Chapter 1

Project Overview

SKEENA™ RESOURCES

Eskay Creek Mining Ltd is a wholly owned subsidiary of Skeena Resources Ltd, and will be the holder of all permits and authorizations. References to Skeena Resources Ltd as the project proponent in this chapter should be understood to be the same as Eskay Creek Mining Ltd.

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ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
AN	ammonium nitrate
ASF	Albino Storage Facility
ATV	all-terrain vehicle
AuEq	gold equivalent
BAT	Best Available Technology
BC	British Columbia
CDA	Canadian Dam Association
CEO	Chief Executive Officer
Declaration Act Agreement	*Declaration Act Consent Decision-Making Agreement for the Eskay Creek Project*
DFS	Definitive Feasibility Study
DIA	diameter in millimetres
DPD	Detailed Project Description
EAA	*Environmental Assessment Act*, 2018
EAC Application	Application for an Environmental Assessment Certificate / Impact Statement
EAO	British Columbia’s Environmental Assessment Office
ECCC	Environment and Climate Change Canada
EDF	Environmental Design Flood
EL.	elevation in metres above sea level
EMA	*Environmental Management Act*, 2003
EMLI	Ministry of Energy, Mines and Low Carbon Innovation
Engaged Indigenous Nations	defined as the Indigenous Nations identified by the EAO in section 2 of “Schedule B – Assessment Plan” (EAO 2023b), which refers to the Tahltan Nation / Tahltan Central Government, the Tsetsaut Skii km Lax Ha, the Nisga’a Nation / Nisga’a Lisims Government, Gitanyow Nation, and Métis people, represented by the Métis Nation British Columbia.
ENV	Minister of Environment and Climate Change Strategy
Eskay Creek MAR	Eskay Creek Mine Access Road
ESSFwv	Wet Very Cold Engelmann Spruce Subalpine Fir
ESSFwvp	Wet Very Cold Engelmann Spruce Subalpine Fir Parkland
GBA Plus	Gender-based Analysis Plus

GCL	geosynthetic clay liner
GDP	Gross Domestic Product
H1	first half of Project Year
H2	second half of Project Year
HDPE	high-density polyethylene
HSRC	Health, Safety and Reclamation Code for Mines in British Columbia
IAA	*Impact Assessment Act*
ICHwc	Wet Cold Interior Cedar Hemlock
LiDAR	Light Detection and Ranging
M-197	*Mines Act* Permit
MAA	multiple accounts analysis
MDMER	Metal and Diamond Mining Effluent Regulations
MHmm2	Moist Maritime Mountain Hemlock
MHmmp2	Moist Maritime Mountain Hemlock Parkland
MiHR	Mining Industry Human Resources Council
ML/ARD	metal leaching and acid rock drainage
MMER	Metal Mining Effluent Regulations (now MDMER)
MNBC	Métis Nation British Columbia
MRSA	Mine Rock Storage Area
MW	Mine Water
MWTP	Mine Water Treatment Plant
ND	nominal diameter
NGO	non-governmental organization
NI	National Instrument
Nisg̲a'a Treaty	*Nisg̲a'a Final Agreement*
NOC	National Occupational Classification
NPAG	non-potentially acid generating
NSR	Net Smelter Return
PAG	potentially acid generating
PMA	Permitted Mine Area
PMF	Probable Maximum Flood

Project	Eskay Creek Revitalization Project
PSA	PAG Storage Area
Q2	second quarter of calendar year
Q4	fourth quarter of calendar year
RDKS	Regional District of Kitimat-Stikine
ROM	Run-of-Mine
SAG	semi-autonomous grinding
SARA	*Species at Risk Act*
Skeena Resources	Skeena Resources Limited
Tahltan Requirements	Tahltan Risk Assessment Factors and Tahltan Sustainability Requirements (as laid out in the Consent Agreement)
TBD	to be determined
TCG	Tahltan Central Government
Technical Sample (TS)	Eskay Creek Technical Sample Project
TEER	Training, Education, Experience, and Responsibilities
THREAT	Tahltan Heritage Resources Environmental Assessment Team
TMSF	Tom MacKay Storage Facility
TSA	Timber Supply Areas
TSKLH	Tsetsaut Skii km Lax Ha
UMA	Upper Mine Area
VMS	volcanogenic massive sulphide
WSR	Waste Stability Rating
WSRHC	Waste Stability Rating and Hazard Classification System
WTP	Water Treatment Plant

SYMBOLS AND UNITS OF MEASUREMENT

º	Degrees
ºC	degrees Celsius
>	greater than
≥	greater than or equal to
<	less than
%	percent
µm	micron
CDN	Canadian (dollar)
dmt	dry metric tonnes
g/t	grams per tonne
gal	gallon
H:V	horizontal distance to vertical rise
ha	hectare
kg	kilogram
km	kilometre
KM	MAR kilometre marker
km/h	kilometre per hour
km^2	square kilometre
kV	kilovolt
kW	kilowatt
L	litre
L/s	litres per second
m	metre
m^2	square metre
m^3	cubic metre
m^3/day	cubic metre per day
m^3/h	cubic metre per hour
m^3/s	cubic metre per second
masl	metre above sea level

mm	millimetre
Mm^3	million cubic metre
Moz	million ounce
Mt	million tonne
Mt/year	million tonne per year
pH	potential of hydrogen
t	tonne

1.0 PROJECT OVERVIEW

1.1 Project Introduction

1.1.1 Project Type

Skeena Resources Limited[1] (Skeena Resources) is proposing to develop and operate the Eskay Creek Revitalization Project (Project), an open pit gold and silver mine at the past producing Eskay Creek Mine site located in northwestern British Columbia (BC). Mining methods will utilize conventional truck and shovel open pit development to produce a gold-silver concentrate that will be shipped offsite for additional processing.

The Project is anticipated to have a 18-year mine life from Construction through Reclamation and Closure, followed by a period of Post-closure (Table 1.1-1; Section 1.5, Project Schedule and Project Management Plans and Mitigation Measures), and is submitted for an Environmental Assessment Certificate under the BC *Environmental Assessment Act* (*EAA*; SBC 2018, c 51) and Environmental Impact Statement under the federal *Impact Assessment Act (IAA*; SC 2019, c 28, s 1) (EAC Application). The estimated total annual production in the Process Plant during Operations will be up to 3.0 million tonnes (Mt) in Years 1 to 5 and up to 3.6 Mt (i.e., approximately 10,000 tonnes per day) in Years 6 to 13. These production rates will produce an average of 0.20 million ounces (Moz) to 0.25 Moz of gold annually and 5.5 Moz to 7.0 Moz of silver annually.

Table 1.1-1: Eskay Creek Revitalization Project Phases and Durations

Project Phase	Duration[1]	Project Years
Construction	2 years	Year -2 to Year -1
Operations	13 years	Year 1 to Year 13
Reclamation and Closure	3 years	Year 14 to Year 16
Post-closure	≥Year 17	

Notes:

≥ = greater than or equal to

[1] See Section 1.5, Project Schedule and Project Management Plans and Mitigation Measures, for more information on Project phases and activities.

1.1.2 Project Objective

The Project objective is to undertake responsible and sustainable resource extraction from a previously mined deposit to produce a gold-silver concentrate, and to foster economic growth and prosperity in BC, particularly Northern BC, while supporting capacity building, employment, and benefits to local Indigenous people and communities in alignment with the vision and goals of the BC Mining Jobs Task Force (2018). The Project will be designed, constructed, operated, and decommissioned to meet all applicable BC and Canadian environmental and safety standards and practices, and in consideration of the Tahltan Risk

[1] Eskay Creek Mining Limited (Ltd.) is a wholly owned subsidiary of Skeena Resources Limited, and will be the holder of all permits and authorizations. References to Skeena Resources Ltd. as the project proponent in this EAC Application should be understood to be the same as Eskay Creek Mining Ltd.

Assessment Factors and Tahltan Sustainability Requirements laid out in Schedules C and D, respectively, of the "*Declaration Act* Consent Decision-Making Agreement" (*Declaration Act* Agreement; 2022) and noted in the "Tahltan Environmental Assessment Strategy Framework" (draft; Tahltan Central Government [TCG] 2022a). The Project will also be developed in consideration of the "Tahltan Impact Assessment Policy" (TCG 2022b).

Skeena Resources is committed to developing the Project in a sustainable manner that will contribute to the local, provincial, and national economies. The Project will generate tax revenue for local, provincial, and federal governments, and will create employment opportunities locally, regionally, and beyond. The Project's estimated total capital cost is $1,073 million CDN, and the estimated total operating cost is $2,763 million CDN. Some of these costs will be spent in Northern BC, employing and benefitting local and Indigenous contractors and employees.

The Project will provide employment and training opportunities to local and regional communities in Northern BC and beyond, including Indigenous people. Over the life of the Project, direct employment with Skeena Resources is estimated at 1,814 person-years during Construction, 6,428 person-years during Operations, and 130 person-years during Reclamation and Closure for a total of 8,372 person-years, as well as additional contractor and consultant employment. The Project is anticipated to have a total workforce of up to 771 employees during Operations, including salaried and hourly workers. It is also anticipated that additional employment benefits will be created for workers in supplier industries, and in businesses benefitting from worker spending. No federal funding has been requested or provided for the Project at this time. Additional details on the Project workforce are provided in Section 1.6, Workforce Requirements.

Skeena Resources will develop agreements that emphasize a broad suite of opportunities with the Tahltan Nation, particularly in contracting, business development, member employment, skills development, capacity building, environmental stewardship including permitting processes, and environmental monitoring. Skeena Resources anticipates that a close working relationship with the TCG will continue to develop ways to integrate and share information to improve monitoring and land and resource management, particularly for closure planning and long-term monitoring.

1.1.3 Key Project Components and Ancillary Activities

The Project's purpose is to reopen the past producing Eskay Creek Mine as a conventional truck and shovel open pit operation that will produce a gold-silver concentrate. The concentrate will be transported to offsite third-party smelters. The Project will utilize multiple existing mine components such as the all-season Eskay Creek Mine Access Road (Eskay Creek MAR) and permitted waste rock and tailings storage facilities, referred to as the Mine Rock Storage Area (MRSA) and Tom MacKay Storage Facility (TMSF), respectively. The Project will also utilize multiple existing mine components from the Eskay Creek Technical Sample Project (Technical Sample [TS]; Skeena Resources 2024) such as the TS MRSA, TMSF Haul Road, and water management structures.

The Project will require the construction and use of new infrastructure such as two open pits, Process Plant, haul roads and secondary roads, additional waste rock disposal capacity, surface water management structures, and water treatment facilities. The Project will also utilize existing electrical infrastructure including an approximately 20-kilometre (km) electrical Transmission Line, Volcano Creek Substation, and Eskay Creek Substation that will supply power for the Project; while these components will be constructed under separate authorizations, the use of this infrastructure is included in the EAC Application. Additional information on existing and additional support infrastructure is provided in Section 1.4.1, Existing Infrastructure and Support Infrastructure.

The Transportation Corridor will be used for the transportation of personnel and supplies (e.g., equipment and materials) during all Project phases. Personnel will be transported to the Project mine site primarily from Terrace, as well as from select communities, such as Tlēgōhīn (Telegraph Creek), Tātl’ah (Dease Lake), Łuwechōn[2] (Iskut), and Smithers. Supplies will be delivered to the Project mine site along the existing offsite Eskay Creek MAR, Highway 37, and Highway 37A. During Operations, the Transportation Corridor will be used to haul concentrate from the Project mine site to existing offsite port facilities located in the District of Stewart. Project activities at the port facilities will include loading, unloading, handling, and storage of concentrate, up to and including the loading of concentrate onto ocean-going vessels. The Project does not include the shipping of concentrate once loaded onto a vessel.

Detailed information on proposed Project components is provided in Section 1.4, Project Components. Detailed information on Project schedule and activities is provided in Section 1.5, Project Schedule and Project Management Plans and Mitigation Measures.

1.1.4 General Project Location and Nearest Communities

The Project mine site is located in northwestern BC, approximately 135 km south of Iskut and 83 km northwest of Stewart (Figure 1.1-1). Access to the Project will be provided by the existing offsite Eskay Creek MAR, an existing 59 km all-season gravel road that connects the Project mine site to Highway 37 (i.e., Stewart-Cassiar Highway).

The Project is located within Tahltan Territory and Tsetsaut Skii km Lax Ha (TSKLH) Territory, while the associated transportation corridor traverses Tahltan Territory; TSKLH Territory; the Nass Area and Nass Wildlife Area, as per the “Nisg̲a’a Final Agreement” (Nisg̲a’a Treaty; 1999), given effect by British Columbia (BC) in 1999 under the *Nisg̲a’a Final Agreement Act* (SBC 1999, c 2) and by Canada in 2000 under the *Nisg̲a’a Final Agreement Act* (SC 2000, c 7); Gitanyow Nation Territory; and lands used by Métis Nation British Columbia (MNBC) members (see Figures 1.3-9, 1.3-10, 1.3-11, and 1.3-12 in Section 1.3).[3] The closest Indigenous community is the Tahltan community of Iskut (135 km north; 170 km via road). Additional Tahltan communities in Tahltan Territory located north/northeast of the Project include Dease Lake (190 km northeast; 253 km via road), which includes both Tahltan and non Tahltan residents, and Telegraph Creek (142 km north; 362 km via road). Concentrate produced by the Project will be hauled along a southern portion of Highway 37, near the Meziadin Junction and westward along Highway 37A to Stewart, BC; this portion of the route passes through the Nass and Nass Wildlife Areas (as defined in the Nisg̲a’a Treaty) of the Nisg̲a’a Nation and the territory of the Gitanyow Nation. The closest Métis chartered community to the Project, represented by the Métis Nation British Columbia (MNBC), is located in Terrace, BC (265 km to the southeast; 451 km via road). Stewart is the closest non-Indigenous community to the Project mine site (83 km to the south/southeast; 261 km via road).

[2] Tahltan terms are from the *Tāłtān Dictionary* (TCG 2024), unless otherwise indicated.

[3] As in the Hybrid AIR (EAO 2023a), for the purposes of this chapter, “territory” is defined as the established or asserted traditional territories of Indigenous Nations, except in relation to the Nisg̲a’a Nation, which refers to Nisg̲a’a Lands, the Nass Area, and the Nass Wildlife Area, as applicable.

1.1.5 Project History

The Eskay Creek Mine area has been the focus of considerable exploration activity. From 1935 to 1938, Premier Gold Mining Company Ltd. held the property under option and were responsible for defining 30 zones of surface mineralization in the area. The first adit (i.e., a horizontal underground tunnel used to access an orebody), MacKay Adit, was driven in 1939, followed by a period of exploration respite during World War II in 1940 to 1945. In 1946 through 1963, some minor work was completed on the property, such as claim re-staking and changes in claim title.

In 1963, Western Resources Corp. drove the Emma Adit, and in 1964, the property registration changed to Stikine Silver Ltd. Exploration continued through to 1987, where seven different options were undertaken on the property. In 1986, the company was renamed Consolidated Stikine Silver Ltd.

In 1988, Calpine Resources Inc. entered into an option agreement with Consolidated Stikine Silver Ltd. and conducted exploration drilling, which led to the discovery of the deposit that would become the historical underground Eskay Creek Mine. In 1989, Prime Resources Group Inc. acquired a controlling interest in Calpine Resources Inc, which later led to a merger of the two companies in 1990. At the same time, Homestake Canada Inc. acquired an equity position in Consolidated Stikine Silver Ltd. and eventually acquired the property. Further underground exploration began in 1990, and after a feasibility study that was completed in 1993, the Eskay Creek Mine was officially opened in 1995 as an underground operation.

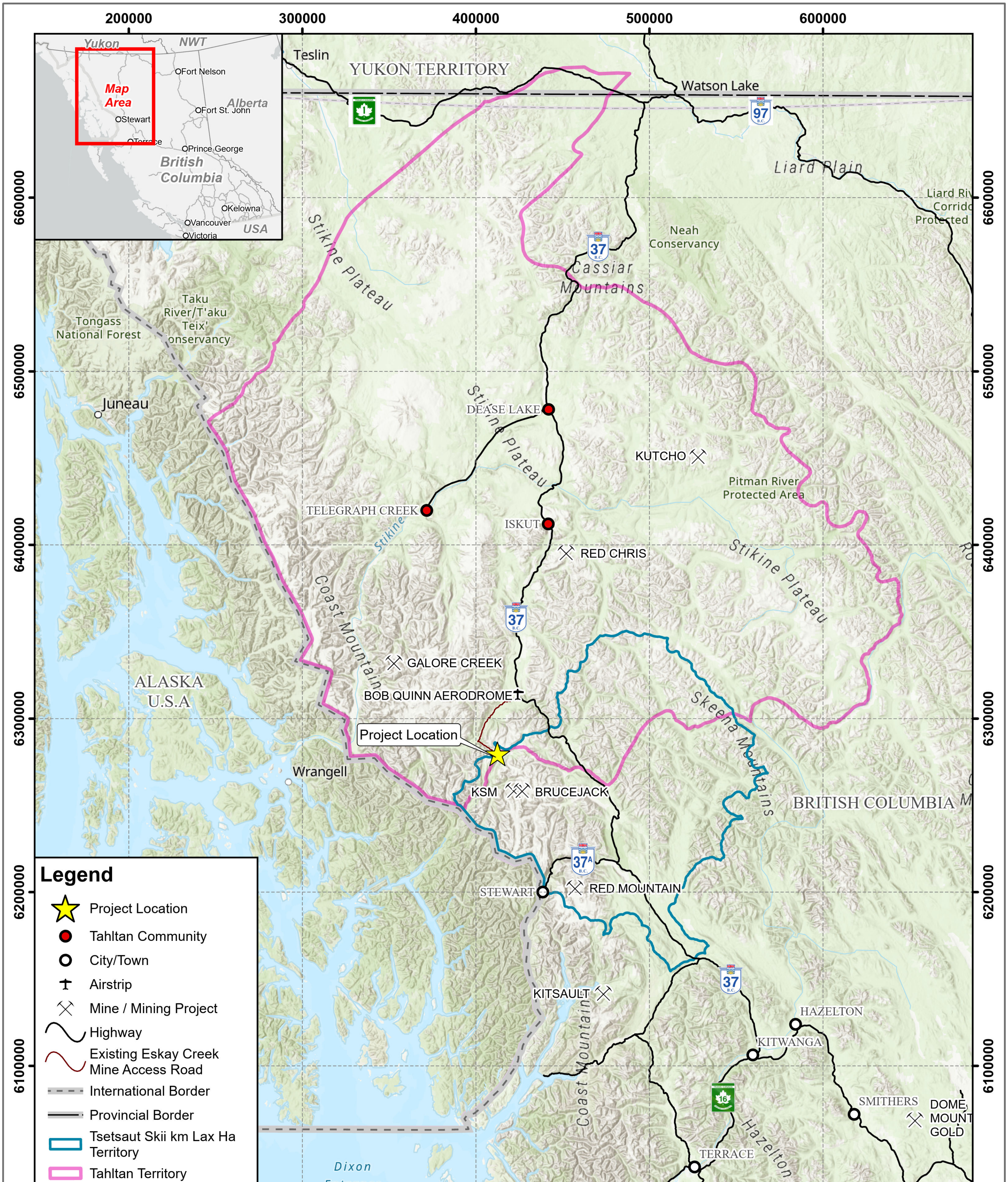
Homestake Canada Inc. operated the mine from 1995 to 2001 and continued exploration on the surrounding claims. In 2002, Barrick Gold Inc. assumed control of the Eskay Creek Mine through a merger with Homestake Canada Inc. Barrick Gold Inc. continued mining operations and exploration until the mine closed in 2008. Over its 14-year mine life, approximately 2.2 million tonnes of ore were mined, with cut-off grades ranging from 12 grams per tonne (g/t) to 15 g/t gold equivalent for mill ore and 30 g/t gold equivalent for direct ship smelter ore (Ausenco 2019).

The Eskay Creek Mine has been in Care and Maintenance since 2008 when mining operations ceased, with ongoing site reclamation (since 2007) and treatment of water (up to 2014, when required) from historical underground operations. In 2011, the Eskay Creek Mine was considered a ‘Recognized Closed Mine’ under the federal Metal Mine Effluent Regulations (MMER; now the Metal and Diamond Mining Effluent Regulations [MDMER], SOR/2002-2222) of the *Fisheries Act* (RSC 1985, c F-14). Under the BC *Mines Act* (RSBC 1996, c 293), the Eskay Creek Mine has several valid *Mines Act* (RSBC 1996, c 293) permits and is considered to be in Care and Maintenance with ongoing exploration since 2018.

Skeena Resources acquired the Eskay Creek Mine from Barrick Gold Corporation’s wholly owned subsidiary, Barrick Gold Inc., in August 2020. In November 2021, Skeena Resources initiated the process to amend existing permits to authorize collection of a technical bulk sample of ore in 2023 (Skeena Resources 2024) to establish the metallurgy and processing studies required to advance to the full development of the Eskay Creek Revitalization Project. In December 2024, Skeena Resources received authorization for the Technical Sample under the amended *Mines Act* (RSBC 1996, c 293) Permit M-197 (M-197) and amended *Environmental Management Act* (EMA) Permit PE-10818.

Skeena Resources registered a subsidiary company in British Columbia, Eskay Creek Mining Limited, in July 2024 for the Eskay Creek Mine. Eskay Creek Mining Limited is wholly owned by Skeena Resources, and Skeena Resources remains the administrative company.

An overview of the historical Eskay Creek Mine provided in Section 1.4.1, Existing Infrastructure and Support Infrastructure.



Skeena Resources Ltd.
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Author: Skeena GIS
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SKEENA RESOURCES

Eskay Creek Revitalization

Figure 1.1-1: Eskay Creek Revitalization Project Location

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:2,800,000
Coord. System: NAD 1983 UTM Zone 9N
0 25 50 75 100
Kilometers
N

1.2 Proponent Description

1.2.1 About Skeena Resources

Skeena Resources is a Canadian mining company headquartered in Vancouver, BC, focused on developing prospective precious metal properties in the Golden Triangle region of BC. The company has 100% interest in the past producing Snip and Eskay Creek mines, both acquired from Barrick Gold Inc. in July 2017 and August 2020, respectively. Skeena Resources is publicly traded on the Toronto (TSX: SKE.TO, OTCQX: SKREF), New York (SKE: NYSE) and Frankfurt (FRA: RXF) stock exchanges. Skeena Resources was incorporated under the BC *Company Act* (SBC 2002, c 57) on 13 September 1979 (initially as Progress Petroleum Limited, Incorporation Number BC0196946).

Skeena Resources is committed to transparent Project development in an environmental and socially responsible manner. Randy Reichert, the President, Chief Executive Officer (CEO), and Director, maintains overall responsibility for corporate governance implementation and conformance during all Project phases. Skeena Resources is proposing to develop, manage, operate, and close the Project.

Skeena Resources is managed under the direction of the following six-member Board of Directors:

- Walter Coles – Executive Chairman;
- Randy Reichert – President, CEO, and Director;
- Craig Parry – Lead Independent Director;
- Suki Gill – Director;
- Greg Beard – Director; and
- Nathalie Sajous – Director.

Members of the Skeena Resources management team include:

- Walter Coles – Executive Chairman;
- Randy Reichert – President, CEO, and Director;
- Andrew MacRitchie, CPA, CA – Chief Financial Officer;
- Paul Geddes, B.Sc., P.Geo. – Senior Vice President, Exploration and Resource Development;
- Justin Himmelright, B.Sc., M.Eng. – Senior Vice President, External Affairs;
- Kyle Foster, P.Eng. – Vice President, Operations;
- Scott Fulton, P.Eng. – Vice President, Construction and Engineering;
- Nalaine Morin, B.A.SC., EP – Vice President, Environment and Regulatory Affairs;
- Adrian Newton, P.Geo. – Vice President, Exploration;
- Eric Casey, CPA, CA – Vice President, Finance; and
- Kanako Motohashi, B.A., CPHR – Vice President, People and Culture.

Corporate policies will be implemented for the Project through training of all employees on the practices and procedures of each policy, with the development of clear roles and responsibilities outlined in management plans and training materials, oversight from both onsite and offsite management, and with ultimate responsibility and oversight from the President and CEO (Section 1.6.3, Corporate Hiring and Workplace Policies and Programs).

Additional information on the company's history, affiliations, and corporate governance is provided on the Skeena Resources website at www.skeenaresources.com.

1.2.2 Proponent and Application Preparation Contact Information

The Proponent contact information is provided below.

Head Office:	Skeena Resources Limited Suite #2600, 1133 Melville Street Vancouver, BC V6E 4E5 Phone: (604) 684-8725 Fax: (604) 558-7695 Website: https://www.skeenaresources.com
Executive Chairman:	Walter Coles Executive Chairman Skeena Resources Limited E-mail: wcoles@skeenaresources.com Phone: (604) 684-8725
President and CEO:	Randy Reichert President, CEO, and Director Skeena Resources Limited E-mail: rreichert@skeenaresources.com Phone: (604) 684-8725
Principal Contact for the Impact Assessment:	Nalaine Morin Vice President, Environment and Regulatory Affairs Skeena Resources Limited E-mail: nmorin@skeenaresources.com Phone: (604) 684-8725
Alternate Contact for the Impact Assessment:	Karen Leven Senior Director, Environment and Regulatory Affairs Skeena Resources Limited E-mail: kleven@skeenaresources.com Phone: (604) 684-8725

The EAC Application was prepared with the support of various consultants. A complete list of the consultants who authored the EAC Application and their qualifications is provided in Appendix A-2, Authorship.

The contact information for the main company responsible for the preparation of the majority of the EAC Application, working in conjunction with Skeena Resources, is provided below:

Main Environmental Assessment Consultant to Skeena Resources:

Nathan Braun
Partner in Charge
Tahltan ERM Environmental Management (TEEM)
E-mail: nathan.braun@erm.com
Phone: (604) 689-9460

1.3 Project Location

1.3.1 Project Mine Site

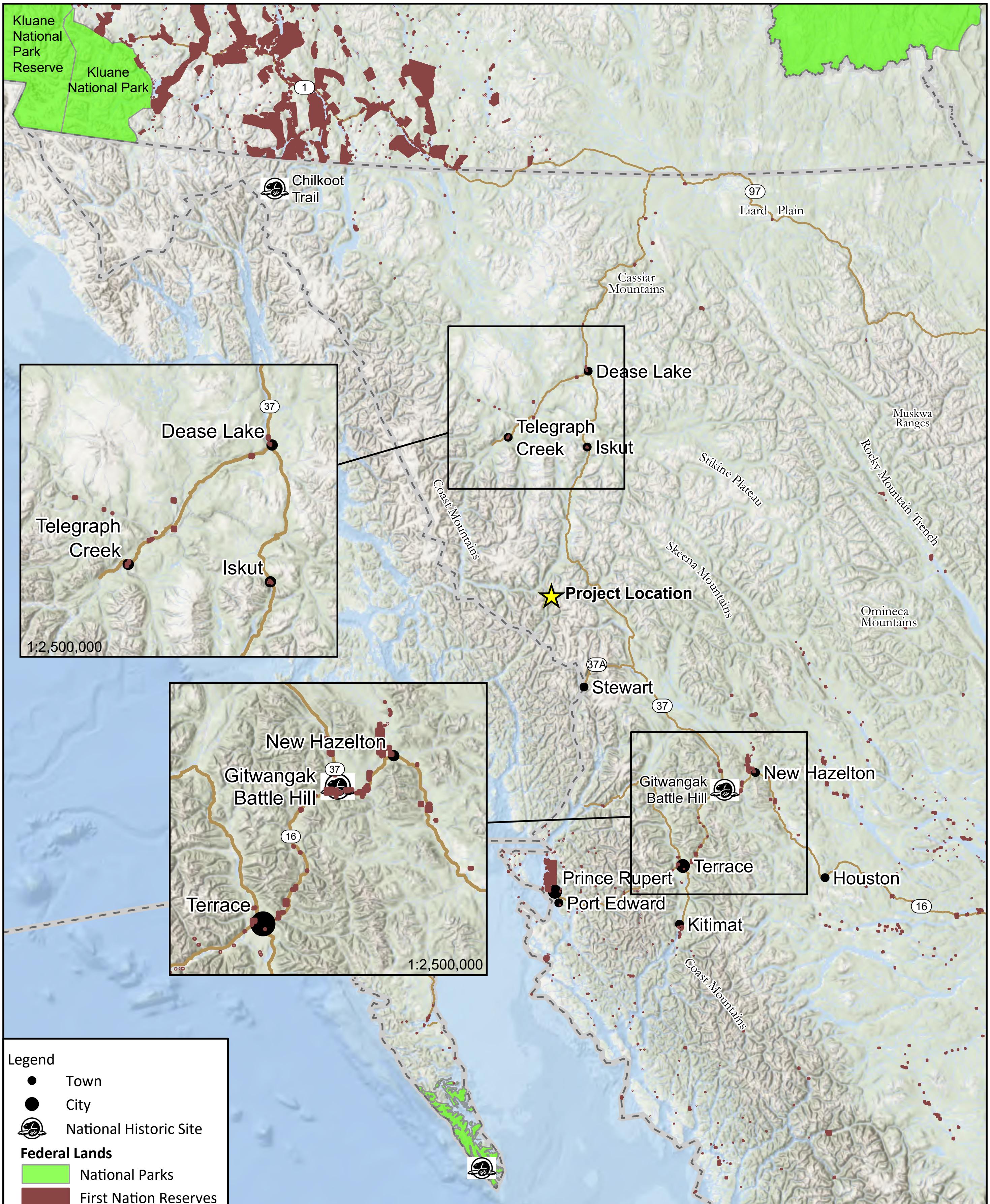
The Project is located within the Regional District of Kitimat-Stikine (RDKS) in the Golden Triangle region of northwestern BC on provincial Crown land. The Project is 83 km northwest of Stewart (261 km via road), 265 km northwest of Terrace (451 km via road), and 295 km northwest of Smithers (467 km via road); these locations are provided on Figure 1.1-1. The approximate coordinates of the North Pit geometric centre are located at NAD83 UTM Zone 9N, E 411572, N 6279203; these coordinates correspond to a latitude of 56° 38′ 55.05″ N and a longitude of 130° 26′ 31.73″ W. The Project Footprint will be approximately 731 hectares (ha) and includes existing infrastructure and newly constructed infrastructure that will be utilized for the Project. Of the Project Footprint, approximately 521 ha of new disturbance will be required for the Project.

The Project is approximately 40 km from the United States at the BC-Alaska border, and within the headwater tributaries of the Unuk River watershed, which is a transboundary river. The Unuk River originates in the mountains northeast of the Project and crosses into Alaska before discharging into the Pacific Ocean (Figure 1.1-1). The Project is approximately 369 km south of the BC-Yukon border.

No federal lands will be used to carry out the Project. The Project is not located near First Nation land as defined in subsection 2(1) of the *First Nations Land Management Act* (SC 2022, c 19, s 121). The Project mine site will be approximately 136 km to 224 km from Federal Crown Lands (Indian reserve land) of the Iskut and Tahltan Bands (who together comprise the Tahltan Nation), and the Gitanyow Nation (Section 1.3.5, Indigenous Communities and Traditional Territories). Federal lands relevant to the Project are shown on Figure 1.3-1.

1.3.2 Current Land and Resource Uses in the Area

The Project Footprint is located on provincial Crown land mineral tenures and leases held by Skeena Resources. The Eskay Creek mineral tenures cover a total of 7,666 ha, which includes 51 mineral claims totalling 5,836 ha, eight mineral leases totalling 1,830 ha, and two surface leases (Figure 1.3-2) with the areas adjacent to the Project Footprint under other ownership. Canarc Resources Corp. has a 33% carried interest in five of these mining leases; however, all operating decisions related to the property are exclusively those of Skeena Resources. Skeena Resources, as the operator, has acquired historical liabilities from Barrick Gold Inc., and Canarc Resources Corp. carries severed liability for the property.



Skeena Resources Ltd.
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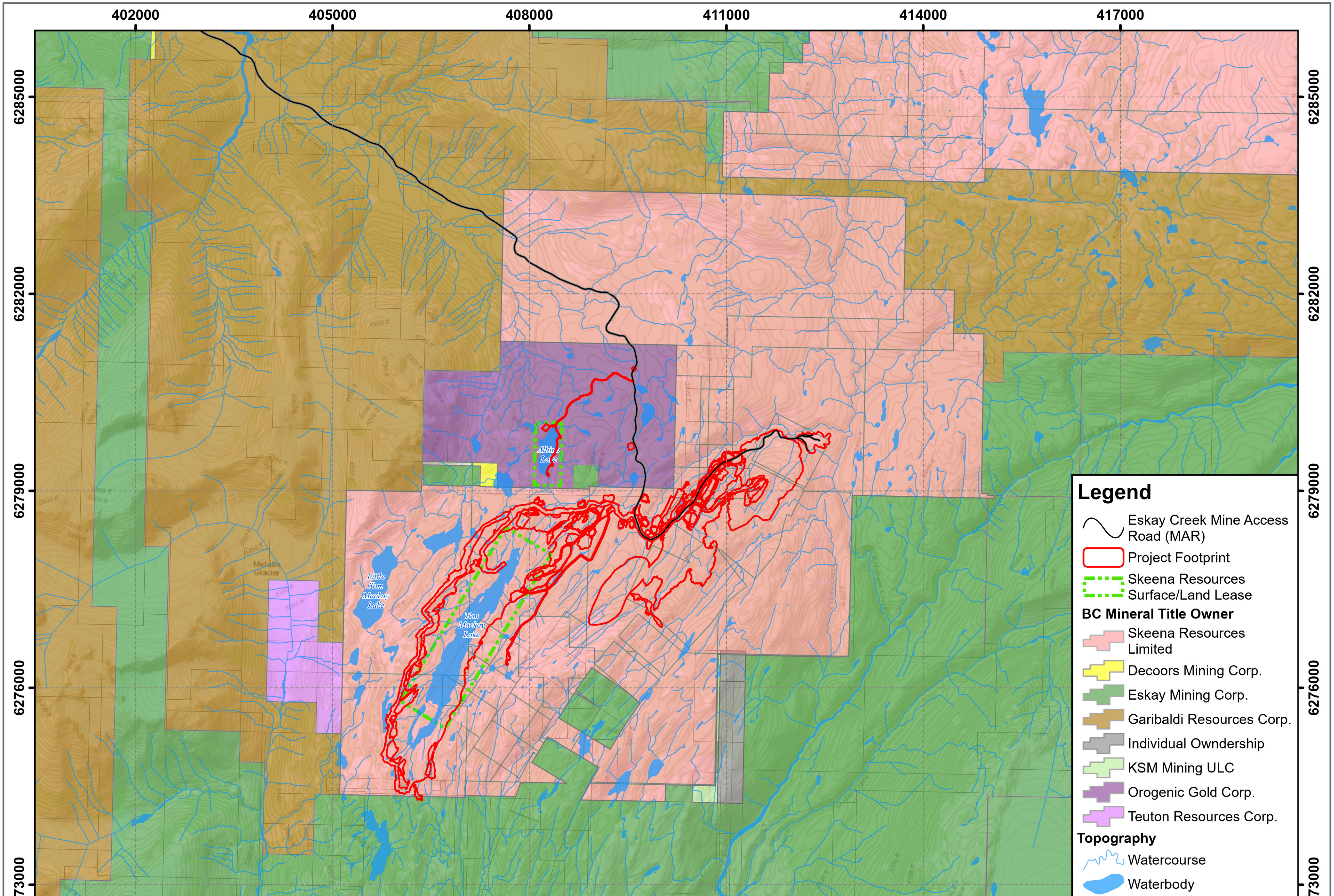
SKEENA™ RESOURCES

Eskay Creek Revitalization

Figure 1.3-1: Federal Lands Relevant to the Project

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:4,500,000
Coord. System: NAD 1983 UTM Zone 9N
0 100 200
Kilometres
N



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Author: Skeena GIS
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SKEENA RESOURCES

Eskay Creek Revitalization

Figure 1.3-2: Proponent Leased Land and Adjacent Mineral Tenures

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:75,000
Coord. System: NAD 1983 UTM Zone 9N
0 1 2 3 4
Kilometers

Land and resource uses, including land and aquatic uses, within the area surrounding the Project include forestry, hydropower, trapping, guided hunting, commercial recreation, and outdoor recreation such as fishing, hunting, camping, hiking, snowmobiling, skiing, and all-terrain vehicle (ATV) riding.

Forestry tenures occur in the vicinity of the Project, including Timber Supply Areas (TSA), including the Cassiar TSA and Nass TSA, Occupant Licences to Cut, and a Woodland Licence held by the Tahltan Nation (Tahltan Nation: see Figure 1.3-3), although timber harvest is minimal (Chapter 22, Non-traditional Land and Resource Use Effects Assessment).

Other tenures in the vicinity of the Project include range tenures (Figure 1.3-4), guide outfitter licences (Figure 1.3-5), and traplines (Figure 1.3-6). More details on non-traditional land and resource use in the vicinity of the Project is provided in Chapter 22, Non-traditional Land and Resource Use Effects Assessment.

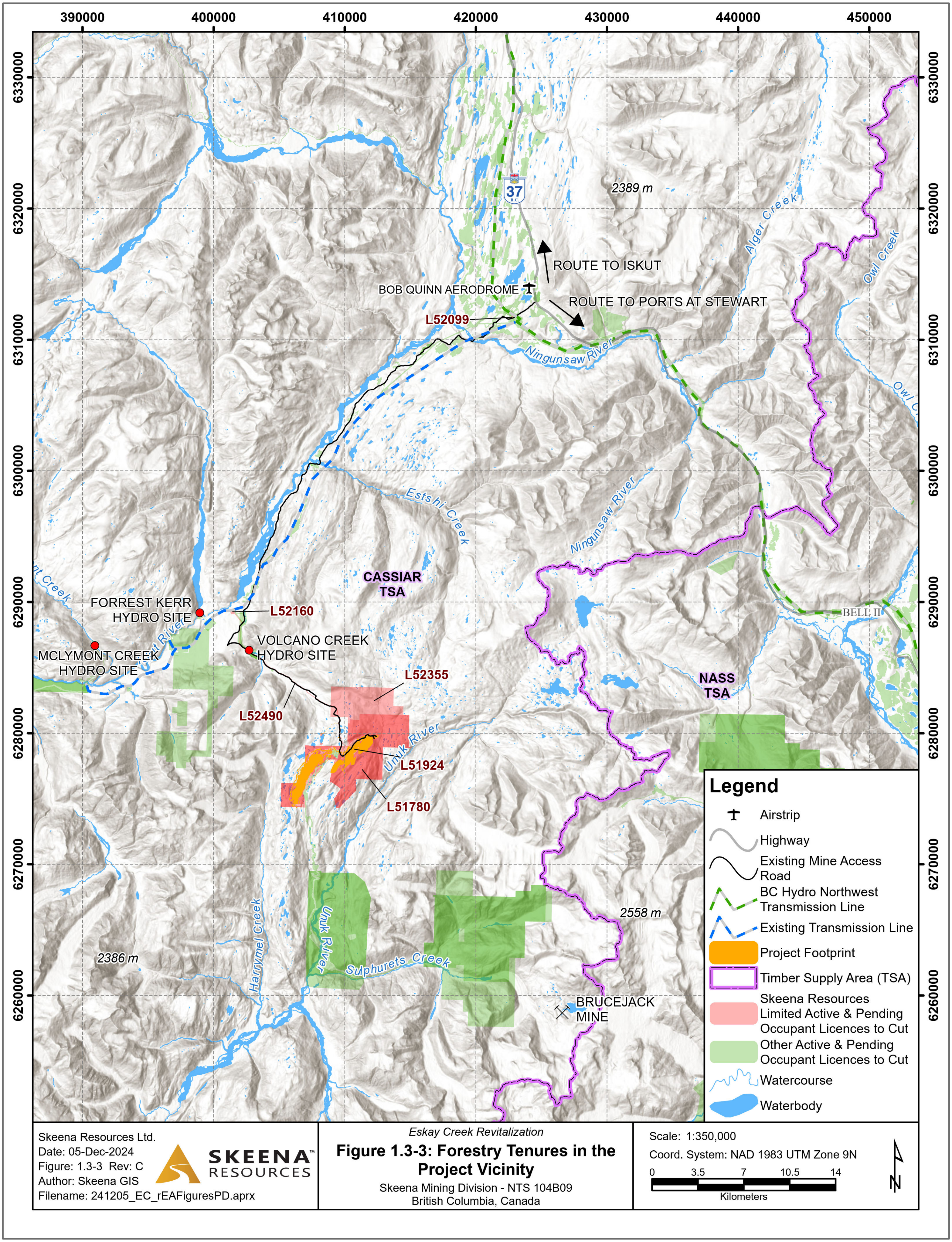
The Tahltan Nation and TSKLH have territories that overlap the Project mine site (Section 1.3.5, Indigenous Communities and Traditional Territories) – territories in which Indigenous uses of the land and aquatic areas include wildlife and plant harvesting, fishing, recreation, and traditional practices.

Members of the Tahltan Nation hunt, trap, gather, and fish throughout Tahltan Territory, including areas in vicinity to the Project mine site (Tahltan Heritage Resources Environmental Assessment Team [THREAT] 2024). Wildlife important to Tahltan hunting and trapping include, but are not limited to, debēhe (Stone's sheep), khoh (grizzly bear), sas (black bear), kedā (moose), isbā (mountain goat), and naghā (wolverine) (Appendix 21-2, Tahltan Socio-economic Baseline Report; Appendix 21-3, Tahltan Country Foods Baseline Report). Both the Tahltan and TSKLH have trap lines within the vicinity of the Project mine site for fur-bearing animals such as tsa' (beaver), dediye (hoary marmot), tseli (arctic ground squirrel), nasdā (lynx), and nuhts̠ehe (fox) (Adlam 1985).

Fishing is an important activity, with salmon[4] and tsaba'e (trout) making up notable portions of Tahltan diets, as well as those of TSKLH members. Tahltan plant gathering is inclusive of many varieties of vegetation found in northwestern BC; it includes but, is not limited to, jije (berries), ebaldzē (mushrooms), and other food and medicinal plants such as etsok (wild rhubarb or cow-parsnip), nettles, lambsquarters, mountain sorrel, dandelion, gūs (fireweed), dock, dlūne che' (yarrow), hots'eda ghodze (Labrador tea), tehkahche jije (chokecherry), dahkāle (raspberry) wild rose, and hodzih lānā (caribou weed or caribou leaves) (Albright 1982, 1984; Appendix 21-2, Tahltan Socio-economic Baseline Report).

The region in which the Project is situated has been characterized by active trade between interior groups, including the Tahltan and their coastal neighbours, exchanging coastal products, including hooligan (eulachon) and shell, for interior products, such as furs and hides, as well as obsidian. The Tahltan also acted as intermediaries for trade with interior groups located further from the coast (Albright 1984; Asp 2004; Teit 1956).

[4] Species without Tahltan terms are ones for which Tahltan names are not available, e.g., salmon as a group of related species; however, salmon species of importance to Tahltan include gēs (Chinook salmon), tl'ūga (coho salmon), and dēk'āne (sockeye salmon).



Skeena Resources Ltd.
Date: 05-Dec-2024
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Author: Skeena GIS
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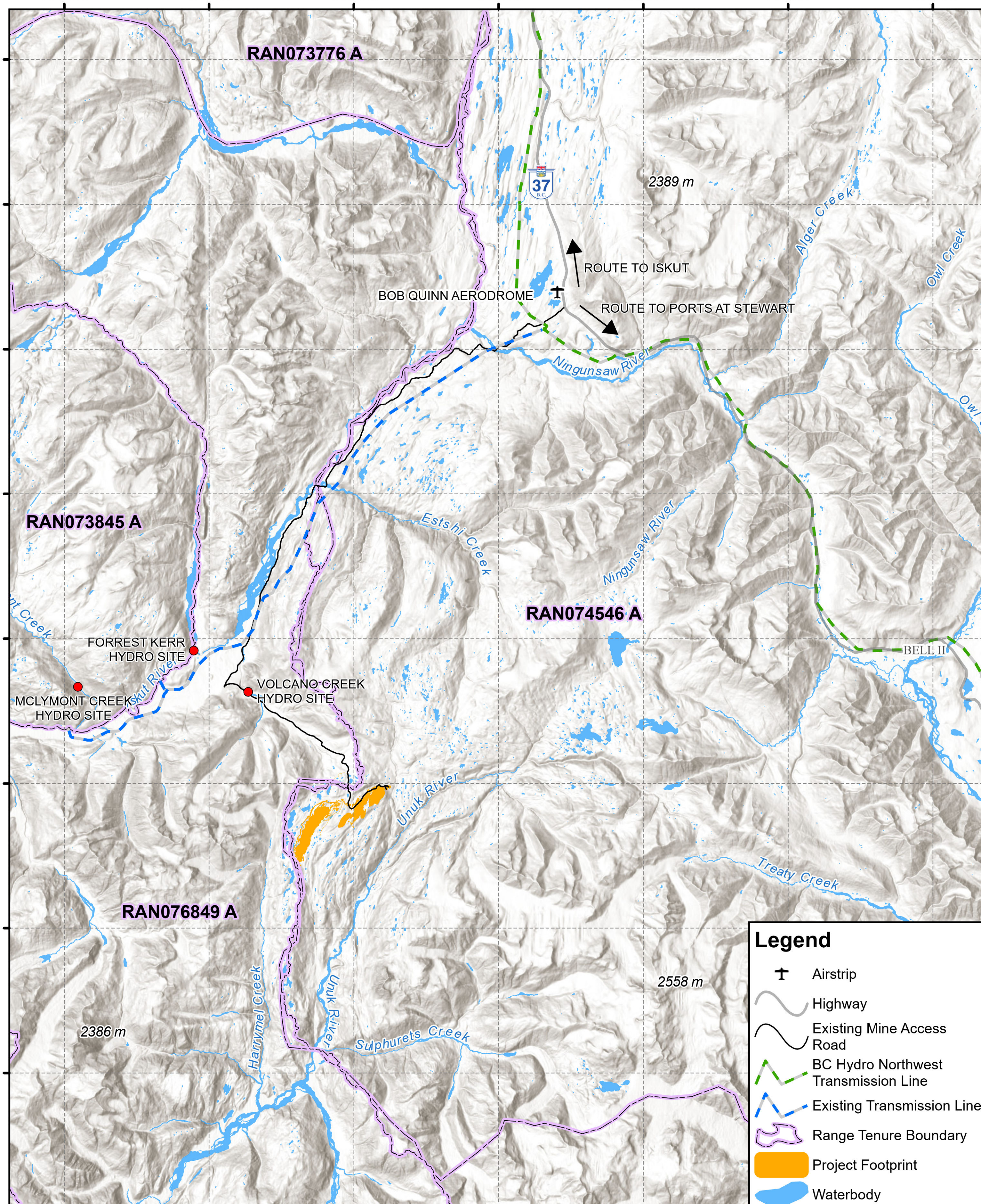
Eskay Creek Revitalization

Figure 1.3-3: Forestry Tenures in the Project Vicinity

Skeena Mining Division - NTS 104B09
British Columbia, Canada



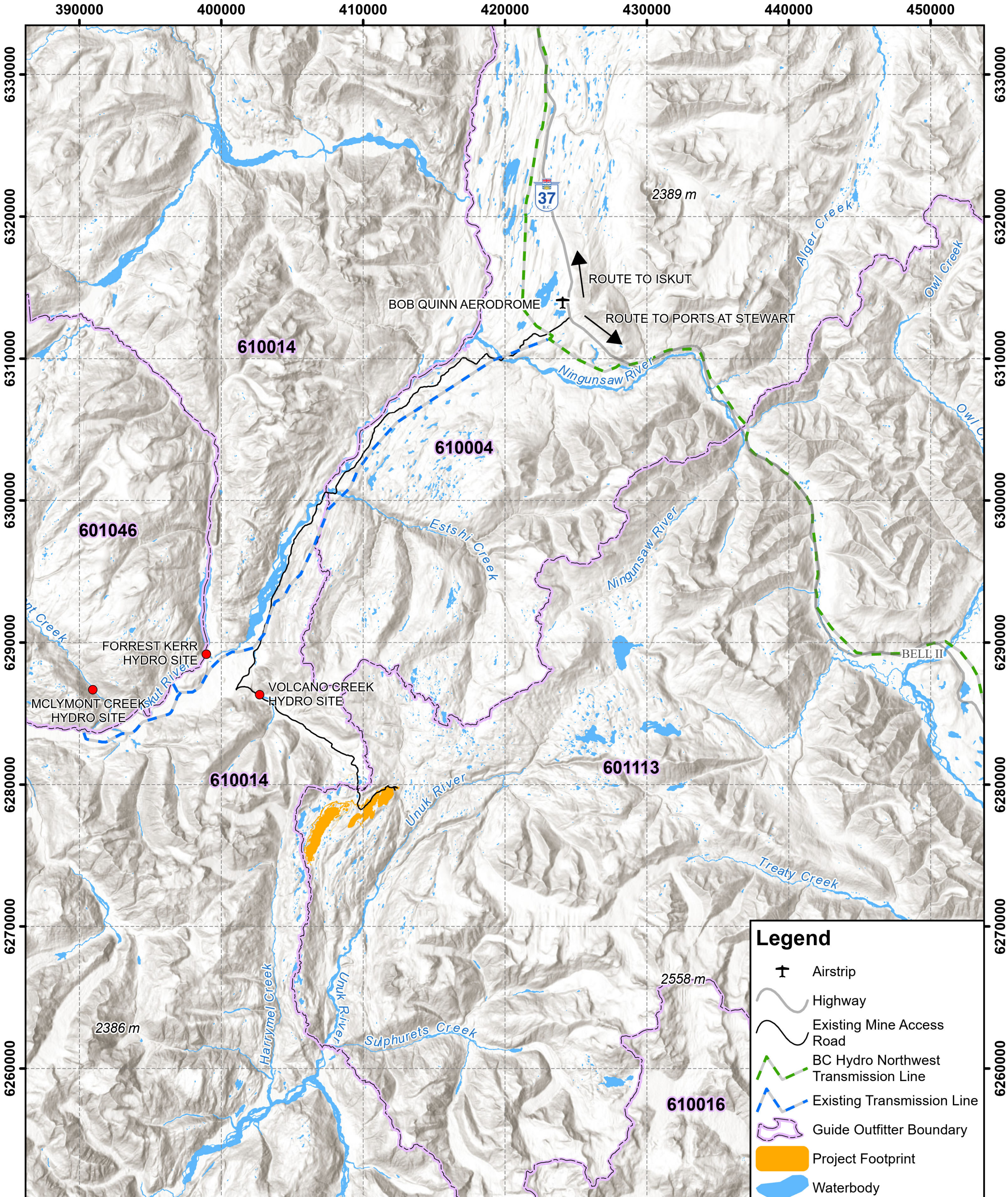
Skeena Resources Ltd.
Date: 05-Dec-2024
Figure: 1.3-4 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

Eskay Creek Revitalization

Figure 1.3-4: Range Tenures in the Project Vicinity

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



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Date: 05-Dec-2024
Figure: 1.3-5 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

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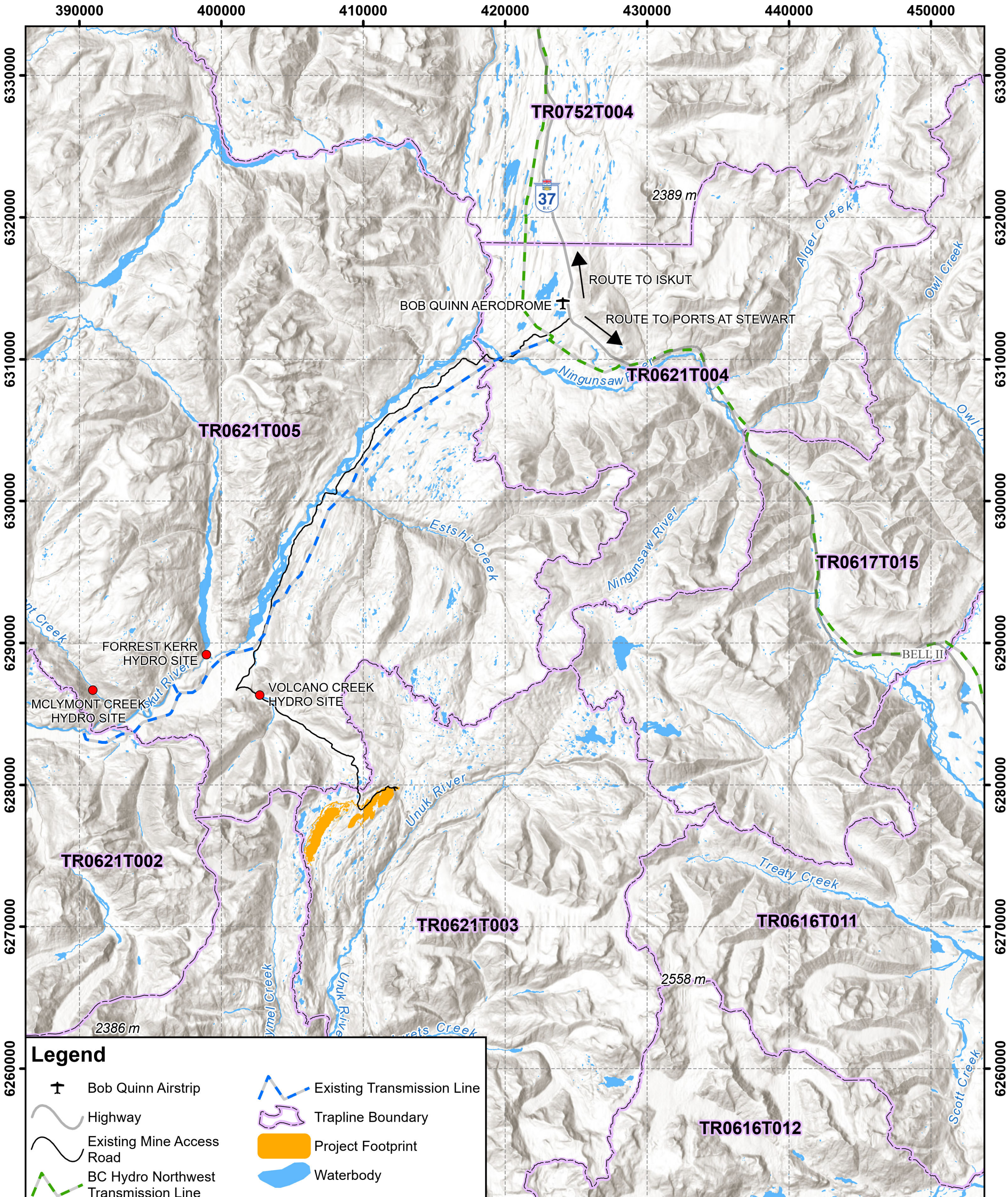
Eskay Creek Revitalization

Figure 1.3-5: Guide Outfitters in the Project Vicinity

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



Skeena Resources Ltd.
Date: 05-Dec-2024
Figure: 1.3-6 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

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Eskay Creek Revitalization

Figure 1.3-6: Traplines in the Project Vicinity

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

Portions of the Transportation Corridor have also been noted by the Engaged Indigenous Nations[5] as an area frequented for hunting and gathering activities (Rescan 2009; Rescan 2013; MNBC Hodgepodge Map [2023]; Pretium Resources Inc. 2014a); namely, sections of Highway 37 and Highway 37A, which extend along the Bell-Irving River and Nass River valleys. These activities include mushroom picking for consumption and sale (Seabridge Gold Inc. 2013; Appendix 21-3, Tahltan Country Foods Baseline Report).

The Transportation Corridor overlaps the territories of the Tahltan Nation, TSKLH, and Gitanyow Nation, as well as Nisg̱a'a Lands, Nass Wildlife Area, Nass Area, and use areas of the MNBC. The southwest terminus of the Transportation Corridor is located at port facilities in the District of Stewart. The Nisg̱a'a Nation has treaty rights to harvest marine resources, and other resources, in the Nass Area (as defined in the Nisg̱a'a Treaty 1999), including in the Portland Canal and the marine waters fronting Stewart, BC. The Nisg̱a'a Nation also has treaty rights to harvest species of freshwater fish and aquatic plants in the Bear River, including salmon, trout, and eulachon.

1.3.3 Project Access Route and Transportation Corridors

Access to the Project will be provided by the existing Eskay Creek MAR, a 59 km all-season gravel road, which connects the Project mine site to provincial Highway 37 (i.e., Stewart-Cassiar Highway) near Bob Quinn Lake Aerodrome. Concentrate produced by the Project will be hauled by truck along a southern portion of Highway 37, near the Meziadin Junction and westward along Highway 37A to Stewart, BC; this portion of the route passes through the Nass and Nass Wildlife Areas of the Nisg̱a'a Nation and the territory of the Gitanyow Nation. More detailed information on the Transportation Corridor is provided in Section 1.4.3, Transportation Corridor.

1.3.4 Environmental Setting

1.3.4.1 Ecology

The Project is located on the Prout Plateau, a rolling subalpine upland with an average elevation of 1,100 metres above sea level (masl). The Prout Plateau is on the eastern flank of the Boundary Ranges of the Coast Mountains between the Unuk River and Iskut River, which are located south and north of the Project mine site, respectively. The Project is located in the Montane Cordillera Ecozone, Skeena Mountains Ecoregion, and Northern Skeena Mountains Ecodistrict, according to Canada's Ecological Land Classification (Chapter 18, Vegetation and Ecosystems Effects Assessment). Within the BC system, the Project lies within the Northern Skeena Mountains Ecosection, an area of rugged mountains and narrow valleys, within the Skeena Mountains Ecoregion.

The area of the Project lies within the northern Coast Mountains of BC, which is a transition zone between the very wet coastal region and the drier interior. The dominant biogeoclimatic units, which are classifications of climate and vegetation, where the Project occurs are (Chapter 18, Vegetation and Ecosystems Effects Assessment):

- Leeward Moist Maritime Mountain Hemlock Parkland (MHmmp2) and Leeward Moist Maritime Mountain Hemlock (MHmm2) units where the Project mine site infrastructure lies; and

[5] Defined as the groups identified by the EAO in section 2 of "Schedule B – Assessment Plan" (EAO 2023b), which refers to the Tahltan Nation / TCG, the Tsetsaut Skii km Lax Ha, the Nisg̱a'a Nation / Nisg̱a'a Lisims Government, Gitanyow Nation, and Métis people, represented by the Métis Nation British Columbia.

- Wet Very Cold Engelmann Spruce Subalpine Fir (ESSFwv), Wet Very Cold Engelmann Spruce Subalpine Fir Parkland (ESSFwvp), and Wet Cold Interior Cedar Hemlock (ICHwc) for the existing offsite Eskay Creek MAR and Transmission Line.

The dominant land cover types of the Project mine site are described as follows:

- The area of the Project mine site is dominated by high elevation heath land cover, primarily comprised of heathers, such as white mountain-heather and other dwarf shrub species, followed by krummholtz and forested parkland land cover (i.e., stunted conifer treed areas).
- The existing Eskay Creek MAR and Transmission Line pass through areas dominated by forest, through a range of predominantly moist productive forest, and including zonal to dry forested areas. Several tree species occur in these areas, with the dominant tree species of mountain hemlock, with components of ts'ōsts'iye (subalpine fir*)*, ts'ū (Engelmann spruce), and western hemlock.

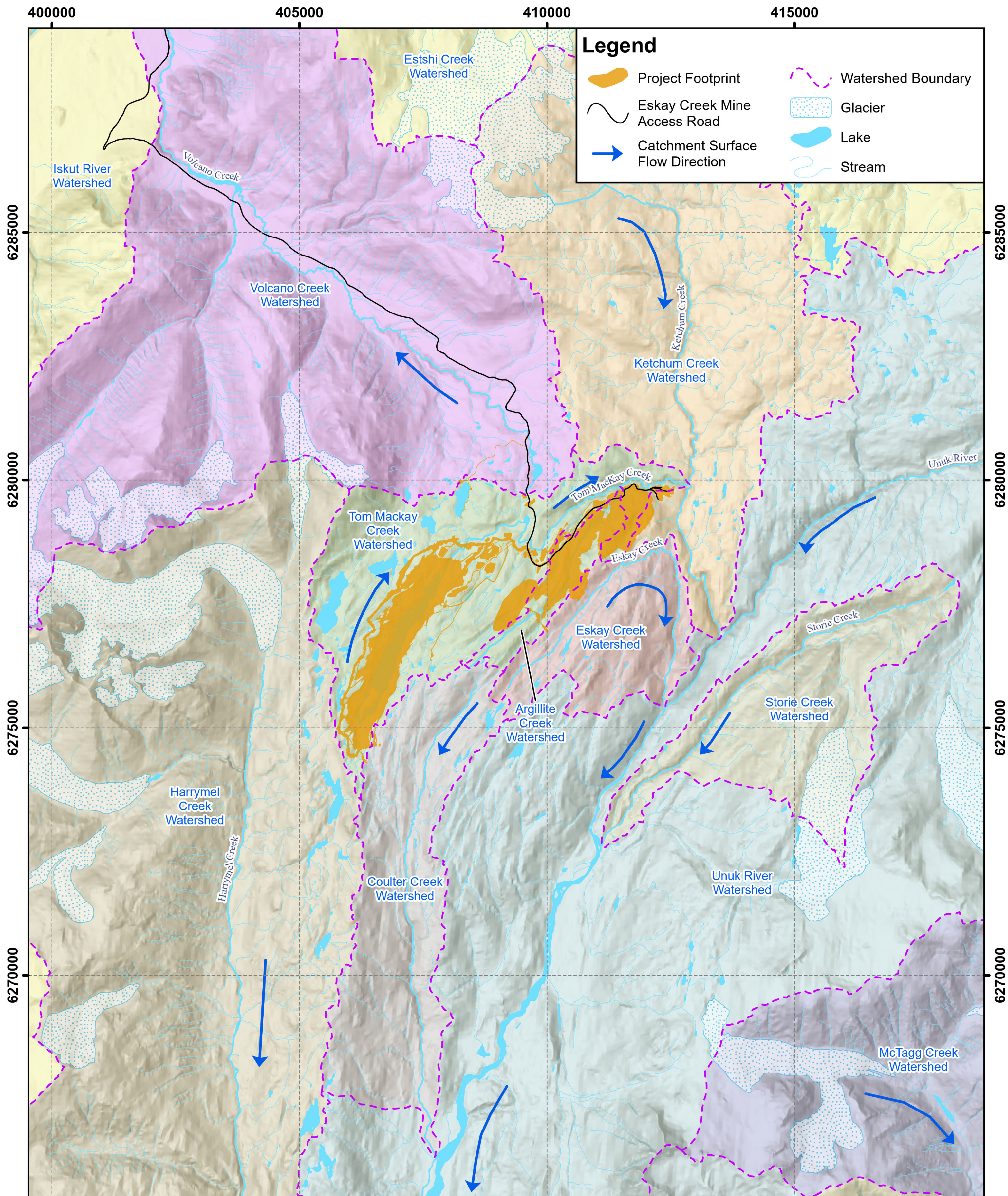
The diversity of land cover, including high elevation dwarf shrub communities to low elevation forest, wetland, and riparian areas, provide important habitat for fish, plants, and wildlife. Detailed information regarding these habitats is provided in Chapter 16, Fish and Fish Habitat Effects Assessment, Chapter 18, Vegetation and Ecosystems Effects Assessment, and Chapter 19, Wildlife and Wildlife Habitat Effects Assessment, respectively.

1.3.4.2 Local Waterbodies

The Project is located in the Pacific major drainage area and straddles the divide between the Nass-Coast sub drainage area – Coastal Waters of British Columbia-Clarence Strait sub sub drainage area, and the Tūdes̱e chō (Stikine) – Coast sub drainage area – Iskut sub sub drainage area (Natural Resource Canada 2022). Major Drainage Area, Sub Drainage Area, and Sub Sub Drainage Area classifications are used by Natural Resources Canada, which are equivalent to the primary, secondary, and tertiary watershed classifications used in some provinces but are not used in BC.

The area of the Project lies within the Unuk River watershed on the top of the Prout Plateau, which forms the primary watershed divide between the Unuk and Iskut rivers (Figure 1.3-7; Chapter 15, Surface Water Effects Assessment). The streams within the Project watersheds drain into the Unuk River, which flows southwest across the Alaska border to the Pacific Ocean, specifically Burroughs huyētu'ā (Bay). The existing offsite Eskay Creek MAR and Transmission Line pass through the Volcano Creek watershed. Volcano Creek is a tributary that drains north into Iskut River, a major tributary of the Tūdes̱e chō (Stikine River). The Unuk and Stikine rivers are designated Transboundary Waters in Schedule 3 of the *International Boundary Waters Treaty Act* (RSC 1985, c.I-17).

The Prout Plateau includes Tom MacKay Lake, Little Tom MacKay Lake, and several smaller menh (lakes). These lakes, as well as Argillite Creek, collectively form the headwaters of the Tom MacKay Creek drainage system immediately adjacent to the Project mine site. The remainder of the Prout Plateau near the Project mine site drains to the south by tributaries to the Unuk River including Tom MacKay, Argillite, Ketchum, Eskay, Harrymel, and Coulter creeks (Chapter 15, Surface Water Effects Assessment). The gradient of these drainages increases as the creeks descend from the moderate relief of the plateau into the deeply incised Unuk River valley.



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Author: Skeena GIS
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Figure 1.3-7: Waterbodies in the Project Vicinity

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:100,000
Coord. System: NAD 1983 UTM Zone 9N
0 1 2 3 4
Kilometers
N

Tom MacKay Lake and Albino Lake are permitted storage facilities and are referred to as the TMSF and the Albino Storage Facility (ASF), respectively.

Waterbodies in the vicinity of the Project are shown on Figure 1.3-7. Additional details on watersheds and waterbodies in the area of the Project are provided in Chapter 15, Surface Water Effects Assessment.

1.3.4.3 Municipal or Private Potable Drinking Water Sources

With the exception of potable drinking water sources used for the Eskay Creek Mine site (i.e., water licences C107796 and 503543), the closest known potable water sources from surface water are surface water licences (i.e., 502124, 502570, and 502605) between 16.1 and 22.2 km southeast of the Project Footprint, held by KSM Mining ULC. Outside of the Eskay Creek Mine site, where there are two wells registered for potable water (well tags 124992 and 125000), the closest registered well used for potable water is 37.9 km to the northeast at Bob Quinn Lake (well tag 94794).

1.3.4.4 Navigable Waterways

Surface water features in the area of the Project were assessed for navigability to identify which water features were considered navigable waterways. Waters in the assessment included the following:

- Tom MacKay Creek watershed, including Little Tom MacKay Creek, Argillite Creek, the ASF, and the TMSF;
- Ketchum Creek downstream from the Tom MacKay Creek confluence; and
- Volcano Creek watershed.

Transport Canada's self-assessment flow chart from the Project Review Tool (Navigation Protection Program [Transport Canada 2024]) was used to determine navigability in accordance with Transport Canada's "A Guide to the Navigation Protection Program's Application and Review Requirements" (Transport Canada 2020).

The determinations presented in Table 1.3-1 indicate development of the Project and associated supporting activities will not trigger permitting requirements under the *Canadian Navigable Waters Act* (RSC 1985, c N-22).

Table 1.3-1: Navigability Self-assessment Results for the Tom MacKay Creek Watershed, Ketchum Creek, and Volcano Creek Watershed, 2024

Watershed/Watercourse	Navigability
Tom MacKay Creek Watershed	Not Navigable
Ketchum Creek	Not Navigable
Volcano Creek Watershed	Not Navigable

In July 2005, Tom MacKay Lake was exempted from consideration as a navigable water under section 22 of the *Canadian Navigable Waters Act* (RSC 1985, c N-22; Proclamation Exempting Tom MacKay Lake from the operation of section 22 of the *Canadian Navigable Waters Act*, SOR/2005-226). The waterbody has since been designated as a Tailings Impoundment Area federally and subsequently excluded from consideration as a navigable waterbody under federal navigable waters legislation.

1.3.4.5 Environmentally Sensitive Areas

There are no federal, provincial, or regional parks, wilderness or conservancy areas, ecological reserves, protected or recreational areas in or immediately adjacent to the Project mine site. The closest protected area near the Project is Nenh Yīge Tsa' (Ningunsaw) Provincial Park, which is 20 km northeast of the area of the Project and alongside Highway 37. The five closest protected areas in the vicinity of the Project include (Figure 1.3-8):

- Ningunsaw Provincial Park, located approximately 20 km northeast of the Project;
- Lava Forks Provincial Park, located approximately 28 km southwest of the Project;
- Ningunsaw River Ecological Reserve (provincial), located approximately 34 km northeast of the Project;
- Border Lake Provincial Park, located approximately 33 km southwest of the Project; and
- Craig Headwaters Protected Area (provincial); located approximately 39 km west of the Project.

In addition, the Tenh Dẕetle, (Ten-thet-luh; Ice Mountain) Conservancy (provincial) is located approximately 115 km north of the Project.

A review for potentially environmentally sensitive areas in the Project Footprint was conducted based information in Chapter 16, Fish and Fish Habitat Effects Assessment, Chapter 18, Vegetation and Ecosystems Effects Assessment, Chapter 19, Wildlife and Wildlife Habitat Effects Assessment, and Chapter 22, Non-traditional Land and Resource Use Effects Assessment. This review included:

- Wetlands;
- Old growth management areas;
- Wildlife management areas (i.e., legally protected wildlife areas);
- Wildlife habitat areas;
- Critical wildlife habitat;
- Ungulate winter range; and
- Recreation sites and trails established under the *Forest and Range Practices Act* (SBC 2002, c 69).

The following potentially environmentally sensitive areas were identified overlapping the Project Footprint:

- Ecologically and biologically sensitive areas:
  - 26.7 ha of alpine meadow;
  - <1 ha of riparian willow;
- 4.9 ha of wetland (note, no red-listed or blue-listed wetlands occur in the Project Footprint);
- Habitats of federally and/or provincially species listed under the *Species at Risk Act* (*SARA*; SC 2002, c 29); as noted above, no *SARA*-defined critical habitat mapping overlaps with the Project Footprint:
  - Olive-sided flycatcher (listed as Special Concern on Schedule 1 of *SARA*) in opens, clearings, or edges of conifer forests;

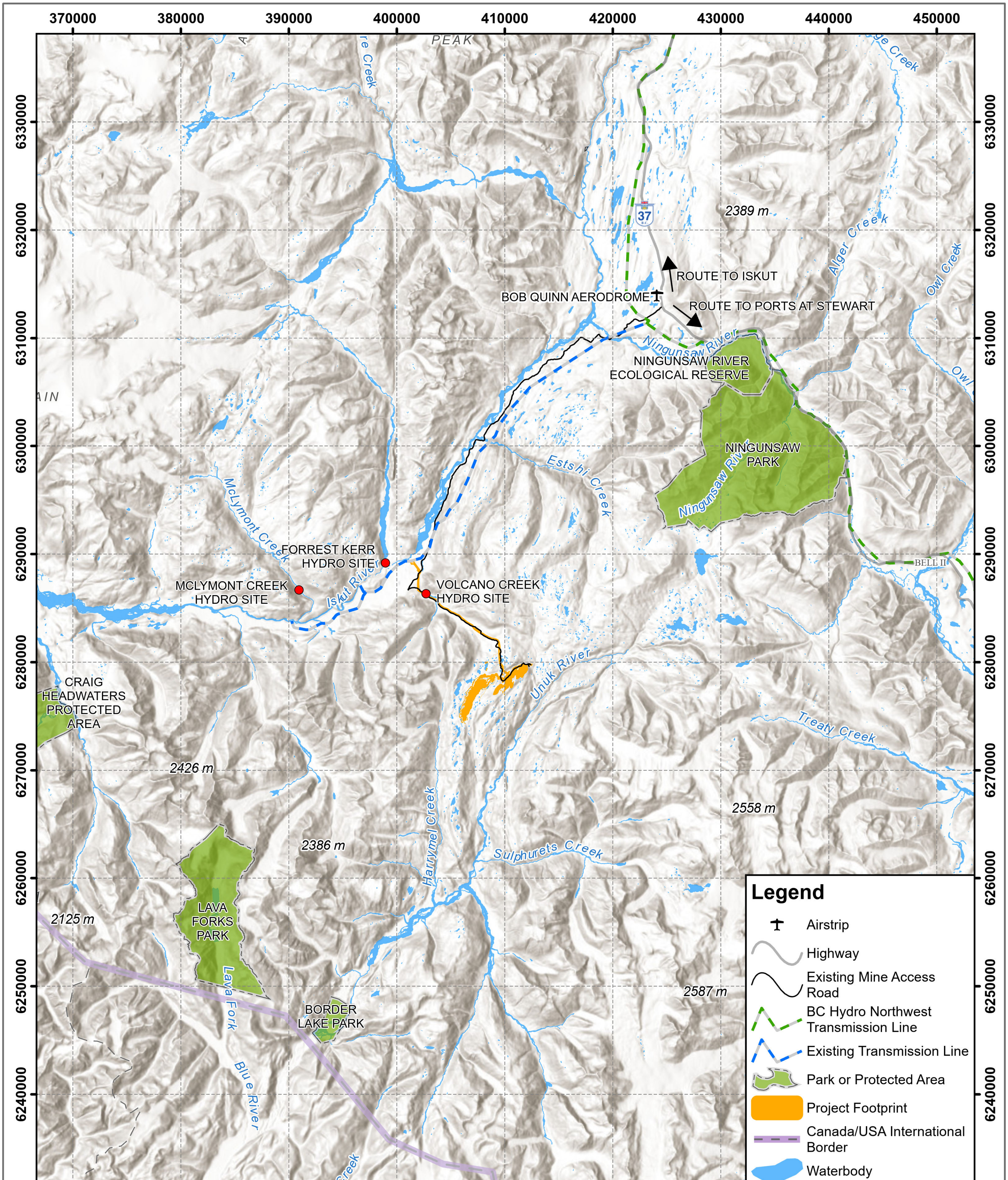

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Figure: 1.3-8 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

Eskay Creek Revitalization

Figure 1.3-8: Parks and Protected Areas in the Project Vicinity

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:450,000
Coord. System: NAD 1983 UTM Zone 9N
0 4.5 9 13.5 18
Kilometers

  - Barn swallow (listed as Threatened on Schedule 1 of *SARA*) nesting on buildings in the existing camps;
  - Khoh (Grizzly Bear; listed as Special Concern on Schedule 1 of *SARA* and provincially blue-listed; a Grizzly Bear Population Unit overlaps the Project Footprint) movement through the Project Footprint;
  - Several et'aneshjide (bat) species (including potential species listed as Endangered on Schedule 1 of *SARA* and provincially blue-listed) foraging in open areas and near wetlands; and
- Western toad (listed as Special Concern on Schedule 1 of *SARA*) breeding in wetlands ecosystems.

Maps showing the ecologically and biologically sensitive areas (i.e., alpine meadow and riparian willow) and wetlands overlapping the Project Footprint are provided in Chapter 18, Vegetation and Ecosystems Effects Assessment. Habitat mapping and wildlife information of the federally and/or provincially listed under *SARA* is provided in Chapter 19, Wildlife and Wildlife Habitat Effects Assessment.

1.3.4.6 Lands Subject to Conservation Agreements

Lands subject to conservation agreements are lands where there is a contract between a landowner and conservation organization (i.e., a non-governmental organization [NGO]). A search of the "NGO Conservation Areas – Fee Simple" dataset (Government of BC 2024), which contains spatial and attribute information for conservation areas in BC, shows there are no lands subject to conservation agreements that occur in, or in the area of, the Project.

1.3.5 Indigenous Communities and Territories

Through consultations with Indigenous Nations and British Columbia's Environmental Assessment Office (EAO), Skeena Resources identified four potentially affected Indigenous Nations: Tahltan Nation, TSKLH, Nisg̱a'a Nation, and Gitanyow Nation (Figure 1.3-9, Figure 1.3-10, Figure 1.3-11, and Figure 1.3-12, respectively). The Project is located within the territory of the Tahltan Nation (TCG 2021) and the territory of the TSKLH (Figure 1.3-9 and Figure 1.3-10). Three Tahltan communities are located north/northeast of the Project mine site: Iskut (135 km north; 170 km via road), Dease Lake (190 km northeast; 253 km via road), and Telegraph Creek (142 km north; 362 km via road). Assessments in this EAC Application generally adopts a conservative approach to Tahltan Nation land use and occupancy, which is assumed throughout Tahltan Territory in the past, and recovery of use and interests in the future. See for example Chapter 26, Current and Future Use of Lands and Resources for Traditional Purposes Effects Assessment, and Chapter 27, Quiet Enjoyment of Land Effects Assessment. The closest local Métis chartered community is in Terrace (265 km to the southeast; 451 km via road).

Iskut has a known population[6] of 406; Dease Lake has total known population of 283, which includes 54 on Dease Lake 9 Reserve Land and 229 in the unincorporated town of Dease Lake; and Telegraph Creek has a known population of 51. A summary of Indian reserve lands, and their proximity to the Project as well as known populations are provided in Table 1.3-2.

[6] Known population values presented in Section 1.3.5, Indigenous Communities and Territories, are based on census information provided in the "2021 Census of Population Geographic Summary" (Statistics Canada 2021).

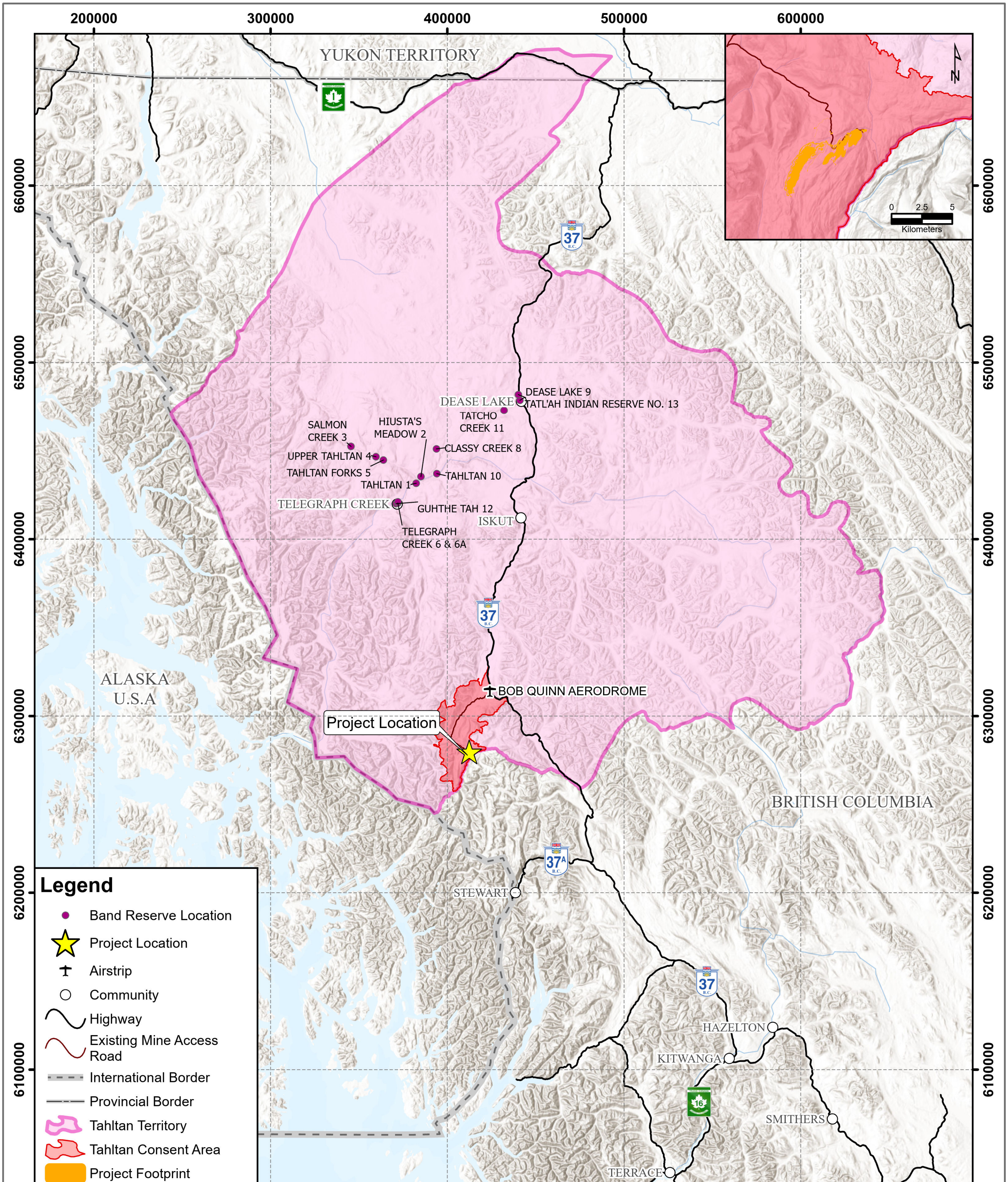

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Figure: 1.3-9 Rev: F
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

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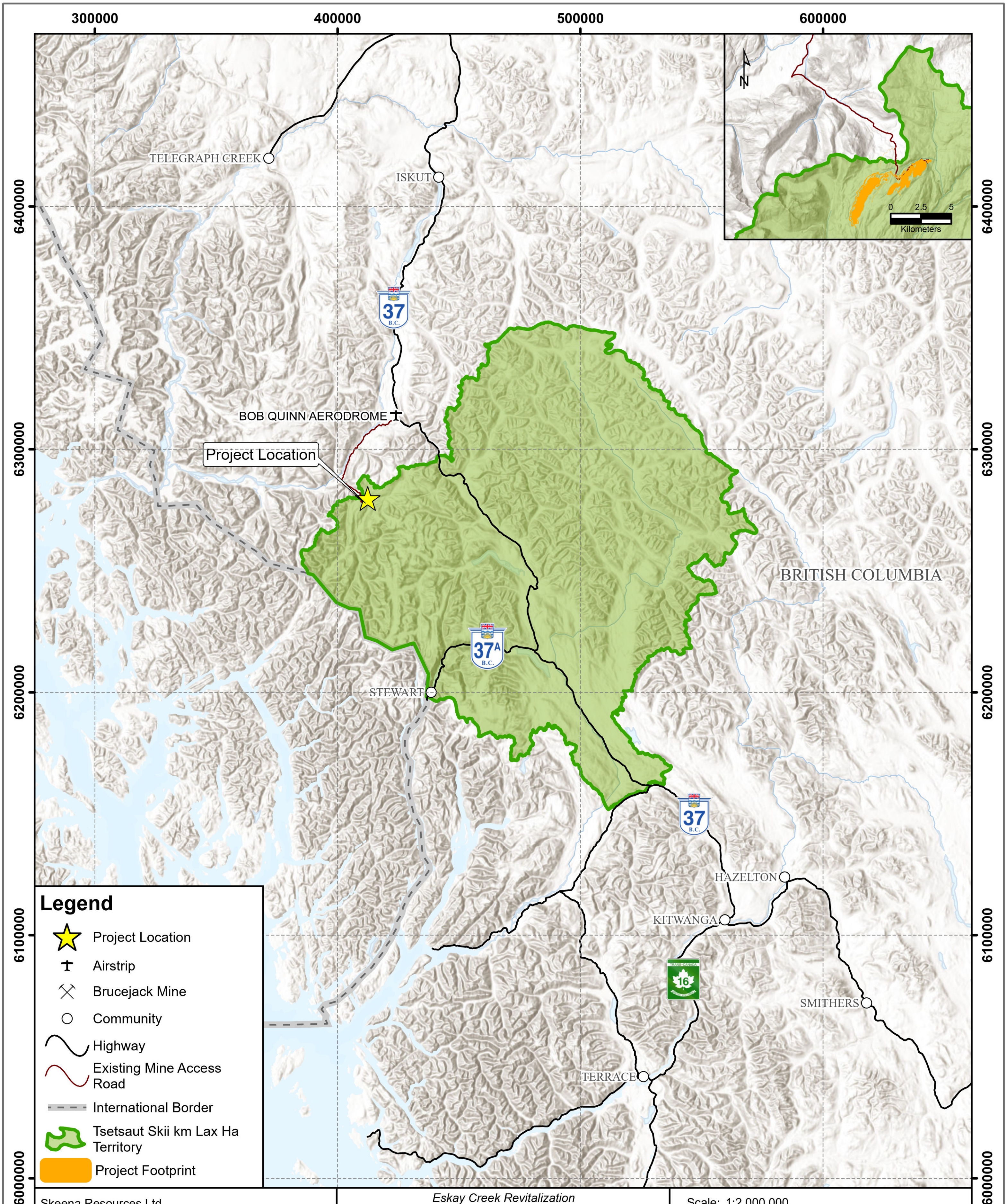
Figure 1.3-9: Tahltan Territory and Tahltan Consent Area

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:2,750,000
Coord. System: NAD 1983 UTM Zone 9N
0 25 50 75 100
Kilometers



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Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD.aprx

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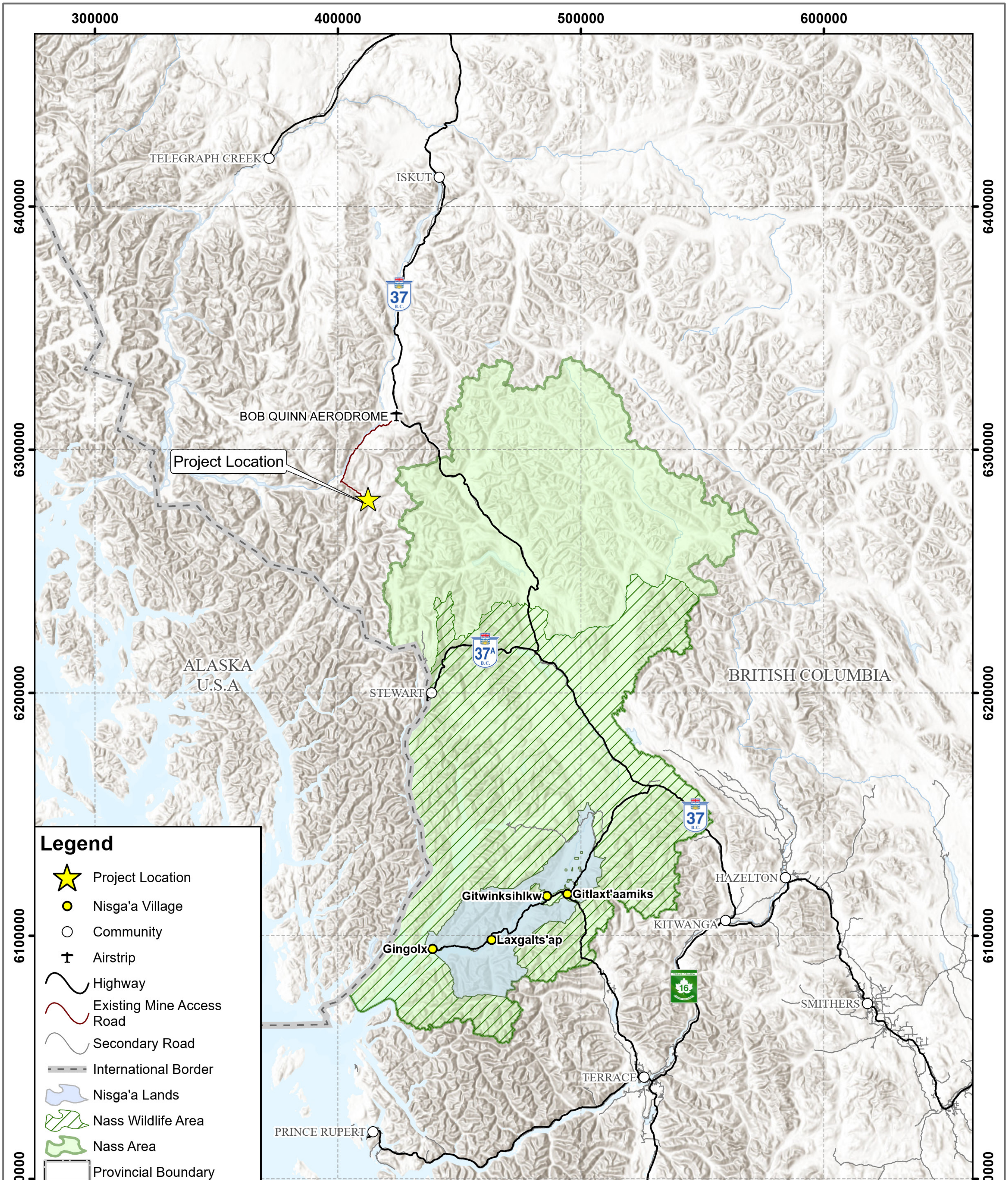
Figure 1.3-10: Tsetsaut Skii km Lax Ha Territory

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:2,000,000
Coord. System: NAD 1983 UTM Zone 9N
0 20 40 60 80
Kilometers



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Date: 26-Jun-2024
Figure: 1.3-11 Rev:C
Author: Skeena GIS
Filename: 240301_EC_EAFiguresPD.aprx

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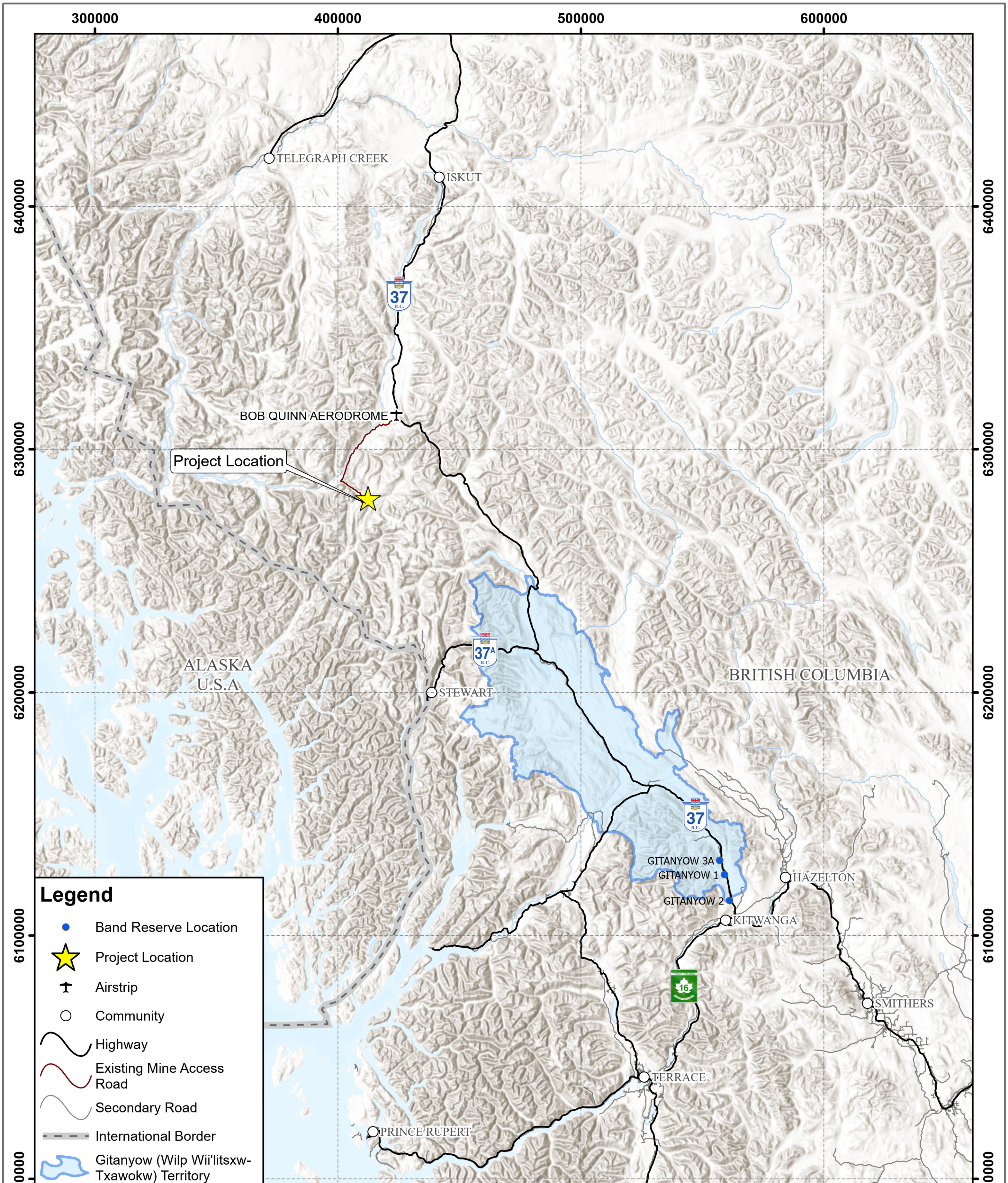
Eskay Creek Revitalization

Figure 1.3-11: Nisga'a Lands, the Nass Wildlife Area & the Nass Area

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:2,000,000
Coord. System: NAD 1983 UTM Zone 9N
0 20 40 60 80
Kilometers



Skeena Resources Ltd.
Date: 19-Jun-2024
Figure: 1.3-12 Rev: C
Author: Skeena GIS
Filename: 240301_EC_EAFiguresPD.aprx

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Eskay Creek Revitalization

Figure 1.3-12: Gitanyow (Wilp Wii'litsxw-Txawokw) Territory

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:2,000,000
Coord. System: NAD 1983 UTM Zone 9N
0 20 40 60 80
Kilometers

1.3.5.1 Indian Reserve Lands

Distances from the Project mine site to Indian reserve lands are listed in Table 1.3-2; these lands are listed by Indigenous Nation. The TSKLH do not have any reserve lands.

Table 1.3-2: Distances from the Eskay Creek Revitalization Project Mine Site to Indian Reserve Lands

Indigenous Nation	Indian Reserve	Distance from the Project Mine Site (km)	Known Population[1]
Iskut	Kluachon Lake 1	136	Not available
	Iskut 6	137	478
	Stikine River 7	146	Not available
Tahltan	Guhthe Tah 12	147	142
	Telegraph Creek 6	147	46
	Telegraph Creek 6a	148	5
	Tahltan 1	156	0
	Hiusta's Meadow 2	159	Not available
	Tahltan 10	159	Not available
	Tahltan Forks 5	172	Not available
	Classy Creek 8	173	Not available
	Upper Tahltan 4	175	Not available
	Salmon Creek 3	185	Not available
	Tatcho Creek 11	196	Not available
	Tatl'ah Indian Reserve No. 13	203	Not available
	Dease Lake 9	206	54
Gitanyow	Gitanyow 3a	209	Not available
	Gitanyow 1	214	408
	Gitanyow 2	224	Not available

Notes:
km = kilometre
Not available = information could not be located
[1] Statistics Canada (2021).

1.3.5.2 Tahltan Territory and Tahltan Consent Area

The Tahltan Territory is presented on Figure 1.3-9. Tahltan Nation representatives contributed the following description of the boundaries of the Tahltan Territory:

> *Tahltan territory encompasses about 93,500 km^2 [square kilometres]. 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 Unuk River, and upper Nass tributaries and western half of the Stikine plateau, including the sacred headwaters of the Stikine, Nass, and Skeena rivers.*

The Tahltan Consent Area is also presented on Figure 1.3-9 and is described in section 4.3 of the *Declaration Act* Agreement (2022) as the area in which consent of TCG "is required for the Project to proceed" (*Declaration Act* Agreement 2022, 13). Section 4.5 further clarifies that "the Consent Area does not limit the geographic scope of Project effects" (*Declaration Act* Agreement 2022, 13) that will be subject to the environmental assessment.

1.3.5.3 Tsetsaut Skii km Lax Ha Territory

The Project is located within the territory of the TSKLH, as shown on Figure 1.3-10. The majority of the TSKLH members reside in Hazelton, BC, located approximately 235 km southeast of the Project. The territory of the TSKLH encompasses 19,800 km^2, which extends from the north side of the Cranberry River in the south to Tū Dasetānh (Beaver Pond) in Ningunsaw Pass in the north (Pretium Resources Inc. 2014b). The TSKLH do not have any reserves.

1.3.5.4 Nisg̱a'a Lands, Nass Wildlife Area, and Nass Area

The Project mine site is located 16.8 km from the Nisg̱a'a Nass Area, 49.9 km from the Nass Wildlife Area, and 157.8 km from the Nisg̱a'a Lands (Nisg̱a'a Treaty 1999). Highway 37 and Highway 37A, which will be used by Project traffic, pass through the Nass Area and Nass Wildlife Area. The Project location in relation to Nisg̱a'a Lands, Nass Wildlife Area, and Nass Area is shown on Figure 1.3-11.

1.3.5.5 Gitanyow Nation Territory

The southern portion of the proposed concentrate haul route (i.e., Transportation Corridor) passes through the Gitanyow Nation (Gitanyow) territory. This Transportation Corridor is along Highway 37 near Meziadin Junction and westward along Highway 37A to Stewart, BC. The Project is located approximately 55 km northwest from the northwestern tip of the Gitanyow territory. The Project location in relation to the Gitanyow territory and Gitanyow reserves is shown on Figure 1.3-12.

1.3.6 Culturally and Locally Important Landscape Features

No known provincial or national historical sites occur in the area of the Project. Information on known locally important features of the landscape in the vicinity of the Project that can be publicly shared are provided in Section 1.3.4.5, Environmentally Sensitive Areas.

Areas of cultural importance to Indigenous Nations are summarized in Chapter 4, Tahltan Application Information Requirements, through Chapter 8, Métis Nation British Columbia; these chapters incorporate applicable and available Indigenous Knowledge.

1.4 Project Components

The Project will utilize a combination of existing infrastructure and newly constructed infrastructure during all Project phases. Section 1.4.1.1, Existing Infrastructure, provides a summary of existing infrastructure that is permitted under separate authorizations. Section 1.4.2, New Project Infrastructure, provides information related to new onsite infrastructure that will be constructed for the Project. The current Permitted Mine Area (PMA) authorized under the Mines Act (RSBC 1996, c 293) Permit M-197 will be adjusted as required in consultation with the Ministry of Energy, Mines and Low Carbon Innovation (EMLI). Additional information on the PMA is provided in Appendix A-3, Requested Project for Certification.

In addition, the Project requires use of support infrastructure components that are located offsite, or substantially offsite; these components are not part of the EAC Application and are permitted under separate authorizations in advance of the Project. These support infrastructure components are summarized in Section 1.4.1.2, Support Infrastructure.

1.4.1 Existing Infrastructure and Support Infrastructure

1.4.1.1 Existing Infrastructure

Existing infrastructure and disturbance areas will be utilized by the Project as much as practicable, which includes infrastructure constructed as part of the historical Eskay Creek Mine and infrastructure constructed as part of the Eskay Creek Technical Sample Project (Skeena Resources 2024).

The Eskay Creek Mine has been in Care and Maintenance since 2008, when mining operations ceased, with ongoing site reclamation and treatment of water. In November 2021, Skeena Resources initiated the process to authorize collection of a technical/bulk sample of ore (referred to as the Technical Sample [TS]), in advance of the full development of the Project. Components of the existing mine site that support the Project already permitted under the current Permit M-197, components planned to be permitted under Permit M-197 in advance of the Project, and components associated with the Technical Sample are listed in Table 1.4-1. Key Technical Sample components are shown on Figure 1.4-1; this map also includes inset maps of the KM58 Camp, and the KM59 Camp, and associated administrative and maintenance facilities. The general timing and footprints of the existing and proposed infrastructure post 2024 are described below.

Table 1.4-1: Existing Infrastructure to Be Utilized by the Eskay Creek Revitalization Project

Infrastructure Category	Component	Existing vs. Technical Sample[1] Infrastructure
Material management (open pit)	Technical Sample Pit	Technical Sample
Material management (quarry)	NPAG Quarry 1	Technical Sample
	NPAG Quarry 2	Technical Sample
Material management (crushing)	Temporary crushing/screening plant	Technical Sample
Tailings management	TMSF – Historical	Existing
Waste rock management	Temporary PAG stockpiles (Warehouse)	Existing
	TS MRSA	Technical Sample
	Temporary PAG Staging Area / PSA	Technical Sample
Topsoil/overburden management	Warehouse stockpiles	Existing
	Topsoil/Overburden Stockpile 1 to Topsoil/Overburden Stockpile 8	Technical Sample

Infrastructure Category	Component	Existing vs. Technical Sample[1] Infrastructure
Water management (contact water)	D7 – Permitted Discharge	Existing
	TM1 – Permitted Discharge	Existing
	MW Pond 1 to MW Pond 4	Existing
	MW Pond WTP	Existing
	Temporary PAG Stockpiles North Collection Channel	Existing
	TS MRSA East Collection Channel	Technical Sample
	TS MRSA West Collection Channel	Technical Sample
	MRSA Collection Channel 1	Technical Sample
	MRSA Collection Channel 2	Technical Sample
	MRSA Collection Pond	Technical Sample
	UMA North Collection Channel[2]	Technical Sample
	UMA South Collection Channel[3]	Technical Sample
	UMA Collection Pond[4]	Technical Sample
	TS WTP[5] (renamed MWTP Stage 1 during Project Construction)	Technical Sample
	Warehouse Pad Sediment Control Pond (renamed Process Plant Sediment Control Pond during Project Construction)	Technical Sample
	Pipelines and culverts	Existing and Technical Sample
Water management (non-contact water)	TS MRSA Diversion Channel	Technical Sample
	Lower MRSA Diversion Pipeline	Technical Sample
	Lower MRSA Diversion Pipeline Outflow Channel	Technical Sample
	UMA Diversion Channel[6]	Technical Sample
	Technical Sample Haul Road Roadside Channel	Technical Sample
	TMSF Haul Road Roadside Channel	Technical Sample
	Culverts	Technical Sample
Water management (potable water)	Freshwater Intake Locations	Existing
	Potable Water Tank	Existing
	KM59 Potable Water Treatment Plant	Existing
	KM58 Potable Water Treatment Plant	Existing
Water management (non-potable water)	KM58 Firewater Tank	Existing
Water management (sewage treatment)	Sewage Treatment Plants and Discharge	Existing
	Settling Tanks	Existing
	KM58 Holding Tank	Existing
	Rig Camp Holding Tank	Existing

Infrastructure Category	Component	Existing vs. Technical Sample[1] Infrastructure
Roads (mine site access)	Eskay Creek MAR	Existing
Roads (onsite)	Albino Lake Access Road	Existing
	Coulter Creek Access Road	Existing
	Technical Sample Haul Road	Technical Sample
	TMSF Haul Road	Technical Sample
	TMSF North Dam Haul Road	Technical Sample
	TMSF North Dam Spur Road	Technical Sample
Power supply	KM58 Powerhouse	Existing
	KM59 Powerhouse	Existing
	Generators	Existing
	Generators	Technical Sample
Explosives storage facilities	Explosives Magazine	Existing
	Explosives Bulk Storage Pad 1	Technical Sample
	Explosives Bulk Storage Pad 2	Technical Sample
Waste management	Burn Pit	Existing
	Incinerators	Existing
	Waste management (hazardous and non-hazardous)	Existing
Ancillary Infrastructure	KM58 Camp, KM59 Camp, Temporary Rig KM58.5 Camp, Camp (near TMSF), Mine Dry, Warehouse Pad, Assay Laboratory, Acid Building, KM53.5 Laydown, Helipad, and fuel storage (diesel and propane)	Existing
	Support facilities, laydown and storage areas, communications	Technical Sample

Notes:

KM = kilometre marker; MAR = Mine Access Road; MRSA = Mine Rock Storage Area; MW = Mine Water; MWTP = Mine Water Treatment Plant; NPAG = non-potentially acid generating; PAG = potentially acid generating; PSA = PAG Storage Area; TMSF = Tom MacKay Storage Facility; TS = Technical Sample; UMA = Upper Mine Area; WTP = Water Treatment Plant

[1] *Eskay Creek Technical Sample Project (Skeena Resources 2024).*

[2] *Referred to as the PSA North Collection Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).*

[3] *Referred to as the PSA South Collection Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).*

[4] *Referred to as the PSA Collection Pond in the Eskay Creek Technical Sample Project (Skeena Resources 2024).*

[5] *Referred to as the PSA WTP in the Eskay Creek Technical Sample Project (Skeena Resources 2024).*

[6] *Referred to as the PSA Diversion Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).*

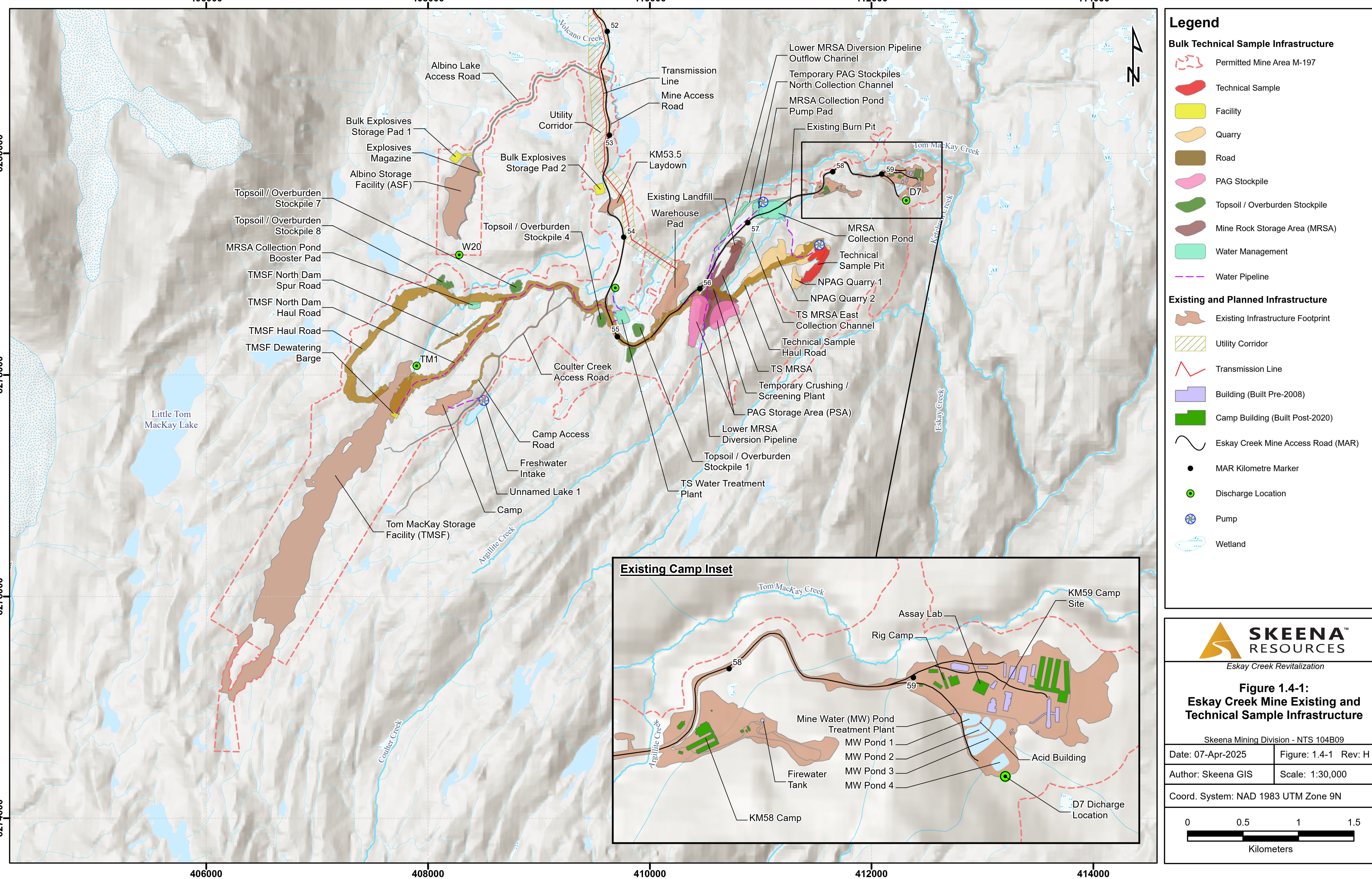


Figure 1.4-1: Eskay Creek Mine Existing and Technical Sample Infrastructure

Skeena Mining Division - NTS 104B09

Date: 07-Apr-2025	Figure: 1.4-1 Rev: H
Author: Skeena GIS	Scale: 1:30,000

Coord. System: NAD 1983 UTM Zone 9N

Historical and Existing Eskay Creek Mine

Infrastructure was constructed and operated to support the underground mining at the Eskay Creek Mine between 1994 and 2008, as well as the 2009 to 2021 period of Care and Maintenance when the Eskay Creek Mine was partially reclaimed and decommissioned. Since 2017, additional mineral exploration has occurred, including minor upgrades in 2020 and 2021 after Skeena Resources purchased the mine site. These upgrades were completed to support maintenance and monitoring activities, as well as advanced exploration programs, and required additional temporary camps, which were built at KM58 and KM59 of the Eskay Creek MAR. Key Eskay Creek Mine infrastructure utilized for the Project will include the Eskay Creek MAR, TMSF, four settling ponds (i.e., Mine Water [MW] Pond 1 to MW Pond 4), administration and maintenance facilities, and the MW Pond Water Treatment Plant (MW Pond WTP). More recent additions in advance of the Project will include the permitting and construction of a camp pad, camp and mine dry, and associated water sourcing and sewage treatment requirements; this camp infrastructure will be located east of the TMSF to support additional exploration programs and current site activities.

Mine water discharges are authorized through the existing *Environmental Management Act* (*EMA*; SBC 2003, c 53) Permit, PE-10818. There are three existing authorized discharge locations: TM1 is the permitted discharge location for the TMSF; W20 is the permitted discharge location for the ASF; and D7 is the permitted discharge location for underground mine water, historical mine site surface drainage, and the existing sewage treatment plants (Figure 1.4-1). The TM1 and D7 discharge locations will remain in place until the development of the mine and infrastructure eliminates these locations.

Water quality results from TM1 and W20 discharge locations remain at steady state and below permitted parameters identified within *EMA* Permit PE-10818. Permitted discharge flow rates exist for D7 discharge location only; all other permitted discharge locations are based on flow-through discharge (per natural hydrograph). The maximum average annual permitted discharge rate for D7 is 6,000 cubic metres per day (m^3/day). In 2023, the highest discharge rate was 0.051 cubic metres per second (m^3/s) in June, which equates to 4,406 m^3/day. The peak daily discharge in 2023 was 1,993 m^3/day in October 2023. The existing mine water pond treatment system consists of four ponds (i.e., MW Pond 1 to MW Pond 4) that remove sediment and chemically treat water as required from the historical underground workings to achieve a discharge quality per the requirements of *EMA* Permit PE-10818. These four ponds are lined with high-density polyethylene (HDPE) and are gravity-fed between ponds. The ponds receive upper and lower mine water (with lime addition prior to 2014 in MW Pond 1 only), sulphuric acid or ferric sulphate addition (in MW Pond 2 prior to 2014 as needed), surface runoff from the historical mine site (into MW Pond 3) and treated sewage effluent (into MW Pond 4). The MW Pond 1 through MW Pond 4 will be maintained during Operations as part of the Project's water management system until no longer required to manage underground mine water, at which point these ponds will be decommissioned and reclaimed.

In addition to MW Pond 1 to MW Pond 4, a water treatment system (i.e., MW Pond WTP) is part of the authorized works, including water treatment buildings and reagent dosing into MW Pond 1. This historical system includes manual lime addition to precipitate metals and potential of hydrogen (pH) balancing with sulphuric acid prior to discharge. The existing water treatment buildings have not been used since 2014. The MW Pond WTP was upgraded in 2023 to include automated reagent dosing systems based on flow rates. The reagents include hydrated lime and ferric sulphate for pH adjustment and coprecipitation of metals, flocculant polymer to promote setting, and then pH readjustment with sulphuric acid prior to discharge.

Existing Eskay Creek Technical Sample Project Infrastructure

The Technical Sample includes new development to generate a bulk sample (e.g., NPAG quarries, haul roads, waste rock storage areas, water management infrastructure, sediment control structures, temporary crushing / screening plant) and makes use of existing infrastructure from the existing Eskay Creek Mine (e.g., Eskay Creek MAR, TMSF). Key Technical Sample infrastructure utilized for the Project will include the TS MRSA, PAG Storage Area (PSA), TMSF Haul Road, and water management structures.

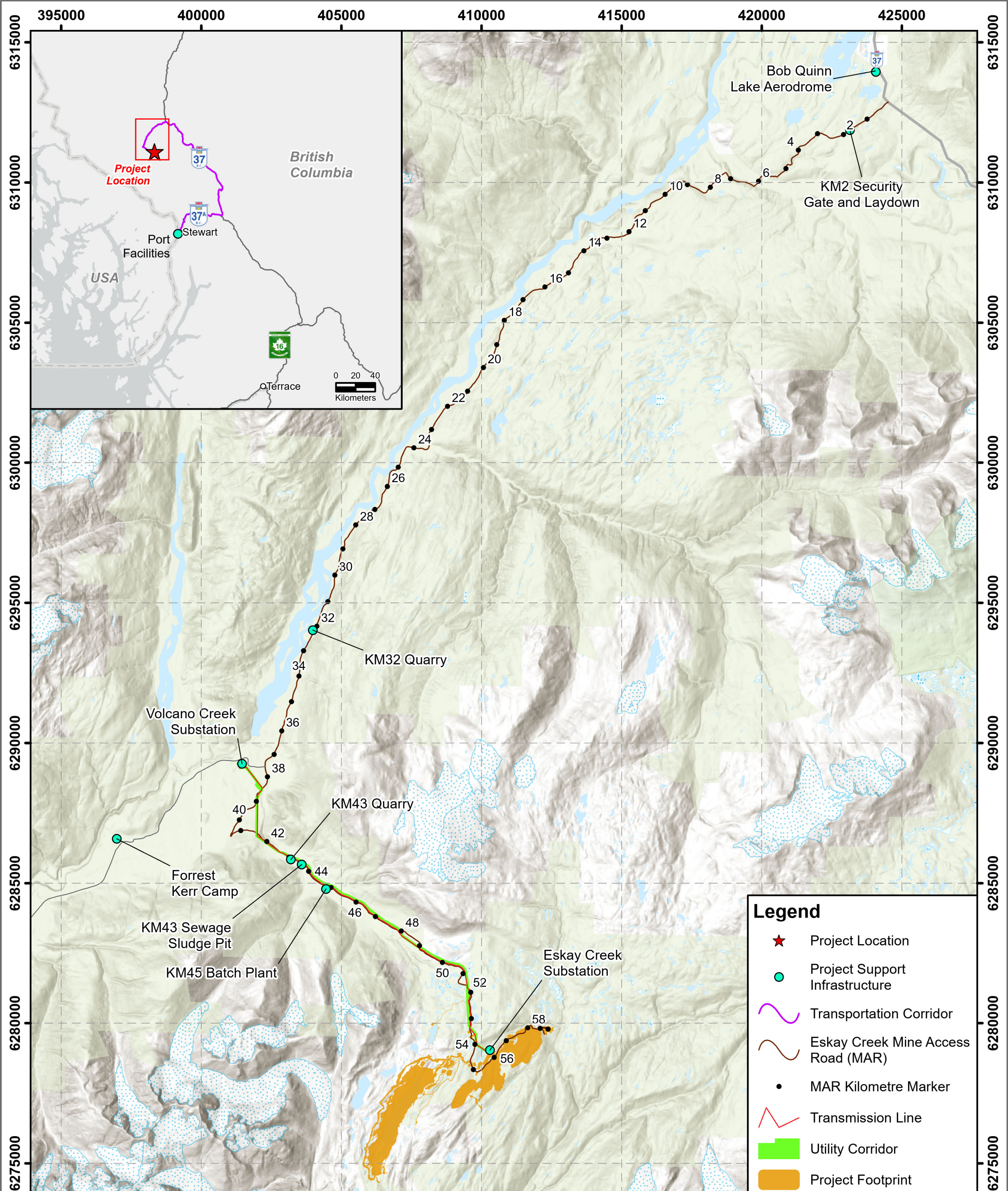
1.4.1.2 Support Infrastructure

Support infrastructure is defined as existing components that will be utilized by the Project and that are previously permitted or planned components that will be permitted ahead and separately from the Project. The permitting and construction of these components are not part of the EAC Application. The locations of these components are:

- Inside of the planned PMA;
- Outside of the planned PMA; or
- Extend both inside and outside the planned PMA for the larger components (i.e., power supply infrastructure).

Key support infrastructure that will be utilized by the Project is shown on Figure 1.4-2; a complete list of support infrastructure includes:

- **Provincial and municipal highway and road systems**, including:
    - Highway 37 – an existing provincial primary highway, also called the Stewart-Cassiar Highway, which will be used for the hauling of concentrate from where the highway connects with KM0 of the Eskay Creek MAR southward toward Stewart, BC. This portion of the highway is included as part of the Project Transportation Corridor.
    - Highway 37A – an existing provincial secondary highway, also called the Stewart Highway, which will be used for the hauling of concentrate from where this highway connects with Highway 37 to Stewart, BC. This highway is included as part of the Project Transportation Corridor.
    - Other primary and secondary provincial highways, including Highway 16; and
    - Municipal roads.
- **Eskay Creek MAR** – an existing 59 km all-season gravel road, which connects the Project mine site to provincial Highway 37 approximately 137 km north of Meziadin Junction. The Eskay Creek MAR is included as part of the Project Transportation Corridor.
- Power supply infrastructure that will be constructed in advance of the Project power requirements, including:
    - **Volcano Creek Substation** – a substation owned by Coast Mountain Hydro Services that is connected to an existing provincial 287 kilovolt (kV) transmission line. An offsite switching station will be constructed by Skeena Resources to connect to the Volcano Creek Substation to accommodate the power feed requirements for the Eskay Creek Mine. This power supply will also meet the demands of the Project.



Skeena Resources Ltd.
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Figure: 1.4-2 Rev: D
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD

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Eskay Creek Revitalization

Figure 1.4-2: Project Support Infrastructure

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:175,000
Coord. System: NAD 1983 UTM Zone 9N
0 2 4 6 8
Kilometers
N

  - **Transmission Line** – an approximately 20 km 69 kV transmission line that will connect the Volcano Creek Substation to the Eskay Creek Substation and will be located adjacent to the Eskay Creek MAR for approximately 12 km. The right-of-way for the Transmission Line will be 30 m wide and will reside in a previously selected 100 m wide Utility Corridor, and trees will be cleared to the extent of the right-of-way. The Transmission Line will also meet the demands of the Project.
  - **Eskay Creek Substation** – a substation that will be located onsite near the existing Warehouse Pad and future Process Plant area that will stepdown power from the Transmission Line to supply power to the Eskay Creek Mine utilizing a 13.8 kV underground feeder (Section 1.4.2.8, Power Supply Infrastructure). This substation will also meet the demands of the Project.
- **KM2 Security Gate** – an existing common security gate located approximately 2 km from the junction of Highway 37 and the Eskay Creek MAR that will provide continuous security coverage to coordinate both traffic management and security controls for the Project.
- **KM2 Laydown** – an existing laydown area located at KM2 of the Eskay Creek MAR that will be the primary marshalling yard and laydown area used during Construction for the staging of equipment and construction materials.
- **KM32 Quarry** – an existing quarry located near KM32 of the Eskay Creek MAR that will provide fine granular material (e.g., sand, gravel) to support infrastructure construction at the Project mine site. This quarry is owned and operated by Coast Mountain Hydro Services and is currently permitted for the excavation of sand and gravel.
- **KM43 Quarry** – an existing quarry located near KM43 of the Eskay Creek MAR that will provide aggregate to support infrastructure construction for the Project. This quarry is owned and operated by Tahltan Nation Development Corporation.
- **KM43 Sewage Sludge Pit** – an existing sludge pit located at KM43 of the Eskay Creek MAR that may receive solid sewage waste from the sewage treatment plants located in the Process Plant area and the Camp area.
- **KM45 Batch Plant** – an existing concrete batch plant located near KM45 of the Eskay Creek MAR that will supply the concrete required for construction activities and will include an area designated for processed aggregate storage (e.g., crushed granular material, concrete aggregates). This batch plant, as well as the processed aggregate storage, may be relocated to the Project mine site during Construction to reduce haul distances if sufficient space becomes available.
- **Forrest Kerr camp** – an existing camp located near KM37 of the Eskay Creek MAR that can provide workforce accommodations during peak workforce periods in the Construction phase. This camp is owned and operated by Coast Mountain Hydro Services and has a capacity of 160 beds.
- **Port facilities in District of Stewart** – existing port facilities located in the District of Stewart that will receive gold-silver concentrate transported by tarp-covered haul truck from the Project mine site. From these port facilities, concentrate will be shipped overseas for further processing.
- **Regional District of Kitimat-Stikine landfills** – an existing network of landfills in Northern BC operated by the RDKS that will receive and dispose of non-hazardous waste from the Project mine site that cannot otherwise be recycled or reused. The Project may utilize multiple landfills in the RDKS, including the Meziadin Landfill located south of Terrace, BC, and the Forceman Ridge Waste Management Facility located south of Kitwanga, BC, as well as other landfills in BC.

- **Bob Quinn Lake Aerodrome** – an existing gravel airstrip and heliport that will be utilized for medical emergencies and to transport short-term visitors to the Project mine site. This aerodrome is located along Highway 37 north of where the highway connects with KM0 of the Eskay Creek MAR and is managed by the Bob Quinn Lake Airport Society.

1.4.2 New Project Infrastructure

The Project Footprint will be a total area of approximately 731 ha that includes disturbances permitted in advance of the Project under Permit M-197, and the Technical Sample. Of the 731 ha, approximately 521 ha of new disturbance will be required to construct the Project. At full buildout, the Project will capture the footprint and infrastructure of the existing Eskay Creek Mine (except for the ASF), the Technical Sample footprint and infrastructure, and other infrastructure permitted under Permit M-197 in advance of the Project.

The Project will be a conventional truck and shovel open pit mine. Project access will be via the existing offsite Eskay Creek MAR, a multi-use industrial road constructed in the early-1990s. Ore will be mined from two open pits and hauled to ore stockpiles or processed directly in the Process Plant using conventional milling and flotation to recover a gold-silver concentrate (Section 1.4.2.2, Process Plant). Waste rock from the open pits designated as non-potentially acid generating (NPAG) will be used as construction material or will be hauled to the MRSA located west of the North Pit. Waste rock designated as potentially acid generating (PAG) will be hauled to the TMSF. The TMSF will be expanded from its existing configuration to accommodate the PAG waste rock and process tailings for the mine life. The concentrate will be trucked from the Project mine site to existing offsite port facilities in the District of Stewart along provincial Highway 37 and Highway 37A and shipped to offshore smelters and refineries for processing. Layouts of the Project mine site at the end of Construction and end of Operations are shown on Figure 1.4-3 and Figure 1.4-4, respectively. Additional layouts are provided in Appendix 1-1, Project Annual General Arrangements.

A summary of Project components, including both new components and existing components that will be expanded, is presented in Table 1.4-2. The Project will implement a number of measures to manage effects throughout the mine life and these measures are summarized in Appendix A-1, Summary of Management Plans and Mitigation Measures.

The timing of Project activities during Construction, Operations, Reclamation and Closure, and Post-closure is summarized in Section 1.5, Project Schedule and Project Management Plans and Mitigation Measures.

1.4.2.1 Open Pits

The Project will include the development of two open pits: the North Pit, and the South Pit (Figure 1.4-4). The mining of these two pits will generate approximately 40 Mt of ore and approximately 290 Mt of waste rock during Year -2 to Year 10 of Construction and Operations. Of this 290 Mt of waste rock, approximately 160 Mt is PAG waste rock and approximately 130 Mt is NPAG waste rock. From Year 11 through Year 13, there will be no active mining, and stockpiled ore will be milled at the Process Plant (Section 1.4.2.2, Process Plant).

The North Pit is the larger of the two pits and will be mined in several phases from Year -2 to Year 10. Development will begin with pre-stripping of topsoil and overburden followed by mining from the south end of the pit. Additional stages of stripping (i.e., topsoil and overburden) and mining (i.e., waste rock and ore) will continue as development of the North Pit progresses deeper and northward over this 12-year period.

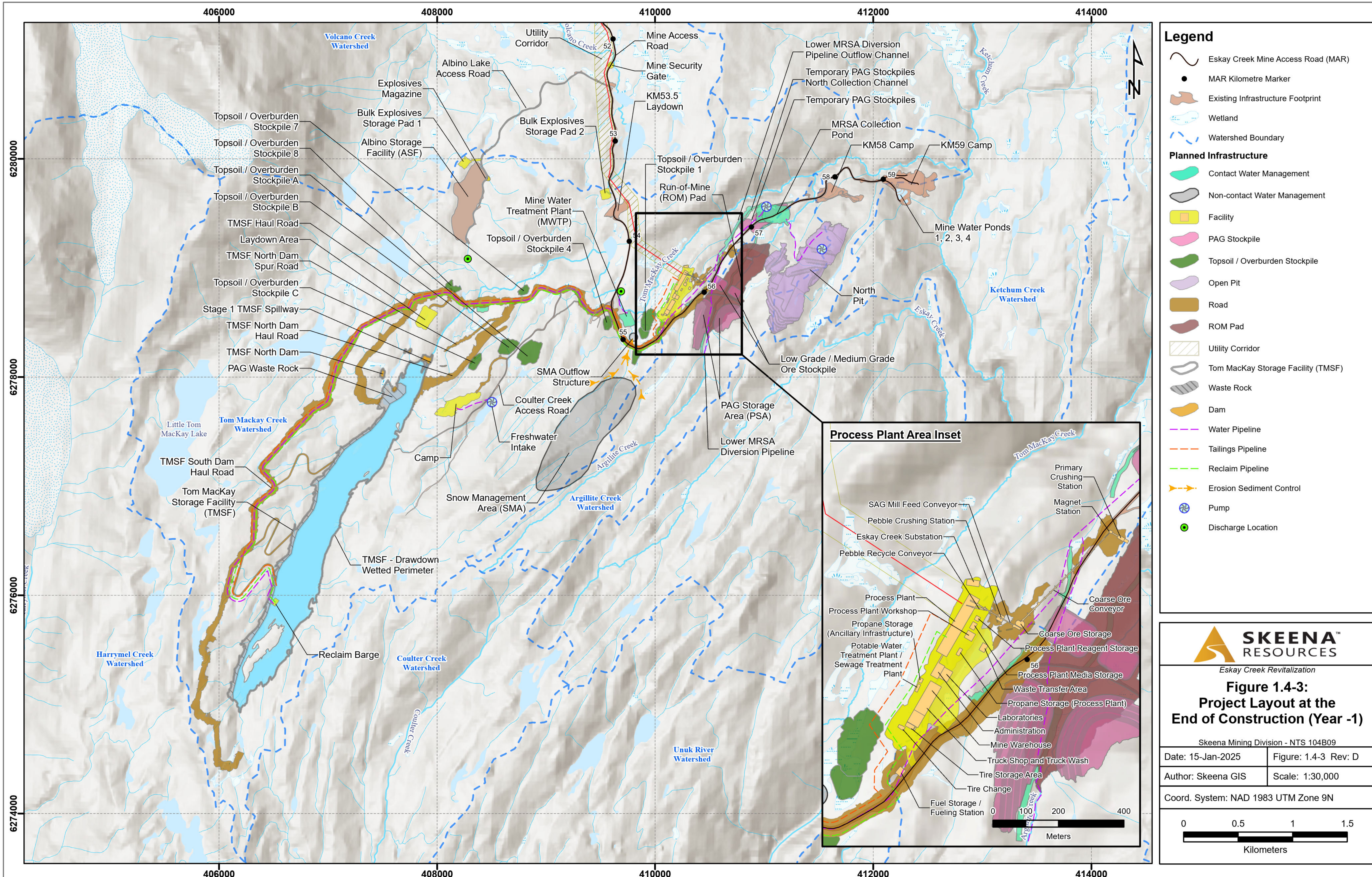


Figure 1.4-3: Project Layout at the End of Construction (Year -1)

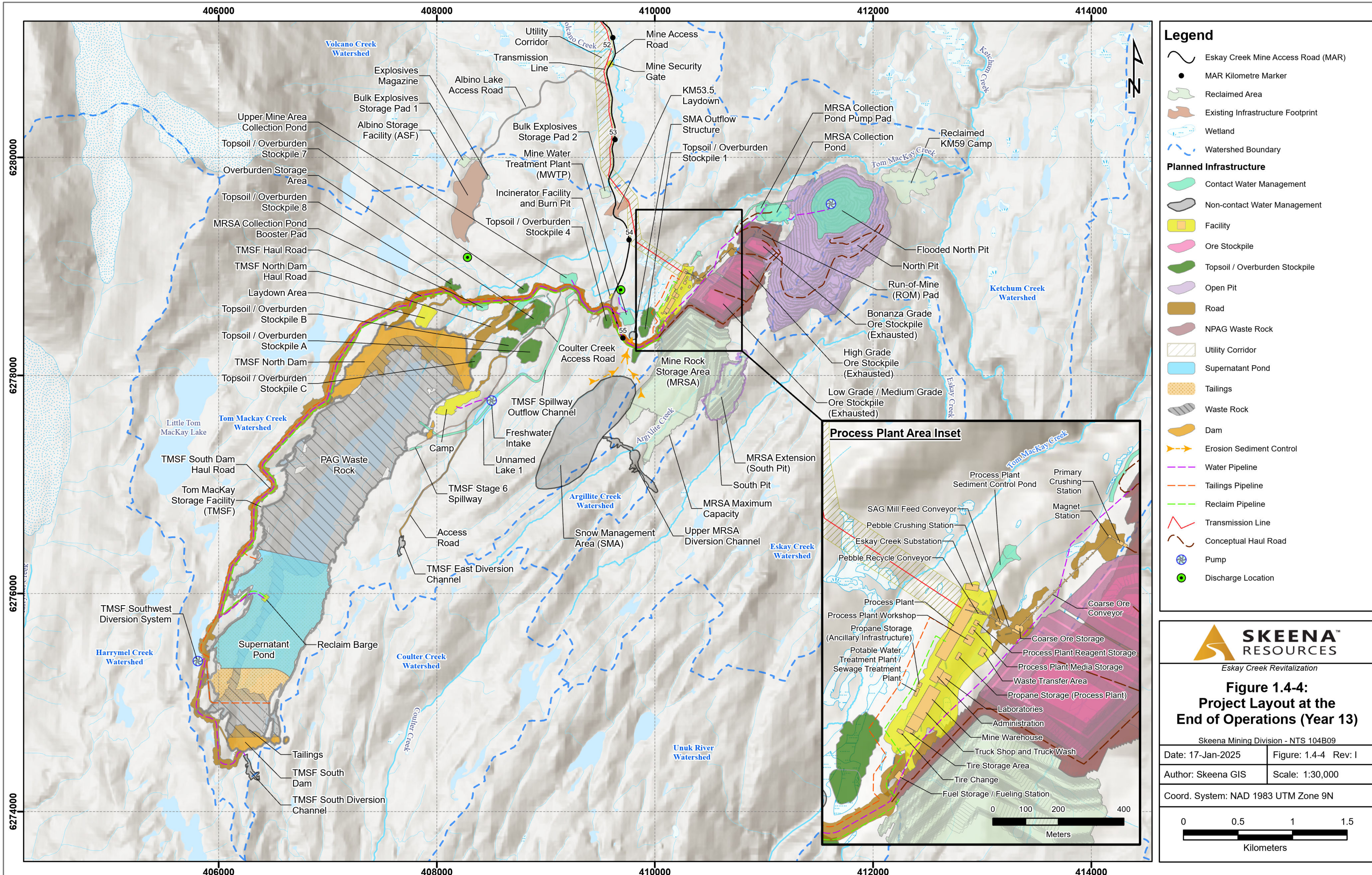


Figure 1.4-4: Project Layout at the End of Operations (Year 13)

Table 1.4-2: Eskay Creek Revitalization Project Components Summary

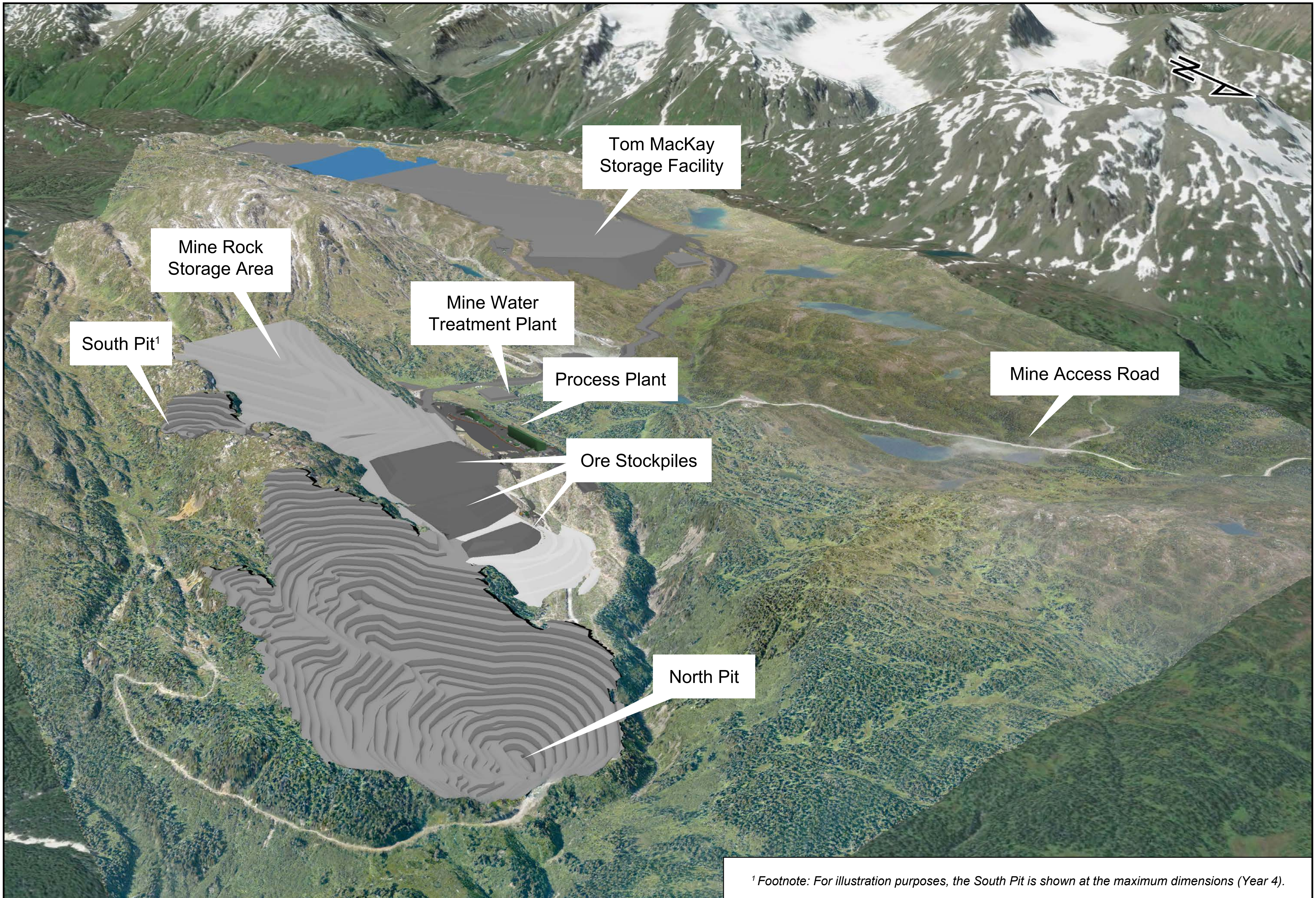
Infrastructure Category	Component	New vs. Expanded Infrastructure
Material management (open pit)	North Pit	New
	South Pit	New
Ore processing and management	Process Plant including crushers and conveyors	New
	Low / Medium Grade Ore Stockpile	New
	High Grade Ore Stockpile	New
	Bonanza Grade Ore Stockpile	New
	ROM Pad (ore stockpiles)	New
Tailings management	TMSF – Expansion (PAG waste rock, tailings, and contact water)	Expanded
	TMSF Spillways	New
	Tailings pipeline and distribution system	New
Waste rock management	MRSA (NPAG waste rock)	Expanded
Topsoil/overburden management	Topsoil/Overburden Stockpile 1 to Topsoil/Overburden Stockpile 8	Expanded
	Topsoil/Overburden Stockpile A to Topsoil/Overburden Stockpile C	New
	Overburden Storage Area	New
Water management (contact water)	New discharge location (near MWTP)	New
	TMSF North Dam (Stage 1 to 6)	New
	TMSF South Dam (Stage 2 to 6)	New
	TMSF East Saddle Dam (Stage 5 to 6)	New
	TMSF Spillways (Stage 1 to 6)	New
	Reclaim water system	New
	TMSF water discharge system	New
	MRSA Collection Pond Overflow Sump	New
	MWTP Stage 1 to Stage 3	New
Water management (non-contact water)	TMSF East Diversion Channel	New
	TMSF South Diversion Channel	New
	TMSF Southwest Diversion System	New
	Upper MRSA Diversion Channel	New
	Snow Management Area	New
	Snow Management Area Erosion and Sediment Control Measures	New
	Pipelines	New
Water management (potable water)	Potable Water Treatment Plant (Process Plant area) from new surface water source	New
	Potable Water Treatment Plant (Camp) from new surface water source	New
	Potable water / fire water holding tanks	New
	Fire water systems	New

Infrastructure Category	Component	New vs. Expanded Infrastructure
Water management (sewage treatment)	Sewage Treatment Plant (Process Plant area)	New
	Sewage Treatment Plant (Camp)	New
Roads (onsite)	TMSF South Dam Haul Road	New
	Secondary roads	New
Power supply	Underground and overhead electrical infrastructure connected to Project infrastructure	New
	Diesel generators (emergency systems)	New
Waste management	Waste Transfer Area (Process Plant area)	New
	Waste Transfer Area (Camp)	New
	Incinerator Facility and Burn Pit	New
Ancillary Instructure	Camp	Expanded
	Propane Storage (Ancillary Infrastructure)	New
	Propane Storage (Process Plant)	New
	Propane Storage (Camp)	New
	Fuel Storage / Fueling Station	New
	Truck Shop and Truck Wash	New
	Tire Change	New
	Tire Storage Area	New
	Administration	New
	Mine Warehouse	New
	Process Plant Workshop	New
	Laboratories	New
	Process Plant Media Storage	New
	Process Plant Reagent Storage	New
	KM52.2 Mine Security Gate	New
	Truck Weigh Scale	New
	Emergency Station	New

Notes:

MRSA = Mine Rock Storage Area; MWTP = Mine Water Treatment Plant; NPAG = non-potentially acid generating; PAG = potentially acid generating; ROM = Run-of-Mine; TMSF = Tom MacKay Storage Facility

The South Pit will be concurrently mined with the North Pit, and pre-stripping and mining at the South Pit will occur over a 12-month period, beginning in the middle of Year 4. The final North Pit and South Pit once mining is complete are shown on Figure 1.4-5.



[1] Footnote: For illustration purposes, the South Pit is shown at the maximum dimensions (Year 4).

Skeena Resources Ltd.
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Figure 1.4-5

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Eskay Creek Revitalization

Figure 1.4-5:

Three-Dimensional Rendering – North Pit and South Pit at End of Mining

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Open Pit – Mine Design

Open pits will be mined by conventional drill and blast, and load, haul, dump methods, using a mining fleet of excavators, hydraulic shovels, bulldozers, and haul trucks. The open pit dimensions and mine design parameters are outlined in Table 1.4-3. Details on slope design to meet geotechnical stability requirements is provided in Appendix 1-2, Open Pit Geotechnical and Hydrogeological Detailed Design. Additional information on mobile equipment for the Project is provided in Section 1.4.5, Project Mobile Equipment.

Table 1.4-3: Open Pit Dimensions and Design Parameters

Parameter	Unit	Value
North Pit – surface dimensions (maximum)	m	1,600 by 900
North Pit – depth (maximum)	m	320
South Pit – surface dimensions (maximum)	m	550 by 250
South Pit – depth (maximum)	m	110
Open pits – bench face angles	º	80
Open pits – bench height	m	20
Open pits – catch berms (width)	m	12 to 44 (varies by pit sector)
Open pits – geotechnical berms/ramps (maximum width)	m	30
Open pits – inter-pit ramps (width)[1]	m	Single lane = 20[2] Double lane = 30[3]
Open pits – internal-pit ramps (gradient)	%	10

Notes:
º = degree; % = percent; m = metre; t = tonne
[1] Inter-pit ramps operating width is 7.5 m based on a 150-ton (i.e., 136 t) class haul truck.
[2] This width is 2.5 times the operating width.
[3] This width is 4 times the operating width.

Open Pit – Development

During Construction and Operations, NPAG waste rock mined from the open pits will be hauled to the MRSA or used for construction of site infrastructure, and PAG waste rock will be hauled to the TMSF for permanent disposal (Figure 1.4-4; Section 1.4.2.3, Tom MacKay Storage Facility). Ore mined from the open pits will be hauled directly to the Process Plant for milling, or to the ore stockpiles at the Run-of-Mine (ROM) Pad that is located at the northern end of the MRSA (Section 1.4.2.4, Mine Rock Storage Area and Run-of-Mine Pad).

Drilling and blasting in the open pits will be performed year-round from the beginning of Construction until the end of Year 10 when open pit development is completed. Blasts in the open pits will be scheduled approximately every two days and will occur during daylight hours.

Once mining is completed in the North Pit in Year 10, water will be allowed to collect to form a pond to a maximum elevation of 758 masl. By maintaining the water level in the flooded pit below an elevation of 758 masl, the North Pit will act as a groundwater sink providing hydraulic containment for the mine-affected water.

Once mining is completed in the South Pit in Year 5, this exhausted open pit will be backfilled with NPAG waste rock, and the MRSA will be extended over the footprint of the South Pit starting in the latter half of Year 5 and completed by the end of Year 6. Groundwater will infiltrate through the NPAG waste rock backfill in the South Pit and hydraulic containment will be provided by the low point on the west pit wall at an elevation of 1,030 masl.

Water Management

Water management in the North and South pits will include dewatering using a series of temporary and semi-permanent sumps and pumps, vertical perimeter dewatering wells, and pipelines. Horizontal boreholes will be used to depressurize pit walls in localized areas specified by the geotechnical slope design. Additional information is provided in Appendix 1-2, Open Pit Geotechnical and Hydrogeological Detailed Design. During Construction, water from the North Pit and the MRSA will be collected and treated at the Mine Water Treatment Plant (MWTP) as the North Pit and MRSA are initially developed (Figure 1.4-4). During Post-closure, contact water runoff from the MRSA will be directed to flow into the flooded North Pit, where it will be pumped to the MWTP for treatment and discharge. All contact water from the North Pit will be treated to meet appropriate water quality guidelines or approved discharge limits. Additional details on water management in open pits, including snow management, are provided in Section 1.4.2.6, Water Management.

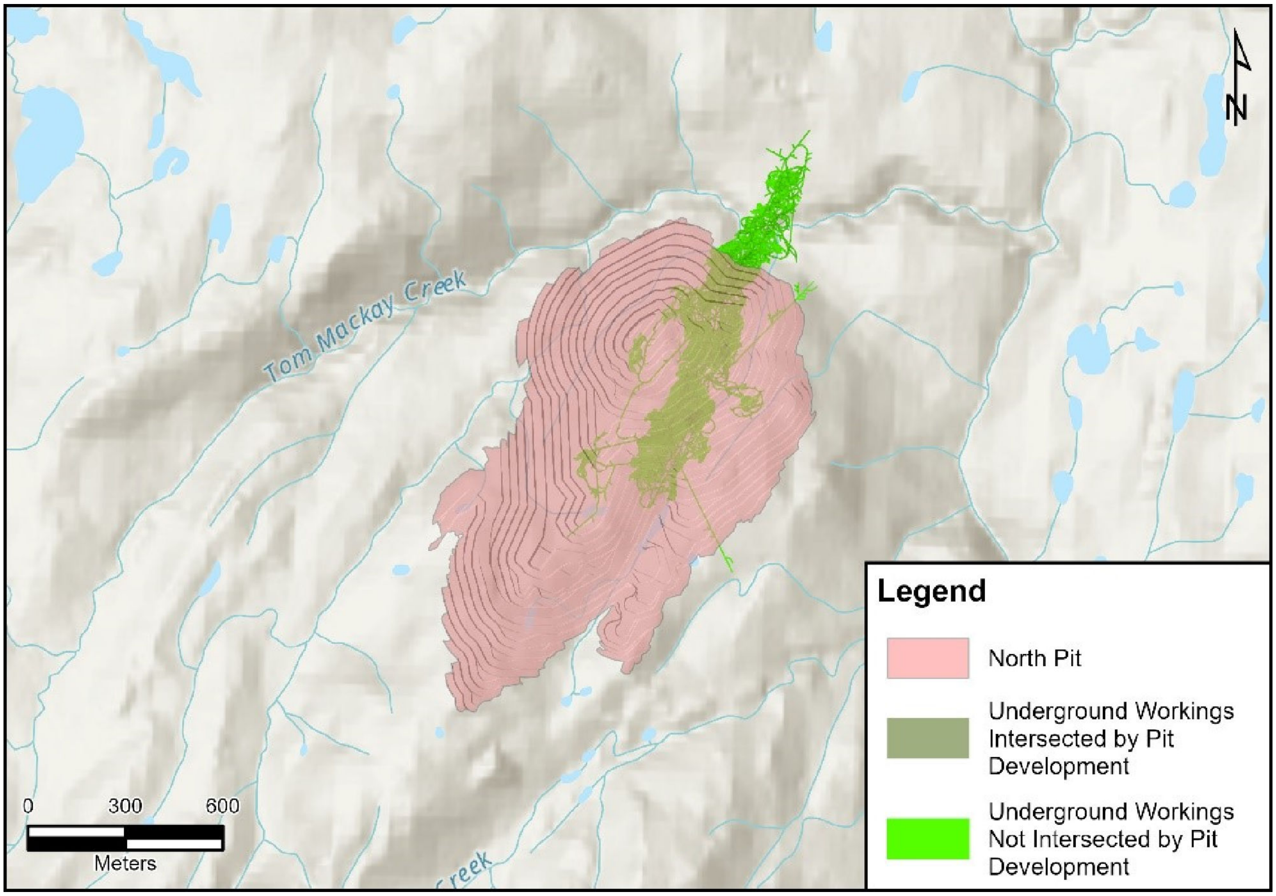
Existing Underground Workings Management

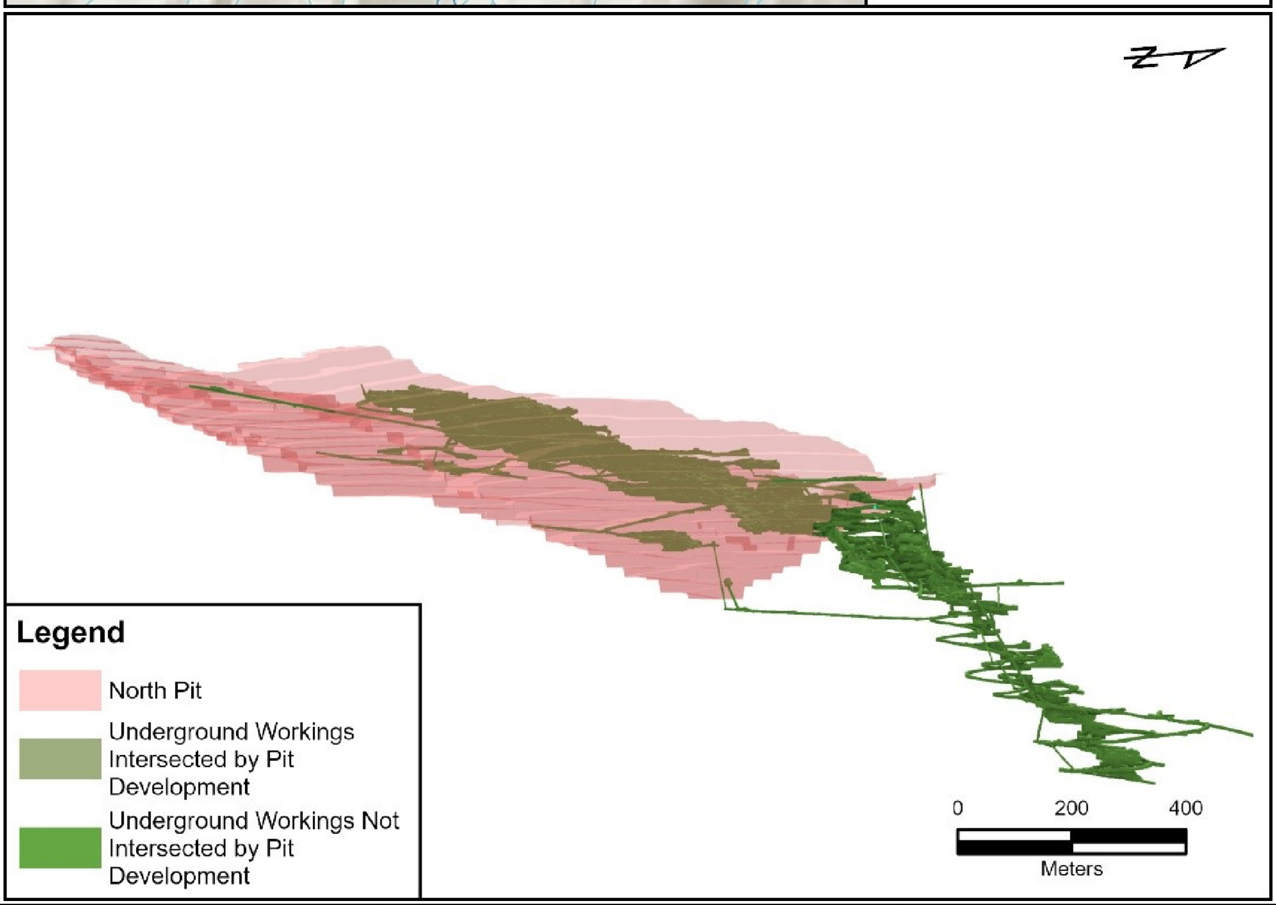
The North Pit will intersect a portion of the existing underground workings as the pit is developed at depth. The development of this pit will progressively mine out 99% of the existing upper mine workings and 37% of the existing lower mine workings. Existing underground survey data, probe drilling, and mapping will be used to identify historical underground voids to confirm safe open pit mining practices in the vicinity of the voids; this information will also be used to identify any historical materials (e.g., cables, piping, drill casing) that are expected to be encountered. The South Pit is not anticipated to intersect historical underground workings.

Skeena Resources confirms a high degree of confidence in existing underground survey data to identify underground void locations due to recency of mining and underground mining methods that were conducive to survey access. This survey data has also confirmed that the majority of historical underground mine workings were backfilled. The backfilled material was a high quality cemented aggregate fill; the quality of this material has been confirmed by historical backfill records and verified by recent drill core information. Any underground areas not backfilled are anticipated to be small in dimensions (e.g., 4 m by 4 m) and small relative to the size and scale of the open pit mining equipment. Images of the North Pit and the existing underground workings are shown on Figure 1.4-6 to illustrate how the North Pit will intersect existing underground workings.

1.4.2.2 Process Plant

The Process Plant and associated infrastructure will be located west of the North Pit (Figure 1.4-4; Figure 1.4-7). In Year 1 through Year 5, the Process Plant will process ore to a capacity of 3.0 million tonnes per year (Mt/year). In Year 6 through Year 13, the Process Plant will be expanded to process ore to a capacity of 3.6 Mt/year. The Process Plant is designed to operate on 2 shifts per day, 365 days per year, and with an overall plant availability of 92%.





Skeena Resources Ltd. Date: 19-Jun-2024 Figure: 1.4-6 Author: Michael.Stead Filename: ESK-15-146	*Eskay Creek Revitalization* **Figure 1.4-6: Plan View and Three-Dimensional Rendering – North Pit and Existing Underground** Skeena Mining Division - NTS 104B09 British Columbia, Canada	Scale: 1:285,000 Coord. System: NAD 1983 UTM Zone 9N 0 4 8 12 Kilometers

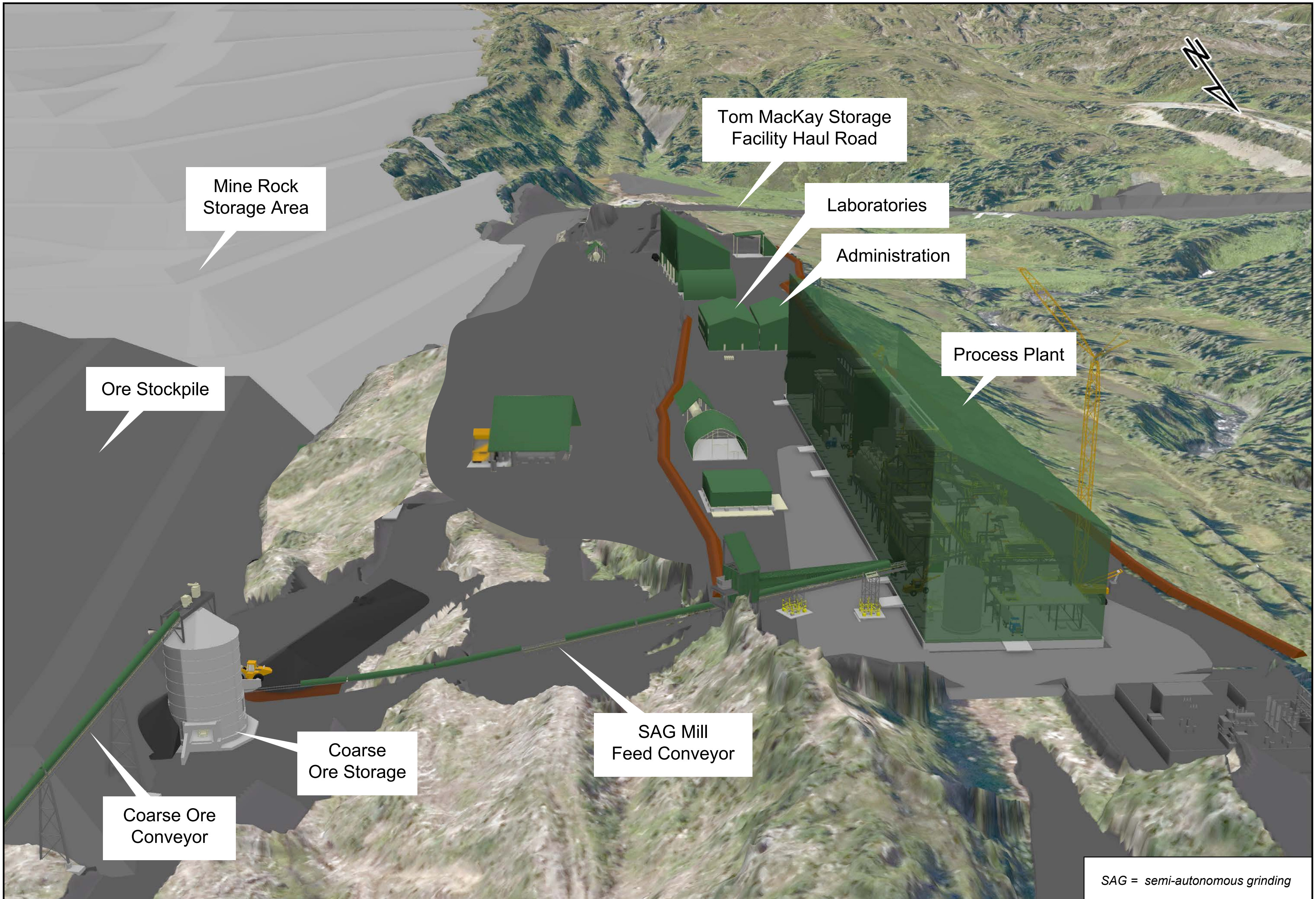


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Figure 1.4-7

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Eskay Creek Revitalization

Figure 1.4-7:

Three-Dimensional Rendering – Process Plant

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British Columbia, Canada

The Process Plant will be constructed on the existing Warehouse Pad, which will be extended along the southeast edge of the existing pad to accommodate buildings in the Process Plant area. Processing facilities for the Project will include crushing, comminution, and flotation circuits to recover an ore of gold and silver. The flotation concentrate will then be thickened and filtered through dewatering, and then dried to produce a gold-silver concentrate that will be stockpiled at the Process Plant prior to loading into haul trucks for transportation offsite (Section 1.4.3.2, Concentrate Shipping). Tailings generated in the Process Plant will be pumped to the TMSF. The processing facilities listed below are further described in the following subsections and the overall process flow diagram for the Project is shown on Figure 1.4-8:

- Crushing circuit;
- Comminution circuit;
- Flotation circuit;
- Concentrate dewatering; and
- Tailings disposal.

Crushing Circuit

The crushing circuit is external to the Process Plant and includes single stage crushing and coarse ore storage prior to ore entering the Process Plant. This crushing circuit is shown on Figure 1.4-9 and additional details are summarized in Table 1.4-4.

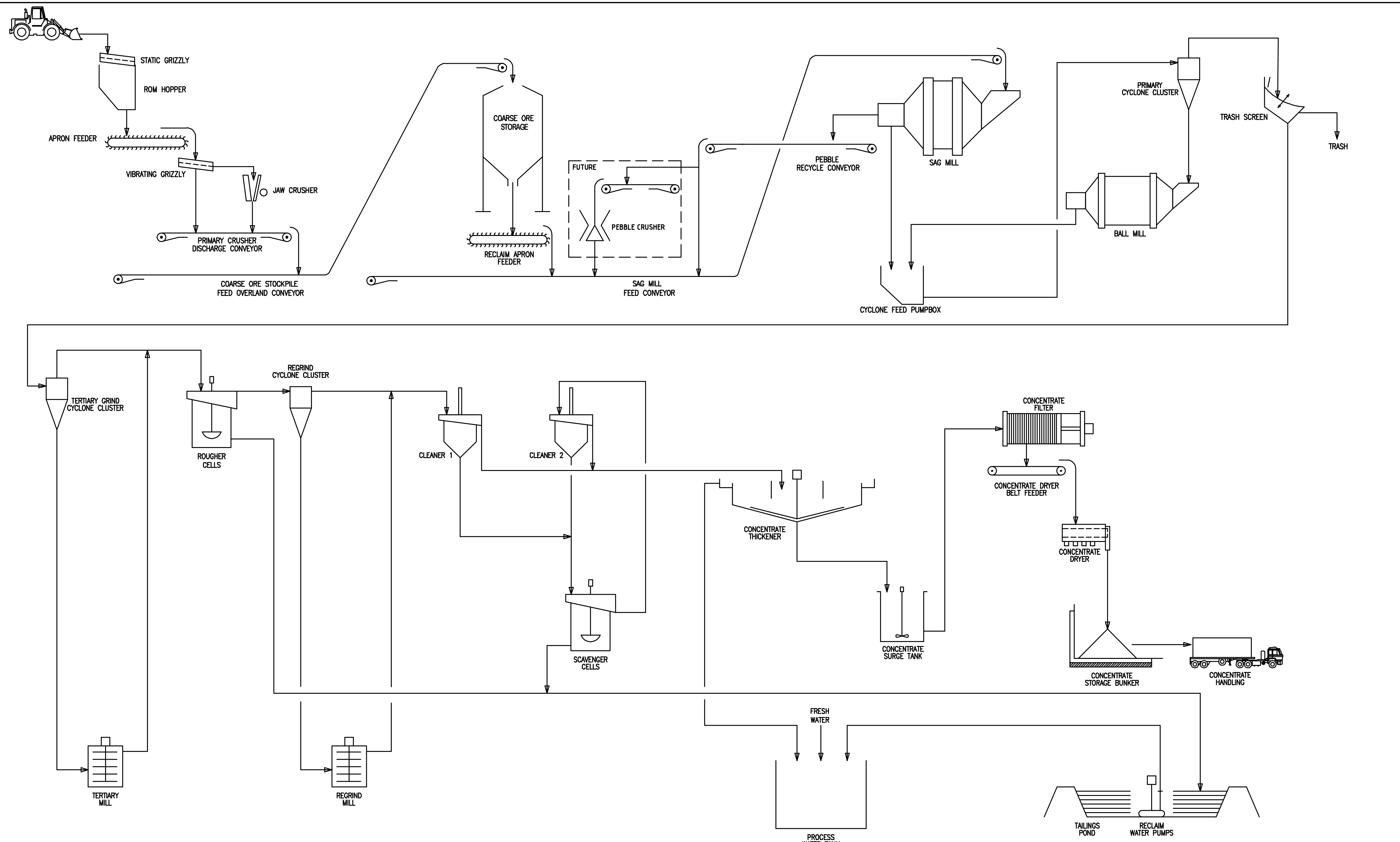
Table 1.4-4: Crushing Infrastructure External to the Process Plant

Processing Infrastructure	Infrastructure Description
ROM hopper	A bin where ROM material (i.e., <800 mm) from open pits and stockpiles is unloaded before material enters the Primary Crushing Station
Primary Crushing Station	A single-stage jaw crusher that crushes ore, reducing the material from ROM size (i.e., <800 mm) to coarse ore size (i.e., <130 mm).
Magnet Station	Includes magnets and metal detectors to extract bolts, screen, pipes, and electrical cables from historical underground workings that are encountered in the North Pit and included with the ore.
Coarse Ore Conveyor	A covered conveyor belt that transfers coarse ore (i.e., <130 mm) from the Primary Crushing Station to the Coarse Ore Storage.
Coarse Ore Storage	An enclosed storage area that supplies coarse ore to the SAG mill that is part of the comminution circuit. It provides a buffer to the Process Plant so that it can continue to operate even if the Primary Crushing Station is down for a brief period.
SAG Mill Feed Conveyor	A covered conveyor belt that transfers coarse ore from the Coarse Ore Storage to the SAG mill.
Pebble Crushing Station	The Pebble Crushing Station reduces the size of hard ore rejected by the SAG mill, so it can be recycled back to the SAG mill for additional processing. It will be added to the Project in Year 3.
Pebble Recycle Conveyor	A covered conveyor belt that transports hard ore rejected by the SAG mill to the pebble crusher. It will be added to the Project in Year 3.

Notes:

SAG = semi-autonomous grinding; ROM = Run-of-Mine

< = less than; mm = millimetre



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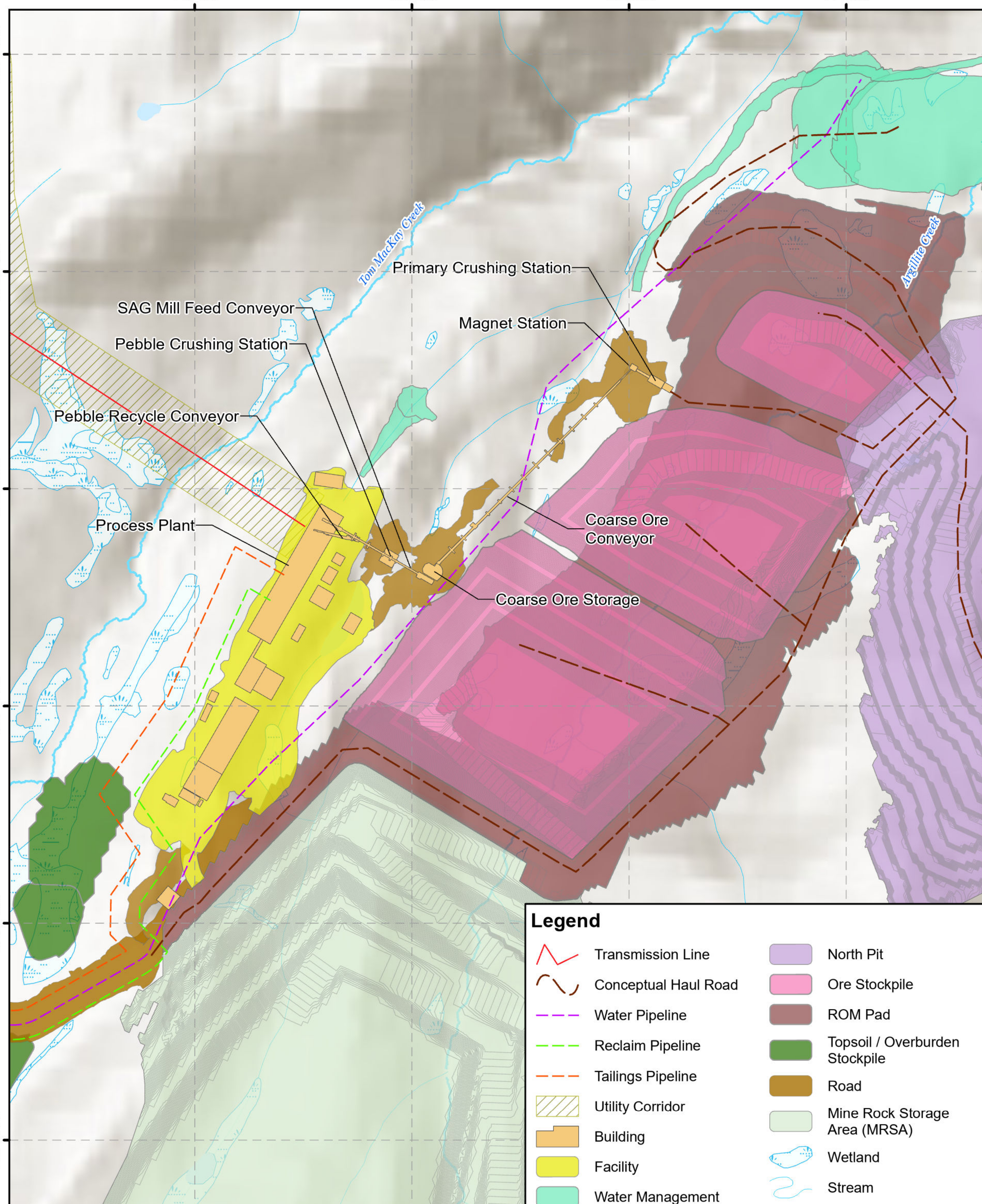
Date: 10-Dec-2024
Figure: 1.4-8
Author: joel.lavigueur
Filename: ESK-15-159

Figure 1.4-8: Project Overall Process Flow Diagram



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Date: 16-Jan-2025
Figure: 1.4-9 Rev: F
Author: Skeena GIS

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Figure 1.4-9: Crushing Infrastructure External to the Process Plant

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Scale: 1:7,000
Coord. System: NAD 1983 UTM Zone 9N
0 50 100 200 300
Meters

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The ROM ore that is not stockpiled will be trucked from the open pit and dumped directly into the ROM hopper (i.e., bin) that feeds the Primary Crushing Station. The ore from this bin will be discharged onto a vibrating screen that will separate the oversized ore from the small diameter ore that already meets the correct size requirements (i.e., less than [<]130 mm). The oversized ore will be sent to the Primary Crushing Station to be reduced in size and then recombined with the small diameter ore and before entering the Coarse Ore Conveyor. The Coarse Ore Conveyor material will then be transported to the Coarse Ore Storage that will provide approximately 8 hours of live capacity. In Year 3, a Pebble Crushing Station and Pebble Recycle Conveyor will be added to the crushing circuit before the semi-autonomous grinding (SAG) mill that is part of the comminution circuit.

Comminution Circuit

Comminution is the breaking, crushing, or grinding of material to reduce the size of the particles. The comminution circuit for the Project will include primary grinding using a SAG mill and ball mill, and classification (i.e., segregation by particle size) using hydrocyclones. This comminution circuit is shown on Figure 1.4-8 and additional details are summarized in Table 1.4-5.

Table 1.4-5: Comminution Circuit Infrastructure

Processing Infrastructure	Infrastructure Description
SAG mill	The SAG mill rotates and uses grinding media (i.e., steel balls) to break up ore into smaller pieces for further processing. Water is added to the ore at this stage to create a slurry.
Ball mill	Similar to the SAG mill, the ball mill also rotates and uses steel balls to further break up ore, but it is typically longer than a SAG mill to allow for a longer grinding time and uses smaller balls to grind the ore slurry finer.
Trunnion Magnet	A barrel-shaped magnet that bolts directly to the discharge location of the ball mill that removes small steel particles (i.e., grinding ball fragments) in the grinding system from the ore slurry.
Hydrocyclones	A high-throughput gravity-separation device that separates ore slurry particles based on size to create a slurry where 80% of the solid particles will pass through a 100 µm (i.e., P_{80} = 100 µm) screen. Additional water is also added to the ore slurry before it enters the hydrocyclones.
Trash screen	A screen used to remove oversized ore and non-ore materials from the ore stream, with oversized ore fed back through the circuit for further processing to achieve the appropriate size.

Notes:
SAG = semi-autonomous grinding
µm = micron; % = percent

Process water will be added to the ore stream as it enters the SAG mill to create a slurry. After the SAG mill, ore will be discharged onto a trommel screen (i.e., a rotating cylindrical screen) that will separate the oversized and overly hard ore from the small diameter ore that already meets the correct size requirements. The oversized and overly hard ore will be sent to the Pebble Crushing Station (once added in Year 3) to be reduced in size and then recombined with the small diameter ore and cycled back through SAG mill for further size reduction. Ore that meets the size requirements after the SAG mill will be diluted with additional water and pumped to the hydrocyclones.

The hydrocyclones will produce a slurry with a particle size where 80% of the solid particles will pass through a 100 micron (i.e., P_{80} = 100 µm) screen, and the material that does not meet this size requirement will be recirculated to the ball mill for additional grinding. After the ball mill, slurry material will flow through the Trunnion Magnet attached to the ball mill discharge that will remove any small steel particles generated in the grinding system and into the hydrocyclone. After the hydrocyclones, the correctly sized slurry material will be passed through a trash screen that will remove oversized material and any remaining non-ore material to a trash bin that will be removed from the processing stream. The correctly sized material from the hydrocyclones will be pumped to the flotation circuit.

Flotation Circuit

The flotation circuit will include a combination of grinding using a tertiary mill and regrind mill, and concentrate separation using flotation cells. This flotation circuit is shown on Figure 1.4-8 and additional details are summarized in Table 1.4-6.

Table 1.4-6: Flotation Circuit Infrastructure

Processing Infrastructure	Infrastructure Description
Tertiary grind hydrocyclones	A high-throughput gravity-separation device that separates slurry particles based on size and feeds oversize ore to the tertiary mill.
Tertiary mill	High-intensity stirring mill that uses ceramic beads to further grind ore to a size where 80% of the solid particles will pass through a 40 µm (i.e., P_{80} = 40 µm) screen.
Rougher cells	Initial flotation cells that remove desired minerals from the ore in a froth to create a concentrate at the desired product grade.
Regrind mill hydrocyclone	A high-throughput gravity-separation device that separates slurry particles based on size and feeds oversize ore to the regrind mill.
Regrind mill	A second high-intensity stirred mill with smaller diameter ceramic beads that the tertiary mill to grind ore finer (i.e., P_{80} = 10 µm).
Cleaner cells	Flotation cells that will recover ore particles to create a concentrate at the desired product grade.
Cleaner-scavenger cells	A final stage of flotation cells that removes the desired minerals from cleaner cell tailings in a froth sent to cleaner cell 2.

Notes:

µm = micron; % = percent

In addition to grinding, the flotation circuit will include three flotation cell stages: one rougher cell stage, two cleaner cell stages, and one cleaner-scavenger cell stage. Flotation is used to separate the ore particles based on the amount of precious metals (e.g., gold, silver). This separation is achieved by coating the ore particle surfaces with a frothing agent that is attracted to particles with a high amount of previous metals; these coated particles float to the top of the cell, which allows for easy separation and removal of the desired product, a concentrate. The ore that does not float to the cell top will settle to the cell bottom and be recirculated back through the flotation circuit for further processing or removed as tailings.

Slurry from the comminution circuit will be pumped to the tertiary grind cyclone, where the correctly sized ore will report to the flotation cells and the oversized ore will be pumped to the tertiary grind mill. The tertiary mill is designed to achieve a product size of P_{80} of 40 µm. The ore slurry is then fed from the tertiary mill to the rougher cells to produce concentrate and tailings. Concentrate from the rougher cells will be pumped through the regrind mill hydrocyclones, and tailings will report to the tailings tank. The oversized material from the regrind mill hydrocyclones will be pumped to the regrind mill and ground to a product size of P_{80} of 10 µm.

There are two cleaner cells in the flotation circuit, cleaner 1 and cleaner 2, that will recover ore particles to create a concentrate at the desired product grade. The fine ore slurry from the regrind mill will be pumped to cleaner 1. Tailings from cleaner 1 and cleaner 2 will be gravity fed to the cleaner-scavenger cells. Slurry from the cleaner-scavenger cells will either be tailings that will be pumped to the tailings tank, or will be pumped to cleaner 2, where slurry will be re-cleaned to produce a concentrate at the desired product grade. Concentrate from cleaner 1 and cleaner 2 will be combined and then flow to the concentrate thickener for dewatering.

Concentrate Dewatering

Dewatering is the process of mechanically removing water from an ore slurry to generate a concentrate; this process reduces the volume and weight of the product to improve handling and allows the removed water to be reused within the Process Plant. This dewatering process circuit is shown on Figure 1.4-8 and additional details are summarized in Table 1.4-7.

Table 1.4-7: Concentrate Dewatering Infrastructure

Processing Infrastructure	Infrastructure Description
Concentrate thickener	Uses gravity separation (i.e., settling) to separate solid ore concentrate from the concentrate slurry using a flocculant, which is a product added to the concentrate slurry that causes loose particles to cluster together and become heavy enough to settle to the bottom and separate from the solution. Will produce a concentrate of approximately 45% solids by weight.
Concentrate filter	Filters that will further remove water from the concentrate to form a filter cake that is approximately 82% solids by weight.
Concentrate dryer	Dryer that removes the majority of the remaining water from the concentrate filter cake to create a final product that is approximately 92% solids by weight (i.e., 8% moisture content by weight).

Note:
% = percent

After leaving the flotation circuit, a flocculant will be added to the concentrate slurry before it enters the concentrate thickener to aid in the settling process. This settled and recovered product from the concentrate thickener will produce a product with approximately 45% solids by weight. After the concentrate thickener, the dewatered material will pass through a concentrate filter to remove additional water to produce a filter cake with approximately 82% solids by weight. Process water will be used to rinse concentrate filters and associated process equipment and be recirculated to concentrate thickener.

The filter cake from the concentrate filter will discharge onto a belt feeder and be fed into the concentrate dryer to remove additional water that will produce the final product for the Project, a concentrate with approximately 92% solids by weight (i.e., nominal target 8% moisture by weight). As part of quality assurance, Skeena Resources will measure moisture content periodically and will adjust the operation of the dryer as required to produce a concentrate with expected moisture content. Emissions from the concentrate dryer will be collected and treated by a wet scrubber system. After the concentrate dryer, the concentrate will discharge into a bin, where a front-end loader will load concentrate into haul trucks for transportation offsite or store concentrate in a storage area within the Process Plant building until offsite transportation is available.

Process Plant Reagents

The approximate annual consumption rates of reagents used in the flotation circuit and the concentrate dewatering process are provided in Table 1.4-8.

Table 1.4-8: Process Plant Reagent Approximate Annual Consumption

Reagent Purpose	Reagent Type	Process Addition	Approximate Annual Consumption Rate
Collector	PAX	Flotation circuit	2,500 t
Frother	MIBC	Flotation circuit	700 t
Flocculant	Anionic	Concentrate dewatering	6,800 kg

Notes:
MIBC = methyl isobutyl carbinol; PAX = potassium amyl xanthate; t = tonne; kg = kilogram

Tailings Disposal

Tailings will be generated from two cells in the flotation circuit (i.e., rougher cells and cleaner-scavenger cells) and then combined in the tailings tank. The process will deliver tailings slurry comprised of approximately 87% rougher tailings and 13% cleaner tailings. Any excess contact water that is not used as process water will be combined with the tailings from the tailings tank to create a slurry with approximately 18.5% solids by weight; this tailings slurry will then be pumped through a pipeline to the TMSF for permanent disposal as a slurry (Section 1.4.2.3, Tom MacKay Storage Facility).

Process Plant Expansion

The Process Plant throughput capacity will be expanded from 3.0 Mt/year to 3.6 Mt/year during Operations. This expansion will be installed in Year 5 for operational use in Year 6 and this increased throughput will be maintained until the end of Operations in Year 13. The Process Plant expansion will include:

- Additional hydrocyclones and concentrate filter plates;
- Upgraded process pumps and piping; and
- Installation of a larger motor on the tertiary mill in the flotation circuit (if required, pending further sampling and test work).

1.4.2.3 Tom MacKay Storage Facility

The Project will generate approximately 39 Mt of tailings and 160 Mt of PAG waste rock and overburden that will be stored in the TMSF, a historical facility that will be expanded to accommodate the placement of PAG Tailings and PAG waste rock and overburden generated by the Project, as well as site contact water and additional storm inflow volumes. The following subsections describe the historical TMSF and the expansion and use of the TMSF for the Project.

Tom MacKay Storage Facility – Historical

The TMSF is located approximately 4 km southwest of the open pits (Figure 1.4-4). This facility is located within a historical lake (i.e., Tom MacKay Lake) that was used for tailings and waste storage. Approximately 0.6 Mt of tailings were subaqueously deposited into the TMSF from 2001 to 2008, and these tailings have settled to the lakebed at a depth of approximately 30 m below the water surface. The TMSF currently maintains a full water cover over the deposited tailings to maintain a permanently saturated condition in accordance with Condition C.3.(c)(v) of Permit M-197 (EMLI 1994).

The permitted water management strategy for the TMSF allows for the natural discharge of surplus water to the downstream environment at a rate equivalent to the natural hydrologic discharge. There are no structures or embankments associated with the historical TMSF. A cement bag weir is located at the outflow location of the TMSF for flow monitoring purposes. There is an existing permitted discharge location (i.e., TM1) into Tom MacKay Creek at the north end of the TMSF, which has been monitored routinely since 1994 for water quality and quantity.

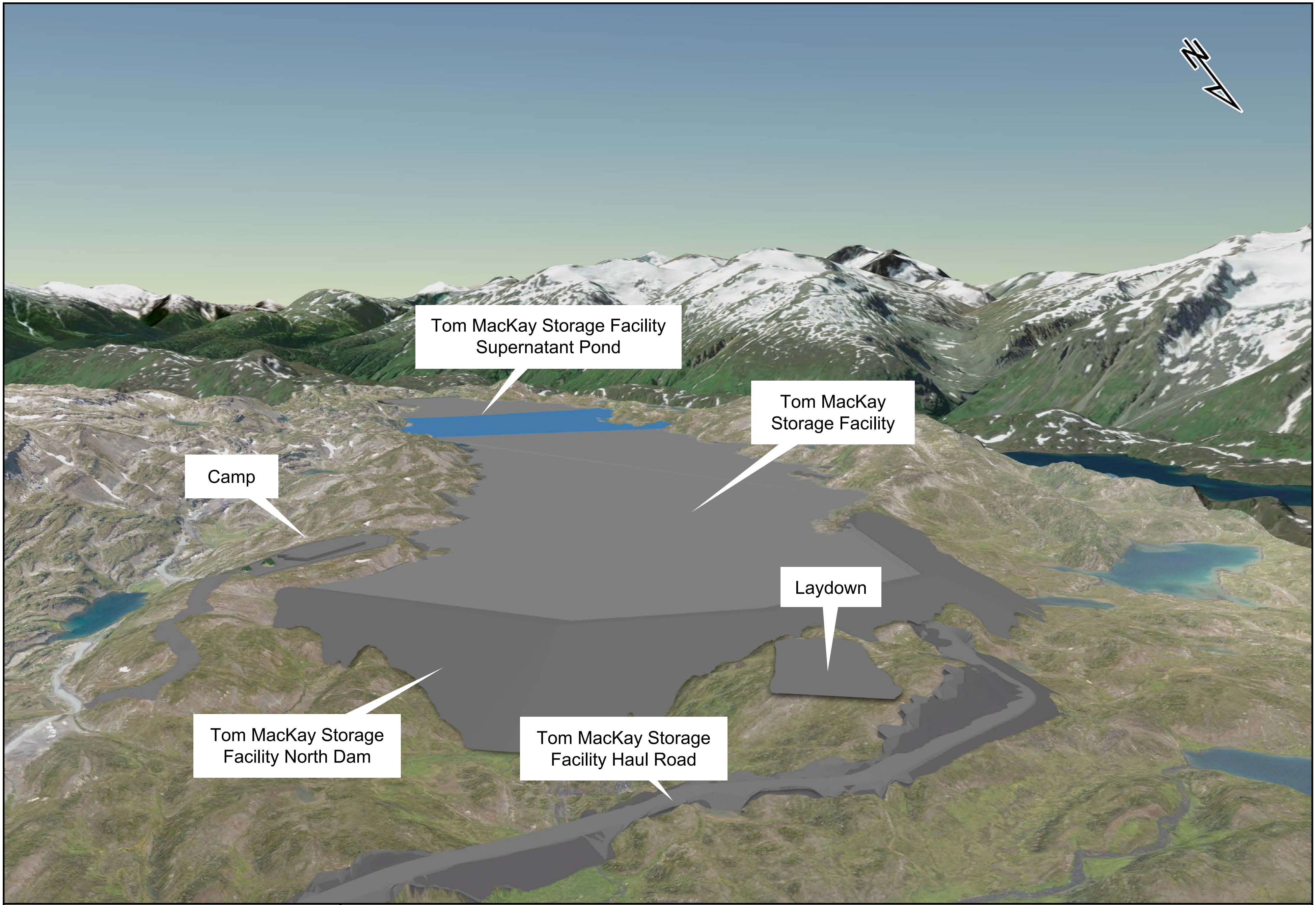
The TMSF is a designated Tailings Impoundment Area under Schedule 2 of the federal MDMER of the *Fisheries Act* (RSC 1985, c F-14) and is also provincially permitted for the storage of tailings and waste rock under the *Mines Act* (RSBC 1996, c 293), *Environmental Management Act* (SBC 2003, c 53), and *Lands Act* (RBC 1996, c 245). Discussions with federal agencies in July 2021 identified that expansion of the existing TMSF onto non-fish-bearing waterbodies (i.e., inflowing small tributaries) immediately adjacent to the existing waterbody footprint will not trigger an amendment to the existing designation of TMSF as a Tailings Impoundment Area under Schedule 2. Chapter 16, Fish and Fish Habitat Effects Assessment, provides a discussion on the non-fish-bearing status of the Tom MacKay watershed, including Tom MacKay Lake and the associated tributaries.

Tom MacKay Storage Facility – Expansion and Project Use

The existing TMSF will be expanded to permanently store PAG materials generated by the Project, which will include PAG tailings, PAG waste rock, and PAG overburden. The Project will produce approximately 39 Mt of tailings, and approximately 160 Mt of PAG waste rock and overburden. Of this 160 Mt, approximately 2 Mt will be PAG waste rock and overburden generated from construction and grading activities across the Project mine site and approximately 158 Mt will be PAG waste rock generated from open pit mining activities. Figure 1.4-10 shows a three-dimensional rendering of the TMSF.

The TMSF will also function as a primary contact water management facility for the Project. The majority of contact water from across the Project mine site will be pumped to the TMSF prior to treatment and discharge into Tom MacKay Creek (Section 1.4.2.6, Water Management). The TMSF has additional capacity to manage storm inflow volumes from the TMSF catchment area up to the 1:1,000-year, 24-hour precipitation (i.e., storm) event (i.e., Environmental Design Flood [EDF]) with the inclusion of freeboard for wave action and run-up during the EDF, while larger storm events (i.e., up to the Probable Maximum Flood [PMF]) will be conveyed from the facility via an emergency discharge spillway (i.e., TMSF Spillway) with freeboard for wave action and run-up included in the design to prevent overtopping of the TMSF dam crests during these events.

Closure of the TMSF tailings will include a permanent partial water cover. Closure of the PAG waste rock will include a cover of NPAG waste rock and reclamation material followed by revegetation. Additional information on Reclamation and Closure is provided in Section 1.5.2.4, Reclamation and Closure.



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Date: 20-Jun-2024
Figure 1.4-10

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Eskay Creek Revitalization

Figure 1.4-10:
Three-Dimensional Rendering – Tom MacKay Storage Facility

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British Columbia, Canada

Potentially Acid Generating Waste Rock Management

Tailings and waste rock will be co-disposed in the TMSF; PAG waste rock will be placed immediately upstream of both the TMSF North Dam and TMSF South Dam, and tailings will be deposited towards the south end of the facility. The majority of the PAG waste rock will be deposited in the north end of the facility. The PAG waste rock will be initially deposited along the western menh ma'e (shore) of the TMSF to establish a bench that will extend from north to south within the TMSF deposition area. This bench will be raised annually with continued PAG waste rock deposition and will provide haul truck access for PAG waste rock placement, support tailings deposition during initial TMSF operations, and provide secondary access to the TMSF South Dam area. A berm running west to east across the TMSF called the PAG causeway will be established along with the bench to separate the waste rock deposition area from the tailings deposition area.

Deposition of PAG waste rock will initially occur by end-dumping material near the leading edge of the PAG waste rock bench and using a fleet of remotely operated bulldozers to push the material into the TMSF. This material placement will continue until the entire northern portion of the facility is filled with PAG waste rock and a PAG waste rock platform is formed. Additionally, a small volume of PAG waste rock will be placed against the upstream face of the TMSF South Dam so that tailings will not be placed directly against this dam. Contact and non-contact water structures will collect, divert, and manage runoff from the TMSF (Section 1.4.2.6, Water Management).

The TMSF will also permanently store PAG material generated as part of the Technical Sample (Skeena Resources 2024). At the beginning of the Project, PAG material from Technical Sample development will be located in the Temporary PAG Staging Area sited at the south end of the MRSA footprint; this facility will be expanded in Year -2 to form the PSA (Figure 1.4-1). The PSA will be developed over three phases (i.e., Phase 1, Phase 2, and Phase 3), with the Temporary PAG Staging Area considered as Phase 1. As part of the Technical Sample, the PAG material from the PSA, as well as from the Temporary PAG stockpiles (Warehouse), will be relocated to the TMSF for permanent subaqueous disposal.

Tailings Management

Tailings will be generated in the Process Plant and pumped via the tailings pipeline to the TMSF for permanent disposal utilizing the tailings distribution system. This distribution system will subaqueously deposit tailings into the southern portion of the TMSF. Once the TMSF South Dam is constructed and PAG waste rock is placed against this dam, tailings will be discharged from spigots positioned along the crest of the PAG waste rock immediately north of the TMSF South Dam to create a tailings discharge area, which will include a contact water pond (i.e., TMSF Supernatant Pond). The continuous deposition of fresh tailings will maintain the deposited tailings in a saturated condition.

Tom MacKay Storage Facility – Design Basis

The TMSF will be constructed based on the design criteria summarized in Table 1.4-9. The TMSF will be constructed for an ultimate storage capacity of approximately 130 million cubic metres (Mm^3); this capacity includes 34 Mm^3 of tailings, 76 Mm^3 of PAG waste rock and overburden, 15 Mm^3 of contact (i.e., supernatant) water and a storm water storage capacity of 1.2 Mm^3 for the EDF, which has been selected as the total runoff from a 1-in-1,000-year storm event that would report to the TMSF. Additional information on design of the TMSF is provided in Appendix 1-3, Tom MacKay Storage Facility Detailed Design Report for the Eskay Creek Revitalization Project.

Table 1.4-9: Tom MacKay Storage Facility Design Criteria Summary

Parameter	Unit	Value
Process Plant throughput – Year 1 to Year 5	Mt/year	3.0
Process Plant throughput – Year 6 to Year 13	Mt/year	3.6
Design operating life	years	13
Total tailings storage	Mt	39
Total PAG waste rock and overburden storage	Mt	160
Embankment – crest width	m	25
Embankment – upstream slope	H:V	2.5:1
Embankment – downstream slope	H:V	2:1
Design flood (EDF[1])	return period	1:1,000-year
TMSF Spillway inflow design flood (PMF peak flow)	m3/s	30

Notes:

EDF = Environmental Design Flood; H:V = horizontal distance to vertical rise; PAG = potentially acid generating; PMF = Probable Maximum Flood; TMSF = Tom MacKay Storage Facility

m = metre; m3/s = cubic metre per second; Mt = million tonne; Mt/year = million tonne per year

[1] EDF selected as the total runoff from a 1:1,000-year, 24-hour precipitation event that would report to the TMSF.

The TMSF embankments and design criteria have been established in accordance with the “Health, Safety and Reclamation Code for Mines in British Columbia” (HSRC; EMLI 2024), which also provides regulations to classify embankments and set design criteria in terms of the failure consequence. The TMSF embankments will have a dam failure consequences classification of ‘very high’ based on these HSRC requirements due to the potential for incremental downstream consequences to natural resources (i.e., fish and fish habitat in Unuk River). The TMSF design, and the design of other major infrastructure at the Project mine site, was based on the field investigation information from 2020 to 2023 that is provided in Appendix 1-4, Geotechnical and Hydrogeological Site Investigation Reports.

Tom MacKay Storage Facility – Dam Development

The TMSF will consist of a cross-valley impoundment-style tailings facility, constrained by the construction of two main dams (i.e., TMSF North Dam and TMSF South Dam) and a small saddle dam (Figure 1.4-4). The TMSF North Dam will be constructed across the existing TMSF outflow channel, and the TMSF South Dam will be constructed at the south end of the TMSF, which is north of the catchment divide between Coulter Creek and the TMSF. The smaller saddle dam (i.e., TMSF East Saddle Dam) will be constructed in late Operations to block a topographical low point between the east side of the TMSF and the catchment for Unnamed Lake 1.

A total of six embankment raises (i.e., stages) will be completed over the life of the Project. Stage 1 will include construction of three initial starter dams at the TMSF North Dam location in Year -1; these starter dams will provide storage for PAG waste rock, overburden, and tailings generated beginning in Year -1. The pond level in the existing TMSF will be drawn down as part of Technical Sample activities to allow for PAG material placement under the Technical Sample, and drawdown will continue during the Project. The construction of the TMSF North Dam (Stage 1) will be completed during this drawdown period to facilitate construction of the portion of the TMSF North Dam in the existing TMSF outflow channel. During Operations, five subsequent embankment raises will be constructed at both the TMSF North Dam and

TMSF South Dam (Table 1.4-10) to bring the two main TMSF dams to a final dam crest elevation of 1,145 masl in Stage 6. The TMSF East Saddle Dam will also be constructed during the last two embankment raises (i.e., Stage 5 and Stage 6) on the east side of the TMSF approximately 400 m south of the TMSF North Dam. The ultimate heights of the TMSF North Dam, TMSF South Dam, and TMSF East Saddle Dam will be approximately 97 m, 50 m, and 10 m, respectively, as measured vertically from each dam crest to the lowest point on the downstream toe.

Table 1.4-10: Tom MacKay Storage Facility Embankment Raise Summary

Stage	Year	Crest Elevation (masl)	Embankment Height		
			TMSF North Dam	TMSF South Dam	TMSF East Saddle Dam
Stage 1	Year -1	1,092	24	-	-
Stage 2	Year 1	1,108	44	13	-
Stage 3	Year 3	1,120	59	24	-
Stage 4	Year 5	1,132	78	36	-
Stage 5	Year 7	1,143	95	48	8
Stage 6	Year 10	1,145	97	50	10

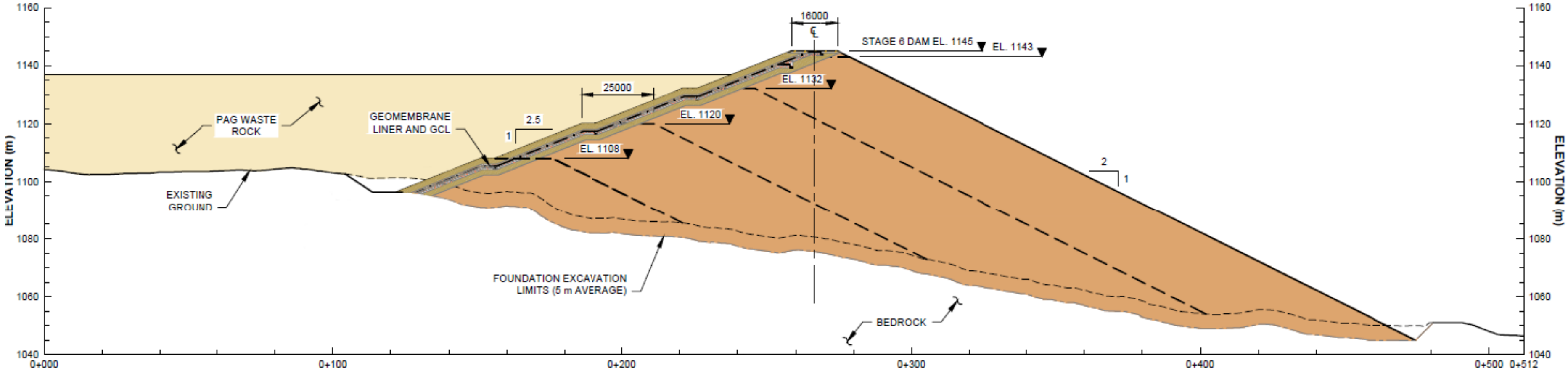
Notes:
- = not applicable; TMSF = Tom MacKay Storage Facility
masl = metre above sea level

Embankment raises will be constructed using a downstream method of construction. The ROM NPAG waste rock will comprise most of the dam fill, with additional layers of finer, processed NPAG material (e.g., filter and transition zone materials) to provide filters between adjacent materials. The TMSF includes a synthetic geomembrane liner and a geosynthetic clay liner (GCL) on the upstream faces of each dam that will be anchored into bedrock in the dam foundations. Processed NPAG material will be placed against the liner to protect the liner from damage during PAG waste rock deposition. A cross-section of the TMSF North Dam is provided on Figure 1.4-11.

The foundations of the TMSF North Dam, TMSF South Dam, and TMSF East Saddle Dam will be constructed on bedrock. Overburden and topsoil will be removed from within the dam foundation footprints and either deposited within the TMSF or stockpiled (Section 1.4.2.5, Overburden Storage Area and Topsoil/Overburden Stockpiles). Highly weathered rock within the foundation footprints will also be removed. In addition, a lagū' (outlet) channel, called the TMSF South Diversion Channel, will be constructed south of the TMSF South Dam to prevent ponding of non-contact water against the downstream slope of the dam and to facilitate drainage of non-contact water to Coulter Creek; additional information on TMSF water management structures is provided in Section 1.4.2.6, Water Management.

Tom MacKay Storage Facility – Dam Classification

The TMSF has been assigned a dam classification under the HSRC (EMLI 2024). The TMSF dam classification considers the incremental effects of a dam failure scenario on a number of categories. The categories evaluated are the potential loss of life; potential effects to the environment; potential effects to health, social, and cultural values; and potential infrastructure and economic losses. The TMSF has been assigned a classification of 'very high' in accordance with the HSRC classification criteria.



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Date: 4-Feb-2025
Figure 1.4-11

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Figure 1.4-11:
Tom MacKay Storage Facility North Dam Cross-Section

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Tom MacKay Storage Facility – Design Flood and Earthquake

The selection of an appropriate TMSF design flood and seismic event is required to determine the storm storage requirements of the TMSF and to carry out safety assessments. The minimum design flood and seismic event during Operations is dependent on the dam classification. The design criteria for closure of the TMSF are the PMF and the 1:10,000-year seismic event, regardless of the dam classification; these design criteria were also selected for all six stages of the TMSF embankment raises.

The design criteria include an EDF, which includes appropriate freeboard for wave action and run-up during the EDF, that will be managed in the TMSF without requiring discharge. The EDF has been selected as the total volume from a 1:1,000-year, 24-hour precipitation event. This represents the total runoff from the TMSF catchment area assuming no diversions but does not include water from outside the TMSF. The EDF volume is approximately 1.2 Mm^3.

The TMSF spillways constructed at each dam stage will safely pass the peak flows from a PMF event, which also includes appropriate freeboard for wave action and run-up during the PMF. The peak ground acceleration for the 1:10,000-year seismic event is 0.14g.

Tom MacKay Storage Facility – Design Features

In addition to the TMSF North Dam and TMSF South Dam, the TMSF will include the following design features (Appendix 1-3, Tom MacKay Storage Facility Detailed Design Report for the Eskay Creek Revitalization Project):

- Tailings distribution system;
- Reclaim water system;
- TMSF water discharge system; and
- Emergency discharge spillways (i.e., TMSF Spillways).

Tailings Distribution System

Tailings will be pumped from the Process Plant to the TMSF using an approximately 9 km long pipeline that runs parallel to the TMSF Haul Road (Figure 1.4-4) and parallel to the TMSF South Dam Haul Road. Prior to pumping, the tailings will be combined in the Process Plant with excess contact water not used for processing to create a pumpable slurry that will be approximately 18.5% solids by weight. A pump system will be installed at the Process Plant to deliver tailings to the TMSF.

Tailings will be discharged via single-point discharge into the tailings discharge area of the TMSF in Year 1, and discharged via rotational spigots from the crest of the PAG waste rock immediately north of the TMSF South Dam from Year 2 until the end of Operations.

Reclaim Water System

Water will be reclaimed from the TMSF Supernatant Pond to supplement water requirements in the Process Plant using an approximately 8 km long pipeline that runs parallel to the TMSF Haul Road. This contact water pipeline will be connected to a floating Reclaim Barge system located within the TMSF Supernatant Pond (Figure 1.4-4), which will include pumps, de-icer agitators, associated piping and valves, and electrical controls (e.g., motor control centres, transformers).

TMSF Water Discharge System

A separate water pump system will be installed adjacent to the reclaim water system to pump contact water stored in the TMSF Supernatant Pond to the MWTP (Figure 1.4-4) for treatment prior to discharge to the environment. An approximately 7 km long pipeline will be connected to the same floating Reclaim Barge as the reclaim water system and will include dedicated pumps, associated piping and valves, and electrical control infrastructure. Additional information on water treatment is provided in Section 1.4.2.6, Water Management.

Tom MacKay Storage Facility Spillways

The TMSF spillways are emergency discharge spillway channels that will be excavated for each of the six TMSF embankment raises. The TMSF includes an allowance for storage of the EDF with consideration for wave run-up without discharging through the TMSF spillways. The EDF storage level is approximately 1 m below the invert of the spillway for each stage. Flood events exceeding the EDF may be contained within the TMSF with some minor discharge as a result of wave action, which will be routed through the TMSF Spillway that will convey storm flows downstream to Tom MacKay Creek. The TMSF spillways are designed to convey up to the peak flow resulting from a PMF (assuming water is at the spillway invert level at the time of occurrence of the PMF) with freeboard consideration for wind action and wave run-up to prevent any splashing or overtopping of the dam crests.

The TMSF spillways constructed during the TMSF Stage 1 through Stage 4 embankment raises will include excavation in the east abutment of the TMSF North Dam, with the Stage 5 and Stage 6 TMSF spillways excavated into the ridge on the east side of the TMSF.

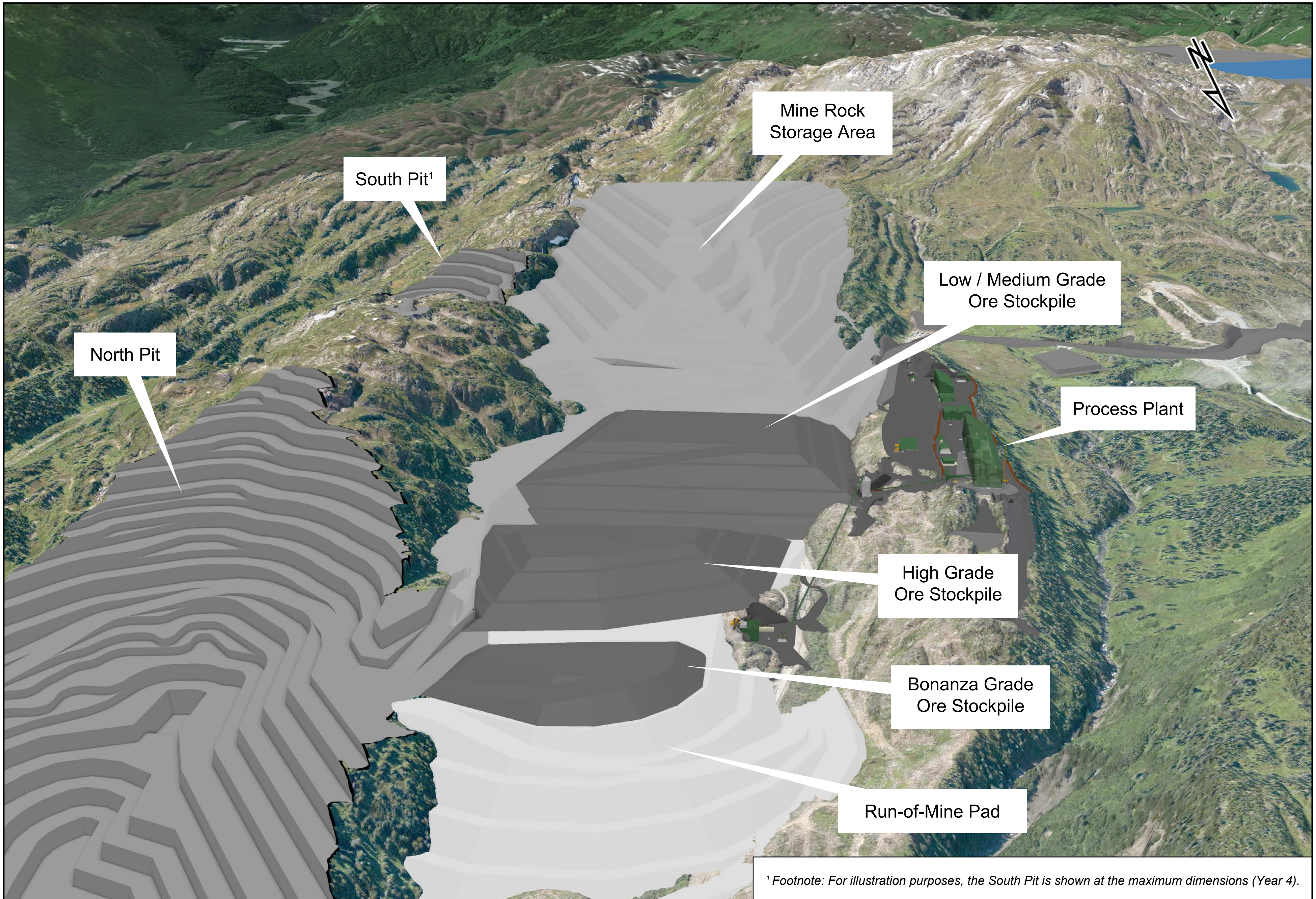
Two TMSF spillways will be established as part of the TMSF Stage 6 embankment construction in Year 10 and will function as the permanent spillways during late Operations and into Reclamation and Closure and Post-closure: the primary TMSF closure spillway and the secondary TMSF closure spillway.

The primary TMSF closure spillway will be an excavated channel on the east side of the TMSF as a natural spillway outlet and this spillway will cross the catchment divide south of the Camp to the Unnamed Lake 1 catchment (Figure 4.4-2) and discharge toward Tom MacKay Creek. The primary TMSF closure spillway will be twice the base width of the Stage 1 to Stage 5 TMSF spillways as a contingency measure against debris blockage, and in consideration of potential climate change effects in the long-term. This natural outflow will be armoured with riprap to minimize potential for scouring and erosion.

The secondary TMSF closure spillway will be constructed at the west abutment of the TMSF North Dam to provide a secondary outflow channel in the event that the primary TMSF closure spillway becomes blocked or is unavailable. The invert of this secondary TMSF closure spillway will be approximately 0.5 m higher than the primary TMSF closure spillway so that flood flows are routed through the secondary spillway in the event of primary TMSF closure spillway blockage. The secondary TMSF closure spillway also has capacity for the peak flow of the PMF.

1.4.2.4 Mine Rock Storage Area and Run-of-Mine Pad

The Project will generate approximately 130 Mt of NPAG waste rock from development of Project infrastructure and open pits during the mine life. The NPAG waste rock not used for construction will be permanently stored in the MRSA, or used to construct the ROM Pad that is located at the northern end of the MRSA where the ore stockpiles will be located prior to processing (Figure 1.4-4; Figure 1.4-12). Contact and non-contact water structures will collect, divert, and manage runoff from the MRSA, including the ROM Pad (Section 1.4.2.6, Water Management). During Construction, water from the MRSA will be collected in the MRSA Collection Pond and treated to meet appropriate water quality guidelines or approved discharge limits.



[1] Footnote: For illustration purposes, the South Pit is shown at the maximum dimensions (Year 4).

Skeena Resources Ltd.
Date: 20-Jun-2024
Figure 1.4-12

SKEENA RESOURCES

Filename: ESK-24ERM-013:4

Eskay Creek Revitalization

Figure 1.4-12:
Three-Dimensional Rendering – Mine Rock Storage Area and Run-of-Mine Pad

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Mine Rock Storage Area (Non-potentially Acid Generating Waste Rock)

The MRSA will be located west of the open pits and east of the Process Plant area and will store NPAG waste rock not used for construction. At the end of mining in the South Pit (i.e., middle of Year 5), the MRSA will be extended to backfill the South Pit with NPAG waste rock. The base of the South Pit will be allowed to flood, saturating the NPAG waste rock below the containment elevation of the west wall of the backfilled South Pit. The toe of the MRSA extension will terminate along the east wall of the South Pit at an elevation of 1,030 masl, approximately 4.5 m below the pit rim on the east side of the South Pit. The MRSA will be an unlined facility constructed with a bench face slope of 1.5H:1V. Additional information on the design and subaerial placement of waste rock is provided in Appendix 1-5, Waste Dumps and Stockpiles Detailed Design Report for the Eskay Creek Revitalization Project.

Closure of the MRSA, including the ROM Pad, will include contouring slopes for stability and landscape aesthetics, capping the facility with reclamation material, and revegetation. These closure activities will be completed during Operations from Year 11 to Year 13 as part of progressive reclamation. Additional information on Reclamation and Closure is provided in Section 1.5.2.4, Reclamation and Closure.

Run-of-Mine Pad (Ore Stockpiles)

The ore stockpiles will be located on the ROM Pad, an NPAG waste rock pad that will be constructed at the north end of the MRSA and west of the North Pit (Figure 1.4-4). Approximately 13 Mt of NPAG material will be used to construct the ROM Pad that will tie into the exit ramp of the North Pit to allow for short haul distances. Mined ore will be transported by haul truck to the ore stockpiles along a network of roads between the open pits, the ore stockpiles, and the Primary Crushing Station. The time from ore blasting in the open pits to ore deposition in the ore stockpiles will typically range from a few days to a few weeks.

Ore will be separated into three ore stockpile areas based on ore grade: Low / Medium Grade Ore Stockpile, High Grade Ore Stockpile, and a higher-grade ore stockpile called the Bonanza Grade Ore Stockpile. The cut-off grades for the ore stockpiles will be determined based on metal prices at the time of mining. The ore stockpiles will be dynamic in nature, increasing and decreasing in size over the Operations phase and will be fully exhausted by the end of Year 13. The Low / Medium Grade and High Grade ore stockpiles will be built in lifts to the full extent of their respective designed footprints. Low and medium grade ore will be roughly separated within their stockpile area and will converge together near the approximate centreline. The bonanza grade ore will also be built in lifts and may be segregated into smaller piles within the Bonanza Grade Ore Stockpile area. The maximum capacity of the three ore stockpile areas is provided in Table 1.4-11. Ore from stockpiles will be dumped into the ROM hopper that precedes the Primary Crushing Station (Section 1.4.2.2, Process Plant).

Table 1.4-11: Run-of-Mine Pad Ore Stockpile – Maximum Capacities

Ore Stockpile	Unit	Capacity
Low / Medium Grade Ore Stockpile	Mt	14.1
High Grade Ore Stockpile	Mt	5.5
Bonanza Grade Ore Stockpile	Mt	1.2

Note:

Mt = million tonne

Stability Rating and Hazard Classification

A stockpile classification for the MRSA was developed using the “Waste Stability Rating and Hazard Classification System” (WSRHC) from the “Guidelines for Mine Waste Stockpile Design” (Hawley and Cunning 2017). The MRSA has a Waste Stability Rating of 66.5 under the WSRHC, corresponding to a Low Instability Hazard, and a Class II Waste Hazard Class. Additional information is provided in Appendix 1-5, Waste Dumps and Stockpiles Detailed Design Report for the Eskay Creek Revitalization Project.

Individual stability ratings and hazard classifications for the three ore stockpiles are not required as these facilities were captured within the overall MRSA stability rating.

1.4.2.5 Overburden Storage Area and Topsoil/Overburden Stockpiles

Non-potentially acid generating surficial materials (i.e., overburden and topsoil) stripped during construction activities and development of the open pits and Project infrastructure will be salvaged and stockpiled to the extent practicable. Overburden and topsoil will be stockpiled separately and will be used for progressive reclamation during Operations as well as reclamation activities during Reclamation and Closure.

Topsoil stripped during construction activities will be either windrowed along the edge of construction areas and roads or managed in the existing or new topsoil/overburden facilities. Existing facilities include Topsoil/Overburden Stockpile 2 to Topsoil/Overburden Stockpile 8 located along the TMSF Haul Road (Figure 1.4-1). New topsoil management areas for the Project will include the expansion of the existing Topsoil/Overburden Stockpile 1 (called TOSB01-EX) and the development of three new areas (Figure 1.4-4):

- Topsoil/Overburden Stockpile A (TSOB-A);
- Topsoil/Overburden Stockpile B (TSOB-B); and
- Topsoil/Overburden Stockpile C (TSOB-C).

These new stockpiles have a combined design capacity of 460,000 m^3. Additional information on topsoil/overburden stockpiles is provided in Appendix 1-5, Waste Dumps and Stockpiles Detailed Design Report for the Eskay Creek Revitalization Project.

Overburden material excavated during construction activities will be hauled to the Overburden Storage Area (Figure 1.4-4), which has a design capacity of approximately 610,000 m^3. Additional information on the Overburden Storage Area is provided in Appendix 1-5, Waste Dumps and Stockpiles Detailed Design Report for the Eskay Creek Revitalization Project. Contact and non-contact water structures will collect, divert, and manage runoff from the Overburden Storage Area (Appendix 1-12, Water Management Structures Design Report for the Eskay Creek Revitalization Project).

The salvage and stockpiling of overburden and topsoil materials will be completed in alignment with the Project’s erosion and sediment control measures, the summary of which is provided in Appendix A-1, Summary of Management Plans and Mitigation Measures.

Stability Rating and Hazard Classification

Stockpile classifications for the Overburden Storage Area and the three new topsoil/overburden stockpiles were developed using WSRHC from the “Guidelines for Mine Waste Stockpile Design” (Hawley and Cunning 2017). Under the WSRHC:

- Overburden Storage Area has a Waste Stability Rating of 61.5, which corresponds to a Low Instability Hazard and a Class II Waste Hazard Class; and
- topsoil management areas have a Waste Stability Rating of 52.5, which corresponds to a Moderate Instability Hazard and a Class III Waste Hazard Class.

Additional information is provided in Appendix 1-5, Waste Dumps and Stockpiles Detailed Design Report for the Eskay Creek Revitalization Project.

1.4.2.6 Water Management

This subsection provides a water management overview, a summary of Construction and Operations water management, water treatment for the Project, and snow management for the Project. Information on water management during Reclamation and Closure and Post-closure is provided in Section 1.5.2.4, Reclamation and Closure. Additional information on Project water management is provided in Appendix 1-12, Water Management Structures Design Report for the Eskay Creek Revitalization Project, and in the Mine Site Water Management Plan (Appendix A-1, Summary of Management Plans and Mitigation Measures).

Water Management – Overview

As part of the water management strategy for the Project, water is categorized into two types:

- Contact water: water that is affected by or contacts Project workings or surface infrastructure; and
- Non-contact water: water that is not affected by and/or does not contact Project workings or surface infrastructure.

Each type of water will be managed separately throughout each Project phase to the extent practicable, which will minimize the total volume of water managed by the Project. Contact water will be contained within collection ponds and conveyed onsite by collection channels and pumped pipelines. Non-contact water will be diverted away from the Project mine site to the downstream receiving environment by diversion channels and culverts. During Construction and Operations, water management infrastructure will include:

- Berms, culverts, pipelines, and diversion channels to divert non-contact water around disturbed areas;
- Collection channels and sedimentation ponds to manage sediment-laden runoff from exposed soils (e.g., construction areas, laydowns and staging areas, roads, topsoil/overburden stockpiles);
- Sumps, pumps, pipelines, collection channels, and collection ponds to collect contact water that may require treatment or management;
- Pit dewatering systems including vertical perimeter dewatering wells and horizontal boreholes to limit recharge to the open pits and depressurize pit walls;
- Pumping of contact water from the open pits and MRSA to the TMSF;

- Treatment of contact water from the open pits, MRSA, and TMSF Supernatant Pond in the MWTP; and
- Continued use of the existing water management systems including:
  - Use of permitted discharge points for release of existing contact water;
  - Use of existing, permitted water treatment capability at the MW Pond WTP to manage historical underground mine water discharge quality; and
  - Continued use and management of the permitted TMSF water impoundment and permitted discharge location at the outlet of the facility.

Contact water, including from the dewatering of open pits, will be treated in the MWTP that will be constructed near KM55 on the Eskay Creek MAR (Figure 1.4-4). This contact water will either be pumped directly to the MWTP, or pumped to the TMSF Supernatant Pond for temporary storage prior to treatment in the MWTP. All water released to the receiving environment will be treated, if required, to meet appropriate water quality guidelines or approved discharge limits. The water management strategy for the Project will continue to evolve based on minimizing water consumption and contact water handling and treatment as required to achieve receiving environment instream flow and water quality requirements. Additional information on surface water for the Project is provided in Chapter 15, Surface Water Effects Assessment.

All collection channels are designed to convey a minimum 1:200-year, 24-hour flood with a minimum of 300 mm of freeboard and all diversion channels are designed to convey a minimum 1:100-year, 24-hour flood with a minimum of 300 mm of freeboard, unless otherwise noted.

Water Management – Construction

The primary objectives of water management during Construction will be to:

- Divert non-contact water around disturbed footprint areas to the extent practicable;
- Manage contact water at the Project mine site;
- Limit the number of permitted discharge locations to reduce areas of potential effects;
- Minimize potential effects to downstream receiving environments;
- Implement source controls and other mitigation measures, as necessary, to limit the requirement for active water treatment to achieve discharge objectives; and
- Minimize the release of sediment-laden runoff from the area of the Project.

During Construction, water management will include the continued use of existing water management infrastructure, including infrastructure developed as part of the Technical Sample (Skeena Resources 2024), and the construction and use of new infrastructure. A list of existing water management infrastructure that will be used by the Project is included in Table 1.4-1.

Key water management activities during Construction will consist of managing contact water from existing site infrastructure, particularly from the TS MRSA, PSA, NPAG Quarries, and Technical Sample Pit, as well as managing contact water during construction activities (e.g., construction of the TMSF North Dam [Stage 1], construction of the TMSF South Dam Haul Road) and development of Project infrastructure (e.g., North Pit, MRSA, and ROM Pad).

A water management flow schematic at the end of Construction (Year -1) is shown on Figure 1.4-13; additional water flow schematics for additional Project years is provided in Appendix 1-6, Project Water Management Flow Schematics. A summary of Construction water management channels and ponds and water management pipelines is provided in Table 1.4-12 and Table 1.4-13, respectively; additional temporary sumps, pumps, and pipelines may be employed at the Project mine site as required.

Additional key water management activities will include the drawdown of the existing TMSF water level that will begin as part of the Technical Sample (Skeena Resources 2024) and will continue as part of the Project (Mine Site Water Management Plan), as well as the implementation of erosion and sediment control measures around active construction areas (Appendix A-1, Summary of Management Plans and Mitigation Measures).

Table 1.4-12: Eskay Creek Revitalization Project Water Management Structures – Construction

Location	Water Type	Water Management Structure	Lined vs. Unlined	Catchment Area (ha)
TS MRSA and PSA	Contact water	TS MRSA East Collection Channel	Unlined	14
		TS MRSA West Collection Channel	Unlined	4
		Temporary PAG Stockpiles North Collection Channel	Unlined	7
		MRSA Collection Channel 1	Lined	3
		MRSA Collection Channel 2	Lined	66
		MRSA Collection Pond	Lined	72
	Non-contact water	Lower MRSA Diversion Pipeline Outflow Channel	Unlined	190
		TS MRSA Diversion Channel	Unlined	4
TMSF	Contact water	TMSF (Stage 1)	Partially Lined	512

Notes:

MRSA = Mine Rock Storage Area; PSA = PAG Storage Area; PAG = potentially acid generating; TMSF = Tom MacKay Storage Facility; TS = Technical Sample; UMA = Upper Mine Area

ha = hectare

Table 1.4-13: Eskay Creek Revitalization Project Water Management Pipelines – Construction

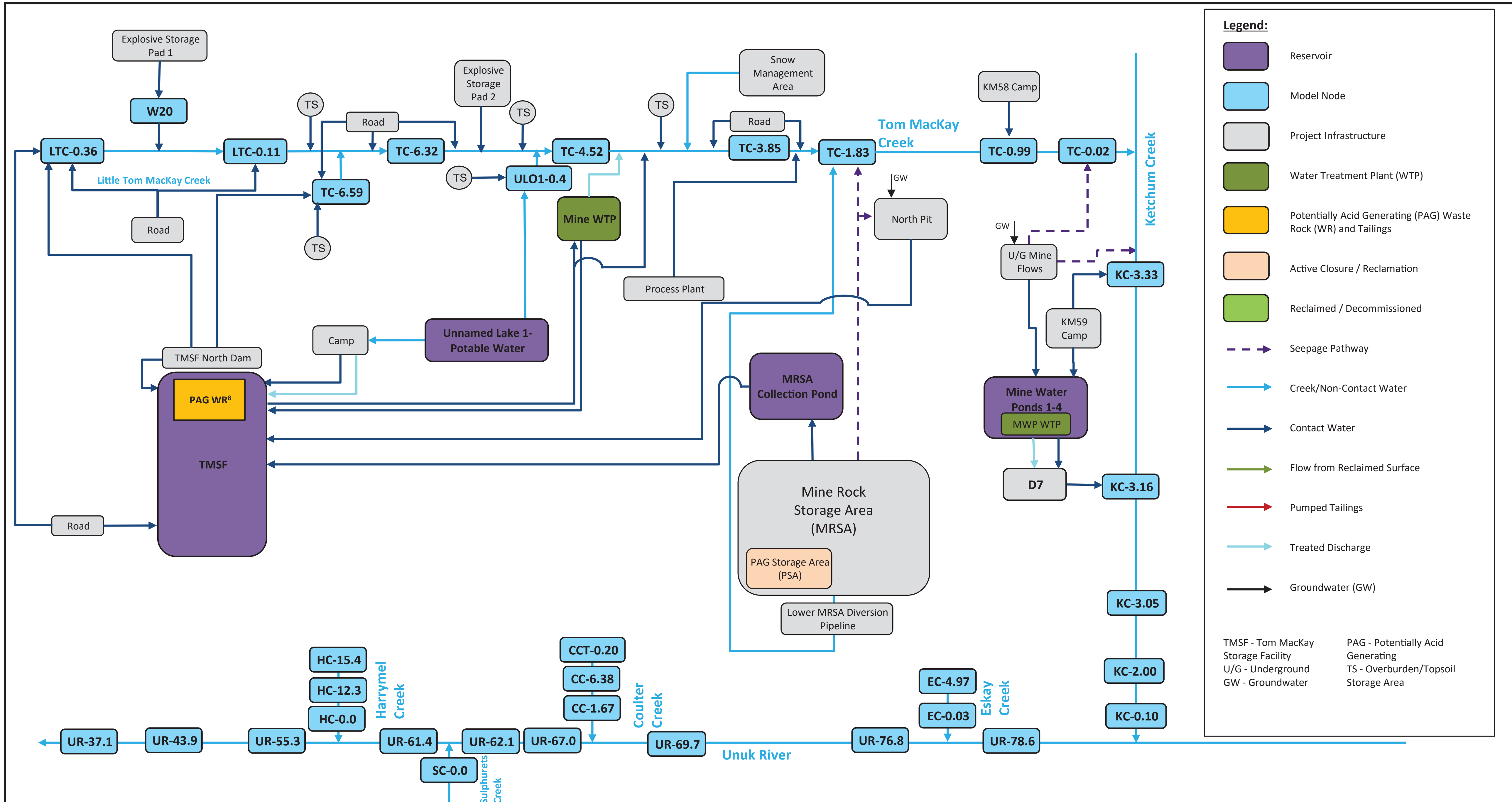
Description	Start Location	End Location	Approx. Pipeline Length (km)
TS MRSA Conveyance Pipeline	Temporary PAG Stockpiles	MW Pond 3	2.0
Lower MRSA Diversion Pipeline[1]	Argillite Creek	Tom MacKay Creek	1.0
MRSA Collection Pond Pipelines	MRSA Collection Pond	MWTP	2.3
	MRSA Collection Pond	MW Pond 3	2.0
TMSF dewatering[1]	TMSF	MWTP	3.5

Notes:

MRSA = Mine Rock Storage Area; MW = Mine Water; MWTP = Mine Water Treatment Plant; PAG = potentially acid generating; TMSF = Tom MacKay Storage Facility; TS = Technical Sample

km = kilometre

[1] Pipeline is a twinned pipeline. Total length of installed pipeline is twice the length reported in table.



NOTES:
1. RUNOFF FROM UNDISTURBED AREAS, POND PRECIPITATION, AND POND EVAPORATION FLOWS NOT SHOWN.
2. POTABLE WTP FACILITIES EXCLUDED FROM FLOW SCHEMATICS. THE POTABLE WATER SOURCE (UNNAMED LAKE 1) IS LOCATED IN THE ULO1-0.4 CATCHMENT.
3. PAG WASTE ROCK DEPOSITED IN TMSF FROM NOVEMBER Y-1.
4. "TS" REPRESENTS AGGREGATED TOPSOIL STOCKPILES THAT CONTRIBUTE TO EACH NODE.
5. TMSF DEWATERING OCCURS UNTIL NOVEMBER Y-1.
6. NORTH PIT DEWATERING OUTPUT LOCATION WILL CHANGE DYNAMICALLY TO OPTIMIZE WATER QUALITY IN THE RECEIVING ENVIRONMENT.
7. PSA REHANDLING TO TMSF BEGINS END OF YEAR -1 AND CONTINUES TO END OF Y1.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
3	03APR'25	ISSUED WITH TRANSMITTAL	CMF	JEF

SKEENA RESOURCES LIMITED
ESKAY CREEK REVITALIZATION PROJECT

MINE SITE WATER MANAGEMENT PLAN
FLOW SCHEMATIC
CONSTRUCTION (Y-1)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-002/56	VA25-00734	
FIGURE 6		REV 3

Source: Knight Piesold (2025).

Skeena Resources Ltd.
Date: 23-Jan-2025
Figure 1.4-13

Filename: ESK-24ERM-012_T:1

Eskay Creek Revitalization
Figure 1.4-13:
Water Management Flow Schematic – Construction (Year -1)
Skeena Mining Division - NTS 104B09
British Columbia, Canada

Technical Sample Mine Rock Storage Area

The TS MRSA, and the PSA that lies within the south end of the TS MRSA area, operate in a positive water balance (i.e., there is more runoff from the catchment than is retained by the facility). The MRSA water management structures include:

- MRSA Collection Pond;
- Five collection channels (i.e., TS MRSA East Collection Channel, TS MRSA West Collection Channel, Temporary PAG Stockpiles North Collection Channel, MRSA Collection Channel 1, and MRSA Collection Channel 2) that will manage contact water to be collected and conveyed for treatment and discharge;
- Two upstream diversions (i.e., TS MRSA Diversion Channel and Lower MRSA Diversion Pipeline) that will direct non-contact water away from the area; and
- An outflow channel (i.e., Lower MRSA Diversion Pipeline Outflow Channel) that will convey the non-contact water from the Lower MRSA Diversion Pipeline to Tom MacKay Creek.

Contact water from the MRSA Collection Pond will be pumped to the MWTP located near KM55 of the Eskay Creek MAR, or pumped from this pond to the TMSF for eventual treatment in the MWTP. The MRSA water management structures that will be constructed prior to the Project are shown on Figure 1.4-14. Existing water management pipelines at KM58 Camp and KM59 Camp are shown on Figure 1.4-15.

Water Management – Operations

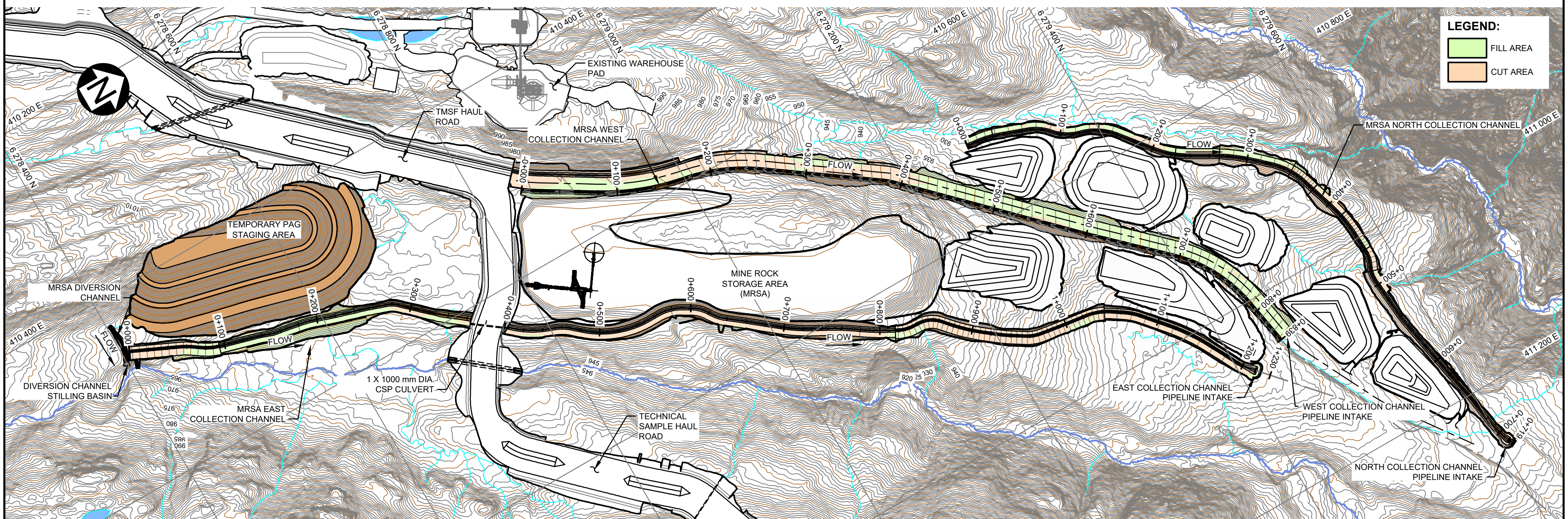
The primary objectives of water management during Construction will also be employed during Operations; these objectives will continue to be achieved by construction of additional water diversion and collection structures, construction of the new TMSF dams and associated infrastructure, selective grading of road and pads surfaces, and installation of pump and pipeline systems. Water management will also include the pumping from a surface water source denoted as Unnamed Lake 1 to support freshwater requirements for the Process Plant and the Camp.

Key water management activities will include dewatering from the open pits, management of contact water from the MRSA, and management of inflows and outflows at the TMSF. A water management flow schematic during Years 4 and 5 of Operations is shown on Figure 1.4-16. Summaries of Operations water management structures and pipelines are provided in Table 1.4-14 and Table 1.4-15, respectively; additional temporary sumps, pumps, and pipelines will be employed at the Project mine site as required.

Open Pits

The open pits will require dewatering during Operations through a series of temporary and semi-permanent sumps and pumps, vertical perimeter dewatering wells, horizontal boreholes, and pipelines. This pit dewatering system is comprised of two sub-systems: the North Pit dewatering system and the South Pit dewatering system.

The North Pit dewatering system will convey groundwater and runoff collected in the North Pit directly to the MWTP in a dedicated pipeline, or to the TMSF via the MRSA Collection Pond for eventual treatment in the MWTP. The North Pit dewatering system will operate for approximately ten years during active open pit mining (i.e., Year 1 to Year 10). From Year 11 onwards, the North Pit will be allowed to passively flood (Section 1.5.2.4, Reclamation and Closure).



NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 9.
2. CONTOUR INTERVAL IS 1 METRE.
3. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
4. SURFACE LIDAR PROVIDED BY SKEENA RESOURCES, DATED OCTOBER 2023.
5. DIA = DIAMETER IN MILLIMETRES; MRSA = MINE ROCK STORAGE AREA; TMSF = TOM MACKAY STORAGE FACILITY

PLAN

TECHNICAL SAMPLE PROJECT
STOCKPILE WATER MANAGEMENT
SCALE A

SCALE A 50 25 0 50 100 150 200 250 m

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	07FEB'25	ISSUED WITH TRANSMITTAL	SJY	RMM	MJB

Source: Knight Piésold (P/A No. VA101-2/56, Ref No. VA25-00268)

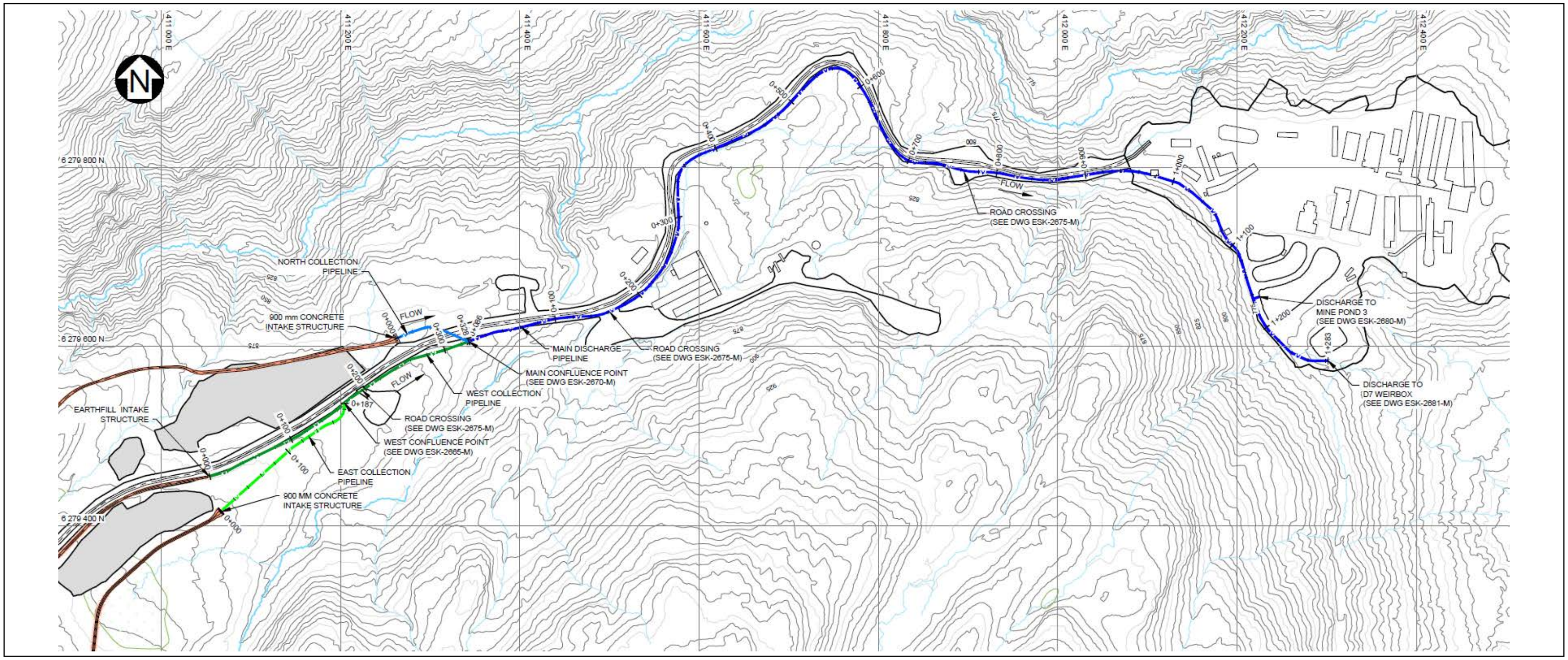
Skeena Resources Ltd.
Date: 7-Apr-2025
Figure 1.4-14

Filename: ESK-25ERM-006

Eskay Creek Revitalization

Figure 1.4-14:
Technical Sample Mine Rock Storage Area Water Management Structures (Year -3)

Skeena Mining Division - NTS 104B09
British Columbia, Canada



LEGEND:

- MAIN DISCHARGE PIPELINE
- WEST COLLECTION PIPELINE
- EAST COLLECTION PIPELINE
- NORTH COLLECTION PIPELINE
- COLLECTION CHANNEL

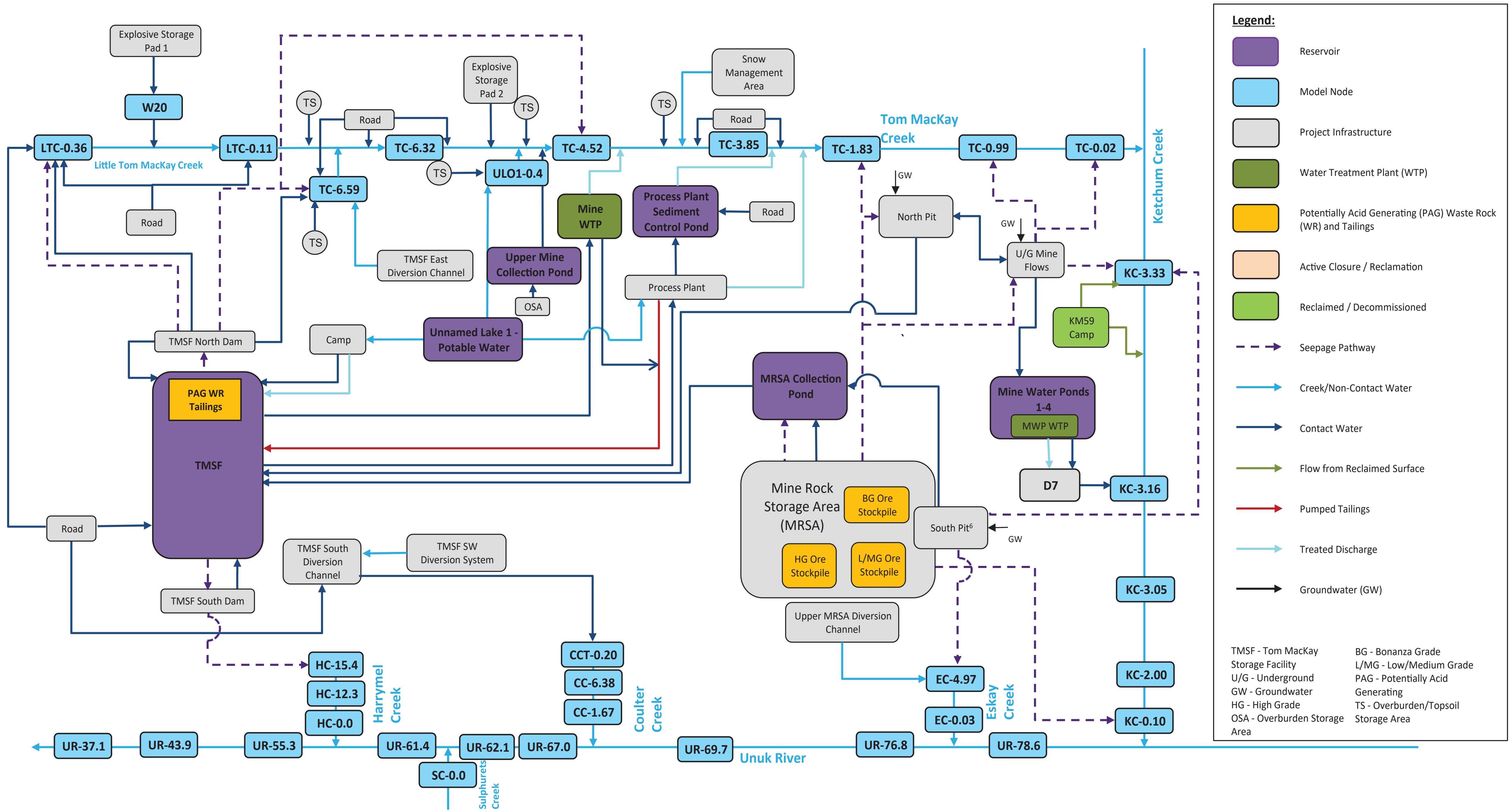
Skeena Resources Ltd.
Date: 05-Dec-2024
Figure 1.4-15

Filename: ESK_Dec 2024

Eskay Creek Revitalization

Figure 1.4-15:
KM58 Camp and KM59 Camp Water Management Pipelines (Year -3)

Skeena Mining Division - NTS 104B09
British Columbia, Canada



NOTES:
1. RUNOFF FROM UNDISTURBED AREAS, POND PRECIPITATION, AND POND EVAPORATION FLOWS NOT SHOWN.
2. POTABLE WTP FACILITIES EXCLUDED FROM FLOW SCHEMATICS. THE POTABLE WATER SOURCE (UNNAMED LAKE 1) IS LOCATED IN THE ULO1-0.4 CATCHMENT.
3. "TS" REPRESENTS AGGREGATED TOPSOIL STOCKPILES THAT CONTRIBUTE TO EACH NODE.
4. THE ARROW BETWEEN THE U/G MINE AND NORTH PIT REPRESENTS THE PHYSICAL CONNECTION BETWEEN THESE FACILITIES. FLOW BETWEEN THE FACILITIES WAS NOT EXPLICITLY MODELLED IN THE SITE WIDE WATER BALANCE MODEL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
3	03APR'25	ISSUED WITH TRANSMITTAL	CMF	JEF

SKEENA RESOURCES LIMITED
ESKAY CREEK REVITALIZATION PROJECT

MINE SITE WATER MANAGEMENT PLAN
FLOW SCHEMATIC
OPERATIONS (Y4-Y5)

Knight Piésold CONSULTING

P/A NO. VA101-002/56 | REF. NO. VA25-00734

FIGURE 10 | REV 3

Source: Knight Piesold (2025).

Skeena Resources Ltd.
Date: 23-Jan-2025
Figure 1.4-16

SKEENA RESOURCES

Filename: ESK-24ERM-012_T:2

Eskay Creek Revitalization

Figure 1.4-16:
Water Management Flow Schematic – Operations (Years 4-5)

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Table 1.4-14: Eskay Creek Revitalization Project Water Management Structures – Operations

Location	Water Type	Water Management Structure	Lined vs. Unlined	Catchment Area (ha)
Process Plant	Contact water	Process Plant Sediment Control Pond[1]	Partially Lined	6
MRSA	Contact water	MRSA Collection Channel 1	Lined	3
	Contact water	MRSA Collection Channel 2	Lined	159
	Contact water	MRSA Collection Pond	Lined	166
	Contact water	MRSA Collection Pond Overflow Sump	Unlined	166
	Non-contact water	Upper MRSA Diversion Channel	Unlined	82
TMSF	Contact water	TMSF (Stage 1)	Partially Lined	512
	Contact water	TMSF (Stage 2 to 6)	Partially Lined	432
	Non-contact water	TMSF East Diversion Channel	Unlined	32
	Non-contact water	TMSF South Diversion Channel	Unlined	24
Overburden Storage Area	Contact water	UMA North Collection Channel[2]	Lined	8
	Contact water	UMA South Collection Channel[3]	Lined	15
	Contact water	UMA Collection Pond[4]	Lined	24
	Non-contact water	UMA Diversion Channel[5]	Lined	3

Notes:

MRSA = Mine Rock Storage Area; TMSF = Tom MacKay Storage Facility; UMA = Upper Mines Area

[1] Referred to as the Warehouse Pad Sediment Control Pond in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

[2] Referred to as the PSA North Collection Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

[3] Referred to as the PSA South Collection Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

[4] Referred to as the PSA Collection Pond in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

[5] Referred to as the PSA Diversion Channel in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

Table 1.4-15: Eskay Creek Revitalization Project Water Management Pipelines – Operations

Description	Start Location	End Location	Approximate Pipeline Length (km)
Process Plant freshwater supply (for potable use, once treated)	Unnamed Lake 1	Process Plant	TBD[1]
Camp freshwater supply (for potable use, once treated)	Unnamed Lake 1	Camp	0.6
Tailings distribution system	Process Plant	TMSF	9.0
Reclaim water system	TMSF	Process Plant	8.1
TMSF water discharge system	TMSF	MWTP	6.6
TMSF Southwest Diversion System	Pond in southwest of TMSF Catchment	TMSF South Diversion Channel	1.5
MRSA Collection Pond Discharge Pipeline[2]	MRSA Collection Pond	TMSF / MWTP	8.8
MRSA Collection Pond Overflow Sump Pipeline	MRSA Collection Pond Overflow Sump	MRSA Collection Pond	0.6

Description	Start Location	End Location	Approximate Pipeline Length (km)
Pit dewatering system[2,3]	North Pit	MRSA Collection Pond[3] / TMSF[2,3] / MWTP	1.9 / 13.4[4]
Pit dewatering system	South Pit	MRSA	1.0

Notes:

MRSA = Mine Rock Storage Area; MWTP = Mine Water Treatment Plant; TBD = to be determined; TMSF = Tom MacKay Storage Facility

km = kilometre

[1] Exact pipeline length will be determined during future engineering design, if pipeline required.

[2] Pipeline is twinned. Total length of installed pipeline is twice the length reported in table.

[3] Pit dewatering will convey contact water to the MRSA Collection Pond or to the TMSF, as required.

[4] Distance from North Pit to the TMSF determined based on maximum extents of the North Pit at end of mining.

The South Pit dewatering system will convey groundwater and runoff collected in the South Pit to the MRSA Collection Pond; from this pond, water will be pumped to the TMSF for eventual treatment in the MWTP. The South Pit dewatering system will operate for approximately one year during active mining and prior to the pit being infilled with NPAG waste rock.

Additional information on groundwater for the Project is provided in Chapter 14, Groundwater Effects Assessment.

Mine Rock Storage Area

The MRSA will continue to operate in a positive water balance during Operations. Project water management at the MRSA will rely on some of the existing water management structures constructed as part of the Technical Sample (i.e., MRSA Collection Pond, MRSA Collection Channel 1, MRSA Collection Channel 2, Lower MRSA Diversion Pipeline, and Lower MRSA Diversion Pipeline Outflow Channel). Two new water management structures for the MRSA will be constructed in Year 1 of Operations:

- Upper MRSA Diversion Channel, which will be constructed as the MRSA footprint exceeds the catchment of the Lower MRSA Diversion Pipeline, to divert upslope catchment non-contact water runoff into the Eskay Creek catchment, and;
- MRSA Collection Pond Overflow Sump, which will provide additional contact water storm storage capacity for the MRSA Collection Pond, required for the enlarged catchment area. This sump will be subsumed by the development of the North Pit in Year 5 of Operations; from this point forward, the North Pit will provide the overflow contact water capacity for storm events.

Contact water runoff from the MRSA footprint will report to the MRSA Collection Pond. During late Construction and most of Operations (i.e., Year 1 to Year 10), water from this pond will be pumped to the TMSF Supernatant Pond for eventual treatment in the MWTP. For late Operations (i.e., Year 11 to Year 13), contact water from the MRSA Collection Pond will be pumped to the flooded North Pit, which will then be pumped to the MWTP for treatment.

The MRSA Collection Pond capacity will be expanded in Year 1 of Operations through excavation of an overflow sump (i.e., MRSA Collection Pond Overflow Sump). The MRSA Collection Pond Overflow Sump is located within the ultimate footprint of the North Pit and will function as an overflow structure for the

MRSA Collection Pond to provide additional contact water storage capacity during storm events. The MRSA Collection Pond Overflow Sump will be enveloped by expansion of the North Pit footprint in Year 5. From Year 4 onwards, overflow from MRSA Collection Pond during peak storm events will report to the North Pit to be managed via the North Pit dewatering system.

The design storm event for the MRSA contact water management structures is the 1:200-year, 24-hour storm event. The storm event will be managed through a combination of conveyance to the TMSF via active pumping, and storage capacity. Unlike other diversion channels, which are designed to convey a minimum 1:100-year, 24-hour flood with a minimum of 300 mm of freeboard, the Upper MRSA Diversion Channel is designed to convey a minimum 1:200-year, 24-hour flood with a minimum of 300 mm of freeboard to align with the higher magnitude design event for water management structures downstream of this channel, such as the MRSA Collection Pond.

Tom MacKay Storage Facility

The TMSF will operate in a positive water balance and will receive the main inflows of contact water collected in the TMSF Supernatant Pond from across the Project mine site including from the open pits, MRSA, Process Plant (i.e., tailings discharge pipeline), as well as direct precipitation and undiverted runoff from within the TMSF catchment area. The main outflows from the TMSF will be managed using the reclaim water system that will pump TMSF Supernatant Pond water to the Process Plant for use and from the TMSF water discharge system that will pump contact water stored in the TMSF Supernatant Pond to the MWTP for treatment (Section 1.4.2.3, Tom MacKay Storage Facility).

The TMSF water management structures will include two diversion channels (i.e., TMSF East Diversion Channel and TMSF South Diversion Channel) that will direct non-contact water away from the facility. An additional portion of the catchment will be diverted using a non-contact water pumping system (i.e., TMSF Southwest Diversion System). This system will pump water from a small natural pond located southwest of the TMSF catchment and west of the TMSF South Dam Haul Road and discharge into the TMSF South Diversion Channel via an overland pipeline.

The TMSF South Diversion Channel will be an outlet channel excavated downstream of the TMSF South Dam and will facilitate drainage of water to Coulter Creek; this channel will be the only TMSF water management structure that will remain into Post-closure and will prevent non-contact water from ponding against the downstream slope of the TMSF South Dam in the long term.

Water management in the TMSF will also include a seepage management system composed of a synthetic liner on the upstream face of TMSF North Dam and TMSF South Dam and a foundation drain beneath each dam. This system will convey any seepage that bypasses the synthetic liners to seepage collection sumps downstream of the dams. Seepage will be monitored for water quality and pumped back into the TMSF Supernatant Pond.

Overburden Storage Area

The Overburden Storage Area will operate in a positive water balance, and use of this facility may begin in late Construction and will extend into Operations. The Overburden Storage Area will utilize the existing approved water management structures under the Technical Sample, which includes the Upper Mine Area (UMA) Collection Pond, two collection channels (i.e., UMA North Collection Channel, UMA South Collection Channel) that will direct contact water toward this collection pond, and an upstream diversion channel (i.e., UMA Diversion Channel) that will direct non-contact water away from the facility. Runoff from the Overburden Storage Area that reports to the UMA Collection Pond will be discharged to Tom MacKay Creek either by pumping or natural discharge from the UMA Collection Pond Spillway, with additional erosion and sediment control measures applied, if required, to manage total suspended solids concentrations to meet appropriate water quality guidelines or approved discharge limits in accordance with *EMA* Permit PE-10818.

Project Water Sources

Water for the Project will be required for the operation of the Process Plant and Camp, equipment washing, dust suppression, and fire water supply. The total potable water requirements for the Project are anticipated to be 120 m^3/day during Construction and Operations, with reduced potable water requirements into Reclamation and Closure and Post-closure. The total potable water requirements for the Project will be refined and confirmed during detailed engineering and future permitting submissions.

In the Camp, potable water (i.e., drinking water) will be used for camp operations, employee use, and will supply fire water to the facility. Freshwater will be sourced from the Unnamed Lake 1 located east of the TMSF and Camp (Figure 1.4-4), treated in the Potable Water Treatment Plant in the Camp area, and stored in a potable water / fire water holding tank prior to use (Section 1.4.2.9, Ancillary Infrastructure). Water will be pumped from the potable water / fire water holding tank to the Camp for use in an overland pipeline.

In the Process Plant and ancillary infrastructure in the Process Plant area (e.g., Laboratories, Administration), potable water as well as fire water will be required for these facilities. Freshwater for the Process Plant will also be sourced from the Unnamed Lake 1 to the east of the TMSF and Camp (Figure 1.4-4). It is anticipated that potable water will be transported in water trucks from the potable water / fire water holding tank in the Camp area to a potable water / fire water holding tank in the Process Plant area prior to use (Section 1.4.2.9, Ancillary Infrastructure). There is also a dedicated Potable Water Treatment Plant in the Process Plant area, should an overland pipeline from Unnamed Lake 1 to the Process Plant area be deemed more efficient than trucking water from the Camp area to the Process Plant area.

In addition to freshwater, contact water from the TMSF Supernatant Pond will be reclaimed via the reclaim water system for use in the Process Plant for all ore processing (Section .4.2.3, Tom MacKay Storage Facility).

Water Treatment

Water treatment for the Project will include:

- Use of the existing MW Pond WTP system to treat for discharge through the D7 permitted discharge location:
    - Contact water from temporary PAG stockpiles during Construction (i.e., Year -2);
    - Contact water from KM59 Camp during Construction until early Operations (i.e., Year 3); and
    - Contact water from the existing underground workings during Construction until late Operations (i.e., Year 10).
- Mine Water Treatment Plant (MWTP) to treat:
    - Contact water collected from the North Pit and MRSA during Construction and;

   - Contact water collected from the North Pit, MRSA, and TMSF Supernatant Pond during Operations until Post-closure Treatment phase 1.

- Treatment of potable water in a potable water treatment plant located in the Camp area, and a second optional potable water treatment plant in the Process Plant area should trucking potable water from the Camp area to the Process Plant be deemed less efficient.
- Treatment of wastewater in two sewage treatment plants located in the Process Plant area and Camp area.

Information on the MWTP is summarized below, and additional information is provided in Appendix 1-7, Water Treatment Preliminary Design Considerations for the Eskay Creek Revitalization Project.

Information on potable water treatment plants and sewage treatment plants is provided in Section 1.4.2.9, Ancillary Infrastructure.

Mine Water Treatment Plant Stages

The MWTP will be installed near KM55 of the Eskay Creek MAR in Year -2 to treat contact water during Construction through Post-closure sourced from the open pits, MRSA, Process Plant, and TMSF Supernatant Pond. This contact water will either be pumped to the MWTP directly from the open pits and MRSA, or from the TMSF Supernatant Pond, and treated water from the MWTP will discharge to a new discharge location on Tom MacKay Creek near KM55 of the Eskay Creek MAR (Figure 1.4-4).

The MWTP will be installed and operated using a staged modular approach, where the treatment system will be expanded as required to meet Project treatment requirements. At the start of Construction, the Project will continue to use the existing water treatment system (i.e., TS WTP[7]) installed as part of the Technical Sample; this system will be renamed MWTP Stage 1 as part of the Project. A total of three water treatment stages are anticipated over the life of mine:

- **MWTP Stage 1 (Construction)**: Continuation of the TS WTP in Year -2 of the Project to support the initial development of the North Pit and MRSA at the existing treatment rate of up to 210 litres per second (L/s). During this stage, contact water from the North Pit and MRSA will be pumped directly to the MWTP via the MRSA Collection Pond.
- **MWTP Stage 2 (Operations)**: Expansion of the MWTP in Year -1 to support water treatment from the TMSF Supernatant Pond at an annual average treatment rate of 600 L/s, with a seasonal peak treatment rate up to 800 L/s. During this stage:
   - Contact water from the North Pit will be pumped directly to the MWTP; and
   - Contact water from the North Pit and MRSA will be pumped to the TMSF via the MRSA Collection Pond, and then from the TMSF to the MWTP.
- **MWTP Stage 3 (Post-Closure)**: Expansion of the MWTP in Year 9 to support simultaneous water treatment from the TMSF Supernatant Pond as well as the flooded North Pit and MRSA catchment areas at a treatment rate of up to 925 L/s (Post-closure Treatment phase 1).

[7] The TS WTP is referred to as the PSA WTP in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

All contact water from the Project mine site will be treated, if required, to meet appropriate water quality guidelines or approved discharge limits.

Should site monitoring indicate water in the TMSF Supernatant Pond no longer requires treatment and can flow passively to Tom MacKay Creek, the treatment of the flooded North Pit and MRSA catchment areas will continue in the MWTP at a treatment rate of up to 925 L/s (Post-closure Treatment phase 2) (Section 1.5.2.5, Post-closure).

Mine Water Treatment Plant Technology

Throughout the Project, the MWTP system will remove metals and metalloids from contact water using precipitation via pH adjustment, metal precipitant agent, and ferric iron co-precipitation, followed by separation of precipitated solids from treated water. The method of solid-liquid separation will be achieved using two technologies over the life of the Project: Geotube® and enhanced high-density sludge (EHDS). The Geotube® and EHDS technologies are both considered at a Technical Readiness Level of 9, which is defined as "actual technology proven through successful deployment in an operational setting" (Government of Canada 2018) and is appropriate for large-scale water treatment requirements. Additional information on Technical Readiness Levels and locations where these technologies have been deployed at a large scale is provided in Appendix 1-11, Water Treatment Best Available Technology Study for the Eskay Creek Revitalization Project and Appendix 1-7, Water Treatment Preliminary Design Considerations for the Eskay Creek Revitalization Project.

Geotube® bags will be used for solid-liquid separation from MWTP Stage 1 (Construction) until partway through MWTP Stage 2 (Operations). Geotube® bags are large geomembrane tubes that will be placed in lined, bermed areas to filter solids from contact water.

As onset of acid rock drainage occurs and levels of metal and acidity in contact water increases, the MWTP will be modified during early Operations to use EHDS clarification and filtration for solid-liquid separation instead of geotubes.

Traditional high-density sludge treatment involves lime neutralization and the recycling of precipitated solids; EHDS technology builds on this high-density sludge process by incorporating metal precipitant agent and ferric reagent to improve treatment parameter precipitation as well as polishing filtration to improve treated effluent quality.

It is anticipated the MWTP will utilize three main processes: metal precipitation and clarification, filtration and polishing, and solids management; these processes are summarized in Table 1.4-16. The consumption rate of reagents used for the MWTP is expected to vary depending on treatment rate and the influent loading. The approximate maximum annual consumption rate of reagents for the Geotube® MWTP system and the EHDS MWTP system once fully operational are provided in Table 1.4-17 and Table 1.4-18, respectively. These reagent consumption rates will be refined during detailed engineering and laboratory-scale testing.

Table 1.4-16: Mine Water Treatment Plant – Process Overview

Process	Process Description
Metal precipitation and clarification	Metal precipitation will include sulphide precipitation, high-pH precipitation, iron co-precipitation, and clarification (i.e., removal of suspended solids through gravity settling). The metals precipitation processes will target the removal of aluminum, cadmium, copper, lead, mercury, and zinc. The high-pH precipitation system will use lime with sludge recycling to generate low-solubility metal hydroxides, and will be complemented by the sulphide precipitation process, which will generate low-solubility metal sulphides. The iron co-precipitation process will enhance binding and coagulation and promote further removal of metals, such as cadmium and zinc, by adsorption.
Filtration and polishing	Multi-stage filtration will use dual-media (i.e., anthracite-sand) filtration followed by ferric oxyhydroxide media filtration. The filtration process will remove suspended solids, including residual metal precipitates from the clarification process, and any remaining dissolved metals. An oxidation reactor will confirm the preferable oxidation states of the targeted contaminants are achieved prior to polishing. Polishing will remove small (i.e., microscopic) particulate material or very low concentrations of dissolved material from the effluent stream. After polishing, the treated effluent will discharge to the receiving environment.
Solids management	The main solid waste stream from the water treatment process will be the sludge generated from the clarification process. The sludge will be directed to the dewatering filter press units, which will produce a dewatered filter cake that will be deposited in the TMSF, and the return recovered filtrate will be recirculated upstream in the MWTP.

Notes:

EHDS = enhanced high density sludge; MWTP = Mine Water Treatment Plant; TMSF = Tom MacKay Storage Facility

pH = potential of hydrogen

Table 1.4-17: Mine Water Treatment Plant – Geotube® Approximate Annual Reagent Consumption

Reagent	Approximate Annual Consumption Rate (Maximum)
Metal precipitant agent	100 t
Alkali	410 t
Coagulant	710 t
Flocculant	20 t

Note:

t = tonne

Table 1.4-18: Mine Water Treatment Plant – Enhanced High-Density Sludge Approximate Annual Reagent Consumption

Reagent	Approximate Annual Consumption Rate (Maximum)
Metal precipitant agent	730 t
Alkali	9,100 t – 18,000 t
Coagulant	730 t
Flocculant	80 t
Oxidant	550 t

Note:

t = tonne

Snow Management

An average of 74% of the mean annual total precipitation (i.e., 2,800 mm) at the Project mine site falls as snow between September and May each year (Chapter 15, Surface Water Effects Assessment). The snow management for the Project will include snow removal from active working areas during winter months, including the MRSA, ore stockpiles, and active areas of the open pits. Snow will be removed and hauled to the Snow Management Area located near KM55.5 of the Eskay Creek MAR, immediately west of the MRSA. Snow management for the Project will be based on the following assumptions:

- Snow management will be required in the open pits, MRSA (including the ROM Pad), Process Plant area, and haul roads.
- In the open pits, there will be benches that advance slowly or are inactive. It is estimated that between 25% and 75% of the snow accumulation in the pits will be removed on an annual basis (i.e., snow from active excavation areas and accessible benches).
- In the MRSA and ROM Pad, it is estimated that approximately 75% of snow accumulation will be removed on an annual basis.
- Snow stored in the Snow Management Area will be allowed to melt naturally and melt water will be conveyed to Tom MacKay Creek in an overland surface channel, with erosion and sediment control measures in place, as required.
- Snow not removed will be stockpiled in inactive working areas and or left in place and melt water managed as contact water in the MRSA Collection Pond or managed by the pit dewatering systems.

1.4.2.7 Roads and Access

Mine Access Road

Access to the Project will be provided by the existing offsite Eskay Creek MAR, a 59 km all-season gravel road, which connects the Project mine site to provincial Highway 37 (i.e., Stewart-Cassiar Highway) approximately 137 km north of Meziadin Junction. The Eskay Creek MAR is primarily a private industrial road that provides access to the existing KM58 Camp and KM59 Camp. The first 4 km of the Eskay Creek MAR (i.e., KM0 to KM4) is a Forest Service Road that is managed by the BC Government and is currently maintained by Skeena Resources. The portion of the Eskay Creek MAR between KM4 to KM43.5 is managed under a Coast Mountain Hydro Services Special Use Permit that Skeena Resources maintains under agreement with Coast Mountain Hydro Services. The portion remainder of the Eskay Creek MAR between KM43.5 to KM52.5 is under Skeena Resources Special Use Permit and is operated and maintained by Skeena Resources. The remainder of the road (i.e., KM52.5 to KM59 is within the PMA and administered under Permit M-197.

The existing offsite Eskay Creek MAR includes a combination of single and double-lane sections with a total of eight single lane bridge structures, and has design speeds ranging from 30 km/h to 60 km/h. The Eskay Creek MAR is currently in good condition and is maintained on a continuous basis. During Construction, the Eskay Creek MAR will be locally re-routed in some limited areas near KM55 to accommodate tie-ins to newly constructed roads and pads, and access will be continuously maintained to existing facilities. Early in Operations, the Eskay Creek MAR will terminate in the Process Plant area, and the remaining length of this road will be decommissioned and replaced with haul roads connecting the Process Plant area to the MRSA, ore stockpiles, and open pits as well as secondary roads for light vehicle traffic connecting to the Primary Crushing Station, MRSA Collection Pond, and KM59 Camp.

Existing traffic along the offsite Eskay Creek MAR from KM2 was estimated from 2022 traffic logs kept at the existing offsite KM2 Security Gate. The period of record annual average daily traffic (AADT[8]) of 30 was estimated for the Eskay Creek MAR, with 94% of this traffic occurring during daytime (i.e., 07:00 to 21:59). Peak traffic occurs from June to October.

Onsite Roads

Haul Roads

The Project will include use of three main haul roads: the TMSF Haul Road, the TMSF North Dam Haul Road, and the TMSF South Dam Haul Road (Figure 1.4-4). These haul roads will comply with applicable haul road standards included in the HSRC requirements (EMLI 2024) and will include appropriate drainage measures, culvert crossings, and runaway lanes and/or catchment berms where required. Design of these haul roads, including establishing the terrain surface and identifying preferable alignment, road grades, and estimated volumes, was supported by information collected through Light Detection and Ranging (LiDAR) in the area of the Project.

Pipeline corridors protected by shoulder berms will be constructed adjacent to haul roads where:

- Tailings discharge pipeline will be installed to connect from the Process Plant to the TMSF;
- Reclaim water pipeline will be installed to connect from the TMSF to the Process Plant; and
- TMSF water discharge pipeline will be installed to connect from the TMSF Supernatant Pond to the MWTP for water treatment prior to discharge to the environment.

The three main haul roads are described as follows:

- Tom MacKay Storage Facility Haul Road: a 4.6 km long, 26.5 m wide, double-lane road to accommodate up to 150-ton (i.e., 136 t) class haul trucks. This haul road will connect from the MRSA to the TMSF North Dam to provide access for dam construction on the western side of the facility. This haul road will be constructed as part of the Technical Sample (Skeena Resources 2024) and will be used by the Project.
- Tom MacKay Storage Facility North Dam Haul Road: a 1.6 km long, 26.5 m wide, double-lane road to accommodate up to 150-ton class haul trucks. This haul road will connect from the TMSF Haul Road near the Overburden Storage Area to the TMSF North Dam to provide access for dam construction on the eastern side of the facility. This haul road will also include a spur road (i.e., TMSF North Dam Spur Road) connecting from the TMSF North Dam Haul Road to the north end of the TMSF North Dam. This haul road and spur road will be constructed as part of the Technical Sample (Skeena Resources 2024) and will be used by the Project.
- Tom MacKay Storage Facility South Dam Haul Road: a 5.3 km long, 26.5 m wide, double-lane road to accommodate up to 150-ton class haul trucks that will be completed in late Construction. This haul road will connect from the TMSF North Dam to the TMSF South Dam to provide access for TMSF South Dam construction and PAG waste rock deposition, as well as provide access for installation of the tailings discharge pipeline, reclaim water pipeline, and TMSF water discharge system pipeline.

[8] AADT is the number of vehicles in both directions on any given day of the year.

Secondary Roads

Roads within and around the Process Plant area will be constructed as either single-lane or double-lane roads as required and will allow access between the Process Plant, ROM Pad, and other ancillary infrastructure in the Process Plant area (Section 1.4.2.9, Ancillary Infrastructure). Additional secondary smaller roads will be constructed to support operations and maintenance for the Project, including access roads to water management structures and access roads from the TMSF South Dam Haul Road and TMSF North Dam Haul Road to different points along the TMSF. These secondary roads will include appropriate drainage measures. Runaway lanes or catchment berms will be included, as required under the direction of the Mine Manager (as per Section 6.9.2 of the HSRC [EMLI 2024]), for road segments where the grade exceeds 5%. Existing roads, such as the Coulter Creek Access Road, will also be utilized by the Project.

Road Construction Methodology

All road construction methods will follow the Mine Haul Road Design manual and meet the HSRC requirements (EMLI 2024). Preliminary grubbing and stripping will be completed within road footprints, and an estimated 0.5 m of surface stripping will be required to remove unsuitable material below the road fill foundation.

The majority of road fill will consist of ROM NPAG waste rock, placed by haul trucks, and spread by bulldozers. A portion of NPAG waste rock will be crushed and/or screened, as appropriate, to generate suitable material for the road running surface. The NPAG waste rock from the Project has been deemed as suitable fill material for use across the Project mine site, with the exception of key stream crossings. In these key locations, select NPAG waste rock, potentially from onsite or offsite locations, will be placed within 30 m of both sides of the crossings. Rockfill will be placed around culverts using smaller excavator equipment with compaction via plate tamper, and finer-grained material will be installed as culvert bedding. Additional information is provided in the Metal Leaching and Acid Rock Drainage Management Plan (Appendix A-1, Summary of Management Plans and Mitigation Measures).

Mine Access and Security

During Construction, two security gates will be utilized for the Project located at KM2 and KM52.2 of the Eskay Creek MAR. The existing offsite KM2 Security Gate located approximately 2 km from the Highway 37 junction is a common security checkpoint for all users accessing the Eskay Creek MAR. This gate will provide continuous security coverage to coordinate both traffic management and security controls near the existing offsite KM2 laydown area (Bob Quinn). This Bob Quinn laydown area is the primary marshalling yard and laydown area that will be used for the staging of equipment and construction materials during Construction. The KM52.2 Mine Security Gate will be constructed to provide continuous security coverage and control access to the main Project mine site.

These security gates will control and restrict road access to the Project mine site during all Project phases until no longer required.

1.4.2.8 Power Supply Infrastructure

Stationary Power Infrastructure

Power for the Project will be supplied through support infrastructure that is being permitted, constructed, and operated to supply power to the Eskay Creek Mine in advance of the Project requirements. This support infrastructure, which is located both onsite and offsite, will also supply electrical power to the Project (Section 1.4.1.2, Support Infrastructure).

The power supply infrastructure for the Project will connect to the existing Eskay Creek Substation and associated 13.8 kV underground feeder that will be installed in the Process Plant area. Electricity for the Project will connect to the underground feeder, which will be stepped down to the required voltage levels and distributed across the Project mine site using overhead poles and underground infrastructure. Power will be purchased from BC Hydro and will supply electricity to the Process Plant, and ancillary infrastructure in the Process Plant area, Camp area, and the broader Project mine site.

Emergency Systems

Standby diesel generators will provide emergency power to support critical process loads and life safety systems. These generators will be housed in weatherproof enclosures and have been sized to allow critical systems to continue running in the event of a power failure, including:

- Process Plant (e.g., tank agitators, flotation cell agitators);
- Camp;
- Pumps for water management infrastructure;
- Mine Water Treatment Plant; and
- KM52.2 Mine Security Gate.

For the conveyor and crushing facilities, although no backup generator will be set up, emergency brakes would be activated with a power failure.

Local lighting towers will be installed around the Project mine site as required to provide area lighting where maintenance or operations work is required during the night shift. Emergency escape lighting, including exit signage, will also be installed where appropriate.

1.4.2.9 Ancillary Infrastructure

Ancillary infrastructure required to support the Project has been categorized based on location, and includes:

- Infrastructure located in the Process Plant area;
- Camp and infrastructure located in the Camp area; and
- Infrastructure located in the broader area of the Project (i.e., other areas of the Project mine site that are not near the Process Plant or Camp).

Ancillary Infrastructure – Process Plant Area

Ancillary infrastructure located in the Process Plant area includes:

- Truck Shop and Truck Wash;
- Tire Change;
- Tire Storage Area;

- Administration;
- Mine Warehouse;
- Process Plant Workshop;
- Laboratories;
- Process Plant Media Storage;
- Process Plant Reagent Storage;
- Propane Storage;
- Fuel Storage / Fueling Station;
- Potable Water Treatment Plant;
- Sewage Treatment Plant;
- Fire water system; and
- Waste Transfer Area.

This ancillary infrastructure is shown on Figure 1.4-17 and additional details are summarized in Table 1.4-19.

Table 1.4-19: Ancillary Infrastructure in the Process Plant Area

Ancillary Infrastructure	Infrastructure Description
Truck Shop and Truck Wash	The integrated Truck Shop and Truck Wash facility will include a 96 m long by 38 m wide pre-engineered building with a concrete foundation. A concrete berm will separate the heavy and light vehicle traffic. This facility includes multiple maintenance bays for 150-ton haul trucks, which will be serviced by a 20-ton overhead crane; tracked heavy vehicle maintenance bay; truck wash bay, which include pressure washing equipment and wash water collection system; and lube and oil storage. The Mine Warehouse will also be integrated into this facility.
Tire Change	The Tire Change area will include a 20.5 m long by 11 m wide steel frame structure with a roof, and an enclosed storage shed for tools and equipment. The Tire Change area will have a concrete foundation and will be a stand-alone structure to facilitate manoeuvrability when changing tires.
Tire Storage Area	The Tire Storage Area will include a 27.5 m long by 13 m wide steel frame structure with a roof, and an enclosed storage shed for tools and equipment. The Tire Storage Area will have a concrete foundation and will be adjacent to the Truck Shop and Truck Wash.
Administration	The Administration building will include a 43 m long by 22 m wide single-storey prefabricated modular building with a concrete foundation. The Administration building will include offices, first aid facilities, meeting rooms, lunchroom, and washrooms to accommodate approximately 80 workspaces.
Mine Warehouse	The Mine Warehouse will include a 48 m long by 20 m wide area within the Truck Shop and Truck Wash pre-engineered building that will store mechanical equipment and tools required to support mining operations.
Process Plant Workshop	The Process Plant Workshop will include a 23 m long by 23 m wide fabric structure that will house equipment and spare parts used in the Process Plant. This workshop will also provide storage for processing reagents and a covered space to support maintenance activities.

Ancillary Infrastructure	Infrastructure Description
Laboratories	The assay and geochemical Laboratories will include a 20.6 m long by 21.5 m wide modular building with a concrete block foundation as well as a steel roof structure with metal cladding that will house equipment to support mining and processing operations. The Laboratories will be relocated from their existing location at the KM59 Camp to the Process Plant area during late Construction or early Operations. The Laboratories will perform metallurgical testing for quality control and process optimization and will include standard laboratory equipment, such as laboratory crushers, ball mills, sieve screens, flotation cells, balances, moisture meters, and pH meters. This footprint includes an allowance for a future expansion and addition of the geochemical laboratory.
Process Plant Media Storage	The Process Plant Media Storage will include a 14 m long by 14 m wide steel frame structure with a roof, metal cladding, and concrete blocks. This storage area will house SAG mill and ball mill media used within the Process Plant that will be stored in four 12 m long by 2.5 m wide shipping containers to protect the media from weather and snow.
Process Plant Reagent Storage	The Process Plant Reagent Storage will include a 14 m long by 14 m wide steel frame structure with a roof, metal classing, and concrete blocks. This storage area will house operating consumables (e.g., PAX, MIBC, and flocculant) used within the Process Plant that will be storage in accordance with all relevant codes and site operating procedures.
Propane Storage	Two horizontal propane storage tanks will be located in the Process Plant area and both locations will include a steel frame structure with a roof, metal cladding, and concrete blocks. The propane storage tank to support the Process Plant will be 30,000 gal (115 m^3), and the propane storage tank to support other infrastructure in the Process Plant area will be 10,000 gal (40 m^3).
Fuel Storage / Fueling Station	The Fuel Storage / Fueling Station will include a 23.5 m long by 21.5 m wide steel frame structure with a roof to cover the tanks and dispensers. The storage tanks will be located at the south end of the Process Plant area with a reinforced concrete containment. The diesel storage to support heavy and light vehicle fueling will include two 30,000 gal (115 m^3) tanks for a total diesel storage volume of 60,000 gal (230 m^3). A small volume of gasoline will also be required to support some light vehicle fueling. Fuel trucks will deliver fuel to the mine and construction areas. Bulk fuel will be delivered by tuck to the Project mine site from local suppliers located near the Project, such as Terrace, Smithers, or Prince George.
Potable Water Treatment Plant	Potable water will be required to supply water to the Process Plant, Laboratories, Truck Shop and Truck Wash, and Administration. Freshwater will be sourced from new surface water (i.e., Unnamed Lake 1) and stored in a potable water / fire water holding tank once treated. It is anticipated that potable water will be transported in water trucks from the potable water / fire water holding tank in the Camp area to a potable water / fire water holding tank in the Process Plant area prior to use. There is also a dedicated Potable Water Treatment Plant in the Process Plant area, should an overland pipeline from Unnamed Lake 1 to the Process Plant area be deemed more efficient than trucking water from the Camp area to the Process Plant area. The Potable Water Treatment Plant in the Process Plant area would be housed in a 12 m long by 2.5 m wide shipping container in a 13 m by 3 m area and will be sized to meet the potable water requirements for these facilities.
Sewage Treatment Plant	The Sewage Treatment Plant will manage wastewater from the Process Plant, Laboratories, Truck Shop and Truck Wash, and Administration. Solid waste from the Sewage Treatment Plant will be relocated by vacuum truck to the existing offsite KM43 Sewage Sludge Pit or hauled offsite, if required. Treated effluent from the Sewage Treatment Plant will be pumped with tailings to the TMSF. The Sewage Treatment Plant will be housed in a 12 m long by 2.5 m wide shipping container in a 13 m by 3 m area and will be sized for a capacity of 60 m^3/day to 115 m^3/day.

Ancillary Infrastructure	Infrastructure Description
Fire water system	The fire water system will provide emergency support to the Process Plant area and will include a potable water / fire water holding tank with tank heater that will be located within the Process Plant or within the Process Plant area. This tank will be connected to a separate modular unit that will include a jockey pump, electric pump, and diesel pump. Fire water will be delivered to facilities in the Process Plant area using a buried steel pipeline with heat tracing and insulation around pipe connections.
Waste Transfer Area (hazardous and non-hazardous)[1]	The Waste Transfer Area will include a 22 m long by 18 m wide gravel pad for the segregation and temporary storage of industrial and domestic non-hazardous waste and hazardous waste. The area where hazardous waste is stored will include a concrete foundation and a steel frame structure with a roof. Non-hazardous recyclables, industrial waste, biomedical wastes, and domestic (non-organic) waste will be hauled offsite for disposal to nearby municipal waste landfills and to other landfills in BC. Non-hazardous domestic (organic) waste will be temporarily stored in bear-proof bins, and clean wood waste will be temporarily stockpiled; these waste types will be hauled to the Incinerator Facility and Burn Pit for management. Hazardous materials (e.g., spoiled reagents, waste petroleum products, waste oils, kitchen greases, laboratory chemicals such as hydrochloric acid, and used batteries) will be labelled and stored in appropriate containers prior to being hauled offsite for disposal to approved waste landfills. Additional information on hazardous and non-hazard waste volumes is provided in Table 1.5-3, Table 1.5-5, and Table 1.5-6.

Notes:

SAG = semi-autonomous grinding; MIBC = methyl isobutyl carbinol; PAX = potassium amyl xanthate

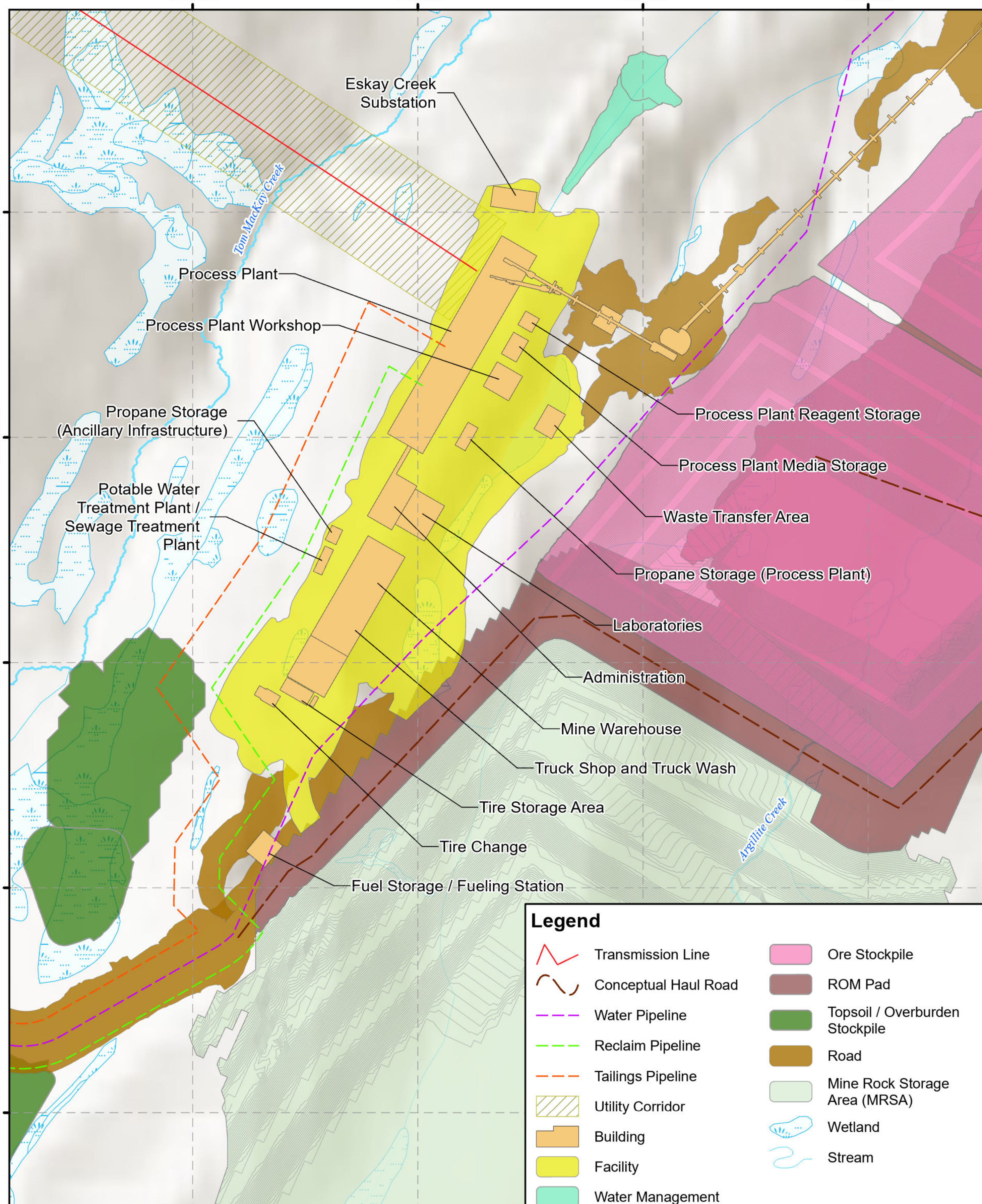
gal = gallon; m = metre; m^3 = cubic metre; m^3/day = cubic metre per day

[1] *Non-hazardous waste will be identified, itemized, and managed as outlined in the Integrated Waste Management Plan. Hazardous waste will be identified, itemized, and managed as outlined in the Chemicals and Materials Storage, Transfer and Handlines Plan. Petroleum produces will be identified, itemized, and managed as outlined in the Spill Prevention, Fuel Handline and Response Plan. This information is summarized in Appendix A-1, Summary of Management Plans and Mitigation Measures.*

Ancillary Infrastructure – Camp and Camp Area

At the start of Construction, the Project will utilize the existing KM58 Camp and the KM59 Camp (including the adjacent Temporary Rig KM58.5 Camp) for worker accommodations (Figure 1.4-18); these camps have a combined capacity of approximately 200 beds, include water management facilities (e.g., Potable Water Treatment Plant, Sewage Treatment Plant), and are powered by generators. The existing offsite Forrest Kerr camp located near KM37 of the Eskay Creek MAR can also be used for peaks in construction workforce as required; this camp is owned and operated by Coast Mountain Hydro Services and has a capacity of 160 beds.

A camp (Camp) located east of the TMSF will be advanced ahead of the Project to support current site activities and will become available for use by the Project in the second half (H2) of Year -2 (Figure 1.4-18). The Camp may be expanded as part of the Project to a full capacity of 380 beds, if required. The Camp will include dormitories, kitchen and dining areas, boot room, recreational and fitness facilities, and medical facilities. This Camp will be connected to the Project mine site grid power using a 13.8 kV powerline extending from Eskay Creek Substation in the Process Plant area (Figure 1.4-4).



Skeena Resources Ltd.
Date: 15-Jan-2025
Figure: 1.4-17 Rev: E
Author: Skeena GIS

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Eskay Creek Revitalization Project

Figure 1.4-17: Ancillary Infrastructure in the Process Plant Area

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:4,500
Coord. System: NAD 1983 UTM Zone 9N
0 40 80 120 160
Meters

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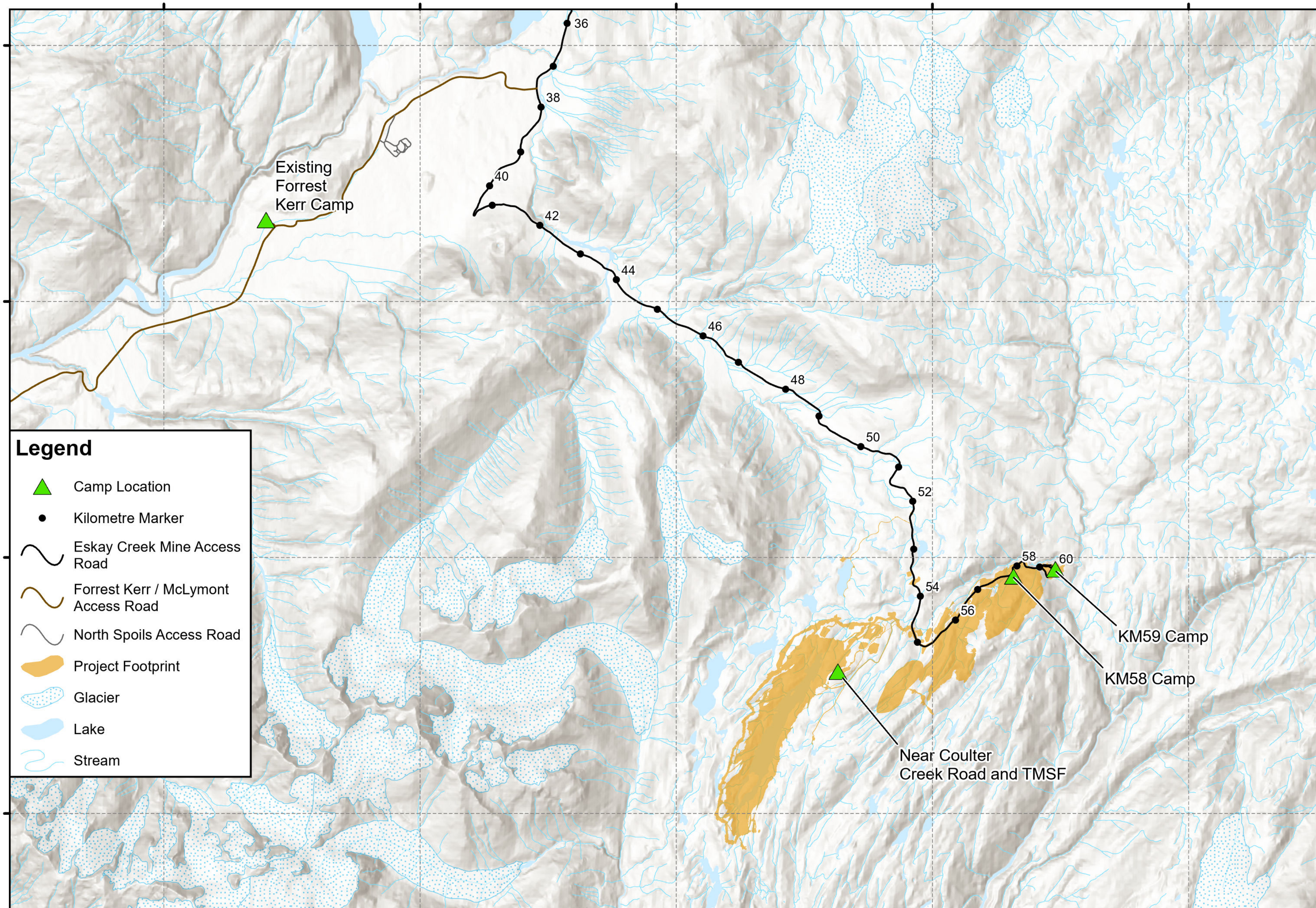

Skeena Resources Ltd.
Date: 08-Apr-2025
Figure: 1.4-18 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD

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Eskay Creek Revitalization

Figure 1.4-18:
Project Camp Accommodations

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:100,000
Coord. System: NAD 1983 UTM Zone 9N
0 1 2 3 4
Kilometers
N

From H2 Year -2 through Year -1, the Camp will be utilized together with KM58 Camp, KM59 Camp, and the existing offsite Forrest Kerr camp to accommodate construction peaks as required. In Year 1, KM58 Camp and KM59 Camp will be decommissioned and demobilized from the Project mine site and the camp areas will be available to be reclaimed. For the remainder of the mine life, all personnel will be accommodated in the Camp near the TMSF. All accommodation rooms in the Camp will be single occupancy and workers on opposite rotations will share rooms (i.e., accommodation rooms will be shared with a cross-shift worker with only one worker onsite at a time). A summary of the camp accommodations and associated capacities by Project year during Construction, Operations, and Reclamation and Closure is provided in Table 1.4-20. Camp accommodations during Post-closure are anticipated to require less than 10 beds and will be located offsite. A description of the ancillary infrastructure in the Camp area is provided in Table 1.4-21. The Camp will include the following ancillary infrastructure:

- Mine Dry;
- Propane Storage;
- Potable Water Treatment Plant;
- Sewage Treatment Plant;
- Fire water system; and
- Waste Transfer Area.

Table 1.4-20: Camp Accommodations by Eskay Creek Revitalization Project Phase

Project Phase	Timing	Accommodations	Capacity
Construction	H1 Year -2	**Total Maximum Capacity** • KM58 Camp (existing) • KM59 Camp (existing) • Forrest Kerr camp (existing offsite)	**352 beds** • 72 beds • 120 beds • 160 beds
	H2 Year -2 to Year -1	**Total Maximum Capacity** • Camp (existing and expanded capacity) • KM58 Camp (existing) • KM59 Camp (existing) • Forrest Kerr camp (existing offsite)	**732 beds** • 380 beds • 72 beds • 120 beds • 160 beds
Operations	Year 1 to Year 13	Camp (existing and expanded capacity)	380 beds
Reclamation and Closure	Year 14 to Year 16	Camp (existing and expanded capacity)	380 beds

Notes:
H1 = first half of Project Year; H2 = second half of Project Year

Table 1.4-21: Ancillary Infrastructure in the Camp Area

Ancillary Infrastructure	Infrastructure Description
Mine Dry	The Mine Dry building will include a 43 m long by 22 m wide single-storey prefabricated modular building with a concrete foundation. The Mine Dry will include approximately 550 lockers, showers, and changerooms.
Propane Storage	The horizontal propane storage tank will include a steel frame structure with a roof, metal cladding, and concrete blocks. This propane storage tank to support the Camp and ancillary infrastructure in the Camp area will be 10,000 gal (40 m3).

Ancillary Infrastructure	Infrastructure Description
Potable Water Treatment Plant	The Potable Water Treatment Plant will provide a water supply for the Camp and ancillary infrastructure in the Camp area, with freshwater sourced from a new surface water (i.e., Unnamed Lake 1) and stored in a potable water / fire water holding tank once treated. The Potable Water Treatment Plant will be housed in a 12 m long by 2.5 m wide shipping container and will be sized to meet the potable water requirements for the Camp and ancillary infrastructure in the Camp area.
Sewage Treatment Plant	The Sewage Treatment Plant will provide wastewater management to the Camp and ancillary infrastructure in the Camp area. Solid waste from the Sewage Treatment Plant will be relocated by vacuum truck to the existing offsite KM43 Sewage Sludge Pit or hauled offsite, if required. Treated effluent from the Sewage Treatment Plant will be pumped directly to the TMSF. The Sewage Treatment Plant will be housed in a 12 m long by 2.5 m wide shipping container and will be sized for a capacity of 60 m3/day to 115 m3/day.
Fire water system	The fire water system will provide dedicated emergency support to the Camp and ancillary infrastructure in the Camp area and will include a potable water / fire water holding tank with tank heater. This tank will be connected to a separate modular unit that will include a jockey pump, electric pump, and diesel pump. Fire water will be delivered to the Camp and other facilities, as required, using a buried steel pipeline with heat tracing and insulation around pipe connections.
Waste Transfer Area (non-hazardous)	The Waste Transfer Area will include a 20 m long by 10 m wide gravel pad adjacent to the Camp for the segregation and temporary storage of industrial and domestic non-hazardous waste in appropriate containers. Recyclables, industrial waste, biomedical wastes, and domestic (non-organic) waste will be hauled offsite for disposal to nearby municipal waste landfills and to other landfills in BC. Domestic (organic) waste will be temporarily stored in bear-proof bins, and clean wood waste will be temporarily stockpiled; these waste types will be hauled to the Incinerator Facility and Burn Pit for management. Any hazardous materials generated from the Camp and ancillary infrastructure in the Camp area will be temporarily stored at the Waste Transfer Area in the Process Plant area prior to being hauled offsite. Additional information on hazardous and non-hazard waste volumes is provided in Table 1.5-3, Table 1.5-5, and Table 1.5-6.

Notes:

gal = gallon; m = metre; m^3 = cubic metre; m^3/day = cubic metre per day

Ancillary Infrastructure – Broader Project Mine Site

Ancillary infrastructure located in other areas of the Project mine site that are not near the Process Plant include:

- Explosives storage facilities;
- KM52.2 Mine Security Gate;
- Truck Weigh Scale;
- Incinerator Facility and Burn Pit; and
- Emergency Station.

This infrastructure is shown on Figure 1.4-4 and additional details are summarized in Table 1.4-22.

Table 1.4-22: Ancillary Infrastructure in the Broader Eskay Creek Revitalization Project Mine Site

Ancillary Infrastructure	Location	Description
Explosives storage facilities	Adjacent to the ASF, connected by road to the existing offsite Eskay Creek MAR near KM52.5, and near Eskay Creek MAR near KM54	The explosives storage facilities will include the three existing locations for the Bulk Explosives Pad 1, Bulk Explosives Pad 2, and the Explosives Magazine; these locations would store bulk explosives (or their raw ingredients), and magazines for detonators and packaged explosives. A site-mixed emulsion product is planned (i.e., no AN prill involved); an AN solution will be transported to the Project site and stored in tanks, which will exist within an enclosed building located at the Bulk Explosives Pad. This solution will be pumped (within the enclosed building) from the tanks to the explosives trucks onsite. Any spillage will be collected within the drainage system of the building, stored in the building sump, and disposed of with vacuum trucks. Bulk Explosives Pad 1 includes a 90 m long by 90 m wide gravel pad located near the north end of the ASF, and Bulk Explosives Pad 2 includes a 90 m long by 90 m wide gravel pad located near KM54 on the Eskay Creek MAR. The total amount of bulk explosives (or raw ingredients) stored on these two pads will be less than or equal to 250,000 kg and bulk explosives materials will be fully self-contained during storage. The Explosives Magazine includes small gravel pads located on the east side of the ASF that will store detonators and packaged explosives. All locations will be gated to prevent unauthorized access. All explosives handling, loading, management, and detonation will be conducted by authorized and trained personnel in accordance with the HSRC requirements (EMLI 2024), the *Mines Act* (RSBC 1996, c 293), and all other applicable regulations.
KM52.2 Mine Security Gate	KM52.2 of the Eskay Creek MAR	The new mine security gate will be located at KM52.2 of the Eskay Creek MAR; this new gate will be used in addition to the existing offsite KM2 Security Gate. These two gates will be lifting boom gates to control vehicle access entering and exiting the Project mine site. These security gates will include a gatehouse, an 18 m long by 3.6 m wide modular building with modular bathroom unit and electrical power supply.
Truck Weigh Scale	KM52.2 of the Eskay Creek MAR	The Truck Weigh Scale will include a 30 m long by 7 m wide steel frame structure with a roof that will be located adjacent to the KM52.2 Mine Security Gate. This scale will weigh loaded and unloaded concentrate trucks as they exit and enter the Project mine site.
Incinerator Facility and Burn Pit	Near KM54.6 of the Eskay Creek MAR	The new Incinerator Facility and Burn Pit will include an approximately 40 m long by 40 m wide gravel pad that will be developed south of the KM52.2 Mine Security Gate. The burn pit within the 40 m by 40 m gravel pad will include an approximately 8 m by 9 m area enclosed on three sides with interlocking concrete blocks to the approximate height of 1.5 m. The Project will utilize the existing incinerators and burn pit located at the laydown near KM57.25 until the new Incinerator Facility and Burn Pit is developed in Year -1. These facilities will be used for the incineration of domestic/putrescible waste in the incinerators and the burning of clean wood waste in the burn pits. Ash from incinerators and burn pits will be collected in 55 gal (208 L) drums and hauled offsite for disposal to nearby municipal waste landfills and to other landfills in BC.

Ancillary Infrastructure	Location	Description
Emergency Station	TBD (see description)	The Emergency Station will include a 23 m long by 15 m wide fabric structure. Its location will vary as the Project is developed, and its permanent location will be identified after the Construction phase. The station will house two ambulances, a firetruck, and associated equipment and tools, and the emergency response team will operate out of this facility when required.

Notes:

AN = ammonium nitrate; ASF = Albino Storage Facility; HSRC = Health, Safety and Reclamation Code for Mines in British Columbia; TBD = to be determined

gal = gallon; kg = kilogram; km = kilometre; L = litre; m = metre

1.4.3 Transportation Corridor

1.4.3.1 Ground Transportation

The Transportation Corridor will be used for the transportation of personnel and supplies (e.g., equipment and materials). During Operations, personnel will be transported to the Project mine site primarily from Terrace and potentially also from Telegraph Creek, Dease Lake, Iskut, and Smithers. Supplies will be delivered to the Project mine site along the existing offsite Eskay Creek MAR, Highway 37, and Highway 37A. During Operations, the Transportation Corridor will be used to haul gold-silver concentrate from the Project mine site to existing offsite port facilities located in the District of Stewart. Existing offsite port facilities will be used to unload, handle, and store concentrate, as well as load concentrate into ocean-going vessels. The Project does not include the shipping of concentrate once loaded onto an ocean-going vessel.

Detailed information on baseline traffic levels from 2011 to 2020, projected traffic levels through Construction, Operations, and Reclamation and Closure, and other relevant details (e.g., incident frequency) are provided in Appendix 1-8, Traffic Volume Study. Anticipated vehicle traffic from the Project includes:

- Delivery of construction supplies (e.g., building supplies, Process Plant equipment, cables, piping, and construction equipment) to the Project mine site during Construction from various locations throughout BC and potentially out of province, primarily along Highway 37 at the intersection with Highway 16.
- Concentrate hauling from the Project mine site to port facilities in the District of Stewart during Operations for shipment to third-party smelters overseas.
- Delivery of consumable materials to the Project mine site during all Project phases from various locations in BC along Highway 16, with materials primarily sourced from Smithers and Terrace, which are directly west and east of the town of Kitwanga, respectively. These consumable materials will include:
    - Processing consumables (e.g. grinding media, reagents);
    - Mining consumables (e.g., explosives);
    - Fuel (e.g., diesel, gasoline, propane); and
    - Other miscellaneous consumables (e.g., food, camp supplies, maintenance materials).

- Delivery of operating equipment and supplies (e.g., personnel protective equipment, tools) during Operations phase.
- Transportation of hazardous and non-hazardous waste for disposal to nearby municipal waste landfills and to other landfills in BC.
- Transportation of personnel to and from the Project mine site during Construction, Operations, Reclamation and Closure, and Post-closure.

The estimated AADT on Highway 37 and Highway 37A during Construction, Operations, and Reclamation and Closure are provided in Table 1.4-23. Minimal to no Project traffic is expected on Highway 37A during Reclamation and Closure, and minimal to no Project traffic is expected on all highways during Post-closure.

Table 1.4-23: Eskay Creek Revitalization Project-related Annual Average Daily Traffic Volume Estimates during Each Project Phase

Project Phase	Annual Average Daily Traffic[1]		
	Highway 37 (South of Meziadin Junction)	Highway 37 (North of Meziadin Junction)	Highway 37A
Construction	3 vehicles	3 vehicles	<1 vehicles
Operations	7 vehicles	22 vehicles	15 vehicles
Reclamation and Closure	2 vehicles	2 vehicles	0 vehicles
Post-closure[2]	<2 vehicles	<2 vehicles	0 vehicles

Source: Appendix 1-8, Traffic Volume Study

Notes:

< = less than

[1] *The AADT is the number of vehicles in both directions on any given day of the year. Values have been rounded up to the nearest whole number.*

[2] *Post-closure traffic volumes are anticipated to be less than during Reclamation and Closure.*

The Highway 37 and Highway 37A transportation route is also used by other mines in the area; these mines currently include Newmont's Red Chris and Brucejack mines, and Seabridge Gold's approved KSM Project intends to use this route in the future. Ascot Resources' Red Mountain Mine will also use Highway 37 south of the Meziadin Junction.

During Operations of the Project, traffic volumes (AADT) on Highway 37 south of the Meziadin Junction, Highway 37 north of the Meziadin Junction, and Highway 37A are estimated to be 804 trucks, 638 trucks, and 404 trucks, respectively (Table 1.4-24); these traffic volumes account for baseline traffic volumes on these highways and traffic from the other mines or approved mines in the region that are expected to use these highways.

The Project Traffic Volume Study (Appendix 1-8) demonstrates that significant capacity on Highway 37 exists to support the increased traffic volume resulting from the Project. The capacity for Highway 37 is 6,048 one-way trips per day. During Operations, the Project traffic estimate is 7 trips per day along Highway 37 south of the Meziadin Junction and 22 trips per day along Highway 37 north of the Meziadin Junction (Table 1.4-24); this Project traffic is estimated to increase highway traffic volumes by approximately 1% and 5%, respectively, above baseline traffic levels. During Operations, the Project traffic estimate is 15 trips per day along Highway 37A from the Meziadin Junction to Stewart; this Project traffic will increase highway traffic volumes by approximately 5% above baseline traffic levels; this Project traffic will primarily be from concentrate hauling to the existing offsite port facilities (Section 1.4.3.2, Concentrate Shipping). Concentrate will be transported 24 hours a day in B-train truck configuration (tandem 49 tonnes total, 24.5 t/trailer; tarp-covered) at approximately 8% concentrate moisture content (Section 1.4.2.2, Process Plant).

Table 1.4-24: Eskay Creek Revitalization Project-related, Other Mines, and Baseline Annual Average Daily Traffic Volume Estimates during Operations

Traffic Source	Annual Average Daily Traffic[1]		
	Highway 37 (South of Meziadin Junction)	Highway 37 (North of Meziadin Junction)	Highway 37A
The Project	7 vehicles	22 vehicles	15 vehicles
Other Mines	51 vehicles	151 vehicles	97 vehicles
Baseline Traffic	746 vehicles	465 vehicles	292 vehicles
Total	**804 vehicles**	**638 vehicles**	**404 vehicles**

Source: Appendix 1-8, Traffic Volume Study

Note:

[1] The AADT is the number of vehicles in both directions on any given day of the year. Values have been rounded up to the nearest whole number.

The Project Traffic Volume Study (Appendix 1-8) demonstrates that significant capacity on Highway 37 exists to support the increased traffic volume resulting from the Project. The capacity for Highway 37 is 6,048 one-way trips per day. During Operations, the Project traffic estimate is 7 trips per day along Highway 37 south of the Meziadin Junction and 22 trips per day along Highway 37 north of the Meziadin Junction (Table 1.4-24); this Project traffic is estimated to increase highway traffic volumes by approximately 1% and 5%, respectively, above baseline traffic levels. During Operations, the Project traffic estimate is 15 trips per day along Highway 37A from the Meziadin Junction to Stewart; this Project traffic will increase highway traffic volumes by approximately 5% above baseline traffic levels; this Project traffic will primarily be from concentrate hauling to the existing offsite port facilities (Section 1.4.3.2, Concentrate Shipping). Concentrate will be transported 24 hours a day in B-train truck configuration (tandem 49 tonnes total, 24.5 t/trailer; tarp-covered) at approximately 8% concentrate moisture content (Section 1.4.2.2, Process Plant).

1.4.3.2 Concentrate Shipping

During Operations, gold-silver concentrate will be hauled from the Project mine site to existing offsite port facilities in the District of Stewart and then shipped to an overseas smelter via the Portland Canal. The Project will require shipping of approximately 130,000 dry metric tonnes (dmt) of concentrate annually (between 50,000 dmt and 140,000 dmt), and approximately 16,000 dmt of storage at the port facilities. Based on the current production schedule for the Project and the observation that most ocean-going concentrate vessels visiting Stewart do not take on full loads (i.e., have capacity to take on concentrate), an estimated six vessels will be required per year to handle the concentrate produced by the Project in addition to existing vessel traffic. As mine production will occur year-round, shipping will also occur year-round.

Drivers for concentrate shipping will be housed either onsite or in dedicated housing in the District of Stewart. Similar to other projects in the region, contract drivers that transport goods to port facilities in the District of Stewart are typically housed in dedicated facilities near the destination port.

Concentrate shipping is closely regulated by Transport Canada, particularly in how moisture content is measured and certified by the shipper. Skeena Resources will follow the required Transport Canada procedures for the shipment of its bulk concentrate cargo.

1.4.4 Helipad and Air Support

The existing helipad located near KM58 Camp will be used for emergency situations during Construction until the end of Year -1 when this camp will be demobilized (Section 1.4.2.9, Ancillary Infrastructure). For the remainder of Construction and all other Project phases, a formal helipad is not anticipated to be required; the Project will have multiple laydowns and pads that could be used as an operational helipad for emergency situations. Any laydowns or pads that would be used to support helicopter landing would be constructed to provide appropriate approach and departure paths clear of obstructions, and laydown and pad surfaces would be constructed to support helicopter weights as compacted, level surfaces. The Project will require approximately 600 hours per year of helicopter use during Construction and Operations; this annual use will be notably less during Reclamation and Closure and Post-closure.

The existing offsite Bob Quinn Lake Aerodrome is approximately 37 km northeast of the Project and, accessed along the existing offsite Eskay Creek MAR and Highway 37, this airport is approximately 60 km by road or one hour of travel by vehicle. This airport includes a gravel airstrip and a heliport. It is a public use facility that is managed by the Bob Quinn Lake Airport Society, administered by a Board of Directors consisting of volunteers mainly from the resource and aviation industries. Skeena Resources is currently using the airport to bring personnel to site for exploration and geotechnical investigations. The Project will use this airport for medical emergencies and to transport government officials and other short-term visitors to the Project mine site. This airport will not be used for regular workforce travel rotations.

1.4.5 Project Mobile Equipment

The summary of mining and support equipment that will be utilized during the peak years during Construction and Operations is provided in Table 1.4-25; additional information on mobile equipment assumptions for the Project are provided in Chapter 12, Air Quality Effects Assessment.

Table 1.4-25: Eskay Creek Revitalization Project Mobile and Support Equipment Summary

Equipment Type	Total	
	Construction	Operations
Drill - blast hole	2	5
Drill - production	1	2
Drill - reverse circulation (for grade control)	1	3
Hydraulic shovel	2	4
Excavator	2	4
Backhoe	1	1

Equipment Type	Total	
	Construction	Operations
Loader	3	3
Bulldozer - tracked	6	7
Bulldozer - wheeled	1	1
Haul truck - articulated (55 t)	5	6
Haul truck - highway (for snow removal)	3	3
Haul truck (136 t)	7	25
Grader	2	2
Compactor	1	1
Bulk explosives truck	0	0
Mechanic truck	1	2
Fuel/lube truck	1	2
Water truck	1	1
Crane	1	1
Tire handler	1	1
Telehandler	1	1
Truck - 4 by 4 pickup	4	10
Mobile crusher	1	1
Light plants	6	6
Snow blower	2	2
Dewatering pump	2	3

Note:
t = tonne

The majority of the NPAG waste rock used to construct Project infrastructure will be sourced from open pits. While the Project will maximize the use of ROM material to the extent practicable, Skeena Resources has identified that some offsite quarry or borrow material may be required to meet precise material specifications that cannot be produced through crushing and screening of NPAG waste rock. Offsite borrow material may be potentially required to support construction of specific material layers within the TMSF and culvert crossings. An alternatives assessment for rock quarry sourced is provided in Section 1.7.5.11, Rock Quarry Source.

1.5 Project Schedule and Project Management Plans and Mitigation Measures

1.5.1 Project Schedule

Project phases include Construction (2 years), Operations (13 years), and Reclamation and Closure (3 years) over an 18-year mine life, followed by a period of Post-closure. These phases are preceded by the Pre-construction phase. Calendar years for each Project phase, as well as key activities by phase, are provided in Table 1.5-1. This table also provides visibility on when the Project will overlap with activities associated with the Technical Sample (Skeena Resources 2024).

Table 1.5-1: Estimated Eskay Creek Revitalization Project Schedule and Key Activities

Project Phase	Project Year	Calendar Year[1]	Project vs. Technical Sample[2]	Key Activity Description
Pre-construction	Year -3	2024	Technical Sample	• Engineering, procurement, and surveys
Construction	Year -2	2025	Project and Technical Sample	• Construction of facilities • TMSF North Dam embankment development (Stage 1) • North Pit stripping and blasting • Water management structure construction • MWTP Stage 1 water treatment • MWTP Stage 2 commissioning and water treatment • Process Plant commissioning
	Year -1	2026	Project and Technical Sample	
Operations	Year 1	2027	Project	• Milling and waste deposition (i.e., MRSA, TMSF) • TMSF North Dam embankment development (Stage 2 to 6) • TMSF South Dam embankment development (Stage 2 to 6) • TMSF East Saddle Dam embankment development (Stage 5 and 6) • North Pit stripping and mining • South Pit stripping and mining • South Pit passive flooding • South Pit backfilling • Ore Processing[3] • TMSF non-contact water diversion structures and systems construction • Water management structure construction • Waste deposition (e.g., MRSA, TMSF) • North Pit passive flooding • MWTP Stage 3 commissioning and water treatment • Progressive reclamation of the MRSA
	Year 2	2028	Project	
	Year 3	2029	Project	
	Year 4	2030	Project	
	Year 5	2031	Project	
	Year 6	2032	Project	
	Year 7	2033	Project	
	Year 8	2034	Project	
	Year 9	2035	Project	
	Year 10	2036	Project	
	Year 11	2037	Project	
	Year 12	2038	Project	
	Year 13	2039	Project	
Reclamation and Closure	Year 14	2040	Project	• Water treatment • Active reclamation and closure, including dismantling and removal of facilities, reclamation cover placement, and revegetation
	Year 15	2041	Project	
	Year 16	2042	Project	
Post-closure	≥Year 17	≥2043	Project	• Water treatment • Post-closure monitoring

Notes:

MRSA = Mine Rock Storage Area; MWTP = Mine Water Treatment Plant; TMSF = Tom MacKay Storage Facility

≥ = greater than or equal to; Q2 = second quarter of calendar year; Q4 = fourth quarter of calendar year

[1] The timing of these phases may change based on feasibility engineering and permitting approval timelines.

[2] Eskay Creek Technical Sample Project (Skeena Resources 2024).

[3] Mining of the open pits is expected to be completed by Year 10, with Year 11 to Year 13 having no mining and only milling of the ore stockpiles.

Construction start dates are subject to the timing of the Environmental Assessment Certificate issuance as well as additional permits and approvals; dates are estimated based on current targets and assumptions. Additional details of Project activities during Pre-construction, Construction, Operations, Reclamation and Closure, and Post-closure are provided in Section 1.5.2, Project Phases.

1.5.2 Project Phases

1.5.2.1 Pre-construction

The Pre-construction phase precedes the Construction phase and comprises of activities that do not disturb land and other aspects of the natural environment, including those related to environment, completion of studies (e.g., engineering studies, field surveys), and planning and procurement. Engineering and procurement activities will refine and finalize Project designs and include the purchase of equipment and materials to support activities for the Project. Field surveys may include environmental pre-clearing surveys, and other site investigative work to support Project development.

1.5.2.2 Construction

Key Project development activities during Construction are outlined in Table 1.5-2 by Project year. The activity initiations and completions are listed, with activities continuing until completions are noted, either in Table 1.5-2 or in Table 1.5-4 if the activities extend into Operations. Additional information on all Project components is provided in Section 1.4, Project Components.

Table 1.5-2: Key Eskay Creek Revitalization Project Development Activities during Construction

Project Year	Key Project Development Activities
Year -2	• Pre-stripping and blasting activities in North Pit begin. • Construction of Process Plant begins and is completed. • Deposition of NPAG waste rock in MRSA begins. • Stockpiling of PAG waste rock in the PSA continues as an extension of Technical Sample activities. • Topsoil/overburden stockpile development begins. • Installation of the Lower MRSA Diversion Pipeline begins and is completed. • Construction of the Lower MRSA Diversion Pipeline Outflow Channel begins and is completed. • Use of the MRSA Collection Pond begins as an extension of the pond constructed as part of Technical Sample activities. • Construction of the MRSA Collection Channel 1, and MRSA Collection Channel 2 begins and is completed. • Installation of pumps and pipelines from North Pit and MRSA Collection Pond to MWTP begins and is completed. • Treatment of water in the MWTP Stage 1 begins. • Use of existing camps (i.e., KM58 Camp, KM59 Camp, offsite Forrest Kerr camp) begins. • Camp expansion near TMSF to full capacity, if required, begins and is completed. • Use of Camp near TMSF begins (H2). • Construction of the TMSF Haul Road and TMSF North Dam Haul Road is completed, and road use begins. • Draw down of the TMSF Supernatant Pond continues as an extension of Technical Sample activities. • Development of explosives storage facilities is completed, and bulk explosives use begins.

Project Year	Key Project Development Activities
Year -1	• Commissioning of Process Plant begins. • Draw down of TMSF Supernatant Pond is completed. • Construction of TMSF embankment (Stage 1) begins and is completed. • Deposition of PAG waste rock in the TMSF begins. • Ore stockpile development begins. • Installation of tailings, reclaim, and TMSF water discharge system pipelines begins and is completed. • Expansion of MWTP Stage 2 begins and is completed, and water treatment continues. • Use of existing camps (i.e., KM58 Camp, KM59 Camp, offsite Forrest Kerr camp) is completed. • Construction of the TMSF South Dam Haul Road is completed, and road use begins.

Notes:

TMSF = Tom MacKay Tailings Facility; PAG = potentially acid generating; NPAG = non-potentially acid generating; MRSA = Mine Rock Storage Area; PSA = PAG Storage Area; MWTP = Mine Water Treatment Plant; H1 = first half of calendar year; H2 = second half of calendar year

km = kilometre

In addition to the key Project development activities outlined in Table 1.5-2, some Project activities will occur over most of the Construction phase, including:

- Procurement of employment and labour, services, and goods, and use of infrastructure in the region;
- Vehicle transportation of personnel, equipment, materials, and other goods to and from offsite (highways) to the mine site along the Eskay Creek MAR;
- Transportation of personnel, equipment, materials, and other goods on Project mine site roads (new mine roads and existing roads);
- Construction and use of mine site road infrastructure (new mine roads), including roadside diversion channels (non-contact water), collection channels (contact water), culverts and open bottom crossings;
- Operation of the Eskay Creek MAR KM2 Security Gate and construction and operation of the KM52.2 Mine Security Gate;
- Use of the Eskay Creek MAR KM2 laydown area;
- Use of onsite laydown areas;
- Land clearing and site preparation;
- Stockpiling topsoil and other material suitable for reclamation or construction uses;
- Pre-stripping (North Pit) – removal of topsoil and overburden, and initial access to ore;
- Initial drilling, blasting, and excavation activities at the North Pit;
- General earthworks, site levelling, foundations, and buried services;
- Supply of concrete from existing offsite concrete batch plant;
- Construction of Process Plant and ancillary infrastructure (e.g., Administration, warehousing, laboratory, and medical facility) on existing disturbance area;
- Construction of crushing facilities and, overland conveyor;
- Construction of explosives storage facilities, and handling and storage of explosives and detonators;
- TMSF dam development (Stage 1: construct three northern starter embankments for North Dam, construct TMSF Stage 1 Spillway);

- Development of MRSA and ROM Pad;
- Storage of waste rock (MRSA) and ore (ROM Pad) encountered during stripping of North Pit;
- Construction of tailings discharge and supernatant reclaim pipelines and adjustments to the Reclaim Barge setup;
- Construction of water management systems, including ponds, sumps, channels, pipelines, and pumps;
- Construction and operation of potable water and sewage treatment facilities, including onsite and offsite sewage sludge disposal;
- Installation of surface water intakes for Process Plant and potable use;
- Construction, commissioning, and operation of the MWTP;
- Construction of onsite electrical distribution system;
- Supply of electrical power from the regional system via the existing 69 kV Transmission Line to the Eskay Creek Substation;
- Construction of fuel storage (diesel, gasoline, and propane) facilities;
- Construction and operation of incinerators and burn pit;
- Construction of waste management facilities (storage of hazardous and non-hazardous wastes and materials prior to shipping offsite);
- Transportation of hazardous and non-hazardous wastes and materials for offsite disposal;
- Use of existing onsite camps (KM58, KM59, and Temporary Rig KM58.5 camps) prior to decommissioning during Operations;
- Construction activities for Camp to expand existing camp facilities near TMSF;
- Operation of Camp facilities;
- Designate helipad location(s) for emergencies;
- Operation of helipad, including for emergencies;
- Operation and maintenance activities, including equipment and systems verification and monitoring in accordance with manufacturer specifications for individual equipment;
- Charter flights to and from Terrace to transport workers in and out of the Project mine site; and
- Charter flights to and from Bob Quinn Lake Aerodrome for emergencies and visitors.

For the construction of all Project components, no tree management zones (i.e., hazard/danger trees that require for removal for safety reasons) are within the infrastructure footprint. Detailed information regarding vegetation in the area of the Project is provided in Chapter 18, Vegetation and Ecosystems Effects Assessment. Skeena Resources will manage trees uprooted by wind (i.e., windthrow) that present a hazard to the Project.

During Construction, the Project will generate hazardous and non-hazardous waste that will be hauled offsite for appropriate management (Table 1.5-3). Hazardous waste types will include heavy equipment waste products (e.g., antifreeze, oil filters), chemical and processing waste products (e.g., industrial plastics), and household waste products (e.g., aerosols, batteries, cleaning products). Non-hazardous waste types will include domestic (non-organic) waste, bulk recyclables (e.g., cardboard, tires), as well as scrap metal that will be recycled. Domestic (non-organic) waste will also include ash from the incineration of domestic (organic) waste generated at the Incinerator Facility and Burn Pit.

Table 1.5-3: Approximate Average Annual Waste Volumes – Construction

Waste Category	Onsite vs. Offsite	Waste Type	Unit	Value
Hazardous	Offsite	Industrial – heavy equipment waste products	m^3/year	80
	Offsite	Industrial – chemical and processing waste	m^3/year	40
	Offsite	Industrial – household waste products	m^3/year	20
Non-hazardous	Offsite	Domestic – non-organic	t/year	210
	Offsite	Recyclables – bulk items	t/year	1,100
	Offsite	Recyclables – scrap metal	m^3/year	340
	Onsite	Construction waste – disposal	m^3	2,800
	Offsite	Construction waste – disposal	m^3	22,600
	Offsite	Construction waste – recycle	m^3	1,700
	Offsite	Construction waste – reuse	m^3	10,200

Notes:
m^3 = cubic metre; m^3/year = cubic metre per year; t/year = tonne per year

In addition, non-hazardous construction waste will be generated during construction, installation, and commissioning activities (Table 1.5-3). The majority of this non-hazardous construction waste will consist of clean wood waste that will be burned onsite, and the remaining non-hazardous construction waste will be hauled offsite for disposal, recycling, or reuse at approved facilities.

1.5.2.3 Operations

Key Project development activities during Operations are outlined in Table 1.5-4 by Project year. The activity initiations and completions are listed, with activities continuing until completions are noted, either in Table 1.5-2 during Construction or in Table 1.5-4 if the activities extend into Operations. Additional information on all Project components is provided in Section 1.4, Project Components.

Table 1.5-4: Key Eskay Creek Revitalization Project Development Activities during Operations

Project Year	Key Project Development Activities
Year 1	• Commissioning of Process Plant is completed. • Process Plant operation (ramp up) begins and is completed. • Process Plant operation (3.0 Mt/year throughput) begins. • Deposition of tailings in TMSF begins. • Construction of TMSF East Diversion Channel and TMSF South Diversion Channel begins and is completed. • Installation of TMSF Southwest Diversion System begins and is completed. • Construction of TMSF embankments (Stage 2) begins and is completed. • Construction of Upper MRSA Diversion Channel begins and is completed. • Lower MRSA Diversion Pipeline is decommissioned and removed. • Construction of MRSA Collection Pond Overflow Sump begins and is completed. • Decommissioning of existing onsite camps (i.e., KM58 Camp, KM59 Camp) begins and is completed.

Project Year	Key Project Development Activities
Year 2	• No new activities begin; continuation of activities from previous years.
Year 3	• Additions to crushing circuit in the Process Plant (i.e., Pebble Crushing Station, Pebble Recycle Conveyor) are completed. • Construction of TMSF embankments (Stage 3) begins and is completed.
Year 4	• Pre-stripping activities and open pit mining in South Pit begins.
Year 5	• Pre-stripping activities and open pit mining in South Pit is completed. • Passive flooding of South Pit begins. • Backfilling of South Pit with NPAG waste rock begins. • Process Plant operation (3.0 Mt/year throughput) is completed. • Process Plant expansion begins. • MRSA Collection Pond Overflow Sump is subsumed by the North Pit. • Construction of TMSF embankments (Stage 4) begins and is completed.
Year 6	• Process Plant expansion is completed. • Process Plant operation (3.6 Mt/year throughput) begins. • Backfilling of South Pit with NPAG waste rock is completed.
Year 7	• Construction of TMSF embankments (Stage 5) begins and is completed.
Year 8	• No new activities begin; continuation of activities from previous years.
Year 9	• Expansion of MWTP Stage 3 begins and is completed, and water treatment continues.
Year 10	• Open pit mining in North Pit is completed. • Construction of TMSF embankments (Stage 6) begins and is completed. • Deposition of PAG waste rock in TMSF is completed. • Deposition of NPAG waste rock in MRSA is completed. • Ore stockpile development is completed. • Ore processing in the Process Plant directly from open pits is completed. • Use of explosives storage facilities and explosives use is completed.
Year 11	• Progressive reclamation of the MRSA begins. • Ore processing in the Process Plant from ore stockpiles only begins. • Passive flooding of North Pit begins.
Year 12	• No new activities begin; continuation of activities from previous years.
Year 13	• Ore processing in the Process Plant from ore stockpiles is completed. • Process Plant operation (3.6 Mt/year throughput) is completed. • Deposition of tailings in TMSF is completed. • Progressive reclamation of the MRSA is completed.

Notes:

TMSF = Tom MacKay Tailings Facility; PAG = potentially acids generating; NPAG = non-potentially acid generating; MRSA = Mine Rock Storage Area; WTP = Water Treatment Plant

Mt/year = million tonne per year

In addition to the key Project development activities outlined in Table 1.5-4, some Project activities will occur over most of the Operations phase, including:

- Procurement of employment and labour, services, goods, and use of infrastructure in the region;
- Vehicle transportation of personnel, equipment, materials, and other goods to and from offsite (highways) to the mine site along the Eskay Creek MAR;

- Transportation of personnel, equipment, materials, and other goods on Project mine site roads (new mine roads and existing roads);
- Maintenance of mine site road infrastructure (new mine roads and existing roads);
- Operation of the Eskay Creek MAR KM2 Security Gate and the KM52.2 Mine Security Gate;
- Use of the Eskay Creek MAR KM2 Laydown area;
- Use of onsite laydown areas;
- Land clearing and site preparation;
- Stockpiling topsoil and other material suitable for reclamation or construction uses;
- Stripping of topsoil and overburden in the South Pit and North Pit;
- Handling and storage of explosives and detonators;
- Mining the North Pit and South Pit, including drilling, blasting, and excavation activities;
- Transportation of ore to the crusher and from the crusher to Process Plant by conveyor;
- Operation of mine infrastructure facilities, crusher, and overland conveyor;
- Mineral processing at the Process Plant;
- Operation of ancillary infrastructure (e.g., Camp facilities, Mine Dry, Administration, warehousing, laboratory, and medical facility);
- Mill capacity expansion of the Process Plant in Year 5 for throughput increase in Year 6 through Year 13;
- TMSF spillway construction and dam development (Stage 2: embankment raise of North Dam and South Dam; Stage 3, 4, 5, and 6: subsequent embankment raises of North Dam and South Dam);
- Transportation of PAG waste rock to TMSF by haul truck;
- Storage of waste rock, tailings, and contact water in TMSF;
- Conveyance of tailings and contact water from the Process Plant and sumps to TMSF via pipeline;
- Use of MRSA and ROM Pad areas, including onsite transportation of waste rock and ore by haul truck;
- Operation of water management systems, including ponds, sumps, channels, pipelines, and pumps;
- Operation of potable water and sewage treatment facilities, including onsite and offsite sewage sludge disposal;
- Operation of surface water intakes for Process Plant and potable use;
- Operation of supernatant reclaim pipelines and adjustments to the Reclaim Barge setup;
- Water treatment and discharge;
- Supply of electrical power from the regional system via the existing 69 kV Transmission Line to the Eskay Creek Substation;
- Operation of maintenance and fuel storage facilities (e.g., diesel, gasoline, and propane);
- Operation of incinerators and burn pits;
- Operation of waste management facilities (storage of hazardous and non-hazardous wastes and materials prior to shipping offsite);

- Transportation of hazardous and non-hazardous wastes and materials for offsite disposal;
- Backfilling the South Pit with NPAG waste rock;
- Progressive reclamation of disturbed areas, where possible, including backfilling the South Pit with NPAG waste rock;
- Concentrate transportation from Process Plant to port facilities in the District of Stewart;
- Handling and storage of concentrate at port facilities in the District of Stewart, up to and including the point at which the loading of concentrate onto a vessel is complete;
- Operation of helipad, including for emergencies;
- Operation and maintenance activities, including equipment and systems verification and monitoring in accordance with manufacturer specifications for individual equipment;
- Charter flights to and from Terrace to transport workers in and out of the Project mine site; and
- Charter flights to and from Bob Quinn Lake Aerodrome for emergencies and visitors.

During Operations, the Project will generate hazardous and non-hazardous waste that will be hauled offsite for appropriate management (Table 1.5-5). Hazardous waste types will include heavy equipment waste products, chemical and processing waste products, and household waste products. Non-hazardous waste types will include domestic (non-organic) waste, bulk recyclables, as well as scrap metal that will be recycled. Domestic (non-organic) waste will also include ash from the incineration of domestic (organic) waste generated at the Incinerator Facility and Burn Pit.

In addition, non-hazardous demolition waste will be generated during maintenance, upgrading, and progressive reclamation activities (Table 1.5-5). Onsite disposal of demolition waste will consist of clean wood waste that will be burned onsite, and the remaining non-hazardous demolition waste will be hauled offsite for disposal, recycling, or reuse at approved facilities.

Table 1.5-5: Approximate Average Annual Waste Volumes – Operations

Waste Category	Onsite vs. Offsite	Waste Type	Unit	Value
Hazardous	Offsite	Industrial – heavy equipment waste products	m^3/year	90
	Offsite	Industrial – chemical and processing waste	m^3/year	40
	Offsite	Industrial – household waste products	m^3/year	20
Non-hazardous	Offsite	Domestic – non-organic	t/year	150
	Offsite	Recyclables – bulk items	t/year	800
	Offsite	Recyclables – scrap metal	m^3/year	400
	Onsite	Demolition waste – disposal	m^3	570
	Offsite	Demolition waste – disposal	m^3	1,900
	Offsite	Demolition waste – recycle	m^3	220
	Offsite	Demolition waste – reuse	m^3	490

Notes:

m^3 = cubic metre; m^3/year = cubic metre per year; t/year = tonne per year

1.5.2.4 Reclamation and Closure

The Reclamation and Closure phase of the Project will occur over a 3-year period (i.e., Year 14 to Year 16). Progressive reclamation will begin in the latter part of Operations where practicable and will continue during Reclamation and Closure. The following subsections outline the closure vision statement, summarize the Reclamation and Closure Plan, and speak to ongoing engagement related to closure.

Closure Vision Statement

The goal of the Reclamation and Closure Plan is to re-establish the Health of the Land and maintain the Tahltan Way of Life at the Project mine site and for surrounding communities. To support this goal, a closure vision statement has been developed to describe and guide what Skeena Resources, the Tahltan, and local communities would like to achieve through implementation of the Reclamation and Closure Plan, thereby helping develop a clear roadmap for successful closure and returning land use. The closure vision states:

> *To co-design and deliver integrated, respectful, and progressive mine closure and reclamation plans to re-establish the Health of the Land and the Tahltan Way of Being for future generations following the temporary use of the Land.*

The closure vision contains terminology that departs or expands from regulatory definitions that share the same word in its context. Important terms in the closure vision are defined below, which hold additional meaning beyond what is typically employed within the mining industry.

- **Co-design:** Closure planning is in partnership between Skeena Resources and Tahltan communities; it is beyond and more robust than collaboration.
- **Integrated:** Every aspect and phase of the mine, its construction, and its operation all account and focus toward mine reclamation and closure.
- **Respectful:** Environmental, social, and cultural well-being and stewardship based on Tahltan Laws and Principles drive mine closure planning and design.
- **Progressive:** Mine closure and reclamation of a mine element or aspect will be conducted throughout the mine life as soon as possible, employing Tahltan Knowledge, considering Traditional Land Use, and applying best available industry technology and innovation.
- **The Land:** The comprehensive web of relationships between all life who inhabit and are sustained by the earth, water, and air. Likewise, how the earth, water, and air thrive by those who live in its environment.
- **Tahltan Way of Being:** The lifestyle encompassing all generations of Tahltan members, past, present, and future, and their capacity to be a part of the Land and the Land a part of them.

The vision for mine reclamation and closure builds on Tahltan Knowledge, community guidance, innovation, and best available technologies, with the intent of limiting adverse biophysical, cultural, and social effects, and maximizing community benefits, by returning the Land to a condition that is consistent with agreements and Tahltan Laws, along with stewardship principles that also align with regulatory commitments.

Reclamation and Closure Plan

The Reclamation and Closure Plan for the Project is provided in Appendix 1-9, Reclamation and Closure Plan. This plan includes a discussion of the ownership, transfer, and control of Project components as well as information on temporary Care and Maintenance activities should mining operations be halted or suspended before the end of Operations.

A layout of the Project mine site during Reclamation and Closure is provided on Figure 1.5-1. Project infrastructure required for long-term monitoring and maintenance activities will be left in place for use during Reclamation and Closure and Post-closure. A water management flow schematic during Year 14 to Year 16 of Reclamation and Closure is shown on Figure 1.5-2; additional water management flow schematics for additional Project years is provided in Appendix 1-6, Project Water Management Flow Schematics. Key Project components will be reclaimed as follows:

- The North Pit will be passively flooded to a maximum elevation of 758 masl to maintain the elevation of flooding below the elevation at which the North Pit intersects the historic underground workings, which is the lowest point of hydraulic containment of the pit at approximately 770 masl. Water within the flooded pit is anticipated to require treatment to manage to metal leaching and acid rock drainage (ML/ARD) from exposed pit walls. The current strategy assumes treatment of water in the flooded North Pit to confirm appropriate water quality guidelines or approved discharge limits are met prior to discharge to the receiving environment.
- The South Pit will be backfilled with NPAG waste rock during Operations, and the MRSA will be extended to cover the footprint of this pit. The South Pit will be designed to have the low point of the pit rim (i.e., 1,030 masl) on the western side of the pit. Once the water level within the backfilled pit reaches elevation 1,030 masl, it will infiltrate through the voids of the MRSA, and water will report to the MRSA Collection Pond at the toe of the MRSA. The MRSA extension toe will terminate along the east wall of the South Pit, at an elevation of 1,030 masl, approximately 4.5 m below the pit rim. This configuration will capture runoff from the MRSA extension and direct it into the pit, ultimately to the MRSA Collection Pond.
- All tailings and PAG waste rock and overburden within the TMSF will be stored subaqueously with a minimum permanent 1 m water cover to provide geochemical stability. The PAG waste rock and overburden will also be partially covered with approximately 1 m of NPAG waste rock to provide a dry cover that will be capped with reclamation material, and revegetated, and the cover will extend approximately 200 m upstream of the TMSF North Dam and TMSF South Dam to maintain the permanent closure pond away from the embankment faces. Water treatment of the TMSF Supernatant Pond in the MWTP will be required following subaqueous tailings deposition of material, and water treatment will continue until no longer required.
- The MRSA will be recontoured to an overall slope (i.e., crest to toe) of 2.6H:1V, covered with reclamation material, and revegetated. Surface water management infrastructure (e.g., swales, drainage channels) will be constructed across the MRSA plateau and slopes to promote clean runoff from the facility.
- Overburden and topsoil material will be used as capping reclamation material. Any remaining material in the topsoil/overburden stockpiles or the Overburden Storage Area will be recontoured for stability and erosion control and revegetated.

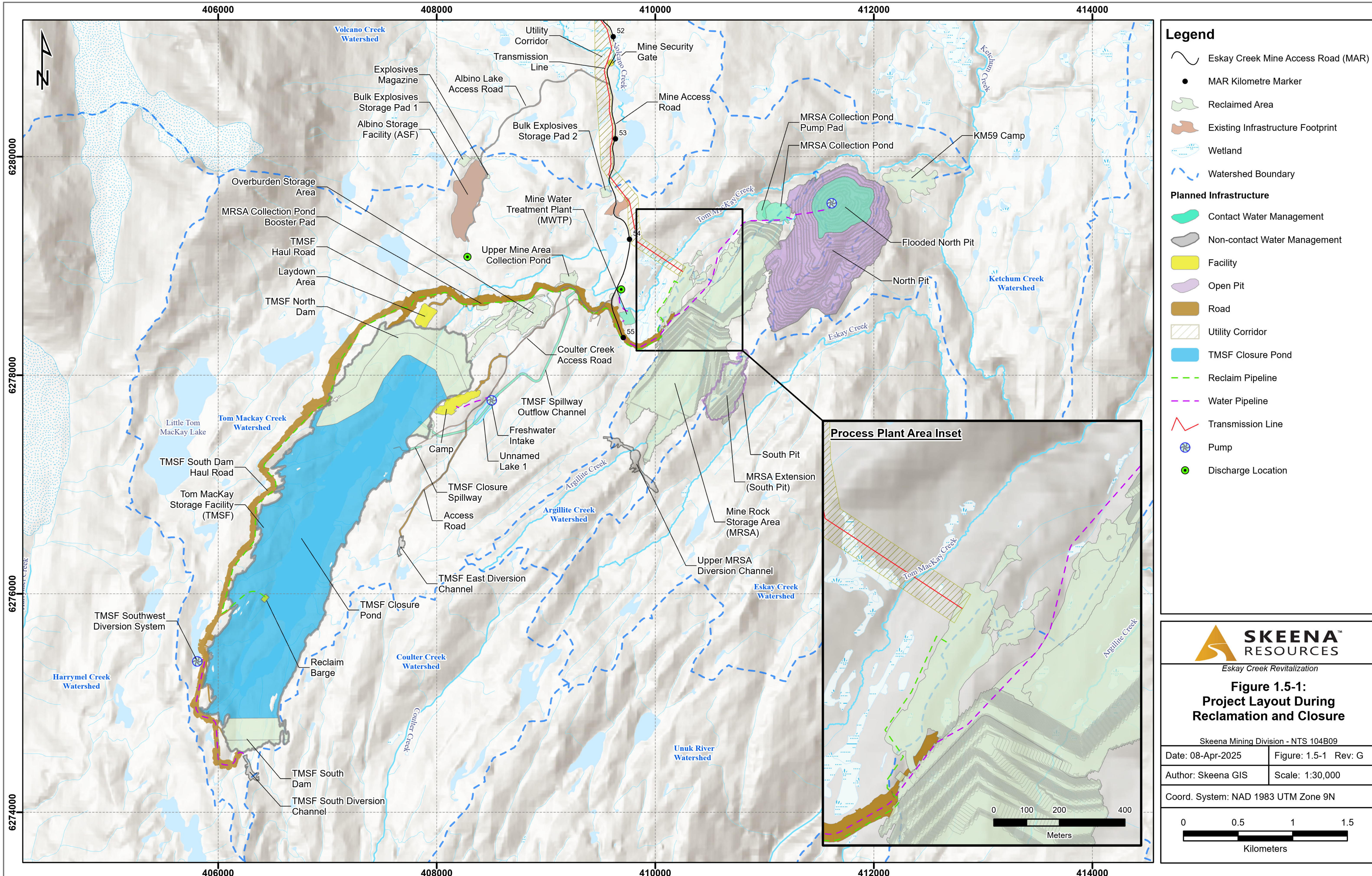
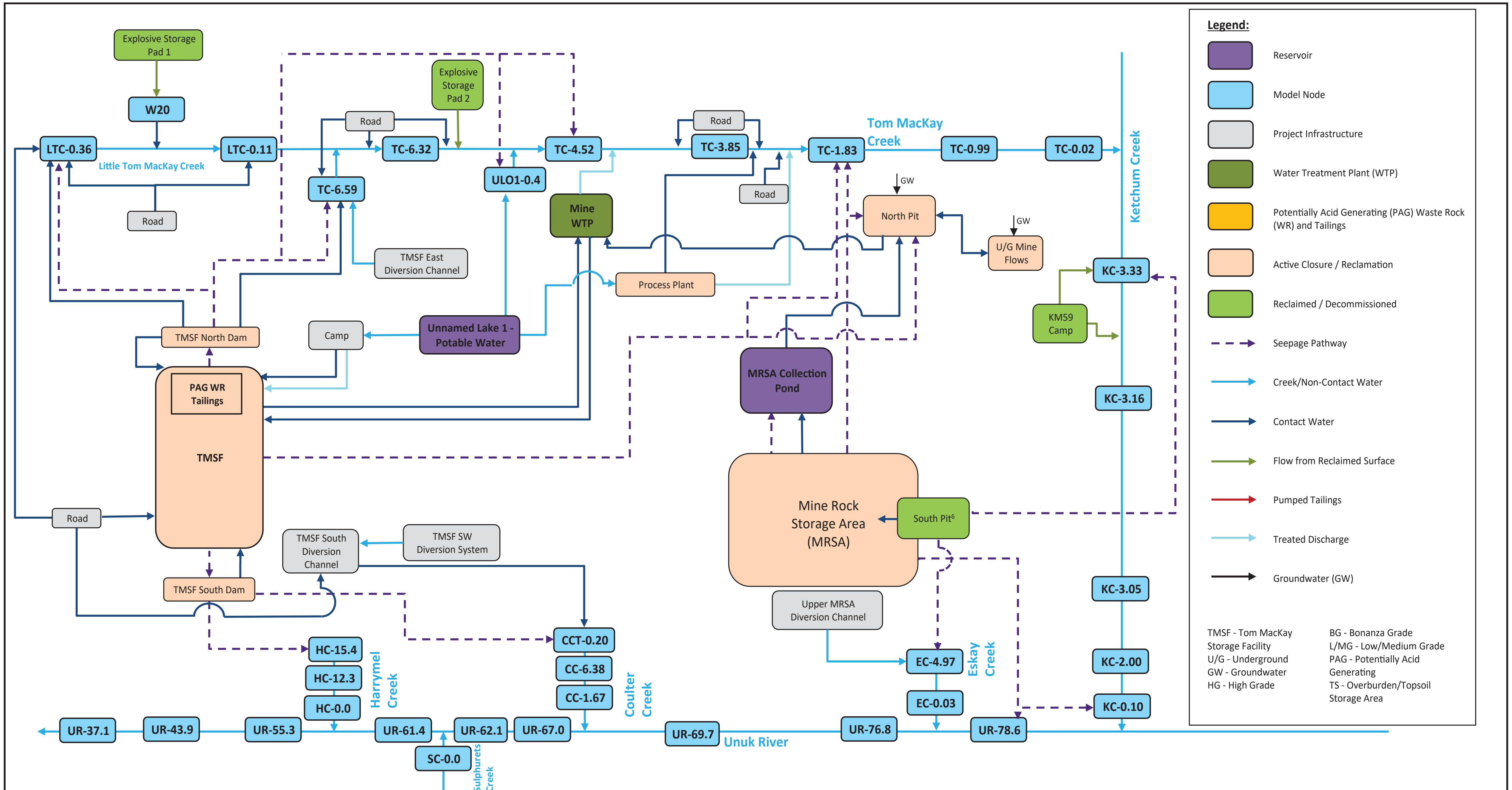


Figure 1.5-1: Project Layout During Reclamation and Closure



NOTES:

1. RUNOFF FROM UNDISTURBED AREAS, POND PRECIPITATION, AND POND EVAPORATION FLOWS NOT SHOWN.
2. POTABLE WTP FACILITIES EXCLUDED FROM FLOW SCHEMATICS. THE POTABLE WATER SOURCE (UNNAMED LAKE 1) IS LOCATED IN THE ULO1-0.4 CATCHMENT.
3. THE ARROW BETWEEN THE U/G MINE AND NORTH PIT REPRESENTS THE PHYSICAL CONNECTION BETWEEN THESE FACILITIES. FLOW BETWEEN THE FACILITIES WAS NOT EXPLICITLY MODELLED IN THE SITE WIDE WATER BALANCE MODEL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
3	03APR'25	ISSUED WITH TRANSMITTAL	CMF	JEF

SKEENA RESOURCES LIMITED

ESKAY CREEK REVITALIZATION PROJECT

MINE SITE WATER MANAGEMENT PLAN
FLOW SCHEMATIC
RECLAMATION AND CLOSURE (Y14 - Y16)

Knight Piésold CONSULTING

P/A NO. VA101-002/56 | REF. NO. VA25-00734

FIGURE 13 | REV 3

Source: Knight Piesold (2025).

Eskay Creek Revitalization

Figure 1.5-2:

Water Management Flow Schematic – Reclamation and Closure (Years 14-16)

Skeena Mining Division - NTS 104B09
British Columbia, Canada

- Water management infrastructure will be reclaimed as follows:
  - Diversion and collection channels will have flow re-established where feasible, graded and capped with reclamation material, and revegetated.
  - Ponds will be breached, liners will be removed where present, contoured to provide positive drainage, capped with reclamation material, and revegetated.
  - Pipelines will be decommissioned and removed, and pipeline corridors will be capped with reclamation material, and revegetated.
  - Water treatment plants will be decommissioned and removed when no longer required.
- All buildings and infrastructure will be inventoried, cleaned as necessary, dismantled, and hauled to authorized landfills for disposal or salvaged/recycled. Equipment and material will be salvaged where possible. Any concrete foundations and slabs will be broken and buried in place. These areas will be recontoured to provide positive drainage, capped with reclamation material, and revegetated.
- Roads will either be permanently or semi-permanently decommissioned and reclaimed during Reclamation and Closure. Permanently deactivated roads will be contoured, scarified, capped with reclamation material, and revegetated, with culverts removed. Semi-permanently closed road surfaces will be sloped as appropriate, scarified, and revegetated on exposed soil surfaces for erosion control.
- Pads and laydown yards will be recontoured, scarified, capped with reclamation material, and revegetated as required.
- The onsite switchyard and onsite overhead and underground electrical distribution system for the Project will be decommissioned and removed.

In addition to the reclamation of key Project components, some Project activities will occur over most of the Reclamation and Closure phase, including:

- Procurement of employment and labour, services, goods, and use of infrastructure in the region;
- Vehicle transportation of personnel, equipment, materials, and other goods to and from offsite (highways) to the mine site along the Eskay Creek MAR;
- Transportation of personnel, equipment, materials, and other goods on Project mine site roads (new mine roads and existing roads);
- Use of mine site road infrastructure (new mine roads and existing roads);
- Decommissioning and reclamation of mine site roads (including culverts), pipelines, and onsite electrical distribution system if no longer required;
- Operation of the KM2 Security Gate and the KM52.2 Mine Security Gate;
- Removal of security gatehouse (at the Eskay Creek MAR KM52.2) if no longer required;
- Dismantling and removal of processing and mine support facilities;
- Dismantling and removal of ancillary infrastructure (e.g., Camp facilities, Mine Dry, Administration, warehousing, laboratory, medical facility, and first aid);
- Recontouring landforms;

- Cover placement in reclaimed areas, including soil and revegetation (e.g., seeding and planting native plant species);
- Utilization of topsoil and overburden piles to recontour and scarify disturbed areas, as appropriate;
- Closure activities associated with the TMSF (e.g., removing the tailings pipeline, recontouring of waste rock, dry cover system of NPAG waste rock);
- Placement of vegetative cover over the MRSA;
- Decommissioning of surface water intakes;
- Dismantling and removal of potable water and sewage treatment facilities;
- Water treatment (and maintenance of water management structures) to achieve stable long-term drainage and water quality objectives;
- Decommissioning of water management systems no longer required, such as diversion channels, and water collection sumps, channels, ponds, and pipelines to restore natural flow paths where practicable;
- Dismantling and removal of maintenance and fuel storage facilities (e.g., diesel, gasoline, and propane);
- Dismantling and removal of incinerators and reclamation of the burn pit;
- Removal and disposal of hazardous wastes and materials;
- Sampling and remediating contaminated soils;
- Removal of mining equipment;
- Reclamation monitoring;
- Operation of helipad, including for emergencies;
- Operation and maintenance activities, including equipment and systems verification and monitoring in accordance with manufacturer specifications for individual equipment;
- Charter flights to and from Terrace to transport workers in and out of the Project mine site; and
- Charter flights to and from Bob Quinn Lake Aerodrome for emergencies and visitors.

During Reclamation and Closure, the Project will generate hazardous and non-hazardous demolition waste from decommissioning, reclamation, and closure activities (Table 1.5-6). Onsite demolition waste will mainly consist of clean wood waste that will be burned onsite, as well as other wastes, such as concrete. All other hazardous and non-hazardous demolition waste will be hauled offsite for disposal, recycling, or reuse at approved facilities.

Table 1.5-6: Approximate Average Annual Waste Volumes – Reclamation and Closure

Onsite vs. Offsite	Waste Type	Unit	Value
Onsite	Demolition waste – disposal	m^3	3,000
Offsite	Demolition waste – disposal	m^3	11,000
Offsite	Demolition waste – recycle	m^3	2,500
Offsite	Demolition waste – reuse	m^3	13,700

Note:
m^3 = cubic metre

Ongoing Engagement

Skeena Resources acknowledges the importance of Tahltan community engagement in the design and development of the Reclamation and Closure Plan. Skeena Resources will continue to collaborate with TCG through engagement with Tahltan community members as the Project progresses to further refine closure planning.

1.5.2.5 Post-closure

Following the implementation of closure activities, post-closure monitoring and maintenance activities will be completed at the Project mine site. The Post-closure phase will include active water treatment.

Water treatment for the Project will be required in the long term and will extend beyond 2099, which is the end of the modelling period used in the Project water quality model (Appendix 15-9, Surface Water Quality Model Report); this water treatment represents Post-closure Treatment phase 1.

Post-closure Treatment phase 1 will include active treatment of contact water in the MWTP Stage 3 from the TMSF Supernatant Pond as well as contact water from the catchment areas of the flooded North Pit and MRSA. At present, Post-closure is assumed to remain in Post-closure Treatment phase 1 in perpetuity. As part of the Reclamation Research Program of the Reclamation and Closure Plan (Appendix 1-9), opportunities for additional mitigation will be investigated over the life of mine to reduce water treatment needs in Post-closure.

A conceptual layout of the Project mine site during Post-closure Treatment phase 1 is provided on Figure 1.5-3.

Potential Future Water Treatment Phases

At some time beyond 2099, if water from the TMSF Supernatant Pond meets appropriate water quality guidelines or approved discharge limits, treatment at the TMSF Supernatant Pond would no longer be required. At this time, the TMSF would transition to a passive discharge state where water will overflow through the TMSF Spillway into the receiving environment (i.e., Tom MacKay Creek); this time would represent the beginning of Post-closure Treatment phase 2.

During Post-closure Treatment phase 2, treatment of contact water in the MWTP from the flooded North Pit and MRSA catchment areas will continue until appropriate water quality guidelines or approved discharge limits are met. Skeena Resources will further investigate optimizations in water management and water treatment to confirm Post-closure treatment timelines; these optimizations would be informed by additional modelling as well information collected from operational experience (e.g., water quality and quantity monitoring, water treatment efficiencies).

A Passive Closure period is included in the Project for completeness; during this period, all water treatment would be discontinued when no longer required to meet appropriate water quality guidelines or approved discharge limits. Underground workings would be plugged, and the North Pit would be allowed to passively flood to its spill elevation of 795 masl.

Conceptual layouts of the Project mine site during Post-closure Treatment phase 2 and Passive Closure are provided on Figure 1.5-4, and Figure 1.5-5, respectively.

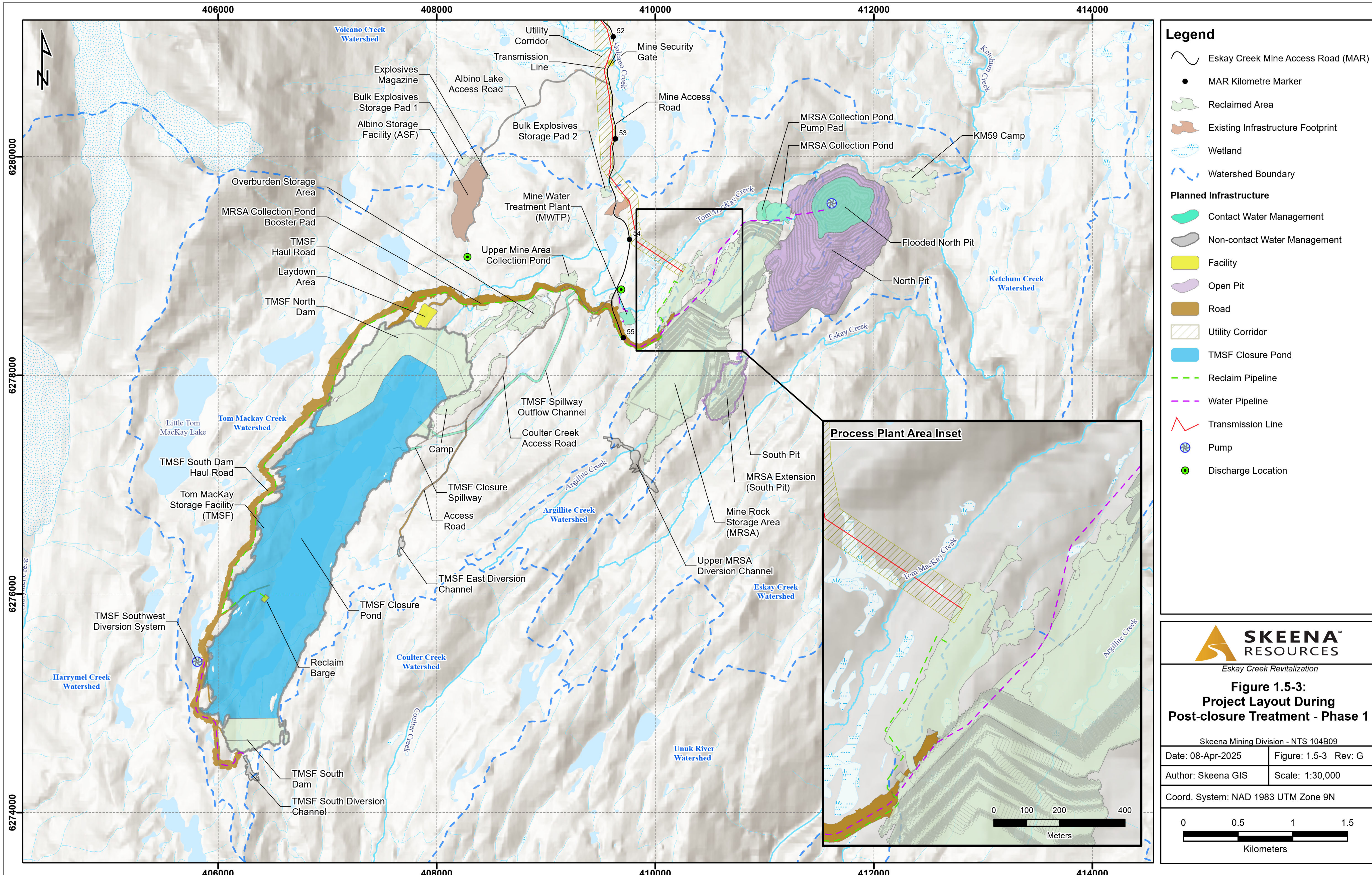
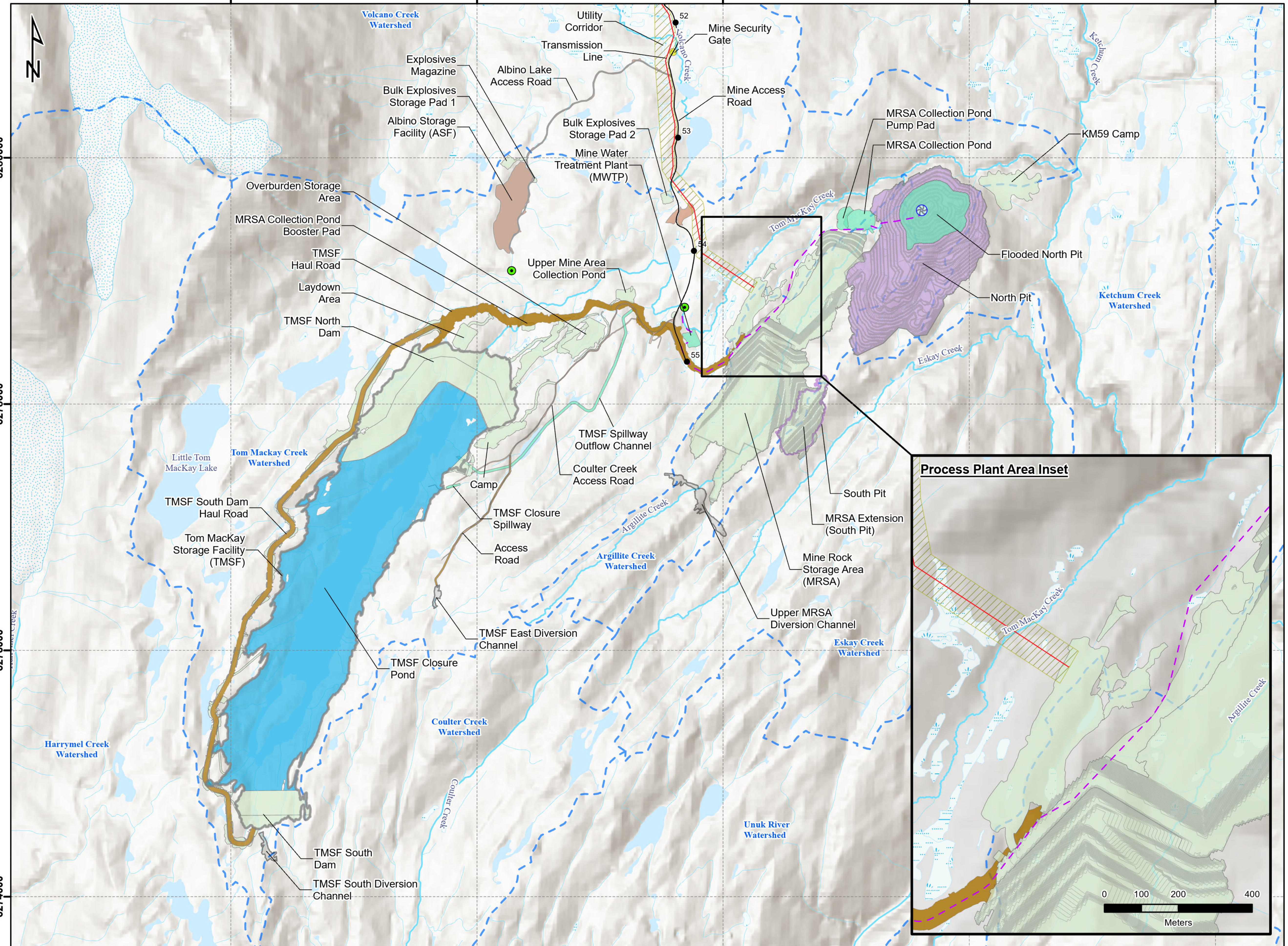


Figure 1.5-3: Project Layout During Post-closure Treatment - Phase 1



Legend

- Eskay Creek Mine Access Road (MAR)
- MAR Kilometre Marker
- Reclaimed Area
- Existing Infrastructure Footprint
- Wetland
- Watershed Boundary

Planned Infrastructure

- Contact Water Management
- Non-contact Water Management
- Facility
- Open Pit
- Road
- Utility Corridor
- TMSF Closure Pond
- Water Pipeline
- Transmission Line
- Pump
- Discharge Location

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Eskay Creek Revitalization

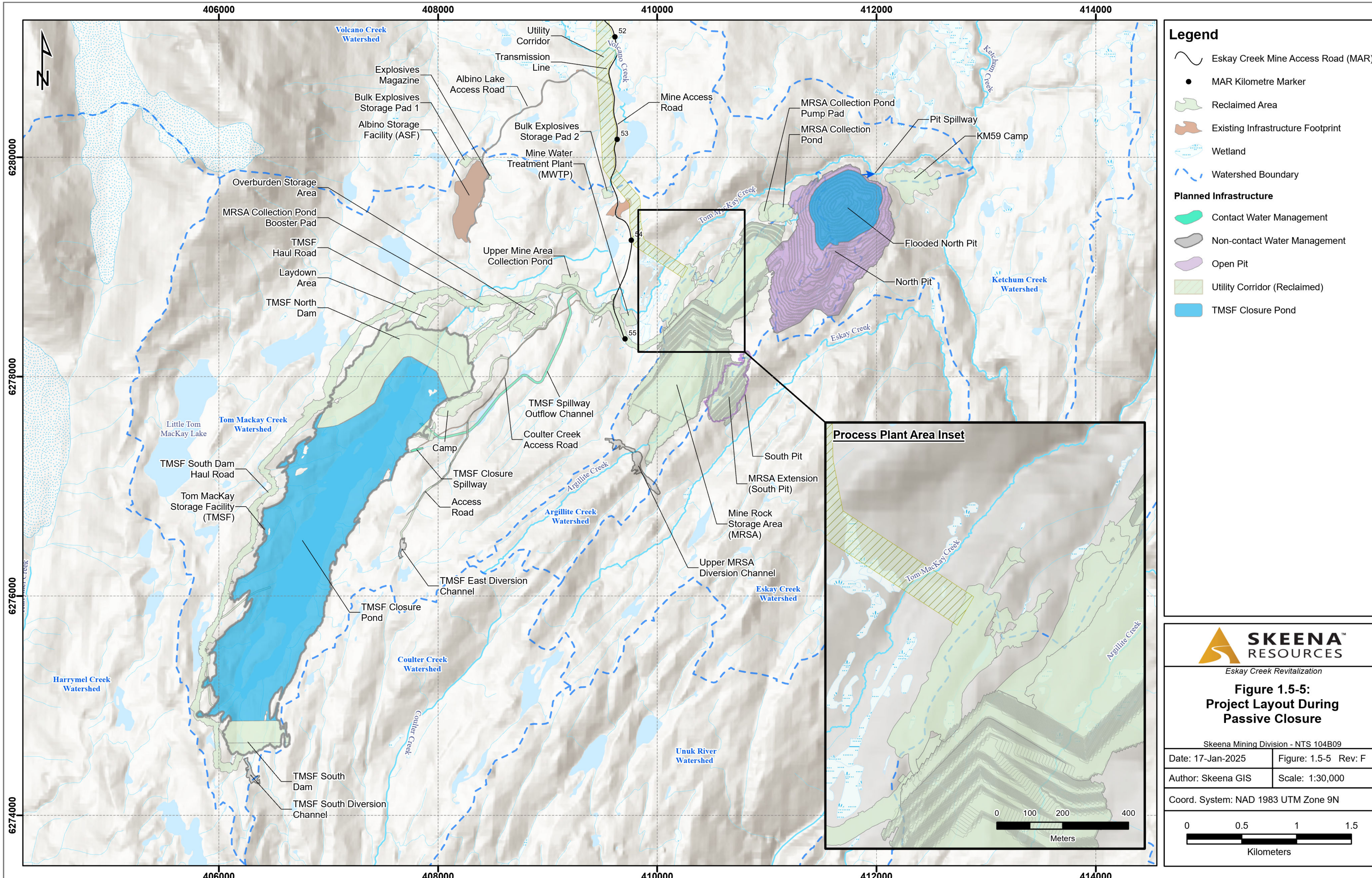
Figure 1.5-4: Project Layout During Post-closure Treatment - Phase 2

Skeena Mining Division - NTS 104B09

Date: 17-Jan-2025	Figure: 1.5-4 Rev: F
Author: Skeena GIS	Scale: 1:30,000
Coord. System: NAD 1983 UTM Zone 9N	

0 0.5 1 1.5

Kilometers



SKEENA RESOURCES

Eskay Creek Revitalization

Figure 1.5-5: Project Layout During Passive Closure

Skeena Mining Division - NTS 104B09

Date: 17-Jan-2025	Figure: 1.5-5 Rev: F
Author: Skeena GIS	Scale: 1:30,000
Coord. System: NAD 1983 UTM Zone 9N	

0 0.5 1 1.5

Kilometers

During Post-closure, the following activities will occur:

- Procurement of employment and labour, services, goods, and use of infrastructure in the region;
- Engineering inspections of TMSF embankments and TMSF Spillway, and MRSA;
- Snow management;
- Water treatment (and water management structures to achieve stable long-term drainage and water quality objectives), until no longer required;
- Dismantling and removal of water treatment plant when no longer required;
- Environmental monitoring;
- Implementation of follow-up measures, maintenance, and repairs, as required;
- Maintaining site access, as required;
- Operation of helipad, including for emergencies; and
- Operation and maintenance activities, including equipment and systems verification and monitoring in accordance with manufacturer specifications for individual equipment.

1.5.3 Management Plans and Mitigation Measures

Skeena Resources will implement the appropriate mitigation measures, and monitoring and management practices during implementation of all Project phases; these measures and practices are outlined in the Project's summary of management plans and mitigation measures, which include (Appendix A-1, Summary of Management Plans and Mitigation Measures):

- Environmental Management System;
- Aquatic Effects Monitoring Program;
- Archaeological and Cultural Heritage Protection Plan;
- Chemicals and Materials Storage, Transfer and Handling Plan;
- Construction Environmental Management Plan;
- Discharge Management Plan;
- Erosion and Sediment Control Plan;
- Fuel Management and Spill Prevention Plan;
- Fugitive Dust Management Plan;
- Health and Medical Services Plan;
- Human Health Monitoring Program;
- Integrated Waste Management Plan;
- Metal Leaching and Acid Rock Drainage Management Plan;
- Mine Site Traffic Control Plan;
- Mine Site Water Management Plan;
- Soil Management Plan;
- Vegetation Management Plan; and
- Wildlife Management Plan.

1.5.4 Summary of Changes from Detailed Project Description

A high-level summary of key Project changes relative to the 2022 Detailed Project Description (DPD; Skeena Resources 2022) and the associated rationale is provided in Table 1.5-7.

Table 1.5-7: Key Project Description Changes from the Detailed Project Description

Project Details & Components	Project Description Change from the Detailed Project Description[1]	Change Rationale
Life of Mine	The EAC Application mine life will be 18 years from Construction through Reclamation and Closure; this mine life includes a 2-year Construction phase, 13-year Operations phase, and 3-year Reclamation and Closure phase, which will be followed by a period of Post-closure. In the DPD, the mine life was 14 years from Construction through Closure; this mine life included a 2-year Construction phase, 9-year Operations phase, and 3-year Closure phase.	Updates to the mine life and total annual production include refined engineering and planning based on the DFS (Sedgman 2024), whereas the DPD mine life and total annual production were based on both the 2020 Pre-Feasibility Study (Ausenco 2021) and the interim Feasibility Study that was in progress at the time the DPD was developed in 2022.
Annual Production	The Project total annual production will be 3.0 Mt in Year 1 to Year 5 and up to 3.6 Mt in Year 6 to Year 13. The DPD total annual production was estimated to be 3.0 Mt in Year 1 to Year 6 and up to 3.7 Mt in Year 7 to Year 9.	
Open Pits	The North Pit will not extend to cross Tom MacKay Creek as part of the Project; in the DPD, the North Pit was extended to cross this creek. As such, the Tom MacKay Creek diversion tunnel that was required in the DPD will no longer be required.	Engineering optimizations provided the opportunity to not extend the North Pit across Tom MacKay Creek. These open pit optimizations were based on updated geotechnical and hydrogeological models that used 2023 geotechnical site investigation information and updated financial parameters from the DFS (Sedgman 2024), including improved mine operating costs, concentrate transportation costs, and smelter terms).
TMSF Design	The TMSF for the Project now includes six embankment raises (i.e., stages) over the life of the Project (i.e., six embankment raises at the TMSF North Dam, and five raises at the TMSF South Dam), whereas the DPD included four embankment raises (i.e., three embankment raises at the TMSF north end, and one embankment raise at the TMSF south end).	Tailings management has been revised in response to engineering optimizations included in the DFS (Sedgman 2024).
Tailings Management	The Project assumes there will be no disposal of tailings in TMSF from the Eskay Creek Technical Sample Project (Skeena Resources 2024), while the DPD assumed Eskay Creek Technical Sample Project tailings disposal will occur in the TMSF.	No tailings will be generated as part of the Eskay Creek Technical Sample Project (Skeena Resources 2024), based on the submitted mine plan as part of the Eskay Creek Mine Technical Sample Project *Mines Act* (RSBC 1996, c 293) and *Environmental Management Act* (SBC 2003, c 53) Joint Permit Application.
Waste Rock Management	A total of approximately 290 Mt of waste rock will be produced, with approximately 160 Mt of PAG waste rock stored in the TMSF and approximately 130 Mt of NPAG waste rock stored in the MRSA. In the DPD, a total of 217 Mt of waste rock will be produced, with 84 Mt of PAG waste rock stored in the TMSF and 133 Mt of NPAG waste rock stored in the MRSA.	Waste rock volumes have been refined based on open pit optimizations and updated geochemical classification criteria from the DFS (Sedgman 2024).
Accommodations	Project accommodations include the use of two existing onsite camps, one offsite camp, and expansion of a Camp that will be available for use late Year -2. The three existing camps include the KM58 Camp and KM59 Camp with a combined 200 beds and the existing offsite Forrest Kerr camp near KM37 of the existing offsite Eskay Creek MAR with 160 beds. The Camp will be located east of the TMSF and permitted in advance of the Project. The Camp may be expanded by the Project to meet the demands (i.e., 380 beds) of the Project. By the beginning of Year 1, the three existing camps will no longer be required, and the two onsite camps (i.e., KM58 Camp and KM59 Camp) will be decommissioned. In the DPD, accommodations included a Construction/Early Operations camp (built in Year -2) in the North Spoils area near KM37 of the existing offsite Eskay Creek MAR; which would be used until Year 3. A new Camp would be constructed in Year 3 adjacent to the Process Plant and used for the Project life, by which time the North Spoils camp would no longer be required. Both camp capacities included bed space for 300.	The existing offsite Forrest Kerr camp is an existing camp that does not require additional permitting with sufficient capacity to meet peaks in construction workforce; with use of this facility, the permitting and construction of the Construction/Early Operations camp near North Spoils was no longer required. In addition, the existing offsite Forrest Kerr camp use allows for decommissioning of the KM58 Camp and KM59 Camp in early Operations. Relocation of the Camp from near the Process Plant to near the TMSF was based on minimizing commute time for employees while maintaining adequate separation from active mining areas, infrastructure, and hauling routes as well as utilizing existing infrastructure and facilities. The Camp is considered as existing infrastructure for the Project, and bedspace may be expanded to meet the demands (i.e., 380 beds) of the Project.
Power supply infrastructure	The construction and installation of the offsite Volcano Creek Substation, Transmission Line, and Transmission line right-of-way that was included in the DPD is no longer part of the Project.	These components will be constructed (i.e., right-of-way, clearing, installation of poles and fibre optic) and fully operational in advance of Project Construction and are considered as existing infrastructure for the Project.
Water Management	The Project water management infrastructure includes adjustment in the number, locations, and naming of water management structures. The Project includes use of the four existing ponds near KM59 Camp (i.e., MW Pond 1 to MW Pond 4), and three ponds approved as part of the Technical Sample (i.e., MRSA Collection Pond, UMA Collection Pond[2], and Process Plant Sediment Control Pond[3]). A new overflow sump will be constructed for the MRSA Collection Pond (i.e., MRSA Collection Pond Overflow Sump) to provide additional surge capacity for management of the design storm events as the footprint of the MRSA increases. The DPD included use of the 4 existing ponds (i.e., MW Pond 1 to MW Pond 4) and construction of a new pond (i.e., Pond 5) downstream of the MRSA. The Project also includes additional diversion channels not included in the DPD to divert non-contact water away from the Project mine site.	Water management infrastructure has been refined in response to engineering optimizations included in the DFS (Sedgman 2024), as well as additional optimizations after the DFS, including updated water modelling and adjustments in response to Project infrastructure layout changes. Water management designs have also been updated to reflect Technical Sample Project refinements and in alignment with the Project's water management approach to reducing the total contact water volume that requires management.
Water Treatment	The Project includes installation of a new MWTP near KM 55 of Eskay Creek MAR to treat contact water; the DPD only included a proposed Water Treatment Plant (if required) for TMSF contact water treatment. This MWTP will treat contact water from the TMSF, as well as contact water from the North Pit and MRSA catchments. Both the Project and DPD assume use of the existing water treatment facilities (i.e., MW Pond WTP) located near KM59 Camp.	Water treatment has been updated based on engineering optimizations included in the DFS (Sedgman 2024), including updated water modelling and adjustments to the Project water balance.
Workforce	The Project estimates are up to 949 workers in the Construction phase and 528 workers in the Operations phase; the DPD identified a maximum of 790 workers in the Construction phase and 410 workers in the Operations phase.	With the updated Project mine plan changes, the total workforce requirements were adjusted accordingly.

Notes:

EAC Application = Application for an Environmental Assessment Certificate / Impact Statement; DFS = Definitive Feasibility Study; DPD = Detailed Project Description; TMSF = Tom MacKay Tailings Facility; PAG = potentially acids generating; NPAG = non-potentially acid generating; ROM = Run-of-Mine; MAR = Mine Access Road; MRSA = Mine Rock Storage Area; MW = Mine Water; PSA = PAG Storage Area; MWTP = Mine Water Treatment Plant; UMA = Upper Mine Area; WTP = Water Treatment Plant

km = kilometre; Mt = million tonne

[1] Skeena Resources 2022.

[2] Referred to as the PSA Collection Pond in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

[3] Referred to as the Warehouse Pad Sediment Control Pond in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

1.6 Workforce Requirements

1.6.1 Workforce Estimates

1.6.1.1 Workforce Estimates – Overview

The workforce estimates by Project phase are presented in Table 1.6-1. Additional information, including breakdowns of full-time and part-time positions, is provided in Section 1.6.1.2, Workforce Estimates – Construction, to Section 1.6.1.5, Workforce Estimates – Post-closure. Accommodations for the workforce in each phase, including occupancy and rotations, is provided in Section 1.4.2.9, Ancillary Infrastructure.

Table 1.6-1: Estimated Overall Peak Workforce by Phase

Project Phase	Duration	Workforce Estimate	Total Employment Impact (person-years)
Construction	2 years	Up to 949 workers	1,814
Operations	13 years	Up to 771 workers	6,428
Reclamation and Closure	3 years	Up to 79 workers	130
Post-closure[1]	Continue until conditions in permits are met	Up to 8 workers	Continue until conditions in permits are met

Note:
[1] Post-closure workforce approximately estimated as 10% of the Reclamation and Closure workforce.

1.6.1.2 Workforce Estimates – Construction

The Construction workforce is estimated to average 759 workers in full-time positions and is expected to peak up to 949 workers in Year -2. Approximately 45% of this workforce will be permanent positions and 55% will be contract positions; no part-time positions are currently anticipated. Table 1.6-2 presents the broad categories for these positions from the National Occupational Classification (NOC) system (Government of Canada 2021) and highlights the associated skill requirements with Training, Education, Experience, and Responsibilities (TEER) categories. Table 1.6-3 provides the definitions of each TEER category.

A range of positions will be required during Construction and will include, but not be limited to labourers, equipment operators, skilled trades, construction engineers, geologists, environmental roles, as well as management and administrative roles. While many of these positions will be short-term roles (i.e., unlikely to be full-time roles for the duration of Construction), positions may be transitioned to operational roles where possible. Skeena Resources will hire locally as much as feasible, depending on-the-job skill requirements, availability of local skills, and noting that contractors will comprise a large portion of the Construction workforce.

During Construction, the Project will operate 24 hours per day, 7 days a week, 365 days per year for the 2-year period. All positions will operate on a 12-hour shift basis and primarily use a rotation schedule of two weeks on / two weeks off. Additional worker rotation schedules will be considered through development of the Project and discussions with Indigenous Nations.

Table 1.6-2: Estimated Construction Phase Workforce

National Occupational Classifications Broad Occupational Category1	TEER Category (Skill Level)1	Number of Peak Jobs (Year -2)
Health occupations:		
• Technical occupations in therapy and assessment	2	3
Subtotal Health occupations		*3*
Legislative and senior managers:		
• Administrative and financial supervisors	2	31
• Administrative services managers	0	6
• Managers in financial and business services	0	38
• Office support and court services occupations	4	50
• Survey, statistical, and data entry occupations	4	2
Subtotal Legislative and senior managers		*127*
Natural and applied sciences and related occupations:		
• Architects, urban planners, and land surveyors	1	4
• Civil and mechanical engineers	1	22
• Manufacturing and processing engineers	1	6
• Natural resources engineers	1	6
• Public and environmental health and safety professionals	1	12
• Physical science professionals	1	2
• Technical occupations in physical sciences	2	8
Subtotal Natural and applied sciences and related occupations		*60*
Natural resources, agriculture, and related production occupations:		
• Contractors and supervisors, mining, oil, and gas	2	4
• Mine and oil and gas drilling, services, and related labourers	5	10
Subtotal Natural resources, agriculture, and related production occupations		*14*
Occupations in manufacturing and utilities:		
• Central control and process operators in processing and manufacturing	3	16
Subtotal Occupations in manufacturing and utilities		*16*
Sales and service occupations:		
• Security guards and related security service occupations	4	3
• Service supervisors	2	17
• Specialized occupations in services	2	7
• Technical sales specialists in wholesale trade and retail and wholesale buyers	2	6
Subtotal Sales and service occupations		*33*

National Occupational Classifications Broad Occupational Category1	TEER Category (Skill Level)1	Number of Peak Jobs (Year -2)
Trades, transport, and equipment operators and related occupations:		
• Automotive service technicians	2	4
• Contractors and supervisors, technical industrial, electrical, and construction trades and related workers	2	382
• Machinery and transportation equipment mechanics (except motor vehicles)	2	45
• Managers in construction and facility operation and maintenance	0	19
• Operators, drillers, and blasters	3	206
• Technical electrical trades and electrical power line and telecommunications workers	2	35
• Trades helpers and labourers	5	5
Subtotal Trades, transport, and equipment operators and related occupations		*696*
Total		**949**

Notes: TEER = Training, Education, Experience, and Responsibilities

[1] *Government of Canada (2021)*

[2] *See Table 1.6-3 for TEER definitions.*

Table 1.6-3: Training, Education, Experience, and Responsibilities Category Requirements

TEER Category	Nature of Education, Training, and Experience Required and Complexity of Responsibilities
0	Management responsibilities.
1	Completion of a university degree (bachelor's, master's, or doctorate); or Previous experience and expertise in subject matter knowledge from a related occupation found in TEER category 2 (when applicable).
2	Completion of a post-secondary education program of two to three years at community college, institute of technology, or CÉGEP; or Completion of an apprenticeship training program of two to five years; or Occupations with supervisory or significant safety (e.g. police officers and firefighters) responsibilities; or Several years of experience in a related occupation from TEER category 3 (when applicable).
3	Completion of a post-secondary education program of less than two years at community college, institute of technology or CÉGEP; or Completion of an apprenticeship training program of less than two years; or More than six months of on-the-job training, training courses or specific work experience with some secondary school education; or Several years of experience in a related occupation from TEER category 4 (when applicable).
4	Completion of secondary school; or Several weeks of on-the-job training with some secondary school education; or Experience in a related occupation from TEER category 5 (when applicable).
5	Short work demonstration and no formal educational requirements.

Source: This table is directly from Government of Canada (2021).

Notes:

CÉGEP = Collège d'enseignement général et professionnel; TEER = Training, Education, Experience, and Responsibilities

1.6.1.3 Workforce Estimates – Operations

The Operations workforce is estimated to include up to 771 workers in full-time positions. Approximately 87% of this workforce will be permanent positions and 13% will be contract positions; no part-time positions are currently anticipated. Table 1.6-4 presents the broad categories for these positions from the NOC system (Government of Canada 2021) and highlights the associated skill requirements.

Table 1.6-4: Estimated Operations Phase Workforce

National Occupational Classifications Broad Occupational Category[1]	TEER Category (Skill Level)[1,2]	Number of Peak Jobs (Year 3)
Health occupations:		
• Technical occupations in therapy and assessment	2	2
Subtotal Health occupations		*2*
Legislative and senior managers:		
• Administrative and financial supervisors	2	3
• Administrative and regulatory occupations	2	3
• Human resources and business service professionals	1	2
• Office support and court services occupations	4	2
• Survey, statistical, and data entry occupations	4	2
Subtotal Legislative and senior managers		*12*
Natural and applied sciences and related occupations:		
• Architects, urban planners, and land surveyors	1	4
• Civil and mechanical engineers	1	3
• Manufacturing and processing engineers	1	4
• Natural resources engineers	1	15
• Physical science professionals	1	2
• Public and environmental health and safety professionals	1	6
• Technical inspectors and regulatory officers	2	7
• Technical occupations in computer and information systems	2	2
• Technical occupations in physical sciences	2	8
Subtotal Natural and applied sciences and related occupations		*51*
Natural resources, agriculture, and related production occupations:		
• Contractors and supervisors, mining, oil, and gas	2	4
• Managers in natural resources production and fishing	0	1
• Mine and oil and gas drilling, services, and related labourers	5	12
Subtotal Natural resources, agriculture, and related production occupations		*17*

National Occupational Classifications Broad Occupational Category[1]	TEER Category (Skill Level)[1,2]	Number of Peak Jobs (Year 3)
Occupations in manufacturing and utilities:		
• Central control and process operators in processing and manufacturing	3	28
• Labourers in processing, manufacturing, and utilities	5	8
• Supervisors, processing, and manufacturing occupations	2	4
• Utilities equipment operators and controllers	2	4
Subtotal Occupations in manufacturing and utilities		*44*
Sales and service occupations:		
• Security guards and related security service occupations	4	2
• Service supervisors	2	1
• Specialized occupations in services	2	122
Subtotal Sales and service occupations		*125*
Trades, transport, and equipment operators and related occupations:		
• Automotive service technicians	2	4
• Contractors and supervisors, technical maintenance trades, and heavy equipment and transport operators	2	41
• Machinery and transportation equipment mechanics (except motor vehicles)	2	101
• Machining, metal forming, shaping, and erecting trades	2	2
• Managers in construction and facility operation and maintenance	0	1
• Operators, drillers, and blasters	3	357
• Plumbers, pipefitters, and gas fitters	2	2
• Technical electrical trades and electrical power line and telecommunications workers	2	12
Subtotal Trades, transport, and equipment operators and related occupations		*520*
Total		**771**

Notes:
TEER = Training, Education, Experience, and Responsibilities
[1] Government of Canada (2021).
[2] See Table 1.6-3 for TEER definitions.

A range of positions will be required during Operations and will include, but not be limited to labourers, equipment operators, engineers, mechanics, electricians, miners, mill operators, health and safety roles, as well as management and administrative roles. Skeena Resources intends to hire locally as much as possible.

The Project will also create indirect employment opportunities in businesses that manufacture, process, or market goods and services that support construction, operation, and maintenance activities for the Project. Operation, and well as construction, of the Project will provide an increase in employment and household income and may promote extra spending in the local and regional economy. This additional spending could lead to higher employment in a range of sectors.

During Operations, the Project will operate 24 hours per day, 7 days a week, 365 days per year for the 13-year period. All positions will operate on a 12-hour shift basis and primarily use a rotation schedule of two weeks on / two weeks off. Additional worker rotation schedules will be considered through development of the Project and discussions with Indigenous Nations.

1.6.1.4 Workforce Estimates – Reclamation and Closure

The Reclamation and Closure workforce is estimated to include up to 79 workers in full-time positions. Approximately 50% of this workforce will be permanent positions and 50% will be contract positions; no part-time positions are currently anticipated. Table 1.6-5 presents the broad categories for these positions from the NOC system (Government of Canada 2021) and highlights the associated skill requirements.

Table 1.6-5: Estimated Reclamation and Closure Phase Workforce

National Occupational Classifications Broad Occupational Category[1]	TEER Category (Skill Level)	Number of Peak Jobs (Year 16)
Natural and applied sciences and related occupations:		
• Public and environmental health and safety professionals	1	8
• Managers in engineering, architecture, science, and information systems	0	16
Subtotal Natural and applied sciences and related occupations		*24*
Trades, transport, and equipment operators and related occupations:		
• Contractors and supervisors, technical maintenance trades and heavy equipment and transport operators	2	24
• Trades helpers and labourers	5	31
Subtotal Trades, transport, and equipment operators and related occupations		*55*
Total		**79**

Notes:
TEER = Training, Education, Experience, and Responsibilities
[1] Government of Canada (2021).
[2] See Table 1.6-3 for TEER definitions.

A range of positions will be required during Reclamation and Closure and will include, but not be limited to labourers, equipment operators, skilled trades, engineers, environmental roles, as well as management and administrative roles.

During Reclamation and Closure, the Project will operate 7 days a week, 365 days per year for the 3-year period. All positions will operate on a 12-hour shift basis and primarily use a rotation schedule of two weeks on / two weeks off. Reclamation and Closure activities will likely operate on a 24 hours per day schedule (i.e., day shift and night shift) where possible, and the work schedule will be adjusted as reclamation activities progress based on available equipment fleet and personnel. Additional worker rotation schedules will be considered through development of the Project and discussions with Indigenous Nations.

1.6.1.5 Workforce Estimates – Post-closure

The Post-closure workforce is estimated to include up to eight workers. Skeena Resources has not estimated the number of full-time and part-time positions that would be available at this time. Table 1.6-6 presents the broad categories for these positions from the NOC system (Government of Canada 2021) and highlights the associated skill requirements.

Table 1.6-6: Estimated Post-closure Phase Workforce

National Occupational Classifications Broad Occupational Category[1]	TEER (Skill Level)	Number of Peak Jobs (Year 16)
Natural and applied sciences and related occupations:		
• Public and environmental health and safety professionals	1	4
• Managers in engineering, architecture, science, and information systems	0	2
Subtotal Natural and applied sciences and related occupations		*6*
Trades, transport, and equipment operators and related occupations:		
• Contractors and supervisors, technical maintenance trades, and heavy equipment and transport operators	2	1
• Trades helpers and labourers	5	1
Subtotal Trades, transport, and equipment operators and related occupations		2
Total		**8**

Notes:
TEER = Training, Education, Experience, and Responsibilities
[1] Government of Canada (2021).
[2] See Table 1.6-3 for TEER definitions.

A small range of positions will be required during Post-closure to support water treatment, site maintenance, and monitoring activities.

During Post-closure, all positions will likely operate on a 12-hour shift basis and primarily use a rotation schedule of two weeks on / two weeks off. Post-closure activities will likely operate on a 24 hours per day schedule where possible, and the work schedule will be adjusted as reclamation activities progress based on available equipment fleet and personnel. Additional worker rotation schedules will be considered through development of the Project and discussions with Indigenous Nations.

1.6.2 Anticipated Workforce Region of Origin and Workforce Transportation

The anticipated workforce region of origin will be approximately 40% from the RDKS, 43% from the rest of BC, and the remaining 17% from other parts of Canada. No international employees are estimated at this time, unless there is specific expertise that cannot be located locally within Canada. In 2004, the historical Eskay Creek Mine employed 349 people and 33% were Tahltan Nation members (Barrick 2004). The former mine’s workforce provides an indicator of the Project’s potential employment benefits to local communities (refer to Chapter 24, Employment and Economy Effects Assessment, for detailed analysis of the Project’s effects on employment). Skeena Resources is actively engaged with a range of local, provincial, and Tahltan contractors and suppliers to plan, develop additional capacity, and source labour for Project needs. Skeena Resources expects there will be suitably trained and experienced workers, as well as workers with transferable skills in the region, because of the region's history of mineral exploration and operating/closed mines (e.g., Eskay Creek, Snip, Brucejack, Red Chris, and KSM) and because there are likely workers from several major construction projects in Northern BC that have now, or are about to, conclude construction.

When required, workers will be transported to Terrace, BC by charter or commercial aircraft and to the Project mine site from Terrace by shuttle bus. Shuttle bus service will also potentially be made available to and from the Project mine site from Telegraph Creek, Dease Lake, Iskut, and Smithers. This workforce transportation is applicable to all two weeks on / two weeks off rotation schedules.

A site information document provided to all onsite staff and contractors incudes rules for work at the Eskay Creek Mine site. This document provides guidance to employees on health, safety, environmental protection, and helps to minimize potential effects on wildlife and fish by the implementation of rules prohibit hunting, fishing, and gathering for all employees and contractors on the Project mine site and while commuting to and from Project. In addition, the Rotational Site Travel Policy states that personal motor vehicles cannot be used to access the site and that the use of personal motorized vehicles while off shift at the site is prohibited. Possession or use of firearms on the Project mine site will be prohibited, including carrying personal firearms in vehicles. These documents will be updated with any new requirements in advance of Project Construction.

1.6.3 Corporate Hiring and Workplace Policies and Programs

Skeena Resources' corporate governance framework includes the following workplace policies:

- Code of Business Conduct and Ethics Policy;
- Anti-Bribery and Corruption Policy;
- Whistleblower Policy;
- Corporate Disclosure and Insider Trading Policy;
- Diversity Policy;
- Environmental and Social Responsibility Policy; and
- Health and Safety Policy.

These policies are regularly reviewed and updated and are available on the Skeena Resources' website at https://skeenaresources.com/esg/corporate-governance/.

Skeena Resources has numerous workplace policies and documents provided to staff within a Personnel Policy Manual, including, but not limited to, the following:

- Recruitment and Selection Policy – discussed below;
- Annual Work Performance Evaluation Policy – outlines documentation of performance and used for professional development, salaries, promotions, and correction of performance problems;
- Group Benefits Plan Policy – discussed below;

- Eskay Creek Rotational Site Travel Policy – states procedures for arranging, approving, and reimbursement of travel to and from the Eskay Creek Mine site;
- General Occupational Health and Safety Policy – summarizes how safe operations are achieved;
- Workplace Violence Policy – outlines the zero tolerance of workplace violence policy, and requirements of employees, managers, and Joint Occupational Safety and Health Committee in any assessments, investigations, and training;
- Workplace Bullying and Harassment Policy – defines bullying and harassment with examples, and the complaint and investigative process;
- Drug and Alcohol Policy – outlines that no alcohol or drugs are allowed on Skeena Resources sites, as well as rules for staff, responsibility of managers, testing, searches, and violation process;
- Operation of Motor Vehicles Policy – outlines requirements for driver's licence for positions that require operation of a motorized vehicle;
- Hours of Work and Overtime Policy;
- General Holiday Policy – lists statutory holiday;
- Sick Leave Policy;
- Vacation Policy;
- Bereavement Leave Policy;
- Pregnancy/Parental leave Policy;
- Compassionate Care Leave Policy; and
- Professional Development Policy – discussed below.

Policies are reviewed and updated by Skeena Resources. The site information document provided to all on-site staff and contractors working on the Eskay Creek Mine site includes information on the site history, Tahltan Nation, and other Indigenous Nations, what to bring to site, rules for site, and important contacts.

Skeena Resources values diversity in the workforce and seeks to include many voices and perspectives in operational and corporate decision-making, which provides a better understanding of community concerns, allows risks to be anticipated and managed, and identifies new opportunities to innovate and improve performance. Skeena Resources' approach is to identify and recruit young, emerging talent, foster and support development internally, and conduct leadership training within the workforce that includes identifying and supporting diverse working styles and perspectives. The Recruitment and Selection Policy outlines Skeena Resources' commitment to employing the best qualified candidates while engaging in recruitment and selection practices that:

- Provide equal employment opportunity to all applicants and employees;
- Recruit and select candidates that are best able to demonstrate Skeena Resources' core values;
- Comply with all applicable employment legislation; and
- Fulfill the letter and intent of the language contained within opportunities sharing agreements and impact benefits agreements with Indigenous Nation partners.

As part of this policy, the hiring process with Indigenous Nations partners is to:

- Circulate notices of all potential job opportunities outlining the minimum qualifications and experience required to local Indigenous Nations as soon as reasonably possible and on an ongoing basis;
- Communicate with the local Indigenous Nations to provide information to prospective Indigenous Nation members regarding interview schedules, pre-access testing, and training opportunities;
- Interview, on a priority basis, applicants who are members of local Indigenous Nations that Skeena Resources considers, acting reasonably, meet the minimum job qualifications and experience, or who with reasonable on-the-job training could meet such qualifications; and
- Hire, on a priority basis, those Indigenous Nation member applicants who meet the minimum job qualifications and experience and other posted job requirements, or, subject to the availability of on-the-job-training opportunities, could with reasonable on-the-job training meet such qualifications and requirements.

In 2024, 32% of the direct workforce is female and 20% is Indigenous. Both of these direct workforce percentages are above the provincial mining industry averages of approximately 14% and 6%, respectively as reported by the Mining Industry Human Resources Council (MiHR; MiHR pers. comm., 17 January 2024).

The Recruitment and Selection Policy will be updated to expand on considerations for Gender-based Analysis Plus (GBA Plus) and other diverse subgroups (e.g., women, gender-diverse people, youth, seniors) in advance of Project Construction by the following means:

- Use of language in job postings that is neutral to bias;
- List requirements that are essential versus beneficial;
- Highlight inclusive benefits and anti-discrimination measures; and
- Standardize interview questions and assess skills objectively.

Skeena Resources will update policies to foster an inclusive workplace culture and mentorship. Diversity metrics will be set (e.g., gender, ethnicity) for recruitment, retention, and compensation equity, and these metrics will be tracked. The site information document provided to all onsite staff and contractors working on the Eskay Creek Mine site includes information on Indigenous Nations and cultural awareness training. This document will be provided to staff for all phases of the Project.

Skeena Resources provides competitive benefits and employee assistance programs for all employees. A group insurance benefit program will be applicable to employees and includes extended health, dental, life, and disability insurance. The Employee Assistance Program for the Project will include counselling and family support that extends to employee spouses and dependents, as well as career planning and workforce transition planning at the end of Project life. A Health Care Spending Account is provided to employees on the benefit plans to cover medical expenses that are not covered by the standard group plan.

Skeena Resources invests in staff training. The Professional Development Policy supports professional development as an opportunity to enhance the skills and knowledge of employees, meet the evolving needs of the organization, and verify critical roles within company operations can maintain current professional designations. The Professional Development Policy covers reimbursement of employee’s course tuition fees related to a formal designation program, and professional fees, memberships; dues relevant to employee positions; paid time off for study days prior to exams; and funding opportunities for participation in job-related professional development conferences as well as attendance in job-related workshops and seminars. Skeena provides reskilling, upskilling, and cross training opportunities for employees to grow within the organization. Interested employees are provided with skills training such Microsoft Office training, obtaining drivers licences, obtaining high school diplomas, and trades training for further skills development to advance their career at Skeena Resources. This policy will be evaluated and updated in advance of Project Construction to focus on the skills required for the Construction and Operations phases.

In advance of Reclamation and Closure, workforce transition planning will be added to Skeena Resources policies or programs.

1.7 Project Purpose, Need, and Alternatives Considered

This subsection outlines the alternatives assessments completed for the Project, and includes the purpose and need for the Project, alternatives to the Project, and the analysis conducted to evaluate alternative means of carrying out the Project.

1.7.1 Purpose of the Project

The Project's objective is to undertake responsible and sustainable resource extraction of a gold and silver concentrate from a previously mined deposit, and to foster economic growth and prosperity in BC, particularly Northern BC, while supporting capacity building, employment, and benefits to local Indigenous people and communities in alignment with the vision and goals of the BC Mining Jobs Task Force (2018). The Project will be designed, constructed, operated, and decommissioned to meet all applicable BC and Canadian environmental and safety standards and practices, and in consideration of the Tahltan Risk Assessment Factors and Tahltan Sustainability Requirements laid out in Schedules C and D, respectively, of the *Declaration Act* Agreement (2022) and noted in the "Tahltan Environmental Assessment Strategy Framework" (draft; TCG 2022a). The Project will also be developed in consideration of the "Tahltan Impact Assessment Policy" (TCG 2022b).

The Project will restart mining as an open pit operation at the past producing Eskay Creek Mine and produce concentrate for shipment to overseas smelters. The expected average annual production of precious metals from concentrate produced by the Project is 0.20 Moz to 0.25 Moz of gold and 5.5 Moz to 7.0 Moz of silver. Skeena Resources is committed to developing the Project in a sustainable manner that will contribute to the local, provincial, and national economies, and will create employment opportunities locally, regionally, and beyond. The Project will generate tax revenue for local, provincial, and federal governments. The Project's estimated total capital cost is $1,073 million CDN, and the estimated total operating cost is $2,763 million CDN. Some of these costs will be spent in Northern BC, employing and benefitting local and Indigenous contractors and employees.

Through engagement, Skeena Resources received feedback regarding potential Project benefits including employment, skills training and education, business opportunities, and improvements in infrastructure. This feedback was received from Engaged Indigenous Nations, municipal and regional governments, and public stakeholders. Additional information regarding engagement and feedback from these groups is provided in Chapter 5 through Chapter 8 for the Engaged Indigenous Nations; Chapter 31, Public and Stakeholder

Engagement; Chapter 32, Local Government Engagement; and the Indigenous Engagement Report. The Project will provide employment and training opportunities to local and regional communities in Northern BC and beyond, including Indigenous people. Over the life of the Project, direct employment with Skeena Resources is estimated at 1,814 person-years during Construction, 6,428 person-years during Operations, and 130 person-years during Reclamation and Closure for a total of 8,372 person-years, as well as additional contractor and consultant employment. The Project is anticipated to have a total workforce of up to 771 employees during Operations, including salaried and hourly workers. It is also anticipated that additional employment benefits will be created for workers in supplier industries, and in businesses benefitting from worker spending. No federal funding has been requested, and no federal support is being provided for the Project. Additional details on the Project workforce are provided in Section 1.6, Workforce Requirements, and the Project's anticipated effects on employment and the economy are described in Chapter 24, Employment and Economy Effects Assessment.

1.7.2 Need for the Project

The development of the Project will provide the opportunity to:

- Provide additional local and regional employment and business opportunities;
- Contribute to the development of infrastructure and skills training both locally and regionally, which will help support the development of healthy communities and strengthen partnerships between Skeena Resources and Indigenous Nations and the public;
- Supply gold and silver to the international marketplace. The reasonably foreseeable international demand for gold and silver has created market conditions that Skeena Resources believes are favourable for operating the Project; and
- Provide a return on investment to Skeena Resources' shareholders.

Skeena Resources believes in the economic viability and potential of the Project to bring much needed training and employment opportunities, as well as increased investment in services to the people within the RDKS and BC as a whole. The National Instrument (NI) 43-101 Technical Report (Sedgman 2023) identified a significant portion of mineral resources within economic constraints to have suitable confidence to satisfy the conditions for a mineral reserve. Through engagement, Skeena Resources received little direct feedback on the Project's "need for" statement. However, the Project's potential economic benefits were of general interest to Engaged Indigenous Nations and stakeholders. Feedback received from Engaged Indigenous Nations, municipal and regional governments, and public stakeholders is provided in Chapter 5 through Chapter 8 for the Engaged Indigenous Nations; Chapter 31, Public and Stakeholder Engagement; Chapter 32, Local Government Engagement; and the Indigenous Engagement Report.

The economic effects of the Project will be a result of direct procurement and workforce employment. Using this data as input, the indirect and induced employment, personal income, Gross Domestic Product (GDP), and government revenue effects are predicted. Estimation of this information requires a detailed economic impact analysis, the results of which are included in Chapter 24, Employment and Economy Effects Assessment.

The prosperity of BC and Canada are linked to economic development opportunities in the natural resources sector. In 2017, the minerals and metals sector accounted for 634,000 direct and indirect jobs in Canada, 5% of nominal GDP, and 19% of Canada's total merchandise exports (Government of Canada 2019).

Since the coronavirus disease of 2019 (COVID-19), gold and silver production and demand have started to recover as markets return to normal. In 2022, gold demand by central banks and other institutions reached a decade high; this demand was brought on largely by global economic uncertainties and inflation. Gold is among Canada's most valuable mined commodities, with a production value of $13.2 billion CDN in 2022 (Natural Resources Canada 2023). Silver has also seen a strong recovery, with the market noting a likely all-time record deficit of 237 Moz (7,393 t) in 2022 (The Silver Institute 2023).

The Project is needed primarily to support consumer demand (e.g., gold for use in jewelry) and investment demand as well as to supply precious metals to global markets for industrial development requirements, including the technology, health, automotive, and aerospace sectors. Gold has long been central to innovations in electronics, and the unique properties of gold and the advent of nanotechnology are driving new uses in medicine, engineering, and environmental management (World Gold Council 2020). Silver is also an essential component in many industries and is critical in the production of computers, mobile phones, automobiles, and large appliances. Silver is also used in electrical switches, solar panels, and chemical-producing catalysts, where its unique properties make it nearly impossible to substitute (The Silver Institute 2023).

1.7.3 Alternatives to the Project

Skeena Resources considered the following potential technically and economically feasible alternatives to the Project:

- Not undertaking the Project;
- Changing the timing of the Project; and
- Changing the location of the Project.

The first alternative of not undertaking the Project would not provide the positive social and economic effects associated with the Project's development, would not generate the environmental effects associated with the Project's development, and would not fulfill the purpose of the Project.

The second alternative of changing the timing of the Project would delay the positive socio-economic effects, yet generally have the same potential environmental effects as those associated with proceeding with the Project as proposed.

The third alternative of changing the location of the Project is not possible without foregoing the benefits of the current proposed location. The Project as proposed is located at a former mine site that historically produced high-grade gold and silver ore/concentrate and this location provides significant advantages from proximity to both critical infrastructure (e.g., Eskay Creek MAR, existing disturbance). This location also allows the Project to utilize previously permitted infrastructure (e.g., TMSF), which has additional potential storage capacity to support the Project. Skeena Resources is not aware of any viable alternatives of similar scale to the Project, including similar synergies with existing infrastructure, that would provide a source of gold and silver available for production in the proposed Project timeframe.

1.7.4 Alternative Assessment Approach

Alternative means are the various technically and economically feasible ways considered by a proponent that would allow a project to be carried out. The assessment of alternative means for the Project, called **alternatives assessments**, involved the systematic evaluation and comparison of the relative advantages and disadvantages of a range of feasible alternatives. This evaluation and comparison facilitated the selection of an alternative that, on balance, best meets a combined set of decision criteria that considers Tahltan Requirements as well as environmental, technical, economic, and social aspects, and the assessment of potential effects for the purposes of the EAC Application. This multiple criteria decision analyses approach to alternatives assessment was achieved through a screening-level assessment, a multiple accounts analysis (MAA) assessment, or a Best Available Technology (BAT) assessment.

Alternatives assessments were completed during scoping, prefeasibility, and feasibility studies for the Project to understand how alternatives or options compared to each other. Assessments were completed by an integrated group of subject matter experts including members of the project development, environmental, and socio-economic teams for the Project. The alternatives assessments for the Project were developed in collaboration with TCG. Following applicable guidance including in the "Hybrid Application Information Requirements" (EAO 2023a), the alternatives assessment consisted of the following steps:

- Identifying technically and economically feasible alternative options (Section 1.7.4.1, Alternative Identification);
- Selecting alternative-specific assessment criteria for the alternatives assessments (Section 1.7.4.2, Assessment Criteria);
- Identifying the appropriate assessment level as either a screening-level assessment or an MAA/BAT assessment (Section 1.7.4.3, Level of Assessments);
- Developing a general, logical order to assess the different alternatives assessments (Section 1.7.4.4, Order of Assessments);
- Analyzing potential effects of technically and economically feasible alternative options, which includes the relative ranking of alternatives (Section 1.7.5, Alternatives Means of Carrying Out the Project):
    - For MAAs, including a sensitivity analysis where appropriate;
- Summarizing alternatives assessments that were considered and pre-screened out after the alternatives identification process (Section 1.7.6, Pre-screened Out Alternatives Assessments); and
- Identifying selected alternatives to be carried forward for the Project (Section 1.7.7, Selected Alternatives Summary).

For all alternatives assessments, whether screening-level assessments or MAA/BAT assessments, alternative options were identified, assessment criteria were applied quantitatively (where possible) or qualitatively (where required), and relative preferences assigned. The preferences reflected the relative degree to which an alternative option addressed a particular assessment criterion compared to other options. Based on the overall evaluation of alternatives in consideration of the applicable assessment criteria, the more preferred alternatives were identified in individual summary tables. Colour coding is used in individual summary tables to reflect these relative preferences, with dark gold representing more preferred alternatives, light gold representing alternatives that are neutral, and white representing less preferred alternatives.

Once preferred alternatives were identified, the selected alternative for the Project was identified. In some instances, multiple alternative options were identified as the selected alternative for the Project. This condition occurred when a more complex implementation of alternatives provided the greatest flexibility and strategic outcome for the alternatives assessment and the Project overall. In these instances, context is provided to outline the proposed approach and potential next steps where appropriate. For selected alternatives that were carried forward as Project components (Section 1.4, Project Components), an assessment of the potential effects associated with those alternatives is presented as part of the EAC Application. The review and optimization of the selected alternatives will continue throughout the 18-year mine life with the objective of identifying opportunities to further improve the environmental, technical, economic, and social performance of the Project as assessed within the EAC Application.

1.7.4.1 Alternative Identification

The identification of technically and economically feasible alternative options was carried out using the following criteria:

- **Technical feasibility:** Although the technical feasibility for various alternatives may have been previously demonstrated at other projects, this criterion relates to the viability or applicability of a technology or alternative option in the context of the Project, which considers:
    - Climatic conditions and geographic setting of the Project;
    - Size of the operation and the length of the mine life;
    - Ability to meet Project design criteria and operational complexity;
    - Proven technology;
    - Constructability; and
    - Project schedule considerations.
- **Economic feasibility:** Economic feasibility relates to a comparison of costs against forecasted revenues. An alternative option was considered uneconomic if its use or implementation poses a significant risk to return on investment; that is, its use would be cost prohibitive considering technical application of the option (e.g., climatic and geographical context of the Project mine site, Project design criteria and operational complexity, constructability).

Where an alternative was deemed to be prohibitive in terms of technical or economic feasibility, it was either not advanced as an alternative option, or retained in individual summary tables for assessment completeness and visibility during collaboration with TCG. These options were acknowledged as not feasible by TCG for technical and/or economic reasons and were given an overall rating of ‘Not Feasible’ in the applicable individual summary tables.

In some instances, alternatives assessments were pre-screened out after the alternatives identification process. This instance occurred when alternative options were eliminated for reasons of technical or economic feasibility and only one alternative remained for consideration. The alternatives assessments that were pre-screened out are summarized in Section 1.7.6, Pre-screened Out Alternatives Assessments.

Table 1.7-1 lists the alternatives assessments that were carried forward and evaluated for the Project. Details of the alternatives assessments are provided in Section 1.7.5, Alternative Means of Carrying Out the Project. The order of alternatives assessments was established recognizing that each alternative can limit and influence other assessments. The order of assessments, along with Project aspect categories, presented in Table 1.7-1 is generally reflective of the order in which alternatives assessments were completed for the Project. Further details on alternatives assessment order are presented in Section 1.7.4.4, Order of Assessments.

Table 1.7-1: List of Project Alternatives Assessments

Project Categories	Project Alternatives Assessment
Mining	• Mining method
Processing	• Ore processing methods • Ore stockpile location • Concentrate transportation method
Mine waste	• Mine waste management that included: ○ PAG waste rock management ○ NPAG waste rock management ○ Tailings management ○ Disposal technology • PAG waste rock transportation
Water	• Water treatment technology • Snow management
Ancillary infrastructure	• Camp location
Other materials	• Overburden and topsoil management • Rock quarry source • Non-hazardous material management • Hydrocarbon contaminated soils management
Power source	• Stationary infrastructure • Mobile equipment
Workforce	• Worker rotation schedule

Notes:
NPAG = non-potentially acid generating; PAG = potentially acid generating

1.7.4.2 Assessment Criteria

Once potential alternative options were identified based on technical and economic feasibility, each alternative option was assessed against five key assessment categories: Tahltan Requirements, environmental considerations, technical feasibility, economic feasibility, and social considerations (Table 1.7-2). Tahltan Requirements considered the Tahltan Risk Assessment Factors and Tahltan Sustainability Requirements as laid out in Schedules C and D, respectively, of the *Declaration Act* Agreement (2022).

Within key assessment categories, standardized subcategories were considered. From this point, alternative-specific criteria for the selected subcategories were defined with the intent of describing the material differences (i.e., differentiating aspects) between the options of each alternatives assessment. This evaluation process, including the identification of key assessment categories, subcategories, and alternative-specific criteria, followed the applicable guidelines (EAO 2023a; ECCC 2016). For example, species listed under SARA (SC 2002, c 29) were considered under the environmental considerations category for the alternatives assessments. An overview of the species at risk present within the Assessment Boundary is provided in Section 19.4, Existing Condition of Wildlife, and Section 19.6, Assessment of Residual Effects, describes the potential effects on species at risk, critical habitat, and the mitigation measures proposed.

To reduce potential for redundancy during assessment, consideration of traditional use was incorporated into the development and evaluation of subcategories and indicator criteria. Further details on how Indigenous and local considerations were used in the assessment of alternatives is provided below in input from Indigenous Nations. The key assessment categories and associated example subcategories are shown in Table 1.7-2; alternative-specific criteria are outlined within each alternatives assessment (Section 1.7.5, Alternative Means of Carrying Out the Project).

Table 1.7-2: Categories and Key Considerations for Evaluating Alternatives Assessments

Project Categories	Key Considerations	Assessment Subcategories[1]
Tahltan Requirements	• Does the alternative affect Tahltan's way of life and traditional use of the local environment? • Does the alternative affect the health of the local community and environment? • What are the closure implications and how do the alternatives orient the site for long-term use? • Are there economic opportunities for the Tahltan over the lifespan of the alternatives?	• Health of land and water • Tahltan relationship and connections • Tahltan way of life • Reclamation or Restoration to support Tahltan way of life
Environmental	• How do the likely effects on the atmospheric, aquatic, or terrestrial environments compare? • Can the alternative be constructed, operated, and decommissioned in a manner that provides long-term protection of the local environment?	• Air quality • Greenhouse gas emissions • Water usage • Footprint / surface area disturbance
Technical	• Is the alternative an approach or technology that has been successfully implemented elsewhere? • Does the alternative require any tools, equipment, or technologies that cannot be easily adapted to the current application (e.g., climate, location)? • Is the alternative an example of best available technology? • Does the design incorporate sufficient design robustness to protect the environment, communities, and workers? • What is the complexity of design?	• Construction risk and complexity • Operational risk and complexity • Closure risk and complexity • Operational Flexibility
Economic	• How does the total cost of each alternative over the Project lifespan compare to the other(s)? • Are the costs of the alternative supportable within the current funding framework? • Are the costs of the alternative well understood and sustainable through the Project lifespan?	• Capital cost • Operating cost • Closure cost

Project Categories	Key Considerations	Assessment Subcategories[1]
Social	• How do the likely effects on land and resource use (e.g., access), heritage resources, and socio-economics (e.g., employment opportunities) compare? • Can the alternative be constructed and operated in a manner that provides protection of public and worker health and safety, and how does the protection of health and safety compare?	• Employment • Worker safety • Change in land use • Potential interaction with worker health

Note:

[1] Subcategories were not used in an assessment if considered non-differentiating for the alternatives being evaluated.

Categories, subcategories, and alternative-specific criteria were used to assess the identified viable (i.e., technically and economically feasible) alternatives. Assessment categories and subcategories were generally standardized (Table 1.7-2), and an appropriate level of assessment was determined (Section 1.7.4.3, Level of Assessments) to establish alternatives for assessment that reflect input from Indigenous Nations and result in a conservative assessment of potential effects consistent with best practice and regulatory guidance. Examples of key considerations and assessment subcategories within each of the five assessment categories is provided in Table 1.7-2.

Categories and subcategories were not exhaustive in terms of relevance to design, and while each subcategory was considered, those included in the individual alternatives assessments were selected based on their ability to identify differentiating factors between alternative options being considered. For example, if a specific environmental or social consideration would have been rated equally across all alternative options, this particular consideration was not assessed; only differentiating criteria were carried forward for evaluation as part of each alternatives assessment. Alternative-specific criteria were intentionally analyzed separately and individually to reduce the potential for cumulative bias through cross consideration of criteria (i.e., to preserve judgmental independence). This approach is standard practice in conducting options analyses and promotes the objective assessment of all considerations independently so that no one set of criteria can overweight or over-influence other criteria. Additional consideration was given to selecting subcategories and indicator criteria that were effect driven, value relevant, and non-redundant, which is consistent with options analysis best practice.

Input from the Tahltan Nation

Skeena Resources has considered community engagement and collaboration essential to ensuring project success that provides real benefits to the communities potentially affected by the Project. Skeena Resources is committed to early, inclusive, and meaningful engagement with Indigenous people, governments, and communities during the federal and provincial assessment processes (Skeena Resources 2023). The design aspects of the Project were assessed with the aim of aiding local individuals and businesses in realizing economic advantages and opportunities, fostering economic growth, and bolstering entrepreneurship throughout the province.

Engagement for the Project resulted in the collection of important feedback for consideration within the EAC Application, including Tahltan Knowledge. Specific discussions on the alternatives assessment process occurred during focused alternative assessment meetings with members of TCG. The alternatives assessment work was divided into four stages: site component development, screening-level assessments, MAA/BAT assessments, and alternatives assessment results. Feedback was collected and recorded before, during, and after all sessions. Discussions were focused on collaboratively developing potential alternatives, assessment criteria, and scoring weights that were used in the alternatives assessment. The alternatives assessments and individual alternative options were directly assessed by TCG, and their analysis was recorded as Tahltan Requirements in the individual summary tables provided in Section 1.7.5, Alternative Means of Carrying Out the Project.

General engagement activities for the EAC Application provided a mechanism for the Tahltan Nation to share knowledge of their communities, the land, and the environment. The outcomes of these engagement activities guided Project options and designs throughout the alternatives assessment process. Key themes that were shared by Tahltan Nation and considered in the alternatives assessments included:

- **Environment:** minimizing disturbances to and protecting the quality of the air, water, land, and wildlife; and preference for alternatives with smaller footprints and thus lesser potential effects on vegetation and wildlife throughout all phases of the Project, including Post-closure;
- **Traditional land and resource use:** recognizing, accepting, and respecting the local communities' cultural links to, and reliance on, the land and its resources as a critical part of the well-being, identity, and culture; minimizing (to the extent possible) restrictions on the ability of Indigenous land users to access area land and resources throughout all phases of the Project, including Post-closure;
- **Community well-being:** considering both the positive and negative social effects of the Project on the local communities, and providing the necessary support to mitigate negative effects; and
- **Socio-economics:** maximizing potential business and employment opportunities for local Indigenous people through educational and training opportunities, and development of local contractors to be competitive in Project procurement opportunities.

Additional information on results of engagement and Tahltan Knowledge considerations included in Project planning and design are provided in Chapter 4, Tahltan Application Information Requirements.

1.7.4.3 Level of Assessments

Three levels of assessment were considered for the alternatives assessments were utilized for the Project (Table 1.7-1): screening-level assessment, MAA assessment, and BAT assessment. A BAT assessment is similar to an MAA assessment, with a focus on selecting a technology.

Complex alternatives with high interdependencies and/or potential significance to achieving Project success used an MAA assessment (ECCC 2016) or a BAT (ENV 2021; ENV 2024). The MAA assessment approach was used for mine waste (i.e., PAG waste rock management, NPAG waste rock management, tailings management, and disposal technology), and a BAT assessment was used for water treatment technology.

For all other alternatives assessments that were considered less complex, a screening-level assessment was employed. These screening-level assessments were associated with Project aspects such as mining, processing, snow management, ancillary infrastructure (i.e., camp location), and power source (i.e., stationary infrastructure and mobile equipment), and worker rotation schedule.

The level of assessment used to evaluate each set of alternatives is provided in Table 1.7-3. For the assessments of each alternative, a systematic comparison of alternative options was completed to identify preferred alternatives that best met the combined set of criteria used in the assessment (Section 1.7.4.2, Assessment Criteria).

Table 1.7-3: Alternative Options Evaluated for the Project

Project Alternatives[1]	Level of Assessment[2]	Alternative Options					
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Mining method	Screening	Open pit	Underground				
Ore processing methods	Screening	Flotation	Flotation plus cyanide leaching	Flotation plus pressure oxidation plus cyanide leaching			
Ore stockpile location	Screening	Ore stockpile near Primary Crushing Station	In-pit ore stockpile	Ore Stockpile west of MRSA	No ore stockpile onsite		
Concentrate transportation method	Screening	Railway	Truck to Prince Rupert	Truck to District of Stewart			
Mine waste management	MAA	Option A	Option B	Option C	Option D	Option E	
PAG waste rock transportation	Screening	Belt conveyor system	Rail conveyor system	Hybrid haul truck with trolly assist	Conventional diesel haul truck		
Water treatment technology	BAT	13 alternative options considered					
Snow management	Screening	Cease work during heavy snowfall	Store snow along haul roads	Haul snow to TMSF	Push snow into creek headwaters	Use inactive areas	Combination of options
Camp location	Screening	Near Process Plant	Near Coulter Creek Access Road and TMSF	Near KM53.5	Near North Spoils area	Existing Forrest Kerr camp	
Overburden and topsoil management	Screening	Designated stockpiles onsite	Store in windrows along haul roads	Co-disposal with waste rock	No designated stockpiles onsite		
Rock quarry source	Screening	Onsite NPAG quarries within open pits	Quarries along the Eskay Creek MAR	Combination of options			
Non-hazardous material management	Screening	Onsite incineration and onsite landfill	Onsite incineration and disposal at offsite landfills	Offsite incineration and disposal at offsite landfills			
Hydrocarbon contaminated soils management	Screening	Onsite bioremediation	Onsite co-disposal with waste rock	Offsite disposal			
Stationary infrastructure power source	Screening	Hydroelectric power from Volcano Creek Substation	Hydroelectric power from Bob Quinn Substation	Wind power generation	Solar power generation	Diesel power generation	
Mobile equipment power source	Screening	Diesel-powered equipment	Electric-powered equipment	Combination of power sources			
Worker rotation schedule	Screening	5 days on / 2 days off	1 week on / 1 week off	2 weeks on / 2 weeks off	3 weeks on / 3 weeks off		

Legend: *Not Applicable* (shaded cells)

Notes:

BAT = Best Available Technology; MAA = multiple accounts analysis; MAR = Mine Access Road; MRSA = Mine Rock Storage Area, NPAG = non-potentially acid generating; PAG = potentially acid generating; PMA = Permitted Mine Area; TMSF = Tom MacKay Storage Facility
KM = kilometre marker; kW = kilowatt

[1] *Section 1.7.4.4, Order of Assessments for information on order of assessments.*

[2] *Section 1.7.4.3, Level of Assessments on level of assessments.*

1.7.4.4 Order of Assessments

The overall Project design, and the order of alternatives assessments, reflects how key components and infrastructure “fit together” to achieve Project objectives. There are often constraints related to the natural environment, which can limit and influence the basis of Project design and approach for development. Examples of constraints of the natural environment include the location of ore bodies and waterbodies, existing geotechnical conditions, and local climate considerations.

The collective mine components must also fit together in terms of the physical space required, and selected processes must match the characteristics of materials being handled (e.g., material volumes, timing of material availability). In addition, some alternatives assessments (e.g., mining method, ore processing methods, mine waste management approach) have a larger influence on Project design and inform the overall development approach of the Project. Alternatives assessments that could limit or influence additional alternatives assessments were considered before other alternatives assessments were completed (i.e., a systematic order was taken for conducting the assessments).

The bullets below outline the general order in which the alternatives assessments for key mine components and infrastructure were prioritized in recognition of influence on Project design and other alternatives assessments.

- The **mining method** was dependent on characteristics of the ore body, in particular the depth to ore, the grade of ore, the shape and orientation of the ore, and the existing ground conditions.
    - The selected mining method also influenced the amount of surface disturbance, including the volume of **mine waste** storage (e.g., waste rock).
- **Ore processing methods** were dependent on ore type and had a large influence on the volume and type of **mine waste** (i.e., tailings) that requires management and disposal onsite, and the amount and type of final processed product considered in the **concentrate transportation method**.
- **Mine waste** management and storage included multiple waste streams (i.e., PAG waste rock, NPAG waste rock, and tailings) and was dependent on the above alternatives assessments. Selection of preferred mine waste storage alternatives, including disposal locations and disposal technologies, had a large effect on overall Project design and disturbance areas. The selected mine waste storage alternatives for particular waste streams (e.g., waste rock, tailings) was in turn dependent upon the preferred storage alternative selected for other mine waste streams.
    - **Mine waste** management and storage also influenced the **ore stockpile location**, **PAG waste rock transportation** method, the locations for **overburden and topsoil management**, and the potential **rock quarry source** for the Project.
- The **camp location** was also dependent on existing geographic and topographic constraints, location of other Project component locations identified both during the alternatives assessment process and Project design, and the timeline available for onsite and offsite camp location options.
- The **water treatment technology** was dependent on **mine waste** management and storage options, expected inputs to and outputs from the Process Plant, open pits, MRSA, TMSF, and Camp. The **water treatment technology** was also dependent on inputs from the **snow management** method for the Project, predicted discharge water quality, and receiving water characteristics.

- **Non-hazardous material management** was dependent on the waste characteristics, volume of materials produced, and the viability of onsite and offsite options.
- **Hydrocarbon contaminated soils management** was dependent on volume of materials generated, and the viability of onsite and offsite options.
- The choice of **stationary infrastructure power source** and **mobile equipment power source** was dependent on the feasibility and cost of various alternatives, as well the availability to utilize existing electrical infrastructure near the Project mine site.
- The **worker rotation schedule** was influenced by the construction, operational, and maintenance requirements of the Project and was also dependent on the overall remote nature of the Project mine site.

The alternative options for the Project alternatives assessments are listed in Table 1.7-3 and discussed in Section 1.7.5, Alternative Means of Carrying Out the Project. A summary of selected alternatives is presented in Section 1.7.7, Selected Alternatives Summary.

1.7.5 Alternative Means of Carrying Out the Project

Details of the assessments completed for each of the alternatives listed in Table 1.7-3 are provided in the subsections below. The assessments of alternative means for the Project, called alternatives assessments, are generally presented in the order as outlined in Section 1.7.4.4, Order of Assessments, and have considered the interaction with, and influence from, one decision or selection to the next.

1.7.5.1 Mining Method

The mining method chosen for a project is based largely on the characteristics of the ore body and host rock. Ore bodies close to surface and/or with lower grade ore are often developed using open pit mining methods, while underground mining methods are typically used for ore bodies at greater depths and/or with higher-grade ore. The ore body thickness, orientation, and various other factors also dictate the most appropriate extraction method.

The assessment and engineering design of an ore deposit is a complex multi-stage process that is first evaluated based on the cut-off grade of a deposit, followed by additional analyses to consider and optimize the specific mining process and development schedule for an ore body.

Ore grade is considered by initially analyzing ore cut-off grade, which is the minimum grade required for ore to be economically mined and determines whether a deposit is economically viable to develop as a project. This cut-off grade analysis considers multiple factors, including but not limited to:

- Costs associated with capital investment, including mining equipment and construction of surface infrastructure such as processing facilities, crushing facilities, and additional ancillary infrastructure.
- Costs of mining the deposit, including labour and consumables as well as geotechnical and structural support requirements dictated by the host rock strength, intactness, fracture frequency, and failure planes.

- Costs of operating and developing the deposit, including water management and potential water treatment dictated by the permeability of the host rock, natural groundwater table in the deposit area, and water quality of the potential receiving environment.
- Costs of mine waste management, including the hauling, management, and disposal of waste rock as well as processing, management, and disposal of tailings.
- Costs of water management and potential water treatment associated with the disposal and storage of waste rock and tailings.
- Costs of operating surface infrastructure including processing facilities, crushing facilities, and additional ancillary infrastructure.
- Costs of closing a project at the end of mine life, including costs associated with waste rock reclamation, tailings reclamation, and closure of any open pits or underground areas, as well as the long-term costs associated with monitoring, mitigation, maintenance, and potential water treatment.
- Factors influencing Net Smelter Return (NSR) or revenue generated, including but not limited to royalties/streams, penalty elements, treatment and refining charges, payable metals, and metal prices.

Material above the cut-off grade is considered ore, and material below the cut-off grade is considered waste. This cut-off grade analysis provides an objective output of gold equivalent (AuEq), which is a measure of how many profitable ounces of combined gold and silver would be produced by a mining method. A low cut-off grade and high volume of AuEq ounces provides the potential for an economic project, where ore from deposit development would provide more revenue than the cost to construct and operate a project. A high cut-off grade and low volume of AuEq ounces provides less potential for an economic project in the case of the Eskay Creek Revitalization Project, where ore from deposit development would provide less revenue. In extreme cases, where potential revenue was less than the cost to construct and operate a project, the project would be uneconomic (i.e., an overall profit loss) and would not be developed. Skeena Resources notes that total project revenue exceeding total project capital and operating costs is only one criterion that influences whether a project is economically viable; additional factors were considered, such as the time-value of money (i.e., discounting), the cost of capital, and the minimum rate of return.

The Project mine site is located along the western margin of the Stikine Terrane, within the Intermontane Tectonic Belt of the Northern Cordillera. The Project would target development of the Eskay Creek deposit, which is a high-grade, precious metals-rich epithermal volcanogenic massive sulphide (VMS) deposit. The deposit is hosted within the Jurassic rocks of the Stikinia Assemblage at the stratigraphic transition from volcanic rocks of the uppermost Hazelton Group to the marine sediments of the Bowser Lake Group. The Eskay Creek deposit is defined over an area approximately 1,400 m long and up to 300 m wide and is close to the surface and overlain by mudstones and conglomerates of the Bowser Lake Group. The following mining methods were considered for the Project:

- Open pit; and
- Underground.

The **open pit** mining method would include the development of two open pits, the North Pit and the South Pit. This option would be a less expensive extraction method and allow access the majority of the ore body. The North Pit would be approximately 1,600 m by 900 m at surface and would extend to a depth of approximately 320 m. The South Pit would be approximately 550 m by 250 m at surface and would extend to a depth of approximately 110 m.

The open pits would be mined from the surface down by conventional drill, blast, load, haul, and dump methods, using a mobile mining fleet of excavators, hydraulic shovels, bulldozers, and haul trucks. Development of open pits produces a large volume of waste rock that would require management at the Project mine site and would produce the required NPAG waste rock required for the construction of Project laydowns and pads, haul roads and secondary roads, and water management infrastructure. Using information from the NI 43-101 Technical Report (Sedgman 2023) as well as information available since the study, the estimated cut-off grade for open pit mining would be approximately 0.5 grams per tonne (g/t) AuEq and would produce a total of approximately 7.3 million AuEq ounces, which confirms the Project could be economically developed.

The **underground** mining method would include the development of underground infrastructure and the in-situ material above the ore body would remain in place. This option would be a more expensive extraction method due to additional geotechnical and safety considerations of underground work and would allow for more targeted access to smaller volume ore bodies. The historical underground mining activities at the Project mine site (Section 1.1.5, Project History) have extracted the ore that was close to surface and any new underground workings would require development at much deeper depths. Underground mines typically include the development of portal, shafts, drifts, and stopes, and can range in depth up to 2,000 m below surface. Portals are openings at surface that provide access to the shafts and drifts below. Shafts are vertical passageways that are excavated adjacent to the ore body and provide access for workers and equipment underground, emergency egress, and air ventilation and circulation for underground workings. Shafts are excavated through waste rock to a depth near the bottom of the ore body. At regular intervals along shafts, drifts are developed, which are horizontal tunnels that extend toward the ore body and connect to stopes. Stopes are excavations that are developed within the ore body itself with the purpose of extracting ore. Stopes can vary in size and shape depending on the specific underground mining technique used.

The underground workings would be mined by conventional drill and blast, and load, haul, dump methods, using a mobile mining fleet of underground excavators, loaders, bulldozers, and haul trucks. With this mining method, the Project surface disturbance would be reduced compared to an open pit method and include lower volumes of waste rock for management at the Project mine site. Using information from the NI 43-101 Technical Report (Sedgman 2023) as well as information available since the study, the estimated cut-off grade for underground mining would be approximately 6.0 g/t AuEq and would produce a total of approximately 1.3 million AuEq ounces, which means the Project could be uneconomic to develop.

A **screening-level assessment** for the Project mining method was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-4.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for mining method for the Project was **open pit**. This option method would allow for the economic development of the deposit and construction and operation of the Project. The NPAG and PAG waste rock produced with the option will be appropriately managed to minimize the potential effects to the environment; the alternatives assessment for waste rock and tailings management at the Project is provided in Section 1.7.5.5, Waste Rock and Tailings Management.

Table 1.7-4: Alternatives Assessment for Mining Method

Assessment Category	Subcategory or Criteria	Alternative Options	
		Open Pit	Underground
Tahltan Requirements	Health of the land and water	Moderate to High – increased footprint, long-term legacy, pit waterbody	Moderate – smaller surface disturbance, long-term legacy
	Tahltan relationship and connections	Moderate to High during the mine life, reduces during Reclamation and Closure and then Post-closure, depends on mitigations and strategies	Moderate to High during the mine life, reduces during Reclamation and Closure and then Post-closure
	Tahltan way of life	Moderate during the mine life, reduces during Reclamation and Closure and then Post-closure, depends on mitigations and strategies	Moderate during the life of mine, reduces during Reclamation and Closure and then Post-closure, depends on mitigations and strategies
	Reclamation or Restoration to support Tahltan way of life	Moderate to High – will depend on meeting Tahltan Sustainability Requirements, water treatment, ability to restore and remove barriers	Moderate to High – will depend on meeting Tahltan Sustainability Requirements, water treatment, ability to restore and remove barriers
Environmental	Footprint / surface area disturbance	Greater surface disturbance with open pits	Less surface disturbance with only surface openings for shafts, portals, and vent raises
	Water treatment	Larger volume of contact water and some groundwater inflow to manage	Limited to groundwater inflows into the mine to manage
	Mine waste volume	Larger volume of waste rock produced	Smaller volume of waste rock produced
Technical	Operational flexibility	Greater flexibility because multiple working faces would be available for development	Less flexibility because limited working faces would be available for development
	Overall gold production	Higher	Lower
	Orebody suitability	More suitable to open pit mining methods because the lower ore grade and shallow depth of the deposit lend themselves best to these methods	Less suitable to underground mining methods because underground mining requires a higher-grade orebody
	Construction risk and complexity	Lower development risk and less complexity	Higher development risk and higher complexity
Economic	Operating costs ($/t)	Lower costs	Higher costs
	Project economics	Economically viable	Not economically viable; underground development would be unlikely to achieve the quantity of gold production and overall revenue required to justify the capital investment
Social	Visual considerations	Greater visual disturbance	Less visual disturbance
	Economic opportunities	Significantly greater employment and contract opportunities	Reduced relative employment and contract opportunities
	Worker safety	Reduced safety risks due to open working spaces and multiple egress points	Increased safety risks due to working in confined spaces, limited egress, and potential interactions with historical underground workings
Overall		**More Preferred**	**Less Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Notes:

NPAG = non-potentially acid generating; PAG = potentially acid generating

$/t = dollars per tonne

1.7.5.2 Ore Processing Methods

Ore processing methods are dependant on the mineralogy of the ore being processed and will determine the final product that is produced in the Process Plant. For gold-silver deposits, typical product produced are either a gold-silver concentrate (i.e., a fine granular product) or gold-silver doré bars (i.e., a semi-pure metal of gold and silver). Both products would be transported offsite for further processing in a smelter.

All alternative options would include a crushing circuit prior to ore entering the Process Plant and a comminution circuit within the Process Plant. Crushing would include single-stage crushing and coarse ore sorting to reduce the particle size of the ROM ore to a coarse ore size (i.e., <130 mm) prior to ore entering the Process Plant. Comminution is the breaking, crushing, or grinding of material to further reduce the ore particle size. The comminution circuit would include primary grinding using a semi-autonomous grinding (SAG) mill and ball mill, and particle size segregation using hydrocyclones to produce a fine ore slurry with a P_{80} of 100 µm (Section 1.4.2.2, Process Plant). The following ore processing methods were considered for the Project:

- Flotation;
- Flotation plus cyanide leaching; and
- Flotation plus pressure oxidation plus cyanide leaching.

The **flotation** option would include a flotation circuit that employs a combination of grinding, using a tertiary mill and regrind mill, and concentrate separation, using flotation cells to produce a gold-silver concentrate. The tertiary mill and regrind mill are high-throughput gravity-separation devices that separate ore slurry particles based on size. Flotation cells would then separate ore particles based on the amount of precious metals (e.g., gold, silver), which would be achieved by coating ore particle surfaces with a frothing agent that is attracted to particles with a high amount of precious metals. These coated particles float to the top of the flotation cell, which allows for easy separation and removal of the flotation concentrate. The flotation concentrate would be thickened and filtered through dewatering, and then dried to produce a gold-silver concentrate that would be stockpiled at the Process Plant prior to loading into haul trucks for transportation offsite. This option would achieve approximately 70% recovery of gold and silver from the ROM ore and produce a large volume of gold-silver concentrate.

The **flotation plus cyanide leaching** option would include a flotation circuit and a cyanide leaching circuit to produce a doré bar. Cyanide leaching is a method of extracting gold and silver by dissolving ore in a dilute solution of sodium cyanide or potassium cyanide. Cyanide leaching would include additional flotation cells, leach tanks, a furnace to heat the ore slurry, and a small refinery; this additional processing infrastructure would increase the Process Plant overall size and footprint. A cyanide reagent, which would be added to the leach tanks to facilitate the leaching process, would require special handling within the Process Plant and in the tailings stream. The ore slurry produced from cyanide leaching would be thickened and filtered through dewatering and dried to produce a concentrate. The concentrate would be converted into doré bars in the refinery that would heat the product to molten metal and inject chlorine gas that would separate the gold and silver from other metal impurities before cooling into bars. The doré bars would be stored in the Process Plant prior to loading into haul trucks for transportation offsite. This option would achieve approximately 90% recovery of gold and silver from the ROM ore and produce a small amount of gold-silver doré bars.

The **flotation plus pressure oxidation plus cyanide leaching** option would include a flotation circuit, a pressure oxidation circuit, and a cyanide leaching circuit to produce a doré bar. Pressure oxidation would occur between flotation and cyanide leaching and include the addition of an autoclave, which would increase the Process Plant overall size and footprint. An autoclave is a pressurized vessel that elevates temperature and pressure using steam to heat the ore slurry to very high temperatures, which releases encapsulated gold and silver grains from sulphides and makes cyanide leaching more effective in gold and silver recovery. The autoclave is a large system that would require special logistics planning to transport multiple equipment deliveries to the Project mine site and would require additional construction and assembly onsite. This option would achieve approximately 97% recovery of gold and silver from the ROM ore and produce a small amount of gold-silver doré bars.

A **screening-level assessment** for the Project ore processing method was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-5.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for ore processing method for the Project was **flotation**. This method would include construction, installation, and operation of the least amount of processing infrastructure; smallest overall size and footprint of the Process Plant; and the lowest capital and operating costs. In addition, no cyanide management would be required for reagent handling and tailings with this option, which reduces exposure and risk to workers at the Project mine site.

1.7.5.3 Ore Stockpile Location

A small portion of ore generated during mining will be hauled from the open pits and fed directly into the Primary Crushing Station for immediate processing in the Process Plant. The majority of ore will require stockpiling prior to processing during Operations. The alternatives assessment was completed in consideration of Project mine site topography, which includes steep mountains and large river corridors that provide limited natural flat areas for potential stockpile locations, and with the goal of limiting effects to additional watersheds within the Project mine site. The following ore stockpile location options were considered for the Project (Figure 1.7-1):

- Ore stockpile near Primary Crushing Station;
- In-pit ore stockpile;
- Ore stockpile west of MRSA; and
- No ore stockpile onsite (no location shown on Figure 1.7-1).

The **ore stockpile near Primary Crushing Station** option would include stockpiling ore east of the Primary Crushing Station and north of the MRSA. This option would require short haul distances from the open pit to the ore stockpile and from the ore stockpile to the Primary Crushing Station. Contact water from the ore stockpile would be managed by collecting water in water management structures (e.g., ponds, pipelines) at the north end of the facility.

Table 1.7-5: Alternatives Assessment for Ore Processing Methods

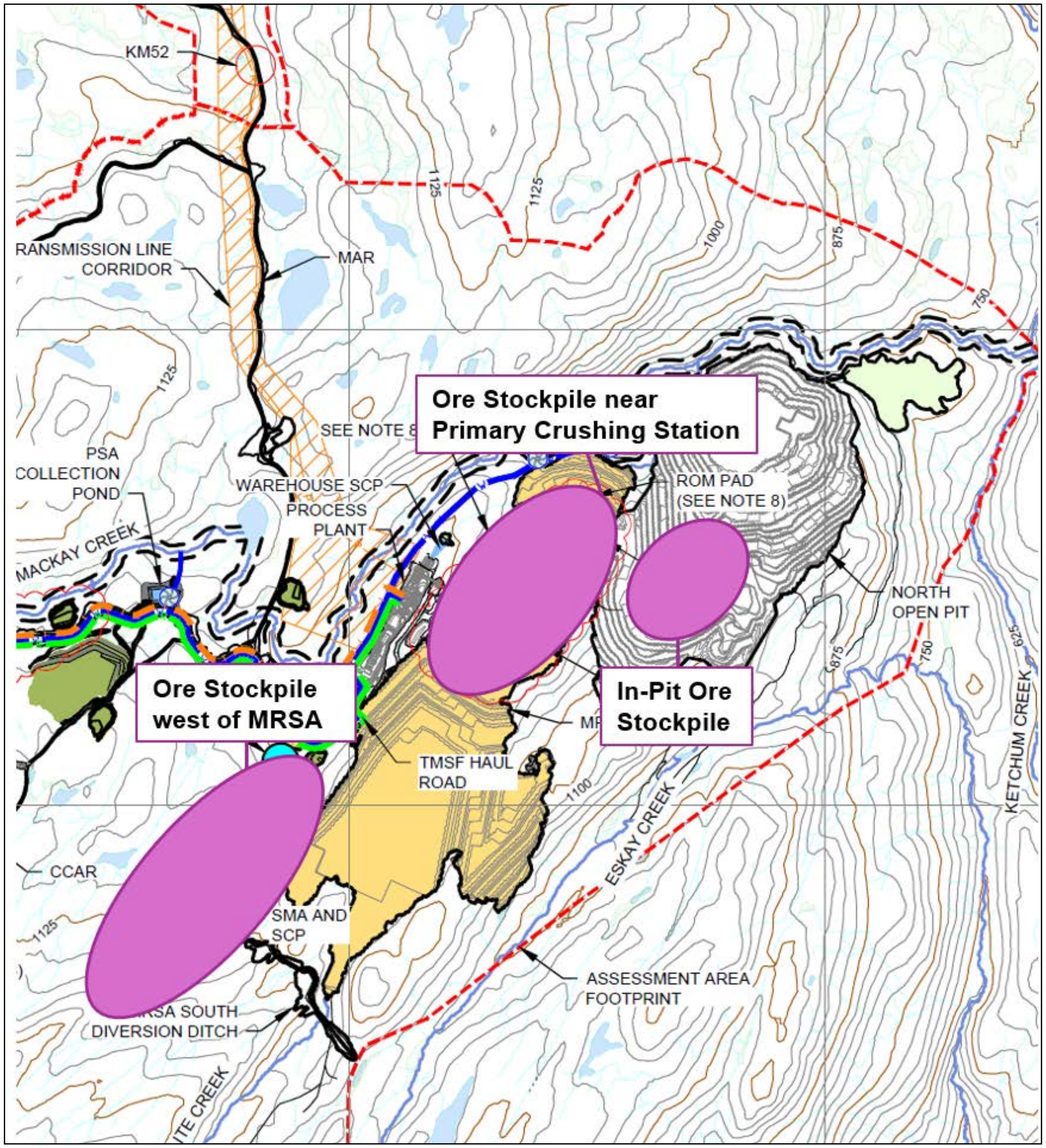
Assessment Category	Subcategory or Criteria	Alternative Options		
		Flotation	Flotation plus Cyanide Leaching	Flotation plus Pressure Oxidation plus Cyanide Leaching
Tahltan Requirements	Health of the land and water	Low	Moderate to High – concerns on cyanide application, and past uses in territory	Moderate to High – concerns on cyanide application, and past uses in territory
	Tahltan relationship and connections	Low	Moderate to High	Moderate to High
	Tahltan way of life	Low	Moderate to High	Moderate to High
	Reclamation or Restoration to support Tahltan way of life	Low	Moderate to High	Moderate to High
Environmental	Air quality	Lowest air quality emissions	Moderate air quality emissions from cyanide leaching process	Moderate air quality emissions from cyanide leaching process
	Greenhouse gas emissions	High emissions from large trucking fleet required	Low emissions from smaller trucking fleet required	Low emissions from smaller trucking fleet required
	Footprint / surface area disturbance	Smallest footprint	Increased footprint due to refinery and gold adsorption and stripping circuits	Increased footprint due to refinery and gold adsorption and stripping circuits
	Water usage	Lowest volume of water required to operate system	High volume of water required to operate cyanide leach system	Highest volume of water required to operate cyanide leach system and autoclave
	Water treatment	No additional water treatment required	Additional water treatment required to management cyanide use in tailings produced	Additional water treatment required to management cyanide use in tailings produced
	Biproduct handling and management	Reagents used would require minimal additional handling and management	Cyanidation requires cyanide destruction and smelting requires additional effluent treatment	Cyanidation requires cyanide destruction and smelting requires additional effluent treatment; in addition, oxidation reagents require additional handling
Technical	Deleterious elements in final produce	Deleterious elements are left in concentrate and reduces exposure onsite	Management of deleterious elements is required onsite	Management of deleterious elements is required onsite
	Gold recovery (approximate)	70%	90%	97%
	Equipment delivery and assembly	Flotation cells can be trucked to site as large units and will require limited assembly	Flotation cells, leach tanks, and furnace can be trucked to site as large units and will require limited assembly	Autoclave is a large system that will require special logistic planning to be trucked to site and will require multiple deliveries and require additional assembly and construction onsite
	Operational system complexity	Least complex system and simplest flowsheet	Complex system with addition of leach tanks and refinery	Most complex system with addition of leach tanks, pressure oxidation subsystem, and refinery
Economic	Capital costs	Lowest cost	High costs with additional cyanide leach tanks in addition to the significant additional cost of elution and electrowinning equipment	Highest costs with additional cyanide leach tanks and pressure oxidation equipment, in addition to significant additional cost of elution and electrowinning equipment
	Operating costs – systems	Lowest	High addition costs for cyanidation and smelting	Highest addition costs for cyanidation and smelting as well as significant additional costs associated with operating pressure oxidation system
	Operating costs – reagent shipping and consumption	Lowest costs associated with purchasing and shipping reagents	Some additional costs associated with purchasing and shipping additional reagents	Highest additional costs associated with purchasing and shipping the most additional reagents
	Operating costs – power consumption	Lowest	High	Highest
Social	Employment – Construction	Lowest employment	Some additional short-term employment to install additional systems	Some additional short-term employment to install additional systems
	Employment – Operations	Lowest employment	Some additional employment to operate additional systems and from additional reagent trucking	Some additional employment to operate additional systems and from additional reagent trucking
	Worker safety	Lowest risks	Increased risks and more procedures required for cyanide management	Increased risks and more procedures required for cyanide management
Overall		**More Preferred**	**Less Preferred**	**Less Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Note:

% = percent



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Date: 20-Jun-2024
Figure 1.7-1

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Eskay Creek Revitalization

Figure 1.7-1:
Ore Stockpile Location Alternatives

Skeena Mining Division - NTS 104B09
British Columbia, Canada

The **in-pit ore stockpile** option would include stockpiling ore within the footprint of the North Pit while actively mining this pit. Open pits are mined from the surface down using a series of step-like benches and haul truck ramps that are developed as the pit depth increases; these benches are required for geotechnical and structural reasons and provide minimal flat areas within the pit for potential ore stockpile locations. The North Pit will be mined in several phases to provide early access to high-grade ore, which means that benches and ramps will change and move over the years of open pit development. With this option, the changing benches and ramps would require the ore stockpile to be rehandled and relocated multiple times during mining. The minimal flat areas within the open pit would also restrict the overall ore stockpile size and limit the ability to segregate ore by grade that would in turn limit the ability to preferentially processing higher-grade first and would the economics of the Project. Water from the ore stockpile would be managed with the contact water that will be collected in the North Pit. In the South Pit, an ore stockpile would not be viable due to the limited pit size that will be mined over a single year; ore from the South Pit would be stockpiled in the North Pit, which would increase material rehandling and hauling.

The **ore stockpile west of MRSA** option would include stockpiling ore west of the MRSA and south of the TMSF Haul Road. This option would require long haul distances from the open pit to the ore stockpile and from the ore stockpile to the Primary Crushing Station. This option would generate additional contact water in the Tom MacKay Creek watershed, require construction of additional water management structures, and require the treatment of additional contact water over the mine life. This option would also reduce the volume of water that could be managed as non-contact water for the Project.

The **no ore stockpile onsite** option would include only the direct feed of ROM ore into the Process Plant with no ore stockpile located at the Project mine site. This option would not allow for the preferential processing of higher-grade ore first, which would reduce the economic viability of the Project. Based on the current mine plan, this option would require either increasing the Process Plant processing capacity to accommodate the current rate of ore production from open pits or reducing the mining rate to match the current throughput capacity of the Process Plant. A larger Process Plant would increase the capital cost, reduce the operational length of the Project, and reduce operational employment durations for the Project. A reduced mining rate without preferential high-grade ore processing would decrease Project revenues and the return on investment that would be required to support ongoing operational costs.

A **screening-level assessment** for the Project ore stockpile location was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-6.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for the ore stockpile location for the Project was **ore stockpile near the Primary Crushing Station**. This location limits the amount of material rehandling and hauling and reduces the potential for additional contact water that would require management and treatment for the Project.

Table 1.7-6: Alternatives Assessment for Ore Stockpile Location

Assessment Category	Subcategory or Criteria	Alternative Options			
		Ore Stockpile near Primary Crushing Station	In-Pit Ore Stockpile	Ore Stockpile West of MRSA	No Ore Stockpile Onsite
Tahltan Requirements	Health of the land and water	Moderate	TCG feedback not received for this option	High	Lower
	Tahltan relationship and connections	Moderate		High	Moderate
	Tahltan way of life	Moderate		High	Moderate
	Reclamation or Restoration to support Tahltan way of life	Moderate		High	Moderate
Environmental	Greenhouse gas emissions	Low emissions due to minimal additional hauling requirements	Low emissions due to minimal additional hauling requirements	Highest emissions due to highest additional hauling requirements	Lowest emissions due to negligible additional hauling requirements
	Potential interaction with watercourses	Low potential for interaction with watercourses	Low potential for interaction with watercourses	High potential for interaction with multiple watercourses	Lowest potential for interaction with watercourses
	Footprint / surface area disturbance	Some additional surface disturbance	No additional surface disturbance	Largest additional surface disturbance	No additional surface disturbance
	Potential wildlife interactions	Limited potential for wildlife interactions due to minimal additional haul distance	Limited potential for wildlife interactions due to minimal additional haul distance	Highest potential for wildlife interactions due to additional haul distance	Lowest potential for wildlife interactions due to no additional haul distance
Technical	Capacity	Sufficient capacity	Insufficient capacity due to space limitations	Sufficient capacity	Not applicable
	Material haul distance	Low additional haul distance	Low additional haul distance	Longest additional hauling distance	No additional haul distance
	Operational complexity	Low complexity	Highest complexity due to multiple stockpile locations over Operations Phase and limited access for some bench development	Some additional complexity due to ore hauling interactions with waste rock hauling for a longer length of road	Low complexity
	Operations duration	Longer Operations Phase	Longer Operations Phase	Longer Operations Phase	Shortest Operations Phase
Economic	Capital costs	Limited costs due to pad construction	Limited to no capital costs as dedicated pad not required	High costs due to due to pad construction and additional water management structures	Highest costs as Process Plant would need to be increased to manage this direct feed option
	Operating costs	Lowest operating costs	High operating costs due to increased in-pit logistics due to space limitations	Highest operating costs due to haul distance	Limited operating costs
	Economic viability	High opportunity to prioritize high-grade material to support consistent revenue stream	Limited opportunity to prioritize high-grade material to support consistent revenue stream due to stockpile size limitations and limited access to all benches for development	High opportunity to prioritize high-grade material to support consistent revenue stream	Limited opportunity to prioritize high-grade material to sustain consistent revenue stream
Social	Employment opportunities	Longest employment duration	Longest employment duration	Longest employment duration	Shortest employment duration
	Worker safety	Minimal risk to worker safety	Highest risk to workers due to increased traffic within pits and close working proximity to higher ore stockpile from space limitations	Minimal risk to worker safety	Minimal risk to worker safety
Overall		**More Preferred**	**Not Feasible[1]**	**Neutral**	**Less Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Notes:

MRSA = Mine Rock Storage Area; TCG = Tahltan Central Government;

[1] This alternative option was acknowledged as not feasible by TCG for technical and/or economic reasons, however this alternative option is included in the alternatives assessment for completeness.

1.7.5.4 Concentrate Transportation Method

During Operations, the Project will generate an annual average of 130,000 dmt of gold-silver concentrate that will be shipped to an overseas smelter for additional processing (Section 1.4.3.2, Concentrate Shipping). For all alternative options, concentrate will be transported and stored in approved containers that could include tarped bulk hauling, bulk bags, lined shipping containers, or rotainers (i.e., specialized shipping container that is rotated to be emptied). The following concentrate transportation methods were considered for the Project:

- Railway;
- Truck to Prince Rupert; and
- Truck to District of Stewart.

The **railway** option would include either the use of existing railway lines or construction and use of new railway lines to transport concentrate to a port facility for shipping overseas. The closest existing railway line to the Project mine site is near Kitwanga, BC, which is approximately 360 km by road; bulk concentrate would be transported by haul truck to this existing railway line and then loaded into railway cars and freighted to a port facility with rail access for shipping offshore. Destination port facilities could be located in southern BC (e.g., Vancouver) or in Prince Rupert An average of approximately 2,700 cargo vessels call to ports in Vancouver each year and an average of approximately 450 cargo vessels call to ports in Prince Rupert each year (Clear Seas 2020). To ship concentrate without the use of the haul trucks, a new railway line would be constructed from the Project mine site to Kitwanga. Additional permits would be required for the construction of a new railway line.

The **truck to Prince Rupert** option would include using haul trucks to transport concentrate from the Project mine site approximately 600 km by road to port facilities in the city of Prince Rupert for shipping overseas. Concentrate would be transported by haul truck to port facilities in Prince Rupert for temporary storage and loading onto seagoing vessels. An average of approximately 450 cargo vessels call to ports in Prince Rupert each year (Clear Seas 2020).

The **truck to District of Stewart** option would include using haul trucks to transport concentrate from the Project mine site approximately 260 km by road to port facilities in the District of Stewart for shipping overseas. Concentrate would be transported by haul truck to port facilities in the District of Stewart for temporary storage and loading onto seagoing vessels. An average of approximately 30 cargo vessels call to ports in the District of Stewart each year (Clear Seas 2020).

A **screening-level assessment** for the Project concentrate transportation method was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-7.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for concentrate transportation method for the Project was **Truck to District of Stewart**. This option provides the shortest haul distance and the lowest risk of potential wildlife interactions without the requirement to construction and permit of additional infrastructure (e.g., railway line). This option also provides shipping destination flexibility from the multiple port facilities in the District of Stewart).

Table 1.7-7: Alternatives Assessment for Concentrate Transportation Method

Assessment Category	Subcategory or Criteria	Alternative Options		
		Railway	Truck to Prince Rupert	Truck to District of Stewart
Tahltan Requirements	Health of the land and water	High – new disturbance, long-term linear corridor	Moderate – with emissions, dust, wildlife mortalities	Moderate – with emissions, dust, wildlife mortalities
	Tahltan relationship and connections	High – new disturbance, long-term linear corridor	Moderate – access components being a barrier and remaining post closure	Moderate – access components being a barrier and remaining post closure
	Tahltan way of life	High – new disturbance, long-term linear corridor	Moderate – access components being a barrier, quiet enjoyment of land, Tahltan land uses and remaining post closure	Moderate – access components being a barrier, quiet enjoyment of land, Tahltan land uses and remaining post closure
	Reclamation or Restoration to support Tahltan way of life	High – new disturbance, long-term linear corridor	Moderate – access components being a barrier and remaining post closure	Moderate – access components being a barrier and remaining post closure
Environmental	Greenhouse gas emissions	High emissions associated with longer overland concentrate transport route (360 km one way)	Highest emissions associated with longer overland concentrate transport route (600 km one way)	Lowest emissions associated with shortest possible overland concentrate transport route (260 km one way)
	Footprint / surface area disturbance	Substantial increase to Project Footprint	No increase to Project Footprint	No increase to Project Footprint
	Potential wildlife interactions	Highest potential interactions	Potential interactions with wildlife along longer trucking route	Lowest potential interactions due to shorter haulage route
	Increased potential interactions with marine environment	Moderate increase in annual marine traffic[1]	Moderate increase in annual marine traffic	Highest increase in annual marine traffic
Technical	Available infrastructure	No nearby railway lines; the nearest active rail line passed through Kitwanga, which is a substantially farther distance than Stewart	Some potential for minimal capital infrastructure required; however, information not readily available to confirm	Little to no capital infrastructure upgrades required. If bulk storage method is selected, then an enclosed concentrate storage shed (16,000 t capacity may be required). If rotainers are selected, then a covered roof structure to keep snow off stored/stacked rotainers may be required.
	Construction complexity	Most complex required to build a railway line and the required infrastructure to load and unload concentrate onto rail cars from site would be a major undertaking with significant operational considerations	No changes to offsite infrastructure required	Potential requirement for concentrate storage area at port facility
	Closure complexity	Significant complex closure effort would be required to reclaim railway line	No added closure complexity	No added closure complexity
Economic	Capital costs – transport	Substantial increase to capital costs; Project would not remain economically viable	No substantial additional capital costs	Potential for minor additional capital costs
	Operating costs – trucking	Assuming no rail infrastructure changes, concentrate would need to be trucked to Kitwanga (higher overland operating cost). From this point, it would need to be transported via railway line to a port. Overall operating cost would be significantly higher	Highest costs associated with long overland transport route. From Prince Rupert, ocean freight charges would be equal to or comparable to shipping from Stewart, resulting in significantly higher overall concentrate transport costs.	Lowest overland concentrate transport costs and lowest overall concentrate transport costs
	Operating costs – ocean freight	Similar costs	Similar costs	Similar costs
Social	Community Interactions	Less traffic through Stewart, though increased traffic through Gitanyow and Cranberry Junction	Less traffic through Stewart, though higher overall traffic along entire route from Meziadin to Prince Rupert	Increased traffic near/in Stewart
Overall		**Less Preferred**	**Neutral**	**More Preferred**

Legend:

	More Preferred
	Neutral
	Less Preferred

Notes:

km = kilometre; t = tonne

[1] *This alternative option considered port facilities in both southern BC and Prince Rupert. The moderate rating conservatively reflects the increase in marine traffic associated with Prince Rupert as opposed to Vancouver, which would be a low increase in marine traffic.*

1.7.5.5 Mine Waste Management

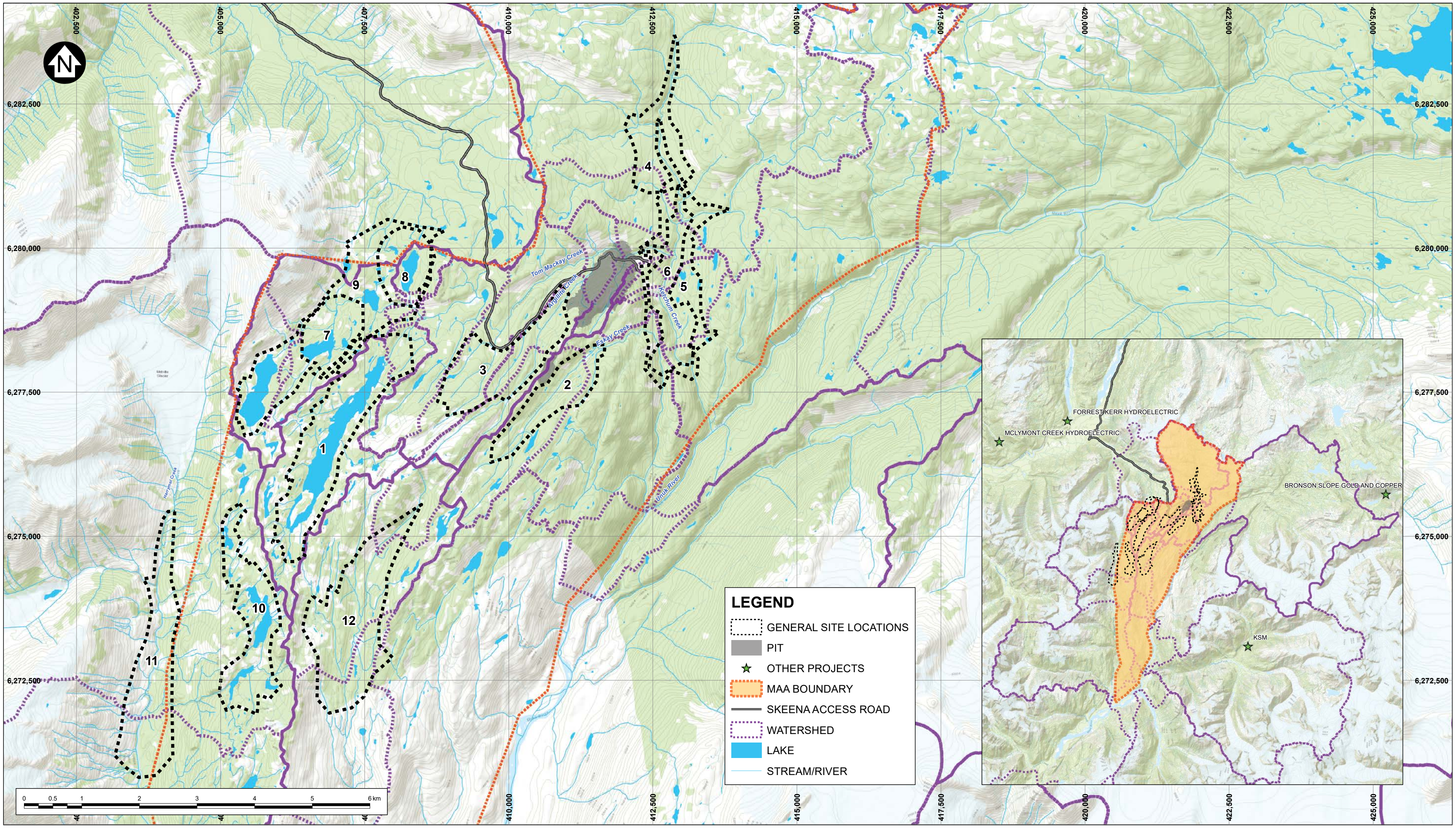
The Project will generate approximately 39 Mt of tailings and approximately 290 Mt of waste rock over the mine life that will require disposal and permanent storage. Of this 290 Mt of waste rock, approximately 160 Mt is PAG waste rock and approximately 130 Mt is NPAG waste rock. The alternatives assessment completed for mine waste considered PAG waste rock management, NPAG waste rock management, tailings management, and disposal technology.

Each of the three mine waste types (i.e., PAG waste rock, NPAG waste rock, tailings) was evaluated separately and in combination (e.g., tailings with waste rock [co-disposal]) to determine the preferred mine waste management alternative, which includes disposal location(s) and technology. Mine waste management alternatives were evaluated in the order of priority for location, with tailings having first priority followed by PAG waste rock and NPAG waste rock. This prioritization was informed by recognizing that tailings typically require the greatest potential consideration for long-term management and have the greatest potential for constraining integrated management approaches when considering other mine waste disposal options.

An **MAA assessment** was conducted to evaluate mine waste management options for the Project in recognition of the importance of an integrated waste management approach. The MAA included the following steps (Appendix 1-10, Mine Waste Management Alternatives Assessment Report for the Eskay Creek Revitalization Project):

- Identification of alternative options for:
  - mine waste disposal location (i.e., PAG waste rock, NPAG waste rock, tailings); and
  - mine waste disposal technologies;
- Pre-screening of alternative options against Project-specific evaluation criteria;
- Using an MAA approach for the remaining options following pre-screening, where each alternative includes mine waste location(s) and disposal technology.

The **identification of alternative options** for mine waste disposal location was performed to generate an initial list of locations for consideration at the Project site. These options were based on professional judgment of subject matter experts in consideration of the location and environmental setting of the Project as well as footprint availability, closure objectives, and other factors. The initial list of mine waste disposal locations identified 12 alternative options, noting that some locations could accommodate only some mine waste types while others could accommodate all three mine waste types. These 12 mine waste disposal locations are summarized in Table 1.7-8 and shown on Figure 1.7-2, and additional details are provided in Appendix 1-10, Mine Waste Management Alternatives Assessment Report for the Eskay Creek Revitalization Project.



Source: Knight Piésold (2024).

NOTES:

1. BASE MAP: ESRI WORLD TOPOGRAPHIC.
2. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 9N.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:31,000 FOR 22x34 (ANSI "D" SIZE) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS ORPRINTED PAPER SIZE.

Figure 1.7-2: Mine Waste Management Initial Location Alternatives

Table 1.7-8: Initial List of Mine Waste Management Disposal Locations

Mine Waste Disposal Location Description	Location Number[1]
TMSF	1
South of Pit	2
Southwest of Pit	3
Upper Ketchum Creek	4
Lower Ketchum Creek	5
Upper and Lower Ketchum Creek	6
East of Little Tom McKay Lake	7
ASF	8
Little Tom MacKay Lake / ASF	9
East of Harrymel Creek	10
Harrymel Creek	11
Coulter Creek	12

Notes:
ASF = Albino Storage Facility; TMSF = Tom MacKay Storage Facility
[1] Location number as shown on Figure 1.7-2.

The **identification of alternative options** for mine waste disposal technologies generated an initial list of tailings and waste rock disposal options for consideration at the Project site. These options were based on professional judgment of subject matter experts in consideration of the location and environmental setting of the Project as well as storage volume requirements, mining industry precedence, tailings and waste rock transportation requirements, and other factors. The initial list of mine waste disposal technologies identified five alternative concepts (Appendix 1-10, Mine Waste Management Alternatives Assessment Report for the Eskay Creek Revitalization Project):

- Conventional slurry tailings;
- Thickened tailings;
- Paste tailings;
- Filtered tailings; and
- Filtered tailings and PAG waste rock co-disposal.

These disposal technology concepts would generate different ranges of tailings solids content (by weight) with conventional slurry tailings being the lowest (i.e., typically 20% to 40% solids), followed by thickened tailings (i.e., typically 40% to 60% solids), paste tailings (i.e., typically 60% to 75% solids), and filtered tailings (i.e., typically 70% to 80% solids). Slurry, thickened, and paste tailings would be pumpable products that could be transported by pipeline, while filtered tailings would require transport by either conveyor or haul truck, followed by compaction for final placement. This initial list of mine waste disposal technologies also considered the co-disposal of filtered tailings with PAG waste rock.

From the initial **identification of alternative options** for both mine waste disposal location and disposal technologies, multiple combinations of location and technology were considered for tailings and waste rock management at the Project site. The storage of all mine waste types (i.e., tailings, PAG waste rock, and NPAG waste rock) in one location was also considered. Over 400 potential candidates were identified that considered each potential combination of location, technology, and the option to manage tailings and PAG waste rock together or separately (Appendix 1-10, Mine Waste Management Alternatives Assessment Report for the Eskay Creek Revitalization Project).

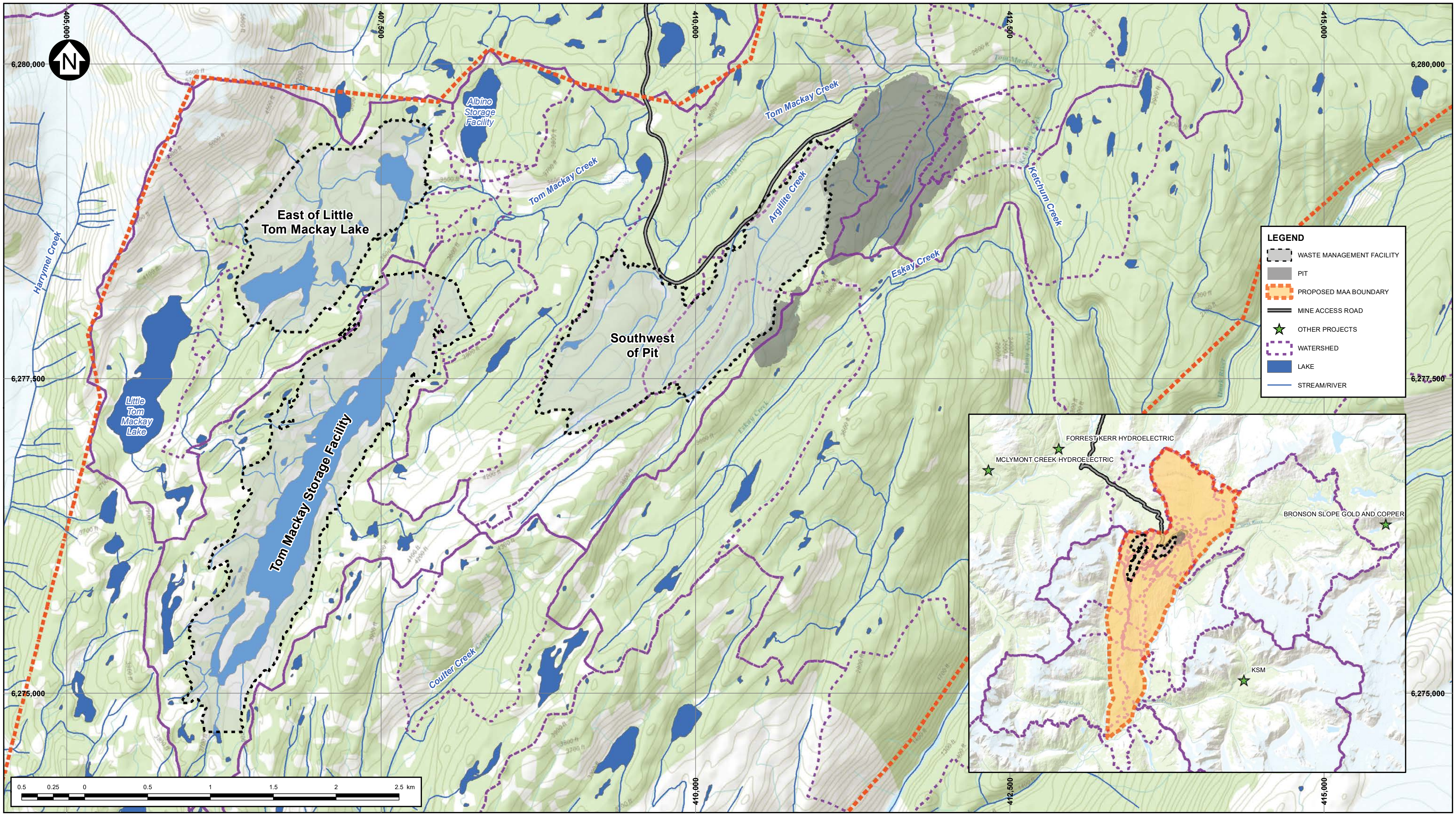
The **pre-screening of alternatives** was completed for the over 400 potential candidates to reduce the number of options for evaluation in the MAA, and included multiple levels of location, technology, and candidate pre-screening. Pre-screening criteria were developed using Project-specific evaluation criteria that were used to carry out a "fatal flaws analysis" of each option. Pre-screening criteria considered technical feasibility, economic feasibility, increased risk to heath and safety, effects to watersheds and fish-bearing waters, as well as other criteria. The majority of the potential candidates were pre-screened out and eliminated from further evaluation. After pre-screening, a total of five alternative options that passed all pre-screening criteria were carried forward to the MAA; these five alternative options are summarized in Table 1.7-9, with the associated locations shown on Figure 1.7-3.

Table 1.7-9: Mine Waste Management Alternative Options Carried into the Multiple Accounts Analysis

Alternative Option	Disposal Technology	Tailings and PAG Waste Rock Disposal Method	Tailings Location	PAG Waste Rock Location	NPAG Waste Rock Location
Option A	Filtered tailings	Co-disposal	Southwest of Pit[1]		East of Little Tom MacKay Lake
Option B	Slurry tailings	Co-disposal	TMSF		Southwest of Pit
Option C	Slurry tailings	Co-disposal	TMSF		East of Little Tom MacKay Lake
Option D	Slurry tailings	Separate	TMSF	East of Little Tom MacKay Lake	Southwest of Pit
Option E	Filtered tailings	Co-disposal	East of Little Tom MacKay Lake		Southwest of Pit[1]

Notes:
NPAG = non-potentially acid generating; PAG = potentially acid generating; TMSF = Tom MacKay Storage Facility
[1] This option would include a water management pond in the TMSF.

An **MAA** was conducted for mine waste management alternative options remaining after pre-screening. Similar to the other alternatives assessments, these alternative options were assessed using criteria within Tahltan Requirements, environmental, technical, economic, and socio-cultural categories (termed 'accounts' in Appendix 1-10). The MAA also refined criteria (termed 'sub-accounts' in Appendix 1-10) into smaller categories called indicators. The selection of criteria and indicators focused on the main aspects that differentiate the alternative options and are not intended to be exhaustive. A summary of the assessment categories, and criteria, and indicators used in the mine waste management MAA is provided in Table 1.7-10.



Source: Knight Piésold (2024).

NOTES:

1. BASE MAP: ESRI WORLD TOPOGRAPHIC.
2. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 9N.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:28,591 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

Figure 1.7-3: Mine Waste Management Locations Carried into the Multiple Accounts Analysis

Table 1.7-10: Mine Waste Management Assessment Categories, Criteria, and Indicators

Assessment Category	Criteria	Indicator
Tahltan Requirements	Health, Relationship, and Connection to the Land and Water	Health of the land and water
		Permanent loss of outflowing stream habitat during Construction, Operations, and Closure
		Tahltan relationship and connections
	Tahltan Way of Life	Habitat for species of conservation concern
		Loss of traditional use species
		Tahltan way of life
Environmental	Surface water quality and quantity	Impacts on surface water quality (for protection of aquatic life and for drinking water) in the receiving environment (long-term) - considering an unmitigated scenario (i.e., no treatment)
		Surface erosion leading to increased total suspended solids generation
		Geochemical stability
	Groundwater quality	Ease of seepage capture
		Impacts on groundwater quality
		Magnitude of seepage potential
	Wildlife and Wildlife Habitat	Habitat suitability
		Sensitive wildlife features
	Fish and Aquatic Habitat	Permanent loss of all stream habitat during Construction, Operations, and Closure
		Permanent loss of lake habitat during Construction, Operations, and Closure
	Air Quality	Fugitive dust emissions
	Greenhouse gas	Greenhouse gas emissions
	Vegetation and Ecosystems	Loss of wetland ecosystems
		Loss of sensitive habitats (old forests, riparian areas, alpine/subalpine)
Technical	Precedent	Precedent of tailings technology (globally vs. locally) operating successfully under similar climate and seismic conditions and tailings geochemical properties - dewatering technology only
		Precedent of tailings technology (globally vs. locally) operating successfully under similar climate and seismic conditions and tailings geochemical properties – ML/ARD prevention strategy (operational)
	Expansion Potential	Expansion potential within TMSF footprint (above the DFS design [Sedgman 2024])
	Operational Water Management	Ability to integrate with overall site water management
	Constructability / Operational Issues	Complexity of tailings processing
		Construction / operation complexity of waste facilities
		Tailings distance from Mill (i.e., Process Plant)
		NPAG waste rock deposition distance from pit

Assessment Category	Criteria	Indicator
		PAG waste rock deposition distance from pit
		Elevation of TMSF above Mill (i.e., Process Plant)
	Containment Structure	Containment efficiency
		Height of waste rock stockpile - PAG
		Height of waste rock stockpile - NPAG
Economic	Permitting and Construction Schedule	No or less delay to schedule is preferred; focus on design additions that lead to delay
	Cost	Options with lower Initial Capital Cost are preferred
		Options with lower Operating Cost are preferred
		Options with lower costs to implement full closure and reclamation are preferred
Socio-Cultural	Public and Worker Health and Safety	Worker safety
	Recreational Hunting	Restricted access to recreational hunting (which is performed within the Wildlife Management Unit)
	Commercial Resource Use	Trapline overlap
		Overlap with guide outfitting area
		Overlap with forestry tenures
	Visual Resources	Viewshed - total area that has a view of any portion of the alternative components
	Archaeology and Cultural Heritage	Disturbance to known archaeological site or sites
		Disturbance to historic sites
		Archaeological Impact Assessment level of completion based on area

Notes:

DFS = Definitive Feasibility Study; ML/ARD = metal leaching and acid rock drainage; NPAG = non-potentially acid generating; PAG = potentially acid generating; TMSF = Tom MacKay Storage Facility

A summary of the MAA assessment for mine waste management was conducted using the assessment categories, criteria, and indicators (Table 1.7-10) and as summarized in Table 1.7-11. Additional details, including sensitivity analyses completed as part of this MAA, are provided in Appendix 1-10, Mine Waste Management Alternatives Assessment Report for the Eskay Creek Revitalization Project).

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for mine waste management for the Project was **Option B**. This option includes the co-disposal of conventional slurry tailings and PAG waste rock in the TMSF and the disposal of NPAG waste rock in the area southwest of the North Pit (i.e., the MRSA). **Option B** includes a reduced overall mine waste disposal footprint, reduced effects to watercourses, and a mine waste disposal technology with precedence in the mining industry. In addition, this option includes reduced waste rock hauling distances and will employ relatively low complexity construction methods.

Table 1.7-11: Alternatives Assessment Scoring for Mine Waste Management

Assessment Category	Alternative Options				
	Option A	Option B	Option C	Option D	Option E
Tahltan Requirements	0.6	0.9	1.2	0.6	0.8
Environmental	0.9	1.1	0.9	0.9	0.7
Technical	0.6	0.8	0.8	0.8	0.5
Socio-cultural	0.4	0.4	0.2	0.2	0.4
Economic	0.1	0.6	0.2	0.2	0.1
Final Results	2.8	4.1	3	3	2.5
Overall	**Less Preferred**	**More Preferred**	**Neutral**	**Neutral**	**Less Preferred**

Legend:

More Preferred
Neutral
Less Preferred

1.7.5.6 Potentially Acid Generating Waste Rock Transportation

The Project will produce approximately 160 Mt of PAG waste rock from open pit development that will be permanently stored in the TMSF (Section 1.4.2.3, Tom MacKay Storage Facility). The TMSF is located approximately 4 km southwest of the open pits (Figure 1.4-4) and at higher topographic elevation than the open pits. The open pits are located at approximately 1,026 masl and the TMSF is located at approximately 1,134 masl. This elevation difference between the two end points is approximately 108 m; however, the topography varies in elevation up to approximately 180 m along the length of the route between the open pits and the TMSF. For all alternative options, proper loading and handling would be employed for the transportation of PAG waste rock.

The alternatives assessment was completed in consideration of the volume of waste rock volume, length of the haul distance, and the increase in elevation from the open pits to the TMSF. For all alternative options, PAG waste rock will be placed at the edge of the TMSF and then subaqueously deposited by a fleet of remotely operated bulldozers that will push the material into the TMSF until the northern area of the facility is filled; this PAG waste rock disposal area is approximately 2.4 km long by approximately 0.7 km wide. The following PAG waste rock transportation options were considered for the Project:

- Belt conveyor system;
- Rail conveyor system;
- Hybrid haul truck with trolly assist; and
- Conventional diesel haul truck.

The **belt conveyor system** option would include a stationary conveyor system with a series of continuous covered belts that would transport waste rock to the TMSF. This elevated system would include multiple rollers to rotate the belts using electrically powered motors spaced along the length of the conveyor. The conveyor system would transport PAG waste rock along the belts and temporarily stockpile this material near the TMSF where conventional mining equipment would load, haul, and place material in the

TMSF. This temporary stockpiling would require an additional dedicated laydown area to manage material rehandling before disposal in the facility. The elevated conveyor system and dedicated laydown area would be extended south and adjacent to the TMSF during Operations to allow for efficient material placement over the approximately 2.4 km length of the waste rock disposal area. Haul roads to the TMSF would continue to be required to place PAG waste rock locally and for access to construct the TMSF North Dam and TMSF South Dam with NPAG material.

The **rail conveyor system** option would include a stationary rail system with a set of covered light, wheeled railcars that would transport waste rock to the TMSF. This elevated system would include a series of paired rails to move loaded and unloaded carts between the open pits and the TMSF using electrically powered motors spaced along the length of the conveyor. The rail system would transport PAG waste rock in carts along the conveyor and temporarily stockpile this material near the TMSF where conventional mining equipment would load, haul, and place material in the TMSF. This temporary stockpiling would require an additional dedicated laydown area to manage material rehandling before disposal in the facility. The stationary rail system and dedicated laydown area would be extended south and adjacent to the TMSF during Operations to allow for efficient material placement over the approximately 2.4 km length of the waste rock disposal area. Haul roads to the TMSF would continue to be required to place PAG waste rock locally and for access to construct the TMSF North Dam and TMSF South Dam with NPAG material.

The **hybrid haul truck with trolly assist** option would include transporting PAG waste rock to the TMSF along haul roads using a fleet of 150-ton haul trucks that would be powered by both diesel and electricity. Two spring-loaded trolley poles would be attached to these hybrid haul trucks, and these trolly poles would connect and draw electricity from dual overhead wires suspended from posts stationed along the roadside. The trucks would operate to diesel power in the open pit and TMSF areas to allow for manoeuvrability during the loading and placement of PAG waste rock. The overhead electrical wire and stationary post system would likely be extended south and adjacent to the TMSF during Operations to allow for efficient material placement over the approximately 2.4 km length of the waste rock disposal area.

The **conventional diesel haul truck** option would include hauling PAG waste rock to the TMSF along haul roads using a fleet of conventional diesel-powered 150-ton haul trucks. This option does not require additional infrastructure and will use the haul roads that would be required for access to construct the TMSF North Dam and TMSF South Dam with NPAG material.

A **screening-level assessment** for the Project PAG waste rock transportation was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-12.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for PAG waste rock transportation for the Project was **conventional diesel haul truck**. This option requires no additional infrastructure (e.g., laydowns, conveyors, overhead electrical systems) and does not require electricity from the Project's power supply infrastructure, which could not accommodate the additional electrical load due to supply limitations of existing electrical grid upstream of the Project. Skeena Resources will also continue to explore the potential of the **hybrid haul truck with trolly assist** option through future iterations in Project design and through Indigenous and regulatory engagement. This additional potential alternative would utilize all infrastructure and haul trucks of the **conventional diesel haul truck** option and would be viable if the electrical requirements of this option could be reduced.

Table 1.7-12: Alternatives Assessment for Potentially Acid Generating Waste Rock Transportation

Assessment Category	Subcategory or Criteria	Alternative Options			
		Belt Conveyor System	Rail Conveyor System	Hybrid Haul Truck with Trolly Assist	Conventional Diesel Haul Truck
Tahltan Requirements	Health of the land and water	Lowest effects of options	Lowest effects of options	Highest effects of options – impacts to air, dust, land, and water.	Highest effects of options – impacts to air, dust, land, and water.
	Tahltan relationship and connections	Moderate	Moderate	Lowest with less surface disturbance to restore	Lowest with less surface disturbance to restore
	Tahltan way of life	Moderate – quiet enjoyment of land, Tahltan land uses	Moderate – quiet enjoyment of land, Tahltan land uses	Moderate – quiet enjoyment of land, Tahltan land uses	High – quiet enjoyment of land, Tahltan land uses
	Reclamation or Restoration to support Tahltan way of life	Moderate to High	Moderate to High	Moderate	Moderate
Environmental	Greenhouse gas emissions	Low emissions	Lowest emissions	Medium emissions	Highest emissions
	Surface disturbances	Higher	Highest	Lower	Lower
	Dust	Lowest	Lowest	Higher	Higher
	Closure requirements	More equipment to decommission	More equipment to decommission	Medium, trolly infrastructure to remove	Less equipment to decommission
Technical	Complexity – rehandling	Rehandling of material will be required at the TMSF; insufficient space for this activity and required laydown area	Rehandling of material will be required at the TMSF; insufficient space for this activity and required laydown area	No rehandling at the TMSF required	No rehandling at the TMSF required
	Weather performance effects	Challenging to operate in colder temperatures and periods of high frost accumulation	Challenging to operate in colder temperatures and periods of high frost accumulation	Simpler to operate in colder temperatures and periods of high frost accumulation	Simplest to operate in colder temperatures and periods of high frost accumulation
	Topography	Topography too variable for technology to function efficiently	Topography too variable for technology to function efficiently	No topographic limitations to operate trucks	No topographic limitations to operate trucks
Economic	Capital costs	High	High	Medium	Low
	Operating costs	High due to rehandling required at TMSF	High due to rehandling required at TMSF	Low	Low
	Closure costs	High	High	Low	Low
Social	Worker safety – potential injuries	Higher potential pinch points and belt interactions	Higher potential pinch points and belt interactions	No potential pinch points and belt interactions	No potential pinch points and belt interactions
	Worker safety – rail movement	No potential interaction with railcars and stationary rail system	Potential interaction with railcars and stationary rail system	No potential interaction with railcars and stationary rail system	No potential interaction with railcars and stationary rail system
	Worker safety – risks from increased traffic	Low potential for vehicle-people interactions associated with conveyor system	Low potential for vehicle-people interactions associated with conveyor system	Higher potential for vehicle-people interactions due to additional haul trucks	Higher potential for vehicle-people interactions due to additional haul trucks
	Employment – Operations	Some additional short-term employment to install conveyor systems	Some additional short-term employment to install conveyor systems	Higher employment for duration of Operations	Higher employment for duration of Operations
Overall		**Less Preferred**	**Neutral**	**More Preferred**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Note:

TMSF = Tom MacKay Storage Facility

1.7.5.7 Water Treatment Technology

The Project will require water treatment of contact water during Construction, Operations, and into Post-closure. Water treatment will be installed and operated using a staged modular approach, where the treatment system is expanded as required to meet Project treatment requirements. Table 1.7-13 provides a summary of MWTP expansions and anticipated water treatment rates required for the Project that will expand on the existing water treatment system (i.e., TS WTP) installed as part of the Template Sample (Skeena Resources 2024). All contact water generated by the Project will be treated, if required, until appropriate water quality guidelines or approved discharge limits are met. Active water treatment will continue until no longer required (i.e., closure objectives achieved), at which point the Project will enter Passive Closure (i.e., no active water treatment).

Table 1.7-13: Eskay Creek Revitalization Project – Mine Water Treatment Plant Location and Timeline Summary

Treatment Stage	Water Treatment Start	Maximum Water Treatment Rate	Treatment Purpose
MWTP Stage 1	Year -2	Up to 210 L/s	Treat contact water from the initial development of the North Pit and MRSA catchment areas; this stage continues the use of the existing TS WTP[1].
MWTP Stage 2	Year -1	Up to 800 L/s	Treat contact water from the open pits, MRSA, Process Plant, and TMSF Supernatant Pond, as well as direct precipitation and undiverted runoff from the TMSF catchment area.
MWTP Stage 3	Year 9	Up to 925 L/s	Treat contact water collected in the flooded North Pit from the North Pit catchment, including precipitation, snowmelt, and contact water from pit highwalls, as well as contact water from the MRSA catchment, TMSF Supernatant Pond, and direct precipitation and undiverted runoff from the TMSF catchment area.

Notes:

MRSA = Mine Rock Storage Area; MWTP = Mine Water Treatment Plant; TMSF = Tom MacKay Storage Facility; TS = Technical Sample; WTP = Water Treatment Plant

L/s = litres per second

[1] Referred to as the PSA WTP in the Eskay Creek Technical Sample Project (Skeena Resources 2024).

A **BAT assessment** was conducted to evaluate water treatment technologies for the Project and included the following steps (Appendix 1-11, Water Treatment Best Available Technology Study for the Eskay Creek Revitalization Project):

- Identification of alternative options;
- Pre-screening of alternatives against Project-specific evaluation criteria;
- Using an MAA approach for the remaining options following pre-screening.

The **identification of alternative options** was performed to generate an initial list of water treatment technologies for consideration. These options were based on professional judgment of subject matter experts in consideration of the location and environmental setting of the Project as well as anticipated influent (i.e., pre-treatment) water quality, expected treatment requirements, and effluent water quality targets. The initial list of water treatment technologies identified 16 alternative options that were generally grouped by treatment parameters including metals and acidity (e.g., aluminum, cadmium, copper), nitrogen species (e.g., ammonia, nitrite), selenium, and sulphate. These 16 unique alternative options, which included some overlap in applicable treatment parameters, are summarized in Table 1.7-14 and detailed in Appendix 1-11, Water Treatment Best Available Technology Study for the Eskay Creek Revitalization Project.

The **pre-screening of alternatives** was completed for the 16 alternative options to identify credible technologies that have demonstrated success in treating the anticipated influent treatment parameters. Pre-screening criteria were developed using Project-specific evaluation criteria that were used to carry out a "fatal flaws analysis" of each alternative option. Pre-screening criteria considered technical feasibility, economic feasibility, parameters requiring treatment, as well as other criteria. A total of 3 of the 16 water treatment alternatives options were pre-screened out. Options that did not pass the pre-screening criteria were eliminated from further evaluation, and the remaining 13 options that passed all pre-screening criteria were carried forward to the MAA. A summary of water treatment alternative options that were either pre-screened out or carried forward into the MAA are provided in Table 1.7-14 and are detailed in Appendix 1-11, Water Treatment Best Available Technology Study for the Eskay Creek Revitalization Project.

Table 1.7-14: Water Treatment Alternative Options Pre-screened Out and Carried into the Multiple Accounts Analysis

Treatment Parameters	Water Treatment Technology	Pre-Screened Out vs. MAA
Metals and Acidity	Low-density sludge	MAA
	High-density sludge	MAA
	Enhanced high-density sludge	MAA
	Geotube® treatment	MAA
	In-situ neutralization	MAA
	Landform-scale treatment, including wetlands treatment systems, and bio-chemical reactors	Pre-screened Out
Nitrogen Species	Moving bed bioreactor	MAA
	In-situ denitrification	MAA
	Breakpoint chlorination	MAA
	Landform-scale treatment, including wetlands treatment systems, bio-chemical reactors, and saturated rock fills	Pre-screened Out
Selenium	Moving bed bioreactor	MAA
	Selenium ion exchange (Selen-IX™)	MAA
	Single-use sorbents	MAA
	Landform-scale treatment, including wetlands treatment systems, bio-chemical reactors, and saturated rock fills	Pre-screened Out
Sulphate	Lime neutralization	MAA
	Membrane desaturation	MAA
	Barium process	MAA
	Ettringite processes	Pre-screened Out
	Sulf-IX™	Pre-screened Out

Note:
MAA = multiple accounts analysis

An **MAA** was conducted for water treatment alternative options remaining after pre-screening. Similar to the other alternatives assessments, these alternative options were assessed using assessment categories as defined by the "Best Achievable Technology Assessment Methodology for Mining Projects" (ENV 2024) (termed 'accounts' in Appendix 1-11). These assessment categories, and the associated criteria, are focused on the main aspects that differentiate the alternative options and are not intended to be exhaustive. A summary of the assessment categories, and criteria and associated descriptions used in the water treatment technology MAA is provided in Table 1.7-15.

Table 1.7-15: Water Treatment Technology Assessment Categories, Criteria, and Criteria Descriptions

Assessment Category	Criteria	Criteria Description
Reliability	Risk Assessment	Risk related to likelihood of process failure, system complexity, hazard to workers/environment from process failure
	Robustness	Consistency and reliability of performance under variable conditions, such as higher/lower concentrations of contaminants, changing water quality, flow rate, and influent temperature
	Scalability	Ability to handle increasing flow and contaminant loading, demonstrated ability to treat water at large scale
	Long-term Viability	Ability of the technology to achieve goals over the Project lifespan (i.e., decades), including potential periods of Care and Maintenance
Control Effectiveness	Pollutant Reduction	Ability to remove Constituents of Potential Concern and quality of treated effluent
	Toxicity Reduction	Ability to reduce toxicity of treated effluent and potential for unintended consequences from treatment, such as residual reagent in effluent or phenomena that may increase effluent toxicity.
Cost Effectiveness	Efficient Use of Existing Resources	Ability to use existing infrastructure/resources for treatment
	Lifecycle Cost	Capital and operating cost of the treatment approach, as well as schedule for implementation
Environmental Impacts	Energy Efficiency	Energy consumption of the treatment process, including heating requirements
	Greenhouse Gas Emissions	Greenhouse gas emissions levels based on chemical process, energy consumption, and reagent consumption
	Footprint	Area required for treatment, including area required for ancillary works, such as ponds
	Residue Management	Residue character and ease of residue management, including residue stability

A summary of the MAA assessment for water treatment technology was conducted using the assessment categories and criteria (Table 1.7-15) and as summarized in Table 1.7-16, with alternatives options ranked in order of preference within each treatment parameter type. All treatment alternatives considered in the water treatment MAA could meet environmental protection requirements in terms of water quality and discharges to the receiving environment. As such, the overall rankings between the alternatives were driven by relative differences in capital cost, and long-term operational, management, and monitoring costs, as well as factors associated with operational risk and complexity.

Table 1.7-16: Alternatives Assessment Scoring for Water Treatment Technology

Assessment Category	Alternative Options[1]													
	Metals and Acidity Treatment					Nitrogen Species Treatment			Selenium Treatment			Sulphate Treatment		
	Low-Density Sludge	High-Density Sludge	Enhanced High-Density Sludge	Geotube® Treatment	In-situ Neutralization	Moving Bed Bioreactor	In-situ Denitrification	Breakpoint Chlorination	Moving Bed Bioreactor	Selen-IX™	Single-Use Sorbents	Lime Neutralization	Membrane Desaturation	Barium Process
Reliability	45	65	100	80	50	50	70	85	55	95	85	95	70	90
Control Effectiveness	75	105	175	140	105	155	160	125	105	175	160	35	175	140
Cost Effectiveness	113	91	69	119	119	47	125	75	69	91	91	125	25	75
Environmental Impacts	64	80	80	82	100	49	100	85	49	85	84	100	55	91
Total Score	**297**	**341**	**424**	**421**	**374**	**301**	**455**	**370**	**278**	**446**	**420**	**355**	**325**	**396**
Overall	**Less Preferred**	**Neutral**	**More Preferred**	**More Preferred**	**Neutral**	**Neutral**	**More Preferred**	**Neutral**	**Less Preferred**	**More Preferred**	**Neutral**	**Neutral**	**Neutral**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Note:

[1] Alternatives options are ranked in order of preference within each treatment parameter type (i.e., metals and acidity, nitrogen species, selenium, sulphate).

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternatives for water treatment technology for the Project was **Geotube®** and **enhanced high-density sludge (EHDS)**. High-density sludge is a well-understood and well-established water treatment technology that involves lime neutralization and the recycling of precipitated solids. The **EHDS** technology builds on this high-density sludge process by incorporating sulphide and ferric reagents to improve treatment parameter precipitation as well as polishing filtration to improve treated effluent quality. **Geotube®** technology will be used for solid-liquid separation early in the Project, and as onset of acid rock drainage occurs and levels of metal and acidity in contact water increases, the MWTP will be modified during early Operations to use EHDS clarification and filtration for solid-liquid separation instead of **Geotube®** technology.

Water treatment that extends into Post-closure will continue until appropriate water quality guidelines or approved discharge limits are met. Skeena Resources will further investigate optimizations in water treatment to confirm Post-closure treatment timelines; these optimizations could include additional modelling as well water quality and treatment efficiencies information collected from operational experience.

1.7.5.8 Snow Management

An average of 74% of the mean annual total precipitation (i.e., 2,800 mm) at the Project mine site falls as snow between September and May each year (Chapter 15, Surface Water Effects Assessment). Snow management for the Project assumes that snow in active working areas will be collected, where required, and stored during the winter months to allow for activities at the Project mine site to be completed year-round. Snow will generate water that will melt during the spring and summer months and this water will be managed by the Project’s water management infrastructure or directed away from the Project mine site, where appropriate. Minimizing the volume of water that requires active management is a key element of the Project’s overall water management strategy. To support this strategy, the management of snow and the associated melt water is required during the mine life.

Snow management will be required in the open pits, MRSA (including the ROM Pad), Process Plant area, and haul roads (Section 1.4.2.6, Water Management) and will utilize mobile equipment such as snow blowers, snowplows, loaders, graters, bulldozers, and haul and highway trucks (Section 1.4.5, Project Mobile Equipment). The following snow management methods were considered for the Project:

- Cease work during heavy snowfall;
- Store snow along haul roads;
- Haul snow to TMSF;
- Push snow into creek headwaters;
- Use inactive areas; and
- Combination of options.

The **cease work during heavy snowfall** option would include operating the Process Plant year-around while ceasing Project activities in outdoor working areas (e.g., open pits, TMSF area) for up to a 4-month to 6-month period during heavy snowfall. Snow would accumulate during these winter months and be allowed to melt in situ before activities in outdoor working areas were restarted. To accommodate this seasonal cessation of outdoor work while not reducing Process Plant throughput, mining capacity would be increased during the six to eight months without heavy snowfall in outdoor working areas. This approach would require increased employment for six to eight months of the year and reduced employment during four to six months of the year during heavy snow fall periods. This approach would also require additional mobile equipment to support the increased mining capacity and material placement (e.g., waste rock hauling) during the six to eight active months, and a large portion of the mobile equipment fleet would be unused for the heavy snow period.

The **store snow along haul roads** option would include creating long piles (i.e., windrows) approximately 2 m to 3 m high along haul roads or along open pits and benches that were not actively being mined. This windrowing would occur during winter months and snow would be allowed to naturally melt during the summer months, with water being managed by Project water management infrastructure or directed away from the Project mine site.

The **haul snow to TMSF** option would include collecting, hauling, and piling snow near the TMSF. Snow would be piled within the TMSF catchment area where it would melt into the TMSF Supernatant Pond where water would be treated as required by the MWTP. Snow would also be piled outside of the TMSF catchment area (e.g., west of the TMSF South Dam Haul Road) where it would naturally melt with water being directed away from the Project mine site.

The **push snow into creek headwaters** option would include the collecting, hauling, and piling of snow into creek headwaters where snow would naturally melt during summer months and be directed away from the Project mine site. This option would also include using snowblowers to blow snow from roads and pads into adjacent creek headwaters. Multiple creek headwaters adjacent to haul roads would be utilized such as between Topsoil/Overburden 1 and Topsoil/Overburden 2 (Figure 1.4-4) where piled snow melt into Tom MacKay Creek.

The **use inactive areas** option would include the collecting, hauling, and stockpiling of snow in inactive working areas such as the MRSA, ROM Pad, Primary Crushing Station, and Process Plant areas. An additional dedicated snow management area would also be used for snow storage, which would be located west of the MRSA and south of the TMSF Haul Road; this area would include construction of a sediment control pond to manage melt water prior to this water entering the receiving environment. During snow melt, the Project's water management infrastructure would be used to collect and manage water or would direct water away from Project infrastructure and toward Tom MacKay Creek.

The **combination of options** would include utilizing the three options of **haul snow to TMSF**, **push snow into creek headwaters**, and **use inactive areas**. This option would allow for maximum flexibility of snow management options while reducing haul distances for snow management overall. During snow melt, the Project's water management infrastructure would be used to collect and manage water or would direct water away from the Project mine site.

A **screening-level assessment** for the Project snow management options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-17.

Table 1.7-17: Alternatives Assessment for Snow Management

Assessment Category	Subcategory or Criteria	Alternative Options					
		Cease Work during Heavy Snowfall	Store Snow along Haul Roads	Haul Snow to TMSF	Push Snow into Creek Headwaters	Use Inactive Areas	Combination of Options
Tahltan Requirements	Health of the land and water	TCG feedback not received for this option and subcategory	TCG feedback not received for this option and subcategory	TCG feedback not received for this option	TCG feedback not received for this option	TCG feedback not received for this option	TCG feedback not received for this option
	Tahltan relationship and connections	Neutral	Neutral				
	Tahltan way of life	Neutral	Neutral				
	Reclamation or Restoration to support Tahltan way of life	Neutral	Neutral				
Environmental	Greenhouse gas emissions	Lowest emissions	Low emissions	Highest emissions due to longest haul distance	High emissions due to longest haul distance	Low emissions	Some emissions
	Potential wildlife interactions	Lowest potential risk of wildlife interactions due to reduced site activity for 4 months to 6 months of the year	Lower interactions with wildlife along roads due to snow piles acting as a barrier	Increased potential for interactions with wildlife along haul road to TMSF	Limited increased potential for wildlife interactions	Limited increased potential for wildlife interactions	Some increased potential for interactions with wildlife along haul road to TMSF
Technical	Operational complexity	Lowest complexity – no action	Low complexity	Low complexity	Low complexity	Low complexity	High complexity due to managing snow in multiple locations
	Operational flexibility	No flexibility	Low flexibility	Low flexibility	Low flexibility	Medium level of flexibility	Highest flexibility
	Snow capacity	Not applicable	Not capable of handling total snow volume	Not capable of handling total snow volume	Not capable of handling total snow volume	Capable of handling total snow volume	Capable of handling total snow volume
Economic	Construction costs	Increased capital costs because an oversized mining fleet would be required during active mining months that would be unused for 4 months to 6 months	No dedicated increase in capital cost	No dedicated increase in capital cost	No dedicated increase in capital cost	Minor dedicated increase in capital cost due to construction of sediment control pond in dedicated snow management area	Minor dedicated increase in capital cost due to construction of sediment control pond in dedicated snow management area
	Operating costs – maintenance	No additional maintenance	Additional maintenance costs on roads to reduce snow blowing due to proximity of snow piles to trafficable areas	No additional maintenance	No additional maintenance	No additional maintenance	No additional maintenance
	Operating costs – hauling	No cost associated with hauling slow	Low cost due to hauling snow to close location	Highest cost due to longest haul distance	High cost due to long haul distance	Low cost due to hauling snow to close location	Some costs depending on combination of close and far hauling distances
Social	Employment opportunities	Reduced employment for 4 months to 6 months of the year	Year-round employment	Year-round employment	Year-round employment	Year-round employment	Year-round employment
	Worker safety	Some risk of higher snow loads in some Project areas when staff still active onsite	Higher risk associated with reduced visibility and sight lines of snow piles along road alignment	Low risk	Low risk	Low risk	Low risk
Overall		**Neutral**	**Neutral**	**More Preferred**	**More Preferred**	**More Preferred**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Note:

TCG = Tahltan Central Government; TMSF = Tom MacKay Storage Facility

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for snow management for the Project was **combination of options**. This option provides the most flexibility for snow management, maximizes the use of mobile equipment and multiple locations, reduces the total amount of snow hauling required, and minimizes the volume of contact water that requires management in line with the Project's overall water management strategy.

1.7.5.9 Camp Location

The Project workforce is estimated to include up to 771 workers during Operations (Section 1.6.1, Workforce Estimates). Stewart is the closest population centre to the Project mine site, located approximately 3.5 hours away by road. With the planned 12-hour work shifts, daily commute to the Project mine site would be impractical due to the travel times at both ends of the shift and the large number of bus trips that would be required.

At the start of the Project, workers will be housed in the existing KM58 (approximately 75 person) camp and KM59 (approximately 120 person) camp located at the Project mine site. In early Operations, these two locations can no longer be used due to the development and proximity of the North Pit. As such, additional worker accommodations will be required for Operations, and into Reclamation and Closure. The following camp locations were considered for the Project to accommodate a capacity of 380 beds in single occupancy rooms (Figure 1.7-4):

- Near Process Plant;
- Near Coulter Creek Access Road and TMSF;
- Near KM53.5;
- Near North Spoils area; and
- Existing Forrest Kerr camp.

The **near Process Plant** location would include the construction and use of a new camp located southwest of the Process Plant and within the Tom MacKay watershed. This camp would be located on the Process Plant pad and would not require additional construction of a dedicated camp pad. This location would be the closest location to active mining, crushing, and processing areas, and would have the highest noise and disturbance levels for workers. The daily commute for most employees to work locations would either be very small driving distances (e.g., <500 m) or would be achieved by a short walk. This location, which was included in the 2022 Feasibility Study (Ausenco 2022), included a lower bedspace capacity than is currently required by the Project mine plan. This location would have limited expansion potential given the proximity of the Process Plant and associated ancillary infrastructure; as such, this location could not be used independently to meet the Project's accommodation requirements.

The **near Coulter Creek Access Road and TMSF** location would include the use of an existing camp located east of the TMSF and within the Tom MacKay watershed. This camp would be developed in advance of the Project to support current site activities and would not require additional construction of a dedicated camp pad. This camp may be expanded as part of the Project to a full capacity of 380 beds, if required. This location would be farther away from active mining, crushing, and processing areas, and would have minimal noise and disturbance levels for workers associated with the Process Plant area. This camp would be within approximately 1 km of haul roads. The daily commute for employees to work locations would be small driving distances (e.g., approximately 2 km). This location would include sufficient bedspace capacity based on the Project mine plan to meet the Project's accommodation requirements.

The **near KM53.5** location would include the construction and use of a new camp located adjacent to KM53.5 along the Eskay Creek MAR and within the Tom MacKay watershed. A camp pad would also be constructed because there is no existing pad at this location. This location would have high noise and disturbance levels for workers as it would be located adjacent to the Eskay Creek MAR and the haul truck traffic along this route. The daily commute for employees to work locations would be small driving distances (e.g., approximately 2 km). The bedspace capacity at this location may not meet the requirements of the current mine plan as the area is bordered by wetlands and steep slopes; as such, this location could not be used independently to meet the Project's accommodation requirements.

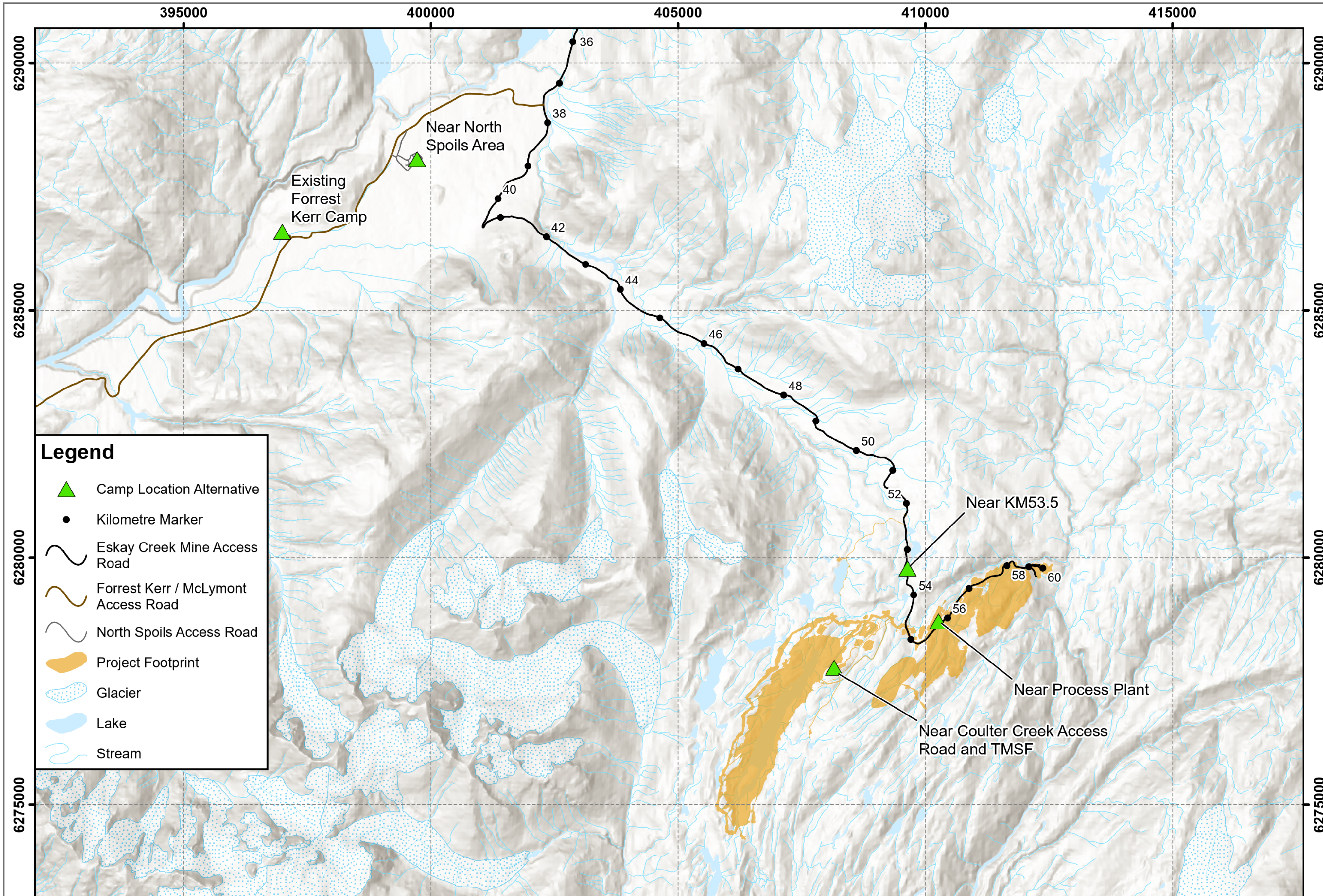
The **near North Spoils area** location would include the construction and use of a new camp located near KM37 along the Eskay Creek MAR and outside of the Tom MacKay watershed. A camp pad would also be constructed as there is no existing pad at this location. This location would have lower noise and disturbance levels for workers as it would be located approximately 2 km away from the Eskay Creek MAR and associated haul truck traffic. The daily commute for employees to work locations would be larger driving distances (i.e., approximately 20 km). The bedspace capacity at this existing camp would not meet the requirements of the current mine plan and would have limited potential for expansion; as such, this location could not be used independently to meet the Project's accommodation requirements.

The **existing Forrest Kerr camp** location would include the use of an existing camp located west of the North Spoils Camp near KM37 along the Eskay Creek MAR and outside of the Tom MacKay watershed. This existing camp and pad are owned and operated by Coast Mountain Hydro Services. This location would have lower noise and disturbance levels for workers as it would be located approximately 4 km away from the Eskay Creek MAR and associated haul truck traffic. The daily commute for employees to work locations would be larger driving distances (i.e., approximately 22 km). The bedspace capacity at this existing camp would not meet the requirements of the current mine plan, and while there is sufficient pad space to expand the existing facility, the development and use of additional infrastructure require additional agreements with Coast Mountain Hydro Services. As such, this location could not be used independently to meet the Project's accommodation requirements.

A **screening-level assessment** for the camp location was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-18.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for camp location for the Project was **near Coulter Creek Access Road and TMSF**. This location is located within the Tom MacKay watershed and balances a small daily commute for workers to their work locations and minimizes noise and disturbance levels for employees by being accommodated farther away from active mining, crushing, and processing areas. The **near Coulter Creek Access Road and TMSF** location also has sufficient bedspace capacity to independently meet the Project's accommodation requirements. While the **near Process Plant** location was also ranked highly, this location has insufficient bedspace capacity and could not independently support the Project during Operations unless used in conjunction with other camp locations.



Skeena Resources Ltd.
Date: 10-Dec-2024
Figure: 1.7-2 Rev: C
Author: Skeena GIS
Filename: 241205_EC_rEAFiguresPD

Eskay Creek Revitalization

Figure 1.7-4:
Camp Location Alternatives

Skeena Mining Division - NTS 104B09
British Columbia, Canada

Scale: 1:100,000
Coord. System: NAD 1983 UTM Zone 9N
0 1 2 3 4
Kilometers
N

Table 1.7-18: Alternatives Assessment for Camp Location

Assessment Category	Subcategory or Criteria	Alternative Options				
		Near Process Plant	Near Coulter Creek Access Road and TMSF	Near KM53.5	Near North Spoils Area	Existing Forrest Kerr Camp
Tahltan Requirements	Health of the land and water	If footprint minimized, then lower	If footprint minimized, then lower	Moderate with increased surface disturbance	Higher with travel, surface disturbance	Higher with travel, surface disturbance
	Tahltan relationship and connections	Moderate to High with quiet enjoyment of land, and as a barrier	If footprint minimized, then lower	Moderate to High with increased surface disturbance, quiet enjoyment of the land impacts	Moderate with increased surface disturbance, quiet enjoyment of the land impacts	Moderate with increased surface disturbance, quiet enjoyment of the land impacts
	Tahltan way of life	If access to land and land uses then low, if a barrier then moderate	If access to land and land uses then low, if a barrier then moderate	If access to land and land uses then low, if a barrier then moderate	Increased barriers to Tahltan from larger footprint, access, etc.	Increased barriers to Tahltan from larger footprint, access, etc.
	Reclamation or Restoration to support Tahltan way of life	Lower	Lower	Moderate	Moderate	Moderate
Environmental	Air quality	Lowest potential for air quality concerns due to onsite camp location	Low potential for air quality concerns due to short transportation commute	Low potential for air quality concerns due to short transportation commute	Highest potential for air quality concerns due to farthest transportation distances from site	Highest potential for air quality concerns due to farthest transportation distances from site
	Watershed considerations	Inside Tom MacKay watershed	Inside Tom MacKay watershed	Inside Tom MacKay watershed	Outside Tom MacKay watershed	Outside Tom MacKay watershed
	Greenhouse gas emissions	Lowest emissions due to onsite camp location	Low emissions due to short transportation commute	Low emissions due to short transportation commute	Highest emissions due to farthest transportation distances from site	Highest emissions due to farthest transportation distances from site
	Location inside the existing PMA (Permit M-197)	Yes	Yes	Yes	No	No
Technical	Distance to site	Closest to site	Close to site – within 2 km of Process Plant by road	Close to site – within 2 km of Process Plant by road	Furthest from site	Furthest from site
	Capacity and expansion potential	Insufficient capacity for current mine plan	High capacity	Limited capacity – potential location bordered by wetlands and steep slopes	High capacity	High capacity, however additional area use agreements would be required with the current owner, Coast Mountain Hydro Services
Economic	Construction costs	Some costs due to camp construction, however pad construction not required	Highest costs due to camp and pad construction	Highest costs due to camp and pad construction	Highest costs due to camp and pad construction	Lowest due to some potential upgrades required
	Operating costs	Minimal bus transport costs	Low bus transport costs	Low bus transport costs	High bus transport costs	Highest bus transport costs
Social	Human health – commute considerations	Shortest commute for workers	Short commute for workers for workers	Short commute for workers for workers	Longest commute for workers	Longest commute for workers
	Worker safety	Highest interaction light and heavy vehicle traffic interacting	Low interaction with heavy vehicle traffic	No interaction heavy vehicle traffic	No interaction heavy vehicle traffic	No interaction heavy vehicle traffic
	Air quality considerations for workers	Highest potential for air quality concerns due to proximity to Process Plant and haul traffic	High potential for air quality concerns as location is away from active mine production and within 1 km of haul roads	High potential for air quality concerns due to proximity to Eskay Creek MAR	Lowest potential for air quality concerns as location is away from active mine production and at least 2 km away from haul roads	Lowest potential for air quality concerns as location is away from active mine production and at least 2 km away from haul roads
	Noise disturbance for workers	Highest level of noise due to proximity to Process Plant and haul traffic	Low to moderate level noise as location is away from active mine production and within 1 km of haul roads	High level of noise due to proximity to Eskay Creek MAR	Lowest level noise as location is away from active mine production and at least 2 km away from haul roads	Lowest level noise as location is away from active mine production and at least 2 km away from haul roads
Overall		**More Preferred**	**More Preferred**	**Less Preferred**	**Neutral**	**Neutral**

Legend:

More Preferred
Neutral
Less Preferred

Notes:
Eskay Creek MAR = Eskay Creek Mine Access Road; PMA = Permitted Mine Area
km = kilometre; KM = MAR kilometre marker

1.7.5.10 Overburden and Topsoil Management

Overburden and topsoil will be generated from the development of open pits and from the stripping of infrastructure pads and foundations at the Project mine site. Overburden and topsoil materials are not geotechnically suitable for use as a construction material; however, these materials are suitable to support reclamation activities. To use overburden and topsoil for progressive reclamation and closure purposes, material would be stockpiled for use later in the mine life. The following overburden and topsoil management options were considered for the Project:

- Store in windrows along haul roads;
- Designated stockpiles onsite;
- Co-disposal with waste rock;
- No designated stockpiles onsite.

The **store in windrows along haul roads** option would include the creation of long piles (i.e., windrows) approximately 3 m to 4 m high along road alignments during stripping of haul roads at the Project mine site. These windrows would be setback approximately 2 m from road edges or construction area pads as well as setback approximately 30 m from wetlands to allow for unobstructed construction and reduce sediment runoff potential into waterways. Windrows would be hydroseeded with a natural seed mix to reduce the potential for invasive plant species to establish, and these windrows would develop into tl'oyh (grass) land during Operations. Materials would be removed from windrows during closure activities and the pre-seeded materials would be placed on haul roads or other adjacent reclamation areas. Hydroseeding would also support moisture retention in the windrows and reduce dust generation.

The **designated stockpiles onsite** option would include the collection of overburden and topsoil materials during stripping activities across the Project mine site and storage of these materials in designated stockpiles that would be located adjacent to haul roads. This option would include the separate stockpiling and management of overburden and topsoil materials, as well as construction of dedicated water management structures to support sediment and erosion control measures. Materials would be removed from stockpiles during progressive reclamation and closure activities and placed in reclamation areas across the Project mine site.

The **co-disposal with waste rock** option would include the permanent disposal of overburden and topsoil materials with NPAG waste rock in the MRSA or with PAG waste rock in the TMSF. Water from these materials would be managed by the MRSA and TMSF water management infrastructure. This option would not allow the use of overburden and topsoil materials for reclamation activities as these materials would be buried and intermixed with waste rock.

The **no designated stockpiles onsite** option would include the collection of overburden and topsoil materials during stripping activities at the Project mine site and transportation of these materials offsite. Dedicated haul trucks would be used to transport overburden and topsoil materials, and no dedicated water management structures would be required onsite. This option would not allow the use of overburden and topsoil materials for reclamation activities as these materials would no longer be located at the Project mine site.

A **screening-level assessment** for the overburden and topsoil management options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-19.

Table 1.7-19: Alternatives Assessment for Overburden and Topsoil Management

Assessment Category	Subcategory or Criteria	Alternative Options			
		Store in Windrows along Haul Roads	Designated Stockpiles Onsite	Co-disposal with Waste Rock	No Designated Stockpiles Onsite
Tahltan Requirements	Health of the land and water	Low if combination of stockpiles and windrows are considered to achieve maximum benefits Lower if a stand-alone approach	Low if combination of stockpiles and windrows are considered to achieve maximum benefits Lower if a stand-alone approach	Moderate to High	Moderate to High
	Tahltan relationship and connections	Short term – low to moderate, long-term low	Short term – low to moderate, long-term low	Moderate to High	Moderate to High
	Tahltan way of life	Low	Low	Moderate to High	Moderate to High
	Reclamation or Restoration to support Tahltan way of life	Low	Low	Moderate to High	Moderate to High
Environmental	Footprint / surface area disturbance	No additional dedicated footprint	Dedicated additional footprint	No additional dedicated footprint	No additional dedicated footprint
	Availability for reclamation use	Yes	Yes	No	No unless brought in from outside the PMA
	Air quality	Lowest air quality emissions from material hauling	Lower air quality emissions from material hauling	Higher air quality emissions from material hauling to single location	Highest air quality emissions from material hauling to and from offsite location
	Water quality – runoff	Acts as a natural water absorber and provide some erosion and sediment control	Water management structure to provide some erosion and sediment control	Not applicable because current water management structures of the TMSF and MRSA will manage water	Not applicable because material hauled offsite
	Regulatory precedent/preference	Preferred as topsoil is typically used for reclamation	Preferred as topsoil is typically used for reclamation	Not preferred as topsoil is typically used for reclamation	Not preferred as topsoil is typically used for reclamation
Technical	Operational complexity	Lowest operational management costs as material will be stored proximal to source location	Materials and stockpile capacity will require management by material type	Reduced material segregation management by type (e.g., waste rock, overburden)	Additional coordination to manage material hauling offsite
	Structural suitability	Keeps materials with different geotechnical properties segregated so appropriate design criteria can be used	Keeps materials with different geotechnical properties segregated so appropriate design criteria can be used	Reduced geotechnical stability due to inherent material weakness	Not applicable because no stockpiles onsite
	Material testing capability and tracking capability	Highest ease of tracking material, including location to and from and topsoil quality	High ease of tracking material, including location to and from and topsoil quality	No ability to track materials	Not applicable because no stockpiles onsite
	Progressive reclamation potential	Less options for progressive reclamation	Highest progressive reclamation potential due to dedicated stockpiles in central locations	Material not available for progressive reclamation because it is intermixed with waste rock and cannot be recovered	Material not for available for progressive reclamation because it has been hauled offsite
Economic	Construction costs – water management	No dedicated water management structures required	Dedicated water management structures required in some locations	No dedicated water management structures required	No dedicated water management structures required
	Operating costs	Lowest costs because material will be stored closest to source location	Lower costs because material will be piled across Project mine site	Higher capital costs because material will be centralized in a single location	Highest costs for offsite transportation
	Closure costs – reclamation use	Lowest costs because material is closest to final use location	Lower costs because material will be piled across Project mine site	Highest cost because material would have to be imported from offsite location	Highest cost because material would have to be imported from offsite location
	Closure costs – water management structures	No additional cost to remove water management structures	Additional costs to remove dedicated water management structures	No additional cost to remove water management structures	No additional cost to remove water management structures
	Closure bonding	Most favourable because cost to reclaim is the lowest	Favourable because cost to reclaim is the lower	No material available	Highest closure cost to import material
Social	Footprint and/or change in land use	Material available to support returning land use planning	Material available to support returning land use planning	Material not available to support returning land use planning	Material not available to support returning land use planning
	Employment opportunities	Some potential for ongoing additional employment for progressive reclamation	Some potential for ongoing additional employment for progressive reclamation	Some potential from contracting employment for hauling materials to site	Some potential from contracting employment for moving material offsite and hauling reclamation materials to site
	Dust exposure	Lowest risk of piles drying out and dust generation	Some risk of piles drying out and dust generation	Not applicable because there is no stockpile	Not applicable because there is no stockpile
Overall		**More Preferred**	**More Preferred**	**Neutral**	**Less Preferred**

Legend: *More Preferred* | *Neutral* | *Less Preferred*

Notes:

TMSF = Tom MacKay Storage Facility; MRSA = Mine Rock Storage Area; PMA = Permitted Mine Area

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternatives for overburden and topsoil management for the Project were **store in windrows along haul roads** and **designated stockpiles onsite**. These two options allow for the segregation of overburden and topsoil materials, maximize opportunities for progressive reclamation, support closure activities during Reclamation and Closure, and allow for flexibility in material management.

1.7.5.11 Rock Quarry Source

The Project will require several types of quarry materials for construction of Project infrastructure. The majority of quarry material will be NPAG waste rock sourced from open pits; however, Skeena Resources has identified that some offsite quarry or borrow material may be required to meet precise material specifications for construction that are potentially not producible or available at the Project mine site. Some construction materials will be required to meet specific geotechnical requirements (e.g., grain shape, grain size distribution) to construct filter and transition layers in the TMSF North Dam and TMSF South Dam that may not be producible through the crushing and screening of NPAG waste rock. Some construction materials will be required to meet specific geochemical requirements to construct key culvert crossings at in some areas; additional information is provided in the Metal Leaching and Acid Rock Drainage Management Plan (Appendix A-1, Summary of Management Plans and Mitigation Measures).

While the Project will maximize the use of NPAG materials from open pits to the extent practicable, an alternatives assessment was completed to consider options for potentially sourcing these specific construction materials as a contingency should specific materials not be producible or available at the Project mine site. The following rock quarry source options for specific construction materials were considered for the Project:

- Onsite NPAG quarries within open pits;
- Quarries along the Eskay Creek MAR; and
- Combination of options.

The **onsite NPAG quarries within open pits** option would include utilizing the NPAG waste rock from Quarry 1 and Quarry 2 (Figure 1.4-1) identified in the Technical Sample (Skeena Resources 2024); these two quarries lie within the ultimate footprint of the North Pit (Figure 1.4-4). As development of the North Pit progressed, the area available to provide NPAG waste rock for use by the Project would increase. The NPAG waste rock would be drilled, blasted, loaded, and hauled from these onsite quarries to other areas of the Project mine site. No additional permits would be required to use these onsite NPAG quarries.

The **offsite quarries inside PMA** option would include utilizing three existing quarries located along the Eskay Creek MAR outlined below. Additional offsite quarries may be identified during continued Project development and Skeena Resources would complete any additional permits or use agreements where required:

- KM2 Quarry – an existing quarry located near KM2 of the Eskay Creek MAR that is operated by Rock Ranger Inc. The KM2 Quarry material would be drilled, blasted, loaded, and hauled approximately 50 km from this quarry to the Project mine site. This quarry may require additional permits, noting that Skeena Resources holds a Licence of Occupation for use of the KM2 Quarry material.

- KM32 Quarry – an existing quarry located near KM32 of the Eskay Creek MAR that is owned and operated by Coast Mountain Hydro Services and is currently permitted for the excavation of sand and gravel. The KM32 Quarry would provide fine granular material (e.g., sand, gravel) and is typically operated between November and March each year. Materials would be loaded and hauled approximately 20 km from this quarry to the Project mine site. Skeena Resources has an agreement in place for use of this material, and no additional permits would be required to use the KM32 Quarry.
- KM43 Quarry – an existing quarry located near KM43 of the Eskay Creek MAR that is owned and operated by Tahltan Nation Development Corporation. The KM43 Quarry includes existing aggregate piles as well as in-situ rock; material would be drilled and blasted (as required), loaded, and hauled approximately 10 km from this quarry to the Project mine site. This quarry would require an additional permit for use of the material, noting that permitting discussions are currently in progress with Tahltan Nation Development Corporation.

The **combination of options** would include utilizing the two options of **onsite NPAG quarries within open pits**, and **quarries along the Eskay Creek MAR**. Materials would either be drilled, blasted, loaded, and hauled from the onsite NPAG quarries, or drilled and blasted (as required), loaded, and hauled from quarries along the Eskay Creek MAR to the Project mine site. Skeena Resources will complete any additional permits or use agreements where required.

A **screening-level assessment** for the rock quarry source options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-20.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for rock quarry source for the Project was **combination of options**. This option provides the most flexibility and reliability for material sources and allows the Project to utilize onsite materials as much as practicable to limit the material requirements sourced from along the Eskay Creek MAR as well as additional permits and use agreements required.

1.7.5.12 Non-hazardous Material Management

Non-hazardous materials generated at the Project mine site will include domestic organic and non-organic waste, industrial waste, and recyclables during the mine life. Domestic organic and non-organic waste will include materials generated from the Camp, Mine Dry, and Administration areas, including living quarters and coffee rooms, as well as kitchen, food preparation, and eating areas. Industrial waste will include materials generated from the construction, commissioning, operation, and maintenance of the Process Plant and other ancillary infrastructure. Recyclables will include materials such as cardboard, packaging, and plastics and will be generated in all areas of the Project mine site.

Skeena Resources will follow the Waste Management Plan (developed as described in Appendix A-1, Summary of Management Plans and Mitigation Measures) to limit the generation of non-hazardous waste through the reduction and reuse of materials as much as practicable. The alternatives assessment for non-hazardous material management considered the disposal of domestic and industrial waste; for all alternatives options, recyclables would be hauled offsite to an appropriate recycling facility.

Table 1.7-20: Alternatives Assessment for Rock Quarry Source

Assessment Category	Subcategory or Criteria	Alternative Options		
		Onsite NPAG Quarries within Open Pits	Quarries along Eskay Creek MAR	Combination of Options
Tahltan Requirements	Health of the land and water	Additional surface disturbances	Additional surface disturbances but offsite	Moderate
	Tahltan relationship and connections	TCG feedback not received for this option and subcategory	TCG feedback not received for this option and subcategory	Moderate
	Tahltan way of life	Low to Moderate	Low to Moderate	Moderate
	Reclamation or Restoration to support Tahltan way of life	Moderate	Moderate	Moderate
Environmental	Footprint / surface area disturbance	No additional disturbance footprint	Some additional disturbance footprint	Some additional disturbance footprint
	Potential to affect waterbodies or water courses	No potential to affect additional waterbodies or water courses	Minor potential to affect additional waterbodies or water courses	Some potential to affect additional waterbodies or water courses
	Potential to affect another watershed	No	Yes	Potential to affect another watershed where offsite quarries along the Eskay Creek MAR were used
Technical	Operational flexibility	No flexibility as limited to material available during specific open pit bench development	Some flexibility to manage movement from offsite locations	Highest flexibility to source from multiple locations
	Operational risk	Material may not be suitable for all identified uses	Material may be suitable for identified uses depending on source	Material would be confirmed suitable for identified uses
Economic	Construction and operating costs	Lowest material costs as part of open pit development	High costs for blasting and hauling from source location	Balance of costs to meet material use requirements
	Closure costs	No additional closure costs of quarry	Highest additional closure costs due to development at a new location	Some additional closure costs
Social	Public safety	No additional road traffic	Highest additional road traffic for entire length of the Eskay Creek MAR	Some additional road traffic along a portion of the Eskay Creek MAR
	Employment opportunities	No opportunities for additional employment	High potential for additional employment	Highest potential for additional employment
Overall		**Neutral**	**Neutral**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Notes:

NPAG = non-potentially acid generating; PMA = Permitted Mine Area; MAR = Mine Access Road

km = kilometre

The following non-hazardous material management options were considered for the Project:

- Onsite incineration and onsite landfill;
- Onsite incineration and disposal at offsite landfills; and
- Offsite incineration and disposal at offsite landfills.

The **onsite incineration and onsite landfill** option would include the construction and use of an incinerator facility and a landfill at the Project mine site. The incinerator facility would include the construction of an NPAG waste rock pad and installation of multiple incinerators. The landfill would require a new disturbance area to be drilled and blasted due to the space requirements of the facility and the topographic constraints at the Project mine site. The landfill would include construction of an NPAG waste rock facility and installation of a welded membrane liner to control potential seepage. Domestic waste would be collected and stored in bear-proof containers and this waste would be frequently emptied and incinerated at the incinerator facility. Industrial waste would be hauled to the onsite landfill for disposal. Additional permits would be required for the construction and use of an onsite landfill.

The **onsite incineration and disposal at offsite landfills** option would include the construction and use of an incinerator facility at the Project mine site. The incinerator facility would include the construction of an NPAG waste rock pad and installation of multiple incinerators. Domestic waste would be collected and stored in bear-proof containers and this waste would be frequently emptied and incinerated at the incinerator facility. Industrial waste would be collected and temporarily stored locally until the materials were hauled offsite for disposal to a nearby municipal waste landfill or other landfills in BC.

The **offsite incineration and disposal at offsite landfills** option would include the collection and temporary storage of domestic waste and industrial waste prior to disposal offsite. Domestic waste would be collected and temporarily stored in bear-proof containers; additional care would be required to limit the attraction of wildlife to domestic waste prior to these materials being removed from the Project mine site. Industrial waste would be collected and temporarily stored locally. All domestic waste, and industrial waste would be hauled offsite for disposal to a nearby municipal waste landfill or other landfills in BC.

A **screening-level assessment** for the non-hazardous material management options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-21.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for non-hazardous material management for the Project was **onsite incineration and disposal at offsite landfills.** This option would allow for the frequent incineration of domestic materials, which would limit the potential attraction of wildlife to the Project mine site. In addition, this option would not require the new disturbance and construction associated with an onsite landfill as well as remove the additional permits requirements associated with this facility.

Table 1.7-21: Alternatives Assessment for Non-hazardous Material Management

Assessment Category	Subcategory or Criteria	Alternative Options		
		Onsite Incineration and Onsite Landfill	Onsite Incineration and Disposal at Offsite Landfills	Offsite Incineration and Disposal at Offsite Landfills
Tahltan Requirements	Health of the land and water	Moderate increased potential for groundwater impacts	Lower	Higher with more access, surface disturbance, and emissions
	Tahltan relationship and connections	Lower with less wildlife interactions	Lower with less wildlife interactions	Moderate with less wildlife interactions
	Tahltan way of life	Moderate with access barriers, quiet enjoyment of land, Tahltan land uses	Moderate with access barriers, quiet enjoyment of land, Tahltan land uses	Moderate with access barriers, quiet enjoyment of land, Tahltan land uses
	Reclamation or Restoration to support Tahltan way of life	Neutral	Lower	Moderate
	Closure implications	High, landfill will require cover with rock and reclamation material	Low, no long-term storage of waste onsite and incinerator is not a permanent structure	Lowest, no long-term storage of waste onsite
	Contract opportunities	Less opportunities	Use of landfills and trucking contracts	Use of landfills and trucking contracts
Environmental	Air quality	Highest potential for air quality concerns onsite due to incineration	Highest potential for air quality concerns onsite due to incineration	Lowest potential for air quality concerns onsite as no incineration
	Greenhouse gas emissions	Lowest emissions due to lowest hauling requirements	Some emissions due to some hauling requirements	Highest emissions due to highest hauling requirements
	Water quality	Increased risk of groundwater interactions with a new landfill	No new water interactions	No new water interactions
	Potential wildlife interactions	Low potential for wildlife interaction during to frequent incineration	Low potential for wildlife interaction during to frequent incineration	High potential because material would need to be temporary staged before hauled offsite for incineration
Technical	Construction complexity	Most complex due to the building of onsite landfill	Least complex due to no long-term storage of waste onsite	Least complex due to no long-term storage of waste onsite
	Trucking distance	Least amount of trucking needed	Some trucking needed	Most amount of trucking needed
Economic	Capital costs	Highest to create landfill (welded membrane)	Low	low
	Operating costs	Lowest costs associated with trucking and some costs associated with incineration	High – transportation costs and incineration costs associated with organics	Highest – Longest transportation distance
Social	Potential interaction with worker health	Yes, from the incinerator	Yes, from the incinerator	No, all waste will be removed from site
	Permitting precedent and considerations	Most complex permitting process and lowest regulatory preference because creating new onsite landfill	Least complex permitting process and highest regulatory preference because onsite incineration will reduce the likelihood of wildlife interactions, and no new landfill created	Least complex permitting process and neutral regulatory preference because any offsite incineration would require short-term onsite incineration of organics prior to shipping, and no new landfill created
	Change of land use	Most change of land use due a new landfill construction	Minimal change of land use	No change in land use
Overall		**Less Preferred**	**More Preferred**	**Neutral**

Legend:

More Preferred
Neutral
Less Preferred

1.7.5.13 Hydrocarbon Contaminated Soils Management

Hydrocarbon contaminated soil will include soil, sand, gravel, or rock that is contaminated with a petroleum based products such as diesel, gasoline, hydraulic oil, or lubricating oil. Hydrocarbon contaminated soils will mainly be generated over time near fueling areas, maintenance bays, or accumulated on haul roads at the Project mine site.

Skeena Resources will follow the Spill Prevention, Fuel Handling and Response Plan (developed as described in Appendix A-1, Summary of Management Plans and Mitigation Measures) to limit the generation of hydrocarbon contaminated soils; however, as a contingency for the small volume of contaminated soils that could be generated during the mine life, an alternatives assessment was completed to consider options for the appropriate management of these materials. The following hydrocarbon contaminated soils management options were considered for the Project:

- Onsite bioremediation;
- Onsite co-disposal with waste rock; and
- Offsite disposal.

The **onsite bioremediation** option would include the onsite treatment of soils using naturally occurring microbes (e.g., bacteria) in the environment to break down or degrade these contaminants over time. This option would include the construction and operation multiple NPAG waste rock HDPE-lined cells with access ramps along cell sides to allow for placement and mixing of contaminated soils. Contaminated soils would be excavated and transported to the facility where the soil would be tilled during placement to promote soil aeration and aerobic (i.e., oxygen-rich) conditions that are required for the bioremediation process. Soil would be frequently tilled or stirred within the cells to encourage aerobic conditions using mobile equipment (e.g., excavator). Periodic testing would be used to confirm if bioremediation objectives were met, and once confirmed, this soil would be removed from the cells and used for reclamation purposes at the Project mine site. Potential precipitation (e.g., rain, snow) generated within the cells would be collected and managed as contact water and treated in the MWTP as required.

The **onsite co-disposal with waste rock** option would include the excavation, transportation, and placement of contaminated soils at the Project mine site, either with NPAG waste rock in the MRSA or with PAG waste rock within the TMSF. Potential runoff from the contaminated soils within these facilities would be managed as contact water and treated in the MWTP as required.

The **offsite disposal** option would include the excavation and temporary storage of contaminated soils at the Project mine site prior to transporting this material to an approved facility offsite for disposal.

A screening-level assessment for the hydrocarbon contaminated soils management options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-22.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for hydrocarbon contaminated soils management for the Project was **offsite disposal**. This option removes the requirements for additional infrastructure construction and potential additional water treatment; however, Skeena Resources will continue to explore additional alternatives options with regulators and Indigenous Nations through closure and reclamation planning to confirm the best management option for hydrocarbon contaminated soils at the Project mine site.

1.7.5.14 Stationary Infrastructure Power Source

The Project will require a consistent source of electrical power to support the construction, commissioning, operations, and maintenance of the Process Plant, and ancillary infrastructure in the Process Plant area, the Camp, and the broader Project mine site. All alternative options would likely utilize the approximately 20 km 69 kW Transmission Line and Eskay Creek Substation located near the Process Plant that will be permitted and constructed in advance of the Project power requirements and will be used to supply power to the Project's local electrical infrastructure (Section 1.4.2.8, Power Supply Infrastructure). This electrical support infrastructure is not part of the EAC Application and are permitted under separate authorizations to supply power to the Eskay Creek Mine. The following stationary infrastructure power source options were considered for the Project:

- Hydroelectric power from Volcano Creek Substation;
- Hydroelectric power from Bob Quinn Substation;
- Wind power generation;
- Solar power generation; and
- Diesel power generation.

The **hydroelectric power from Volcano Creek Substation** option would include use of the Volcano Creek Substation, an existing substation owned by Coast Mountain Hydro Services that connects to an existing provincial 287 kV transmission line upstream of the substation. The Volcano Creek Substation would connect to the Transmission Line and Eskay Creek Substation to distribute power to the Project mine site. The Volcano Creek Substation is not part of the EAC Application and is permitted under separate authorizations.

The **hydroelectric power from Bob Quinn Substation** option would include the use of the Bob Quinn Substation, an existing substation that connects to an existing provincial 287 kV transmission line upstream of the substation. This option would include the construction and use of an additional 25 km of transmission line that would connect the Bob Quinn Substation to the existing approximately 20 km Transmission Line and Eskay Creek Substation to distribute power to the Project mine site. Additional permits would be required for the additional 25 km of transmission line and associated right-of-way.

The **wind power generation** option would include the construction, installation, and use of wind turbines that are generally grouped into large wind farms and connected to the electrical grid. Wind turbines use propeller-like blades that convert wind power to electricity and can range in height from 60 m to 120 m. Wind farms typically cover large areas, requiring up to 20 ha for each wind turbine. The potential viability (e.g., reliability and capacity) of wind power and potential suitable locations for a wind farm have not been confirmed; as such, it is assumed that construction and use of an additional transmission line would be required to connect to the existing approximately 20 km Transmission Line and Eskay Creek Substation to distribute power to the Project mine site. Additional permits would be required for the construction and use of a wind farm and any additional transmission line and associated right-of-way.

Table 1.7-22: Alternatives Assessment for Hydrocarbon Contaminated Soils Management

Assessment Category	Subcategory or Criteria	Alternative Options		
		Onsite Bioremediation	**Onsite Co-disposal with Waste Rock**	**Offsite Disposal**
Tahltan Requirements	Health of the land and water	Low	Moderate to High – water treatment	Moderate – more emissions, traffic
	Tahltan relationship and connections	Low	Moderate to High – increased traffic onsite	Moderate – quiet enjoyment of land, barriers to land, wildlife interactions
	Tahltan way of life	Low	Moderate – additional barrier to area	Moderate – quiet enjoyment of land, barriers to land, wildlife interactions
	Reclamation or Restoration to support Tahltan way of life	Positive to reclaim within existing footprint	Moderate to High – no soil reclamation	Neutral
Environmental	Greenhouse gas emissions	Low emissions due to onsite hauling requirements	Low emissions due to onsite hauling requirements	Highest emissions due to offsite hauling requirements
	Soil reclamation	Reclaims soil	No soil reclamation	Potential to reclaim soil depending on the offsite facility
	Potential interaction with water	Some potential for interaction with water over a short period of time	Would require additional water treatment over a longer period of time	No
Technical	Design requirements	Additional design required	Some design and confirmation checking required (e.g., water balance, geotechnical, geochemical)	No additional design requirements
	Haulage	Low	Low	Highest
	Monitoring requirements	Highest	Low	None
Economic	Capital costs	Additional design and construction costs	Some design costs (e.g., water balance, geotechnical, geochemical), but no construction costs	No additional design and construction costs
	Operating costs	Low	Low	Highest
	Closure costs – monitoring	Highest	Low	None
Social	Worker safety – risks from increased traffic	Some additional traffic onsite	Some additional traffic onsite, especially if hauled to TMSF	More traffic offsite
	Increased traffic for local communities	None	None	More traffic offsite
Overall		**Neutral**	**Neutral**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Note:

TMSF = Tom MacKay Storage Facility

The **solar power generation** option would include construction, installation, and use of solar panels that are generally grouped into large solar farms and connected to the electrical grid. Solar panels use photovoltaic cells that convert sunlight directly into electricity and are typically 2 m long by 1 m wide. Solar farms typically cover large areas, ranging in size from 20 ha to upwards of 800 ha. The potential viability (e.g., reliability and capacity) of solar power and potential suitable locations for a solar farm have not been confirmed; as such, it is assumed that construction and use of an additional transmission line would be required to connect to the existing approximately 20 km Transmission Line and Eskay Creek Substation to distribute power to the Project mine site. Additional permits would be required for the construction and use of a solar farm and any additional transmission line and associated right-of-way.

The **diesel power generation** option would include construction, installation, and use of diesel generators that would be located at the Project mine site. These generators would be contained in a power plant that would include switchgears and control equipment to accommodate the generators. The power plant would either connect directly to the Eskay Creek Substation to distribute power to the Project mine site or would utilize a portion of the existing approximately 20 km Transmission Line depending on the power plant location. This option would also include the construction of use of additional diesel fuel storage to support operation of the power plant. Additional permits would be required for the construction and use the power plant and any additional diesel fuel storage.

A **screening-level assessment** for the stationary infrastructure power source options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-23.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for stationary infrastructure power source for the Project was **hydroelectric power from Volcano Creek Substation**. This option utilizes existing infrastructure as much as practicable and removes the disturbance requirement for additional electrical infrastructure and the associated additional permitting. In addition, the Project will utilize **diesel power generation** only for the application of emergency power. Standby diesel generators would provide emergency power to support critical process loads and life safety systems, and no power plant or additional fuel storage would be required for the limited use of this option.

1.7.5.15 Mobile Equipment Power Source

The Project will utilize both tracked and wheeled mobile equipment, including excavators, bulldozers, and haul trucks for the construction, operation, maintenance, and closure of the Project (Section 1.4.5, Project Mobile Equipment). The following mobile equipment power source options were considered for the Project:

- Diesel-powered equipment;
- Electric-powered equipment; and
- Combination of power sources.

The **diesel-powered equipment** option would utilize a fleet of conventional mobile equipment that would use diesel as a power source. Diesel-powered mobile equipment is prevalent is the mining industry, has been used for many decades, and is widely available in multiple sizes. This option would require the construction, installation, and operation of 60,000 gal (230 m^3) of diesel fuel storage.

Table 1.7-23: Alternatives Assessment for Stationary Infrastructure Power Source

Assessment Category	Subcategory or Criteria	Alternative Options				
		Hydroelectric from Power Volcano Creek Substation	Hydroelectric Power from Bob Quinn Substation	Wind Power Generation	Solar Power Generation	Diesel Power Generation
Tahltan Requirements	Health of the land and water	Lower – minimize footprint and linear corridor, electrical power versus diesel	Low to Moderate – larger footprint and linear corridor, electrical power versus diesel	TCG feedback not received for this option	TCG feedback not received for this option	High
	Tahltan relationship and connections	Lower	Lower			High
	Tahltan way of life	Low if Tahltan access and uses, quiet enjoyment of land, are not barriers	Low if Tahltan access and uses, quiet enjoyment of land, are not barriers			High
	Reclamation or Restoration to support Tahltan way of life	Low	Low to Moderate			Moderate to High
Environmental	Air quality	Lowest potential for air quality concerns	Lowest potential for air quality concerns	Lowest potential for air quality concerns	Lowest potential for air quality concerns	Highest potential for air quality concerns from onsite diesel power generation
	Greenhouse gas emissions	Low emissions	Low emissions	Lowest emissions	Lowest emissions	Highest emissions
	Footprint / surface area disturbance	Lowest Footprint	Medium footprint	Highest footprint	Highest footprint	Lowest Footprint
	Potential wildlife interactions	Low – no wildlife area clearing during construction; some bird interactions during operations	Low – minor wildlife area clearing during construction; some bird interactions during operations	High – large wildlife area clearing during construction; high bird interactions during operations	Medium – large wildlife area clearing during construction; some bird interactions during operations	Low – minor wildlife area clearing during construction; no bird interactions however some potential for vehicle-wildlife interactions
	Noise disturbance for wildlife	Low	Low	Moderate	Low	High
Technical	Power generation – reliability	Highest reliability	Highest reliability	Low reliability	Low reliability	High reliability
	Power generation – capacity	Sufficient capacity to meet Project needs	Sufficient capacity to meet Project needs	Insufficient capacity to meet Project needs in isolation; area near Project may not be suitable for power generation type	Insufficient capacity to meet Project needs in isolation	Sufficient capacity to meet Project needs
	Construction timeline – approximate	<1 year	1 year	4 years, including 2 years of study to confirm suitability of power source, 1 year for procurement, 1 year construction	2 years	1.5 years
Economic	Capital cost – approximate	Minimal to no construction costs besides onsite electrical connections	$20M	$80M	$80M	$60M
	Operating costs	$0.063/kWh	$0.063/kWh	$0.08/kWh	$0.10/kWh	$0.24/kWh
Social	Post-mining generation potential	Low potential to provide power after Project life	Low potential to provide power after Project life	High potential to provide power after Project life; generation source can run for 25 years after Project	High potential to provide power after Project life; generation source can run for 25 years after Project	Lowest potential to provide power after Project life
	Employment – Operations	Lowest employment	Lowest employment	Medium employment	Medium employment	Highest employment
	Employment – Construction	Lowest employment	Low employment	Highest employment	Medium employment	Lowest employment
	Worker safety – Construction	Lowest risk – minimal construction at ground level	Medium risk – some work at heights	Highest risk – working at heights	Lowest risk – safest to construct	Medium risk – some work at heights
Overall		**More Preferred**	**Neutral**	**Not Feasible[1]**	**Not Feasible[1]**	**More Preferred**

Legend:

More Preferred
Neutral
Less Preferred

Notes:

< = less than; kWh = kilowatt hour; M = million; TCG = Tahltan Central Government

[1] This alternative option was acknowledged as not feasible by TCG for technical and/or economic reasons, however this alternative option is included in the alternatives assessment for completeness.

The **electric-powered equipment** option would utilize a fleet of conventional mobile equipment that would use electricity as a power source. Electric-powered mobile equipment is used in some mining applications, has been broadly used for approximately 10 years, and is currently available in a smaller range of sizes due to limits in current battery technology. This option would require the construction, installation, and operation of additional onsite electrical infrastructure including battery charging banks, and electrical lines, poles, and transformers that would connect to the Project's local electrical infrastructure (Section 1.4.2.8, Power Supply Infrastructure). Mobile equipment would be powered by large lithium-ion batteries or other fuel cell battery types (e.g., hydrogen fuel cell) connected to each piece of mobile equipment. Mobile equipment would either be plugged in to charging stations once the battery was drained and be unavailable for use while the battery recharged, or the batteries would be swapped out once drained with charged batteries from the battery charging banks.

The **combination of power sources** option would utilize a fleet of both diesel-powered and electric-powered mobile equipment at the Project mine site. This option would use electric-powered equipment as much as practicable in consideration of the available electrical capacity of the existing electrical grid upstream of the Project and in consideration of the size availability of mobile equipment.

A **screening-level assessment** for the mobile equipment power source options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-24.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for mobile equipment power source for the Project was **combination of power sources**. This option would allow the Project to use electric-powered mobile equipment as much as practicable while providing the reliability and size flexibility of diesel-powered mobile equipment. As battery technology matures and electric-powered mobile equipment sizes become more widely available, the Project would consider opportunities to expand the electric-powered mobile equipment fleet onsite in consideration of the existing electrical grid capacity limitations upstream of the Project.

1.7.5.16 Worker Rotation Schedule

The Project will operate 24 hours a day, 7 days a week, 365 days per year during Construction, Operations, and Reclamation and Closure. For all alternative options, personnel will be transported to the Project mine site for work rotations from different pickup locations. The primary pickup location will be Terrace, BC, as well as select communities, such as Telegraph Creek, Dease Lake, Iskut, and Smithers. Personnel would travel by commercial flight, charter flight, or by driving to these pickup locations where coach-style busses would then transport all personnel to the Project mine site. The following worker rotation schedule options were considered for the Project:

- 5 days on / 2 days off;
- 1 week on / 1 week off;
- 2 weeks on / 2 weeks off; and
- 3 weeks on / 3 weeks off.

Table 1.7-24: Alternatives Assessment for Mobile Equipment Power Source

Assessment Category	Subcategory or Criteria	Alternative Options		
		Diesel-Powered Equipment	Electric-Powered Equipment	Combination of Power Sources
Tahltan Requirements	Health of the land and water	Low to moderate	Low	Lower
	Tahltan relationship and connections	Low to moderate	Low	Lower
	Tahltan way of life	Low to moderate	Low	Lower
	Reclamation or Restoration to support Tahltan way of life	Moderate – reclamation of soils or water from emissions, spills, or malfunctions	Low	Lower
Environmental	Air quality	Highest potential for air quality concerns due to diesel-powered equipment use	Lowest potential for air quality concerns	Moderate potential for air quality concerns due to some diesel-powered equipment use
	Greenhouse gas emissions	High emissions	Low emissions	Moderate/low emissions
	Noise disturbance for wildlife	High noise level as this equipment tends to be nosier and produce more vibration	Low noise levels as this equipment tends to be quieter and produce less vibration	Some noise levels from the combination of diesel and electrical equipment
	Footprint / surface area disturbance	Low footprint as no additional dedicated infrastructure construction is required	High footprint as additional dedicated infrastructure construction is required for onsite electrical distribution system (e.g., batteries, poles, transformers, electrical lines)	High footprint as additional dedicated infrastructure construction is required for onsite electrical distribution system (e.g., batteries, poles, transformers, electrical lines)
Technical	Power Density (i.e., amount of power available per unit of fuel) and power storage	High power density, which allows for longer operating durations and higher power outputs in remote locations	Low power density and requires bulky batteries or capacitors for energy storage, which limits use in applications requiring high power or extended operation without access to a power source	A combination of high and lower power density and power storage power options
	Haul truck size limitations	Multiple options in haul truck sizes to support Project requirements	Current battery technology is typically too small (e.g., 50 ton) or too large (e.g., approximately 250 ton) to support Project requirements	Multiple options in diesel haul truck sizes to support Project requirements, with limits on electrical haul truck sizes
	Capacity and expansion potential	High capacity and unlimited expandability	Insufficient capacity to support Project if all equipment was electric and no expansion potential due to supply limitations of existing electrical grid upstream of the Project	High capacity and unlimited expandability
	Technology maturity	>50 years	Approximately 10 years	Combination of technological maturity
	Weather performance effects	Simple to operate and consistent performance and reliability in high snow load periods	Harder to operate and can be less reliable in high snow load periods	Highest performance and reliability with combination of diesel and electrical equipment
	Procurement risks	Low procurement risk as technology is the standard and readily available	High procurement risk as technology is more specialized and has limited immediate availability in large quantities	Some procurement risk as electrical technology is more specialized and has some limited availability in smaller quantities
Economic	Capital costs	Lowest cost as equipment is less expensive due to ready availability and prevalent use	Higher costs due to additional dedicated infrastructure construction is required for onsite electrical distribution system (e.g., batteries, poles, transformers, electrical lines)	High costs due to additional dedicated infrastructure construction is required for onsite electrical distribution system (e.g., batteries, poles, transformers, electrical lines)
	Operating costs	High due to costs associated with fuel purchase	Low due to lower maintenance costs and less expensive power source	Balance of operating costs with combination of diesel and electrical equipment
	Specialized workforce	No specialized staff required beyond typical mechanical skills	High number of specialized staff required to support additional power systems	Some additional specialized staff required to support additional power systems
Social	Health risks to workers	High emissions	Low emissions	Some emissions from combination of diesel and electrical equipment
	Noise disturbance for workers and communities	High noise level	Low noise level	Some noise levels from the combination of diesel and electrical equipment
Overall		**Neutral**	**Less Preferred**	**More Preferred**

Legend: | *More Preferred* | *Neutral* | *Less Preferred* |

Note:

> = greater than

The **5 days on / 2 days off** option would include personnel working 5 days of 12-hour shifts at the Project mine site followed by 2 days off work; the first and last day of the 5-day work rotation would include travel to and from the Project mine site. Employees would travel in and out of site every 5 days (e.g., Monday to Friday rotation, Wednesday to Sunday rotation) and this rotation schedule would repeat throughout the year. This rotation schedule is currently used for some positions at other mines in Northern BC and includes approximately 29% of travel and transportation time over a full rotation (e.g., 2 days travel in every 1-week [i.e., 7-day] period).

The **1 week on / 1 week off** option, which is also called an 8 day on / 6 day off rotation, would include personnel working 8 days of 12-hour shifts at the Project mine site followed by 6 days off work; the first and last day of the 8-day work rotation would include travel to and from the Project mine site. Employees would travel in and out of site on the same day (e.g., every Thursday) and this rotation schedule would repeat throughout the year. This rotation schedule is currently used at other mines in Northern BC and includes approximately 14% of travel and transportation time over a full rotation (e.g., 2 days travel in every 2-week [i.e., 14-day] period).

The **2 weeks on / 2 weeks off** option would include personnel working 15 days of 12-hour shifts at the Project mine site followed by 13 days off work; the first and last day of the 15-day work rotation would include travel to and from the Project mine site. Employees would travel in and out of site on the same day (e.g., every second Thursday) and this rotation schedule would repeat throughout the year. This rotation schedule is currently used at other mines in Northern BC and includes approximately 7% of travel and transportation time over a full rotation (e.g., 2 days travel in every four-week [i.e., 28-day] period).

The **3 weeks on / 3 weeks off** option would include personnel working 22 days of 12-hour shifts at the Project mine site followed by 20 days off work; the first and last day of the 22-day work rotation would include travel to and from the Project mine site. Employees would travel in and out of site on the same day (e.g., every third Thursday) and this rotation schedule would repeat throughout the year. This rotation schedule is currently used at other mines in Northern BC and includes approximately 5% of travel and transportation time over a full rotation (e.g., 2 days travel in every 6-week [i.e., 42-day] period).

A **screening-level assessment** for the worker rotation schedule options was conducted using the set of subcategories (Table 1.7-2) and criteria indicated in Table 1.7-25.

Selected Alternative

After evaluation of the relative advantages and disadvantages of the range of feasible alternatives, the selected alternative for worker rotation schedule for the Project was **2 weeks on / 2 weeks off**. This option provides a blend of flexibility and predictability and that would enable the Project to efficiently manage staffing requirements while prioritizing employee work-life balance. This option would be utilized for all salaried, hourly, and contractor personnel during the mine life. Additional worker rotation schedules will be considered through development of the Project and discussions with Indigenous Nations.

Table 1.7-25: Alternatives Assessment for Worker Rotation Schedule

Assessment Category	Subcategory or Criteria	Alternative Options			
		5 Days On (Includes Travel) / 2 Days Off	1 Week On / 1 Week Off	2 Weeks On / 2 Weeks Off	3 Weeks On / 3 Weeks Off
Tahltan Requirements	Employee well-being	TCG feedback not received for this subcategory			
	Health of the land and water	TCG feedback not received for this subcategory			
	Tahltan relationship and connections	TCG feedback not received for this subcategory			
	Tahltan way of life	Moderate	Low	High	High
	Reclamation or Restoration to support Tahltan way of life	Neutral	Neutral	Neutral	Neutral
Environmental	Greenhouse gas emissions	Highest emissions	High emissions	Medium emissions	Lowest emissions
	Potential wildlife interactions – traffic	Highest	High	Medium	Lowest
Technical	Operational complexity	Highest	High	Medium	Lowest
Economic	Operating costs[1]	Travel costs would be higher than $12M/year due to frequent travel for employees and increased travel planning logistics	Travel costs $6M/year to $12M/year	Travel costs $3M/year to $6M/year	Travel costs $2M/year to $4M/year
	Potential production interruption from travel days	Project requires operations on a 24 hours per day, 7 days per week, and 365 days per year for economic viability; this rotation typically offered to technical/management staff at Project mine site with short commute (e.g., <1 hour)	1 travel day every 7 days = 14%	1 travel day every 14 days = 7%	1 travel day every 21 days = 5%
Social	Employee well-being	Employees would spend 2 of 5 working days travelling; travel time is simply too significant to support this rotation	Offers good work-life balance, though experience-based evidence suggests this shift is more appropriate at mines with shorter commute time (i.e., 6 hours total or less)	Generally accepted as the optimum shift for mines that are accessible with same-day commute; provides the right balance of acceptable time away from home and time spent travelling	Preferred by some employees, though generally is only utilized by mines with extended (i.e., multi-day) commute; this extended time away from home can be problematic for well-being
	Traffic volume increase	Highest	High	Medium	Lowest
	Safety – fatigue management and travel risk exposure	Short shift, though high travel frequency and associated risk exposure	Reasonable for fatigue management, though shorter shift can be challenging for those alternating shifts on day shift and night shift; includes 52 one-way trips per employee per year	Reasonable for fatigue management; includes 26 one-way trips per employee per year	In third week of work, fatigue management becomes an increasing risk and fatigue breaks may be required to manage; includes 17 one-way trips per employee per year
Overall		**Less Preferred**	**Less Preferred**	**Preferred**	**Neutral**

Legend:

More Preferred
Neutral
Less Preferred

Notes:

TCG = Tahltan Central Government

M = million; < = less than; % = percent

[1] Cost per employee round trip is estimated at $1,000 to $2,000, depending on charter or commercial air travel.

1.7.6 Pre-screened Out Alternatives Assessments

The below subsections summarize the alternatives assessments that were considered and pre-screened out after the alternatives identification process (Section 1.7.4.1, Alternative Identification). A summary of the selected alternative options that were carried forward as Project components are provided in Section 1.7.7, Selected Alternatives Summary.

1.7.6.1 Process Plant Location

The alternatives assessment for the Process Plant location considered different options for positioning this processing infrastructure, which will receive crushed ore material from the Primary Crushing Station. The topography of the Project mine site includes steep mountains and large river corridors that provide limited natural flat areas for potential infrastructure locations. Given these topographic constraints, only one technically feasible option was available for a building the size of the Process Plant. This option, which is located **west of ore stockpiles** (Figure 1.4-4) and retains proximity to open pits, ore stockpiles, and haul roads, was the selected alternative for the Project.

1.7.6.2 Primary Crushing Station Location

The alternatives assessment for the Primary Crushing Station location considered different options for positioning this crushing infrastructure, which will receive ore transported by haul truck, and be fed directly from the open pits or from the ore stockpiles. The two alternative options that were considered for the Project were **at 500 m blasting radius** and **close to pit exit**. The **at 500 m blasting radius** option would include locating the Primary Crushing Station outside of the North Pit blasting radius (i.e., 500 m) and west of the ore stockpile. The **close to pit exit** option would include locating the Primary Crushing Station north of the ore stockpiles and west of the haul truck ramp that would exit the North Pit; this location would be within the 500 m blasting radius of the North Pit. The two options, which were dictated by Project mine site topography that provides limited natural flat areas for infrastructure placement, would be located approximately 400 m apart from each other on the same pad.

As discussed in Section 1.7.4.2, Assessment Criteria, categories and subcategories used in the individual alternatives assessments were selected based on their ability to identify differentiating factors between alternative options being considered, and only differentiating criteria were carried forward for evaluation. For the two options in the Primary Crushing Station location alternatives assessment, there were insufficient differentiating criteria to complete a screening-level assessment. The **at 500 m blasting radius** option was the selected alternative for the Project due to the increased safety factors associated with operating the Primary Crushing Station outside of the blasting radius of the North Pit.

1.7.6.3 Ore Transportation Method

The alternatives assessment for the ore transportation method considered different options for transporting ore the approximately 1 km distance from Primary Crushing Station to the Process Plant for processing. The two alternative options that were considered for the Project were **haul truck** and **conveyor system**.

The **haul truck** option was pre-screened out as not technically feasible due to the short haul distance between the Primary Crushing Station and the Process Plant and the insufficient space availability for haul trucks to turn around during ore loading and unloading. The **conveyor system** option was therefore the selected alternative for the Project.

1.7.6.4 Discharge Locations

The alternatives assessment for discharge locations considered different options for discharging treated contact water generated at the Project mine site over the mine life once appropriate water quality guidelines or approved discharge limits have been met. The two alternative options that were considered for the Project were **existing discharge locations** and **new discharge location**. The **existing discharge locations** option would include utilizing the three existing discharge locations authorized through the existing EMA Permit (PE-10818): TM1, the TMSF permitted discharge location on Tom MacKay Creek; W20, the ASF permitted discharge location; and D7, the permitted discharge location for underground mine water and historical mine site surface drainage (Section 1.4.1.1, Existing Infrastructure). The **new discharge location** option would include a single discharge location near KM55 of the Eskay Creek MAR, where water from the TMSF Supernatant Pond and other contact water from the Project mine site would be treated in the MWTP prior to being discharged to the receiving environment (i.e., Tom MacKay Creek). The use of multiple new discharge locations for mine contact water was not considered as an alternative to limit the potential locations of environmental effects associated with the Project.

The **existing discharge locations** options would not be technically feasible in isolation as TM1 discharge location would be covered by construction of the TMSF North Dam, and the D7 discharge location would become inaccessible in Operations when KM59 Camp is demobilized from the Project mine site and the camp area is decommissioned. The W20 discharge location would also not be technically feasible in isolation due to the distance of the ASF from other Project infrastructure. To maximize Project flexibility and limit the creation of multiple new discharge locations, the selected alternatives for the Project were both alternative options of **existing discharge locations** and **new discharge location**, while using existing discharge locations as much as practicable. The Project will utilize TM1 and D7 discharge locations until the development of the Project mine and infrastructure eliminates the availability of these locations. The Project will also utilize a new discharge location into Tom MacKay Creek located near KM55 of the Eskay Creek MAR (Figure 1.4-4).

1.7.6.5 Ground Access

The alternatives assessment for ground access considered different options for accessing the Project mine site for the transportation of personnel and supplies. The two alternative options that were considered for the Project were **existing access road** and **new access road**. The **existing access road** option would include the use of the existing Eskay Creek MAR, a 59 km gravel road that connects the Project mine site to provincial Highway 37. The **new access road** option would include the construction and use of a new road to the Project mine site; this option would also include the permitting and design of a new road alignment, and the collection of additional baseline information, such as terrestrial and aquatic studies.

The **new access road** option was pre-screened out for being neither technically nor economically feasible due to the overall timeline required for the associated environmental studies, engineering studies, permitting requirements, as well as the construction and development of a new road. In addition, this option would not be environmentally responsible given the large additional distance area that would be created from development of a new road and when an access road to the Project already exists.

1.7.6.6 General Infrastructure

The alternatives assessment for general infrastructure considered different options for the construction and/or use infrastructure at the Project mine site over the mine life. The two alternative options that were considered for the Project were **reuse existing infrastructure** and **build new infrastructure**.

The **reuse existing infrastructure** option would not be technically feasible in isolation as the development of the North Pit, MRSA, ROM Pad, and additional ancillary infrastructure would either remove access to the existing facilities, or these existing facilities would be covered by the construction and installation of Project infrastructure. Existing infrastructure is described in Section 1.4.1.1, Existing Infrastructure. The selected alternatives for the Project were both alternative options of **reuse existing infrastructure** and **build new infrastructure**. The Project will utilize existing infrastructure as much as practicable until the development of the Project mine and infrastructure eliminates the availability of these existing facilities.

1.7.6.7 Hazardous Material Management

Hazardous materials that will be generated at the Project mine site will include materials such as spoiled reagents, waste petroleum products, aerosols, and used batteries. These materials will be generated during the construction, installation, operation, and maintenance of the Project during the mine life. All alternative options would include the construction and use of the Waste Transfer Area in the Process Plant area (Section 1.4.2.9, Ancillary Infrastructure) site for the temporary storage of hazardous materials. The two alternative options that were considered for the Project were **onsite disposal** and **offsite disposal**.

The **onsite disposal** option was pre-screened out as not technically nor economically feasible as:

- Most hazardous materials generated would require complex treatment by multiple chemical and mechanical processes and technologies;
- Some hazardous materials (e.g., aerosols, batteries) could not be appropriately treated and disposed at the Project mine site;
- The volume of hazardous materials would not warrant the construction, operation, and closure of an onsite hazardous materials disposal facility; and
- The timeline required for the specific permitting and licensing requirements of an onsite hazardous materials disposal facility would not align with the Project timeline.

The **offsite disposal** option was therefore the selected alternative for the Project. This option would include the temporary storage of hazardous materials at the Project mine site and hauling these materials offsite. Hazardous materials would be labelled and stored locally in appropriate containers at the Waste Transfer Area prior to these materials being transported offsite by truck to an approved waste landfill for disposal.

1.7.6.8 Smelting Location

The alternatives assessment for smelting location considered different location options for refining the gold-silver concentrate generated by the Project during Operations. The two alternative options that were considered for the Project were **onshore smelting** and **offshore smelting**.

The **onshore smelting** option was pre-screened out for being neither technically nor economically feasible as:

- There is no suitable operating metal smelter in BC;
- Construction and operation of a smelter for the purposes of the Project would be cost prohibitive;
- The timeline required for the specific permitting and licensing requirements of an onshore smelter would not align with the Project timeline; and
- The refined product from onshore smelting is not expected to be saleable within North America due to the highly variable and complex gold-silver concentrate that will be produced by the Project.

The **offshore smelting** option was therefore the selected alternative for the Project. During Operations, the gold-silver concentrate produced in the Process Plant will be hauled from the Project mine site to port facilities in the District of Stewart and then shipped to an overseas smelter for additional processing.

1.7.7 Selected Alternatives Summary

Through the screening-level, MAA, and BAT assessments of alternatives, selected alternatives were identified for key Project components and processes. The selected alternatives that were carried forward for the Project in the EAC Application are summarized in Table 1.7-26; additional information on selected alternatives is provided in Section 1.4, Project Components.

It is noted that many alternative options are not mutually exclusive, and that different alternative options could be employed in parallel, in series, or in conjunction to meet the long-term needs of the Project. Evaluation of the environmental, technical, social, and economic performance of the Project will be an ongoing process, and the alternatives assessments would be reviewed and optimized as the Project evolves through the environmental assessment process, permitting, and ultimately, through Construction, Operations, and Reclamation and Closure.

In addition, a summary of selected alternative options after the pre-screened out alternatives were removed are provided in Table 1.7-27. These alternatives were carried forward as Project components; additional information on these alternatives is provided in Section 1.4, Project Components.

Table 1.7-26: Selected Alternatives for the Project

Project Alternatives[1]	Level of Assessment[2]	Alternative Options					
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Mining method	Screening	**Open pit**	Underground				
Ore processing methods	Screening	**Flotation**	Flotation plus cyanide leaching	Flotation plus pressure oxidation plus cyanide leaching			
Ore stockpile location	Screening	**Ore stockpile near Primary Crushing Station**	In-pit ore stockpile	Ore Stockpile west of MRSA	No ore stockpile onsite		
Concentrate transportation method	Screening	Railway	Truck to Prince Rupert	**Truck to District of Stewart**			
Mine waste management	MAA	Option A	**Option B**	Option C	Option D	Option E	
PAG waste rock transportation	Screening	Belt conveyor system	Rail conveyor system	Hybrid haul truck with trolly assist	**Conventional diesel haul truck**		
Water treatment technology	BAT	**Geotube® treatment and EHDS**					
Snow management	Screening	Cease work during heavy snowfall	Store snow along haul roads	Haul snow to TMSF	Push snow into creek headwaters	Use inactive areas	**Combination of options**
Camp location	Screening	Near Process Plant	**Near Coulter Creek Access Road and TMSF**	Near KM53.5	Near North Spoils area	Existing Forrest Kerr camp	
Overburden and topsoil management	Screening	**Designated stockpiles onsite**	**Store in windrows along haul roads**	Co-disposal with waste rock	No designated stockpiles onsite		
Rock quarry source	Screening	Onsite NPAG quarries within open pits	Quarries along the Eskay Creek MAR	**Combination of options**			
Non-hazardous material management	Screening	Onsite incineration and onsite landfill	**Onsite incineration and disposal at offsite landfills**	Offsite incineration and disposal at offsite landfills			
Hydrocarbon contaminated soils management	Screening	Onsite bioremediation	Onsite co-disposal with waste rock	**Offsite disposal**			
Stationary infrastructure power source	Screening	**Hydroelectric power from Volcano Creek Substation**	Hydroelectric power from Bob Quinn Substation	Wind power generation	Solar power generation	**Diesel power generation**	
Mobile equipment power source	Screening	Diesel-powered equipment	Electric-powered equipment	**Combination of power sources**			
Worker rotation schedule	Screening	5 days on / 2 days off	1 week on / 1 week off	**2 weeks on / 2 weeks off**	3 weeks on / 3 weeks off		

Legend:

Selected Alternative	(orange)
Not Applicable	(grey)

Notes:

BAT = Best Available Technology; EHDS = enhanced high-density sludge; MAA = multiple accounts analysis; MAR = Mine Access Road; NPAG = non-potentially acid generating; PAG = potentially acid generating; PMA = Permitted Mine Area; TMSF = Tom MacKay Storage Facility; MRSA = Mine Rock Storage Area

KM = MAR kilometre marker; kW = kilowatt

[1] Section 1.7.4.4, Order of Assessments for information on order of assessments.

[2] Section 1.7.4.3, Level of Assessments on level of assessments.

Table 1.7-27: Pre-screened Out Alternatives Assessments for the Project

Project Alternatives	Level of Assessment	Alternative Options	
		Alternative 1	Alternative 2
Process Plant location	Pre-screening	**West of ore stockpiles**	
Primary Crushing Station location	Pre-screening	**At 500 m blasting radius**	Close to pit exit
Ore transportation method	Pre-screening	Haul truck	**Conveyor system**
Discharge locations	Pre-screening	**Existing discharge locations**	**New discharge location**
Ground access	Pre-screening	**Existing access road**	New access road
General infrastructure	Pre-screening	**Reuse existing infrastructure**	**Build new infrastructure**
Hazardous material management	Pre-screening	Onsite disposal	**Offsite disposal**
Smelting location	Pre-screening	Onshore smelting	**Offshore smelting**

Legend:

Legend:	*Selected Alternative*
	Not Applicable

Note:

m = metre

1.8 References

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