

New Polaris Mine

Initial Project Description



Canagold Resources
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March 2023

EXECUTIVE SUMMARY

Canagold Resources Ltd. (Canagold) proposes to open the New Polaris underground gold mine in northwestern British Columbia (BC) by re-developing a former mine and town site, previously known as the Polaris Taku mine which operated intermittently between 1937 and 1951. The mine is located approximately 100 km south of Atlin, BC and 60 km northeast of Juneau, Alaska, United States (US) on the west bank of the Tulsequah River (Figure 1). The Project is within the Taku River Tlingit First Nation (TRTFN) Traditional Territory.

GENERAL INFORMATION AND CONTACTS

The British Columbia (BC) *Environmental Assessment Act* SBC 2018, c. 51 (BCEAA) and the associated Reviewable Projects Regulation require an environmental assessment to be completed for mines that have a production capacity of greater than or equal to 75,000 tonnes per year of mineral ore. The Project does not trigger a review under the *Impact Assessment Act* of Canada, because at a daily production capacity of 1,000 tonnes, it does not exceed the 5,000 tonnes per day (tpd) trigger in the *Physical Activities Regulation*.

This Initial Project Description (IPD) has been prepared for submission to the BC Environmental Assessment Office to initiate Environmental Assessment (EA) under the BCEAA, for the New Polaris Gold Mine Project (the Project). Although the Project is a redevelopment of an existing mine, the original mining operations pre-date the BC *Mines Act*. Since the legislation for permitting mining did not exist at the time, and no *Mines Act* permits were issued for the site, for permitting purposes the proposed Project is considered a new mine.

This IPD includes a high-level description of the Project as well as preliminary evaluations of potential Project-related interactions with the biophysical and human environment.

Purpose and Rationale

The purpose of the Project is to develop a gold resource project consistent with the objectives stated in the Canadian Minerals and Metals Plan (Government of Canada, 2019). The Project is expected to contribute to the economy by providing employment, capacity building and business opportunities, including to local communities and Indigenous Groups. The Project would also contribute financially to the Provincial and Federal Governments through corporate taxes, Provincial net proceeds and net revenue taxes, and sales taxes.

The investments to develop and operate the mine are expected to benefit local businesses, who participate in exploration and geotechnical drill programs, engineering studies, environmental studies, and permitting in advance of a project development decision, and the Project seeks to engage qualified vendors in northern BC, employing local and Indigenous contractors and employees.

Canagold intends to continue to operate in a manner that ensures local benefit from the exploration, construction and operation of the mine. The Project is anticipated to provide employment opportunities for local communities, including TRTFN, during the construction, operation and closure phases.

Other benefits of the Project to local communities could include: funding of social events, scholarships for higher education, community enhancement programs, environmental initiatives, training to provide access to skilled mining jobs including journeyman trades training.

Project Description

The proposed Project is an underground gold mine with approximately 1,000 tonnes per day (tpd) mill throughput rate that would operate year-round, producing on average approximately 365,000 tonnes per year (tpy) of ore. Exploration at the site is ongoing, and current estimates suggest the mine will have an approximately 10-year production life, but this could be extended as the limits of the orebody are not fully defined. The following table summarizes the main components of the Project.

Component	Description of Component and Associated Activities
Site Preparation	<ul style="list-style-type: none"> Clearing of previously developed ground and overgrowth. Clean up and dispose of remnants from historic operations.
Airstrip	<ul style="list-style-type: none"> New airstrip.
Roads	<ul style="list-style-type: none"> The existing site road network has not been actively maintained since the mine closure in 1951 and is in varying states of disrepair. A combination of new road works as well as upgrading of existing roads is required. Where possible the new roads are designed to follow existing alignments to reduce costs and footprint, lessening potential environmental effects. Tote road to Barge Landing: An approximately 10 km tote road is needed to transport materials/equipment to the mine site from the barge landing site. The majority of the planned tote road follows an old tote road route. Approximately 2.5 km would be new cut/fill construction on the hillside west of Whitewater Creek. The proposed tote road would require crossing of approximately six drainages and small creeks. Tote road to Combined Storage Facility: A tote road between the mine site and the waste rock and tailings Combined Storage Facility (CSF) is required to facilitate transport of dry tailings from the mill. Culverts to convey surface drainage may be required depending on the CSF location.
Aggregate Supply	<ul style="list-style-type: none"> All aggregate supply would be locally sourced to meet infrastructure needs as required. A gravel borrow pit area is proposed east of the mine site to supply aggregate for infrastructure needs (e.g., roads and airstrip and site concrete needs during construction).
Barge Landing	<ul style="list-style-type: none"> Given the remote location of the mine, some construction materials and bulk operating supplies are proposed to be transported up the Taku River, through Alaskan waters. A Barge Landing site would be located on the north side of the Taku River, near the confluence with the Tulsequah River, approximately 10 km south of the mine site. The proposed barge landing site is designed to accommodate docking of barges, and includes a small office trailer, genset, diesel fuel tank, temporary storage area for supplies and container handler and/or mobile crane.
Underground Mine	<ul style="list-style-type: none"> Access to the underground mine is planned via a new ramp to be installed starting close to the location of the existing New Polaris portal.

Component	Description of Component and Associated Activities
	<ul style="list-style-type: none"> • The existing underground mine is currently flooded and would require progressive dewatering during advancement of the new ramp. • New services include: mine ventilation, water and electrical services, pumps, geotechnical ground support machinery, haulage equipment, compressed air, mine lighting, and refuge stations. These services would be installed as the excavation of the ramp progresses.
Process Plant	<ul style="list-style-type: none"> • Ore brought above ground from the mine would be processed at a process plant at a rate of approximately 1,000 tpd. The ore is processed through crushing and grinding and then the gold bearing material is concentrated and then the gold is extracted from the crushed rock through a chemical treatment process. • About 60% of the tailings from the processing plant would be disposed of in the CFS (see below) with the remaining 40% being used for backfilling underground mining excavations. • The Paste Backfill Plant is for producing a mixture of thickened tailings and cement for backfilling mined out portions of the underground mine and would be located at the Process Plant.
Tailings and Waste Rock Combined Storage Facility (CSF)	<ul style="list-style-type: none"> • Mining activities in the underground mine results in the generation of waste rock which is hauled from underground, and deposited with the tailings at a CSF. • Tailings generated during the processing activities are separated into two streams: <ul style="list-style-type: none"> ○ About 60% of the tailings would be thickened at the process plant and filtered to a semi-dry state then transported to the CSF via haul truck for co-disposal with mine waste rock. ○ The remaining 40% of the thickened tailings are pumped underground and placed in mined out voids(stopes) that were generated during the underground mining activities to help with ground support. • To protect the surrounding environment from risk of environmental effects, the CSF would be geotechnically prepared and lined. Tailings and waste rock are placed and spread in layers that are sloped to manage water runoff and perimeter berms are constructed to minimize contact water. Ditches are excavated around the facility to collect seepage water and direct it to a lined settling pond that feeds into a water treatment plant designed to treat the water to acceptable concentrations before recycling or discharge to the environment. At closure, a geotechnical and topsoil cover is placed over the entire facility to encapsulate the tailings and waste rock.
Fuel Storage and Distribution	<ul style="list-style-type: none"> • Diesel fuel would be stored on-site in a bulk tank farm, with a total capacity of approximately 8,000,000 to 10,000,000 L. An earth berm lined with an impermeable membrane would be constructed around the tank farm to provide secondary containment. Fuel would be distributed around the site by tanker truck. Smaller “day tanks” (situated in secondary containment) would be located at various locations throughout the site to supply fuel for equipment and power generation as required.
Explosives Storage	<ul style="list-style-type: none"> • Excavation of the underground mine requires use of explosives. A secure gated facility would be used for explosives storage and would be comprised of 40-foot long shipping containers. To ensure safe storage of the explosives, each container surrounded by an earth berm.
Buildings	<p>Construction and operations of the proposed mine would require construction of several buildings. These buildings are proposed to either be prefabricated trailer units, or refurbishment of existing buildings, or both, and include:</p> <ul style="list-style-type: none"> • A camp for housing up to 150 workers,

Component	Description of Component and Associated Activities
	<ul style="list-style-type: none"> • An administration office • A mine dry, including showers, washrooms, and laundry facilities. Additional buildings include: <ul style="list-style-type: none"> • Assay building, where the purity of the mined metals are tested. This is expected to be a prefabricated facility that would be placed adjacent to the mill building. • Maintenance building, that would be constructed using steel frame on a concrete slab with insulated cladding. • Warehouses, that are constructed using fabric structures placed on concrete slabs.
Utilities and Services	<ul style="list-style-type: none"> • Communications facility, including satellite-based internet and surface telephone/radio communication system, as well as a specialized communication system for the underground mine to enable communication with the surface crews. • Compressed Air Plant and Compressors that supply the underground operations, mill and surface operations with a compressed air supply. • Domestic Waste Disposal facility for the disposal of domestic, sanitary, and other waste generated by the camp and other site facilities during operations. Waste would be incinerated on site using a skid mounted diesel fueled incinerator. Ash generated from incineration would be buried in an approved landfill area. Non-combustible and hazardous waste would be flown to Atlin, BC or Whitehorse, YT for proper disposal.
Limestone Quarry	<ul style="list-style-type: none"> • A limestone quarry would be excavated to provide limestone for the processing plant.
Water collection, treatment and settling	<ul style="list-style-type: none"> • Mine water discharge and contaminated surface water would be collected in settling ponds and treated as needed to achieve permitted discharge quality prior to discharge.

SOURCE: SCHULTE ET AL 2019

Existing Environment

The Project is located within a remote area of the province that is largely undisturbed and unpopulated, aside from the long-standing Indigenous presence in the area and remnants from historic mining at the New Polaris and Tulsequah Chief mining properties. On a regional scale, little exists in the way of infrastructure or development. Exploration development and mining has been the primary industry in northwest BC for decades and represents a considerable share of the development regionally.

Understanding of the existing environmental conditions is informed by a combination of available provincial data, studies completed during exploration activities, and project specific investigations. Provincial mapping and databases provide regional context and other projects conducted in the area, with publicly available data, provide comparable information. At the Project site, information is available from exploration activities and environmental programs that have been intermittently conducted from the late 1990's to the present. In 2020 Canagold commissioned Hemmera Envirochem Inc. (Hemmera), now known as Ausenco, to carry out additional studies to support the forthcoming EAC application and major permit applications.

The proposed Project's location in a remote, sparsely populated area of BC results in less detailed available information on the human environment compared to more populated areas. Canagold plans to collect more specific and current information on the human environment of the Project area throughout the EA process, particularly through engagement with Indigenous Groups and stakeholders.

Potential Effects and Mitigation

The proposed Project is expected to have potential positive and negative effects on the biophysical and human environment, including Indigenous interests. The proposed Project location is also in an area with existing cumulative effects on the biophysical and human environment and the effects of the Project are expected to contribute to these regional cumulative effects. In addition to design and planning of the Project, Canagold is developing a mitigation program to lessen the impacts of potential adverse effects, using accepted practices, and considering site specific environmental and community conditions, as well as input from Indigenous groups, regulatory agencies, and stakeholders.

The Project is located approximately 10 km east, or approximately 15 km upstream, of the BC-Alaska border, therefore transboundary effects will also be considered. While the majority of the potential effects of the Project are not expected to produce transboundary effects, some Project materials and supplies are planned to be barged to a location on the Taku River, requiring transit through Alaskan waters.

Indigenous and Stakeholder Engagement

Canagold is committed to early, ongoing, and meaningful engagement with Indigenous Groups and stakeholders in the development and execution of the proposed Project. Canagold, through its Draft *Engagement Plan* (Hemmera 2022), and related guidance from BC EAO, will engage with Indigenous Groups and stakeholders, in alignment with the BCEAA and associated guidance materials prepared by the EAO.

To date, it is Canagold's understanding that TRTFN, on whose Traditional Territory the New Polaris Project sits, are the principal Indigenous Group and will need a high level of engagement and consultation throughout the EA process. Ongoing engagement will be based on further guidance from BC EAO, as well as to the degree to which the Project may impact TRTFN's interests as determined and informed by the further studies and information gathering that will be conducted as the Project is advanced.

The Project is proposed to include barging materials through Alaska along the Taku River, and as such, the Indian Tribes in Alaska, including the Douglas Indian Association, have been identified in the Draft *Engagement Plan*. Canagold will follow BC EAO's direction and efforts regarding engagement with these other potentially interested Indigenous Groups.

Canagold has proactively engaged with TRTFN on its activities at the Project, such as exploration work, permit applications, environmental and archaeological field work and has provided employment and business opportunities during active exploration. Canagold and TRTFN have worked collectively to draft and sign a HA KHUSTIYXH (Our Way) Agreement to cover the exploration phase.

Although the Project and related engagement activities are in early stages, Canagold will continue to develop an understanding of what TRTFN's key interests are in relation to the Project. These and other interests will continue to be meaningfully considered as the Project and EA process advances and as

Canagold works to ensure their overall engagement process is aligned with TRTFN's guidance documents such as TRTFN's *Mining Policy* (May 2019).

In addition to TRTFN, Canagold will engage with other Indigenous Groups through the EA process, aligning with guidance from the BC EAO. Canagold will also engage with stakeholders who self-identify through the EAO process, to solicit and incorporate feedback to inform project planning and the environmental assessment process.

Examples of methods and activities with an approximate frequency for each are included in the following table.

Engagement Methods	Activities Description	Frequency
Communication Materials	Information Factsheets: will be prepared and shared to provide information and updates including areas of interest raised by Affected Parties.	Up to 3 information fact sheets during the Early Engagement Phase
	PowerPoint Presentations: will be prepared and facilitated to deliver information (e.g., Project components, location, EA process).	As needed
	Letters: will be prepared to introduce the Project and provide updates to Affected Parties.	Once prior to the start of Early Engagement Phase
	Canagold Website: will provide updated information on the Project.	Monthly
	Advertisements / Media releases: Canagold will use media releases and advertisements to share information at key project stages	Variable
	Printed Media: will be prepared to facilitate access to information by Affected Parties at meetings and community events.	As needed
	Videos and Renders: video footage and 3D renders will be prepared and shared to help Affected parties build an understanding of the Project and some of the potential effects.	As needed
Activities	Community and stakeholders' meetings: one-on-one or group sessions will be coordinated and facilitated to discuss Project related information.	As needed
	Open houses: will be facilitated to introduce the Project and discuss the EAO process.	One at the beginning of the EAO process/as needed onwards
	Workshops and technical meetings: individual or group sessions will be coordinated and facilitated to understand the interests and address the concerns of Affected Parties.	As needed
	Surveys: will be conducted to gather information from the Affected Parties regarding their priorities, interests, concerns, and preferred methods of engagement.	At the end of community and stakeholders' meetings and Project presentations
	Site Visits: will be coordinated and facilitated to help Affected Parties better understand the Project and its potential effects.	As needed

Engagement Methods	Activities Description	Frequency
Documentation and deliverables	Early Engagement Log: will be maintained that contains all communications with each Affected Party to date.	To be updated weekly
	Comment and Response tracker: will be maintained to ensure that feedback provided by the Affected Parties is considered in the preparation of the DPD.	To be updated weekly
	Action Engagement tracker: will be prepared and maintained to ensure the accurate tracking and follow up of actions and commitments	To be updated weekly
	Initial Project Description: The IPD will be developed to provide relevant Project information to the Affected Parties to build an understanding of the Project, and to identify potential interests and concerns to be considered if the Project advances to the next phase of the EA.	Once at the beginning of the Early Engagement Phase

Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
°C	Degrees Celsius
AIA	Archaeology Impact Assessment
ARD	Acid Rock Drainage
ATLUP	Atlin Taku Land Use Plan
BC	British Columbia
BCEAA	British Columbia Environmental Assessment Act
BIOX	bio-oxidation
CAC	Criteria Air Contaminants
Canagold	Canagold Resources Ltd.
CCAF	Conventional cut and fill
CSF	Combined Storage Facility
CDN	Canadian Dollars
CIL	Carbon-In-Leach
cm	Centimetre
CO	Carbon monoxide
CPUE	Catch Per Unit Effort
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
ECCC	Environment and Climate Change Canada
FAL	Freshwater Aquatic Life

Acronym or Abbreviation	Meaning
FLNRORD	Former BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development now replaced by the Ministry of Forests, and the Ministry of Water, Land and Resource Stewardship
g/t	grammes per tonne
GDP	Gross Domestic Product
GHG	greenhouse gas
GLL	Gartner Lee Limited
HADD	Harmful Alteration, Disruption or Destruction
Hemmera	Hemmera Envirochem Inc.
km	Kilometre
m	Metre
MOU	Memorandum of Understanding
NOx	Nitrogen oxides
NRCan	Natural Resources Canada
PAG	Potentially Acid Generating
PEA	Preliminary Economic Assessment
PECG	Palmer Environmental Consulting Group Inc.
Project	New Polaris Gold Mine Project
tpd	Tonnes per day
tpy	Tonnes per year
TRTFN	Taku River Tlingit First Nation
USA	United States of America

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1 General Information and Contacts

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This IPD includes a high-level description of the proposed Project as well as preliminary evaluations of potential Project-related interactions with the biophysical and human environment. The purpose of this IPD is to provide a high-level description of the Project and preliminary evaluation of potential Project-related interactions with the biophysical and human environment to inform interested parties, including as regulatory agencies, participating Indigenous Nations, and area stakeholders.

This IPD was prepared in accordance with Environmental Assessment Office (EAO) Early Engagement Policy (EAO 2019). Appendix A provides a Table of Concordance that demonstrates how the requirements of *Appendix 1 (Initial Project Description)* of the Early Engagement Policy (EAO 2019) have been met in this IPD. As required under the BCEAA Early Engagement Policy, the *New Polaris Project DRAFT Engagement Plan* is provided as an accompanying document to the IPD.

1.1 Location

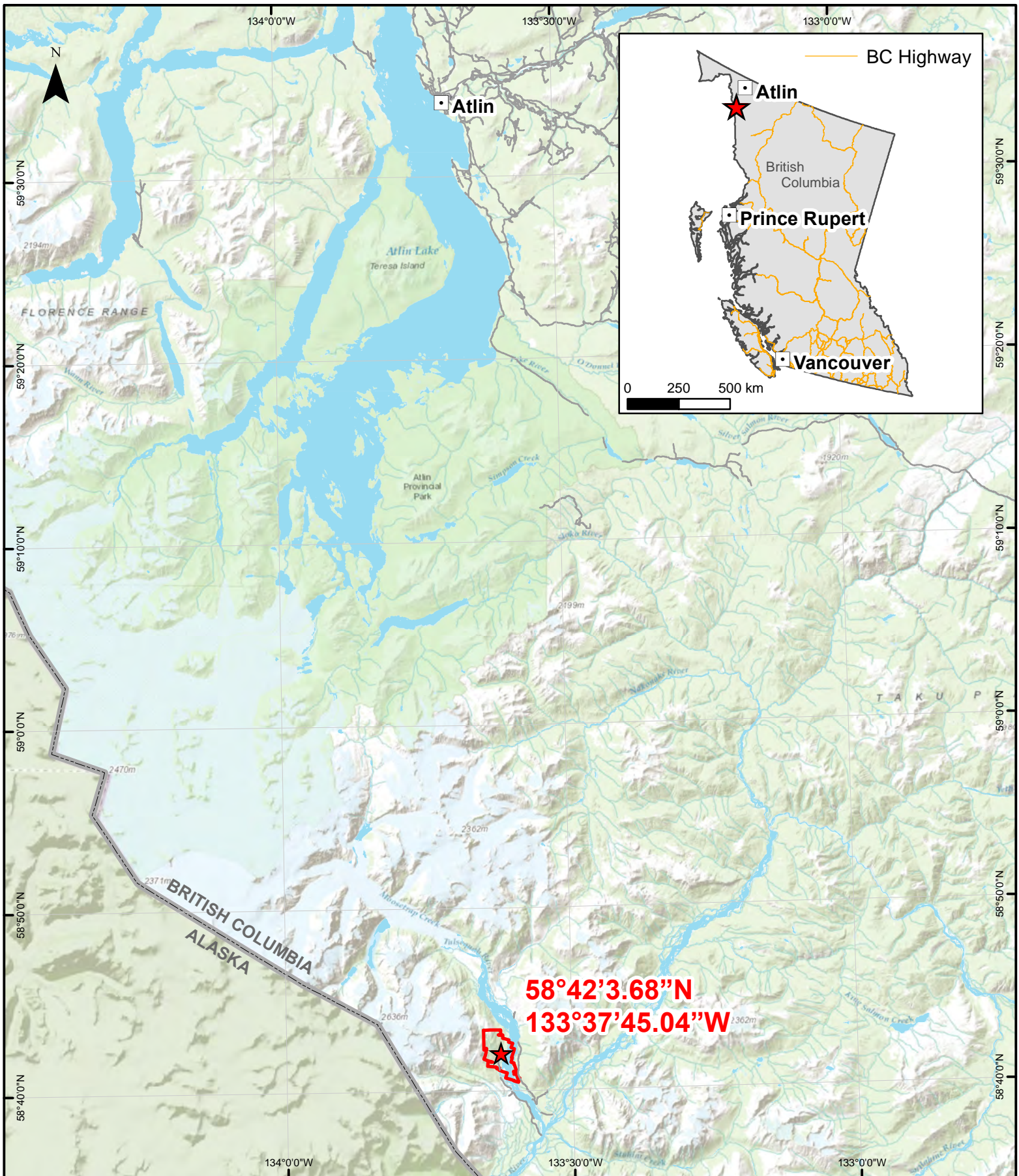
The Project is located approximately 100 km south of Atlin, BC, and 60 km northeast of Juneau, Alaska, on the west bank of the Tulsequah River near the BC - Alaska border (Figure 1-1).

There are three separate locations where work is proposed, including the Mine Site, the Combined Storage Facility, and the Barge Landing Site. The coordinates of these are given in Table 1-1 and a description of each of the components is given in section 6.

Table 1-1 General Project Information

Project Name	New Polaris Gold Mine Project
Location	<p><i>Mine site:</i> 100 km south of Atlin, BC, and 60 km northeast of Juneau, Alaska, on the west bank of the Tulsequah River near the BC-Alaska border.</p> <p><i>Combined Storage Facility:</i> approximately 1.0 km north of the mine site.</p> <p><i>Barge Landing:</i> approximately 10 km south of the mine site, near the Taku River and Tulsequah River Confluence.</p>

Project Name	New Polaris Gold Mine Project		
Coordinates	Mine site: 58°42'3.68"N 133°37'45.04"W	Combined Storage Facility: 58°42'29.0"N 133°37'45.8"W	Barge Landing: 58°37'32.2"N 133°33'25.6"W
Sector and Type	Underground gold mine		



★ Canagold New Polaris Gold Mine Site

▭ Mineral Tenure Outline

◻ Atlin, BC

— Roads

**Figure 1-1: Location Map
New Polaris Gold Mine**

0 10 20 km



1:500,000



NAD83 UTM Zone 8N
Map Date: 2/27/2023
Project Location NTS Mapsheet: 104K/12
Created For 8.5 x 11 inch Paper Size
Background Layer: ESRI 2023-02-15

1.2 Project Type

The Project is an underground gold mine with associated processing facilities. The mine is anticipated to produce approximately 1,000 tpd or 365,000 tpy of mill feed with a total mill feed of approximately 2.9 million tonnes over the planned 10-year production period. It is expected that approximately 1 million ounces of gold would be produced as doré (i.e., bars of semi-pure alloy of gold that are then transported to refineries for further purification) during the first 10 years of mine life.

The resources are still not fully explored and it is highly likely that the project life would be extended beyond 10 years following the results of ongoing exploration drilling.

1.3 Proponent Information

Canagold Resources Ltd. (Canagold) is a publicly listed exploration company managed by an experienced team of professionals with a proven track record of exploration and development success. The Company owns 100% of the New Polaris Gold Mine property, which the Company intends to develop into a gold metal producer within the next 3 to 4 years.

Table 1-2 Proponent Information

Proponent	Canagold Resources Ltd.
Mailing Address	#1250 - 625 Howe Street Vancouver, British Columbia Canada V6C 2T6
Phone Number	1-604-685-9700
Company Website	https://www.canagoldresources.com/
Project Website	https://canagoldresources.com/projects/new-polaris/snapshot/
Primary Proponent Contact	Garry Biles, President & COO garry@canagoldresources.com
Primary Contact for Environmental Assessment	Dennis Kim, Environmental Assessment and Permitting Lead dennis.kim@ausenco.com

2 Purpose and Rationale

The purpose of the project is to contribute to prosperity in British Columbia and Canada, through the development of Canada's mining industry. Continued development of gold mining in Canada contributes to globally required resources and creates jobs. The minerals and metals sector accounted for 634,000 direct and indirect jobs in Canada, representing 5% of nominal Gross Domestic Product and 19% of Canada's total merchandise exports (The Canadian Minerals and Metals Plan 2019). Canagold's plan is to have a positive contribution to the economy through the development of a safe, sustainable project with low environmental impact and positive socio-economic return for the local First Nations, community, and stakeholders.

While there are constant fluctuations in demand and price of gold, long term trends suggest that annual mined supply of gold does not meet the annual demand (World Gold Council 2022; Mills 2021). The purpose of the Project is to sustainably extract gold resources in line with the objectives stated in the Canadian Minerals and Metals Plan (Government of Canada 2019) which will support industrial needs and economic growth at global, national, and regional levels.

The Project will contribute to the economy by providing employment, capacity building and business opportunities, including to local communities and Indigenous Groups. The Project will also contribute financially to the Provincial and Federal Governments through corporate taxes, Provincial net proceeds and net revenue taxes, and sales taxes.

A scoping level initial capital expenditure of \$144 million CDN is estimated for the Project, with operating expenditure estimated at \$380 million CDN. This estimate does not include costs for exploration and geotechnical drill programs, engineering studies, environmental studies, and permitting in advance of a project development decision. Much of these costs would be spent in Northern BC, employing local and Indigenous contractors and employees.

Canagold intends to continue to operate in a manner that ensures local benefit from the exploration, construction and operation of the mine. It is anticipated that the Project will provide employment opportunities for local communities, including TRTFN, during the construction, operation and closure phases.

Other benefits of the Project to local communities could include funding of social events, scholarships for higher education, community enhancement programs, environmental initiatives, training to provide access to skilled mining jobs including journey person trades training.

3 Legislative and Regulatory Context

The Project is a re-development of the former mine and town site of the past-producing Polaris Taku mine, which operated intermittently between 1937 and 1951. Cominco upgraded and leased the mill between 1951 to 1957 to process ore from the Tulsequah Chief mine.

Polaris Taku did not have permits under the BC *Mines Act* as this only came into effect in the mid-1960's. Therefore, although the Project is the redevelopment of an existing mine, it is considered a new mine due to the lack of a previous permit or environmental assessment.

Canagold has received a mineral exploration approval in the form of an Exploration Permit issued on September 11, 2020 under the *Mines Act* to complete exploration activities and geotechnical drilling to define and understand the potential mineral resource associated with the Project.

3.1 BC Environmental Assessment Act

According to Table 6 of the *Reviewable Projects Regulations* of the BCEAA, new mines with an annual mineral ore production exceeding 75,000 tpy are reviewable projects. The Project has a proposed production of 365,000 tpy and is therefore reviewable and for the Project to proceed, in addition to all other permits, an Environmental Assessment Certificate is required to be issued by the BC EAO.

Canagold has met with the BC EAO to introduce the project and align on process steps to initiate an environmental assessment for this Project.

3.2 Impact Assessment Act of Canada

The Project proposes a new mine with a daily metal ore production rate of 1,000 tpd. The Impact Assessment Act 2019 is not considered applicable to the Project as it does not exceed the applicable thresholds prescribed in the *Physical Activities Regulations* (SOR/2019-285), including:

- Section 18(c): "The construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine, placer mine or uranium mine, with an ore production capacity of 5,000 t/day or more".
- Section 18(d): "The construction, operation, decommissioning and abandonment of...a new metal mill, other than a uranium mill, with an ore input capacity of 5 000 t/day or more."

In addition, Project activities are not planned within a wildlife area or migratory bird sanctuary, or protected marine area, as defined by the *Physical Activities Regulations*.

3.3 Provincial and Federal Permits, Licences, and Approvals

In addition to the EAC identified in Section 3.1, a summary of provincial and federal authorizations potentially required for the Project are provided in Table 3-1. Permit requirements will be confirmed by regulatory authorities during the assessment process.

No permits are needed for the project from the Alaska or US federal agencies however communications with US agencies about the project and information sharing will be conducted by the relevant BC agencies.

Table 3-1 Permits, Authorizations and Approvals Anticipated for the Project

Legislation	Permit, Approval or Authorization	Responsible Agency	Applicability
Provincial			
Drinking Water Protection Act, Drinking Water Protection Regulation	Water System Construction Permit Water System Operating Permit	BC Northern Health	Required to construct and operate a potable water supply system for camp and process plant.
Drinking Water Protection Act	Food Facility - Health Approval Application	Ministry of Health	Approve opening and operation of food service facility
Environmental Management Act	Air Discharge Permit	Ministry of Environment and Climate Change Strategy	Required for airborne emissions generated during mine operation.
	Effluent Discharge Permit		Required for operational management and discharge of contact water into the environment under approved criteria.
	Hazardous Waste Registration		Required for the Project due to anticipated generation of hazardous waste during mine operations under the Hazardous Waste Regulation of the EMA.
	Refuse Permit		Required for management of non-hazardous waste at the mine during operations.
	Sewage System Registration		Required for establishment of sanitary sewer system at the mine site under the Municipal Wastewater Regulation of the EMA.
	Burning Permit		Required for onsite open burning during construction and mine operations under the Open burning Smoke Control Regulation of the EMA.

Legislation	Permit, Approval or Authorization	Responsible Agency	Applicability
Forest Act and Forest and Range Practices Act	Occupant Licence to Cut	Ministry of Forests	Required for cutting of trees associated with construction and post-construction maintenance of the mine.
	Special Use Permit (SUP)		Required for occupation and use of Crown land within Provincial Forest to facilitate resource use.
	Road Use Permit		Required for use and/or reestablishment of existing roads.
Heritage Conservation Act	Heritage Inspection Permit	Archaeology Branch – Ministry of Forests	Required for archaeological studies and Archaeological Impact Assessment (AIA) at the mine site, including physical investigation.
	Heritage Investigation Permit		
	Site Alteration Permit (SAP)		Required for recovery of any archaeological materials encountered during archaeological study.
Land Act	License of Occupation	Ministry of Forests	Required for long-term occupation and use of crown land where minimal improvements are made.
	Lease		Required for long-term tenure where substantial improvements are proposed, and/or where definite boundaries are required in order to avoid land use and property conflicts.
	Investigative Use Permit or Temporary Use Permit		Required for investigation of project feasibility.
Mineral Tenure Act	Mineral Claim		Required for exploration and production.
	Mineral Lease		
Mines Act	Notice of Work for Exploration	Ministry of Energy, Mines and Low Carbon Innovation	Required to conduct exploration activities and geotechnical drilling. Permit issued September 11, 2020 (Permit # MX-1-208)
	Explosives Storage and Use Permit		Required for explosives use and storage associated with blasting activities.
	Mine and Reclamation Permit		Required to ensure appropriate closure and reclamation plans are in place.

Legislation	Permit, Approval or Authorization	Responsible Agency	Applicability
Water Sustainability Act	Change Approval	Ministry of Forests	Required for works in and about a stream. Barge landing to be constructed in Tulsequah River; other Project activities are likely to require work in or about Tulsequah River and its tributaries, including Whitewater Creek.
	Water Licence		Required for use of water during mine operation and potentially required during construction-related dewatering.
Wildlife Act	Fish Collection Permit	Ministry of Forests	Required for fish salvage (e.g., site isolation for instream works).
	Wildlife Permit		Required for amphibian / small mammal capture and release to mitigate effects on wildlife.
Federal			
Canadian Navigable Water Act	Application for Approval	Transport Canada	Required for works that occur within navigable waters that do not meet the criteria of a Minor Works Order and which may interfere with navigation (i.e., construction of barge landing on Taku River).
Explosives Act	Explosives Licence	Natural Resources Canada	Required for use of explosives at the mine during construction and operation.
Fisheries Act	Authorization	Department of Fisheries and Oceans Canada	Required to manage and offset HADD associated with the barge landing site for the Project. The Project is set on the western bank of the Tulsequah River and overlaps its tributaries, including Whitewater Creek, which are considered to be fish-bearing.
Migratory Birds Convention Act	Migratory Bird Permit	Environment and Climate Change Canada	Required if nesting habitats used by migratory birds are impacted (e.g., clearing of vegetation) during nesting season, or other protected times.
Radio Communication Act	License	Innovation, Science and Economic Development Canada	Required for operation of radio equipment during operation at the mine.
Species at Risk Act	Species at Risk Permit	Environment and Climate Change Canada	Required if an activity will affect a listed wildlife species, any part of its critical habitat or the residences of its individuals.
Transportation of Dangerous Goods Act	Transportation of Dangerous Goods Permit	Transport Canada	Required for regular transport of Dangerous Goods to and from the mine.

3.4 Government Policies

Known policies applicable to the Project include:

- Compliance & Enforcement Policy – BC Ministry of Energy, Mines and Low Carbon Innovation (2020)
- Policy for Metal Leaching and Acid Rock Drainage – BC Ministry of Energy and Mines & BC Ministry of Environment, Lands and parks (1998)
- Taku River Tlingit First Nation Mining Policy – TRTFN (2019)

3.5 International Agreements

Incoming bulk freight, fuel and supplies would be transported to a barge landing site on the Taku River, approximately 10 km south of the mine site, and approximately 8 km upstream of the Canada-US border. The Taku River is a transboundary river, with its headwaters in BC, Canada, and its marine confluence in Alaska, US. Therefore, materials for the Project will transit through an area outside of Canadian Federal or BC Provincial jurisdiction.

The Taku River watershed is included in the 2015 Memorandum of Understanding and Cooperation (MOU) between the State of Alaska and Province of BC. The MOU formalizes the mutual commitment of Alaska and BC to protect and enhance the shared environment, including transboundary rivers, watersheds and fisheries, for the benefit of both jurisdictions and provides for greater involvement and collaboration on proposed major mine development in either jurisdiction (Government of BC 2015).

The MOU established a bilateral working group that establishes and oversees a technical working group on water monitoring; enhances participation in mine project EAs and permitting; and identifies and shares reports on mine discharges, operations and closures.

3.6 Provincial Indigenous Agreements

Any application for a land use that requires a permit, tenure or license and that is proposed on TRTFN Traditional Territory is subject to the Government-to-Government *Wóoshtin Yan Too.Aat Land and Resource Management and Shared Decision Making Agreement* (Engagement Model). Therefore, any new applications for proposed roads and industrial access, or changes to access will require careful consideration of the land use plan objectives and the deepest level of engagement consistent with this agreement. The agreement allows the TRTFN and the province of BC to determine in a clear and predictable way which level of engagement is adequate for a particular land use, and what the procedure and timeline should be to discuss potential benefits and impacts of this land use.

4 Project Status and History

4.1 Site History

The historic development of the property began in 1923 by the Timmins Group (GLL 2007). In 1938, Polaris Taku Mines proceeded to mine the deposit until 1941 when operations ceased due to World War II. The mine restarted in 1946, and it operated until 1951. During the mine's operation total of 232,000 oz gold was produced. Gold concentrates were shipped to a smelter in Tacoma, Washington for refining.

In 1951, a barge loaded with gold concentrate sank in the seas off the coast of BC in a storm, as a result the mine closed.

After the closure, Tulsequah Mines Ltd. (owned by Cominco) leased the mill from 1953 to 1957 to process ores mined from the nearby Tulsequah Chief and Big Bull deposits.

Numalake Mines acquired the property in 1953, changed their name to New Taku Mines Ltd. (New Taku) and undertook rehabilitation work of the mine's plant, but a negative feasibility study in 1973 halted this work. New Taku changed its name to Rembrandt Gold Mines Ltd. in 1974. Exploration resumed in 1988 when Suntac Minerals Corporation optioned the property from Rembrandt Gold Mines Ltd. In 1992 Suntac merged with Canagold Resources Ltd (formerly Canarc Resource Corp.), who became the sole owner of the property after Rembrandt sold its interest to them.

Since acquiring New Polaris, Canagold has drilled over 350 holes totaling approximately 124,000 m of core, and this exploration work indicates that there are sufficient gold deposits below and beyond the previously mined areas to warrant progressing with this Project.

4.2 Current Project Status

During 2018 and 2019 Canagold undertook metallurgical studies to determine the most effective and efficient process to recover gold. These studies showed that the best processing alternative would be to produce a bulk flotation concentrate, use bio-oxidation (BIOX) to treat the concentrate followed by Carbon-In-Leach (CIL) processing using cyanide to leach the gold into solution, followed by stripping of gold from the carbon, electrowinning and refining to produce doré gold bars, which can be transported from site to a refinery via small aircraft or helicopter.

Data collection on current environmental conditions by Hemmera Envirochem Inc. (Hemmera), now part of Ausenco, re-commenced in December 2020 to support the forthcoming BCEAA application. Data collection in 2021/2022 focused on filling gaps in existing data building off the large volume of existing historical information (reports, data, workplans, etc.).

Although a redevelopment of a former mine property, this Project is considered a new mine for the purposes of this IPD and BCEAA application. Canagold has not put forward previous applications for this mine site to the BC EAO.

There have been no previous Environmental Assessments for this project.

4.3 Permits and Tenures

The mine site consists of 61 crown granted mineral claims and 1 modified grid claim totaling 850 hectares (ha). All claims are 100% owned and held by New Polaris Gold Mines Ltd., a wholly owned subsidiary of Canagold Resources Ltd. Table 4-1 lists the claims associated with the mine.

Table 4-1 List of Claims Associated with New Polaris Mine.

Claim Name	Lot No.	Folio No.	Claim Name	Lot No.	Folio No.
Polaris No. 1	6109	4472	Snow	3497	4545
Polaris No. 2	6140	5223	Snow No. 2	3495	5088
Polaris No. 3	6141	5223	Snow No. 3	3494	5495
Polaris No. 4	3498	4545	Snow No. 4	3499	5495
Polaris No. 5	6143	5223	Snow No. 5	6105	4472
Polaris No. 6	6144	5223	Snow No. 8	6107	4472
Polaris No. 7	6145	5223	Snow No. 7	3500	4472
Polaris No. 8	6146	5223	Snow No. 6	6106	4472
Polaris No. 9	6147	5223	Snow No. 9	6108	4472
Polaris No. 10	6148	5290	Black Diamond	3491	4472
Polaris No. 11	6149	5290	Black Diamond No. 3	6030	4944
Polaris No. 12 Fr	6150	5290	Blue Bird No. 1	5708	4545
Polaris No. 13 Fr	6151	5290	Blue Bird No. 2	5707	4545
Polaris No. 14	6152	5290	Lloyd	6035	5010
Polaris No. 15	6153	5290	Lloyd No. 2	6036	5010
Silver King No. 1	5489	4804	Rand No. 1	6039	5010
Silver King No. 2	5490	4804	Rand No. 2	6040	5010
Silver King No. 3	5493	4804	Minto No. 2	6033	4944
Silver King No. 4	5494	4804	Minto No. 3	6034	4944
Silver King No. 5	5491	4804	Jumbo No. 5	6031	4944

Claim Name	Lot No.	Folio No.	Claim Name	Lot No.	Folio No.
Silver King No. 6	5492	4804	Ready Bullion	6032	4944
Silver King No. 7	5495	4804	Roy	6042	5088
Silver King No. 8	5717	4545	Frances	6041	5010
Silver Queen No. 1	6026	4545	Eve Fraction	6170	5495
Silver Queen No. 2	6027	4545	Eve No. 1 Fraction	6171	5495
Silver Queen No. 3	6028	4944	P.T. Fraction	3493	5495
Silver Queen No. 4	6029	4944	Ant Fraction	3492	5088
Silver Strand No. 1	6037	5010	Atlin Fraction	3496	5088
Silver Strand No. 2	6038	5010	Powder Fraction	6043	5088
F.M. Fraction	6044	5088	Jay Fraction	6045	5088
Par Fraction	6154	5290	W.W.1 Tenure No. 353540 400		

Canagold currently holds a Multi-Year-Area-Based *Mines Act* mineral exploration permit (MX-1-208) that expires on March 31, 2026.

5 Project Timing

5.1 Overall Schedule

The estimated schedule for the Project, including the anticipated regulatory timeline is presented in Table 5-1. All timelines are subject to change.

Canagold is aiming to start operations in 2026. Project exploration, environmental investigations, Indigenous and community consultation, engineering, procurement and marketing work are underway to support this Project schedule.

Table 5-1 New Polaris Preliminary Project Schedule

Phase	Component	Start Date	End Date
Pre-Construction	Data Collection Program: Supplemental to historical data collected for the project	December 2020	November 2022
	Environmental and Socio-Economic Studies Reports	December 2020	March 2023
	Draft IPD Submission, engage EAO	December 2022	
	Canagold submits IPD to EAO	March 2023	
	EAO initiates Early Engagement Process	March 2023	
	Early Engagement Process (90 days) Complete and Summary of Engagement Issued	May 2023	
	Canagold drafts Detailed Project Description (DPD) and conducts follow-up engagement and issues resolution from Summary of Engagement	May – July 2023	
	Canagold submits DPD to EAO	July 2023	
	EA Readiness Decision	October 2023	
	Process Planning (120 days)	February 2024	
	Canagold submits draft Application for an Environmental Assessment Certificate	July 2024	
	EAO issues direction for final application	January 2025	
	Canagold submits Final Application for an Environmental Assessment Certificate	April 2025	
	EAO completes effects assessment and recommendation (150 days) and submits referral for decision	September 2025	

Phase	Component	Start Date	End Date
	Decision (30 days)	October 2025	
	BC Coordinated Authorization <ul style="list-style-type: none"> - <i>Mines Act</i> - <i>Environmental Management Act</i> - <i>Water Sustainability Act</i> 	January 2025	April 2026
Construction		Following receipt of all required permits/authorizations – construction phase approximately 1 year duration.	
Operation		Approximately 10 years duration following construction	
Reclamation and Closure		Approximately 2 years duration following end of operation.	
Post-Closure		Following Reclamation and Closure	

5.2 Seasonal Constraints

5.2.1 Mine Operation

During operation, the mine would be in production seven days a week and operating for 24 hours per day, with no seasonal constraints anticipated.

5.2.2 Barge Operation

Barge operation would be subject to seasonal constraints due to water level fluctuations in the Taku River. Based on publicly available hydrological data for the Taku River, the barging season is anticipated to take place between May and September of each year, during which, fuel and other bulk materials and equipment would be transported to the mine site.

5.2.3 Reduced Risk Work Windows

The following subsections discuss reduced risk timing windows for fish and wildlife that are anticipated to affect the Project schedule during the construction, decommissioning and closure phases.

5.2.3.1 Instream Works

An application for a Water Sustainability Act Section 11 Approval for Changes in and About a Stream would be required for the instream works associated with the construction of the barge landing site. Works are typically subject to terms and conditions, including conducting works during windows of least risk which are designed to protect aquatic species during sensitive life stages.

The Project is located within the Skeena natural resource region, Skeena-Stikine Forest District and Cassiar Timber Supply Area. Based on the Project location and the fish species known to be present (see Section 8.3.3), periods that are outside of the reduced risk work windows for the various documented species overlap the entire calendar year.

Therefore, work in or about a stream will require approval from a Habitat Officer. This will require demonstrating that sufficient mitigation measures are in place to minimize potential impacts to aquatic species.

It is likely that in-stream works would be carried out in periods of low flow.

5.2.3.2 Vegetation Clearing

Raptors and most other bird species are protected in BC under Section 34 of the Wildlife Act, under which it is an offence to possess, take, injure, molest, or destroy a bird or its egg, or a nest that is occupied by a bird or its egg. Subsection 34 (b) provides protection year-round to the nests of the Bald Eagle (*Haliaeetus leucocephalus*), Golden Eagle (*Aquila chrysaetos*), Peregrine Falcon (*Falco peregrinus*), Gyrfalcon (*Falco rusticolus*), Osprey (*Pandion haliaetus*), and Burrowing Owl (*Athene cunicularia*), whether the nests are active or not.

Vegetation clearing or disturbance activities must occur outside of the nesting season for migratory birds. According to Environment and Climate Change Canada (ECCC) the Project is located within Zone A2 which has a regional nesting period of early April to mid-August (ECCC, 2018). Vegetation clearing may occur during this time as long as the works are preceded by a nest survey conducted by a Qualified Environmental Professional according to applicable BC Resource Inventory Standards Committee methodology.

6 Project Location, Activities and Components

This section provides an overview of Project components and activities.

The Project is located approximately 100 km south of Atlin, BC, and 60 km northeast of Juneau, Alaska, on the west bank of the Tulsequah River near the BC - Alaska border as shown in Figure 1-1.

The Project design described in this IPD is largely based on the 2019 Preliminary Economic Assessment (PEA; Schulte et al 2019), with updated or additional details provided where possible. The final location, size and dimensions of mine components will be determined following completion of additional studies (e.g., Feasibility Study), consideration of environmental constraints and potential impacts, and feedback from regulators, Indigenous Groups and other stakeholders.

The Project is an underground gold mining operation with an on-site camp and airstrip, as well as a downstream barge landing site. Major bulk supplies for mining and processing would be barged along the Taku River to the barge landing site between May and September. Minor supplies and personnel would be flown to and from the mine site via small aircraft or helicopter. Doré gold produced on site would be shipped to a refinery via small aircraft or helicopter.

The Project is anticipated to operate 365 days per year at an approximate milling rate of 1,000 tpd/ 365,000 tpy and an annual maximum operating capacity of approximately 425,000 tpy. The total mill feed is estimated at 2,900,000 tonnes over the 10-year life of the project. Approximately 40% of the mill tailings, 1,200,000 tonnes, would be used to backfill mined out stope areas underground. The remaining 1,700,000 tonnes would be filtered and blended with underground mined waste rock and placed in the Combined Storage Facility located about 1.0 km north of the process plant location.

There are three separate locations where work is proposed, including the Mine and Plant Site, the Combined Storage Facility, and the Barge Landing Site. The coordinates of these are given in Table 1-1 and a description of each of the components is given in section 6.3.

Table 6-1 General Project Information

Project Name	New Polaris Gold Mine Project		
Location	<p><i>Mine site:</i> 100 km south of Atlin, BC, and 60 km northeast of Juneau, Alaska, on the west bank of the Tulsequah River near the BC-Alaska border.</p> <p><i>Combined Storage Facility (CSF):</i> approximately 1.0 km north of the mine site.</p> <p><i>Barge Landing:</i> approximately 10 km south of the mine site, near the Taku River and Tulsequah River Confluence.</p>		
Coordinates	<p>Mine site:</p> <p>58°42'3.68"N</p> <p>133°37'45.04"W</p>	<p>Combined Storage Facility:</p> <p>58°42'29.0"N</p> <p>133°37'45.8"W</p>	<p>Barge Landing:</p> <p>58°37'32.2"N</p> <p>133°33'25.6"W</p>
Sector and Type	Underground gold mine		

The Project will be designed, constructed, operated and decommissioned to meet all applicable BC and Canadian environmental and safety standards and practices consistent with regulatory requirements, and be informed by the environmental assessment process and ongoing engagement with Indigenous Groups and stakeholders.

The mine will operate as a fly-in / fly-out operation with employees spending two weeks at site and two weeks off site. While at site employees will be housed in an accommodations complex equipped with dining, recreational and leisure facilities.

6.1 Project Setting

The New Polaris project area lies on the eastern flank of the steep, rugged, Coast Range Mountains, with elevations ranging from the sea level to 2,600 metres.

Extensive recent glaciation was the dominant factor in topographic development. The Taku and Tulsequah Rivers are the most prominent topographic features: broad valleys bounded by steep mountains. Numerous tributary streams flow from valleys filled with glaciers. Most of the glaciers are fingers branching from the extensive Muir ice cap, lying to the northwest of the Taku River. The Tulsequah glacier, which terminates in the Tulsequah valley about 16 km north of the New Polaris mine site, is one of the largest glaciers in the immediate area. Historically, the glacier forms a dam causing a large lake in a tributary valley that breaks through the ice barrier (Jakülhlaup) during the spring thaw every year, flooding the Tulsequah and Taku valleys below for three to five days.

Small aircraft provide site access from the nearest population centers in Atlin, BC, 100 km north of the Property, or Juneau, Alaska, 60 km southwest of the Property. A short airstrip for light aircraft exists on the property. The nearest roads in the area terminate 20 km due south of Atlin and 10 km southeast of Juneau. Shallow draft barges have been used in the past to access the site via the Taku River to transport bulk supplies and heavy equipment to site, as well as ship flotation concentration from site. The property can be operated year-round.

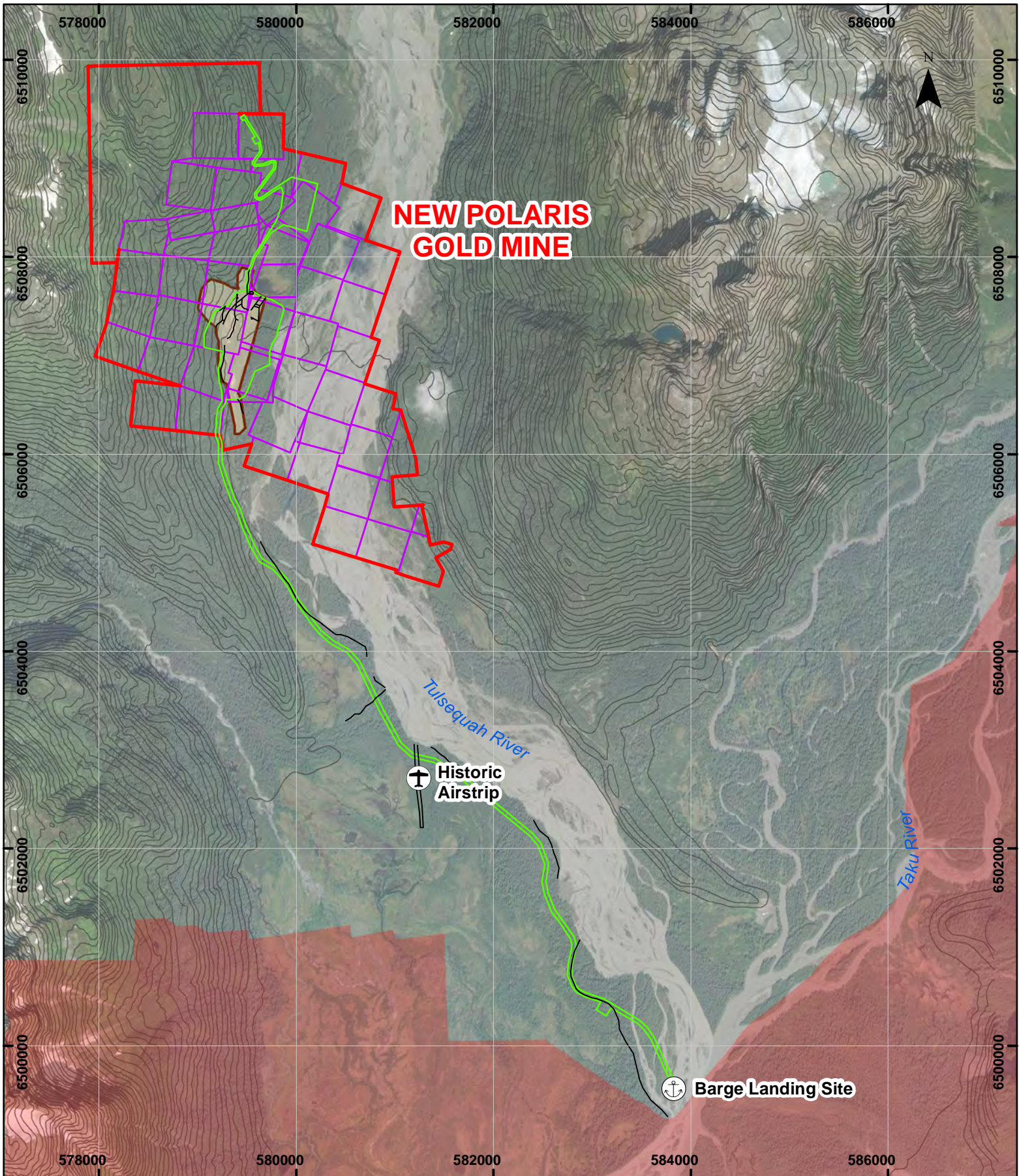
The climate is one of heavy rainfalls during the late summer and fall months, and comparatively heavy snowfall, interspersed with rain during the winter. The annual precipitation is approximately 1.5 m of which 0.7 m occurs as rainfall. The snow seldom accumulates to a depth greater than 1.5 m. Winter temperatures are not severe and rarely fall below -15°C . Summer temperatures, in July, average 10°C with daytime temperatures reaching the high 20's on occasion. The vegetation is typical of northern temperate rain forest, consisting primarily of fir, hemlock, spruce and cedar forest on the hillsides and aspen and alder groves in the river valley.

The Taku River / T'akú Téix' Conservancy lies approximately 10km to the south of the Project site and encompasses the British Columbia portion of the Taku River main stem from the Alaska border to the confluence of the Nakina and Inklin Rivers (TRTFN and Province of BC, 2011a). There is no proposed infrastructure or mining activities planned within the Conservancy however the proposed site access is by barge from Alaska via the Taku River. The Conservancy area in relation to historic and proposed infrastructure is illustrated in Figure 6-1 and Figure 6-3.

6.2 Existing Infrastructure

Figure 6-1 and Figure 6-2 illustrate the location of the existing infrastructure components established at the mine during historical activities. These include:

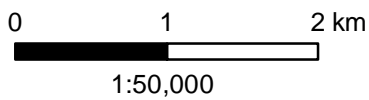
- Two mine portals (currently boarded up)
- Old camp buildings (bunkhouse, kitchen, dry, sleeping quarters)
- 600 m airstrip
- Two empty fuel storage tanks
- Old core racks
- Machine shop
- Remnants of old mill foundations
- Remnants of the old tote road to barge landing.



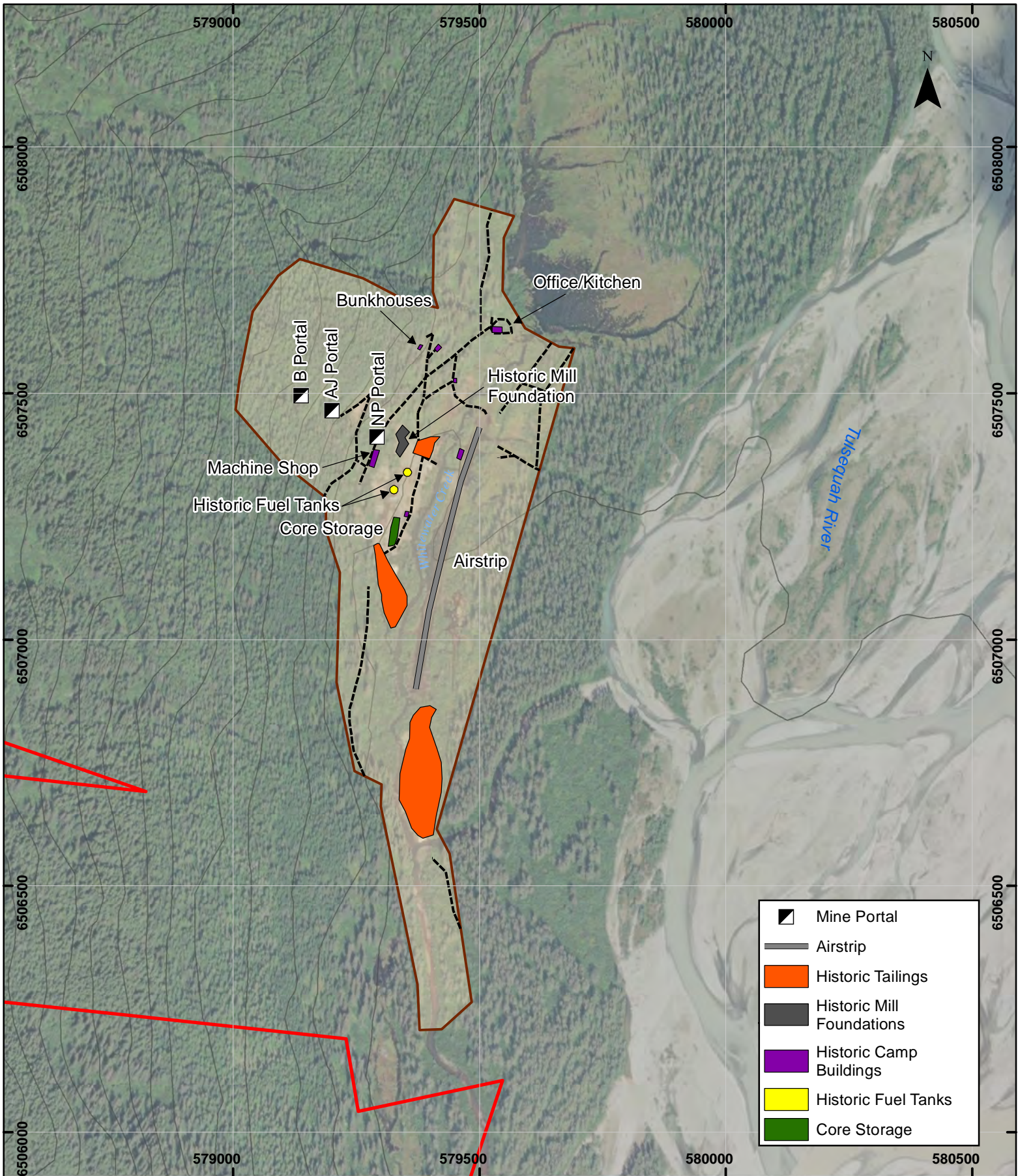
**NEW POLARIS
GOLD MINE**

-  Historic Roads & Trails
-  Proposed Project Area
-  Mineral Tenure Outline
-  New Polaris Crown Granted Claim
-  Historically Disturbed Area
-  Taku River Conservancy Area
-  Contour (100ft)

**Figure 6-1: Existing Project Infrastructure, Overview
New Polaris Gold Mine**

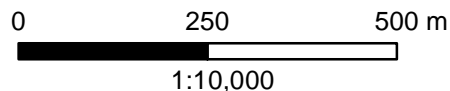


NAD83 UTM Zone 8N
Map Date: 3/3/2023
Project Location NTS Mapsheet: 104K/12
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- Historic Roads & Trails
- Mineral Tenure Outline
- Historically Disturbed Area
- Contour (100ft)

**Figure 6-2: Existing Project Infrastructure Site, Detail
New Polaris Gold Mine**



- Mine Portal
- Airstrip
- Historic Tailings
- Historic Mill Foundations
- Historic Camp Buildings
- Historic Fuel Tanks
- Core Storage



NAD83 UTM Zone 8N
 Map Date: 3/3/2023
 Project Location NTS Mapsheet: 104K/12
 Created For 8.5 x 11 inch Paper Size
 Background Layer: ESRI 2023-02-15

6.3 Activities and Components

The major components of the proposed Project are:

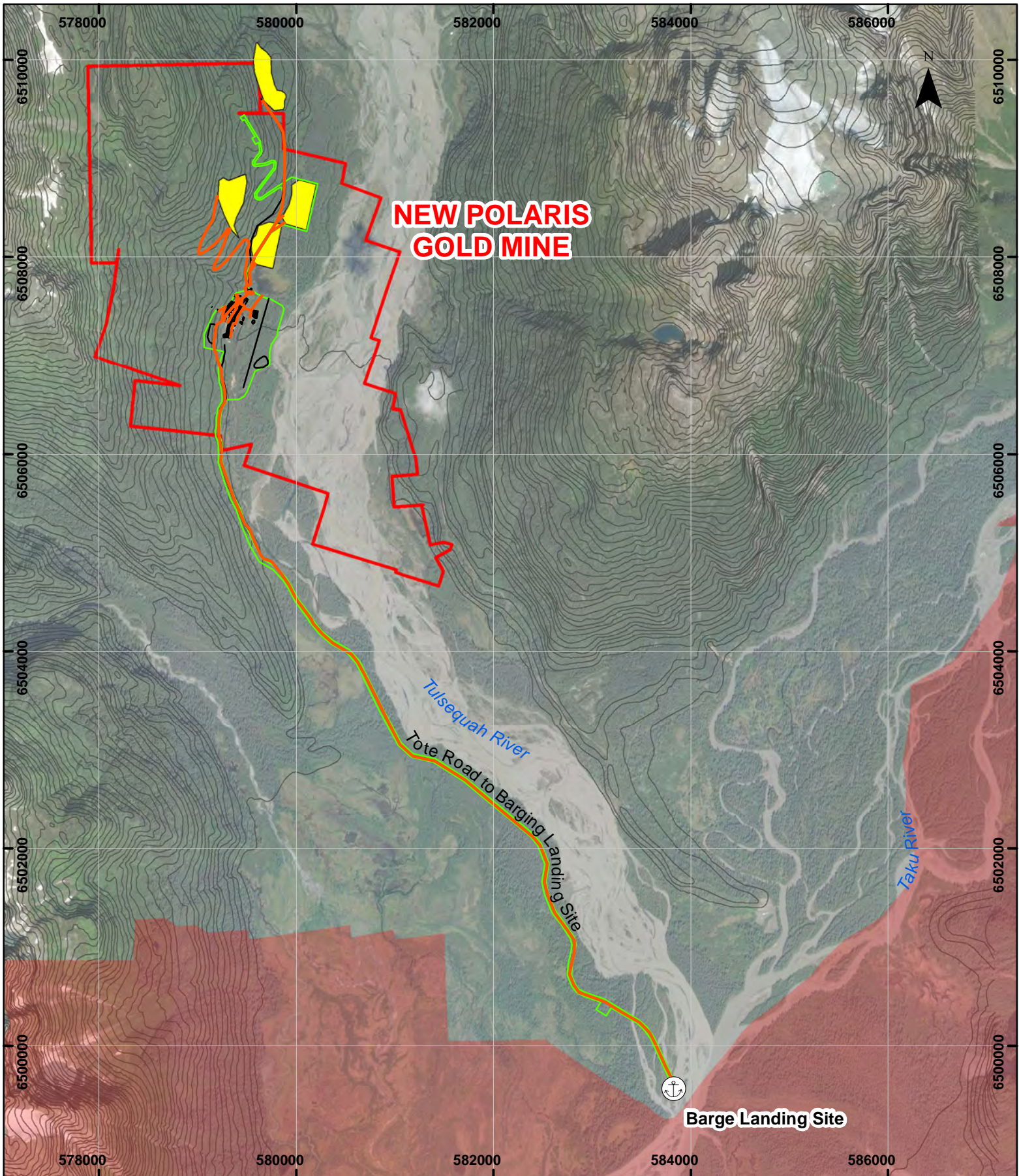
- Project site:
 - Underground mine
 - Processing Facility
 - Fuel storage
 - Explosives storage
 - Internal roads
 - Other Buildings (Camp, Shop, Admin, Warehouse)
 - Surface Drainage
- Combined Storage Facility and access road
- Transport
 - Modified Airstrip
 - Barge landing and tote road
- Aggregate supply
- Limestone quarry

Bulk supplies, diesel fuel and the majority of plant reagents required for the operation will be barged to site along the Taku River. Transportation, handling and storage of all materials will adhere to all international protocols.

The general layout of the Project components is shown in Figure 6-3 and Figure 6-4.

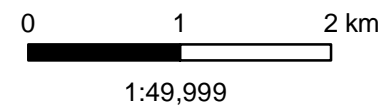
Equipment required during construction will include earth moving equipment including bulldozers, excavators, loaders, haulage trucks, mobile cranes, grading and compacting equipment, drilling equipment, aggregate screening equipment, concrete plant and truck, carpentry and mechanical equipment for construction as well as underground drilling, loading and hauling equipment. Power generation and camp facilities will also be needed.


Equipment required during operations will include surface mobile equipment including front end loaders, bulldozers, grader, haul trucks and light passenger vehicles for surface operations an underground equipment fleet which will include drilling equipment and underground loaders and haul trucks. Processing equipment will include jaw and cone crushers, screening and conveying equipment, grinding mills, flotation cells, thickening and filtration equipment, tanks and pumps and miscellaneous smaller support equipment.



- Proposed Site Roads & Trails
- Proposed Project Components
- Combined Storage Facility Options
- Proposed Project Area
- Taku River Conservancy Area
- Mineral Tenure Outline
- Contour (100ft)

Figure 6-3: Proposed Project Components, General New Polaris Gold Mine





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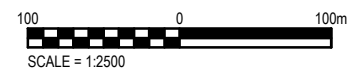
LEGEND:

	HISTORICALLY DISTURBED AREA		HISTORIC TAILINGS
	PROPOSED PROJECT AREA		WATER COURSE
			MINERAL CLAIMS BOUNDARY
			UTM GRID

NOTES:

- COORDINATE SYSTEM: UTM ZONE 8N NAD 83 CSRS
- APPROXIMATE PROJECT LOCATION (PROCESS PLANT)
58.699822, -133.629843 (LAT., LONG)

PRELIMINARY



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				B	JOF	24FEB2023				
				A	JOF	22FEB2023				

Drawn: J O'FARRELL, 22FEB2023
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CLIENT: CANAGOLD RESOURCES LTD.
 TITLE: FIGURE 6-4 PROPOSED PROJECT COMPONENTS PLANT AREA

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6.3.1 Project Site

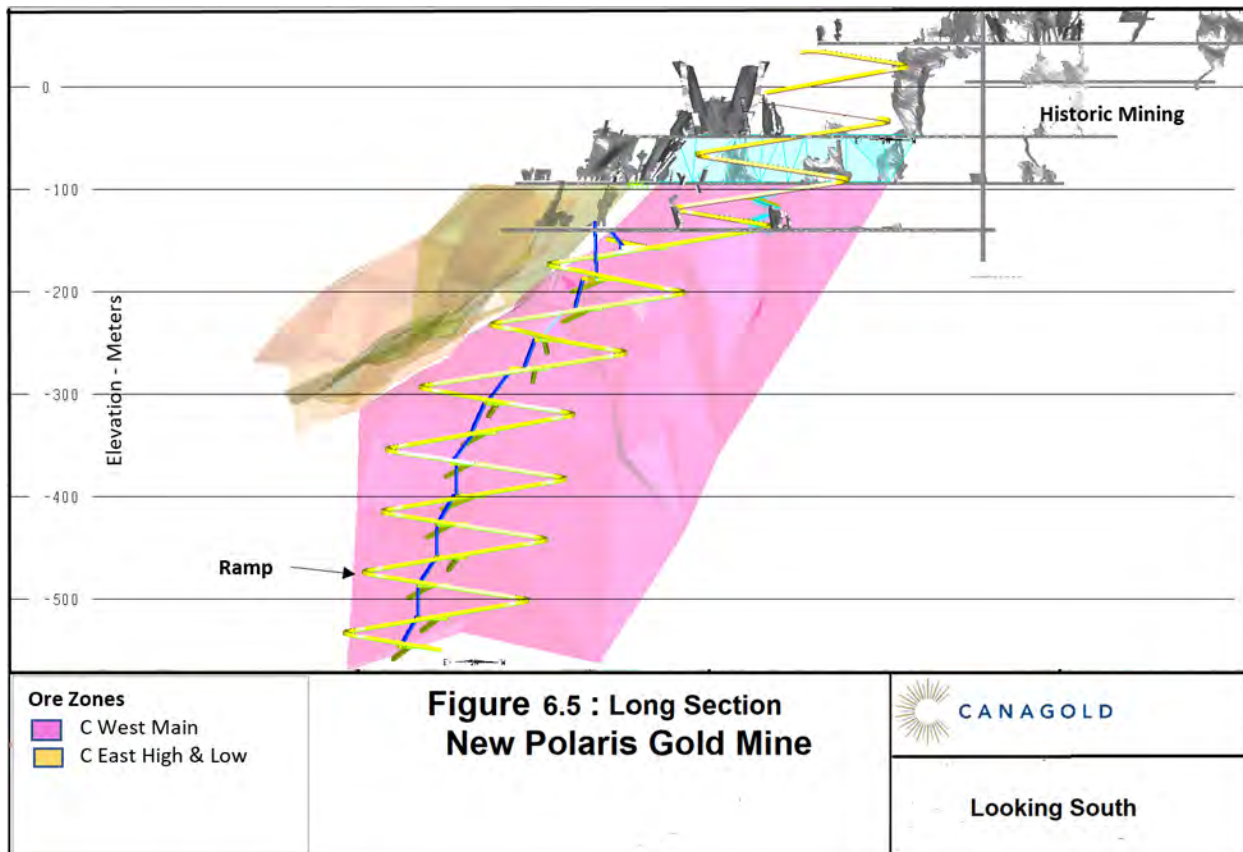
The Project is an underground mine based on a high grade (10.5 g/t) gold resource containing over 1.1 million oz. The Project site includes the underground mine, processing plant, fuel and explosives storage, internal roads and a camp, maintenance shop and other ancillary buildings as shown in Figure 6-4.

6.3.1.1 Mine

The New Polaris deposit would be accessed via the existing portal which would be upgraded to accommodate trackless underground equipment. The existing portal is at approximately 24 meters above sea level and the ramp would be driven down to 600 meters below sea level or lower.

Figure 6-5 shows vertical cross section of the historic underground workings and the new mineral resources to be mined.

Figure 6-5 Long Section Looking South – Mineral Resources and UG Workings



As installation of the ramp progresses services including ventilation, pumps, compressed air and water, power and refuge stations would be installed. The mining equipment fleet will include electric-hydraulic jumbo drills and bolters and diesel powered scoop trams and haul trucks.

The Project plans to use a combination of sublevel longhole stoping (LHS) and conventional cut and fill (CCAF) methods. LHS would be used in steeper areas while CCAF would be utilized in the shallow dipping and thinner areas which are generally located at the “on strike” extremities of the LHS areas.

The underground mine will produce approximately 1000 tpd or 365 thousand tonnes per year, which will be delivered to the onsite processing facilities.

The underground mine workings are currently flooded and require dewatering during the excavation of the new ramp to provide access to the ore between surface and the 600-meter depth.

6.3.1.2 Processing Facility

A new Plant to process 1000 tpd of mill feed is proposed as part of the Project.

The plant process steps include crushing, grinding and flotation to produce an estimated 120 tpd of flotation concentrate containing the gold followed by Bio-Oxidation (BIOX) of the concentrate and cyanide leaching in a Carbon-in-Leach (CIL) plant, carbon stripping, electrowinning and refining to produce the end product, doré bars (a semi-pure gold alloy).

Sodium cyanide will be transported to site via barge for use at site. All transportation, handling and storage of cyanide will follow the done so in accordance with the International Cyanide Code. The Cyanide Code focuses exclusively on the safe management of cyanide that is produced, transported and used for the recovery of gold and silver. Companies that adopt the Cyanide Code are subject to auditing by an independent third party to determine the status of implementation and may result in certification under the Cyanide Code. Audit results are made public to inform stakeholders of the status of cyanide management practices at the certified operation (ICMI, 2018).

There are three solid waste streams generated within the process plant:

- Flotation tails.
- Leach solids residue.
- Neutralization precipitate.

These three waste streams are generated at three different locations in the process, are combined into a single stream inside the plant ahead of leaving the plant. Approximately 40% of this material would be used underground, as backfill in mined out areas and the remainder would be filtered and sent for permanent disposal to the Combined Storage Facility (CSF) (see section 6.3.2).

Water recovered from the thickening and filtering of the tailings will be treated to remove contaminants and recycled for use in the process with any excess water being discharged to the environment. Any water discharged from the process will be treated to ensure the quality meets all regulatory requirements before it is discharged.

An Acid Rock Drainage and Metal Leaching (ARD/ML) Assessment report by URS consulting, dated March 20, 2007, on samples of New Polaris waste rock and flotation tailings, concluded that the New Polaris waste rock and flotation tailings will not be acid generating due to an abundance of neutralizing material contained in the rocks however metal leaching potential was identified in some of the material.

The report concluded that most vein rocks at New Polaris are not considered to be acid generating, due to high carbonate content, although some individual veins do have potential to become acid generating. Overall, the footwall rocks are considered to be non-acid generating, however localized areas of possible acid generating rock material are present. The hangingwall rocks are also considered to be non-acid generating. Mineralogical analysis indicates that carbonate mineral species available for acid neutralization are relatively abundant in all rock zones. For hangingwall and footwall zone rocks with a neutralization potential of less than 200 equivalent kgs calcium carbonate (CaCO₃) per tonne non-carbonate minerals provide additional neutralization potential.

Based on static testing of five (5) flotation tailings samples, tailings are not expected to be acid generating. The flotation tailings sulphide sulphur content is typically less than 0.3 weight % and the corresponding carbonate is greater than 3.5 weight %. Despite one (1) sample containing a sulphide sulphur content of 0.36 weight %, an abundance of neutralizing material results in a Neutralizing Potential Ratio (NPR) of 41 which is well above the NPR of 4, considered the lower NPR threshold for non-acid generating materials. NPR is the ratio of neutralizing potential to acid generating potential in rocks.

Total metal analyses and leachate extraction test results for hangingwall rocks, vein rocks (ore) and footwall rocks indicate the potential to leach arsenic and antimony. This is more prevalent in the vein rocks (ore) where up to 4% by weight of arsenopyrite is present in some samples, although elevated arsenic and antimony concentrations in leachate also occurred from some footwall and hangingwall zone rocks.

By far the highest levels of arsenic and antimony occur in the ore vein which will be processed in the plant to recover its gold values. During processing operations, the majority of the antimony and arsenic will be recovered into the flotation concentrate which will then pass through the BIOX and leaching processes. During the Neutralization stage of the process the arsenic and antimony will be removed from solution and precipitated into a stable sludge which will be disposed of at the CSF.

To avoid the risk of metal leaching in a wet storage facility the plant tailings will be filtered and dry stacked for co-disposal with mine waste rock in a Combined Storage Facility (CSF) rather than being deposited into a wet tailings storage facility. As they are placed into the storage facility the deposited tailings and waste rock will be compacted to reduce water penetration. The facility will also be bermed to prevent surface runoff water entering the facility and contacting the tailings. Rainwater that falls inside the facility will be collected and directed to the water treatment plant to remove any suspended solids and other contaminants prior to recycling to the process plant or discharge.

To minimize the volume of tailings requiring long term surface storage, a maximum amount of tailings will be thickened, mixed with cement and pumped underground to backfill mine openings created during the mining operations. It is estimated that 40% of the tailings generated will be used for backfill and 60% will be stored on surface.

Additional ARD/ML testing is currently in progress at SGS labs to confirm the rock characteristics results from previous testing of the various rock types that will be encountered during mining operations and the process plant tailings. The knowledge gained from this test work will be used to inform the design of the CSF as well as water treatment needs and ensure that the facility design and operating protocols are put

in place to ensure protection of the environment from Acid Rock Drainage and Metal Leaching risks associated with the mining and processing operations.

The aggregate material used for construction will be recovered from the historic flood plain of the Tulsequah River. This material contains no sulphide minerals so it will not pose any risk for acid rock drainage or metal leaching.

6.3.1.3 Fuel Storage

The proposed Project includes an on-site tank farm for storing diesel fuel during the construction and operations of the Project. The tank farm will have a capacity of approximately 8,000,000 to 10,000,000 liters.

An earth berm and impoundment would be constructed around the fuel tank farm using locally sourced sand and gravel. The berm and impoundment would be lined with an impermeable membrane to provide containment in the event of a spill.

Fuel would be brought to site in containers via barge during the designated barging season. It would be offloaded and trucked to the bulk storage fuel tanks. Fuel would be distributed around the site by tanker truck.

For daily mine construction and operations activities, smaller “day tanks” are proposed to be located at various locations throughout the site to supply fuel for equipment and power generation as required for the camp, mine, plant, truck maintenance facility, barge landing and other infrastructure sites. These day tanks would be filled by the tanker as required. Day tanks would be installed in alignment with industry accepted standards, including containment to prevent release of any fuel to the surrounding environment.

6.3.1.4 Explosives Storage

Excavation of the below ground mine will require use of explosives, and the proposed Project therefore contains an explosives storage facility. The facility would be secure and gated and would be designed in accordance with guidelines from Natural Resources Canada, including maintaining minimum distance to inhabited areas.

The facility design is comprised of eight 40-foot shipping containers. To ensure safe storage of the explosives, each container is designed with a surrounding earth berm. Each container is designed to store up to 23,000 kg of explosives.

Transport of explosives from the storage facility would be undertaken in accordance with relevant regulatory requirements using trucks.

6.3.1.5 Project Site Internal Roads

Most of the existing site road network has not been actively maintained since 2007 and is in varying states of disrepair, subject to overgrowth, road wash outs, and other seasonal/ environmental effects.

While some minor upgrading and maintenance has been completed to facilitate recent exploration activities, additional new road works as well as upgrading of existing roads are proposed to enable the construction and operations of the site.

6.3.1.6 Other Buildings and Utilities

6.3.1.6.1 Buildings

A camp would be constructed to accommodate approximately 150 people and other buildings such as warehouses and maintenance, would be required. These would be either prefabricated trailer units, prefabricated steel structures or fabric structures placed on concrete slabs.

Clearing, grubbing, minor pile foundation work and installation of utilities access would be required for these buildings.

6.3.1.6.2 Communications

Communications infrastructure proposed for the project includes a satellite-based internet and surface telephone/radio communication system for above ground communications. This may include installation of antenna or towers. Design of the below ground mining operations also include a specialized communication system which also allows the underground mine to communicate with the surface crews.

6.3.1.6.3 Waste

The proposed Project includes a Domestic Waste Disposal facility for the disposal of domestic, sanitary, and other waste generated by the camp and other site facilities during operations. Waste would be incinerated on site using a skid mounted diesel fueled incinerator. Ashes are buried in an approved landfill area. Non-combustible and hazardous waste would be flown to Atlin or Whitehorse for proper disposal.

6.3.1.6.4 Other

To supply the underground operations, mill and surface operations of the proposed mine with a compressed air supply, the Project design includes air compressors operated using electric or diesel power.

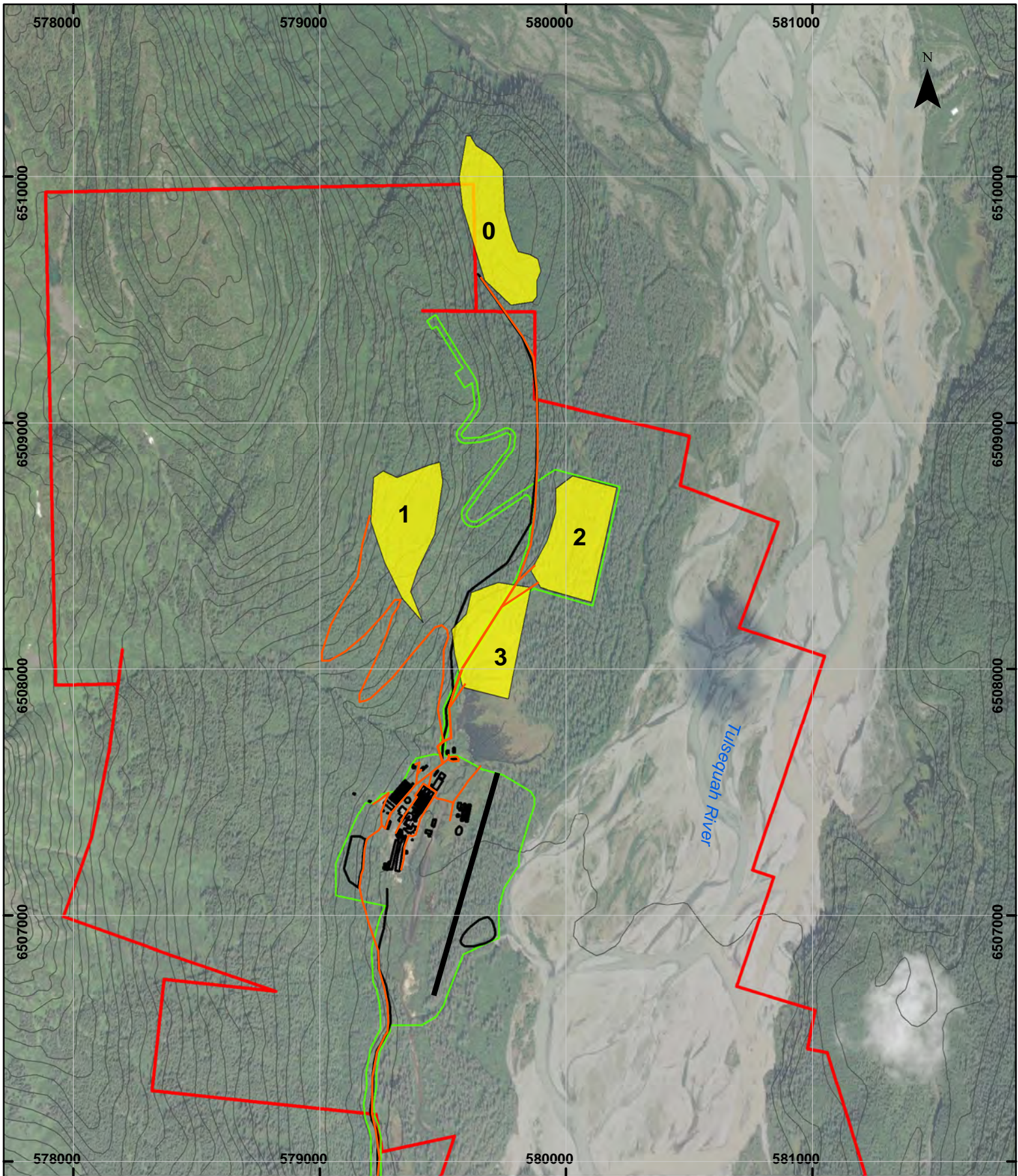
6.3.1.7 Surface Drainage

The protection of the Whitewater Creek during construction and operations is a critical element of the project. In order to protect Whitewater Creek and other environmentally sensitive areas such as wetlands, the proposed Project design includes protection zones that will be protected by berms with drainage ditches. This proposed design would capture surface drainage from the site facilities and divert it away for use in the facility process or allow water to settle out any solids prior to any discharge.

Water would be monitored at discharge points to verify that settling is efficient and that no unexpected contaminants are present.

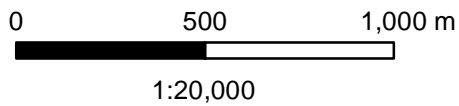
6.3.2 Combined Storage Facility (CSF)

During operation, dry stack tailings and waste rock from mining would be stored at a location approximately 1.0 km north of the mine site, accessible via a tote road. Locations of the potential CSF sites are shown in Figure 6-6. Canagold is considering three possible locations for the CSF. Input from the TRTFN is being sought on the site selection process and a suitable site will be selected in consideration of the TRTFN input as well as the technical parameters.



- Proposed Site Roads & Trails
- Proposed Project Components
- Combined Storage Facility Options
- Proposed Project Area
- Mineral Tenure Outline
- Contour (100ft)

**Figure 6-6: Proposed Project Components
Combined Storage Facility Options
New Polaris Gold Mine**



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 Project Location NTS Mapsheet: 104K/12
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About 40% of the tailings would be pumped to the paste backfill plant, then pumped into mined-out voids (stopes) within the underground mine.

The remaining 60% would be filtered to a semi-dry state and then loaded into haul trucks and transported to the CSF.

Waste rock from mining activities not used as backfill underground would be hauled from underground and mixed with the plant tailings at the CSF. A total of 1,320,000 m³ of waste rock and tailings are anticipated to be disposed of at the CSF throughout the life of the mine.

Co-placement of waste rock and tailings in one facility has a number of advantages over placing these in separate facilities including:

- Reduces the overall footprint area of tailings and waste rock storage and allows for more simplified water management.
- Although the waste rock at the site is not acid generating the co-disposal with tailings further mitigates any potential for acid rock drainage
- Detailed design of the CSF is advancing in parallel to the environmental assessment process as part of the Feasibility Study. Key design parameters to inform the detailed design of the CSF include:
 - Non-contact surface water diversion ditches are constructed outside the facility to prevent any surface runoff water coming into contact with the stored waste rock and tailings.
 - Layers of waste rock and tailings would be compacted and sloped to manage runoff within the structure.
 - Ditches are excavated around the inside of the CSF and lined with impermeable material to direct any seepage water to a lined settling pond that can be recycled or fed into a water treatment plant if additional treatment is needed.
 - Progressive restoration of the CSF will take place to minimize the active areas.
 - At closure, a rock/soil cover would be placed over the entire facility, encapsulating the tailings and mine waste rock.

A tote road between the mine site and the CSF would be required to transport waste rock and tailings, and the design of the road will consider the following design parameters:

- All the options for the CSF location are approximately 1km north of the process facilities.
- The new tote road (4.5 m wide) would be constructed using balanced cut/fill methodology and will allow for single lane traffic with an allowance for shoulders.
- Pull outs would be placed at intervals to allow passing of two-way traffic. Radio control of the tote road will also be required.
- Clearing, grubbing and grading would be required.
- A 25 to 50 cm layer of locally sourced coarse gravel would be laid on the surface for the length of the tote road.
- Regular maintenance will include grading.
- One 25 m culvert to convey surface drainage would be required.

6.3.3 Transportation to/from the site

6.3.3.1 New Airstrip

The existing airstrip was created from the old main road in the abandoned town site and is only suitable for small aircraft. A new location for an expanded airstrip is proposed and is shown in Figure 6-4.

Year-round maintenance would be required to keep conditions within the specifications of charter airline services operating on the airstrip. This will include grading, periodical placement of new material and snow clearing.

6.3.3.2 Barging Operations

Transportation options are limited at the remote New Polaris location. Seasonal barging along the Taku River is the only ground transportation option available for bringing construction equipment and materials and bulk operating supplies to the site. Barging operations are therefore a critical component for a viable mining operation at New Polaris. Barging would occur annually between May and September when the water levels in the Taku River are sufficient to allow barge traffic.

Freight transportation has two components, a Taku Inlet component and a Taku River component. Freight will arrive from Canadian and US ports via ocean going barges or ships to a floating marine facility (Transfer Barge Facility), that will be anchored in the Taku Inlet. The ocean freight will be offloaded onto the larger Transfer Barge Facility from which it will later be loaded into the smaller, shallow-draught river barges for transport to site along the Taku River to a barge landing site near the confluence of the Taku and Tulsequah rivers. The majority of the bulk supplies, materials and large equipment will arrive from the ports of Prince Rupert, Vancouver, Seattle and Juneau. Diesel fuel, which is a large portion of the barging requirement, will be purchased in Juneau, Alaska.

The river barging route will begin at a larger sized transfer barge located in the Taku Inlet, where ocean going barges and ships will offload materials. From this location the materials will be transferred to the smaller, shallow draught river barges. The barging route ends at a barge landing facility located just downstream of the Taku and Tulsequah River confluence. The barging distance is approximately 55 kilometers. The approximate barging route and Transfer Barge Facility is shown on Figure 6-7.

The river barging equipment will consist of a fleet of three or four, shallow draught barges of 100 to 150 tonne capacity propelled by low-draught tug boats. Barging operations will be contracted to a company with equipment suitable for barging on the Taku River and sufficient barging experience to conduct the work in a safe and efficient manner.

Materials to be barged for mine construction will include: Mobile equipment fleet, mobile cranes, underground mining equipment, processing plant equipment, power generation equipment, miscellaneous constructions materials including cement and steel for buildings and numerous site tanks including diesel fuel storage tanks, seacans, camp trailers, plant, office and shop buildings and a variety of other smaller equipment & materials needed for mine construction activity,

Annual bulk supplies to be barged will include: Fuel, cement, ground support materials, explosives, oils, drilling consumables, pipe and cable, equipment maintenance parts, grinding media, grinding mill and crusher liners, plant reagents and miscellaneous other supplies.

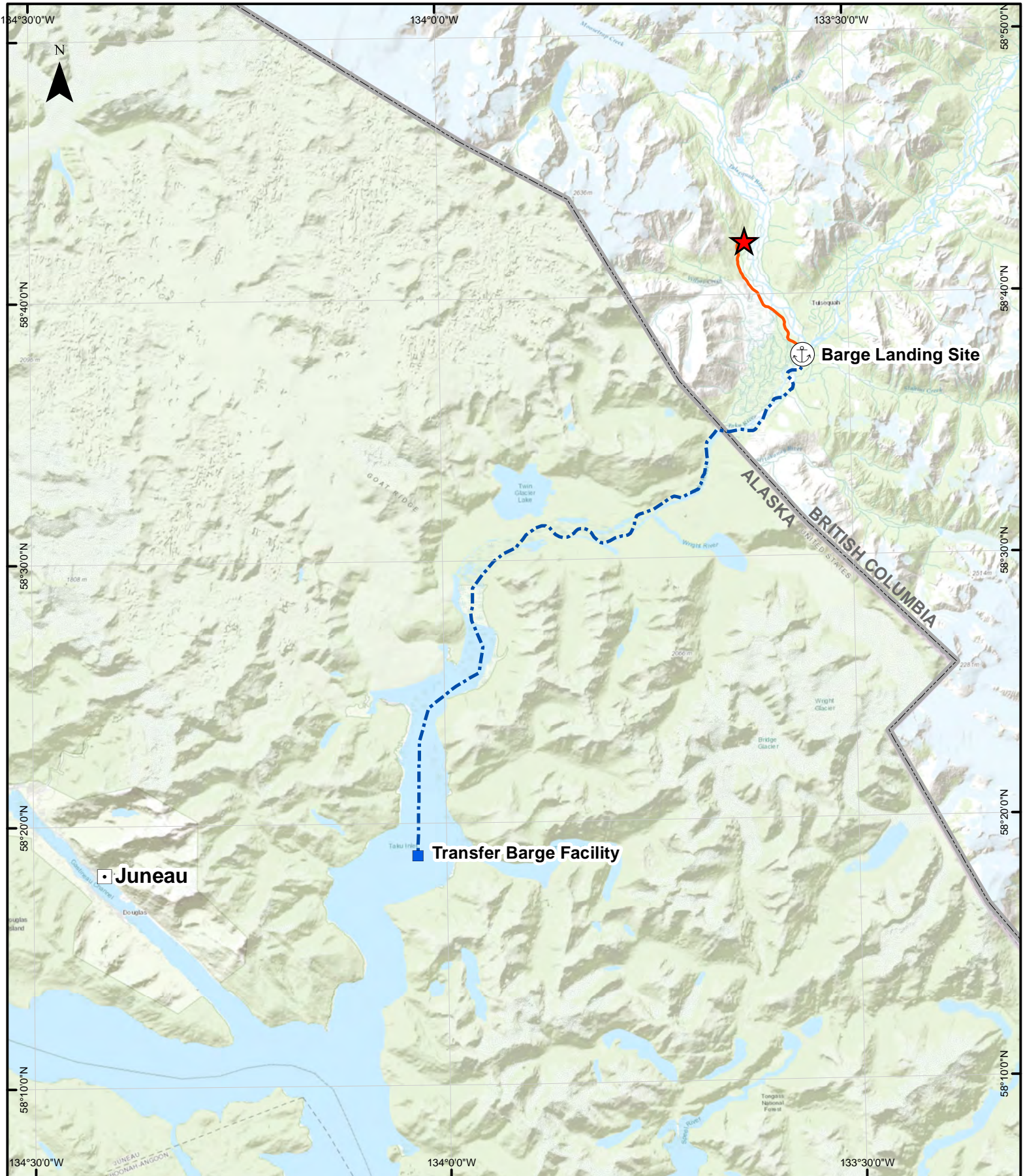
Barging of equipment and materials for construction is estimated to be about 8,000 tonnes and require about 80 barge trips. Annual bulk operating supplies are estimated to be about 17,000 tonnes consisting of 5000 tonnes of bulk supplies plus 12,000 tonnes of diesel fuel. This will require about 150 to 170 barge trips per year.

Diesel fuel will be shipped in 24,000 liter ISO containers. Other bulk materials and supplies will be packaged to minimize the risk of any spillage during handling and transportation.

Frequent surveys of the river will be conducted during barging operations to ensure the barging route is free of any debris or silt buildup which could interfere the safe passage of the barge.

Communication with fishermen and other users of the Taku River will be maintained on an ongoing basis to ensure that other users of the river are informed of the barging schedule and to ensure that barging operations are managed in a manner that accommodates the needs and minimizes the impact on other users of the river.

Since the final product produced at mine will be gold doré bars which will be flown from site, the barging of materials from site will be minimal. It will include returning of empty ISO fuel containers for refilling, shipping of any equipment no longer needed for the operation or waste materials that need to be shipped off site for special disposal. At the end of the mine life all remaining materials and equipment will be barged from site.



- Transfer Barge Facility
- Juneau, AK
- ⚓ Barge Landing Site
- ★ New Polaris Project Location
- Proposed Road & Trails
- - - Proposed Barge Route

Figure 6-7: Proposed Barge Route New Polaris Gold Mine

0 10 20 km

1:350,000

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6.3.3.3 Barge Landing Site

A barge landing site is proposed at a location on the north side of the Taku River, near its confluence with the Tulsequah River and 10 km south of the mine site (see Figure 6-3).

The proposed location on the Taku River is about 0.3 kms upstream of the Taku River/ T'aku Teix Conservancy. The barging operation along the Taku River will pass through the portion of the Conservancy area which covers the Taku River.

Construction of the barge landing site proposes to use wooden and steel piles and backed with rock fill gabion baskets and earth fill to create a level platform along the river edge.

The proposed barge landing site includes a small office trailer, genset, diesel fuel day tank, temporary storage area (for inbound consumables), and container handler and/or mobile crane.

6.3.3.4 Tote Road to Barge Landing

A proposed tote road is approximately 10 km long to connect the barge landing site to the mining operations (see Figure 6-3). The first 2.5 km (starting from the Mine Site) requires balanced cut/fill, and runs south from the site along the hillside above the Whitewater Creek.

The remaining 7.5 km follows a similar alignment to the original tote road, running southeast between the west bank of the Tulsequah river and the Flannigan Slough.

The road will have a 4.5 m running surface width, allowing for single lane traffic. Pull outs would be placed at intervals to allow passing of two-way traffic appropriate to the level of service of the road. Radio control of the road will also be required.

Clearing, grubbing, and grading would be required. A minimum 25 cm, and up to 50 cm, of road coarse gravel (locally sourced) would be used for the running width of the road. Regular maintenance will include grading.

Five culverts and one steel bridge would be required to cross drainages along the 10 km road.

6.3.4 Aggregate Supply

All aggregate supply would be locally sourced to meet infrastructure needs as required. A gravel borrow pit area is proposed on the Tulsequah River floodplain east of the mine site (Figure 6-4).

Aggregate is assumed to require screening but no crushing.

6.3.5 Limestone Quarry

The proposed Project includes a small quarry to supply the limestone required for the processing plant. The limestone quarry is proposed at the west side of the property as shown on Figure 6-4.

The quarry is proposed to supply approximately 60,000 cubic meters of limestone to the plant through the course of mine operations. The quarry is expected to reach a size of about 60 m x 60 m and 30 m deep.

6.4 Project Phases

The phases of the proposed Project include Site Preparation, Construction, Operation, and Reclamation and Closure, followed by the Post-closure. Table 6-2 summarizes the Project activities occurring in each phase.

Table 6-2 Summary of Project Activities by Phase

Project Phase	Activities
Site Preparation	<ul style="list-style-type: none"> • General site preparations include clearing of previously developed areas and some new ground of overgrowth to include all required infrastructure • Construct tote road to barge landing • Construct barge landing • Remove remaining equipment and structures from historic mining activities
Construction	<ul style="list-style-type: none"> • Mobilize and store materials and equipment • Clearing/grubbing • Construct/re-activate tote roads (clearing/grubbing/grading/gravel placement) • Stockpile topsoil and other material suitable for reclamation or construction uses • Construct new air strip (clearing/grubbing/grading/gravel placement) • General earthworks, site levelling/grading, foundation preparation for buildings (e.g., process plant, water treatment plant, sewage treatment plant, camp buildings, power plant, warehouses, truck shop etc.) • Construct/assemble buildings • Construct fuel storage facilities (including secondary containment and “day tank” locations) • Construct explosive storage facility • Install utilities (above-ground potable water and sewage piping, construct septic field, above-ground power lines, communications) • Construct water management systems (e.g., ditches, settling pond) • Construct/install mine services, such as: ramp excavation, mine ventilation, underground pump, electric-hydraulic jumbos and electric-hydraulic bolting jumbo, compressed air, mine lighting, and refuge stations. • Construct Process Plant facility • Construct CSF. • Equipment required during construction will include earth moving equipment including bulldozers, excavators, loaders, haulage trucks, grading and compacting

Project Phase	Activities
	equipment, drilling equipment, aggregate screening equipment, concrete plant and truck, carpentry and mechanical equipment for construction as well as underground drilling, loading and hauling equipment. Power generation and camp facilities will also be needed.
Operation	<ul style="list-style-type: none"> • Worker transportation • Transport materials and supplies to support mine and camp operations. • Mining the New Polaris deposit, including drilling, blasting and excavation activities • Transport ore to the on-site processing plant • Mineral processing • Air, water, sewer discharges (as per permits) • Transport tailings and waste rock (60%) to CSF via truck; pump tailings (40%) to paste backfill plant, then to underground backfill. • Transport doré bars off-site via small aircraft. • Routine maintenance (e.g., grading, adding gravel) to air strip and tote roads. • Reclamation planning and reporting • Environmental monitoring and implementing applicable environmental management plans. • Equipment required during operations will include surface mobile equipment including front end loaders, bulldozers, grader, haul trucks and light passenger vehicles for surface operations an underground equipment fleet which will include drilling equipment and underground loaders and haul trucks. Processing equipment will include jaw and cone crushers, grinding mills, tanks and pumps and miscellaneous smaller support equipment.
Reclamation and Closure	<ul style="list-style-type: none"> • Demolition and removal of processing and mine support facilities. • Sampling and remediating any contaminated soils. • Deactivation of mine site roads, pipelines and site powerlines. Access may be maintained for monitoring purposes. • Utilization of topsoil and overburden piles to recontour and scarify disturbed areas as appropriate. • Placement of dirt cover over CSF. • Environmental monitoring. • Maintenance of water treatment and management structures.
Post Closure	<ul style="list-style-type: none"> • Environmental monitoring, as per regulatory requirements • Safety Inspections for CSF, berms, embankments, etc., as required • Implement follow-up measures, maintenance and repairs as required.

6.5 Work to Date

Since acquiring New Polaris in 1992 Canagold has drilled 350 holes totaling approximately 124,000 m of core. Other activities that have been carried out include:

- Undertaking technical studies to inform the design and planning of the mine construction and operations.
- Advancing environmental studies.
- Site clean-up activities of the previous mine site between 2003 and 2007 for which Canagold (Canarc at that time) received an award from the Ministry of Energy, Mines & Petroleum Resources.
- Re-opening minor site roads and trails to create access for the drilling.
- Maintaining the existing airstrip.
- Maintenance and upgrades to some existing site buildings for accommodations.

6.6 Design Constraints

A list of design or siting constraints that are flexible and not flexible are given in Table 6-3.

Table 6-3 Flexible and Non-Flexible Design Constraints

Parameter	Flexibility	Comment
Project Site Location	Minimal	The project site location is mainly determined by the location of the deposit and by the location of the old town site. Most of the project components are placed within the boundaries of already disturbed areas.
Tailings Storage System	Flexible	<p>Tailings can be stored as “wet” or “dry”.</p> <p>Wet systems are normally cheaper to operate but impound significant quantities of water so any failure risks causing release of large volumes of water and solids.</p> <p>Dry systems are more expensive as the material must be filtered and then moved by truck, instead of pumping, but the material is similar to a damp sand, so failure of the containment has minimal consequences.</p> <p>Given the risk/consequence of a wet system, a dry stack tailing system is proposed.</p>
CSF Location	Flexible	<p>The chosen site should be reasonably close to the Project to minimize the tote roads required and disturbances related to transporting the tailings by truck.</p> <p>Due to the terrain suitable sites are present only to the north of the Project. Several sites are being considered as indicated in section 6.2.2.</p>
Transportation	Minimal	<p>Since the TRTFN have expressed opposition to a road Canagold has eliminated a transport option that would have involved building an access road from Atlin.</p> <p>A study of transportation by barge and air and access options for construction and operation is underway.</p> <p>During operations, personnel and basic supplies can be flown in from Atlin or Whitehorse, however for heavy or very bulky equipment and supplies barging is necessary.</p>
Barge Landing Site	Minimal	Evaluation of potential barge landing sites has revealed that the Taku River landing point is more favorable than the Tulsequah River, which generally has insufficient flow to be suitable for barging. The location is therefore limited to the

Parameter	Flexibility	Comment
		area between the confluence of the Tulsequah and a nature conservancy area that is located approximately 0.5 km downstream.
Airstrip location	Minimal	The location and size is limited by the topography (the valley forces it to be aligned north – south) and river/wetlands.
Processing method	None	<p>There are two main constraints that influence the selection of processing method for the mine, including:</p> <ol style="list-style-type: none"> 1. The ore could be leached at site or transported off site for processing. Offsite transport of concentrates would require a large number of barges during the short barging season. TRTFN have expressed concern with this volume of barging, and there are other limitations to this approach. Therefore, the decision has been taken that ore would be leached at site to produce doré as the end product. Doré would be flown out. 2. The ore is refractory and leaching on site will require an oxidation process. Studies to date indicate that BIOX is the logical process as other alternatives are very energy intensive which is a challenge for a remote site.

7 Indigenous Nation Interests

7.1 Potentially Interested Parties

The project is located in the traditional territory of the Taku River Tlingit First Nations (TRTFN) approximately 100 kms South of the town of Atlin BC where the nearest TRT community is also located.

Canagold has prepared a Draft *Engagement Plan* (Hemmera 2022) that sets a framework, in alignment with BCEAA, to guide their ongoing engagement with potentially interested parties, including Participating Indigenous Nations.

It is Canagold's current understanding that Taku River Tlingit First Nation (TRTFN) are the most impacted Indigenous Group and Canagold will continue to engage frequently with the TRTFN throughout the EA process to understand interests and concerns and gather feedback on the planning of the project.

Canagold will follow guidance from EAO to inform its engagement and consultation activities.

As the Project will most likely include barging materials through Alaska on the Taku River, engagement with First Nations in Alaska who could be impacted by this activity may be required.

Canagold will follow BC EAO-direction on engagement with potential nations that have an interest in the area.

7.2 Initial Engagement and Indigenous Interests

Canagold is focused on increasing the consistency and level of detail during engagement with TRTFN at the Project site. For example, Canagold has provided:

- Permit applications (e.g., Notices of Work) to TRTFN at the same time as submissions to the BC regulator to seek their input and consent.
- Invites TRTFN to participate onsite during archaeological investigations and environmental field studies related to data collection activities.
- Draft reports will be shared with TRTFN for review and comment.

Based on Canagold's early engagement activities, initial interests of TRTFN have been identified and are being considered as both project planning and the associated assessment processes are advanced, these interests include:

- Maintaining water quality in the rivers and streams
- Spawning and rearing habitat of salmon
- Concerns for barging along the Taku and potentially affecting their traditional livelihood (fishing, water use) in the lower Taku River
- Nesting grounds for migrating birds (e.g., swans).

Past project experience suggests that preliminary Indigenous interests may interact with the Project and are summarized in Table 7-1.

Table 7-1 Summary of Preliminary Understanding of Indigenous Interests

Indigenous Interests	Representative of / Focus on	Rationale for Selection
Aquatic resources, fishing, and water	Fish and fish habitat Aquatic resources and their habitat Water quality and quantity	<p>Fish are of intrinsic cultural and ceremonial importance to Indigenous communities, providing sustenance, economic and ceremonial importance, and inseparable links to numerous tangible (e.g., commercial, non-wage economy) and intangible (e.g., teaching the traditional use activity of fishing) values. The Project is located within the watershed of the Taku and Tulsequah rivers which have historically and continue to be of major importance to Indigenous communities. In addition, various species of fish including, but not limited to, six salmonid species of fish were identified in extensive aquatic field programs conducted in 2021 and 2022.</p> <p>Potential project-related effects during the pre-construction, construction and operations phases of this project to aquatic resources, fishing and water may include:</p> <ul style="list-style-type: none"> • Direct changes to accessing fishing and aquatic resource harvesting locations • Direct changes to the quality of the resource (i.e., health, abundance) • Direct changes to the quality of one's sensory experience while harvesting aquatic resources • Direct changes to the quality of opportunities for knowledge sharing and the transmission of Indigenous Knowledge • Indirect change in perception of risks to safety and security (i.e., increased Project traffic/equipment) • Indirect loss of applicable knowledge due to disruption of harvesting activities

Indigenous Interests	Representative of / Focus on	Rationale for Selection
Vegetation resources and plant harvesting	Terrestrial and wetland vegetation resources and habitats	<p>Various terrestrial and wetland vegetation species are intimately linked to Indigenous communities, providing resources for food, medicines and material needs in addition to resources required for ceremonial and spiritual activities.</p> <p>The Project is located within the watershed of the Taku and Tulsequah rivers and nearby floodplain wetlands include Shazah Slough and Flannigan Slough which offer a rich and varied habitat for plant harvesting activities.</p> <p>Potential project-related effects during the pre-construction, construction and operations phases of this project to vegetation resources and plant harvesting include:</p> <ul style="list-style-type: none"> · Direct changes to accessing plant harvesting locations · Direct changes to the quality of the resource (i.e., health, abundance) · Direct changes to the quality of one's sensory experience while harvesting vegetation resources · Direct changes to the quality of opportunities for knowledge sharing and the transmission of Indigenous Knowledge · Indirect change in perception of risks to safety and security (i.e., increased Project traffic/equipment) · Indirect loss of applicable knowledge due to disruption of harvesting activities

Indigenous Interests	Representative of / Focus on	Rationale for Selection
Wildlife, hunting and trapping	Wildlife (including birds) and wildlife habitat	<p>Wildlife species such as bear, deer, beaver, muskrat, waterfowl and various species of migratory birds are inseparably linked to Indigenous cultures, providing numerous tangible (e.g., sustenance, ceremonial and/or spiritual purposes) and intangible (e.g., teaching the traditional use activities of hunting and trapping) values.</p> <p>The Taku and Tulsequah rivers along with floodplain wetlands support a complex and varied wildlife ecosystem and culturally important hunting and trapping activities. Wildlife studies conducted in 2021 reported grizzly bear, mountain goat and moose populations frequenting the proposed barge landing tote road while various other wildlife species have been recorded around the proposed barge route. In addition, Canada Geese and Trumpeter Swans regularly utilize the floodplain wetlands of Shazah and Flannigan Sloughs.</p> <p>Potential project-related effects during the pre-construction, construction and operations phases of this project to wildlife resources and hunting and trapping activities include:</p> <ul style="list-style-type: none"> • Direct changes to accessing hunting and/or trapping locations • Direct changes to the quality of the wildlife resource (i.e., health, abundance) • Direct changes to the quality of one's sensory experience while harvesting wildlife resources • Direct changes to the quality of opportunities for knowledge sharing and the transmission of Indigenous Knowledge • Indirect change in perception of risks to safety and security (i.e., increased Project traffic/equipment) • Indirect loss of applicable knowledge due to disruption of harvesting activities

Indigenous Interests	Representative of / Focus on	Rationale for Selection
Cultural continuity	Ceremony locations and sacred sites Spirituality Heritage and archaeological sites Teaching areas Transmission of knowledge and teaching practices Attachment and affinity to place	<p>The cultural continuity of Indigenous Communities evolves, in part, through the tangible and intangible traditional values, activities, and lifeways central to traditional lifestyle, culture, and Indigenous Knowledge. Indigenous peoples' cultural continuity is also deeply connected to but also extends beyond the tangible objects classified as archaeological resources. Defined as culturally meaningful, connecting community members to one another and the past, and representing their collective identity, cultural continuity reflects how ways of knowing and knowledge are passed on through the generations. Loss of heritage resources or significant places to practice ceremonial, spiritual, or current use activities can result in a diminished or loss of culture. Cultural continuity is also evident in the intangible components associated with such spiritual and ceremonial practices as peace, quietness, and reflection and in the transmission of cultural knowledge from one generation to the next.</p> <p>Potential project-related effects during the pre-construction, construction and operations phases of this project to cultural continuity include:</p> <p>Direct changes to accessing sites or locations central to Indigenous cultural continuity such as harvesting sites, travel routes, critical place features such as archaeological, ceremonial or sacred sites.</p> <p>Direct changes in accessing preferred or required locations for Indigenous Knowledge teaching and practicing current use activities or pursuing Indigenous interests.</p> <p>Indirect change in perception of risks to safety and security (i.e., increased Project traffic/equipment)</p> <p>Indirect changes to the quality of ceremonial, spiritual or sacred locations</p>

Canagold is aware that these are initial interests and concerns of TRTFN, and that further engagement and consultation will be conducted with TRTFN and other potentially interested parties throughout the EA process.

7.3 Summary of Upcoming Engagement Activities

Engagement and consultation throughout the EA process with TRTFN will continue and will be guided by TRTFN's established mining-specific objectives, protocols, policies, and plans (e.g., *TRTFN Mining Policy*).

Canagold is also committed to engaging with other Indigenous Groups and stakeholders, based on guidance from the BC EAO during the EA process. Canagold will also support BC EAO's consultation requirements as part of the EA.

Examples of where Canagold will solicit and incorporate feedback, where applicable, from TRTFN and other parties identified by the EAO to inform Project planning and EA include:

- Understanding engagement methods and protocols
- Providing information tailored to their interests
- Collecting available Traditional Knowledge
- Sharing the Initial and Detailed Project Descriptions
- Updating the Engagement Plan, where appropriate, based on ongoing engagement activities
- Sharing data collection activities and reports
- Sharing assessment reports
- Sharing other Project-related material of interest.

8 Biophysical Environment

This section provides a summary of the existing environmental conditions including potentially sensitive receptors. Key values proposed for study as part of the environmental assessment include the following:

- Physical values, such as air quality, noise and vibration, hydrology and hydrogeology, water quality, soils and terrain, and geochemistry
- Biological values such as vegetation and terrestrial ecosystems, wildlife and wildlife habitat, and fish and aquatic habitat
- Human values such as employment and economy, transportation and navigable waters, human health, traditional land use and archaeology.

Selection of Valued Components will be based on the results of studies examining current environmental conditions, review of existing information (e.g., reports and databases) and engagement with Indigenous groups, local governments, stakeholders, and regulators.

The selection of Valued Components will be guided by the EAO's Effects Assessment Policy

8.1 Studies and Investigations

8.1.1 Existing

Environmental studies in the area began in 1996 and have continued sporadically since then. These studies provide data over a long historical period, although with gaps, and further studies which are still ongoing were initiated in December 2020. Table 8-1 lists the studies undertaken to date.

Table 8-1 Environmental Studies and Investigations

Period	Company [#]	Description
1996	GLL	Environmental and socio-economic programs in support of underground exploration and a surface site clean-up and permit applications.
2006	GLL	Collection of aquatic and terrestrial environment baseline data to support an Environmental Impact Assessment. Data collection in 2006 and 2007 included water and sediment quality, hydrology, hydrogeology, aquatic resources, Terrain Ecosystem Mapping, and rare plants and wildlife assessments. Draft aquatic data reports were produced by GLL for 2006 and 2007, as well as a Regulatory Risk Management and Gap Analysis Report (GLL 2007b).
2011	PECG	Work to support Environmental Assessment Certificate application and authorizations required for the water discharge and the access road permits
2012	PECG and MH	Salmon Ecosystem Management Plan for Advanced Exploration Activities
2015	PECG	Data to support Environmental Assessment Permit Application. Work was suspended after a few months due to lack of funding

Period	Company#	Description
2020	HEM	Refer to section 8.1.2

*Company Name Abbreviations:

GLL *Gartner Lee Limited*
 PECG *Palmer Environmental Consulting Group*
 MH *Morrison Hershfield*
 HEM *Hemmera Geochem Inc (now part of Ausenco)*

8.1.2 In Progress

Data collection on current biophysical conditions re-commenced in December 2020 to inform development of an environmental assessment. The large volume of existing historical information (reports, data, workplans, etc.) allow for an expedited progression of the project towards submission of an application for an EAC, and data collection in 2021/2022 is focused on filling gaps in existing data.

The following activities were completed in the 2022 biophysical program:

- Commencement of a Feasibility Study including a technical and economic review of the project
- Additional exploration drilling to convert Inferred Resources to Measured and Indicated
- Hydrogeological investigations to help determine mine pumping requirements and the quantity of water to be treated if discharged to environment
- Geotechnical data collection to determine stable stope dimensions and ground support requirements
- Development of a structural model to assist in geological interpretation and geotechnical understanding of the rock mass conditions
- Air Quality Climate and Noise (baseline field studies)
- Terrain and soils (baseline field studies and desktop review)
- Vegetation and Ecological communities (baseline field studies and desktop review)
- Geochemistry (baseline field studies and desktop review)
- Water quality monitoring program including both surface water and groundwater.
- Hydrological assessment
- Fish and fish habitat monitoring
- Wildlife monitoring
- Archaeological Overview Assessment and Preliminary Field Reconnaissance Program

8.2 Physical Environment

8.2.1 Climate and Air Quality

The mine is located in the Coastal Western Hemlock biogeoclimatic zone, which is characterized by cool, moist summers and wet, snowy winters (Banner et al. 1993). The climatic conditions around the study area are primarily controlled by a combination of the close proximity to the Pacific Ocean and the steep mountainous terrain on both sides of the Taku River and Tulsequah River valleys, fostering a moist climate that receives a yearly average of 200 cm of precipitation.

The closest regional climate stations in Canada are the Atlin station and the Golden Bear Mine site station. Atlin is 95 km northeast of New Polaris with 84 years of precipitation and temperature data collected from 1906 to 2022. The 1981 to 2010 climate normals for Atlin show an average annual temperature of 1.1°C, and average annual precipitation of 365 mm, with approximately 200 mm occurring as rainfall. Wind data from 1993 to 1999 are available at the Golden Bear station (GLL, 2007b).

Additional regional rainfall and snow data was obtained from a historical station operated by Environment Canada from 1964 to 1966 and a station located in Juneau, Alaska operated by the National Oceanic and Atmospheric Administration.

Both sites experience the highest mean rainfall in the fall, with the highest mean rainfall occurring in October at the Tulsequah River station and in September at Juneau. The data from 1964-1966 indicates fluctuation in rainfall over this three-year period, whereas the Juneau data indicates a more stable trend over 11 years of monitoring. Mean snowfall from 1964 to 1966 was highest in February at Tulsequah River, whereas the highest monthly mean snowfall at Juneau occurred in November. Snowfall at both sites appears to dissipate between April until October.

Mean monthly average air temperature ranges from -9°C in January to 14°C in August (Jones and Fahl 1994). The area surrounding the Site consists of steep mountainous terrain, with the Tulsequah and Taku River situated in the broad flood plains. The tributaries of the Tulsequah River are primarily located in V-shaped valleys with well-developed alluvial fans. Much of the existing mine infrastructure is located on an alluvial terrace deposited by the Tulsequah River, primarily composed of gravel/sand capped by fine alluvial silt and wind-blown silt (loess). The current exploration camp is located on an alluvial fan, likely formed by Whitewater Creek during the Holocene epoch. The steep slope where the existing Polaris portal is located is blanketed by morainic and colluvial deposits (Gartner Lee 1997).

A meteorological station was installed at New Polaris and began collecting data in February 2021. In September and August of 2021, the meteorological station was not in operation due to technical challenges.

A precipitation gauge was installed at the mine and collected data between June 6 and July 16, as well as between October 28 and October 31, 2021. Due to technical difficulties, the station was not operating between July 17 and October 27.

8.2.2 Noise and Vibration

The New Polaris site is not currently in operation and experiences little to no vehicular traffic or human activity. Project components not within New Polaris, such as proposed tote roads and barge landing, are proposed to be located in areas without significant human activities. The current noise levels at New Polaris, proposed tote road sites and barge landing site are considered to be consistent with natural conditions. Noise and vibration studies to gauge potential noise and vibration effects associated with the Project would be conducted as part of early Project development stages.

8.2.3 Hydrology

The Project is located within the watershed of Taku and Tulsequah rivers which contain glaciers and permanent ice coverage. A typical hydrological year is considered to occur as four main regimes:

- Winter: negligible streamflow because of low temperatures. This, however, is different based on altitude range of watershed.

- Spring: rather high flows as a result of snowmelt during freshet. Freshet stream flows depend on watershed altitude and portion of snow-receiving areas compared to the whole catchment. Small, downstream catchments (where snowpack melts in a few days after snow event) could be of completely different regime.
- Summer: moderate to high flows for non-glacierized catchments. Peak flows are often as a result of extreme rainfall events rather than snowmelt. For catchments at higher altitudes, high snowmelt-driven discharges could occur late in summer.
- Fall: Moderate to low flows (base-flow), accompanied by rainfall-driven flows. These events can generate higher flows than that of freshet season.

Local hydrology is dominated by the Tulsequah River system. The Tulsequah River originates from several glaciers located approximately 10 km upstream of the existing mine site. The Tulsequah River flows south to a confluence with the Taku River, approximately 10 km downstream of the existing mine site. The Taku River is a transboundary river, flowing west into Alaska, and into the Pacific Ocean, 25 km downstream of the Canada-United States border. The Tulsequah River is a braided system characterized by migrating channels, variable flow, and high concentrations of suspended sediment. These characteristics arise from large, rapid floods occurring in the Tulsequah River system. The flood events originate when headwater glacial lakes damned by ice release large volumes of water, a phenomenon known as “Jökulhlaup”. Historically, two lakes are responsible for jökulhlaups occurring in the Tulsequah River valley: Tulsequah Lake and Lake No Lake. These lakes fill and release water annually, creating large flood pulses that inundate the Tulsequah River valley. Peak flows typically occur from June to August and low flows primarily occur in January and February, while jökulhlaups can occur at any time throughout the year. Anecdotally, based on information gathered during community engagement efforts, due to receding glacier activity the Tulsequah Lake is no longer active and the Lake No Lake is now the only lake causing the Jökulhlaup events.

The majority of the surface water draining the existing mine site flows within Whitewater Creek. Whitewater Creek flows down a steep canyon at the north end of the study area, immediately adjacent to the existing camp infrastructure. At the valley bottom, the creek flows south, parallel to the Tulsequah River. Whitewater Creek flows through the existing mine site, along the airstrip to its confluence with the Tulsequah River approximately 3 km downstream. Sawmill Creek, a small tributary to Whitewater Creek, also flows through the local study area, entering Whitewater Creek immediately south of the existing mine site. A small side channel of the Tulsequah River also flows into Whitewater Creek about 1 km south of the existing mine site during periods of high flow.

Hydrological measurement stations installed during previous studies on the Project site for water quality monitoring were utilized to measure hydrological characteristics within New Polaris.

8.2.4 Hydrogeology

Hydrogeological investigations were conducted in 2006 and 2007 by GLL, and in 2021 by Hemmera as part of data collection of current environmental conditions. Twenty-one historic groundwater wells are documented at New Polaris. As part of a groundwater monitoring study conducted in 2021, seven of 21 wells were considered viable for groundwater monitoring with the remainder not being located or having lost functionality. Five wells that were non-functional were rehabilitated, and two new monitoring wells were constructed. Groundwater monitoring is ongoing. Two boreholes were established in 2021 for packer testing to assess hydraulic conductivity and lithology.

8.2.5 Water Quality

8.2.5.1 Surface Water Quality

A 2021 surface water quality monitoring program involved sampling at 16 locations (Figure 8-1) between December 2020 and December 2021. The study area focused heavily on the Whitewater Creek watershed, including areas potentially impacted by the proposed mine design. The 2021 sampling program closely replicated the sampling conducted in 2006, 2007 and 2015 by GLL to maintain consistency in data collection over the years to determine whether the water quality at the mine site is changing due to natural variation.

Water quality samples were analyzed for general chemistry (pH, alkalinity, colour, turbidity, total dissolved solids), nutrients (SO_4 , total nitrogen, total organic carbon, NH_4), total suspended solids, total metals, and dissolved metals. Results were compared to the BC Ambient Water Quality Guidelines. In-situ water quality field parameters, including temperature ($^{\circ}\text{C}$), pH (pH units), dissolved oxygen (% saturation and mg/L), conductivity ($\mu\text{S}/\text{cm}$), turbidity (NTU), and oxidation-reduction potential (mV), were also collected.

Several exceedances were detected at watercourses associated in the Project area, including exceedances of total and dissolved metals. Exceedances of total metals appears to be related to high sediment loads and is not unexpected in glacially fed watercourses. Concentrations of dissolved metals are overall much lower though exceedances of arsenic, iron, manganese, and zinc have been observed at various locations. Analytical results of the 2021 sampling program have generally been consistent with historical sampling.

Flow Monitoring Stations

Legend

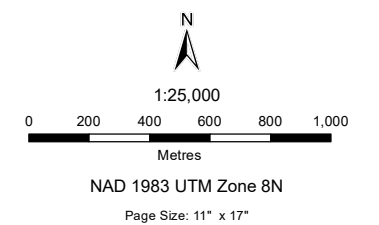
- Flow Monitoring Station
- Surface Water Study Area
- Contour (100 m interval)
- Watercourse
- Waterbody
- Wetland
- Permanent Snow and Ice

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
3. The hydrologic characteristics of the project area were thoroughly investigated using various methods. These methods included the measurement of flow rates, the analysis of the upstream zones, and the application of regional hydrologic analysis techniques. As a result, the Surface Water Study Area was expanded upstream to encompass the drainage areas of all monitoring points. This expansion was deemed necessary in order to obtain a more complete understanding of the hydrological processes at work within the project area. By extending the study area in this way, Ausenco was able to gain a more accurate and detailed picture of how water moves through the region and how it is affected by various environmental factors. The resulting data and insights will be invaluable for developing effective strategies for managing water resources and mitigating the potential impacts of human activities on the local ecosystem.

Sources

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- Basemap: ESRI World Imagery



Path: \\vmmms.com\shared\Geomatica\Projects\105451\01\mxd\BaselineReport\Sites\WaterFig_1_105451_01_FlowMonSt_202315.mxd






8.2.5.2 Groundwater quality

A 2021 groundwater quality monitoring program involved water quality at seven groundwater wells and two newly established monitoring wells between December 2020 and December 2021. CCME-FAL guidelines were used as thresholds for concentrations of detectable parameters in groundwater samples. A map of the groundwater sampling locations is presented in Figure 8-2.

At the legacy tailings deposits to the south of New Polaris (BH7-D, BH7-S & BH10-D), dissolved zinc and manganese exceedances were identified. At the old mill site (BH9-D & BH9-S), exceedances of dissolved zinc and dissolved manganese were identified. At BH-1 and BH-2, exceedances dissolved manganese were identified. Dissolved zinc concentrations also exceeded CCME-FAL at BH-1. Total suspended solids exceeded CCME-FAL at BH-1, BH7-D, BH9-S, BH9-D and the newly installed monitoring wells (MW21-01 & MW21-02). Additionally, dissolved manganese and dissolve zinc exceedances were identified at MW21-02.

Groundwater Sampling Locations (2021)

Legend

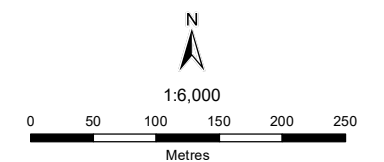
-  2021 Groundwater Monitoring Well
-  Historical Groundwater Monitoring Well
-  Contour (20 m interval)

Notes

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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- Basemap: ESRI World Imagery



NAD 1983 UTM Zone 8N

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8.2.6 Soils and Terrain

The New Polaris mine site is located at an elevation of 40 meters above sea level. Regional topography increases steeply to the west of the mine and decreases towards the low-lying banks of the Tulsequah River.

The proposed barge site tote road is located at an elevation of between 40 and 20 meters above sea level with similar regional topography, with elevations increasing to the west and decreasing to the east. The barge landing site is located at the elevation of the riverbank, between 10 and 20 meters above sea level.

Surficial geography at the mine site and proposed barge landing tote road is described as fluvial gravel, sand, silt associated with glacial outwash and may also be comprised of till, alpine moraine, and undifferentiated colluvium. The surface material is considered quaternary and recent (Souther, 1970).

Site-specific soil data is anticipated to become available with the continued implementation of pre-construction studies. A terrain and hazard mapping program to describe local soils was completed in September 2022.

8.2.7 Geochemistry

The Project lies within the Taku River Tlingit First Nation (TRTFN) Traditional Territory. As part of the Environmental Assessment, a geochemical characterization program is being conducted to evaluate acid rock drainage (ARD) and metal leaching (ML) potential of materials produced from the Project construction and operations. The ore deposit type is mesothermal lode-gold, similar to Archean lode gold deposits in Ontario. This deposit is signified by refractory gold in finely disseminated sulphide grain in altered wall rock (quartz-carbonate) and stockwork veins (MMTS, 2019).

The New Polaris underground mine will produce 365,000 tonnes per year of ore during a mine life of 8 years. The main mine infrastructures will include the underground workings, waste rock storage facility, a process plant, a co-disposal facility and haul road. Mine materials will include ore, waste rock, tailings and co-disposal materials.

Previous Geochemical testing of waste rock and tailings on the New Polaris site has been conducted (GLL 1997), URS 2007 indicating general low sulphide concentrations and adequate amounts of available neutralizing minerals to offset potential acid generation. Arsenic and copper have been observed in elevated solids concentrations in the waste rock, where leach testing suggests that a very small amount of arsenic is available under nonoxidizing conditions.

Ausenco has been conducting a geochemical characterization program to evaluate acid rock drainage (ARD) and metal leaching (ML) potential of mine materials. Low grade ore, ore, and waste rock samples for static testing were collected from available drill core and site walk over during hydrogeology field investigation programs in 2021. Approximately 2 kg of sample was taken from each sample interval to ensure adequate sample volume for static testing and kinetic testing. Four samples of tailings were obtained from flotation tailings and waste rock composites, which represent co-disposal sample. A composite sample was taken over interval ranges greater than 0.5 m that did not show major changes in lithology, mineralogy, texture, veining or sulphide occurrence along the interval length. The samples were collected from three distinct lithological units, C-vein, Y-vein, and AB-vein. Results will be used to predict the evolution of mine drainage from mine waste facilities. Predictions are used to inform mine waste management, water quality predictions, aquatic resources effects assessments and mitigation/contingency measures.

8.2.7.1 Potential Project Interactions

For each mine component, potential effects of the project on the receiving environment at the end of mine life and throughout closure will be assessed. Source terms will be estimated for each mine component for base case and an upper-case scenario. The outcomes will be used as inputs to site wide water quality model to assess potential effects of the project on the receiving environment.

Tailings discharged by the legacy mining operations at New Polaris likely present sources of contamination to the Tulsequah River Floodplain. Previous analysis of grab sample of old tailings material indicated potential acid generation of the old tailings due to sulfur content. However, remaining reactive sulphur content could be lower to sustain further acid generation in the long term. The extent of legacy tailings and their geochemistry interaction to the New Polaris project will be briefly described in the project baseline geochemistry study.

Other potential sources of acid generation and metal leaching in the floodplain are buried tailings that have less exposure to oxygen. Perturbation of the flood plain would likely change the existing geochemical condition and may result in re-mobilization of arsenic to the proposed mine site. The cumulative effects of the old tailings on the proposed New Polaris mine, quality of surface water and groundwater components will be addressed throughout the environmental assessments during construction, operation closure and post-closure phases of the mine.

8.2.8 Previously Disturbed Areas

Mining activities were conducted at the site sporadically between 1923 and 1951 and included underground mining, the former milling area, core storage, fuel storage, airstrip, tailings deposition area, tote road and barge landing site and ancillary buildings and workshops. The majority of the buildings and equipment have been dismantled and removed from site or disposed of on site and a large area of the property previously occupied by accommodations, offices and support buildings and equipment.

It is estimated that approximately 51 ha of ground was disturbed in the past with removal of all vegetation, terracing and construction of the plant and site infrastructure. Historically disturbed areas are currently either bare or covered in low shrub vegetation and has naturally revegetated with alders and cotton woods.

After the closure, Tulsequah Mines Ltd. (owned by Cominco) leased the mill from 1953 to 1957 to process ores mined from the nearby Tulsequah Chief and Big Bull deposits.

In 2022, Canagold removed approximately 19 tonnes of waste from the site, including scrap metal, non-salvageable materials that were left on site from historic operations. Larger equipment from previous mining activities remains on site and may eventually form part of a historic display.

In 1997 an investigation was conducted into the distribution and characterization of the historic mine tailings, which identified three areas of historic deposition tailings, Figure 6-2 shows the location of the approximate areas where the historic tailings are identified. It was found that a significant portion (approximately 60%) of these tailings are from the Tulsequah Chief deposit (Gartner Lee Ltd., 1997). The ore from the Tulsequah Chief is characterized as a Pd-Zn-Cu-Au massive sulfide ore, whereas the historic Polaris Taku deposit is characterized as a vein style gold deposit. Surface mapping of the tailings areas was conducted using a hand auger to determine the extent and composition of these tailings. The 1997 investigation described two main areas for the tailings deposition, one area just south of the mine infrastructure measuring approximately 250 m long by 50 m wide with a maximum thickness of approximately 1 m. The second larger area to the south of the airstrip at the confluence of Whitewater creek and the Tulsequah back channel, measuring approximately 500 m long by 75 m wide and has a maximum thickness of 3 m. Chemical texturing of the tailings indicated high iron content, most likely related to high sulphide content in the Tulsequah Chief ore. Zinc content was also high, likely attributed to low zinc recovery rates. Arsenic levels were below the detection limit, indicating the tailings originating from Tulsequah Chief deposit, in which arsenopyrite is not common, yet in the Polaris-Taku deposit, arsenopyrite is likely the most common sulphide.

In 2022, Canagold conducted an investigation to verify the limits and characteristics of the historic tailings. Details of this investigation are not yet available. Metallurgy test work currently being conducted is investigating the potential to use the historic tailings as a supplemental source of iron necessary for the proposed processes design.

8.3 Biological Environment

8.3.1 Vegetation and Terrestrial Ecosystems

The New Polaris Project is located in the Boundary Ranges of the Coast Mountains physiographic region in British Columbia. The area is characterized by extreme relief, and extensive recent glaciation. The steep terrain and seismic activity make the area prone to avalanches, rockfalls and slides (GLL, 2007b). The project site is located approximately 20 km east of the Muir ice cap and the Tulsequah glacier terminates at the head of the Tulsequah River.

The vegetation is typical of northern temperature rain forest, consisting primarily of fir, hemlock, spruce and cedar forest on the hillsides and aspen and alder groves in the river valley (BGC, 2015). Both mountain goat and moose are found year-round in the New Polaris study area (GLL, 2007b). Canada Geese and Trumpeter Swans regularly utilize nearby floodplain wetlands, such as Shazah Slough and Flannigan Slough, as nesting habitat.

Vegetation surveys were conducted in 2021. Vegetation species collected for sampling included red-osier dogwood (*Cornus sericea*), willow (*Salix* spp.), highbush-cranberry (*Viburnum edule*), and oval-leaved blueberry (*Vaccinium ovalifolium*). The most common species collected were red-osier dogwood and highbush cranberry. No invasive or rare plants were observed during the 2021 surveys. However, a search of the Conservation Data Centre's iMap indicates an occurrence of cryptic paw (*Nephroma occultum*) approximately 3.5 km south of the mine site and 4 km north of the Tulsequah-Taku Rivers confluence. This species is provincially blue-listed, is listed under Schedule 1 of Species at Risk Act and is defined as endangered by Committee on COSEWIC. Table 8-2 summarizes vegetation and ecosystems that have been observed in the Project area that are of Endangered Wildlife in Canada. federal or provincial conservation concern, which may be sensitive to development.

Table 8-2 Vegetation Species and Ecosystems of Conservation Concern Observed in Project Area

Species Or Ecosystem Common Name	Latin Name	SARA Schedule 1 Status	BC Status
Cryptic paw lichen	<i>Nephroma occultum</i>	Special concern	Blue
Floodplain	-	-	-
Old-growth forest	-	-	-
Wetlands	-	-	-

8.3.2 Wildlife

In 2021, numerous wildlife studies were undertaken. Large mammal surveys included a combination of winter moose (*Alces alces*) surveys and a remote camera program. A total of 266 individual animal occurrences were recorded across the eight cameras, and included beaver (*Castor canadensis*), black bear (*Ursus americanus*), grizzly bear (*Ursus arctos*), lynx (*Lynx canadensis*), moose, wolf, and several unidentified bats, songbirds and waterfowl. Bat surveys involved the deployment of three remote acoustic recording units (ARUs) to assess species presence within the Project Area. These ARUs were deployed

from March to September 2021, during which time they recorded six species of bats including one federally-listed species at risk, little brown myotis (*Myotis lucifugus*).

Bird surveys in 2021 included a waterfowl survey, swallow point counts, and songbird point counts during the breeding season.

Amphibian species including western toad (*Anaxyrus boreas*), Columbia spotted frog (*Rana luteiventris*), wood frog (*Rana sylvatica*) and long-toed salamander (*Ambystoma macrodactylum*) have been documented within wetlands adjacent to the Tulsequah River. Flannigan Slough, adjacent to the proposed barge landing, is noted to have presence of western toad, listed as of Special Concern within Schedule 1 of the *Species at Risk Act* (Rescan 1997).

Raptor, waterfowl and passerine species have been documented in abundance along Tulsequah River (EDI, 2021). Grizzly bear, mountain goat (*Oreamnos americanus*) and moose populations have been identified within the proposed barge landing tote road (EDI, 2021). Additionally, black bear, grey wolf (*Canis lupus*), red fox (*Vulpes vulpes*), wolverine (*Gulo gulo*), marten (*Martes caurina*), mink (*Neovision vison*), ermine (*Mustela erminea*), river otter (*Marmota caligata*), artic ground squirrel (*Urocitellus parryii*), common shrew (*Sorex cinereus*), northern red-backed vole (*Myodes rutilus*) and deer mouse (*Peromyscus keeni*) have been recorded around the proposed barge route. Table 8-3 summarizes the wildlife species that have been observed in the Project area that are of federal or provincial conservation concern, which may be sensitive to development.

Table 8-3 Wildlife Species of Conservation Concern Observed in the Project Area

Species Common Name	Latin Name	SARA Schedule 1 Status	BC Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	-	Yellow
Grizzly bear	<i>Ursus arctos</i>	Special concern	Blue
Hoary bat	<i>Lasiurus cinereus</i>	-	Blue
Little brown myotis	<i>Myotis lucifugus</i>	Endangered	Blue
Mountain goat	<i>Oreamnos americanus</i>	-	Blue
Northern goshawk, <i>laingi</i> ssp.	<i>Accipiter gentilis laingi</i>	Threatened	Red
Trumpeter swan	<i>Cygnus buccinator</i>	-	Yellow
Western toad	<i>Anaxyrus boreas</i>	Special concern	Blue
Wolverine	<i>Gulo gulo</i>	Special concern	Blue
Yuma myotis	<i>Myotis yumanensis</i>	-	Blue

8.3.3 Fisheries and Aquatic Habitat

The New Polaris Mine is located on the West side of Tulsequah River, approximately 8 km upstream of the confluence with the Taku River. Local hydrology is part of the Tulsequah River system, which originates from several glaciers located approximately 10 km upstream of the New Polaris site. The Tulsequah River flows south into the Taku River, which flows southwest through Alaska before entering the Pacific Ocean (GLL, 2007b). The Tulsequah is a braided, proglacial river with an active width about 1.5 km. Historically, during summer and fall, jökulhlaups, a type of glacial outburst flood that form new channels and abandon others, occur in the Tulsequah River. Jökulhlaups are caused by the annual fill and release of water from two glacial lakes located further up the valley. They are short-lived events that cause a rapid rise in river flows.

Whitewater Creek is a small creek that runs through the mine site and joins the Tulsequah River approximately four kilometers downstream from the mine site. A side channel of the Tulsequah River also flows into Whitewater Creek about one kilometer downstream of the mine site.

Extensive aquatic field programs, and associated reporting, were carried out by GLL in 2006, and in 2007 (up to August) and Hemmera Geochem Inc in 2021 and 2022. Moreover, those programs were building on existing data collected in association with past mining activities.

Within the study area, eight species of fish have been captured; six salmonid species (Coho salmon, Chinook salmon, Pink salmon, Dolly Varden, Rainbow Trout, and Sockeye salmon), stickleback, and sculpin. Fisheries surveys in 2006, 2007, 2015 and 2021 indicated that coho salmon, dolly varden and three-spined stickleback are the most abundant fish species in the study area streams.

The Taku and Tulsequah rivers are essential for providing corridors to smaller river networks that contain important spawning and rearing habitat for fish, especially salmonids. Whitewater Creek provides spawning and rearing habitat for several salmonid species. Flannigan Slough, a large wetland located just south of the New Polaris mine site, contains excellent fish habitat (GLL, 2007a).

Benthic invertebrates were sampled in 2006 and 2021. Samples obtained from Whitewater Creek were dominated by dipterans. Diversity and abundance were observed to decrease with increasing distance downstream in Whitewater Creek.

Table 8-4 below lists the species documented within Tulsequah River (FIDQ, 2022). Due to hydraulic connectivity between Tulsequah River, Whitewater Creek and Taku River, fish presence is considered to be similar between watercourses.

Table 8-4 Fish Species Documented Within Tulsequah River (FIDQ, 2022)

Species	Scientific Name	Reduced Risk Work Window (FLNRORD, 2018)
Arctic Grayling	Thymallus arcticus	January 1 – February 28

Species	Scientific Name	Reduced Risk Work Window (FLNRORD, 2018)
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	April 1 – September 15
Chum Salmon	<i>Oncorhynchus keta</i>	May 1 – July 31
Coastrange Sculpin	<i>Cottus aleuticus</i>	-
Coho Salmon	<i>Oncorhynchus kisutch</i>	April 1 – August 15
Cutthroat Trout	<i>Oncorhynchus clarkii</i>	September 1 – November 1
Dolly Varden	<i>Salvelinus malma</i>	July 1 – August 15
Eulachon	<i>Thaleichthys pacificus</i>	June 15 – March 15
Green Sturgeon	<i>Acipenser medirostris</i>	November 1 – April 30
Longfin Smelt	<i>Spirinchus thaleichthys</i>	-
Mountain Whitefish	<i>Prosopium williamsoni</i>	-
Northern Pike	<i>Esox lucius</i>	-
Pacific Lamprey	<i>Entosphenus tridentatus</i>	-
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	March 15 – July 31
Rainbow Trout	<i>Oncorhynchus mykiss</i>	October 1 – November 30
River Lamprey	<i>Lampetra fluviatilis</i>	-
Round Whitefish	<i>Prosopium cylindraceum</i>	-
Slimy Sculpin	<i>Cottus cognatus</i>	-

During the 2021 data collection study, species composition in the local study area was consistent with the results of earlier studies and typical of a coastal watershed. Species captured during 2021 sampling efforts included:

- Coho Salmon (*Oncorhynchus kisutch*)
- Chinook Salmon (*Oncorhynchus tshawytscha*)
- Dolly Varden (*Salvelinus malma*)
- Threespine Stickleback (*Gasterosteus aculeatus*)
- Slimy Sculpin (*Cottus cognatus*)
- Prickly Sculpin (*Cottus asper*)
- Coast Range Sculpin (*Cottus aleuticus*)

In total, 794 fish were caught in 2021, with 690 of those caught in Whitewater Creek, 13 in Wilms Creek, 43 in Shazah Creek and 31 in the Tulsequah River. Juvenile coho salmon had the highest catch per unit effort (CPUE) in Whitewater Creek. Threespine stickleback had the second highest CPUE in Whitewater Creek followed by Dolly Varden. In Shazah Creek, Dolly Varden had the highest CPUE, followed by coho salmon. In Wilms Creek coho salmon had the highest CPUE followed by slimy sculpin. In the Tulsequah River, threespine stickleback had the highest CPUE. This is due to the high number of threespine stickleback caught in the backchannel of the Tulsequah River that drains into Whitewater Creek.

The CPUE for all electrofishing was very low in Wilms Creek and Shazah Creek. This is likely attributed to the high suspended sediment load that persisted in Wilms Creek and Shazah Creek during the sampling.

Aerial spawning surveys were conducted on August 30th, September 14th, and October 29th to identify any salmonids that were spawning in the local and regional study areas. The survey identified spawning in Whitewater Creek in August and October, in Shazah Creek in October and within Wilms Creek in October.

Whitewater Creek was assessed in 2021 and was evaluated as having excellent spawning, rearing and overwintering habitat within most surveyed locations. Some locations along three of six reaches exhibited low to moderate habitat. Excellent spawning habitat was characterized by reeds, gravels and flows, in addition to observations of spawning salmon. Excellent rearing habitat was characterized by extensive pools, low flows and presence of cover and large woody debris. Excellent overwintering habitat was characterized by extensive pools.

9 Human and Community Wellbeing

Because the Project is located in a remote, sparsely populated area of BC, approximately 100 kms south of Atlin, BC and 60 Kms East of Juneau Alaska, detailed information on the existing human environment is not readily available, and often dated where present. Canagold expects to determine more specific and current information throughout the EA process, particularly through engagement with Indigenous Groups and interested stakeholders.

Some preliminary secondary sources of information identified include:

Type of Source	Description
Taku River Tlingit Websites and Reports	<ul style="list-style-type: none"> • Taku River Tlingit First Nation – Taku River Tlingit First Nation (trtfn.com) • The T'akhu Á Tlén Conservancy Home - Taku Conservancy (takuatlen.org) • Taku – Maps, Publications and Reports – Round River Conservation Studies Taku - Maps, Publications and Reports - Round River Conservation Studies • Tlingit and Haida Indian Tribes of Alaska – Central Council Tlingit & Haida - About Us - History (ccthita.org)
Regional Plans	<ul style="list-style-type: none"> • Wóoshtin wudidaa Atlin Taku Land Use Plan Wóoshtin wudidaa Atlin Taku Land Use Plan - Province of British Columbia (gov.bc.ca) • Taku River Tlingit First Nation Mining Policy, 2019 TRTFN-Mining-Policy-2019.pdf • Carcross/Tagish First Nation Final Agreement The Carcross/Tagish First Nation Final Agreement (rcaanc-cirnac.gc.ca)
Environmental Assessments (EAs)	<ul style="list-style-type: none"> • Tulsequah Chief Mine Information Tulsequah Mine information - Province of British Columbia (gov.bc.ca) EPIC (gov.bc.ca) • Ruby Creek Molybdenum Mineral Mines EPIC (gov.bc.ca) • Silvertip Silver/Lead/Zinc Mine EPIC (gov.bc.ca) • Atlin to Yukon Transmission Line (YESAB Registry)
Affiliated Organization Websites and Reports	<ul style="list-style-type: none"> • Taku River Tlingit Territories Native-Land.ca Our home on native land • The Taku Watershed / The Tulsequah Chief Issue in Rivers Without Borders Taku Rivers Without Borders • Taku River Tlingit Tlatsini Vision Round River Conservation Studies Canada - British Columbia - Taku River Tlingit First Nation - Round River Conservation Studies • Douglas Indian Association Home - Douglas Indian Association - DIATaku • BC has a chance to get it right on Tulsequah Chief – David Suzuki Foundation British Columbia has a chance to get it right on Tulsequah Chief - David Suzuki Foundation • First Voices Tagish Home Page - Tagish Home Explore FirstVoices
Academic Papers, Journal Articles, and Books	<ul style="list-style-type: none"> • <i>Taku River Tlingit First Nation declare Taku watershed protected area.</i> 2023. Canadian Mining Journal. Taku River Tlingit First Nation declare Taku watershed protected area - Canadian Mining Journal.
Government Sources	<ul style="list-style-type: none"> • Indigenous Peoples of BC Indigenous Peoples of B.C. - Province of British Columbia (gov.bc.ca) • Crown-Indigenous Relations and Northern Affairs Canada data – General Information and Census Data on the Taku River Tlingit First Nation Profiles (aadnc-aandc.gc.ca) • Statistics Canada Census of Population

Governments in Alaska that will have an interest in the project will be the Alaska state government and the Juneau city council.

There are no other tenure holders in the vicinity of the project. The nearest municipalities and infrastructure are located in Atlin, BC and Juneau Alaska which are 100 kms and 60 kms from the project respectively.

Previous baseline data for this vicinity has been gathered for permitting of the Tulsequah Chief mine which is located approximately 4 kms upstream from the New Polaris project.

9.1 Demographics

The Project is located in the Stikine Region, which is the only area of BC that is not incorporated into a regional district or municipality due to its lack of population and property assessment value. Because it is unincorporated, public governance and oversight are provided by the province. The minister responsible for local government has general oversight over the region and responsibility for governance change and planning reviews while various ministries provide support services (e.g., Northern Health, Ministry of Transportation and Infrastructure). There is only one local planning area, the Atlin Community Planning Area, which was combined in 2009 with the Atlin Community Improvement District to provide fire, landfill, water, streetlighting, sidewalks and advisory land use services.

In 2016 the total population of the region was 740, with 355 people identified as First Nations, mostly from the Taku Tlingit of Atlin and Teslin, British Columbia, and some reserves of the Kaska Dena Council (Government of Canada 2017). Most of the population (547 people) were located in Atlin and the two associated Taku River Tlingit reserves, with the remainder dispersed between the communities of Lower Post, Good Hope Lake, Jade City and Laird River (Government of BC 2022). The population of Atlin increases in the summer months due to seasonal residents and workers.

9.2 Economy

The economy of the Stikine Region exists in two forms: the informal land-based economy and the cash economy including resource industries and local enterprises (TRTFN and Province of BC, 2011a). The informal land-based economy is based on hunting, fishing, gathering and trade of goods and services related to these activities.

Economic activity in the Stikine Region includes metal mining, wilderness tourism, trapping, commercial fishing and construction work associated with large development projects (Government of BC, 2022), though mining is the primary economic activity. As with most resource-dominant economies, activity is driven by market prices and tends to go through cycles of “boom and bust” development.

Various mines have operated in the region (e.g., Cassiar asbestos mine [1952-1992], Erickson gold mine [1979-1988], Taurus gold mine [1982-1988], Golden Bear gold-silver mine [1990-1993; 1997-2001]). Two historical mining operations, in addition to the Project, are located on the Tulsequah River: the Tulsequah Chief mine and the Big Bull mine, both of which were mined from 1951 until 1957.

The Wóoshtin wudidaa Atlin Taku Land Use Plan (ATLUP) notes that most local businesses are summer operations including mineral exploration, tourism, home building, commercial fishing, trapping and guide outfitting while winter businesses are primarily associated with recreational activities such as heli-skiing and trapping (TRTFN and Province of BC, 2011a). Other year-round employment is provided from provincial and federal government jobs, as well as the service sector.

9.3 Current Use

The Project Area is located within the Wóoshtin wudidaa ATLUP which provides “resource management direction and zoning for the principal resource values and land use activities that are expected to occur within the Plan Area, including: Access, Aquatic and Riparian Habitats, Terrestrial Biodiversity and Wildlife Habitat, Culture and Heritage, Forestry, Mineral Exploration and Mining, and Recreation and Tourism.” (TRTFN and Government of BC 2011a).

The Project area is largely devoid of permanent human activity due to its remoteness and inaccessibility. However, use within the greater Stikine region includes permanent and seasonal uses, such as:

- Commercial and recreational uses such as:
- Heli-skiing
- Fishing for commercial, sport, recreation and personal use
- Outfitting and guided excursions
- Hunting and Trapping, and
- Subsistence agriculture for those who reside along the river system (GLL, 2007b, McDowell Group, 2004).

The Tulsequah and Taku Rivers are navigable waters and can be used for recreational boating, as well as recreational, commercial and subsistence fishing. The Taku River system is a transboundary river that contains commercially and socially vital Pacific salmon and has a driftnet fishery valued at \$6 million USD (McDowell Group, 2004). The Tulsequah River is used by mining operations and fishing outfitters as a staging area during summer months.

Residents of the Stikine region rely on hunting and gathering to sustain themselves and their family members (TRTFN and Province of BC, 2011).

9.4 Traditional Land Use

The Project is located in the traditional territory of the TRTFN, and more specifically within the Tulsequah Valley / Tass Teiyi Hééini Resource Management Area, as described in the Wóoshtin wudidaa ATLUP. The Project may affect various aspects of the TRTFN livelihood and traditional resource use. The potential effects on Indigenous people will be assessed and mitigation developed through a process of continuous and meaningful engagement and consultation.

Many TRTFN citizens exercise their aboriginal rights and meet substantial parts of their families’ economic needs through traditional land based activities such as hunting, fishing, gathering of plants for food and medicine, and trading in goods and services associated with these activities (TRTFN and Province of BC 2011). Perhaps more importantly, the traditional territory of the TRTFN is also used to practice and promote their culture. “For the Tlingit community, the traditional land based way of life is not mere subsistence, or ‘living off the land’, but represents a complex set of social activities and relationships that lie at the heart of their culture and their khustiyxh (‘way of life’)” (TRTFN and Province of BC 2011, page 10).

Canagold is currently in discussions with TRTFN to move forward with the collection of Traditional Knowledge and Use information in relation to the Project. Results of this information will inform key aspects of the Project and environmental assessment process.

9.5 Cultural Resources

The Wóoshtin wudidaa ATLUP identifies high value cultural sites and trails, which is a searchable layer on iMapBC. Both trails (green line) and Category A, B, and C cultural sites¹, as defined by the Wóoshtin wudidaa ATLUP are present in the vicinity of the Project sites, including the mine site, CSF and barge landing (Figure 9-1).

9.6 Human Health

The Project is located within the Stikine Local Health Area of the Northern Health Authority. Northern Health serves over 300,000 people in an area of 600,000 square kilometres (Northern Health 2022). Health facilities closest to the proposed project location are at the Atlin Health Centre, providing nurse-led primary care with approximately two doctor clinic visits per month and access to virtual doctors. Other services provided include:

- Public health services including immunizations and sexual health
- Pre-and post-natal infant and childcare
- Emergency care
- Harm reduction services
- Mental Health and Substance Use
- Registered counsellor
- Community Paramedicine Program
- BC Ambulance (Northern Health 2022).

Factors that affect health can be explored by using the social determinants of health as a framework. Social determinants of health include (but are not limited to) income, education, employment, environment, culture,

¹ Green: Category A – Clearly defined site-specific areas of high cultural significance to the Tlingit. Includes village sites, archaeological sites, grave sites, spiritual areas, and intensive traditional use areas. These sites are highly sensitive to disturbance and are irreplaceable.

Yellow: Category B – Sites whose values have lower sensitivities to disturbance from other resource uses or are dispersed through a broader area with high spiritual, cultural or traditional land use significance. These areas may include a mix of specific cultural features (camps, cabins, trails etc.), archaeological sites, spiritual areas, and/or traditional gathering areas.






Red: Category C – Cultural sites or areas within protected areas which benefit from management direction for those zones. Additional management may be developed through protected area management planning or site-specific planning in order to maintain the integrity of individual sites or values.

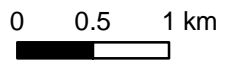


housing and built environment, health services, social supports, early childhood development and personal health practices.

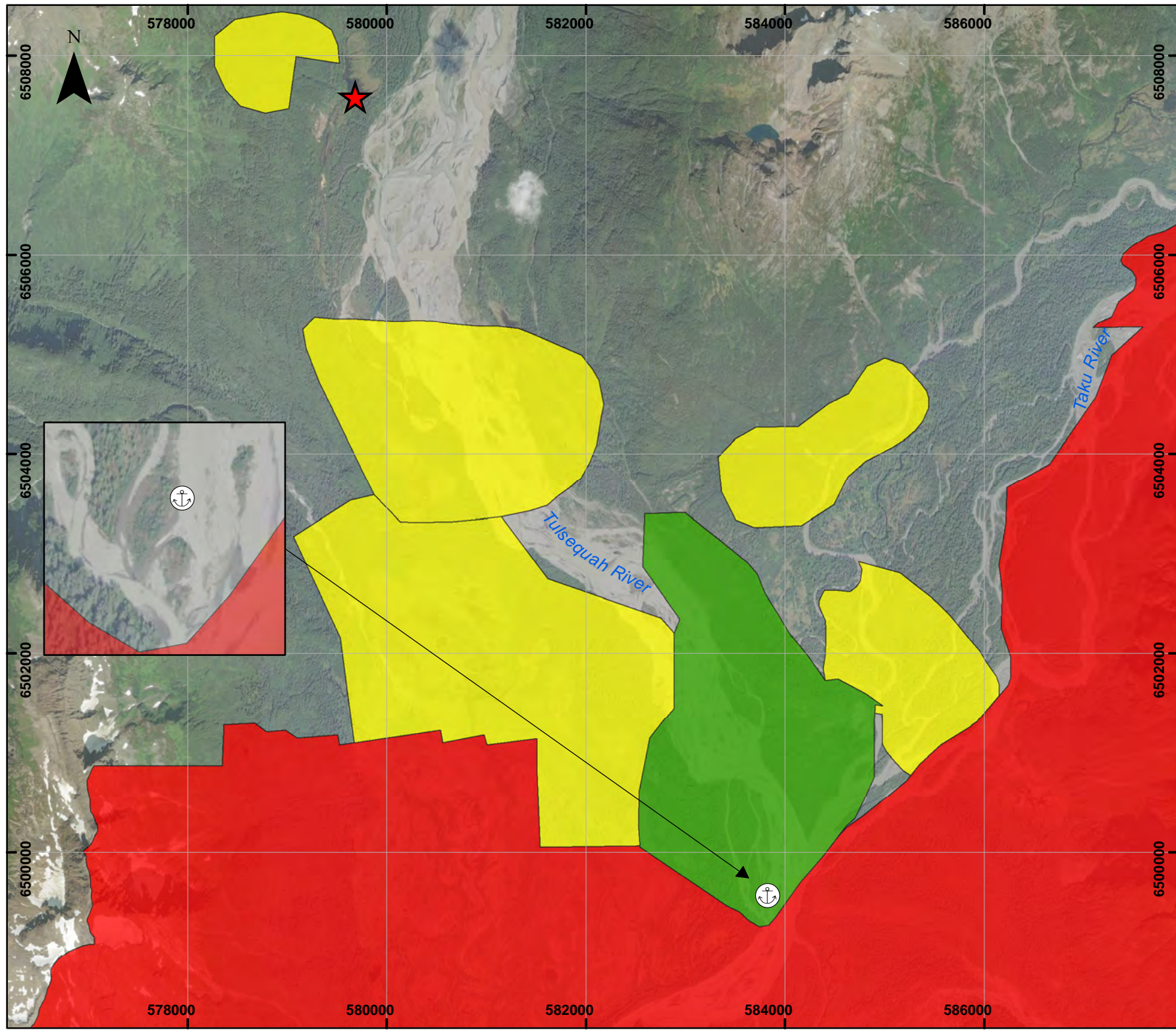
Region specific data relating to health outcomes are unavailable. A comparative assessment of health outcomes in the Stikine Local Health Area with other areas of B.C. will be obtained through community interviews and subsequent engagement with affected communities.

**Figure 9-1
Cultural Sites
and Trails
New Polaris
Gold Mine**

-  New Polaris Project Location
-  Barge Landing Site
-  Category A
-  Category B
-  Category C



NAD83 UTM Zone 8N
Map Date: 2/27/2023
Project Location NTS
Mapsheet: 104K/12
Created For 8.5 x 11 inch
Paper Size
Background Layer:
ESRI 2023-02-15



9.7 Labour Requirements

During the exploration phase of the Project Canagold has maximized hiring of people from Atlin and the surrounding area. For the proposed project qualified and experienced underground miners, process personnel, and tradespeople would be required. Given the region's history of mineral exploration and mining Canagold anticipates there would be suitability trained and experienced workers or workers with transferable skills in the region.

The Project will provide employment opportunities for the TRTFN and other Atlin resident during the construction, operation and closure phases. Canagold commits to providing operational training as well as trades training opportunities to the members of the TRTFN and Atlin residents.

The workforce would be housed in an on-site camp facility with an approximate capacity of 150 and will operate on a fly-in-fly-out rotation schedule.

The PEA estimated that the project is expected to directly employ 215 people during operations (Table 9-1 with a two-week on/ two-week off work schedule with 107 people on site per rotation. The data required to determine specific employment numbers during construction, reclamation and closure, and post closure are not yet available as it will be dependent on final designs. Therefore, only generalized, relative workforce sizes can be provided for those phases. The complete Project labour requirements will be defined through the advancement of Project planning.

Table 9-1 Predicted Workforce

Project Phase	Workforce Estimate	
Construction	Dependent on final designs, probably up to 125 - 150 on site per rotation.	
Operation	Technical Services	30
	Mine Maintenance	20
	Mine Operations and Support	165
	Total:	215
Reclamation and Closure	Reduced workforce to conduct reclamation activities, support ongoing monitoring and basic site management. Dependent on final design and schedule	
Post Closure	Reduced workforce to support ongoing monitoring and basic site management. Dependent on final design and schedule	

10 Emissions, Discharges, and Waste

The following section includes a preliminary discussion of anticipated emissions, discharges, and waste to air, land, and water, including estimated greenhouse gas (GHG) emissions, directly contributed by the Project. Detailed assessment, including Proposed mitigation measures and/or project design changes to reduce emissions, will occur during advanced stages of the environmental assessment process and will be based on refined Project information.

10.1 Air and Dust Emissions

Air and dust emissions may occur during all phases of the Project, primarily from construction and active mining. Emissions are anticipated from:

- Fugitive dust and particulate matter generated during building construction, road/airstrip building and maintenance, blasting, material handling, material processing, exposed soils, vehicle movement, and exhaust emissions.
- Criteria air contaminants (CACs) produced by use of explosives and the combustion of diesel and gasoline fuels by equipment including particulate matter (PM10, PM2.5) nitrogen oxides (NOx), sulphur dioxide and carbon monoxide (CO).
- GHG emissions through the combustion of fossil fuels in equipment.

An Air Quality and Dust Control Management Plan will be developed for the Project and implemented prior to the start of construction. Other mitigation for airborne emissions might include using particulate collection systems, covering, or revegetating soil stockpiles, using water for dust suppression on site and tote roads, using load covers on haul truck beds, minimizing the use of equipment and generators, and implementing equipment idling policies.

Total GHG emissions in Canada in 2020 were estimated to be 672 million tonnes (Mt) CO₂e, with transportation (i.e., road, rail, air, marine traffic), and the oil and gas industry representing the largest contributors. Total GHG emissions in BC in 2020 were estimated to be 64.6 Mt CO₂e, approximately 10% of the national total. As part of BC's climate action legislation, the province has established GHG reduction targets under the *Climate Change Accountability Act* (Government of BC 2007), formerly known as the *Greenhouse Gas Reduction Targets Act* (Government of BC 2007b). The targets for GHG emissions include a reduction of 40 percent (%) below 2007 levels by 2030, 60% below 2007 levels by 2040, and 80% below 2007 levels by 2050. To support these targets, industrial facilities in BC emitting over 10,000 tonnes of CO₂e per year are required to report their emissions under the *Greenhouse Gas Industrial Reporting and Control Act* (Government of BC 2014). Facilities emitting over 25,000 tonnes of CO₂e per year need to have their emission reports verified by an independent third party. The *Greenhouse Gas Industrial Reporting and Control Act* (Government of BC 2014) also introduces performance standards or GHG emission intensity benchmarks for industrial facilities. There are currently benchmarks for liquefied natural gas operations and coal-based electricity generation operations. It is expected that benchmarks for other facilities and sectors will be added later.

In the absence of a GHG emission intensity benchmark, the GHG emission estimates for other metal ore mining facilities in BC, as reported under the BC Greenhouse Gas Emission Reporting Regulation (BC 2023), are presented in the table below. Also included in this table are the milling throughputs for each of the mining facilities identified. The industry profile ranges from 0.001 to 0.02 kilotonnes CO₂e per kilotonne (kt CO₂e/kt) of milled ore. Based on a milling throughput of 365 kt/yr at New Polaris, the high-level estimation of GHG emissions for the New Polaris mine would be in the range of 0.6 - 8.7 kilotonnes CO₂e (Table 10-1).

The GHG emissions will continue to be developed during the course of this work. The Project would meet appropriate emissions and GHG regulations and requirements.

Table 10-1 Greenhouse Gas Emission Estimate

Mine Name (all in BC)	Mining Type	GHG Emissions ¹ (kt CO ₂ e/yr)	Annual Throughput (milling rate) ² (kt milled/yr)	GHG Emission Intensity (kt CO ₂ e/kt milled)	Estimated GHG Emission for New Polaris ³ (kt CO ₂ e/yr)
Copper Mountain Mine	Copper-Zinc Ore Mining	91.93	14,201	0.00647	2.3629
Gibraltar Mine (SFO)	Copper-Zinc Ore Mining	102.94	29,933	0.00344	1.2552
Red Chris Mine	Gold and Silver Ore Mining	77.77	10,492	0.00741	2.7055
Brucejack Gold Mine	Gold and Silver Ore Mining	23.65	989	0.02391	8.7272
Teck Highland Valley Copper Partnership	Copper-Zinc Ore Mining	175.49	51,918	0.00338	1.2338
Mount Milligan Mine	Copper-Zinc Ore Mining	63.84	38,219	0.00167	0.6097
Mount Polley Mine	All Other Metal Ore Mining	18.82	5,050	0.00373	1.3604

Note:

1 BC MECCS 2023

2 Mining Data Online 2023

3 Based on New Polaris milling rate of 365 kt/yr.

10.2 Noise and Vibration

Noise and vibration emissions are likely to occur in all phases of the Project. Sources of noise and vibration are primarily related to mining equipment and services such as underground drilling and blasting, ventilation equipment, process plant, generators, equipment, and haul vehicles.

Mitigation for noise and vibration includes maintaining all equipment and vehicles and operating them at optimum loads, and use of equipment panels and acoustic enclosures. A Construction Environmental Management Plan will be developed for the Project that includes measures to reduce impacts from noise and vibration.

10.3 Light Emissions

Construction and reclamation/post-closure activities are anticipated to occur primarily during daylight hours, while activities during the operation phase will occur 24-hours per day. Artificial lighting would be required in some capacity for security, and health and safety purposes during all phases of mine development and operations.

Light emissions would be from equipment and vehicles, fixed lighting (e.g., on buildings) and mobile lighting. The effects of light emissions may be mitigated through use of directional lighting, use of lights with shrouds and dimming capacity, use of amber spectrum lighting and low lumen fixtures.

10.4 Mining Waste

The Project is expected to create waste materials during operation through gold extraction and processing, generating overburden, tailings and waste rock. Preventing and controlling seepage and contamination from these is a principal consideration informing the planning of mine waste management for the Project. Preliminary geochemical testing indicates that waste rock and tailings are not expected to be acid generating.

There are three solid waste streams generated within the process plant:

- Flotation tails.
- Leach solids residue.
- Neutralization precipitate.

These three waste streams are generated at three different locations in the process, are combined into a single stream inside the plant ahead of leaving the plant. Approximately 40% of this material would be used underground, as backfill in mined out areas and the remainder would be filtered and sent for permanent disposal to the Combined Storage Facility (CSF) (see section 6.3.2).

Due to the design of the processing activities, it is anticipated there will minimal, if any, wastewater discharge required for the Project. The completion of a life of mine water balance will determine the overall net water requirements for the Project.

10.5 Other Waste

Other wastes generated by the project include:

- Overburden generated during site preparation (e.g., foundation preparation, grading). Materials would be stockpiled on site and managed to prevent erosion and sediment mobilization (e.g., covered or re-vegetated).
- Domestic waste materials (e.g., general trash, food waste). This will be incinerated on site using a skid mounted diesel fueled incinerator.
- Construction waste materials (e.g., demolition debris, waste wood and metal). Materials would be sorted for disposal. Non-toxic combustible materials would be incinerated with domestic waste. Materials would be recycled where possible (e.g., metals) or transported off-site for disposal at an appropriate facility.
- Potentially contaminated in-situ soils from the historic operations. Contaminated soils would be stockpiled on site and managed to prevent mobilization of sediments, minimize water contact and prevent leaching of contaminants (e.g., place on a liner within a berm and cover with polypropylene).

A Waste Management Plan will be developed for the Project that will outline practices and procedures to reduce, segregate, safely store, and recycle or dispose of wastes.

- Hazardous waste materials as defined by the *BC Hazardous Waste Regulation* and federal dangerous goods regulations. Hazardous materials would be managed and disposed of according to applicable provincial and federal waste regulations.
- Sanitary wastes (e.g., sewage). Sanitary wastes would be piped to an on-site sewage treatment plant. Treated effluent would be discharged to a septic field while solids are dewatered for disposal, potentially at the CSF. Exact disposal location would be determined as Project advances.

11 Public and Environmental Safety

Canagold understands and acknowledges that the Project must take into account the environmental and public safety implications of accidents and malfunctions that may occur in connection to the Project activities.

Due to the remote site location direct accident risk to the public is minimal and related to the movement of supplies and people in and out of the project area. So, there would be minor risks associated with increased traffic, principally in Atlin and to a lesser extent Whitehorse. Similarly, the environmental risk in these areas is limited to spills and other transport risks. More details will become available during the Feasibility Study which will include estimates of the amount and types of material and transport required.

Following is a preliminary list of potential accidents and malfunctions scenarios that would be considered in the environmental assessment:

- Spill incidents including hazardous materials release to land or water
- Fire or explosive accidents
- Motor vehicle or equipment accidents
- Barge operational failure and accidents
- Failure of underground mine stability
- Failure of material, dry tailings, or rock stockpiles
- Power failure
- Flood events
- Landslides
- Extreme, adverse weather events.

Environmental and public safety issues related to risks at the site are also being studied during the Feasibility Study. As the initial results become available Canagold will consult with the TRTFN and other stakeholders to establish risk scenarios and ratings, consequence and risk management and mitigation measures including emergency preparedness and response, and communications plans.

To minimize the risk of accidental spills international standards and protocols for the safe transportation, storage and handling of all hazardous materials used at the site will be followed at all times.

The largest environmental risk at the site would be the accidental spillage or release of fuel, process reagents, contaminated process water or slurry due to an accident or a mechanical failure of the systems designed to contain and transport these materials.

To minimize the risks of diesel spills the fuel tank farm will be equipped with liners and berms to ensure that any fuel spillage in this area is contained within this immediate area and prevented from reaching the surrounding natural environment. Catch pits and oil/water separators will be located inside the containment area to collect any smaller spillage. All areas where fuel is dispensed will have clean up kits and booms available at all fuel dispensing locations to respond immediately to any small accidental fuel spills.

Similarly - hazardous reagents needed for processing will be stored in an enclosed structure which will have concrete or poly-lined floors to ensure that any small spillage is contained within this area and prevent it

from reaching the surrounding environment. Crews will be trained in the appropriate procedures for the safe handling of these materials and how to deal with spillages. Cleanup equipment and supplies will be available at all locations to immediately clean up any incidents of spillage.

Impacted process water and slurry contained in tanks or pumped around the process could spill in the event of a mechanical failure of the tanks, pipelines or pumping equipment. These would be hazardous to the environment if released, however, the risk of this occurring is considered small since these components of the process are all within the plant building which will have internal sumps of sufficient size to contain any spillage and ensure this material does not reach the surrounding environment.

In discussions with the TRTFN they have highlighted the importance to them of protecting the water and fisheries resources and also of critical importance to them is the protection of Whitewater Creek which flows through the project. Upon hearing their concerns about this issue berms along the extent of Whitewater Creek were added to the design to ensure that it is fully protected from potential impacts resulting from activities in the immediate vicinity of the creek.

Prior to the start of construction and operations a detailed risk assessment will be completed for all activities, infrastructure design and hazardous materials being used at the site during construction and operations. To reduce the potential for accidental discharges all personnel involved with handling, transporting, storage and use of any hazardous materials will be trained in the proper procedures and protocols to carry out their responsibilities in a safe manner.

Environmental and public safety issues related to risks at the site are also being studied during the Feasibility Study. As the initial results become available Canagold will consult with the TRTFN and other stakeholders to establish risk scenarios and ratings, consequence and risk management and mitigation measures including emergency preparedness and response, and communications plans.

12 Alternative Means of Carrying out the Project

Technically and economically feasible alternatives to the Project include:

- Not undertaking the project.

The 'no Project' alternative would not provide the positive socio-economic effects (e.g., employment and economic development) and would not fulfill the purpose of the Project.

- Changing the timing of the Project

This would generally have the same environmental effects as those associated with the Project as proposed.

- Changing the location of the Project

This is not possible as the Project is located at the location of the mineral deposit being mined.

Alternative means of carrying out the Project were considered:

- Mining Method

Two basic mining methods exist for gold deposits: underground, open surface (pit) mining.

The orebody geometry as well as the proximity to the Tulsequah River makes open pit mining impractical.

Therefore, the only practical method of mining, due to the location and geometry of the mineralisation, is underground mining. This is why the site was historically developed as an underground mine and with the existing infrastructure in place, the most functional and economical method is to expand the existing underground mine.

- CSF Locations

Four options were considered for the locations of the CSF, depicted in Figure 6-6. After technical review of the site and discussions with TRTFN, Option 2 is currently considered to be the most favorable option, although detailed analysis is ongoing to inform the site selection. Advantages of Option 2 include close proximity to the process plant, no infringement on wetlands, less geotechnical risk, and lower total cost.

- Transportation to Site

Transportation and access to site include three options – access by air, barge, or a new access road to Atlin. Since the TRTFN have expressed opposition to a road Canagold has eliminated building an access road from Atlin, and is focusing on design of a barge landing site and upgrade to the air strip. A transport study is underway to determine what material can be flown in and what needs to be barged. In contrast to the project when it operated in the 1950's where large volumes of concentrate were barged from the site, the only product from the operation will be doré, which will be flown out of the site.

13 Effects of the Environment on the Project

Potential effects of the environment on a project are typically a function of design and the risks of natural hazards in the Project Area. Responsible engineering practice accounts for the likely environmental forces and incorporates mitigating measures into design plans. The Project will be designed with consideration of current standards and best practices, and existing and likely future environmental conditions.

Potential environmental factors that could affect the Project are primarily related to natural hazards such as floods and forest fires, which could become more extreme or frequent due to climate change. Changes in physical environment including natural seismic events and avalanche events can also pose natural hazard risk to the project. Environmental factors are most likely to affect Project infrastructure, but could also impact human health (e.g., a heat dome could require modified work hours, slower production etc. to ensure health and safety).

Extreme climatic events that can impact the project include:

- Extreme rain events that could cause higher than normal levels in the Tulsequah and Taku Rivers could result in flooding of the facilities or interruptions in barging along the Taku River.
- Extreme snowfall amounts could overwhelm the capacity to keep the site area and airstrip clear causing disruption in transportation and mining and processing operations.
- Extended periods of overcast skies and fog could disrupt air travel and result in shortages of consumable supplies at site and impede personnel from travelling to and from site on planned rotation days.
- Increase in ambient temperature and drier climate can lead to more wildfire events during the summer.

Effects of the environment will be assessed in the EA and mitigation measures will be incorporated into the design plans as the Project advances.

14 Land and Water Use

14.1 Land Use

The Project is in early design phases, but the vast majority of the facilities will be installed within provincial crown grants land historically used for mining activity and the associated township. Facilities outside the crown grants will be portions of tote road to the barge landing and the barge landing which will be located on crown land.

It is estimated that approximately 51 ha of ground was disturbed in the past with removal of all vegetation, terracing and construction of the plant. These areas are currently either bare or covered in low shrub vegetation.

As Project design advances the total area of land required, area of disturbance, footprints of components etc. will be determined. The main areas that would be required for the Project are approximately 30 ha for the plant, mine, and camp, 8 ha for the airstrip and 12 ha for the CSF. Approximately 10 ha are required for the tote roads to access the barge landing point and the 1.5 ha for the tote road to the CSF.

The Project design aim is to site everything possible on the previously disturbed areas to minimize environmental effects and cost and maximize construction time efficiencies. Figure 6-1 shows the proposed Project footprint in relation to the previously disturbed areas. The only things likely to be outside of the previously disturbed areas are the CSF and the access tote road, the barge landing site and the access tote road and the limestone quarry.

14.2 Water Use

The Project will require water for domestic and industrial uses such as ore processing, equipment washing, dust suppression, flushing, fire supply and camp operation. Studies of current conditions focusing on hydrology and hydrogeology are underway, with water balance modeling being conducted. As part of Feasibility Study, a Tailings Deposition Strategy Trade Off study will be carried out to assess options for the handling of tailings. At this stage, the preferred option is filtering the tailings (i.e. dewatered as much as possible) and creating a dry stack and/or used as backfill underground. With this approach, water will be reused for mill processing and minimal effluent discharge is anticipated.

While no water use requirements have been defined, based on the anticipated processing rates and the envisioned infrastructure, it is expected that water use for the site would be around 1200 m³/day. Specific water sources and volumes will be evaluated based on the results of the water balance model and infrastructure designs that will be available from the Feasibility Study.

Underground mine dewatering could partially meet water requirements of the mine. Quantified groundwater inflows throughout the LOM are an important component of the water balance. Estimates of required make-up water and potential average treatment rates would be provided as the core finding of the water management scope. More accurate hydrologic/hydrogeologic studies will provide a better understanding as part of the Feasibility Study.

Estimates of required make-up water and potential average treatment rates would be provided as the core finding of the water management scope.

15 Land Use Plans

The Project is within the traditional territory of the Taku River Tlingit First Nation (TRTFN), and more specifically within the Tulsequah Valley / Tass Teiyi Hééini Resource Management Area, as described in the Wóoshtin wudidaa Atlin Taku Land Use Plan (ATLUP; TRFN and Province of BC 2011a). Portions of the Project also lie within a Salmon Ecosystem Management Area as designated in the Wóoshtin wudidaa ATLUP. The Wóoshtin wudidaa ATLUP is an instrument of policy that provides resource management direction for operational land and resource-based activities within the Plan Area, which includes those portions of the Taku, Yukon and Whiting watersheds within British Columbia. The Land Use Plan guides planning processes at the more detailed scale e.g., as required for operational activities (Taku River Tlingit First Nation and Province of British Columbia, 2011a).

No rezoning or changes in land use designation are needed for the project.

The mine site of the Project is located approximately 6.5 km north and 9.5 km west of the Taku River/T'aku Teix Conservancy. The Conservancy was established on June 22, 2012, as a result of the Wóoshtin Wudidaa ATLUP and Taku River Tlingit First Nation Strategic Engagement Agreement. It protects 80,465 ha (198,830 acres) of pristine wilderness along the entire length of the Taku River Valley.

The Project is in early design phases, but the vast majority of the facilities will be installed within provincial crown grants owned by Canagold land historically used for mining activity and the associated township. Facilities outside the crown grants will be portions of tote road to the barge landing and the barge landing which will be located on crown land.

16 Project Interactions

An identification of existing cumulative effects in the region that the project may interact with. Refer to the Effects Assessment Policy for more information.

16.1 Potential Effects and Mitigation

An overview of the current understanding of the potential environmental (physical, biological and human) effects of the Project are presented in this section. Preliminary mitigation is also presented, specific mitigation, including management and monitoring plans, will be developed as the Project advances.

The Project is located on the Tulsequah River, approximately 15 km upstream of the BC-Alaska border. The EA will assess potential effects within a local study area and regional study area which will be uniquely defined for each Valued Component. Mitigation measures will be implemented to manage impacts and to limit the geographic extent of potential effects.

16.1.1 Environmental Effects

Table 16-1 summarizes the potential effects and preliminary mitigations that may be applied. These potential effects, and others that may be identified through further investigations and engagement activities, will be considered in the environmental assessment.

Table 16-1 Potential Project-Related Effects and Mitigation

Component	Potential Effect	Mitigation
Physical Environment		
Air Quality	<ul style="list-style-type: none"> • Increased CAC and particulate matter emissions. • Fugitive dust from blasting, soil disturbances, material handling, processing etc. can affect human and wildlife health. • Dust fall from fugitive dust can affect vegetation. • Hydrocarbon combustion by vehicles and equipment can increase CAC and particulate emissions and can affect human and wildlife health. • Increased GHG emissions. 	<ul style="list-style-type: none"> • Develop and implement an Air Quality Management Plan • Stage construction to minimize areas of exposed soil. • Stabilize stockpiles and disturbed soils to minimize sediment mobilization. • Cover loads on haul trucks. • Use water for dust suppression on site and on tote roads. • Implement idling guidelines. • Ensure equipment and vehicles are well maintained and operated at optimum loads. • Develop and implement energy conservation initiatives.

Component	Potential Effect	Mitigation
Noise and Vibration	<ul style="list-style-type: none"> · Increased noise can cause sensory disturbance to humans and sensory disturbance or displacement to wildlife. · Vibrations can cause sensory disturbances to humans and wildlife. 	<ul style="list-style-type: none"> · Develop and implement a noise management plan. · Maintain equipment (e.g., tighten bolts to reduce rattle, ensure adequate lubrication) or use engineering controls (e.g., mufflers).
Hydrology	<ul style="list-style-type: none"> · Change in water levels due to water withdrawals. · Change in runoff and drainage patterns due to surface disturbances, stockpiles, etc. · Changes to flows and sediment loading in watercourses due to stream crossings, surface disturbances, roads. · Changes in surface water/groundwater interactions due to surface disturbances, mine dewatering, water withdrawals etc. · Discharges of treated mine water 	<ul style="list-style-type: none"> · Project design to minimize disturbances to natural hydrology patterns. · Minimize surface disturbances as much as possible and site things to maintain natural surface drainages. · Develop and implement water management plans that include considerations for stormwater management, erosion and sediment control and water use. · Use appropriately sized stream crossing structures (e.g., culverts, bridges) to ensure natural, unrestricted flows. · Closure design and reclamation plans should consider re-establishing natural drainage patterns, if disturbed during construction and operation.
Hydrogeology	<ul style="list-style-type: none"> · Changes to groundwater levels due to mine dewatering and surface disturbances. · Changes in groundwater recharge due to alterations of hydrological patterns. · Changes to groundwater quality due to infiltration of contact water, water from settling ponds, waste rock piles, tailings storage, accidental spills of deleterious substances (e.g., hydrocarbons, chemicals). 	<ul style="list-style-type: none"> · Develop and implement groundwater management and monitoring plans. · Develop and implement an erosion and sediment control plan, waste and hazardous material management (e.g., fuel/chemicals) plan and spill response procedures to minimize potential for accidental spills. · Reuse water and treated effluent where possible. · Develop and implement a reclamation and closure plan that includes water management.
Water Quality	<ul style="list-style-type: none"> · Changes to water quality may occur at the mine site and at the barge landing location. · Change to water quality (i.e., increased metals and nutrient) due to resource extraction, placing waste rock, storing tailings, and 	<ul style="list-style-type: none"> · Develop and implement a water management plan. · Develop and implement an erosion and sediment control plan, waste and hazardous material management (e.g., fuel/chemicals) plan and spill response

Component	Potential Effect	Mitigation
	<p>surface water management including geochemical loading of water quality constituents, erosion and dust deposition.</p> <ul style="list-style-type: none"> • Changes in water quality due to accidental spills or release of hydrocarbons (e.g., fuels, lubricants) and chemicals. • Change in water quality due to increased sediments (e.g., erosion and sediment mobilization after clearing, runoff from stockpiles etc.). • Accident or malfunction during barging could result in spilling transported materials into the Taku River, which could negatively impact water quality. • Changes to downstream water quality, in both Tulsequah and Taku Rivers) due to on-site discharges, sediment laden runoff, accidental spills. • Changes to water quality due to the discharge of treated mining and processing effluents 	<p>procedures to minimize potential for accidental spills.</p> <ul style="list-style-type: none"> • Conduct ongoing water quality monitoring to ensure all regulatory requirements and standards are met. • If PAG material exists develop and implement a management plan. • Design Project to minimize potential for contact water. • Develop and implement a reclamation and closure plan that includes water management and monitoring • Any water released to the environment from mining and processing activities would be treated to reduce contaminants to permitted levels.
Soils and Terrain	<ul style="list-style-type: none"> • Changes to soil profile and terrain due to clearing, grubbing and grading; developing CSF, roads, site infrastructure and aggregate borrow. • Changes in terrain stability due to drainage or slope modifications. • Soil contamination due to accidental spill or release of deleterious substances (e.g., hydrocarbons, chemicals). • Changes in soil quality due to changes in physical and chemical characteristics due to mining activity (e.g., metal leaching, ARD, admixing, compaction). • Loss of soils due to erosion and sediment mobilization. 	<ul style="list-style-type: none"> • Minimize vegetation clearing and soil disturbance activities to the extent possible. Limit activities to previously disturbed areas/historical mine footprint where possible. Plan and stage work to minimize soil exposure. • Develop and implement erosion and sediment control and hazardous material storage (fuel, chemicals, explosives etc.) plans. • Implement BMPs and procedures to minimize potential for spills of deleterious substances. Develop a spill response plan. • Salvage and stockpile soil for reuse. • Avoid soil disturbance and compaction by minimizing equipment movement during construction. • Develop and implement a reclamation and closure plan that includes soil and terrain restoration.

Component	Potential Effect	Mitigation
Geochemistry	<ul style="list-style-type: none"> No significant metal leaching is expected to occur. Nevertheless, it is good practice to have management plans in place. The rocks at New Polaris will not be acid generating and will be acid consuming. The ore contains only low levels of sulphides and very low levels of pyrite surrounded by carbonaceous waste rocks. 	<ul style="list-style-type: none"> Develop and implement water management and PAG management plans. Develop and implement a reclamation and closure plan that considers management of water. Dry stack and compaction of tailings and waste rock to reduce water ingress.
Biological Environment		
Vegetation and Terrestrial Ecosystems	<ul style="list-style-type: none"> Change in abundance or condition of plant species of interest, species at risk, species of cultural significance, and invasive species due to clearing, winter snow removal, changes in drainage patterns and soil quality, dust deposition and restoration activities. Change in abundance or condition of ecological communities, including those of conservation interest (e.g. provincially at-risk) due to clearing, winter snow removal, changes in drainage patterns and soil quality, dust deposition and restoration activities. 	<ul style="list-style-type: none"> Develop and implement vegetation management plans, including invasive plant management. Develop and implement associated plans such as dust management, water management, erosion and sediment control. Limit vegetation clearing as much as possible. Utilize previously disturbed/cleared areas where possible. Treat and kill existing Regulated Noxious Weeds, as per the Weed Control Act, Integrated Pest Management Act, found within the areas of the Project that will require soil disturbance. Ensure that all equipment arrives on-site clean and free of soil and vegetation debris to avoid spread of invasive plants. All vehicles and equipment leaving the Project site should be inspected to ensure plant materials are not being transported off the site. Develop and implement a reclamation and closure plan that includes re-establishing natural vegetation communities and minimizes invasive plant establishment. Apply progressive reclamation where possible.
Wildlife	<ul style="list-style-type: none"> Potential effects may affect all wildlife, including migratory birds, species of interest, species at risk and species of cultural significance. 	<ul style="list-style-type: none"> Develop and implement a wildlife management plan. Develop and implement associated management plans for dust, noise and

Component	Potential Effect	Mitigation
	<ul style="list-style-type: none"> • Loss or alteration of habitat availability due to vegetation clearing and soil disturbances. • Sensory disturbances, changes in movement or and displacement, due to increased noise and vibration, artificial lighting, and human presence. • Direct mortality of wildlife due to vehicle collisions; indirect mortality due to decreased health from changes in air, water and vegetation quality. 	<ul style="list-style-type: none"> vibration management, and light management. • Limit vegetation clearing and ground disturbances as much as possible. Utilize previously disturbed/cleared areas where possible. • Schedule construction and maintenance activities outside of the provincial and federal recommended restricted activity dates and setback distances. (e.g., conduct vegetation clearing outside of the migratory bird nesting season). Conduct a pre-construction survey for nests or other species if disturbances must occur within provincial or federal restricted activity periods. • Identify and protect potential wildlife trees (i.e., snags/trees >15 cm diameter with cavities). • Minimize potential for wildlife-human interactions by ensuring that food is not made available to wildlife at any time and ensuring garbage is contained in wildlife-proof containers. • Cease activities where wildlife features (e.g., nests/dens) are identified or wildlife exhibit behavioural patterns of avoidance/sensory disturbance until consultation with a qualified biologist can be conducted. • Develop and implement a reclamation and closure plan that retains or restores native vegetation for use as wildlife habitat and wildlife movement corridors.
Fish and Aquatic Habitat	<ul style="list-style-type: none"> • Disturbance or destruction of aquatic habitat due to instream construction works (e.g., at barge landing site, watercourse crossing installations for roads). • Disturbance or destruction of aquatic habitat due to changes in flow patterns or water levels. • Direct or indirect harm to fish by accidental spill or release of a deleterious substance from mine site activities or from material transport on barge (e.g., 	<ul style="list-style-type: none"> • Develop and implement associated plans such as erosion and sediment control, water management, and waste management to minimize potential of release of deleterious substances to a watercourse. • Design Project to minimize loss of aquatic habitat by selecting locations for tailings and waste rock disposal (i.e., the CSF) that do not directly interact with watercourses. • Follow BMPs for instream works (e.g., Standards and Best Practices for Instream Works).

Component	Potential Effect	Mitigation
	<p>hydrocarbons, processing reagents, blasting agents)</p> <ul style="list-style-type: none"> • Direct or indirect harm to fish by increases in turbidity because of mobilized sediments from soil or sediment disturbances. • Reduced habitat quality due to changes in sediments or water quality due to release of deleterious substances, contaminants, nutrients or excessive sediment. • Changes in habitat use (e.g., migration, spawning, rearing, foraging) due to changes in habitat availability and quality. • Change in habitat quantity, distribution or quality. 	<ul style="list-style-type: none"> • Conduct instream works during the Reduced Risk Work Window for the Skeena Region. • If a DFO Request for Project Review determines that a <i>Fisheries Act Authorization</i> is required for the barge landing site, habitat offsetting may be conducted.
Human Environment		
Employment and Economy	<ul style="list-style-type: none"> • Increases to employment, employment income, and training (primarily locally but with regional and greater implications). • Changes to (increase) local and provincial economic stimulus via consumer spending of employees, direct and indirect demand for goods and services. • Increased demand could contribute to availability constraints. • Changes to (contribution) government revenues and GDP. • Changes to (increase) demand for local services and infrastructure (e.g., medical and social services). 	<ul style="list-style-type: none"> • Engage local stakeholders throughout Project design. Develop a communication plan that supports feedback and ensure it is available throughout life of Project. • Preferentially utilize the local labour market as much as possible, especially local Indigenous Groups. Implement training programs if possible. • Initiate skills inventory and employment planning • Procure goods and services locally as much as possible. • Develop and implement an employment transition plan for employees at end of mine life. • Develop and implement reclamation and closure plans that are consistent with local land use objectives. • Engage local stakeholders, local governments, health, and emergency providers to determine how to best support additional demand on services.
Transportation and Navigable Waters	<ul style="list-style-type: none"> • Changes to use of Taku River due to presence of barge landing facility. 	<ul style="list-style-type: none"> • Design barge landing facility to minimize instream footprint.

Component	Potential Effect	Mitigation
	<ul style="list-style-type: none"> • Changes to volume of boat vessel traffic on Taku River due to barging activity. 	<ul style="list-style-type: none"> • Continue engagement with Indigenous Groups throughout all phases of Project. Identify specific interests and concerns early and work cooperatively to develop management plans. • Minimize number of vessel trips by fully loading barges. • Provide advance notice to local users of barging schedule.
Human Health	<ul style="list-style-type: none"> • Changes to safety of employees and public (e.g., accidents). • Changes to human health risk due to decreased air or water quality. • Changes to human health risk due to exposure to hazardous materials/deleterious substances. • Changes to human health risk by consuming contaminant-affected plants or animals. • Changes to human health risk due to noise exposure. • Changes to population health resulting from indirect and direct impacts on the social determinants of health (e.g., income, education, employment, culture). • Increased demand for health and emergency services. • Changes to personal safety (gender-based violence, crime, harassment, abuse) among marginalized groups within affected communities, particularly Indigenous women and children. 	<ul style="list-style-type: none"> • Develop and implement associated management and monitoring plans (e.g., air quality, noise and vibration, water management, hazardous materials handling etc.). • Develop and implement a health and safety plan. • Ensure employees have proper training and personal protective equipment. • Mandatory cultural safety training. • Engage local stakeholders, local governments, health, and emergency providers to determine how to best support additional demand on services. • Legitimate and safe reporting systems for workplace harassment.
Current Use	<ul style="list-style-type: none"> • Changes to access and use of public lands and waters (e.g., recreation, hunting/fishing). • Changes to enjoyment of public lands and waters due to increased noise, alterations to views, decreased air/water/soil quality. • Changes to access and use of certain fish and wildlife species (e.g., game species) due to their altered use (displacement). 	<ul style="list-style-type: none"> • Develop and implement associated management plans (e.g., air quality, noise and vibration, water). • Minimize disturbance to natural areas by using historical mine footprint as much as possible. • Engage local stakeholders throughout Project design. Develop a communication plan that supports feedback and ensure it is available throughout life of Project. • Provide notice to local stakeholders when particularly disruptive activities will occur.

Component	Potential Effect	Mitigation
Traditional Land Use	<ul style="list-style-type: none"> • Changes in access to preferred or required locations used for traditional purposes. • Changes in presence, abundance, quality, or distribution of aquatic, terrestrial, or other resources that are currently used for traditional purposes. • Changes to the quality of one's sensory experience while pursuing traditional activities. • Changes to the quality of opportunities for sharing and transmitting Indigenous Knowledge. Indirect loss of Indigenous Knowledge due to the disruption of current use of lands and resources for traditional purposes. • Changes to socio-economic status and wage economy. 	<ul style="list-style-type: none"> • Develop and implement reclamation and closure plans that are consistent with local land use objectives. • Develop and implement associated management plans (e.g., air quality, noise and vibration, water). • Continue engagement with Indigenous Groups throughout all phases of Project. Identify specific interests and concerns early and work cooperatively to develop management plans. • Incorporate traditional knowledge and traditional land use in Project planning. • Look for opportunities to support community-based cultural initiatives to transfer knowledge. • Engage with potentially interested Indigenous Groups regarding restoration and reclamation requirements and efforts using local or original species of vegetation that are traditionally used by Indigenous Groups. • Engage Indigenous Groups to fill Project-related employment opportunities whenever possible. • Foster an understanding of the cultural setting including Indigenous communities, traditional territories, and pre- and post-contact history and understanding of cultural practices, protocols, and considerations.
Archaeological Resources	<ul style="list-style-type: none"> • Unknown archaeological resources (e.g., previously unidentified artifacts or sites) may be affected (accidental damage or destruction) by Project activities such as clearing, excavation, vibrations during blasting activities, etc. 	<ul style="list-style-type: none"> • Develop and implement an Archaeological and Heritage Management Plan, including a Chance Find Procedure. • Design project to avoid development near any known archaeological sites. Compare excavation plans to local archaeological resource inventories if available. • Conduct an archaeological impact assessment in areas that would be disturbed. If recommended in the AIA, engage Indigenous Groups to conduct monitoring during disturbance activities. Monitoring programs will be designed to ensure compliance with best practices, the regulations, and associated permitting.

16.1.2 Potential Transboundary Effects

The Project is located approximately 10 km east of the Canada-US border (approximately 15 km upstream of the border on the Taku-Tulsequah Rivers). It is anticipated that the majority of the potential effects presented in Table 16-1 will not produce transboundary effects. However, some Project materials and supplies would be barged to a location on the Taku River, which will require transit through Alaskan waters. While it is anticipated that the potential impacts to international water quality, fish or aquatic habitat would be negligible, these transboundary effects are considered.

In the unlikely event of an accidental spill or loss of cargo, changes to water quality, fish or aquatic habitat in Alaskan waters could result. The mitigation measures provided in Table 16-1 are considered appropriate to address this potential transboundary effect.

16.1.3 Cumulative Effects

A cumulative assessment will be completed for the effects that are not fully mitigated, and that have the potential to interact with other past, current or reasonably foreseeable future activities in the region.

16.1.3.1 Cumulative Effects on Water

Effects on the quantity and quality of river flows due to groundwater and surface water discharges to the Tulsequah River related to mine dewatering, tailings and waste rock impoundments, and ongoing effects from previous mining at the New Polaris site, will be assessed. The Environmental Impact Assessment will include a desktop study to identify past and present projects on the Tulsequah and the Taku Rivers that have ongoing effects similar to the those of the New Polaris site that could be cumulative.

From the surface water quantity perspective, the cumulative impact of similar projects on flow rates of Taku and Tulsequah Rivers, is expected to be insignificant (to be confirmed). However, the same impact on smaller watercourses such as the Whitewater Creek is likely to be important. Impacts related to site development (reduced permeability) as well as potential underground dewatering (discharged into watercourses), would also be included in the EIA. Another parameter of potential importance is the snow management across the project footprint, which can affect the snowmelt contribution to surface water.

Ausenco has been conducting a geochemical characterization program to evaluate acid rock drainage (ARD) and metal leaching (ML) potential of materials that will be produced from the Project construction, operation, and closure. Results will be used to predict the evolution of mine drainage from mine waste facilities. Predictions are used to inform mine waste management, water quality predictions, aquatic resources effects assessments and mitigation/contingency measures.

16.1.3.2 Potential Project Interactions

For each mine component, potential effects of the project on the receiving environment at the end of mine life and throughout closure will be assessed. Source terms will be estimated for each mine component for base case and an upper-case scenario. The outcomes will be used as inputs to site wide water quality model to assess potential effects of the project on the receiving environment.

Tailings discharged by the legacy mining operations, and from other mines, at New Polaris likely present sources of contamination to the Tulsequah River Floodplain. Previous analysis of grab sample of old tailings material indicated potential acid generation of the old tailings due to sulfur content. However, remaining reactive sulphur content could be lower to sustain further acid generation in the long term. The extent of legacy tailings and their geochemistry interaction to the New Polaris project will be briefly described in the project baseline geochemistry study.

Other potential sources of acid generation and metal leaching in the floodplain are buried tailings that have less exposure to oxygen. Perturbation of the flood plain would likely change the existing geochemical condition and may result in re-mobilization of arsenic to the proposed mine site.

The cumulative effects of the old tailings on the proposed New Polaris mine, quality of surface water and groundwater components will be addressed throughout the environmental assessments during construction, operation closure and post-closure phases of the mine.

The Taku and Tulsequah Rivers are navigable waters and can be used for recreational, commercial, and subsistence boating and fishing purposes. Additionally, there may be vessel traffic required for reasonably foreseeable future projects and activities within the Project's proposed assessment area, such as barge transportation for the proposed closure and reclamation work at historic Tulsequah Chief Mine site. The potential cumulative effects from the Project's proposed barge operation and other activities in the Taku and Tulsequah Rivers will be identified and assessed as part of the environmental assessment.

Canagold will engage with regulatory agencies, Indigenous Groups and other to identify the past, present, and reasonably foreseeable projects and activities to be included in the cumulative effects evaluation.

17 Closure

The Project proposes to restart underground mining for gold at the past producing New Polaris mine. The Project is proposed to operate on the historical mine site and use existing infrastructure and disturbances where feasible and available. Development of new infrastructure would be required, along with development of a Combined Storage Facility for tailings and waste rock, and a barge landing facility. The Project is anticipated to provide employment and other economic benefits to northwest BC.

This IPD is intended to provide a high-level description of the Project and preliminary evaluations of potential Project-related interactions with the biophysical and human environment for potentially interested parties, such as regulatory agencies, Indigenous Groups, and stakeholders. Engagement with these interested parties will help shape the advancing Project design.

The EA process formally begins once the BC EAO accepts the IPD and seeks public comments on it. Interested parties (e.g., regulators, agencies, Indigenous Groups, stakeholders, and the public) will have an opportunity to provide feedback on the Project and project components that are still being developed. The next step in the Early Engagement Phase of the EA process is to prepare a Detailed Project Description, which will provide more detailed and advanced design information and will include updates considered based on feedback provided regarding the Project.

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