



OSISKO DEVELOPMENT

# **CARIBOO GOLD PROJECT**

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**END LAND USE PLAN REV3**

***JULY 2025***



OSISKO DEVELOPMENT

**Cariboo Gold Project**

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

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## REVISION HISTORY

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| Rev. No. | Date              | Author          | Description                                                                                                                   |
|----------|-------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| 0        | April 4, 2024     | Jorden Laskosky | Initial version for environmental assessment condition review                                                                 |
| 1        | November 12, 2024 | Jorden Laskosky | Revised to address environmental assessment condition review comments<br>Integration of Transmission Line reclamation content |
| 2        | June 12, 2025     | Jorden Laskosky | Revised to address BC Environmental Assessment Office review comments                                                         |
| 3        | July 11, 2025     | Jorden Laskosky | Revised to address BC Environmental Assessment Office review comments                                                         |

## EXECUTIVE SUMMARY

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The Cariboo Gold Project (the Project) was granted an Environmental Assessment Certificate #M23-01 (EAC) on October 10, 2023, by the British Columbia (BC) Environmental Assessment Office (EAO). The Project is an underground gold mine with a maximum production capacity of 1,793,400 tonnes per year of mineralized material (ore). The Project is located in the District of Wells and the Cariboo Regional District (CRD).

To help plan for the successful closure of the Project, Condition 20.1 of the EAC requires the development of an End Land Use Plan (ELUP; the Plan) in consultation with Lhtako Dené Nation, Xat'sül First Nation, and Williams Lake First Nation (Participating Indigenous nations), the BC Ministry of Mining and Critical Minerals (MCM), the BC Ministry of Environment and Parks (ENV), the Northern Health Authority (NHA), and the BC Ministry of Forests (MoF). Following the development of the ELUP, a 60-day review period prior to construction of the Project is required (EAC 20.2). Condition #20.3 of EAC #M23-01 specifies the following technical guidance requirements for the development of an ELUP, which are addressed in this Plan:

- A description of the pre-mining land capability and land use conditions.
- A description of the predicted post-closure land capability and land use conditions.
- Modelling to reconcile or minimize negative differences or enhance positive benefits between the pre-Project conditions and post-closure projections.
- Documentation of forecasted net changes in land capability between pre-Project and post-closure conditions.
- Incorporation of mitigation targets related to valued components, such as caribou, wildlife, habitat, human health, vegetation, ecosystem, and wetlands.
- Information on how Barkerville Gold Mines Ltd. (BGM) will contribute to remediation of contaminated areas within the Mine Footprint Area (MFA). BGM is a wholly-owned subsidiary of Osisko Development Corp. (ODV).

As most of these objectives relate directly or indirectly to land capability, and most land capability systems have been designed for agricultural use, ODV has elected to use Site Index (e.g., MOF 2013) to compare land capability for pre-mining and post-closure ecosystems. Site Index is a well-established metric of overall forested ecosystem productivity (Stearns-Smith 2001).

As part of a holistic approach to environmental stewardship, and to monitor Project impact, ODV will implement the following environmental management and monitoring plans:

- Human Health Monitoring and Management Plan, including:
  - Air Quality Monitoring Plan
  - Groundwater Monitoring Plan

- Environmental Effects Management Plan, including:
  - Wildlife Management Plan
  - Caribou Mitigation and Monitoring Plan
  - Bat Mitigation and Monitoring Plan
  - Vegetation Management Plan
  - Invasive Species Management Plan
- Aquatic Effects Monitoring Plan.
- Construction Environmental Management Plan.

Mitigation will be evaluated according to the schedule and methods outlined in these management plans. Mitigation targets are still under development; however, the current approach is to link recovering reclaimed ecosystems to naturally disturbed reference sites (of similar Site Series) that are undergoing recovery. This approach allows for ODV and others (e.g., Indigenous nations, local communities, regulators) to work together to select metrics that consider multiple viewpoints, and communally acceptable ways of measuring these metrics. Qualified Professional involvement will follow requirements in these plans. The adaptive management / trigger response aspects of the management plans will identify the need to change aspects of these programs in accordance with site conditions and results obtained. Finally, this ELUP is being developed in consultation with Participating Indigenous Nations, MCM, ENV, NHA, and MoF. ODV welcomes comments on the draft plan.

# 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                                   |
|--------------|-----------------------------------------------|
| %            | percent                                       |
| AEMP         | Aquatic Effects Monitoring Plan               |
| BC           | British Columbia                              |
| BEC          | Biogeoclimatic Ecosystem Classification       |
| BGM          | Barkerville Gold Mines Ltd.                   |
| CCSP         | Crown Contaminated Sites Program              |
| CEMP         | Construction Environmental Management Plan    |
| CMMP         | Caribou Management and Monitoring Plan        |
| COIs         | Communities of Interest                       |
| CRD          | Cariboo Regional District                     |
| EAC          | Environmental Assessment Certificate          |
| EEMP         | Environmental Effects Management Plan         |
| ELU          | End land use                                  |
| ELUP         | End Land Use Plan                             |
| EMS          | Environmental Management System               |
| ENV          | Ministry of Environment and Parks (BC)        |
| ha           | hectare                                       |
| HHMMP        | Human Health Monitoring and Management Plan   |
| km           | kilometre                                     |
| m            | metre                                         |
| MCM          | Ministry of Mining and Critical Minerals (BC) |
| MFA          | Mine Footprint Area                           |
| mm           | millimetre                                    |
| MoF          | Ministry of Forests (BC)                      |
| MOU          | Memorandum of Understanding                   |
| <b>MPRP</b>  | Mine Plan and Reclamation Plan                |
| Mt           | million tonnes                                |

| Abbreviation | Description                                          |
|--------------|------------------------------------------------------|
| NHA          | Northern Health Authority                            |
| NPAG         | non-potentially acid generation                      |
| ODV          | Osisko Development Corp.                             |
| QP           | Qualified Professional                               |
| QR Mill      | Quesnel River Mill                                   |
| SEPSCP       | Surface Erosion Prevention and Sediment Control Plan |
| WRSF         | Waste Rock Storage Facility                          |
| WTP          | Water Treatment Plant                                |

# 1. INTRODUCTION

---

Barkerville Gold Mines Ltd. (BGM) is currently seeking regulatory approval of their proposed Cariboo Gold Project (the Project), an underground gold mine with a maximum production capacity of 1,793,400 tonnes per year of mineralized material (ore) located in the District of Wells and the Cariboo Regional District, British Columbia (BC), approximately 80 kilometres (km) east of Quesnel, BC. BGM is wholly-owned subsidiary of Osisko Development Corp. (ODV). As part of the British Columbia *Environmental Assessment Act* regulatory process, this End Land Use Plan (ELUP) has been developed to meet the requirements of Condition #20 of Environmental Assessment Certificate #M23-01. A Declaration of Competency form for Jorden Laskosky, P.Ag., for preparation of the ELUP is provided as Appendix A.

## 1.1 Regional Context

The Project is located in the Quesnel Highlands, west of the Cariboo Mountains and east of the Fraser Plateau. The Cariboo region supports a diverse range of land uses, including forestry, agriculture, tourism, residential, recreation, trapping, guide outfitting, and mining. However, given the location of Project components, agricultural land use is not present within the Mine Footprint Area (MFA). The District of Wells has a history of mining and anthropogenic disturbance dating back to the 1860s. Large scale lode gold exploration began in the 1930s, and the Cariboo Gold Quartz Mine in Wells went into production in 1933 and operated until 1970. During operation, the Cariboo Gold Quartz Mine generated approximately 2.65 million tonnes (Mt) of flotation mill tailings, which were deposited into the northeastern end of Jack of Clubs Lake, near its outlet into the Willow River, filling approximately 30 hectares (ha) of the original lake area (SNC Lavalin 2011). In addition to the mill tailings, hydraulic placer mining operations in Lowhee Creek deposited an unknown quantity of placer outwash in the northeastern end of Jack of Clubs Lake. Historical waste rock is also located at the northeast end of Jack of Clubs Lake, adjacent to the Valley Portal. Other historical mines (Aurum and Mosquito Creek Mine) also operated on Island Mountain.

## 1.2 Objectives and Scope

This ELUP is designed to address Condition #20 of EAC #M23-01 (and subsequent sub-conditions). In summary, this ELUP intends to achieve the following:

- Help plan for successful closure of the Project through the creation of the ELUP and through engagement from Participating Indigenous Nations (Lhtako Dené Nation, Xat'sül First Nation, and Williams Lake First Nation), the Northern Health Authority (NHA), the BC Ministry of Mining and Critical Minerals (MCM), the BC Ministry of the Environment and Parks (ENV), and the BC Ministry of Forests (MoF) (Condition #20.1).

- Allow for a minimum 60-day review period prior to construction of the Project (Condition #20.2).
- Provide the following (Condition #20.3):
  - A description of the pre-mining land capability and land use conditions.
  - A description of the predicted post-closure land capability and land use conditions.
  - Modelling to reconcile or minimize negative differences or enhance positive benefits between the pre-Project conditions and post-closure projections.
  - Documentation of forecasted net changes in land capability between pre-project and post-closure conditions.
  - Incorporation of mitigation targets related to valued components, such as caribou, wildlife, habitat, human health, vegetation, ecosystem, and wetlands.
- Apply to all Project phases, under the direction of a Qualified Professional (QP) to the satisfaction of the EAO.

This ELUP also includes considerations associated with the 69.5 km Transmission Line which will provide power to the Cariboo Gold Project, and runs from BC Hydro's Barlow Substation (near Quesnel, BC) to the Mine Site Complex (Wells, BC). Section 2.0 provides an overview of the Project description, including the Transmission Line corridor.

### **1.3 Roles and Responsibilities**

ODV has the obligation to maintain compliance with Project commitments and to inform mine personnel and site contractors of relevant obligations during all phases of the mine's life. A clear understanding of the roles, responsibilities, and level of authority that employees and contractors have when working on the Project is essential to meet ELUP and ODV Environmental Management System (EMS) objectives. Table 1-1 provides an overview of general responsibilities for ODV personnel.

**Table 1-1: Roles and Responsibilities Defined**

| Role                                          | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vice President Environment                    | Responsible for sign off on the Environmental Policy and has overall responsibility for verifying that Project activities are undertaken such that environmental legislation and regulatory requirements are considered and adhered to, and adverse impacts to the environment and communities in the vicinity of the Project are limited.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| General Manager                               | Responsible for verifying that site personnel have access to and receive applicable training on the EMS and management plans and overseeing the day-to-day operations at the Project sites. Responsible for the health and safety of works and the public and verifying that Project activities comply with the Project's EMS, including integration of the EMS and management plans with other mine development plans and permit compliance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Environmental Manager                         | Responsible for establishing, implementing, and maintaining the EMS, training of on-site personnel on the Project's EMS and applicable management plans, overseeing responses to non-compliance, evaluating the effectiveness of mitigation measures in each management plan, and reporting outcomes to the General Manager. The Environmental Manager or their agent (i.e., Environmental Personnel) is responsible for coordinating with the General Manager to communicate with other department heads, foremen, or field-level personnel to implement or modify mitigation measures if these measures are required as defined through post-closure monitoring efforts (e.g., Table 4-2). The Environmental Manager has the authority to stop an activity or shut down the site if it is not meeting regulatory requirements. The Environmental Manager or designate is responsible for reporting non-compliances to the contractors or relevant consultants, ODV, Indigenous nations, and regulatory agencies, where required. Reports to the General Manager. |
| Qualified Professionals and Qualified Persons | QP and qualified persons will be retained to review objectives and conduct various aspects of monitoring, management, and maintenance pertaining to Project facilities and other management and monitoring plans.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Notes: EMS = Environmental Management System; ODV = Osisko Development Corp.



## 2. PROJECT DESCRIPTION

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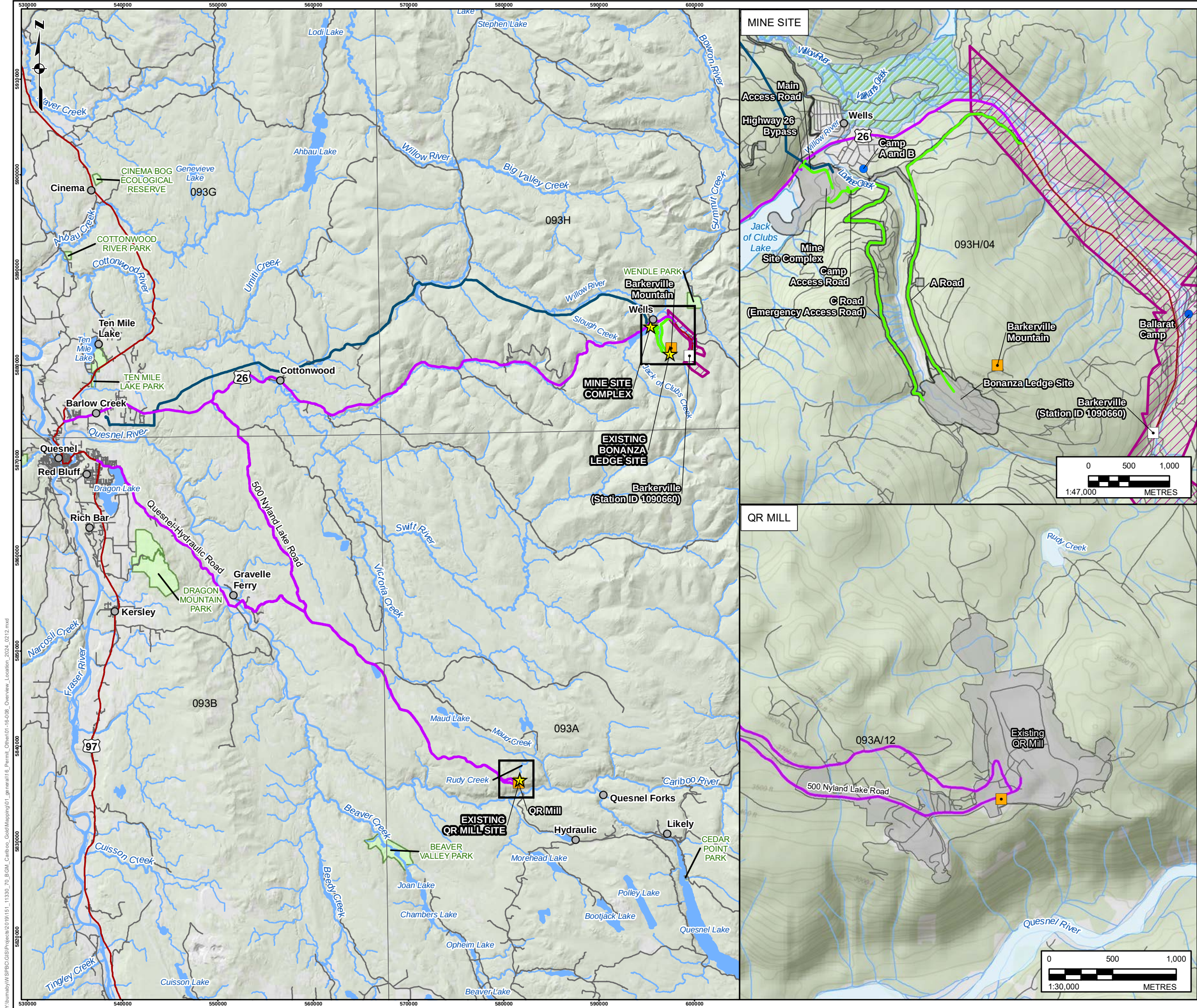
### 2.1 Project Overview

ODV is proposing to develop the Project, an underground gold mine with a maximum production capacity of 1,793,400 tonnes per year of mineralized material (ore) located in the District of Wells and Cariboo Regional District (CRD), BC. The Project includes the following sites and key components (Figure 2-1):

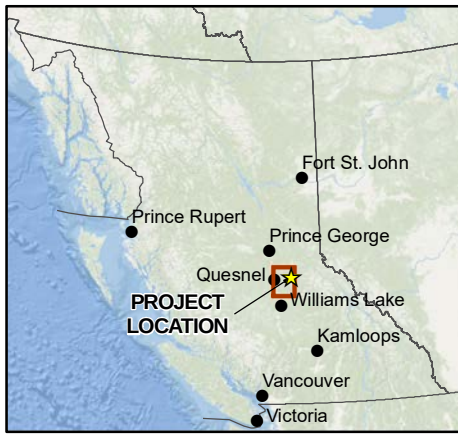
- Mine Site Complex:
  - Waste management facilities
  - Water supply and management structures and facilities
  - Services Building
  - Electrical Substation
  - Camp (Worker Accommodation)
  - Valley Portal
  - Water Treatment Plant (WTP)
  - Other ancillary infrastructure
- Bonanza Ledge Site:
  - A Waste Rock Storage Facility (WRSF) and associated water management structures
  - Overburden Stockpiles
  - Temporary Ore Stockpile
  - Cow Portal
  - Other ancillary infrastructure
- Access roads and infrastructure:
- Quesnel River Mill (QR Mill):
  - ODV's existing and associated infrastructure within the Project Surface Footprint, including use of the Worker Accommodation and necessary upgrades to the existing infrastructure.
- Transmission Line

The mine will have an estimated operational mine life of 12 years and will operate 24 hours per day, 365 days per year. Closure will occur over a period of two years after mining is completed.





- LEGEND**
- POPULATED COMMUNITY
  - ENVIRONMENT AND CLIMATE CHANGE CANADA CLIMATE STATION
  - ODV-OPERATED CLIMATE STATION
  - PROJECT INFRASTRUCTURE LOCATION
  - TEMPORARY EARLY CONSTRUCTION CAMP
  - ROAD
  - HIGHWAY
  - WATERCOURSE
  - WATERBODY
  - PARKS/PROTECTED AREA
  - BARKERVILLE HISTORIC TOWN AND PARK
  - TRANSPORTATION ROUTE
  - TRANSPORTATION ROUTE (MINE SITE ACCESS ROADS)
  - TRANSMISSION LINE ROUTE
  - SURFACE DISTURBANCE AREA

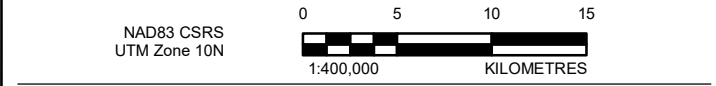


**REFERENCE(S)**

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3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



**CARIBOO GOLD PROJECT**

OSISKO DEVELOPMENT

**LOCATION AND ACCESS**

| REV.                     | DESCRIPTION | DATE      | INITIALS             |
|--------------------------|-------------|-----------|----------------------|
|                          |             |           |                      |
|                          |             |           |                      |
|                          |             |           |                      |
|                          |             |           |                      |
| 0                        |             | 2/12/2024 | MY                   |
| PROJECT NO.<br>177416003 | PHASE<br>00 | REV.<br>0 | FIGURE<br><b>2-1</b> |



## 3. LAND USES

### 3.1 Existing Land Uses

Existing anthropogenic land uses of the Project MFA are similar to those which occurred historically, and include wildlife habitat, forestry, tourism, residential, recreation, trapping, guide outfitting, and mining. The Transmission Line corridor contains several land uses that must be considered; these are presented in Table 3-1.

Figure 3-1 provides an overview of the pre-disturbance ecosystems that were present at the Mine Site Complex and the Bonanza Ledge Site. Due to historical disturbance, pre-disturbance ecosystems are not available for QR Mill; thus, no figure is presented for this component. Pre-Project soil conditions are described in Section 2.2 of the Soil Management Plan (ODV 2024a).

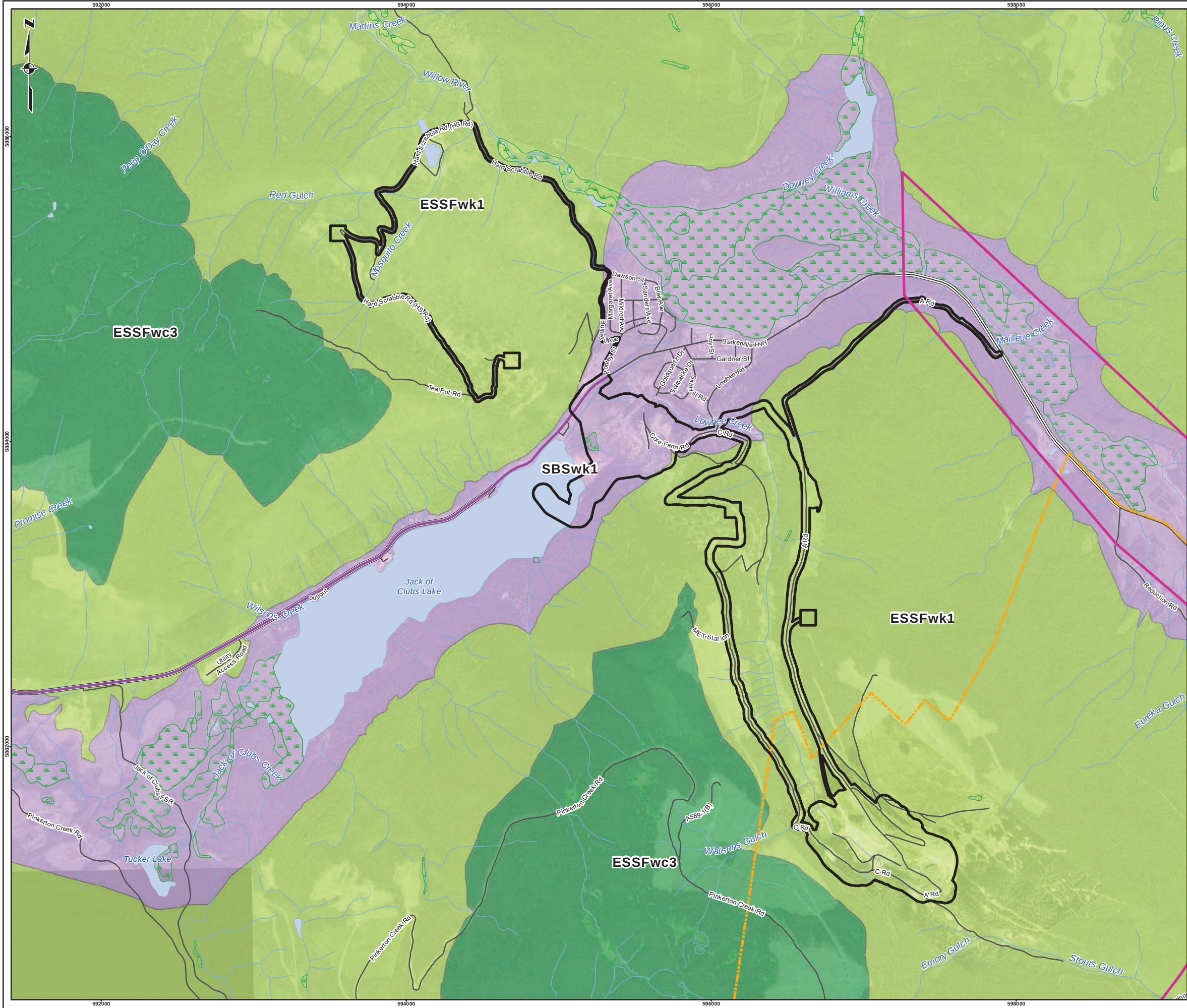
**Table 3-1: Land use Management Zones and Sub-Zones within the Transmission Line Corridor**

| Land Use Management Zone             | Land Use Management sub-Zone                                                                     |
|--------------------------------------|--------------------------------------------------------------------------------------------------|
| Residential                          | City of Quesnel Municipality Boundary<br>District of Wells Municipality Boundary                 |
| Agricultural                         | Agricultural Land Reserve (ALR)<br>Ungulate Winter Range (mule deer)                             |
| Mine Site*                           | Mine Site Permitted Mine Boundary                                                                |
| Caribou Habitat                      | Wetlands<br>Old Growth Management Areas (OGMA)<br>Forest<br>Linear corridor access blocks        |
| Forested Area/Caribou Matrix Habitat | Wetlands<br>OGMA<br>Forest<br>Ungulate Winter Range (mule deer)<br>Linear corridor access blocks |

\*Mine Site Transmission Line decommissioning not included in the DRP or the Reclamation Liability Cost Estimate.

OGMA = Old Growth Management Areas; ALR = Agricultural Land Reserve



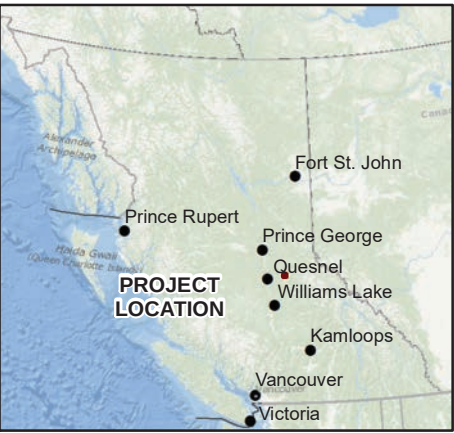


**LEGEND**

- MINE FOOTPRINT AREA
- TRANSPORTATION ROUTE
- WELLS MUNICIPAL BOUNDARY
- BARKERVILLE HISTORIC TOWN AND PARK
- WETLAND
- WATERBODY

**BEC SUBZONE**

- ESSFwc3 - ENGELMANN SPRUCE - SUBALPINE FIR, WET COLD, CARIBOO VARIANT
- ESSFwc3 - ENGELMANN SPRUCE - SUBALPINE FIR, WET COOL, CARIBOO VARIANT
- SBSwk1 - SUB-BOREAL SPRUCE, WET COOL, WILLOW VARIANT
- WATERCOURSE
- CONTOUR - 20m
- HIGHWAY
- ROAD



**REFERENCE(S)**

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3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



**CARIBOO GOLD PROJECT  
END LAND USE PLAN**

**PRE-DISTURBANCE ECOSYSTEMS FOR  
THE MINE SITE COMPLEX AND THE  
BONANZA LEDGE SITE**

| REV.                   | DESCRIPTION    | DATE       | INITIALS             |
|------------------------|----------------|------------|----------------------|
| A                      | DRAFT          | 2020-10-15 | J.P.                 |
| 0                      |                | 2023-05-31 | N.B.                 |
| PROJECT NO.<br>1774160 | PHASE<br>13000 | REV.<br>0  | FIGURE<br><b>3-1</b> |

Y:\Barrick\CAD\_GIS\Client\BGM\BGM\_Cow\_Min\08\_PROJECT\TS174160\_BGM\_Cariboo\_Gold\02\_PRODUCTION\MXD\Report\G\_RCP1774160\_05\_RCP\_03\_08\_01\_MFA\_TEM\_Subzone.mxd

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## 3.2 Expected Post-Closure Land Uses

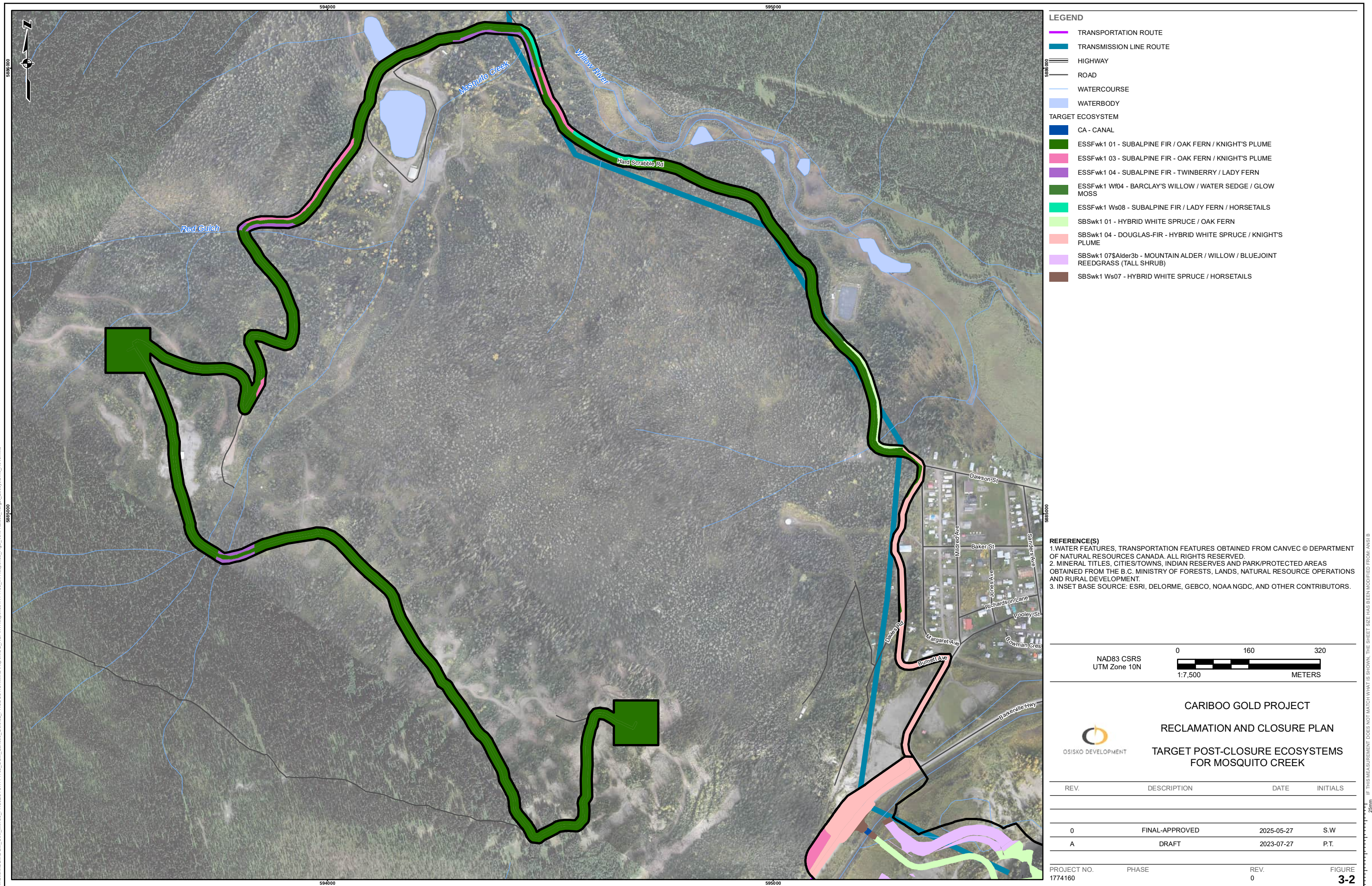
Target post-closure ecosystems are assigned following the Biogeoclimatic Ecosystem Classification (BEC) system. Biogeoclimatic subzones are further divided into site series, which are groups of ecosystems that, regardless of vegetation, have equivalent edaphic properties (particularly soil moisture and nutrient regimes), making the sites capable of producing the same mature or climax plant communities (Meidinger and Pojar 1991), identification of site series of a specific area are based on slope, aspect, elevation, and growing substrate characteristics. Figure 3-2 to Figure 3-5 show the target post-closure ecosystems at Mine Site Complex, Bonanza Ledge Site, and QR Mill, respectively.

The revegetation strategy uses the BEC system to identify appropriate restoration targets (i.e., late succession ecosystems) by matching predicted edaphic conditions of areas to be reclaimed to their respective site series.

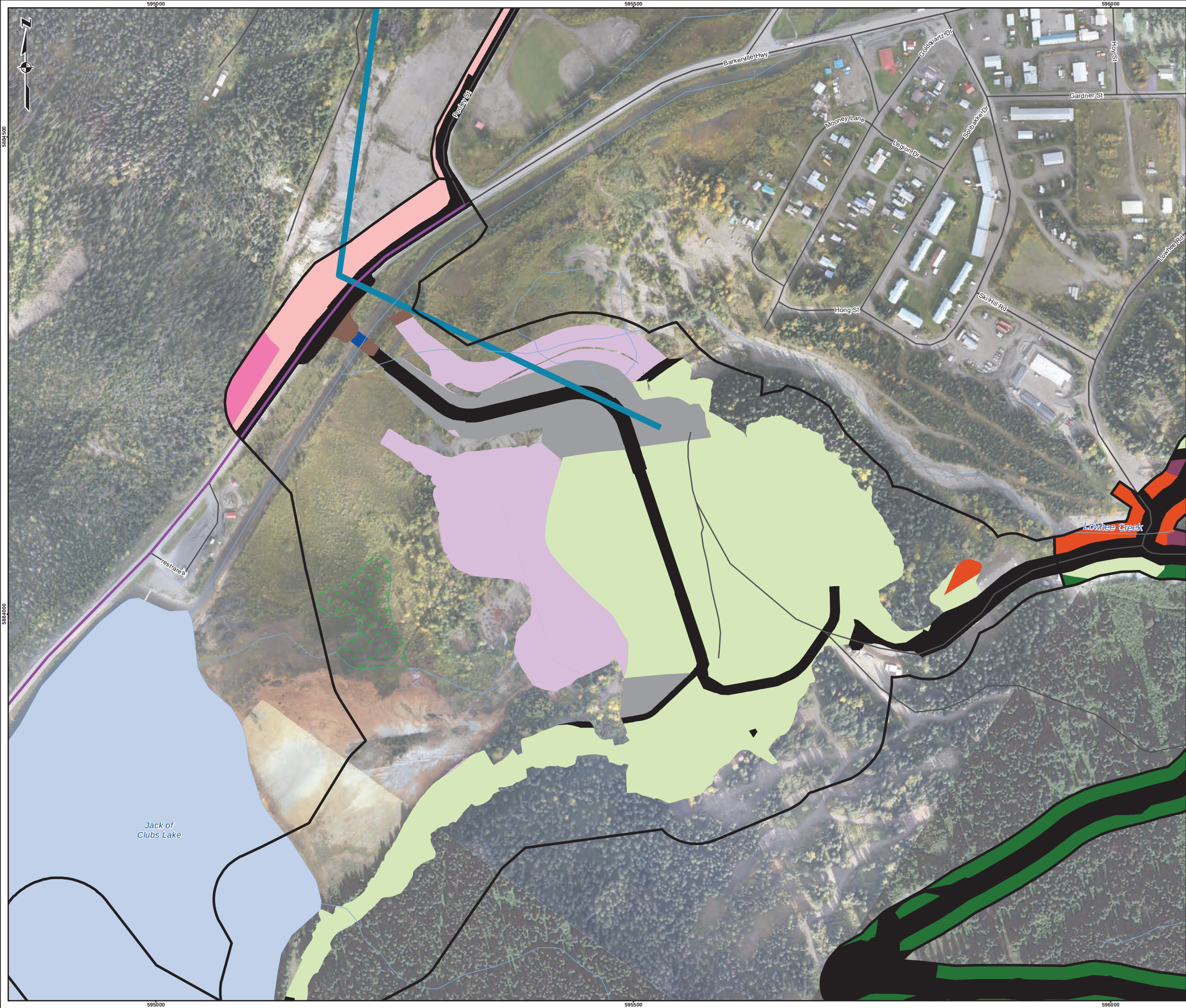
The primary end land use targets for the Project are to reclaim the area to forested ecosystems, representative of locally common ecosystems, to support wildlife habitat with secondary end land use objectives of supporting Indigenous nations current and traditional use as well as low-impact recreational use by the public.

ODV has proposed an ecosystem approach to facilitate meeting the desired end land use objectives. The ecosystem approach considers all ecosystem components and the resulting ecosystem services in reclamation planning. These ecosystems can be mapped on appropriate areas of the landscape, but rather than limiting each area to one designated end land use (e.g., wildlife habitat), this approach will allow for multiple compatible end land use objectives to be targeted. The general approach to end land use planning is to group closure ecosystems into broadly categorized ecosystem types. End land use objectives are then assigned for each ecosystem type, and they are defined across a range of structural stages (Table 3-2:).









**LEGEND**

MINE FOOTPRINT

**TARGET ECOSYSTEM**

ROAD - ROAD PERMANENT

ROCK/TALUS - COMPRISED OF ROCK DEBRIS, AND INCLUDE BOTH STABLE SLOPES DOMINATED BY BOULDERS AND UNSTABLE SLOPES CONSISTING OF SMALLER COBBLES

CA - CANAL

LA - LAKE

ESSFWK1 01 - SUBALPINE FIR / OAK FERN / KNIGHT'S PLUME

ESSFWK1 03 - SUBALPINE FIR - OAK FERN / KNIGHT'S PLUME

SBSWK1 01 - HYBRID WHITE SPRUCE / OAK FERN

SBSWK1 03 - LODGEPOLE PINE / HUCKLEBERRY / VELVET-LEAVED BLUEBERRY

SBSWK1 04 - DOUGLAS-FIR - HYBRID WHITE SPRUCE / KNIGHT'S PLUME

SBSWK1 05 - HYBRID WHITE SPRUCE / HUCKLEBERRY / HIGHBUSH-CRANBERRY

SBSWK1 07\$ALDER3B - MOUNTAIN ALDER / WILLOW / BLUEJOINT REEDGRASS (TALL SHRUB)

SBSWK1 WS07 - HYBRID WHITE SPRUCE / HORSETAILS

TRANSPORTATION ROUTE

TRANSMISSION LINE ROUTE

HIGHWAY

ROAD

WATERCOURSE

WATERBODY

**REFERENCE(S)**

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3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

NAD83 CSRS  
UTM Zone 10N

0 80 160  
1:4,000 METERS

OSISKO DEVELOPMENT

**CARIBOO GOLD PROJECT  
END LAND USE PLAN  
EXPECTED POST-CLOSURE  
ECOSYSTEMS FOR THE MINE SITE  
COMPLEX**

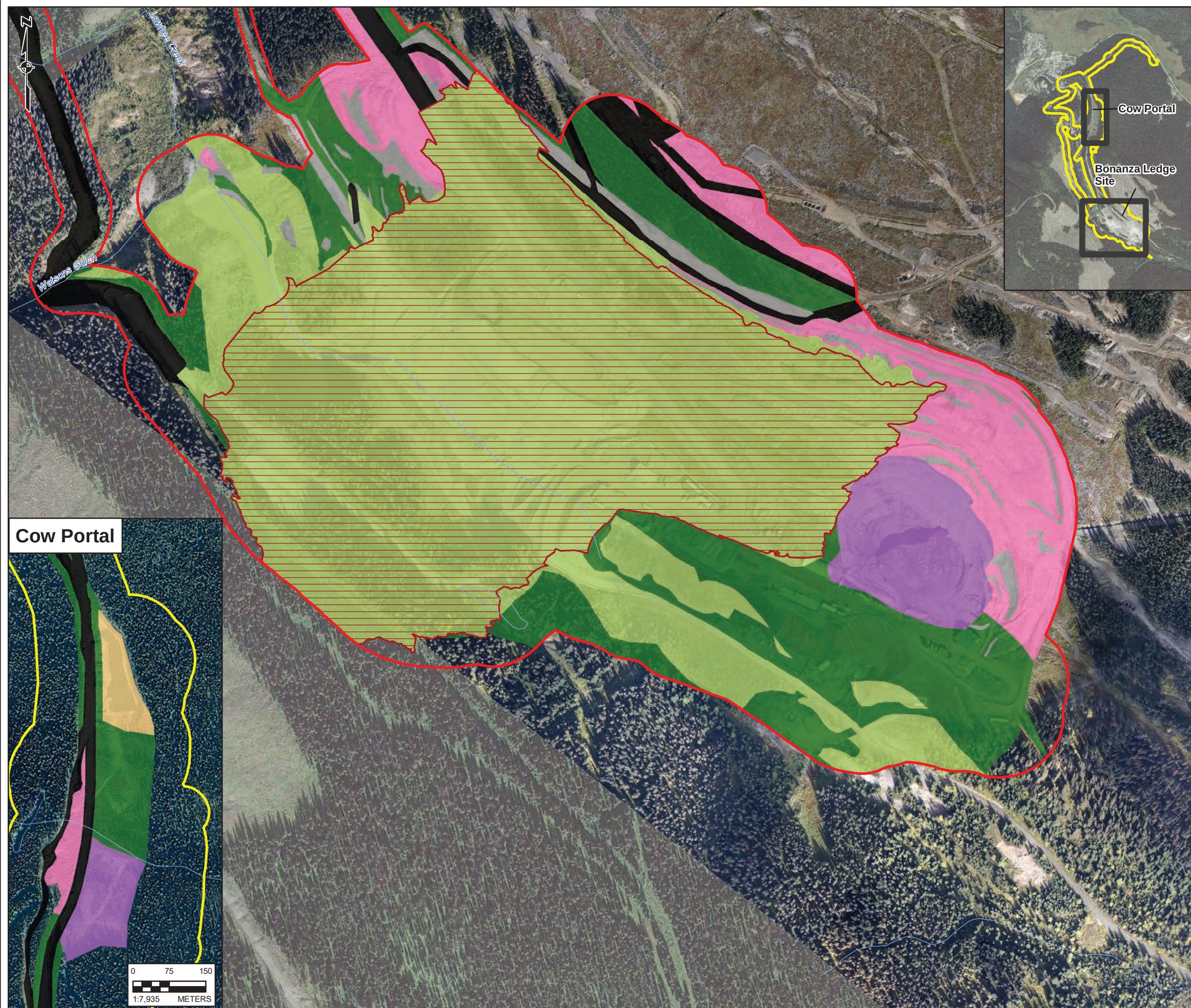
| REV. | DESCRIPTION | DATE       | INITIALS |
|------|-------------|------------|----------|
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|      |             |            |          |
|      |             |            |          |
| A    | DRAFT       | 2020-08-21 | J.P.     |
| 0    |             | 2023-05-31 | N.B.     |

| PROJECT NO. | PHASE | REV. | FIGURE     |
|-------------|-------|------|------------|
| 1774160     | 13000 | 0    | <b>3-3</b> |

Y:\arabsh\CAD\_GIS\Client\BGM\BGM\_Cow\_Min\98\_PROJECT\TS1774160\_BGM\_Cariboo\_Gold\02\_PRODUCTION\MXD\Report\GCG\_RCP\1774160\_GS\_RCP\_05\_01\_01\_Target\_Ecosystems.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B





## LEGEND

-  BONANZA LEDGE SITE PERMIT AREA
-  CARIBOO GOLD PROPOSED MINE FOOTPRINT AREA
-  WATERCOURSE
-  BONANZA LEDGE WRSF -CLOSURE CONFIGURATION

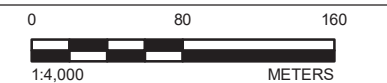
## TARGET ECOSYSTEM

- |                                                                                     |                                                                                                                                               |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|  | ROAD - ROAD DEBRIS                                                                                                                            |
|  | ROCK/TALUS - COMPRISED OF ROCK DEBRIS, AND INCLUDE BOTH STABLE SLOPES DOMINATED BY BOULDERS AND UNSTABLE SLOPES CONSISTING OF SMALLER COBBLES |
|  | ESSFWK1 01 - SUBALPINE FIR / OAK FERN / KNIGHT'S PLUME                                                                                        |
|  | ESSFWK1 02 - SUBALPINE FIR - HUCKLEBERRY / FEATHERMOSS                                                                                        |
|  | ESSFWK1 03 - SUBALPINE FIR - OAK FERN / KNIGHT'S PLUME                                                                                        |
|  | ESSFWK1 04 - SUBALPINE FIR - TWINBERRY / LADY FERN                                                                                            |
|  | ESSFWK1_51- ALDER / LADY FERN                                                                                                                 |

## REFERENCE(S)

- REFERENCE(S)  
1. WATER FEATURES, TRANSPORTATION FEATURES OBTAINED FROM CANVEC @ DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.  
2. CITIES/TOWNS, INDIAN RESERVES AND PARK/PROTECTED AREAS OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.  
3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

NAD83 CSRS  
UTM Zone 10N



CARIBOO GOLD PROJECT  
END LAND USE PLAN  
EXPECTED POST-CLOSURE  
ECOSYSTEMS FOR  
THE BONANZA LEDGE SITE

| REV.                   | DESCRIPTION   | DATE       | INITIALS             |
|------------------------|---------------|------------|----------------------|
|                        |               |            |                      |
|                        |               |            |                      |
|                        |               |            |                      |
|                        |               |            |                      |
| A                      | DRAFT         | 2023-03-08 | J.P.                 |
| 0                      |               | 2023-05-30 | N.B.                 |
| PROJECT NO.<br>1774160 | DOC<br>GAL853 | REV.<br>0  | FIGURE<br><b>3-4</b> |



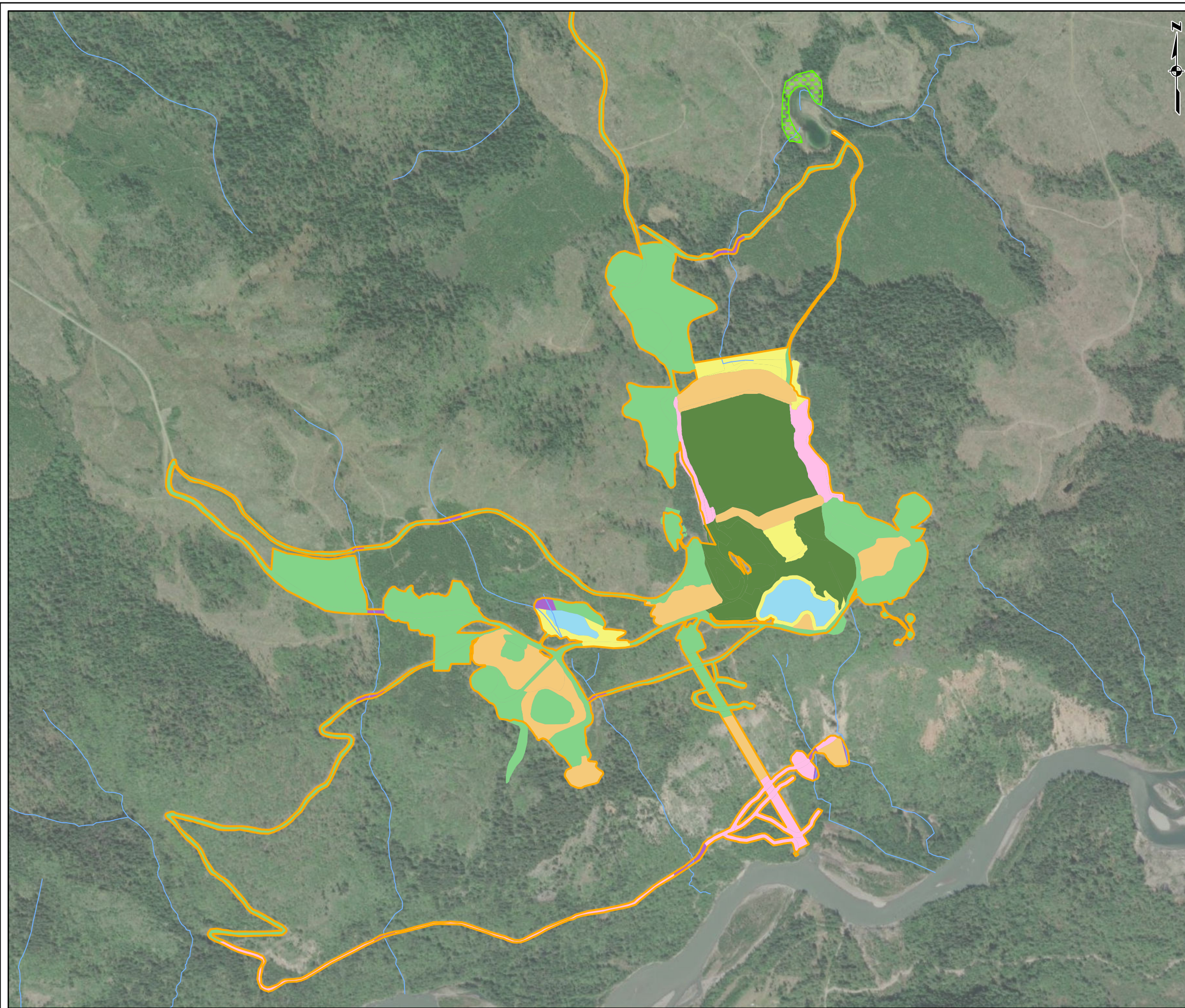




Table 3-2: Land Uses by Site Series and Structural Stage for the Mine Complex, Bonanza Ledge, and QR Mill\*

| Ecosystem Group               | BEC Site Series                                                                                                                                        | Structural Stage 1 to 3 (Sparse – Shrubs/Herb)                                                                                                                                                                 | Structural Stage 4 to 5 (Young Forest)                                                                                                                                                                                                                 | Structural Stage 6 (Mature Forest)                                                                                                                                                                                                                                           | Structural Stage 7 (Old Growth Forest)                                                                                                                                                                                                             |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dry Forest                    | ESSFwk1 02<br>ESSFwk1 03                                                                                                                               | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Ungulates)<br>Wildlife and Wildlife Habitat (Birds, Small Mammals)<br>Wildlife and Wildlife Habitat (Black Bear)        | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Ungulates)<br>Wildlife and Wildlife Habitat (Birds)<br>Wildlife and Wildlife Habitat (Lynx)                                                                     | Commercial Forestry<br>Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (year-round - Caribou)<br>Wildlife and Wildlife Habitat (Birds)<br>Wildlife Habitat (Cavity Dependent)                                                                         | Commercial Forestry<br>Recreation<br>Indigenous Cultural Use<br>Wildlife Habitat (year-round - Caribou)<br>Wildlife Habitat (Birds)<br>Wildlife Habitat (Cavity Dependent)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat             |
| Intermediate/<br>Mesic Forest | ESSFwk1 01<br>SBSdw1 01<br>SBSmw1 01<br>SBSmw1 03<br>SBSmw1 04<br>SBSwk1 01<br>SBSwk1 03<br>SBSwk1 04<br>SBSwk105                                      | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Ungulates)<br>Wildlife and Wildlife Habitat (Birds, Small Mammals)<br>Wildlife and Wildlife Habitat (Black Bear)        | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Ungulates)<br>Wildlife and Wildlife Habitat (Birds)<br>Wildlife and Wildlife Habitat (Lynx)                                                                     | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (year-round - Caribou)<br>Wildlife and Wildlife Habitat (Birds)<br>Wildlife Habitat (Cavity Dependent)                                                                                                | Recreation<br>Indigenous Cultural Use<br>Wildlife Habitat (year-round - Caribou)<br>Wildlife Habitat (Birds)<br>Wildlife Habitat (Cavity Dependent)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat                                    |
| Wet Forest                    | ESSFwk1 04<br>ESSFwk1 05/51\$3B<br>Ws07 hybrid white spruce / horsetails<br>SBSdw1 06<br>SBSdw1 07<br>SBSdw1 08<br>SBSmw1 05<br>SBSmw1 06<br>SBSmw1 07 | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Moose)<br>Wildlife and Wildlife Habitat (Birds, amphibians)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Moose)<br>Wildlife and Wildlife Habitat (Birds, amphibians)<br>Wildlife and Wildlife Habitat (Lynx)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat | Commercial Forestry<br>Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Winter Range - Moose)<br>Wildlife and Wildlife Habitat (Birds, amphibians)<br>Wildlife Habitat (Cavity Dependent)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat | Commercial Forestry<br>Recreation<br>Indigenous Cultural Use<br>Wildlife Habitat (Winter Range - Moose)<br>Wildlife Habitat (Birds, amphibians)<br>Wildlife Habitat (Cavity Dependent)<br>High Biodiversity Value<br>Rare and Listed Plant Habitat |
| Grassland/<br>Brushland       | SBSwk1 07<br>mountain alder /willow / bluejoint reedgrass, non-forested                                                                                | Recreation<br>Indigenous Cultural Use<br>Wildlife Winter Range (Ungulate Focus)<br>Wildlife and Wildlife Habitat (Birds, Small Mammals)<br>Wildlife and Wildlife Habitat (Black Bear)                          | Not applicable                                                                                                                                                                                                                                         | Not applicable                                                                                                                                                                                                                                                               | Not applicable                                                                                                                                                                                                                                     |
| Rocky Talus<br>Cliffs         | Riprap/Talus                                                                                                                                           | Recreation<br>Indigenous Cultural Use<br>Wildlife and Wildlife Habitat (Birds, Small Mammals)<br>Wildlife Habitat (Escape Terrain)<br>Rare and Listed Plant Habitat                                            | Not applicable                                                                                                                                                                                                                                         | Not applicable                                                                                                                                                                                                                                                               | Not applicable                                                                                                                                                                                                                                     |

Notes: \*Provides land uses for both pre-disturbance and post-closure; TEM = Terrestrial Ecosystem Mapping; BEC = Biogeoclimatic Ecosystem Classification.



### 3.3 Plan Revisions and Updates

As an ongoing effort to refine end land use planning, ODV will continue the engagement process with Participating Indigenous nations, NHA, MCM, ENV, MoF and the BC Ministry of Water, Land and Resource Stewardship (WLRS) as the Project advances towards closure. Ultimate end land uses will be refined based off Indigenous nation, NHA, MCM, ENV, and MoF feedback. The ELUP will be reviewed annually to determine if changes are required based on this feedback and a new revision will be issued if feedback requires incorporation, when changes in end land uses occur. Required revisions will be provided for review to Participating Indigenous nations, MCM, ENV, NHA, and MoF. A copy of the current version of the Plan will be included on the dedicated Project website.

## 4. LAND CAPABILITY

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The Health, Safety and Reclamation Code (EMLI 2022), part 10.7.5 states:

*“Excluding lands that are not to be reclaimed, the average land capability to be achieved on the remaining lands shall not be less than the average that existed prior to mining, unless the land capability is not consistent with the approved end land use.”*

Land capability has historically been determined for agricultural lands in western Canada (e.g., (MOA and MOE 1983; AAFC 1995), and efforts have been made to adapt such systems to forest ecosystems. However, agricultural ratings translate poorly to forest ecosystems. In 2006, Alberta Environment issued the *Land Capability Classification System for Forest Ecosystems* (Alberta Environment 2006). This system was widely adopted by oil sands operators and regulators for several years, but was ultimately abandoned as flaws (primarily, the large amount of data required and the focus solely on soil characteristics) in the system became apparent. Following this, a push towards using Site Index as the primary method of determining reclamation success followed.

### 4.1 Site Index in Place of Land Capability

Site Index has served as a foundation for forest management decisions for more than 30 years. Since the 1990s, foresters and scientists recognized that correlating BEC site factor information with measures of site productivity, or Site Index, would greatly enhance the ability to manage certain forest stands. Simply defined, the Site Index is the height of the largest 50-year old tree at breast height on a 0.01 ha plot (Mah and Nigh 2015). Unrestrained height growth makes a good index of site potential because, unlike diameter or volume growth, it is relatively stable and robust over a large range of managed stand densities, as tree growth is limited by genetics and by the effects of environmental factors, such as temperature, moisture, nutrients, and light (Stearns-Smith 2001). A site's inherent ability to provide these resources is largely governed by site factors such as topography, soils, and climate (Stearns-Smith 2001). Common methods to measure Site Index include:

**Site Index – Biogeoclimatic Ecosystem Classification Models:** This comprehensive tool correlates Site Index with BEC site series. The BEC system is designed specifically for BC's ecosystems. This model is best used for very young stands, very old stands, and stands not suitable for other methods.

**Growth Intercept Models:** These species-specific models are designed explicitly for young stands (5 to 50 years breast height age). The growth intercept technique estimates Site Index from the average annual height growth of site trees, which is determined either from the distance between annual branch whorls or from the height and breast height age of the tree.



**Height–Age Models:** Also known as Site Index Curves, the primary purpose of these models is to describe height development over time for different levels of Site Index. These models also allow estimates of Site Index from height and breast height age data. Each tree species requires a different model because height growth characteristics are not the same for all species. This method is best used for stands that have between 50- and 140-years growth above breast height. Figure 4-1 provides an overview of when each measurement method should be used.

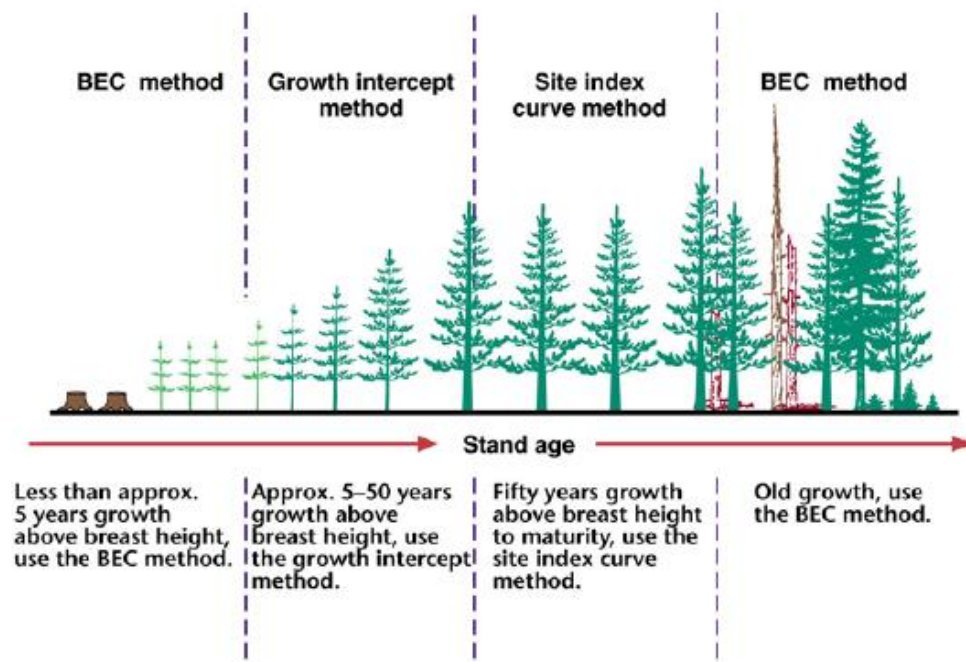


Figure 4-1: Optimal Site Index Methods Based on Stand Age

## 4.2 Cariboo Gold Project Mine Footprint Area Site Index Values

In addition to pre-disturbance versus projected post-closure ecosystem extents, Table 4-1 also provides Site Index values and an estimation of pre-disturbance and post-closure land capability. The estimated land capability for both pre-disturbance and post-disturbance is simply calculated as:

$$\text{Land Capability} = \text{BEC Series extent (ha)} \times \text{Site Index Value}$$

Table 4-1: Pre-Disturbance and Post-Closure Ecosystems and Land Capability for the Cariboo Gold Project by Major Component\*

| Site Series          | Ecosystem Description                                  | Project Component | Pre-Disturbance Area (ha) | Post-Closure Area (ha) | Site Index <sup>1</sup> | Pre-Disturbance Land Capability <sup>2</sup> | Post-Closure Land Capability <sup>2</sup> |
|----------------------|--------------------------------------------------------|-------------------|---------------------------|------------------------|-------------------------|----------------------------------------------|-------------------------------------------|
| ESSFwk1 00           | Disturbed (roads, urban etc.) **                       | Bonanza Ledge     | 50.2                      | 24.6                   | 0                       | 0                                            | 0                                         |
|                      |                                                        | Mine Site Complex | 0                         | 1.6                    | 0                       | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 4.8                       | 4.8                    | 0                       | 0                                            | 0                                         |
|                      |                                                        | Vent Raise Access | 8.2                       | 3.9                    | 0                       | 0                                            | 0                                         |
|                      | Talus/Riprap                                           | Mine Site Complex | 0                         | 1.7                    | 0                       | 0                                            | 0                                         |
|                      |                                                        | Vent Raise Access | 0                         | 0                      | 0                       | 0                                            | 0                                         |
| ESSFwk1 01           | Subalpine Fir - Oak fern - <i>Brachythecium</i>        | Bonanza Ledge     | 31.4                      | 29.4                   | 19.5                    | 612.3                                        | 573.3                                     |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 19.5                    | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 58.1                      | 58.1                   | 19.5                    | 1133.3                                       | 1133.3                                    |
|                      |                                                        | Vent Raise Access | 5                         | 10.6                   | 19.5                    | 97.5                                         | 206.7                                     |
| ESSFwk1 02           | Subalpine Fir - Huckleberry - Feathermoss              | Bonanza Ledge     | 0                         | 1.5                    | 9                       | 0                                            | 13.5                                      |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 9                       | 0                                            | 0                                         |
|                      |                                                        | Vent Raise Access | 0                         | 0                      | 9                       | 0                                            | 0                                         |
| ESSFwk1 03           | Subalpine Fir - Oak fern - Knight's Plume              | Bonanza Ledge     | 6.7                       | 7.1                    | 12                      | 80.4                                         | 85.2                                      |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 3.1                       | 3.1                    | 12                      | 37                                           | 37                                        |
|                      |                                                        | Vent Raise Access | 0.8                       | 0.7                    | 12                      | 9.6                                          | 8.4                                       |
| ESSFwk1 04           | Subalpine Fir - Twinberry - Lady Fern                  | Bonanza Ledge     | 3.7                       | 5.4                    | 20.1                    | 74.37                                        | 108.54                                    |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 20.1                    | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 0.7                       | 0.7                    | 20.1                    | 14                                           | 14                                        |
|                      |                                                        | Vent Raise Access | 0.5                       | 0.5                    | 20.1                    | 10.05                                        | 10.05                                     |
| ESSFwk1 05/(51\$3B)* | Alder - Lady Fern                                      | Bonanza Ledge     | 0.7                       | 26.6                   | 21.7                    | 15.19                                        | 577.22                                    |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 22.7                    | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 3.5                       | 3.5                    | 22.7                    | 79.45                                        | 79.45                                     |
|                      |                                                        | Vent Raise Access | 0                         | 0                      | 23.7                    | 0                                            | 0                                         |
| ESSFwk1 WS08         | Subalpine Fir – Lady Fern - Horsetails                 | Bonanza Ledge     | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                      |                                                        | Mine Site Complex | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 3.9                       | 3.9                    | 12                      | 46.5                                         | 46.5                                      |
|                      |                                                        | Vent Raise Access | 0.4                       | 0.3                    | 12                      | 4.8                                          | 3.6                                       |
| SBSdw1 00            | Disturbed (roads, urban etc.) **                       | Transmission Line | 2.2                       | 2.2                    | 0                       | 0                                            | 0                                         |
| SBSdw1 01            | Hybrid White Spruce - Douglas Fir - Pinegrass          | Transmission Line | 7.1                       | 7.1                    | 21                      | 148.8                                        | 148.8                                     |
| SBSdw1 06            | Hybrid White Spruce - Thimbleberry                     | Transmission Line | 0.7                       | 0.7                    | 21                      | 15.5                                         | 15.5                                      |
| SBSdw1 07            | Hybrid White Spruce - Twinberry - Coltsfoot            | Transmission Line | 0.7                       | 0.7                    | 20.2                    | 13.6                                         | 13.6                                      |
| SBSdw1 08            | Hybrid White Spruce - Twinberry - Oak Fern             | Transmission Line | 0.8                       | 0.8                    | 24                      | 18.1                                         | 18.1                                      |
| SBSmw 00             | Disturbed (roads, urban etc.)**                        | QR Mill           | 4.5                       | 4.5                    | 0                       | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 4.5                       | 4.5                    | 0                       | 0                                            | 0                                         |
| SBSmw 01             | Hybrid White Spruce - Douglas Fir - False Box          | QR Mill           | 148.1                     | 71.2                   | 20                      | 2962                                         | 1424                                      |
|                      |                                                        | Transmission Line | 60.2                      | 60.2                   | 20                      | 1203.2                                       | 1203.2                                    |
| SBSmw 03             | Lodgepole Pine - Huckleberry – Velvet Leaved Blueberry | QR Mill           | -                         | 32.6                   | 17.1                    | -                                            | 116.7                                     |
|                      |                                                        | Transmission Line | 6.8                       | 6.8                    | 17.1                    | 116.7                                        | 116.7                                     |
| SBSmw 04             | Hybrid White Spruce - Douglas Fir - Knight's Plume     | QR Mill           | -                         | 20.9                   | 18.9                    | -                                            | 244.2                                     |
|                      |                                                        | Transmission Line | 2.3                       | 2.3                    | 18.9                    | 44.3                                         | 44.3                                      |
| SBSmw 05             | Hybrid White Spruce - Pink spiera                      | QR Mill           | -                         | 8.2                    | 19.7                    | -                                            | 9.9                                       |
|                      |                                                        | Transmission Line | 0.5                       | 0.5                    | 19.7                    | 9.9                                          | 9.9                                       |
| SBSmw 06             | Hybrid White Spruce - Oak Fern                         | QR Mill           | -                         | 11.1                   | 22                      | -                                            | 0                                         |
|                      |                                                        | Transmission Line | 5.6                       | 5.6                    | 22                      | 123                                          | 123                                       |
| SBSmw 07             | Hybrid White Spruce - Twinberry - Oak Fern             | QR Mill           | -                         | 4.1                    | 23.7                    | -                                            | 34.4                                      |
|                      |                                                        | Transmission Line | 1.5                       | 1.5                    | 23.7                    | 34.4                                         | 34.4                                      |
| SBSmw 08             | Hybrid White Spruce – Devil's Club                     | Transmission Line | 0.5                       | 0.5                    | 22.6                    | 11.7                                         | 11.7                                      |
| SBSwk1 00            | Disturbed (roads, urban etc.)**                        | Bonanza Ledge     | 3.6                       | 0                      | 0                       | 0                                            | 0                                         |
|                      |                                                        | Mine Site Complex | 10                        | 0                      | 0                       | 0                                            | 0                                         |
|                      |                                                        | Transmission Line | 10.7                      | 10.7                   | 0                       | 0                                            | 0                                         |
|                      |                                                        | Vent Raise Access | 2.5                       | 0.2                    | 0                       | 0                                            | 0                                         |



| Site Series            | Ecosystem Description                                      | Project Component | Pre-Disturbance Area (ha) | Post-Closure Area (ha) | Site Index <sup>1</sup> | Pre-Disturbance Land Capability <sup>2</sup> | Post-Closure Land Capability <sup>2</sup> |
|------------------------|------------------------------------------------------------|-------------------|---------------------------|------------------------|-------------------------|----------------------------------------------|-------------------------------------------|
| SBSwk1 01              | Hybrid White Spruce - Oak Fern                             | Bonanza Ledge     | 0.7                       | 1.1                    | 21.1                    | 14.77                                        | 23.21                                     |
|                        |                                                            | Mine Site Complex | 2.9                       | 10.6                   | 21.1                    | 61.19                                        | 223.66                                    |
|                        |                                                            | Transmission Line | 36                        | 36                     | 21.1                    | 759.4                                        | 759.4                                     |
|                        |                                                            | Vent Raise Access | 0                         | 0.2                    | 21.1                    | 0                                            | 4.22                                      |
| SBSwk1 03              | Lodgepole Pine - Huckleberry – Velvet Leaved Blueberry     | Bonanza Ledge     | 0.3                       | 0.4                    | 20.4                    | 6.12                                         | 8.16                                      |
|                        |                                                            | Mine Site Complex | 0.2                       | 0.1                    | 20.4                    | 4.08                                         | 2.04                                      |
|                        |                                                            | Transmission Line | 13.9                      | 13.9                   | 20.4                    | 283.5                                        | 283.5                                     |
|                        |                                                            | Vent Raise Access | 0                         | 0                      | 20.4                    | 0                                            | 0                                         |
| SBSwk1 04              | Douglas Fir - Hybrid White Spruce - Knight’s Plume         | Bonanza Ledge     | 0                         | 0                      | 21                      | 0                                            | 0                                         |
|                        |                                                            | Mine Site Complex | 0                         | 0                      | 21                      | 0                                            | 0                                         |
|                        |                                                            | Vent Raise Access | 0                         | 1.2                    | 21                      | 0                                            | 25.2                                      |
| SBSwk1 05              | Hybrid White Spruce - Huckleberry - Highbush Cranberry     | Bonanza Ledge     | 0.9                       | 0.8                    | 22.2                    | 19.98                                        | 17.76                                     |
|                        |                                                            | Mine Site Complex | 0                         | 0                      | 22.2                    | 0                                            | 0                                         |
|                        |                                                            | Transmission Line | 5.2                       | 5.2                    | 22.2                    | 114.6                                        | 114.6                                     |
|                        |                                                            | Vent Raise Access | 0                         | 0                      | 22.2                    | 0                                            | 0                                         |
| SBSwk1 06              | Hybrid White Spruce – Pink spirea – Oak fern               | Transmission Line | 2.9                       | 2.9                    | 20.6                    | 60.8                                         | 60.8                                      |
| SBSwk1 07/07\$Alder 3b | Mountain Alder – Willow – Bluejoint reedgrass (tall shrub) | Bonanza Ledge     | 0.5                       | 0                      | 18                      | 9                                            | 0                                         |
|                        |                                                            | Mine Site Complex | 5.7                       | 3.6                    | 18                      | 102.6                                        | 64.8                                      |
|                        |                                                            | Transmission Line | 17.6                      | 17.6                   | 21.9                    | 384.9                                        | 384.9                                     |
|                        |                                                            | Vent Raise Access | 0.2                       | 0                      | 18                      | 3.6                                          | 0                                         |
| SBSwk1 wf04            | Bacrclay’s willow – water sedge - glow moss                | Bonanza Ledge     | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                        |                                                            | Mine Site Complex | 0.1                       | 0                      | 12                      | 1.2                                          | 0                                         |
|                        |                                                            | Vent Raise Access | 0.1                       | 0                      | 12                      | 1.2                                          | 0                                         |
| SBSwk1 Wm02            | Horsetail - Beaked sedge                                   | Bonanza Ledge     | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                        |                                                            | Mine Site Complex | 0.4                       | 0                      | 12                      | 4.8                                          | 0                                         |
|                        |                                                            | Transmission Line | 1.2                       | 1.2                    | 12                      | 14.2                                         | 14.2                                      |
|                        |                                                            | Vent Raise Access | 0                         | 0                      | 12                      | 0                                            | 0                                         |
| SBSwk1 Ws07            | Hybrid White Spruce - Horsetails                           | Bonanza Ledge     | 0                         | 0                      | 12                      | 0                                            | 0                                         |
|                        |                                                            | Mine Site Complex | 0                         | 0.1                    | 12                      | 0                                            | 1.2                                       |
|                        |                                                            | Transmission Line | 3.3                       | 3.3                    | 12                      | 39.3                                         | 39.3                                      |
|                        |                                                            | Vent Raise Access | 0                         | 0                      | 12                      | 0                                            | 0                                         |
| Total                  |                                                            |                   | 546.6                     | 544.8                  | -                       | 8,800.9                                      | 8,492.11                                  |

Notes: - = not applicable; ESSFwk1 = Engelmann Spruce – Subalpine Fir Zone, Wet Cool sub zone – Cariboo Variant; SBSwk1 = Sub-Boreal Spruce Wet Cool sub zone – Willow Variant; ha = hectare. \* = site series differs slightly from pre-disturbance series; \*\* = disturbance type not specified; † =pre-disturbance ecosystem distribution is not available for QR Mill given the age of the legacy disturbances within the QR Mill footprint. †† = difference between pre-disturbance and post-disturbance due to areas exempt from reclamation; LC = land capability; 1 = (MoF 2013); 2 = land capability is presented here as the product of ecosystem extent and SI values

Due to a lack of long-term, site-specific studies on Site Index values for the Project, Site Index values were derived from MoF (2013). While Site Index is a valuable tool, it only provides a high-level estimate and does not account for the multitude of factors that ultimately determine reclamation success (and realized land capability). However, the difference does indicate that, provided the targeted post-closure ecosystems are achieved, and their performance is comparable to their natural counterparts, the post-closure landscape should demonstrate equivalent or (potentially) better land capability to that of pre-disturbance conditions.

Ultimate performance of the reclaimed landscape will need to be determined through post-closure monitoring. Post-closure monitoring criteria are outlined in Table 4-2.

Figure 4-2 to Figure 4-6 display the expected post-closure land uses for the Project. Should post-closure monitoring indicate that reclaimed ecosystems are not aligning with their natural counterparts (e.g., those of similar seral stage and BEC series), then mitigations will be applied to direct recovery to the desired ecosystem, and therefore, land use.



Table 4-2: Reclamation Monitoring and Success Criteria

| Criteria                                                                                                     | Indicator                                                        | Measure                                                                                                                                                                                                                                                                                    | Threshold                                                                                                                                                                                                                                                          | Indicator Type                                                                          | Schedule                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Landform Function                                                                                            |                                                                  |                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                    |                                                                                         |                                                                                                                                                                                          |
| Landforms have geotechnical stability                                                                        | Geotechnical stability                                           | Presence/absence of subsidence, erosion, deposition of sediment in low-lying areas, ponding, gullying, rilling, or slumping, including bank stability around watercourses and waterbodies                                                                                                  | Does not negative impact the post-closure landscape on or off-site                                                                                                                                                                                                 | Performance                                                                             | Do surveys as necessary (as triggered by regional or local events)<br><br>Incidental observations when doing other surveys                                                               |
| Landscape enhancements are appropriate to the ecosystem                                                      | Landscape enhancements                                           | Presence of constructed landscape enhancements (rocks, coarse woody debris, brush piles, snags, bird/bat boxes)                                                                                                                                                                            | Major natural enhancements (e.g., rockpiles) in reference ecosystem are accounted for via constructed landscape enhancements (rocks piles, coarse woody debris and brush piles, snags, bird/bat boxes) in the targeted post-closure ecosystem                      | Milestone                                                                               | One time after landscape enhancement activities and before revegetation                                                                                                                  |
| Landscape enhancements increase the diversity of the post-closure landscape                                  |                                                                  | Constructed landscape enhancements are used by target wildlife species                                                                                                                                                                                                                     | Presence/absence of target wildlife signs within and around the constructed landscape enhancement                                                                                                                                                                  |                                                                                         | During wildlife post-closure monitoring                                                                                                                                                  |
| Soil                                                                                                         |                                                                  |                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                    |                                                                                         |                                                                                                                                                                                          |
| Reclamation materials are placed appropriate to the landform                                                 | Suitability of substrate                                         | Suitable quality material within 1 m of surface                                                                                                                                                                                                                                            | Within 1m of surface:<br>pH = 4 to 8<br>EC = <5 dS/m<br>SAR = <8                                                                                                                                                                                                   | Milestone                                                                               | Before soil placement                                                                                                                                                                    |
|                                                                                                              | Depth of cap                                                     | Depth of cap (m)                                                                                                                                                                                                                                                                           | Based on reclamation plans or engineered designs assigned to the Master Area (as outlined in the relevant RCP)                                                                                                                                                     | Milestone                                                                               | After the cap is placed and before soil placement                                                                                                                                        |
|                                                                                                              | Soil depth                                                       | Average placement depth (m)                                                                                                                                                                                                                                                                | Based on average soil depth assigned in reclamation prescriptions for each Master Area (as outlined in the relevant RCP)                                                                                                                                           | Milestone                                                                               | One time in the spring/ summer after soil placement                                                                                                                                      |
|                                                                                                              | Soil pH                                                          | Soil pH                                                                                                                                                                                                                                                                                    | Topsoil = Target 5.0 to 6.5 with an acceptable range of 4.0 to 7.5<br><br>Subsoil = Target 5.0 to 7.0 with an acceptable range of 4.0 to 8.0 (Alberta Agriculture 1987)                                                                                            | Milestone                                                                               | One time after soil placement                                                                                                                                                            |
|                                                                                                              | Soil salinity                                                    | Electrical Conductivity                                                                                                                                                                                                                                                                    | Non-commercial forest = <4 dS/m within the topsoil horizon                                                                                                                                                                                                         | Milestone                                                                               | One time after soil placement                                                                                                                                                            |
| Soil metal and contaminant concentrations do not pose an incremental risk to humans, wildlife, or vegetation | Soil Metals and contaminants                                     | Concentrations of metals and contaminants (as outlined in Section 19 of Schedule B of the EAC) within the rooting zone                                                                                                                                                                     | Metal and contaminant concentrations within the rooting zone are comparable to reference locations within a natural range of variability, and align with the trigger levels identified in Table D-2, Appendix D of the Human Health Monitoring and Management Plan | Performance (short-term to allow for intervention if required)<br><br>Trend (long-term) | Year 1, 2, 3, 6, 11, 16, 26, 46, 86, 100                                                                                                                                                 |
| Vegetation                                                                                                   |                                                                  |                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                    |                                                                                         |                                                                                                                                                                                          |
| Terrestrial and aquatic vegetation common to local ecosystems is established                                 | Plant community composition (terrestrial, riparian, and aquatic) | Presence, percent cover, distribution of invasive species                                                                                                                                                                                                                                  | Eradication or control of invasive species to minimize impact on revegetation efforts                                                                                                                                                                              | Performance (short-term)                                                                | Year 1, 2, 3, 6, 11, 16, 26, 46, 86, 100                                                                                                                                                 |
|                                                                                                              |                                                                  | Species inventory and percent cover by layer and species. Include damage codes (e.g., insect, browse)                                                                                                                                                                                      | Approximate cover of desirable species/or land cover types (e.g., coarse woody debris or rock piles) is 80% or greater after 5 years                                                                                                                               | Performance (short-term)                                                                | Year 1, 2, 3, 6, 11<br><br>(once desirable species are established, then reference conditions will be used to determine if plant community composition is comparable to reference areas) |
|                                                                                                              |                                                                  |                                                                                                                                                                                                                                                                                            | Species inventory and percent cover by layer and species are becoming more similar to the target ecosystem reference area over time                                                                                                                                | Trend (long-term)                                                                       | Year 1, 2, 3, 6, 11, 16, 26, 46, 86, 100                                                                                                                                                 |
|                                                                                                              | Mortality of trees                                               | Percent mortality between planting and ten years after planting<br><br>(Used in the early years after planting to allow for mitigations such as re-planting or to identify growth limiting factors on the site. To be used in combination with the long-term reference condition approach) | No more than 25% mortality of planted trees after 10 years                                                                                                                                                                                                         | Performance (short-term)                                                                | Year 1,2, 3, 6, 11<br><br>(once trees are established, then reference conditions will be used to determine if plant mortality is comparable to reference areas)                          |
|                                                                                                              | Insects and disease                                              | Percent of trees with signs of chewing, spots, eggs, nests, or galls                                                                                                                                                                                                                       | Percent of trees with signs of chewing, spots, eggs, nests, or galls is comparable to the target ecosystem reference area                                                                                                                                          | Performance (short-term to allow for intervention if required)<br><br>Trend (long-term) | Do surveys as necessary (as triggered by regional or local events)<br>Incidental observations when doing other surveys (specifically: Plant Community Composition)                       |

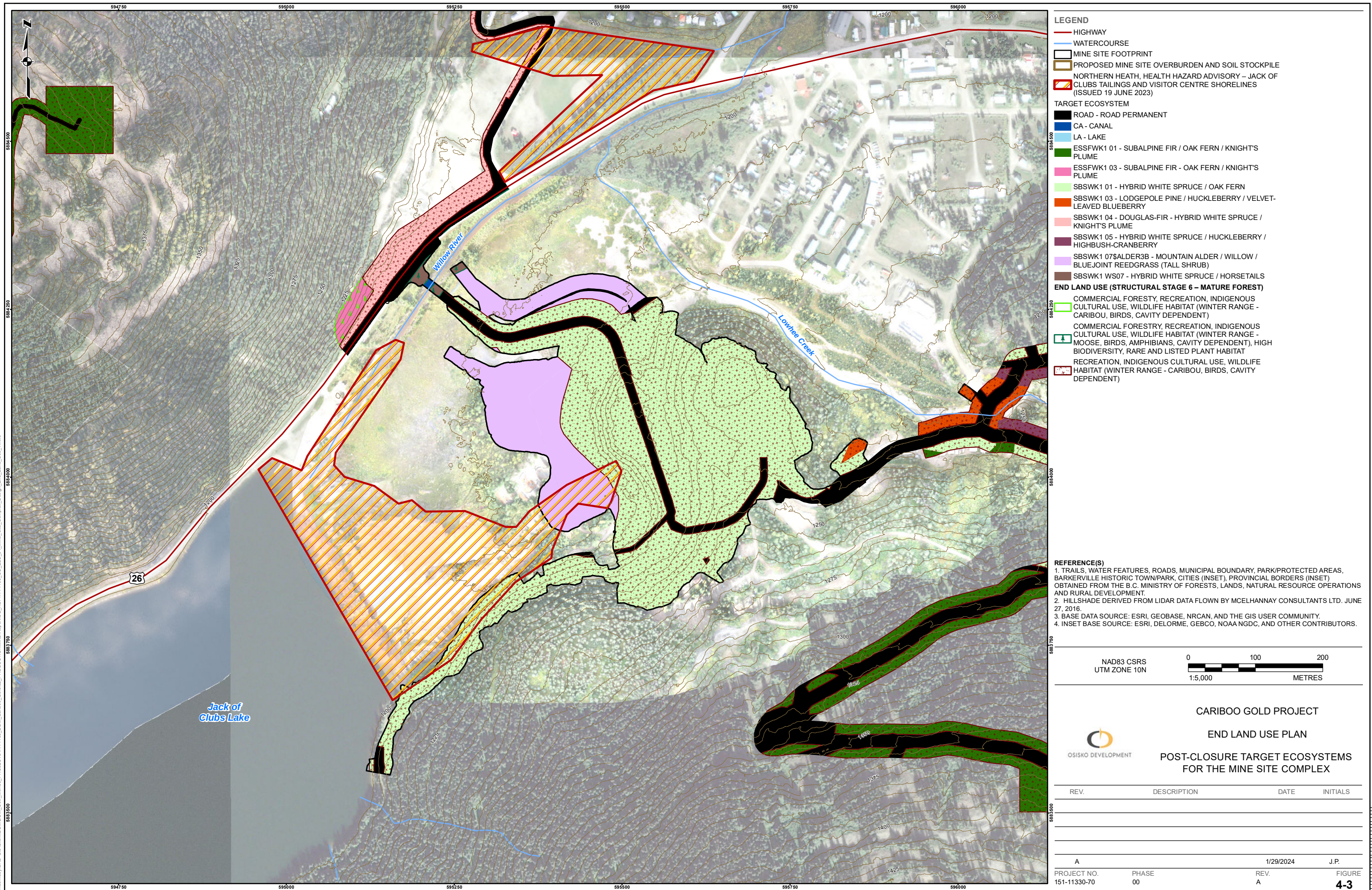
| Criteria                                                                                                                                                                                                                                                     | Indicator                                                                                       | Measure                                                                                                             | Threshold                                                                                                                   | Indicator Type                                                                          | Schedule                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                              | Browsing pressure                                                                               | Percent of trees with signs of browsing on new shoots, bark damage                                                  | Percent of trees with signs of browsing on new shoots, bark damage is comparable to the targeted ecosystem reference area   | Performance (short-term to allow for intervention if required)<br><br>Trend (long-term) | Incidental observations when doing other surveys (specifically: Plant Community Composition) |
|                                                                                                                                                                                                                                                              | Limitations to vegetation growth                                                                | Percent of trees with signs of chlorosis, stunting, unusual formations                                              | Percent of trees with signs of chlorosis, stunting, unusual formations is comparable to the target ecosystem reference area | Performance (short-term to allow for intervention if required)<br><br>Trend (long-term) | Incidental observations when doing other surveys (specifically: Plant Community Composition) |
| Metal and contaminant uptake from vegetation does not pose an incremental risk to humans or wildlife                                                                                                                                                         | Plant tissue metal and contaminant concentrations                                               | Concentrations of metals and contaminants (as outlined in Section 19 of Schedule B of the EAC) within plant tissue  | Plant tissue metal and contaminant concentrations are comparable to those observed in reference locations                   | Performance (short-term to allow for intervention if required)<br><br>Trend (long-term) | Year 1, 2, 3, 6, 11, 16, 26, 46, 86, 100                                                     |
| Wildlife                                                                                                                                                                                                                                                     |                                                                                                 |                                                                                                                     |                                                                                                                             |                                                                                         |                                                                                              |
| The reclaimed landscape provides for wildlife habitat suitable for southern mountain caribou (Barkerville Caribou Herd) and other Target Wildlife species (e.g., mule deer, other ungulates, birds, small mammals, amphibians, black bear, lynx, and moose). | Target wildlife species are present                                                             | Presence (occupancy) of target species                                                                              | Target species are present                                                                                                  | Trend                                                                                   | Year 3, 5, 11, 21, 36, 56, 78, and 100                                                       |
|                                                                                                                                                                                                                                                              | Wildlife populations for recreational non-consumptive use                                       | Species diversity (Shannon-Wiener diversity index) and richness (number of species present)                         | Wildlife population diversity and richness is comparable to target ecosystem reference area                                 | Trend                                                                                   | Year 3, 5, 11, 21, 36, 56, 78, and 100                                                       |
| Wildlife metal and contaminant concentrations do not pose an incremental risk to humans                                                                                                                                                                      | Animal tissue metal and contaminant concentrations (e.g., hair, or other non-destructive media) | Concentrations of metals and contaminants (as outlined in Section 19 of Schedule B of the EAC) within animal tissue | Animal tissue metal and contaminant concentrations are comparable to those observed in reference populations                | Trend                                                                                   | Year 3, 5, 11, 21, 36, 56, 78, and 100                                                       |
| Emergent Properties                                                                                                                                                                                                                                          |                                                                                                 |                                                                                                                     |                                                                                                                             |                                                                                         |                                                                                              |
| The reclaimed landscape provides for biodiversity                                                                                                                                                                                                            | Patch size and shape                                                                            | Patch sizes (ha)                                                                                                    | Patch size, shape, and area generally align with post-closure ecosystem maps and tie into the surrounding landscape         | Milestone                                                                               | Year 1, 2, 3, 6, 11, 26, 46, 86, and 100                                                     |
|                                                                                                                                                                                                                                                              | Food vegetation species                                                                         | Food species for target wildlife species are present                                                                | Plant Community Composition data indicates presence of food vegetation species associated with the target wildlife species  | Milestone                                                                               | Year 1, 2, 3, 6, 11, 26, 46, 86, and 100                                                     |
|                                                                                                                                                                                                                                                              | Plant community composition – diversity, richness, evenness, and abundance                      | Species inventory, percent cover and density (stems/ha)                                                             | Species inventory, percent cover and density (stems/ha) are comparable to target ecosystem reference area                   | Trend                                                                                   | Year 1, 2, 3, 6, 11, 26, 46, 86, and 100                                                     |

Notes: > = greater than; % = percent; ha = hectare; m = metre; MCM = BC Ministry of Mining and Critical Minerals; WRSF = Waste Rock Storage Facility



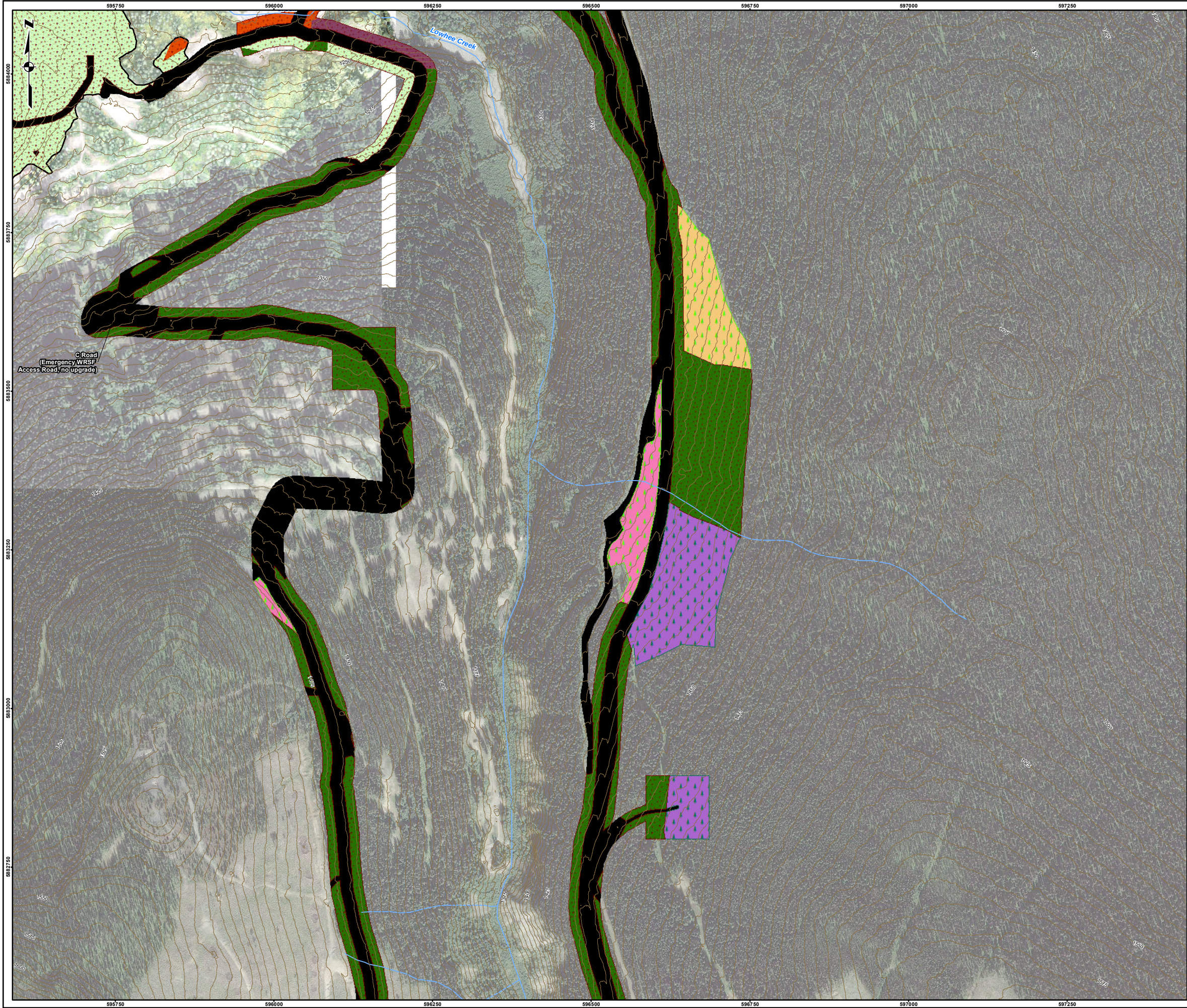








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#### LEGEND

- WATERCOURSE
- MINE SITE FOOTPRINT
- TARGET ECOSYSTEM
- ROAD - ROAD PERMANENT
- ESSFWK1 01 - SUBALPINE FIR / OAK FERN / KNIGHT'S PLUME
- ESSFWK1 02 - SUBALPINE FIR - HUCKLEBERRY / FEATHERMOSS
- ESSFWK1 03 - SUBALPINE FIR - OAK FERN / KNIGHT'S PLUME
- ESSFWK1 04 - SUBALPINE FIR - TWINBERRY / LADY FERN
- SBSWK1 01 - HYBRID WHITE SPRUCE / OAK FERN
- SBSWK1 03 - LODGEPOLE PINE / HUCKLEBERRY / VELVET-LEAVED BLUEBERRY
- SBSWK1 05 - HYBRID WHITE SPRUCE / HUCKLEBERRY / Highbush-Cranberry

#### END LAND USE (STRUCTURAL STAGE 6 – MATURE FOREST)

- COMMERCIAL FORESTRY, RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - CARIBOU, BIRDS, CAVITY DEPENDENT)
- COMMERCIAL FORESTRY, RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - MOOSE, BIRDS, AMPHIBIANS, CAVITY DEPENDENT), HIGH BIODIVERSITY, RARE AND LISTED PLANT HABITAT
- RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - CARIBOU, BIRDS, CAVITY DEPENDENT)

#### REFERENCE(S)

- 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.
- HILLSHADE DERIVED FROM LIDAR DATA FLOWN BY MCELHANNAY CONSULTANTS LTD. JUNE 27, 2016.
- BASE DATA SOURCE: ESRI, GEOBASE, NRCAN, AND THE GIS USER COMMUNITY.
- INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

NAD83 CSRS  
UTM ZONE 10N



CARIBOO GOLD PROJECT

END LAND USE PLAN

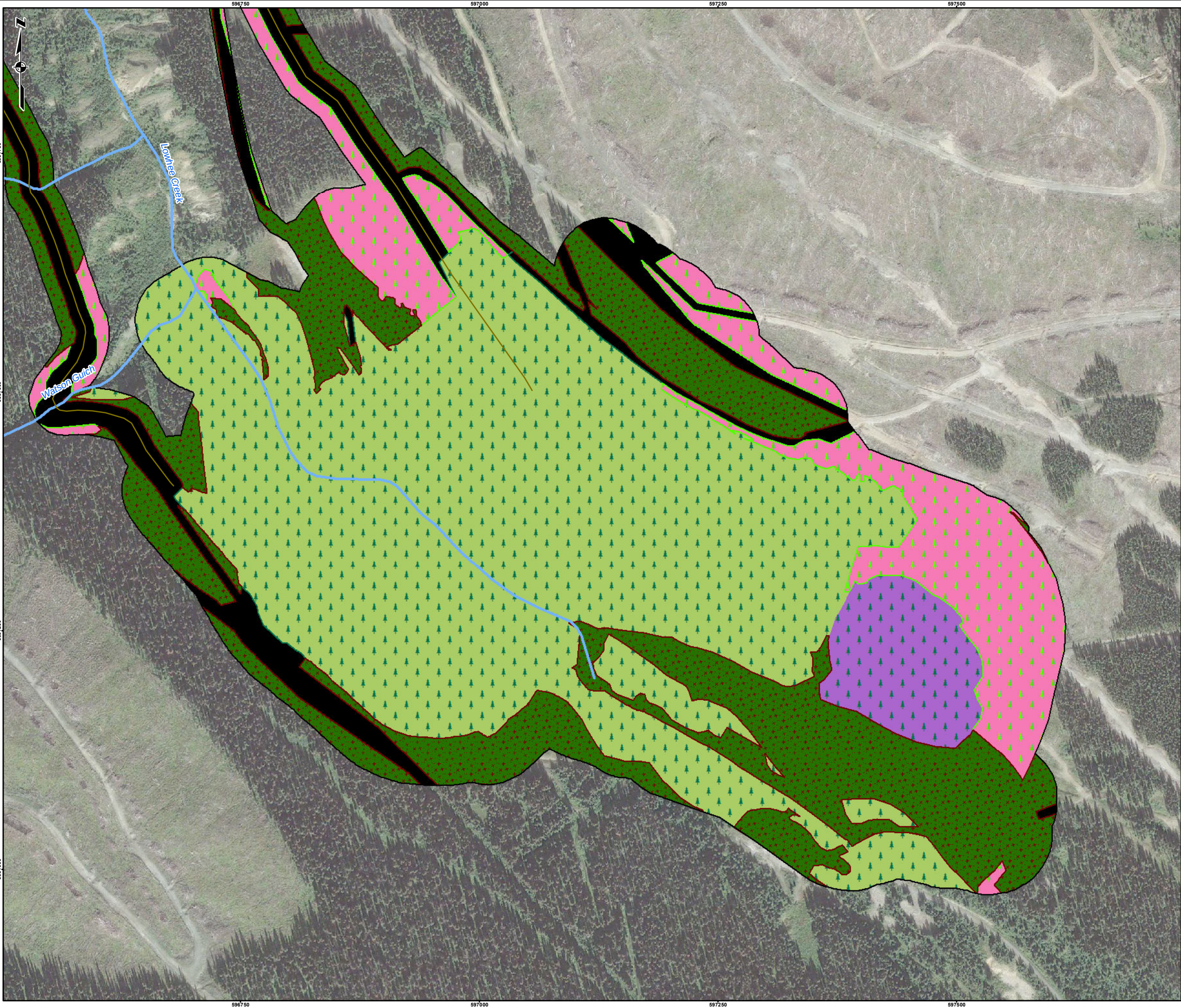
POST-CLOSURE TARGET ECOSYSTEMS  
FOR THE MINE SITE COMPLEX

| REV.                        | DESCRIPTION | DATE      | INITIALS      |
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| A                           |             | 1/26/2024 | J.P.          |
| PROJECT NO.<br>151-11330-70 | PHASE<br>00 | REV.<br>A | FIGURE<br>4-4 |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B  
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**LEGEND**

**TARGET ECOSYSTEM**

- ROAD - ROAD PERMANENT
- ESSFWK1 01 - SUBALPINE FIR / OAK FERN / KNIGHT'S PLUME
- ESSFWK1 03 - SUBALPINE FIR - OAK FERN / KNIGHT'S PLUME
- ESSFWK1 04 - SUBALPINE FIR - TWINBERRY / LADY FERN
- ESSFWK1\_51\$3B - SERAL ALDER / LADY FERN / TALL SHRUB

**END LAND USE (STRUCTURAL STAGE 6 – MATURE FOREST)**

- COMMERCIAL FORESTRY, RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - CARIBOU, BIRDS, CAVITY DEPENDENT)
- COMMERCIAL FORESTRY, RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - MOOSE, BIRDS, AMPHIBIANS, CAVITY DEPENDENT), HIGH BIODIVERSITY, RARE AND LISTED PLANT HABITAT
- RECREATION, INDIGENOUS CULTURAL USE, WILDLIFE HABITAT (WINTER RANGE - CARIBOU, BIRDS, CAVITY DEPENDENT)

**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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UTM ZONE 10N

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**BONANZA LEDGE SITE  
END LAND USE**

**POST-CLOSURE TARGET ECOSYSTEMS**

| REV. | DESCRIPTION | DATE | INITIALS |
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|      |             |      |          |
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| A                           | 1/29/2024   | J.P.      |
| PROJECT NO.<br>151-11330-70 | PHASE<br>00 | REV.<br>A |

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**4-5**

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## 5. MANAGEMENT PLANS AND MITIGATIONS

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ODV uses Project-wide mitigation hierarchy to reduce or avoid environmental impacts. This hierarchy is part of adaptive management, is incorporated into all ODV management plans, and contains the following steps:

**Identify** – Identify the environmental sensitivity or concern

**Assess** – Determine the objectives for mitigation measures, performance indicators (e.g., quantifiable metrics), and related uncertainties

**Design** – Develop a management and/or mitigation plan(s) that details specific actions that will mitigate or reduce adverse impacts to the environmental receptor

**Implement** – enact the mitigation or management plan

**Monitor** – Monitor implementation to determine if activities have had the intended effect

**Evaluate** – Analyze the monitoring data to determine if indicators are appropriate for tracking effectiveness of management and/or mitigation activities

**Adjust** – Update the management and/or mitigation plan(s), as warranted, based on the evaluation of the monitoring data

Further, ODV aims to reduce impacts by “designing with the end in mind” – a central tenet of mine closure planning. Through this process, ODV targets closure landforms that replicate pre-mining landforms and their associated services, implements geomorphic design, actively looks for opportunities to increase progressive reclamation and reduce material rehandling, involves communities in closure planning, conducts research, and incorporates monitoring/research results and lessons learned into future planning.

### 5.1 Management Plans

Through ongoing environmental stewardship, ODV aims to achieve the Project’s closure vision of “...a safe, physically, geochemically stable, and non-polluting landscape that will meet the End Land Use [ELU] goals including:

- Safe access for wildlife and people
- Physically and geochemically safe landforms
- Protection of valued ecosystem components
- Prevention or reduction of environmental impacts from mining wastes
- Reclamation of CGP components to the targeted ELUs
- Develop the above with input from Communities of Interest (COIs)



To achieve these goals, ODV has developed management plans to guide construction, operations, and closure.

Table 5-1 provides a list of management plans that are directly related to end land use. These management plans provide guidance (and mitigation) to avoid issues that could affect wildlife, wildlife habitat, human health, vegetation, and ecosystems, and thus have a negative impact on land use in post-closure. The management plans also contain relevant monitoring and reporting requirements. Monitoring results associated with these plans will be reported internally to ODV, and a summary of the results will be provided with in ODV's Annual Reclamation Reports.

Mitigation targets for these management plans are still under development; however, the current approach is to link recovering reclaimed ecosystems to naturally disturbed reference sites (of similar Site Series) that are undergoing recovery. This approach allows for ODV and others (e.g., Indigenous nations, local communities, regulators) to work together to select metrics that consider multiple viewpoints, and communally acceptable ways of measuring these metrics.

This approach will select appropriate reference sites for each Master Area defined in Figure 5-1 to Figure 5-3 through Terrestrial Ecosystem Mapping, remote sensing (e.g., aerial photos, drone imagery, satellite) followed by ground truthing, and refinement of the list of possible reference areas. Existing management plans (and their future iterations), such as CEMP<sup>1</sup>, CMMP<sup>1</sup>, HHMMP<sup>1</sup>, AEMP<sup>1</sup>, and the EEMP<sup>1</sup>, will also be used as information sources to establish reference sites and their associated conditions to compare reclaimed areas against. Once suitable reference areas have been selected, these areas will be assessed every five years, and resulting data statistically analyzed to determine trends related to ecosystem recovery. The locations of the methods, objectives, locations, frequencies, timing, durations of monitoring activities, and reporting frequencies associated with plans relevant to the ELUP are provided in

Figure 5-4 provides an overview of the timeline for developing mitigation targets. In summary, ODV anticipates preliminary targets to be developed by September 30, 2029 (the next scheduled Mine Plan and Reclamation Plan [MPRP] update). These targets will continue to be refined until 2034, when the subsequent MPRP update is scheduled. As indicated in Figure 5-4, mitigation targets will be incorporated into the ELUP at these stages.

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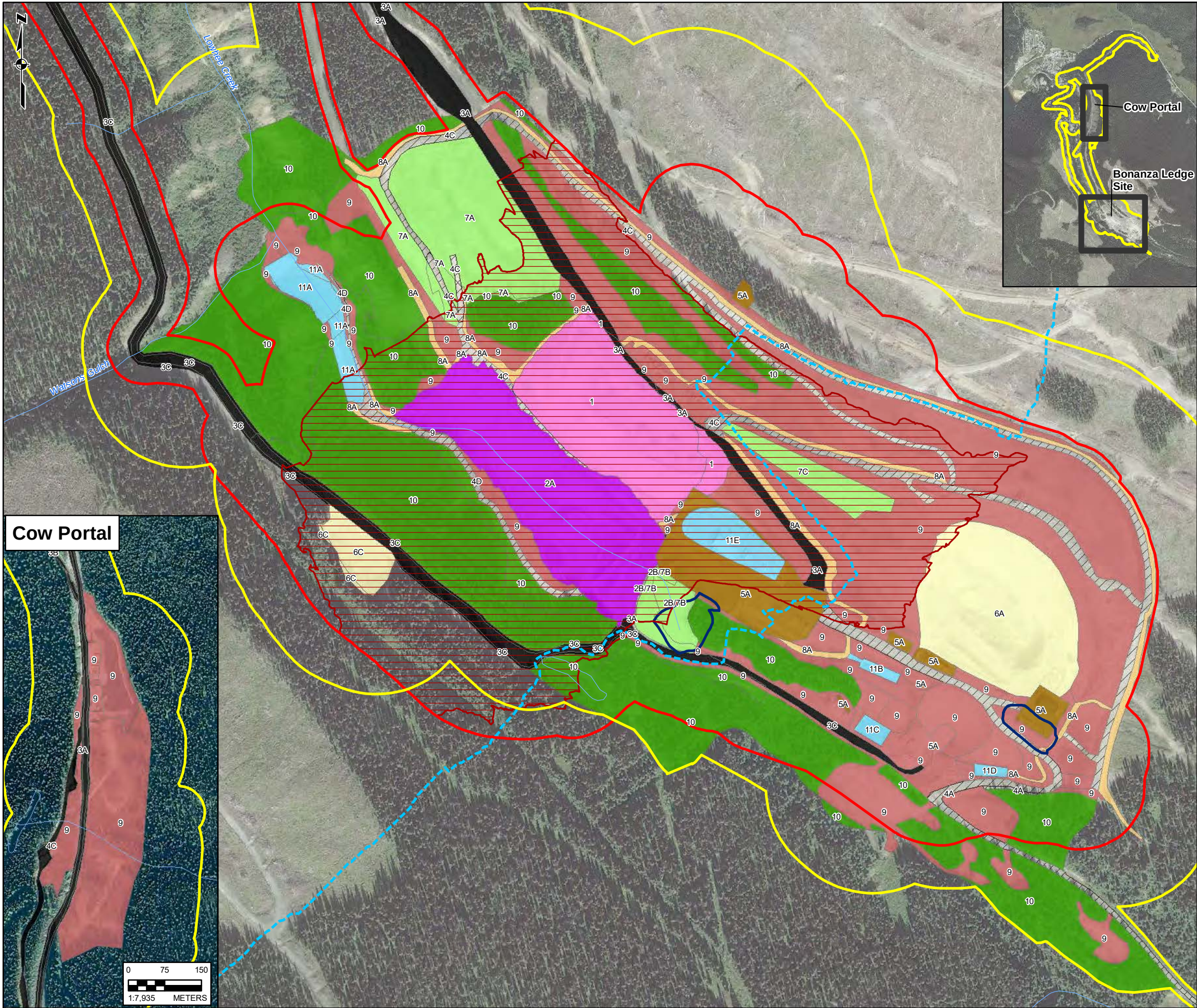
<sup>1</sup> Abbreviations of these plans are as follows: **CEMP**: Construction Environmental Plan; **CMMP**: Caribou Mitigation and Monitoring Plan; **HHMMP**: Human Health Monitoring and Management Plan; **AEMP**: Aquatic Effects Monitoring Plan; **EEMP**: Environmental Effects Management Plan



**Table 5-1: Plans Considered by the End Land Use Plan**

| Plan Name                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction Environmental Management Plan (ODV 2025a)                                                                             | Environmental Effects Management Plan: <ul style="list-style-type: none"> <li>• Soil Management Plan (ODV 2024a)</li> <li>• Wildlife Management Plan (ODV 2024b)</li> <li>• Vegetation Management Plan(ODV 2024c)</li> <li>• Invasive Species Management Plan (ODV 2024d)</li> <li>• Bat Mitigation and Monitoring Plan (ODV 2024e)</li> <li>• Wildlife Access Management Plan (ODV 2024f)</li> </ul> |
| Caribou Mitigation and Monitoring Plan (ODV 2025b)                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Human Health Management and Monitoring Plan, including an Air Quality Monitoring Plan and Groundwater Monitoring Plans (ODV 2024g) |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Aquatic Effects Monitoring Plan (ODV 2025c)                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                       |





**LEGEND**

BONANZA LEDGE SITE PERMIT AREA

CARIBOO GOLD PROPOSED MINE FOOTPRINT AREA

WATERCOURSE

WATERSHED BOUNDARY

1 - WASTE ROCK STORAGE FACILITIES - PAG

MASTER AREA 2: WASTE ROCK STORAGE FACILITIES

2A - WASTE DUMP - NAG

2B - CLAY WASTE ROCK STORAGE FACILITY - NAG

2C - BONANZA LEDGE WRSF - CLOSURE CONFIGURATION

MASTER AREA 3: MAJOR ROADS

3A - MAJOR ACCESS ROAD : A-ROAD

3C - MAJOR ACCESS ROAD : C-ROAD

MASTER AREA 4: TEMPORARY ROADS

4A - TEMPORARY ACCESS ROAD

4C - TEMPORARY MINE SITE ROADS

4D - TEMPORARY SCP ACCESS ROAD

MASTER AREA 5: ADMINISTRATIVE/STRUCTURES

5A - STRUCTURES

MASTER AREA 6: PIT/BURROW QUARRY

6A - OPEN PIT

6B - BORROW QUARRY: A-ROAD 3.5 KM

6C - BORROW QUARRY: C-ROAD

MASTER AREA 7: STOCKPILES

7A - SOIL STOCKPILE

7B - SOIL STOCKPILE

7C - SOIL STOCKPILE

MASTER AREA 8: LINEAR FEATURES

8A - TEMPORARY DITCH

MASTER AREA 9: GENERAL DISTURBANCE

9 - GENERAL DISTURBANCE

MASTER AREA 10: UNDISTURBED

10 - UNDISTURBED

MASTER AREA 11: PONDS

11A - SEDIMENT CONTROL POND

11B - NSP

11C - POND A

11D - POND B

11E - BONANZA LEDGE SUMP

11E - BONANZA LEDGE SUMP (CLOSURE)

**REFERENCE(S)**  
1. WATER FEATURES, TRANSPORTATION FEATURES OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.  
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3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.

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CARIBOO GOLD PROJECT

END LAND USE PLAN

BONANZA LEDGE MASTER AREAS AND SUBCOMPONENTS

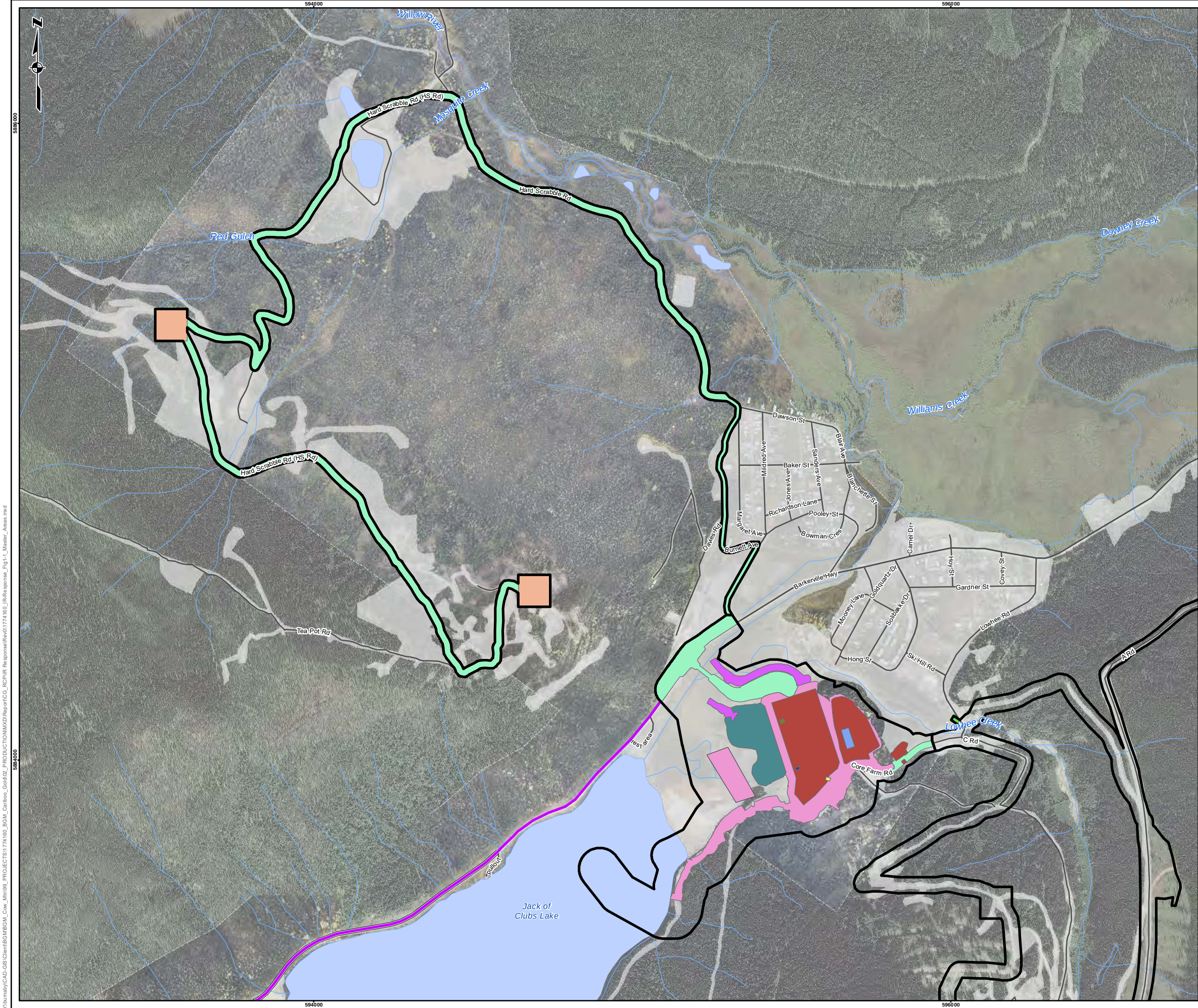
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| A                  | DRAFT       | 2023-03-08 | J.P.          |
| 0                  |             | 2023-05-30 | N.B.          |
| PROJECT NO.<br>170 | DOC<br>GAS  | REV.<br>0  | FIGURE<br>5-1 |

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**LEGEND**

- MINE FOOTPRINT
- TRANSPORTATION ROUTE
- WELLS MUNICIPAL BOUNDARY
- ANTHROPOGENIC DISTURBANCE (GOLDER 2019 TEM)
- WATERBODY
- WATERCOURSE
- CONTOUR - 20m
- HIGHWAY
- ROAD

**MASTER AREA**

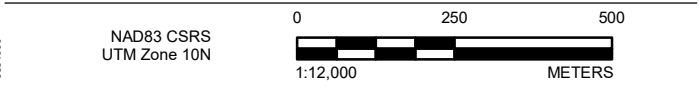
- 1A - VALLEY PORTAL
- 1B - VENTILATION RAISES - EMERGENCY EGRESSES
- 2 - SURFACE INFRASTRUCTURE
- 4 - ACCESS ROADS - WILLOW RIVER BRIDGE
- 5A - MINE SITE COMPLEX SEDIMENT POND
- 5B - WATER TREATMENT PLANT
- 5C - DITCHES - SPILLWAY DITCH - SURFACE WATER ROUTES FOR CONTACT AND NON-CONTACT WATER
- 6 - GROUNDWATER AND MONITORING
- 7A - GENERAL DISTURBANCE
- 7B - FUEL STORAGE FACILITIES
- 7D - SEWAGE AND SEPTIC WORKS – SEWAGE TANKS

**REFERENCE(S)**

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2. MINERAL TITLES, CITIES/TOWNS, INDIAN RESERVES AND PARK/PROTECTED AREAS OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT.

3. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



**CARIBOO GOLD PROJECT**

**END LAND USE PLAN**

**MASTER AREAS AND LOCATIONS**

OSISKO DEVELOPMENT

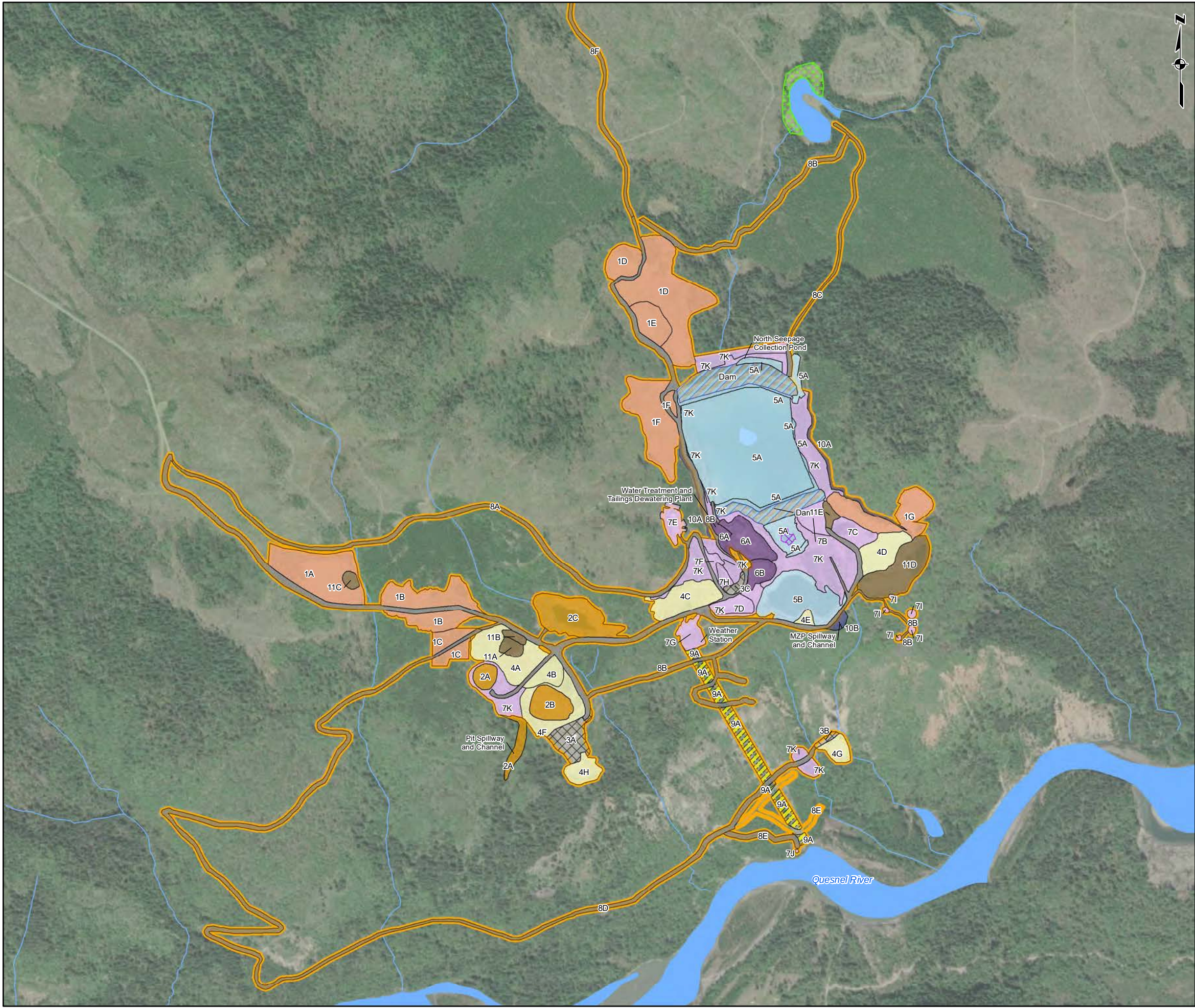
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| A                      | DRAFT       | 2023-07-04 | P.T.          |
| 0                      | FINAL       | 2023-09-15 | P.T.          |
| PROJECT NO.<br>174 160 | PHASE       | REV.<br>0  | FIGURE<br>5-2 |

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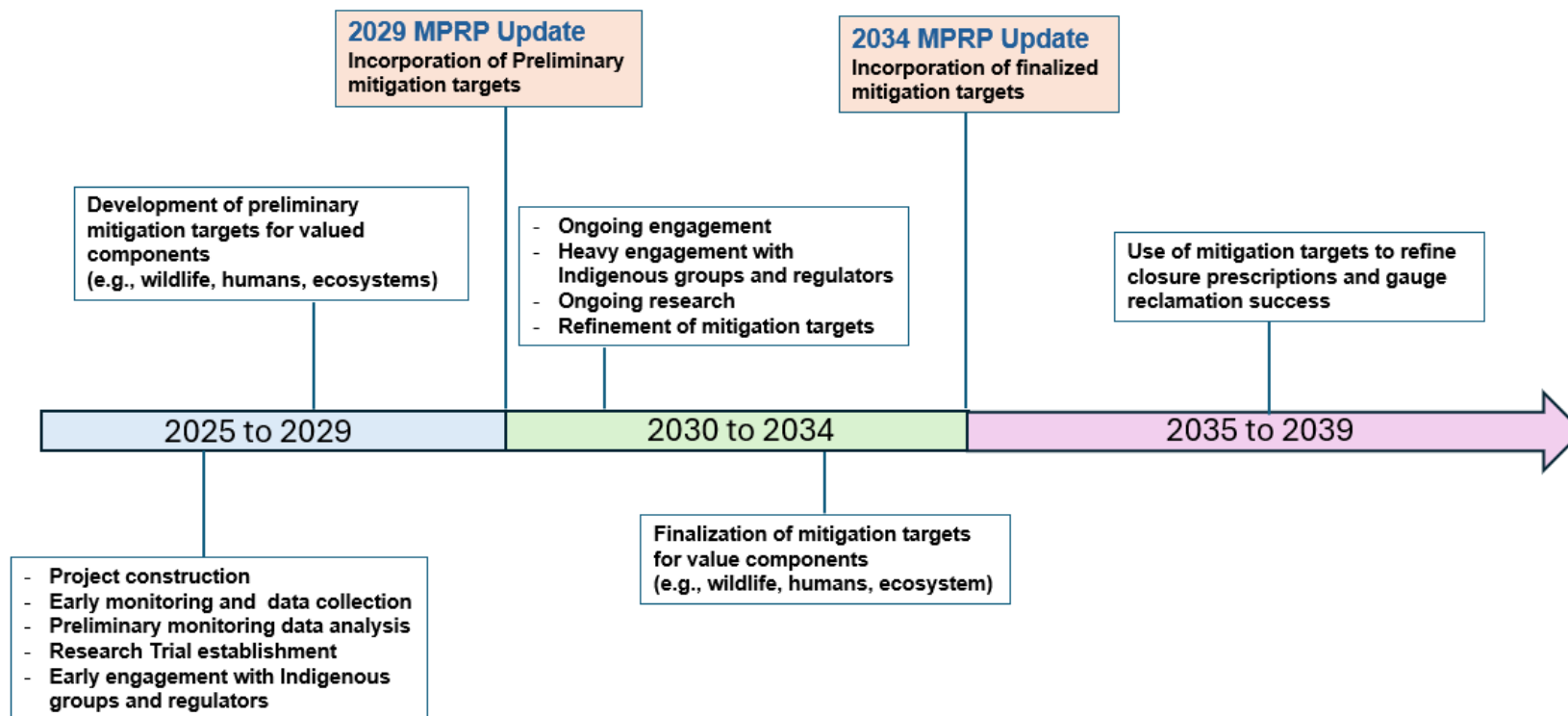


Figure 5-4: Expected Timeline for the Development, Refinement, and Finalization of Mitigation Targets for the Cariboo Gold Project



Table 5-2: Location of Monitoring Content in Management and Monitoring Plans

| Plan Name                                                | Objectives                                                                                                                               | Methods                                                                                                                                                        | Locations                                                                                                                                                                                                              | Frequency                                                                                                                                                                                     | Timing                                                                                                                                                                                        | Duration                                                                                                                                                                                      | Reporting                                                                                                                                                                    |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction Environmental Management Plan (ODV 2025a)   | Section 3.0<br>Appendix D (1.2)<br>Appendix E (1.3)<br>Appendix F (1.3)<br>Appendix G (1.3)<br>Appendix H (1.2)<br>Appendix I (1.3, 7.1) | Section 6.0<br>Appendix D (5.1 to 5.7)<br>Appendix E (4.3)<br>Appendix F (Attachment. 1, 2)<br>Appendix G (5.2)<br>Appendix H (App. B)<br>Appendix I (9 to 17) | Site wide, as per supporting management plans<br><br>Appendix D (4.1., 5.2, 5.4)<br>Appendix E (Fig. 4.2-1, 4.2-2)<br>Appendix F (site wide, 4.3.1)<br>Appendix G (5.2)<br>Appendix H (App. B)<br>Appendix I (9 to 17) | as per supporting management plans<br><br>Appendix D (5.2 to 5.7)<br>Appendix E (5.1, 5.2)<br>Appendix F (Attachment 1, 2)<br>Appendix G (5.2)<br>Appendix H (App. B)<br>Appendix I (9 to 17) | as per supporting management plans<br><br>Appendix D (5.1 to 5.7)<br>Appendix E (5.1, 5.2)<br>Appendix F (Attachment 1, 2)<br>Appendix G (5.2)<br>Appendix H (App. B)<br>Appendix I (9 to 17) | as per supporting management plans<br><br>Appendix D (5.1 to 5.7)<br>Appendix E (5.1, 5.2)<br>Appendix F (Attachment 1, 2)<br>Appendix G (5.2)<br>Appendix H (App. B)<br>Appendix I (9 to 17) | as per supporting management plans<br><br>Appendix D (6.1 to 6.2)<br>Appendix E (4.4, 6.0)<br>Appendix F (6.0)<br>Appendix G (6)<br>Appendix H (6.2)<br>Appendix I (9 to 17) |
| Caribou Mitigation and Monitoring Plan (ODV 2025b)       | Section 1.2, 8.1, 8.2                                                                                                                    | Section 8.1, 8.2                                                                                                                                               | Section 3.2                                                                                                                                                                                                            | Section 3.1, 8.1, 8.2                                                                                                                                                                         | Section 3.1, 8.1, 8.2                                                                                                                                                                         | Section 3.1, 8.1, 8.2                                                                                                                                                                         | Section 8.5                                                                                                                                                                  |
| Human Health Management and Monitoring Plan, (ODV 2025g) | Section 1.1                                                                                                                              | Section 4.2.1                                                                                                                                                  | Figure 4-1, 4-2, 4-3, 4-4; Table 3-1                                                                                                                                                                                   | Section 4.2                                                                                                                                                                                   | Section 4.2                                                                                                                                                                                   | Section 4.2                                                                                                                                                                                   | Section 6                                                                                                                                                                    |
| Aquatic Effects Monitoring Plan (ODV 2025c)              | Table 3-1                                                                                                                                | Section 3.1 to 3.11                                                                                                                                            | Section 3.2                                                                                                                                                                                                            | Section 3.1                                                                                                                                                                                   | Section 3.1                                                                                                                                                                                   | Section 3.1                                                                                                                                                                                   | Section 4                                                                                                                                                                    |
| Environmental Effects Management Plan                    | Section 1.1<br>Appendix B (1.1)<br>Appendix C (1.1)<br>Appendix D (1.1)<br>Appendix E (1.2)<br>Appendix F (1.3)<br>Appendix G (1.3)      | Appendix B (5.3)<br>Appendix C (6)<br>Appendix D (5.4, 5.5)<br>Appendix E (3.1, 3.5; Table 3.1)<br>Appendix F (3.1, 4.3, Table 4-1)<br>Appendix G (3.1, 4.3)   | Appendix B (Fig. 4-2 to 4-8)<br>Appendix C (6)<br>Appendix D (Figure 3-1)<br>Appendix E (3.1, 3.5; Table 3.1)<br>Appendix F (3.2, 4.3., Figure 3-1)<br>Appendix G (Figure 2-1, 2-2)                                    | Appendix B (5.3; Table 5-1)<br>Appendix C (6)<br>Appendix D (5.4, 5.5)<br>Appendix E (3.1, 3.5; Table 3.1)<br>Appendix F (5.2)<br>Appendix G (4.3)                                            | Appendix B (5.3; Table 5-1)<br>Appendix C (6)<br>Appendix D (5.4, 5.5)<br>Appendix E (3.1, 3.5; Table 3.1)<br>Appendix F (5.2)<br>Appendix G (4.3)                                            | Appendix B (5.3; Table 5-1)<br>Appendix C (6)<br>Appendix D (5.4, 5.5)<br>Appendix E (3.1, 3.5; Table 3.1)<br>Appendix F (5.2)<br>Appendix GG (4.3)                                           | Section 7<br>Appendix B (7)<br>Appendix C (8)<br>Appendix D (8)<br>Appendix E (3.5.3.3)<br>Appendix F (5.3)<br>Appendix GG (4.3)                                             |



### 5.1.1 Management Plan Trigger, Action, and Response Plans

Each of the environmental management and monitoring plans that support the ELUP (e.g. Table 5-1) have Trigger, Action, and Response plans (TARPs). These TARPs include qualitative and quantitative triggers, which, when observed, encourage ODV to alter existing (or develop new) mitigation measures through the input of QPs, regulators, and Indigenous nations. Each of the management and monitoring plans (and in the case of the CEMP and EEMP, their appended management plans) are discussed below:

**CEMP** – the CEMP a framework of other management plans. The construction environmental monitoring program will be used to evaluate compliance with the management plans attached to the CEMP.

**Surface Erosion Prevention and Sediment Control Plan (SEPSCP; CEMP – Appendix D)** – The SEPSCP has TARP triggers of 100 millimetres (mm) rainfall in 24 hours, or adverse effects on aquatic biota, as per the AEMP TARP. Development of new mitigations will be conducted in consultation with ENV and MCM, and will be in line with the AEMP. New mitigations will be applied within seven days of trigger activation, or within 24 hours if an observed issue poses an immediate threat to fish-bearing habitat (Table 5-1 of the SEPSCP), with mitigation efficacy measured through the SEPSCP TARP framework inspections. Monitoring and reporting of revised mitigation measures will continue to occur on event-based frequency.

**Fugitive Dust Management Plans (CEMP –Appendix F, Attachment 1/2)** – Table 7.2 of the Fugitive Dust Management Plans provides qualitative and quantitative triggers for the TARP. In general, mitigations begin when visible dust is present and more than 2 metres (m) above the ground for 4 hours, and extends beyond the working area. Actions/responses include application of water to the exposed surface, reduction in movement of heavy equipment, increased inspections, and the investigation of alternative dust suppression methods. If further mitigation measures are required, they will be developed in consultation with a QP. Efficacy of new mitigation will be measured through the Fugitive Dust Management Plan TARP framework. Monitoring and reporting will continue as outlined in Fugitive Dust Management Plans.

**Metal Leaching and Acid Rock Drainage Management Plan (CEMP – Appendix I)** – Table 18.1 of the Metal Leaching and Acid Rock Drainage Management Plan provides the TARP. Triggers have a threshold of Net Potential Ratio (NPP) < 3, with monitoring on percent total sulphur on daily basis. Generally, the TARP gives a week for mitigations to work, and follows a hierarchy of avoidance, underwater storage, chemical treatment, blending, and water segregation. Once a mitigation is applied, the NPP is re-checked. Reporting occurs annually and when NPP <2 as per permit conditions.



**Environmental Effects Monitoring Plan (EEMP)** – Like the CEMP, the EEMP is a framework of other monitoring plans, such as the Wildlife Management Plan and the Soil Management Plan. Table 3-1 of the EEMP provides detailed information which sections of the EEMP appendices provide information related to their associated TARPs.

**Wildlife Management Plan (EEMP – Appendix B)** – Table 6-1 of the WMP provides a list of mitigations, while Section 5.3 (and Table 5-2) provides detailed information on monitoring for mineral licks, bats, raptors, Pileated woodpeckers, wolverines, fishers, amphibians, snakes, bird nests, and bear dens. Mitigations include wildlife education programs, documentation of vehicle collisions with wildlife, management of snowbank heights/designs (wildlife movement mitigation), and administrative policies (e.g., ban on feeding wildlife). Table 6-1 also provides associated targets for mitigations; after which adaptive management is applied, in consultation with regulatory bodies (e.g., MCM, others) and Indigenous nations.

**Wildlife Access Management Plan (EEMP – Appendix C)** – Table 5-1 of the Wildlife Access Plan provides a list of access control measures (mitigations), their specifications, and considerations. These include the rollback of woody debris, mounding, berms, ripping, boulder barriers, gates, and other methods to control human and wildlife access. The mitigation target is to have 100% of Transmission Line right-of-way access locations where prescribed access control measures are implemented according to specifications within a year following development of the prescription. Failure to meet this target results in adaptive management. If mitigation measures are not effective, further measures will be identified in consultation with a QP. Monitoring and reporting intervals in the event of revised mitigations will remain unchanged.

**Bat Mitigation and Monitoring Plan (EEMP – Appendix D)** – Table 6-1 of the Bat Mitigation and Monitoring Plan provides the TARP, which is linked to metrics in Sections 5.4 and 5.5 (these sections also provide timing, frequency, etc.). If alternate mitigations are required, these will be developed in consultation with a QP. Monitoring and reporting intervals in the event of revised mitigations will remain unchanged.

**Vegetation Management Plan (EEMP – Appendix E)** – Table 3.2 provides the thresholds for the Vegetation Management Plan. Section 3.5 details the monitoring methods and timing of monitoring events by which the thresholds in Table 3.2 are compared against. Section 3.5.4 provides the steps required to conduct adaptive management. In general, thresholds (Table 3.2) such as (but not limited to) acceptable percent cover, plant community composition, and presence of undesirable plants are assessed in years one, three, and five. If alternate mitigations are required, they will be developed by a QP through the adaptive management framework, which uses an assess, design, implement, monitor, evaluate, and adjust approach. Notably, Section 3.5.3 of the Vegetation Management Plan has detailed information with regards to wetlands functional assessments. Tables 3-3 and 3-4 of the plan have further detail.



**Invasive Plant Management Plan (EEMP – Appendix F)** – Table 4.3 provides the TARP for the Invasive Plant Management Plan. Triggers are based off the Cariboo Chilcotin Coast Invasive Plant Committee priority species, responses ranging from monitor to working with the Provincial Early Detection and Rapid Response program and eradicating populations of invasive species through a minimum semi-annual treatment program. Revision of mitigations will occur based on performance of the Invasive Plant Management Plan, and selected based on QP, regulator, and Indigenous input.

**Soil Management Plan (EEMP – Appendix G)** – Table 4-1 provides the TARP for the Soil Management Plan. Triggers related to soil disturbance are based on precipitation and winds, with response ranging from monitoring to a cessation of work. Several other mitigations occur through the document and are related to salvage, placement, compaction, contamination, material balance, and poor plant establishment. If prescribed mitigations are not working, then the adaptive management cycle (problem assessment, design, implementation, monitoring, evaluation, and adjustment) will commence, and will be based on QP input.

**Cariboo Monitoring and Mitigation Plan** – Table 8.2 provides TARP, along with its objectives, metrics, and mitigations. Triggers include identification of mineral licks, worker education compliance, Caribou-vehicle collision statistics, human and predator access to surveyed locations, total disturbance metrics etc. Mitigations are outlined in Table 8.2 of the CMMP, and include shifting activities to avoid calving season, installation of barriers or rollback of coarse woody debris piles to deter and limit predator movement, and creating buffer zones around mineral licks (if discovered). Refer to Table 8.2 of the CMMP for the comprehensive list of mitigations. Applied mitigations will then be re-assessed for efficacy at the intensities in the CMMP (e.g., Section 8.1 and 8.2 of the CMMP).

**Human Health Monitoring and Management Plan** – Table 5.1 of the HHMMP contains the TARP for metals, criteria air contaminants, and polycyclic aromatic hydrocarbons. The respective trigger levels (metrics) for these environmental parameters are contained with Table D-1 of the HHMMP. Methods to measure these metrics are found Section 4.2.1 of the HHMMP, and consist of co-located soil and vegetation plots that determine metal accumulation in plants. The HHMMP uses inputs from the Air Quality Monitoring Plan, the Aquatic Effects Monitoring Plan, and the Groundwater Monitoring Plan – all of which provide their own triggers, monitoring frequencies, mitigations, and steps to assess and report these mitigations. However, implementation (and assessment) of mitigation measures is largely dependent up on the Human Health QP.

**Aquatic Effects Monitoring Plan** – There are two triggers (Table 5-1 of the AEMP) for the AEMP TARP: observable effects in biological monitoring components and observable upset conditions in water treatment and discharge. Mitigations include evaluating if the conditions are linked to the Project, evaluating if the conditions might impact the receiving environment, and implementing a focused study if a high risk is identified. Reaction times to implement these mitigations are either within one month of observable effects, or within the next suitable field season. Mitigation success is then assessed against the previous two triggers, and reported as part of the overall AEMP program annual monitoring results.



## 5.2 Caribou Mitigation

One of the primary concerns for the Project's end land use is the ability of the post-closure landscape at Bonanza Ledge Site and Mine Site Complex to support caribou habitat. Detailed mitigation approaches for caribou are provided in the Caribou Mitigation and Monitoring Plan (ODV 2025b). The Caribou Mitigation and Monitoring Plan (ODV 2025b) uses a mitigation hierarchy, with avoidance at its most basic (preferred) level, followed by minimization, on-site restoration, and offset compensation at its highest (and least desirable) level. As avoidance and minimization take a preventative approach, and because offsetting entails identifying areas on-site or off-site that can support caribou (or improving the compensating land when this land does not meet habitat requirements), an overview of on-site restoration efforts is discussed within this section. For more details on avoidance, minimization, or offsetting, refer to the Caribou Mitigation and Monitoring Plan (ODV 2025b).

### 5.2.1 Caribou Restoration and Reclamation Based Mitigation

The minimum habitat requirements for caribou have been identified by multiple guidance documents and are outlined below (MCST 2006; Hamilton 2011; EC 2014):

- Mature coniferous forest (ODV recognizes there will be a time-lag between the completion of restoration activities and the establishment of suitable mature coniferous forest for mountain caribou).
- Sufficient abundance ( $\geq$  Lichen Class 3, with some Class 4 and 5; [Armleder et al. 1992]) of arboreal lichen forage, the primary food source of mountain caribou. Arboreal lichens occur in mature systems and are slow to develop.
- Moderate density tree canopy (>35%, achieved by planting 1,400 stems/ha) to provide the level of openness required for arboreal lichen growth. The forest should support both live and dead standing trees.
- Habitat characteristics that minimize habitat preferred by other ungulate species, such as moose and deer, which are prey species for wolves. This includes limiting the abundance of grass, forb, shrub, or young forest habitat within the MFA.

To mitigate impacts to caribou, ODV will revegetate the MFA according to Hamilton (2011). The regenerating forest will contain shade tolerant coniferous trees with varying longevity (Hamilton 2011), including:

- Engelmann spruce (*Picea engelmannii*), a shade tolerant species with high longevity (up to 600 years; ENV 2016a)
- Subalpine fir (*Abies lasiocarpa*), a shade tolerant species with moderate longevity (up to 250 years; ENV 2016b)

Additional reclamation enhancement features to be constructed that will promote wildlife establishment include:



- Creating shallow “islands” of non-potentially acid generation (NPAG) cobble/gravel on the final landform following vegetation to promote cover for small mammals and insects.
- Spreading logs, stumps, and other coarse woody debris stockpiled during construction to provide organic matter and nutrients to the soil as the wood decays and to provide microsites for vegetation and habitats for small mammals and insects.
- Creating an irregular land surface to slow overland flow and to create microsites that provide moisture retention, shade, and wind protection for young trees and shrubs.

Stands will aim to have a level of openness, stable sun exposure, and relatively low canopy closure to promote sufficient air-flow to frequently dry arboreal lichens as the primary winter food source of mountain caribou (lichen) occurs lower in the canopy (Hamilton 2011). Trees will be planted in variable size clumps/clusters and spacing densities to mimic the open-stand structural conditions favoured by mountain caribou. Trees will be planted at a density 20% more than the target density to account for tree mortality. If the survival rate of conifer seedlings is less than 80% over one-year, additional planting will be undertaken. Dense stocking rates (which hinder caribou movement and prevent lichen establishment) and shrub communities that are preferred by moose and deer, and result in increased predation to mountain caribou, will be avoided. Thus, by avoiding and minimizing Project impact on existing habitat, and by creating habitat well-suited to supporting caribou and other wildlife, it is expected that impacts to caribou and wildlife will be mitigated.

### 5.3 Wildlife Mitigation

Detailed information on wildlife mitigations are available in Table 5-1 of the Wildlife Management Plan (ODV 2024b) provided as Appendix B of the Environmental Effects Management Plan. The ELUP will follow these mitigation measures, some of which are summarized below to provide context for the efforts ODV will implement to reduce the impact the Project may have on wildlife populations. Some Project mitigation measures include:

- Develop and provide a wildlife education program to employees, contractors, and site visitors.
- Conduct pre-construction surveys to identify site-specific habitat features (e.g., amphibian breeding ponds, mineral licks, den trees, hibernacula) and implement the setbacks and/or timing windows.
- Conduct species-specific pre-construction den surveys if vegetation clearing is scheduled in suitable habitat during the following sensitive periods for wildlife species: Grizzly and black bear: October 1 to April 30, Wolverine: February 1 to August 1, Fisher: March 1 to June 15.
- Schedule and conduct activity outside of sensitive time periods for wildlife species.



- Keeping the length of road open by snow ploughing during winter months within caribou habitat will be limited to where access is required to reduce enhanced predator access.
- Use of salt for road traction will be prohibited. No application of sand de-icing measures will occur within 30 m of a watercourse crossings, unless safe to do so.
- Design mine facilities with potential to trap wildlife such as ponds or ditches to allow for the safe passage of wildlife.
- If amphibian migration routes are identified within the Project area, implement control measures in consultation with a QP, such as installation of drift fences or culverts, to facilitate amphibian passage. Control measures will encourage amphibians away from the Project Surface Footprint to other areas of suitable overwintering habitat.
- If beaver dams or lodges need to be removed, obtain a permit for beaver dam removal from the Ministry of Water, Land and Resource Stewardship in accordance with Section 3(1)(a) of the BC *Wildlife Act*.

Due to these mitigations, it is expected that the Project will have minimal impact on wildlife.

## 5.4 Legacy Contamination

Requirements related to Project interactions with areas of historical contamination are subject to ongoing discussions with the Province of BC. Current discussions indicate that ODV will assume responsibility for reclamation of re-disturbed surface area(s) within the Project footprint that were subject to historical contamination (i.e., ODV is not responsible for the reclamation of historical contamination in underlying areas or areas that are not disturbed by the development of the Project). Specific information pertaining to the delineation of responsibilities and reclamation requirements will be coordinated as a Reclamation and Remediation Strategy with the appropriate regulatory agencies, including MCM and the Crown Contaminated Sites Program (CCSP) administered by the MoF to address historical contamination.

ODV, the CCSP, and BGM have created a Memorandum of Understanding (MOU) regarding exposed tailings adjacent to Jack of Clubs Lake.

The purpose of the MOU is to set out the expectations of CCSP, BGM, and ODV with regard to information sharing, engagement, and communications of investigations in the Footprint Tailings and the Adjacent Tailings areas. The MOU also details the preparation, planning, and development of CCSP's remediation plans for the Adjacent Tailings area. BGM and ODV's preparation, planning, and development of their reclamation plan for the Footprint Tailings area is also included, with specific focus on:

- Development of work plans for technical work
- Feedback on findings
- Potential to coordinate work schedules



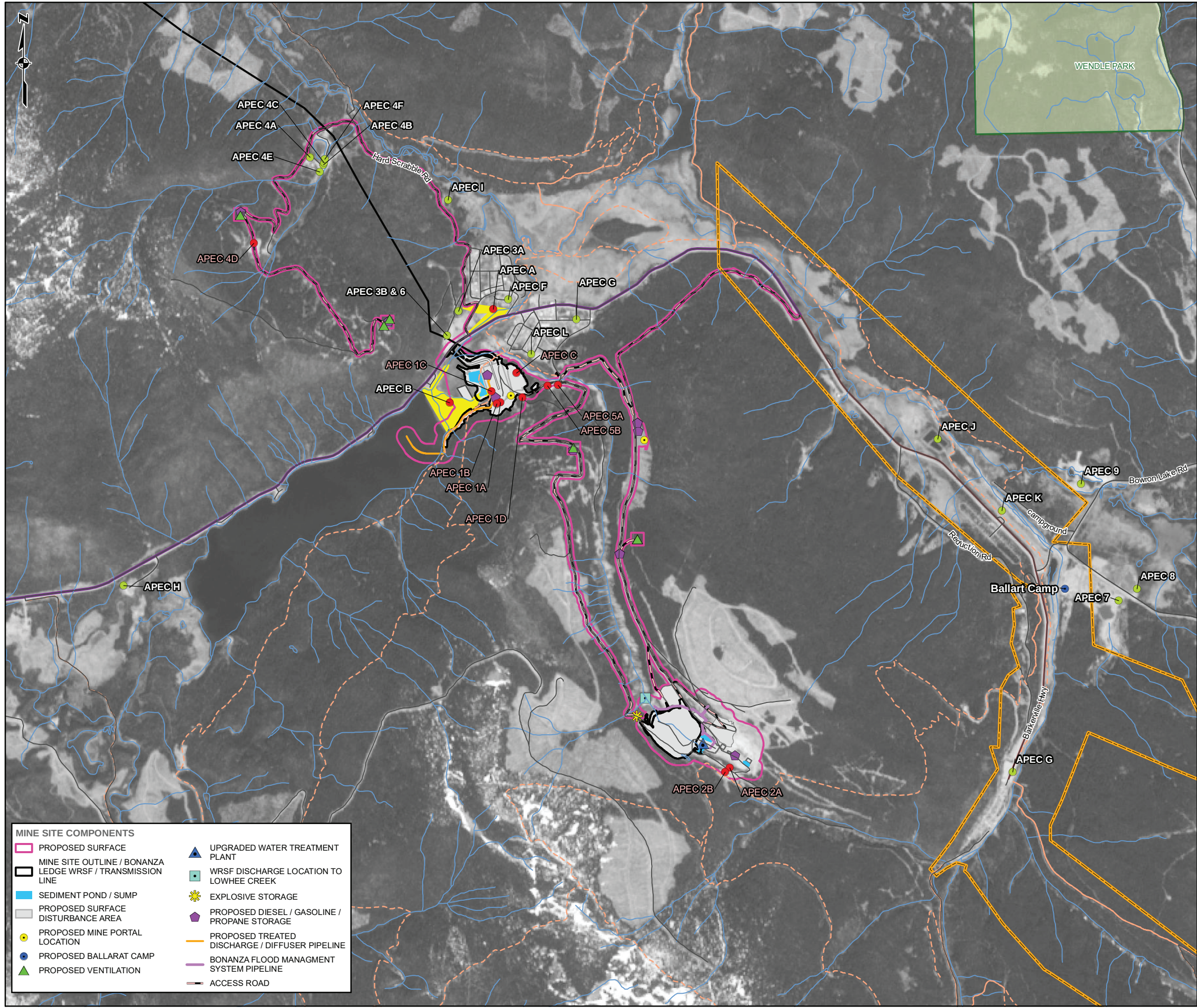
The Contaminated Materials Management Plan attached as Appendix B to the Soil Management Plan (ODV 2024a) provides:

- High level information on how to approach contaminated areas regarding assessment.
- Common indicators of contamination (e.g., gray or black staining of soils).
- Steps to take if contamination is identified during construction, including:
  - Cessation of excavation.
  - Notification of ODV.
  - Establishment of safe work zones.
  - Excavation of contaminated material and securement in a stockpile covered with polyethylene sheeting to prevent spread of contamination.
  - Confirmatory sampling methods, procedures and information collected.
  - Common measurement parameters (e.g., Contaminants of Potential Concern).
  - Quality assurance and control measures, including duplicate frequency.

Along with detailed information on contaminant management, the Contaminated Material Management Plan also provides a map of historically contaminated areas; Figure 5-5 and Figure 5-6 provide potentially contaminated areas for the Mine Site and the QR Mill, respectively.



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LEGEND

- PROPOSED SURFACE FOOTPRINT
- BARKERVILLE HISTORIC TOWN AND PARK
- HIGHWAY/ROAD
- TRAIL
- PARK/PROTECTED AREA
- NORTHERN HEATH, HEALTH HAZARD ADVISORY – JACK OF CLUBS TAILINGS AND VISITOR CENTRE SHORELINES (ISSUED 19 JUNE 2023)
- APEC'S WITHIN SURFACE FOOTPRINT
- APEC'S NOT WITHIN SURFACE FOOTPRINT

NOTE(S)

- APEC Identifier
- 1A Former CGQM mill (head frame) structure
  - 1B Waste rock pond lined with poly near the former mill structure
  - 1C Abandoned and discarded metal pieces at the foot of CGQM tailings pile
  - 1D Abandoned steel drums located beside the old steel water AST suspected to have been used for storage of cyanide for gold extraction.
  - 2A Diesel generator with a portable fuel tank (Bonanza Ledge)
  - 2B Bonanza Ledge (and BC Veins) Mine Mill (head frame) structure.
  - 3A Former Island Mountain Mine shaft location
  - 3B Creosote and/or copper sulphate treated rail ties at Island Mountain mine shaft area.
  - 4A Former Mosquito Creek Mine mill (head frame) structure
  - 4B Surficial staining from suspected transformer oil leak and/or fuel as a result of storage of transformers and ASTs beside a storage building
  - 4C Storage of drums, engines, and bulk pulp stored in pales beside a storage building
  - 4D Heavy staining and odours, and product on concrete floor identified at the Mosquito Creek former diesel generating station (upper bench)
  - 4E Surficial staining from an abandoned transformer leak at the lower bench area
  - 4F Former tailings pond rail line which was used for transporting mine waste at the lower bench area.
  - 5A Ongoing fuel (diesel and gasoline) ASTs usage at the BGM Office area
  - 5B Potentially acid generating waste discharge pile from drill core wash within BGM office compound.
  - 6 Abandoned tailings piles or waste rock piles at CGQM, Bonanza Ledge, Island Mountain, and Mosquito Creek mine.
  - 7 Surficial staining observed where equipment is stored at Ballarat Gold Mine.
  - 8 Potential use of fuel at the private property on Matthew Valley Road.
  - 9 Current and historical mining activities at Delvine's Bench Mine.
  - A The area with historical mine waste which is contaminated with arsenic, lead and other metals based on a warning sign posted by the BC MFLNRO in the Town of Wells
  - B Historical tailings mass at the base of Lowhee Creek (adjacent land east of Jack of Clubs Lake and north of Cow Mountain)
  - C Sediment in Lowhee Creek potentially impacted by mercury as a result of historical hydraulic (hydraulic) mining
  - D Historical sawmill operation
  - E ASTs/USTs that were/are used by residential or commercial property owners within the Site area
  - F Former gas stations within the Towns of Wells and Barkerville
  - G Properties listed in the BC Site Registry consisting of properties within the Towns of Wells and Barkerville, and including, but not limited to former service stations, ambulance stations, tailings locations, and Wells Transfer Station and former landfill
  - H Town of Wells Transfer Station and former landfill along Highway 26
  - I Wells Sewage Treatment Lagoons along Hardscrabble Road
  - J Barkerville Sewage Lagoons east of Highway 26
  - K Barkerville Airport where there is no structure or infrastructure
  - L BGM Maintenance Shop located on Ski Hill Drive.

REFERENCE(S)

1. WELLS MUNICIPAL BOUNDARY, BARKERVILLE HISTORIC TOWN AND PARK, CARIBOO WAGGON ROAD AND 1861 PACK TRAIL BUFFER, HIGHWAY/ROAD, PARK/PROTECTED AREAS, CITIES (INSET), PROVINCIAL BORDERS (INSET) OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LAND AND NATURAL RESOURCE OPERATIONS.
2. GROUND TRUTHED ROADS GENERATED BY GOLDER ASSOCIATES.
3. TRAILS WERE OBTAINED FROM
4. WATER FEATURES ARE A COMBINATION OF TRIM DATA AND BC FRESH WATER ATLAS DATA OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LAND AND NATURAL RESOURCE OPERATIONS.
5. CUTBLOCKS ARE A COMBINATION OF DATA OBTAINED FROM THE B.C. MINISTRY OF FORESTS, LAND AND NATURAL RESOURCE OPERATIONS AND DATA FROM BC TIMBER SALES AND WEST FRASER.
6. IMAGERY COPYRIGHT ESA SENTINEL PROGRAM, IMAGE DATE 20160514
7. INSET BASE SOURCE: ESRI, DELORME, GEBCO, NOAA NGDC, AND OTHER CONTRIBUTORS.



CARIBOO GOLD PROJECT  
END LAND USE PLAN  
AREAS OF POTENTIAL CONCERN FOR THE  
CARIBOO GOLD PROJECT

| REV. | DESCRIPTION    | DATE       | INITIALS |
|------|----------------|------------|----------|
| 0    | FINAL APPROVED | 2023-07-19 | S.W.     |
| 0    | FINAL REVIEWED | 2023-07-19 | K.N.     |
| 0    | FINAL          | 2023-07-19 | J.P.     |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B





### LEGEND

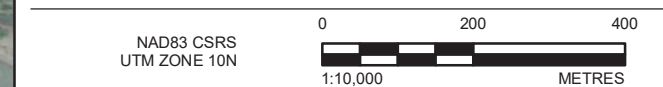
-  STUDY AREA  
 MINE FOOTPRINT  
 TEST PIT LOCATION  
 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)  
 500 ROAD

**APECs**

- APEC 1: Diesel AST at the Fuel Farm
- APEC 2: Gasoline AST at the Main Office Area
- APEC 3: Storage of Miscellaneous Items such as Generator and Empty ASTs at the North/Northeastern of the Camp Area
- APEC 4: Three APECs identified at the West Portal / Shop Area:
  - APEC 4A: Suspect Historical Fueling Operation or Oil AST on the North Side of the West Portal/Shop
  - APEC 4B: Chemical Storage in the Shop
  - APEC 4C: Scrap Metals Storage at the West Side of the Shop
- APEC 5: Three APECs identified at the Mill Area
  - APEC 5A: Two Detroit Diesel Generators and Fuel Tanks
  - APEC 5B: Various Chemicals Storage at the Main Building
  - APEC 5C: "Hazardous Waste" and Maintenance Supplies Storage
- APEC 6: Waste Oil Tank at Maintenance Shop and Additional Test Pit
- APEC 7: Cyanide Chemical Storage at the Chemical Storage Area
- APEC 8: Miscellaneous Items such as Old Diesel ASTs, Equipment and Parts, and Cyanide Containers Stored at the Storage Area/Yard
- APEC 9: AST of Unknown Use at Main Zone Pit Pump House Area
- APEC 10: Old Generators and Rusty Metals Waste at the Generator House
- APEC 11: Noticeable Spills and Hydrocarbon-like Odour at the Crusher Area
- APEC 12: Storage of Generators and Metal Pieces and Evidence of Spills Noted at the Parking/Laydown Area
- Offsite APEC 13: Old Pumphouse AST
- Offsite APEC 14: AST at the North Portal Area

## REFERENCE(S)

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY



## CARIBOO GOLD PROJECT

## END LAND USE PLAN

AREAS OF POTENTIAL CONCERN QR  
MILL

| REV. | DESCRIPTION      | DATE       | INITIALS |
|------|------------------|------------|----------|
| 0    | FINAL - APPROVED | 2021-05-26 | J.F.     |
| 0    | FINAL - REVIEWED | 2021-05-26 | K.N.     |
| 0    | FINAL            | 2021-05-26 | JP       |

|             |       |      |        |
|-------------|-------|------|--------|
| PROJECT NO. | PHASE | REV. | FIGURE |
| 1774160     | 37000 | 0    | 5 C    |



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# APPENDIX A      DECLARATION OF COMPETENCY FORM

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## Declaration of Competency

The Ministry of Environment and Climate Change Strategy relies on the work, advice, recommendations and in some cases decision making of qualified professionals<sup>1</sup>, under government's professional reliance regime. With this comes an assumption that professionals who undertake work in relation to ministry legislation, regulations and codes of practice have the knowledge, experience and objectivity necessary to fulfill this role.

1. Name of Qualified Professional Jorden Laskosky  
Title Mine Reclamation Closure Consultant
2. Are you a registered member of a professional association in B.C.? ☒ Yes ☐ No  
Name of Association: BC Institute of Agrlogists (BCIA) Registration # 4447
3. Brief description of professional services:  
Cariboo Gold Project End Land Use Plan

This declaration of competency is collected under section 26(c) of the *Freedom of Information and Protection of Privacy Act* for the purposes of increasing government transparency and ensuring professional ethics and accountability. By signing and submitting this statement you consent to its publication and its disclosure outside of Canada. This consent is valid from the date submitted and cannot be revoked. If you have any questions about the collection, use or disclosure of your personal information please contact the Ministry of Environment and Climate Change Strategy Headquarters Office at 1-800-663-7867.

## Declaration

I am a qualified professional with the knowledge, skills and experience to provide expert information, advice and/or recommendations in relation to the specific work described above.

Signature:

**X**Print Name: Jorden Laskosky

Witnessed by:

**X**Print Name: Sean WestonDate signed: April 4, 2024

<sup>1</sup>Qualified Professional, in relation to a duty or function under ministry legislation, means an individual who

- a) is registered in British Columbia with a professional association, is acting under that organization's code of ethics, and is subject to disciplinary action by that association, and
- b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function.