OSISKO DEVELOPMENT

CARIBOO GOLD PROJECT

APPLICATION SUMMARY

July 2021

OSISKO DEVELOPMENT

Barkerville Gold Mines Division

PO Box 250
3700 Ski Hill Road
Wells, BC V0K 2R0

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ABBREVIATIONS

Terminology used in this document has been defined where it is first used, while the following list has been presented to assist readers that choose to review only portions of the document.

Abbreviation	Description
APECs	areas of potential environmental concern
BC	British Columbia
BCEAA	British Columbia Environmental Assessment Act
BGM	Barkerville Gold Mines Ltd.
BMP	Best Management Practice
°C	degrees Celsius
CCLUP	Cariboo Chilcotin Land Use Plan
CEA Agency	Canadian Environmental Assessment Agency
CEAA	Canadian Environmental Assessment Act (2012)
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CRD	Cariboo Regional District
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office (BC)
ECCC	Environment and Climate Change Canada
ESA	Environmental Site Assessment
FLNR	Ministry of Forests, Lands, Natural Resources Operations and Rural Development (BC)
g/t	grams per metric tonne
ha	hectare
HHERA	human health and ecological risk assessment
km	kilometre
km2	square kilometre

Abbreviation	Description
kV	kilovolt
L	Litre
Ltd	Limited
m	Metre
masl	Metres above sea level
MAPA	Mines Act Permit Amendment
MEM	Ministry of Mines (BC)
MEMPR	Ministry of Mines, Energy, and Petroleum Resources (BC)
ML	metal leaching
MOE	Ministry of Environment and Climate Change Strategy (British Columbia) – formerly Ministry of Environment
MOTI	Ministry of Transportation and Infrastructure (British Columbia)
MWh	Megawatt Hour
NOx	oxides of nitrogen
NP	neutralization potential
NPAG	Non-Potentially Acid Generating
NRCan	Natural Resources Canada
PAG	Potentially Acid Generating
PAHs	Polycyclic aromatic hydrocarbons
PM	particulate matter (PM10, PM2.5)
Project	Cariboo Gold Project (proposed)
Proponent	Barkerville Gold Mines Ltd. (BGM)
QSRMP	Quesnel Sustainable Resource Management Plan
QR Mill	Quesnel River Mill
ROM	run of mine
SAR	species at risk
SARA	Species at Risk Act
SO2	sulphur dioxide

Abbreviation	Description
t	tonne
TEK	Traditional Ecological Knowledge
TEM	Terrestrial Ecosystem Mapping
TNG	Tsilhqot'in National Government
tpd	tonnes per day
t/yr	tonne per year
TSF	tailings storage facility
TSP	total suspended particles
URF	uncemented rock fill
WHA	Wildlife Habitat Area
WRSF	waste rock storage facility

APPLICATION SUMMARY

1.1 Summary Description of the Project

Osisko Development Corp. (ODV) is proposing to develop and operate the Cariboo Gold Project (the Project), located in the Cariboo Regional District (CRD) of British Columbia (BC) (Figure 1). Osisko Development Corp.'s (ODV's) vision is to develop a sustainable mining project designed in collaboration with the community, Indigenous nations, and other stakeholders. The Project will be a modern, low-carbon, long-life mining operation designed with high environmental standards and development opportunities for ODV's Indigenous partners and local stakeholders.

The Project includes the following major components within the Project Footprint:

- Mine Site infrastructure (Figure 2 and 3) which includes the following:
    - Underground workings and an underground crusher;
    - A Mine Site Complex in the District of Wells that includes a Services Building (containing a surface concentrator, paste backfill plant, and other ancillary infrastructure), Mine Site accommodations (camp), and a Water Treatment Plant;
    - A Waste Rock Storage Facility (WRSF) at ODV's Bonanza Ledge Site near the District of Wells;
    - Access and Haul Roads (including for the transport of waste rock from the Mine Site Complex to the Bonanza Ledge Site); and
    - An effluent pipeline between the Bonanza Ledge Site and the Mine Site Complex Water Treatment Plant.
- Osisko Development Corp.'s (ODV's) existing Quesnel River Mill (QR Mill) and associated infrastructure (Figure 2 and 4), including upgrades to the existing QR Mill and construction of a Filtered Stack Tailings Storage Facility (FSTSF).
- Transportation Routes (Figure 2):
    - Transportation of concentrate between the Mine Site and the QR Mill Site along 56 kilometers (km) of Highway 26 and 59 km of the 500 Nyland Lake Forest Service Road, a forest service road maintained by West Fraser Mills Ltd.;
    - Transportation of workers, goods, and service providers to Wells from Quesnel, BC along Highway 26. A new highway bypass will be built before Wells to enable mine-related traffic to exit the highway before the community;
    - Transportation of workers and goods to the QR Mill from Quesnel along Highway 26 and the 500 Nyland Lake Road, and workers along the Quesnel Hydraulic Road to 2700 Road and the 500 Nyland Lake Road.

- Transmission Line (Figure 2): a new 69 kilovolt (kV) transmission line, 69.3 km in length, from Barlow Substation, near Quesnel to the Mine Site Complex. The line follows a corridor north of Highway 26 along forest service roads or other previously disturbed areas, wherever possible.

Four zones are planned to be mined using the longitudinal retreat long hole method. Ore produced at the Mine Site Complex will undergo crushing, ore sorting, milling, flotation, and dewatering before being trucked as a concentrate along Highway 26 and the 500 Nyland Lake Road to the QR Mill for the final stage of processing. The mine has an estimated operational mine life of 16 years, with an overall mine life of approximately 25 to 35 years (construction through post-closure). The purpose of the Project is to economically extract ore from the mine and process the extracted material to produce gold doré bars. The doré bars will be sold to world markets, generating an economic return on investment.

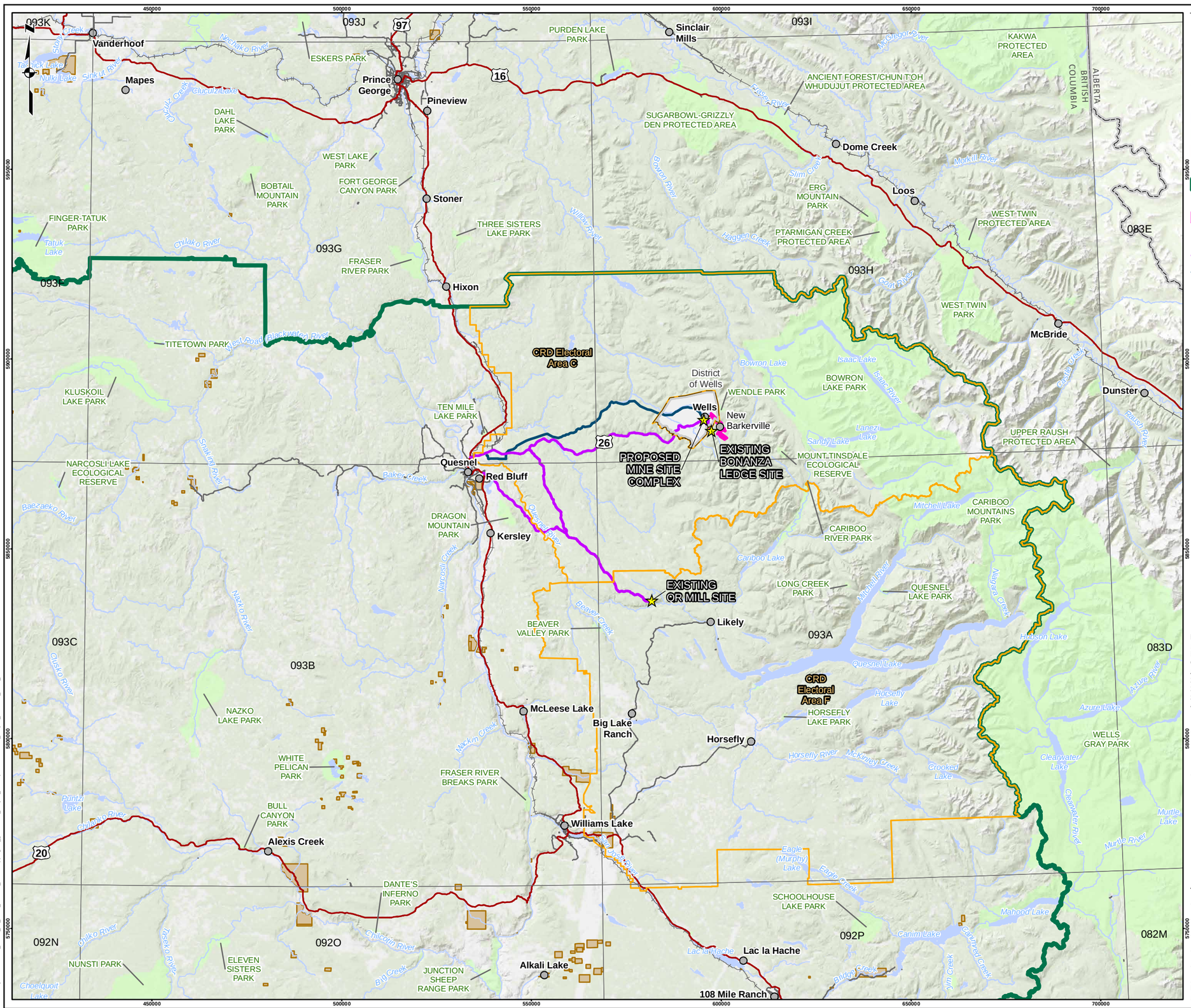
Several communities are located near or adjacent to the Project. The Mine Site Complex is located approximately 80 km east of Quesnel, BC and immediately adjacent to the community of Wells. The Barkerville Historic Town and Park is located approximately 6 km from the community of Wells and the Mine Site Complex.

The QR Mill is located approximately 115 km southeast from the Mine Site, 58 km southeast of Quesnel, and 18 km northwest of Likely. There are no roads that connect Likely directly to the QR Mill.

The Project is located in an area known for its rich mining history, with several historical mines located near or overlapping the Surface Footprint. There has been substantial work completed over the last 90 years on the overall claim holdings, with various companies that have completed work programs. Historical mines in the area include Cariboo Gold Quartz, Aurum, and Mosquito Creek. The Cariboo Gold Quartz Mine in Wells went into production in 1933.

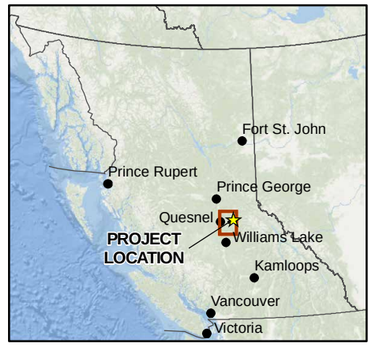
Osisko Development Corp. (ODV), then known as Barkerville Gold Mines Ltd. (BGM), executed a comprehensive exploration program on the Project (as described further in Chapter 1 Project Overview), which supported furthering Project definition and design. The program included geological mapping, channel, soil, and underground sampling, and diamond drilling. A Preliminary Economic Assessment for the Project (BBA Inc, 2019) was prepared based on the exploration results as of August 2019.

Further details pertaining to the Project setting, Project History, and Project components are provided in Chapter 1.



LEGEND

- POPULATED COMMUNITY
- HIGHWAY
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- PARKS/PROTECTED AREA
- FIRST NATION RESERVE
- CRD ELECTORAL AREAS
- CRD (CARIBOO REGIONAL DISTRICT)
- DISTRICT OF WELLS MUNICIPALITY BOUNDARY
- BARKERVILLE HISTORIC TOWN AND PARK
- PROPOSED PROJECT INFRASTRUCTURE LOCATION
- PROPOSED TRANSPORTATION ROUTE
- PROPOSED TRANSMISSION LINE ROUTE



REFERENCE(S)

1. TRAILS, WATER FEATURES, ROADS, MUNICIPAL BOUNDARY, PARK/PROTECTED AREAS, BARKERVILLE HISTORIC TOWN/PARK, CITIES (INSET), PROVINCIAL BORDERS (INSET) OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.
2. HILLSHADE DERIVED FROM LIDAR DATA FLOWN BY MCELHANNAY CONSULTANTS LTD. JUNE 27, 2016.
3. BASE DATA SOURCE: ESRI, GEOBASE, NRCAN, AND THE GIS USER COMMUNITY.
4. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

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OSISKO DEVELOPMENT

CARIBOO GOLD PROJECT

PROJECT LOCATION AND COMMUNITIES

REV.	DESCRIPTION	DATE	INITIALS
A		2021-07-02	M.Y

PROJECT NO.	PHASE	REV.	FIGURE
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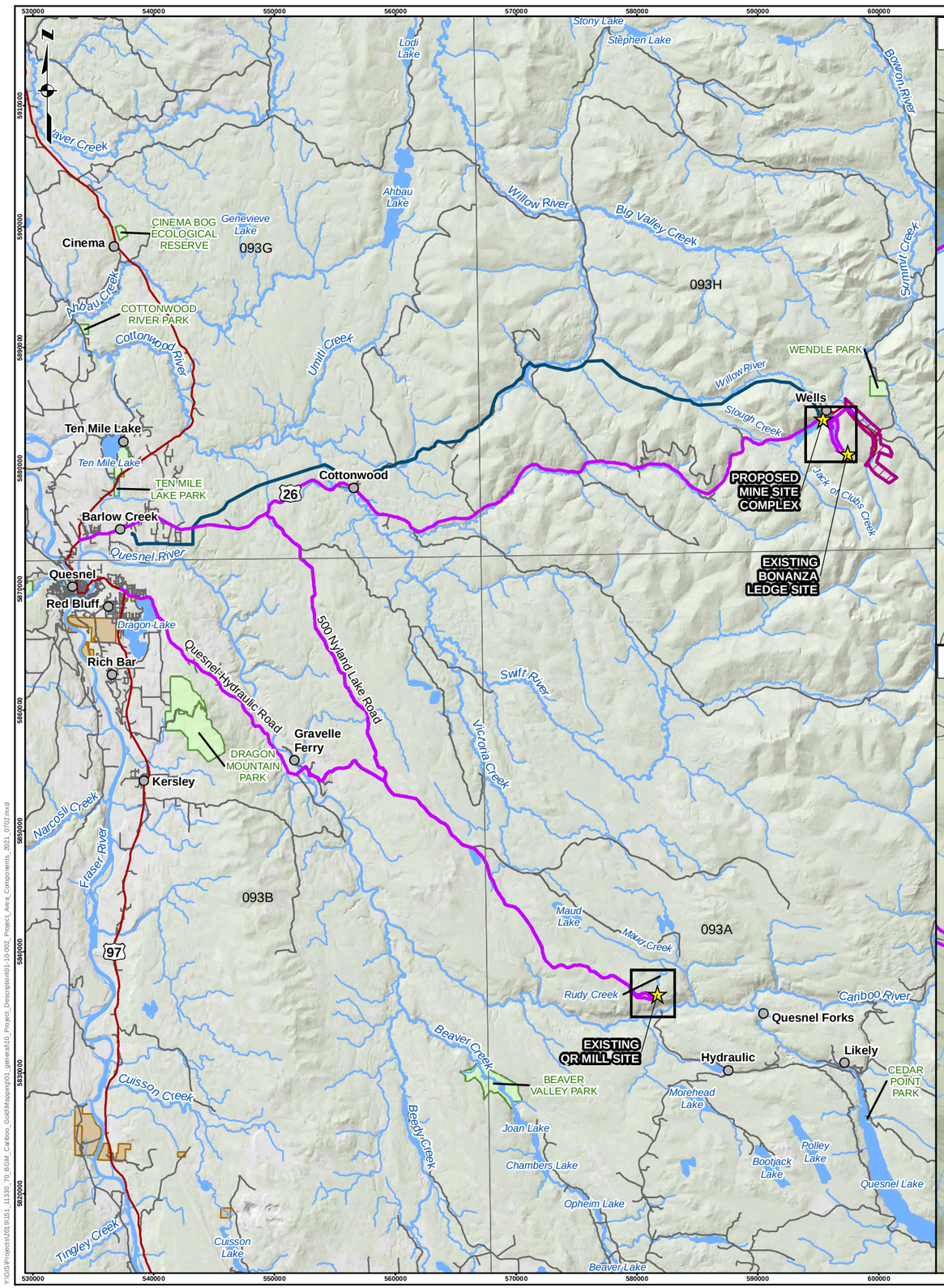
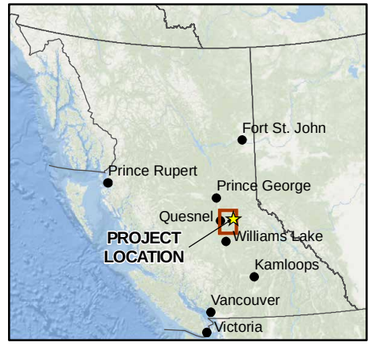


LEGEND

- POPULATED COMMUNITY
- PROPOSED PROJECT INFRASTRUCTURE LOCATION
- ROAD
- HIGHWAY
- WATERCOURSE
- WATERBODY
- PARKS/PROTECTED AREA
- FIRST NATION RESERVE
- BARKERVILLE HISTORIC TOWN AND PARK
- PROPOSED TRANSPORTATION ROUTE
- PROPOSED TRANSMISSION LINE ROUTE
- SURFACE DISTURBANCE AREA



REFERENCE(S)

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2. CITIES/TOWNS, INDIAN RESERVES, FEDERAL LANDS AND PARK/PROTECTED AREAS OBTAINED FROM BC MINISTRY OF FORESTS, LANDS NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.
3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

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OSISKO DEVELOPMENT

CARIBOO GOLD PROJECT

OVERVIEW OF MAJOR PROJECT COMPONENTS

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PROJECT NO.	PHASE	REV.	FIGURE
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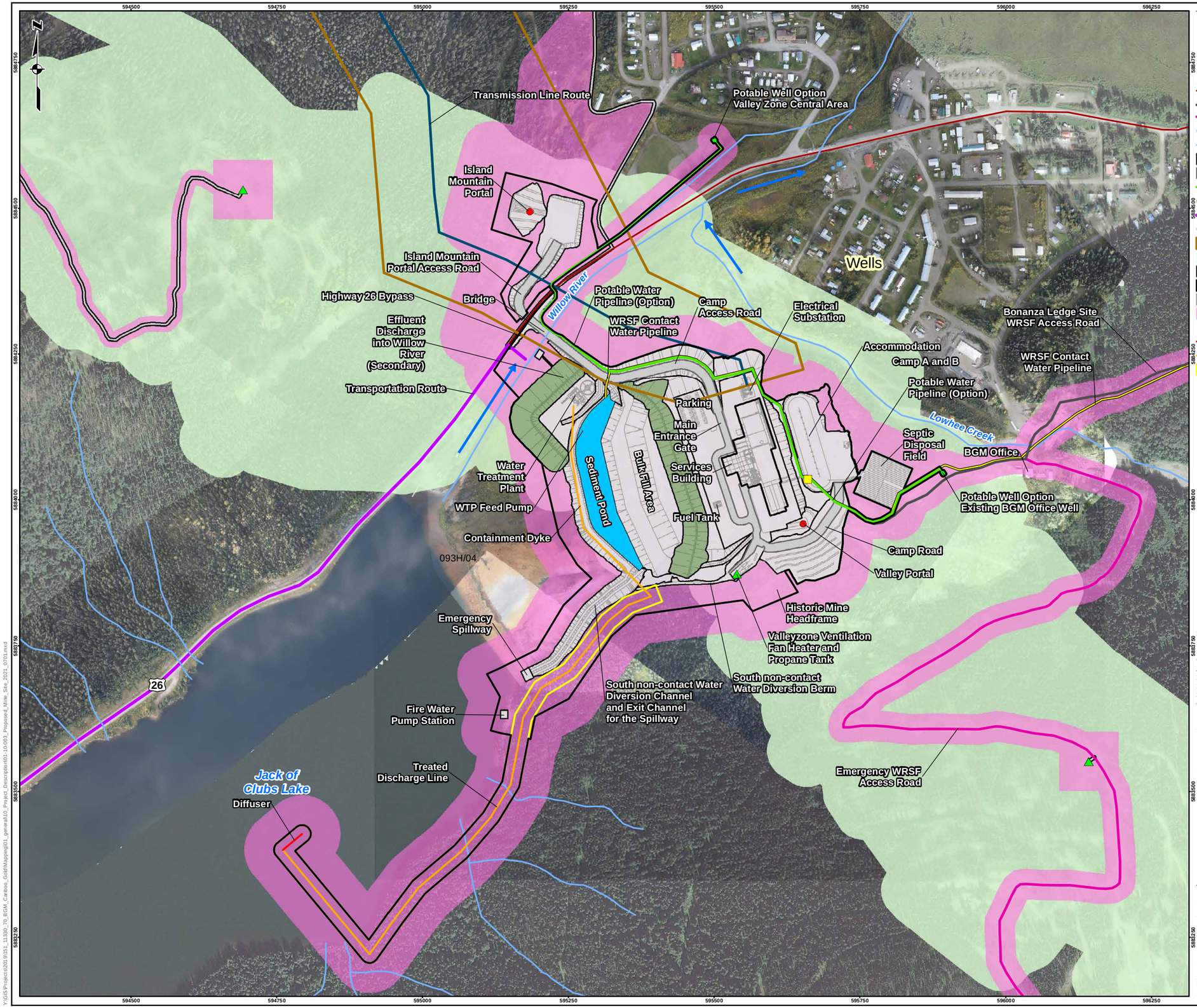
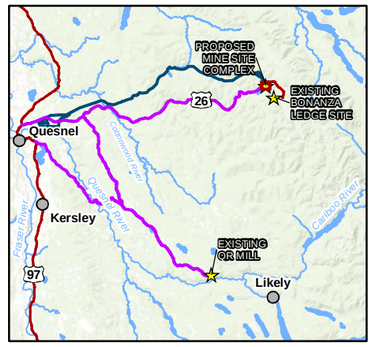


LEGEND

- PROPOSED MINE PORTAL LOCATION
- PROPOSED POTABLE WELL OPTIONS
- PROPOSED POTABLE WELL DESTINATION
- PROPOSED VENTILATION RAISE
- HIGHWAY
- BONANZA LEDGE SITE WRSF ACCESS ROAD
- EMERGENCY WRSF ACCESS ROAD
- FLOW DIRECTION
- WATERCOURSE
- VENTILATION RAISE ACCESS ROAD (EXISTING)
- PROPOSED CAMP ACCESS ROAD
- PROPOSED POTABLE WATER PIPELINE (OPTIONS)
- PROPOSED EFFLUENT DISCHARGE LINE
- PROPOSED TRANSPORTATION ROUTE
- PROPOSED TRANSMISSION LINE ROUTE
- PROPOSED TRANSMISSION LINE CORRIDOR
- PROPOSED MINE SITE SEDIMENT POND
- PROPOSED MINE SITE SURFACE INFRASTRUCTURE
- PROPOSED MINESITE DISTURBANCE OUTLINE
- PROPOSED MITIGATION BERM
- PROPOSED SURFACE FOOTPRINT
- PROPOSED UNDERGROUND FOOTPRINT
- PROPOSED TREATED DISCHARGE LINE
- PROPOSED DIFFUSER PIPELINE
- PROPOSED DIFFUSER/PIPELINE BUFFER 15M



REFERENCE(S)

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CARIBOO GOLD PROJECT

MINE SITE COMPLEX EXISTING AND PROPOSED SURFACE INFRASTRUCTURE

REV.	DESCRIPTION	DATE	INITIALS
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PROJECT NO.	PHASE	REV.	FIGURE
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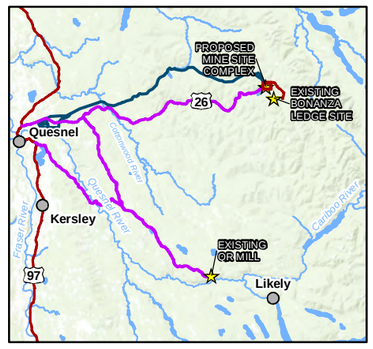
LEGEND

- INTERCEPTION WELLS
- POTABLE WATER WELL
- WATERCOURSE
- FLOW DIRECTION
- PROPOSED TRANSPORTATION ROUTE
- PROPOSED SURFACE FOOTPRINT
- PROPOSED FILTERED STACK TAILINGS STORAGE FACILITY
- PROPOSED NEW INFRASTRUCTURE



REFERENCE(S)

1. TRAILS, WATER FEATURES, ROADS, MUNICIPAL BOUNDARY, PARK/PROTECTED AREAS, BARKERVILLE HISTORIC TOWN/PARK, CITIES (INSET), PROVINCIAL BORDERS (INSET) OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.
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OSISKO DEVELOPMENT

CARIBOO GOLD PROJECT

QR MILL - CURRENT AND PROPOSED SURFACE INFRASTRUCTURE

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1.2 Summary Description of the Assessment Scope

An Environmental Assessment (EA) is a planning tool designed to help inform decisions on projects and project impacts that are in the public interest. The EA review process provides a framework to identify and evaluate potential project-related environmental, economic, social, cultural, and health effects, consider appropriate mitigation or enhancements, and characterize potential residual effects.

The assessment of potential project effects specifically targets the valued components (VCs) of the environment that may be affected by the project. Valued components are defined as fundamental elements of the physical, biological, or socio-economic (human) environment, including the air, water, soil, terrain, vegetation, wildlife, fish, economy, health, heritage, and land use components that may be affected by a proposed project. The assessment takes into account the priorities of Indigenous nations, the public, local and regional governments, provincial and federal government agencies, and stakeholders.

Cumulative effects correspond to changes in biological, physical, or socio-economic VCs arising from the implementation of a project in combination with the effects of other past, present, and projects in the reasonably foreseeable future, as well as other activities that have been or that are likely to be carried out within a defined area, called the Cumulative Effects Assessment Area (CEAA).

Osisko Development Corp. (ODV) has ensured that the EA is supported by studies for the technical, environmental, and socio-economic components of the Project. Since 2016, through ongoing consultation and engagement, ODV has informed Indigenous nations, provincial government representatives and agencies, local and regional government representatives, community and economic organizations, adjacent permit/authorization holders, non-government organizations, local and regional businesses, and residents about the Project, and have considered their feedback throughout Project planning.

In collaboration with the BC Environmental Assessment Office (EAO), ODV has developed a general approach for assessing potential Project-related effects to selected VCs. The approach for defining the scope of the assessment is provided in detail in Chapter 6 and summarized below:

1. Define the assessment boundaries (Chapter 6.2);
2. Describe the existing conditions of the VCs within the established assessment boundaries (Chapter 6.3);
3. Describe Project phases and associated activities (Chapter 6.4.1), identify potential Project-VC Interactions for each Project phase and activity, and determine associated potential effects to be assessed (Chapter 6.4.2);
4. Identify and evaluate mitigation or enhancement measures to effectively manage potential Project-related effects (Chapter 6.5.1);
5. Identify and describe potential positive residual effects and outcomes (Chapter 6.6); and

6. Identify and characterize potential adverse residual effects using the following criteria: context, magnitude, extent, duration, reversibility, frequency, and affected populations. Also, consider the importance, risk, and uncertainty associated with each potential adverse residual effect (Chapter 6.7).

Figure 5 Assessment Approach

(Source: EAO Effects Assessment Policy, April 2020)

1.3 Engagement Activities

Osisko Development Corp. (ODV) approached Project planning with the intent of reducing potential environmental and social effects through Project design. Engagement with Indigenous nations, the public and stakeholders for the Project started in 2016, early in the Project planning process. Osisko Development Corp. (ODV) identified numerous and varied opportunities for the public and stakeholders to build awareness and understanding of the Project, and to facilitate the exchange of information and feedback from Indigenous nations, the public, local and regional governments, provincial and federal governments, and stakeholders. Participants were asked how they would like to be engaged, and what type of information would be helpful in facilitating their understanding of the Project and their input into Project planning (e.g. level of detail, type of interaction, public or private meetings, how input is documented and used, etc.).

The engagement activities for the Project are framed by the following principles:

- Shared Process;
- Respect;
- Timeliness;
- Relationships;
- Inclusiveness;
- Responsiveness; and
- Open communication.

Input received throughout the engagement process informed the development of activities and materials that addressed the needs of participants and has been reflective of ODV's engagement principles and desire to establish open communication through Project planning, the EA, permitting, construction, operation, closure, and post-closure.

1.3.1 Indigenous Nations

Osisko Development Corp. (ODV) has been conducting ongoing Indigenous nation engagement activities for the Project since 2016, following the principles of the United Nations Declaration on the Rights of Indigenous People to seek free, prior, and informed consent before adopting and implementing legislative or administrative measures that may affect them (United Nations General Assembly, 2007). Engagement activities have been conducted with the following Indigenous nations:

- Lhtako Dené Nation;
- Xatśūll First Nation;
- Williams Lake First Nation (T'exelc);
- Nazko First Nation; and
- Tsilhqot'in National Government (?Esdilagh).

Engagement activities have included meetings, presentations, site tours, phone calls, and submission of Project documents for review. Information provided to ODV from Indigenous nations through these activities, and comments on various submissions through the EAO, have been considered for implementation into Project planning and design.

Building on the engagement principles identified above, ODV's objectives specific to Indigenous nation engagement are to:

- Identify Indigenous nations who may be impacted by the Project and, through ongoing engagement, determine how they wish to be consulted;
- Provide timely and reasonable levels of capacity resources, in addition to potential funding, in order to assist potentially impacted Indigenous nations to participate in Project engagement;
- Provide timely and relevant Project information and seek feedback from Indigenous nations on Project-related impacts, interests, and concerns;
- Understand Indigenous nations' governance, community interests, and priorities;
- Determine what practices, traditions, or customs have been or are currently being engaged in by Indigenous nations near the proposed Project and determine how these practices, traditions, or customs may potentially be impacted by the Project;
- Collaboratively explore appropriate measures to avoid, mitigate, or otherwise address potential Project impacts on rights recognized and affirmed by Section 35 of the *Constitution Act, 1982*;
- Ensure that issues raised by Indigenous nations related to the proposed Project are considered in the development and implementation of the Project and that such issues are addressed to the extent that they are not resolved or otherwise accommodated, as appropriate; and
- Develop positive, long-term relationships with Indigenous nations.

At this time, no applicable Indigenous nation arrangements between governments have been made. In October 2020, a Project Agreement was signed between ODV and Lhtako Dené Nation. Agreements with Xatśūll First Nation and Williams Lake First Nation are in negotiation.

Details pertaining to specific engagement activities, dates, locations, and concerns or issues raised by each of the engaged / notified Indigenous nations are provided in the following Chapters:

- Lhtako Dené Nation – Chapter 11;
- Williams Lake First Nation – Chapter 12;
- Xatśūll First Nation – Chapter 13;
- Nazko First Nation – Chapter 14; and
- The Tsilhqot'in National Government – Chapter 15.

1.3.2 Public and Stakeholders

Osisko Development Corp. (ODV) recognized early in Project planning that the key to a successful engagement program was ensuring that stakeholders were identified and had the opportunity to participate in a manner that was both meaningful and practical for them. Osisko Development Corp. (ODV) continues to actively engage with the public and stakeholder groups to ensure that Project decisions are made with the best available information. The information provided in this Section pertains to the participation in engagement activities that was completed prior to the final stages of Application development and submission. This participation was essential to ensure that ODV and, in turn, the Project benefitted from local knowledge and expertise, and that ODV was aware of and addressed impacts, issues, and concerns, and enhanced benefits, in a manner appropriate to the stakeholders. With a view to preparing an initial list of stakeholders, ODV considered the area that had the potential to interact with, or be affected by, the Project and the nature of potential interactions. The stakeholders list was prepared based on defined criteria (provided in Chapter 3, Section 3.2). To help ensure that input into the Project could come from a broad and diverse group of stakeholders in accordance with the principles of gender-based analysis plus (GBA+), ODV identified actions that were then taken to facilitate participation of groups of people who may have been underrepresented during prior engagement (such as seniors, youth, unemployed persons, people with disabilities, poor persons, women, new Canadians, LGBTQ2, families, etc.)

Engagement with stakeholders and the public to date has primarily been through community meetings, one-on-one meetings, community events (both ODV and community hosted), ODV's Community Relations office (including public displays in the office), and information materials.

Osisko Development Corp. (ODV) sought input from the public and stakeholders both on the Project and on engagement methods to ensure that the methods being employed facilitated participation in Project planning and review. Input from the public and stakeholders was documented in several ways, including meeting notes, feedback forms, phone and e-mail records, and tracking tables. Osisko Development Corp. (ODV) maintains records of Project-related stakeholder engagement activities, concerns raised, and responses provided to ensure that the engagement process is accurately

reflected and that the interests and concerns of the public and stakeholders, and the means through which they were responded to, are recorded and addressed.

Osisko Development Corp. (ODV) recognizes that it is important that the public and stakeholders understand how their input has influenced Project planning and the engagement process. Feedback to questions and comments is provided through direct responses to those raising questions and comments, during meetings with stakeholders, at community meetings, and through communication materials. Given the strong presence of ODV representatives in the community, most questions and comments were responded to in person when they were raised, or at subsequent meetings.

Information regarding the reasons for decisions, and the range of input on an item, was also discussed with the public and stakeholders. In many cases, both existing operations and Project-related items were discussed and these discussions were documented. Feedback received was conveyed to the technical and study teams to ensure it was appropriately considered in Project and study planning. Feedback has been reflected in the Initial Project Description (IPD), Detailed Project Description (DPD), and Application Information Requirements (AIR), as well as in this Application.

The Project refinements that resulted from Engagement activities both prior to and during the Early Engagement Phase and Process Planning Phase display ODV's commitment to working with the communities and stakeholders to avoid, minimize, and mitigate Project effects and to enhance benefits.

Details pertaining to identification of specific groups, engagement activities, dates, locations, and concerns or issues raised by the public and stakeholders are provided in Chapter 3.

1.3.3 Local, Provincial, and Federal Governments

Osisko Development Corp. (ODV) recognizes that engagement with local, regional, provincial, and federal governments, agencies, and staff is important in Project planning and in ensuring that the requirements of regulatory and permitting processes are met efficiently and effectively. It was understood early that the level of involvement and interest in the Project would differ amongst organizations and, therefore, communications and engagement would vary.

Provincial and federal government engagement was primarily focused on:

- Ensuring accurate and thorough understanding of the EA requirements, jurisdictional responsibilities, and the EA review process;
- Seeking input for consideration during Project planning, review, construction, operations, and closure in a manner that facilitates government participation and helps to ensure that the Project is aligned with the interests and goals of provincial and federal governments; and
- Ensuring that engagement undertaken with Indigenous nations, the public, and stakeholders meets regulatory (i.e., *BC Environmental Assessment Act* (BCEAA), 2018) and permitting requirements.

Engagement with local governments for the Project started early in the Project planning process. Osisko Development Corp. (ODV) identified various opportunities for local governments to build

awareness and understanding of the Project and to facilitate the exchange of information and receive feedback. Identification of which local governments to engage with was based on:

- Their proximity to the Project;
- The fact that they represented residents living in the area around the Project and the area from which services were anticipated to be sourced;
- Their knowledge of the area, including in identifying Interested Parties who might have knowledge relevant to Project planning and review;
- Their ability to identify existing interests and concerns, as well as mitigation measures, appropriate to the area; and
- Their understanding of the materials and activities that had been successful in their communities in the past.

The following local government bodies were identified based on the criteria above, and have been involved in the engagement process beginning in Project planning and continuing through the Early Engagement, Process Planning, and Application Development and Review Phases, as required:

- District of Wells;
- City of Quesnel;
- City of Prince George;
- City of Williams Lake;
- Cariboo Regional District;
- Regional District of Fraser Fort George; and
- North-Central Local Government Association.

Details pertaining to identification of government bodies with whom to engage, engagement activities, dates, locations, and concerns or issued raised by each level of government are provided in the following chapters:

- Regulatory Framework - Chapter 2;
- Local Government Engagement - Chapter 4; and
- Reviews of Information Summary (a summary of the reviews of information from the Technical Advisory Committee that supported the development of the Application) - Appendix 20.4.

1.4 Key Issues Summary

1.4.1 Indigenous Nations

A summary of the key issues that were identified by Indigenous nations during the engagement process is provided in Sections 4.1.1 through 4.1.5.

1.4.1.1 Lhtako Dené Nation

Key issues and interests identified by Lhtako Dené Nation are summarized below. Additional detail and responses from ODV are provided in Chapter 11.

- Training and employment for community members to provide longer term benefits and opportunities.
- Types of jobs which could be made available, education, training, and apprenticeship opportunities, and ODV's plans or policies regarding the hiring of Indigenous persons.
- Partnerships with local governments and industries around land management and the possibility of training and employing Lhtako Dené Nation members.
- Business opportunities and having band-owned businesses provide services for the Project, whether through contract arrangements or joint-ventures.
- Support from ODV in providing community-based projects, initiatives, events, and overall enrichment.
- Potential disturbance of spiritual sites and culturally sensitive areas.
- Consideration of traditional knowledge in all aspects of the Project and consideration of this information along with environmental effects.
- Discussion of study methods with Lhtako Dené Nation prior to their completion to ensure that the baseline scope and data collection would be sufficient to support an EA.
- Involvement of Lhtako Dené Nation in both the identification of VCs and in the development of mitigation strategies when they might be impacted.
- Focus of cumulative effects around identified VCs.
- Provision of a variety of participation options to facilitate involvement, including meetings, site tours, and one-on-one discussions.
- Importance of considering future use and the maintenance of the health of, and access to, significant areas for following generations.
- Potential for roads used by Lhtako Dené Nation to be restricted or controlled by the Project, or potential for areas of importance (fishing, hunting, trapping, gathering, and harvesting sites) to be blocked off.
- Impact of new roads and access routes on surrounding areas, such as dust and emissions produced near berry harvesting areas.
- Potential effects to plants which are rare or of cultural significance, including those that are commonly harvested.
- Changes to transportation routes, either overland or by water, which are located within the Surface Footprint (area of anticipated surface disturbance in associated with the Project, as shown on Figures 1 - 4).
- Potential effects to water quality, both in terms of surface water and groundwater, including fish and fish habitat, stream hydrology, potable water, and ecosystems and wetlands.
- Physical changes to waterways as a result of the Project, as well as degradation and contamination via overland flow, seepage, and effluent.

- Potential effects to terrestrial and aquatic animal species, including Southern Mountain Caribou, through the disturbance or loss of critical habitat and wildlife corridors from land clearing, disturbance or loss of salmon from water impairment, and terrestrial wildlife mortality from increased traffic.
- Potential for air quality to be impaired from pollution such as contaminants, greenhouse gas emissions, and increased dust emissions.
- New disturbance as a result of the Project overall, as well as potential effects of the proposed Transmission Line route.
- Management of water at both the Mine Site and QR Mill, particularly around discharge and treatment, and the historical non-compliance associated with past operations.
- Tailings management and filtered tailings storage, including potential effects on water quality and aquatic resources in the Quesnel River.

1.4.1.2 Williams Lake First Nation

Key issues and interests identified by Williams Lake First Nation are summarized below. Additional detail and responses from ODV are provided in Chapter 12.

- Employment and training for community members to provide longer term benefits and opportunities.
- Consideration of traditional knowledge in the Project and Project studies, and further discussion on how indicators and thresholds for Indigenous traditional use and sensate measures would be incorporated in the assessment.
- Involvement in archaeological studies in the area of the QR Mill, and in exploring the potential effects on cultural heritage.
- Physical and emotional safety of vulnerable community members, especially Indigenous women and girls.
- Potential effects to water quality downstream of the QR Mill, including the existing conditions on-site and details regarding the storage of potentially-acid generating rock material at QR Mill.
- Development of traditional use studies in the area of the QR Mill as well as access roads leading to the QR Mill.
- Potential effects of the QR Mill, including to wildlife and wildlife habitat, vegetation, downstream fish habitat, and salmon populations.
- Road use and the cumulative effects of traffic on access roads to QR Mill.

1.4.1.3 Xatśūll First Nation

Key issues and interests identified by Xatśūll First Nation are summarized below. Additional detail and responses from ODV are provided in Chapter 13.

- Support for education and training for community members, including on-the-job training.
- Opportunities to Indigenous-owned businesses to act as suppliers for the Project, and whether there were contracting or joint-venture opportunities.

- Information about ODV's Indigenous hiring practices, engagement protocols, and agreements.
- Formation of a Project Agreement and receipt of Capacity Funding to retain resources to work on ODV-focused projects.
- Involvement in the studies and assessments surrounding the Project.
- Inclusion of community well-being and food security, as well as other Indigenous considerations, in Community Health.
- Emergency procedures for the community during mine site shutdowns, in light of the Mt. Polley incident.
- Physical and emotional safety of vulnerable community members, especially Indigenous women and girls.
- Consideration and incorporation of traditional knowledge for all Project studies, including incorporation of indicators and thresholds for Indigenous traditional use and sensate measures would be incorporated into the Project EA.
- Involvement in alternative assessments, field studies, VC identification, archaeological studies, study design, preliminary field reconnaissance studies, any archaeological finds, characterization of the employment and economic baseline, and development of mitigation and management strategies.
- Recognition that the interests of Indigenous and non-Indigenous people may differ, and thus presentation of Indigenous data separately from non-Indigenous data as well as from other Indigenous nations.
- Scoping of environmental and socio-economic baseline scopes sufficient to support effects assessment, provision of sufficient detail on the Project and the environment in the Project Description to enable a complete assessment, and consideration of both positive and negative effects.
- Scoping of the cumulative effects assessment, including how climate change would be incorporated and that the existing condition of Xatśūll First Nation traditional area was not representative of pre-mining conditions.
- Completion of a traditional land use study in the area of the Project and the local region and involvement in any land stewardship initiatives.
- Potential effects to water quality from the Project and consideration of critical habitat for Southern Mountain Caribou.
- Traffic travelling past the Xatśūll First Nation community and modifications made to access roads due to the Project (e.g. widening or lengthening).
- New disturbance for the Project overall and an understanding of closure and reclamation plans prior to Project operating.
- Implementation of monitoring systems for water quality and quantity monitoring.

1.4.1.4 *Nazko First Nation*

As of the submission of the Application, Nazko First Nation has not provided any comment on the Project. Osisko Development Corp. (ODV) will continue to provide Project information to Nazko First Nation as the Project develops.

1.4.1.5 *Tsilhqot'in National Government*

As of the submission of the Application, the Tsilhqot'in National Government has not provided any comment on the Project, other than to express interest in employment and business opportunities related to the Project. Osisko Development Corp. (ODV) will continue to provide Project information to the Tsilhqot'in National Government as the Project develops.

1.4.2 Public and Stakeholders

A summary of the key issues that were identified by the public and stakeholder groups during the engagement process is provided below, with specific issues and ODV responses for addressing those issues provided in Section 3.4.2.

Primary concerns with the Mine Site Complex Project components included visual impacts and noise, light, dust, and traffic concerns. Osisko Development Corp. (ODV) refined the Project through mitigation by design and looked at alternatives to minimize effects to the community of Wells. The original design of the Mine Site Complex layout (August 2019) showed multiple buildings for various components. In the Initial Project Description, the Project had been refined to show one building housing multiple components, including the concentrator, offices, warehouses, and other surface infrastructure (now referred to as the Services Building). This update came as a response to public concern regarding noise, light, and dust generation. The use of one building centralizes the lighting requirements and contains the noise and dust generation to one location. To address concerns regarding mine traffic through Wells, ODV included a bypass to the Mine Site Complex from Highway 26. All large truck traffic will be contained within the Mine Site Complex, access roads for hauling waste rock and ore sorter waste to the Bonanza Ledge site, with no truck traffic going through Wells.

Primary concerns with the Transmission Line component of the Project included selection of the route alternative, creation of a new disturbance corridor, and potential effects on visual quality and the environment, including potential effects on caribou and caribou habitat.

Potential effects of the Project on water quality, potential effects of the Project on accommodations in the Wells area, potential for a tailings dam breach associated with the Project, and reclamation were also raised as concerns by the public and stakeholders. Economic benefits and opportunities were raised as a potential opportunity associated with the Project.

1.4.3 Local, Provincial, and Federal Governments

Primary concerns with the Project from government agencies included the state of existing infrastructure in the District of Wells and potential effects of the Project on that infrastructure, increased traffic form the Project in the District of Wells, and potential socio-economic effects of the Project.

Comments during presentations indicated support for the Project and the positive effects of jobs and the Project's development. Specific issues and ODV responses for addressing those issues are provided in Section 4.4.2 for local Governments. A summary of the reviews of information from the Technical Advisory Committee that supported the development of the Application is provided in Appendix 20.4 (tracking all comments received and ODV responses including how documents were updated, where appropriate, to address comments).

1.5 Key Effects Summary

1.5.1 Summary of Potential Effects and Proposed Mitigation

Potential effects were identified through consideration of potential interactions between Project components / activities and selected VCs. These potential effects were then assessed through consideration of clear measurement indicators (e.g. related to quantity or quality values/thresholds); this allowed for potential effects to be carefully scrutinized and tracked individually and for mitigation measures to be developed that limit potential effects or for systems to be put in place (engineered or otherwise) that help control or eliminate potential effects or disturbances.

To control Project-related effects, mitigation measures were identified to eliminate or reduce potential effects. Common mitigation measures included controlling areas of impact (i.e. minimizing disturbance), developing and implementing management plans, and having monitoring plans in place to determine the effectiveness of management plans and to adaptive management strategies accordingly based on monitoring results. With respect to Project works, was also an emphasis on Project design mitigation. The following is a non-exhaustive list of mitigation measures that have been incorporated into the design of the Project, by area.

Mine Site

- Maximizing the use of existing infrastructure and brownfield sites to limit the amount of new disturbance attributable to the project. Excess waste rock (i.e. beyond that used as fill material at the Mine Site Complex) and ore sorter waste will be backfilled as cemented rock fill, for underground road maintenance and excess will be transported to the Bonanza Ledge site (an existing brownfield site) for storage.
- A highway bypass will be built to separate mine transportation activities from the town and avoid traffic going to town and associated noise and dust.
- A Water Treatment System (WTS) will be used for treating contact water at the Mine Site, prior to discharge into Jack of Clubs Lake.
- Visual quality was considered in the design of the Services Building to blend in with the surrounding environment, and associated landscaping and replanting program.
- Two portals will be established concurrently (Island Mountain Portal and Valley Portal) which will reduce the duration of the Construction Phase by approximately one year, thus reducing dust, noise and lighting impacts associated construction activities.

- Electric Roadheaders will be used underground to reduce the use of explosives and generation of explosive residue in the water, combustion gas in the air and vibration caused by blasting.
- Electric and automated underground equipment and haul trucks will be used to reduce emissions, improve energy efficiency, minimize noise emissions on surface and maximize safety for personnel.
- The processing design for the Cariboo Gold Project uses a 2-step concentrating strategy which provides several important benefits from an environmental perspective. The first step of concentrating the mineralized material will be done by ore sorting technology. The ore sorter is able to separate the mineralized material from the barren material by a simple mechanical process that doesn't require any water or use of chemicals and can work at a size fraction from 10 mm to 32 mm (i.e. grinding is not required). Using this technology reduces the amount ore requiring processing by approximately 30% to 40%. In the first two years, before the flotation circuit is operational, ore sorting will be undertaken and will reduce the number of trucks required to transport the concentrate to the QR Mill of the same factor (30% to 40% less trucks).
- In Years 3 – 16, the second step of concentrating is flotation. Through the use of flotation, another 80% to 85% of barren rock from the mineralized material can be separated. By using this strategy only 13% of all mined ore is sent to QR Mill as concentrate (and produces tailings that will be stored on surface). This approach further reduces water consumption, chemical, and energy requirements compared to traditional processing for gold (the lixiviation stage).
- Crushing will be conducted underground to reduce surface disturbance, and ore will be transported by a vertical conveyor directly inside the mill to, reduce noise and dust emitted at surface. No equipment will be required at surface to transport ore to the concentrator, minimizing equipment on surface which substantially reduce noise and dust emissions.
- Flotation tailings will be used for paste backfill, thus eliminating the need for surface tailings disposal at the Mine Site (in proximity of the community of Wells) and reducing the size of the WRSF at the Bonanza Ledge site. Having no tailings disposal facility on surface has considerable benefits from an environmental and risk perspective, with no structure retaining mine tails and water required.

QR Mill

- The Surface footprint has been reduced by incorporating the use of an existing site and mill.
- A WTS will be utilized to treat contact water prior to discharge.
- The Project will incorporate filtered stack tailings on top of the existing TSF that will eliminate the need to expand the footprint required to manage tailings and use the new produced tails to help with the reclamation of the old tailings pond. The use of filtered tailings, when placed over top of the existing tailings, will avoid importing material from a borrow site and help ongoing desaturation of the existing tailings (beyond the initial TSF drawdown period during construction), thereby contributing to reclamation of the existing TSF.

Transmission Line

- The routing and footprint were optimized to avoid Wendle Provincial Park, and to minimize disturbance to critical habitat for Southern Mountain caribou and ungulate winter ranges.
- Routing of the transmission line maximized the utilization of existing disturbance corridors and reduced the need to create new access roads since planned access is facilitated via roads used previously for logging.
- Construction and use of a transmission line are anticipated to result in reduced GHG emissions, given the reduction in the requirement for local diesel-power generators through the Operations Phase.

In addition to the above Project design mitigations, best management practices (BMPs) have been developed or adopted wherever possible for mitigating potential Project effects. BMPs describe science-based recommendations to help proposed developments plan and carry out their activities in an environmentally sensitive manner. Following regulatory standards, current industry standards, and best management practices were integral in the development of mitigation measures for identified potential Project effects.

Several predicted Project-related impacts are temporary in nature or have the potential to be reduced or reversed as the Project progresses. The reclamation, management, and monitoring activities planned in closure and post-closure, in conjunction with implementation of thorough management plans to be developed prior to the Construction Phase of the Project, support a reduction in residual effects associated with the Project. Refer to Table 1 for a list of management plans. A brief description of each plan (purpose and objectives) is provided in Appendix 20.1.

Table 1 Project-specific Management and Monitoring Plans

Management Plans	Monitoring Plans
• Environmental Management System (EMS) • Archaeological and Cultural Heritage Resources Management Plan, including a Chance Find Management Plan • Chemicals and Materials Storage, Transfer and Handling Plan • Community Involvement Plan • Construction Environmental Management Plan; • Discharge Management Plan • Explosives Management Plan • Filtered Tailings Management Plan • Fuel Management and Spill Contingency Plan • Ground Control Plan • Health and Medical Services Plan • Indigenous Partnership Plan; • Invasive Plant Management Plan • Mine Emergency Response Plan • Mine Site and QR Mill Water Management Plans • ML/ARD Management Plan • Noise Management and Monitoring Plan • Occupational Health and Safety Plan • Reclamation and Closure Plan • Soil Management Plan • Surface Erosion Prevention and Sediment Control Plan • Traffic Control Plan • Vegetation Management Plan; • Waste (Refuse and Emissions) Management Plan, including Fugitive Dust Control Plan; • Waste Rock and Underground Materials Management Plan • Wildlife Management Plan, including a Caribou Mitigation and Management Plan	• Aquatic Effects Monitoring Program • Air Quality Monitoring Plan (as part of the Waste (Refuse and Emission Management Plan) • Community and Stakeholders Concerns and Issues Monitoring Plan (as part of the Community Involvement Plan) • Environmental Monitoring Plan • Noise Monitoring Plan (as part of the Noise Management and Monitoring Plan) • Socio-Economic Monitoring Plan • Traffic Monitoring Plan (as part of the Traffic Control Plan) • Indigenous Nations Concerns and Issues Monitoring Plan (as part of the Indigenous Partnership Plan)

Table 2 provides a summary of potential Project effects and the associated proposed mitigation measures for VCs assessed in Chapter 7.

Table 2 Summary of Potential Effects and Mitigation Measures

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
Air Quality (Section 7.2)	Increase in ambient criteria air contaminant concentrations (including dust)	• Where practicable, select equipment with low emissions and engines that meet latest applicable Canada emissions standards and guidelines. • Equipment will be properly maintained. • Equipment will be turned off when not in use, where practical. • Use of vapour recovery units at fuel and chemical storage tanks. • The ventilation systems for the underground mine will be designed to dilute and remove diesel emissions and blasting fumes, and will maintain compliance with BC mine regulations. • Road design and material/waste transport plans will be optimized to minimize the distance travelled. • Management of construction and demolition activities to minimize emission of dust. • Stockpiles and storage areas will be designed and managed to minimize emission of dust. • Roads will be regularly maintained and kept in good repair. • Use of dust suppression measures to mitigate dust generation potential along unpaved haul roads, work areas, and storage piles as needed • Underground mining will result in significant reductions in Project emissions, such as from fuel burned during excavating, hauling waste rock, and blasting underground. • Implementation of and strict adherence to speed limits. • Use of emission control measures on point sources (concentrator and QR Mill) and transfer point emissions (e.g., dust collectors, scrubbers). • The number of trips for haul trucks will be minimized as much as possible. • Haul trucks will have trailer covers to minimize fugitive dust emissions.
Acoustic (Section 7.3)	• Increase in the acoustic environment and low frequency noise	• Keep idling of construction equipment to a minimum and maintain equipment in good working order.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Increase in impulsive noise • Increase in vibration	• Use construction equipment with manufacturer recommended noise mitigation measures (e.g. muffler systems) and conduct proper maintenance. • Implement administrative controls such as planning activities considering timing constraints or scheduling specific construction activities to minimize disturbance to receptors (e.g., not concentrate equipment near a receptor). Investigate complaints and implement corrective actions. • Limit use of back up beepers and use broadband alarms (white noise) for all equipment. • Monitor blasting noise and vibration at an appropriate setback that is representative of receptors, or at the closest receptor during the first few blasts, especially when they occur near the surface area. • Implement noise-reduction design mitigation, as appropriate (e.g. barriers, building enclosures, sound attenuation enclosures).
Surface Water (Section 7.4)	• Increased erosion and sedimentation and alterations to channel morphology • Increase in pH and alterations in stream flows • Alterations to drainage pathways and drainage areas reporting to receiving environments • Alterations to the groundwater flow and elevation • Reduction in sedimentation and surface runoff • Reduction in stream flows due to water withdrawal • Increase in surface water quantity and changes to surface water quality	• Alteration in stream flows will be temporary and limited in duration and spatial scale. • A surface management system, consisting of contact and non-contact conveyance infrastructure, will be used at both the Mine Site and QR Mill. • Infrastructure will be sized to safely convey or manage the surface runoff reporting from a 200-year, 24-hour storm event. • Adequate storage capacity is available to provide controlled a rate of release during both routine and non-routine operation scenarios. • Routine inspection and maintenance of containment and conveyance structures (i.e., roadside ditches and culverts) to limit the risk of road wash-out or sediment release to the environment. • Vegetation clearing, soil stripping, grubbing, and grading for construction, temporary workspace, or storage areas, will be limited to within the approved Project boundaries and minimized to the extent practical. • Limit steepness and length of slopes of disturbed areas and stockpiled soils. • Avoid placing soil stockpiles on slopes, near waterbodies, and near natural drainage features.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		• Work in sensitive areas will be scheduled to avoid periods that may result in high flow volumes and/or increase erosion and sedimentation. • Reclamation of disturbed areas will occur progressively throughout Project life, and will include contouring and revegetation. • Groundwater removed to facilitate development of the underground mine will be treated to meet permit requirements prior to discharge in the receiving environment. • Water withdrawal volumes will be set at permitted or approved limits, to minimize effects to aquatic environments (i.e., minimum instream flow needs and lake water levels will be maintained). • BMPs will be used in water diversion ditches to minimize indirect or direct mobilization of fine-grained material in non-contact water. • Contact water will be treated to meet permit requirements prior to discharge to the environment. • Treated mine effluent at the Mine Site will be released to Jack of Clubs Lake via a diffuser outfall sited and designed following BC Ministry of Environment and Climate Change Strategy (ENV) guidance, and designed to effectively disperse the effluent through the water and promote mixing of the effluent in the lake ambient water. • Effluent quality will be monitored to confirm effluent meets effluent quality limits and is not acutely lethal to rainbow trout and Daphnia magna. • A monitoring program will be undertaken in Jack of Clubs Lake to validate the plume dispersion modelling results and to verify that permit and regulatory requirements are being met. • Aquatic effects monitoring programs will be conducted in the receiving environment to confirm the lack of adverse effects on aquatic life and to inform adaptive management. • Spill prevention and spill response measures will be implemented. • Speed limits will be enforced. • Water treatment facilities at the Mine Site and QR Mill and associated water management infrastructure will remain active until permit and regulatory requirements are met in the contact water basins.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		• Segregation and storage of potential acid generating material from non-potential acid generating material. • An engineered cover on potential acid generating material will be installed. • Mine waste stockpiles will be covered at closure with low permeability materials. ○
Groundwater (Section 7.5)	• Increased surface water runoff and reduced groundwater infiltration • Alteration of groundwater quantity and quality from discharge from the sewage and septic handing system at the Mine Site Complex • Alteration to groundwater flow and water level elevation from underground dewatering and operation of a water supply well • Alteration to groundwater flow quantity and quality from alteration of seepage from the FSTSF and operation of a water supply well • Alteration in groundwater quality and quantity from seepage from mine waste stockpiles and surface water management systems • Alteration in groundwater quality from structures, equipment, and material handling • Alteration of groundwater flow quantity and quality from underground flooding (post-closure)	• Sewage and septic waste will be piped to a treatment system prior to being discharged to the drainage galleries. Effluent will be treated by the mixed bed bioreactor system. • Groundwater removed to facilitate development of the underground mine will be treated to meet permit requirements prior to discharge to the receiving environment. • Interception wells will be operated at the QR Mill in the event seepage from the Filtered Stack Tailings Storage Facility (FSTSF) results in the migration of poor-quality groundwater and results in surface water concentrations above applicable guidelines/criteria. • A liner will be placed over existing tailings and a cover over the final filtered stack tailings surface • The historical waste material at the Mine Site will be covered by a non-potentially acid generating liner to separate it from the Bulk Fill Area. It will be progressively reclaimed with an engineered cover. • Major site facilities will be lined, and seepage will be collected and managed within the Project water management systems (Mine Site and QR Mill). • The mine waste stockpiles will be covered at closure with low permeability materials. • At closure, salvageable equipment/materials will be removed and infrastructure will be decommissioned. • Transportation, storage, use, and disposal of chemicals and explosives for the Project will be conducted in accordance with BMPs and applicable regulations. • Inert, non-salvageable materials that pose no risk of soil contamination or risk to surrounding waterways will be used as underground backfill on-site or removed off-site.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Reduced groundwater infiltration from reclamation of disturbed areas	• An inspection program will be developed and implemented during operations to determine whether soil has been affected by contamination. • ODV will follow established guidelines for site assessment and remediation strategies used in mitigating and/or remediating contamination. • No unconsolidated backfill (rockfill and/or tailings) will be placed in underground workings. • An alternative water supply from groundwater or surface water will be sourced for the District of Wells. • Hydraulic containment of groundwater from underground mine workings through pumping in potential combination with a low permeability cut-off will be a back-up mitigation. • Reclamation of disturbed areas will occur progressively throughout Project life (including contouring and revegetation).
Soil (Section 7.6)	• Direct loss of soil • Compaction and rutting • Admixing • Contamination • Alteration of terrain stability • Dust accumulation • Acidification and eutrophication	• Salvage and stockpile organic soils, topsoil, and subsoil separately under the guidance of a qualified soil specialist. • Vegetation clearing, soil stripping, grubbing, and grading will be limited to within the approved Project boundaries and minimized to the extent practical. • Soil stripping and storage/stockpiling will be conducted during suitable weather conditions and as directed by a qualified soil professional • Design and construction of soil stockpiles to be geotechnically stable • Stabilizing and erosion control measures will be implemented for soil stockpiles and replaced soils,. • Avoid soil handling of, and vehicle traffic on, wet soil, especially on compressible soils. • Low ground pressure equipment will be used, where possible. • Use of matting if construction is required over wet areas. • Soil decompaction will be conducted as required via subsoiling, discing, and amendments. • Minimize the number of times soil is handled and/or moved and handle soils in a manner specific to soil type, depth, and location.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		• Implementation of a Fuel Management and Spill Contingency Plan. • Implementation of and strict adherence to speed limits. • Apply appropriate setback and buffer distances from surface water bodies and steep slopes. • Use of alternative approaches (design changes) to reduce geo-hazards and erosion. • Adjust timing of Project activities, as appropriate, in areas of terrain stability risk to reduce the associated risks. • Application of engineered slope stabilization and erosion control measures in steep slope and erodible soil areas. • Any temporary workspace or non-operational areas will be reclaimed as soon as practicable using revegetation and amendment measures identified in a Soil Management Plan and Reclamation and Closure Plan, as applicable, using equipment and methods that will reduce soil handling and traffic. • All vehicle and machinery travel will be restricted to designated road surfaces. • Use of dust suppression measures along the unpaved haul roads, work areas, and storage piles as needed • Use of erosion control measures to control movement of metal, acidic or nutrient containing dust and soil. • Where practicable, select equipment with low emissions that meet latest applicable Canada emissions standards and guidelines. • Control of surface run-off from the Mine Site and process areas to protect surface waterbodies from sedimentation. • Management of waste rock and tailings drainage. • Application of BMPs during topsoil and subsoil placement for reclamation.
Vegetation (Section 7.7)	• Loss and alteration of plant species of interest due to Project activities	• Vegetation clearing, soil stripping, grubbing, and grading will be limited to within the approved Project boundaries and minimized to the extent practical. • Existing infrastructure will be utilized, wherever possible, to reduce new vegetation clearing

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Loss and alteration of plant communities of interest due to Project activities • Loss and alteration of wetlands and wetland function due to Project activities • Loss and alteration of ecosystems due to Project activities	Apply adaptive Project design changes that avoid provincially and federally listed plant and lichen populations, where practical. Avoid surface disturbance in areas with known provincially and federally listed plant and lichen populations. Where listed plant populations cannot be avoided, additional mitigation measures will be developed as part of the Project-specific Vegetation Management Plan. The use of herbicides within 200 m of provincially and federally listed plant and lichen populations and wetlands will be limited to direct application rather than broadcast sprays Maintain well-marked restriction zones and/or buffers around provincially and federally listed plant and lichen habitats and provincially listed ecosystems, as well as communicate to all personnel the requirements to limit disturbance to these areas. Stockpiles and storage areas will be designed and managed to minimize emission of dust. Engage a qualified environmental monitor, capable of identifying listed plants and lichen species, to be on site during vegetation-clearing activities in areas of known occurrences All vehicle and machinery travel will be restricted to designated road surfaces. Make mandatory that all vehicles and equipment arriving at or traveling between Project locations are clean of vegetation or other organic debris. Establish erosion and sediment control measures and seed stockpiles immediately after placement. Install windbreaks or fences around known sources of erosion (e.g. dust sources or stockpiles) when physically possible. Pre-construction surveys will be conducted in the mapped whitebark pine proposed critical habitat polygon adjacent to the Surface Footprint, If critical habitat is identified in areas of potential disturbance, mitigation measures will be developed in consultation with regulators. Undertake regular inspections to ensure drainage, erosion, sediment control, and revegetation measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		Ecosystem-specific soil handling procedures will be developed. High-quality soils will be identified and stockpiled when required. Manage revegetation according to the Forest and Range Practices Act silviculture requirements and BMPs. Salvage and stockpile organic soils, topsoil, and subsoil separately Reduce erosion potential by conducting sensitive work during dry conditions and periods of low runoff to the extent practical. Site specific clearing prescriptions will be used for riparian and wetland areas along the Transmission Line. Revegetation will be undertaken using plant materials suitable for the local region and during the appropriate growing season and conditions Monitoring of reclaimed areas will be conducted to ensure they are revegetated according to pre-determined reclamation targets. Stabilizing and erosion and control measures will be implemented for soil stockpiles. Implement ecosystem-based revegetation and progressive reclamation promptly. • Riparian areas (for wetlands and waterways) will be managed according to the recommended management zone setbacks and work practices provided in the Mines Act (1996) and Forest and Range Practices Act (2002).
Wildlife (Section 7.8)	• Loss or alteration of wildlife habitat due to Project activities • Sensory disturbance to wildlife species from Project activities • Disruption to movement patterns or corridors from Project activities • Loss of wildlife species through direct mortality due to Project activities	A wildlife education program will be developed and provided to employees, contractors, and site visitors. Vegetation clearing, soil stripping, grubbing, and grading will be limited to within the approved Project boundaries and minimized to the extent practical. Existing infrastructure will be utilized wherever possible to reduce new vegetation clearing. Avoid activity during sensitive time periods for wildlife species to the extent feasible. If clearing activities must proceed during the migratory bird and raptor breeding season, pre-clearing nesting surveys will be conducted under the direction of a qualified profession and/or established protocol.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Loss of wildlife species through indirect mortality and attractants from Project activities	Species-specific buffer zones and setbacks will be established if Project activities have the potential to affect active nests when possible. Where grading is not required, cut/mow/walk down shrubs and small diameter deciduous trees at ground level to facilitate rapid regeneration. Use natural recovery as the preferred method of interim reclamation on level terrain and at wetlands unless otherwise requested by the regulator and where bio-engineering (e.g., shrub staking/planting) will be conducted. Avoid the use of pesticides (except for herbicides to control invasive plants or noxious weeds; only use as spot treatments and outside the migratory bird breeding season). Reduce the width of grubbing near wetlands and through other wet areas to facilitate the restoration of shrub communities. Avoid crossing through watercourses, which include wetlands and ponds, by heavy equipment or vehicles unless detailed under a special provision in a site-specific prescription or with specific regulatory agency approval. Minimize clearing near wetlands and high suitability habitat patches that intersect or are adjacent to the Transmission Line clearing corridor and upgraded Access Roads. Reduce disturbance at riparian areas, and where practical, extend the riparian buffer by implementing trenchless pipeline crossing techniques, or cut/mow/walk down shrubs and small diameter deciduous trees at ground level to facilitate rapid regeneration. Limit vegetation control along the right-of-way and allow natural regeneration during the Operations Phase to the extent feasible. Install windbreaks or fences around known sources of erosion (e.g. dust sources or stockpiles) when physically possible. Conduct pre-construction surveys to identify site-specific habitat features (e.g., mineral licks, den trees, hibernacula) and implement the appropriate setbacks and/or timing windows. Communicate the location of wildlife habitat features to Project personnel and emphasize the requirement to limit disturbance in these areas.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		Survey for mineral licks pre-construction to ensure mineral licks are not destroyed and an undisturbed path is left for access. If the lick cannot be avoided, consultation with appropriate regulating bodies should be undertaken to reduce impacts to wildlife. Monitor use of mineral licks before and during construction and operations. Retain a 400 m buffer around known mineral licks and associated wildlife trees when possible. Avoid disruption to the natural drainage and groundwater associated with any known mineral licks, where possible. A Caribou Mitigation and Management Plan has been created for the Bonanza Ledge Phase II Permit Amendment Application which will be updated and expanded to include this Project. Use low lighting and/or task lighting (e.g., downturned shaded fixtures to prevent sky-lighting or bird disorientation), put building lighting on sensors or timers, and use a higher lumen/watt ratio on all new buildings or building expansions. Install line of site breaks focusing on the Transmission Line. Place woody debris on the surface to provide habitat features for security of caribou and to foster habitats not suitable for alternate prey species in the area. Comply with appropriate regulatory requirements related to noise during construction and operations of facilities to minimize disturbance related to noise. Implement measures to reduce access (human and predator) along the right-of-way following construction. Where rollback and coarse woody debris are needed for access management, erosion control and habitat enhancement, ensure that a sufficient supply is set aside for this purpose during interim reclamation and final clean-up. Retain vegetation cover for species along the Transmission Line right-of-way using species specific prescriptions when required. During the winter season, gaps or escape pathways should be created in snowbanks to allow wildlife to exit mining road areas if they become entrapped.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		If western toad migration routes are identified within the Project area, control measures will be implemented that include the installation of drift fences or culverts to facilitate toad passage. Identify sections of the Transmission Line with high bird collision risk and include provisions for installation of line markers and bird flight diverters. Conduct work as expeditiously as practical to reduce potential barriers and hazards to wildlife. The use of erosion and sediment control measures, such as silt fencing, should be installed to prevent amphibians from entering the active construction site. Underground portals will be monitored for bat access to prevent entrapment and further risk of mortality from underground project activities. Utilize wildlife signage to minimize the potential of wildlife collisions Maximum allowable speed limits will be followed at all times. Implement vehicle traffic mitigation measures to prevent injury to wildlife. The use of off-road or recreational vehicles is prohibited within the Surface Footprint. Installation of wildlife fencing in areas where disturbances are adjacent to wetlands to prevent amphibians from accessing the construction area and prevent deleterious substances from entering breeding waterbodies. If deceased bats are encountered, they must be reported to the local BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) office. Explosives will be stored on-site in approved explosive magazines and any handling of explosives or blasting activities will follow relevant standard operating procedures to prevent the potential for ammonium contamination. Hazardous materials including batteries, petroleum products, sewage, or contaminated soil will be transported off site and disposed of in accordance with the *Transportation of Dangerous Goods Act*. Minimize traffic by construction personnel on the Transmission Line access roads and at facilities.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		Barrier deterrents such fencing or wire barricades will be installed during the pre-production phase to prevent wildlife from entering the Project area. Project infrastructure will be locked when not in use and fenced to prevent wildlife using the structures and potentially becoming entrapped. Physical deterrents such as fencing will be used along sensitive habitats such as wetlands to prevent amphibians from crossing road surfaces. During continuous progressive reclamation initiatives, seeding will be used that is for sediment and erosion control as opposed to a foraging-attractant to discourage wildlife from entering the reclamation zone. Prohibit personnel from having pets on site. Never approach or harass wildlife. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area. All wildlife attractants must be secured in wildlife proof containers to discourage wildlife entering the active construction area. Report any issues related to wildlife encountered during all Project phases. Appropriate setback and buffer distances from wetland features will be implemented and maintained to prevent harm to amphibians and waterbirds. Design and manage stockpiles and storage areas to minimize dust emissions. All vehicle and machinery travel will be restricted to designated road surfaces. Revegetation will be undertaken using plant materials suitable for the local region and during the appropriate growing season and conditions. Maintain setback and buffer zones around identified wildlife habitat features. Monitor use of features including mineral licks during operation and closure phases. Monitor reclaimed areas to ensure they are revegetated according to pre-determined reclamation targets.
Freshwater Fish (Section 7.9)	• Direct mortality to fish from instream works related to watercourse crossings	Installation of a clear-span bridge over the Willow River to avoid any instream works and to limit impacts to fish habitat.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Direct mortality to fish from increased fishing pressure from access • Loss or alteration of instream or riparian habitat related to construction of watercourse crossings, Transmission Line right-of-way construction and maintenance, and Transmission Line decommissioning • Changes in surface water quality resulting in effects to fish, fish habitat, and aquatic resources from effluent discharges at the Mine Site and QR Mill • Changes in surface water quality resulting in effects to fish, fish habitat, and aquatic resources from sedimentation and erosion along the Transmission Line • Changes in surface water quantity resulting in effects to fish and fish habitat from water management structures at the Mine Site and QR Mill	Conduct work during applicable timing windows to protect fish, unless otherwise approved by the applicable provincial and federal authority. Conduct work in the dry or low flows or frozen to further reduce the risk to fish and fish habitat. Retain a qualified environmental professional to conduct a fish salvage if required. Apply applicable BMPs for in-stream works and working in and around water. Fishing will be prohibited for all employees and contractors while working on-site or while commuting to and from the Project sites. Avoid use of recreational vehicles at the Project sites, unless appropriate approvals have been given. When possible, gates at all ODV properties will be locked when not operating. Close roads that are no longer required for ongoing activities and place obstructions on former roads right-of-ways to deter human access. Revegetate roads and remove culverts and fill material to create irregular mounds and ridges consistent with the surrounding terrain. Riparian areas (for wetlands and waterways) will be managed according to the recommended management zone setbacks and work practices provided in the Mines Act (1996) and Forest and Range Practices Act (2002). Avoid crossing through watercourses, which include wetlands and ponds, by heavy equipment or vehicles unless detailed under a special provision in a site-specific prescription or with specific regulatory agency approval. Restrict debris from entering the high-water mark without specific regulatory agency approval. Conserve low growing vegetation next to watercourses and waterbodies. Minimize tree removal in steep gulches. Control sediment and erosion downstream through the use of erosion and sediment control measures. Maintaining fish passage

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		Fall trees directionally away from watercourse banks to the extent allowed by the need to maintain safe working clearances from the electrical system. Avoid unnecessary grubbing of stumps and roots in riparian habitat. Re-vegetate disturbed areas with native species as soon as possible post-disturbance. Vegetation will be allowed to naturally regenerate following decommissioning of the Transmisssion Line. If there are bare areas or areas of sensitive soils or vegetation, site specific revegetation plans will be developed and implemented by a qualified professional. Application of mitigation measures for water quality, water quantity, and sediment quality. Develop and implement Water Management Plans for the Mine Site and QR Mill, including water treatment. Implement spill prevention and spill response procedures. Implement dust control on roads. Implement progressive reclamation. Implement avoidance or measures for the application of pesticides/herbicides near watercourses. Operate construction and maintenance equipment from land or top of bank in a manner that reduces disturbance to the banks and watercourses. Refuel and wash equipment at least 30 m away from watercourses and waterbodies. Divert all non-contact water away from the Project site into existing drainages. At the QR Mill, the FSTSF collection ponds will be drained. Non-contact ditches will be upgraded to meet closure criteria. Both the South and North Seepage Collection Pond will be reclaimed as open water bodies with vegetated riparian areas, where practicable.
Employment and Economy (Section 7.10)	• Employment opportunities and income for local and regional residents and others	• Inform Indigenous nations, communities, local governments and Regional Districts as early as possible regarding anticipated timing of each Project phase, employee numbers, and duration, as well as the change in requirements from phase to phase.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Generation of revenue for local, provincial and federal governments and creation of economic opportunities and/or challenges for local and other businesses and sectors • During Closure, cessation of employment opportunities for local and regional residents • During Closure, decreased revenue for local, provincial, and federal governments, as well as opportunities for local businesses	• Develop a Socio-Economic Monitoring Plan in consultation with local and regional governments, agencies, and residents. • Work with a Community Monitoring Committee to monitor mitigation effectiveness and implement adaptive mitigations, as required, during the Project life. Develop the process for this in consultation with local communities and governments. • Engage with the local communities on mine closure and end land use planning. • Develop and implement enhancement measures aimed at expanding the workforce. • Work with the District of Wells and local residents to identify ways in which ODV can help promote tourism in the area (e.g., moving the headframe to the community). • Work to develop a tourism component that is complimentary to the Project (e.g., visitors center, mine tours, etc.) that may attract people to the area or encourage them to stop while passing through Wells. • Work with the District of Wells to upgrade water and sewer infrastructure with sufficient capacity to support the development in town. • Pay a competitive wage for employment. • Work with local Chambers of Commerce and economic development organizations to identify ways to expand local participation in business opportunities. • During Closure, provide financial planning, job search support, enhanced mental health support, and other support to workers that could facilitate transition to another position or put them in a better position from which to handle job cessation.
Land and Resource Use (Section 7.11)	• Loss of area or displacement of private property • Loss of area or displacement for tenured land and resource use • Reduced / changed access for Contemporary Land and Resource Use subcomponents	• Provide advanced notice to stakeholders of Project activities and schedules, including road impacts and peak Project traffic times. • Implement and enforce a Traffic Control Plan, which will include consideration of shift start and ends times to minimize traffic impacts.Implement and enforce transportation and access management into ODV's Traffic Control Plan. • Provide advanced notification to relevant stakeholders of Project schedules prior to commencing activities that may be outside conditions considered normal (i.e. noise, dust, or vibration during blasting).

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents • Increased pressure on Public Land and Resource Use by Project workforce • Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed • Change in lighting • Change in visual quality	• Provide ongoing communication with stakeholders during all phases of the Project. • Place signage on affected recreational trails if there is the potential for conflicts with Project activities. • Use noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors. • Discuss appropriate mitigation and access requirements with tenure holders. • Develop a Reclamation and Closure Plan consistent with end land use objectives developed with stakeholder input. • Develop a strategy to mitigate pressures on recreation and tourism in the Project area due to increased population and visitors. • Minimize the disturbance areas to the extent practicable. • Progressively reclaim disturbed land (e.g., revegetation). • Use dust control measures (e.g., watering, chemical treatment, surfacing). Use dust suppression measures to mitigate the dust generation potential along the unpaved haul roads, work areas, and storage piles as needed. • Turn off portable lighting equipment when not in use. • Lighting will be planned to provide the level of light required for worker safety and equipment security while minimizing light spillover. • Install fixed lights to avoid spillover of light out of the spaces to be lit. • Reduce building contrast levels by using finishes with low reflectance levels and colors that match natural landscapes. Where possible, structures on the site will be dark in color to absorb light reflection. • Limit clearing and retain as much vegetation as possible to provide visual screens. • The emission of light towards the sky will be limited by using luminaires that produce a sober and uniform lighting that will meet operational lighting needs. Luminaires will not produce any emissions above 90 degrees. • Use low-profile equipment, structures, berming, and planting to decrease visibility.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		• Use structure surface treatments such as non-reflective surfaces and colours to blend in with the natural surroundings and reduce visibility. • Discuss and develop harvesting strategy and schedule for forestry tenures.
Infrastructure and Services (Section 7.12)	• In-migration may increase demand for utilities, daycare / education services, and community recreation facilities and use areas • Worker movement may result in increased use of airports • Incoming workers or others may use local transportation services • Increase in demand for housing (including emergency housing) and temporary accommodation due to in-migration • Increase in traffic and associated issues in Wells (e.g., dust, idling, parking) • Closure of camps may increase demand for waste management sites • During closure, out-migration may reduce demand for education and daycare services, community recreation facilities, and housing • Closure may result in decreased use of airports and transportation	• Develop and utilize Project specific water, sewer, electricity, waste, and communications systems at the Mine Site and QR Mill • Develop and implement a Waste (Refuse and Emissions) Management Plan for the Project with consideration of innovative ways of handling waste on site. • Support upgrades to District of Wells water and sewer systems. • Identify a new clean, sustainable source of potable water for the community of Wells. • Continue to work with the District of Wells and other interested parties to bring enhanced electricity service to Wells and the surrounding area. • Inform School Districts regarding anticipated numbers of students by Project phase (and anticipated closure timing) as early as possible. • Create relationships with schools and colleges in the area to provide opportunities for local residents. • Support Early Childhood Education training for two people to facilitate hiring and potential expansion of daycare facilities in the area. • ODV has provided funding to support improvements to the school building in Wells which will also house the community fitness centre. • Provide fitness facilities in the worker camps. • Inform local communities and Indigenous nations regarding anticipated timing of construction, number of workers and duration of construction, and timing of closure, so that they can plan and provide input to ODV regarding use in the area • Plan shift changes and other sources of traffic (e.g. regular deliveries) to avoid existing peak times • Provide shuttle service from a site in Quesnel to and from the Mine Site and the QR Mill, including fly-in fly-out workers as needed.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Closure of camps may increase demand for temporary accommodation in the area •	• Monitor incidents involving Project related vehicles and work to identify measures to reduce incidents • Work with MOTI to relocate the 50 km/h posted speed limit slightly to the west to allow the new access to the Mine Site Complex to be located within the 50 km/h zone. • Complete a functional design study for the Highway 26/500 Nyland Lake Road intersection to determine appropriate improvements to sightlines for this location and work with MOTI to implement recommendations. • A new highway bypass will be built before Wells so that Project related traffic (including hauling waste rock) does not travel through the community. • Implement a worker health and wellbeing program to focus on physical, mental, cultural, and social health perspectives • Provide rooms and recreational activities at the Mine Site Worker Accommodations for all workers who want to stay at the camp • Create a positive and respectful camp environment, and ensure camp rules are enforced. • Use ODV owned accommodation in Wells for workers (including contractors) to reduce demand on temporary accommodation. • Include information regarding recreation opportunities in the area, uses and activities that can be undertaken and any Indigenous-specific concerns regarding use in the area as part of onboarding. • Where possible, manage the timing of activities requiring larger numbers of contractors to occur outside of the tourist season.
Human and Ecological Health (Section 7.13)	• Changes to surface water quality • Changes to air quality • Changes to soil and food quality resulting from changes to air quality • Potential changes to food quality resulting from changes to surface water quality	Mitigation measures that are expected to reduce or eliminate an adverse effect on Human and Ecological Health are associated with Surface Water (Section 7.4) and Air Quality (Section 7.2)

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Changes to sediment quality resulting from changes to surface water quality • Changes to groundwater quality • Changes to surface water quality • Changes to air quality • Changes to soil and food quality resulting from changes to air quality • Changes to food quality resulting from changes to surface water quality • Changes to sediment quality resulting from changes to surface water quality • Changes to groundwater quality	
Community Health (Section 7.14)	• In-migration of workers, changes in the community, and Project activities causing changes affecting use of health infrastructure and services • In-migration of workers, changes in the community, and Project activities increasing demand for protective and emergency services • In-migration and changing demands from local residents affecting demand for social services	• Use worker camps for workers at the Mine Site and QR Mill, and as long as possible into the Closure Phase. • Provide on-site and virtual health services covering a broad range of health needs including non-urgent care, mental health, addictions, sexual health, disease prevention, and wellness programs. • Provide on-site emergency medical response services; if movement to an emergency room is required, coordinate with Environmental Health and Safety personnel regarding method (e.g., ground ambulance, air ambulance) and location. • Ensure that only cases that require emergency room treatment are taken to the emergency room by ODV and encourage workers not to use the emergency room as a walk-in clinic. • Encourage workers, while at site, to participate in the Wells Volunteer Fire Brigade (WVFB) and develop a mutual aid agreement with the WVFB.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Changes in population, employment, and income resulting in changes in population health • Out-migration of workers, changes in the community, and cessation of Project activities causing changes that affect use of health infrastructure and services, demand for protective and emergency services, and/or demand for social services	• Ensure that fire protection services are available at the Mine Site and QR Mill. • Maintain a working relationship with emergency service providers in the area so that potential issues can be identified and prevented or dealt with expeditiously. • Ensure the parking area at the shuttle pick up location in Quesnel is secured or has surveillance to avoid break and enters in cars left at the site. • Coordinate with BC Wildfire so that equipment and staff can support wildfire response as required. • Ensure workers at site are aware of the risks of going into the backcountry when off shift to reduce the need for search and rescue services. • Develop and implement a Mine Emergency Response Plan as well as plans for handling explosives and hazardous materials. • Provide means through which workers can stay in touch with their families while at site either remotely or at the site. • Provide rooms at the Mine Site Accommodations for all workers who want to stay at the camp as well as the option for workers to commute should they so desire on a permanent or temporary basis. • Provide access to mental health services while at camp. • Provide fitness and other recreation opportunities at the worker camps and provide information regarding recreation opportunities in the areas surrounding the camps to workers. • Encourage workers to volunteer in the community. • Support hiring of a social worker in the community to deal with mental health issues for a period of four years and reassess after that time based on the findings of the Socio-Economic Monitoring Plan (SEMP). • Pay workers competitive wages so that they stay with the Project and minimize turnover and so that they secure housing, food, and services that would support their health. • House incoming workers at workers camps to reduce impacts on communities. • Undertake mine closure planning with local communities and service providers through the Community Monitoring Committee and other means to understand issues relating to

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		Project-induced population change associated with Project closure and how ODV could support the transition. • Provide financial planning, job search support, enhanced mental health support, and other support to workers that could facilitate transition to another position at closure, or put them in a better position from which to handle job cessation.
Archaeological and Heritage Resources (Section 7.15)	• Damage to the integrity and context of known paleontological, archaeological, or historical sites, features, or objects • Damage to the integrity and context of previously undiscovered palaeontological, archaeological, or historical sites, features, or objects, if present. • Changes to access to archaeological, historical, or palaeontological sites or deposits, if present	• Avoid identified heritage resources by designing Project components to avoid physically disturbing known sites or exposing them to potential future disturbance from other agents, such as weather. • Develop and implement a Chance Find Management Plan • Avoid new heritage sites through design, where possible • If site avoidance is not possible, follow additional mitigation, including Engineering Controls, Systematic Data Recovery, Archaeological Monitoring, and Preservation by Record.
Culture (Section 7.16)	• Direct habitat alteration and loss of plant species of cultural significance • Direct habitat alteration and loss of traditional foods • Competition for resources - traditional foods • Availability of infrastructure - Indigenous language and teaching • Population changes - Indigenous language and teaching	• Limit vegetation clearing to the smallest disturbance area possible and avoid it where practical. • Use of existing infrastructure and access will be utilized wherever possible (e.g. Mine Site haul roads, Transportation Routes, Transmission Line, and associated access roads) to reduce new vegetation clearing and reduce access to areas of plant species of cultural significance. • Develop an Indigenous Partnership Plan • Implement Indigenous awareness training as a component of employee onboarding. This training will include an overview of Indigenous languages and culture. ODV will work with participating Indigenous nations to ensure that members from each nation are involved in the training and curriculum development.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
	• Availability of infrastructure - District of Wells Art Sector • Population changes - District of Wells Art Sector	• Provide information to surrounding communities and ODV staff about wildlife species and traditional foods that have value to Indigenous nations. • Develop and implement a Community Involvement Plan. • Coordinate with Indigenous communities to ensure scheduled availability of resources and facilities for culturally significant events and gatherings. • Provide Indigenous nations with a direct contact at ODV for any matters related to the Project. • Inform Quesnel, Wells, Cariboo Regional District, and Indigenous nations regarding anticipated timing of construction, number of workers, and duration of construction so that they can plan and provide input to ODV regarding events, gatherings, and culturally significant learning opportunities. If possible, ODV will work to accommodate scheduling conflicts as they arise. • Contact Indigenous elders on at least semi-annually to inquire about their opinions on if the Project has resulted in any changes to Indigenous language and teachings. • Review census information as it becomes available to proactively note any changes to Indigenous language and teachings. If a significant trend or change is identified, ODV will work with Indigenous nations to develop mitigation measures. • Develop a strategy to mitigate pressures on recreation and tourism in the Project area due to increased population and visitors. This should include working with hotel and visitor accommodation owners to ensure capacity. • Contact industry leaders in the tourism industry at least semi-annually to better understand the impacts on the sector, if any, caused by ODV. • Host community events to promote and encourage Arts and Culture within the District of Wells. • Support the arts in the District of Wells by continuing to work closely with Wells' arts-related stakeholders and organizations to discuss benefits that can be provided by ODV to support the arts sector and arts infrastructure. • Develop a subpage on the ODV website for Wells residents to submit feedback directly to the Project Team.

Valued Component	Summary of Potential Effects	Summary of Mitigation[1]
		• Hire locally (including CRD and Prince George) – ODV is proposing to hire 75% of the work staff locally. This could include those in other sectors who may have a skillset suited to the mining development in any capacity. • Contact key leaders of the arts sector at least semi-annually to better understand the impacts on the sector, if any, caused by ODV. • ODV will support local theatre events. • Promote the arts sector to all workers. • ODV will support Island Mountain Arts to enhance youth programs and encourage participation.

[1]provides consolidated / abbreviated lists of mitigation measures; full lists for each VC can be found in corresponding sections of Chapter 7.

1.5.2 Summary of Positive Effects

Positive effects from the Project were identified for many VCs. For example, during existing conditions surveys for the Archaeology and Human Resources VC, new sites were found which may have remained otherwise unknown if not for the studies carried out to identify potential Project interactions with heritage resources. A summary of predicted positive effects is presented in Table 3 below.

Table 3 Predicted Positive Effects

VC/Subdiscipline	Predicted Positive Effects on VCs
	Summary
Air Quality	• Revegetation of previously disturbed areas as part of the reclamation at the Mine Site has potential to mitigate fugitive dust in these areas, resulting in a potential positive effect on Air Quality.
Surface Water	• By covering the waste dump of the old Cariboo Gold Quartz Mine with a geomembrane liner, ODV will reduce the metal leaching from the waste dump going into Jack of Club Lake
Soil	• It is anticipated that the feedback loop created between increased soil development and plant succession will improve soil quantity, at least in the short-term, prior to areas stabilizing as a more natural landscape rather than reclaimed. • A commitment to specifically clean-up areas in consultation with regulators and Indigenous nations would provide a positive effect on Project soil quality.
Vegetation	• The progressive and final reclamation of the Mine Site will result in a positive effect. As the Mine Site is reclaimed, native vegetation will be re-established as per the Reclamation and Closure Plan. This will reduce the spread of invasive plant species and non-native species, initiate the establishment of End Land Uses (ELUs) before Project Closure, and provide higher quality habitat for plant species and wildlife in this area.
Employment and Economy	• Increased employment and training opportunities for local residents • Contributions to tax revenues for local, provincial, and federal governments • Purchase of goods and services from area businesses • Help in diversifying the local and regional economy • Support to businesses through the spending of wages
Infrastructure and Services	• Improvement to District of Wells water and sewer systems • Clean, sustainable source of potable water for the community of Wells • Improvement to recycling in the Wells area • Additional students will help offset the decrease in students projected (in absence of the Project) over the life of the Project • The number of early childhood educators (ECE) in the area has the potential to increase, which will support both existing facilities and expansion of daycare spaces • Increased population will replace projected population decreases in certain age groups and will help maintain demand for certain activities and support other activities in the communities

VC/Subdiscipline	Predicted Positive Effects on VCs
	Summary
	• Improvements to the community building in Wells • Increased use of Quesnel and Prince George airports will help the airports recover post-COVID-19
Community Health	• Potential support for Wells Volunteer Fire Brigade (WVFB) through workers volunteering and developing a mutual aid agreement with the WVFB • Support for BC Wildfire • In-migration from the Project may result in more volunteers in the community • One social work position in the community for four years • Enhanced training, employment, and income in the local population
Arch and Heritage Resources	• Recording of new sites, which may have remained otherwise unknown if not for existing conditions studies carried out to identify Project interactions with heritage resources, and the collection of site data resulting from the mitigation measures • The Project may increase access for the public or researchers to newly recorded sites
Culture	• Potential economic development that the Project can bring will be largely positive to the community • Potential to increase viewership and exposure for community arts

1.5.3 Summary of Negative Residual Effects

Following the identification of potential effects and proposed mitigation measures, negative residual effects were determined and assessed.

The identification of potential effects, mitigation measures, and potential residual effects for a particular VC often pulled from the assessment of other VCs to accurately identify and characterize residual effects, where necessary.

Similar to the key effects and mitigation summaries, the assessment of negative residual effects considered changes in identified measurement indicators as a result of Project activities for each applicable Project phase. These changes were found to have the potential for indirect or direct negative residual effects on VCs. It should be noted that for some VCs, the predicted negative residual effects are reversible over time using mitigation and reclamation techniques. For example, the assessment completed for the Soils VC (further detailed below) noted that potential negative residual effects to soil quantity / quality are reversible in the long-term, through natural succession and the additional measures proposed by ODV.

Potential negative residual effects identified in relation to the Project are summarized in Table 4.

Table 4 Potential Negative Residual Effects

Air Quality
The potential residual effects of the Project for Air Quality are: • Increase in Sulfur dioxide (SO2) and Carbon monoxide (CO); • Increase in Nitrogen dioxide (NO2); and • Increase in Particulate Matter (TSP, PM10, and PM2.5)
Acoustic
The potential residual effects of the Project for Acoustic are: • Increase in audible noise; • Increase in low frequency noise (LFN); and • Increase in noise and vibration due to blasting.
Surface Water
The potential residual effects of the Project for Surface Water are: • Changes to water quantity in the aquatic receiving environmentquantity at the Mine Site during Construction, Operations, Closure, and Post-Closure due to diversion and/or collection of runoff; • Changes in water quantity in the aquatic receiving environment at the Mine Site due to treated effluent discharge during Operations; • Changes in water quality in the aquatic receiving environment at the Mine Site due to treated effluent discharge during Construction, Operations, Closure, and Post-Closure (active care); • Changes in water quality and quantity in the aquatic receiving environment at QR Mill due to treated effluent discharge during Construction, Operations, Closure, and Post-Closure (active care); • Changes in water quality in the aquatic receiving environment due to seepages from the bulk fill area, waste rock piles, and flooded underground workings in Post-Closure.
Groundwater
The potential residual effects of the Project for Groundwater are: • Changes to groundwater quantity at the Mine Site during Construction and Operations due to dewatering of underground workings and operation of a potable water supply well; • Changes to groundwater quantity Post-Closure due to the flooding of the underground developments; • Changes to groundwater quality at the Mine Site at Post-Closure due to flooding of the underground developments; • Changes to groundwater quality at the Mine Site due to migration and discharge of groundwater from flooded underground workings during Closure and Post-Closure; • Changes to groundwater quantity at the QR Mill during Operations, Closure, and Post-Closure due to construction of the FSTSF; and • Changes to groundwater quality at the QR Mill during Operations, Closure, and Post-Closure due to construction of the FSTSF.
Soil
The potential residual effects of the Project for Soil are: • Direct Loss of soil quantity, • Alteration of soil quality through compaction and dust accumulation, and

- Alteration of terrain stability.

Vegetation

The potential residual effects of the Project for Vegetation are:

- Loss or alteration of plant species of interest,
- Loss or alteration of plant communities of interest,
- Loss or alteration of wetland function, and
- Loss or alteration of ecosystems.

Wildlife

The potential residual effects of the Project for Wildlife are:

- Habitat alteration for all subcomponents;
- Sensory disturbance for songbirds, raptors, ungulates (including Southern Mountain Caribou), large and medium carnivores, and furbearers;
- Disruption to movement for Southern Mountain Caribou, large and medium carnivores, and furbearers;
- Direct mortality for raptors, ungulates (including Southern Mountain Caribou), and large carnivores; and
- Indirect mortality and attractants for ungulates (including Southern Mountain Caribou) and large carnivores.

Freshwater Fish

The potential residual effects of the Project for Freshwater Fish are:

- Loss or alteration of riparian habitat along the Transmission Line and at the Willow River bridge; and
- Change in water quantity at the Mine Site and QR Mill resulting in effects to fish and fish habitat.

Employment and Economy

The potential residual effects for Employment and Economy are:

- Employment opportunities for local and regional residents will cease at Closure; and
- Revenue for local, provincial, and federal governments from the Project, as well as opportunities for local businesses, will decrease at Closure

Land and Resource Use

The potential residual effects for Land and Resource Use are:

- Loss of area or displacement of private property;
- Loss of area or displacement for tenured land and resource use;
- Reduced / changed access for Contemporary Land and Resource Use subcomponents;
- Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents;
- Increased pressure on Public Land and Resource Use by Project workforce;
- Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed;
- Change in lighting; and
- Change in visual quality.

Infrastructure and Services

The potential residual effects of the Project for Infrastructure and Services are:

• Project-related traffic during Construction and Operations will result in increased traffic and associated issues in Wells (e.g., dust, idling, parking); and • In-migration will increase demand for housing during Construction and Operations.
Human Health
The potential residual effects of the Project for Human Health are: • Changes to Air Quality; acute (immediate and direct) and chronic (lasting for a long time or constantly recurring); • Human Health - Multimedia Assessment (changes to soil, surface water, food, and sediment quality); • Soil Invertebrates and Plants – Changes to soil and vegetation quality; • Terrestrial Feeding Wildlife Health - Multimedia assessment (changes to soil, surface water, food, and sediment quality); and • Aquatic Feeding Wildlife Health - Multimedia assessment (changes to soil, surface water, food, and sediment quality).
Community Health
No negative residual effects on Community Health are anticipated.
Arch and Heritage Resources
No negative residual effects on Heritage Resources are anticipated; therefore, with the implementation of the mitigation approach, it is expected that maintenance of heritage resources can be achieved.
Culture
The potential negative residual effect of the Project on Culture is the direct habitat alteration and loss of plant species of cultural significance.

1.5.4 Summary of Cumulative Effects

Cumulative effects analysis is undertaken through the identification of past, present, and reasonably foreseeable future projects and activities that have been, or that are likely to be, carried out that could interact cumulatively with each selected VC within the boundaries defined, and whose residual effects would act in combination with the predicted residual effects of the Project. Potential cumulative effects were identified through comparison to current and future conditions. The effects of past and current activities were used as appropriate to contextualize the current state of the VC.

In an effort to mitigate both potential Project and cumulative effects, locations for utilities and Project-related infrastructure were strategically picked in already existing brownfield sites and areas disturbed by historical mining and transportation activities to help avoid additional areas of impacts.

The following table provides a summary of the cumulative effects analysis completed for each VC. Project components and activities identified as part of the cumulative effects assessment included Bonanza Ledge Phase II Reclamation project, Mosquito Creek Reclamation project, historical mining activity within the Project Footprint, and other activities within the cumulative effects study boundaries including forestry, placer mining, transportation, and recreational activities.

Potential cumulative effects identified in relation to the Project are summarized in Table 5.

Table 5 Potential Cumulative Effects

Cumulative Effects – Air Quality

Specific activities with potential for interaction with the Project are:

- Bonanza Ledge Phase II Reclamation: Dust and emissions generated by equipment and vehicles during active closure reclamation activities planned for 2024 to 2025; and
- Mosquito Creek Reclamation: Dust and emissions generated by equipment and vehicles during reclamation and closure activities planned for 2022 to 2023.

It is anticipated that air emissions from both reclamation projects will be minor, transient, temporary, and controlled using best achievable technologies (BAT) and BMPs. The frequency of the cumulative effect of the Project and either reclamation project on a single receptor will be sporadic depending on the nature of the emissions from each project and the dispersion of those emissions. Thus, the Bonanza Ledge Phase II Reclamation and Mosquito Creek Reclamation are not anticipated to materially affect the magnitude, extent, duration, reversibility, consequence, and risk described for the Project.

Cumulative Effects – Acoustic

Potential cumulative effects for Acoustics were not identified.

Cumulative Effects – Surface Water

Potential adverse cumulative effects related to changes in Surface Water Quantity were not identified:

- Change in water quantity reporting from the Mosquito Creek watershed due to Mosquito Creek Mine Reclamation will have a small incremental effect on water quantity in the Willow River due to its very small watershed area relative to the size of its upstream watershed.

With regards to Surface Water Quality:

- Bonanza Ledge Phase II Reclamation was considered in the Mine Site assessment during the Construction, Operations, and Closure phases as part of the assessment of effects given that mine contact water will be collected and piped to the Mine Site water treatment plant. Due to this and other factors, any cumulative effects between Bonanza Ledge Phase II Reclamation and the Project have been addressed.
- The Mosquito Creek Mine is currently in Care and Maintenance, and reclamation and closure activities are ongoing. Any change in water quality of Mosquito Creek will only have an incremental effect on water quality of the Willow River. In addition, reclamation activities are expected to have a net environmental benefit, and any improvement in Mosquito Creek water quality will either not affect or will improve Willow River water quality.

Cumulative Effects – Groundwater

Potential adverse cumulative effects for Groundwater were not identified.

Dewatering and flooding of the underground for Bonanza Ledge Phase II Reclamation, and other historical workings at Mosquito Creek and elsewhere, has been considered in the groundwater predictions for the Mine Site during the Construction, Operations, Closure, and Post-Closure phases. Therefore, cumulative effects related to Bonanza Ledge Phase II Reclamation and Mosquito Creek Reclamation have already been considered.

Flooding of the underground for Bonanza Ledge Phase II Reclamation, and other historical workings at Mosquito Creek, has been considered in the groundwater predictions for the Mine Site during Closure/Post-Closure. Therefore, cumulative effects related to Bonanza Ledge Phase II Reclamation and Mosquito Creek Reclamation have already been considered.

Cumulative Effects – Soil

The majority of Project infrastructure will be located on brownfield sites that have been previously disturbed by historical mining operations that were not reclaimed after closure of the mines. The significant cumulative effect on soil quantity is the sum of the effects from historical mining operations and the proposed Project effect. Overall, the Project will have a potential to add soil quantity loss from 2.1 ha of new disturbances (estimated at 2,351 m^3 topsoil and 922 m^3 subsoil).

The major disturbances to soils and activities that result in soil compaction and generate dust will be confined to the Project Footprint areas and along roads. While a net additive cumulative effect is expected from historical mining operations, quantification of the net effect of the Project on soil quality is difficult as the majority of the Project footprint is on brownfield sites that were previously disturbed.

Cumulative Effects – Vegetation

The majority of Project infrastructure will be located on brownfield sites that have been previously disturbed by historical mining operations. The potential cumulative effects associated with the Vegetation VC include:

- Additive loss or alteration resulting from the incremental loss and alteration of Vegetation VC subcomponents resulting from Project activities and from the combination of past, present, and reasonably foreseeable future activities; and
- Synergistic effects resulting from clearing (i.e. edge effects), hydrological changes dust deposition, and projected climate change.

Since historical mining and transportation activities that have been conducted in the past predate historical vegetation mapping, the full aerial extent of past effects to Plant Communities of Interest, Wetland Function, and Ecosystems cannot be completely quantified. Other cumulative effects such as the introduction and/or spread of non-native and invasive plant species, forest pests and diseases, edge effects, hydrological changes, dust effects, and effects from projected climate change are difficult to quantify, and therefore have a greater degree of uncertainty associated with them.

Cumulative Effects – Wildlife

Cumulative impacts are complex and are a result of natural and/or anthropogenic activities and changes at a range of temporal and spatial scales, and depending on their type and location as well as the species considered during the effects assessment, can be interactive, additive, or synergistic in nature (Nitschke, 2008; Johnson, 2011). Species that are dependent on large continuous tracks of older habitats may be more susceptible to habitat alteration and fragmentation at the cumulative landscape scale (Schneider et al., 2003; Nitcshke, 2008).

Potential cumulative effects identified for the wildlife VC was focused on Southern Mountain Cariobu and related to the following:

- Habitat Alteration;
- Sensory Disturbance;
- Direct Mortality;
- Disturbance of Movements; and
- Indirect Mortality.

Cumulative Effects – Freshwater Fish

Loss or Alteration of Riparian Habitat:

- Forestry, placer mining, and transportation activities have the potential to cross watercourses through linear developments which may increase the amount of riparian habitat lost or altered. If forestry cutblocks occur next to the right-of-way crossing, then this may increase the amount of riparian vegetation altered adjacent to the creek, thereby increasing the likelihood of altering the watercourse and reducing riparian function at these crossing locations.

Change in Surface Water Quantity:

- The projects and activities outlined in the list of past, present, and reasonably foreseeable future have the potential to interact with residual water quantity effects to fish and fish habitat because ongoing activities may result in increased flows changes to the hydrological regime in adjacent watercourses through recontouring of land during reclamation activities. Project-specific activities include:
    - Changes in flow in the Lowhee Creek Watershed from the Bonanza Ledge Phase II Project; and

- Changes in flow from the Mosquito Creek Watershed that flows into the Willow River from reclamation activities from the Mosquito Creek Reclamation project.

Cumulative Effects – Employment and Economy

Potential adverse cumulative effects were not identified.

Although there will be a number of Projects ongoing at the time of closure, none of the larger projects have closure dates consistent with that of the Project. For recreation, forestry, mineral exploration, placer mining, and transportation, employment at any given time in the future is difficult to predict and specific information regarding the numbers of workers that will be hired or whose employment will cease at the same time as Project closure is not available.

Cumulative Effects – Land and Resource

- Activities in the District of Wells area have the potential to result in increased traffic in Wells. All activities identified as potentially acting cumulatively are ongoing and traffic related to them is captured in traffic numbers considered in the Traffic Impact Assessment.
- Based on available information, there is the potential for the change in environmental conditions at the Mine Site to interact with activities associated with Bonanza Ledge Phase II Reclamation, Mosquito Creek Reclamation, forestry, mining, and transportation. However, potential cumulative effects were not anticipated to materially affect the residual effects assessment or were considered negligible.
- Mount Polley will be operating during Project construction. Cumulative effects associated with the increased pressure on public land and resource use due to increased demand from direct, indirect and induced project workers is considered minor.
- The visual effects assessment indicates that Mine Site residual effects will present localized change to the existing landscape setting experienced by observers within and near Wells. The new telecommunications facility in Wells, which is scheduled to be constructed before the Project commences, will contribute to the change in landscape/viewshed proximate to the Mine Site. Traffic associated with the increased workforce may periodically contribute to the cumulative effect on landscape/viewshed for short periods of time, but associated cumulative effects are predicted to be negligible.
- There is the potential for cumulative effects on landscape /viewshed along the Transmission Line right-of-way due to the potential interaction with forestry and mining activity. Forestry and mining activities, which have occurred in the area for decades and will continue to occur in the future, are located predominately on crown land which requires a permit to operate. Specific permitting conditions are required for all crown land use tenures that provide protection and reduce potential conflicts between land uses.

Cumulative Effects – Infrastructure and Services

Increased traffic in Wells - Activities in the Wells area have the potential to result in increased traffic in Wells. All activities identified are ongoing and traffic related to them is captured in traffic numbers.

Increased demand for housing - Mount Polley will be operating during construction and approximately half of the Project Operations Phase, and will result in increased demand for housing in the area. It is anticipated that most demand for housing by Mount Polley workers will be in Williams Lake, as was the case in the past and that demand by the Project will be limited in the Construction Phase. There could be a large increase in demand for housing during Project operatoins, primarily in Prince George, but the demand could extend to Quesnel depending on the housing situation in the area. It is also possible that other projects could enter construction or operations during operation of the Project. Demand from other resource development activities is anticipated to continue at current levels which are reflected in existing conditions.

Increase in demand for temporary housing - Mount Polley will be operating for approximately half of the Project Operations Phase and will result in increased demand for housing in the area. There could be a large increase in demand for housing, primarily in Prince George, but the demand could extend to Quesnel depending on the housing situation in the area. It is also possible that other projects could enter construction or operations during operation of the Project.

Cumulative Effects – Human Health

Potential adverse cumulative effects were not identified.

Changes in Criteria Air Contaminants – A cumulative effect on Air Quality (i.e., the increase in one or more criteria air contaminants [NO^2, SO^2, CO, TSP, PM10, and PM2.5]), could occur if air contaminants or fugitive dust from both the Project and reclamation or closure activities disperse in a manner that affect the same locations. The frequency of the cumulative effect of the Project and either reclamation project (the Bonanza Ledge Phase II or Mosquito Creek) on a single receptor will be sporadic depending on the nature of the emissions from each project and the dispersion of those emissions. Thus, the Bonanza Ledge Phase II Reclamation and Mosquito Creek Reclamation are not anticipated to materially affect the magnitude, extent, duration, reversibility, consequence, and risk described for the residual effects of the Project.

Changes in Water and Sediment Quality in Aquatic Receiving Environments at the Mine Site – Bonanza Ledge Phase II Reclamation was considered in the Mine Site assessment as part of the assessment of effects given that mine contact water will be collected and piped to the Mine Site water treatment plant. The Mosquito Creek Mine is currently in Care and Maintenance, and reclamation and closure activities are ongoing. Any change in water quality of Mosquito Creek will only have an incremental effect on water quality of the Willow River. In addition, reclamation activities are expected to have a net environmental benefit, and any improvement in Mosquito Creek water quality will either not affect or will improve Willow River water quality.

Cumulative Effects – Community Health

As no negative residual effects on Community Health are anticipated, an assessment of cumulative effects for the Project is not required.

Cumulative Effects – Archaeology and Heritage Resources

As no negative residual effects on heritage resources are anticipated, an assessment of cumulative effects for the Project is not required.

Cumulative Effects – Culture

The anticipated cumulative effects associated with the Culture VC are identical to the cumulative effects discussed for the Vegetation VC and include:

- Additive loss or alteration resulting from the incremental loss and alteration of Vegetation VC subcomponents resulting from Project activities and from the combination of past, present, and reasonably foreseeable future activities; and
- Synergistic effects resulting from clearing (i.e. edge effects), hydrological changes dust deposition, and projected climate change.

1.6 Key Effects to Indigenous Nations

An assessment of the potential effects of the Project to Indigenous Interests was completed for Lhtako Dené Nation, Williams Lake First Nation, Xatśūll First Nation, Nazko First Nation, and the Tsilhqot'in National Government.

A summary of the key potential effects and the associated mitigation measures for each of the Indigenous Nations is provided below in Sections 1.6.1 to 1.6.5 and Tables 6-8. Further detail and discussion of positive effects, negative residual effects, and cumulative effects on each of the Indigenous nations is provided in Chapters 11 through 15.

1.6.1 Lhtako Dené Nation

Table 6 Summary of Potential Effects and Mitigation Measures – Lhtako Dené Nation Indigenous Interests

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
Traditional Land Use	Construction, Operation, Closure, Post-closure	Vegetation	Effects to Traditional Land Use through: • Loss and alteration of plant species due to project activities • Loss and alteration of plant communities of interest due to project activities • Loss and alteration of wetlands and wetland functions due to project activities • Loss and alteration of ecosystems due to project activities	Mitigation measures identified in Section 7.7 • Lhtako Dené Nation will be notified of clearing and reclamation activities including location and schedule prior to start • If existing Lhtako Dené Nation traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will consider design modification options to avoid or limit disturbance to the site • Existing Lhtako Dené Nation traditional land use sites within the traditional territory of Lhtako Dené Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance clearing activities within the Surface Footprint. • Reclamation activities will target revegetation of ecological communities valued for traditional uses to pre-disturbance plant communities.
	Construction, Operation, Closure, Post-closure	Wildlife	Effects to Traditional Land Use through: • Loss of wildlife species and/or alteration of wildlife habitat due to project activities • Sensory disturbance to wildlife species from project activities • Disruption to movement patterns or corridors from project activities	Mitigation measures identified in Section 7.8 • Lhtako Dené Nation will be notified of clearing and reclamation activities including location and schedule prior to start • If existing Lhtako Dené Nation traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Loss of wildlife species through direct mortality due to project activities • Loss of wildlife species through indirect mortality and attractants from project activities	consider design modification options to avoid or limit disturbance to the site • Existing Lhtako Dené Nation traditional land use sites within the traditional territory of Lhtako Dené Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance clearing activities within the Surface Footprint. • ODV will collaborate with and support Lhtako Dené Nation in the caribou recovery initiative • Wildlife camera study along the Transmission Line ROW
	Construction, Operation, Closure, Post-closure	Freshwater Fish	Effects to Traditional Land Use through: • Loss or alteration of riparian habitat along the Transmission Line • Change in water quantity at the Mine Site and QR Mill resulting in effects to fish and fish habitat.	Mitigation measures identified in Section 7.9 • Lhtako Dené Nation will be notified of clearing and reclamation activities including location and schedule prior to start • If existing Lhtako Dené Nation traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will consider design modification options to avoid or limit disturbance to the site • Support Lhtako Dené Nation in pursuing and/or developing salmon enhancement and/or outreach opportunities for other stewardship priorities
	Construction, Operation, Closure, Post-closure	Land and Resource Use	Effects to Traditional Land Use through: • Reduced / changed access for Contemporary Land and Resource Use subcomponents;	Mitigation measures identified in Section 7.2, Section 7.3 and Section 7.11 • Lhtako Dené Nation will be notified of clearing and reclamation activities including location and schedule prior to start

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents; • Increased pressure on Public Land and Resource Use by Project workforce; • Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed;Change in visual quality.	• If existing Lhtako Dené Nation traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will consider design modification options to avoid or limit disturbance to the site • Existing Lhtako Dené Nation traditional land use sites within the traditional territory of Lhtako Dené Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance clearing activities within the Surface Footprint.
	Construction, Operation, Closure, Post-closure	Human Health	Effects to Traditional Land Use through: • Changes to Air Quality • Changes to soil and food quality resulting from changes to Air Quality • Potential changes to food quality resulting from changes to Surface Water Quality • Changes to sediment quality resulting from changes to Surface Water Quality • Changes to Groundwater Quality	Mitigation measures identified in Section 7.2 and Section 7.4. • Annual Air Quality Reports will be shared with Lhtako Dené Nation • Quarterly and Annual Water Quality Reports will be shared with Lhtako Dené Nation • Annual Reclamation Reports will be shared with Lhtako Dené Nation
	Construction Operation	Archaeological and Heritage Resources	Effects to Traditional Land Use through: • Damage to the integrity and context of archaeological, historical, or palaeontological sites or deposits, if present.	Mitigation measures identified in Section 7.15 • If any sign of archaeological remains are observed at any time during the proposed Project's activities, work will be halted and a qualified archaeologist and representatives from Lhtako Dené Nation will be notified.

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Changes to access to archaeological, historical, or palaeontological sites or deposits, if present.	
	Construction, Operation, Closure	Culture	• Effects to Traditional Land Use through: • Change to plant species of cultural significance • Change to traditional foods • Change to Indigenous language and teaching	Mitigation measures identified in Section 7.16 • Lhtako Dené Nation will be notified of clearing and reclamation activities including location and schedule prior to start • If existing traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will consider design modification options to avoid or limit disturbance to the site • Existing Lhtako Dené Nation traditional land use sites within the traditional territory of Lhtako Dené Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance clearing activities within the Surface Footprint. • ODV will collaborate with and support Lhtako Dené Nation in pursuing and/or developing salmon enhancement and/or outreach opportunities for other stewardship priorities • ODV will collaborate with and support Lhtako Dené Nation in the caribou recovery initiative
Water	Construction, Operation, Closure, Post-closure	Surface Water	Effects to Water through: • Alterations to drainage pathways and drainage areas reporting to receiving environments,	Mitigation measures identified in Section 7.4 • Quarterly and Annual Water Quality Reports will be shared with Lhtako Dené Nation

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Increase in surface water quantity and changes to surface water quality	
	Construction, Operation, Closure, Post-closure	Groundwater	Effects to Water through: • Alteration to groundwater flow and water level elevation from underground dewatering and operation of a water supply well (Mine Site) • Alteration to groundwater flow quantity and quality from alteration of seepage from QR Mill TSF \ FSTSF and operation of a water supply well • Alteration of groundwater flow quantity and quality from underground flooding	Mitigation measures identified in Section 7.5 • A Quarterly and Annual Water Quality Reports will be shared with Lhtako Dené Nation.
Caribou	Construction, Operation, Closure, Post-closure	Wildlife – Caribou sub-component	Effects to Caribou through: • Loss of wildlife species and/or alteration of wildlife habitat due to project activities • Sensory disturbance to wildlife species from project activities • Disruption to movement patterns or corridors from project activities • Loss of wildlife species through direct mortality due to project activities • Loss of wildlife species through indirect mortality and attractants from project activities	Mitigation measures identified in Section 7.8 • Lhtako Dené Nation will be notified of clearing activities including location and schedule prior to start • Implement a Caribou Mitigation and Management Plan • ODV will collaborate with and support Lhtako Dené Nation in the caribou recovery initiative • Conduct a wildlife camera study along the Transmission Line ROW

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
Community Well-being	Construction, Operation, Closure, Post-closure	Culture	Effects to Community Well-being through: • Change to plant species of cultural significance	Mitigation measures identified in Section 7.7 • Lhtako Dené Nation will be notified of clearing activities including location and schedule prior to start • If existing traditional land use sites are identified through studies conducted prior to construction of the Transmission Line, ODV will consider design modification options to avoid or limit disturbance to the site • Existing Lhtako Dené Nation traditional land use sites within the traditional territory of Lhtako Dené Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance clearing activities within the Surface Footprint. • Reclamation activities will target revegetation of ecological communities valued for traditional uses to pre-disturbance plant communities • ODV will collaborate with and support Lhtako Dené Nation in pursuing and/or developing salmon enhancement and/or outreach opportunities for other stewardship priorities • ODV will collaborate with and support Lhtako Dené Nation in the caribou recovery initiative

1.6.2 Williams Lake First Nation

Table 7 Summary of Potential Effects and Mitigation Measures – Williams Lake First Nation Indigenous Interests

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
Traditional Land Use and Cultural Heritage Practices	Construction, Operation, Closure, Post-closure	Land and Resource Use	Effects to Traditional Land Use and Cultural Heritage Practices through: • Reduced / changed access for Contemporary Land and Resource Use subcomponents; • Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents; • Increased pressure on Public Land and Resource Use by Project workforce; • Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed; • Change in visual quality.	Mitigation measures identified in Chapter 7.11 • Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
	Construction, Operation, Closure, Post-closure	Archaeology and Heritage Resources	Effects to Traditional Land Use and Cultural Heritage Practices through: • Damage to the integrity and context of archaeological, historical, or palaeontological sites or deposits, if present. • Changes to access to archaeological, historical, or palaeontological sites or deposits, if present.	Mitigation measures identified in Section 7.15 • If any sign of archaeological remains are observed at any time during the Project's activities, work will be halted and a qualified archaeologist and representatives from Williams Lake First Nation will be notified.
	Construction, Operation,	Culture	Effects to Traditional Land Use and Cultural Heritage Practices through:	Mitigation measures identified in Section 7.16

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
	Closure, Post-closure		• Change to plant species of cultural significance • Change to traditional foods	• Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
	Construction, Operation, Closure, Post-closure	Wildlife	Effects to Traditional Land Use and Cultural Heritage Practices through: • Loss of wildlife species and/or alteration of wildlife habitat due to Project activities • Sensory disturbance to wildlife species from Project activities • Disruption to movement patterns or corridors from Project activities • Loss of wildlife species through direct mortality due to Project activities • Loss of wildlife species through indirect mortality and attractants from Project activities.	Mitigation measures identified in Section 7.8 • Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
Economic Development / Opportunities	Closure	Employment and Economy	Effects to Economic Development / Opportunities through: • Loss of employment overall in the local and regional area but increased availability of more skilled and	Mitigation measures identified in Section 7.10

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			experienced workers for other employers in the Closure phase • Decrease in demand for goods and services provided by local businesses in the Closure Phase	
	Construction, Operation, Closure, Post-closure	Land and Resource Use	Effects to Economic Development / Opportunities through: • Reduced / changed access for Contemporary Land and Resource Use subcomponents; • Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents; • Increased pressure on Public Land and Resource Use by Project workforce; • Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed; • Change in visual quality.	• Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
	Operation	Infrastructure and Services	Effects to Economic Development / Opportunities through: • In-migration will increase demand for housing • The Project will increase demand for temporary housing	Mitigation measures identified in Section 7.12

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
Land Stewardship	Construction, Operation, Closure, Post-closure	Wildlife	Effects to Land Stewardship through: • Loss of wildlife species and/or alteration of wildlife habitat due to Project activities • Sensory disturbance to wildlife species from Project activities • Disruption to movement patterns or corridors from Project activities • Loss of wildlife species through direct mortality due to Project activities • Loss of wildlife species through indirect mortality and attractants from Project activities.	Mitigation measures identified in Chapter 7.8 • Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
	Construction, Operation, Closure, Post-closure	Freshwater Fish	Effects to Traditional Land Use through: • Changes in water quantity at the QR Mill resulting in effects to fish and fish habitat.	Mitigation measures identified in Chapter 7.9 • Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory.
	Construction, Operation, Closure, Post-closure	Vegetation	Effects to Land Stewardship through: • Loss and alteration of traditional land use plant species due to project activities • Loss and alteration of traditional land use plant communities due to project activities • Loss and alteration of wetlands and wetland functions due to project activities	Mitigation measures identified in Chapter 7.7 • Williams Lake First Nation will be notified of clearing and reclamation activities in Williams Lake First Nation traditional territory. • Existing Williams Lake First Nation traditional land use sites within the traditional territory of Williams Lake First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Loss and alteration of ecosystems due to project activities	• Reclamation activities will target revegetation of ecological communities valued for traditional uses to pre-disturbance plant communities
	Construction, Operation, Closure, Post-closure	Soil	Effects to Land Stewardship through: • Direct Loss of Soil Quantity; • Alteration of Soil Quality through Compaction and Dust Accumulation; and • Alteration of Terrain Stability.	Mitigation measures identified in Section 7.6 • Annual Reclamation Reports for QR Mill will be shared with Williams Lake First Nation
	Construction, Operation, Closure, Post-closure	Surface Water	Effects to Land Stewardship through: • Alterations to drainage pathways and drainage areas reporting to receiving environments, • Increase in surface water quantity and changes to surface water quality	Mitigation measures identified in Chapter 7.4 • Annual Water Quality Reports for QR Mill will be shared with Williams Lake First Nation
	Construction, Operation, Closure, Post-closure	Groundwater	Effects to Land Stewardship through: • Alteration to groundwater flow quantity and quality from alteration of seepage from QR Mill TSF / FSTSF and operation of a water supply well	Mitigation measures identified in Chapter 7.5 • Annual Water Quality Reports for QR Mill will be shared with Williams Lake First Nation
	Operation	Infrastructure and Services	Effects to Land Stewardship through: • In-migration will increase demand for housing • The Project will increase demand for temporary housing	Mitigation measures identified in Section 7.12

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
	Construction, Operation, Closure	Air Quality	Effects to Land Stewardship through: • Increase in SO_2 and CO; • Increase in NO_2; and • Increase in Particulate Matter (TSP, PM_{10}, and $PM_{2.5}$).	Mitigation measures identified in Section 7.2 • Annual Air Quality Reports for QR Mill will be shared with Williams Lake First Nation
	Construction, Operation, Closure, Post-closure	Acoustic	Effects to Land Stewardship through: • Increase above the threshold of impulsive noise • Increase above the threshold of vibration	Mitigation measures identified in Section 7.3
Community Health and Safety	Construction, Operation, Closure, Post-closure	Acoustic	Effects to Community Health and Safety through: • Increase above the threshold of impulsive noise • Increase above the threshold of vibration	Mitigation measures identified in Section 7.3
	Construction, Operation, Closure, Post-closure	Surface Water	Effects to Community Health and Safety through: • Alterations to drainage pathways and drainage areas reporting to receiving environments, • Increase in surface water quantity and changes to surface water quality	Mitigation measures identified in Section 7.4 • Annual Water Quality Reports for QR Mill will be shared with Williams Lake First Nation
	Construction, Operation, Closure, Post-closure	Community Health	Effects to Community Health and Safety through: • In-Migration, Changes in the Community and Project Activities	Mitigation measures identified in Section 7.14

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			• Use of Health Infrastructure and Services • In-Migration of Workers, Changes in the Community and Project Activities can Increase Demand for Protective and Emergency Services • In-Migration and Changing Demands from Local Residents can Affect Demands for Social Services	
	Construction, Operation, Closure, Post-closure	Human Health	Effects to Community Health and Safety through: • Changes to Air Quality • Changes to soil and food quality resulting from changes to Air Quality • Potential changes to food quality resulting from changes to Surface Water Quality • Changes to sediment quality resulting from changes to Surface Water Quality	Mitigation measures identified in Section 7.2 and Section 7.4 • Annual Water Quality Reports for QR Mill will be shared with Williams Lake First Nation • Annual Air Quality Reports for QR Mill will be shared with Williams Lake First Nation • Annual Reclamation Reports for QR Mill will be shared with Williams Lake First Nation
	Construction, Operation, Closure, Post-closure	Air Quality	Effects to Community Health and Safety through: • Increase in SO2 and CO; • Increase in NO2; and • Increase in Particulate Matter (TSP, PM10, and PM2.5)	Mitigation measures identified in Chapter 7.2 • Annual Air Quality Reports for QR Mill will be shared with Williams Lake First Nation

1.6.3 Xatśūll First Nation

Table 8 Summary of Potential Effects and Mitigation Measures – Xatśūll First Nation

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
Traditional Land Use and Cultural Heritage Practices	Construction, Operation, Closure, Post-closure	Land and Resource Use	Effects to Traditional Land Use and Cultural Heritage Practices through: • Reduced / changed access for Contemporary Land and Resource Use subcomponents; • Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents; • Increased pressure on Public Land and Resource Use by Project workforce; • Decrease in enjoyment / experience for Contemporary Land and Resource Use subcomponents due to a change in landscape / viewshed; • Change in visual quality.	• Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory. • Existing Xatśūll First Nation traditional land use sites within the traditional territory of Xatśūll First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
	Construction Operation	Archaeological and Heritage Resources	Effects to Traditional Land Use and Cultural Heritage Practices through: • Damage to the integrity and context of archaeological, historical, or palaeontological sites or deposits if present. • Changes to access to archaeological, historical, or palaeontological sites or deposits if present.	Mitigation measures identified in Section 7.15 • If any sign of archaeological remains are observed at any time during the proposed project's activities that fall within Xatśūll First Nation's traditional territory, work will be halted and a qualified archaeologist and representatives from Xatśūll First Nation will be notified.

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
	Construction, Operation, Closure, Post-closure	Culture	Effects to Traditional Land Use and Cultural Heritage Practices through: • Change to plant species of cultural significance	• Mitigation measures identified in Section 7.16 • Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory. • Existing Xatśūll First Nation traditional land use sites within the traditional territory of Xatśūll First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.
Land Stewardship	Construction, Operation, Closure, Post-closure	Freshwater Fish	Effects to Traditional Land Use through: • Loss or alteration of riparian habitat along the Transmission Line • Change in water quantity at the Mine Site and QR Mill resulting in effects to fish and fish habitat.	Mitigation measures identified in Section 7.9 • Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory.
	Construction, Operation, Closure, Post-closure	Wildlife	Effects to Land Stewardship through: • Loss of wildlife species and/or alteration of wildlife habitat due to Project activities • Sensory disturbance to wildlife species from Project activities Disruption to movement patterns or corridors from Project activities • Loss of wildlife species through direct mortality due to Project activities • Loss of wildlife species through indirect mortality and attractants from Project activities.	Mitigation measures identified in Section 7.8 • Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory. • Existing Xatśūll First Nation traditional land use sites within the traditional territory of Xatśūll First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
	Construction, Operation, Closure, Post-closure	Vegetation	Effects to Land Stewardship through: • Loss and alteration of traditional land use plant species due to project activities • Loss and alteration of traditional land use plant communities due to project activities • Loss and alteration of wetlands and wetland functions due to project activities Loss and alteration of ecosystems due to project activities	• Mitigation measures identified in Section 7.7 • Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory. • Existing Xatśūll First Nation traditional land use sites within the traditional territory of Xatśūll First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint. • Reclamation activities will target revegetation of ecological communities valued for traditional uses to pre-disturbance plant communities
	Construction, Operation, Closure, Post-closure	Soil	Effects to Land Stewardship through: • Direct Loss of Soil Quantity; • Alteration of Soil Quality through Compaction and Dust Accumulation; and • Alteration of Terrain Stability.	• Mitigation measures identified in Section 7.6 • Annual Reclamation Reports will be shared with Xatśūll First Nation
	Construction, Operation, Closure, Post-closure	Surface Water	Effects to Land Stewardship through: • Alterations to drainage pathways and drainage areas reporting to receiving environments, • Increase in surface water quantity and changes to surface water quality	• Mitigation measures identified in Section 7.4 • Annual Water Quality Reports will be shared with Xatśūll First Nation
	Construction, Operation,	Groundwater	Effects to Land Stewardship through:	• Mitigation measures identified in Section 7.5

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
	Closure, Post-closure		• Alteration to groundwater flow and water level elevation from underground dewatering and operation of a water supply well • Alteration to groundwater flow quantity and quality from alteration of seepage from QR TSF / FSTSF and operation of a water supply well • Alteration of groundwater flow quantity and quality from underground flooding	• Annual Water Quality Reports will be shared with Xatśūll First Nation
	Construction, Operation, Closure, Post-closure	Infrastructure and Services	Effects to Land Stewardship through: • In-migration will increase demand for housing • The Project will increase demand for temporary housing	• Mitigation measures identified in Section 7.12
	Construction, Operation, Closure, Post-closure	Land and Resource Use	Effects to Economic Development / Opportunities through: • Reduced / changed access for Contemporary Land and Resource Use subcomponents; • Decrease in environmental conditions for Contemporary Land and Resource Use subcomponents; • Increased pressure on Public Land and Resource Use by Project workforce; • Decrease in enjoyment / experience for Contemporary Land and Resource Use	• Xatśūll First Nation will be notified of clearing and reclamation activities in Xatśūll First Nation traditional territory. • Existing Xatśūll First Nation traditional land use sites within the traditional territory of Xatśūll First Nation (where identified) will be temporarily marked with high-visibility flagging or other barriers to prevent accidental disturbance during clearing activities within the Surface Footprint.

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			subcomponents due to a change in landscape / viewshed; • Change in visual quality.	
	Construction, Operation, Closure	Air Quality	Effects to Land Stewardship through: • Increase above the threshold of impulsive noise • Increase above the threshold of vibration	Mitigation measures identified in Section 7.2 • Annual Air Quality Reports will be shared with Xatśūll First Nation
Economic Development / Opportunities	Closure	Employment and Economy	Effects to Economic Development / Opportunities through: • Loss of employment overall in the local and regional area but increased availability of more skilled and experienced workers for other employers in the Closure phase • Decrease in demand for goods and services provided by local businesses in the Closure Phase	Mitigation measures identified in Section 7.10
Community Health and Safety	Construction, Operation, Closure, Post-closure	Community Health	Effects to Community Health and Safety through: • In-Migration, Changes in the Community and Project Activities • Use of Health Infrastructure and Services • In-Migration of Workers, Changes in the Community and Project Activities	Mitigation measures identified in Section 7.14

Indigenous Interest	Project Phase	Linked VC	Potential Effects	Mitigation
			can Increase Demand for Protective and Emergency Services • In-Migration and Changing Demands from Local Residents can Affect Demands for Social Services	
	Construction, Operation, Closure, Post-closure	Human Health	Effects to Community Health and Safety through: • Changes to Air Quality • Changes to soil and food quality resulting from changes to Air Quality • Potential changes to food quality resulting from changes to Surface Water Quality • Changes to sediment quality resulting from changes to Surface Water Quality	Mitigation measures identified in Section 7.2 and Section 7.13 • Annual Water Quality Reports will be shared with Xatśūll First Nation • Annual Air Quality Reports will be shared with Xatśūll First Nation • Annual Reclamation Reports will be shared with Xatśūll First Nation

1.6.4 Nazko First Nation

Effects to Nazko First Nation were assessed for the portion of their traditional territory that overlaps with the surface components of the Project. The only overlap of the Nazko First Nation traditional territory is with respect to the Transmission Line from the Barlow Substation to approximately 16 km east and the western portion of the Transportation Route. This is located at the junction of Highway 26 and 500 Nyland Lake Road. Nazko First Nation traditional territory does not overlap with the any other surface components of the Project including the Mine Site or the QR Mill.

There have been no specific Indigenous interests for the Project identified for Nazko First Nation. Therefore, the effects on identified VC's located within Nazko First Nation traditional territory were considered and are discussed in Chapter 14.

1.6.5 Tsilhqot'in National Government

There have been no specific Indigenous interests for the Project identified for the Tsilhqot'in National Government (TNG). Therefore, the effects on identified VC's located within TNG Engagement Zone B (where there is overlap with the surface components of the Project; specifically a portion of the Transportation Route from Quesnel to the QR Mill along Quesnel Hydraulic Road) have been considered and are discussed in Chapter 15.

1.7 Summary of Impacts and Benefits to the District of Wells

The purpose of this section is to provide a plain-language summary of the Project-related potential impacts and benefits to the District of Wells. Overall, the Project has the potential to provide important employment and economic opportunities, as well as community health and well-being benefits to the District of Wells. Osisko Development Corp. (ODV) will continue to explore options for futhre enhancing these benefits through the life of the Project.

Osisko Development Corp. (ODV) also understands that there is potential that negative impacts may result from interactions between the Project and those aspects of the biophysical and human environment of importance to Wells residents. A number of mitigation measures are proposed by ODV to minimize these negative impacts.

Potential impacts, mitigation measures for minimizing negative impacts, and anticipated benefits from the Project are summarized below.

1.7.1 Potential Impacts and Proposed Mitigation Measures

Osisko Development Corp. (ODV) has strived to ensure that potential negative impacts and mitigation measures to avoid or reduce these impacts are identified in the Application. Unfortunately, there are some interactions that cannot be completely avoided or minimized and will result in what are called negative residual effects to the environmental, social, cultural, and economic setting within the District of Wells, regardless of the management or mitigation options

implemented. The potential negative residual effects can be broadly summarized as direct and indirect and may be associated with either environmental, social, cultural, or economic impacts of the Project. These direct and indirect negative residual effects may include:

- Direct effects to due to loss of natural areas resulting from changes to the landscape during construction and operation of the Project;
- Direct effects due to reduced or changed access to areas within the District of Wells;
- Indirect effects due to changes in environmental conditions resulting from mine construction and operation activities;
- Indirect effects due to increased use of the area by the Project workforce; and
- Indirect effects due to changes in the landscape such as visual and cultural impacts.

Potential impacts resulting from the development, operation and closure of the Project, of particular relevance to the District of Wells, are summarized in Table 9 below.

Table 9 Summary of Potential Impacts to the District of Wells, and Proposed Measures for Mitigating Impacts

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
Air Quality (Section 7.2)	Impacts to air quality from dust generation, vehicle emissions, and building emissions.	Where practicable, equipment with low emissions, including generators and engines, will be selected. Equipment will be turned off when not in use, where practical, to avoid unnecessary idling of motors (e.g., institute a no-idling policy for light vehicles). Use vapour recovery units at fuel and chemical storage tanks. Project has been designed to minimize the distance travelled for transporting personnel and materials, which will reduce dust and emissions. Topsoil, Overburden, and Waste Rock stockpiles and storage areas will be designed and managed to minimize emission of dust. Construction activities will be managed to minimize emission of dust. Control measures will be used for buildings and equipment that could generate emissions (e.g. Concentrator in the Services Building). Two portals will be established concurrently (Island Mountain Portal and Valley Portal) which will reduce the duration of the Construction Phase by approximately one year, thus reducing dust, as well as noise and lighting impacts. Electric and automated underground equipment and haul trucks will be used to reduce air (and noise) emissions.
Acoustic (Section 7.3)	Increase in noise and vibration	Construction equipment with manufacturer recommended noise mitigation measures and broadband alarms (white noise vs beepers) will be used. Equipment will be maintained in good working order, with idling of construction equipment kept to a minimum. Activities for minimizing noise disturbance to Community of Wells residents will be employed where possible, particularly activities at the Mine Site Complex. Minimal surface blasting is proposed and only during the first 6 months of construction. Blasting noise (surface and underground) and vibration will be monitored, especially when they occur near surface. Project design incorporates noise and vibration reduction strategies (e.g. use of roadheader to minimize blasting underground, incorporation of berms and building enclosures into design).

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
Surface Water (Section 7.4)	Changes to surface water quality in Jack of Clubs Lake and Willow River	Project has been designed with a water treatment plant and diffuser to minimize impacts to surface water quality in Jack of Clubs Lake. Any discharge to Willow River will be treated, undertaken as a contingency measure, and only during higher flows. Water management and monitoring plans will be developed and implemented. The water management design incorporates diversion ditches / channels to minimize contact water requiring treatment. Instream works will be minimized, and sediment and erosion control measures will be implemented.
Groundwater (Section 7.5)	Impacts to groundwater flow and availability for the Community water supply Impacts to groundwater quality in the Wells Aquifer	Due to current concerns regarding the quality of the community water supply, ODV is actively working with the District of Wells to: ○ establish a new well location (sourcing water from suitable surface water or groundwater options other than the Wells Aquifer or an area of non-mine influenced water); and ○ confirm and implement upgrades to the current water supply pipeline infrastructure to resolve current problems with potable water supply for the community.
Soils, Vegetation and Wildlife (Section 7.6, 7.7 and 7.8)	Impacts to vegetation and wildlife in the area near Wells	The Project has been designed to limit clearing and to use existing infrastructure, where possible (e.g., roads). Setbacks on wetlands, riparian areas, and sensitive ecosystems will be implemented. Areas no longer required for operations will be reclaimed as soon as possible (i.e. progressive reclamation). Soil cleared during construction of the Mine Site will be stockpiled and managed, to be used for reclamation activities to occur throughout operations and into closure. Revegetation will be undertaken using plants suitable for the local region and during the correct season. ODV will engage with the local communities on mine closure and end land use planning. Disturbances to wildlife will be managed (e.g. use low lighting and/or task lighting, limit activities during sensitive times of day). Activities during sensitive time periods for wildlife species will be avoided to the extent feasible.

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
		Wildlife mortality due to vehicle collisions will be managed through the development and implementation of a Project-specific Traffic Control Plan and Wildlife Management Plan.
Freshwater Fish (Section 7.9)	Loss of fish and fish habitat near Wells	Disturbance to riparian areas will be limited by applying appropriate setbacks. A clear-span bridge will be constructed over the Willow River to minimize impacts to fish habitat and instream works. Work in and around streams will be conducted during appropriate fisheries timing windows. Fishing for all employees and contractors will be prohibited while working on-site or while commuting to and from ODV sites.
Employment and Economy (Section 7.10)	Impacts to revenue generating potential for local residents and businesses	ODV will work with the District of Wells and local residents to identify ways in which tourism in the area can be promoted (e.g., moving the headframe to the community). Explore opportunities to develop a tourism component that is complimentary to the Project (e.g., visitors center, mine tours, etc.) that may attract people to the area or encourage them to stop while passing through Wells. ODV will work with the District of Wells to upgrade water and sewer infrastructure with sufficient capacity to support the development in town. ODV will work with local Chambers of Commerce and economic development organizations to identify ways to expand local participation in business opportunities. A Community Monitoring Committee will be developed in consultation with local communities and government, to monitor the effectiveness of mitigating negative impacts and enhancing positive ones. Adaptive mitigations will be implemented, as required, during the Project life.
Land and Resource Use (Section 7.11)	Visual quality and lighting effects from the Mine Site Complex Impacts to recreational opportunities near Wells	Advanced notice will be provided to Wells residents of Project activities and schedules, including road impacts and peak Project traffic times. Advanced notification will be provided to Wells residents of Project schedules prior to commencing activities that may be outside conditions considered normal (i.e. noise, dust, or vibration during blasting). Ongoing communication with local residents during all phases of the Project will be employed. Signage will be placed on affected recreational trails if there is the potential for conflicts with Project activities.

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
		A strategy to mitigate pressures on recreation and tourism in the Project area will be developed, due to increased population and visitors. The Project design incorporates progressive reclamation (e.g. revegation) throughout all phases of the Project, and minimiziation of new disturbance through the use of existing infrastructure and locating new infrastructure on previously disturbed sites. Portable lighting equipment will be turned off when not in use. Lighting will be planned to provide the level of light required for worker safety and equipment security while minimizing light spillover. Fixed lights will be installed to avoid spillover of light out of the spaces to be lit. Building contrast levels will be reduced by using finishes with low reflectance levels and colors that match natural landscapes. Where possible, structures on the site will be dark in color to absorb light reflection. Limit clearing and retain as much vegetation as possible to provide visual screens. The emission of light towards the sky will be limited by using luminaires that produce a sober and uniform lighting that will meet operational lighting needs. Low-profile equipment, structures, berming, and planting are incorporated into the Project design to reduce visibility of the Mine Site. Use structure surface treatments such as non-reflective surfaces and colours to blend in with the natural surroundings and reduce visibility.
Infrastructure and Services (Section 7.12)	Increase in traffic and associated issues in Wells (e.g., dust, idling, parking) Increase in demand for housing due to in-migration Increase in demand for local (i.e. Wells)	A Waste (Refuse and Emissions) Management Plan for the Project will be developed, including discussion of the use of the Wells Transfer Station. A Traffic Control Plan will be implemented and enforced, which will include consideration of managing access, as well as shift start and ends times to minimize traffic impacts. Workers, contractors, and sub-contractors will have a copy of the Traffic Control Plan and be made aware of key transportation related bylaws or regulations in Wells ODV will work with the District of Wells to upgrade water and sewer infrastructure with sufficient capacity to support the development in town. A new, clean and sustainable source of potable water for the community of Wells will be identified.

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
	infrastructure and services	ODV will continue to work with the District of Wells and other interested parties to bring enhanced electricity service to Wells and the surrounding area. ODV has provided funding to support improvements to the school building in Wells which will also house the community fitness centre. Provide rooms and recreational activities at the Mine Site Worker Accommodations for all workers who want to stay at the camp. ODV will work with MOTI to relocate the 50 km/h posted speed limit slightly to the west to allow the new access to the Mine Site Complex to be located within the 50 km/h zone. A new highway bypass will be built before Wells so that Project related traffic (including hauling waste rock) does not travel through the community.
Human and Ecological Health (Section 7.13)	• The human health risk assessment identified a moderate Project risk associated with arsenic and any dermal (i.e. skin) contact with sediments from Jack of Clubs Lake.	This issue is primarily associated with historical mine tailings. However, there is currently signage at Jack of Clubs Lake communicating that recreation activities should not take place in the area.
Community Health (Section 7.14)	Increase in demand for local (i.e. Wells) health, social, protective (e.g. police) and emergency infrastructure and services Changes in population, employment, and income resulting in changes in population health Decrease in demand for local (i.e. Wells) health, social, protective (e.g.	Use worker camps for workers at the Mine Site as long as possible into the Closure Phase. Provide on-site and virtual health services covering a broad range of health needs including non-urgent care, mental health, addictions, sexual health, disease prevention, and wellness programs. Provide on-site emergency medical response services. Encourage workers, while at site, to participate in the Wells Volunteer Fire Brigade (WVFB) and develop a mutual aid agreement with the WVFB. Ensure that fire protection services are available at the Mine Site. Maintain a working relationship with emergency service providers in the area so that potential issues can be identified and prevented or dealt with expeditiously. Coordinate with BC Wildfire so that equipment and staff can support wildfire response as required.

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
	police) and emergency infrastructure and services after mine operations cease	Ensure workers at site are aware of the risks of going into the backcountry when off shift to reduce the need for search and rescue services. Develop and implement a Mine Emergency Response Plan as well as plans for handling explosives and hazardous materials. Provide rooms at the Mine Site Accommodations for all workers who want to stay at the camp as well as the option for workers to commute should they so desire on a permanent or temporary basis. Encourage workers to volunteer in the community. Support hiring of a social worker to deal with mental health issues for a period of four years and reassess after that time based on the findings of the Socio-economic Monitoring Plan (SEMP). House incoming workers at workers camps to reduce impacts on communities. Undertake mine closure planning with local communities and service providers through the Community Monitoring Committee and other means to understand issues relating to Project-induced population change associated with Project closure and how ODV could support the transition.
Archaeological and Heritage Resources (Section 7.15)	Damage to known or undiscovered paleontological, archaeological, or historical sites, features, or objects	Develop and implement Chance Find Management Plan (outlining procedures to be followed in the event new sites are discovered during construction, operations or closure) Avoid identified and new sites through design, where possible If site avoidance is not possible, implement additional management measures as outlined in a Project-specific Archaeological and Cultural Heritage Resources Management Plan
Culture (Section 7.16)	Availability of infrastructure and impacts to District of Wells Art Sector Population changes and impacts to District of Wells Art Sector	Develop and implement a Community Involvement Plan (refer to Appendix 20.1 for brief description of purpose / objectives). Inform Wells residents regarding anticipated timing of construction, number of workers, and duration of construction so that they can plan and provide input to ODV regarding events and gatherings. If possible, ODV will work to accommodate scheduling conflicts as they arise. Develop a strategy to mitigate pressures on recreation and tourism in the Project area due to increased population and visitors. This should include working with hotel and visitor accommodation owners to ensure capacity.

Valued Component	Potential Impacts of Concern to Wells	Key Measures for Mitigating / Managing Impacts
		Contact industry leaders in the tourism industry at least semi-annually to better understand the impacts on the sector, if any, caused by ODV. Host community events to promote and encourage Arts and Culture within the District of Wells. Support the arts in the District of Wells by continuing to work closely with Wells' arts-related stakeholders and organizations to discuss benefits that can be provided by ODV to support the arts sector and arts infrastructure. Develop a subpage on the ODV website for Wells residents to submit feedback directly to the Project Team. Hire locally (including CRD and Prince George) – ODV is proposing to hire 75% of the workstaff locally. This could include those in other sectors who may have a skillset suited to the mining development in any capacity. Contact key leaders of the arts sector at least semi-annually to better understand the impacts on the sector, if any, caused by ODV. ODV will support local theatre events. Promote the arts sector to all workers. ODV will support Island Mountain Arts to enhance youth programs and encourage participation.

1.7.2 Potential Benefits

Osisko Development Corp. (ODV) has attempted to maximise Project-related benefits to the Community of Wells through various Project design strategies (refer to Chapter 1 Project Overview for further discussion regarding the adaptive design decisions and Alternative Means of Carrying out the Project), and through various other commitments aimed at enhancing employment and economic opportunities and overall community health and well-being for Wells residents.

Potential positive effects resulting from the development and operation of the Project are summarized in Section 0.5.2 of this chapter and are further defined in each of the VC sections of Chapter 7.0 – Valued Component Effects Assessment. Broad examples of the expected benefits for the District of Wells from these positive effects are discussed below.

1.7.2.1 Environmental Benefits

Progressive reclamation of the Project will allow for revegetation of previously disturbed areas. This has the potential for various positive benefits, as noted in Table 10 below.

1.7.2.2 Socio-Economic Benefits

In terms of positive impacts and benefits, ODV requires a skilled workforce to construct and operate the Project. The infrastructure, equipment, and training for a mining operation such as this often have wider benefits to communities beyond their immediate economic impact. Apart from the creation of jobs and economic opportunities, ODV also chooses to invest in social infrastructure outside of their immediate sphere of operations. This takes the form of partnerships with community organisations, so that investments are targeted to meet the needs of local populations.

A summary of the key benefits of the Project to the District of Wells is provided in Table 10

Table 10 Predicted Benefits to the District of Wells

	Predicted Benefits to the District of Wells
VC/Subdiscipline	**Summary**
Air Quality, Surface Water, Soil, Vegetation and Wildlife	The closure of the Mine Site will result in a positive effect through reclamation of previously disturbed sites. As the Mine Site is reclaimed, native vegetation will be re-established. This will reduce the spread of invasive plant species and provide higher quality habitat for plant species and wildlife in this area. Revegetation of previously disturbed areas also has the potential to reduce dust in these areas, resulting in a potential positive effect on Air Quality for District of Wells community members nearby.
Employment and Economy	Increased employment and training opportunities for local residents Contributions to local government tax revenues Purchase of goods and services from local businesses Support the diversification of the local economy Support to local businesses through the spending of wages

	Predicted Benefits to the District of Wells
VC/Subdiscipline	**Summary**
Infrastructure and Services	Improvement to District of Wells water and sewer systems Establishment of a new clean, sustainable source of potable water for the community of Wells Improvement to recycling in the Wells area The number of early childhood educators (ECE) in the area has the potential to increase, which will support both existing facilities and expansion of daycare spaces Increased population will replace projected population decreases in certain age groups and will help maintain demand for certain activities and support other activities in the communities Improvements to the community building in Wells
Community Health	Potential support for Wells Volunteer Fire Brigade (WVFB) through workers volunteering and developing a mutual aid agreement with the WVFB Support for BC Wildfire More volunteers in the community Establishment of one social worker position in the community for four years Enhanced training, employment, and income in the local population
Culture	Potential economic development that the Project can bring will be largely positive to the community Potential to increase viewership and exposure for community arts