriginal Groups

With the formation of the AAJV in July 2011, discussions were reinitiated (that were originally undertaken as part of the Klappan Mine Project proposed by Fortune Minerals Ltd.) with the Tahltan Nation beginning with an introduction of the joint venture partners and a presentation regarding the redesigned proposed Project. The AAJV is committed to the development of a relationship based on mutual respect and trust and understands the Tahltan’s need to have full involvement from the beginning to the end of the study. Recent engagement activities have been carried out from this perspective. The objective of the recent engagement was to allow the AAJV to explain the changes to the proposed Project and to hear Tahltan Nation concerns.

Since mid-2010, Fortune and the AAJV have engaged the Gitksan Nation in various ways (including public presentations at the 2010, 2011, and 2012 Gitksan Summits, regular meetings with Simgiigyet [hereditary chiefs] of the Upper Skeena and Sustut watersheds, and open houses) to introduce the Project, its history and future direction, as well as the joint venture itself. The AAJV has also introduced its consulting team to the Simgiigyet and had them participate in recent meetings to make sure that they also develop a relationship and understanding of each other. Most importantly, the discussions provided the opportunity for the AAJV to listen to Gitksan concerns and how they would like to be involved in the environmental assessment process and the Project. The AAJV has hired a member of the Gitksan Nation as an employee to assist with liaison and ongoing dialogue within the Gitksan Nation.

Beginning in the fall of 2011, the AAJV has met with representatives of the Skii km Lax Ha to discuss the current Project and the recent formation of the joint venture. Subsequent meetings have been held introducing the consulting team, discussing the process for environmental studies, traditional knowledge (TK) studies and issues of concern. The AAJV has committed to undertake a TK study. In April 2012, the Stantec, consultants to the AAJV, met with the Skii km Lax Ha to discuss the proposed TK study in detail.

Table E-16-1: Contact Information for Aboriginal Groups Potentially Affected by the Project

Aboriginal Group	Contact Information
Tahltan Central Council	Anita McPhee, President Tahltan Central Council Box 69, Dease Lake, BC V0C 1L0 (250) 771-3274 (phone) (250) 771-3020 (fax)
Gitksan Simgiigyet of the Upper Skeena and Sustut Watersheds	Simgiigyet of the Upper Skeena and Sustut Watersheds c/o 4546 13th Avenue New Hazelton, BC V0J 2J0

14 PUBLIC AND STAKEHOLDER ENGAGEMENT

The public and stakeholders (i.e., other tenure holders, including forestry, mining, energy, guide-outfitting, trapping) will be consulted in a variety of ways during the two stages (pre-application stage and application review stage) of the environmental assessment of the Project. Appendix C provides a high level summary of engagement from July 2011 to date, including open houses, presentations, site tours, job fairs, interviews, meetings, and requests for comment and input on draft reports.

15 CONCLUSION

The AAJV is pleased to submit this Project Description to initiate the approval process for this Project, which is significant for both British Columbia and Canada. This Project will provide economic benefits to British Columbia and Canada, and in particular to the communities closest to the Project. The AAJV is committed to meaningful relationships with the Aboriginal communities, landowners, municipalities and stakeholders and will ensure that their interests are considered in the detailed project planning.