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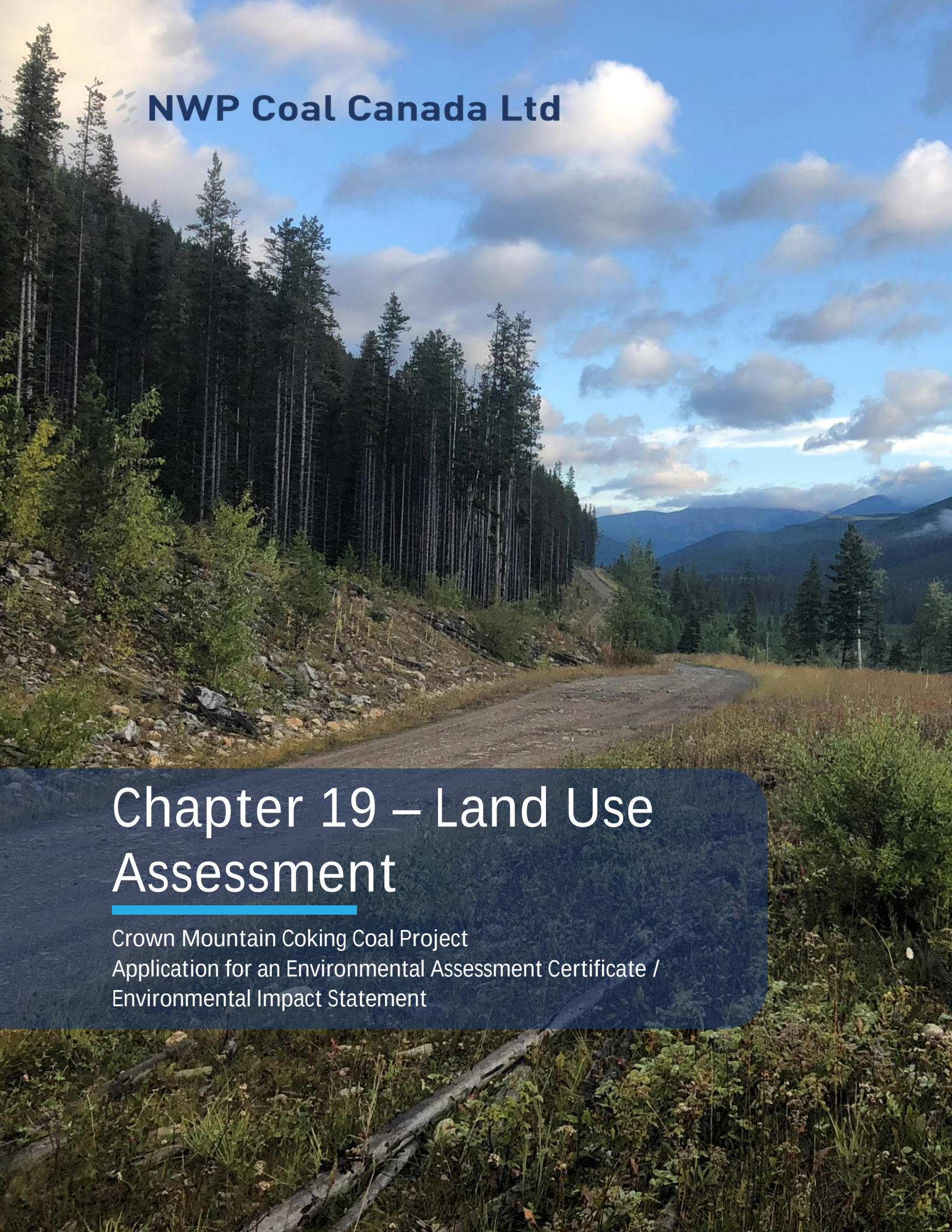

Chapter 19 – Land Use Assessment

Crown Mountain Coking Coal Project
Application for an Environmental Assessment Certificate / Environmental Impact Statement

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19. Land Use Assessment

19.1 Introduction

Land use is a key component to consider as part of this Application/EIS due to the nature of the Project and its potential effects on existing land uses, access, and visual character. Three land use valued components (VCs) were identified as receptor VCs for the Project in the provincial Application Information Requirements (AIR; Environmental Assessment Office [EAO], 2018): land use and access; recreation and tourism; and visual aesthetics. Chapter 19 defines the scope of the land use assessment through the presentation of the VCs and provides an overview of existing conditions related to land use and access, recreation and tourism, and visual aesthetics. The effects assessment on land use includes an overview of project interactions, potential effects, mitigation and benefit enhancement measures, characterization of residual Project effects, and a cumulative effects assessment.

An understanding of the potential effects to land use with respect to the Project is critical to the Project design, engineering, operations, and assessment, and mitigation of potential environmental effects. The Project may result in changes to the use and access of the existing land base. Mine activity disturbance effects (e.g., viewscape changes, noise, etc.) impact the use and enjoyment of adjacent lands for recreational activities. Access to areas currently used for recreation, tourism, resource harvesting, and extraction could also be impacted. The assessment of effects on land use is anticipated to have linkages with other VCs; these effects are primarily assessed in the following chapters:

- Chapter 6: Atmospheric Environment Assessment;
- Chapter 7: Acoustic Environment Assessment;
- Chapter 8: Soil and Terrain Assessment;
- Chapter 11: Surface Water Quality Assessment;
- Chapter 12: Fish and Fish Habitat Assessment;
- Chapter 15: Wildlife and Wildlife Habitat Assessment;
- Chapter 17: Economic Conditions Assessment; and
- Indigenous Communities discussed in Chapters 23 through 31.

19.1.1 Regulatory and Policy Setting

The land use assessment has been prepared in accordance with the requirements in the provincial AIR (EAO, 2018), and the Guidelines for the Preparation of an Environmental Impact Statement for the Crown Mountain Coking Coal Project (EIS Guidelines; Canadian Environmental Assessment Agency, 2015). Table 19.1-1 provides an overview of relevant legislation related to land and resource use.

Table 19.1-1: Provincial Legislation Relevant to Land Use

Legislation Name	Year	Description
Park Act	1996	Provides for the establishment, classification, and management of parks, conservancies, and recreation areas. Under this Act, there are three classes of parks: Class A, B, and C.
Protected Areas of British Columbia Act	2000	Ensures that the boundaries of Class A parks, conservancies, and ecological reserves cannot be changed or removed, except through an Act.
Land Act	1996	Governs the disposition, management, and administration of Crown land. The Act applies to land uses including, but not limited to: tourism/commercial recreation, agriculture, mining, oil and gas, airports, and community and institutional use.
Agricultural Land Commission Act	2002	Establishes the principles for the protection and preservation of agricultural land in B.C. This Act identifies the land permitted for farm use as an agricultural land reserve.
Mineral Tenure Act	1996	Authorizes the registration of mineral and placer titles within B.C. and provides the policy framework for the administration of Mineral Titles.
Mines Act	1996	Authorizes mineral exploration and development activities related to exploration, development, construction, production, closure, reclamation, and abandonment.
Coal Act	2004	Authorizes coal exploration and development activities. This Act outlines tenure requirements and coal title registration.
Forest Act	1996	Addresses the classification and management of forests and forest land in B.C. and outlines rights related to the disposition of Crown timber. This Act governs tenure agreements, allowable annual cuts and harvests, road permits, and licenses, as well as compliance and enforcement provisions.
Forest and Range Practices Act	2002	Outlines how forest and range practices and resource-based activities are to be conducted on Crown land, including the protection of everything in and on them (e.g., plants, animals, and ecosystems). This Act governs all forest and range activities during all stages of planning, road building, logging, reforestation, and/or grazing.
Private Managed Forest Land Act	2003	Established the role of the Managed Forest Council, specifically its objectives, scope, and authority. This Act outlines procedures related to private managed forest land application, withdrawal of management commitment, exit fees, and local government land use restrictions.

Legislation Name	Year	Description
Oil and Gas Activities Act	2008	Regulates oil and gas related activities in B.C., including wells, facilities, oil refineries, natural gas processing plants, and pipelines, as well as oil and gas roads. In addition, this Act provides authority to the B.C. Oil and Gas Commission.
Petroleum and Natural Gas Act	1996	Governs the disposition, administration, and management of petroleum and natural gas. Regulates subsurface tenures and royalties for oil and gas activities.
Wildlife Act	1996	Regulates the management of wildlife. This Act outlines the requirements for licenses and permits related to hunting, trapping, and angling; establishes wildlife management areas and protects critical wildlife areas and sanctuaries; and outlines requirements for guided outfitters.

19.1.1.1 Regional Land Use Policies and Plans

This section provides an overview of relevant regional policies and plans that guide land use planning within the Land Use and Access Regional Study Area (RSA). The Land Use and Access RSA includes the boundaries of the Electoral Area A of the Regional District of East Kootenay (RDEK), which includes the communities of Elkford, Sparwood, and Fernie and rural areas surrounding these communities. The Land Use and Access RSA is defined in further detail in **Section 19.2.3.1.2**.

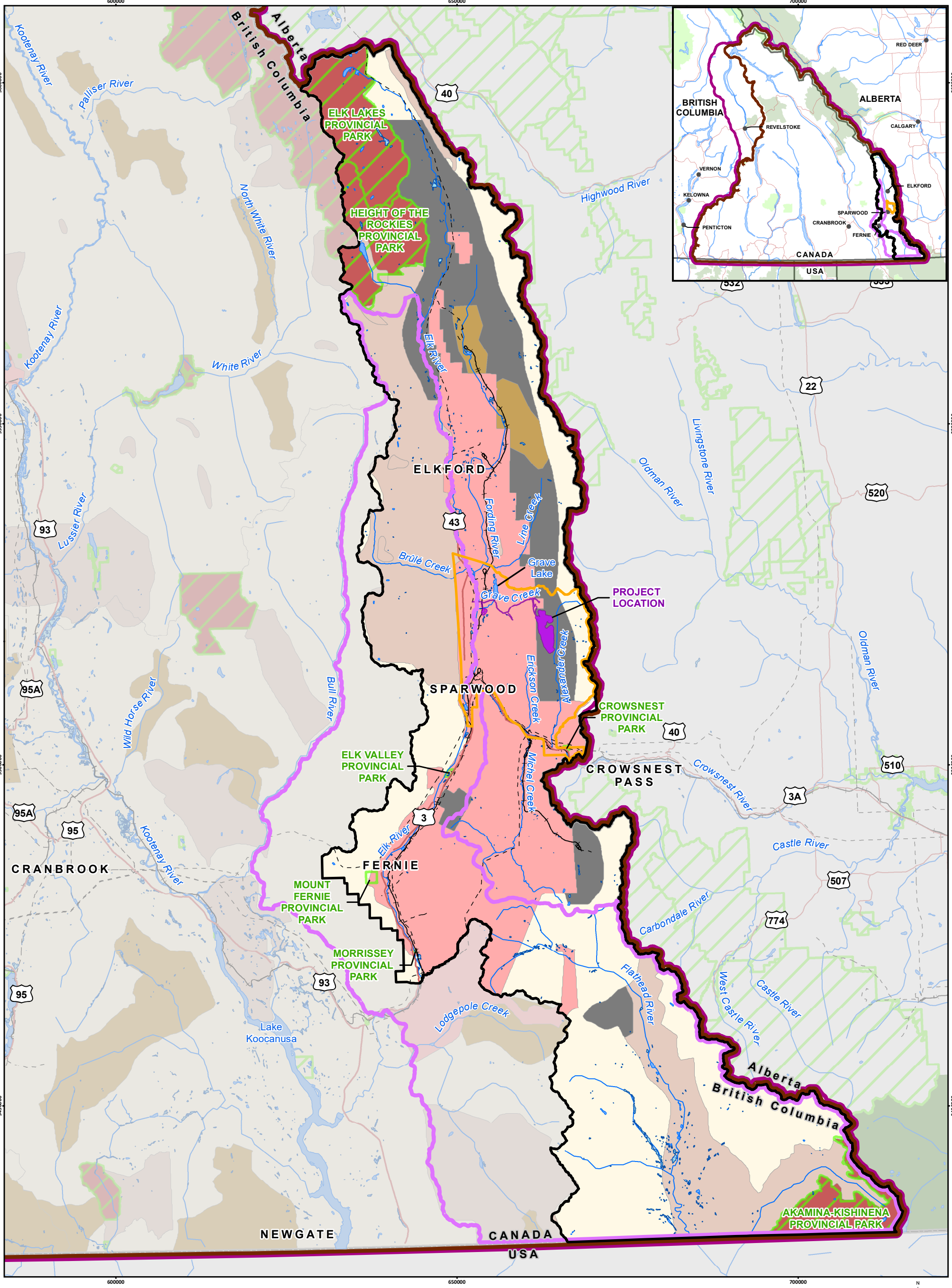
This section describes land use planning and designations, municipal and regional zoning, old growth management areas, and agricultural lands reserves within the Land Use and Access RSA.

19.1.1.1.1 Regional Land Use Planning

In 1992, the B.C. government directed the development of a strategic-level land use plan to identify a comprehensive and integrative vision for land and resource use in the Kootenay-Boundary region. The East Kootenay Land Use Plan was completed in 1995. This 1995 plan, which has since been retired, included land use designations of new protected areas, special resource management zones, integrated resource management zones, and preliminary enhanced resource management zones. The East Kootenay Land Use Plan (1995) also committed provincial agencies to further regional land planning to refine the enhanced management zones. Accordingly, the Kootenay Boundary Land Use Plan Implementation Strategy (KBLUPIS) was released in 1997 (Kootenay Inter-Agency Management Committee, 1997). Figure 19.1-1 provides an overview of land use designations, as outlined in the KBLUPIS, within the Land Use and Access RSA, Land Use and Access Local Study Area (LSA), and Project footprint.

The main objectives of the KBULPIS (1997) include:

- Contribute to environmental, social, and economic sustainability;
- Reduce potential for disruptive land use conflicts;
- Support a secure and certain basis for public and private planning as well as investment in resource development and community planning;
- Integrate with other government strategic planning initiatives related to land and resource management; and
- Provide context and strategic direction for detailed, operational levels of land and resource management planning and decision-making.



Crown Mountain Coking Coal Project

Figure 19.1-1
Kootenay Boundary Land Use Designation

LEGEND

Land Use Designations

- Coal ERDZ (Dedicated)
- Enhanced Resource Development Zone (ERDZ)
- Protected Area
- Private Land
- Integrated Resource Management Zone (IRMZ)
- Special Resource Management Zone (SRMZ)
- Kootenay Boundary Land Use Plan Implementation Strategy
- Kootenay Boundary Higher Level Plan Order
- Southern Rocky Mountain Management Plan
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Kilometres

Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.

Map Created By: RB
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-10

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The KBLUPIS (1997) applies to all public lands and waters in the Kootenay Boundary regional planning area. It is important to note that the plan does not contain prescriptive direction for private land, rather, as noted above, it aims to provide strategic long-term direction to enhance security and certainty for private planning and investment in resource management.

The KBLUPIS also provides geographically specific resource management guidelines for individual resource values (e.g., connectivity, grizzly bears, ungulate winter range, etc.; Kootenay Inter-Agency Management Committee, 1997). In 2001, specific provisions outlined in the KBLUPIS were legally established as higher level plans (i.e., the Kootenay-Boundary Higher Level Plan Order) under the Forest Practices Code of British Columbia Act. In 2002, the Kootenay-Boundary Higher Level Plan Order was revised and established new resource management zones and objectives.

It is important to note that the objectives and guidelines outlined in the Kootenay-Boundary Higher Level Plan Order (2002) are not intended to impact the permitting of subsurface resource exploration and development. These objectives do not affect the operational plans for exploration, development, and production activities when authorized through the other legislation (i.e., Mineral Tenure Act, the Coal Act, and the Mines Act; Ministry of Sustainable Resource Development, 2002).

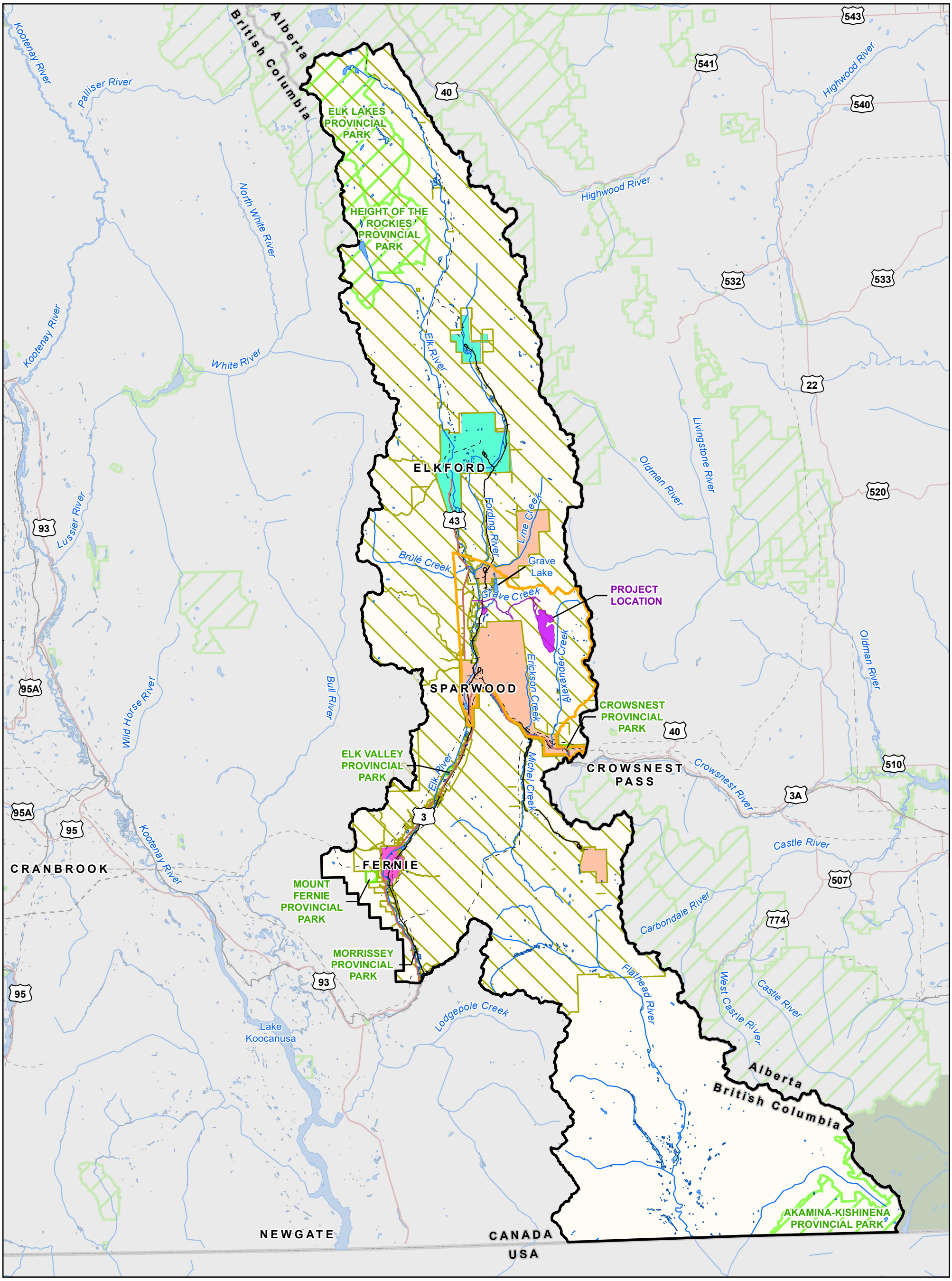
Building off the KPLUPIS (1997) and the Kootenay-Boundary Higher Level Order Plan (2002), in 2003, the Southern Rocky Mountain Management Plan was developed. This sustainable management plan covers the southern portion of the Land Use and Access RSA, including Flathead and Wigwam, as well as the western portion of both the Land Use and Access RSA and Land Use and Access LSA, including the west side of the Elk River drainage. This Plan was amended in 2010 to reflect the B.C. Government's decision to prohibit mining, oil and gas, and coal exploration and development in the Flathead River Watershed. In 2011, the Flathead Watershed Conservation Act was introduced. Additional information on this restriction is provided in Land Use and Access Baseline Report (Appendix 19-A).

The 2005 Cranbrook West Recreation Management Strategy overlaps with a small section of the Land Use and Access RSA (north of Sparwood only about 67 hectares [ha] overlaps with the western boundary of the Land Use and Access RSA) and provides the strategic-level direction on backcountry recreation. This plan does not consider industrial access. Since the implementation of this plan, access management areas[1] and snowmobile restrictions have changed and take precedence where they differ from the Cranbrook West Recreation Management Strategy (Ministry of Sustainable Resource Management, 2005). Additional details on Access Management Areas intersected by the Project study areas are provided in Land Use and Access Baseline Report (Appendix 19-A).

19.1.1.1.2 Municipal and Regional Zoning

The Elk Valley Official Community Plan (Elk Valley OCP), Bylaw No. 2532 (2014) identifies long-term strategies to guide land use and development within the planning area boundary. This plan encompasses the majority of the Land Use and Access RSA; however, it excludes the City of Fernie, the District of Sparwood, and the District of Elkford; these three incorporated communities are responsible for land use zoning within their municipal boundaries (RDEK, 2014a) (Figure 19.1-2).

[1] Note that Access Management Areas (AMAs) have been renamed by the Province to Motor Vehicle Closed Areas but are still referred to as AMAs in this report.



Crown Mountain Coking Coal Project

Figure 19.1-2
Official Community Plan Areas and Land Use Designations

LEGEND

- Elk Valley Land Use Designation
- Elk Valley Official Community Plan Area
- Elkford Official Community Plan Area
- Fernie Official Community Plan Area
- Sparwood Official Community Plan Area
- Land Use and Access Local Study Area
- Land Use and Access Regional Study Area (Electoral Area A)
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Kilometres

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The Elk Valley Zoning Bylaw No. 829 (1990) establishes permitted land uses. All rural land within the Elk Valley is presently zoned; private land owners are entitled to develop and use their land in accordance with the existing zoning of their property. Amendments to the Elk Valley Zoning Bylaw No. 829 are to be consistent with direction provided in the Elk Valley OCP (RDEK, 2014a).

19.1.1.1.3 Agricultural Land Reserve

The Agricultural Land Commission (ALC) is responsible for administering the Agricultural Land Commission Act. The Agricultural Land Reserve (ALR) is a provincial zone in which agriculture is recognized as a priority land use. Agriculture, farming, and other compatible land uses are permitted on these lands. Unless approved by the ALC, non-agricultural uses are restricted on these lands (ALC, 2014).

Within the Land Use and Access RSA, ALR areas are primarily located along the Elk River, which runs north to south through Elkford, Sparwood, and Fernie. The Land Use and Access RSA transects 13,396 ha of ALR land. Additional information on agricultural activity in the Land Use and Access RSA is provided in Land Use and Access Baseline Report (Appendix 19-A).

19.1.1.1.4 Old Growth Management Areas

Old Growth Management Areas (OGMAs) are a mechanism to protect and attain old-growth forests and enhance biodiversity. The Kootenay Boundary Higher Order Plan (2002) provides legal direction for identifying and defining old and mature seral forests. This order outlines biodiversity emphasis targets for different seral stages by landscape unit and biogeoclimatic unit (Ministry of Sustainable Development, 2002). As previously noted, since 2002, there have been multiple orders that have been approved, which have amended and varied objectives, including the biodiversity emphasis targets and old mature forest objectives. Within the Land Use and Access RSA, the 2005 amendment revised biodiversity emphasis options mapping to enhance timber and biodiversity management in the area.

In 2005, the Forest Practices Code of British Columbia Act was repealed and replaced largely by the Forests and Range Practices Act. This major change in government direction had implications in terms of how legal objectives related to OGMAs would be considered moving forward. In 2006, the Integrated Land Management Bureau decided not to legalize spatial OGMAs in the Southern Interior region. This was largely based on the view that existing legal objectives were deemed adequate (ILMB, 2007).

Non-Legal OGMAs are spatially defined areas of old growth forest that are defined through operational planning or landscape unit planning processes. When preparing Forest Stewardship Plans, forest licensees are not required to follow OGMA direction and can choose to manage biodiversity targets through alternative methods. The Land Use and Access RSA overlaps with 25,679.3 ha of non-legal OGMAs.

19.1.1.2 Visual Aesthetics Regulatory and Policy Context

A review of the existing relevant B.C. Visual Landscape Inventory (VLI), resource management guidelines, and strategic planning documents was conducted to understand the policy context for visual aesthetic management within the Project area. The VLI data identifies sensitivity and viewer ratings within the Visual Aesthetics Local Study Area (LSA; see Section 19.2.3.1.3), based on inventories of existing visually sensitive areas and management objectives to maintain visual quality within the Elk Valley.

The Kootenay/Boundary Land Use Plan Implementation Strategy (Kootenay Inter-Agency Management Committee, 1997) provides objectives for visual quality through specific zoning. A significant part of the Visual Aesthetics LSA is located in the Coal Enhanced Resource Development Zone (ERDZ) that recognizes that coal exploration, development and production activities can be anticipated on these lands (Kootenay Inter-Agency Management Committee, 1997). This sub-category is located exclusively in the East Kootenay and encompasses areas of known coal reserves, existing coal mining facilities and infrastructure, as well as areas for potential expansion. The Project is located within the Coal ERDZ and subject to Class 3 Management Guidelines for front country landscapes (Kootenay Inter-Agency Management Committee, 1997).

The Coal ERDZ designation signifies an assurance of long-term security of access and tenures to these lands for coal mining exploration and development purposes, contributing to investor confidence and general coal industry viability. Within the Coal ERDZs, it is recognized that ecosystem and visual function may be temporarily compromised by coal exploration, development and production, or use activities on these lands. It is expected that through long term maintenance and innovative reclamation and mitigation technologies, visual aesthetics can be retained. The Class 3 Management Guidelines in the Front Country Visual Management Area state:

- In most foreground areas, disturbance should be subordinate in the landscape; and
- In less important or prominent foreground areas, and in mid-ground and background areas, landscape alterations may be visually apparent, but should be designed to blend into the landscape in form and colour (Kootenay Inter-Agency Management Committee, 1997).

The Project is located in a sensitivity class that is determined to be not visually sensitive.

19.2 Scope of the Assessment

19.2.1 Valued Components and Measurement Indicators

Three land use VCs were identified as receptor VCs for the Project in the provincial Application Information Requirements (AIR; B.C. Environmental Assessment Office [EAO], 2018): land use and access; recreation and tourism; and visual aesthetics. It is important to note that all three VCs were identified as receptor VCs, which occur at the end of an effects pathway. In addition, a fourth land use VC, commercial land use, was added in order to clearly separate recreation and tourism uses from commercial land uses. Traditional land and resource use is discussed separately in Chapters 23 to 31.

The Project has the potential to change access to the existing land base as it will create an area of active resource extraction and change the land base to include components relevant for operation of the mine (e.g., haul roads, mine infrastructure, etc.). Changes in the land base may restrict access to areas used for recreational or tourism purposes, as well as for other resource harvesting and extraction activities (e.g., forestry). Community use of the existing land base may change as a result of the Project construction and operation. The Project is located in an area that is used for a variety of recreational purposes, including, for example, hunting, fishing, and hiking. As a result of the Project, the existing land use will change and areas once used for recreational purposes will be restricted or have controlled access to ensure public safety.

The Project may cause localized changes to the visual landscape. This, for example, could result in impacts to backcountry recreational users active in the Project vicinity. Construction and operation of the Project will change the existing landscape and associate view corridors in the Grave Creek and Alexander Creek watersheds, areas that are used for recreational hunting, fishing, and other recreational purposes.

Measurement indicators for the land use assessment are summarized in Table 19.2-1.

Table 19.2-1: Measurement Indicators and Effects Pathways

Valued Component	Measurement Indicators	Effects Pathways
Land Use and Access	• Access to recreation and commercial/resource harvesting areas	Use of existing access road to access the mine site and required construction activities to upgrade the road could impact access to lands for recreation and resource harvesting activities
Recreation and Tourism	• Consistency with land use designations and policies • Recreation and tourism use (e.g., hunting, ATV trails, fishing, hiking, etc.) • Quality of recreational and tourism experiences on adjacent lands	The development of the mine site could remove lands used for recreation and tourism purposes The construction and operation of the mine could result in disruption effects to recreation and tourism activities. They could result from disturbances such as from noise and changes in viewscapes. Lands could also be temporary closed for safety reasons (e.g., during blasting)
Commercial Land Use	• Consistency with land use designations and policies • Commercial land use including resource extraction activities	The development of the mine site could remove lands used for commercial purposes, including resources harvesting
Visual Aesthetics	• Quality of viewscapes	The developing of the mine could change the existing visual environment

Source: B.C. Environmental Assessment Office [EAO], 2018.

19.2.2 Indigenous and Stakeholder Consultation

NWP engaged with Indigenous groups and conducted consultation with public stakeholders and regulators. A description of consultation and engagement activities undertaken to date is presented in Chapter 4. A summary of consultation feedback specific to land use and access is presented in Table 19.2-2. Appendix 19-B presents a summary of the methodology and findings of NWP's Land Use and Access Survey, as well as the full survey questions and responses. Public stakeholder consultation feedback received was used to inform the assessment on land use and access.

Table 19.2-2: Summary of Consultation Feedback on Land Use and Access

Topic	Feedback Received*: IG	G	P/S	O	Consultation Feedback	Feedback Source	Response or Actions Identified
Potential impacts on access to lands used for hunting			✓		Concerns that Project-related restrictions will affect access to areas used for hunting (e.g., Grave Creek Road / Rock Teepee trail, north end of Alexander Creek, back side of Ram Mountain, etc.).	NWP Land Use and Access Survey	Potential impacts on access to lands used for hunting are considered in Section 19.5.3.3 of this assessment.
Potential impacts on lands used for hunting			✓		The Project would result in the removal and disturbance of lands frequently used for hunting activities.	NWP Land Use and Access Survey	Potential impacts on lands used for hunting are considered in Section 19.5.3.1 of this assessment.
Potential impacts on lands used for hunting			✓		The Project would result in further restrictions to areas used for hunting and recreation within an area where use is already limited. Respondents noted that the Project is located within an area where access and use are already limited due to unauthorized access areas surrounding other mine sites and access management areas.	NWP Land Use and Access Survey	Potential impacts on lands used for hunting are considered in Section 19.5.3.1 of this assessment.
Potential impacts on lands used for hunting			✓		Concerns that Project-related unauthorized access areas will extend beyond the Project footprint.	NWP Land Use and Access Survey	Potential impacts on lands used for hunting are considered in Section 19.5.3.1 of this assessment.
Potential impacts on hunting quality			✓		The Project would result in alterations to wildlife habitat (e.g., land disturbances to winter range, grazing areas, wildlife connectivity corridors, water quality, etc.), which could affect the sustainability and quality of hunting in the future.	NWP Land Use and Access Survey	Potential impacts on hunting quality are considered in Section 19.5.3.1 of this assessment.
Potential impacts on hunting quality			✓		The Project could change the distribution of species hunted (e.g., alter migration patterns, wildlife on roadways, traffic displacing wildlife, changes to connectivity corridors, etc.), which could affect the quality of hunting in the area.	NWP Land Use and Access Survey	Potential impacts on hunting quality are considered in Section 19.5.3.1 of this assessment.

Topic	Feedback Received*: IG	G	P/S	O	Consultation Feedback	Feedback Source	Response or Actions Identified
Potential impacts on hunting quality			✓		The Project could result in nuisance effects (e.g., dust, noise, visual and sensory quality, etc.).	NWP Land Use and Access Survey	Potential impacts on hunting quality are considered in Section 19.5.3.1 of this assessment.
Potential impacts on areas used for fishing			✓		The Project will remove opportunities to fish in the Project area (i.e., numerous creeks near the Project as well as the Elk River).	NWP Land Use and Access Survey	Potential impacts on fishing are considered in Section 19.5.3.1 of this assessment.
Potential impacts on access			✓		Concerns that the Project would change access to areas used for fishing, including Grave Lake.	NWP Land Use and Access Survey	Potential impacts on fishing access are considered in Section 19.5.3.3 of this assessment.
Potential impacts on the quality of fish harvesting			✓		The Project alter the water quality in the Elk River	NWP Land Use and Access Survey	Potential impacts on fishing are considered in Section 19.5.3.1 of this assessment. Chapter 11 considers the impacts to surface water quality.
Potential impacts on tourism			✓		People visit the Elk Valley to go hunting, and they spend money in local communities. The Project area is one of the areas that is open for hunting, and could reduce the number of hunters attracted to the area.	NWP Land Use and Access Survey	Potential impacts on hunting quality are considered in Section 19.5.3.1 of this assessment.
Potential impacts on motorized vehicle use			✓		The Project could further restrict use of an area that is already restricted (i.e., Alexander Creek AMA). In addition, with the loss of areas used for ATVing, users would be forced to use other areas, which may increase conflict.	NWP Land Use and Access Survey	Potential impacts on motorized vehicle use are considered in Section 19.5.3.1 of this assessment.

Topic	Feedback Received*: IG	G	P/S	O	Consultation Feedback	Feedback Source	Response or Actions Identified
Potential impacts on access to trails used for ATVing			✓		Elkford ATV Club noted that their main concern is maintaining access on key trails (not necessarily 'all' trails). In addition, the Elkford ATV Club noted that the Project would result in the removal of a trail along the ridgeline of Crown Mountain as well as possibly alter use of a section of Alexander Creek Road adjacent to the mine site.	NWP outreach	NWP intends to share Valley Road, Harmer Road, and Grave Creek Road and minimize closures to as much as practical. Potential impacts on ATV access are considered in Section 19.5.3.3 of this assessment.
Potential impacts on access to trails used for ATVing			✓		Main Forest Service Roads (e.g., Grave Lake, Alexander Creek, etc.) would be closed due to the Project and motorized vehicle access along Grave Creek and the north end of Alexander Creek AMA would be further limited.	NWP outreach	NWP intends to share Valley Road, Harmer Creek Road, and Grave Creek Road and minimize closures to as much as practical. Potential impacts on ATV access are considered in Section 19.5.3.3 of this assessment.
Potential impacts to Elk Valley Mountaineer's snowmobile cabin			✓		Elk Valley Mountaineers noted concerns related to access to their cabin located near Alexander Creek and the potential for the cabin and/or sections of the trail to access it to be within the No Unauthorized Entry (NUE) / blast restriction zone area.	NWP outreach	Potential impacts on snowmobiling activities are considered in Section 19.5.3.1 of this assessment.
Potential impacts to snowmobiling activities			✓		Elk Valley Mountaineers noted concerns related to the removal of use of the mine site, specifically use of Crown Mountain, for snowmobiling activities.	NWP outreach	Potential impacts on snowmobiling activities are considered in Section 19.5.3.1 of this assessment.

Topic	Feedback Received*: IG	G	P/S	O	Consultation Feedback	Feedback Source	Response or Actions Identified
Potential impacts to snowmobiling access			✓		Elk Valley Mountaineers noted concerns related to snowmobile riding and vehicle use on Grave Creek Road.	NWP outreach	Potential impacts on snowmobile access are considered in Section 19.5.3.3 of this assessment.
Potential impacts to snowmobiling access			✓		Elk Valley Mountaineers commented on snowmobile riding and vehicle use impacts due to changes to the use of Alexander Creek Road located adjacent to the Project.	NWP Outreach	Potential impacts on snowmobile access are considered in Section 19.5.3.3 of this assessment.
Potential impacts to snowmobiling access			✓		Elk Valley Mountaineers noted challenges (e.g., public safety due to 'sweeping' the area during blasting) that could occur if the No Unauthorized Entry boundary is determined to be smaller than the blasting closure areas.	NWP Outreach	Potential impacts on snowmobile access are considered in Section 19.5.3.3 of this assessment.
Potential impacts to public safety			✓		Elk Valley Mountaineers noted potential road safety challenges.	NWP Outreach	Refer to Chapter 18.

19.2.3 Assessment Boundaries

19.2.3.1 Spatial Boundaries

This section describes the spatial boundaries for the land use and visual aesthetics assessments. It is important to note that the spatial boundaries for the land use and access and recreation and tourism VCs cover the same area. The spatial boundaries for the visual aesthetics VC are different and are discussed separately. As detailed in Chapter 5, Table 5.3-2, the spatial boundaries for the land use and visual aesthetics VCs have changed from the study areas presented in the AIR. A discussion on the spatial boundaries used in the assessment is provided below.

19.2.3.1.1 Project Footprint

The Project footprint is the directly affected area and represents the anticipated area of physical disturbance associated with the construction and operation of the Project. The Project footprint covers approximately 1,283 ha and is positioned approximately 12 km northeast of Sparwood and approximately 5 km west of the provincial boundary between B.C. and Alberta. This area includes both permanent (e.g., mine site) and temporary (e.g., laydown areas, utility lines, etc.) Project components.

The Project site is visually contained by two high mountain ridges that shield the mine, Erickson Ridge to the west (elevation approximately 2,500 m asl) and the 'Great Divide' to the east along the B.C.-Alberta boundary (elevation approximately 2,700 m asl).

The Project footprint consists of the mine site, the transportation corridor, and the rail loadout facility. The mine site, including the extraction zone (top elevation approximately 2,200 m asl) and plant area (elevation approximately 1,910 m asl), includes the raw coal stockpile area and processing plant and ancillary facilities (i.e., water supply, power supply, natural gas supply, water, sewage treatment, fuel storage and explosives storage).

19.2.3.1.2 Land Use Study Areas

Land Use and Access Local Study Area

The Land Use and Access LSA incudes the Project footprint and surrounding lands within which direct and indirect Project effects on land use and access may occur. The Land Use and Access LSA can be thought of as the "zone of influence" of the Project on land use and access, and includes the majority of the District Municipality of Sparwood, an area covering approximately 42,000 ha (Figure 19.2-1). There are some sections of the District Municipality of Sparwood that are outside of the Land Use and Access LSA (north and south of the Land Use and Access LSA). These areas are not contained within the Land Use and Access LSA due to their distance from the Project footprint and the expectation that these areas would not be subject to the same level of effect as lands that are close to the Project footprint. While not in the Land Use and Access LSA, these areas are within the Land Use and Access RSA. In addition, the Land Use and Access LSA encompasses:

- Access management areas (i.e., Alexander Creek Access Management Area and Grave Prairie Access Management Area);
- Protected lands (e.g., administered and non-administered conservation lands);

- Private land holdings (e.g., residences, farms, ranches, timber reserves, a coal mine, and privately held conservations lands[2], etc.);
- Existing areas of Agricultural Land Reserve (ALR) land;
- Trapline areas and existing trapping cabins identified through B.C. Data Catalogue and primary data collection program; and
- Regional infrastructure including an airport, highways, railways, power lines, and pipelines.

Land Use and Access Regional Study Area

The Land Use and Access RSA is the regional area within which direct and indirect effects may occur from the Project, and defines the spatial boundary for the cumulative effects assessment. The Land Use and Access RSA is inclusive of both the Land Use and Access LSA and the Project footprint and includes the boundaries of the Electoral Area A of the Regional District of East Kootenay (Figure 19.2-1). The Land Use and Access RSA includes the communities of Elkford, Sparwood, and Fernie and rural areas surrounding these communities.

19.2.3.1.3 Visual Aesthetics Study Areas

Visual Aesthetics Local Study Area

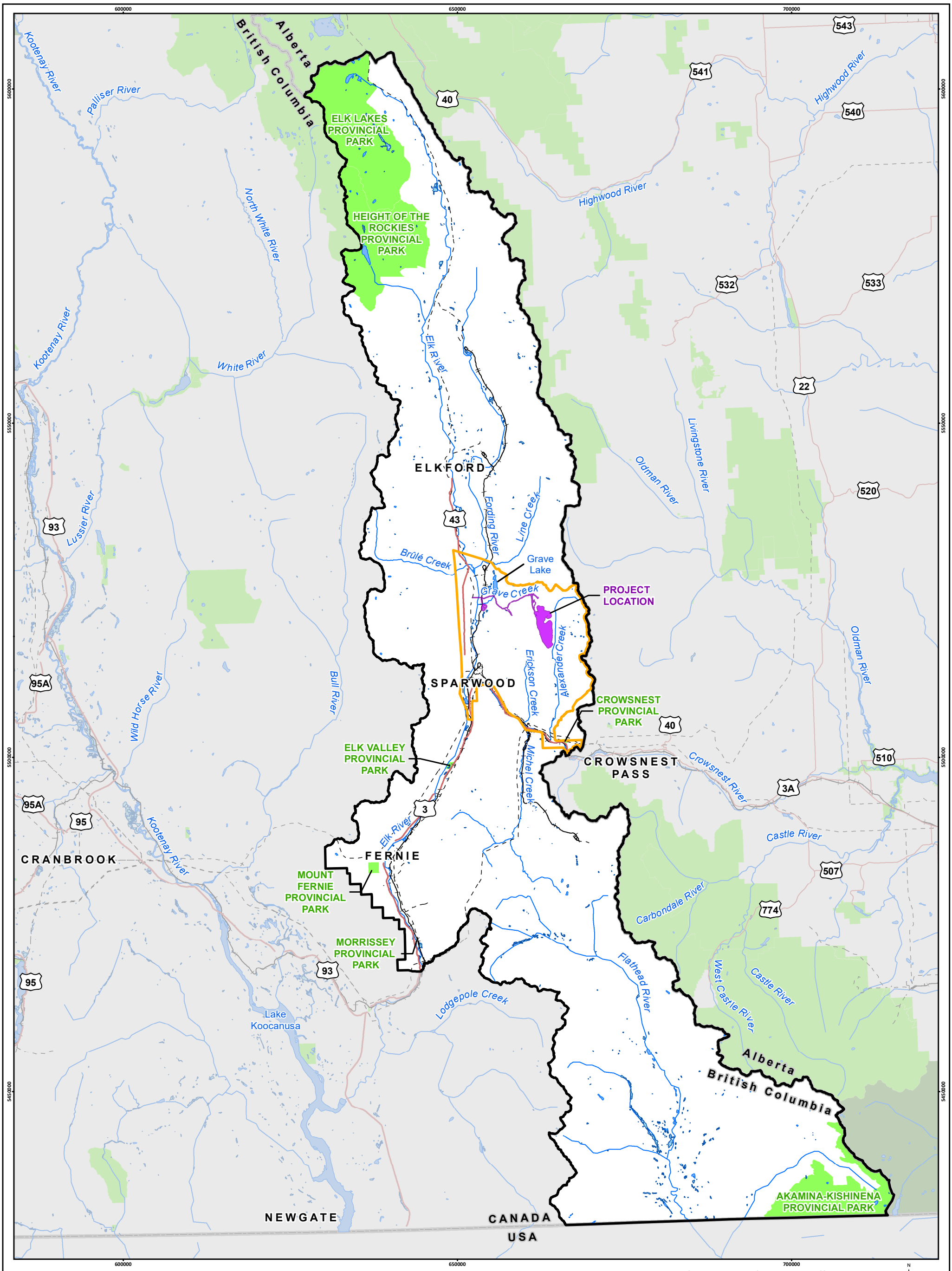
The Visual Aesthetics LSA (Figure 19.2-2) includes the Project footprint and the surrounding landscape area where potential impacts associated with Project activities could directly be affected by visual aesthetic conditions. The Visual Aesthetics LSA covers an area of approximately 69,000 ha, which encompasses the Project footprint and extends in a 10 km radius from the Project footprint. The Visual Aesthetics LSA includes receptor sites in the District of Sparwood, as well as recreation sites and transportation corridors that also have potential views of other existing coal mines in the Elk River Valley, including the Elkview and Line Creek Operations.

Regional Study Area

The Visual Aesthetics RSA generally encompasses the Elk River watershed and Alexander Creek watershed that drain the majority of the Project site. The Visual Aesthetics RSA extends in a 20 km radius from the Project footprint and covers a total geographic area of approximately 196,000 ha.

The Visual Aesthetic RSA includes foreground, middle-ground, and background viewing distances of the Project (B.C. Ministry of Forests [MOF], 1997). From foreground (less than 1 km from the Project), middle-ground (1 km up to 5 km) and background (5 km to 10 km) from the Project, viewers can observe a discernable level of detail, texture, and contrast in the landscape that diminishes as the distance increases. From background viewing distances that are more than 10 km to 20 km, viewers have the potential for distant views towards the Project that include a larger contextual landscape, but have little or no discernable detail of the Project.

[2] Privately held conservation lands differ from provincially designated conservation lands. Provincially designated conservation lands are typically acquired or secured through various legal tools and agreements. In comparison, privately held conservation lands management objectives are largely controlled by the private landowner. Section 19.4.1.2.2 describes both privately held conservation lands and provincially designated conservation lands in more detail.



Crown Mountain Coking Coal Project

Figure 19.2-1
Land Use and Access Study Areas

LEGEND

- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Kilometres

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Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.

Map Created By: RB
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-10

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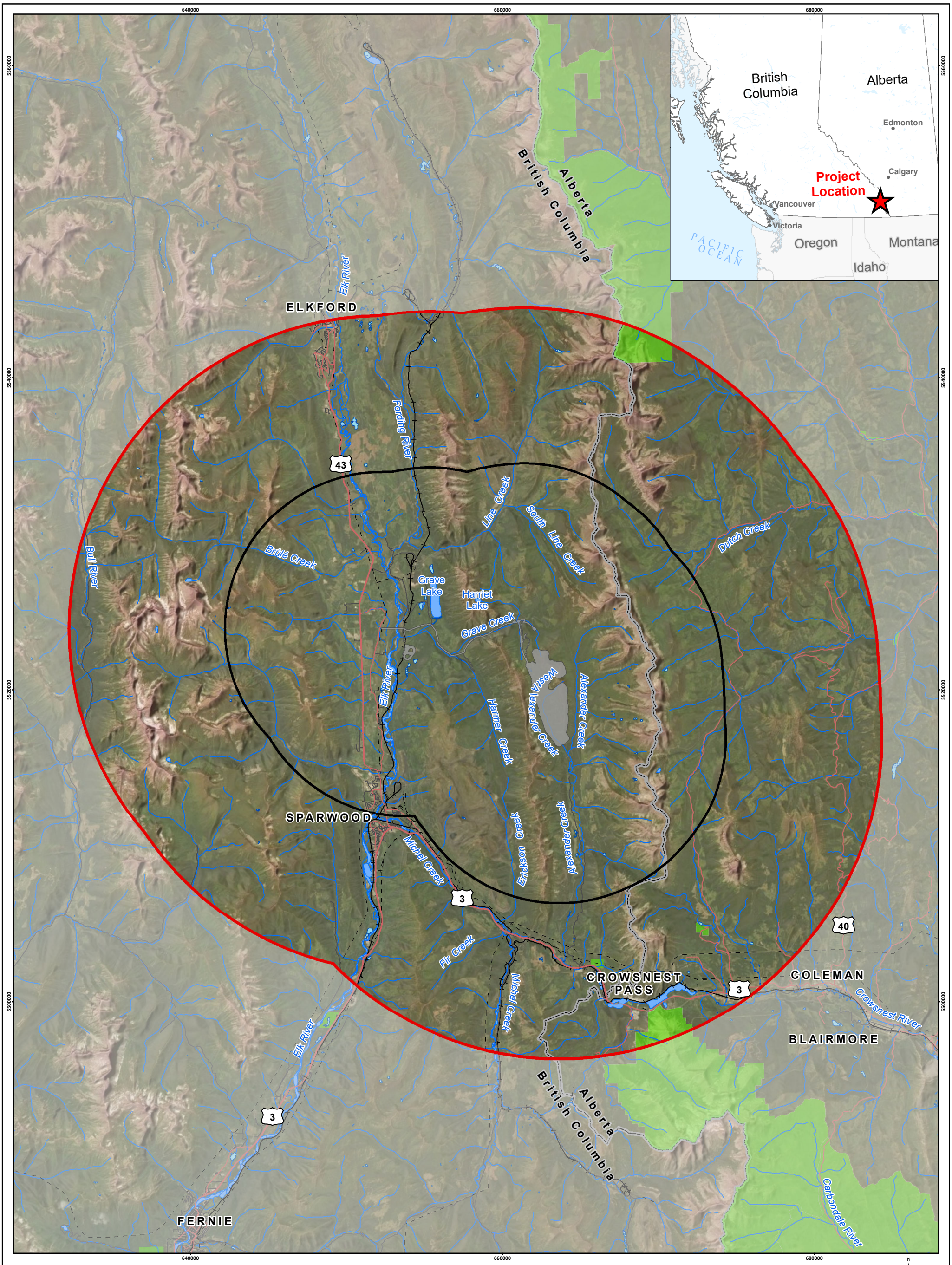

Crown Mountain Coking Coal Project

Figure 19.2-2
Visual Aesthetics Study Areas

LEGEND

- Visual Aesthetics Local Study Area
- Visual Aesthetics Regional Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- British Columbia/Alberta Border

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Scale 1:225,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By ESRI

Map Created By: LMM
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

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19.2.3.2 Temporal Boundaries

Temporal boundaries include the time periods during which the Project is anticipated to result in potential effects on VCs (EAO, 2013). The temporal boundaries considered in the assessment include the temporal limits of the Project in terms of its Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure phases. The temporal boundaries of the Project used in the effects assessment include the timing of Project phases and activities as outlined in Table 19.2-3. Additional details on the Project phases and activities are provided in Chapter 3.

Table 19.2-3: Temporal Boundaries for the Project Effects Assessment

Phase	Project Year	Length of Phase (Years)
Construction and Pre-Production	1 – 2	2
Operations	3 –17	15
Reclamation and Closure	18 – 19	2
Post-Closure	20 – 34	15

19.2.3.3 Administrative Boundaries

Administrative boundaries represent limitations imposed on the assessment due to political, economic, and social constraints (EAO, 2013). The administrative boundaries for the land use assessment include the regional land use policies and plans described in Section 19.1.1.1.

19.2.3.4 Technical Boundaries

Technical boundaries are limitations to the ability to predict or quantify changes to the land use environment. Challenges encountered in the land use assessment include: the overages, or overlaps, between different data sets for spatial features; incomplete datasets; availability of publicly available secondary data; and limitations to primary data collection. These challenges are described in further detail in Section 19.4.1.1.3.

19.3 Regional and Local Overview

19.3.1 Land Use

The East Kootenay is characterized by resource extraction industries such as mining and forestry, as well as nature-based tourism and recreation features and opportunities. In the Elk Valley, coal is the leading mineral resource product. In addition to NWP's proposed Crown Mountain Coking Coal Project, the Land Use and Access LSA overlaps with one active coal mining operation, Teck's Elkview Operations.

The Elk Valley offers an abundance of opportunities for outdoor recreation, which is highly valued by local residents and visitors to the area. There are many provincial and regional parks and protected areas transected by the Land Use and Access RSA. Within the Land Use and Access LSA, parks and protected areas are limited to Crowsnest Provincial Park, the Big Ranch Conservation Area located near Grave Prairie, and the Elk River Conservation Lands. The Big Ranch Conservation Area and the Elk River Conservation Lands are provincially designated conservation lands (i.e., acquired or secured through various legal tools and agreements). In addition to these protected lands, there are also privately held

conservation lands within the Land Use and Access LSA near Grave Prairie and Alexander Creek, which are managed and controlled by the private landowner and partners.

Hunting and fishing are prevalent activities throughout the Land Use and Access RSA and Land Use and Access LSA. Hunting for big game species commonly occurs in forested areas in both the Land Use and Access RSA and Land Use and Access LSA. Guided outfitters also operate within the Land Use and Access RSA. It is expected that the Project footprint may be subject to hunting activity. Trapping activity, particularly for martens, also occurs within the Land Use and Access LSA and Project footprint. The Project footprint overlaps with four traplines; two of these traplines have not reported harvests since 2008. Within the Land Use and Access LSA, the Elk River, Michel Creek and Alexander Creek are popular fishing areas for both public use and guided fishing trips.

Within the Land Use and Access RSA and Land Use and Access LSA, there is an extensive and interconnected network of local and regional trails used for hiking, running, crossing country skiing, and mountain biking. The Land Use and Access LSA transects multiple sections of the Elk Valley Trail and the Great Divide Trail. Motorized recreation (i.e., ATV and snowmobile) activities also occur on designated trails, gravel roads, access roads, and forestry roads that are located in the Land Use and Access RSA and Land Use and Access LSA.

The Project footprint overlaps with two interconnected roads where motorized use is permitted; however, specific restrictions (e.g., seasonal closures and ATV-only use during certain periods) prohibit motorized use. In addition, the Project footprint overlaps with two staging areas for motorized recreation. One staging area is located along Harmer Creek Road south of Grave Lake, while the other is located near the northern entry to the mine site.

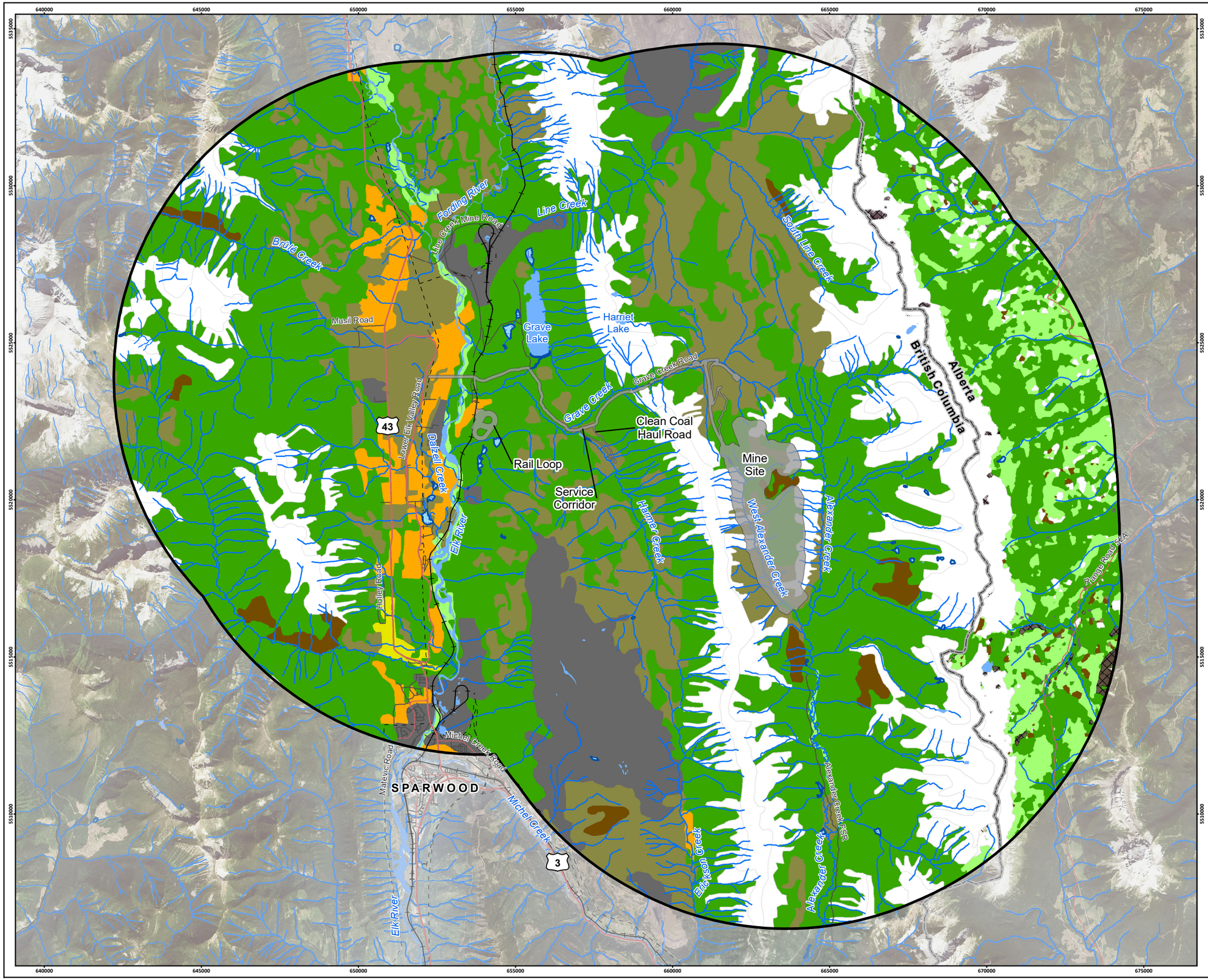
Tourism in the Elk Valley is largely concentrated in Fernie, a renowned destination for winter activities including downhill skiing, with a growing summer visitor base. Sparwood and Elkford have expressed interest in enhancing tourism opportunities in their communities.

The Land Use and Access Baseline Report (Appendix 19-A) provides additional information on land use designations, plans, tenures, and activities that occur in the Elk Valley.

19.3.2 Visual Aesthetics

The Project is located within the Elk Valley, east of the Mount Erickson Ridge, and northeast of the community of Sparwood, B.C. The Visual Aesthetics RSA is characterized as the southeast Rocky Mountain physiography of rocky peaks, parallel trending ridges and valleys containing meandering rivers and streams. The Project (mine site) encompasses a complex of high ridges and contains Crown Mountain and Alexander Creek (west and east tributaries). The Elk River valley is west of the Project footprint but within the Visual Aesthetics LSA. It is a large, meandering, alluvial watercourse and wide valley that contains the rail loadout facility and rail siding. The clean coal transportation route is located within the Grave Creek valley.

In the Visual Aesthetics LSA, land cover comprises Montane spruce forests in the valleys, and Engelmann spruce and subalpine fir at higher elevations. Cultivated field crops and pasture lands are also evident near the rail loadout facility and along Highway #43 (Figure 19.3-1). Industrial uses in the area include



Crown Mountain Coking Coal Project

Figure 19.3-1
Land Use Map

LEGEND

- Agriculture
- Alpine; Sub alpine Avalanche Chutes; Permanent Ice and Snow
- Barren Surfaces; Exposed Soil
- Closed Upland Shrub; Open Upland Shrub; Fescue Grassland; Range Lands; Wetlands
- Closed Aspen/Balsam Poplar/Birch; Open Engelmann/White Spruce; Closed Undifferentiated Coniferous; Old Forest; Young Forest
- Residential Agriculture Mixtures
- Recently Burned; Undifferentiated Burn; Recently Logged; Selectively Logged
- Urban; Urban and Industrial; Mining
- Water
- No Data
- Visual Aesthetics Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Wetland
- British Columbia/Alberta Border

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Scale 1:115,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited,Keefer Ecological Service Ltd., Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By Landsat 8 (Aug 2018), and GeoBC OrthoImagery (Aug 2016).

Map Created By: LMM
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
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several open pit coal mines that have visibly modified the Elk Valley landscape northeast of Sparwood. Previous logging activity is also visible on both sides of the Elk River. Vegetation regeneration is established at various stages in these areas, producing a landscape with a variation of textures and patterns reflecting past and current timber harvesting and coal extraction activities. Recreational uses in the Visual Aesthetics RSA include year-round outdoor activities, such as golfing, wildlife viewing, camping, hiking, hunting, fishing, ATV trails, snowmobiling and skiing.

19.4 Existing Conditions

This section describes data collection methods and existing conditions for the land use and access, recreation and tourism, and visual aesthetics VCs.

19.4.1 Land Use

19.4.1.1 Data Collection Methods

19.4.1.1.1 Primary Data Collection

Primary data collection was undertaken as part of land use and access baseline conditions. Primary data collection has contributed to land use and access baseline reporting and was used to verify secondary data collected and to inform further secondary data collection. Key informant interviews and discussions (via telephone and/or questionnaire) were conducted with stakeholders including external agencies (i.e., municipal government), community representatives, and relevant interest groups. Each stakeholder was provided a tailored list of questions relating to their knowledge base. Please refer to the Land Use and Access Baseline Report (Appendix 19-A) for further details.

19.4.1.1.2 Secondary Data Collection

Secondary data collection was collected through desk-based research of spatial data available through existing government databases such as B.C. Data Catalogue. This provided valuable information on tenures, land use, designations, and land use activities. In addition, baseline information was also collected from the following sources:

- Regional District of Kootenay (RDEK) publications;
- Municipal studies and reports;
- Provincial and national government studies and reports;
- Private sector and professional association reports;
- Internet sites;
- Internet publications;
- Spatial databases (e.g., B.C. Data, Trails BC, Canvec, etc.);
- Academic research; and
- Completed environmental assessments (EAs) and related baseline studies for other projects situated in close proximity to the Project.

Table 19.4-1 provides a list of areas of interest considered for existing conditions characterization and their sources.

Table 19.4-1: Land Use and Access Data Sources

Valued Component	Measurement Indicators	Secondary Sources
Land Use Access	Access to recreational and commercial / resource harvesting areas for recreation purposes	• Access Management Areas – Kootenay Region (2019)
Recreation and Tourism Land Use	Consistency with land use designations and policies	• Kootenay Boundary Land Use Implementation Strategy (1997) • Elk Valley Official Community Plan Bylaw No. 2532
	Recreational and tourism use (e.g., hunting, ATV trails, fishing, hiking, etc.)	• Trails BC (2020) • Elkford Trails Association (n.d.) • Fernie Trails Alliance (2020)
	Quality of recreation and tourism experiences on adjacent lands	• Visiting Sparwood (2016) • Fernie's Tourism Master Plan (2020) • Trails BC (2020) • Noise and Air Quality data collected as part of Project studies
Commercial Land Use	Consistency with land use designations and policies	• Kootenay Boundary Land Use Implementation Strategy (1997) • Elk Valley Official Community Plan Bylaw No. 2532
	Commercial land use including resource extraction activities	• B.C. Data Catalogue's Forest Licensee Operating Area (2020) • MTA – Mineral, Placer, Coal Tenure Spatial View (2020)

19.4.1.1.3 Data Collection Challenges

The following data challenges and limitations were identified during land use and access baseline data collection:

- Overages or overlaps between data sets for spatial features;
- Incomplete data sets for spatial features;
- Secondary data available on land use and access features, including lack of sources and non-public information; and
- Not being able to receive information from all of the contacts identified as part of the primary data collection program.

The main challenge encountered in the land use and access baseline was the overages, or overlaps, between different data sets for spatial features. An overage occurs when two different datasets contain information related to the same feature. As a result, there is potential that these overages result in the double counting of features. In order to reconcile this issue, the overages have been referenced clearly and appropriately in instances where overages were observed.

19.4.1.2 Land Uses, Tenures, and Access

19.4.1.2.1 Regional Study Area

Section 19.1.1.1 provides a description of regional land use plans and policies within the Land Use and Access RSA.

19.4.1.2.2 Local Study Area and Project Footprint

This section characterizes land use planning, municipal and regional zoning, old growth management areas, and agricultural lands reserves within the Land Use and Access LSA and Project footprint.

Regional Land Use Planning

Under the KBLUIS (1997) designations, the Land Use and Access LSA overlaps with the following land use designations (Figure 19.1-1):

- Coal Enhanced Resource Development Zones (ERDZ) – This category is exclusively located within the East Kootenay. This land use designation prioritizes coal mining exploration and development activities. It includes areas where the land is suitable, or potential suitable, for intensive coal resource development (Kootenay Inter-Agency Management Committee, 1997);
- Integrated Management Zones – The primary objective of this category is to balance environmental, economic, and social benefits from resource values within the zone. Resource management in these areas is intended to be guided by the distribution, availability, and sensitivity of resources (Kootenay Inter-Agency Management Committee, 1997); and
- Special Resource Management Zones – The priority of this category is to maintain the integrity of special and sensitive values. Resource development is acceptable within this designation, however it may be subject to numerous conditions due to the fact that there is a greater concentration of conservation-oriented value features within the area (Kootenay Inter-Agency Management Committee, 1997).

The majority, approximately 68%, of the land in the Land Use and Access LSA is designated as private land. The Coal ERDZ designation covers 20% of the Land Use and Access LSA, the Integrated Resource Management Zone designation covers 11%, while 1% is designated as Special Resource Management Zone.

The Project footprint is almost entirely, 1,039.5 ha or 81%, located on provincial public lands designated as Coal - ERDZ. The remaining area, approximately 243.5 ha or 19% of the Project footprint, is situated on private land and not subject to provincial land use plans (Kootenay Inter-Agency Management Committee, 1997).

Under the Kootenay Boundary Higher Level Plan Order (2002), approximately one percent of the Land Use and Access LSA has been identified as a connectivity corridor and one percent of the Land Use and Access LSA has been identified as an Enhanced Resource Development Zone – Timber. Within the Project footprint, approximately 24.5 ha, or 2% of the total Project footprint area, is designated as Enhanced Development Zone – Timber. Timber ERDZs can be located on both Crown land and private forestry land and represent priority areas for intensive timber management land.

Municipal and Regional Zoning

The primary purpose of the Elk Valley Official Community Plan (OCP) is to provide policy direction for the development of private land in the Elk Valley. However, the plan area covers large areas of Crown land and that Crown land does not fall under the jurisdiction of the Regional District of East Kootenay.

The Land Use and Access LSA overlaps with of 27,946.8 ha of the Elk Valley OCP, representing 66% of the Land Use and Access LSA. The majority of this land, approximately 97%, is designated as Rural Resource, while 2% is designated as Open Space, Recreation and Trails (Figure 19.2-1). A description of these designations is provided below:

- Rural Resource – This land use designation supports agriculture, rural residential, and rural resource land use, and recognizes the use of these lands for public utility, resource extraction, and greenspace and recreation; and
- Open Space Recreation and Trails – This designation is intended to support greenspace, recreational amenities, agricultural use, local regional and provincial parks, and other protected areas such as wildlife corridors.

The remaining one percent of LSA land within the Elk Valley OCP includes a range of designations such as residential, institutional, and industrial.

The Land Use and Access LSA also transects 14,393.7 ha of the District of Sparwood, approximately 34% of the Land Use and Access LSA (Figure 19.2-1). Under the District of Sparwood Zoning Bylaw No. 264 (1981), the majority of this land, approximately 68%, has been zoned for industrial use, while approximately 27% of this land has been zoned for agricultural use. Examples of permitted uses on industrial zoned land include, but are not limited to, light manufacturing and processing, mineral extraction and processing, and logging and sawmills. The remaining five percent has been zoned as commercial, institutional, mobile home park, public utility, recreation and open space, or residential. The Project footprint does not overlap with the District of Sparwood.

The Project footprint is located entirely within the Elk Valley OCP. Under the Elk Valley OCP, the majority of these lands, approximately 99%, are designated as Rural Resource, with the remaining 1% designated as Open Space, Recreation and Trails.

As previously noted, the Elk Valley Zoning Bylaw No. 829 (1990) establishes permitted land uses. The Project footprint currently overlaps with lands designated by the Elk Valley Zoning Bylaw No. 829 (1992) as Rural Resource (RR-60), and Rural Residential (RR-8). The majority of the Project footprint overlaps with Rural Resource Zone, approximately 1,272.4 ha. Rural Resource Zones currently allow agricultural use, extraction of sand and gravel, and harvesting, transport, and storage of forest resources, wildland use, including cabins and backcountry commercial recreation lodges, in addition to other land uses (RDEK, 2019). The Project footprint, specifically the transmission line, overlaps 1.99 ha of Rural Residential (Country) Zone. Permitted uses on this land include agricultural land use, wildland use, single, and two family dwellings, as well as other land uses (RDEK, 2019).

Agricultural Land Reserves

The Land Use and Access LSA overlaps with 6,383.1 ha of ALR land and the Project footprint transects 96.7 ha of ALR land. Additional information on agricultural activity in the Land Use and Access LSA is provided in Section 19.4.1.2.5.

Old Growth Management Areas

No legal OGMAs are located within the Land Use and Access LSA or Project footprint; however, the Land Use and Access LSA overlaps with 656.35 ha of non-legal OGMAs, while the Project footprint overlaps with 248.69 ha of non-legal OGMAs (FLNRORD, 2020a).

19.4.1.2.3 Access

Regional Study Area

Access to and within the Land Use and Access RSA is primarily via Highway #3 (Crowsnest Highway), a major east-west highway. Highway #3 provides access to the Land Use and Access RSA through Fernie from the west and Crowsnest Pass from the east. Highway #43 (Elkford Highway) provides north-south connections between Elkford and Sparwood (Figure 19.4-1). In addition, the Land Use and Access RSA transects a total of 1,751 roads segments[3] and over 18,000 transportation line features[4] (Canvec, 2020; Digital Road Atlas, n.d.).

Within the Land Use and Access RSA, there are two airports: the Elk Valley Airport located in Sparwood and the Elk Valley Hospital located in Fernie (FLNRORD, 2020b).

Canadian Pacific Railway operates throughout the Land Use and Access RSA, with rail lines running north-south, parallel to Highway #3 until Elkford, where the rail line continues to Fording River. There is also an east-west line that begins in Sparwood and runs through Crowsnest Pass. The Land Use and Access RSA transects the following Canadian Pacific Railway subdivisions: Byron Creek, Cranbrook, Crowsnest, and Fording River (FLNRORD, 2020c).

Local Study Area and Project Footprint

Access infrastructure transected by the Land Use and Access LSA, including the Project footprint, is summarized in Table 19.4-2.

Table 19.4-2: Access Infrastructure in the Land Use and Access LSA

Access Feature	Project Footprint		Land Use and Access LSA	
	Number of Segments	Length (km)	Number of Segments	Length (km)
Airport	n/a	n/a	1	n/a
Railway	3	0.62	43	70.84
Roads	1	0.06	490	152.79
Transportation Line Features	156	51.51	3,313	1,088

Sources: Canvec, 2020; Digital Road Atlas, n.d.

Notes: km = kilometre; Data related to roads was sourced from Transportation Networks in Canada (Canvec, 2020) and data related to transportation lines is from Digital Road Atlas, a B.C. geodatabase. There is potential for overlap between these two data sets.

Segment = Linear section of a transportation feature with uniform characteristics

Transportation Line Features = Includes multiple different types of features such as major and minor arterial roads, major and minor highways, local residential roads, resource roads, as well as all unknown or unclassified roads. In addition, transportation line features can include sections of unique structures such as bridges, causeways, and snowsheds (i.e., type of structure built over a roadway for avalanche control).

[3] A segment is defined as a linear section of a transportation feature with uniform characteristics.

[4] Transportation Line Features include multiple different types of features such as major and minor arterial roads, major and minor highways, local residential roads, resource roads, trails, as well as all unknown or unclassified roads. In addition, transportation line features can include unique structures such as bridges, causeways, and snowsheds (i.e. type of structure built over a roadway for avalanche control). A transportation Line Segment is a section of a transportation line feature, as defined above, with uniform characteristics.

600000 650000 700000

5600000 5550000 5500000 5450000

PROJECT LOCATION

Grave Creek Road

Elk River

FERNIE

CRANBROOK

Crown Mountain Coking Coal Project

Figure 19.4-1
Transportation Land Use and Access

LEGEND

- Airport
- Highway
- Railway
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.

Map Created By: RB
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Within the Land Use and Access LSA, there is one airport. The Elk Valley Airport is located on the east side of Highway #43 between Sparwood and Elkford. The Elk Valley Airport is used primarily by small, private planes, as well as the Forest Service during the summer months, given the runway is unlit and has limited winter maintenance (RDEK, 2019b).

Within the Land Use and Access LSA, there are 490 road segments, covering a total distance of 151 km (Canvec, 2020). These segments include multiple roads within the District of Sparwood and connecting to Crowsnest Pass. The Land Use and Access LSA also intersects with multiple Forest Service Road (FSR), including Alexander Creek FSR, Alexander Creek Cut-Off FSR, Brule Creek FSR, Line Road, Scalehouse FSR, Nordstrum Creek FSR, Sulphur Springs FSR, and Valley FSR (Canvec, 2020).

In addition, the Land Use and Access LSA transects multiple unnamed access roads, utility access roads, industrial roads, as well as other unnamed and unsigned roads (Canvec, 2020). The Land Use and Access LSA transects a total length of 1,088 km of transportation lines features[5], which includes roads, highways, bridges, causeways, etc. (Digital Road Atlas, n.d.). It is important to note that as a result of access management regulations and the Elk Valley Cumulative Effects Management Framework (EV-CEMF), certain road segments listed above include roads that are now closed and deactivated as of 2020. While some of these road segments have been restored, further road closures and deactivations are planned for the future and are expected to include road segments located within the Land Use and Access LSA.

The Project footprint is accessed by several roads, including Harmer Creek Road and Grave Creek Road northwest of the northern coal tenure and Alexander Creek Road from the south (NWP, 2014). The Project footprint overlaps 156 transportation line feature segments covering a total distance of 51.51 km (Digital Road Atlas, n.d.).

The Land Use and Access LSA transects 43 segments, or 70.84 km, of Canadian Pacific Railway lines. Within the Project footprint, there are three Canadian Pacific rail segments, extending 0.62 km through the Project footprint. The Land Use and Access LSA also transects the following Canadian Pacific Railway subdivisions: Cranbrook, Crowsnest, and Fording River (FLNRORD, 2020c).

19.4.1.2.4 Parks and Protected Areas

Regional Study Area

The Land Use and Access RSA overlaps seven Class A provincial parks, covering a total of area of 44,240 ha (Figure 19.4-2). These include Height of Rockies Provincial Park, Elk Lakes Provincial Park, Crowsnest Provincial Park, Elk Valley Provincial Park, Mount Fernie Provincial Park, Morrissey Provincial Park, and Akamina-Kishinena Provincial Park (B.C. Parks, 2020b).

The Land Use and Access RSA also overlaps with the reserve lands of the following Ktunaxa member communities[6]:

- ?Akisq'nuk (Columbia Lake) First Nation;
- ?Aq'am Community (St. Mary's Band); and

[5] Transportation Line Features include multiple different types of features such as major and minor arterial roads, major and minor highways, local residential roads, resource roads, trails, as well as all unknown or unclassified roads. In addition, transportation line features can include unique structures such as bridges, causeways, and snowsheds (i.e. type of structure built over a roadway for avalanche control). A transportation Line Segment is a section of a transportation line feature, as defined above, with uniform characteristics.
[6] The Yaqan Nu?kiy (Lower Kootenay Band), fourth Ktunaxa member community , reserve lands are located outside of the Land Use and Access RSA.

- ʔakinkum‡asnuq‡iʔit (Tobacco Plains Indian Band).

In B.C., there are two types of designated conservation lands: administered lands and non-administered lands. Administered conservation lands are lands over which the Province of B.C. has legal administrative and management authority (Province of B.C., n.d.). Within the Land Use and Access RSA, there are two administered conservation lands, including Grave Prairie (LEA 1) – Big Ranch; and Grave Prairie (LEA 2) – Musil (ENV, 2020) (Figure 19.4-2). Wildlife Management Areas are also defined as administered conservation lands, these are defined and discussed in further detail in Section 19.4.1.3.

Comparatively, non-administered lands are defined as lands over which a recorded interest for fish and wildlife has been secured; however, administration and management authority has not been secured. The majority of non-administered conservation lands have been withdrawn from the disposition under the Land Act. Within the Land Use and Access RSA, there are three non-administered conservation lands, including Elk River, White River, and Flathead River (ENV, 2020). In addition, RDEK's Elk Valley Regional Park is located within the Land Use and Access RSA (RDEK, 2019).

Local Study Area and Project Footprint

The parks and protected area features transected by the Land Use and Access LSA, including the Project footprint, are summarized in Table 19.4-3. Within the Land Use and Access LSA, there is one provincial park and three conservation lands (Figure 19.4-3). The Land Use and Access LSA overlaps between 55.5% of the Elk River Conservation Lands and 100% of the total feature area of the other three protected area features. The Project footprint transects 9.7 ha (2.8%) of the Grave Prairie –Big Ranch Conservation Lands. The Land Use and Access LSA does not overlap with any national parks. Crowsnest Provincial Park and the conservation lands identified in Table 19.4-3 are described in more detail below.

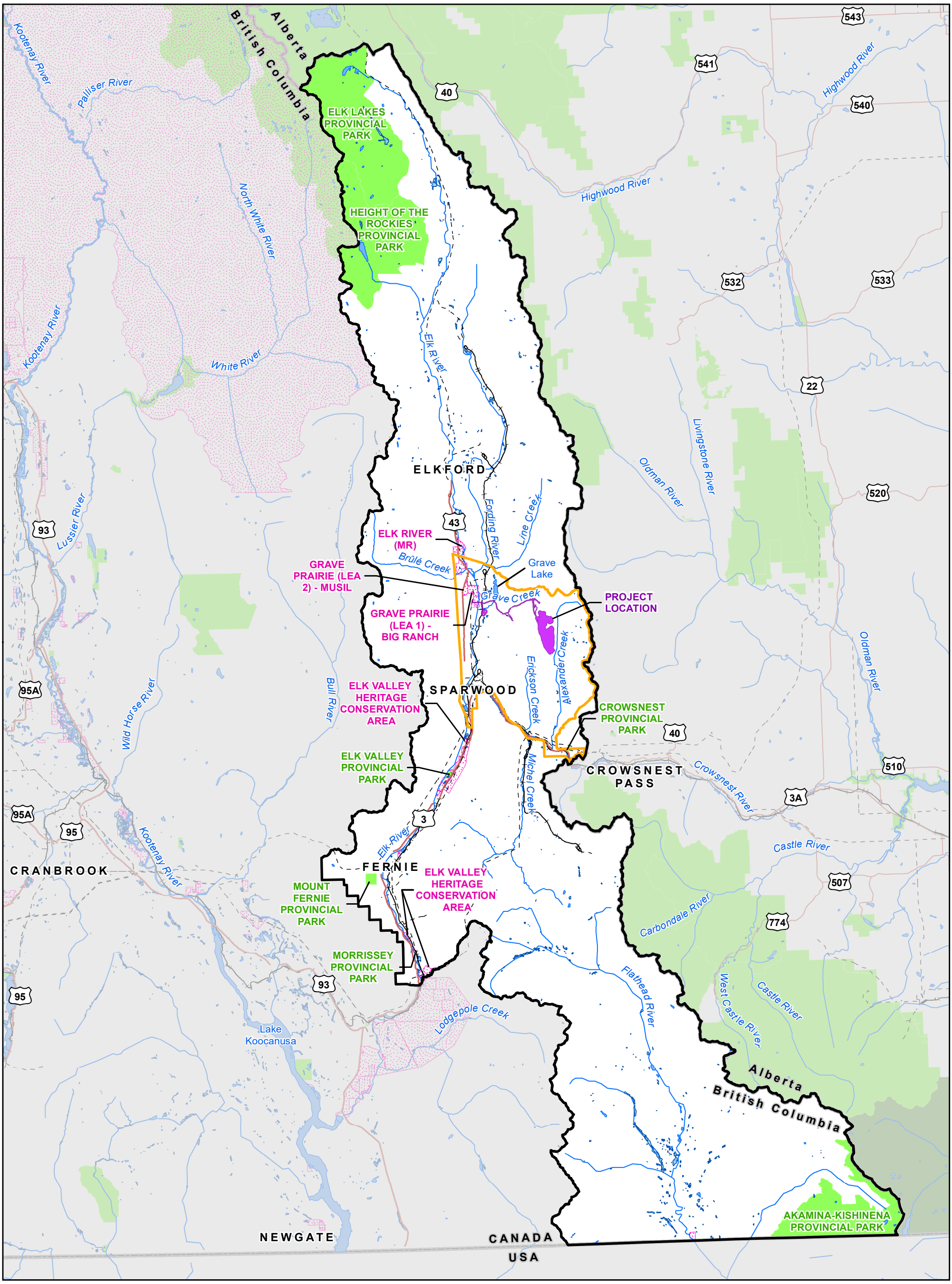
Table 19.4-3: Parks and Protected Area Features in the Land Use and Access LSA

Name	Description	Project Footprint		Land Use and Access LSA	
		Ha	% of total area[a]	Ha	% of total area[b]
Crowsnest Provincial Park	Provincial Park	n/a	n/a	45.2	100.0%
Grave Prairie (LEA 1) – Big Ranch	Conservation Lands	9.7	2.8%	347.6	100.0%
Grave Prairie (LEA 2) – Musil	Conservation Lands	n/a	n/a	114.7	100.0%
Elk River	Conservation Lands	n/a	n/a	285.5	55.5%

Sources: FLNRORD, 2020d; ENV, 2020.
Notes:
a. % of total denotes % of total protected area feature
b. % of total Grave Prairie (LEA 1) conservation lands area
Ha = hectares; LSA = local study area; % = percentage; n/a = not available; LEA = Lease

Crowsnest Provincial Park

Crowsnest Provincial Park is located southeast of Sparwood (Figure 19.4-3). Approximately 45.2 hectares of Crowsnest Provincial Park is transected by the Land Use and Access LSA. The primary role of the Crowsnest Provincial Park is to protect significant Indigenous cultural heritage features. Located along Highway #3, the secondary role of the Park is to provide a day use/rest area for travellers (B.C. Parks, 2003). The Parks also acts as a travel corridor for wildlife migrating through Crowsnest Valley and to protect endangered species.



Crown Mountain Coking Coal Project

Figure 19.4-2
Parks and Protected Areas

LEGEND

- Conservation Land
- Provincial Park/Protected Area
- National Park
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/ Alberta Border

0 10 20
Kilometres

Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.

Map Created By: RB
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
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ELK RIVER (MR)

GRAVE PRAIRIE (LEA 2) MUSIL

GRAVE PRAIRIE (LEA 1) BIG RANCH

ELK VALLEY HERITAGE CONSERVATION AREA

CROWSNEST PROVINCIAL PARK

SPARWOOD

CROWSNEST PASS

Brûlé Creek
Fording River
Line Creek
South Line Creek
British Columbia
Alberta
Musil Road
Grave Lake
Harriet Lake
Grave Creek Road
Grave Creek
Harmer Creek
Lower Elk Valley Road
Dalzell Creek
Elk River
Holley Road
West Alexander Creek
Alexander Creek
Range Road 52A
Michel Creek Road
Michel Creek
Matejvic Road
Alexander Creek FSR
Erickson Creek
Fir Creek
Corbin Road
Tecumseh Road
Summit Lake
Crowsnest Lake
43
3

Crown Mountain Coking Coal Project

Figure 19.4-3
Parks and Protected Areas – Local Study Area

LEGEND

- Conservation Land
- Provincial Park/Protected Area
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Scale 1:120,000

Map Drawing Information:
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Grave Prairie Conservation Lands

The Big Ranch Conservation Area is a conservation land complex that includes the Grave Prairie (LEA 1) – Big Ranch Conservation Lands and the Grave Prairie (LEA 2) – Musil Conservation Lands. The Land Use and Access LSA overlaps with the entire area of the Grave Prairie (LEA 1) – Big Ranch and the Grave Prairie (LEA 2) – Musil Conservation Lands (Table 19.4-3 and Figure 19.4-3). The Project footprint transects less than 3% (9.7 ha) of the Grave Prairie (LEA 1) – Big Ranch Conservation Lands. The Grave Prairie conservation lands and Land Use and Access LSA overlap occurs on the west side of the Project footprint, covering a section of the transmission line. As previously noted, these conservation lands are administered lands, which are privately owned by the Nature Trust of B.C. and leased to the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) to conserve and manage fish and wildlife habitat. The Grave Prairie conservation lands contain a diversity of habitats, including plant communities, old growth black cotton-spruce forest, and open grassland that contribute to its conservation value; it is an ungulate winter range and is utilized by an abundance of species such as raptors and provincially Red-listed and federally Endangered American badgers (FLNRORD, 2020d). In addition, this conservation area borders the Elk River, which contains populations of Westslope Cutthroat Trout, Rainbow Trout, and Bull Trout. The conservation and property management goals include: the protection of wildlife and maintenance of habitat conditions; access management; and land management for conservation values, while minimizing risk and prioritizing public safety.

The Nature Trust of B.C. encourages public enjoyment and recreational use, including walking, horse backing riding, and learning about the significance of the conservation lands. The Nature Trust of B.C. also restricts unauthorized access through boundary signage, fence lines, and gates (Habitat Conservation Trust Foundation, 2019).

Elk River Conservation Lands

The Elk River Conservation Lands are non-administered lands or reserve lands. The Elk River conservation lands are an area of Crown land that has been withdrawn from disposition under Section 16 of the Land Act to conserve and manage fish and wildlife habitat (FLNRORD, 2020d). A withdrawal from disposition precludes or prevents the acceptance of Crown land applications or the disposition of Crown land in the subject area. It is a type of withdrawal that supports a provincial or federal government objective such as conservation (FLNRORD, 2021a). Unlike administered conservation lands, the administration and management authority over non-administered conservation lands has not been secured. The withdrawal of the Elk River Conservation Lands from the disposition under Section 16 of the Land Act was established in 1969 and will remain in place until 2048. If needed, in 2048, the Elk River Conservation Lands would remain withdrawn from disposition for another 30-year term. FLNRORD representatives noted that this area was likely withdrawn to protect elk ungulate winter range values, as there are similar reserve lands throughout the region (FLNRORD 2021b, pers. comm.).

The Land Use and Access LSA overlaps with 285.5 ha of the Elk River Conservation Lands, approximately 55.5% of the total Elk River Conservation Lands.

Privately Held Conservation Lands

In 2013, Teck Resources Limited (Teck) purchased private lands, including approximately 3,059 ha at Grave Prairie and 3,098 ha at Alexander Creek (Kornelson, 2013). Teck has suggested that these lands will be used for wildlife and habitat conservation purposes; however, unlike the conservation lands described

above, Teck's lands are not provincially designated as conservation lands. In 2021, the Ktunaxa Nation and Teck signed a Joint Management Agreement to manage these land for conservation purposes, including the protection of fish and wildlife habitat. As part of this agreement, the Ktunaxa Nation and Teck intend to develop conservation management plans with input from communities and other stakeholders (Teck, 2021a). It is important to note that the privately held Grave Prairie Conservation Lands, which currently have no provincial designation, are not the same as the provincially designated Grave Prairie Conservation Lands owned by the B.C. Nature Trust and managed by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development. Teck's privately held conservation lands are open for public use for recreation activities that are compatible with conservation objectives. It is important to note that forestry activities have and continue to occur on these privately held conservation lands, which may impact the value of these lands for recreation activities. Currently, Teck does not impose access and land use restrictions on their privately held conservation lands; however, restrictions implemented through B.C. government mechanisms (e.g., No Unauthorized Entry [NUE] areas established for mine sites and access management area restrictions) apply to Teck's privately held conservation lands. Future changes to permitted and restricted land uses are subject to ongoing dialogue with the Ktunaxa Nation through the Joint Management Agreement. At this time, the intent is not to change permitted access and use on Teck's conservation lands (Teck, 2021b, pers. comm.).

19.4.1.2.5 Agriculture

Regional Study Area

The Land Use and Access RSA overlaps 12 ALR land parcels, which cover a total area of 13,396 ha (Figure 19.4-4). These ALR land parcels are located in close proximity to the Elk River, which runs through Elkford, Sparwood, Hosmer, and Fernie. Cattle, equine-related activities, and forage production are the primary agricultural activities in the Land Use and Access RSA (RDEK, 2014b). In 2011, there were approximately 572 head of beef cattle and 130 equines (horses) in the Elk Valley area (RDEK, 2011).

Local Study Area and Project Footprint

The Land Use and Access LSA transects 66.5% of 3 ALR land parcels with a combined overlap of 6,383.0 ha. The Project footprint transects 96.7 ha, or 1.2% of one ALR land parcel. This overlap occurs on the west side of the Project footprint, covering sections of the transmission line, access road, and the rail loadout components. Within the Land Use and Access LSA, ALR lands are concentrated north of Sparwood along the Elk River, and west of Grave Lake. Table 19.4-5 provides a summary of the ALR parcels transected by the Land Use and Access LSA and Project footprint. In addition, one cattle corral was identified within the Land Use and Access LSA during primary data collection activities.

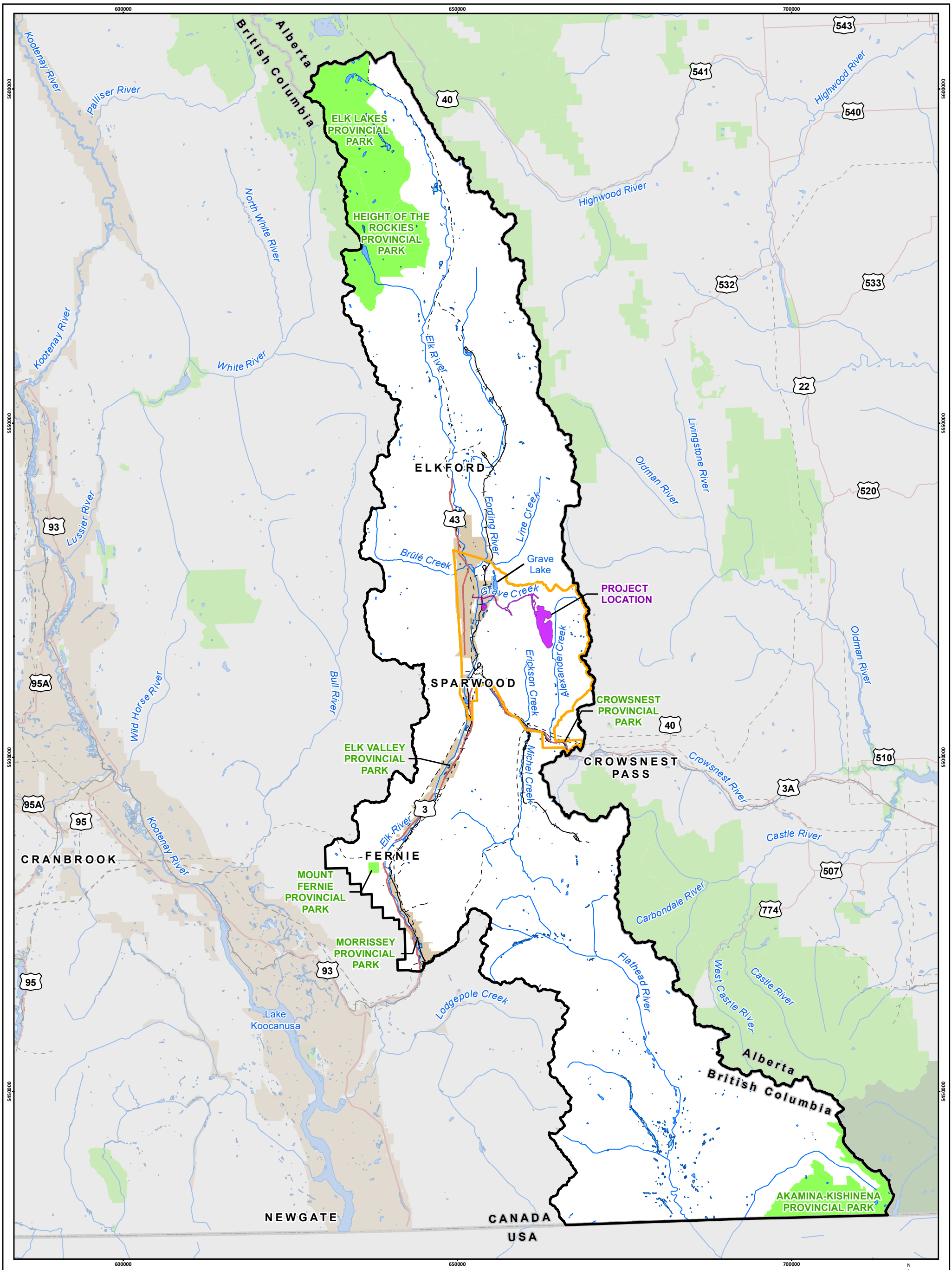
Table 19.4-4: Agricultural Land Reserves (ALR) Transected by the Project Footprint and Land Use and Access LSA

ALR Land Parcel	Project Footprint		Land Use and Access LSA	
	Ha	% of total area[a]	Ha	% of total area[a]
ALR Parcel – 3870890	96.7	1.2%	5929.5	73.5%
ALR Parcel – 3871958	n/a	n/a	453.5	30.0%
ALR Parcel – 3871959	n/a	n/a	0.007	100%

Sources: (ALC, 2020)

Notes: a. % of total denotes % of total ALR parcel feature area

Ha = hectares; LSA = local study area; % = percentage; n/a = not available; ALR = Agricultural Land Reserve



Crown Mountain Coking Coal Project

Figure 19.4-4
Agricultural Land Reserves

LEGEND

- Agricultural Land Reserve
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.

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Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
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Table 19.4-5: Agricultural Land Reserves (ALR) Transected by the Project Footprint and Land Use and Access LSA

ALR Land Parcel	Project Footprint		Land Use and Access LSA	
	Ha	% of total area[a]	Ha	% of total area[a]
ALR Parcel – 3870890	96.7	1.2%	5929.5	73.5%
ALR Parcel – 3871958	n/a	n/a	453.5	30.0%
ALR Parcel – 3871959	n/a	n/a	0.007	100%

Sources: (ALC, 2020)
Notes: a. % of total denotes % of total ALR parcel feature area
Ha = hectares; LSA = local study area; % = percentage; n/a = not available; ALR = Agricultural Land Reserve

19.4.1.2.6 Mining and Exploration

Regional Study Area

The Land Use and Access RSA overlaps with 137 mine sites, including active, abandoned, and potential mine sites (Figure 19.4-5). Eight of these sites are currently producing or active coal mine sites. These include Fording River, Greenhills, Line Creek and Elkview Operations, which are steelmaking coal mines operated by Teck (Teck, 2019a; b; c; d).

The Land Use and Access RSA transects 12 past producing mine sites and 117 potential mine sites. In addition to NWP's Crown Mountain Coking Coal Project, the Land Use and Access RSA overlaps with multiple proposed coal mines, including Teck's Fording River Extension Project (also known as Castle Mountain Project), Centermount Coal Ltd's Bingay Coal Mine, and North Coal Ltd's Michel Coal Project. Further information on these proposed projects is provided in the Land Use and Access Baseline Report (Appendix 19-A).

The Land Use and Access RSA overlaps a total of 83 Mineral Claims, 181 Coal Licenses, 12 Coal Leases, 3 Coal Licenses Applications, and 1 Mineral Lease.

Local Study Area and Project Footprint

The Land Use and Access LSA transects a total of 16 mine sites, including active mine sites, past mine site sites, or potential mine sites. Teck's Elkview Operations including Elkview, Baldy Ridge Complex, and Harmer Ridge, are currently in production. In addition, the Land Use and Access LSA overlaps with four past producing or inactive mines. There are also seven occurrences hosting minor in-situ mineralization and one occurrence that contains mineralization and warrants further exploration (British Columbia Geological Survey, n.d.). Table 19.4-6 provides a detailed description of mineral claims and coal licenses transected by the Land Use and Access LSA and Project footprint. Additional details related to mine status can be found in Table 4-8 of the Land Use and Access Baseline Report (Appendix 19-A).

Table 19.4-6: Mineral Claims and Coal Licenses in the Project Footprint and Land Use and Access LSA

Mineral Claims and Coal Licenses	Project Footprint			Land Use and Access LSA		
	Number of occurrences	Ha	% of total tenure area	Number of occurrences	Ha	% of total tenure area
Mineral Claims	4	15.2	3.2%	45	5011.0	72.7%
Coal Licenses	8	1,119.2	25.1%	13	5743.6	97.2%

Source: Ministry of Energy Mines and Petroleum Resources, 2020a; Ministry of Energy Mines and Petroleum Resources, 2020b
Notes: %=percent
Tenure area is defined as the registered area of the tenure. Tenures can include mineral, coal, and placer tenures (Ministry of Energy Mines and Petroleum Resources, 2020b).

Crown Mountain Coking Coal Project

Figure 19.4-5
Mines, Oil and Gas Tenures and Status

LEGEND

Oil and Gas Surface Hole Status
- Abandoned
- Cancelled
- Cased
- Completed
- Suspended

Mines Status
- Past Producer
- Producer
- Developed Prospect
- Prospect
- Showing

Tenure
- Coal
- Mineral
- Placer
- Petroleum and Natural Gas Tenure Areas
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Scale 1:525,000

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The Land Use and Access LSA transects 45 mineral claims and 13 coal licenses. Ten of these coal licenses are held by NWP. The owners of the mineral claims and the other three coal licenses include: Fertoz International Inc., Graymount Western Canada Inc., Johan Thom Shearer, High Brix Manufacturing Inc., North Coal Ltd, NWP Coal Canada Ltd, Summit Natural Rock Inc., Norman LLoyd Tribe, and Teck. The Project footprint overlaps one developed prospect, the Crown Mountain Coking Coal Project. An aggregate quarry owned by Summit Natural Rock Inc. is located north of the Project footprint. The Project footprint also overlaps four mineral claims and eight coal licenses. All eight of the coal licenses are held by NWP. The owners of the mineral claims include Fertoz International Inc. and Summit Natural Rock Inc.

19.4.1.2.7 Forestry

Regional Study Area

Forestry in the Land Use and Access RSA occurs on Crown land and privately managed land.

Crown Land

The Land Use and Access RSA transects two Timber Supply Areas (TSA), which is the administrative unit of Crown land used to manage timber harvests. One of the TSAs is Cranbrook TSA, with an Annual Allowable Cut (AAC) of 808,000 m^3. The other TSA is Invermere TSA, which has an ACC of 496,720 m^3. The Cranbrook and Invermere TSAs are located within the Kootenay Boundary Natural Resource Region and administered by the Rocky Mountain Natural Resource District (B.C., 2020).

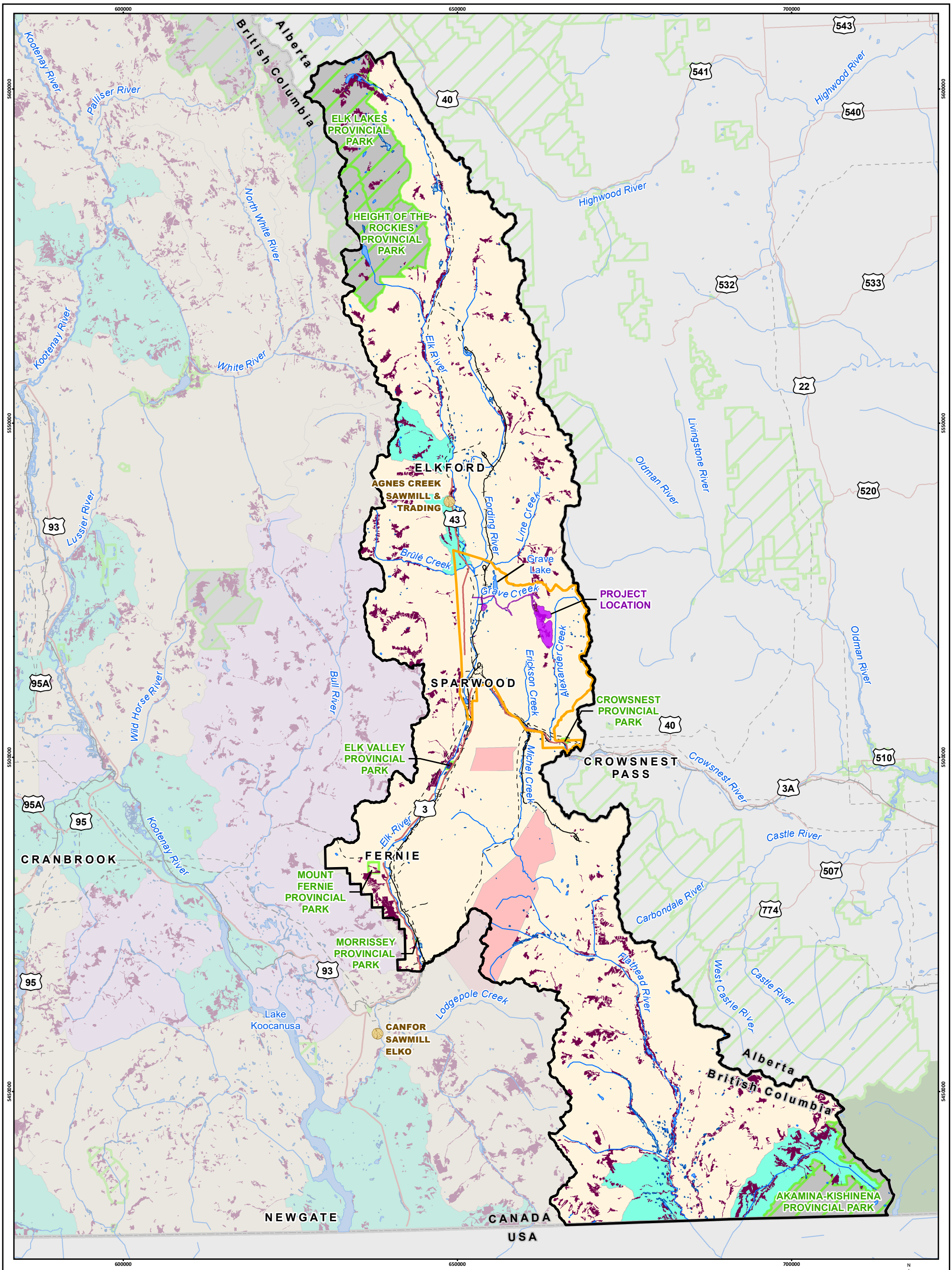
Canadian Forest Products Ltd (Canfor) is the main forestry company that operates on Crown land within the Land Use and Access RSA (Figure 19.4-6). Other forestry companies that operate in the Land Use and Access RSA on Crown land include BC Timber Sales Kootenay, Galloway, and Nupqu Development Corporation (FLNRORD, 2020f).

Within the Land Use and Access RSA, there are 48 active forest tenures. Through these tenures, the Province of B.C. grants the rights and outlines the conditions to harvest Crown timber. There are also active Occupant License to Cut tenures, SB TSL S20 single mark tenures, active woodlot licences, and Community Forest Agreements that transect the Land Use and Access RSA (Firelight Group et al., 2014; FLNRORD, 2020e). Further information on tenure holders is found in the Land Use and Access Baseline Report (Appendix 19-A).

Private Managed Forest Land

CanWel owns approximately 55,000 ha of private managed forest land in the Elk Valley (Benoit et al., 2019). In addition, Canfor purchased the rights to harvest timber in Managed Forest 471 from Tembec. Managed Forest 471 includes the majority of surface tenure held by Teck within the Elk Valley. Under a Harvesting Rights Agreement with Teck, Canfor has the exclusive right to harvest, sell, process, or dispose of timber on Managed Forest 471 land (Golder Associates Ltd, 2015). Managed Forest 27 also overlaps with the Land Use and Access RSA (Golder Associates Ltd, 2015).

Located near Elkford, the Agnes Creek Sawmill and Trading Company is located within the Land Use and Access RSA.



Crown Mountain Coking Coal Project

Figure 19.4-6
Forestry Tenures and Old Growth Management Areas

LEGEND

- Sawmill
- Old Growth Forest Management Areas

Licensee Operating Area

- BC Timber Sales - Kootenay
- CANFOR
- Galloway
- Nupqu Development Corporation
- Unallocated
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Kilometres

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Crown Land

Canfor is also the primary forestry operator on Crown Land in the Land Use and Access LSA, operating 98% (or 41,645.8 ha) of the total licensee operating area of the Land Use and Access LSA. The remaining licensee operating area in the Land Use and Access LSA, approximately 675.1 ha, is operated by B.C. Timber Sales – Kootenay. Canfor's operating area tenure, A19040, covers the entirety of the Project footprint (FLNRORD, 2020g). Further information on the volume-based forest tenure Canfor holds and area of harvesting can be found in the Land Use and Access Baseline Report (Appendix 19-A).

The Land Use and Access LSA transects one forestry tenure access road that extends 1.7 km in length and covers an area of 1.9 ha. In addition, the Land Use and Access LSA overlaps with the Cranbook TSA. The Land Use and Access LSA overlaps with multiple active forest tenures, or specific rights to use Crown land and its resources. The Land Use and Access LSA overlaps the entirety (1,611.0 ha) of NWP's active Occupant Licence to Cut, while the Project footprint transects a total of 60.7% of NWP's active Occupant Licence to Cut.

Roberts Enterprises Ltd holds two active Woodlot Licenses located near Weigert Creek, which is northwest of Grave Lake and of the Project footprint. The Land Use and Access LSA transects 39.2 ha, or 43.7%, of these two active Woodlot Licenses. In addition, the Land Use and Access LSA also transects 41.2% of one Woodlot License – Schedule A, which is also held by Roberts Enterprises Ltd. Through the Schedule A provision, in exchange for the right to harvest Crown timber, Roberts Enterprises Ltd is also required to manage private land in accordance with provincial legislation. Table 19.4-7 provides additional details related to the forest tenures and managed licenses that are held within the Land Use and Access LSA and Project footprint.

Private Managed Forest Land

The Land Use and Access LSA overlaps with Managed Forest 471 and Managed Forest 27 (Province of B.C., 2020; Keefer Ecological Services Ltd, 2020).

Table 19.4-7: Active Forest Tenures and Managed Licenses

Company	License Type	Project Footprint			Land Use and Access LSA		
		Number	Ha	% of total tenure area	Number	Ha	% of total tenure area
Canfor	Forest Licensee Operating Area Tenure	1	1,283	0.2%	1	41,645.8	8%
B.C. – Timber Sales Kootenay	Forest Licensee Operating Area Tenure	n/a	n/a	n/a	1	675.1	21%
NWP Coal Canada Ltd	Occupant Licence to Cut	1	978.0	60.7%	1	1,611.0	100.0%
Roberts Enterprises Ltd	Woodlot Licence	n/a	n/a	n/a	2	39.2	43.7%

Company	License Type	Project Footprint			Land Use and Access LSA		
		Number	Ha	% of total tenure area	Number	Ha	% of total tenure area
Roberts Enterprises Ltd	Woodlot Licence – Schedule A	n/a	n/a	n/a	1	245.9	41.2%

Sources: FLNRORD, 2020e; FLNRORD, 2020h
Notes: Ha = hectares; LSA = local study area; % = percentage; n/a = not available

19.4.1.2.8 Oil and Gas Development

Regional Study Area

The East Kootenay Basin (EKB) is located within the Land Use and Access RSA. According to the B.C. Oil and Gas Commission, approximately 15% of all coal bed gas in B.C. is located within the EKB (B.C. Oil and Gas Commission, 2011).

The Land Use and Access RSA transects one natural gas tenure, Flathead, which covers an area of 4,392.8 ha. It is important to note that in 2011, the Flathead Watershed Area Conservation Act received Royal Assent, which prohibits mining, oil, and gas activities within the Flathead coalfield.

In addition, the Land Use and Access RSA transects 95 oil and gas surface wells (Figure 19.4-5). Currently, none of these wells are active. These tenures are held by Alberta Energy Company (AEC), Border Oils, Calstan, Canadian, Canlin Energy Corporation, Chevron, Canadian Natural Resource Limited (CNLR), COP, ECA, ECAOG, EVC, Exxon Mobil, Fording, Lorrnel, Norwest, PARA, SCE, Shell, Suncor, Symmetry, and Teck.

Local Study Area

The Land Use and Access LSA transects two abandoned or non-active oil and gas wells. These include the Chevron Mansfield well and the Canadian Natural Resources Limited Highrock well. Since the 1960s, exploratory wells have been drilled in the area; however, no commercial oil and gas volumes have been established to date (B.C. Oil Commission, 2011). The Project footprint does not overlap with any active or non-active oil and gas wells.

19.4.1.2.9 Non-Timber Forest Products

Regional Study Area

Key Non-Timber Forest Products (NTFPs) harvested in the Elk Valley include huckleberries and morel mushrooms (Golder Associates Ltd, 2015). Chapters 23 to 31 addresses Indigenous gathering activities. This section considers the non-Indigenous harvesting of NTFPs. As a result of ease of access, huckleberry harvesting in the Land Use and Access RSA most frequently occurs in close proximity to nearby communities and main roads. In general, the huckleberry harvesting in the Land Use and Access RSA occurs from July until October (Golder Associates Ltd, 2015). The location of morel mushrooms tends to be difficult to predict; however, forested areas that have recently been damaged by wildfire events are known to be particularly productive areas for morel mushrooms (Keefer et al., 2010). Further information on huckleberry and morel mushroom harvesting in the Land Use and Access RSA is provided in the Land Use and Access Baseline Report (Appendix 19-A).

Additional NTFPs harvested in the Land Use and Access RSA include various mushroom species such as king bolete mushrooms, porcini mushrooms, hedgehog mushrooms, chanterelle mushrooms, and shaggy mane mushrooms. King bolete mushrooms have been reported to occur in areas with cattle, whereas shaggy mane mushrooms have been reported to be more commonly found around forest roads (Golder Associates Ltd, 2015). Saskatoon berries, grouse berries, bilberries, elderberries choke cherries, and lomatium root are also harvested in the Elk Valley. Harvesting sites for Saskatoon berries have also been identified near the communities of Sparwood and Fernie. These NTFPs species are harvested for recreational purposes; they do not occur in high quantities, nor are they in commercial demand (Golder Associates Ltd, 2015).

Local Study Area and Project Footprint

Within the Land Use and Access LSA, huckleberries are harvested on the naturally re-vegetated slopes around Sparwood (Golder Associates Ltd, 2015). The harvesting of Saskatoon berries also occurs in areas around Sparwood (Golder Associates Ltd, 2015). As previously noted, the sites of morel mushroom harvesting are linked to wildfire events, which can be difficult to predict. While the exact sites for berry collection are not known, it is likely that some berry collection activities occur within the Project footprint (Appendix 19-A).

19.4.1.2.10 Wildlife Harvesting and Fishing

Regional Study Area

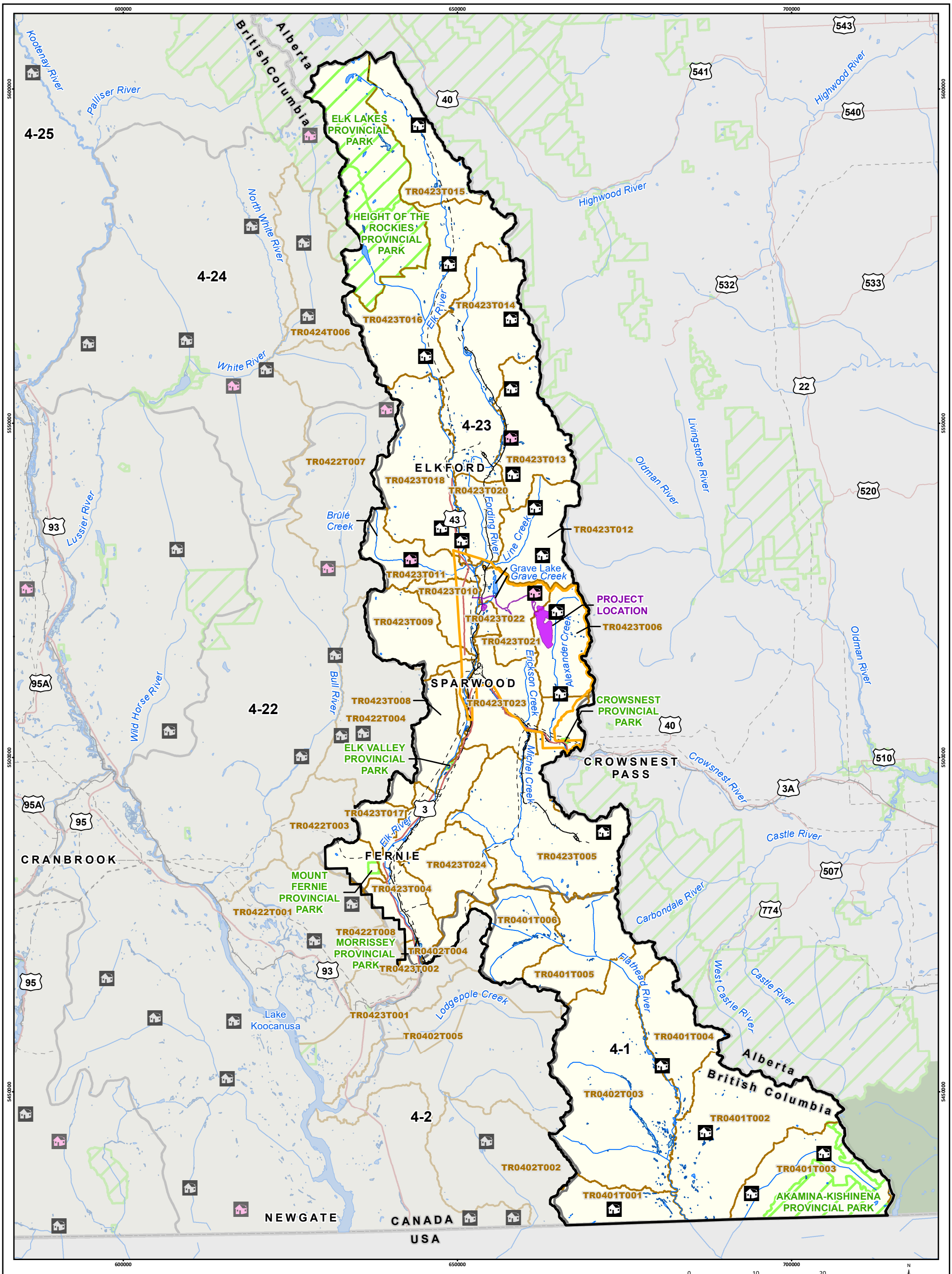
Wildlife harvesting and fishing are prevalent activities throughout the Land Use and Access RSA. Chapters 23 to 31 address Indigenous community hunting, trapping, and fishing activities. The following section considers non-Indigenous hunting, trapping, and fishing activities. In order to regulate non-Indigenous hunting, trapping, and freshwater fishing in the province, there are nine administrative regions in B.C., which are further sub-divided into Wildlife Management Units (WMUs).

The Land Use and Access RSA overlaps the following hunting, trapping, and fishing activities and features:

- Hunting: There are six WMUs, specifically WMU 4-1, 4-2, 4-22, 4-23, 4-24, and 4-25 (Figure 19.4-7);
- Trapping: There are 36 trapline tenures, covering an area of approximately 460,792 ha (Figure 19.4-7). Trapping activities are supported by 21 trapper cabins, of which 18 are active;
- Fishing: There are six WMUs, specifically WMU 4-1, 4-2, 4-22, 4-23, 4-24, and 4-25, overlapped by the Land Use and Access RSA (Figure 19.4-7); and
- Guided Outfitting: Within the Land Use and Access RSA, there are ten guided outfitter tenures, covering a combined area of 280,749.94 ha (Figure 19.4-8).

Hunting

In order to hunt in B.C., non-Indigenous B.C. residents must obtain a B.C. Fish and Wildlife ID, a hunting license, and, if required, a species license. Species licenses are required for most big game (e.g., elk, moose, deer, black bear, etc.). Non-resident hunters are permitted to hunt small game (e.g., game birds, fox, coyote, etc.) unaccompanied with a B.C. Fish and Wildlife ID and a non-resident hunting license; however, when hunting big game in B.C., non-residents are required to be accompanied by either a licensed guide outfitter or a resident holding a Permit to Accompany (Province of B.C., 2020a).



Crown Mountain Coking Coal Project

Figure 19.4-7
Wildlife Management Units and Trapline Tenures

LEGEND

- Wildlife Management Unit
- Trapline Area
- Cabin - Active
- Cabin - Inactive
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

Note:
The information related to cabins is derived from several sources including: the Primary Data Collection Program, B.C. Stats, and Targeted Land Use Engagement Activities. As a result, it is possible that there are overlaps with the data points and this figure may portray additional cabins due to the timelines of data collection. Primary data collection occurred between May 2020 and July 2020. Targeted engagement for the land use program occurred between March 2021 and April 2021.

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In B.C., there are two types of hunting seasons available to licensed hunters. For the general open seasons, harvest quantities are managed through species-specific season, restrictions on class of animal, and bag limits. The second type of hunting season is limited entry hunting, which is generally implemented when additional management and control is required. The Land Use and Access Baseline Report (Appendix 19-A) provides further details on hunting licenses and seasons for WMU 4-23.

The majority, or 66.5%, of the Land Use and Access RSA is located within WMU 4-23 (Appendix 19-A; Figure 19.4-7). Within WMU 4-23, an annual average of 1,199 hunters targeted elk between 2009 and 2019. This was followed by white-tailed deer (778 hunters per year), mule deer (626 hunters per year), and moose (269 hunters per year). Recently, hunting activity has been decreasing in WMU 4-23 (Kootenay Wildlife, 2020a). The Land Use and Access Baseline Report (Appendix 19-A) provides additional information on elk, white-tailed deer, mule, and moose harvest numbers and trends and additional species-specific WMU 4-23 harvesting information.

Fishing

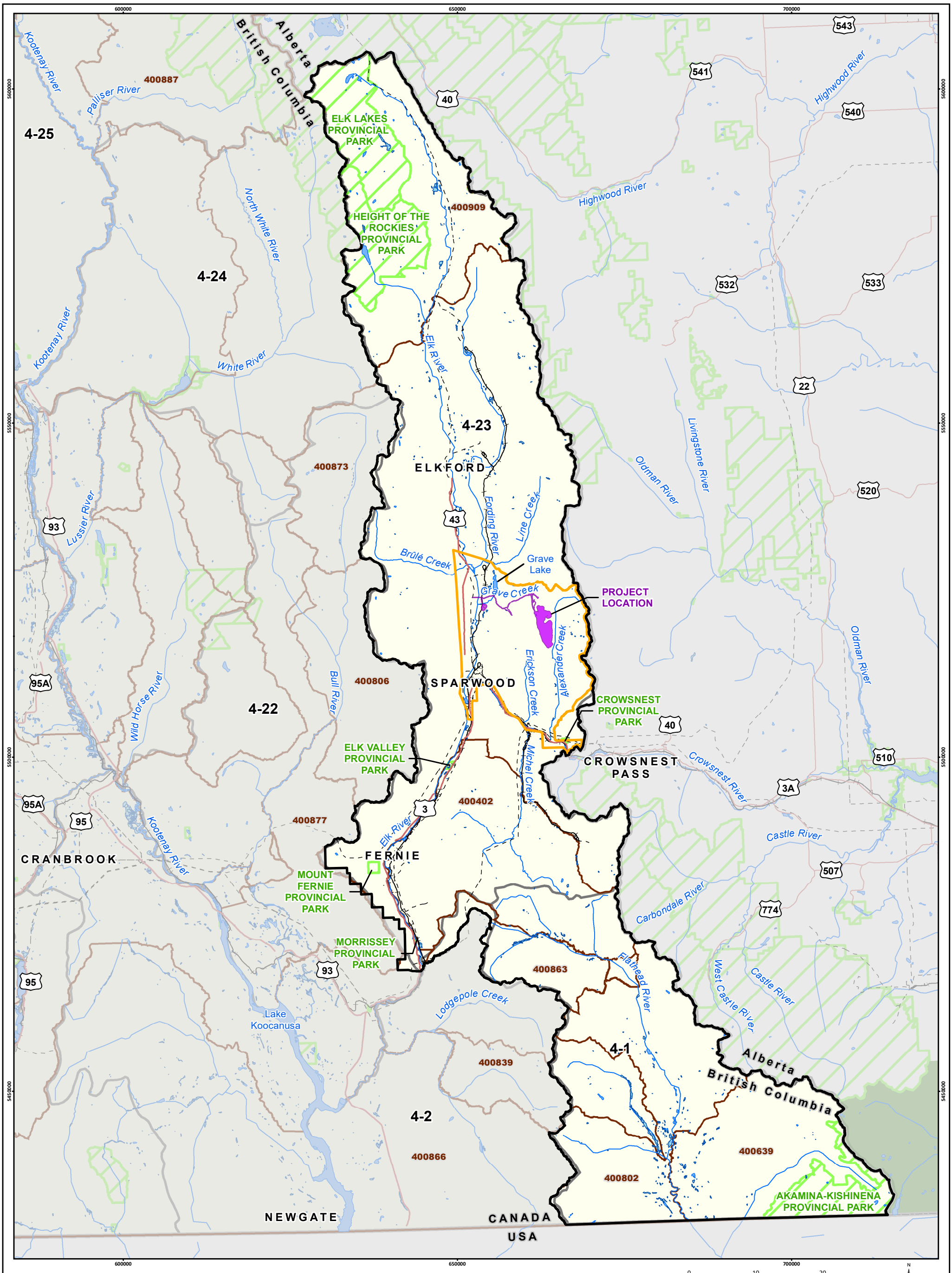
In Region 4, there is no fishing in any stream from April 1 to June 14. There are daily catch quotas for the following fish species: Trout/Char, Burbot, Crayfish, Kokanee, and Whitefish. There is an annual catch quota of ten per license year for Rainbow Trout larger than 50 centimetres (cm). Fishing is permanently closed to bass, northern pike, walleye, white sturgeon, and yellow perch in Region 4. It is important to note that while these quotas and restrictions apply to Region 4, there are several exceptions to these regional regulations that apply to specific WMUs and waterbodies. The Land Use and Access Baseline Report (Appendix 19-A) includes more information on fishing licences within the Land Use and Access RSA.

One-day, eight-day, and annual freshwater fishing licences can be purchased for both B.C. residents and non-residents; however, licences for non-residents are slightly more expensive. Many East Kootenay rivers and their tributaries are Classified Waters, which are highly productive Trout streams, and, therefore, require a supplemental Classified Waters License. The Elk River and its tributaries are Classified Waters (FLNRORD, 2019a). The Elk River has been identified as a popular location for Westslope Cutthroat Trout, Whitefish, and Bull Trout. In general, fly fishers access the river via boat or using a "walk and wade" approach (Golder Associates Ltd, 2015).

Trapping

In B.C., approximately 3,500 trappers actively managed 17 different types of furbearing animals. It is estimated that half of these trappers are Indigenous (FLNRORD, 2020j). Chapters 23 to 31 address Indigenous trapping activities.

In general, trapping seasons in B.C. have been developed based on the consideration of a variety of criteria such as pelt quality, relative vulnerability of age and sex classes to harvesting, species abundance, and capture technology. The primary system for establishing harvest guidelines and managing furbearing animals continues to be the registered trapline system. Registered traplines are licensed tenures issued by the Province of B.C. (Ministry of Sustainable Resources, 2003). Species management strategies guide harvest levels, with furbearing species divided into three classes:



Crown Mountain Coking Coal Project

Figure 19.4-8
Wildlife Management Units and Guide Outfitter Areas

LEGEND

- Wildlife Management Unit
- Guide Outfitter Area
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Map Created By: RB
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- Class 1 Species – Managed on individual traplines. This class includes beaver, fox, marten, mink, muskrat, racoon, skunk, squirrel, and weasel;
- Class 2 Species – Move in and between traplines, and therefore, are not manageable via individual traplines. Instead, harvests are regulated regionally and in consultation with local trappers. This class includes bobcat, fisher, lynx, otter, and wolverine; and
- Class 3 Species – Move in and between traplines, however are generally not at risk of over-trapping. As a result, trappers are generally encouraged to trap these species, particularly in areas of animal damage control issues. This class includes wolves and coyotes (FLNRORD, 2020j).

It is important to note that trappers must register their trapline cabins on Crown land. The Land Use and Access Baseline Report (Appendix 19-A) includes more information on trapping seasons and species and information related to species-specific trapping seasons for WMU 4-23.

Guided Outfitters

Wildlife viewing and hunting opportunities exist within the East Kootenay. The area has some of the richest diversity of wildlife in North America. Big game species include grizzly and black bear, elk, white-tailed and mule deer, caribou, cougar, moose, bighorn sheep, and mountain goat. Guide outfitting, sport fisheries, and associated businesses are a component of the region's economy (RDEK, 2014c). The Land Use and Access RSA overlaps with ten guided outfitter tenures (Figure 19.4-8) (FLNRORD, 2020k). These guided outfitter tenures are described in further detail in the Land Use and Access Baseline Report (Appendix 19-A).

The Elk River Guiding Company operates throughout the Land Use and Access RSA, specializing in guided fly fishing trips on the Elk River, Michel Creek, Fording River, and Flathead River, as well as other waterbodies throughout the area (Elk River Guiding Company, n.d.). Other companies that operate on the Elk River include Fernie Wilderness Adventures, Kootenay Fly Shop and Guiding Company, Dave Brown Outfitters, Fly Fish the Elk, Freestone Fly Angler, St. Mary Angler Fishing, and Crowsnest Angler Fly Shop (Golder Associates Ltd, 2015; Tourism Fernie, 2020). The main branch of Alexander Creek is also used for angling, including guided trips for Westslope Cutthroat Trout with the Kootenay Fly Shop and Guiding Company and Dave Brown Outfitters.

Local Study Area and Project Footprint

The Land Use and Access LSA and the Project footprint transect one WMU, WMU 4-23 (Figure 19.4-8). Table 19.4-8 provides an overview of the WMU 4-23 area overlapped by the Project footprint and the Land Use and Access LSA.

Table 19.4-8: Wildlife Management Unit

Wildlife Management Unit (WMU)	Project Footprint		Land Use and Access LSA	
	Area of WMU in the Project Footprint (ha)	% of Total WMU Area	Area of WMU (ha)	% of Total WMU Area
WMU 4-23	1,283.0	0.38%	42,301.0	12.6%

Source: MFLNO, 2019b

Hunting

Based on information collected through the primary data collection program (Section 19.4.1.1) and Land Use and Access Survey (NWP Coal Ltd, 2021), key big games species hunted in the Land Use and Access LSA include bighorn sheep, elk, mule deer, white-tailed deer, mountain goat, black bear, wolf, and moose. Chapters 23 to 31 address Indigenous hunting activities.

The Project area has been identified as a frequently used and highly valued hunting area, particularly for local residents (NWP Coal Ltd, 2021). Species hunted in the area are similar to those harvested within the Land Use and Access LSA and include: elk, bighorn sheep, mule deer, white-tailed deer, mountain goat, black bear, wolf, and moose. The West Alexander Creek area has also been described as a high quality area for hunting sheep, elk, and moose (TR0423T006 trapline tenure holder 2021, pers. comm.).

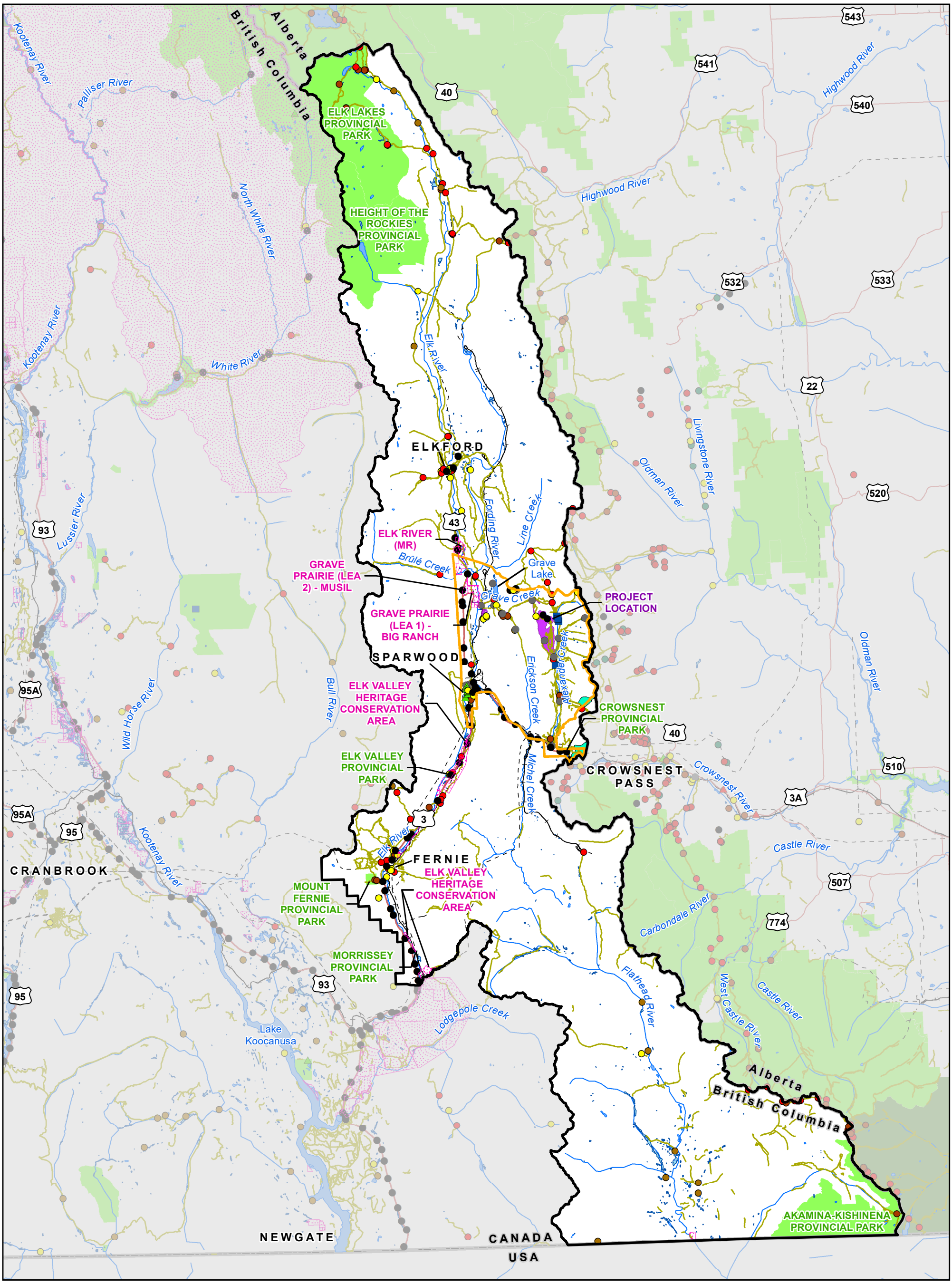
Within the Land Use and Access LSA, three popular and frequently used hunting areas were identified south of Grave Lake through primary data collection (Figure 19.4-9). The Land Use and Access LSA is accessible for hunting activities via a variety of forestry roads and trails. Within the Land Use and Access LSA, previous technical land use studies completed by Golder Associates Ltd in the area have also identified two additional hunting areas: the area northeast of Harmer Creek and the area west of the Elk River (Golder Associates Ltd, 2015).

Limited Entry Hunting areas for mountain goat overlap with the Land Use and Access LSA. In addition, within the Land Use and Access LSA, there are “No Entry”, “No Shooting” and “No Hunting” areas located on private property, including Teck’s Elkview Operations, and require permission from property owners prior to entry (FLNRORD, 2020l). Through the implementation of the Firearm Regulation Bylaw, the District of Sparwood has also established a “No Shooting Area” within its municipal boundaries (District of Sparwood, 2016).

Trapping

The Land Use and Access LSA overlaps 11 trapline tenures, covering a combined overlap of 41,124 ha, or 26.6% of the total trapline tenure area. In addition, three trapline cabins are located within the Land Use and Access LSA, two of which are active. Comparatively, the Project footprint transects four trapline tenures. Collectively, approximately 4.3 %, or 1,283.0 ha, of the total trapline area is transected by the Project footprint. There are no trapper cabins located within the Project footprint. Chapters 23 to 31 address Indigenous trapping activities.

Table 19.4-9 presents a summary of the trapline tenures transected by the Land Use and Access LSA and Project footprint.



Crown Mountain Coking Coal Project

Figure 19.4-9
Outdoor Recreation Areas

LEGEND

- Cabin
- Campground
- Campsite
- Historic Site
- Park
- Parking / Staging Area
- Recreation
- Trail Point
- Viewpoint
- Other
- Snowmobile Restricted Areas
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Trail
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Conservation Land
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

NOTE:
The information related to cabins is derived from several sources including: the Primary Data Collection Program, B.C. Stats, and Targeted Land Use Engagement Activities. As a result, it is possible that there are overlaps with the data points and this figure may portray additional cabins due to the timelines of data collection. Primary data collection occurred between May 2020 and July 2020. Targeted engagement for the land use program occurred between March 2021 and April 2021.

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Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation.

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Table 19.4-9: Trapline Tenure Areas Transected by the Project Footprint and Land Use and Access LSA

Trapline	Project Footprint		Land Use and Access LSA	
	Area (ha)	% of Total Trapline Area	Area (ha)	% of Total Trapline Area
TR0423T005	n/a	n/a	3,573.0	8.9
TR0423T006	990.2	8.1	12,154.9	99.9
TR0423T009	n/a	n/a	354.8	2.8
TR0423T010	10.1	0.14	3,383.3	47.6
TR0423T011	n/a	n/a	964.8	10.3
TR0423T012	n/a	n/a	168.3	1.1
TR0423T018	n/a	n/a	383.2	1.6
TR0423T020	n/a	n/a	298.1	3.7
TR0423T021	231.9	2.5	9,258.9	99.6
TR0423T022	50.8	3.5	1,467.7	100
TR0423T023	n/a	n/a	9,117.5	58.8

Source: FLNRORD, 2020m
Notes: Trapline TRO423T022 has been amalgamated into TRO423TO21 (FLNRO 2021, pers. comm).

Within the Land Use and Access LSA, consistent trapping has been observed along Harmer Creek, Grave Creek, and the area north of Grave Lake. Typically, Grave Lake is not a heavily used area due to the number of recreational activities that occur near the lake (Golder Associates Ltd, 2015).

Within the traplines transected by the Land Use and Access LSA, the most popular animal harvested between 2007 and 2017 were martens (180 reported harvests), accounting for more than half of all reported harvests. The Land Use and Access Baseline Report (Appendix 19-A) includes further details on the reported marten harvest trends and other species harvest. Further trapping activity information by species in the Land Use and Access LSA is provided in Land Use and Access Baseline Report (Appendix 19-A).

The Land Use and Access LSA overlaps with almost the entirety, over 99%, of the total trapline tenure area of three traplines (Figure 19.4-7): TR0423T006, TR0423T021, and TR0423T022. In addition, the Land Use and Access LSA transects 58.8% of the total area of the TR0423T023 trapline and 47.6% of the total area of the TR0423T010 trapline. In the Land Use and Access LSA, between 2007 and 2017, the most active trapline was TR0423T009, with 97 reported harvests. The Land Use and Access LSA overlaps with less than 3% (354.8 ha) of the total area of the TR0423T009 trapline.

The Project footprint overlaps with four registered traplines, including TR0423T006, TR0423T010, TR0423T021, and TR0423T022.

The Project footprint transects 990.2 ha, approximately 8.5%, of TR0423T006. The TR0423T006 trapline reported 14 martens, 8 lynx, 4 beavers, 2 wolverines, and 2 mink between 2007 and 2017. Trapping activity typically occurs annually from November or December until March. The Alexander Creek area, including Crown Mountain and West Alexander Creek, have been identified as an area of high use by the tenure holder of TR0423T006. The tenure holder of TR0423T006 reported that this area is highly valued and supports many fur species, specifically within the corridor between Erickson Ridge and the Continental Divide. TR0423T006 can be accessed via snowmobile using two routes: Harmer Creek Road and Grave Creek Road, which has better access, or up Alexander Creek Road. In addition, the tenure holder

of TR0423T006 has a trapping cabin located at the north end of Crown Mountain, which is typically used between 30 to 60 nights per year (TR0423T006 trapline tenure holder 2021, pers. comm.).

Within the Project footprint, the most active trapline is TR0423T010 with 77 martens harvested between 2007 and 2017. The Project footprint overlaps less than 1%, approximately 10.1 ha of the total area of the TR0423T010 trapline.

Comparatively, since 2008, TR0423T021 and TR0423T022 traplines have reported no harvesting activities. It is important to note that TR0423T022 was recently amalgamated with TR0423T021 (FLNRO 2021, pers. comm.). The Project footprint overlaps with 231.9 ha and 50.8 ha of the TR0423T021 and TR0423T022 traplines, respectively, which amounts to less than less than 4% of the total area of these registered traplines (FLNRORD, 2020m). Trapping by the tenure holder of TR0423T021 & TR0423T022 typically occurs from November/December until March. It was noted that the tenure holder of TR0423T021 and TR0423T022's trapping activities occur largely in the Grave Creek area (TR0423T006 tenure holder 2021, pers. comm).

Fishing

The Land Use and Access LSA overlaps with several notable rivers popular for fishing, including the Elk River, Michel Creek, Fording River, and other waterbodies such as Alexander Creek, Bodie Creek, Brûlé Creek, Cummings Creek, Dalzell Creek, Erickson Creek, Fir Creek, Grave Creek, Harmer Creek, Hollow Creek, Island Creek, Line Creek, Grave Lake, Harriet Lake, Summit Lake, and Philips Lake.

Within the Land Use and Access LSA, Summit Lake has been identified as a popular fishing location. This lake is known for its Gerrard Rainbow Trout (District of Sparwood, 2016). Michel Creek is a popular place for anglers to camp and is easily accessible via Corbin Creek AMA (Golder Associates Ltd, 2015). In addition, Harriet Lake, located within the Land Use and Access LSA, has been identified as an area used for backcountry fishing.

The Project footprint overlaps with sections of the Elk River, Grave Creek, and West Alexander Creek (FLNRORD, 2020o). As previously noted, the Elk River has been identified as a popular location for Westslope Cutthroat Trout, Whitefish, and Bull Trout. It has been estimated that approximately 15 to 20 anglers use the Elk River in the area north of Sparwood daily during the summer and early fall (Golder Associates Ltd, 2015).

It is important to note that as of August 1, 2020, no fishing is permitted in Grave Creek and its tributaries. In Alexander Creek, including its tributaries upstream of Highway #3 crossing, catch and release for trout and char without bait is permitted from June 15 through August 31 (FLNRORD, 2019a).

Within the Land Use and Access LSA, the Freshwater Fisheries Society of B.C. stocked Grave Lake with Westslope Cutthroat Trout in 2019 and kokanee salmon in 2020. Summit Lake was stocked with Westslope Cutthroat Trout in 2019 and Rainbow Trout in 2020. Lastly, Mite and Barren Lakes were both last stocked with Westslope Cutthroat Trout fry in the fall of 2012 (FFSBC, 2020).

Guided Outfitters

There are no active guide outfitter tenure areas within the Project footprint or the Land Use and Access LSA.

Guided angling activities occur along the main branch of Alexander Creek. Guided trips typically begin near the Gun Club and continue on a 20 km section up the creek. Alexander Creek has been described as an area with large Cutthroat Trout (Kootenay Fly Shop and Guiding Company 2021, pers. comm.).

19.4.1.3 Recreation and Tourism

19.4.1.3.1 Regional Study Area

The recreation and tourism sector has been on the rise in the Elk Valley over the last two decades (RDEK, 2014b). Opportunities for outdoor activities are abundant in the East Kootenay. Winter and spring activities include downhill skiing, snowboarding, and cross-country skiing in the front country, and heli-skiing, cat-skiing, ski touring, and snowmobile tours in the backcountry. Summer and fall activities include golf, hiking, backpacking, mountain biking, canoeing, kayaking, white-water rafting, boating, windsurfing, heli-touring, rock climbing, mountain climbing, hang gliding, paragliding, trail riding, hunting, and ATV riding (RDEK, 2014b).

In the Elk Valley, tourism is largely concentrated in Fernie, a renowned destination for winter activities. Visitor spending in Fernie was calculated to be over $100 million in 2015, with an annual visitation of over 300,000 people (Tourism Fernie, 2020). Elkford and Sparwood have expressed an interest in increasing tourism opportunities in their communities.

Non-Motorized Outdoor Recreation

All communities in the Land Use and Access RSA have local trails for use by hikers, bikers, horseback riders, snowshoers, and cross-country skiers. Outdoor recreation is highly valued by local residents, and it is considered to be an important component of their lifestyle. The Land Use and Access Baseline Report (Appendix 19-A) has further details on trail length and location.

Key regional trails overlapped by the Land Use and Access RSA include the Elk Valley Trail, which is a total length of 198.73 km, and the Great Divide Trail, which is a total length of 1,123km (Great Divide Trail Association, 2020; Trans Canada Trail, 2020). More information on both of these trails can be found in the Land Use and Access Baseline Report (Appendix 19-A).

The Land Use and Access RSA transects 13 forest recreation sites, 15 forest recreation trails, 171 active forest recreation trail segments, and 49 forest vegetation viewpoints, which are maintained and managed by Recreation Sites and Trails BC.

Within the Land Use and Access RSA, the majority of these recreation sites and trails are located in remote areas surrounding Fernie and Elkford (FLNRORD, n.d.; FLNRORD, 2020p). The Land Use and Access Baseline Report (Appendix 19-A) includes further information on the access and activities within these sites.

Located 5 km from the town of Fernie, the Fernie Alpine Resort is the largest alpine ski area within the Land Use and Access RSA (Tourism Fernie, 2020a). The second ski area within the Land Use and Access RSA is Wapiti Ski Hill, which is a small, family-oriented, and volunteer-run ski hill located on the west side of Elkford. The Fernie Nordic Society grooms and maintains 28 km of cross-country ski trails at 3 separate locations, including the Elk Valley Nordic Centre, Fernie Golf Course, and Montane Property. The Elkford Nordic Ski Club maintains over 14 km of cross-country ski trails and two warming huts at the Boivin Trail, which is located southwest of Elkford (Fernie Nordic Society, 2020).

Motorized Recreation

Motorized recreation (i.e., ATV, snowmobile, and off-road vehicle use) is popular in the Land Use and Access RSA. These activities occur on designated trails, gravel roads, access roads, and forestry roads. Access Management Areas (AMAs), regulated through the Wildlife Act (Section 19.1.1), are a mechanism through which the Ministry of the Environment and Climate Change Strategy manages access to sensitive areas and areas of high wildlife habitat values, including limiting hunting and fishing. The Land Use and Access RSA intersects with 13 AMAs, with a combined overlap of 175,510.6 ha (Figure 19.4-10). A detailed list of AMAs can be found in the Land Use and Access Baseline Report (Appendix 19-A).

Within the Land Use and Access RSA, there are multiple active ATV and snowmobile clubs such as the Elkford ATV Club, Elkford Snowmobile Association, Elk Valley Mountaineers, and Fernie Snowmobile Association (Elkford Trails, n.d.; Fernie Tourism, 2020a). It is important to note that the majority of local residents who participate in motorized recreation within the Land Use and Access RSA are not affiliated with a specific club or group.

Other Recreational Infrastructure

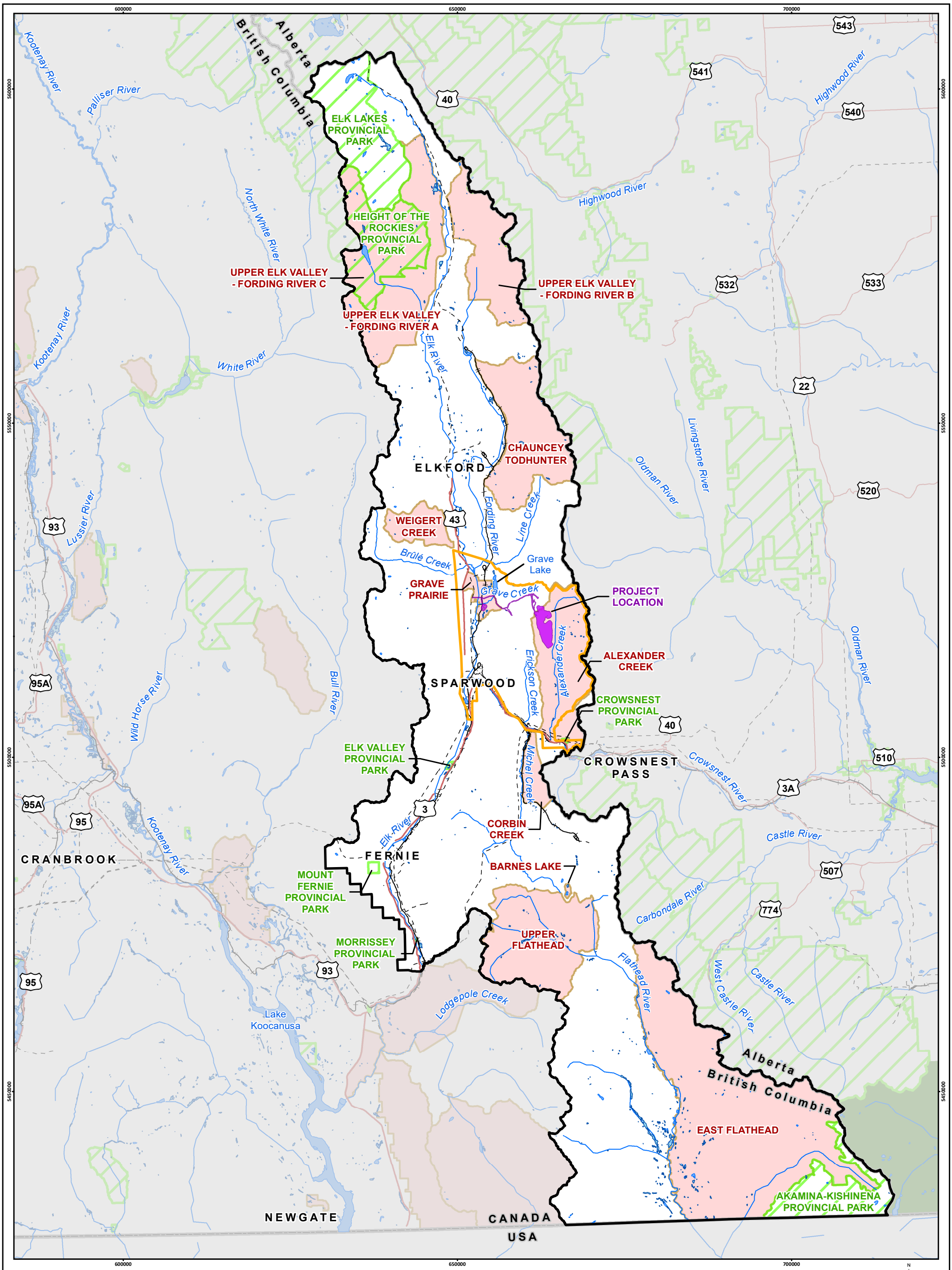
The Land Use and Access RSA includes additional forms of recreational infrastructure, including:

- Campgrounds - Elkford Municipal Campground, Grave Lake Campground, Mountain Shadows Campground, and Mount Fernie Provincial Park Campground. In addition, the Land Use and Access RSA transects multiple unnamed and unofficial campgrounds identified during primary data collection; and
- RV Parks - Snowy Peaks RV, Whispering Winds Trailer Park, and Fernie RV Resort.

Tourism

In the Elk Valley, tourism is largely concentrated in Fernie, a renowned destination for winter activities. In 2020, the Fernie Tourism Master Plan was released to support the long-term success and sustainability of tourism in the community.

For over 50 years, winter ski tourism has been the largest source of leisure-based tourism in Fernie. Visitors are attracted to Fernie's core winter assets, including the Fernie Alpine Resort and Island Lake Lodge and Island Lake Catskiing. There has also been significant and recent growth in cross-country skiing and snowmobiling. More recently, summer tourism has experienced substantial growth. During summer season, visitation is largely driven by interest in the local valley and mountain trails and parks, mountain biking, as well as activities on the Elk River such as fly fishing, rafting, and stand-up paddle boarding.



Crown Mountain Coking Coal Project

Figure 19.4-10
Access Management Areas

LEGEND

- Access Managment Areas
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

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Fernie offers a variety of annual events and festivals, many of which are focused on outdoor recreation.

The TransRockies Classic is a seven stage mountain bike race, with stages from Elkford to Crowsnest Pass and Crowsnest Pass to Fernie, and covers a total length of 550 km. Fernie also hosts the Wapiti Music Festival, which features Canadian artists, and the Annual Reel Canadian Film Festival.

Mountain High Adventures and Canyon Raft Company offer guided white-water rafting trips along the Elk River. Island Lake Catskiing offers guided backcountry ski tours, showcasing alpine bowls and spectacular peaks. The Elk Valley Snow Shepherds offers guided backcountry snowmobiling in the Fernie area. There are also opportunities for guided hikes, nature walks, mountain bike trips, and backcountry horseback riding trips (Fernie Tourism, 2020).

Sparwood and Elkford are interested in increasing tourism in their communities. Elkford, branded as "Wild at Heart", is a popular destination for a range of outdoor activities, including ATV touring, mountain biking, hunting, and world class fly-fishing. Elkford is also located in close proximity to Elks Lake Provincial Park and Height of the Rockies Provincial Park (District of Elkford, 2010). Information on Sparwood's tourism industry in provided in Section 19.4.1.3.2.

The Ktunaxa Nation has expressed interest in participating in the tourism economy through guiding activities such as sports fishing-based tourism and guided outfitters (Firelight Group et al., 2014).

19.4.1.3.2 Local Study Area and Project Footprint

Within the Land Use and Access LSA, recreation and tourism features focus largely on opportunities for nature-based, outdoor activities, which, as previously noted, are abundant. Table 19.4-10 describes the recreational trails and trail points located within the Land Use and Access LSA and the Project footprint. These trails are described in further detail in the following sections (i.e., motorized recreation, outdoor recreation, and additional recreation infrastructure).

Table 19.4-10: Recreational Trails and Trail Points Transected by the Project Footprint and Land Use and Access LSA

Recreational Trails	Source	Project Footprint		Land Use and Access LSA	
		Number of Segments	Total Length (km)	Number of Segments	Total Length (km)
ATV Trails (Formal and Informal)	Primary Consultation	8	34.2	43	131.6
Forest Recreation Trails	Recreation Sites and Trails BC	n/a	n/a	2	1.84
Sparwood Fish and Wildlife Access Routes	Primary Consultation	3	12.1	6	33.4
Kootenay Trail Points	Kootenay Trails	n/a	n/a	15	n/a

Recreational Trails	Source	Project Footprint		Land Use and Access LSA	
		Number of Segments	Total Length (km)	Number of Segments	Total Length (km)
Canvec Trails	Canvec	n/a	0.39	24	48.0
Transportation Line – Trails	Digital Road Atlas	3	0.73	10	4.84

Sources: Canvec, 2020; Digital Atlas, n.d.; Trails BC, 2020; Great Divide Trail Association, 2020.
Notes: n/a = not applicable; As noted, data on recreation trails are from multiple sources. As a result, there is potential for overlap between these datasets.
Segment = Linear section of a trail feature with uniform characteristics
ATV Trails include both formal and informal trails. It is important to note that use of these informal trails is largely restricted through government mechanisms such as the Motorized Vehicle Prohibition Regulation. Motorized use is seasonally permitted on approximately 16 km of these trails that transect the Project footprint (i.e., mine site) and are located in the Alexander Creek AMA.

Non-Motorized Outdoor Recreation

The Land Use and Access LSA overlaps with two segments of the Great Divide Trail, Coleman to Alexander Creek, and Alexander Creek to South Line Road (Great Divide Trail Association, 2020; Trails BC, 2020). More specifically, in the southeast corner of the Land Use and Access LSA, the Great Divide trail follows the Deadman Pass to Alexander Creek, crossing the Alexander Creek Bridge (Figure 19.4-9). The trail follows Alexander Creek north, passing several cabins, an additional creek crossing, the Crown Trail, and an ATV trail junction (Appendix 19-A; Great Divide Trail Association, 2020). These segments of the Great Divide Trail are largely on gravel trails and overlap with motorized recreation trail features. On an annual basis it is estimated that approximately 30 people hike the entire length of the trail, which takes approximately 40 days to complete. In comparison, popular segments of the Great Divide Trail are predicted to have hundreds of users annually; however, less popular sections such as those in the Land Use and Access LSA are likely only used by the through hikers and a handful of other users.

Overall, it is estimated that approximately 30% of the entire Great Divide Trail is located on roads and ATV trails. The Great Divide Trail Association [GDTA] aims to replace these segments of the trail with higher quality hiking trails located on non-motorized trails. (GDTA, 2021, pers. comm.). For instance, in order to create a more scenic experience, the Great Divide Trail Association is currently in the process of relocating the sections of the Great Divide Trail currently located within the Land Use and Access LSA. The High Rock Trail, which is currently open and listed as an alternate route, is expected to become part of the official Great Divide Trail in 2023 (GDTA, 2021, pers. comm.). The High Rock Trail does not follow Deadman Pass, rather this alternate trail heads north on the Alberta side of the Continental Divide and includes scenic views of Crowsnest Mountain (GDTA, 2021). Currently, the sections of the High Rock Trail that are open are recommended for adventurous and experienced hikers only (GDTA 2021, pers. comm.).

The Land Use and Access LSA also overlaps with the Elk Valley Trail, which is a designated section of the Trans Canada Trail network. The following sections of the Elk Valley Trail are transected by the Land Use and Access LSA: Ingram to Mountain Shadows; Mountain Shadows to Sparwood; Sparwood to Fording; and Fording to Elkford. The Elk Valley Trail is heavily used by groups from Calgary, Alberta who ride over the Elk Pass, into the Elk Valley, and loop back around. During the summer, the Elk Valley Trail can be busy due to the volume of users (NWP Coal Ltd, Personal Communication, 2021).

The Land Use and Access LSA also transects several alternative routes for the Elk Valley Trail, including Elk Valley Ranch alternate route, the Ingram to Mountain Shadows bypass route, and the Fording to Elkford

Highway route. The Elk Valley Ranch route is an interesting route that travels through the Elk Valley Ranch on land owned by the Nature Trust of BC.

The Land Use and Access LSA transects one recreation trail managed by Recreation Sites and Trails BC. This trail is located on the west side of the Elk River and connects into Sparwood's local trail system. In addition, the Land Use and Access LSA overlaps with two recreation reserves: Alexander Creek #1 and Alexander Creek #2 (Elk Valley Cumulative Effects Management Framework, 2021). These areas are located at the south of end of the Alexander Creek AMA and are described as areas that have higher recreational value and potential; however, they are not established recreation sites, nor are they managed by Recreation Sites and Trails BC.

The Sunset Ridge Cross-Country Ski Trails is the closest and only ski area to the Land Use and Access LSA. The Sunset Ridge Ski Society maintains over 10 km of groomed cross-country ski trails located in Sparwood (District of Sparwood, 2016). There are no alpine ski areas located within the Land Use and Access LSA or Project footprint.

Grave Lake is a popular weekend getaway for local residents (District of Sparwood, 2016). The Grave Lake Campground and boat launch, located at the southwest end of Grave Lake, is currently managed by the Sparwood Fish and Wildlife Association. Grave Lake has been recognized as the only large, accessible lake in the Elk Valley, with opportunities for a variety of lake-oriented recreational activities (RDEK, 2014).

During primary data collection, the Sparwood Fish and Wildlife Association identified three access routes transected by the Project footprint. These include: main access to Harmer Creek; main access road through Rock Teepee trail into Soap Creek; and an unnamed access route that allows motorized access and is popular for mountain biking and hiking when the road is closed (Figure 19.4-9).

Based on results of the Land Use and Access Survey conducted by NWP, the following non-motorized recreational activities, listed in order of popularity, were cited to occur near the Project: hiking, camping, berry collection, horseback riding, cross-country skiing, wilderness drives, and exploring (Appendix 19-B).

Motorized Recreation

The Land Use and Access LSA transects four AMAs. These include: Alexander Creek AMA, Grave Prairie AMA, Corbin Creek AMA, and Weigert Creek AMA. The Project footprint transects two AMAs, Alexander Creek and Grave Prairie. Table 19.4-11 summarizes the extent to which these AMA are transected by the Land Use and Access LSA and Project footprint.

Table 19.4-11: Access Management Areas Transected by the Project Footprint and Land Use and Access LSA

Name	Project Footprint		Land Use and Access LSA	
	Ha	% total of AMA	Ha	% of total of AMA
Alexander Creek AMA	990.0	6.0%	15,027.8	92.3%
Corbin Creek AMA	n/a	n/a	20.8	0.07%
Grave Prairie AMA	99.48	5.0%	1,956.7	100.0%
Weigert Creek AMA	n/a	n/a	0.015	0.0003%

Source: FLNRORD, 2019c

Notes: Ha=hectares; AMA = Access Management Area; % = percent

The Land Use and Access LSA overlaps the entirety, 1,956.7 ha, of the Grave Prairie AMA, and 15,027.8 ha, or 92.3%, of the Alexander Creek AMA. Comparatively, less than 1% of both the Corbin Creek AMA, 20.8 ha, and the Weigert Creek AMA, 0.015 ha, are transected by the Land Use and Access LSA. The Project footprint transects 990.0 ha, 6%, of the Alexander Creek AMA, and 99.48 ha, 5%, of the Grave Prairie AMA (Figure 19.4-10).

Located on the west side of the Land Use and Access LSA, the Alexander Creek AMA has been identified as a high use area for ATV riding and snowmobiling, particularly by local residents of Sparwood and Elkford (Appendix 19-A). As previously stated, AMAs are designated areas where motorized vehicle use is managed to reduce damage to fish and wildlife habitat, protect fish and wildlife populations from disturbance or over harvest, and/or to protect road infrastructure.

In 2020, under the Wildlife Act, the Motor Vehicle Prohibition Regulation for the Alexander Creek AMA was established, which governs motorized vehicle use, including vehicle, ATV, snowmobile, motorbike, and e-bike use, within the Alexander Creek AMA. All roads not identified through this regulation are closed to motorized use. In addition, this regulation includes provisions that prohibit the motorized use of specific roads seasonally (e.g., closures from April 1 to June 15, closures from September 1 to November 30, open from September 1 to November 30 for ATV use only, etc.).

Within the Alexander Creek AMA, the Project footprint overlaps with two interconnected roads where motorized use is permitted; however, specific restrictions (e.g., seasonal closures and ATV-only use during certain periods) prohibit motorized use. It is important to note that while other more informal trails and access roads are used for motorized recreation, these roads are not designated for motorized use and are considered to be closed under the Motor Vehicle Prohibition Regulation.

During the winter months, there are multiple snowmobile trails concentrated on the northern end of the Alexander Creek AMA. Crown Mountain, particularly the northern half, has been identified as a highly valued snowmobiling area by local residents. The snowmobiling in this area has been described as less crowded compared to other areas such as Corbin, Morrissey, or Coal Creek (NWP Land Use and Access Survey, 2021).

In general, the Alexander Creek AMA is accessed via Rock Teepee trail, which overlaps with Harmer Creek Road and Grave Creek Road. Southern access to the Alexander Creek AMA for snowmobiling has been described as less preferred due to the quality of riding and the quantity of riders (NWP Land Use and Access Survey, 2021).

The Motor Vehicle Prohibition Regulation identifies three snowmobile restricted areas on the west side of the Land Use and Access LSA; all other areas within the Land Use and Access LSA are open for snowmobile use. In addition, one snowmobile cabin, owned by Elk Valley Mountaineers, is also situated on the north end of the Alexander Creek AMA (Elkford Trails, 2010). The Elk Valley Mountaineers have identified a land tenure at the base of Crown Mountain (BC Environmental Assessment Office, 2016).

Trails located on the north end of the Alexander Creek AMA connect into the Grave Prairie AMA via the Rock Teepee trail, a gravel trail that travels along Grave Creek Road. The Grave Prairie AMA is located in the northwest corner of the Land Use and Access LSA. During primary data collection, trails connecting these two AMAs were identified as popular ATV and snowmobile trails. The Grave Prairie AMA is one of

the busiest AMAs for recreationists, especially in earlier September during the elk and deer bow-only hunting seasons (RDEK, 2018).

It is important to note that other unmarked ATV trails exist within the Land Use and Access LSA and possibly within the Project footprint.

Additional identified uses for these trails located within the Alexander Creek AMA and the Grave Prairie AMA include hiking, biking, and horseback riding.

The Project footprint also overlaps with two staging areas, one of which is specific to snowmobiles.

Other Recreational Infrastructure

Other recreational features located within the Land Use and Access LSA include the Sparwood Golf Club, the Sparwood Disc Golf Course, and the Sparwood Rifle Range (District of Sparwood, 2016). In addition, recreational amenities identified in Sparwood through public stakeholder engagement include a dog park, bike park, and water spray park.

Within the Land Use and Access LSA, eight cabins were identified through engagement activities (NWP Coal Ltd 2021, pers. comm.). Two of these cabins were identified as potential trapper cabins and one was identified as a snowmobile cabin. The remaining five cabins have been identified as private cabins. No identified cabins overlap with the Project footprint.

The Land Use and Access LSA overlaps with nine campgrounds. These campgrounds were identified through primary data collection; seven of these campgrounds are unnamed or unofficial. The Land Use and Access Baseline Report (Appendix 19-A) includes further details on the campground features and amenities.

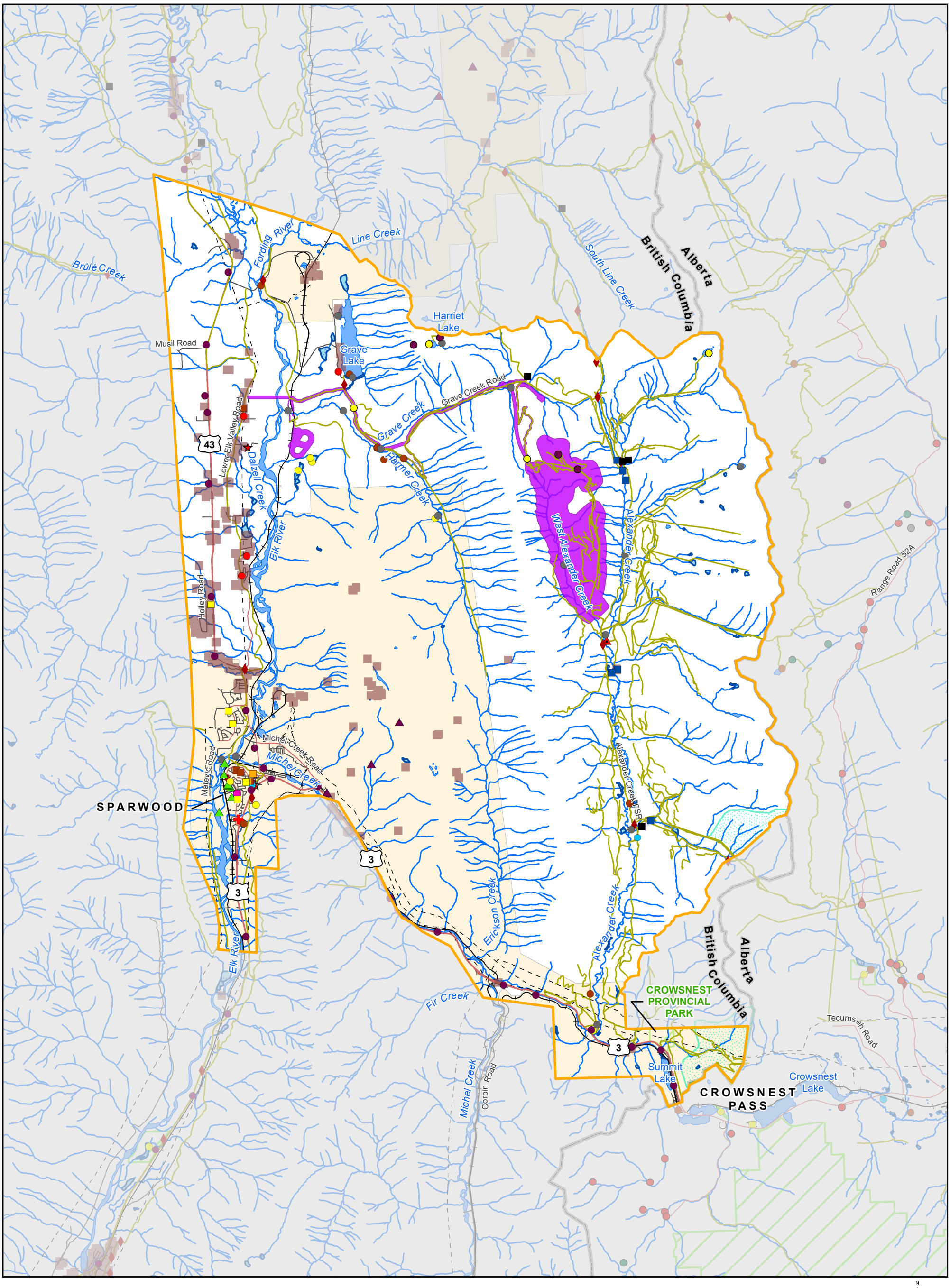
The Sparwood Fish and Wildlife Association identified two viewpoints within the Project footprint (Figure 19.4-11).

Tourism

Within the Land Use and Access LSA, there are several visitor attractions and amenities located in Sparwood. In addition to campgrounds previously mentioned, Sparwood also offers multiple different types of accommodations for visitors, including hotels and motels, cabins, and bed and breakfasts such as:

- Causeway Bay Hotel & Conference Centre, which offers 83 rooms;
- Valley Motel, which offers 29 rooms, 10 of which have kitchenettes;
- Summit Creek Cabins, which includes three cabins with capacity for four to six guests; and
- Holley Lane Bed and Breakfast, which includes three guest rooms.

Located at the Sparwood Visitor Information Centre, the 1974 Terex Titan, which is one of the world's largest trucks, is a prominent tourist attraction. Sparwood actively celebrates their mining history and offers Mining History Walking Tours to showcase antique mining machinery.



Crown Mountain Coking Coal Project

Figure 19.4-11
Built Features and Points of Interest

LEGEND

- Airport
- Buildings (Residential, Commercial, Industrial) Outside of Sparwood Built-up Area
- Cabin
- Campground
- Commercial
- Day Care
- Health Centre
- Information Centre
- Mine
- Museum
- Park
- Parking / Staging Area
- Place of Worship
- Recreation
- Residence
- School
- Senior Centre
- Trail Point
- Inactive Trapline
- Trapline Cabin
- Viewpoint
- Other
- Snowmobile Restricted Areas
- Sparwood Official Community Plan Area
- Land Use and Access Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Trail
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- British Columbia/Alberta Border

NOTE:
The information related to cabins is derived from several sources including: the Primary Data Collection Program, B.C. Stats, and Targeted Land Use Engagement Activities. As a result, it is possible that there are overlaps with the data points and this figure may portray additional cabins due to the timelines of data collection. Primary data collection occurred between May 2020 and July 2020. Targeted engagement for the land use program occurred between March 2021 and April 2021.

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Kilometres

N W E S

Scale 1:120,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation.

Map Created By: RB
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-10

Document Path: \\42dillon\CAD\GIS\2012 and Prior\126231 Crown Mountain\EA_Report\ExistingConditions\LandUse\126231_EC_LU_BuiltFeaturesPOI.mxd

19.4.2 Visual Aesthetics

The purpose of this section is to describe the existing visual aesthetics resources in the Project area. The visibility of the Project can have differing effects depending on the physical and social setting, as well as the proximity to the Project footprint to receptor locations. The visual baseline study inventories and classifies the physical conditions of the contextual landscape and sensitivities of viewers (receptors) to visible changes in the landscape.

The applicable standards and guidelines used in the collection of baseline data on visual aesthetics include the Kootenay/Boundary Land Use Plan Implementation Strategy (Kootenay Inter-Agency Management Committee, 1997), B.C. Ministry of Forests (2001) Visual Impact Assessment Guidebook, and BC Parks (2005) Draft Best Management Practices (BMP) for Activities Adjacent to Parks and Protected Areas.

19.4.2.1 Baseline Data Collection

19.4.2.1.1 Primary Data Collection

Though the primary data program, conducted in 2020, current land uses within the Project footprint were identified that include ATV and hiking trails on Crown Mountain that are used by the Elkford ATV Club, the Crowsnest Pass Quad Squad, the Alberta Off-Highway Vehicle Association, the Great Divide Trail Association, and others. Sensitive receptor locations were identified through the primary data collection program and through consultation with the Ktunaxa Nation and from open source data available from the Province of B.C. (Figure 19.4-12). These sensitive receptors include residential, commercial, recreational, and institutional uses. The closer the use to the Project, the more significant the disturbance to visual aesthetics. Visual changes in the foreground (within 1 km) are the most disruptive. The impact diminishes with distance and the complexity of the surrounding landscape.

19.4.2.1.2 Secondary Data Collection

Existing information for use in the background review was compiled from a wide range of sources including, but not limited to:

- Province of British Columbia, GeoBC Open Data. (2020a). Baseline Thematic Mapping Present Land Use Version 1;
- Province of British Columbia, GeoBC Open Data. (2020b). Vegetation Resources Inventory - Forest Vegetation Composite Rank 1 Layer (R1);
- Province of British Columbia, GeoBC Open Data. (2020c). Visual Landscape Inventory – Ministry of Forests, Lands, Natural Resource Operations and Rural Development;
- Keefer Ecological Services Ltd (2020). Terrestrial Ecosystem Mapping Report – Crown Mountain Coking Coal Project;
- Kootenay Inter-Agency Management Committee. (1997). Kootenay/Boundary Land Use Plan Implementation Strategy; and
- Visual aesthetics baseline studies completed for other projects in the area.

Crown Mountain Coking Coal Project

Figure 19.4-12
Consultation Input/Sensitive Receptor Map

LEGEND

- Receptors from Background Data
- Receptors from Consultation
- Recreation Trails from Consultation
- Public Trail Data
- Great Divide Trail
- Visual Aesthetics Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Kilometres

N W E S

Scale 1:115,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation.
Imagery Provided By Landsat 8 (Aug 2018), and GeoBC OrthoImagery (Aug 2016).

Map Created By: LMM
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
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Document Path: \\42dillon\CAD\GIS\2012 and Prior\126231 Crown Mountain\EA_Report\ExistingConditions\Visual\126231_EC_VA_ConsultationInput_SensitiveReceptorMap.mxd

19.5 Land Use Project Effects Assessment

Chapter 5 provides a general overview of the effects assessment approach for all VCs, including land use VCs. The assessment of the land use effects of the Project during Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure are described in the sections below.

19.5.1 Thresholds for Determining Significance of Residual Effects

A significant adverse residual environmental effect on land use is one where the Project causes an unacceptable change in baseline conditions that is beyond the historical range of variability, or one which alters the current land use structures to an extent that is beyond the capacity of the land use system to respond.

The definitions provided in Table 19.5-1 are used in Section 19.5 to assess the magnitude of Project-related effects on the land use environment.

Table 19.5-1: Magnitude of Land Use and Access Effects

Magnitude	Definition	Rationale
Negligible	An effect that may or may not be discernible but is within the historical variability as defined by baseline conditions. The effect will not alter the current land use structures.	Negligible effects are small and may not be noticeable by land users. These effects do not represent a change in day-to-day use, enjoyment, or function of the land.
Low	An effect that is small but discernable and within historical variability as defined by baseline conditions. The effect will not alter the current land use structures.	Low effects may be noticeable by land users. These effects do not represent a change in day-to-day use, enjoyment, or function of the land.
Medium	An effect that is clearly discernable and beyond the historical variability as defined by baseline conditions. The effect will not alter the current land use structures.	Medium effects are noticeable to land users. These effects may or may not represent a change to day-to-day use, enjoyment, or function of the land.
High	An effect that is clearly discernable and beyond the historical variability as defined by baseline conditions. The effect is beyond the capacity of the land and resource use system to respond and/or will alter the current land use structures.	High effects are noticeable to land users. These effects represent a change to day-to-day use, enjoyment, or function of the land. In the case of adverse effects, these changes cannot be mitigated.

19.5.2 Project Interactions

Project activities during the Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure phases have the potential to affect land use and access. Table 19.5-2 outlines for each Project component the anticipated effect (rating) on Land Use. Specific details on Project activities and components are discussed in Chapter 3. These initial effect level rankings were undertaken as an initial

screening to determine in advance what Project components would be considered further in the assessment. It is noted that any Project component that has a physical footprint was ranked as "III" as it has potential to impact current and future land use.

Table 19.5-2: Project - Land Use Interaction Matrix and Ranking

Project Phase	Project Component	Description of Activities	Land Use Effect Level Rating*
Construction and Pre-Production	Transportation	Use of Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road by highway transport trucks, light duty vehicles, and crew busses to transport personnel, materials, and consumable items	III
	Logging of Merchantable Timber	Merchantable timber will be logged from the infrastructure and pre-production development footprint	III
	Clearing and Grubbing	After the merchantable timber has been removed, the remaining vegetation will be cleared and grubbed from the infrastructure and pre-production development footprint	III
	Stockpiling Wood Waste	Wood waste will be stockpiled on site and used for reclamation as a source of coarse woody debris	III
	Quarry for Construction Materials	Excavation of road bed materials from the North Pit footprint for use on Grave Creek Road	III
	Water Management or Water Management Structures	Water management structures to support initial construction activities will be built prior to soil being salvaged from the run of mine (ROM) and plant site	III
		Interim Sediment Pond will be built prior to the soil removal and stockpiling from the pit access road and initial phase of the North Pit	III
		Grave Creek Reservoir will be constructed to act as a back-up source of process water	III
	Soil Salvage	Soil will be salvaged from the footprint of the infrastructure	III
	Road Upgrading and Construction	Branch C Road will be widened and upgraded to facilitate construction and mine traffic to plant site area	III
		Grave Creek Road will be widened to facilitate the clean coal haul	III
		A new road will be constructed off the Valley Road to access the rail loadout for construction and operation	III
	Linear Infrastructure	Installation of the powerline	III
		Installation of the natural gas line	III
	Overland Conveyor	Clearing, grubbing, and construction of overland conveyor from the plant site to Grave Creek Road	III
		Excavating and pouring of foundation	III

Project Phase	Project Component	Description of Activities	Land Use Effect Level Rating*
	Coal Handling Process Plant Construction	Transportation of materials and personnel to site	III
		Constructing of the Coal Handling Process Plant (CHPP)	III
		Commissioning of the CHPP	III
		Excavating and pouring of foundations	III
	Workshop / Mine Dry Construction	Transportation of materials to site	II
		Construction of workshop / mine dry	III
		Equipment wash bay and heavy equipment parking	III
		Administration, first aid, and mine dry building	III
		Diesel tank farm	III
		Warehouse	III
		Potable water system	III
		Septic system	III
		Water supply pipelines from Grave Creek and West Alexander Creek	III
		Commissioning of the facilities	III
	Explosives Factory Construction	Construction of the explosives factory	III
	Rail Loadout Construction	Excavation and preparation of the rail bed	III
		Excavation and preparation of foundation stockpiling and coal handling systems	III
		Transportation of materials and personnel to site	III
		Construction of rail loadout	III
		Connection to the CP Fording Sub-line	III
		Commissioning of the rail loadout	III
	Labour	Hiring of personnel for the mine, CHPP operations, administration, and coal haul	II
		Training of personnel	I
	Construction Waste Materials	Collection and transfer to a recycling facility or other approved facility	I
Operations	Transportation	Use of Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road by highway transport trucks, light duty vehicles, and crew busses to transport personnel, materials, and consumable items	III
	Explosives Factory	Ammonium nitrate / emulsion storage facilities which have the ability to load explosive agents into delivery trucks	III
		Wash facility to decontaminate the bulk explosive delivery trucks	III

Project Phase	Project Component	Description of Activities	Land Use Effect Level Rating*
		Storage of explosives (detonators and boosters)	III
	Fuel Storage	Receiving bulk fuel deliveries	III
		On-site storage of fuel	III
		Dispensing fuel	III
		Transferring fuel to on-site delivery trucks	III
	Mine Roads Development	Building roads from material sourced on-site	III
	Mining	Progressive clearing	III
		Removal of unconsolidated material	III
		Loading, hauling, and stockpiling of soil	III
		Drilling and loading of blastholes	III
		Detonating the explosives	III
		Loading, hauling, and dumping of mine rock	III
		Loading, hauling, and stockpiling of coal	III
	Site Water Requirements	Using contact water as the primary process make-up water from Interim Sediment Pond (Year 1 to 5)	III
		Using contact water as the primary process make-up water from the North Pit (Year 5 to 15)	III
		Backup reservoir in Grave Creek as a secondary source of process make-up water	III
	Coal Processing	Run of mine coal sizing	III
		Washing coal	III
		Mechanical and thermal drying of coal	III
		Coal reject disposal (part of loading, hauling, and dumping of mine rock activities)	III
		Conveying clean coal	III
	Sewage Treatment	Sewage will be treated by a septic system constructed at the plant site which will support the administration, mine dry, and CHPP facilities	III
	Main Sediment Pond	Construction of Main Sediment Pond in Year 4	III
		Management of the Main Sediment Pond discharge	III
	Reclamation	Reclaiming available areas as soon as possible to achieve reclamation objectives	II
Reclamation and Closure	Transportation	Use of Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road by highway transport trucks, light duty vehicles, and crew busses to transport personnel, materials, and consumable items Use of Highway 43, Line Creek Mine Road, Valley Road, and Grave Creek Road by highway transport trucks, light duty vehicles,	III

Project Phase	Project Component	Description of Activities	Land Use Effect Level Rating*
		and crew busses to transport personnel, materials, and consumable items	
	Dismantling Infrastructure and Buildings	Dismantling of the CHPP, maintenance facilities, administration, and other facilities	III
		Dismantling, salvaging, collecting, and transferring materials to a recycling facility or other approved facility	III
	Removal of Linear Infrastructure	Removal of the powerline	III
		Removal of the natural gas line	II
	Reclamation	Reclaiming available areas as soon as possible to achieve reclamation objectives Reclaiming available areas as soon as possible to achieve reclamation objectives	I
	Monitoring	Reclamation monitoring	I
		Geotechnical monitoring	I
		Aquatic effects monitoring	I
	Water Management	Management of the Main Sediment Pond discharge	I
Post-Closure	Water Management	Decommissioning the Main Sediment Pond once water quality objectives have been met	I
	Road Use	Branch C Road will remain as a permanent access road for future commercial and recreational use	I
	Rail Line	The rail line will remain as a permanent feature	I
	Monitoring	Reclamation monitoring	I
		Geotechnical monitoring	I
		Aquatic effects monitoring	I

Notes (after EAO, 2013):
I = No or negligible effect (positive or adverse) is anticipated; not carried forward in the assessment.
II = Potential adverse effects requiring additional mitigation or substantive positive effects are expected; carried forward in the assessment.
III = Key interaction resulting in potential significant adverse effect or significant concern; carried forward in the assessment.

Through a pathway of interaction analysis, the following Project interactions were identified:

- Project-related activities may not be consistent with current land use designations and policies;
- Project-related upgrades to Grave Creek Road, winter maintenance, and increased traffic may change Grave Creek Road use to access lands of interest;
- Project activities at the rail loadout, mine site, and associated infrastructure may result in changes to access to lands used for recreation or commercial purposes;
- Development of the rail loadout facility, mine site, and/or new supporting infrastructure (e.g., powerline) could result in the loss of lands used for recreation and/or commercial purposes;
- Project activities at the rail loadout and mine site could result in the disturbance of lands used for recreational purposes (e.g., from noise, vibration, and air quality effects);

- Physical Project activities could result in environmental changes to fish and fish habitat (i.e., changes to water quality and in species abundance and distribution), which could affect the quality of recreational and tourism-based angling activities; and
- Physical Project activities could result in environmental changes to wildlife and wildlife habitat (i.e., changes in species abundance and distribution), which could affect the quality of recreational and tourism-based hunting activities.

Project interactions that are carried forward in the discussion of potential effects are summarized in Table 19.5-3. For the purposes of this assessment, Project footprint components listed in Table 19.5-2 are organized by the following groups:

- Rail Loadout and Supporting Infrastructure (e.g., clean coal stockpile, connection to CP Fording Sub-line, new access road to the rail loadout, etc.);
- Powerline;
- Grave Creek Road, Harmer Creek Road, and Valley Road; and
- Mine Infrastructure and Supporting Facilities (e.g., Grave Creek Reservoir, explosive storage facility and access road, Coal Handling Process Plant, mine pits, etc.).

The Project footprint components listed above are reflective of specific areas where effects to the land use environment are predicted to differ based on existing land uses and different Project use and access restrictions.

Table 19.5-3: Potential Project Interactions and Land Use Effects

Valued Component	Measurement Indicator	Project Component or Activity	Potential Effect or Pathway of Interaction
Recreation and Tourism Land Use	• Consistency with land use designations and policies • Recreation and tourism use (e.g., hunting, ATV trails, fishing, hiking, etc.) • Quality of recreational and tourism experiences on adjacent lands	• Rail Loadout and Supporting Infrastructure (e.g., clean coal stockpile, connection to CP Fording Sub-line, new access road to the rail loadout, etc.) • Powerline • Grave Creek Road, Harmer Creek Road, and Valley Road; and • Mine Infrastructure and Supporting Facilities (e.g., Grave Creek Reservoir, explosive storage facility and access road, Coal Handling Process Plant, mine pits, etc.)	• The development of the mine site could remove lands used for recreation and tourism purposes • The construction and operation of the mine could result in disruption effects to recreation and tourism activities (e.g., disturbances from changes in noise, vibration, air quality, and viewscapes) • Potential changes to wildlife (game species) abundance due to Project activities could result in changes to hunting activities • Potential changes to fish abundance due to Project activities could result in changes to angling activities)

Valued Component	Measurement Indicator	Project Component or Activity	Potential Effect or Pathway of Interaction
			• The construction and operation of the Project could result in the removal of lands used for NTFP harvesting, specifically berry picking
Commercial Land Use	• Consistency with land use designations and policies • Commercial land use including resource extraction activities	• Rail Loadout and Supporting Infrastructure (e.g., clean coal stockpile, connection to CP Fording Sub-line, new access road to the rail loadout, etc.) • Powerline • Grave Creek Road, Harmer Creek Road, and Valley Road • Mine Infrastructure and Supporting Facilities (e.g., Grave Creek Reservoir, explosive storage facility and access road, Coal Handling Process Plant, mine pits, etc.)	• Project components could result in the removal of lands used for commercial purposes • Potential changes to wildlife (furbearing species) abundance due to Project activities could result in changes to trapping activities
Land Use Access	Access to recreation and commercial/ resource harvesting areas	• Rail Loadout and Supporting Infrastructure (e.g., clean coal stockpile, connection to CP Fording Sub-line, new access road to the rail loadout, etc.) • Powerline • Grave Creek Road, Harmer Creek Road, and Valley Road • Mine Infrastructure and Supporting Facilities (e.g., Grave Creek Reservoir, explosive storage facility and access road, Coal Handling Process Plant, mine pits, etc.)	• Development of the Project could restrict access to surrounding area lands for recreation and commercial uses (i.e., Project lands including existing roads/trails can no longer be used to access other lands) • Project-related use of existing access road to access the mine site and required construction activities to upgrade the road could impact access to lands for recreation and commercial/ resource harvesting activities • Restrictions on access/use of lands adjacent to the mine site during blasting activity

19.5.3 Discussion of Potential Effects

The following sections provide a description of the key potential land use effects organized on the basis of VCs and measurement indicators previously presented in Table 19.5-3. These potential land use effects are discussed in the context of the following four Project phases: Construction and Pre-Production, Operations, Reclamation and Closure, and Post-Closure. The effects assessment recognizes the initial assessment or screening of Project components that was undertaken to determine what Project components have potential to result in land use effects. This land use Assessment assesses potential effects to land use activities of non-Indigenous persons only; Chapters 23 to 31 include an assessment of the effects on traditional land use activities.

19.5.3.1 Changes to Recreation and Tourism Land Use

The following section describes the effects assessment results related to the following measurement indicators:

- Consistency with land use designations and policies;
- Recreation and tourism use (e.g., hunting, ATV trails, fishing, hiking, etc.); and
- Quality of recreational and tourism experiences on adjacent lands.

For a description of potential effects to recreation and tourism as a result of changes to land access, see Section 19.5.3.3.

19.5.3.1.1 Consistency with Land Use Designations and Policies

While recreation and tourism activities are currently permitted within the Project footprint, the Project footprint (mine site) is largely located on provincial public lands designated as Coal – ERDZ and private lands designated as Rural Resource. Section 19.5.3.2 provides a more detailed description of consistency with land use designations and policies related to commercial land uses.

The Elk Valley Official Community Plan (Elk Valley OCP), Bylaw No. 2532 (2014) identifies long-term strategies to guide land use and development within the planning area boundary. Under the Elk Valley OCP, less than 1% of the Project footprint is designated as Open Space, Recreation and Trails. The Project footprint (powerline) also overlaps 1.99 ha of private land designated as Rural Residential (Country) under the Elk Valley Zoning Bylaw No. 829 (1990). Permitted uses on this land include agricultural land use, wildland use, residential use, specifically single or two family dwellings, as well as other land uses (RDEK, 2019).

The Project footprint overlaps with land that is primarily designated for resource extraction use (i.e., Coal – ERDZ and Rural Resource). While these lands are widely used for recreational purposes, it is important to note that these lands are not primarily designated for recreational use. As such, the Project is considered to be generally consistent with land use designations. The exception to this is the relatively small amount of land transected by the powerline, which is designated as Open Space, Recreation and Trails under the Elk Valley OCP (2014) and Rural Residential under the Elk Valley Zoning Bylaw No. 829 (1990). Less than 1% of the total Project footprint is located on lands that are not intended for commercial uses such as coal mining. NWP will be required to submit an application for an OCP and Zoning Bylaw Amendment to the Region for the small amount of area designated as Open Space, Recreation and Trails, as well as the land designated as Rural Residential.

19.5.3.1.2 Recreation and Tourism Use

This indicator examines the impact on recreation and tourism activities from the direct loss of land base as a result of Project development and operation and from the impact of closures to lands adjacent to the mine site, rail loadout, and supporting facilities and infrastructure for public and worker safety considerations. The indirect disturbance effects of Project activities on the quality of recreation and tourism activities on lands adjacent to the Project footprint are described under a separate indicator that follows this section.

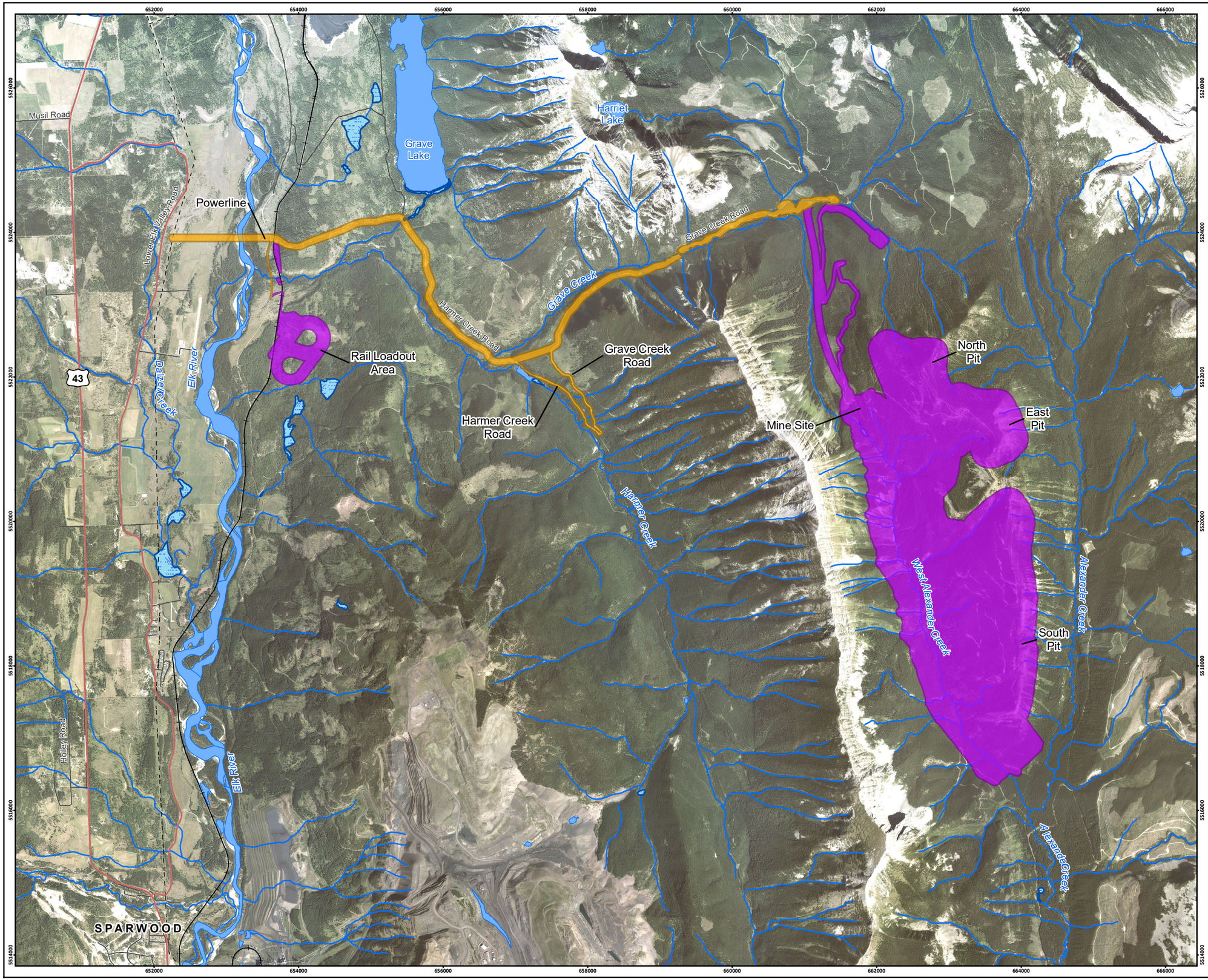
The Project footprint and surrounding area is highly valued and frequently used for recreational purposes. While anecdotal information suggests that some recreational land users are visitors from outside the Region, the majority of recreational land users are understood to be local residents. As presented in Section 19.4.1.3, tourism activities in the Region are largely concentrated in Fernie.

The mine site footprint will overlap with approximately 1,100 ha of land that is used for recreation activities. An additional 51 ha of land required for the rail loadout and supporting infrastructure may also be used for recreation activities. Figure 19.5-1 presents the location of the various Project components that have the potential to impact recreational uses, including the rail loadout, the powerline, Harmer Creek Road, Grave Creek Road, and the mine site. Figure 19.5-1 also depicts which areas of the Project footprint will continue to be open to public use (i.e., the powerline, Valley Road, Harmer Creek and Grave Creek Roads) and those that will be closed to public (i.e., the rail loadout, mine site, and supporting facilities and infrastructure) for the duration of all Project phases.

In collaboration with regulators and key stakeholders, NWP will establish No Unauthorized Entry (NUE) areas in order to ensure worker and public safety within and near the Project. In addition, NUE areas will be delineated based on logistical and administrative efforts required to manage the area and, if possible, may utilize existing topographic features (e.g., Erickson Ridge on the west side of the mine site). Public use will not be permitted within the NUE boundary, and it is possible that the NUE boundary will evolve over the course of the Project. For the purposes of this assessment, the NUE boundary will include the components of the Project footprint that are closed to public (i.e., the rail loadout, mine site, and supporting facilities and infrastructure) for the duration of all Project phases. In the future, together, NWP, regulators, and stakeholders will collaboratively determine the extents of the NUE boundary. The NUE areas will be demarcated by signs to restrict unauthorized access to the mine site, rail loadout, and surrounding areas included within the NUE boundary.

The NUE area could extend beyond the Project footprint and could include the areas within the blasting safety closure areas. Land access restrictions related to blasting safety closure areas are described further in Section 19.5.3.3.

The following describes the potential effects due to NUE closures and the direct loss of land used for the following recreational activities: hunting, fishing, motorized recreation, and non-motorized outdoor recreation.



Crown Mountain Coking Coal Project

Figure 19.5-1
Project Closure Areas

LEGEND

- Project Footprint (open to public use for the duration of the Project)
- Project Footprint (closed for public use for the duration of the Project)
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Scale 1:50,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By GeoBC OrthoImagery (Aug 2016).

Map Created By: RB
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-10

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Hunting

The Project, specifically the development of the mine site and rail loadout, would result in the direct loss of the land that is used for hunting activities. As noted in Section 19.4.1.2.10, the Project area, specifically the mine site, has been identified as a frequently used and highly valued area for recreational hunting activities, particularly by local residents and members of local hunting and conservation groups. Species hunted in the area include: elk, bighorn sheep, mule deer, white-tailed deer, mountain goat, black bear, wolf, and moose. In addition, the West Alexander Creek area has also been described as a high quality area particularly for hunting sheep, elk, and moose. Based on discussions held with local groups and stakeholders (e.g., Sparwood Fish and Wildlife Association) and results from NWP's Land Use and Access Survey, the Project area was described as highly valued in comparison to other areas due to the history of use and the variety of species that reside in the area. In addition, due to ongoing development including other coal mines within the Land Use and Access RSA, respondents described the Project area as one of the few undeveloped, undisturbed, and accessible hunting areas remaining in the Elk Valley (Section 19.4.1.2.10). Results from NWP's Land Use and Access Survey indicate that local residents are concerned that the Project would result in the removal of land frequently used for hunting.

Public use of the mine site lands will not be permitted for the duration of all Project phases prior to Post-Closure (19-year period). It is estimated that the development of the mine site will result in the removal of approximately 1,100 ha of land that is currently used for hunting activities. As noted above, in addition to this area, it is anticipated that a NUE area around the mine site would be established.

Similarly, public use of the rail loadout will not be permitted for the duration of the Project. The rail loadout overlaps with Teck's privately held conservation lands. As described in Section 19.4.1.2.4, recreational activities such as hunting that align with Teck's conservation objectives and government access and restriction mechanisms are permitted on these conservation lands; however, forestry activities have and continue to occur on these lands, which may affect the value of this area for recreation. While not specifically noted as an area of hunting by local interest groups, it is assumed that some hunting activity may occur on these lands. It is estimated that the development of the rail loadout will result in the removal of approximately 51.4 ha of land that could be used or may be used in the future for hunting activities; however, forestry activities have recently occurred and are planned for the future within the rail loadout area, which may alter the value of these lands for hunting activities.

The removal of land used for hunting may force hunters to use different areas within the Land Use and Access LSA and Land Use and Access RSA, and consequently, result in increased hunting pressure in other areas (e.g., east of Alexander Creek) and may force local users to travel greater distances to access hunting areas.

In addition to the removal of the land base used for hunting activity, it is possible that hunting could be further affected from a change in local population of game species. Information related to the potential changes to the population of species hunted is described further below under the "quality of recreational and tourism experiences on adjacent lands" indicator.

The reclamation and closure of the Project area aims to restore the pre-existing landscape and uses, which include: a vegetation mosaic of coniferous forest, upper subalpine areas, alpine meadows, talus slopes, wetlands and riparian areas; habitat capability for key wildlife species, such as elk, moose, mountain goat

and bighorn sheep; and hunting, trapping and other recreation uses. After the coal resource has been extracted and mining activities cease, the Project footprint would be restored to as near-natural a state as practical. At this time, it is expected that the Project footprint, including the former mine site and areas formerly supporting infrastructure, will be again available to use for recreational hunting activities. It is anticipated that in the early years of Post-Closure, the Project footprint will not be entirely re-vegetated to its initial state, which may affect the extent of use due to the quality of hunting in the area. As the area becomes increasingly covered by vegetation, it is expected that the quality of hunting in the area will also improve due to the enhanced habitat.

In summary, during all Project phases, the Project will result in the direct loss of lands (i.e., approximately 1,100 ha for the mine site and 51 ha for the rail loadout facility) that are used or may be used for hunting activities, as well as an additional NUE buffer area surrounding the mine site, rail loadout, and supporting infrastructure and facilities that is still to be defined. While the Project footprint would be reopened to public use during Post-Closure, this effect is considered to be long-term in duration and anticipated to alter hunting activities and land use within the area for a 19-year period.

Fishing

Project-related activities will result in the removal of waterways that may be used for fishing, the most notable being the mine site and supporting infrastructure overlapping with a 5.5 km section of West Alexander Creek, a tributary of Alexander Creek. As well, the Project powerline will need to cross the Elk River. It is important to note that the Project will not affect navigation, as West Alexander Creek is not navigable and impacts to the Elk River due to the powerline are minimal and not expected to change navigation.

The Elk River and the Alexander Creek have been identified as areas that are used for angling activities (Section 19.4.1.2.10). The Project footprint, including Harmer Creek Road, is also in close proximity with Grave Creek, however as of August 1, 2020, no fishing is permitted in Grave Creek and its tributaries.

Powerline construction and operation is not expected to change use of the Elk River for fish harvesting. It is anticipated that the powerline infrastructure would be set back from the banks of the Elk River, and therefore not affect fish habitat and harvesting activities. There is potential that for safety reasons, use of the river immediately under the line would be restricted when the conductors are installed, but this would be for a very short-term period, possibly one day in duration. Potential effects to fishing in the Elk River are considered to be negligible. During Operations and Reclamation and Closure, use of the Elk River for angling activities is not expected to be directly affected.

Development of the mine site will result in the removal of about 5.5 km of West Alexander Creek, which may be used for angling activities. The extent to which West Alexander Creek is used for angling could not be confirmed; however, as presented in Chapter 12, branches of the creek do support game species. While there is potential for angling use, it is anticipated to be relatively minimal and to a lesser extent compared to the mainstems of Alexander Creek, Michel Creek, and the Elk River.

The main branch of Alexander Creek that runs to the east of the mine site is used for angling, including guided trips for Westslope Cutthroat Trout as described in Section 19.4.1.2.10. The creek will not be physically altered by the Project. During Operations, use of Alexander Creek for fishing will be permitted,

unless blasting activities are occurring. It is important to note that blasting restrictions will not affect access to the entire length of Alexander Creek, only those section in close proximity to the pit undergoing blasting. Section 19.5.3.3 describes the potential changes to access due to blasting activities. The development and operation of the Project could impact fish populations in the Elk River, Alexander Creek, and Grave Creek as a result of water quality impacts, which are described in further detail in the "changes to wildlife and fish population" subsection that follows.

Finally, changes to the use of Elk River for fishing activities due to Project activities, including from the development of the powerline, are considered to be negligible for the duration of the Project.

Motorized Recreation

Project development will result in the direct loss of roads, trails, and lands currently used for motorized recreation. The Project footprint, including Harmer Creek Road, Grave Creek Road, and the mine site and surrounding infrastructure, is used for motorized recreation, including snowmobile, ATV, and off-road truck use (Section 19.4.1.3.2). It is important to note that existing restrictions within the Alexander Creek AMA prohibit the use of motorized vehicles in certain areas of the Project mine site; these access restrictions differ between motorized vehicles (e.g., ATVs, off-road trucks, etc.) used in the spring, summer, and fall months and motorized vehicles (e.g., snowmobile) used in the winter months (Section 19.4.1.3.2). Therefore, the potential effects to motorized recreation use are predicted to differ between seasonal usages, and are described separately below.

Snowmobiling

Project development is expected to result in a direct loss of land available for snowmobiling activities within Alexander Creek AMA. As previously noted in Section 19.4.1.3.2, the north end of Alexander Creek AMA, including Crown Mountain, has been identified as a popular and highly valued snowmobiling area, particularly for local residents. Snowmobiling is currently permitted within the proposed mine site lands and surrounding area during winter months. Use of the mine site area will not be permitted for the duration of the Project, resulting in the removal of 1,100 ha of lands associated with the mine site that are currently used for snowmobiling activities within the Alexander Creek AMA, for a period of about 19 years. Snowmobiling activities near the rail loadout are likely minimal in comparison to the Alexander Creek AMA due to the area typically having less snow coverage as compared to higher elevation lands.

The removal of lands available for snowmobile use within the proposed mine site and surrounding area may result in the increased use in other areas of Alexander Creek AMA by snowmobile users. Alternatively, users may choose to use other areas within the Land Use and Access LSA and Land Use and Access RSA for snowmobiling activities. Other areas such as Corbin, Morrissey, and Coal Creek have been described by local residents as more crowded compared to the Alexander Creek AMA (Section 19.4.1.3). The closure of the Crown Mountain lands could put more pressure on these other areas.

Section 19.5.3.3 provides a detailed description of potential effects to access to lands used for recreational purposes.

After the 19-year Project period, during Post-Closure, the Project footprint would re-open for snowmobile activities.

During Construction and Pre-Production, Operations, and Reclamation and Closure, the Project footprint (i.e., mine site and supporting infrastructure and facilities) will result in the direct loss of lands (about 1,100 ha) that are highly used and valued for snowmobiling. In addition, the establishment of the NUE area may further restrict snowmobiling activities in the Alexander Creek AMA. While the Project footprint would be reopened to public use during Post-Closure, this effect is considered to be long-term in duration and anticipated to alter snowmobiling activities and land use within the area for a 19-year period.

Other Motorized Vehicle Use

During non-winter months, Project development will result in the direct loss of roads and trails (16 km) used for motorized vehicle recreation, specifically roads and trails transected by the mine site and supporting infrastructure. These roads and trails on the mine site are open to motorized use other than from September 1 to November 30. Results from NWP's Land Use and Access Survey indicate that motorized vehicle users are concerned that the Project would further restrict use and result in users going to other areas, which could increase conflict between land user groups.

Existing motor vehicle restrictions (i.e., Motor Vehicle Prohibition Regulation) prohibits the use of motorized vehicles (e.g., ATVs, off-road trucks, etc.) in many areas within the Alexander Creek AMA (Section 19.4.1.3.2); however, there are several roads where motorized vehicle use is seasonally permitted within the mine site. While the roads transected by the Project footprint will be closed for the duration of the Project, a 19-year period, it is important to note that east of the mine site, near the main branch of Alexander Creek, there are alternative roads where motorized vehicle use is permitted and provide north-south access within Alexander Creek AMA. Section 19.5.3.3 describes the potential effects related to these and other roads located near the mine site. During Post-Closure, the roads and trails within the mine site that were closed and/or removed because of the Project may be redeveloped and reopened for motorized recreation. It is important to note that the roads and trails within the mine site are managed by the Government of B.C. through mechanisms such as the Motor Vehicle Prohibition Regulation and Elk Valley Cumulative Effects Management Framework. Therefore, during Post-Closure, the Government of B.C. would continue to control and managed use of roads and trails within the mine site; NWP would not be involved in the implementation of future restrictions to public use during Post-Closure.

In summary, the development of the Project, primarily the mine site, will result in the removal of roads and trails (16 km) seasonally used for motorized vehicle recreation (e.g., ATVs, off-road trucks, etc.) during non-winter months for a 19-year period. Furthermore, the establishment of the NUE area may further restrict motorized vehicle use, particularly within the Alexander Creek AMA. While the Project footprint lands may be reopened to public use during Post-Closure, this effect is considered to be long-term in duration.

Non-Motorized Outdoor Recreation

Project-related activities are expected to result in a direct loss of land available for non-motorized outdoor recreation activities. Non-motorized outdoor recreational activities such as hiking, biking, camping, berry collection, and horseback riding occur within and surrounding the Project footprint (i.e., Grave Creek, West Alexander Creek, and random sites on old logging roads). As noted in Section 19.4.1.3.2, hiking and camping were identified as two of the more popular non-motorized outdoor recreation activities based on results from NWP's Land Use and Access Survey.

As previously noted in Section 19.4.1.3.2, the mine site overlaps with an access road (8 km) that is closed to motorized use from September 1 to November 30 (Fall hunting period). This access road connects with Grave Creek Road. During this motorized use closure period, the road is still used for mountain biking, hiking, and hunter access. This road will no longer be available for use for the duration of the Project (19-year period).

During Reclamation and Closure, some areas (e.g., mine site) are expected to remain closed for safety reasons. Following Reclamation and Closure, the Project footprint will be reclaimed to as natural a state as practical. At this time, the Project footprint would re-open for public use, including non-motorized recreation activities such as hiking, biking, and camping.

Project development and operation will result in the direct loss of trails and roads used for non-motorized recreation (about 16 km). In addition, it is possible that the NUE area may further restrict non-motorized recreation use. While the Project footprint would be reopened to public use during Post-Closure, this effect is considered to be long-term in duration and anticipated to alter non-motorized recreation use within the area for a 19-year period.

Quality of Recreational and Tourism Experiences on Adjacent Lands

In additional to the loss of lands used for recreation from the Project footprint, recreation activities occurring in the vicinity of the Project could also be impacted indirectly. Off-site Project-related disturbance effects could impact the quality and enjoyment of recreational experiences, particularly hunting, fishing, and non-motorized outdoor recreation activities, which may result in a change to the extent to which the area is used for recreational purposes. The following describes potential disturbance/nuisance effects that could occur on adjacent lands (i.e., air emissions, noise and vibration) and potential impacts to wildlife and fish populations and how these effects could impact recreation and tourism activities.

Change in Air Quality

Project activities and components have the potential to cause adverse effects to land use through nuisance effects from Project-related changes to air quality (e.g., localized dust effects) during Construction and Pre-Production and Operations. Chapter 18 considers nuisance effects on permanent residences, while those related to traditional Indigenous uses are discussed in Chapters 23 to 31. This section presents nuisance effects due to air quality changes as a result of Project activities that may affect recreational users.

As described in Chapter 6, sensitive receptors with greater than 1% of exceedance frequencies of air quality objectives are located close to the Project boundary. Of these, Receptor S 202 is the furthest away from the Project boundary (approximately 2 km). All other receptors with greater than 1% of exceedance frequency of air quality objectives are located within 2 km of the Project boundary. In regards to nitrogen dioxide (NO_2), exceedances for receptor locations of interest to recreation land uses are few. The unofficial campsites along the coal haul route are predicted to have exceedances for approximately 2% of the time (for 1-hour period exceedances). Regarding total suspended particulates (TSP), PM10 (particulate matter <10 micrometres [µm]), and PM2.5 (particulate matter <2.5 µm), (i.e. dust), 24-hour period exceedances are noted for only a few land use receptors including: trapping cabin north of the mine site (R7) and unofficial campsites along the coal haul route (S48, S178; see Figure 6.5-4

in Chapter 6). For these receptors, exceedances are predicted to occur in excess of 50% of the time. It is noted that land use receptors to the east of the mine site along Alexander Creek, including various cabins and trails, are not expected to experience substantial air quality related effects.

Noise and Vibration Effects

Activities and components associated with the Project have the potential to cause adverse changes to the acoustic environment. Human receptors considered in Chapter 7 include residences, seasonal dwellings, cabins, unofficial campgrounds, and a representative location of a possible Indigenous seasonal dwelling. Chapter 18 considers noise effects on permanent residences, while those related to traditional Indigenous uses are discussed in Chapters 23 to 31.

This section examines potential Project related noise and vibration effects that may affect the quality of recreational experiences on lands in the vicinity of the Project. The human receptors discussed in this section include cabins, unofficial campgrounds, and seasonal dwellings. These receptor locations are spread out across the Land Use and Access LSA, and they were selected as representative locations for modelling noise and vibration effects based on their proximity to the Project and its anticipated noise/vibration generating activities. Project-related noise and vibration effects to recreational users will not be restricted to the specific locations of the human receptors listed above. Changes in the acoustic environment (i.e., noise and vibration) resulting from the Project could be experienced in all areas in close proximity to the Project. Therefore, in addition to the localized noise and vibration effects at the human representative receptors identified above, this section also considers how the Project-related changes to noise and vibrations may affect the quality of experiences in areas used for recreational activities near the Project.

The Project will result in increased local noise and vibration levels due to the various Project components and activities including but not limited to blasting, mining, hauling, and dumping. An increase in noise and vibration has the potential to result in sensory disturbance and potential disruptions to recreational land uses such as hiking, hunting, and fishing, as well as changes to human behaviour patterns. Changes to noise and vibrations levels are described below by the main Project phases.

Noise Impacts from Construction and Pre-Production

The initial Project activities will involve a number of heavy construction activities (see Section 7.5.2 of Chapter 7 for a detailed description). These construction activities could result in a change to the acoustic environment, including higher noise and vibration levels. Ambient baseline noise levels in the Project area range from 39 to 55 dBA during the daytime and 29 to 45 dBA during the nighttime (Table 19.5-4).

Table 19.5-4: Receptor Sound Levels (dBA) and Application Case Sound Levels (dBA) Compared to PSLs from Project Operations

Receptor ID	Point of Reception Description	Time of Day [1], [2]	Ambient Sound Level (dBA)	Predicted Project Sound Level at Receptor (dBA) (L_{eq}))[3]	Application Case Sound Level (dBA) (L_{eq})[4]	PSL[5] (dBA)	Application Case Less than PSL?
R1	Cabin	Daytime	45	36.6	45.6	50	Yes
		Nighttime	35	36.6	38.9	40	Yes
R2	Cabin	Daytime	55	29.1	55	60	Yes
		Nighttime	45	29.1	45.1	50	Yes
R3	Unofficial Campground	Daytime	55	45.6	55.5	60	Yes
		Nighttime	45	44.5	47.8	50	Yes
R4	Seasonal Dwelling	Daytime	39	32.2	39.8	44	Yes
		Nighttime	29	31.7	33.6	34	Yes
R8	Unofficial Campground	Daytime	55	45	55.4	60	Yes
		Nighttime	45	43.9	47.5	50	Yes
R9	Cabin	Daytime	55	43.3	55.3	60	Yes
		Nighttime	45	42.9	47.1	50	Yes
R11	Cabin	Daytime	55	31.5	55	60	Yes
		Nighttime	45	31.5	45.2	50	Yes
R12	Cabin	Daytime	55	34.1	55	60	Yes
		Nighttime	45	34.1	45.3	50	Yes

Notes:

[1] Daytime hours are between 0700 and 2200.

[2] Nighttime hours are between 2200 and 0700.

[3] Predicted Sound Level at Receptor represents the noise levels arising from the Project (Chapter 7).

[4] Application Case Sound Levels represent background or baseline noise levels in addition to the noise levels arising from the Project (Chapter 7). It is defined as the cumulative noise impact at each representative human receptor from regular operations associated with the Project will be logarithmically summed with the Ambient Sound Level to determine the Application Case Sound Level.

[5] PSL – Permissible Sound Level as defined by the B.C. OCG Guideline (2018)

Based on the completed noise assessment, during Construction and Pre-Production, the geographic extent of noise and vibration effects is predicted to be largely restricted to the Project footprint. Related to the mine site, substantial construction related noise effects are not anticipated to extend into the Alexander Creek valley (see Section 7.5.4.2 of Chapter 7).

Lands used for recreational activities near Grave Lake, Harmer Creek Road, and Grave Creek Road could also experience some noise and vibration nuisance effects during the 19-month Construction and Pre-Production phase, as ambient conditions in the area are relatively low. This could include noise effects related to the movement of vehicles and equipment to the mine site and from the planned upgrades to Grave Creek Road.

Noise Impacts from Continuous Operations

During Project Operations, noise and vibration levels due the mine activities (i.e., stockpiling mine rock, various equipment being used, etc.) as well as the transportation of personnel, materials, and consumable

items on various roads in and around the Project (i.e., Highway 43, Line Creek Road, Valley Road, Harmer Creek Road, and Grave Creek Road) will affect the acoustic environment in the vicinity of the Project.

Table 19.5-5 identifies and describes representative human receptors that were identified for the acoustic assessment and relate to recreational uses. The location of the human receptors are also identified in Figure 19.5-1. The noise levels at these receptors provide the basis for understanding how the areas used for recreation surrounding the Project footprint may experience changes in the acoustic environment.

Table 19.5-5: Human Receptor Types and Description

Receptor ID	Receptor Type	Description of Receptor
R1	Cabin	Podrasky Cabin – Approximately 145 m east of the Alexander Creek Forest Service Road
R2	Cabin	Snowmobile Cabin – Located off a small unnamed road which splits from the Alexander Creek Forest Service Road at a helipad
R3	Unofficial Campground	A small campground which is located approximately 85 m southwest of the Grave Creek Road/Clean Coal Haul Road
R4	Seasonal Dwelling	Grave Lake Seasonal Dwellings – Approximately 15 m west of Grave Lake Road
R8	Unofficial Campground	A small campground located approximately 1 km southeast of R3 and 65 m southwest of the Grave Creek Road/Clean Coal Haul Road
R9	Trapline Cabin	A private cabin located approximately 740 m northwest of the explosives storage facility of the Project
R11	Cabin	A cabin located approximately 760 m east of the eastern extent of the Project and 400 m southeast of R2. Receptor location was identified by Sparwood Fish and Wildlife
R12	Cabin	A cabin located approximately 780 m east of the eastern extent of the Project and 730 m southeast of R2. Receptor location was identified by with Sparwood Fish and Wildlife

Source: Modified from Chapter 7

For each of the recreation-related human receptors, Table 19.5-4 provides the ambient sound levels, the modelled sound level at the receptor due to Project activities, and the cumulative sound levels at each receptor from regular operations associated with the Project and ambient sound levels (Application Case). Table 19.5-4 also provides a comparison of the Application Case to the Province of B.C. Permissible Sound Levels for daytime and nighttime periods.

At the representative human receptors identified in Table 19.5-4, the Application Case noise levels during daytime and nighttime hours are less than their respective Permissible Sound Levels (PSL). The predicted sound levels at recreational human receptors meet regulatory requirements. When noise levels increase by more than 5 dBA, a noticeable change is observed. As presented in Table 19.5-4, the projected Application Case noise levels do not exceed 5 dBA above ambient levels for any human representative receptors, and therefore Project activities during continuous operations do not reflect a noticeable change to users. As such, the change in noise levels as a result of the Project at these receptor locations is not expected to result in an appreciable change in their use and enjoyment. Regarding receptors located in proximity to Harmer Creek Road and Grave Creek Road (R3, R4, and R8), the new source of noise would come from mine related traffic. For a typical hour period, there would be two full coal haul trucks, two

empty coal haul trucks, and two crew buses. While noise levels will be high for the brief period of time when the vehicle passes by a receptor point, when averaged over an hour period, noise levels over that hour are still considered to be relatively low.

It is also important to note that there is little variation in the daytime and nighttime impacts at each receptor location. This is because most continuous operations associated with the Project operate continuously during both daytime and nighttime hours, with the exception of certain clean coal haul road sources, which operate during daytime only. Nighttime noise contours for continuous operations are provided in Chapter 7, Figure 7.5-6.

As previously noted, in addition to the representatives human receptors listed in Table 19.5-4, there are many areas near the Project footprint (e.g., Grave Lake, Grave Creek, and Alexander Creek area) that are also used for recreational activities. Figure 19.5-2 presents sound level contours at a height of 1.5 m for daytime Continuous Operations, which illustrates the projected extent and magnitude of noise impacts for lands surrounding the Project location.

As presented in Figure 19.5-1, during continuous operations, the highest noise levels are predicted to occur to the north of the Project footprint (i.e., 40 dBA to 45 dBA extending approximately just over 1 km north of Grave Creek Road closest to the mine site), while noise levels will be lowest to the south. Noise levels also extend much further to the east as compared to the west side of the mine site, as the Erickson Ridge limits noise extension to the west. Estimated noise levels along Erickson Ridge range from 35 dbA to less than 60 dBA. East of Alexander Creek, noise levels drop off to a range of 35 dBA to less than 45 dbA.

Lands north of the mine site are used by both motorized and non-motorized recreational users. It is anticipated that non-motorized recreational users such as hikers and hunters would be affected more by noise than motorized recreation users. The effects of additional noise in this area could include less enjoyment of the area, or make it less likely for users to use the area and to go elsewhere instead.

The areas used for recreation in proximity to Grave Lake Road (e.g., Grave Lake and Grave Creek) may experience a change in noise level due to the Project-related traffic. As noted in Section 19.4.1.3.2, Grave Lake is a popular weekend getaway for local residents, with a campground and a boat launch located at the southwest end of Grave Lake, and seasonal dwellings located along the south end of the lake. A receptor location (R4) was selected to represent noise near the Grave Lake Campground and boat launch, as well as it being in close proximity to the seasonal dwellings on the western side of Grave Lake. As described above, noise levels for the southwest end of Grave Lake (R4) are predicted to increase less than 5 dBA. At locations further east and north, noise levels will be less than 35 dBA and thus noise effects are considered to be very low. During continuous operations, the seasonal dwellings along the west side of Grave Lake could experience some minor change to noise levels during the nighttime, while noise levels during the daytime are not expected to be noticeable to users.

Crown Mountain Coking Coal Project

Figure 19.5-2
Daytime Noise Contours: Continuous Operations

LEGEND

- Human Receptor Location

Nighttime Noise Contours

- 35 ≤ ... < 40 dBA
- 40 ≤ ... < 45 dBA
- 45 ≤ ... < 50 dBA
- 50 ≤ ... < 55 dBA
- 55 ≤ ... < 60 dBA
- 60 ≤ ... < 65 dBA
- 65 ≤ ... < 70 dBA
- 70 ≤ ... < 75 dBA
- 75 ≤ ... < 80 dBA
- 80 ≤ ... < 85 dBA
- 85 ≤ ... < 90 dBA
- 90 ≤ ... < 95 dBA

- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Kilometres

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Scale 1:55,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By GeoBC OrthoImagery (Aug 2016).

Map Created By: PR
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-11

Document Path: \\42dillon\CAD\GIS\2012 and Prior\126231 Crown Mountain\EA_Report\EffectsAssessment\LandUse\126231_EA_LU_DaytimeNoiseContoursContinuousOps.mxd

Noise and Vibration Impacts from Blasting Operations

Two parameters are used for quantifying noise and vibration impacts from blasting on representative human receptors: ground vibration level (typically reported in mm/s) and air overpressure (in linear dBL). Table 19.5-6 presents the results for the blasting operations noise and vibration impacts on the recreation-related human receptors (refer to Table 19.5-5 for descriptions of their locations). The calculations used to determine these impacts are provided in Appendix C of the Noise and Vibration Assessment (Appendix 7-A; Dillon, 2021).

Table 19.5-6: Human Receptor Blasting Operations Impacts Compared to Applicable Criteria

Receptor ID	Distance Between Receptor and Blast (m)	Max Charge per Delay (kg)	Ground Vibration Level - PPV (mm/s)	Vibration level > 10 mm/s?	Air Overpressure (dB)	Air Overpressure > 120 dBL?
R1	2,738	2,300	0.8	No	101	No
R2	1,711	2,300	1.58	No	106	No
R3	7,192	2,300	0.2	No	92	No
R4	9,535	2,300	0.13	No	90	No
R8	6,229	2,300	0.24	No	94	No
R9	4,884	2,300	0.35	No	96	No
R11	1,498	2,300	1.92	No	107	No
R12	1,400	2,300	2.11	No	108	No

Blasting activities are expected to occur for approximately one hour at the same time every day or every two to three days, depending on the year of Operations. As the results indicate in Table 19.5-6, with the upper charge limit of 2,300 kg (maximum charge per delay), the predicted blasting/vibration levels at the representative human receptor locations will be in compliance with the respective criteria for both ground vibration and air overpressure.

Although the predicted levels are well below the applicable criteria for ground vibration and overpressure, the loud instantaneous blast noise will likely be audible at the representative human receptor locations and areas used for recreation that are in close proximity to the mine site (potentially closer than the modelled receptor locations); however, it is important to note that during blasting activities, NWP will implement closures of the areas located within approximately a 1 km buffer zone from the blasting site for public safety reasons. Land use activities would not be permitted in the blasting buffer zone.

Recreational activities occurring outside this 1 km buffer would be expected to experience noise and vibration levels similar to those modelled. Nuisance and annoyance effects due to blasting activities would decrease with a greater distance from the blasting site. Recreational users are anticipated to experience minimal and temporarily noticeable noise effects due blasting activities. While the acoustic changes from blasting activities may affect the enjoyment of recreational experiences, due to the short-term and temporary nature of blasting, blasting activities are not expected to dissuade recreational land users. Further, it is anticipated that local recreational users may alter the timing of their activities to avoid blasting periods, which will be advertised.

Changes to Wildlife and Fish Populations

Potential Project effects on wildlife and wildlife habitat may affect the availability of wildlife, which could impact hunting activities in the Land Use and Access LSA. Chapter 15 describes the potential for Project impacts on ungulates, including moose, elk, sheep and mountain goat. Due to Project development, sheep and mountain goats may experience minor habitat loss and sensory disturbance. Therefore, sheep and mountain goat abundance and distribution are not expected to change. During all stages, the Project is not expected to result in negative effects on elk. Elk are generally unaffected by sensory disturbance and the Project would result in the removal of only a small incremental area of elk habitat. During Post-Closure, elk may benefit from the reclaimed areas as these are ideal grazing areas. In comparison, the Project is expected to result in a decline in moose density due to winter habitat loss; however, the moose population in the area was described as relatively stable. Changes to the abundance and distribution of ungulates, with the exception of minor effects to moose density, due to Project activities, are predicted to be relatively minor and not substantially alter the abundance of these species. As a result, hunting activity is not expected to be significantly impacted by changes to game species population changes.

As reported in Chapter 12, the Project is anticipated to have a residual adverse effect on fish and fish habitat, specifically on the West Alexander Creek tributary due to the construction of the proposed Mine Rock Storage Facility. Further impacts are predicted to occur because of changes in river flows and loss of riparian habitat. The residual losses of the Project are anticipated to be 35,165 m^2 of instream fish habitat in West Alexander Creek (i.e., 31,928 m^2 due to mine design and 3,237 m^2 due to changes in water quantity below the Main Sediment Pond) and an estimated 36.13 ha of associated functional riparian habitat removal. The impacted habitat is considered to be high value Westslope Cutthroat Trout habitat, as well as habitat used by Bull Trout. As a result, the residual effects of instream habitat loss due to mine design and development and habitat loss due to changes in water quantity were found to be significant for Westslope Cutthroat Trout. In terms of impacts to water quality, TSS is not anticipated to increase to the extent that it would substantially affect fish and fish habitat below the Main Sediment Pond. The controlled releases from the Main Sediment Pond aim to prevent excessive sediment input to the receiving environments. The water quality model predictions were found to have no significant effect to fish and fish habitat. Based on results provided in Chapter 11 and Chapter 22, the possibility for bioaccumulation exists but is found to be not significant as it relates to aquatic wildlife.

Summary – Changes to Recreation and Tourism Land Use

The Project location is a valued area for recreation activity, particularly by residents of the Elk Valley. The development and operation of the Project will result in the loss of land used for recreation activities and result in some disruption to recreation activity that is expected to continue in the vicinity of the Project. The main effect that could change recreation activity experience is from noise, which is generally limited to lands that are in close proximity to the Project location (e.g., along Harmer Creek and Grave Creek Road). During Post-Closure, the Project footprint is expected to re-open for recreational, and to a lesser extent, tourism activities.

The following subsections summarize the impacts to recreation and tourism land use by land user group.

Hunting

During all Project phases, the Project will result in the direct loss of lands (about 1,100 ha for the mine site and 51 ha for the rail loadout facility) used or that may be used for hunting activities, an additional area

around the mine site that would be within the NUE area, plus lands surrounding the mine site and rail loadout facility that would closed to gun hunting. It is noted that some of the area closed to gun hunting may be open to bow-hunting only. While the Project footprint would be reopened to public use during Post-Closure, this effect is considered to be long-term in duration and anticipated to alter hunting activities and land use within the area for a 19-year period. Because of the Project, there will be less land available to hunters for the Project duration. This could increase hunting pressure in other areas.

There is also some potential for noise increases on lands used for hunting in proximity to the Project. The Project related increases in noise levels over ambient conditions is expected to be generally limited to lands in immediate proximity to the mine site, which may be restricted to the bow hunting use only areas, as noted above. The NUE areas will limit use of lands in close proximity to the mine, although areas could open up for hunting as mining activity moves through the footprint area.

Changes to wildlife habitat and potential wildlife disturbances are not expected to affect the availability of ungulates (with the exception of moose), including within the Alexander Creek area. A minor decrease in moose density is predicted in the local area due to the loss in winter habitat as a result of the Project.

Generally, changes to the quality of hunting on lands outside of the Project footprint and where permitted are expected to be relatively minor and negligible for the duration of the Project.

Fishing

As previously described, the Project is predicted to result in direct loss to Westslope Cutthroat Trout and Bull Trout habitat. The residual effects of instream habitat loss due to mine design and development and habitat loss due to changes in water quantity were found to be significant for Westslope Cutthroat Trout. A fisheries compensation/off-setting program will be required to ensure there is no net loss to habitat. As previously described, the main branch of Alexander Creek is used for angling, including guided trips for cutthroat trout with the Kootenay Fly Shop and Guiding Company and Dave Brown Outfitters. While direct instream habitat loss will occur only in West Alexander Creek, it is possible that other, not-significant effects (e.g., changes in water quantity, changes in water quality) could affect downstream fish habitat in Alexander Creek, which could in turn impact recreation fishing and guided fishing activities in this waterway. Required fish habitat offset measures may reduce some of this impact.

Motorized Recreation

The Project, specifically the development and operation of the mine site, would result in the removal of approximately 1,100 ha of lands, a large portion of which is used and highly valued for snowmobiling activities within the Alexander Creek AMA, for a period of 19 years. Development of the mine site would also block the route typically taken by snowmobilers to access a cabin within the Alexander Creek valley. As a result, an alternative and longer route will be required to access the cabin.

During non-winter months, Project development will result in the direct loss of 16 km roads and trails used for motorized vehicle recreation, specifically roads and trails transected by the mine site and supporting infrastructure. Impacts related to changes to access to roads and trails along the Alexander Creek that are used for motorized recreation are described in further detail in Section 19.5.3.3.

Off-site nuisance effects such as noise are not expected to have an impact on the quality of motorized recreation in the Project area.

Non-Motorized Outdoor Recreation

The Project would result in the direct loss of 16 km of trails and roads located within the mine site that are used for mountain biking and hiking. There could also be some temporary restriction of use of lands for non-motorized recreation in areas within the established NUE (in addition to hunting previously described), although specific features/areas were not identified.

There could be some disturbances to use of unofficial campgrounds located in close proximity to Harmer Creek and Grave Creek Road from construction activities to upgrade Grave Creek Road and from use of the road by mine related equipment and trucks. Construction related effects are predicted to be short-term in duration (i.e., 18 months). During Operations, Project-related traffic (i.e., coal haul trucks) along Harmer Creek and Grave Creek Road may continue this disruption effect to users of the unofficial campgrounds, and as a result of these nuisance effects, users may choose to use different areas to camp. While on an hourly average basis, noise levels are within applicable guidelines, there will still be high levels of short-term noise each time a truck passes a particular receptor location along the road (four coal haul trucks per hour are expected). Users of Grave Lake are not expected to be significantly impacted by noise from construction and operations, although noise level increases may be noticeable by some, particularly during night-time.

During all Project phases, Project-related traffic may result in people avoiding the area and choosing to go elsewhere for non-motorized outdoor recreation activities due to potential safety concerns in using Harmer Creek Road and Grave Creek Road that will also be used by mine related truck and crew bus traffic.

19.5.3.2 Changes to Commercial Land Use

The following section describes the potential effects related to the following measurement indicators:

- Consistency with land use designations and policies; and
- Commercial land use including resource extraction activities.

19.5.3.2.1 Consistency with Land Use Designations and Policies

The majority of the Project footprint, 1,039.5 ha, or 81%, is located on provincial public lands designated as Coal - Enhanced Resource Development Zone, which prioritizes coal mining exploration and development activities. This designation includes areas where the land is suitable, or potential suitable, for intensive coal resource development (Kootenay Inter-Agency Management Committee, 1997). The remaining area, approximately 243.5 ha, or 19% of the Project footprint, is situated on private land and not subject to provincial land use plans (Kootenay Inter-Agency Management Committee, 1997).

The Project footprint currently overlaps with 243.5 ha of private lands designated by the RDEK Elk Valley Zoning Bylaw No. 829 (1992) as Rural Resource (RR-60) and Rural Residential (RR-8). The majority of the Project footprint overlaps with Rural Resource Zone, which allow agricultural use, extraction of sand and gravel, and harvesting, transport, and storage of forest resources, wildland use, including cabins and backcountry commercial recreation lodges, in addition to other land uses (RDEK, 2019). The Project footprint also overlaps 1.99 ha of Rural Residential (Country) Zone. Permitted uses on this land include

agricultural land use, wildland use, single, and two family dwellings, as well as other land uses (RDEK, 2019).

Considering the above, the development and operation of the Project is largely consistent with existing land use designations and policies of the Province of B.C. and regional governments. Several exceptions are described below.

The Project footprint, specifically the powerline, the western section of Harmer Creek Road, the rail loadout, and supporting infrastructure, transects 96.7 ha of Agricultural Land Reserve (ALR) land within the Elk Valley (Figure 19.4-4). Agriculture, farming, and other compatible land uses are intended uses for these lands. Unless approved by the ALC, non-agricultural uses are restricted on these lands. An exclusion application would be required in order to remove land from the ALR, and proceed with Project-related land uses. As of September 2020, exclusion applications may only be initiated by the Province, local governments, or Indigenous communities; landowners are no longer able to submit an exclusion application (ALC, 2021).

The Project footprint (the powerline) overlaps with 9.7 ha of designated conservation lands that are part of the Big Ranch Complex. NWP is in the process of exploring opportunities to purchase land offsets for ecological and recreational purposes. NWP intends to discuss the use and management of these lands with key stakeholders and Indigenous communities.

The mine site and supporting infrastructure overlap with 248.69 ha of non-legal Old Growth Management Areas (OGMAs; Figure 19.4-6). As defined in Section 19.1.1.1, non-legal OGMAs are spatially defined areas of old growth forest that are defined through operational planning or landscape unit planning processes. When preparing Forest Stewardship Plans, forest licensees are not required to follow OGMA direction and can choose to manage biodiversity targets through alternative methods. Requirements for planning and protection of biodiversity values are not consistent between forestry and non-forestry Crown tenure holders. As part of Project mitigation, NWP would be encouraged, but not required, to avoid or mitigate disturbance to OGMA areas (Forest Practices Board, 2012).

Within the Project footprint approximately 24.5 ha, or 2% of the total Project footprint area, is designated as Enhanced Resource Development Zone – Timber. Specifically, the explosives storage access road, explosives storage facility, and a section of the site access road north of the mine site overlap the Enhanced Resource Development Zone – Timber designation.

19.5.3.2.2 Commercial Land Use Including Resource Extraction Activities

The development of Project components, including the rail loadout, mine site, and/or new supporting infrastructure, could result in the loss of lands used for some commercial purposes (Figure 19.5-1). The following sections describe the potential changes to use of land for guide outfitters, trapping, forestry, mining and exploration, and oil and gas development. Land access restrictions related to the closure areas on adjacent lands and changes to Harmer Creek, Grave Creek Road, and Valley Road are described further in this chapter in Section 19.5.3.3.

As previously noted in Section 19.5.3.1, NWP will establish No Unauthorized Entry (NUE) areas in order to ensure worker and public safety within and near the Project. Public land use will not be permitted

within the NUE boundary, and it is possible that the NUE boundary will evolve during the Project duration for a 19 year period. For the purposes of this assessment, the NUE boundary include the components of the Project footprint that are closed to the public (i.e., the rail loadout, mine site, and supporting facilities and infrastructure) for the duration of all Project phases. In the absence of a definitive NUE boundary, the NUE boundary includes the components of the Project footprint that are closed to the public (i.e., the rail loadout, mine site, and supporting facilities and infrastructure); changes to commercial land use activities due to the implementation of an NUE boundary are captured in the following sections.

Guide Outfitters

The Project footprint does not overlap with any guide outfitter tenure areas. As presented in Section 19.4.1.2.10, guided fly fishing trips are offered along the Elk River, Michel Creek, Alexander Creek, as well as other waterbodies throughout the area. Potential changes to fishing activities are described in Section 19.5.3.1, while changes in access to areas used for fishing are described in Section 19.5.3.3.

Trapping

The development of Project components, including the mine site, rail loadout, and supporting infrastructure, would result in the direct loss of land available for trapping activities. The Project footprint overlaps with four trapline tenures: TR0423T006, TR0423T010, and TR0423T021 & TR0423T022 (Section 19.4.1.2.10 and Figure 19.4-7). This section describes the changes to land used for trapping activities within the above four trapline tenures as a result of Project development. Following this, a description of how the Project could impact furbearing wildlife species populations, which could also have an impact on trapping activity, is presented. Section 19.5.3.3 describes changes to land access for trapping activities due to blasting closure areas and changes to Harmer Creek Road and Grave Creek Road.

TR0423T006

TR0423T006 covers an area of approximately 12,163 ha. This trapline tenure is transected by the following Project components: mined areas, Mine Rock Storage Facility, Sediment Ponds, and other infrastructure at the mine site (Figure 19.4-7). More specifically, the Project footprint overlaps 990 ha of TR0423T006, which is less than 8.1% of the total trapline tenure area. For the duration of the Project, trapping activities would not be permitted within 990 ha of TR0423T006.

As presented in Section 19.4.1.2.10, the tenure holder of TR0423T006 identified Crown Mountain and Alexander Creek as an area of high use and value for their trapping activities, which typically occur from November/December until March. This area was described as a very good and highly valued trapping area, as many furbearing animals reside within the corridor between Erickson Ridge and the Continental Divide. The tenure holder of TR0423T006 also owns a cabin on the east side of Alexander Creek, which is used between 30 and 60 nights per year. While this cabin will not be directly impacted, there could be restrictions to the access of this cabin that is discussed in Section 19.5.3.3. Potential effects of concern expressed by the tenure holder of TR0423T006 include the loss of land base used for trapping activities, as well as concerns related to wildlife impacts, air quality, and noise.

The Project would result in the direct removal of 990 ha of land currently used and highly valued by the trapline tenure holder of TR0423T006 for a 19 year period. Following the completion of reclamation and closure activities, the Project would not restrict land available for trapping activities within TR0423T006.

TR0423T021 & TR0423T022

Together, TR0423T021 & TR0423T022 cover the area east of the Elk River to the north end of the mine site, which is approximately 10,731 ha. This amalgamated trapline tenure is transected by the following Project components: rail loadout and supporting infrastructure, Valley Road, Harmer Creek Road, Grave Creek Road, and the north end of the mine site (Figure 19.4-7). More specifically, the Project footprint overlaps 282.7 ha of TR0423T021 & TR0423T022, which is less than 3% of the total amalgamated trapline tenure area. With the exception of Grave Creek Road, the area of TR0423T021 & TR0423T022 overlapped by the Project footprint would be closed for the duration of the Project. This would result in a direct loss of land available for trapping activities within TR0423T021 & TR0423T022 for a 19 year period. Following the reclamation of the Project footprint, trapping activities in this tenure area will be permitted.

During Operations, the increases in traffic, particularly along Harmer Creek Road and Grave Creek Road, due to Project-related transportation activities could result in increased noise levels, which may result in reduction in the population of furbearing species that are trapped in the vicinity of the road. Based on representative human receptor locations, noise levels within 65 m to 85 m of the road are expected to increase by approximately 0.4 dBA to 0.5 dBA during the daytime and 2.5 dBA to 2.8 dBA during nighttime (Table 19.5-4). These changes are expected to be largely imperceptible to the human ear, but could still result in wildlife avoidance due to sensory disturbance. This impact would be lessened further from Harmer Creek Road and Grave Creek Road, however additional effort may be required to use these areas for trapping activities.

In summary, the potential effects to use of TR0423T021 & TR0423T022 are expected to be dispersed over a relatively large area. Only 3% of the tenure area is to be directly impacted. There is potential for some additional noise along Grave Creek Road and Harmer Creek Road from Project-related traffic, which may reduce the abundance of trapped species in close proximity to the road. This additional road traffic noise is expected to be in proximity of the road, thus limiting the area of impact on trapping activity. Considering the above, the potential Project-related direct loss of land used trapping activities within TR0423T021 & TR0423T022 are predicted to be relatively minimal.

TR0423T010

TR0423T010 covers an area of approximately 7,106 ha. The Project powerline, located east of the Elk River, overlaps with a small area, approximately 10.1 ha or 0.14%, of TR0423T010. During Construction and Pre-Production, use of TR0423T010 overlapped by the powerline may be affected due to temporary construction activities; however, once the powerline is constructed, it is anticipated that trapping activities will be able to occur within the immediate vicinity of the powerline. During all Project stages, changes to trapping use of TR0423T010 are considered to be negligible due to the relatively minor overlap with Project components.

In summary, the Project would result in the direct removal of 990 ha of land currently used and highly valued by the trapline tenure holder of TR0423T006 for a 19 year period. The potential effects to use of TR0423T021 & TR0423T022 are expected to be dispersed over a relatively large area (i.e., only 3% of the tenure area would be directly impacted); however, there is potential for some additional noise along Grave Creek Road and Harmer Creek Road from Project-related traffic, which may reduce the abundance of trapped species in close proximity to the road. For the duration of the Project, changes to trapping use

of TR0423T010 are considered to be negligible due to the relatively minor overlap with Project components.

Changes to the Quality of Trapping Activities

In addition to the loss of the physical land base, potential changes to wildlife populations as a result of the Project could also alter trapping activities in the Land Use and Access LSA. This impact could result from a loss in wildlife habitat and/or disturbance effects (e.g., increased noise). This potential impact is common to all trapping tenures.

Chapter 15 describes the potential effects due to Project development for the following carnivore species that are trapped in the region: American marten and Canada lynx. While there is the potential for a small decrease in American marten and Canada lynx populations, this change was determined to be non-significant, as these populations are considered to be stable. In addition, the Project is expected to result in moderate habitat loss and disruption. The Alexander Creek area, located east of the mine site, was identified as a higher quality habitat for carnivores in comparison to the Project footprint. Therefore, Project-related changes to carnivore populations and their habitat were predicted to be not significant.

The Project is expected to result in moderate sensory disturbance to both American marten and Canada lynx. During Construction and Pre-Production, Operations, and Reclamation and Closure, the change in sensory disturbances due to Project activities (e.g., transportation along Grave Creek Road) has the potential to result in a disturbance effect. It is important to note that the disruption to movements of these species due to the Project is expected to be low. In general, American marten and Canada lynx movements run north to south along Alexander Creek and over Deadman Pass, Racehorse Pass, and North Fork Pass. During all stages, the Project is not predicted result in a significant effect to Canada lynx and American marten for trapping purposes.

As noted in Section 19.5.3.1, the reclamation and closure of the Project area aims to restore the pre-existing landscape and uses, including trapping uses. During the 15 year Post-Closure period, the Project footprint will be restored to as natural state as practical and will be safe to use for trapping activities. It is anticipated that in the early years of Post-Closure, the Project footprint may not be entirely re-vegetated to its initial state, which may affect the extent of use due to the quality of trapping in the area. As the area becomes increasingly covered by vegetation, it is expected that the quality of trapping in the area will also improve due to the enhanced habitat.

Forestry

The Project will result in the removal of forest lands located within both Crown tenure areas and privately managed forests. As noted in Section 19.4.1.2.7, Canfor's operating area forest tenure (A19040) is a volume-based Crown tenure that covers all Crown land within the Project footprint. In addition, the Project footprint also overlaps with managed forests located on private land. Information provided by Canfor shows harvested blocks located partially within the proposed mine site and to its north, northeast and southeast (Figure 19.5-3). As well, there are also harvested blocks within and adjacent to the rail loadout[7] (Figure 19.5-3). Information provided by Canfor indicates that there are plans for future cuts to the northeast and to the southeast of the rail loadout, and to the north of the mine site, although these areas are not yet permitted. Canfor also indicated that they have long-term plans for cuts in the Project

[7] Future forestry cutblock data represented in Figure 19.5-3 are reflective of data received from Canfor in 2018.

footprint and could advance those plans/concentrate future logging activity in this area to reduce the overall area of cut in this tenure.

The Project is expected to result in the removal of about 1,283 ha of forestry lands (including setbacks and contingency areas). Based on a high-level estimate completed in cooperation with Canfor, the total volume of merchantable timber in the Project footprint, including setbacks and contingency areas, is approximately 5,885.99 m^3. During mine permitting stages, NWP would be required to complete an assessment to determine the volume of merchantable timber that would be removed due to Project activities. NWP will work with Canfor to coordinate the harvesting of the timber in advance of site preparation/construction. As the mine site will be developed over a number of years, timber on the site could be harvested over a longer time frame as the Project progresses. Any required compensation for the removal of the timber will be determined following the detailed assessment of the timber lands.

NWP has also been informed that Canwel has an agreement for use of the Grave Creek Road and may be undertaking some road upgrades before 2022.

Mining, Exploration, Oil, and Gas Development

The Project will result in the extraction of a mineral resource – coal. All coal licenses within the Project footprint are owned by NWP. The Project footprint, specifically Harmer Creek Road and Grave Creek Road, also overlaps with 15.2 ha of mineral claims; there are no future plans to develop these mineral claims. The Project does not prevent the future development of these mineral claims as they are located on existing infrastructure. The remaining sections of Project footprint do not overlap with any additional coal licenses or mineral claims. As such, the Project is not expected to result in a change to mining and exploration land use.

The Project footprint does not overlap with any active or non-active oil and gas wells, and therefore the Project is not predicted to affect oil and gas development activities.

Summary – Changes to Commercial Land Use

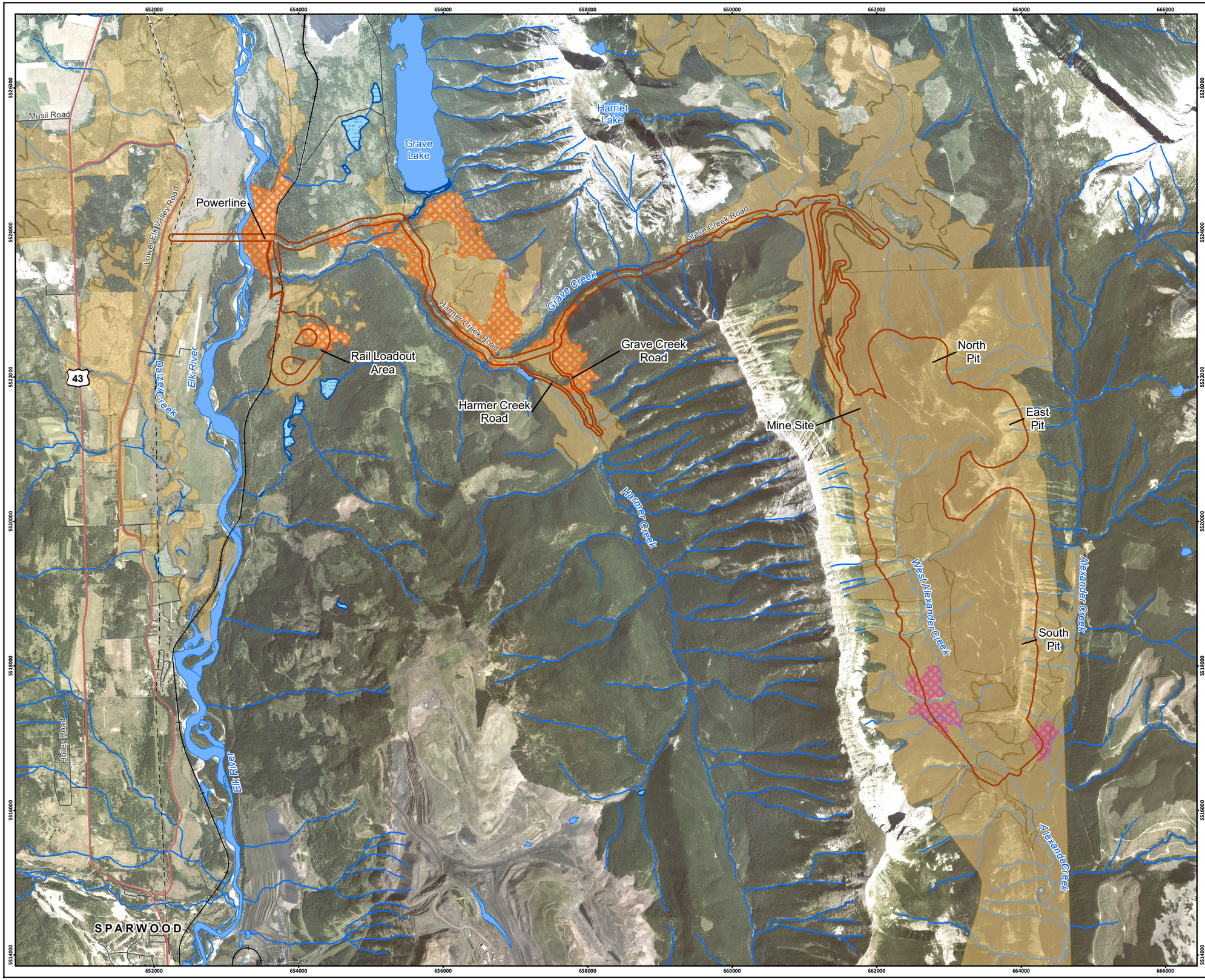
Project development, including logging and site clearing activities near the rail loadout and mine site, is expected to reduce the land available for commercial purposes, specifically long-term forestry activities and trapping.

Guided Outfitters

The Project is not predicted to result in a change to guided outfitter land use as no guided outfitter activities were identified to occur within or in the vicinity of the Project footprint.

Trapping

The Project would result in the direct removal of 990 ha of land currently used and highly valued by the trapline tenure holder of TR0423T006 for a 19 year period. The potential effects to use of TR0423T021 & TR0423T022 are expected to be dispersed over a relatively large area (i.e., only 3% of the tenure area would be directly impacted); however, there is potential for some additional noise along Harmer Creek Road and Grave Creek Road from Project-related traffic, which may reduce the abundance of trapped species in close proximity to the road. For the duration of the Project, changes to trapping use of TR0423T010 are considered to be negligible due to the relatively minor overlap with Project components.



Crown Mountain Coking Coal Project

Figure 19.5-3
Current, Recently Harvested, and Future Cutblocks

LEGEND

- Forestry - Retired Cutblocks
- Forestry - Current and Recently Harvested Cutblocks
- Canfor - Past Logging
- Canfor - Future Planned
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
Imagery Provided By GeoBC OrthoImagery (Aug 2016).

Map Created By: RB/LMM
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
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Forestry

The Project would result in the direct loss of about 1,283 ha of forestry lands. The total volume of merchantable timber in the Project footprint is approximately 5,885.99 m^3. Compensation for the removal of the timber will be determined following the detailed assessment of forestry lands.

Mining, Exploration, and Oil and Gas Development

The Project is not predicted to result in a change to mining, exploration, or oil and gas development land uses.

Overall, changes to commercial land use due to the Project are expected to represent a change in day-to-day commercial use of the land for trapping and forestry activities.

19.5.3.3 Changes to Land Use Access

The following describes the potential effects related to the following measurement indicator:

- Access to recreation and commercial/resource harvesting areas.

This indicator assesses potential impacts related to changes to access of lands in the Land Use and Access LSA for recreation and commercial/resource harvesting activities. This assessment considers potential changes to existing access roads and trails, including restrictions in their use. This assessment also considers changes to access due to blasting safety closure areas on lands adjacent to the Project footprint, which are described in further detail below.

During blasting activities, which would occur throughout Operations, up to approximately 1 km from the blasting site would be occasionally closed to public use to ensure public safety. The extent and duration of these land access closures will vary during the life of the Project. Table 19.5-7 describes the duration of mining activities at the various pits within the mine site, as well as the anticipated frequency of blasting activities during Operations. The maximum area of the land access closures due to blasting at the North Pit, East Pit, and South Pit are presented in Figure 19.5-4, Figure 19.5-5, and Figure 19.5-6, respectively; however, the area of blasting-related closures will be linked to an individual blast radius, which will be much smaller in comparison to the maximum areas defined in Figure 19.5-4 and Figure 19.5-5. As such, Figure 19.5-6 identifies the blasting safety closure areas during two separate individual blasts at the South Pit. As noted in Section 19.5.3.1, NUE boundaries will be established by NWP in collaboration with regulators and key stakeholders; it is possible that in certain areas the NUE may include portions of blasting closure areas. For the purposes of this assessment, changes to recreation and commercial land uses due to the development of NUE areas are discussed in Section 19.5.3.1.

Table 19.5-7: Anticipated Pit Operations and Blasting Periods

Pit Location	Mine Pit Operations Period	Anticipated Frequency of Blasting Activities
North Pit	Year 1 until early Year 5	Blasting anticipated to occur daily from 3 pm to 4 pm
East Pit	Year 3 until Year 6	Blasting anticipated to occur from 3pm to 4pm every 2 to 3 days
South Pit	Year 5 until Year 15	Blasting anticipated to occur daily from 3 pm to 4 pm

Note: Years refer to solely to Operations period (i.e., Year 1 is the first year of operations) and do not include Construction and Pre-Production. Refer to Chapter 3 for detailed drawings of the mine operations plans for the North Pit, East Pit, and South Pit of the Project.

Crown Mountain Coking Coal Project

Figure 19.5-4
Project Closure Areas due to Blasting Activities at the North Pit

LEGEND

- Maximum Boundary of Closure Areas during Blasting of North Pit from Year 1 to Year 5 of Operations
- North Pit Mined Area
- East Pit and South Pit Mined Areas
- Project Footprint (open to public use for the duration of the Project)
- Project Footprint (closed for public use for the duration of the Project)
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada.
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Note: Years refer to solely to operations period (i.e. Year 1 is the first year of operations) and do not include construction and pre-production.

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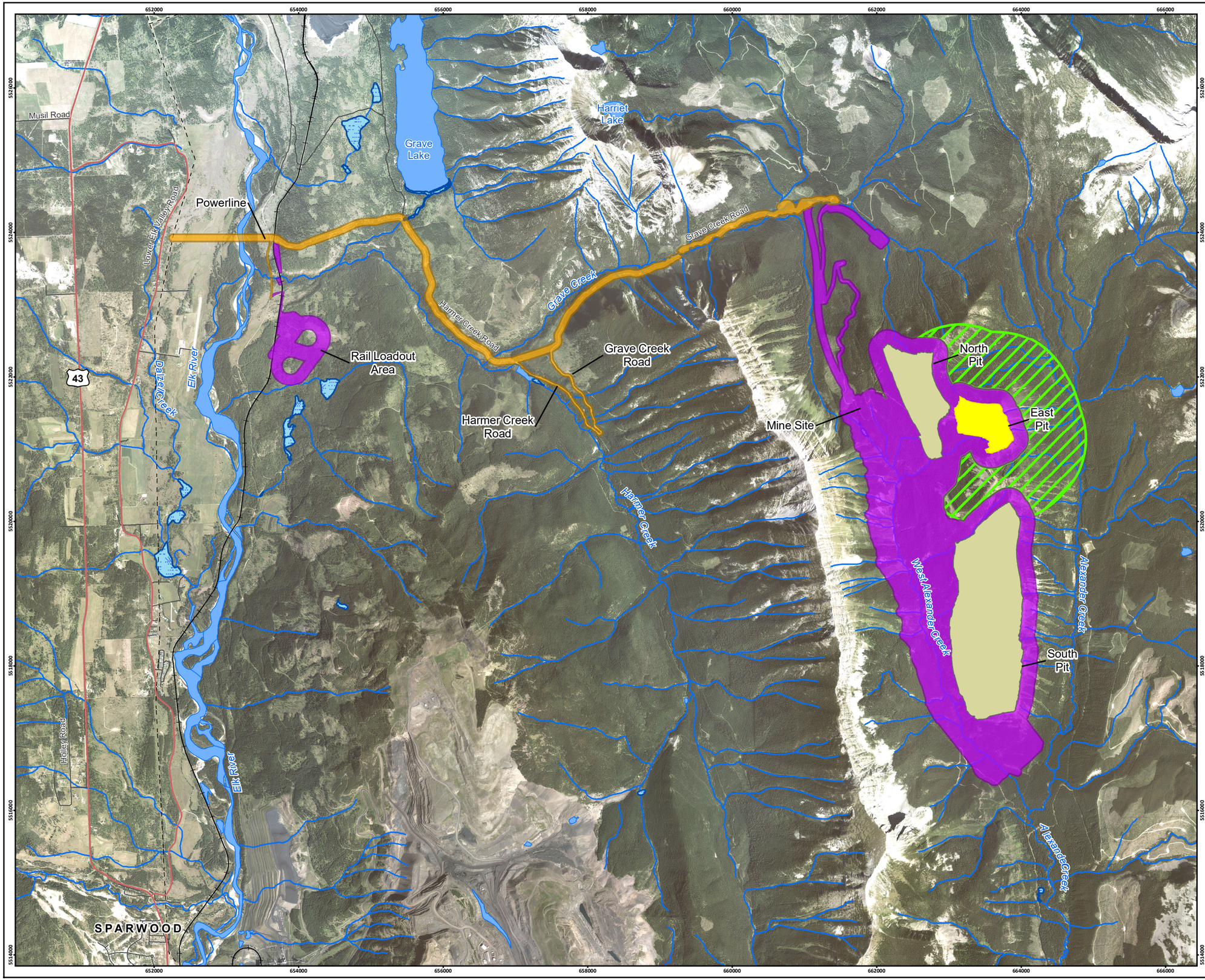

Crown Mountain Coking Coal Project

Figure 19.5-5
Project Closure Areas due to Blasting Activities at the East Pit

LEGEND

- Maximum Boundary of Closure Areas during Blasting of East Pit from Year 3 until Year 6
- East Pit Mine Area
- North Pit and South Pit Mined Areas
- Project Footprint (open to public use for the duration of the Project)
- Project Footprint (closed for public use for the duration of the Project)
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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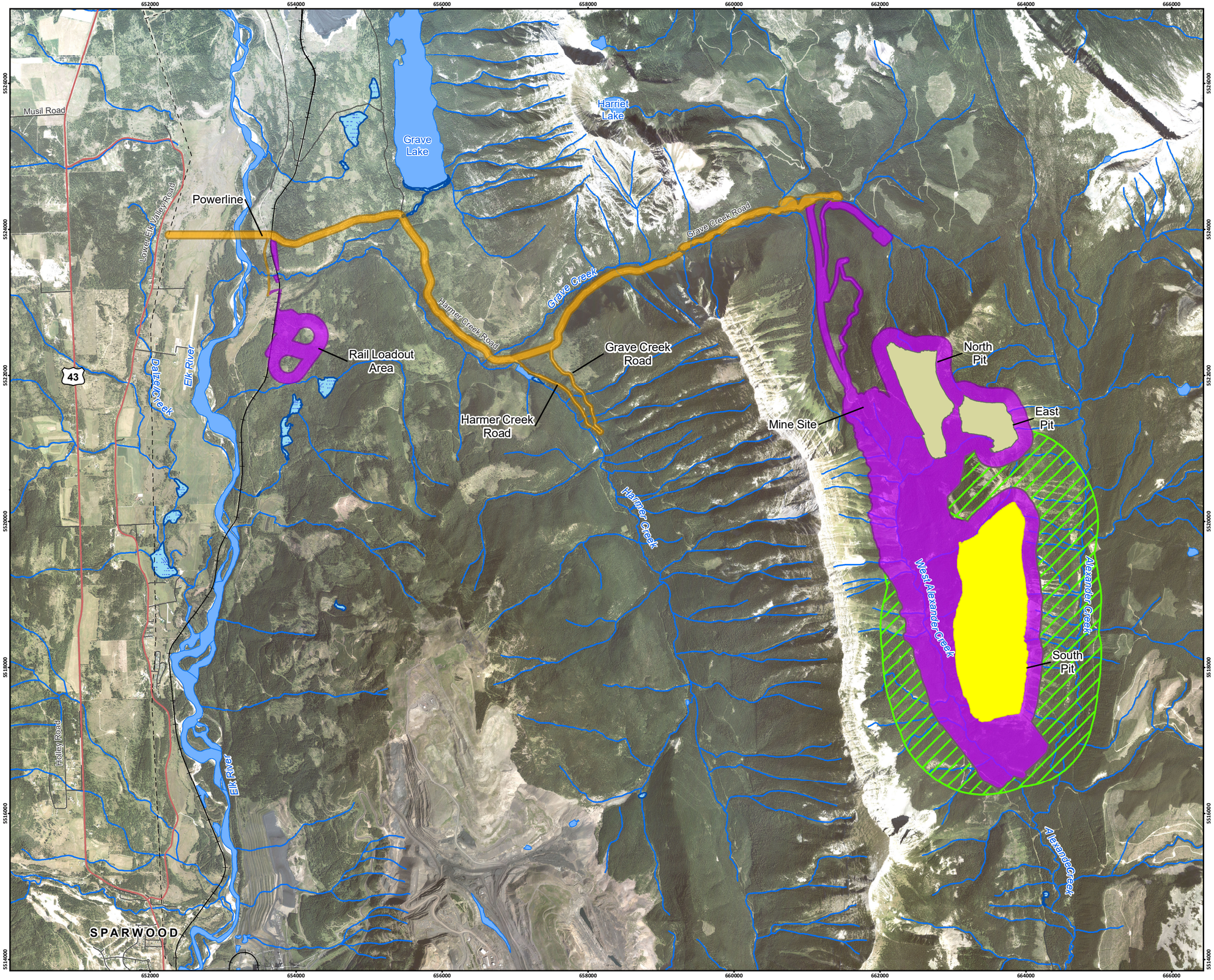

Crown Mountain Coking Coal Project

Figure 19.5-6
Project Closure Areas due to Blasting Activities at the South Pit

LEGEND

- Maximum Boundary of Closure Areas during Blasting of South Pit from Year 5 until Year 15
- South Pit Mined Area
- North Pit and East Pit Mined Areas
- Project Footprint (open to public use for the duration of the Project)
- Project Footprint (closed for public use for the duration of the Project)
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Section 19.5.3.1 and Section 19.5.3.2 describe the potential effects due to the direct loss of land used for recreation activities and commercial activities, respectively, within the Project footprint. The following section characterizes the potential effects to access due to the changes to use of lands adjacent to the Project footprint.

19.5.3.3.1 Recreation and Tourism Access

All Project phases, including Construction and Pre-Production, Operations, and to a lesser extent Reclamation and Closure activities, have the potential to affect access to areas used for recreation and tourism. The Project footprint and surrounding area is highly used and valued for recreational purposes. As a result, changes in the access levels to these lands could affect a number of recreation, and to a lesser extent tourism, land users and their activities in the Land Use and Access LSA.

A description of potential effects to recreation and tourism access are summarized below. It is important to note that these effects would likely be experienced by different user groups. Therefore, the following subsections provide a more detailed description of changes to access to land used for specific activities, including hunting, fish harvesting, motorized recreation, and non-motorized outdoor recreation.

Harmer Creek Road and Grave Creek Road are commonly used to access Grave Lake, the Grave Creek area, and the Alexander Creek area for recreational purposes. While the Project intends to use Harmer Creek Road and Grave Creek Road, NWP would not close the road to public use. During Construction and Pre-Production, temporary closures or reductions in the volume and speed of traffic permitted along Grave Creek Road may occur due to Project activities associated with upgrading the roads. Throughout Operations, the Project is expected to result in increases in traffic along Harmer Creek Road and Grave Creek Road, which may alter some users' preferred route selection to access areas for recreational activities. In addition, during Operations, one section of Grave Creek Road will only permit one-way traffic, and use of this section will be radio controlled. The winter maintenance of Grave Creek Road for Project-related transportation activities is expected to enhance access for non-snowmobile vehicles, which could result in an increased use of the area by other users.

During mine blasting activities, which will occur throughout Operations at the mine site (see Table 19.5-7 and Figure 19.5-8), there will be closures of the areas within approximately a 1 km radius from the blasting site, which would restrict movement through the area for recreational activities. As presented in Table 19.5-7, the duration of these restrictions are tied to the mining of specific pits, and therefore would affect different areas and users differently depending on the year of Operations.

Hunting

Results from NWP's Land Use and Access Survey indicate that local hunters are concerned that the Project would further restrict access to areas used for hunting within an area that is already limited due to existing unauthorized access areas that surround existing mine infrastructure in the Elk Valley. Local hunters also noted concerns that the Project-related NUE areas would extend beyond the Project footprint.

During Construction and Pre-Production, access to areas used for hunting activities via Harmer Creek Road and Grave Creek Road (e.g., Alexander Creek, Harmer Creek, and other areas surrounding the Project footprint) may be temporarily affected, however this effect would be short in duration and only occur periodically throughout the 18month Construction and Pre-Production period. During Operations, Project-related use of Grave Creek Road may affect users' preferred route selection to access areas for hunting.

Crown Mountain Coking Coal Project

Figure 19.5-7
Project Closure Areas due to Individual Blasts

LEGEND

- Maximum Boundary of Closure Areas during Blasting of South Pit from Year 5 until Year 15
- South Pit Mined Area
- North Pit and East Pit Mined Areas
- Project Footprint (open to public use for the duration of the Project)
- Project Footprint (closed for public use for the duration of the Project)
- Example Individual Blast #1 Location
- Example Individual Blast #2 Location
- Example Individual Blast #1 Closure Area
- Example Individual Blast #2 Closure Area
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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During Project Operations, access to hunting areas (e.g., Alexander Creek) via Harmer Creek Road and Grave Creek Road will still be possible; however, the increases in traffic along Harmer Creek Road and Grave Creek Road may alter some users' preferred route selection to access the Alexander Creek area for hunting purposes.

Blasting activities would result in occasional closures of lands that are located within the specific blast radius and used for hunting activities for a 15 year period during Operations. During blasting activities, areas within the blasting radius adjacent to the mine site would be closed for public safety purposes. As noted in Section 19.4.1.2.10, hunting activities occur within the corridor between Erickson Ridge and the Continental Divide, which includes the Alexander Creek area. Blasting related land access closures could also restrict hunters' ability to move across the land to hunt in the area, including the possible proposed bow only hunting area in the direct vicinity of the mine site. These access restrictions might result in longer travel routes to access hunting lands.

In addition to blasting safety closure areas, there would also be closure to use of land for gun hunting surrounding the mine site and rail loadout for mine worker safety reasons. To mitigate this effect, a bow-only hunting area around the mine site and rail loadout facility could be established and would be developed through discussions with regulators, the public, and Indigenous peoples. While the area that would be closed to gun hunting is still to be confirmed, setbacks of 100 m are often used under B.C. hunting regulations. Bow-only hunting areas would be established in coordination with regulators and stakeholders in order to maximize access for recreation, while also maintaining worker and public safety. In addition, NWP intends to define bow-only hunting areas in a way that is simple for the public to understand and also simple for NWP to administer.

As presented in Table 19.5-7, the duration of the blasting area restrictions are tied to the mining of specific pits, and therefore would affect different public lands depending on the year of Operations. As hunting occurs throughout the area adjacent to the mine site, access to some lands could be affected for a 15 year period.

Fishing

Project-related activities may result in changes in access to areas currently used for fishing. The Elk River, which is overlapped by the Project footprint (i.e., the powerline), and Alexander Creek, which is located to the east of the Project footprint, are known to be used for angling activities (Section 19.4.1.2.10). In addition, Harmer Creek Road and Grave Creek Road also provides access to backcountry fishing areas, including Harriet Lake located north of Grave Creek Road. The potential effects to changes in use and quality of fishing due to Project-related activities are described in Section 19.5.3.1.

During all Project phases, Project-related activities near the powerline would not affect access to the Elk River for angling activities.

During Construction and Pre-Production, access to Alexander Creek for fishing may change due to construction-related temporary closures of Grave Creek Road. Alexander Creek would still be accessible from the south via Alexander Creek Road.

Throughout Operations, access to Alexander Creek via Harmer Creek and Grave Creek Road is expected to largely remain accessible for fishing. During blasting activities, sections of Alexander Creek located within a 1 km buffer zone from the blasting site will be occasionally closed to public use. There will be no restrictions to angling access and use of Alexander Creek for the first three years of Operations. From Year 3 to Year 6 of Operations, blasting of the East Pit would result in closures every two three days from 3 pm to 4 pm of various sections of 1.73 km of Alexander Creek. From Year 5 to Year 15, blasting of the South Pit would result in daily closures from 3 pm to 4 pm of various sections of 4.85 km of Alexander Creek. Therefore, from Year 3 to Year 15, access to and use of Alexander Creek would be affected due to blasting activities at the East Pit and South Pit (Figure 19.5-5 and Figure 19.5-6).

Project-related effects to access to Alexander Creek for fishing are expected to be temporary and short-term in duration during Construction and Pre-Production. During Operations, blasting activities at the East Pit and South Pit would result in occasional closures of specific sections of the mainstem of Alexander Creek for angling activities for a period of 13 years.

Motorized Recreation

Project activities may alter access to areas used for motorized recreation (e.g., snowmobiling, ATVing, and off-road truck use) due to changes to Grave Creek Road and blasting-related closure areas adjacent to the mine site. Currently, Grave Creek Road is only partially plowed in the winter months, while it is fully open in summer months, and certain times during fall and spring months when there is no snow on the ground. In addition, existing seasonal access restrictions vary between motorized vehicles (Section 19.4.1.3.2). Therefore, the potential effects to motorized recreation access would differ between seasonal usages, and are described separately below.

Snowmobiling

Project development is expected to alter access to areas used for snowmobiling activities and access to the Elk Valley Mountaineer's cabin. Section 19.2.2 summarizes key comments and concerns noted by the Elk Valley Mountaineers, including potential changes to access to and use of Grave Creek Road and Alexander Creek Road (the section adjacent to the Project footprint) for snowmobiling activities.

During Construction and Pre-Production, upgrades to Grave Creek Road may impede access to areas used for snowmobiling due to temporary road closures required for construction activities. These road closures are expected to be short-term in duration. In addition, access to the north end of Alexander Creek AMA, which is highly valued for snowmobiling activities (Section 19.4.1.3.2), will be possible via Alexander Creek FSR during Construction and Pre-Production. Potential effects related to the direct loss of land used for snowmobiling due to Project activities are described in Section 19.5.3.1.

Snowmobile access via Harmer Creek Road and Grave Creek Road is anticipated to change due to Project-related winter maintenance for the duration of the Project. Currently, Grave Creek Road is not plowed in the most easterly section during the winter months and accessible only by snowmobile during this time. As a result of Project-related use of Grave Creek Road, this road will be plowed and maintained during the winter months, which is expected to change snowmobile access. NWP intends to explore options such as plowing a short distance past Grave Creek Road to create a new loadout area (i.e., parking area) for snowmobile users to maintain access to the Alexander Creek AMA. As such, access to the Alexander Creek AMA via Grave Creek Road for snowmobiling activities is expected to be maintained for the duration of

the Project. During Post-Closure, it is expected that both Harmer Creek Road and Grave Creek Road would no longer be plowed on a regular basis, and snowmobiling access via these roads would return to existing conditions.

Access to the Elk Valley Mountaineers' cabin, located along Alexander Creek to the east of the proposed mine site, is sometimes accessed through lands that overlap with the north end of the proposed mine site. With the development of the mine, these lands would be closed for use by snowmobilers, which will result in a slightly longer access route/travel time to the Elk Valley Mountaineers' cabin. This new access route would extend from the north end of the Grave Creek Road (i.e., from the loadout area that NWP will maintain during the Project period) to the Elk Valley Mountaineers' cabin.

During blasting activities, there will be closures of the areas surrounding the mine site (i.e., approximately a 1 km buffer from the blasting site), which would further extend restrictions on snowmobiling activities in an area that is highly valued for snowmobiling. As noted in Table 19.5-7 and Figure 19.5-4, blasting of the North Pit is expected to occur daily from 3 pm to 4 pm from Year 1 of Operations until early Year 5 of Operations. As such, blasting activities would result in restrictions to snowmobiling activities near the North Pit for a 5 year period. While the Elk Valley Mountaineers' snowmobile cabin, located east of mine site, would not be directly affected from the North Pit blast restriction area, access to the cabin would change. Snowmobilers would need to travel around the mine site and blast restriction area to access the cabin, resulting in a slightly longer distance to travel. It is understood that snowmobilers could travel from Harmer Creek Road/Grave Creek Road and along Alexander Creek to access their cabin.

Blasting at the East Pit would occur once every two to three days from Year 3 of Operations until Year 6 of Operations (Table 19.5-7). The Elk Valley Mountaineers' snowmobile cabin is located within the closure areas that will be implemented throughout the blasting of East Pit (Figure 19.5-5). When the Elk Valley Mountaineer's cabin is located within the 1 km blast radius, use of the cabin would not be permitted for safety reasons. The restriction of cabin use and access is not expected to occur for the entire three-year period of blasting activities at the East Pit; however, this is dependent on the extents of the NUE boundaries. If the NUE boundaries do not include the entirety of the blasting closure areas, after Year 6, when blasting activities at the East Pit cease, use of the cabin would not be restricted.

In summary, during Construction and Pre-Production, Project-related upgrades to Grave Creek Road may temporarily impede access to areas used for snowmobiling for a period of 18 months. For the duration of the Project prior to Post-Closure, a period of 19 years, access to the Elk Valley Mountaineers' cabin and areas used for snowmobiling activities at the north end of Alexander Creek AMA will be altered due to the development of the mine site and the winter maintenance of Grave Creek Road. In addition, during Operations, due to blasting activities at the East Pit, use of the Elk Valley Mountaineers' cabin for a period of less than three years will not be permitted.

Other Motorized Vehicle Use

Project development is expected to change access to areas used for motorized recreation, including ATV and off-road truck access. Existing motor vehicle restrictions (i.e., Motor Vehicle Prohibition Regulation) prohibits the use of motorized vehicles (e.g., ATVs, off-road trucks, etc.) in many areas within the Alexander Creek AMA (Section 19.4.1.3.2). One of the main Project-related concerns identified by the Elkford ATV Club was the potential for the Project to impact their access to key trails (Section 19.2.2).

Based on findings from NWP's Land Use and Access Survey, non-winter motorized vehicle users noted concerns that the main Forest Service Roads (e.g., Grave Lake, Alexander Creek, etc.) would be closed due to the Project and that access along Grave Prairie and the north end of Alexander Creek AMA would be limited (Section 19.2.2).

During Construction and Pre-Production, access to the north end of Alexander Creek AMA for motorized vehicle use via Harmer Creek Road and Grave Creek Road would be affected by temporary closures of these roads. This effect would be short-term in duration and only occur periodically throughout the 18 month Construction and Pre-Production period. During Operations, Project-related changes to Grave Creek Road would change but not restrict motorized vehicle access to the north end of Alexander Creek AMA via Harmer Creek and Grave Creek Road.

To the east and southeast of the mine site, there are several roads along Alexander Creek that seasonally permit ATV-only use from September 1 to November 30. Throughout Project Operations, blasting activities would result in occasional closures of sections of these roads (i.e., sections that are within 1 km of an individual blast radius).

From Year 3 to Year 6 of Operations, blasting of the East Pit would result in closures every two three days from 3 pm to 4 pm of various sections of a 1.05 km stretch of a north-south road, which is seasonally open to ATV-only use from September 1 to November 30, and a 629 m stretch of the same north-south road that is located further north, which is seasonally closed to motorized use from September 1 to November 30 (Figure 19.5-5). From Year 5 to Year 15, blasting of the South Pit would result in daily closures from 3 pm to 4 pm of various sections of 4.3 km of Alexander Creek (Figure 19.5-6). Therefore, from Year 3 to Year 15, access to and use of Alexander Creek would be affected due to blasting activities at the East Pit and South Pit (Figure 19.5-5 and Figure 19.5-6). Further east, there is an alternative route that allows motorized vehicle use during September 1 to November 30, which would maintain motorized vehicle access to the Alexander Creek AMA. When blasting of the South Pit coincides with the ATV-only use season, it is predicted that the access to Alexander Creek AMA for ATV activities would be temporarily disrupted.

During Reclamation and Closure, access to areas used for motorized vehicle recreation via Harmer Creek Road and Grave Creek Road are not predicted to be affected.

In summary, during Construction and Pre-Production, Project-related upgrades to Grave Creek Road may temporarily impede access to areas used for motorized recreation for a period of 18 months. For the duration of Operations, a 15 year period, access to the Alexander Creek AMA will be altered due to truck traffic along Grave Creek Road. In addition, during Operations, occasional sections of roads/trails along Alexander Creek will be closed due to blasting activities at the East Pit and South Pit for a 13 year period.

Non-Motorized Outdoor Recreation

Project-related activities may affect access to areas used for non-motorized outdoor recreation. As described in Section 19.4.1.3.2, the lands adjacent to Project footprint (i.e., Alexander Creek, Grave Creek, Grave Lake, random sites on old logging roads, etc.) are used for a range of outdoor recreation activities such as hiking, camping, biking, horseback riding, cross-country skiing, wilderness drives, and exploring.

Section 19.5.3.1 describes potential effects to non-motorized outdoor recreation due to the direct loss of land and nuisance effects as a result of Project activities.

During Construction and Pre-Production, temporary disturbances to access to areas used for outdoor recreation are expected to occur along Grave Creek Road due to Project-related construction upgrades. This effect would be short-term in duration. In addition, it important to note that there is an alternative road to the north of Harmer Creek Road that can be used to access Grave Lake. Access to Grave Lake for recreational activities (e.g., camping, boating, swimming, etc.) will be maintained during all Project stages, with the exception of temporary construction activities.

During Operations, increased Project truck traffic along Harmer Creek Road and Grave Creek Road may alter some outdoor recreation users' preferred access; however, access to the Alexander Creek area for outdoor recreation will be maintained from the north via Grave Creek Road for the duration of the Project.

During Operations, blasting activities at the mine site would result in closures to adjacent lands for public safety reasons (i.e., lands within the blast radius). This 1 km blasting buffer zone is anticipated to include trails along Alexander Creek, including a section of the Great Divide Trail (GDT). As previously noted in Section 19.4.1.3.2, the High Rock Trail has been developed as an alternate route to the section of the GDT that runs along Alexander Creek. The High Rock Trail, which is currently open, was developed due to the high amount of motorized vehicle use along the Alexander Creek trails. With this alternate trail currently open, mine blasting activities and closures of adjacent lands would not impact users of the GDT; however, it is still possible that hikers may choose to use sections of the GDT in the Alexander Creek area, and therefore, these users could be affected by blasting-related land closures throughout Operations.

As presented in Section 19.4.1.3.2, within the Land Use and Access LSA and located south of the mine site, there are two recreation reserves: Alexander Creek #1 and Alexander Creek #2. These areas are located at the south of end of the Alexander Creek AMA and are described as areas that have higher recreational value and potential. It is important to note that these are not established recreation sites, nor are they managed by Recreation Sites and Trails BC. Due to their distance from the Project, access to these recreation reserves via Alexander Creek Road is not expected to be affected by the Project.

There are also several private cabins identified near the Project, including to the south, east, and north of the mine site. Changes to access to the Elk Valley Mountaineers' cabin were discussed previously, while those to trapping cabins are described in the following section; blasting activities are anticipated to affect access to both the above cabins. In addition to these two cabins, there is a private cabin, which is located to the south of the Project footprint; access to this cabin is not expected to be affected by the Project.

In summary, during Construction and Pre-Production, Project-related upgrades to Grave Creek Road may temporarily change access to areas used for non-motorized recreation for a period of 18 months. For the duration of the Project prior to Post-Closure, a period of 19 years, access to the Alexander Creek area will be altered due to Project-related traffic along Harmer Creek Road and Grave Creek Road. During Operations, occasional closures of sections of roads/trails along Alexander Creek will be closed due to blasting activities at the East Pit and South Pit for a 13 year period; however, alternative trails and routes to the east will maintain access to existing conditions.

19.5.3.3.2 Commercial Land Use Access

Project activities may alter access to lands used for commercial purposes for the duration of the Project prior to Post-Closure, a 19 year period, due to blasting safety closure areas and changes to Harmer Creek Road and Grave Creek Road. The following sections describe potential changes to access to land used for guided outfitting, trapping, forestry, and mining, exploration, and oil and gas development.

Guided Outfitters

There are no guided outfitter tenure areas located within the Project footprint or Land Use and Access LSA. Guided fly fishing trips are offered along the Elk River, Michel Creek, Alexander Creek, as well as other waterbodies throughout the area. Potential changes to fishing activities are described in Section 19.5.3.1, while changes in access to areas used for fishing are described in Section 19.5.3.3.

Trapping

Project development and Operations would affect access to areas used for trapping activities. The Project footprint transects four trapline tenures: TR0423T006, TR0423T010, and TR0423T021 & TR0423T022 (Figure 19.4-7). During all Project stages, the Project will not change access to lands used for trapping activities within TR0423T010, which is located west of the Elk River. This section focuses on potential impacts in access to lands used for trapping activities within TR0423T006 and TR0423T021 & TR0423T022.

TR0423T006

Project activities are anticipated to affect access to TR0423T006, which is located in the Alexander Creek area. The tenure holder of TR0423T006 accesses the area primarily using Harmer Creek Road and Grave Creek Road and to a lesser extent up Alexander Creek Road. The distance travelled along Harmer Creek Road and Grave Creek Road to access TR0423T006 is approximately 15.8 km.

During Construction and Pre-Production, access to TR0423T006 via Grave Creek Road would be affected by temporary closures of Harmer Creek Road and Grave Creek Road for an 18 month period. Access to TR0423T006 via Alexander Creek Road would be maintained during this time.

During the 15 year Operations period, access to TR0423T006 via Harmer Creek Road and Grave Creek Road will remain open to public use; however, increases in traffic due to the Project may change the tenure holder's preference to use Harmer Creek Road and Grave Creek Road. As a result, the trapline tenure holder may choose to use Alexander Creek Road to access TR0423T006 and their cabin for trapping activities instead.

During blasting activities, there will be closures of the lands adjacent to the mine site, which would restrict movement within TR0423T006 from Year 1 to Year 15 of Operations. The maximum area of the land access closures due to blasting at the North Pit, East Pit, and South Pit are presented in Figure 19.5-4, Figure 19.5-5, and Figure 19.5-6. It is important to note that the closure areas for each individual blast is much smaller compared to these maximum closure areas (refer to Figure 19.5-6 for an example of the closure area due to a typical blast).

Blasting at the East Pit would occur once every two to three days from Year 3 of Operations until Year 6 of Operations (Table 19.5-7). The tenure holder of TR0423T006 owns a cabin located to the east of the

Project footprint, which lies within the closure areas that will be implemented throughout the blasting of East Pit (Figure 19.5-5). When the trapper cabin is located within the 1 km blast radius, use of the cabin would not be permitted for safety reasons. The restriction of cabin use and access is not expected to occur for the entire three year period of blasting activities at the East Pit. After Year 6, when blasting activities at the East Pit cease, use of the cabin would be permitted.

TR0423T021 & TR0423T022

Project activities are anticipated to affect access to TR0423T021 & TR0423T022, which cover the rail loadout, Harmer Creek Road and Grave Creek Road, and the north end of the mine site. TR0423T021 & TR0423T022 overlap with the majority, approximately 15.1 km, of Harmer Creek Road and Grave Creek Road. Consistent trapping within TR0423T021 & TR0423T022 occurs along Harmer Creek and Grave Creek, which are accessible via Harmer Creek Road and Grave Creek Road. The tenure holder of TR0423T021 & TR0423T022 noted that trapping activities occur largely in the Grave Creek area, which follows Grave Creek Road

During Construction and Pre-Production, access to TR0423T021 & TR0423T022 via Harmer Creek Road and Grave Creek Road would be affected by temporary closures and volume reductions for an 18 month period. During the 15 years of Operations, access to TR0423T021 & TR0423T022 via Harmer Creek Road and Grave Creek Road will remain open to public use; however, the increases in traffic on Harmer Creek Road and Grave Creek Road may result in safety concerns, and therefore, the tenure holder of TR0423T021 & TR0423T022 may choose to use different areas for trapping activities.

During blasting activities at the North Pit, which would occur daily from Year 1 to Year 3 of Operations, the area within a 1 km of the individual blast radius would be closed for safety reasons (Table 19.5-7 and Figure 19.5-4), which restrict movement within a small area of TR0423T021 & TR0423T022 located on the north end of the mine site.

In summary, during Construction and Pre-Production, access to TR0423T006 and TR0423T021 & TR0423T022 via Harmer Creek Road and Grave Creek Road would be affected by temporary closures of Harmer Creek Road and Grave Creek Road for an 18 month period. During the 15 years of Operations, access to TR0423T006 and TR0423T021 & TR0423T022 via Harmer Creek Road and Grave Creek Road will remain open to public use; however, due to increases in traffic, trapline tenure holders may prefer to use different access routes and areas within TR0423T006, as well as TR0423T021 & TR0423T022, for trapping activities.

During blasting activities, there will be closures of the lands adjacent to the mine site, which would restrict movement within TR0423T006 from Year 1 to Year 15 of Operations. In addition, during certain periods of blasting at the East Pit from Year 3 to Year 6, access and use of the tenure holder of TR0423T006's cabin would not be permitted for safety reasons. Comparatively, during blasting activities at the North Pit, access to relatively small area of lands within TR0423T021 & TR0423T022 would be occasionally limited.

Forestry

Project construction activities related to upgrading Harmer Creek Road and Grave Creek Road may temporarily limit access to areas used for commercial forestry due to road closures. This potential effect would be short-term in nature and mitigated through ongoing coordination and communication between

NWP and commercial forestry operators. In addition, NWP has a Road Use Agreement (RUA) in place with Canfor that covers parts of the Alexander Forest Service Road, the West Alexander spur, the East Alexander Spur, Valley Road, Harmer Creek Road, Grave Creek Road, and the Branch C Road. Under the agreement, NWP agrees to cover maintenance cost for the roads they would use and pay a fee for the right to use the road.

The Project is not expected to restrict access along Harmer Creek Road and Grave Creek Road during the 15 year Operations period, however, increases in truck traffic along Harmer Creek Road and Grave Creek Road due to Project-related transportation activities may change access to areas used for commercial purposes by forestry operators. Coordination between commercial forestry operators and NWP is expected to mitigate the minor disruption of increased Project-related vehicles on Harmer Creek Road and Grave Creek Road.

During Reclamation and Closure and Post-Closure, due to the Project-related upgrades to Harmer Creek Road and Grave Creek Road, access may be improved for forestry companies.

Mining, Exploration, and Oil and Gas Development

The Project is not predicted to change access to mining and exploration or oil and gas development activities during all Project phases. All coal licenses within the Project footprint are owned by NWP. The Project is not expected to affect access to Elkview Operations; access to Elkview Operation's main gate is via Highway #3 and north on the Michel Creek Road (Golder Associates, 2015). Harmer Creek Road and Grave Creek Road also overlap with 15.2 ha of mineral claims; there are no future plans to develop these mineral claims, which overlap with existing infrastructure. In addition, to the north of the Project mine site in the Land Use and Access LSA, there is an identified prospect, an occurrence documented as containing phosphate mineralization, that warrants further exploration. An aggregate quarry owned by Summit Natural Rock Inc. is located in this area. Project-related upgrades to Harmer Creek Road and Grave Creek Road could facilitate future development in the area due to enhanced access to this prospect.

During all Project stages, the Project is not predicted to change access to oil and gas development, as there are no future plans for development and currently only non-active and abandoned oil and gas wells exist within the Land Use and Access LSA.

19.5.3.3.3 Summary – Changes to Land Use Access

During Construction and Pre-Production, Project upgrades to Grave Creek Road may temporarily disrupt access to lands used for recreational and commercial purposes. Increased traffic on Harmer Creek Road and Grave Creek Road could result in safety concerns for some users, and these users may choose to use different areas or access routes. As such, these changes may be noticeable to land users, and have the potential to change day-to-day use of Harmer Creek Road and Grave Creek Road for some users due to safety concerns. During blasting activities, the Project would result in temporary closure of areas within a 1 km buffer zone of the blasting site due to safety considerations. These temporary closures have the potential to limit access to areas accessed via linear features (i.e., via roads in the Alexander Creek AMA). While these temporary closures would occur either daily or once every two to three days, they would be short-term, approximately an hour in duration. Therefore, blasting activities are expected to result in a noticeable effect to land users; however, they are not expected to change day-to-day land use.

19.5.3.4 Transboundary Effects

The Project is not expected to result in effects on land use and access that would extend into either the Province of Alberta or the United States of America. As described in Chapter 1, Section 1.3.3, federal land is not required to facilitate the Project and the Project does not overlap with any federal land; therefore, effects to land use on federal land are not anticipated.

19.5.4 Mitigation and Benefit Enhancement Measures

Recommended mitigation measures for potential changes to recreation and tourism land uses, commercial land uses, and land use access are described in Table 19.5-8. Anticipated residual effects that will be carried forward in the characterization of residual effects, significance, and likelihood and confidence are outlined in Table 19.5-8.

Mitigation measures proposed to reduce adverse effects on land use and access are generally accepted, understood, and proven to effectively reduce adverse effects on the land use and access environment. Given that land use and access impacts cannot be completely avoided as a result of the project footprint, the overall effectiveness of the proposed mitigations to address changes are rated as moderate. Where mitigation measures do not or may not mitigate all effects or if there is a low level of confidence in their effectiveness, the effect was carried forward for further analysis of residual effects.

19.5.5 Characterization of Residual Effects, Significance, Likelihood and Confidence

The previous sections provide a comprehensive narrative of the potential effects to the land use environment (Section 19.5.3) and the mitigation and benefit enhancement measures (Section 19.5.4) that will be implemented to address these potential effects. Based on the evaluation of potential Project effects on land use and access and related mitigation, potential residual effects that may remain after implementation of proposed mitigation measures include:

- Change (decrease) in the quantity of land available for recreation activities;
- Change (decrease) in the quantity of waterways available for recreation activities;
- Change (decrease) in the quantity of lands available for forestry;
- Change (decrease) in the quantity of land available for trapping;
- Change (decrease) in the quality of recreation experiences on adjacent lands; and
- Change (reduction) in access to lands used for recreation activities.

The assessment of residual effects on land use and access involves the consideration and evaluation of specific effects assessment criteria based on the degree (i.e., 'level') of potential Project effects. Criteria used to characterize residual effects are defined in Chapter 5, Section 5.3.4.5 and include duration, magnitude, geographic extent, frequency, reversibility, and context.

19.5.5.1 Change in Quantity of Land Available for Recreation Activities

The residual effect to the quantity of land available for recreation activities is characterized as follows:

- Duration: Long-term, this residual effect is considered to be long-term in duration. The Project is anticipated to result in the removal of land used for recreational activities for a 19 year period.

Table 19.5-8: Summary of Proposed Mitigation Measures related to Land Use and Access

Valued Component	Potential Effect	Key Mitigation Measures	Rationale	Applicable Project Phases	Effectiveness	Residual Effect
Recreation and Tourism Land Use	The Project footprint overlaps with land that is primarily designated for resource extraction use (i.e., Coal – ERDZ and Rural Resource). While these lands are widely used for recreational purposes, it is important to note that these lands are not primarily designated for recreational use. As such, the Project is considered to be generally consistent with land use designations.	Not required	The Project footprint overlaps with land that is primarily designated for resource extraction use (i.e., Coal – ERDZ and Rural Resource). Mitigation is not required	N/A	N/A	No
Recreation and Tourism Land Use	• Loss of 1,100 ha of land from mine site development that is used for various recreation activities, including hunting, hiking, and ATV/snowmobile use. In addition, about 16 km of formal trails would no longer be available for use that are located within the mine site. The NUE area is yet to be established and may further extend the removal of land for recreational and tourism purposes • Most activities can resume after mining activity ceases including snowmobiling and hunting • Remaining roads within the Project footprint would be available for use after the mine closes	• Develop NUE area in collaboration with regulators and key stakeholders based on safety, logistical and administrative considerations • Publically communicate the NUE areas including with local clubs/associations and the owners of the cabins • Minimize length of period of NUE areas • Provide adequate training to NWP employees that will be responsible for the enforcement of the NUE and who would have direct contact with recreation users • Planned revegetation is expected to result in some wildlife species to return to support hunting activity	• It is important that the views of external stakeholders be considered in the establishing of the NUE areas to minimize land use and access impacts • Training of NWP staff who will enforce the NUE is important to maintain good community relations and to help explain reason for the NUE including land user personal safety • The Project footprint should be revegetated after closure to allow the site to be used for recreation activities again	• Construction and Pre-Production • Operations	Moderate	Yes. Mine development will result in the removal of 1,100 ha of public land used for various recreation activities, including hunting and snowmobiling, which were noted as popular activities in the Project area.
Recreation and Tourism Land Use	Loss of 51 ha of privately held conservation lands for the rail loadout facility that may be used for recreation activities including hunting, hiking, etc.	NWP is committed to establishing more new conservation lands than the loss of existing conservation lands. New lands may be privately held by NWP, an Indigenous Nation, or a recognized conservation organization	The establishment of more new conservation lands by NWP than the loss of existing conservation lands would mitigate the loss of these lands	N/A	N/A	• No. The development of the rail loadout facility will result in the removal of 51 ha of land that may be used for various recreation activities including possibly hunting • The establishment of more new conservation lands by NWP than the loss would mitigate the loss of these lands and provide more opportunities for various recreation activities including possibly hunting

Valued Component	Potential Effect	Key Mitigation Measures	Rationale	Applicable Project Phases	Effectiveness	Residual Effect
Recreation and Tourism Land Use	Development of the mine site will result in the removal of about 5.5 km of West Alexander Creek which may be used for angling activities. Use of this section of the creek for fishing is understood to be minimal. Fishing in the creek is more likely to occur in Alexander Creek stream. It is possible there could be a reduction to the game fish populations (e.g. Westslope Cutthroat Trout) in Alexander Creek, which could in turn impact recreation fishing activities in this waterway and possibly in the Elk River. Required fish habitat offset measures may reduce some of this impact.	Fish habitat offset/compensation measures (See Chapter 12)	See fish habitat offset/ compensation measures in Chapter 12	See fish habitat offset/compensation measures in Chapter 12	See fish habitat offset/ compensation measures in Chapter 12	Yes. The removal of 5.5 km of West Alexander Creek will occur, which may be used for angling activities. The potential for reduced populations of target game species in the downstream sections of Alexander Creek could adversely impact recreation fishing activity.
Recreation and Tourism Land Use	• Noise from mine activities will extend beyond the boundaries of the Project footprint and potential affect recreation uses, particularly those involved in non-motorized activities (e.g., hiking, camping and hunting). The areas used for recreation in proximity to Harmer Creek Road and Grave Creek Road (e.g., Grave Lake and Grave Creek) may experience change in noise level due to the Project-related traffic. While the noise assessment shows that noise levels for averaged periods are below applicable standards (5 dBA increase), frequent but short-term higher noise levels (from passing of vehicles) could lead to a decreased enjoyment of the area for recreation activities. The users of informal campgrounds along Harmer Creek Road and Harmer Creek Road and Grave Creek Road could experience short term noise effects each time a mine related truck passes by the campground. Further, emissions from coal haul trucks along Harmer Creek Road and Grave Creek road will result in elevated TSP levels for the informal campsites along them. The combined noise and air quality effects could lead to a decrease in the use of these informal campgrounds • Noise from blasting activities may also be audible, although the implementation of a 1 km blasting safety closure area would keep the public out of the area most susceptible to blasting noise	• Implement and adhere to the Noise and Vibration Management Plan • Implement site-specific Best Management Practices provided in Chapter 7 • Monitoring and follow-up of any public complaints regarding Project noise • Implement and adhere to the Air Quality and Greenhouse Gas Management Plan	See Chapter 7	See Chapter 7	See Chapter 7	• Yes. While within provincial standards, changes to noise and vibration nuisance effects due to Project activities are anticipated to affect the quality of some recreational users' experience including those involved in activities along Harmer Creek Road and Grave Creek Road and in direct vicinity of the mine site • Measures outlined in the Noise and Vibration Management Plan will mitigate some of the effect to recreational users. Follow-up measures are expected to address remaining residual effects
Recreation and Tourism Land Use	Change in wildlife populations could affect hunting activity in the Land Use and Access LSA. The Project is expected to result in a decline in moose density due to winter habitat loss; however, the moose population in the area was described as relatively stable. Changes to the abundance and distribution of ungulates, with the exception of minor effects to moose density, due to Project activities are predicted to be relatively minor and not substantially alter the abundance of these species. As a result, hunting activity is not expected to be substantially impacted from changes to game species population changes.	No hunting specific mitigation measures related to wildlife population changes recommended	N/A as no hunting specific mitigation recommended	N/A	N/A	No. Minor changes in game wildlife populations are expected, but are not expected to have a material effect on hunting activity.

Valued Component	Potential Effect	Key Mitigation Measures	Rationale	Applicable Project Phases	Effectiveness	Residual Effect
Commercial Land Use	The majority of the Project footprint is on lands designated as either Coal – Enhanced Resource Development Zone or as Rural Resource which allows a variety of uses including extraction of natural resources. A small amount of the footprint (96.7 ha) overlaps with Agricultural Land Reserve lands and 9.7 ha (transmission line) overlaps with designated conservation lands that are part of the Big Ranch Complex.	• Submission of exclusion application for removal of affected agricultural lands from the provincial ALR • Written consent from the FLNRORD Regional Manager is generally required for any new land use or resources on conservation lands • NWP to continue to explore opportunities to purchase land offsets for recreational and ecological purposes	N/A as Project is largely in compliance with existing land use designation	N/A	N/A	No. The Project is largely in compliance with existing land use designations. Where required, land use designations will be amended to be in conformance with the Project.
Commercial Land Use	The Project footprint does not overlap with any guide outfitter tenure areas or known outfitter operations with the exception of the crossing of the Elk River (used for fly fishing) with the transmission line. Impacts to outfitter activity on the Elk River are expected to be negligible. Based on the Fish and Fish Habitat assessment it is possible that there could be a reduction to the game fish populations (e.g. Westslope Cutthroat Trout) in the downstream sections of Alexander Creek, which could in turn impact guided fishing activities in this waterway and possibly in the Elk River. Required fish habitat offset measures may reduce some of this impact.	Fish habitat offsets/compensation	See Fish habitat offset/compensation measures in Chapter 12	See Fish habitat offset/compensation measures in Chapter 12	See Fish habitat offset/ compensation measures in Chapter 12	• Yes. Potential for reduced fish guiding opportunities on Alexander Creek should target fish species populations decrease • No. Impacts to outfitter activity on the Elk River are expected to be negligible
Commercial Land Use	The development of Project components, including the mine site, rail loadout, and supporting infrastructure, would result in the direct loss of land available for trapping activities. The Project footprint overlaps with four trapline tenures: TR0423T006, TR0423T010, and TR0423T021 & TR0423T022. Less than 1% to 8% of each of these tenures is anticipated to be affected including the direct loss of 990 ha of land that may be used for trapping activities. Project activities could lead to some disturbance effects (e.g., noise), which could result in some species (e.g., American marten and Canada lynx) moving away from the lands closest to the Project footprint. It is noted that there will be no direct impact on the identified trapper's cabin located near Alexander Creek east of the mine site.	NWP to continue discussion related to accommodations with the tenure holder of TR0423T006	The development of the mine is likely to impact the activities of this trap line holder and so it is important that discussions occur to determine any required accommodation	• Construction and Pre-Production • Operations	Moderate	Yes. The development of the mine site will result in the removal of 990 ha of land that is used and valued for trapping activities by the tenure holder of TR0423T006.
Commercial Land Use	The Project will result in the removal of forest lands located within both Crown tenure areas and privately managed forests, up to approximately 1,283 ha or 5,885.99 m^3.	• Prior to construction, complete an assessment of the affected forested lands to determine the need for any compensation to Canfor • NWP will work with Canfor for the harvesting of the timber and compensation for the value of the timber	The Project will remove trees that have commercial value. The trees should be harvested prior to the commencement of construction	Construction and Pre-Production	Moderate	Yes. While the current trees will be harvested prior to Project construction, and the tenure holder will be compensated, the Project footprint will not be able to support long term forestry even after site rehabilitation.

Valued Component	Potential Effect	Key Mitigation Measures	Rationale	Applicable Project Phases	Effectiveness	Residual Effect
Land Use Access	• During Construction and Pre-Production, temporary closures or reductions in the volume and speed of traffic permitted along Harmer Creek Road and Grave Creek Road may be required to allow the upgrading Grave Creek Road. During Operations, the Project is expected to result in increases in traffic including haul trucks along Harmer Creek Road and Grave Creek Road. As well, during Operations, a section of Harmer Creek Road and Grave Creek Road will only permit one-way traffic and use of this section will be radio controlled. These activities/ temporary restrictions may dissuade some people from using the road to access areas for recreational activities. Some people may also have safety concerns related to mine related truck traffic using the road • Access to the Elk Valley Mountaineers cabin and trapline TR0423T006 tenure holder cabin will be limited during blasting activities	• Harmer Creek Road and Grave Creek Road to remain open to public use during all Project phases • Communicate to the public when road use restrictions may be in place • In order to maintain access to the Alexander Creek AMA, NWP intends to create and maintain (snow plow) a new loadout area for snowmobile use for the duration of the Project. This new loadout is to be located further up Grave Creek Road likely just past the mine site entrance • Communicate with local users groups and clubs regarding any access restrictions • NWP to continue discussions with the Government of B.C. and stakeholders about potentially developing an alternate trail that would remain open during blasting activities, thereby maintaining access to cabins	As the coal haul road is to remain open for public use, mitigation measures are required to maintain safe public access	• Construction and Pre-Production • Operations • Reclamation and Closure	Moderate	Yes. Some minor residual impacts to access of recreation lands, which could involve longer travel times or people choosing to go elsewhere during periods of longer delays/safety concerns.
Land Use Access	Mine site development will result in removal of lands used by local snowmobilers to access a local club cabin in the Alexander Creek valley. Access to the cabin will still be possible but through a longer route to the north via the proposed new Grave Creek Road loadout area.	• Continue to work with snowmobile clubs to ensure that access to the cabin is still possible • NWP to continue discussions with the Government of B.C. and stakeholders about potentially developing an alternate trail that would remain open during blasting activities, thereby maintaining access to snowmobile cabins	To minimize impact to access of lands used for snowmobiling, NWP is to continue discussions with local snowmobile users/clubs	• Construction and Pre-Production • Operations • Reclamation and Closure	Moderate	Yes. Loss of lands used for access to snowmobile club cabin resulting in a longer travel distance.
Land Use Access	Restriction on use of land within the blasting restriction zone that is to be determined for public safety reasons. The blasting restriction zones are used or may be used for various recreation activities including hunting, fishing, hiking, and ATV/snowmobile use. There will also be a restriction of gun hunting in proximity to the Project site for worker safety reasons. Also, depending on the blasting restriction zone, this may also restrict, on occasion, the travel along trails in the Alexander Creek valley as these trails would need to be closed. This could impact temporary access to up to 8 cabins in the valley (including 2 trapping cabins and 1 snowmobile club cabin).	• Publicly communicate the blasting restriction zone, including with local clubs/associations and the owners of the cabins • Provide adequate training to NWP employees that will be responsible for the enforcement of the blasting restriction zone and who would have direct contact with recreation users • Allow bow hunting in vicinity of the Project locations. Establish boundaries of bow hunting area with local associations and agencies	• The local community should be made aware of blasting zone restriction area to minimize potential for public to enter into it • NWP employees should be adequately trained to ensure good relations are maintained with the local community	Operations	Moderate	Yes. There will be temporary restrictions in use of land for recreation purposes within the established blasting restriction zone, including the use of existing cabins. This is a temporary effect as land use can resume when the blasting restriction zone is removed. There will be no change to land in these areas.

- Magnitude: Moderate, this residual effect is definable and will be noticeable to recreational land users. While the direct loss of lands used for land-based recreational activities due to the Project is reflective of a change from existing conditions, this change is not expected to alter current land use structures. It is predicted that recreational land users would continue to use the land in the surrounding area and Land Use and Access LSA for hunting, camping, as well as motorized and non-motorized recreation.
- Geographic Extent: Local, while this effect occurs largely within the Project footprint, it is predicted that the establishment of the NUE area could extend this effect beyond the Project footprint. Land located outside of the Land Use and Access LSA would not be removed for recreational use due to Project activities.
- Frequency: Once, this effect, the removal of land, would occur once for the duration of the Project.
- Reversibility: Reversible long-term, once the physical Project activities cease and reclamation and closure activities occur, recreational activities would be permitted within the Project footprint and NUE areas, although the quality of the resource for recreation may not be the same as existing conditions.
- Context[8]: High, the Project footprint, specifically the mine site, is highly valued by local recreational land users residing in Land Use and Access LSA communities. Therefore, the context of the removal of this feature is considered to be high.

The Project will result in the direct loss of lands used for land-based recreational activities, as well as the potential loss of additional lands included within the NUE area, which is still to be determined. While the Project footprint would be reopened to public use during Post-Closure, this effect is considered to be long-term in duration and anticipated to alter recreational activities and land use (i.e., hunting, snowmobiling, motorized vehicle use, and non-motorized vehicle activities) within the area for a 19 year period. This effect is considered to be moderate in magnitude.

19.5.5.1.1 Determination of Significance

The residual effect on quantity of lands available for recreation activities is considered not significant. The Project-related changes to quantity of land available for recreational use are moderate effects that will likely be noticeable to recreational land users; however, this effect is predicted to remain within the historical variability of changes to recreational land uses located on lands that are largely designated for coal mining. Furthermore, it is predicted that land users will continue to use the land in the surrounding area and Land Use and Access LSA for recreational activities.

19.5.5.1.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the residual effects assessment of quantity of lands available for recreation activities is considered moderate. Primary data collection (Appendix 19-A), NWP's Land Use and Access Survey (Appendix 19-B), and ongoing outreach and discussions with affected land users have informed this assessment and have provided valuable insight into the interactions between Project activities and

[8] For residual effects that are categorized as removal effects (i.e., decrease in the quantity of land available for recreation activities; decrease in waterways available for recreational angling activities; and decrease in the quantity of lands available for forestry), their context is defined as the extent to which they are valued by different user groups.

recreational land uses. In the Elk Valley, the future of land use restrictions is continuously evolving as government mechanisms (e.g., further road deactivations from EV-CEMF) continue to be implemented. Furthermore, the extents of the NUE boundary are still to be determined based on collaborative discussions between NWP, regulators, and key stakeholders. As such, due to the evolving existing land use restrictions and uncertainty associated with the definitive NUE boundaries, the confidence in the characterization of the impact and its significance is considered to be moderate.

19.5.5.2 Change in Quantity of Waterways Available for Recreational Activities

The residual effect to the quantity of waterways available for recreational angling activities is characterized as follows:

- Duration: Permanent, the removal of 5.5 km of West Alexander Creek will be permanent, and extend well beyond the 34 year temporal boundary (i.e., beyond Post-Closure) for the Project.
- Magnitude: Low, while there is potential for angling activities along West Alexander Creek, it is understood to be relatively minimal and to a lesser extent compared to Alexander Creek, Michel Creek, and the Elk River.
- Geographic Extent: Discrete, this effect would not extend beyond the removal of the 5.5 km section of West Alexander Creek, which is located with the Project footprint.
- Frequency: Once, this effect, the removal of the 5.5 km section of Alexander Creek, would occur once for the duration of Project.
- Reversibility: Irreversible, the removal of a section of West Alexander Creek cannot be reversed once the physical disturbance due to the Project ceases.
- Context: Low, due to the prevalence of other high quality angling areas within the Land Use and Access LSA and the uncertainty surrounding angling use, the context of the removal of this feature is considered low.

The Project will result in the permanent removal of 5.5 km of West Alexander Creek. Use of West Alexander Creek for angling is likely to be relatively minimal in comparison to other high quality waterways in the Land Use and Access LSA, therefore this effect is considered to be low in magnitude.

19.5.5.2.1 Determination of Significance

The residual effect on quantity of waterways available for recreational angling is considered not significant. Due to the number of high quality and accessible waterbodies located within the Land Use and Access LSA, the removal of West Alexander Creek for angling use is low in magnitude and likely does not represent a change in day-to-day-use.

19.5.5.2.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the residual effects assessment of quantity of waterways available for recreation activities is considered moderate. Primary data collection (Appendix 19-A), NWP's Land Use and Access Survey (Appendix 19-B), and ongoing outreach and discussions with affected users provided minimal insight into the use of West Alexander Creek for angling activities. Based on the minimal information directly related to West Alexander Creek available, this assessment has inferred that use is relatively minimal in comparison to other more popularly cited waterways in the Land Use and Access LSA.

19.5.5.3 Change in Quantity of Land Available for Trapping

The residual effect to the quantity of land available for trapping is characterized as follows:

- Duration: Permanent, although reclamation activities will aim to restore the Project footprint through ecological restoration/ revegetation, the Project and associated NUEs will be closed to trapping tenure holders for long term periods and may not fully return to their current condition/value as a trapping area even after site restoration.
- Magnitude: Moderate, trapping is tied to tenure areas and unless a holder of a tenure makes their tenure available, obtaining new trapping lands is not possible. It should be noted that trapping activity in Canada is much reduced as compared to historical levels due to the collapse of fur prices, and often occurs more for cultural reasons than for economical ones, such as by Indigenous persons.
- Geographic Extent: Discrete, this effect would not extend beyond the Project footprint, specifically the 990 ha of trapline tenure area that overlap with the mine site.
- Frequency: Once, the removal of the trapping lands can only occur once. Disturbance effects might result in reduced populations of some fur bearing species in some areas.
- Reversibility: Reversible, ecological restoration practices associated with the Project should be able to restore some of the lands within the Project footprint for future trapping use. Lands outside the Project footprint but within the NUE can resume to their former use as they will largely be unaffected by the Project.
- Context: High, the impacted trapping lands were described as the tenure holder of trapline TR0423T006 as highly valued and of high quality; however, it is expected that trapping activities will continue elsewhere within the tenure area (i.e., east side of Alexander Creek).

19.5.5.3.1 Determination of Significance

In light of the above, and in consideration of planned mitigation for the Project, the residual effects of the Project on trapping lands, during all phases of the Project, are considered not significant.

19.5.5.3.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the residual effects assessment of decrease in quantity of land available for trapping is considered moderate. Primary data collection (Appendix 19-A) and ongoing outreach and discussions with affected users provided insight into the extent of use of the area for trapping activities.

19.5.5.4 Change in Quantity of Land Available for Forestry

The residual effect to quantity of land available for forestry is characterized as follows:

- Duration: Permanent, although reclamation activities will aim to restore the Project site with ecological restoration/revegetation, it is not expected that forestry operations will be possible at this site within the 34 year temporal boundary of the Project.
- Magnitude: Moderate, the Project will result in the loss of forestry land. It is predicted that commercial forestry companies would continue to operate in the area surrounding the Project footprint, as well as other tenure areas in the Land Use and Access LSA and Land Use and Access RSA.
- Geographic Extent: Discrete, the loss of forestry lands will be limited to the Project footprint;

- Frequency: Once, the removal of the forestry lands can only occur once.
- Reversibility: Irreversible, while forestry stands would be harvested at the Project site, forestry operations are not expected to be able to resume within the 34 year temporal boundary of the Project.
- Context: Low, the forestry lands located within the Project footprint have not been identified as highly valued by commercial operators. Furthermore, due to the Annual Allowable Cuts associated with the Timber Supply Area, it is assumed that commercial operators would continue to harvest in other areas in the Land Use and Access RSA.

19.5.5.4.1 Determination of Significance

The residual effect on quantity of lands available for forestry is considered not significant.

The decrease in quantity of lands available for forestry activities due to the Project may be noticeable to forestry operators; however, this effect is predicted to remain within the historical variability of changes due to coal mining in the Elk Valley. Furthermore, it is predicted that forestry operations will continue elsewhere in the Land Use and Access LSA and Land Use and Access RSA.

19.5.5.4.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the assessment of residual effects to forestry operations is considered moderate. Publicly available information and data, ongoing outreach and primary data collection with forestry operators, and experience with other mines in the Elk Valley have provided insight into the use of the Project footprint for forestry activities.

19.5.5.5 Change in the Quality of Recreation Experiences on Adjacent Lands and Waterways

The residual effect to quality of recreation experiences on adjacent lands and waterways is characterized as follows:

- Duration: Long-term, changes to quality of recreation activities would be long-term in duration, generally lasting for more than 19 months and less than 34 years over the course of the Project.
- Magnitude: Moderate, the potential for adverse effects on the quality of recreation experiences on lands and waterways adjacent to the Project is moderate and has the potential to exceed baseline conditions.
- Geographic Extent: Local, changes to the quality of recreation experiences are expected to be confined to lands within the Land Use and Access LSA.
- Frequency: Continuous, nuisance effects due to Project activities are generally expected to occur continuously.
- Reversibility: Reversible long-term, nuisance effects, which could change the quality of recreational experiences, are readily reversible as Project activities cease.
- Context: High, in general, recreational land users have a high resilience to any disruptions above baseline and can adapt to the residual effect. It is important to note that the resilience to disruption of non-motorized recreational users is anticipated to be lower compared to the majority of other land users.

The Project is expected to change the quality of recreation experiences on adjacent lands within the Land Use and Access LSA. Potential impacts to populations of game fish species in downstream sections of Alexander Creek may also reduce the quality of the fishing experience in this waterway. This residual effect is considered moderate as nuisance effects are predicted to exceed baseline conditions; generally, land users are predicted to be resilient to this change.

19.5.5.5.1 Determination of Significance

The residual effect on quality of lands and waterways available for recreation activities is considered not significant.

Overall, changes to the quality of recreational experiences on adjacent lands and waterways are considered to be moderate. These changes are expected to be noticeable to users; however, they may or may not represent a change to day-to-day use or enjoyment. For example, while nuisance effects due to noise and vibrations may affect the quality and enjoyment of some recreational users' experiences including those involved in activities along Harmer Creek Road and Grave Creek Road (e.g., informal campgrounds), these changes are not expected to dissuade all users (e.g., motorized recreation users).

19.5.5.5.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the characterization of this effect is considered high. Prediction confidence for the effects on the quality of recreational activities on adjacent lands aligns with the confidence ratings described in: Chapter 7, Section 7.5.3; Chapter 15, Section 15.5.3; Chapter 6, Section 6.5.3; and Chapter 12, Section 12.5.3.

19.5.5.6 Change in Access to Lands Used for Recreation Activities

The residual effect to access to lands used for recreation activities is characterized as follows:

- Duration: Long-term, changes in access to lands used for recreation are expected to persist for more than 19 months but less than 34 years.
- Magnitude: Moderate, changes in access to lands used for recreation are predicted to be noticeable and reflect a measurable effect above baseline conditions.
- Geographic Extent: Local, changes in access to lands used for recreation would extend beyond the Project footprint and includes lands located within the Land Use and Access LSA.
- Frequency: Continuous, changes to access to lands used for recreation would occur regularly and continuously for the duration of the Project.
- Reversibility: Reversible long-term, changes in access to lands used for recreation are readily reversible as Project activities cease.
- Context: High, recreational land users have a high resilience to disruptions above baseline and can adapt to the residual effect through alternative routes.

The Project will result in reduced access to lands used for recreational purpose through Project-related increases in truck traffic along Grave Creek Road and Harmer Creek Road, as well as the implementation of blasting closure areas and bow-only hunting areas. This residual effect is considered moderate as it reflects a change from baseline conditions that would be noticeable to recreational land users.

19.5.5.6.1 Determination of Significance

The residual effect on access to lands available for recreation activities is considered not significant.

The decrease in access to lands and waterways used for recreational activities due to Project-related changes (i.e., increased truck traffic on Grave Creek Road and Harmer Creek Road, blasting closures areas, and bow-only hunting areas) are likely to be noticeable to recreational land users; however, this effect is predicted to remain within the historical variability of changes to recreational land uses located on lands that are largely designated for coal mining. Furthermore, it is predicted that land users will continue to access non-restricted land and waterways located in the surrounding area and Land Use and Access LSA for recreational activities.

19.5.5.6.2 Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

The confidence in the characterization of a change in access to lands used for recreation activities for recreation activities is considered moderate. Primary data collection (Appendix 19-A), NWP's Land Use and Access Survey (Appendix 19-B), and ongoing outreach and discussions with affected land users have informed this assessment and have provided valuable insight into the interactions between Project activities and recreational land uses. In the Elk Valley, the future of land use restrictions is continuously evolving as government mechanisms (e.g., further road deactivations from EV-CEMF) continue to be implemented. As a result of the evolving existing land use and access restrictions, the confidence in characterization is considered moderate.

19.5.5.7 Summary of Residual Effects Assessment

Table 19.5-9 presents a summary of the residual effects assessment.

19.5.6 Land Use Cumulative Effects Assessment

Cumulative effects are the result of Project residual effects interacting with the effects of other past, present, and reasonably foreseeable future projects or activities to produce a combined/overlapping effect. The objective of the cumulative effects assessment (CEA) is to consider overlapping effects for all residual adverse effects, not only those predicted to be significant (EAO, 2013). The assessment of cumulative effects on land use and access VCs requires that:

- The Project results in a residual adverse effect on the land use and access VC;
- A residual Project effect interacts cumulatively with effects from other projects or activities (i.e., effects of the Project overlap spatially and temporally with those of other projects or activities that have been or will be carried out);
- The other projects or activities have been or will be carried out and are not hypothetical; and
- The cumulative effect is likely to occur.

Further information regarding the cumulative effects assessment methodology is provided in Chapter 5, Section 5.3.5.4.

Table 19.5-9: Summary of Residual Effects on Land Use and Access VCs

Valued Component	Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
Recreation and Tourism	Change in the Quantity of Land Available for Recreation Activities	• Construction and Pre-Production • Operations • Reclamation and Closure	• Develop NUE area with input of local land users and agencies • Publicly communicate the NUE areas including with local clubs/associations and the owners of the cabins • Minimize length of period of NUE areas • Provide adequate training to NWP employees that will be responsible for the enforcement of the NUE and who would have direct contact with recreation users • Most activities can resume after mining activity ceases including snowmobiling and hunting • Remaining roads within the Project footprint would be available for use after the mine closes • Planned revegetation is expected to result in some wildlife species to return to support hunting activity • Create new conservation lands that would exceed the amount removed from the rail load out facility	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Once Reversibility: Reversible Context: High	Not Significant	N/A	Moderate

Valued Component	Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
Recreation and Tourism	Change in Waterways Available for Recreational Angling Activities	• Construction and Pre-Production • Operations • Reclamation and closure	None Available	Duration: Permanent Magnitude: Low Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant	N/A	Moderate
Recreation and Tourism	Change in Quality of Recreation on Adjacent Lands and Waterways	• Construction and Pre-Production • Operations • Reclamation and Closure	• Implement and adhere to the Noise and Vibration Management Plan • Implement site-specific Best Management Practices provided in Chapter 7 • Monitoring and follow-up of any public complaints regarding Project noise	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: High	Not Significant	N/A	High
Commercial Land Use	Change in Quantity of Land Available for Trapping	• Construction and Pre-Production • Operations • Reclamation and Closure	NWP to continue discussions related to accommodations with the tenure holder of TR0423T006, which overlaps with the mine site.	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Reversible Context: High	Not Significant	N/A	Moderate

Valued Component	Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
Commercial Land Use	Change in the Quantity of Land Available for Forestry	• Construction and Pre-Production • Operations • Reclamation and Closure	• Prior to construction, complete an assessment of the affected forested lands to determine the need for any compensation to Canfor • NWP will work with Canfor for the harvesting of the timber	Duration: Permanent Magnitude: Moderate Geographic Extent: Discrete Frequency: Once Reversibility: Irreversible Context: Low	Not Significant	N/A	Moderate
Land Use and Access	Change in Access to Lands Used for Recreation Activities	• Construction and Pre-Production • Operations • Reclamation and Closure	• Publicly communicate the blasting restriction zone, including with local clubs/associations and the owners of the cabins • Provide adequate training to NWP employees that will be responsible for the enforcement of the blasting restriction zone and who would have direct contact with recreation users • Allow bow hunting in vicinity of the Project. Establish boundaries of bow hunting area with local associations and agencies • Harmer Creek Road and Grave Creek Road to remain open to public use during all Project phases • Communicate to the public when road use restrictions may be in place • In order to maintain access to the Alexander Creek AMA, NWP	Duration: Long-term Magnitude: Moderate Geographic Extent: Local Frequency: Continuous Reversibility: Reversible Context: High	Not Significant	N/A	Moderate

Valued Component	Residual Effect	Project Phases	Mitigation Measures	Summary of Residual Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
			intends to create and maintain (snow plow) a new loadout area for snowmobile use for the duration of the Project. This new loadout is to be located further up Grave Creek Road, likely just past the mine site entrance • Communicate with local user groups and clubs regarding any access restrictions • Continue to work with snowmobile club to ensure that access to their cabin is still possible • NWP to continue discussions with the Government of B.C. and stakeholders about potentially developing an alternate trail that would remain open during blasting activities, thereby maintaining access to cabins				

19.5.6.1 Overview of Residual Effects

An assessment of cumulative effects is required for land use and access VCs due to the possibility that potential Project residual effects on land use and access VCs may remain after implementation of proposed mitigation measures. For the purposes of the cumulative effects assessment, residual Land Use and Access Project effects to be considered include:

- Change (decrease) in the quantity of land available for recreation activities;
- Change (decrease) in the quantity of waterways available for recreation activities.
- Change (decrease) in the quantity of land available for forestry;
- Change (decrease) in the quantity of land available for trapping;
- Change (decrease) in the quality of the recreation experience on adjacent lands and waterways; and
- Change (reduction) in access to lands for recreation activities.

19.5.6.2 Assessment Boundaries

19.5.6.2.1 Spatial Boundaries

The assessment of cumulative effects for land use and access VCs was conducted at a regional scale and was confined to the Land Use and Access RSA described in Section 19.2.3.

19.5.6.2.2 Temporal Boundaries

The temporal boundaries for the land use and access cumulative effects assessment are the same as those for Project effects, as defined in Section 19.2.3.2.

The temporal cases considered in the assessment of cumulative effects includes the following:

1. Base Case – Describes the current status of the VC prior to the start of the Project, including all appropriate past and present projects and/or activities. The Base Case for the Land Use and Access VCs is presented in the existing conditions of each VC (Section 19.4). Base Case generally reflects the contributions of past and present projects and/or activities;
2. Project Case – Describes the status of the VC with the Project in place, over and above the Base Case. This is the effects assessment of the Project as described in Section 19.5 and which considered past and ongoing other activities in the Lan Use and Access RSA; and
3. Future Case – Describes the status of the VC as a result of the Project Case in combination with all reasonably foreseeable future projects and/or activities that could be carried out as outlined in Section 5.3.4.6.

The comparison of the Project Case with the Future Case allows the Project contribution to cumulative effects of all past, present, and reasonably foreseeable future projects and/or activities to be determined.

19.5.6.2.3 Administrative and Technical Boundaries

No additional administrative or technical boundaries were considered in the cumulative effects assessment beyond those described in Section 19.2.3.3 and Section 19.2.3.4.

19.5.6.3 Identifying Past, Present, and Reasonably Foreseeable Projects and/or Activities

Descriptions of the past, present, and reasonably foreseeable projects and/or activities for consideration in the cumulative effects assessment are provided in Chapter 5, Section 5.3.5.3.

Several past, present, and reasonably foreseeable projects or activities are expected to interact with the land use and access VCs, which may result in a potential for adverse cumulative effects. A map showing the location of the past, present, and reasonably foreseeable future projects or activities is presented on Figure 19.5-8.

As noted in Chapter 5, Section 5.3.5.3, the following projects were considered but were not included in the cumulative effects assessment:

- Coal Mountain Phase 2 as the environmental assessment was placed on hold by Teck Coal Limited in 2016;
- Mount Brussilof (Baymag Mine) by Baymag due to no temporal overlap;
- Barnes Lake Phosphate Exploration Project by Fertoz International Inc. given that the project is in exploration phase and no project has been proposed; and
- Cabin Ridge Coal by Warburton Group is in exploration and no project has been proposed.

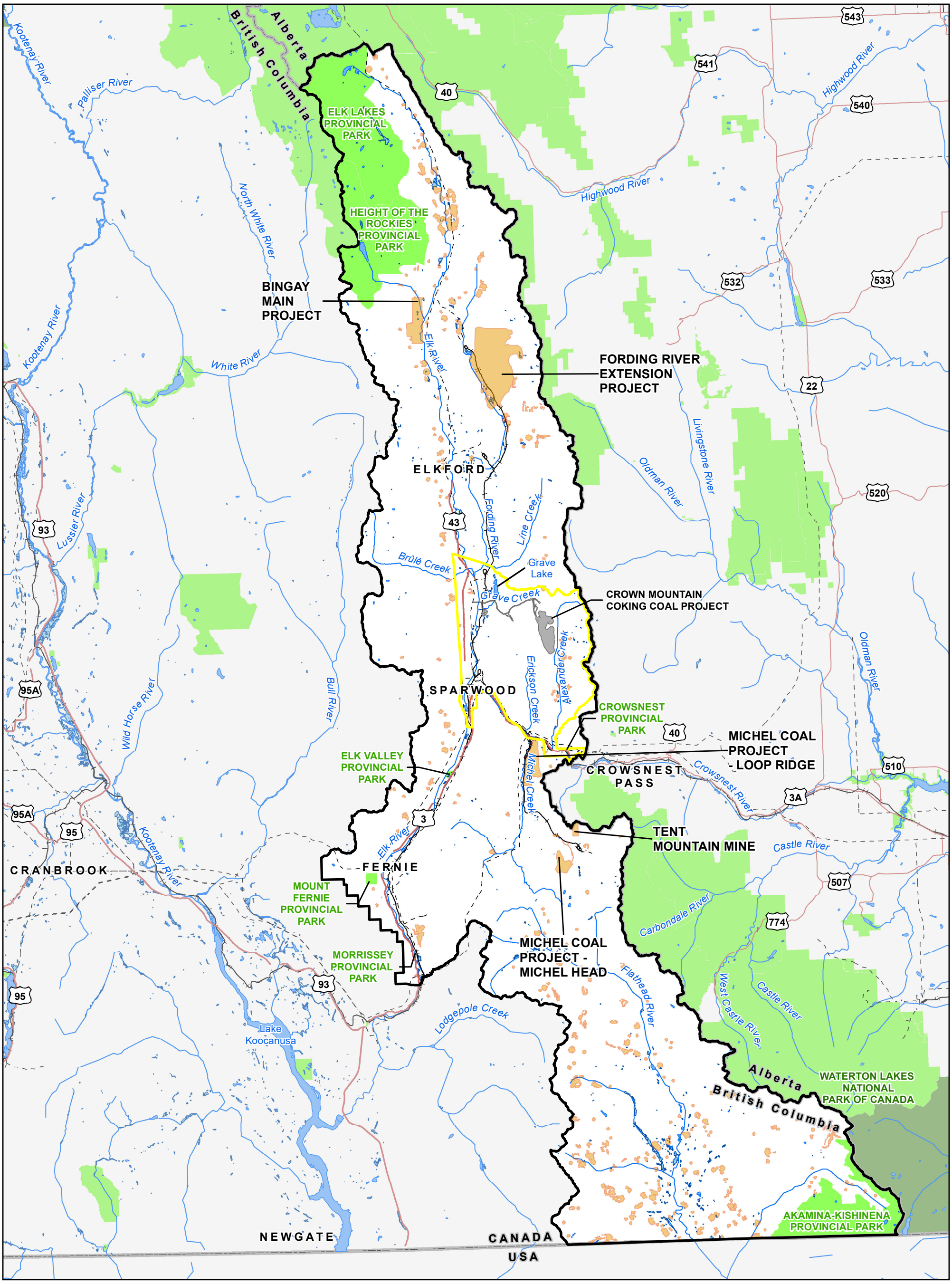
19.5.6.4 Analysis of Cumulative Effects

19.5.6.4.1 Change in the Quantity of Land Available for Recreation Activities

The Project (mine site) will result in the removal of 1,100 ha of public lands that are used or may be used for various outdoor/wilderness recreation activities including: hiking, camping, skiing, ATV/snowmobiling and hunting, plus some additional lands around the Project footprint that will be captured in the NUE area restricting public access. Local recreation land users reported through the consultation program that the Project site is considered to be of high value/quality and that large tracts of land such as this are becoming less available in the Elk Valley. This loss of land for the mine site includes about 34.2 km of formal and informal trails. In addition, about 51 ha of privately held conservation lands will also be removed for the rail loadout facility that may be used for recreation activities potentially including hunting, hiking, etc. The Project will also remove about 5.5 km of West Alexander Creek, which may be used for angling activities. However, the use of this section of the creek for fishing is understood to be minimal, since higher quality fishing is understood to be available in downstream waterbodies such as Alexander Creek.

The outdoor/wilderness recreation areas that would be impacted by reasonably foreseeable projects and activities tend to be located away from developed lands and in more remote areas at higher elevations. Regarding the likely and reasonable foreseeable future projects and activities in the Land Use and Access RSA, those that have the highest potential for overlap with these types of recreation lands would include natural processes (e.g., fires), forestry operations, and mining activity.

Natural processes such as forest fires could temporary reduce lands available for recreation, although these effects tend to be temporary, as some recreation activities can resume within a reasonable time period after the fire has ceased, such as snowmobiling and hunting. As such, the effect is considered neutral.



Crown Mountain Coking Coal Project

Figure 19.5-8
Reasonably Foreseeable Future Projects and Activities in the Land Use and Access Regional Study Area

LEGEND

- Reasonably Foreseeable Future Projects and Activties
- Land Use and Access Regional Study Area (Electoral Area A)
- Land Use and Access Local Study Area
- Crown Mountain Coking Coal Project
- Highway
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- Provincial Park/Protected Area
- National Park
- British Columbia/ Alberta Border

0 10 20
Kilometres

Scale 1:525,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada. Imagery Provided By ESRI.

Map Created By: LMM
Map Checked By: DM
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-01-11

Document Path: \\42dillon\CAD\GIS\2012 and Prior\126231 Crown Mountain\EA_Report\CumulativeEffects\LandUse\126231_CE_LU_ ReasonablyForeseeableProjectsandActivitiesintheLandUseLSAandRSA.mxd

Forestry operations are considered to have a temporary effect on recreation, as most outdoor activities can resume in the cutblock areas once the operations have ceased, although there could be some reduction in the quality of the land for recreation after the trees have been logged. As well, forestry replanting activities might limit some recreation activities.

New or expansion of existing mines are expected to have the greatest potential for a reduction in outdoor recreation areas in the Land Use and Access RSA. In the case of mine expansion, some of these future impacted lands may already be restricted from public access, as the lands could be located in NUE areas. Five future mine expansions or new mine projects were identified in the Land Use and Access RSA at the time of this application, with an estimated land base of about 8,060 ha.

Forecasted modelling for the Elk Valley indicates that climate change is likely to result in reduced precipitation falling as snow, higher annual precipitation overall, and substantial increase in average annual air temperature (Mackillop et al. 2018). As a result, for winter activities such as snowmobiling and skiing, higher elevation lands, such as those associated with Crown Mountain, will become more valued as snow coverage will be reduced in lower elevation areas.

19.5.6.4.2 Change in the Quantity of Waterways Available for Recreation Activities

The Project (mine site) will result in the removal of 1,100 ha of public lands, including the removal about 5.5 km of West Alexander Creek, which may be used for angling activities. This is an upper section of the Alexander Creek system and is not expected to be navigable. Based on the fisheries assessment conducted for this Project, this section of creek has the potential to contain fish species that may be of interest for angling. While the use of this section of the creek for fishing was not confirmed nor noted in the consultation activities with local land users, there is the potential for fishing to occur. This may be due to this section of creek being less accessible and that higher quality fishing in the creek is understood to be available in downstream sections. Bait fish harvesting was also not reported to occur along this section of the creek.

Regarding the likely and reasonable foreseeable future projects and activities in the Land Use and Access RSA, those that have the highest potential for overlap with fishing would include natural processes (e.g., fires) and mining activity.

Natural processes such as forest fires could temporary reduce lands available for fishing, although these effects tend to be temporary as it is expected that fishing in an area impacted by wildfire could resume within a reasonable time period after the fire has ceased. As such, the effect is considered neutral.

New or expansion of existing mines are expected to have potential for a reduction in waterways for fishing in the Land Use and Access RSA. Five future mine expansions or new mine projects were identified in the Land Use and Access RSA at the time of this application, with an estimated land base of about 8,060 ha to As such, some of these projects could impact fishing opportunities.

19.5.6.4.3 Change in the Quantity of Land Available for Forestry

The Project will result in the removal of forest lands located within both Crown tenure areas (A19040) and privately managed forests. The Project is expected to result in the removal of about 19,309 ha of Crown forestry tenure lands that are expected to be harvested in the future, plus some additional lands

around the Project footprint that will be captured in the NUE area restricting public access. Canfor also indicated that they have long-term plans for cuts in the Project footprint and could advance those plans/concentrate future logging activity in this area to reduce the overall area of cut in this tenure. While the forest stands located within the Project footprint can be harvested prior to site development, this will be a one-time harvest as most of the Project footprint lands would not be suitable for tree harvesting purposes for many years after mine site restoration.

Natural processes such as forest fires could reduce lands available for forestry operations. It can take many years for wildfire impacted lands to growth trees to commercial harvesting size.

New or expansion of existing mines are expected to have the greatest potential for a reduction in forestry lands in the Land Use and Access RSA. There are five future mine expansion or new mine projects proposed in the Land Use and Access RSA at the time of this application.

Forecasted modelling for the Elk Valley indicates that climate change is likely to result in a substantial increase in average annual air temperature (EV-CEMF, 2018). Although an exact mechanism was not defined, Kirchmeier-Young et al. (2018) demonstrated that the extent and severity of wildfires in British Columbia have increased over time, co-varying with anthropogenic climate change. Given that Canada's Forest Fire Weather Index System identifies that the risk of ignition increases with reduced fuel moisture content (a product of increased air temperature, among other interacting factors), it is reasonable to assume that climate change influencing air temperature in the Elk Valley will result in an increased severity and extent of stand replacing fires. Given that stand replacing fires "reset" forest succession, where overlapping with mature forests which are likely to have an abundance of fuel (e.g., large mature trees, snags, and/or fallen deadwood), climate change is likely to result in a further loss of mature forests, although the extent of such loss cannot be predicted at this time.

19.5.6.4.4 Change in the Quantity of Land Available for Trapping

The development of Project components, including the mine site, rail loadout, and supporting infrastructure and facilities, would result in the direct loss of land available for trapping activities. The Project footprint overlaps with four trapline tenures: TR0423T006, TR0423T010, and TR0423T021 & TR0423T022, which have been amalgamated. The total area of each tenure to be removed ranges from <1% to 8%. This amounts to 990 ha of land at the mine site and 51 ha at the rail loadout that may be used for trapping activities (plus some additional lands around the Project footprint that will be captured in the NUE area restricting public access). Further, Project activities could lead to some disturbance effects (e.g., noise) which could result in some species (e.g., American marten and Canada lynx) moving away from the lands closest to the Project footprint, perhaps outside of the affected trapping tenure.

Natural processes such as forest fires could temporary reduce lands available for trapping. Furbearing species are expected to move back into areas affected by wildfires once revegetation occurs.

New or expansion of existing mines are expected to have the greatest potential for a reduction in available trapping areas. Mine expansions or new mine development and associated NUE areas could remove lands that support trapping. There are several future mine expansion or new mine projects proposed in the Land Use and Access RSA.

Forecasted modelling for the Elk Valley indicates that climate change is likely to result in a substantial increase in average annual air temperature (EV-CEMF, 2018). Although an exact mechanism was not defined, Kirchmeier-Young et al. (2018) demonstrated that the extent and severity of wildfires in British Columbia have increased over time, co-varying with anthropogenic climate change. Given that Canada's Forest Fire Weather Index System identifies that the risk of ignition increases with reduced fuel moisture content (a product of increased air temperature, among other interacting factors), it is reasonable to assume that climate change influencing air temperature in the Elk Valley will result in an increased severity and extent of stand replacing fires. Given that stand replacing fires "reset" forest succession, where overlapping with mature forests which are likely to have an abundance of fuel (e.g., large mature trees, snags, and/or fallen deadwood), climate change is likely to result in a further loss of mature forests, although the extent of such loss cannot be predicted at this time. This potential increase in forest fires could impact available land for trapping, although this would be a temporary impact (a few years).

19.5.6.4.5 Change in the Quality of the Experience for Recreation Activities on Adjacent Lands

Users of lands adjacent to the Project footprint for recreation activities could experience a decrease in the quality of the experience as a result of Project off-site effects (e.g., noise), localized visual landscape changes, reduced perceptions of a wilderness experience, and possible reduction in wildlife and fish populations that could impact hunting and fishing activities. This could also result in people participating less in a given activity, if they feel that the experience is not a good as it once was.

The previous description above of anticipated changes to recreation land availability in the Land Use and Access RSA as a result of reasonably foreseeable projects and activities (primarily forestry) would also apply to this impact.

19.5.6.4.6 Change in Access to Lands for Recreation Activities

The development and operation of the Project will result in a reduction to the accessibility of land in the Land Use and Access RSA for recreation activities. In addition to the Project footprint (mine site and rail loadout facility) and the NUE area, there will also be an area closed to public access due to mine blasting activities and the restricting of gun hunting in proximity to the Project site (for mine worker safety reasons).

Lands within the blasting restriction areas are used or may be used for various recreation activities including hunting, fishing, hiking, camping, and ATV/snowmobile use. Depending on the blasting restriction area boundaries, this may also restrict travel along trails in the Alexander Creek valley. This could impact temporary access to up to two trapping cabins and one snowmobile cabin in the valley. The period of time that land is within the blasting restriction area will vary during the life of the Project, depending on the location of the blasting activity within the mine site.

The previous description above of anticipated changes to recreation land availability in the Land Use and Access RSA as a result of reasonably foreseeable projects and activities would also apply to this impact. Temporary access restrictions on lands for forestry operations may be temporary, whereas longer term access restrictions might be associated with new mine development. As previously noted, some of the new mine projects may be located within current NUE areas of operating mines, and would therefore not change current land access levels.

19.5.6.5 Mitigation for Cumulative Effects

The mitigation strategy developed for Project effects is also applicable to the Project's contribution to cumulative effects on land use and access VCs. As described in Section 19.5.4, the mitigation plan involves a combination of Project design features, procedures, and practices aimed at reducing or eliminating Project-related effects to land users, as well as those related to noise, managing NUE areas, surface water quality, and mine related traffic control.

Given that existing (i.e., present) and reasonably foreseeable future projects and activities are generally bound to the same legislative/regulatory frameworks as the Project, it is reasonable to expect that such activities will be subject to similar or analogous mitigation requirements specific to the respective industry. Furthermore, present and reasonably foreseeable future projects and activities whose construction and operation overlap with the Project are subject to similar states of knowledge regarding the mitigation of environmental effects. Consequently, it is reasonable to assume that potential effects of existing and reasonably foreseeable future projects and activities in the Land Use and Access RSA are likely to be mitigated in a manner similar to that proposed for the Project.

19.5.6.6 Characterization of Residual Cumulative Effects

19.5.6.6.1 Change in the Quantity of Land Available for Recreation Activities

The availability of public lands for outdoor recreation activities continues to be under pressure from various other land use activities such as forestry, land development, and mine expansions/ construction of new mines. Input from local land users have expressed this as an ongoing concern. The Project will remove approximately 1,100 ha of land from public use for recreation activities for the duration of the Project, plus some additional lands captured by the NUE area. Some of this land can return to recreation use after site rehabilitation, although the quality of this area for recreation activities may not be high as it is under current conditions. Natural process such as forest fires, which may be enhanced by climate change and forestry operations, impact the availability of land for recreation, even if temporary. Mapping of historical wildfires (Figure 19.5-8) illustrates that large portions of the Land Use and Access RSA have been subject to fires.

There are several operating mines in the Elk Valley with established NUE areas that restrict recreation activities. When these active mines reach the end of their operating life, it is expected that these NUE areas will be lifted and some of these lands (publicly owned lands at least) will once again be available for recreation use. Should any of the proposed five new mines or mine expansions in the Land Use and Access RSA (see Figure 19.5-8) progress to operation, then this is expected to result in additional land being removed from recreational use. While some of these projects may include land that may not be publicly accessible or of value for recreation, a high level estimate of the total land removed from these projects could be in the range of 8,060 ha. Figure 19.5-8 presents an overlay of all possible future activities in the Land Use and Access RSA. White spaces in the figure are unaffected lands. A large portion of the coloured area in the map relates to forestry land use, either retired or planned cutblock areas. As previously noted, some of the lands that have been altered by forestry operations would still be suitable for some outdoor recreation activities. Based on available information, there still remains sizeable amounts of unaffected lands and forestry lands that may be available for outdoor recreation activities in the Land Use and Access RSA; however, not all of these lands may be readily accessible, suitable, or of high value for recreation activities. It is also important to note that through consultation activities with local land users, it was

expressed that remaining lands suitable for outdoor recreation in proximity to the communities of Sparwood and Elkford are becoming increasingly under pressure from use, as lands become consumed for other land uses. This also puts pressure on the remaining areas available, which can also impact their enjoyment by users.

Determination of Significance of Residual Cumulative Effects

Although other reasonably foreseeable future projects or activities are anticipated to be subject to similar requirements for the mitigation of potential effects to quantity of land available for recreation use similar to those planned for the Project, it is also unlikely that other reasonably foreseeable future projects or activities can completely avoid the direct loss of recreation lands. The residual effect of the Project acting cumulatively with the other past, present, and reasonably foreseeable future projects or activities in the Land Use and Access RSA is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Permanent, although reclamation activities will aim to restore project sites through ecological restoration/revegetation, the Project and other reasonably foreseeable future project sites and associated NUEs will be closed to users for long term periods and not likely fully return to their current condition/value as a recreation resource.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities may result in the loss of a reasonable amount of valued recreation land. While there are other public lands available in the Land Use and Access RSA, local users indicate that the amount of high quality recreation land in the Land Use and Access RSA is becoming less available/increasingly under pressure.
- Geographic Extent: Regional, the loss of the recreation lands will be limited to the respective footprints and related NUE areas of the Project, as well as for other reasonably foreseeable future projects or activities within the Land Use and Access RSA.
- Frequency: Once, the removal of recreation lands can only occur once, which is expected to be the same for most other reasonably foreseeable future projects or activities.
- Reversibility: Reversible, ecological restoration practices associated with the Project or past, present, or other reasonably foreseeable future projects or activities should be able to restore some of the lands within the footprints for future recreation use. Lands outside the footprints but within the NUEs can resume to their former use as they will largely be unaffected by the projects.
- Context: Common; the impacted recreation lands at the Project site and at other reasonably foreseeable future project sites are available elsewhere in the Land Use and Access RSA, though, as in the case of the Project, the impacted lands may be of high value.

In light of the above, and in consideration of planned mitigation for the Project in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on the quantity of land available for recreation activities, during all phases of the Project, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

Although it is reasonably certain that removal of recreation lands will be required, the full extent of loss associated with past, present, and reasonably foreseeable future projects or activities cannot be accurately predicted with the information available (the recreation value of the other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.2 Change in the Quantity of Waterways Available for Recreation Activities

The Project will remove about 5.5 km of West Alexander Creek that may or could be used for angling activities. Natural process such as forest fires, which may be enhanced by climate change and forestry operations, could impact the availability of waterways for fishing, even if temporary. Mapping of historical wildfires (Figure 19.5-8) illustrates that large portions of the Land Use and Access RSA have been subject to fires. There are several operating mines in the Elk Valley with established NUE areas that restrict recreation activities, which could include waterways. When these active mines reach the end of their operating life, it is expected that these NUE areas will be lifted and any waterways within them will once again be available for recreation use. Should any of the proposed five new mines or mine expansions in the Land Use and Access RSA (see Figure 19.5-8) progress to implementation, then this could impact waterways and reduce fishing opportunities. A high level estimate of the total area directly impacted from these projects could be in the range of 8,060 ha. It is also important to note that through consultation activities with local land users, it was expressed that remaining lands suitable for outdoor recreation in proximity to the communities of Sparwood and Elkford are becoming increasingly under pressure from use as lands become consumed for other land uses. This also puts pressure on the remaining areas available, which can also impact their enjoyment by users.

Determination of Significance of Residual Cumulative Effects

It is possible that other reasonably foreseeable future projects or activities could result in the direct loss of waterways, and there are limited mitigation options available to minimize these types of effects. The residual effect of the Project acting cumulatively with the other past, present, and reasonably foreseeable future projects or activities in the Land Use and Access RSA is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Permanent, restoration of removed waterways is considered to be more difficult than for land and may not be possible at project sites. The Project and other reasonably foreseeable future project sites and associated NUEs will be closed to users for long term periods and unlikely to fully return to their current condition/value as a recreation resource.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities may result in the loss of a reasonable amount of waterways. However, other waterways are available in the Land Use and Access RSA, which provide opportunities for angling.
- Geographic Extent: Regional, the loss of waterways will be limited to the respective footprints of the Project and other reasonably foreseeable future projects or activities within the Land Use and Access RSA.
- Frequency: Once, the removal of the recreation lands by the Project can only occur once and is a long-term impact, which is expected to be the same for most other reasonably foreseeable future projects or activities.

- Reversibility: Irreversible, it is anticipated that the removed waterways cannot be replaced as part of restoration activities.
- Context: Common; waterways for angling are available elsewhere in the Land Use and Access RSA. It is anticipated that the most valued waterways in the Land Use and Access RSA for angling, such as the Elk River, would not be directly impacted (e.g., sections removed) by future projects and activities.

In light of the above, the residual cumulative environmental effects on the quantity of waterways used for angling during all phases of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

Although it is reasonably certain that removal of a section of the West Alexander Creek will be required, the full extent of loss associated with past, present, and reasonably foreseeable future projects or activities cannot be accurately predicted with the information available (the potential to remove waterways at other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.3 Change in the Quantity of Land Available for Forestry

As noted above, the Project will result in the removal of forest lands located within both Crown tenure areas (A19040) and privately managed forests. The Project is expected to result in the removal of about 1,283 ha of forestry lands. This is expected to be a long term removal, as forestry operations will not likely be possible within the Project footprint area once the mine site is rehabilitated for many years Post-Closure. Within the Land Use and Access RSA, there are 48 active forest tenures with a total area of 19,309 ha. As such, the Project will result in the long-term removal of only 6.6% of the total forestry tenure lands in the Land Use and Access RSA.

Natural process such as forest fires, which may be enhanced by climate change, may impact the availability of land for forestry. Mapping of historical wild fires (Figure 19.5-8) illustrates that large portions of the Land Use and Access RSA have been subject to fires. Other future mines in the Land Use and Access RSA have the potential to result in the loss of additional forestry lands. Figure 19.5-8 presents an overlay of all possible future activities in the Land Use and Access RSA. Should any of the proposed five new mines or mine expansions in the Land Use and Access RSA (see Figure 19.5-8) progress to operation, then this is expected to result in additional land being removed from forestry use. The removal of forestry lands from these projects could be as much as 8,060 ha, depending on the overlap of forest lands on these proposed mine sites.

Determination of Significance of Residual Cumulative Effects

Although other reasonably foreseeable future projects or activities are anticipated to be subject to similar requirements for the mitigation of potential effects to quantity of land available for forestry, it is likely that the loss of forestry lands will be permanent, as forestry operations will not likely be possible on the other mine sites for many years after closure and restoration is complete. The residual effect of the Project

acting cumulatively with the other past, present, and reasonably foreseeable future projects or activities in the Land Use and Access RSA is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Permanent, although reclamation activities will aim to restore the Project and other reasonably foreseeable future project sites with ecological restoration/revegetation, it is not expected that forestry operations will be possible at these locations for many years post-closure.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities will result in the loss of a moderate amount of forestry land.
- Geographic Extent: Regional, the loss of forestry lands will be limited to the respective footprints of the Project, as well as those of other reasonably foreseeable future projects or activities within the Land Use and Access RSA.
- Frequency: Once, the removal of the forestry lands can only occur once, and is a long-term impact, which is expected to be the same for most other reasonably foreseeable future projects or activities.
- Reversibility: Permanent, while forestry stands would be harvested at the Project site and reasonably foreseeable future project sites prior to site development, forestry operations are not expected to be able to resume for many years once the sites are restored.
- Context: Common, the impacted forestry lands from the Project site and reasonably foreseeable future project sites are available elsewhere in the Land Use and Access RSA.

In light of the above, and in consideration of planned mitigation for the Project, in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on the quantity of land available for forestry, during all phases of the Project, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

Although it is reasonably certain that removal of forestry lands will be required, the full extent of loss associated with past, present, and reasonably foreseeable future projects or activities cannot be accurately predicted with the information available (the forestry value of the other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.4 Change in the Quantity of Land Available for Trapping

As noted above, the development of Project components, including the mine site, rail loadout, and supporting infrastructure, would result in the direct loss of land available for trapping activities. Of the four trapping tenures (two of which have been amalgamated) affected, the total area of each tenure to be removed ranges from <1% to 8%. This amounts to approximately 1,040 ha of land that may be used for trapping activities (plus some additional lands around the Project footprint that will be captured in the NUE area restricting public access for the Project duration). Further, Project activities could lead to some

disturbance effects (e.g., noise) which could result in some species (e.g., American marten and Canada lynx) moving away from the lands closest to the Project footprint. After the site is closed and reclaimed through ecological restoration activities, it is anticipated that trapping could resume within portions of the Project footprint, should furbearing species return to the area. The NUE areas will reopen as well, allowing trapping opportunities to resume in those areas.

Natural process such as forest fires, which may be enhanced by climate change and forestry operations, impact the availability of land for trapping, even if temporary. Mapping of historical wildfires (Figure 19.5-8) illustrates that large portions of the Land Use and Access RSA have been subject to fires. There are several operating mines in the Elk Valley with established NUE areas that restrict public access and trapping activities. When these active mines reach the end of their operating life, it is expected that these NUE areas will be lifted and some of these lands (publicly owned lands at least) will once again be available for trapping. Should any of the proposed five new mines or mine expansions in the Land Use and Access RSA (Figure 19.5-8) progress to operation, then this is expected to result in additional land being removed from trapping use. While some of these projects may be consume land that may not be publicly accessible or be of value for trapping, a high level estimate of the total land removed from these projects could be in the range of 8,060 ha. Figure 19.5-8 presents an overlay of all possible future activities in the Land Use and Access RSA. White spaces in the figure are unaffected lands. A large portion of the coloured area in the map relates to forestry land use, either retired or planned cutblock areas. As previously noted, some of these lands that have been altered by forestry operations would still be suitable for trapping. Based on available information, there still remains sizeable amounts of unaffected and forestry lands that may be available for trapping in the Land Use and Access RSA, although not all of these lands may be readably accessible or suitable for trapping.

Determination of Significance of Residual Cumulative Effects

Although other reasonably foreseeable future projects or activities are anticipated to be subject to similar requirements for the mitigation of potential effects to quantity of land available for trapping similar to those planned for the Project, it is also unlikely that other reasonably foreseeable future projects or activities can completely avoid the direct loss of trapping lands. The residual effect of the Project acting cumulatively with the other past, present, and reasonably foreseeable future projects or activities in the Land Use and Access RSA is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Permanent, although reclamation activities will aim to restore project sites through ecological restoration/revegetation, the Project and other foreseeable future project sites and associated NUEs will be closed to trapping tenure holders for long term periods (e.g., approximately 20 years in the case of the Project) and may not fully return to their current condition/value as a trapping area even after site restoration.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities may result in the loss of a reasonable amount of trapping land. Trapping is tied to tenure areas, and unless a holder of a tenure makes their tenure available, obtaining new trapping lands is not possible. It should be noted that trapping activity in Canada is much reduced as compared to historical levels due to the collapse of fur prices, and often occurs more for cultural reasons than for economical ones, such as by Indigenous persons.

- Geographic Extent: Regional, the loss of trappings lands will be limited to the respective footprints and related NUE areas of the Project, as well as for other reasonably foreseeable future projects or activities within the Land Use and Access RSA.
- Frequency: Once, the removal of the trapping lands can only occur once, and is a long-term impact, which is expected to be the same for most other reasonably foreseeable future projects or activities. Disturbance of adjacent lands (e.g., noise) from project activities such as the operation of machinery and vehicles would occur over the life of the projects and activities in the Land Use and Access RSA, and the frequency of this effect would vary depending on the stage of the projects. Disturbance effects might result in reduced populations of some furbearing species in some areas.
- Reversibility: Reversible, ecological restoration practices associated with the Project and past, present, or other reasonably foreseeable future projects or activities should be able to restore some of the lands within their footprint for future trapping use. Lands outside the footprints but within the NUE can resume to their former use as they will largely be unaffected by the projects.
- Context: Common, the impacted trapping lands at the Project site and at other reasonably foreseeable future project sites are available elsewhere in the Land Use and Access RSA, though there could be variation in the value of the impacted lands for trapping versus the value of other remaining available lands. In addition, impacted trapping tenure holders may not be able to access other lands to replace the ones that are lost, or that take longer to access.

In light of the above, and in consideration of planned mitigation for the Project, in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on the quantity of land available for trapping, during all phases of the Project, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

Although it is reasonably certain that removal of trapping lands will be required, the full extent of loss associated with past, present, and reasonably foreseeable future projects or activities cannot be accurately predicted with the information available (the value of the land for trapping of the other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.5 Change in the Quality of the Experience for Recreation Activities on Adjacent Lands

As previously noted, users of lands adjacent to the Project footprint for recreation activities could experience a decrease in the quality of the experience as a result of Project-related sensory related off-site effects (e.g., noise), localized visual landscape changes, reduced perceptions of a wilderness experience, and possible reduction in wildlife and fish populations that could impact hunting and fishing activities. This could also result in people participating less in a given activity if they feel that the experience is not as good as it once was. In terms of other reasonably foreseeable projects and activities that could also result in disturbance effects to recreation activities in proximity to the project/activity, none of the proposed other mines and mines expansions are close enough to the Project to result in

overlap of disturbance effects. The only future activity that could occur in the vicinity of the Project and result in disturbance effects to those in recreation activities is forestry. There are planned cutblocks by Canfor that are in the vicinity of the Project that could result in disturbance effects that could overlap with those created by the Project. Similarly, forestry operations could result in some wildlife species moving out of the area (at least temporarily), which could contribute to the reduction in some game species in the general vicinity of the Project.

Determination of Significance of Residual Cumulative Effects

It is unlikely that other reasonably foreseeable future projects or activities, primarily forestry operations, can completely avoid disturbances to recreation lands. The residual effect of the Project acting cumulatively with the other past, present, and reasonably foreseeable future projects or activities in the Land Use and Access RSA, primarily forestry in the vicinity of the Project, is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Temporary, disturbance effects from the Project and from other reasonably foreseeable future projects or activities are expected to be largely temporary and would cease to occur once the activity ceases to operate. As well, the locations of the disturbances could also move as the activity/project changes its location of operations. An example of this is blasting at the mine site for the Project, as the location of the blasting and associated disturbance will change as different pits are mined. The same is expected with forestry operations.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities may result in the disturbance of a moderate amount of valued recreation land.
- Geographic Extent: Local, the cumulative disturbance of recreation lands will be limited to the vicinity of the Project.
- Frequency: Ongoing/Continuous, the disturbance of recreation lands in the vicinity of the Project in combination with disturbances from forestry activities will occur on an ongoing basis for the duration of forestry activities.
- Reversibility: Reversible, once the Project and reasonably foreseeable future projects or activities cease to operate, associated disturbance effects would stop.
- Context: Common, the impacted recreation lands in the vicinity of the Project site are available elsewhere in the Land Use and Access RSA, though, as in the case of the Project lands, they are considered to be of high value by local users and therefore the available unaffected lands may be highly valued/enjoyed.

In light of the above, and in consideration of planned mitigation for the Project, in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on the quality of the experience for recreation activities on adjacent lands, during all phases of the Project, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.
Although it is reasonably certain that the disturbance of adjacent lands in the vicinity of the Project will occur, the full extent of loss associated with past, present, and reasonably foreseeable future projects and activities cannot be accurately predicted with the information available (the recreation value of the other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.6 Change in Access to Lands for Recreation Activities

The development and operation of the Project will result in a reduction to the accessibility of land in the Land Use and Access RSA for recreation activities. The Project will require the closure of areas used for recreation due to mine blasting activities, and will also restrict gun hunting in proximity to the Project sites (for mine worker safety reasons). Lands within the blasting restriction areas are used or may be used for various recreation activities including hunting, fishing, hiking, camping, and ATV/snowmobile use. The blasting restriction area will also restrict travel along trails in the Alexander Creek valley and temporary access to up to two trapping cabins and one snowmobile club cabin in the valley. The cabin access restrictions are expected to last for about 15 years; however, the location of their impacts would vary depending on where blasting was occurring.

In terms of other reasonably foreseeable future projects and activities that could also result in access restrictions to recreation activities in proximity to the Project, none of the other proposed mines and mine expansions are close enough to the Project to result in overlap of these effects. The future activity that could occur in the vicinity of the Project and result in access restrictions to recreation land is forestry. There are future planned cutblocks by Canfor that are in the vicinity of the Project that could result in land access restrictions that could overlap with those created by the Project.

Determination of Significance of Residual Cumulative Effects

It is unlikely that other reasonably foreseeable future projects or activities, primarily forestry operations, can completely avoid access restriction to recreation lands. The residual access related effects of the Project acting cumulatively with the other reasonably foreseeable future projects or activities in the Land Use and Access RSA, primarily forestry, is considered to be moderate in magnitude and, therefore, not significant. Residual cumulative effects arising from the Project in combination with other past, present, and reasonably foreseeable future projects or activities are characterized as follows:

- Duration: Temporary, access restrictions from the Project and from other reasonably foreseeable future projects and activities (mainly forestry) are expected to be largely temporary and would cease to occur once the Project access restrictions and/or the forestry operations are in place. Forestry operations that limit access to lands are expected to occur for one to a few years at a time.
- Magnitude: Moderate, the Project acting cumulatively with past, present, and other reasonably foreseeable future projects or activities (mainly forestry) may result in the restriction in access to a moderate amount of valued recreation land.

- Geographic Extent: Local, cumulative access restrictions to recreation lands will be limited to the vicinity of the Project.
- Frequency: Ongoing/Continuous, access restriction to recreation lands in the vicinity of the Project in combination with access restrictions from forestry activities will occur on an ongoing basis for the duration of the Project and nearby forestry activities.
- Reversibility: Reversible, once the Project and reasonably foreseeable future projects or activities cease to operate, associated access restriction effects would stop.
- Context: Common, the recreation lands in the vicinity of the Project site that may be subject to cumulative restriction effects are available elsewhere in the Land Use and Access RSA; however, these lands are considered to be of high value by local users, and therefore the availability of free access lands may not be valued/enjoyed as highly. There is also the potential for increased pressure from use of these other lands during land access restrictions in the vicinity of the Project.

In light of the above, and in consideration of planned mitigation for the Project, in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on access to lands for recreation activities, during all phases of the Project, are considered not significant.

Likelihood and Confidence

Effects that are determined to be not significant do not require a characterization of likelihood.

Although it is reasonably certain that there will be access restrictions on adjacent lands to the Project, the full extent of access restrictions in the vicinity of the Project associated with other reasonably foreseeable future projects or activities (largely forestry) cannot be accurately predicted with the information available (how and when local area forestry activities are undertaken is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence; however, this level of confidence is reflected in the conservatism included in the predicted area of impact.

19.5.6.6.7 Summary of Cumulative Effects Assessment

Residual cumulative effects and the selected mitigation measures, characterization criteria, likelihood, significance determination, and confidence are summarized in Table 19.5-10. As indicated, there are no significant residual cumulative effects to land use VCs anticipated as a result of the Project.

Table 19.5-10: Summary of Cumulative Effects on the Land Use and Access VCs

Valued Component	Residual Cumulative Effect	Project Phases	Mitigation Measures	Summary of Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
Recreation and Tourism Land Use	Change (Decrease) in the Quantity of Land Available for Recreation Activities	All	Same as proposed for Project effects	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible Context: Common	Not Significant	N/A	Moderate
Recreation and Tourism Land Use	Change (Decrease) in the Quantity of Waterways Available for Recreation Activities	All	Same as proposed for Project effects	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Irreversible Context: Common	Not Significant	N/A	Moderate
Recreation and Tourism Land Use	Change (Decrease) in the Quality of the Recreation Experience on Adjacent Lands And Waterways	All	Same as proposed for Project effects	Duration: Temporary Magnitude: Moderate Geographic Extent: Local Frequency: Ongoing/Continuous Reversibility: Reversible Context: Common	Not Significant	N/A	Moderate
Commercial Land Use	Change (Decrease) in the Quantity of Land Available for Forestry	All	Same as proposed for Project effects	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Permanent Context: Common	Not Significant	N/A	Moderate

Valued Component	Residual Cumulative Effect	Project Phases	Mitigation Measures	Summary of Effects Characterization	Significance (Significant, Not Significant)	Likelihood (High, Moderate, Low)	Confidence (High, Moderate, Low)
Commercial land Use	Change (Decrease) in the Quantity of Land Available for Trapping	All	Same as proposed for Project effects	Duration: Permanent Magnitude: Moderate Geographic Extent: Regional Frequency: Once Reversibility: Reversible Context: Common	Not Significant	N/A	Moderate
Land Use Access	Change (Reduction) in Access to Lands for Recreation Activities	All	Same as proposed for Project effects	Duration: Temporary Magnitude: Moderate Geographic Extent: Local Frequency: Ongoing/Continuous Reversibility: Reversible Context: Common	Not Significant	N/A	Moderate

19.6 Visual Aesthetics Project Effects Assessment

The assessment of potential visual effects of the project is discussed in the sections below. For a description of the methodology followed to support the assessment of potential visual effects, refer to Appendix 19-C.

19.6.1 Visibility Mapping Results/Assessment

Visibility maps were developed to illustrate the absence of visibility of the Project within the Visual Aesthetics LSA. Figure 19.6-1 depicts the visibility from the entire Project footprint. Figure 19.6-2 depicts visibility from the mine site only; and Figure 19.6-3 depicts only the visibility of the rail loadout facility.

Three scenarios were modelled, with the 'pink' zones indicating locations that will have a view (observation point) of the Project and the 'green' zones indicating locations that do not have views (observation points) of the Project because views are blocked by topography, vegetation, or structures:

The Visibility mapping demonstrates that the Project is screened from view, with few exceptions, from areas where people are generally located. The Project footprint is situated between Erickson Ridge and the Great Divide range along the B.C.-Alberta border. Crown Mountain's peak is approximately 2,200 m asl and the plant is situated at approximately 1,910 m asl. The peak of Erickson Ridge is 2,500 m asl and the Great Divide is 2,700 m asl. These ridges screen the Project footprint from the west and east.

There are limited potential sightlines to the clean coal haul road (an existing road); however, there are no sensitive receptors (e.g., residences, formal recreation sites) along the road (Figure 19.6-3). The rail loadout area was also modelled with similar results. There are potential sightlines to the rail loadout; however, forest cover and local landscapes screen the views.

The likelihood of having discernible views of the Project from the Land Use and Access RSA is very low because of the dense evergreen forest and complex landscape (high visual absorption capacity) comprised of steep ridges and the relatively low profile of Crown Mountain.

The conclusion, based on the visibility model, is that the landforms associated with surrounding ridges and the dense evergreen forest effectively block views to the Project in locations where there are sensitive receptors that include residences, institutions, and recreational properties, which are primarily located at lower elevations to the west of the Project site and along the Elk River. There is potential for views of the mine site by some recreational land users (e.g. hunters, hikers) from higher elevation locations (e.g. ridgelines) located to the east and west of the mine site.

19.6.1.1 Transboundary Effects

Potential visual effects of the Project would not extend into the Province of Alberta or into the United States of America.

Crown Mountain Coking Coal Project

Figure 19.6-1
Visibility Mapping - Project Footprint

LEGEND

- Not Visible
- Visible
- Visibility Processing Point Coverage
- Receptors from Background Data
- Receptors from Consultation
- Recreation Trails from Consultation
- Great Divide Trail
- Public Trail Data
- Visual Aesthetics Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Kilometres

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Scale 1:115,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited, Keefer Ecological Service Ltd., Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation. Airborne Imaging Inc. Digital Terrain Model Government of Canada Natural Resources Canada. Canadian Digital Elevation Model. Imagery Provided By Landsat 8 (Aug 2018), and GeoBC Ortholmagery (Aug 2016). Receptor data from Province of British Columbia, GeoBC Open Data, Dillon Consulting Limited, Consultations
Map Created By: LMM
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

Project: 12-6231
Status: FINAL
Date: 2022-02-24

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Crown Mountain Coking Coal Project

Figure 19.6-2
Visibility Mapping - Mine Site

LEGEND

- Not Visible
- Visible
- Visibility Processing Point Coverage
- Receptors from Background Data
- Receptors from Consultation
- Recreation Trails from Consultation
- Great Divide Trail
- Public Trail Data
- Visual Aesthetics Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

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Kilometres

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W E
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Scale 1:115,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited,Keefer Ecological Service Ltd., Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation. Airborne Imaging Inc. Digital Terrain Model Government of Canada Natural Resources Canada. Canadian Digital Elevation Model. Imagery Provided By Landsat 8 (Aug 2018), and GeoBC Ortholmagery (Aug 2016). Receptor data from Province of British Columbia, GeoBC Open Data, Dillon Consulting Limited, Consultations
Map Created By: LMM
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Map Coordinate System: NAD 1983 UTM Zone 11N

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Crown Mountain Coking Coal Project

Figure 19.6-3
Visibility Mapping - Rail Loadout Area

LEGEND

- Not Visible
- Visible
- Visibility Processing Point Coverage
- Receptors from Background Data
- Receptors from Consultation
- Recreation Trails from Consultation
- Great Divide Trail
- Public Trail Data
- Visual Aesthetics Local Study Area
- Project Footprint
- Highway
- Arterial/Collector Road
- Local/Resource Road
- Railway
- Transmission Line
- Watercourse
- Waterbody
- Wetland
- British Columbia/Alberta Border

0 2.5 5
Kilometres

N
W E
S

Scale 1:115,000

Map Drawing Information:
Data Provided By NWP Coal Canada Ltd, Dillon Consulting Limited,Keefer Ecological Service Ltd., Province of British Columbia GeoBC Open Data, Government of Alberta Open Data, Natural Resource Canada, Motor Vehicle Prohibition Regulation, OpenStreetMap, Consultation. Airborne Imaging Inc. Digital Terrain Model Government of Canada Natural Resources Canada. Canadian Digital Elevation Model. Imagery Provided By Landsat 8 (Aug 2018), and GeoBC Ortholmagery (Aug 2016). Receptor data from Province of British Columbia, GeoBC Open Data, Dillon Consulting Limited, Consultations
Map Created By: LMM
Map Checked By: HEB
Map Coordinate System: NAD 1983 UTM Zone 11N

NWP Coal Canada Ltd

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19.6.2 Mitigation Measures

As visual impacts were not identified based on the completed assessment, specific visual mitigation is not warranted for the Construction and Pre-Production and Operations phases, other than the expectation that the Project will be developed in a responsible manner and implement appropriate site maintenance activities, etc.

Mitigation is recommended for the Reclamation and Closure and Post-Closure phases, as summarized in Table 19.6-1. An Ecological Restoration Plan for the Project (Chapter 33, Section 33.4.1.3) has been developed. The restoration process will be ongoing during mining operations, with the objective of progressively phasing in restoration as the site evolves. The ecological treatment approach is based on reinstating ecotypes that are consistent with the adjacent, undisturbed landforms and species found on the site prior to mining. This approach is consistent with the Class 3 Management Guidelines for the Front Country Visual Management Area in the Kootenay/Boundary Land Use Plan Implementation Strategy (Kootenay Inter-Agency Management Committee, 1997). The approach to reclamation includes removing all infrastructure and reclaiming and repurposing salvaged soil for enhancing natural habitats to pre-mining conditions and progressively reclaiming exhausted areas of the mine.

The post mine ecological treatment will include three biogeoclimatic units that were present in the mine site, rail loadout, and haul roads prior to disturbance. The mine site reclamation will support 15 reclamation treatment units that correspond to the full range of ecotypes found in the pre-mine site. The approach to reclamation includes the creation of key habitats:

- Deciduous-leading forest with lodgepole pine and spruce;
- Warm aspect wildlife forage habitat (e.g., grasslands);
- Cooler aspect shrub land to forest;
- Wetlands;
- Riparian habitats; and
- Footwall escape terrain for ungulates (e.g., bighorn sheep and mountain goat).

The restoration plan uses natural processes to steer long term restoration, using all native plants in the ecological associations that occur in the region. The goal is to have a vegetated post-mine environment that minimizes post-mining effects and reduces the impact to visual aesthetics. Replacement of pre-mining recreational trails following decommissioning should be considered and implemented in consultation with the stakeholders.

The mitigation measures for visual aesthetics are considered to be highly effective over time; as such, residual visual impacts to identified sensitive receptors are not expected to occur as a result of the Project.

19.6.3 Characterization of Residual Effects, Significance, Likelihood and Confidence

No adverse residual visual effects are predicted to occur as a result of the development and operation of the Project. Post-closure site restoration activities will allow for the integration of the surrounding landscape after the Project is completed.

Table 19.6-1: Summary of Proposed Mitigation Measures related to Visual Aesthetics

Potential Effect	Key Mitigation Measures	Rationale	Applicable Project Phases	Effectiveness	Residual Effect
The visibility mapping demonstrates that the mine site is screened from view with few exceptions. The Project footprint is situated between Erickson Ridge and the Great Divide range along the B.C.-Alberta border. Adjacent ridges screen the Project footprint from the west and east. There are potential sightlines to the rail loadout; however, forest cover and local landscapes screen the views. Based on the visibility model, the landform associated with surrounding ridges and the dense evergreen forest effectively block views to the mine site in locations where there are sensitive receptors that include residences, institutions, and recreational properties.	• No specific mitigation for Construction and Pre-Production and Operations • Implement the proposed Ecological Restoration Plan to mitigate changes in the local landscape resulting from the Project	Re-vegetating the post-mine environment will gradually minimize impacts to visual aesthetics over time	• Operations • Reclamation and Closure • Post-Closure	High	No. Residual visual impacts to identified sensitive receptors are not expected to occur

19.6.4 Visual Aesthetics Cumulative Effects Assessment

Cumulative effects assessments consider overlapping effects for all residual effects. In general, this involves the assessment of the residual Project effects in combination with those of past, present, or reasonably foreseeable future projects or activities. If no Project residual effect occurs, no cumulative effects assessment is required.

As noted in Section 19.5.6, there are no residual visual effects to be presented. Due to the absence of residual visual effects, there is no spatial or temporal overlap of Project effects in combination with those of past, present, or other reasonably foreseeable future projects or activities. Therefore, cumulative effects on the visual environment are not expected.

19.7 Follow-up Strategy

While a specific monitoring program on potential land use and access impacts is not required, a number of follow-up actions are required to implement the recommended mitigation measures that would also involve the involvement of external interests as outlined below:

- NWP will collaborate with Indigenous communities, regulators, and local land-users to establish conservation lands in excess of the loss of existing conservation lands. The new lands will provide important recreation opportunities for all. The new conservation lands will be managed by NWP, an Indigenous Nation, or recognized conservation organization. Once established and in place, NWP will provide communications to land users to ensure awareness of the new conservation area, its mandate and management efforts, and the provision of appropriate signage;
- NWP will engage with local land users including local clubs/associations regarding the establishing of the No Unauthorized Entry (NUE) Area including any blasting restriction areas. Once established and in place, NWP will provide communications to land users to ensure awareness of the NUE Area and the provision of appropriate signage;
- NWP will engage with Canfor to develop and implement a plan for the removal of timber on the Project footprint that is of commercial value prior to construction commencement;
- NWP will continue to engage with trappers to keep them informed of Project implementation timing and to ensure continued access to their trap lines. NWP to continue discussion related to accommodations with the tenure holder of TR0423T006, which overlaps with the mine site;
- NWP will provide awareness to the community regarding the use of Grave Creek Road and any use restrictions that may be put in place for periods of time;
- NWP will continue to engage with local land users including the Elk Valley Mountaineers Snowmobile Club and the Sparwood Fish and Wildlife Association regarding access to lands that surround the Project footprint, including the establishing of the NUE Area and possible bow only hunting area around the Project. Related, NWP will develop a mitigation plan regarding access to and use of the Elk Valley Mountaineers snowmobile club cabin located near Alexander Creek; and
- NWP will engage with the local community, local land users, and the Ktunaxa Nation on mine closure planning with the idea to support and allow recreation activities again on Project lands during Post-Closure. Related to this, NWP will also develop a process to document the ongoing engagement activities with communities of interest and the Ktunaxa Nation related to closure planning and will record interest and concerns and preferences with closure, the actions, and commitments from NWP to address these, and track implementation.

19.8 Summary and Conclusions

The Project is located in an area valued for recreation activities, particularly by residents of the Elk Valley. The development and operation of the Project will result in the loss of land used for recreation activities (e.g. hunting, snowmobiling, ATV use etc.) and result in some disruption to recreation activities that are expected to continue in the vicinity of the Project. Of note are the potential for impacts to Alexander Creek and impacts to downstream fish populations that could impact recreation fishing. The Project will also result in nuisance effects including noise and air emissions (dust), particularly on lands that are in close proximity to the coal haul route (e.g., along Harmer Creek Road and Grave Creek Road). Some informal campsites along these roads could be impacted.

Project development, including logging and site clearing activities near the rail loadout and mine site, is expected to reduce the land available for commercial purposes, specifically long-term forestry activities and trapping.

Project upgrades to Grave Creek Road may temporarily disrupt access to lands used for recreational and commercial purposes during Construction and Pre-Production. Increased traffic on Harmer Creek Road and Grave Creek Road could result in safety concerns for some users, and as such, these users may choose to use different areas or access routes. Therefore, these changes may be noticeable to land users, and have the potential to change day-to-day use of Harmer Creek Road and Grave Creek Road for some users due to safety concerns. During blasting activities, the Project would result in temporary closure of areas due to safety considerations. These closures have the potential to limit access to areas accessed via linear features (i.e., via roads in the Alexander Creek AMA). Therefore, blasting activities are expected to result in a noticeable effect to land users; however, they are not expected to change day-to-day land use.

It regards to potential visual impacts, based on the visibility model, the landforms associated with surrounding ridges and the dense evergreen forest effectively block views to the Project in locations where there are sensitive receptors that include residences, institutions, and recreational properties, which are primarily located at lower elevations to the west of the Project site and along the Elk River. There is potential for views of the mine site by some recreational land users (e.g. hunters, hikers) from higher elevation locations (e.g. ridgelines) located to the east and west of the mine site.

In regards to cumulative effects, although it is reasonably certain that the project will result in: the removal of recreation lands, removal of a section of the West Alexander Creek, removal of forestry lands, removal of trapping lands, disturbance of adjacent lands used for recreation in the vicinity of the Project, and land access restrictions, the full extent of loss associated with past, present, and reasonably foreseeable future projects or activities cannot be accurately predicted with the information available (the recreation & commercial value of the other future mine sites is not known). Consequently, the determination of significance is assessed to have only a moderate level of confidence. In consideration of planned mitigation for the Project, in addition to similar mitigation being assumed for other reasonably foreseeable future projects or activities, the residual cumulative environmental effects of the Project in combination with those of past, present, and reasonably foreseeable future projects or activities on access to lands for recreation activities, during all phases of the Project, are considered not significant.

Given that there was some uncertainty in terms of the scale of land access restrictions from the NUE/blasting restriction area, some follow-up measures are recommended to confirm the effects and mitigation that includes ongoing engagement of provincial agencies and with local recreation land users regarding the defining of the NUE. As well, discussions with local trappers and Canfor (in regards to commercial forest impacts) are also required. Finally, NWP will engage with the local community, local land users, and the Ktunaxa Nation on mine closure planning with the idea to support and allow recreation activities again on Project lands during Post-Closure.

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