SKEENA™ RESOURCES

Eskay Creek Revitalization Initial Project Description Summary

July 19, 2021

Eskay Creek Revitalization
Initial Project Description Summary

Submission to the Impact Assessment Agency of Canada

Skeena Resources
Suite #650, 1021 West Hastings Street
Vancouver, BC V6E 0C3

July 19, 2021

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF CONTRIBUTORS TO THE INITIAL PROJECT DESCRIPTION

Contributors	Credentials	Section(s)	Relevant Experience
Sue Craig Advisor, Indigenous and External Relations Skeena Resources	M.Sc., P.Geo.	All	30+ years experience in impact assessment
Steve Jennings Manager, Environmental Assessment Skeena Resources	B.Sc., R.P.Bio.	All	20 years experience in environmental studies
Anne Currie Senior Partner RTEC	B.Sc., MPA	All	30+ years experience in impact assessment
Jocelyne Plourde Sustainability Project Manager Skeena Resources	M.Eng., EIT (AB)	All	5 years experience
Tahltan Heritage Resource Environmental Assessment Team (THREAT)	Professional engineers and scientists	Review of document Text contributions to Executive Summary, Indigenous Interests, Potential Effects, Cumulative Efforts, Engagement	Extensive professional level experience

ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
BC	British Columbia
BC EAA	British Columbia *Environmental Assessment Act* (2018)
BC EAO	British Columbia Environmental Assessment Office
DPD	Detailed Project Description
EA	Environmental assessment
EMPR	British Columbia Ministry of Energy, Mines and Petroleum Resources
EMLI	British Columbia Ministry of Energy, Mines and Low Carbon Innovation
EMS	Environmental Management System
ENV	British Columbia Ministry of Environment and Climate Change Strategy
Eskay Creek Mine Road	Eskay Creek Mine Road begins at km 0 on Highway 37 and extends to km 59 to the Eskay Creek Mine site and was built in 1993/94. The first 43 km are under a Special Use Permit (SUP) controlled by Axium. A gate is in place at km 2 and Skeena and other groups utilize the road under Road Use Agreements.
FLNRORD	British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development
GHG	Greenhouse gas
IA	Impact Assessment
IAA	*Impact Assessment Act* (2019)
IAAC or the Agency	Impact Assessment Agency of Canada
IPD	Initial Project Description
LNG	Liquid Natural Gas
ML/ARD	Metal Leaching/Acid Rock Drainage
MDMER	Metal and Diamond Mining Effluent Regulations
Métis	Métis Nation British Columbia
Project	Proposed Eskay Creek Project by Skeena Resources Ltd.
Proponent	Skeena Resources Limited
RCMP	Royal Canadian Mounted Police
Skeena Resources	Skeena Resources Limited
TCG	Tahltan Central Government
THREAT	Tahltan Heritage Resources and Environmental Assessment Team
TMSF	Tom MacKay Storage Facility (tailings)
TSKLH	Tsetsaut Skii km Lax Ha

SYMBOLS AND UNITS OF MEASURE

Symbol / Unit of Measure	Definition
%	percent
°C	degrees Celsius
AMSL	above mean sea level
CO_2eq	carbon dioxide equivalent
CDN	Canadian (dollars)
g/t	grams per tonne
ha	hectare
km	kilometre
km^2	square kilometres
m	metre
MW	megawatt
tpd	tonnes per day

1.0 PART A: GENERAL INFORMATION

1.1 Introduction

Skeena Resources Limited (Skeena Resources) is proposing the Eskay Creek Revitalization (the Project) to restart mining as an open pit at the past producing Eskay Creek (underground) Mine, which operated from 1994 to 2008. The Project would be an open pit gold-silver mine, with an estimated total annual production of 2.5 million to 3 million tonnes (6,850 tonnes per day [tpd] to 7,800 tpd) over a 13 to 16 year mine life (construction to closure inclusive). The Project would use facilities and infrastructure of the Eskay Creek underground Mine (in Care and Maintenance since 2008), existing and new waste disposal locations, and the construction of new infrastructure, including a mill.

The Project is located in northwestern British Columbia (BC), approximately 135 kilometres (km) south of Iskut, 83 km northwest of Stewart, 295 km northwest (467 km via road) from Smithers and 265 km northwest from Terrace (451 km via road; Figure 1-1). The Project is located within the territory of the Tahltan Nation (1910 Declaration of the Tahltan Tribe) and the asserted traditional territory of the Tsetsaut Skii km Lax Ha (TSKLH).

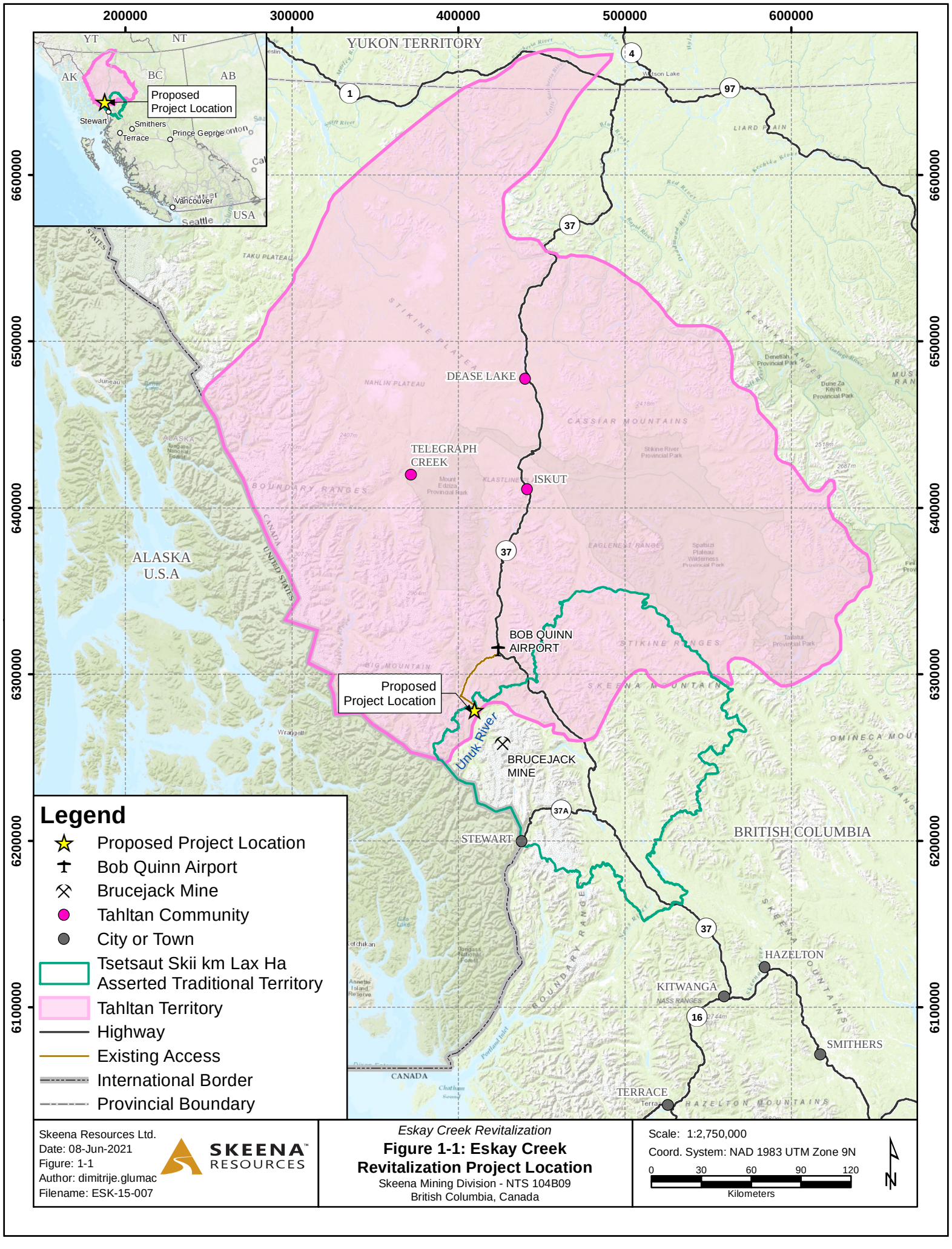
The Project will require assessment under Canada's *Impact Assessment Act* (IAA) and the BC *Environmental Assessment Act* (BC EAA 2018). This document is the plain-language summary of the Project's Initial Project Description (IPD) pursuant to Schedule 1 of the IAA *Information and Management Time Regulations* (2019). Skeena Resources collaboratively engaged with the Tahltan Central Government (TCG) as represented by the Tahltan Heritage Resource Environmental Assessment Team (THREAT) to prepare the IPD. As part of the collaborative approach, Skeena Resources support's the TCG's July 16, 2021 request to the BC government for the proposed Project to be designated as reviewable under the EAA.

An Engagement Plan has been submitted to the BC EAO, as required by Section 13(1) of the BCEAA. The Engagement Plan provides a summary of Skeena Resources's engagement to date on the Project; and describes plans by Skeena Resources to engage with Indigenous Peoples, federal and provincial government agencies, local governments, and potentially affected public during the Early Engagement Phase of the assessment process.

1.2 Proponent Information

The Project proponent is Skeena Resources Limited, a junior Canadian mining exploration company focused on developing prospective precious metal properties in northwestern BC's Golden Triangle. Skeena Resources is publicly traded on the Toronto stock exchange (TSX: SKE.TO, OTCQX: SKREF). Proponent contact information is provided below.

Head Office:	Skeena Resources Ltd. #650, 1021 West Hastings Street Vancouver, BC V6E 0C3 Phone: (604) 684-8725 Fax: (604) 558-7695 Website: https://www.skeenaresources.com
Chief Executive Officer:	Walter Coles President & CEO Skeena Resources Ltd. Email: wcoles@skeenaresources.com Phone: (604) 684-8725
Principal Contact for the Impact Assessment:	Steve Jennings Environmental Assessment Manager Skeena Resources Ltd. Phone: (250) 877-9946 Email: stevejennings@skeenaresources.com
Alternate Contact for the Impact Assessment:	Justin Himmelright Vice President, Sustainability Skeena Resources Ltd. Email: jhimmelright@skeenaresources.com Phone: (604) 684-8725


200000
300000
400000
500000
600000
6600000
6500000
6400000
6300000
6200000
6100000
YT
NT
AK
BC
AB
Proposed Project Location
Stewart
Smithers
Terrace
Prince George
Vancouver
Seattle
USA
YUKON TERRITORY
DEASE LAKE
TELEGRAPH CREEK
ISKUT
BOB QUINN AIRPORT
Proposed Project Location
Unuk River
BRUCEJACK MINE
STEWART
ALASKA U.S.A
BRITISH COLUMBIA
CANADA
HAZELTON
KITWANGA
SMITHERS
TERRACE
Legend
Proposed Project Location
Bob Quinn Airport
Brucejack Mine
Tahltan Community
City or Town
Tsetsaut Skii km Lax Ha Asserted Traditional Territory
Tahltan Territory
Highway
Existing Access
International Border
Provincial Boundary
Skeena Resources Ltd.
Date: 08-Jun-2021
Figure: 1-1
Author: dimitrije.glumac
Filename: ESK-15-007
SKEENA RESOURCES
Eskay Creek Revitalization
Figure 1-1: Eskay Creek Revitalization Project Location
Skeena Mining Division - NTS 104B09
British Columbia, Canada
Scale: 1:2,750,000
Coord. System: NAD 1983 UTM Zone 9N
0 30 60 90 120
Kilometers
N

1.3 Engagement with Governments, Stakeholders, and the Public

Skeena Resources met with the Impact Assessment Agency of Canada (IAAC) and BC Environmental Assessment Office (BC EAO) to provide an overview of the Project and to initiate discussions related to the regulatory assessment process. Meetings were held with the British Columbia Ministry of Energy, Mines and Petroleum Resources (EMPR, now Ministry of Energy, Mines and Low Carbon Innovation [EMLI]), the Ministry of Environment and Climate Change Strategy (ENV) and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) to provide a Project overview and review proposed permitting timelines. Skeena Resources met with the BC EAO and the IAAC in March 2020 and September 2020 to provide a Project update and proposed timing for entering the assessment process. Discussions with BCEAO and IAAC were held in December of 2020 regarding Indigenous involvement. In early January of 2021, biweekly meetings between Skeena Resources and BCEAO/IAAC were initiated, with Tahltan participation, and regular communications have continued since. On February 24, 2021 Skeena Resources and Tahltan representatives participated in a meeting with BCEAO and IAAC outlining how they plan to work collaboratively during the Early Engagement Phase.

Potentially affected governments, stakeholders and the public include:

- local government (Regional District of Kitimat-Stikine, Dease Lake Community Advisory Commission, District of Stewart, Town of Smithers, and City of Terrace);
- holders of trapping, guide outfitting, range, mineral and other tenures issued by the BC government;
- community-based organizations (Bob Quinn Airport Society, Stikine Airport Society, Dease Lake Volunteer Fire Department, Dease Lake RCMP Detachment, Dease Lake Ambulance, Dease Lake Recreation Society, Terrace RCMP Detachment);
- businesses and business groups (Stewart World Port, Stewart Bulk Terminals, Bell II Lodge, Smithers Chamber of Commerce, Terrace Chamber of Commerce);
- academic institutions (Northern Lights College, Coast Mountain College);
- environmental non-governmental organizations (Northern Confluence Initiative; Southeast Alaska Conservation Council, Rivers Without Borders);
- federal and provincial government agencies who will act as technical advisors during the assessment review; and
- self-identified members of the public.

Aside from engagement with the IAAC, BC EAO, EMLI, ENV and FLNRORD, Skeena Resources has not yet engaged with local governments, stakeholders and the public and but plans to provide notifications of the Project in Q2/Q3 2021 and start engagement following submission of the IPD to the IAAC and BC EAO. Any feedback on the Project will be incorporated into the Detailed Project Description (DPD).

1.4 Engagement with Indigenous Peoples

Skeena Resources is committed to early, inclusive and meaningful engagement with Indigenous nations, communities and stakeholders during the federal and provincial assessment processes. Skeena Resources has identified the Tahltan Nation, Tsetsaut Skii km Lax Ha, Nisga'a Nation, Gitanyow Nation as well as the Métis people as represented by the Métis Nation British Columbia (MNBC) (collectively referred to as Indigenous Peoples) as being potentially impacted by the Project. To date, Skeena Resources collaborated with the TCG (as represented by THREAT) on development of the IPD. Incorporation of Environmental and Social Design Principles from the 1987 Tahltan Central Council's Resource Development Policy into the Project has been a key engagement outcome with the Tahltan Nation to help achieve desired outcomes. An introductory overview of the Project has also occurred with the Tsetsaut Skii km Lax Ha (TSKLH), Nisga'a Nation and Gitanyow Nation.

The Project is within Tahltan Nation territory and Tsetsaut Skii km Lax Ha asserted traditional territory. Highways 37 and 37A pass through the Nass and Nass Wildlife Areas (as defined in the Nisga'a Final Agreement) of the Nisga'a Nation and the traditional territory of the Gitanyow Nation (Figure 1-1).

As part of the collaborative effort to develop the IPD, the Tahltan Nations' representatives contributed the following text in italics:

The Tahltan are an Athabaskan-speaking people who inhabit the Stikine Country of the northern interior of BC. The Tahltan Nation is comprised of two Nations – the Tahltan Nation and the Iskut Nation – and is governed by a combined tribal council-type organization: the Tahltan Central Government. Tahltan territory encompasses about 93,500 km^2. In the west, the boundary runs parallel to the Alaskan border. In the northeast, it reaches into the Yukon, just west of Watson Lake. The eastern boundary is situated at the height of land between the Stikine and Kechika watersheds, and the southern boundary extends to the mouth of the Iskut River. The south/eastern border includes the upper Nass tributaries and western half of the Stikine plateau, including the sacred headwaters of the Stikine, Nass and Skeena rivers.

The Tahltan Nation's identity and the essence of who we are as a distinct society is integrally tied to Tahltan lands and the wealth of the resources therein. The Tahltan people rely on the same territory and resources that sustained our ancestors for Tahltan society to continue in the future. Tahltan people continue to practice their traditional economy which includes fishing, hunting, and gathering as well as participating in the modern economy located within and outside of our traditional territory.

The Tahltan Nation has three principal communities: Telegraph Creek, Iskut, and Dease Lake. There are also culturally important villages and assembly sites throughout the Nation, such as, the Tahltan Village, an historic site located at the junction of the Tahltan and Stikine Rivers that was also the traditional summer dwelling place for the Tahltan people. The Tahltan Nation has 16 reserves as part of the Tahltan Band Council and Iskut First Nation.

The Tahltan Central Government (TCG) is the administrative governing body of the Tahltan Nation. The Iskut Band and the Tahltan Band continue to govern Tahltan interest in respect of the

Indian Act but have endorsed the TCG as the representative government of the Tahltan Nation in respect of inherent Aboriginal title and rights. The board of the TCG is comprised of one representative from each of the ten Tahltan families; the executive consists of a President, Vice-President, and Secretary-Treasurer. The executive is elected, for three year terms, at the annual general assembly (AGA) held each summer; the family representatives are elected by the families each year and elected/ratified at the AGM [Annual General Meeting].

The TCG is responsible to define and protect Tahltan inherent aboriginal rights and title, to protect the eco-systems and natural resources of Tahltan traditional territory through pursuing sustainable economic development, and to strengthen the cultural wellness of the Tahltan Community by promoting traditional values based on the concepts of caring, sharing, cooperation, truth, honour, fairness and above all, respect.

The guiding principle of the Tahltan Central Government remains the Declaration of the Tahltan Tribe. In 1910, as part of a growing movement to assert First Nations rights on the coast and the southern interior of BC, the chief of the Tahltan Nation, Chief Nanok along with 80 other members of the tribe signed the declaration. The document claims sovereignty over Tahltan land and declares any land interests concerning the traditional territory of the Tahltan Nation to be settled directly with the Tahltan people. It represents a legal declaration of rights of Tahltan individuals to the Canadian government and British monarch. Tahltans have yet to extinguish their Aboriginal title by any other legal process.

Across Canada, the TCG represents approximately 6,000 Tahltan Nation members living on- and off-reserve. About one-third (2,000 Tahltan Nation members) live in Tahltan territory, though not all are living on reserve lands, while the remaining 4,000 people live across Canada (Tahltan Nation Development Corporation 2020).

Potential Project impacts on Indigenous interests will be identified through ongoing engagement. Indigenous interests that have been identified by the Tahltan, TSKLH, Nisga'a and Gitanyow based on engagements to date and Indigenous interests that have been identified during EA reviews of the Brucejack and KSM mine projects in northwestern BC are summarized in Table 1.4-1. Potential Indigenous interests have been compiled from the following documents:

- Brucejack Gold Mine Project: Socio-economic Baseline Report, Appendix 19-A. Pretium Resources Inc. 2014. Brucejack Gold Mine Project, Application for an EAC.

- Tsetsaut / Skii km Lax Ha Traditional Knowledge and Traditional Use Report, Pretium Resources Inc. 2014. Brucejack Gold Mine Project, Application for an EAC. Application for an EAC / Environmental Impact Statement for the KSM Project. Prepared by Rescan Environmental Services Ltd. for Seabridge Gold Inc., May 2013.

Table1.4-1 Potential Indigenous Interests Related to the Project[1]

Indigenous People	Indigenous Interest	Potential Project Actions
Tahltan	• Concerned about potential social impacts and impacts on fisheries and wildlife. • Interested in education, training and employment benefits. • Interested in opportunities to develop Tahltan businesses and development of business skills. • Interested in developing a management regime that minimizes impacts on water resources, wildlife, fisheries, culturally important areas and protects health and safety of community. • Incorporating Tahltan Knowledge (TK) into design and assessment of Project. • Interested in maximizing energy efficiency. • Approach to EA process best suited to meet Tahltan rights and title.	• Skeena Resources is discussing options for siting Project components with the TCG. • THREAT is invited to collaborate in Working Groups related to Project design (Waste Rock/tailings), environmental management (water, wildlife), Socio-economics and reclamation and closure. • Incorporate the results of the traditional land use study into the Project design, effects assessments and mitigations. • Engage Tahltan on the design and development of environmental management system and management plans. • Continue and enhance development of mentorship, apprenticeship, on-the-job programs to provide education, work experience and skills training and transferable knowledge. Tahltan hired to complete TK/Traditional Land Use Study to be utilized during effects assessment during EA.
TSKLH	• Possible concerns about impacts on TSKLH use of TSKLH trails and spiritual sites and cultural areas. • Interested in employment and contracting opportunities. • Possible concerns about impacts on water, wildlife and fisheries.	• Incorporate knowledge and traditional land use to Project design, effects assessments and mitigations. • Engage with TSKLH during the Early Engagement to understand and discuss TSKLH concerns and interests.
Nisg̲a’a	• Possible interest in employment and economic opportunities. • Possible concerns about Project traffic on highways 37 and 37A, including moose mortality, potential spill into watercourses due to accidents. • Possible concerns about Nisg̲a’a interests in the Nass Area and Nass Wildlife Area.	• Engage with Nisg̲a’a during the Early Engagement to understand and discuss Nisg̲a’a concerns and interests.
Gitanyow	• Possible interest in employment and economic opportunities. • Possible concerns about Project traffic on Highways 37 and 37A, including moose mortality, potential spills into watercourses due to accidents and effects on Gitanyow harvesters accessing areas from the highways.	• Engage with Gitanyow during the Early Engagement to understand and discuss Gitanyow concerns and interests.
MNBC	• Concerns about impacts on harvesting activities.	• Project notification to MNBC. • Review of MNBC database.

[1] References: Canadian Environmental Assessment Agency Comprehensive Study Report (2014), Table 7.0.1; BC Environmental Assessment Office Assessment Report (2014), Part C.

Skeena has also identified the following early engagement objectives with Indigenous Peoples:

- Provide opportunities for transparent and meaningful dialogue with Indigenous Peoples to inform Skeena of their interests in the Project;
- Facilitate assessment by the Indigenous Peoples of potential Project effects to Indigenous Title, Rights and interests and identify the mitigations to remove or reduce potential effects;
- Identify the process for incorporating Indigenous knowledge, interests and concerns in the assessment process;
- Identify opportunities for Skeena and Indigenous Peoples to work collaboratively and mutually benefit in relation to the Project; and
- Support the IAAC and BC EAO goals with respect to Indigenous Rights, knowledge and reconciliation.

1.5 Regional Studies or Plans

The Project area has not been the subject of federal regional studies or plans. The Project design is being guided by the environmental and social design principles from the Tahltan Central Council's 1987 *Tahltan Resource Development Policy*.

1.6 Strategic Assessments

Skeena Resources has provided information in Section 5.4 that allows an assessment of the Project's greenhouse gas (GHG) emissions and its contribution to Canada's ability to meet its commitments with respect to climate change in its Impact Statement pursuant to Canada's Strategic Assessment of Climate Change (2020). Skeena Resources is not aware of any other strategic assessment under Section 95 of the *Impact Assessment Act* relevant to the project.

2.0 PART B: PROJECT INFORMATION

2.1 Project Purpose, Need, and Benefits

The Project's purpose is to undertake sustainable resource extraction of gold and silver concentrates in alignment with the 2019 *Canadian Minerals and Metals Plan* objectives and to foster economic growth and prosperity in BC, while supporting capacity building, employment and benefits to local Indigenous Nations and communities.

Global demand and increasing utilization of precious metals is reflected in the consistent high valuation of gold and silver products, while projected decreases in future supply support the business case for extraction and production of a gold/silver concentrate. The unique properties of gold and silver and the advent of 'nanotechnology' are driving new uses in medicine, engineering and environmental management. Almost every computer, mobile phone, automobile and appliance contains silver. It is also used in electrical switches, solar panels and chemical-producing catalysts and has high, but variable, demand as jewelry and investment products.

Over the Project life, estimated employment is 3,800 person-years in addition to indirect employment for workers in supplier industries and in businesses benefiting from workers spending their income. The Project's estimated capital cost is $455 million Canadian (CDN). An additional $81 million CDN in sustaining capital expenditures is expected during the life of the Project for a total capital cost of $536 million CDN. The expected annual operating cost is $135 million CDN. Much of these costs will be spent in Northern BC, employing local and Indigenous contractors and employees. The Project will also generate tax revenue for regional, provincial, and federal governments.

2.2 Regulatory Context

The Eskay Creek Mine has two Environmental Certificates for the underground operation which underwent regulatory review in 1994 and 2000. Although these historic regulatory reviews do not meet current expectations of the Tahltan Nation for assessment of a new open pit project. The Eskay Creek Mine's underground operations also have a suite of existing provincial operating permits that will require amendment to enable the development of the proposed open pit Project.

The Project will undergo assessment under the federal IAA and the BC EAA. As part of the collaborative approach to advancing the Project and reconciliation with Indigenous Peoples, Skeena Resources supports the July 16, 2021 request from the Tahltan Nation for the Project to be designated as reviewable under BC EAA (2018). The subsequent designation of the Project as reviewable by the provincial Minister and acceptance of the Initial Project Description will initiate the regulatory assessment process in summer 2021.

The increase in mine operating area and the construction of a new mill with a production rate of 2.5 million to 3 million tonnes per year (i.e. 6,850 tpd to 7,800 tpd) would be higher than the thresholds in the *Physical Activities Regulation* (Table 2.2-1). The Project is not a component of a larger project.

Table 2.2-1 Federal Regulations

Section	Physical Activity
Physical Activities Regulation, *Impact Assessment Act*	
19(c)	The expansion of an existing mine, mill, quarry or sand or gravel pit in one of the following circumstances: (c) In the case of an existing metal mine, other than a rare earth element mine, placer mine or uranium mine, if the expansion would result in an increase in the area of mining operations of 50% or more and the total ore production capacity would be 5 000 t/day or more after the expansion.
18(d)	The construction, operation, decommissioning and abandonment of one of the following: (d) a new metal mill, other than a uranium mill, with an ore input capacity of 5 000 t/day or more;

Skeena Resources will ask that the Province make a request to the federal Minister of Environment and Climate Change to approve the substitution of the BC EA process for the federal impact assessment (IA) process. If the substitution request is approved for the Project, the Province would commit to meet the legislative requirements of the federal IA process and fulfil the conditions for substitution under the IAA set out in the *Impact Assessment Cooperation Agreement between Canada and British Columbia (2019)* and the Substitution Decision. At the end of the assessment process the BC EAO will provide its report to both the Provincial and Federal Ministers for their consideration and decision.

Table 2.2-2 outlines potential additional authorizations that may be required before the Project can begin construction. Federal and provincial agencies will confirm permit requirements.

Table 2.2-2 Summary of Federal Permits, Licences and Approvals Possibly Required for the Project

Authorization	Responsible Agency	Legislation	Purpose
Explosives Permit	Natural Resources Canada	*Explosives Act*	Required to manufacture, store and use explosives
Fisheries Authorization	Fisheries and Oceans Canada	*Fisheries Act*	Required if the Project will result in the harmful alteration, disruption or destruction of fish habitat or death of fish
Metal and Diamond Mining Effluent Regulations (MDMER) Schedule 2 Listing	Environment & Climate Change Canada (ECCC)	*Fisheries Act*	The existing MDMER Schedule 2 Tailings Impoundment Area designation for Tom MacKay Storage Facility will not require amendment since proposed expansion will not affect fish bearing waters or fish habitat
Migratory Bird Permit	ECCC	*Migratory Birds Convention Act,*	Required if nesting habitats used by migratory birds might be impacted or if activities occur during the nesting season (e.g., clearing of vegetation)
Species at Risk Permit	ECCC	*Species at Risk Act*	Authorizes an activity affecting listed wildlife species, any part of its critical habitat or the residences of its individuals

Authorization	Responsible Agency	Legislation	Purpose
Environmental Emergency Registration	ECCC	Environmental Emergency Regulations	Registers substances over specified volumes site must have suitable emergency response plan for the substances
Nuclear Safety Authorization	Canadian Nuclear Safety Commission	*Nuclear Safety and Control Act*	Required for possession of instruments containing radioactive material, such as nuclear density gauges (portable and fixed)
Radio Licence	Industry Canada	*Radio Communication Act*	Authorizes use of radio equipment on site
Navigable Waters Approval	Transport Canada	*Canadian Navigable Waters Act*	Required for works that take place within navigable waters that do not meet works established under the Minor Works Order and which may interfere with navigation
Transportation of Dangerous Goods Permits	Transport Canada	*Transportation of Dangerous Goods Act*	Authorizes transportation and handling of dangerous goods
Strategic Assessment of Climate Change	ECCC	Section 95 of the IAA	Strategic Assessment of Climate Change was deemed a strategic assessment conducted under section 95 of the IAA and applies to all designated projects under the IAA

2.3 Physical Works and Activities

The Project would be a truck and shovel open pit mine with onsite crushing, milling and generate a gold/silver concentrate. Activities during engineering, site preparation and construction would include land clearing and grubbing, blasting, excavating, grading, de-watering, and installing facilities. Ore would be processed at the Project site using conventional milling and flotation to recover a gold-silver concentrate. Waste rock from the pits would be hauled to the Waste Rock Storage Facility (WRSF) immediately adjacent to the Main Pit, while PAG waste rock would be hauled to the Tom MacKay Storage Facility (TMSF) for disposal below water surface to avoid oxidation risks. The concentrate would be trucked from the mine site south to the Port of Stewart along provincial Highways 37 and 37A and shipped to offshore smelters and refineries for processing. At peak production, it is estimated that there would be 88 annual average trips per week transporting concentrate on these highways.

The Project would use existing infrastructure at the Eskay Creek underground mine as much as practical including: the Eskay Creek Mine Road; the haul road to the TMSF; the TMSF to store waste rock and tailings; four settling ponds and the existing permitted D7 discharge for treated effluent, remaining buildings and nearby gravel airstrip at Bob Quinn Lake Aerodrome. Additional land development at the mine site over the next two years will occur under amendments to existing permits to support advanced exploration, maintenance, Reclamation/Closure, technical/bulk sample processing as separate activities from the proposed Project.

Construction materials would be trucked to the Project site from various locations throughout BC and potentially out of province. The Project workforce would be transported to the Project site in

company vehicles, which would likely pick up people from select communities, such as Telegraph Creek, Dease Lake, Iskut, Terrace and Smithers. Personnel from outside the region may be flown into a regional airport at either Smithers or Terrace and then transported via company vehicle to the site. The Bob Quinn Lake Aerodrome may also be utilized to transport workers in and out of the site and for emergencies. During peak operations, highway traffic along Highway 37A (Meziadin to Stewart) may increase by up to 5% relative to current traffic levels. All other phases of project development will constitute less than a 2% increase in existing traffic levels. Traffic for the Project will be a fraction of a percentage of the highway design capacity.

The Project will not significantly increase the marine traffic in the Port of Stewart or in the Portland Canal. The port facilities in Stewart have been reviewed and approved for up to 180 vessels/year (DFO 2009). Currently marine traffic is estimated at 30 vessels/year, many sailing with under-utilized onboard capacity. During operations, the Project is estimated to require up to eight (20,000 tonnes per vessel) vessels per year for shipping of concentrates with irregular shipments of bulk supplies or oversized project components. This level of traffic can easily be accommodated within the currently approved levels of marine traffic and the under-utilized on-board capacity of the existing marine traffic.

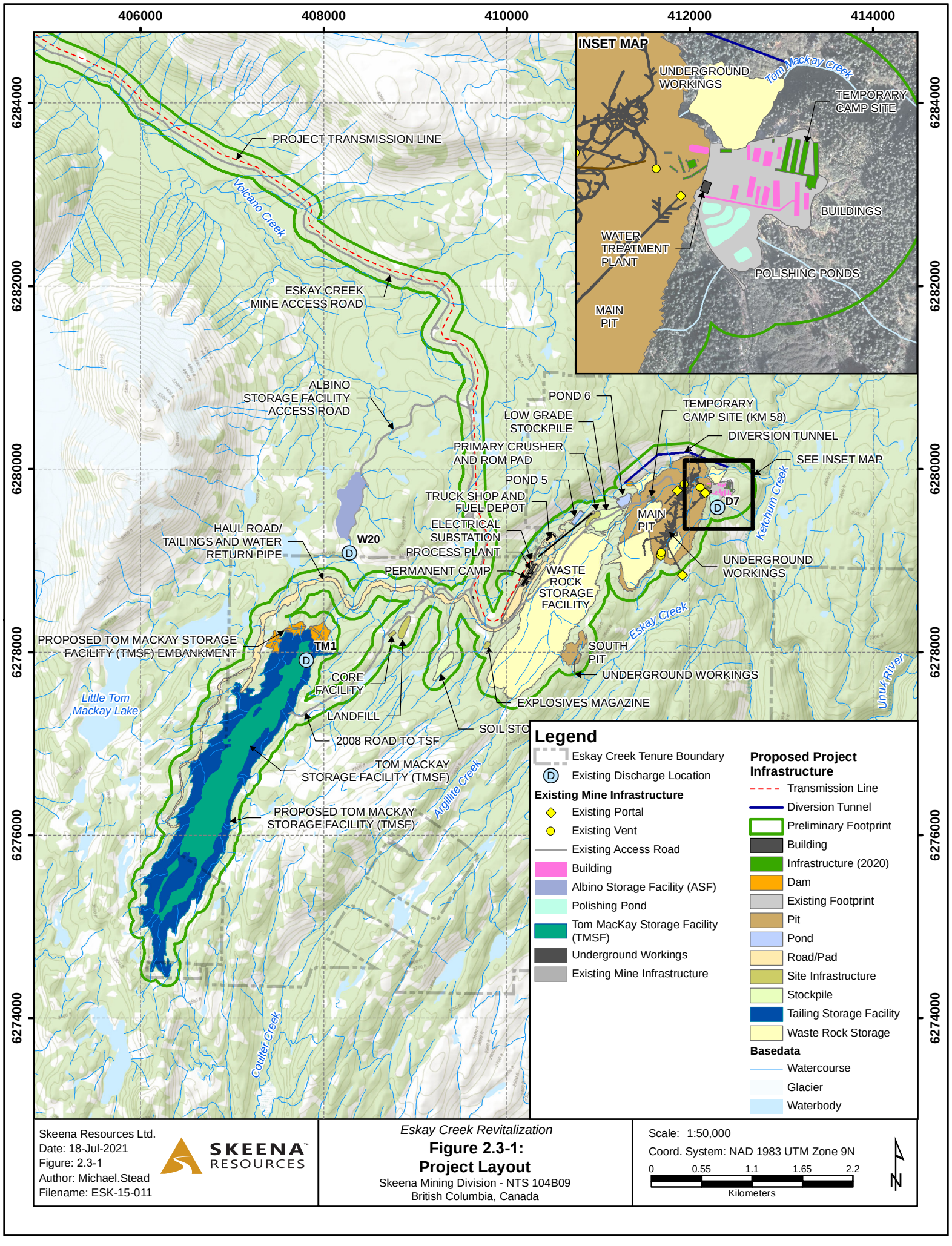
Power for the Project would rely on the existing power grid nearby and construction of a new powerline and connection at either the Volcano Creek Substation or Bob Quinn Substation. A new transmission line to the Eskay mine site would be constructed alongside the existing Eskay Creek Mine Road and be either 56 km (Bob Quinn Substation) or 20 km (Volcano Creek substation). Detailed engineering and power supply discussions will be determined during the Feasibility Study stage to confirm the option to be used in the Project and DPD. Table 2.3-1 identifies the Project components as either new or re-use of existing infrastructure. Proposed preliminary locations of Project components, based upon the 2019 Preliminary Economic Assessment and assumptions, are shown on Figures 2.3-1 and 2.3-2 and locations will be finalized based upon engineering studies underway in 2021/22.

Table 2.3-1 Summary of Project Components

Component	Existing/ Modified	New
Eskay Creek Mine Access Road to Project site, which joins Highway 37 at km 293	x	
Tom MacKay Tailings Storage Facility (TMSF)	x	
Construction of embankments/dams to existing TMSF		x
Power line to Mine site (20 or 54 km in length), which will follow existing roads		x
Open pits (North/Main and South)		x
Overburden and topsoil stockpiles		x
Waste rock storage facility (WRSF; outside and inside open pit later in mine life)		x
Surface and diversion water management structures including ponds, sumps and ditches		x
Tom MacKay Creek diversion tunnel around the Main Pit		x

Component	Existing/ Modified	New
Haul roads between the mine, the Waste Rock Storage Facility, stockpiles, the Tom MacKay Tailings Facility (via the Eskay Creek Mine Access Road), the crusher, and the mine maintenance facilities. Run of Mine stockpile pads to accommodate ore blending.	x	x
Light vehicle roads – to the process plant, to the existing Eskay Creek Mine Facility (during construction/early operations) and the landfill.	x	x
Primary Crusher, stockpile feed conveyor to the processing plant stockpile		x
Processing Area including:		
• Ore processing plant (mill)		x
• Hazardous Waste Storage Facility		x
• First aid, assay lab, warehouse, and administration		x
• Propane tank storage		x
• Incinerator		x
• Treatment plants for potable water from new wells and sewage treatment		x
• High-voltage main substation connected to new power line		x
Detonator magazine and explosives storage		x
Mine Infrastructure Facility including:		
• Vehicle maintenance, truck parking and wash facilities		x
• Fuel and lube storage		x
• Mine dry		x
Tailings and reclaim pipelines from Processing Mill to TMSF following haul road		x
Helipad for emergency situations		x
Security Buildings		x
Eskay Creek Mine Site - existing facilities with additional temporary camps	x	
Core Storage		x
Modular worker accommodations		x
Landfill		x
Water treatment facilities including: new water treatment plant and use of existing mine water settling ponds and D7 discharge location for construction and early operation years	x	x

Infrastructure that was used for the underground Eskay Creek Mine mentioned above (and still in place) includes: burn pit and landfill, administration buildings, warehouse, maintenance and carpentry shop, residence building, seacan storage units, power house (generators removed), lime mixing shelter, vent raise building, DRaise shelter, sewage treatment plant shelter, wood shop/ambulance bay, and waste management and boneyard facility (foundation and walls). Onsite accommodations (160 persons) were only re-established at the Eskay Creek Mine (under existing approvals) in late 2020 to support advanced exploration, reclamation and closure activities going forward.



Skeena Resources Ltd.
Date: 18-Jul-2021
Figure: 2.3-1
Author: Michael.Stead
Filename: ESK-15-011

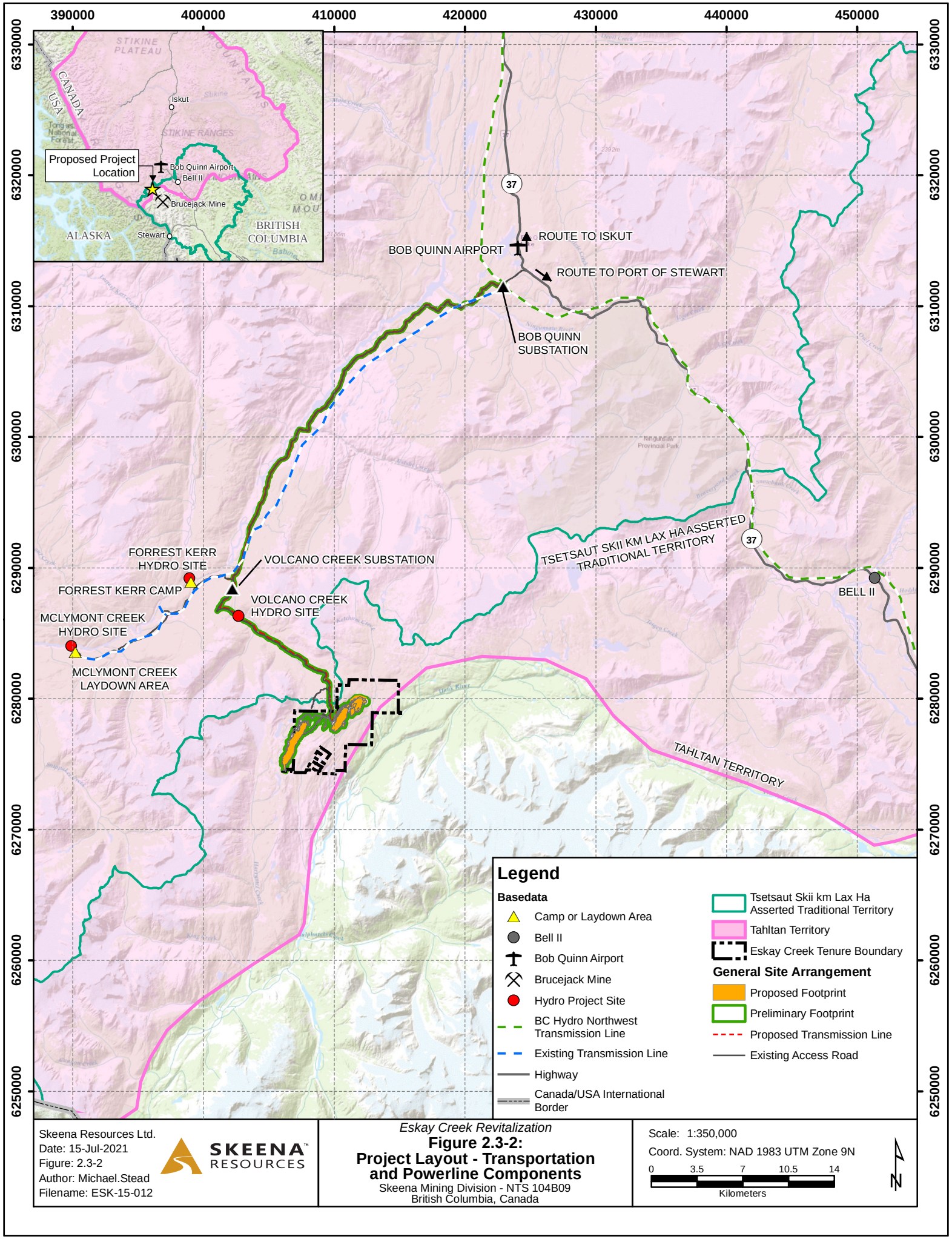
SKEENA RESOURCES

Eskay Creek Revitalization

Figure 2.3-1:
Project Layout

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:50,000
Coord. System: NAD 1983 UTM Zone 9N
0 0.55 1.1 1.65 2.2
Kilometers
N


390000
400000
410000
420000
430000
440000
450000
6330000
6320000
6310000
6300000
6290000
6280000
6270000
6260000
6250000
Proposed Project Location
Iskut
Bob Quinn Airport
Bell II
Brucejack Mine
Stewart
ALASKA
BRITISH COLUMBIA
CANADA
USA
STIKINE RANGES
BOB QUINN AIRPORT
ROUTE TO ISKUT
ROUTE TO PORT OF STEWART
BOB QUINN SUBSTATION
37
FORREST KERR HYDRO SITE
FORREST KERR CAMP
VOLCANO CREEK SUBSTATION
VOLCANO CREEK HYDRO SITE
MCLYMONT CREEK HYDRO SITE
MCLYMONT CREEK LAYDOWN AREA
TSETSAUT SKII KM LAX HA ASSERTED TRADITIONAL TERRITORY
BELL II
TAHLTAN TERRITORY
Legend
Basedata
Camp or Laydown Area
Bell II
Bob Quinn Airport
Brucejack Mine
Hydro Project Site
BC Hydro Northwest Transmission Line
Existing Transmission Line
Highway
Canada/USA International Border
Tsetsaut Skii km Lax Ha Asserted Traditional Territory
Tahltan Territory
Eskay Creek Tenure Boundary
General Site Arrangement
Proposed Footprint
Preliminary Footprint
Proposed Transmission Line
Existing Access Road
Skeena Resources Ltd.
Date: 15-Jul-2021
Figure: 2.3-2
Author: Michael.Stead
Filename: ESK-15-012
SKEENA RESOURCES
Eskay Creek Revitalization
Figure 2.3-2:
Project Layout - Transportation and Powerline Components
Skeena Mining Division - NTS 104B09
British Columbia, Canada
Scale: 1:350,000
Coord. System: NAD 1983 UTM Zone 9N
0 3.5 7 10.5 14
Kilometers
N

2.3.1 Project Phases

Project phases include Construction, Operation and Closure/reclamation over a 13 to 16 year mine life followed by the Post-closure phase (Table 2.3-2). This would be preceded by the planning period over the next two to three years including completion of engineering studies (Pre-Feasibility, Feasibility), regulatory assessment and permitting.

Table 2.3-2 Summary of Project Activities by Phase

Project Phase	Activities
Construction (2 years)	• Site clearing/grubbing • Stockpiling topsoil and other material suitable for reclamation or construction uses • General earthworks, site levelling, foundations, buried services, bridge upgrades • Haul Roads, Pre-stripping pit development, Technical Sample development • Construction of Technical Sample Process Plant, pipelines, crushing/sizing facility, pipelines, power supply, processing. • Construction of process plant, mine infrastructure facilities, crusher, overland conveyor • TSF containment dam, discharge and reclaim pipelines and reclaim barge. • Construction of electrical transmission line, high voltage and medium voltage substations, site medium voltage distribution system. • Construction of Diesel Storage facility • Construction of water management systems, such as drainage ditches, water treatment plant, and water collection sumps and pond. • Transportation of materials and supplies by third parties to support mine and camp operations • Development of onsite utilities and services, including camp facilities
Operations (8 to 11 years)	• Mining the North and South pits, including drilling, blasting and excavation activities • Transportation of ore to processing plant and waste rock to WRSF and TMSF • Mineral processing • Transportation of tailings to TMSF via tailings pipeline and construct embankments • Pit and surface water will be diverted to the process plant. Transportation of concentrate to Stewart for shipping to overseas smelters • Transportation of materials and supplies to support mine and camp operations • Maintenance activities of infrastructure (e.g., roads and powerline right of ways) • Progressive reclamation of disturbed areas where possible • Stockpiling topsoil and other material suitable for reclamation or construction uses • Reclamation planning and reporting • Environmental monitoring and implementing EMS
Reclamation and Closure (3 years)	• Demolition and removal of processing and mine support facilities • Sampling and remediating any contaminated soils • Deactivation of mine site roads, pipelines and powerline. Access may be maintained for monitoring purposes. • Utilization of topsoil and overburden piles to recontour and scarify disturbed areas as appropriate • Placement of cover over the WRSFs • Environmental monitoring • Maintenance of water treatment and management structures

Project Phase	Activities
Post-Closure (will continue until all conditions in permits have been met)	• Environmental monitoring water quality and reclamation success • Engineered inspections for TMSF embankment and WRSFs • Implementation of follow-up measure, maintenance and repairs as required

Initial activities during planning, engineering, site preparation and construction would include, but are not limited to, land clearing and grubbing/stripping, blasting, rock crushing, excavating, road upgrades, grading, de-watering, stockpiling of topsoil/aggregates, powerline construction, and construction/commissioning of buildings/mill/water management facilities.

During operations, activities will include mining, hauling of supplies/waste rock and concentrate, ore processing, worker transportation/housing, environmental monitoring, waste discharge/ disposal for waste rock/tailings/solid waste and air/water discharges, ongoing maintenance of roads and facilities, progressive reclamation, water treatment and dam construction.

2.4 Production Capacity

The Project's production rate is 2.5 million tonnes per year (i.e. 6,850 tpd) to 3 million tonnes (7,800 tpd) over the 13 to 16 year mine life (construction to closure inclusive) The Main Pit would be developed in four phases while the South Pit would be developed in one phase towards the end of the mine life. The North Pit intersects a portion of the existing underground workings along its northern extents which would be mined as the pit develops. Best practices for advancing open pit mining operations through existing underground voids would be incorporated into the development of mine plans. The South Pit does not have any underground workings within its extents.

The TMSF (designated a tailing impoundment area as per Schedule 2 of the MDMER) was used from 2000 to 2008 and has sufficient capacity to contain 19.5 Mt of tailings (Ausenco 2019). It covers 84.4 ha and is approximately 3.4 km long and 0.3 km wide. The existing volume of the TMSF is 12.9 Mm^3 at elevation 1,082 masl, which is the current spill elevation of the basin. Construction of three starter dams/embankments would occur in the construction phase. With the intended three embankment structures, the TMSF would be able to store the Project's tailings and PAG waste rock with a minimum 7 m water cover at end of mine life.

2.5 Project Schedule

The anticipated Project Schedule is outlined in Table 2.5-1.

Table 2.5-1 Project Schedule

Milestone/Activity	Start Date	End Date
BC EAO / IAAC assessment processes	2020	2023
Permitting	2022	2023
Construction	2023	2025
Operations	2025	2036
Reclamation and Closure	2037	2040
Post-Closure	2040	Ongoing

2.6 Alternatives to and Alternative Means of Carrying out the Project

Skeena Resources is considering potential alternatives to the Project that are technically and economically feasible and directly related to the Project. The possible alternatives are: 1) not undertaking the Project, 2) changing the timing of the Project, and 3) changing the location of the Project.

The environmental and socioeconomic effects associated with the alternatives to the Project will be further assessed through the assessment process. The 'no Project' alternative would not provide the financial outcomes associated with the Project's development, and would not fulfill the purpose of the Project. The second alternative would generally have the same environmental effects as those associated with proceeding with the Project as proposed. The third alternative, changing the location, is not possible as the Project is located at a former mine site with the gold/silver deposit that produced high-grade gold and silver ore/concentrate and represents significant advantage in both proximity (e.g., nearby hydropower, built roads, existing disturbance) to critical infrastructure and contains permitted critical infrastructure (TMSF) that will support the Project. Skeena Resources is not aware of any viable alternatives of similar scale, including synergies with existing infrastructure, to the Project in northwest BC that would provide a source of gold and silver available for production in the proposed timeframe.

Alternative means for carrying out the Project are being considered and include: ore processing; tailings and waste rock storage management, location and technology; power source; camp facilities; waste and water management; on-site materials transport; and worker transport and rotation.

The Project is at a pre-feasibility level of design. Some Project components are currently being evaluated, and this evaluation will be informed by feedback during the assessment process.

3.0 PART C: LOCATION INFORMATION

3.1 Location

The Project is located on provincial Crown land mineral tenures held by Skeena Resources. The Eskay Creek mineral tenures cover a total of 5,093.8 hectares (ha), which includes 40 mineral claims (3,263.5 ha), 8 mineral leases (1,830.3 ha), and 2 surface leases (Figure 3.1-1). The coordinates from the centre of the mineral deposit are approximately 56° 39′ 13.9968″ N and 130° 25′ 44.0004″ W. No federal lands would be used for the Project and the Project would have no direct impacts to federal lands.

The mine site is accessed via the Eskay Creek Mine Road, a 59 km all-season gravel road that connects to Highway 37 (Stewart Cassiar Highway). The Project is within the territory of the Tahltan Nation and the asserted traditional territory of the Tsetsaut Skii km Lax Ha. The closest Indigenous community is the Tahltan community of Iskut (135 km north; 170 km via road). The other Tahltan communities are located north/northeast of the Project (Dease Lake [190 km northeast; 253 km via road], and Telegraph Creek [142 km north; 362 km via road]). Stewart is the closest non-Indigenous community to the Project (83 km to the south; 261 km via road). There are seasonal Tahltan cabins along the Eskay Creek Mine Road. The Bell 2 Lodge, a year-round resort, is northeast of the Project on Highway 37 and supports a commercial backcountry heli-ski operation.

The nearest Indian Reserve is Kluachon Lake 1, 136 km from the mine site. The Project is not proximate to First Nation land as defined in subsection 2(1) of the *First Nations Land Management Act*. The mine site is 16.8 km from the Nisga'a Nass Area, 49.9 km from the Nass Wildlife Area, and 157.8 km from the Nisga'a Lands.

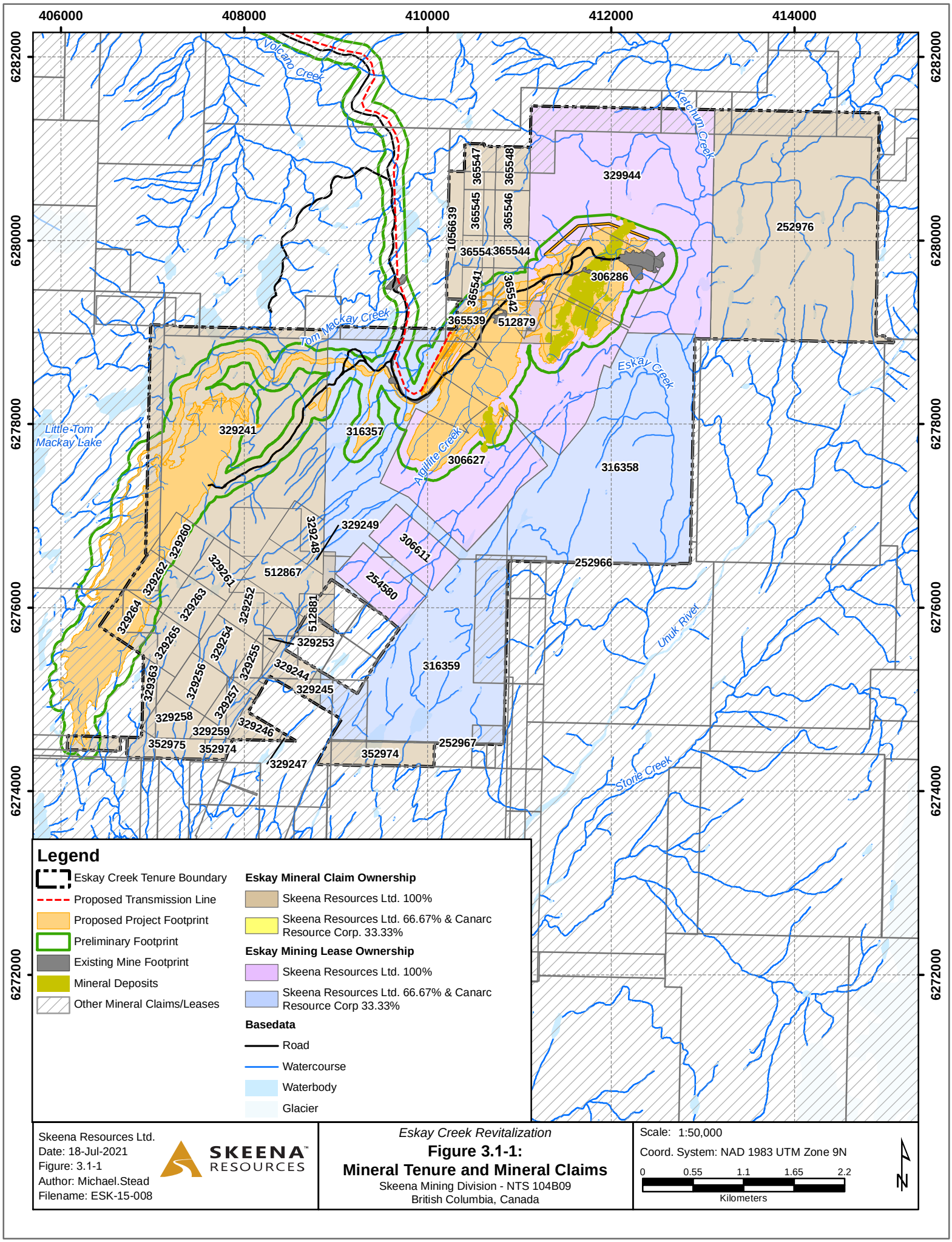
3.2 Physical and Biophysical Environment

Characterization of the biophysical environment was informed by extensive baseline sampling and monitoring studies since the early 1990's; baseline studies are planned or in progress in 2021 to update the characterization of the environment.

The Project is located within the Prout Plateau, a rolling subalpine upland with an average elevation of 1,100 m (AMSL), on the eastern flank of the Boundary Ranges of the Coast Mountains between the Unuk River (south) and Iskut River (north). The area is characterized by steep mountains with isolated plateaus, high precipitation, shallow soils, and large rivers draining westward to the ocean. The Eskay Creek mine site is at approximately 800 m elevation. Mountain slopes are heavily forested while the sub-alpine terrain around the mine site reflects sparser forest cover and forest type.

The mean annual total precipitation at the former mine site is estimated to be 2,500 ± 500 mm. The majority (55–71%) of annual precipitation falls as snow between September and May. Expected extreme temperatures range from -40 °C to +30 °C.

The biogeoclimatic zones in the Project area include Mountain Hemlock, Engelmann Spruce-Subalpine Fir, and Interior Cedar Hemlock.



Skeena Resources Ltd.
Date: 18-Jul-2021
Figure: 3.1-1
Author: Michael.Stead
Filename: ESK-15-008

SKEENA RESOURCES

Eskay Creek Revitalization

Figure 3.1-1:
Mineral Tenure and Mineral Claims

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:50,000
Coord. System: NAD 1983 UTM Zone 9N

0 0.55 1.1 1.65 2.2
Kilometers

N

The Project provides habitat for a variety of wildlife species as follows:

- Large wildlife species recorded within the Project area include black bear, moose and mountain goat. Small mammals recorded in the Project area include American marten, wolverine (Special Concern; *Species at Risk Act* [SARA]), voles, and hoary marmot;
- Furbearing mammals with suitable habitat in the vicinity of the Project include grizzly bear (Special Concern), wolf, lynx, ermine, mink, fisher, least weasel, and snowshoe hare;
- Northern Myotis bat (Endangered), little brown myotis bat (Endangered), American water shrew;
- The Project's transportation route crosses caribou range and the Project area is not overlapped by any caribou herd ranges;
- Mid and lower elevations provide habitat for porcupine, northern flying squirrel, and red squirrel;
- Plovers, Canada goose, harlequin duck, and numerous passerine species have been recorded in the area;
- Migratory birds;
- Red-listed species found in the vicinity of the Project include Northern Goshawk (Threatened), Peregrine falcon (Special Concern), Western grebe (Special Concern, SARA), Upland sandpiper and Swainson's hawk;
- Raptors recorded in the area include bald eagle, sharp-shinned hawk, and owls; and
- Wood frogs and western toads (Special Concern; SARA) were amphibians recorded near the Project.

No fish have been observed or captured during multiple past sampling periods in the upper tributaries of the Unuk River situated on Prout Plateau in the vicinity of the Project, including the former Albino Lake, Little Tom MacKay Lake, and Eskay Creek and Tom MacKay Creek. The high-alpine, natural lakes and streams in the Tom MacKay Creek watershed are naturally low in plant nutrients and non-fish bearing due to impassible waterfalls as well as gradient/velocity barriers to approximately 10 km downstream of the former mine site. There are obstacles to fish passage immediately upstream of the confluence of Tom MacKay Creek with Ketchum Creek. Salmon species (pink, chum, chinook, and sockeye), Dolly Varden, and cutthroat trout were observed 7–8 km downstream of the former mine site in the Unuk River but cannot migrate up Ketchum Creek to the mine site.

3.3 Human Environment

The Project is located at the south boundary of Electoral Area D (access road and powerline, Iskut Watershed and Bob Quinn, Iskut communities) and northern edge of Electoral Area A (mine site within Unuk River watershed) of the Regional District of Kitimat-Stikine (RDKS). Area D covers an area of 28,137 km^2 (Statistics Canada 2017). The RDKS population of Area D in 2016 was 99 people (Statistics Canada 2017). No municipal plans relevant to the EA were noted, with the exception of the Bob Quinn Rural Land Use Bylaw 314 Area which includes the Bob Quinn electrical sub-station. Many of the smaller communities in the Electoral Areas D and A have predominantly Indigenous populations that are isolated from one another as well as from the main regional centres of Smithers and Terrace. Approximately one-third of the 40,000 to 45,000 people in the region are Indigenous.

Exploration activity in northwest BC has been an ongoing economic activity dating back to the mid-1800s. The first major discovery was the Premier Gold Mine in 1918, with more recent mines developed including the Snip Gold Mine in 1964 and the Eskay Creek Mine (underground) in 1988. Presently, primary resource industries, principally mining and forestry, comprise a key proportion of the larger regional (northwest and west central BC) employment market at 4.6% and 2.6% respectively and are important to Tahltan communities and members working in regional communities.

Public sector services (Band administration, health and social services) provided a high proportion of employment in Tahltan territory prior to 2013, followed by mining and exploration, and support services. While employment had declined in the mining/exploration sector in the past couple decades due to mine closures (e.g. Huckleberry and Kemess South mines), the startup of the Red Chris Mine, Silvertip Mine and Brucejack Mine in the past 10 years have increased employment opportunities for Indigenous and non-Indigenous workers from northwest BC and Tahltan territory. Advanced exploration projects (Galore Creek, Shaft Creek, Kutcho Creek, Eskay Creek Project) and permitted projects (KSM Project) will provide ongoing employment in the Project area.

The forest industry has been in decline in recent decades, which has significantly weakened the economy and led to a steady decline in the regional population. Since the mid-1990s, the regional population has dropped by almost 15%, although in the 2000s, the rate of decline has begun to slow. Recent major infrastructure projects in Kitimat for Rio Tinto Alcan and LNG Canada are likely to result in a positive economic contribution to the region.

There is well-developed infrastructure in the region, including a paved road from Smithers to the Yukon border (Highway 37) and to port facilities in Stewart (Highway 37A). The 335 km northwest transmission line runs from Terrace to Bob Quinn Lake and north to the Red Chris Mine. There are three hydroelectric facilities (Forrest Kerr, Volcano Creek, and McLymont Creek) owned by Axium Infrastructure Inc, of which the Tahltan Nation has an equity position in.

Land and resource uses within the region include trapping, guided hunting, commercial recreation and outdoor recreation including fishing, hunting, camping, hiking, snowmobiling, all-terrain vehicle (ATV) riding, and skiing. In the vicinity of the Project, there are mineral and range tenures, guide outfitters and traplines. There are seasonal Tahltan cabins along the Eskay Creek Mine Road. The Bell 2 Lodge, a year-round resort, is northeast of the Project on Highway 37 and supports a commercial backcountry heli-ski operation.

There are areas of high archaeology potential, which are being further investigated in 2021.

The Project is located within the North West Regional Hospital District, the largest of 23 Regional Hospital Districts in the Province. It serves approximately 80,000 residents in three regional districts. The North West Regional Hospital District supports two health authorities (Northern Health and Nisga'a Valley Health) and 16 community facilities.

The Regional District of Kitimat-Stikine contains urban, rural and remote communities of varying sizes and differing demographic, cultural and health profiles. Factors that affect health include income, education, employment, physical environments, health services, social supports, early childhood development and personal health practices.

4.0 PART D: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS, AND MUNICIPAL INVOLVEMENT

4.1 Federal Financial Support

The Project will not require any federal financial support for construction, operation, closure, or post-closure.

4.2 Federal Land

The Project will not be located on federal land. There are no federal lands within 50 km of the Project.

4.3 Federal Permits and Approvals

Potential federal permits and approvals are listed in Table 2.2-2.

5.0 PART E: POTENTIAL EFFECTS OF THE PROJECT

5.1 Potential Effects on the Environment

The potential effects of the Project on environmental, economic, social, heritage and human health will be assessed as part of the federal and provincial assessment processes. The assessment would focus on specific valued components (VC) identified in collaboration with Indigenous groups, government agencies and the public. The assessment of potential effects to VCs would include consideration of: mitigation measures and plans to avoid, minimize, rehabilitate or offset impact; residual and cumulative effects associated with the Project and reasonably foreseeable developments. A preliminary list of potential effects is provided in Table 5.1-1.

Table 5.1-1 Potential Effects of the Project

Component	Potential Effect
Indigenous Interests	
Physical and Cultural Heritage, Current Use of Lands and Resources for Traditional Purposes, Sites of Historical, Archaeological or Cultural Importance	• Generally, these potential effects are related to the Project's potential impacts to the biophysical environment and the Project's footprint. These could, in combination, potentially affect exercising of Aboriginal rights and traditional land uses in and around the Project area; harvesting plants for food for medicinal and ceremonial purposes; and camping and gathering at sites of cultural, spiritual and historic importance.
Indigenous Peoples' health, social or economic conditions	• Generally, these potential effects are related to the Project's potential impacts to the biophysical environment and to social and economic factors (e.g., related to food security, transmission of knowledge, employment). These could, in combination, potentially affect legal, spiritual and cultural practices; transmission of traditional culture, knowledge and law; and improve employment and economic opportunities.
Physical Environment	
Air Quality and GHG Emissions	• Fugitive dust emissions from material handling, blasting, vehicle and processing can increase ambient particulate matter concentrations that can negatively affect human and wildlife health, and increases in dust fall deposition can affect vegetation and waterbodies. • Combustion emissions from vehicles and equipment can result in increases in ambient concentrations of nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and other contaminants that can negatively affect human health and vegetation.
Noise and Vibration	• Noise from mining can result in increases in noise levels for human and wildlife receptors. • Vibrations from blasting and equipment may affect human and wildlife receptors. • Specific impacts of noise on human health will be identified as part of the Human Health Risk Assessment. • Vibration impacts to geotechnical stability near mine site infrastructure.
Groundwater	• Changes to groundwater quality and quantity from MLARD (waste piles, pits, underground mine) or chemical contamination (e.g. fuel spills) or over-extraction.
Geology, Soils and Terrain	• Loss of soil profile and changes to terrain from vegetation removal, overburden removal, waste storage rock and development of open-pit mine. • Changes to soil quality due to changes in soil chemical and physical characteristics during mining and reclamation activities. • Long term storage of soils leading to loss of soil productivity.

Component	Potential Effect
Hydrogeology	• Changes to groundwater quality and quantity from mining interaction with groundwater table resulting from changes to topography including disturbance to bedrock and surficial materials. • Changes to groundwater quality interactions between groundwater and mine-influenced surface water. • Changes to groundwater quality from water infiltration through waste rock, pit walls, mine pits, etc.
Hydrology and Surface Water Quality	• Changes in water quality downstream of the mine site within the Unuk or Volcano Creek watersheds from discharge of treated mine contact water, site runoff erosion/sedimentation, blasting residue leaching, interactions with groundwater, accidents/spills or ML/ARD risks. • Potential effects could change concentrations of key parameters including metals, physical parameters (pH, temperature, turbidity/TSS, etc.), which affect suitability to downstream uses, toxicity to aquatic life, nutrient levels. • Changes in flow regime and sediment loading in watercourses streams . • Erosion/deposition associated with changes in surface water flow regime. • Changes in groundwater/surface water interactions.
Biological Environment	
Vegetation and Ecosystems	• Loss and/or alteration of ecosystems, vegetation and wetlands from land clearing and mine construction. • Health effects on vegetation due to changes in air, water, soil quality and dust deposition. • Deposition of dust on plants and soil, which can result in uptake of metals to plants, which are then consumed by wildlife.
Wildlife and Wildlife Habitat	• Loss and/or alteration of wildlife habitats, including migratory bird habitat, from land clearing and mine construction. • Sensory disturbance to wildlife (light and noise). • Disruption of wildlife (e.g., bears, small furbearers) seasonal movement patterns in regional and local landscapes. • Direct mortality of wildlife due to vehicle-wildlife collisions and indirect mortalities from mine operations. • Changes to population dynamics, including potentially moose, bears, small furbearers due to changes to predator-prey dynamics. • Health effects on wildlife due to changes in air, water and soil quality. • Loss of riparian habitats affecting water bird and amphibians that use lentic and lotic environments.
Human and Socio-economic Environment	
Community Health and Well-being	• Changes to and/or maintenance of community and individual health and well-being. • Provincial and local economic stimulus. • Employment, income, local government revenue generation and gross domestic product benefits. • Health and safety of workers and public. • Changes to wage and non-wage economy due to Project driven changes in hunting, trapping, and gathering. • Changes to local population and demographics due to Project driven labour market changes. • Changes to local community services and infrastructure due to either Project demand or Project-driven population change.

Component	Potential Effect
Human Health	• Change to particulate matter concentrations (e.g., $PM_{2.5}$ and PM_{10}) which may cause health risk to workforce. • Deposition of dust to plants and soil, which can result in uptake of metals to plants which are then consumed by people. • Health effects due to changes in water quality. • Increased levels of noise and traffic causing stress or harm, such as sleep disturbance.
Economic	• Provincial and local economic stimulus via Project procurement and contracting for goods, services, and personal services, and consumer spending of employees. • Changes to employment, employment income, and training. • Changes to gross domestic product (GDP). • Changes to local government revenues and expenditures.
Commercial and Public Land Use	• Changes to opportunities associated with public and tenured land and resources, including changes to use of and/or access to certain public lands and waters and availability of certain species.
Heritage Resources	• Effects to heritage resources due to land clearing, mining and associated infrastructure.
Human and Terrestrial Wildlife Health	
Human and Terrestrial Wildlife Health	• Deposition of dust to plants and soil, which can result in uptake of metals and PAHs from mining to plants which are then consumed by people and wildlife which may impact their health. • Water runoff may contribute to changes in water quality to downstream waterbodies which may impact health of humans, fish and wildlife.
Components of the Environment that are within the Legislative Authority of the Federal Government	
Fish and Fish Habitat	• Direct loss or change in quantity of aquatic habitat due to mine infrastructure. • Change in quantity and quality of aquatic habitat resulting from alteration of stream flows. • Change in water quality resulting in potential health effects to aquatic resources and aquatic species (e.g., fish, benthic invertebrates, amphibians and birds). • Change in amount, suitability, migration and distribution of habitats (including sediment quality) for fish or aquatic organisms from road upgrades or sediment/erosion inputs at stream crossings or along power line. • Authorization of mine waste/tails deposition under MDMER.
Aquatic Species at Risk	• There are no SARA-listed species identified in the Project footprint, although an amphibian species that is SARA-listed (western toad) is known to occur in the vicinity.
Migratory Birds	• Loss and/or alteration of migratory bird habitat, from land clearing and mine construction.
Potential Changes Outside of BC and Canada	
Potential Changes outside of BC within Canada	• No potential changes are anticipated outside of BC within Canada.
Potential Changes on Federal Lands	• No potential changes are anticipated on Federal lands.
Potential Changes outside of Canada	• No anticipated impacts to air, water or wildlife extending outside of BC.

Species ranking by the federal government is conducted by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), established under Section 14 of the *Species at Risk Act* (SARA). A query of the BC CDC was completed in November 2020 for federally and provincially listed species at risk, including plants, wildlife and fish. There are no SARA-listed aquatic species in the vicinity of the Project and 2020/21 baseline studies will update the Project's understanding for new occurrences of Species at Risk.

5.2 Potential Effects on Lands outside BC and Canada

The Project is located within the headwaters of the Unuk River watershed, approximately 40 km in a straight line northeast from the BC – Alaska border on the Unuk River (Figure 1-1). The Project's assessment will include a robust analysis of potential effects within a regional study area and a local study area that encompasses the mine site. The assessment will consider potential effects on VCs where there is potential for downstream effects on valued components such as water quality, fisheries, and aquatic resources, and other valued components. Appropriate mitigation will be put in place to manage impacts and to limit the geographic extent of potential impacts.

Environmental management and compliance monitoring with existing permits for the former underground mine site has occurred since initial development in the mid-1990s under previous owners. Skeena Resources will continue environmental monitoring and mitigation works to minimize potential risks to adjacent watersheds such that no anticipated impacts would occur to local watercourses or those extending outside of BC. Mitigation and Environmental Management Systems to monitor operations and ensure compliance with current and future provincial and federal requirements. This will continue to build on the track record of avoiding long-term impacts from the site.

Potential changes to the environment as a result of carrying out the Project are not anticipated on federal lands in BC, or outside of Canada.

5.3 Potential Effects on Indigenous Peoples

Table 5-1 provides a preliminary list of potential effects on Indigenous interests, which is based on engagements with Indigenous Peoples and the Brucejack and KSM mine projects in northwest BC (Pretium Resources Inc. 2014, Seabridge Gold Inc. May 2013). Potential effects include:

- Changes to water quantity, quality for both ground and surface water;
- Changes in habitat and ability to restore to pre-mining conditions;
- Possible concerns of accidents on the environment and increased traffic;
- Loss/impact on culturally important species (wildlife, fish, vegetation), habitat use or areas (trails, harvesting, seasonal use, altered access) in the regional and local footprint of the mine;
- Potential effects to Indigenous People's health, safety, social or economic conditions;
- Potential for cumulative effects;
- Ensuring End Land Use Objectives meet Indigenous requirements; and
- Reclamation and closure outcomes do not restrict or alienate use of land and resources.

5.4 Estimate of Greenhouse Gas Emissions Associated with the Project

An initial quantitative estimate of GHG emissions for the Project was completed using the methodology in Section 3 of the *Strategic Assessment of Climate Change* (SACC [(ECCC 2020]). and based on project information available as of June 2021. GHG emission estimates will be reviewed as the Project design is further refined.

GHG emissions will be generated directly by the Project from construction and mining activities and following the SACC, net GHG emissions are quantified as:

- Net GHG emissions = Direct GHG emissions + Acquired energy GHG emissions - CO_2 captured and stored - Avoided domestic GHG emissions - Offset credits.

At this stage only direct GHG emissions (also referred to as Scope 1) and acquired energy GHG emissions (Scope 2) can be quantified based on available information. All other terms in the net GHG emissions equation are assumed to equal zero. Net GHG emissions are calculated for both the construction and operations and decommissioning/closure phases.

Direct Emissions

Direct GHG emissions are generated by activities that are within the defined scope of the Project and include: emissions from mobile and stationary combustion, emissions from land use change and emissions from industrial processes. At this stage of the Project, estimates of diesel fuel usage for mobile and stationary sources and explosives amounts were calculated by Skeena Resources. These estimates are used to calculate the direct GHG emissions for the Project. Propane will also be used as part of the Project to heat buildings although no estimate of the volume of propane to be used is available. It is assumed that the GHG emissions from propane will be much smaller than those from diesel and therefore the estimated direct GHG emissions totals provided here are a reasonable initial estimate.

GHG emission factors for diesel and blasting fuel were obtained from values published by Environment and Climate Change Canada (ECCC 2019). Emission factors for emulsion were obtained from National Greenhouse Accounts (NGA) Factors (Australian Government 2008).

Total construction phase direct GHG emissions are estimated to be 21,114 t CO_2e (carbon dioxide equivalent), total operations phase direct GHG emissions are estimated to be 299,117 t CO_2e and total decommissioning/closure phase direct GHG emissions are estimated to be 14,978 t CO_2e.

Acquired Energy Emissions

Acquired GHG emissions are associated with the generation of electricity, heat, steam or cooling, purchased or acquired from a third-party for the Project. Acquired energy GHG emissions for the Project include emissions associated with the generation of purchased or acquired electricity from BC Hydro. The estimated operating load for the operations phase of the Project is 23,663 kW. It is assumed that this load is continuous for all hours of the year. Therefore, the total acquired electricity per year is 207,287,880 kWh.

BC Hydro's GHG intensity is 29.9 tonnes CO_2e/GWh (Province of BC 2021). Based on this intensity the annual acquired energy GHG emissions for the Project are 6,198 t CO_2e. To be conservative it is assumed this annual amount is the same for the construction and operations phases of the Project. Based on this annual amount the total acquired energy GHG emissions for both phases of the Project is 99,168 t CO_2e.

CO_2 Captured and Stored, Avoided Domestic GHG Emissions, and Offset Credits

The three negative terms of the net GHG equation that are shown with zero values in Table 5.4-1 are not expected to be important contributors to the net GHG calculations for the Project. At this point in time, Skeena has not pursued plans for CO_2 capture and storage, or offset credits. Skeena will be assessing these as the Project advances. The Project is not currently expected to directly contribute to avoided domestic GHG emissions.

Table 5.4-1 Maximum GHG Emissions during Construction and Operations

Project Phase	Maximum Net Emissions	Acquired Energy Emissions	Direct Emissions	CO_2 Captured and Stored	Avoided Domestic GHG Emissions	Offset Credits	Total Net Emissions by Phase	Total Net Emissions for the Project
	Maximum Annual CO_2e (t)						CO_2e (t)	
Construction	22,320	6,198	16,122	0	0	0	33,510	434,376
Operations	42,820	6,198	36,622	0	0	0	367,294	
Decommissioning/Closure	11,191	6,198	4,993	0	0	0	33,572	

Net GHG Emissions

Based on the direct and acquired energy GHG emissions for the construction, operations and decommissioning/closure phases of the Project the total net GHG emissions summed over all years of the Project are 434,376 t CO_2e.The maximum annual net GHG emissions for the construction phase of the Project are in Year -1 with 22,320 t CO_2e. The maximum annual net GHG emissions during the Project are in Year 5 with 42,820 t CO_2e. Annual net GHG emissions for decommissioning/closure are estimated to be the same for all years with 11,191 t CO_2e. See Table 5.4-1 for a summary of maximum emissions by project phase.

Under the *Climate Change Accountability Act* (CCAA; 2007), British Columbia has committed to reduce total provincial GHG emissions to 40% below 2007 levels by 2030 (38,800,000 tCO_2e/year) and 60% below 2007 levels by 2040 (25,900,000 t CO_2e/year). Net emissions from the Project at peak emissions are estimated to be 42,820 t CO_2e, which represents 0.11% of the CCAA 2030 target. Based on current projections the Project will no longer be operating in 2040 therefore will have no impact on the Province's GHG reduction goals for that year.

Under the Paris Agreement, Canada committed to reducing its GHG emissions by 30% below 2005 levels by 2030. In 2019, the 2005 level was estimated at 730 Mt CO_2e, therefore, Canada's 2030 target is 511 Mt CO_2e. Net emissions from the Project at peak annual emissions are estimated to be 42,820 t CO_2e, which represents 0.008% of the Canadian 2030 target.

5.5 Emissions, Discharges, and Wastes

Waste generated by the Project would include: waste rock, tailings, other wastes from both hazardous and non-hazardous sources (e.g., office, domestic waste and vehicle maintenance wastes); sewage; and contaminated soil in the event of spills or leaks.

The main waste management issue for the Project is the prevention and control of ML/ARD from the tailings, and any acid-generating (AG) or PAG waste rock that is produced during mine development or operations. The Project will create waste rock from mine development and tailings as a by product of mineral processing. The waste streams would be managed on site as follows:

- NAG waste rock would be deposited in two locations: approximately 80-90% (161.26 Mt) to the external WRSF that would be located to the west of the Main Pit. The remaining 20-10% of NAG waste would be deposited in-pit.
- PAG waste rock (50.35 Mt) would be deposited in the Tom MacKay Tailings Storage Facility.
- PAG tailings (23.88 Mt) and NAG tailings (2.53 Mt) would be deposited sub-aqueously in the TMSF (refer to discussion in Section 4.1.2). The TMSF is already permitted for tailings disposal.

Industrial and domestic non-hazardous waste would be managed by segregating industrial and domestic waste into appropriate streams. Incinerators would handle domestic/putrescible waste. There would be separate waste collection areas for recyclables and industrial waste would be disposed off-site. Sewage effluent (liquid discharge via existing or new) and sludge (via existing solid waste) would be disposed on-site. The management of waste collection areas would follow regulatory requirements and best management practices, including standard operating procedures for spill management, fire safety and wildlife attractants.

Hazardous waste materials would be segregated, labelled and stored in appropriate containers in a secure area, and shipped to approved off-site disposal facilities. Waste streams would be tracked in accordance with federal and provincial regulations.

The Project's sources of air emissions would include:

- air contaminants (carbon dioxide, nitrogen oxides, sulphur oxides, and particulates) and greenhouse gas emissions (GHG) associated with the combustion of fossil fuels used to power trucks, heavy machinery, ore processing and solid waste incineration; and
- fugitive dust (total suspended particulate and fine particulate matter) from blasting and crushing, material handling by mining equipment and hauling transfer activities, coarse ore stockpiles, and road use.

Water emissions include: the discharge of water that has been in contact with potential sources of contamination (seepage from the WRSF, process water, and pit dewatering); and the discharge of water from upstream catchments that has not been in contact with mine workings. Contact water from the WRSF would be collected and treated prior to discharge if testing shows any onset of Metal Leaching/Acid Rock Drainage (ML/ARD). If contact water quality from the WRSF is within permitted parameter limits, and confirmed by testing, this water would be discharged without

treatment. Water from pit dewatering would be pumped to a water treatment plant for treatment prior to discharge to the existing mine water polishing ponds and ultimately discharge to Ketchum Creek. Process water would be discharged to the TMSF. Non-contact water would be kept separate from water that has been in contact with mine workings and discharged to the environment without treatment.

6.0 REFERENCES

2007. Climate Change Accountability Act, SBC 2007, C. 42.

2019. Canadian *Impact Assessment Act,* S.C. 2019, c. 28, s. 1

2018. *Environmental Assessment Act,* SBC 2018, C. 51.

2019. Information and Management of Time Limits Regulations (SOR/2019-283)

Ausenco Engineering Canada Inc. (Ausenco). 2019. Skeena Resources Limited. Eskay Creek Project, BC, Canada. NI 43-101 Technical Report on Preliminary Economic Assessment.

DFO. 2009. *Canadian Environmental Assessment Act* (CEAA) Screening Report for the Stewart Bulk Terminals Project. DFO File 96-HPAC-PA4-00052.

Government of Canada. 2019. Impact Assessment Cooperation Agreement Between Canada and British Columbia. Available at https://www.canada.ca/en/impact-assessment-agency/corporate/acts-regulations/legislation-regulations/canada-british-columbia-impact-assessment-cooperation/canada-bc-cooperation-agreement.html. Accessed October 2020.

Government of Canada. 2019. The Canadian Minerals and Metals Plan. Available at: https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/CMMP/CMMP_The_Plan-EN.pdf. Accessed November 2020.

Impact Assessment Act, Statues of Canada (2019, C.I-2.75). Retrieved from the Justice Laws: https://laws-lois.justice.gc.ca/eng/acts/I-2.75/

Jones, B, B. Gray and D. McLaren. 2020. Blood and Gold in the Headwaters of the Unuk River: A Report on Tahltan Land Use and Occupance in the Vicinity of the Eskay Creek Mine Project. Report prepared on behalf of Tahltan Central Government. September 14, 2020.

Pretium Resources Inc. 2014a. Brucejack Gold Mine Project, Application for an Environmental Assessment Certificate. Appendix 19-A: Brucejack Gold Mine Project: Socio-economic Baseline Report. Available at: https://projects.eao.gov.bc.ca/api/public/document/5886900fe036fb01057688f2/download/Appendix%2019-A.%20Socio-Economic%20Baseline.pdf. Accessed February 2021.

Pretium Resources Inc. 2014b. Brucejack Gold Mine Project, Application for an Environmental Assessment Certificate, Tsetsaut / Skii km Lax Ha Traditional Knowledge and Traditional Use Report, at: https://projects.eao.gov.bc.ca/api/public/document/5886900de036fb01057688de/download/Appendix%2025-B.%20Tsetsaut%20Skii%20km%20Lax%20Ha%20TK-TU%20Report.pdf. Accessed February 2021.

Seabridge. 2013. Application for an Environmental Assessment Certificate/ Environmental Impact Statement for the KSM Project. Prepared by Rescan Environmental Services Ltd. for Seabridge Gold Inc., May 2013.

Statistics Canada. 2017. Census Profile, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E

Tahltan Band Council. 2016. Dah Ki Mi – "Our House". Available at https://tahltan.ca/nation/people/. Accessed February 2020.

Tahltan Band Council. 2016. Territory. Available at https://tahltan.ca/nation/territory/. Accessed March 2020.

Tahltan Central Government and Province of British Columbia. 2018. Klappan Plan. Available at: https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations/klappan_plan.pdf. Accessed October 2020.

Tahltan Nation. 1910. Tahltan Tribe Indigenous Title and Rights Declaration. Available at https://tahltan.org/central-government/. Accessed February 2020.

Tahltan Nation and Province of British Columbia. 2013. Shared Decision Making Agreement.

Tahltan Nation Development Corporation. 2020.