



Development Permit Application

Referral Form – RDCK File DP2608E

Date: July 17, 2026

You are requested to comment on the attached DEVELOPMENT PERMIT for potential effect on your agency's interests. We would appreciate your response WITHIN 30 DAYS (PRIOR TO August 17, 2026). If no response is received within that time, it will be assumed that your agency's interests are unaffected.

LEGAL DESCRIPTION & GENERAL LOCATION:

5 different properties in Rural Balfour, Electoral Area 'E'

9101 Fisher Avenue (LOT 33 PLAN NEP806 DISTRICT LOT 6894 KOOTENAY LAND DISTRICT; PID 016-016-157)

9201 Fisher Avenue (LOT 10 PLAN NEP806 DISTRICT LOT 6894 KOOTENAY LAND DISTRICT; PID 014-027-739)

2237 Hamilton Drive (LOT 6 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT; PID 006-072-291)

2271 Hamilton Drive (LOT 5 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT; PID 016-016-769)

2295 Hamilton Drive (LOT 4 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT EXCEPT PLAN NEP22686; PID 013-875-167)

PRESENT USE AND PURPOSE OF PERMIT REQUESTED:

The subject lands consist of 5 properties located in Queens Bay, Electoral Area 'E'. FortisBC has applied for a Watercourse Development Permit (WDP) application to complete vegetation management work (tree removal) within their 36 m Right of way that crosses the 5 subject properties.

They have identified that tree clearing is required within and adjacent to the hydro corridor to prevent tree strikes to the power lines, improve public safety and system reliability, and to support broader wildfire risk reduction efforts.

This WDP application is required because portions of the proposed tree removal are within the 15 metre WDP Area associated with 3 watercourses: Aylmer Creek, Ross Creek and Spriggins Creek.

AREA OF PROPERTY	ALR STATUS	ZONING	OCF
Various property sizes, only portions of the properties are affected.	Partially within ALR	N/A	Rural Residential (RR) and Agriculture (AG) in Electoral Area 'E' Rural Official Community Plan Bylaw No. 2260, 2013

APPLICANT: Fortis BC

Please provide your response via email.

If your agency's interests are 'Unaffected' no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this permit.

If you are an RDCK commission member, do not respond via email. Your response is the commission's recommendation which staff will collect from the meeting minutes.

☒ MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE ☒ HABITAT BRANCH (Environment) ☒ FRONTCOUNTER BC (MFLNRORD) ☐ AGRICULTURAL LAND COMMISSION ☐ REGIONAL AGROLOGIST	REGIONAL DISTRICT OF CENTRAL KOOTENAY DIRECTORS FOR: ☐ A ☐ B ☐ C ☐ D ☒ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ALTERNATIVE DIRECTORS FOR: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ☒ APHC AREA E
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Nelson Office: Box 590, 202 Lakeside Drive, Nelson, BC. V1L 5R4

Phone: 250.352.6665 | Toll Free: 1.800.268.7325 (BC) | Email: info@rdck.ca | Fax: 250.352.9300

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The personal information on this form is being collected pursuant to *Regional District of Central Kootenay Planning Procedures and Fees Bylaw No. 2457, 2015* for the purpose of determining whether the application will affect the interests of other agencies or adjacent property owners. The collection, use and disclosure of personal information are subject to the provisions of FIPPA. Any submissions made are considered a public record for the purposes of this application. Only personal contact information will be removed. If you have any questions about the collection of your personal information, contact the Regional District Privacy Officer at 250.352.6665 (toll free 1.800.268.7325), info@rdck.bc.ca, or RDCK Privacy Officer, Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4.

RETURN TO: ZACHARI GIACOMAZZO, PLANNER
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RDCK Map



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Legend

- | | |
|-----------------------------|------------------------|
| Place Names | Streams and Shorelines |
| Community Heritage Register | Wetlands |
| Lakes and Rivers | Electoral Areas |

Map Scale:

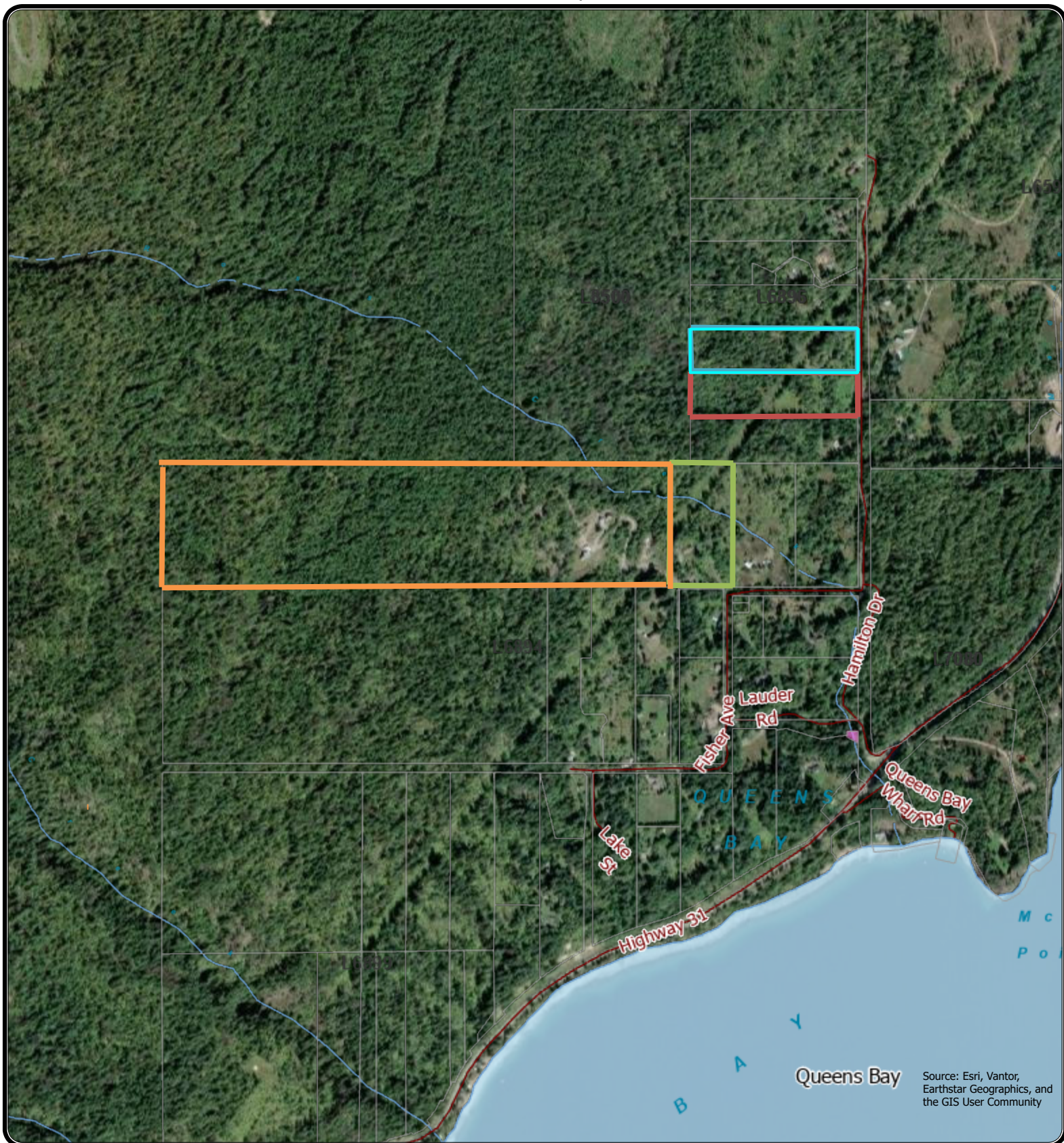
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Date: July 9, 2026



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RDCK Map



Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community



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Legend

- | | |
|---|--|
| Place Names | Electoral Areas |
| Community Heritage Register | RDCK Streets |
| Lakes and Rivers | Cadastre - Property Lines |
| Streams and Shorelines | |

Map Scale:

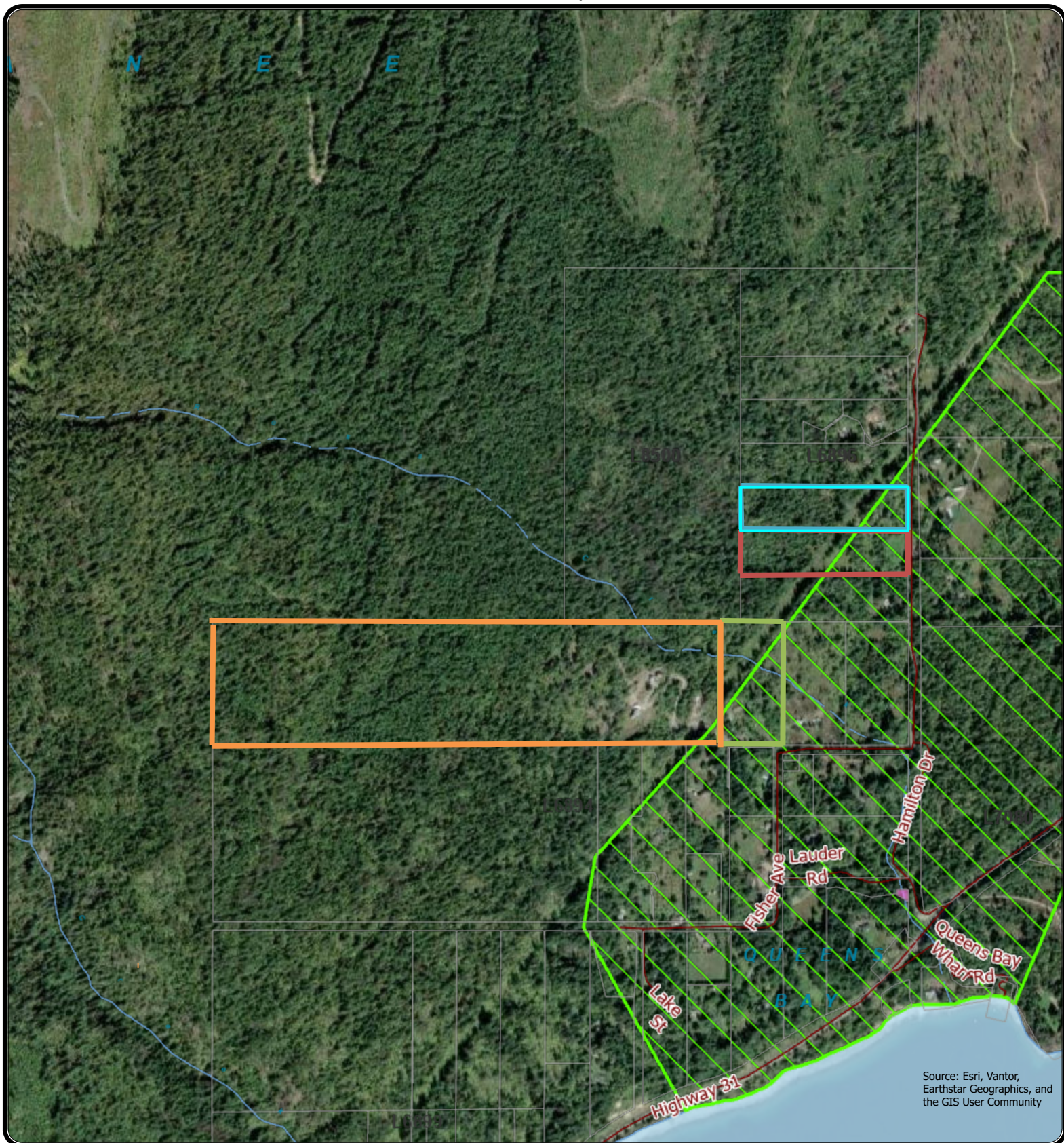
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Legend

- Agriculture Land Reserve
- Place Names
- Community Heritage Register
- Lakes and Rivers

- Streams and Shorelines
- Electoral Areas
- RDCK Streets
- Cadastre - Property Lines

Map Scale:

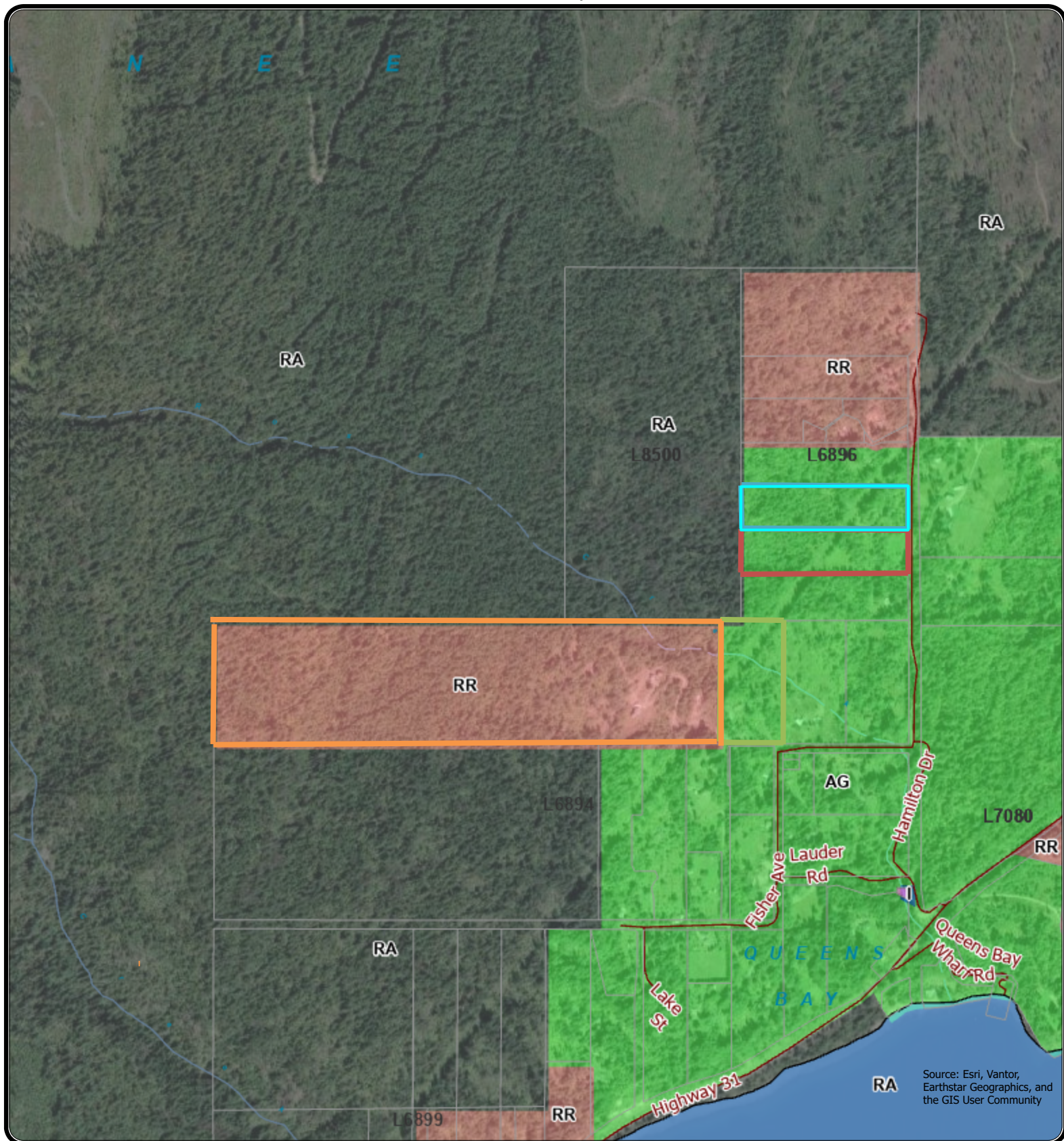
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Legend

Official Community Plan

- Agriculture
- Community Services
- Resource Area
- Rural Residential
- Flood Construction Levels - 1990

- Place Names
- Community Heritage Register
- Lakes and Rivers
- Streams and Shorelines
- Electoral Areas
- RDCK Streets
- Cadastre - Property Lines

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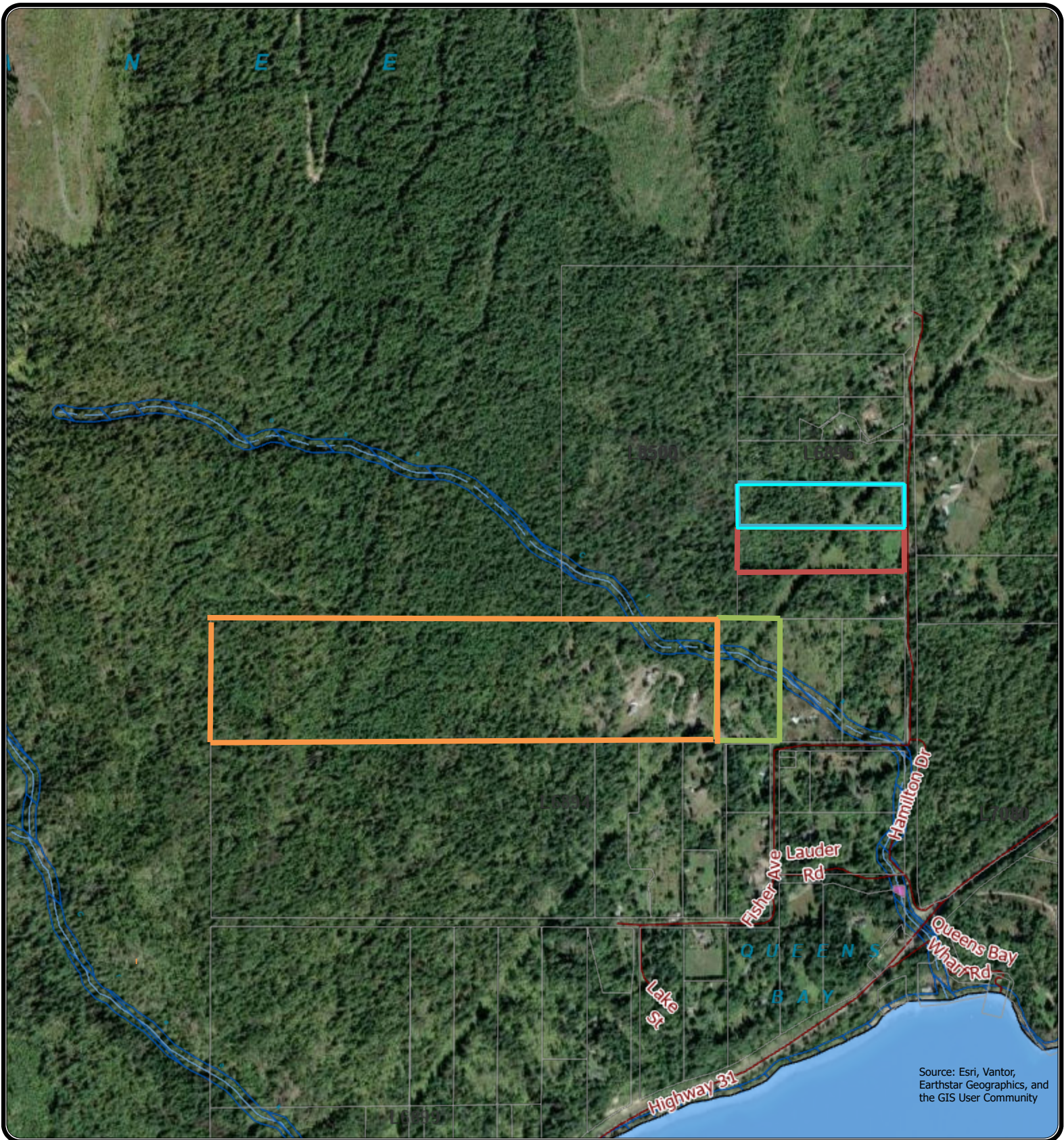
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Legend

Development Permit Areas

- Watercourse
- Flood Construction Levels - 1990
- Place Names

- Community Heritage Register
- Lakes and Rivers
- Streams and Shorelines
- Electoral Areas
- RDCK Streets
- Cadastre - Property Lines

Map Scale:

1:18,056

Date: July 9, 2026



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Memo – Request for Expedited Review and Approval

Watercourse Development Permit Application (WDP)

Queens Bay Tree Management Project

To: Regional District of Central Kootenay (RDCK)

From: FortisBC

Date: June 25, 2026

Subject: Request for Accelerated Review – Watercourse Development Permit Application

Purpose

FortisBC respectfully requests that the RDCK consider an expedited review and approval of the enclosed Watercourse Development Permit (WDP) application for the Queens Bay Tree Management Project.

This request is intended to support a targeted construction start in September 2026, aligned with the approved project schedule, budget, and environmental timing considerations.

Project Context

FortisBC is undertaking a targeted vegetation management program within transmission right-of-way corridors in Queens Bay, including areas intersecting riparian zones associated with Ross Creek and Aylmer Creek.

The work involves selective removal of identified hazard trees within portions of the 15 m WDP area, supported by a detailed riparian assessment prepared by a Qualified Environmental Professional (QEP) in accordance with the Riparian Areas Protection Regulation (RAPR).

Project objectives include:

- Reducing tree strike risks to critical electrical infrastructure
- Improving public safety and system reliability
- Supporting broader wildfire risk reduction efforts

Rationale for Expedited Review**1. Public Safety and Infrastructure Risk Reduction**

The QEP assessment confirms that the proposed work targets identified hazard trees posing a direct risk to transmission infrastructure. If these works are not completed, the likelihood of the following increases:

- Tree strike incidents
- Power outages and associated public safety risks
- Reactive emergency response activities, which may result in less controlled environmental disturbance

2. Alignment with Construction Schedule and Budget

The project is scheduled within a defined construction window that aligns with approved budgets, contractor availability, and broader project coordination.

This work forms part of the current project scope and will not be advanced outside of this construction cycle. If not completed within this window, the mitigation activities will not proceed.

As a result, the identified areas would remain unaddressed, leaving transmission infrastructure exposed to windthrow and hazard tree risks, with an increased likelihood of outages and reactive maintenance.

An expedited review is therefore critical to enable completion of these works within the current project and to proactively address identified risks.

3. Alignment with Environmental Timing Windows

The proposed September construction window aligns with:

- Completion of the primary bird nesting period
- Favorable conditions for mitigation and restoration
- Reduced environmental sensitivity relative to spring and early summer

Delays beyond this period would limit the ability to complete the work responsibly within 2026.

Conclusion

FortisBC is committed to delivering this work in a manner that meets regulatory expectations while maintaining the integrity of the riparian environment. The enclosed application demonstrates a balanced approach that integrates environmental protection with public safety and infrastructure reliability.

Given the fixed construction window and the risk exposure associated with inaction, FortisBC respectfully requests expedited review of this application to enable completion within the 2026 construction season.

We appreciate the RDCK's consideration and are available to provide any additional information to support the review process.



Queens Bay Properties – Tree Management Riparian Assessment V1.0



Prepared for:
FortisBC
1975 Springfield Road
Kelowna, BC V1Y 7V7

June 23, 2026

Prepared by:
Masse Environmental Consultants
812 Vernon Street
Nelson, BC, V1L 4G4

Project Number 2026-1216

Riparian Assessment Report Revision History

Author	Date	Version
Fiona Lau, ASCT	June 19, 2026	1.0
Fiona Lau, ASCT	June 23, 2026	1.1

Disclosure Statements

This report has been prepared by Fiona Lau, ASCT.

1. The author is a Qualified Environmental Professionals as defined under Section 21(2) of the Riparian Areas Protection Regulation,
2. The content of, and all associated statements in, this report are consistent with:
 - a. The Riparian Areas Protection Regulation methodology.
 - b. Provincial and federally recognised best management practises.
 - c. Relevant Species at Risk management Plans under the Species at Risk Act.
 - d. The habitat protection provisions of the Fisheries Act.
3. This report has been prepared for the property owner to support a development permit approval.
4. The report has been prepared for Fortis BC at their expense. The RDCK may rely upon the information and recommendations in this report for the purposes of a Watercourse Development Permit Area application.

Limitations

This report has been prepared by the authors solely for the client, Fortis BC. The content reflects the authors' professional judgment based on the information available at the time of preparation. Any use, reliance, or decisions made by third parties based on this report are solely at their own risk. The authors assume no liability for any damages, losses, or consequences arising from actions or decisions taken by third parties in reliance on this report. A record copy of this report is maintained at Masse Environmental and is considered the official version, superseding any copies or reproductions of the report.

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1 INTRODUCTION

Masse Environmental Consultants Ltd. was retained by FortisBC (Owner) to conduct a riparian assessment for proposed tree management work on private properties within riparian areas surrounding Ross Creek, Alymer Creek and Madden Creek in Queens Bay, BC. FortisBC is undertaking a right of way (ROW) enhancement program along its transmission corridors on the north, west and east shores of Kootenay Lake that includes widening the existing ROW on both Crown and private lands to establish an expanded tree free zone, referred to as the Tree Management Zone (TMZ). The TMZ is implemented as a tree free area adjacent to the transmission corridor to eliminate vegetation-related risk within the defined zone. Areas selected for treatment are based on historical tree strike data and field investigations identifying elevated risk, including locations with known root rot and associated tree instability.

The following properties were assessed as part of the riparian assessment:

- 9101 Fisher Avenue (LOT 33 PLAN NEP806 DISTRICT LOT 6894 KOOTENAY LAND DISTRICT; PID 016-016-157)
- 9201 Fisher Avenue (LOT 10 PLAN NEP806 DISTRICT LOT 6894 KOOTENAY LAND DISTRICT; PID 016-016-157)
- 2237 Hamilton Drive (LOT 6 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT; PID 006-072-291)
- 2271 Hamilton Drive (LOT 5 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT; PID 016-016-769)
- 2295 Hamilton Drive (LOT 4 PLAN NEP806 DISTRICT LOT 6896 KOOTENAY LAND DISTRICT EXCEPT PLAN NEP22686; PID 013-875-167)

A site visit was completed on June 2, 2026, by Heather Shaw (RPBio) and Fiona Lau (AScT) to classify the watercourses and to conduct a riparian assessment of the proposed TMZ along classified watercourses within the above properties. The assessment evaluates the current condition of the 15 m Watercourse Development Permit area (WDP) (RDCK Area E), calculates a Streamside Protection and Enhancement Area (SPEA) setback following the methodology of the Riparian Area Protection Regulation (RAPR; BC 2019), identifies habitat values, assesses the potential environmental impacts from the harvesting activities, and provides recommendations to mitigate for the alteration of the riparian area. It is based on the following regulatory framework and best management practices:

- Electoral Area 'E' Community Plan Bylaw No.2260, 2013
- RDCK Floodplain Management Bylaw No. 2080, 2009
- British Columbia Riparian Areas Protection Regulation
- British Columbia Water Sustainability Act

- British Columbia Wildlife Act
- Federal Migratory Birds Convention Act
- Kootenay Lake Shoreline Management Guidelines.

2 PROJECT OVERVIEW

2.1 Site Description

2.1.1 Location

The properties are located in the community of Queens Bay, BC, along the western shore of Kootenay Lake. A 36 m wide Fortis Right of Way (RoW) for powerline infrastructure transects across each of the properties. The project area is forested, with the exception of the existing RoW, and is characterized by moderately sloping terrain (less than 15% gradient) with an eastern aspect and steeper gradients along sections of the creek banks up to 50% gradient sloping towards the creek channel.

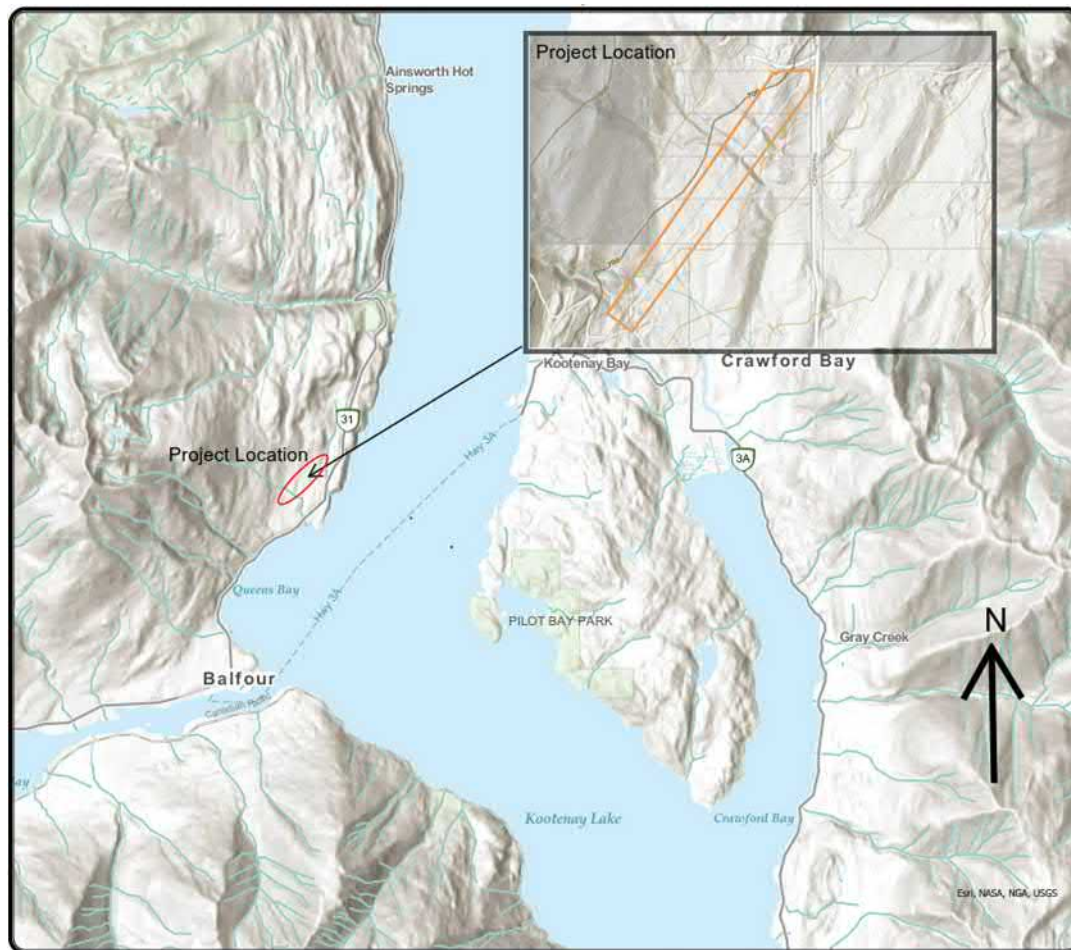


Figure 1. Location of Project.

2.1.2 Existing Development

Existing development for each property within the assessment area is described below:

- 9101 Fisher Avenue- A water intake structure was observed within Ross Creek (Photo 1).
- 9201 Fisher Avenue - Pumphouse structure located along the south side of Ross Creek on the north side of the Fortis RoW (Photo 2)
- 2237 Hamilton Drive – Existing old fence along top of bank of Alymer Creek on the south side of the creek.
- 2271 Hamilton Drive – No existing development observed within the study area of Madden Creek.
- 2295 Hamilton Drive - No existing development observed within the study area of Madden Creek.



Photo 1. Water intake structure within 9201 Fisher Avenue on Ross Creek (June 2, 2026).



Photo 2. Existing pumphouse within 9201 Fisher Avenue south of Ross Creek (June 2, 2026).

2.1.3 Watercourses and Aquatic Habitat

The project area has three aquatic features including Ross Creek, Alymer Creek and Spriggins Creek (Figure 2).



Figure 2. Watercourse Map.

2.1.3.1 Ross Creek

Ross Creek is 2.7 km long and flows in a southeast direction into Kootenay Lake. It has a watershed area of ~1.3 km² upstream of the project site based on Fortis BC lidar and stream map. The reach of Ross Creek that runs through the property is well defined, with an average channel width of 1.6 m, an average bed depth of 0.25 m, and an average gradient of ~14%. The creek is characterized by cascade pool morphology with dominant gravel and sand substrate with some cobble (Photo 3 and Photo 4). The creek is perennial (flows >6 months per year) and has no recorded fish (Habitat Wizard 2026).

Based on the assessment it was determined that Ross Creek meets the definition of a “watercourse” under the RDCK Community Plan Bylaw (2013) and meets the definition of a stream under the Water Sustainability Act (WSA).



Photo 3. Ross Creek looking upstream (June 2, 2026).



Photo 4. Ross Creek - well defined channel with gravel and cobble substrate (June 2, 2026).

2.1.3.2 Alymer Creek

Alymer Creek is 4 km long and flows in a southeast direction into Kootenay Lake. It has a watershed area of ~2.5 km² upstream of the project site based on Fortis BC lidar and stream map. The reach of Alymer Creek that runs through the property is well defined, with an average channel width of 3.3 m, an average bed depth of 0.35 m, and an average gradient of ~10 %. The creek is characterized by cascade pool morphology with dominant gravel and sand substrate with some cobble (Photo 4 and Photo 5). The creek is perennial (flows >6 months per year) and has no recorded fish (Habitat Wizard 2026).

Based on the assessment it was determined that Alymer Creek meets the definition of a “watercourse” under the RDCK Community Plan Bylaw and meets the definition of a stream under the Water Sustainability Act (WSA).



Photo 5. Alymer Creek looking upstream (June 2, 2026).



Photo 6. Alymer Creek looking downstream (June 2, 2026).

2.1.3.3 Spriggins Creek

Spriggins Creek is 2.2 km long and flows in a southeast direction merges with Madden Creek and then flows into Kootenay Lake. It has a watershed area of $\sim 0.4 \text{ km}^2$ upstream of the project site based on Fortis BC lidar and stream map. The reach of Spriggins Creek that runs through the site is somewhat defined, with an average channel width of 0.6 m, an average bed depth of 0.08 m, and an average gradient of $\sim 15\%$. The creek is characterized by cascade pool morphology with dominant gravel and sand substrate with some cobble (Photo 7 and Photo 8). The creek had low flows in early June during the site visit and has no recorded fish (Habitat Wizard 2026). Due to the size of the stream, low flows during the site visit in June and low bed depth, it is presumed that the creek does not flow $>$ six months a year, however this could not be confirmed as only one site visit was conducted.

Based on the assessment it was determined that Spriggins Creek does not meet the definition of a “watercourse” under the RDCK OCP; however, does meet the definition of a stream under the Water Sustainability Act (WSA). The creek has a bed depth averaging 0.08 m (3 in) in height ($< 2.0 \text{ ft}$), a drainage area of 0.4 km^2 ($< 2.0 \text{ km}^2$) and flows less than six months per year.



Photo 7. Spriggins Creek looking upstream (June 2, 2026).



Photo 8. Spriggins Creek looking upstream (June 2, 2026).

2.1.4 Vegetation

The Property is within the West Kootenay Interior Cedar – Hemlock dry, warm (ICHdw1) biogeoclimatic subzone. This subzone typically ranges in elevation from 600-1225 m and is characterized by moist warm springs; hot to very hot dry summers; and mild dry winters with a moderately shallow snowpack. It is highly productive with a great variety of tree species (MacKillop and Ehman 2016).

The riparian vegetation along all three creeks is relatively consistent. These areas are largely undeveloped, with evidence of historical logging. The riparian zone is characterized by a young mixed forest with scattered mature trees throughout (Photo 9 and Photo 10).

The dominant tree species is Western red cedar (*Thuja plicata*) with lesser amounts of Interior Douglas-fir (*Pseudotsuga menziesii* var. *glauca*), black cottonwood (*Populus trichocarpa*), paper birch (*Betula papyrifera*), white pine (*Pinus monticola*), western hemlock (*Tsuga heterophylla*), and Western larch (*Larix occidentalis*). The shrub community includes Douglas maple (*Acer glabrum*), beaked hazelnut (*Corylus cornuta*), black gooseberry (*Ribes lacustre*), falsebox (*Paxistima myrsinites*), mountain alder (*Alnus incana*), mountain ash (*Sorbus sitchensis*), red-osier dogwood (*Cornus sericea*), rose species (*Rosa* spp.), thimbleberry (*Rubus parviflorus*), twinflower (*Linnaea borealis*), and willow species (*Salix* spp.). The herbaceous and moss layer includes bridle's bonnet (*Clintonia uniflora*), lady fern (*Athyrium filix-femina*), oak fern (*Gymnocarpium dryopteris*), pathfinder (*Adenocaulon bicolor*), rattlesnake plantain (*Goodyera oblongifolia*), sarsaparilla (*Aralia nudicaulis*), spreading dogbane (*Apocynum androsaemifolium*), red-stemmed feathermoss (*Pleurozium schreberi*), pipecleaner moss (*Rhytidiadelphus* spp.). Common horsetail (*Equisetum arvense*) and skunk cabbage (*Lysichiton americanus*) were observed in the lower-gradient, wetter fringe zones along Ross Creek (Photo 11). A mature stand of Douglas maple (*Acer glabrum*) is present in the lower Ross Creek area (Photo 12), while devil's club (*Oplopanax horridus*) was observed in a localized section of the upper Alymer Creek area.



Photo 9. View of typical riparian vegetation along Ross Creek from RoW (June 2, 2026).



Photo 10. Riparian vegetation along Alymer Creek (June 2, 2026).



Photo 11. Horsetail and skunk cabbage along Ross Creek (June 2, 2026).



Photo 12. Mature maple stand along Ross Creek lower area (June 2, 2026).

2.1.4.1 Invasive Species

Invasive species observed within the riparian area include knapweed (*Centaurea* spp), common tansy (*Tanacetum vulgare*), scotch broom (*Cytisus scoparius*), vetch (*Vicia* spp), dandelion (*Taraxacum officinale*), wall lettuce (*Mycelis muralis*). Invasive species were mostly confined to within the Fortis RoW.

2.1.5 Wildlife

Riparian ecosystems offer important habitat features for wildlife, affording them essential resources like water, shelter, and food. These areas frequently serve as migration corridors connecting aquatic, riparian, and upland environments, playing a pivotal role in the life cycles of numerous species.

Wildlife features observed within the project area includes:

- Coniferous and deciduous trees provide perching, nesting, and foraging habitat for cavity nesters, songbirds, and raptors.
- Palatable vegetation for bears and ungulates including skunk cabbage and young saplings.
- Potential amphibian habitat along the lower section of Ross Creek below the RoW.

The project area falls within an Approved Ungulate Winter Range polygon with a Timber Harvest Code of “Conditional Harvest Zone”. Any provisions for harvest must be followed within these zones

No wildlife was observed during the site visit.

2.1.5.1 Species at Risk

The BC Conservation Data Center (CDC) occurrence data and critical habitat for Federally listed species were queried within iMap BC, using a 1 km buffer around the north arm of Kootenay Lake. In addition, the Global Biodiversity Information Facility (GBIF 2026) was queried using the same buffer. Sixty-six species at risk were identified (Appendix 1) as occurring within this area. Of these, eight species have the potential to occur within the project area and are listed in Table 1.

Table 1. Species at Risk with the potential to occur in the Project Area.

Common Name	Scientific Name	BC Conservation Status ¹	Federal Status COSEWIC/ SARA ²
Amphibians and Reptiles			
Coeur d'Alene Salamander	<i>Plethodon idahoensis</i>	Blue	Special Concern
Northern Rubber Boa	<i>Charina bottae</i>		Special Concern
Western Skink	<i>Plestiodon skiltonianus</i>	Blue	
Mammals			
Grizzly Bear	<i>Ursus arctos horribilis</i>	Blue	Special Concern
Little Brown Myotis	<i>Myotis lucifugus</i>	Blue	Endangered
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Blue	Not Listed
Yuma Myotis	<i>Myotis yumanensis</i>	Blue	Not Listed
Insects and Gastropods			
Western Bumblebee	<i>Bombus occidentalis</i>		Threatened

¹ BC Conservation Status (CDC): Red = extirpated, endangered, or threatened. Blue = special concern. Yellow = secure.

² COSEWIC/SARA: Endangered = Facing imminent extirpation or extinction. Threatened = Likely to become endangered. Special concern = May become a threatened or an endangered. Species listed on Schedule 1, SARA are legally protected.

The property is within the Southern Mountain Caribou (*Rangifer tarandus*; BC Red listed; SARA Endangered) critical habitat polygon. Southern Mountain Caribou have largely been extirpated from their historic range; however, efforts to recover the population may result in successful reintroductions that will depend on suitable intact habitat.

Some of the species above have wide ranging or have broad habitat requirements and may transiently use the area, however; no critical habitat, or roosts for species at risk were identified during the site visit.

2.2 Proposed Development

Selective tree removal is proposed within the 15 m WDP areas of Ross Creek and Alymer Creek, on both the upstream and downstream sides of the Fortis RoW. The area impacted by proposed tree management within the WDP area is estimated to be ~608 m². The objective of the proposed tree removal is to reduce

the risk of tree-related damage to existing power infrastructure and to support wildfire risk reduction objectives. Proposed harvest activities are scheduled to commence in September 2026.

Trees will be felled using a feller buncher working from outside the SPEA, and reaching in to minimize ground disturbance, where possible. Due to the risks associated with hand falling near powerlines, Fortis has indicated that hand-felling is not a feasible option for the proposed tree removal activities. No grubbing is proposed, except where needed to establish temporary access for tree removal activities. The proposed tree removal areas and detailed inventory of trees to be felled within the WDP area are provided in Table 2 and shown on the plans in Appendix 2

Table 2. Trees proposed for removal.

Location	Area (m ²)	Tree Count	Species and Size
Ross Creek Upstream	100	18	Douglas Fir (2): 350 mm, 170 mm Western Red Cedar (5): 320 mm, 250 mm, 220 mm, 190 mm, 170 mm Trembling Aspen (1): 420 mm Paper Birch (9): 330 mm, 260 mm, 200 mm, 190 mm, 180 mm, 150 mm (×4) Douglas Maple (1): 150 mm
Ross Creek Downstream	360	10	Douglas Fir (2): 550 mm, 260 mm Western Cedar (2): 260 mm, 220 mm Western Larch (1): 380 mm Douglas Maple (3): 260 mm (×2), 220 mm Mountain Ash (2): 250 mm, 180 mm
Aylmer Creek Upstream	80	2	Western Red Cedar (2): 280 mm, 180 mm
Aylmer Creek Downstream	37	4	Douglas Fir (1): 280 mm Western Red Cedar (3): 280 mm–320 mm

3 REGULATORY OVERVIEW

3.1 Streamside Protection and Enhancement Area (SPEA)

A detailed assessment of the project area was conducted to calculate the SPEA setback for Ross Creek and Alymer Creek as per the RAPR. As Madden Creek does not meet the definition of a watercourse under the RDCK OCP bylaw, a SPEA and WDP does not apply for proposed works within the riparian area of this creek.

The SPEA for Ross Creek was based on an average channel width of 1.6 m, an average gradient of 14% and a cascade pool morphology resulting in a zone of sensitivity (ZOS) for large woody debris (LWD) and litter fall of 10 m; and a shade ZOS that ranges from 5-8 m. Detailed assessment results are illustrated in Appendix 2. Therefore, within the subject property the SPEA setback is 10 m measured from the high water mark (HWM) of Ross Creek (Table 3).

The SPEA for Alymer Creek was based on an average channel width of 3.3 m, an average gradient of 10% and a cascade pool morphology resulting in a zone of sensitivity (ZOS) for large woody debris (LWD) and litter fall of 10 m; and a shade ZOS that ranges from 7-9 m. Detailed assessment results are illustrated in Appendix 2. Therefore, within the subject property the SPEA setback is 10 m measured from the HWM of Alymer Creek (Table 3).

Results for the Zones of Sensitivity (ZOS) and SPEA are presented in Table 3 and Appendix 2.

Table 3. Results of detailed RAPR assessment for Kootenay Lake.

Feature Type	SPVT ¹	Zones of Sensitivity			SPEA ³
		LWD ²	Litter Fall & Insect Drop	Shade	
Ross Creek	TR	10 m	10 m	7-9 m	10 m
Alymer Creek	TR	10 m	10 m	5-10 m	10 m

¹ SPVT: site potential vegetation type (TR-tree)

² LWD- large woody debris

³ SPEA- streamside protection and enhancement area

4 IMPACT ASSESSMENT

The proposed tree removal will temporarily impact an area of approximately 325 m² within the SPEA of Ross Creek (9101 and 9201 Fisher Avenue) and 20 m² within the SPEA of Alymer Creek (2271 and 2237 Hamilton Drive). The potential ecological impacts associated with the tree removal are described in Table 4.

Table 4. Potential ecological impacts associated with proposed tree clearing.

Ecological Component	Key Potential Impacts of Small-Area Tree Clearing
Riparian & Aquatic Habitat	Localized reduction in stream shading where canopy gaps occur; minor increases in near-bank water temperature; limited reduction in large woody debris (LWD) recruitment over time; potential for small-scale sediment input during ground disturbance; localized bank exposure if riparian edge trees are removed.
Wildlife Habitat	Localized loss of individual trees used for foraging, perching, or nesting; minor fragmentation effects within already disturbed or linear corridors; short-term displacement of some wildlife during works; limited reduction in coarse woody debris (CWD) if only select trees are removed.
Vegetation Communities	Removal of individual or small clusters of trees within an otherwise intact stand; minimal shift in stand composition at landscape scale; localized increase in light availability potentially encouraging early seral growth or minor invasive establishment; negligible effect on overall successional trajectory.
Soils & Hydrology	Small, localized areas of soil disturbance or compaction associated with equipment access; minor increases in runoff or erosion risk where ground is exposed; negligible watershed-scale hydrological effects due to limited footprint.
Microclimate	Localized increases in light, temperature, and wind exposure within small canopy openings; minimal change to overall stand-level microclimate conditions.
Carbon & Ecosystem Function	Minor reduction in carbon storage proportional to number of trees removed; negligible impact on stand-level carbon sequestration and nutrient cycling processes.
Cumulative Effects	Minimal contribution to cumulative habitat fragmentation or ecosystem change due to small spatial extent; effects largely confined to immediate clearing footprint and adjacent edge zones.

Overall, the proposed tree clearing is expected to result in localized and minor ecological effects that are largely confined to the immediate work footprint.

5 MEASURES TO PROTECT THE INTEGRITY OF THE SPEA

This section provides measures to protect the integrity of the SPEA as described in the RAPR, as well as recommended best management practices to minimize the potential effects of development. In addition to these measures, Fortis BC has prepared an Environmental Management Plan (Fortis BC 2025) for this project (Appendix 3).

5.1 Danger Trees

The trees proposed for removal were assessed by a Trevor Anderson, RPF of Timberland Consultants Ltd. The trees selected were deemed to be a risk to the Powerlines. Where possible, select trees will be topped to a height of 10-15 ft from the ground and left as a wildlife tree.

5.2 Windthrow

The project area is susceptible to strong winds and may be prone to windthrow, particularly along newly exposed forest edges adjacent to the existing cleared RoW. However, the proposed clearing areas are small and located next to an already disturbed linear corridor; therefore, the additional windthrow risk is expected to be low. A formal windthrow risk assessment is beyond the scope of this report and, if required, should be completed by a Registered Professional Forester (RPF).

5.3 Slope Stability

No slope stability hazard indicators were observed during the site visit. Further assessment of geotechnical hazard is beyond the scope of this report, and any such assessment should be led by a P. Geo, or P.Eng.

5.4 Protection of Trees and Vegetation in the SPEA

The following protection measures will be taken to minimize further impacts to existing and potential trees and vegetation within the SPEA:

- Harvesting will be limited to approved work areas only.
- Only trees designated for removal will be felled.
- The 10 m SPEA boundary will be clearly identified and flagged in the field prior to commencement of works and maintained for the duration of activities.
- A qualified environmental professional (QEP) will confirm SPEA delineation prior to and during operations, where required.
- Fellow buncher to work from outside of the SPEA, wherever possible.
- Directional felling techniques will be used to ensure trees are felled away from the SPEA wherever practical.
- No grubbing, blading, or root disturbance will occur within the SPEA, except where required for approved temporary access and under environmental oversight.
- Equipment will be confined to designated access routes or existing disturbed areas to minimize vegetation disturbance.
- Retained vegetation within the SPEA will be protected from mechanical damage, including stem and root zone impacts.

- Any unavoidable temporary disturbance will be rehabilitated promptly following completion of works, including stabilization of exposed soils and restoration of disturbed areas.

5.5 Encroachment

Measures to prevent encroachment into the adjacent SPEA both upstream and downstream of the proposed harvest areas includes:

- All personnel and equipment operators will be made aware of the harvest boundaries and environmental protection requirements during pre-work meetings.
- Harvesting activities will be confined to the approved work area, and no equipment, materials, slash, or timber will be stored within the SPEA.
- Equipment access and travel will be restricted to designated routes and work areas to minimize disturbance outside the approved footprint.
- Directional felling techniques will be used to ensure trees are felled away from the adjacent SPEA and watercourse, wherever practicable.
- Trees will be removed in a manner that minimizes damage to retained vegetation and soils within the protected area.
- In the event of inadvertent encroachment or damage to the SPEA, work will cease in the affected area, and appropriate corrective measures will be implemented under the direction of the Qualified Environmental Professional (QEP).

5.6 Erosion and Sediment Control

The following erosion and sediment control measures will be implemented as required:

- Limit soil disturbance and the extent of exposed soils to the minimum area required to complete harvesting activities.
- Restrict equipment travel to designated access routes and work areas to minimize soil compaction and rutting.
- Retain existing vegetation and ground cover wherever practicable to maintain soil stability.
- Retain or distribute slash and woody debris over disturbed areas, where appropriate, to reduce erosion and promote soil stability.
- Stabilize disturbed soils promptly following completion of harvesting activities.
- Install erosion and sediment control measures, such as sediment fencing, straw wattles, or erosion control blankets, where there is a risk of sediment entering adjacent watercourses.
- Inspect disturbed areas following completion of works and repair any erosion issues as required.

5.7 Stormwater Management

No stormwater management measures are proposed during or post harvesting activities for this project, as no stormwater management concerns were observed.

5.8 Floodplain Concerns

Assessment of floodplain concerns is beyond the scope of this report; however, no floodplain concerns were observed during the site assessment. Further evaluation by a qualified professional in floodplain management would be required if deemed necessary.

5.9 Fish and Wildlife Protection

To minimize disturbance to wildlife and their habitat, the following measures are recommended for the property:

- Schedule harvesting activities outside of the breeding bird window (April 1-Aug 31). If work is to take place during the bird nesting window, schedule nest sweeps prior to construction to identify nests and avoid impacts (Fortis 2025).
- Avoid removal of coarse woody debris (logs > 10 cm in diameter) and riparian vegetation, unless previously selected for removal.
- Where safe and practicable, select suitable trees to be topped to create wildlife trees, typically retaining approximately 2–6 m (6–20 ft) of standing stem, to maintain future nesting, roosting, and cavity habitat while ensuring the tree remains structurally stable.

5.10 Invasive Plant Management

Invasive plant species were observed within the SPEA. Land use activities can potentially increase prevalence of these invasive plants which can out-compete native riparian vegetation, causing damage to habitat and ecosystem function.

The following prevention measures will be implemented as per the Fortis EMP (2025).

- Pressure wash all equipment and trucks immediately prior to mobilizing on site.
- Check vehicles and clothing prior to entering the ROW. Inspect the undercarriage and tires of all vehicles and remove and bag any plant material or large clumps of soil found.
- Access to the Project area via designated /marked areas. Vehicles will only use designated pullouts and parking areas.
- Minimize construction footprint.
- Pressure wash and/or sweep all equipment and trucks prior to leaving the ROW.

- Revegetate all disturbed areas with a regionally appropriate seed mix approved by FBC Environment immediately following the project completion.

Central Kootenay Invasive Species Society (CKISS) manages invasive species regionally using a prioritized approach. The management strategy for a specific species is based on several factors including the phase of invasion and the potential impacts of the species (CKISS 2023). The work area is located within the Nelson Invasive Plant Management Area (IPMA), and the priority species list can be found at <https://ckiss.ca/invasive-plant-priority-lists/>.

6 RESTORATION PLAN

Mitigation for potential impacts of tree removal activities within the Ross Creek and Alymer Creek SPEAs will follow the mitigation hierarchy. This is achieved by applying the following mitigation options: 1. Avoidance of environmental impacts; 2. Minimizing unavoidable impacts; 3. On-site restoration; and 4. Offsetting impacts that cannot be minimized.

For the proposed tree clearing activities, avoidance is not practical; however, minimization and on-site restoration measures can be implemented to reduce and mitigate potential impacts of proposed tree removal within the 10 m SPEA.

On-site restoration activities (post tree clearing) will include:

- Active revegetation will be completed using native riparian shrubs, including red-osier dogwood and native willow species potted stock. A 3:1 shrub replacement ratio (3 shrubs planted for every 1 tree removed) will be implemented within the impacted riparian areas (ie. the SPEA). The purpose of shrub replacement versus tree replacement, is to minimize the establishment of potential hazard trees in the future and minimize maintenance activities. If the QEP determines that there is sufficient shrub/tree understory in the area where a tree is removed, revegetation may not be required.
- Disturbed riparian areas and temporary access locations will be stabilized immediately following harvesting to reduce erosion risk and support site recovery.
- Coarse woody debris will be retained or redistributed to provide ground cover and protect soils, as required.
- Where suitable, areas will be allowed to re-vegetate naturally.
- Planting shall be completed in the fall or early spring.
- In areas where soils are susceptible to erosion, an approved Fortis BC regional seed mix will be applied.

Restoration will focus on stabilizing soils, restoring natural riparian conditions, and re-establishing native shrub cover.

7 ENVIRONMENTAL MONITORING AND POST INSPECTION

The anticipated effort for environmental monitoring and professional guidance on this project includes the following:

- QEP will conduct an inspection during harvest activities to assess compliance.
- QEP will conduct an inspection post planting to assess whether restoration activities were complete and in compliance with the Development Permit.
- QEP will prepare a brief environmental summary report and submit to the RDCK once restoration is complete.

8 CONCLUSION

The riparian area assessment conducted within the 15 m WDP area, in accordance with the Riparian Areas Protection Regulation, determined that the appropriate setback for the subject property (SPEA) is 10 m measured from the high-water mark of Ross Creek and Alymer Creek. To mitigate potential impacts associated with harvesting within the SPEA, revegetation and the creation of wildlife trees will be undertaken to support habitat recovery and offset temporary disturbances. Additional measures are also provided to maintain SPEA integrity and ensure protection during harvesting activities.

We trust the information provided in this report meets your current requirements. If you have any questions or require further information do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Fiona Lau', followed by a period.

Fiona Lau, ASCT

Masse Environmental Consultants Ltd

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APPENDIX 1. SPECIES AT RISK (KOOTENAY LAKE NORTH ARM)

Species at Risk confirmed within 1 km radius of Kootenay Lake (North Arm)

Common Name	Scientific Name	BC Conservation Status ¹	Federal Status SARA ²	Federal Status COSEWIC ²
Amphibian and Reptiles				
Coeur d'Alene Salamander	Plethodon idahoensis	Blue	Special Concern	Special Concern
Painted Turtle - Intermountain - Rocky Mountain Population	Chrysemys picta pop. 2	Blue	Special Concern	Special Concern
Northern Rubber Boa	Charina bottae	Yellow	Special Concern	Special Concern
Western Skink	Plestiodon skiltonianus	Blue	Special Concern	Special Concern
Western Toad	Anaxyrus boreas	Yellow	Special Concern	Special Concern
Birds				
American White Pelican	Pelecanus erythrorhynchos	Red	Not Listed	Not at Risk
Baird's Sandpiper	Calidris bairdii	Red	Not Listed	Not Listed
Baltimore Oriole	Icterus galbula	Blue	Not Listed	Not Listed
Band-tailed Pigeon	Patagioenas fasciata	Blue	Special Concern	Special Concern
Bank Swallow	Riparia riparia	Yellow	Threatened	Threatened
Barn Swallow	Hirundo rustica	Yellow	Threatened	Special Concern
Black Swift	Cypseloides niger	Blue	Endangered	Endangered
Black-necked Stilt	Himantopus mexicanus	Red	Not Listed	Not Listed
California Gull	Larus californicus	Red	Not Listed	Not Listed
Caspian Tern	Hydroprogne caspia	Blue	Not Listed	Not at Risk
Common Nighthawk	Chordeiles minor	Blue	Special Concern	Special Concern
Common Tern	Sterna hirundo	Blue	Not Listed	Not at Risk
Great Blue Heron	Ardea herodias herodias	Blue	Not Listed	Not at Risk
Harris's Sparrow	Zonotrichia querula	Not ranked	Special Concern	Special Concern
Horned Grebe	Podiceps auritus	Yellow	Not Listed	Special Concern
Horned Lark	Eremophila alpestris	Blue	Not Listed	Not Listed
Killdeer	Charadrius vociferus	Blue	Not listed	Not listed
Lark Sparrow	Chondestes grammacus	Blue	Not Listed	Not Listed
Lesser Yellowlegs	Tringa flavipes	Blue	Not Listed	Threatened
Lewis's Woodpecker	Melanerpes lewis	Blue	Threatened	Threatened
Long-tailed Duck	Clangula hyemalis	Blue	Not listed	Not listed
Olive-sided Flycatcher	Contopus cooperi	Yellow	Special Concern	Special Concern
Parasitic Jaeger	Stercorarius parasiticus	Red	Not Listed	Not Listed
Prairie Falcon	Falco mexicanus	Red	Not Listed	Not at Risk
Red-necked Phalarope	Phalaropus lobatus	Blue	Special Concern	Special Concern
Rough-legged Hawk	Buteo lagopus	Blue	Not Listed	Not at Risk
Short-eared Owl	Asio flammeus	Blue	Special Concern	Threatened
Tundra Swan	Cygnus columbianus	Blue	Not Listed	Not Listed

Species at Risk confirmed within 1 km radius of Kootenay Lake (North Arm)

Common Name	Scientific Name	BC Conservation Status ¹	Federal Status SARA ²	Federal Status COSEWIC ²
Western Grebe	<i>Aechmophorus occidentalis</i>	Red	Special Concern	Special Concern
Western Screech Owl	<i>Megascops kennicottii macfarlanei</i>	Blue	Threatened	Threatened
White-throated Swift	<i>Aeronautes saxatalis</i>	Blue	Not Listed	Not Listed
Yellow-billed Loon	<i>Gavia adamsii</i>	Blue	Not listed	Not at risk
Yellow-breasted Chat	<i>Icteria virens</i>	Red	Endangered	Endangered
Mammals				
Grizzly Bear	<i>Ursus arctos horribilis</i>	Blue	Special Concern	Special Concern
Little Brown Myotis	<i>Myotis lucifugus</i>	Blue	Endangered	Endangered
Mountain Goat	<i>Oreamnos americanus</i>	Blue	Not Listed	Not Listed
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Blue	Not Listed	Not Listed
Yuma Myotis	<i>Myotis yumanensis</i>	Blue	Not Listed	Not Listed
Fish				
Bull Trout	<i>Salvelinus confluentus</i>	Blue	Not Listed	Special Concern
White Sturgeon (Upper Kootenay River Population)	<i>Acipenser transmontanus</i> pop. 1	Red	Endangered	Endangered
Insects and Gastropods				
A Twirler Moth	<i>Filatima abactella</i>	Blue	Not Listed	Not Listed
A Twirler Moth	<i>Monochroa placidella</i>	Blue	Not Listed	Not Listed
Banded Tigersnail	<i>Anguispira kochi</i>	Blue	Not Listed	Not at Risk
Checkered Skipper	<i>Pyrgus communis</i>	Blue	Not Listed	Not Listed
Common Sootywing	<i>Pholisora catullus</i>	Blue	Not Listed	Not Listed
Ephesiodes erythrella	<i>Ephesiodes erythrella</i>	Blue	Not Listed	Not Listed
Fernald's Cuckoo Bumblebee	<i>Bombus flavidus</i>	Blue	Not Listed	Not Listed
Lilac-bordered Copper	<i>Lycaena nivalis</i>	Blue	Not Listed	Not Listed
Monarch	<i>Danaus plexippus</i>	Red	Endangered	Endangered
Ponderosa Pineconeworm Moth	<i>Dioryctria auranticella</i>	Blue	Not Listed	Not Listed
Propertius Duskywing	<i>Erynnis propertius</i>	Red	Not Listed	Not Listed
Sparganothis Fruitworm Moth	<i>Sparganothis sulfureana</i>	Blue	Not Listed	Not Listed
Suckley's Cuckoo Bumble Bee	<i>Bombus suckleyi</i>	Blue	Not Listed	Threatened
Twelve-spotted Skimmer	<i>Libellula pulchella</i>	Blue	Not Listed	Not Listed
Variegated Fritillary	<i>Euptoieta claudia</i>	Blue	Not Listed	Not Listed
Western Bumble Bee	<i>Bombus occidentalis</i>	Yellow	Threatened	Threatened

Species at Risk confirmed within 1 km radius of Kootenay Lake (North Arm)

Common Name	Scientific Name	BC Conservation Status ¹	Federal Status SARA ²	Federal Status COSEWIC ²
Yellow-banded Bumble Bee	<i>Bombus terricola</i>	Blue	Special Concern	Special Concern
Plants and Fungi				
Wild Licorice	<i>Glycyrrhiza lepidota</i>	Blue	Not Listed	Not Listed
Yellow Widelip Orchid	<i>Liparis loeselii</i>	Blue	Not Listed	Not Listed
Armillaria solidipes	<i>Armillaria solidipes</i>	Blue	Not Listed	Not Listed
Bjerkandera adusta	<i>Bjerkandera adusta</i>	Blue	Not Listed	Not Listed

Conservation Status Description

¹ BC Conservation Status (CDC): Red = extirpated, endangered, or threatened. Blue = special concern. Yellow = secure.

² COSEWIC/SARA: Endangered = Facing imminent extirpation or extinction. Threatened = Likely to become endangered. Special concern = May become a threatened or an endangered. Species listed on Schedule 1, SARA are legally protected.

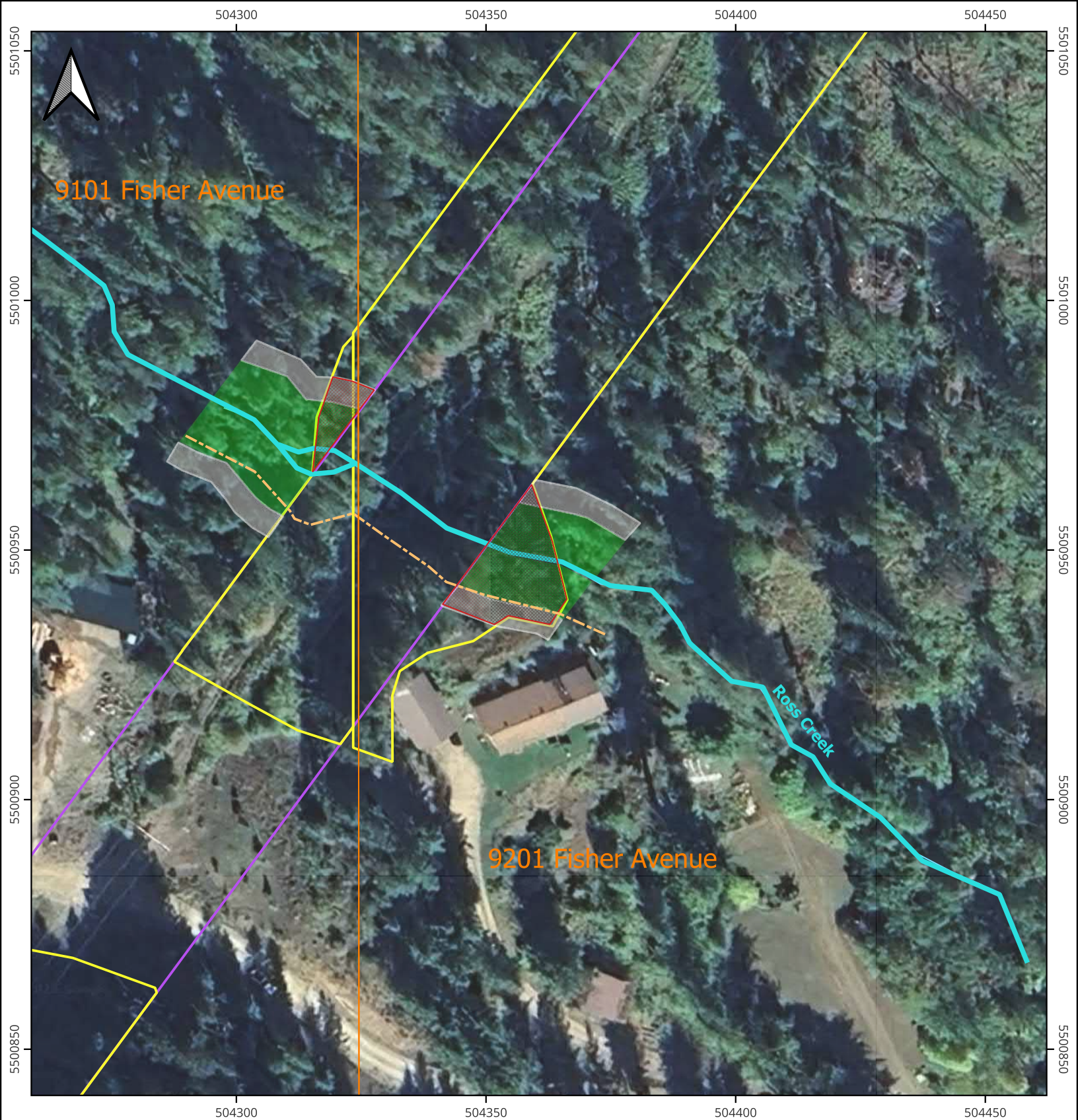
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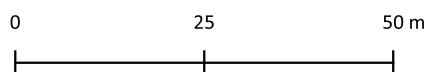
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APPENDIX 2. SITE PLAN AND SPEA MAPS

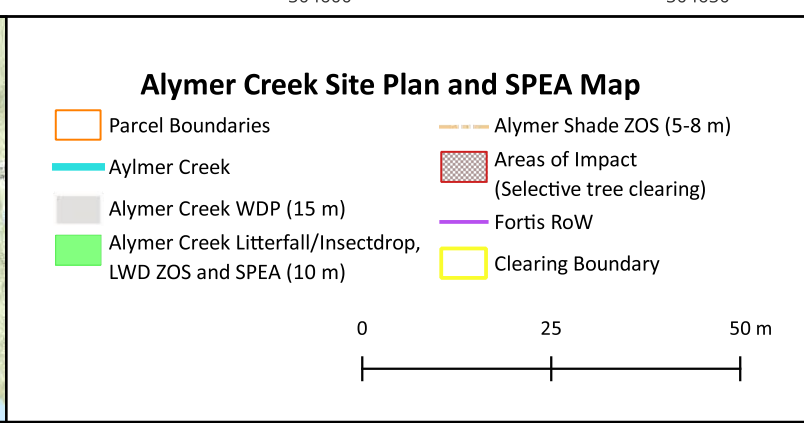
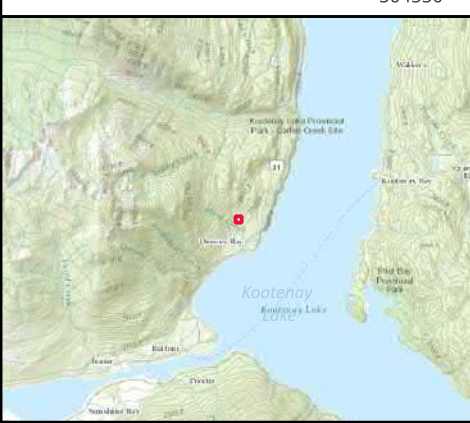
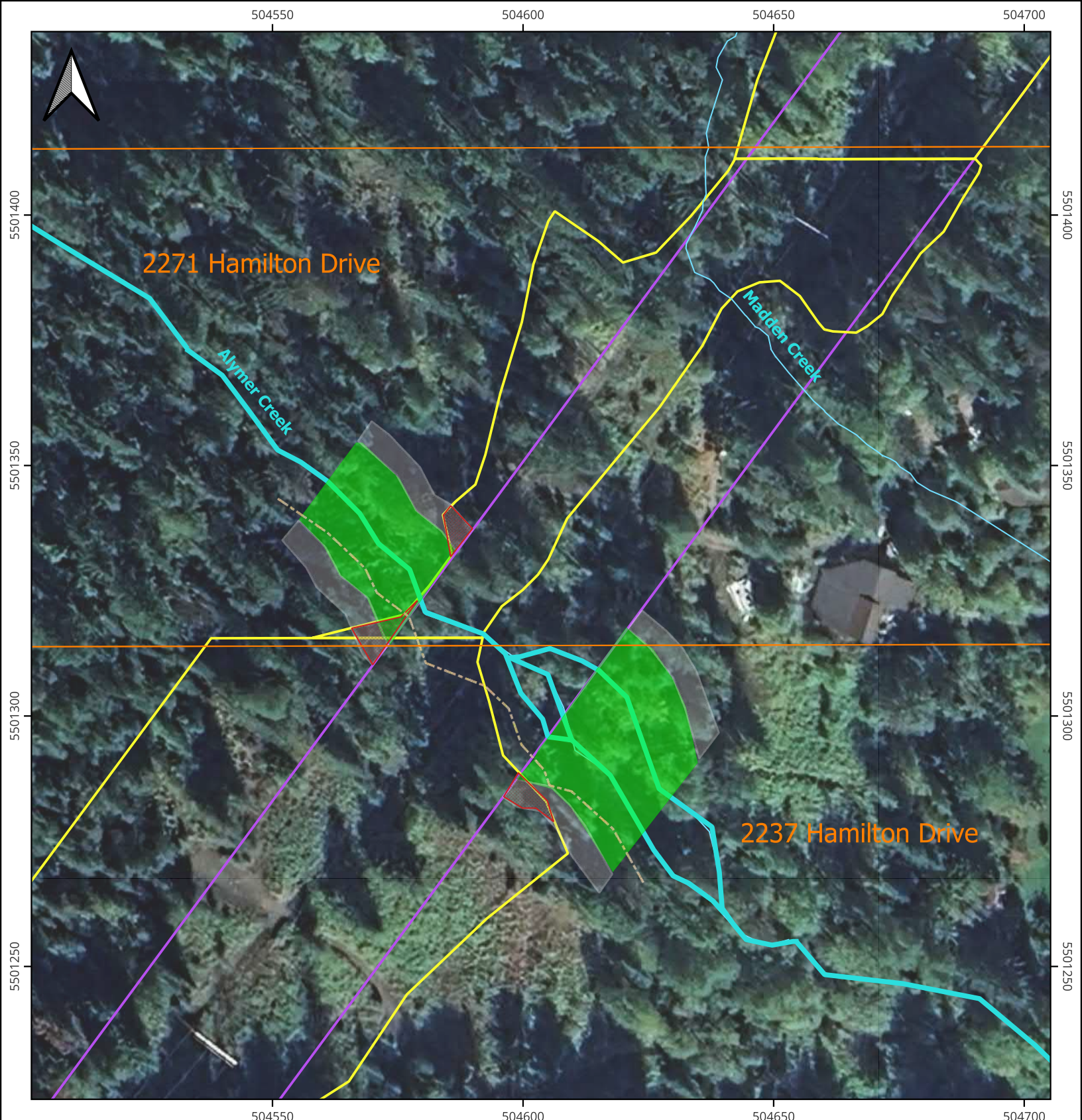


Ross Creek Site Plan and SPEA Map

- | | |
|---|--|
| Parcel Boundaries | Ross Creek Shade ZOS (7-10m) |
| Ross Creek | Areas of Impact
(Selective tree clearing) |
| Ross WDP Area (15 m) | Fortis RoW |
| Ross Creek Litterfall/Insect Drop,
LWD ZOS and SPEA (10 m) | Clearing Boundary |



Map Date: 2026-06-19
 Projection: NAD83 / UTM zone 11N
 Project #: 2025-1245
 Main Map Scale: 1:1000
 Overview Map Scale: 1:250000



Map Date: 2026-06-19
Projection: NAD83 / UTM zone 11N
Project #: 2025-1245
Main Map Scale: 1:1000
Overview Map Scale: 1:250000

APPENDIX 3. FORTIS EMP



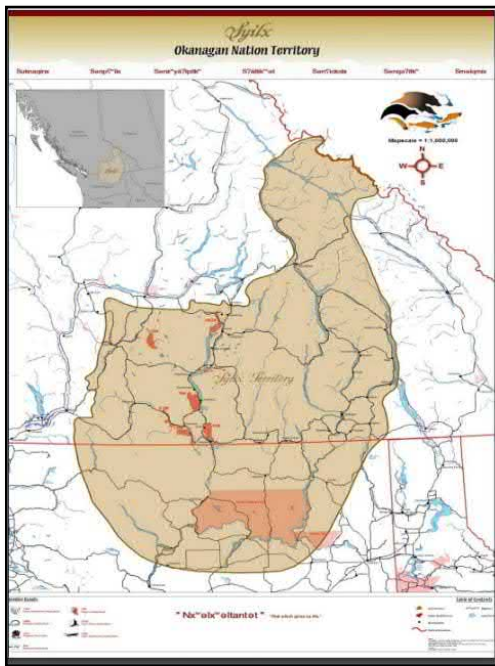
30L355 & 30L369 Harvest Environmental Management Plan



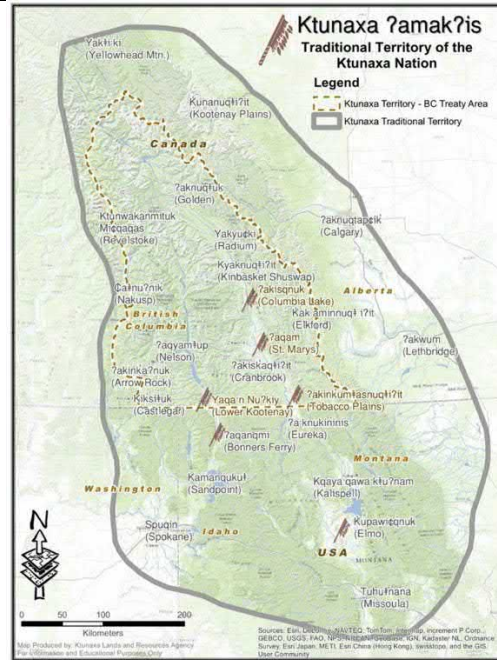
Nov 2025

Traditional Indigenous Territory Acknowledgement

We acknowledge and respect Indigenous Peoples on whose traditional territories we all live and work. We gratefully acknowledge the wisdom shared with us by Indigenous Peoples, including community members, employees, economic partners, corporate trainers and Elders. It is through our relationships that we have learned and continue to learn to be a good partner, reliable energy provider and employer to Indigenous Peoples. We extend our appreciation for the opportunity to live and learn on these territories.



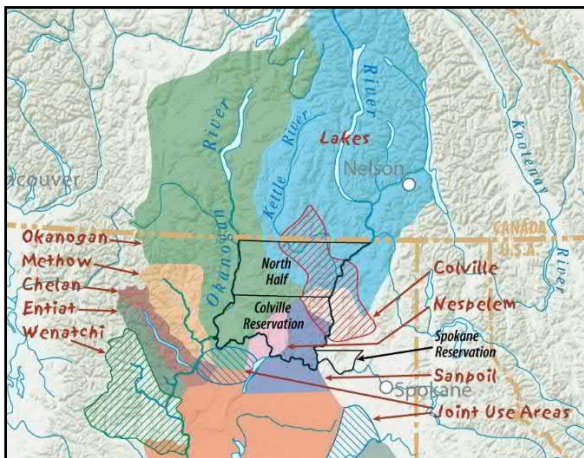
[Declaration & Territory.cdr \(syilx.org\)](#)



[Ktunaxa-Traditional-Territory.png \(850x1100\) \(researchgate.net\)](#)

Syilx tmix^w (Okanagan)

Ktunaxa ʔamakʔis



sngaytskstx tum-xula7xw (Sinixt)

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30L Harvest EMP Quick Reference

PERMIT REQUIREMENTS		
Occupant License to Cut including Forest Harvest Plan		
SECTION 3.1 AQUATIC RESOURCE MANAGEMENT		
Follow the guidelines for working near water outlined in the Forest and Range Practices Act.		
SECTION 3.2 TERRESTRIAL RESOURCE MANAGEMENT		
Species at Risk	Occurrences	None
	Critical Habitat	Caribou
Migratory Birds Reporting	Report all nests on, in or near assets to FBC Environment Nesting Window: March 25 – August 15	
Pileated Woodpecker Nesting Cavities	The nesting cavities of Pileated Woodpeckers are protected year-round under Section 1 of the federal Migratory Birds Regulation (2022) under the MBCA. Pileated Woodpecker nesting cavities provide habitat for other Species at Risk and therefore cannot be damaged or destroyed without a permit issued by ECCC. Appendix III: Pileated Woodpecker Nesting Cavity Identification Guide	
Invasive Plants within the Project Area	None reported on InvasivesBC	
Soil Disturbance	Any excavated soils should be retained onsite to be returned to the excavation for reuse as backfill or spread around onsite unless observations of suspect contamination are identified (i.e., petroleum or chemical odours, staining/sheen, waste/debris, etc.). If soil needs to be relocated offsite, contact the Contaminated Sites team.	
FortisBC Native Seed Mix	Interior Mix	
SECTION 3.3 ENVIRONMENTAL INCIDENTS		
Report all spills and other environmental incidents to FBC Environment.		
SECTION 3.4 WASTE MANAGEMENT		
Only routine Waste is anticipated to be generated on most T&D Projects. Best Management Practices for routine hazardous and non-hazardous waste disposal will be followed by all crews and contractors. Contact FortisBC Environment if additional support is required.		
Contact Name	Position	Contact Number
Samantha Davis	Environmental Program Lead	250 258 1024
Chris Wylie	Manager, Archaeology	250 215 0942
Serina Swanson	Environmental Program Lead	250 809 7148
Melissa Graham	Environmental Program Lead	604 202 3571
Tyler Wilen	Environmental Program Lead	778 214 5983
System Control	T&D	1- 844-544-0722 Option2

1.0 Introduction

The purpose of this Environmental Management Plan is to identify and provide guidance on environmental risks that may arise during harvest along 30L near Queen's Bay. This EMP applies to all FBC crews and/or contractors involved in the Project and provides guidelines and controls for managing the following Environmental Risk Areas:

- Aquatic Resource Management
- Terrestrial Resource Management
- Environmental Incidents
- Waste Management

Controls identified for each of the above risk areas address Project-specific risks and regulatory requirements. These risks and the protective measures and management controls associated with each risk are summarized in [Section 3](#) of this EMP.

NOTE: This EMP DOES NOT address health and safety issues. Those issues are addressed under a project-specific health and safety plan. All work must be conducted in accordance with WorkSafeBC standards.

1.1 Environmental Responsibility

FortisBC has an ISO 14001 compliant Environmental Management System (EMS) which provides the framework for identifying, managing and mitigating environmental risks associated with operations and project work.

FortisBC is committed to protecting the environment by utilizing established Best Practices and Management Controls to ensure work is performed in an environmentally responsible manner.

Best Practices include, but are not limited to, the following:

- Environmental awareness training for employees and contractors;
- Integration of environmental protection measures into all elements of business;
- Open communication with stakeholders including the Project Team, Crew members, Project Managers and Environment;
- Working with industry associations, governments and other stakeholders to establish standards for the environment appropriate for our business, and;
- Efficient and effective use of resources.

Contractors will follow Best Practices identified in this EMP and outlined in contract documents. If unforeseen changes in environmental conditions occur on the project site, the Contractor will contact the FBC Project Manager or Construction Manager, who will in turn contact FBC Environment.

This EMP aligns with all regulatory requirements and includes preventative measures to protect against harm to the environment. There are several regulations that govern FBC activities; a brief description of the regulatory requirements associated with the Project are identified in each of the Environmental Risk Areas identified in Sections 3.1 – 3.4.

All work associated with the Project and conducted by FBC crews and/or contractors will done so in accordance with this EMP.

1.1.1 Incident Reporting

All environmental incidents must be reported to FBC Environment who will file the incident under the internal reporting system (URM) and will complete external reporting to any regulatory agencies if required.

Examples of environmental incidents can include, but are not limited to:

- Destruction of active bird nest;
- Snake mortality on the road;
- Identification of an osprey nest being built atop a pole.

If you are unsure if an incident requires reporting, contact FBC Environment for assistance.

1.1.2 Permitting and Notifications

In the event a project requires environmental permitting or a notification, such documents will be obtained by FortisBC prior to project commencement and will be kept onsite. Activities that require permits can include, but are not limited to:

- Removal of vegetation in areas of Critical Habitat for a Species at Risk;
- Working in and around Water, including streams, ephemeral ponds and wetlands;
- Relocation of a birds nest.

If you are unsure if your Project requires a permit or notification, contact FBC Environment for assistance.

2.0 Regulatory Compliance

Regulatory compliance is a key component of FortisBC's Environmental Policy commitment and is a duty that the Company takes seriously. Within that commitment, FortisBC employees shall ensure that all work completed for the Project will **meet or exceed all identified environmental regulatory requirements**.

The regulatory requirements applicable to the Risk Areas associated with the Project are identified in the following sections of the EMP. Prior to commencement of work, the Project Manager will meet with FBC Environment and the project team to make sure that all components of this EMP are clear and fully understood. Any questions or concerns regarding the Risk Areas and the controls applied in the project will be addressed then. Should the discussion result in updates being required to the EMP, FortisBC Environment will make the appropriate changes and communicate those changes prior to commencement of work.

If concerns or questions of compliance arise at any time during the project, FBC Environment is to be notified and the matter dealt with accordingly. This action may or may not result in a stop in activities. The Project Manager (or designate) and the project crew in consultation with FBC Environment, will apply corrective action as soon as possible.

2.1 FortisBC EMS RISK AREA: Aquatic Resource Management

Waterways may contain fish, wildlife, invertebrates, vegetation and other aquatic life. Some of the risks associated with working around water include accidental introduction of sediment or deleterious materials from equipment (i.e., fuel or oil). The primary piece of legislation that governs aquatic protection under this project is the Forest and Range Practices Act.

The southernmost section of the 30L355 harvest polygon is near Bridesville Creek; ensure harvesting follows the guidelines in Section 2.1.1 for working in Riparian areas.

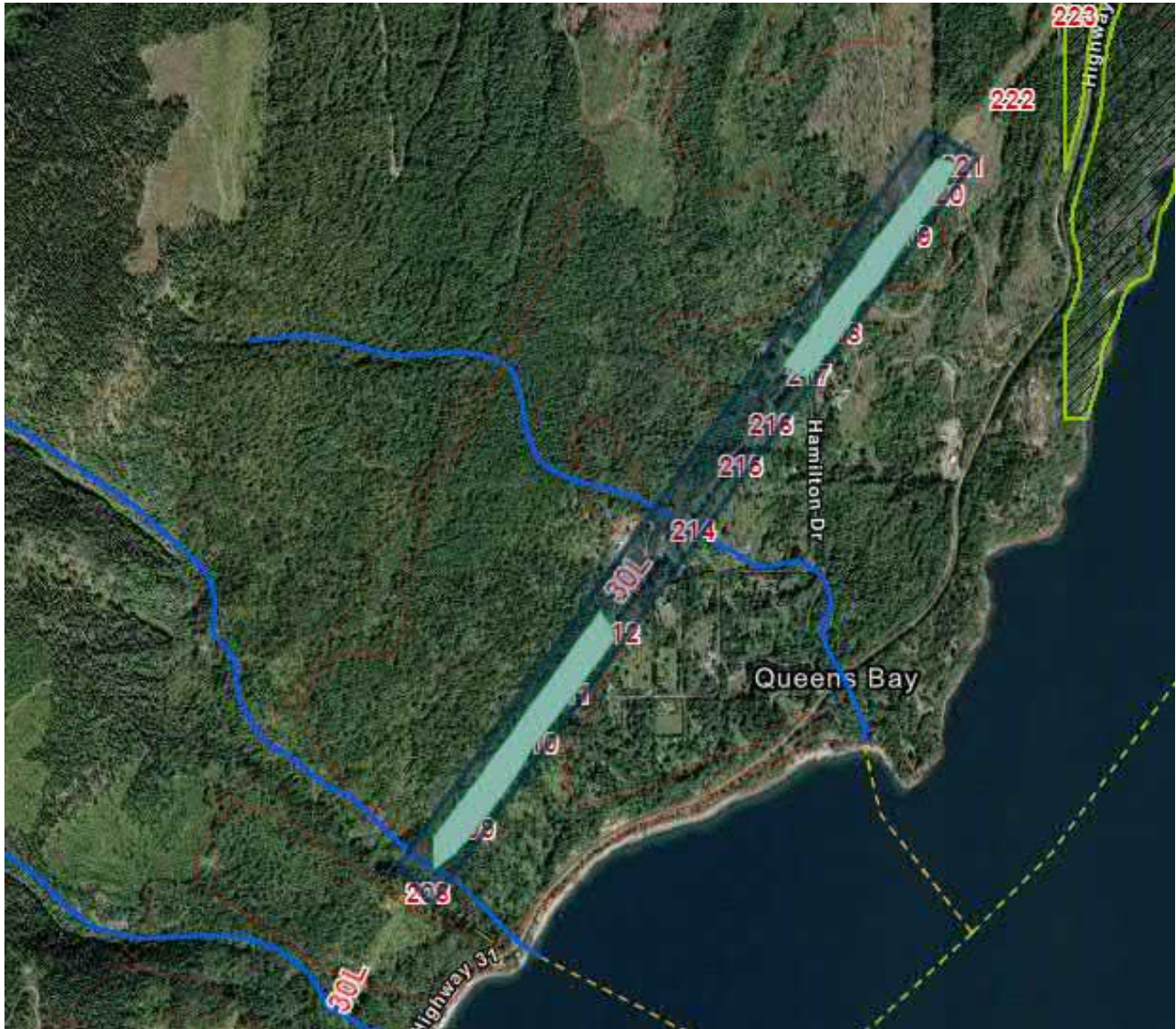


Figure 1: Location of Bridesville Creek relative to 30L355 harvest polygon.

2.1.1 Forest and Range Practices Act – Riparian Management Areas

All works will be conducted in accordance with the Forest and Range Practices Act. Of specific importance is work near fish-bearing streams or within community watersheds; these streams are protected by the Operational Planning Regulation. Streams can be classified into one of six Riparian Classes that have associated retention requirements based on the average width of the stream channel (Figure 2).

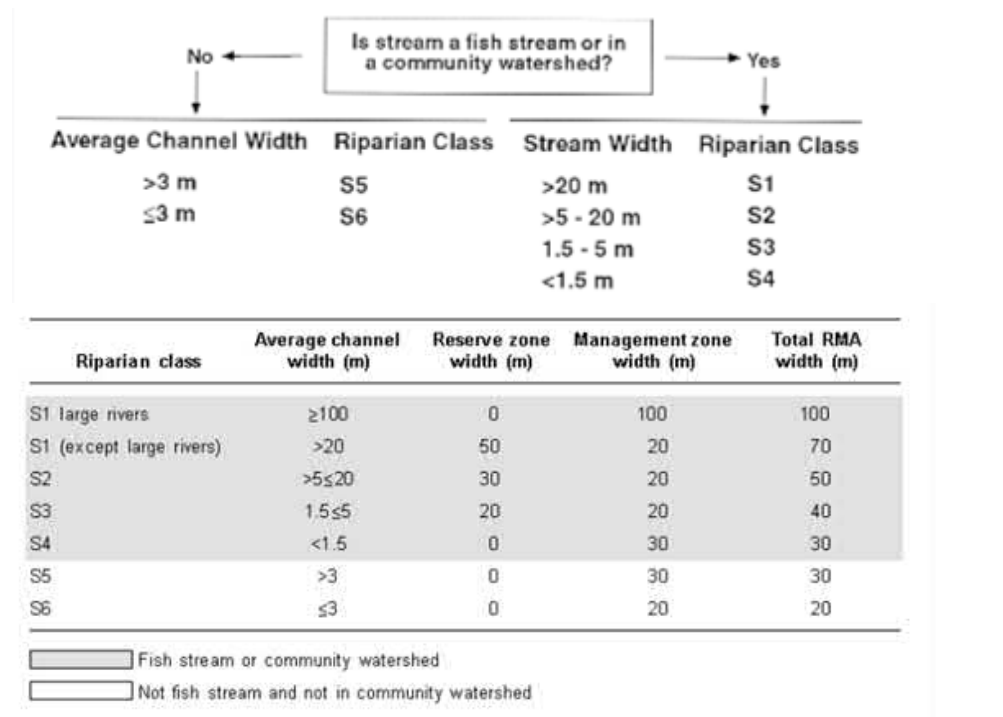


Figure 2: Summary of Riparian Classes and associated RMA width requirements.

2.2 FortisBC EMS RISK AREA: Terrestrial Resource Management

By the very nature of its business, FortisBC Electric operations involve interactions with terrestrial environments; for example, construction and maintenance of transmission and distribution lines, rights of way and substations. As part of FortisBC's Environmental Commitments, the Company **identifies** and **manages** operational hazards associated with Terrestrial Resources, and implements appropriate **controls** to minimize risks that have the potential for adverse consequences. Terrestrial Resource Management controls to be implemented for the identified risks of this project are described in the sections below.

2.2.1 Heritage Conservation Act

British Columbia's heritage sites (archaeological sites, historic place sites) are afforded protections under the provincial *Heritage Conservation Act* (HCA). The provisions of the HCA apply whether sites are located on public or private land. Known sites are mapped and documented by either the Archaeology Branch or the Heritage Branch. Chance Finds are also protected under the HCA.

Heritage sites and objects that are protected under the HCA include:

- Burial places;
- Aboriginal rock paintings or carvings;
- Sites that contain artifacts, features, materials or other physical evidence of human habitation or use before 1846 such as cultural depressions, stone tools, and culturally modified trees.

Fossils are primarily regulated under the *Land Act* but may have cultural significance to Indigenous peoples, or others, that could result in them being classified as a heritage object and subsequently protected under the HCA. Prior to commencement of a project, a review must be conducted by the FortisBC Archeologist to identify known heritage sites within the Project area. Unless HCA Permit is required, all work will follow the FortisBC Chance Find Procedure summarized below. See Appendix II: Heritage Resource Management(Chance Finds) for the full Procedure.

FortisBC's Chance Find Procedure

FBC crew and contractors have been trained in FortisBC's Heritage Resource Management (Chance Finds) Procedure CRL Document #1136 which requires the following actions in the event that unanticipated potential heritage resources or human remains are discovered during project activities.

1. If possible intact or disturbed heritage resources or potential human remains, or fossils are encountered, immediately stop construction in the vicinity of the chance find
2. The Construction Manager (or designate) will contact FortisBC Archaeologist Chris Wylie (250) 215 0942 for further guidance.

2.2.2 Species at Risk and Critical Habitat in Project Area

Species at Risk include plant, fish and wildlife species whose populations are considered to be:

- of special concern, threatened, endangered, extirpated or extinct under the *Species at Risk Act* (SARA),
- Red or Blue-listed by the BC Conservation Data Centre (BC CDC), or
- are Identified Wildlife under *the Forest and Ranges Practices Act* (BC FRPA).

The *Species at Risk Act* (SARA) received Royal Assent in December 2002. Per Sec 6, the purposes of the Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened. SARA prohibits the killing, harming or harassing of listed species and the damaging or destroying the residence of an individual of a listed species. Key features of the Act include measures to protect threatened and endangered species and their habitat.

<https://engage.gov.bc.ca/bcspeciesatrisk/>

Under SARA, the term “species at risk” includes the following classifications:

Term	Definition
extirpated	a wildlife species that no longer exists in the wild in Canada but exists elsewhere in the wild
endangered	a wildlife species facing imminent extirpation or extinction
threatened	a wildlife species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction
species of special concern	a wildlife species that may become threatened or endangered because of biological characteristics and other threats

Species at risk with Critical Habitat within the area are identified in Table 1.

FortisBC Species At Risk Guidance Documents
Habitat Identification and Management Guidelines for Species at Risk can be found on the FortisBC Environment page on Connector. The Guidelines are to be used in conjunction with this EMP to ensure that all measures to avoid potential interaction with the species are properly identified and implemented. https://connector.fortisbc.com/DepartmentsandServices/Environment/Pages/SpeciesAtRiskResources.aspx

Table 1: Species at Risk having Critical Habitat or presence along 30L.

Critical Habitat
Mountain Caribou 

2.2.2.1 Ungulate Winter Range

Both harvest parcels (30L355 and 30L369) fall within an Approved Ungulate Winter Range polygon with a Timber Harvest Code of “Conditional Harvest Zone”. Any provisions for harvest must be followed within these zones.

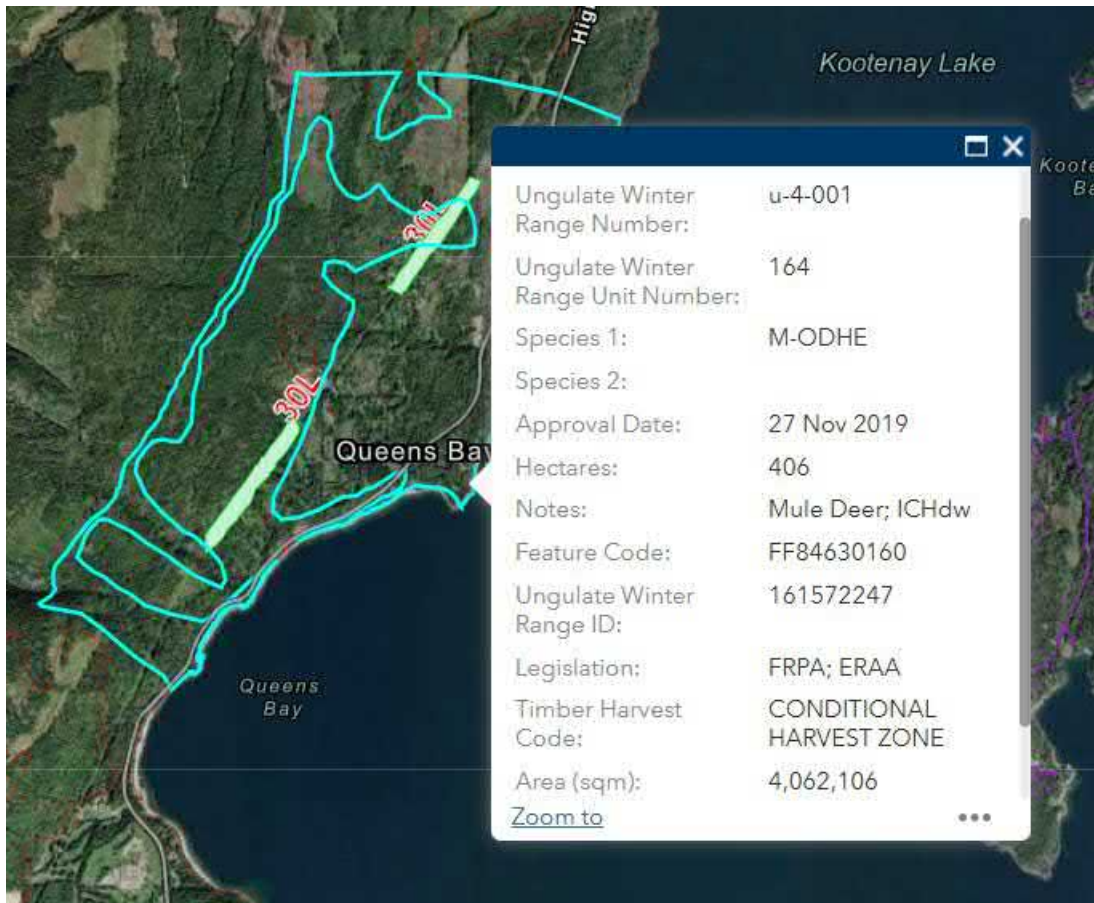


Figure 3: Location of Ungulate Winter Range relative to 30L355 and 30L369 harvest parcels.

2.2.3 Avian Protection

Migratory birds are common throughout the FortisBC Service Territory and as such all precautions must be taken to mitigate against conflict between birds and project work.

2.2.3.1 Migratory Birds

Migratory birds are common throughout the FortisBC Service Territory and as such all precautions must be taken to mitigate against conflict between migratory birds and project work.

Legislation	Migratory Birds Convention Act		
Purpose	To protect migratory birds, their nests and eggs from harm including prohibiting the dumping of substances harmful to birds in waters or areas frequented by them.		
Definitions	<u>Migratory Bird</u> : a bird that regularly crosses national borders <u>Incidental Take</u> : inadvertent destruction of nests, eggs or birds		
Potential Risk for Operations	Migratory Birds can be impacted from: • vegetation management along right-of-ways and access roads • pole replacements that have active woodpecker nests • some birds nest on the ground – these nests can be crushed or damaged		
Bird Nesting Window	March 25 – August 15 (for Zones A1 & A2 from Environment Canada’s nesting calendar)		
Mitigating Impact to Migratory Birds	How to Avoid Incidental Take		FortisBC’s Mitigation Measures
	• understand your projects’ potential impacts to migratory birds • take reasonable care to avoid impacts when planning your work • avoid potentially destructive activities • implement appropriate preventative measures to minimize the risk of incidental take		• provide project information to Environment for preparation of an EMP • mitigate impacts by educating crew on the ID and habitats used by Migratory Birds within the project area • when possible schedule work outside of the Migratory Birds window • if work must take place during the bird nesting window, schedule nest sweeps prior to construction to identify nests and avoid potential impacts
Migratory Birds (examples of Family groups)	• Woodpeckers • Swifts • Wrens	• Flycatchers • Larks • Bobolinks	• Sparrows • Thrashers • Sapsuckers

2.2.3.2 Non-Migratory Birds

Non-migratory birds are also protected in BC under the Wildlife Act.

Legislation	Wildlife Act		
Purpose	Section 34 of the Wildlife Act states that a person commits an offense if they possess, take, injure, molest or destroy (a) a bird or its eggs, (b) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, or, (c) the nest of a bird not referred to in paragraph (b) when the nest is occupied by a bird or its egg		
Definitions	Bird: an animal of the class Aves, and it's eggs Game Bird: a bird prescribed as a game bird and it's eggs		
Non-Migratory Birds (examples)	- Eagles - Falcons - Osprey	- Owls - Ravens - Kingfisher	- Hérons - Quail - Grouse
Potential Risk for Operations	Potential for disturbing bird nests during routine operations and maintenance activities for both T&D and Generation.		
Bird Nesting Window	Raptors and herons: Feb 1 – Aug 15 Most other bird species: Apr 1 – Aug 31		
Mitigating Impact to Non-Migratory Birds	- provide project information to Environment for preparation of an EMP - mitigate impacts by educating crew on the ID and habitats used by non-migratory birds within the project area - when possible schedule work outside of the breeding bird windows window - if work must take place during the bird nesting window, schedule nest sweeps prior to construction to identify nests and avoid potential impacts		

End-of-Life Pole: Habitat Use

Active nests are protected by the Migratory Birds Convention Act and cannot be removed or disturbed until outside of the nesting season. Inactive nests can be removed as long as they are not a Pileated Woodpecker nesting cavity. Contact FBC Environment if you are unsure.

Old nesting cavities on poles can be retained during decommissioning by:

- leaving the old pole, and
- topping the pole 1.5 m above the nesting cavity as long as the cavity is not active

This provides for continued habitat use by wildlife.

Contact FBC Environment for Assistance



2.2.3.3 Pileated Woodpeckers

The nesting cavities of Pileated Woodpeckers (*Dryocopus pileatus*) are protected **year-round** under Section 1 of the federal Migratory Birds Regulation (2022) under the Migratory Birds Convention Act. Pileated Woodpecker nesting cavities provide habitat for other Species at Risk and therefore cannot be damaged or destroyed without a permit issued by Environment and Climate Change Canada. Pileated Woodpecker nesting cavities can be distinguished from other woodpecker nesting cavities and from roosting / feeding holes by following the guide in Appendix III: Pileated Woodpecker Nesting Cavity Identification Guide. **If you come across a Pileated Woodpecker nesting cavity, please contact FBC Environment.**

2.2.3.4 Raptor Nests

Raptors vary in their tolerance to disturbance during nesting therefore different buffer zones for nesting raptors have been identified in the “Guidelines for Raptor Conservation during Rural and Urban Land Development in BC (2013)” document (Ministry of Environment 2013). Raptors likely to be found nesting in the Kootenay region with associated habitat requirements, tolerance levels and buffer recommendations are listed in Table 2.

2.2.4 Noxious Weeds and Invasive Plants

Noxious weeds (invasive plants) must be controlled according to the Weed Control Regulation B.C Reg. 66/85 or as per Section 15 of the Environmental Protection and Management Regulation B.C. Reg. 200/2010 (ALC & BC. OGC, 2013). FortisBC Guideline 1496 Invasive Plant Management provides measures to help minimize the spread of noxious weeds and invasive plants. Invasive plants are known to be present along rights-of-way and long all existing access roads, therefore ensure your crew follows the measures outlined in the **FBC Noxious Weed and Invasive Plant Spread Prevention Measures**.

FortisBC Noxious Weed and Invasive Plant Spread Prevention Measures:

- Pressure wash all equipment and trucks immediately prior to mobilizing to site;
- Check vehicles and clothing prior to entering the ROW. Inspect the undercarriage and tires of all vehicles and remove and bag any plant material or large clumps of soil found.
- Access to the Project area via designated/marked accesses. Vehicles will only use designated pull outs and parking areas;
- Minimize construction footprint;
- Pressure wash and/or sweep all equipment and trucks prior to leaving the ROW;
- Revegetate all disturbed areas with a regionally appropriate seed mix approved by FBC Environment immediately following project completion.

2.2.5 Soils and Ground Disturbance

When working in and around natural areas, FortisBC will seek to minimize environmental impact by applying the following environmental protection measures whenever possible and applicable. For a full list of controls refer to CRL 1128 Working Around Erodible Soils.

2.2.5.1 Access

- Use existing roadways, bridges, and culverts where possible.
- Minimize access and egress points.
- Construct access roads out of suitable, non-erodible material.
- Use work pads (gravel pads, rig matting, interlocking plates, etc.) if required.
- Incorporate erosion and sediment control measures on the approaches to creek crossings (i.e., bridges/culverts), as needed.
- Clean equipment (i.e. pressure wash) to ensure mud is not tracked onto roadways.
- Regularly clean roadways to prevent mud from entering catchbasins.

2.2.5.2 Clearing and Grading

- Phase clearing to reduce the area of soil exposed at one time.
- Use equipment that will minimize surface disturbance, soil compaction, and topsoil loss. This includes low ground pressure tracks or tires, small trenchers, trenchless technology, plows, and hand-digging.
- Hand-clear areas that do not require grading.
- Restrict root grubbing as much as possible on erodible soils to maintain soil cohesion and minimize erosion.
- When grubbing, use a root or brush rake to reduce surface disturbance and topsoil loss.
- Restrict grading to the greatest extent possible (i.e., right of way and temporary work space only).
- Develop a surface water control plan if required.
- Divert clean water around the construction area where possible. Construct sediment settling ponds if required. Note, additional permits may be required.
- Pump sediment-laden water to stable vegetated areas for infiltration to the ground and ensure that sediment-laden water does not enter a watercourse or storm sewer system.

2.2.5.3 Excavation

- Develop a soil management plan if required.
- Minimize the area of disturbance.
- Cover and/or contain soil stockpiles if they will be left exposed for long periods of time or if the weather conditions warrant.
- Backfill as quickly as possible, compacting the subsoil in lifts, and spreading any remaining spoil over the area, if possible, before replacing the topsoil.
- Remove any excess spoil.

2.2.5.4 Cleanup and Restoration

- Spread salvaged topsoil over stripped areas.
- Delay replacing the topsoil in wet weather or high wind until the weather is favourable.
- Do not grade the adjacent areas to obtain replacement topsoil.
- Revegetate the disturbed area as soon as possible after construction with a regionally appropriate seed mix.
- Scarify the soil to create micro-sites for revegetation (e.g., running cleat tracks perpendicular to the slope).
- For steep slopes an engineered erosion control solution should be considered, such as erosion control blankets.
- Use broadcast or hydroseed seeding methods.
- During winter cleanup operations, manually revegetate by hydroseeding or using seed mats to foster early growth and slope stability.
- If necessary, restrict access to reseeded areas until the vegetation reestablishes.
- Remove any remaining non-biodegradable sediment and erosion control measures (i.e., silt fence) once the site is stable.

2.2.6 Forest and Range Practices Act

This work is being conducted in accordance with the Forest and Range Practices Act. Occupant License to Cut Applications have been submitted for each of these areas which include associated Forest Harvest Plans. These Harvest Plans outline the area, species composition, site harvest volume, harvesting method, access comments and other area concerns to ensure we are managing the land sustainably and respectfully.

2.3 FortisBC EMS RISK AREA: Environmental Incidents (Spills)

An Environmental Incident is an event that has caused or has the potential to cause harm to the environment. This includes but is not limited to the unintentional release of hazardous or deleterious substances to land or water. FortisBC has Environmental Management Controls in place to address the risks associated with spill incidents. The Controls pertinent to this EMP include the following:

- Spill Prevention
- CRL #1127 Spill Reporting, Response and Cleanup; and
- Spill Response Training

2.3.1 Spill Prevention

Personnel will identify potential hazards (*i.e.*, operating equipment over a waterway), determine the level of risk for activities that could result in a spill, and take measures to reduce the potential of a spill. All efforts will be taken to minimize the risk of spills, including:

Equipment Inspections and Maintenance

- maintain equipment to minimize losses of hydraulic fluids, lubricants or fuels; this includes regular inspections of fuel and hydraulic lines;
- before operation of equipment, operators will check for leaks and hydraulic hose connections for excess lubricants;
- equipment working **in and around water** or a temporarily dewatered area must be thoroughly examined for fluid leaks and steam cleaned prior to commencing work;
- maintenance of equipment on the project site will occur in a manner that prevents spills to the environment, for example, ensuring proper containment;
- **no refuelling equipment within 30 m of a watercourse;**
- ensure equipment left overnight is secure and any fluid (*i.e.*, oil, engine coolant) containers are locked within the equipment or facility compound.

Ensure Proper Containment

- all portable oil-filled equipment or equipment containing hazardous materials must be kept within secondary containment capable of holding 110% of the equipment's tank capacity
- ensure **spill containment** is set up in a manner that prevents spills to water;
- ensure mobile equipment is in appropriate secondary containment (*i.e.*, duck ponds, spill trays);
- place **absorbant pads** underneath areas of the equipment or vehicles that require maintenance;
- store all fuels and lubricants brought onto the project site in properly labelled containers and ensure they are used in a manner that avoids spills.

2.3.2 Spill Kits

Spill-kits and equipment, including sorbent pads, booms, drip pans, and leak proof waste containers, shall be provided by the Contractor and be readily available on site and on each piece of mobile equipment (e.g. light trucks, excavators, backhoes, Bobcats, etc) in the quantities required for the equipment being used and the quantities of fluids onboard. Sufficient quantities of sorbent pads suitable for coolant shall also be included in each spill kit.

2.3.3 Environmental Spill Response and Cleanup

In the event that an environmental incident or spill occurs, follow the response procedures outlined below. For complete information on detailed spill reporting, response and cleanup procedures see the FortisBC Spill Reporting Response and Clean-up Protocol #1127.

	Procedure	Oil/Petroleum-Based Fluid Considerations
1	Ensure personal and worker safety.	Make sure to don all appropriate PPE. Consult the SDS for the spilled product and remove ignition sources if safe to do so.
2	Notify and get help.	When possible, contact your Manager and/or Spill Support number.
3	Control and contain the spill.	Utilize petroleum specific spill absorbent materials (i.e., socks, booms, pads, etc.) to contain the spill. Use water repelling absorbent booms/pads to contain spills to water.
4	Clean-up the spill and site.	Absorb small spills with petroleum specific absorbent pads and booms. Place contaminated absorbents in plastic bags, seal and store in a sealed container in an indoor area away from ignition sources.

1.3.4 Spill Reporting

The **Spill Reporting Regulation** specifies external reporting thresholds for spills of specified substances. As per this regulation a spill of a listed substance is externally reportable regardless of quantity, if it enters or is likely to enter a waterway. FortisBC Spill Response protocol requires **internal reporting of spills over 1 litre to ground and spills of any amount to water**. Contact FBC Environment for support. Externally reportable volumes are regulated under the *Spill Reporting Regulation*.

SPILLS OF ANY AMOUNT TO WATER ARE INTERNALLY AND EXTERNALLY REPORTABLE

2.4 FortisBC EMS RISK AREA: Waste and Materials Management

Waste is a substance or product which is no longer suitable for its originally intended purpose or is generated during a production or maintenance process and requires disposal. Waste disposal, transportation and handling is dependent upon waste classification.

2.4.1 Non-Hazardous Waste Management

Waste, debris and other construction related materials will be present/created at the site and have the potential to impact the environment and/or create a safety hazard. Non- hazardous wastes generated during this project and requiring disposal off site will need approval from the local landfill operator prior to disposal. Local landfills

may have specific restrictions on waste items accepted. The Contractor is required to comply with these requirements.

Surplus excavated soil may not be removed from site or disposed of without completion of analytical testing deemed necessary by FortisBC. Surplus soil may only be disposed of at a permitted landfill pre-approved by FortisBC after all required analytical testing is completed.

2.4.2 Non-Hazardous Waste Management Controls

Specific controls to manage non-hazardous waste on-site include:

- Ensuring all garbage and construction wastes related to the site is contained and disposed of at a location approved by FBC. Removal from FBC lands must be in compliance with applicable legislation and regulations of all authorities having jurisdiction.
- Separating and storing recyclable and waste materials in appropriately labelled, covered, waterproof containers prior to transport.
- Ensuring garbage and other non-organic construction wastes associated with the work are not dumped or burned.
- Collecting all food waste and domestic garbage from work and access areas and placing in an appropriate receptacle daily and be disposing of in an appropriate and safe manner. All food wastes shall be stored and disposed of in a manner that does not attract nuisance animals.
- Ensuring sanitary facilities in the form of portable toilets are secured to prevent them from falling over and situating them at least 15 m from the top of bank of any water body (where feasible).

2.4.3 Hazardous Waste Management

The **BC Hazardous Waste Regulation (BC HWR)** addresses the proper handling and disposal of hazardous wastes, under the *Environmental Management Act*. Hazardous Waste generated as a result of the Project must follow the requirements outlined in the *HWR*. Hazardous wastes must be stored, handled and transported in a manner that is compliant with both the federal *TDG Regulations* (if applicable) and provincial *BC HWR*.

Examples of common hazardous wastes that may be generated during projects include but are not limited to waste oil, oily debris, and contaminated soils. Hazardous waste materials must be managed through licensed carriers and receiving facilities. FBC Environment should be consulted on guidance for the appropriate management and disposal of hazardous waste.

2.4.4 Hazardous Waste Management Controls

FortisBC has Environmental Management Controls (Controls) in place to ensure hazardous waste is managed in accordance with the federal TDG Regulations and provincial BC HWR. The Controls pertinent to this EMP include the following:

- CRL #1163 Hazardous and Non-Hazardous Waste Management
- CRL #1320 Hazardous Waste Transport
- TDG Training (if applicable)

All personnel transporting dangerous goods must have the appropriate training and will ensure compliance with the federal *TDG Regulations* and provincial *BCHWR*.

2.4.5 Transportation of Dangerous Goods (TDG)

The Transportation of Dangerous Goods Act (TDG Act) and Transportation of Dangerous Goods (TDG) Regulations pursuant to the TDG Act outline requirements for transporting dangerous goods including but not limited to containment, labelling, documentation and training. Dangerous goods may include new hazardous substances required for the Project, as well as hazardous waste regulated under the TDG Regulations generated during the Project. Dangerous goods pertaining to the Project must be stored, handled, and transported in accordance with the TDG Regulations.

2.4.6 TDG Environmental Management Controls

FortisBC has controls in place to ensure dangerous goods are transported in accordance with the *TDG Act* and *Regulations*. The Controls pertinent to this EMP include the following:

- CRL #1163 Hazardous and Non-Hazardous Waste Management
- CRL #1320 Hazardous Waste Transport
- CRL #1135 Purchase and Use of Hazardous Substances
- TDG Training

All personnel transporting hazardous materials must have the appropriate training and will ensure the use of appropriate equipment, containment and signage and follow the federal *Transportation of Dangerous Goods Regulations* and provincial *Hazardous Waste Regulations*. Contact FortisBC Environment for guidance on management Dangerous Goods and Hazardous Waste.

Appendix I: Desktop Archaeological Review

Project Information

FortisBC Inc. is planning to widen portions of the existing 30 Line Right-of-Way. Widening the Right-of-Way requires logging the trees and clearing the vegetation within a Tree Management Zone (TMZ) that is located parallel to the existing powerline corridor (the Project). The 30 Line Right-of-Way TMZ is comprised of two discrete locations: 30L355 and 30L369.

- 30L355 is located within parcels 011-688-734, 012-217-361, 016-026-462, 016-026-471, 024-637-432, 025-257-081, 025-257-099, 025-257-102, 025-257-111, and 030-051-037.
- 30L369 is located within parcels 011-941-979, 013-875-167, 013-911-350, 023-278-366, and common lot NEP 22686.

This desktop archaeological review has been prepared to support an application to harvest timber on Crown Land within the 30 Line Right-of-Way TMZ (Figure 1). It summarizes the current archaeological conditions within the 30 Line Right-of-Way TMZ utilizing readily available sources and describes the approach that FortisBC Inc. will follow for managing heritage resources when harvesting timber within the 30 Line Right-of-Way TMZ.

The 30 Line Right-of-Way TMZ is located upland, north and east, of Kootenay Lake, on sloping terrain with an east to southeast aspect.

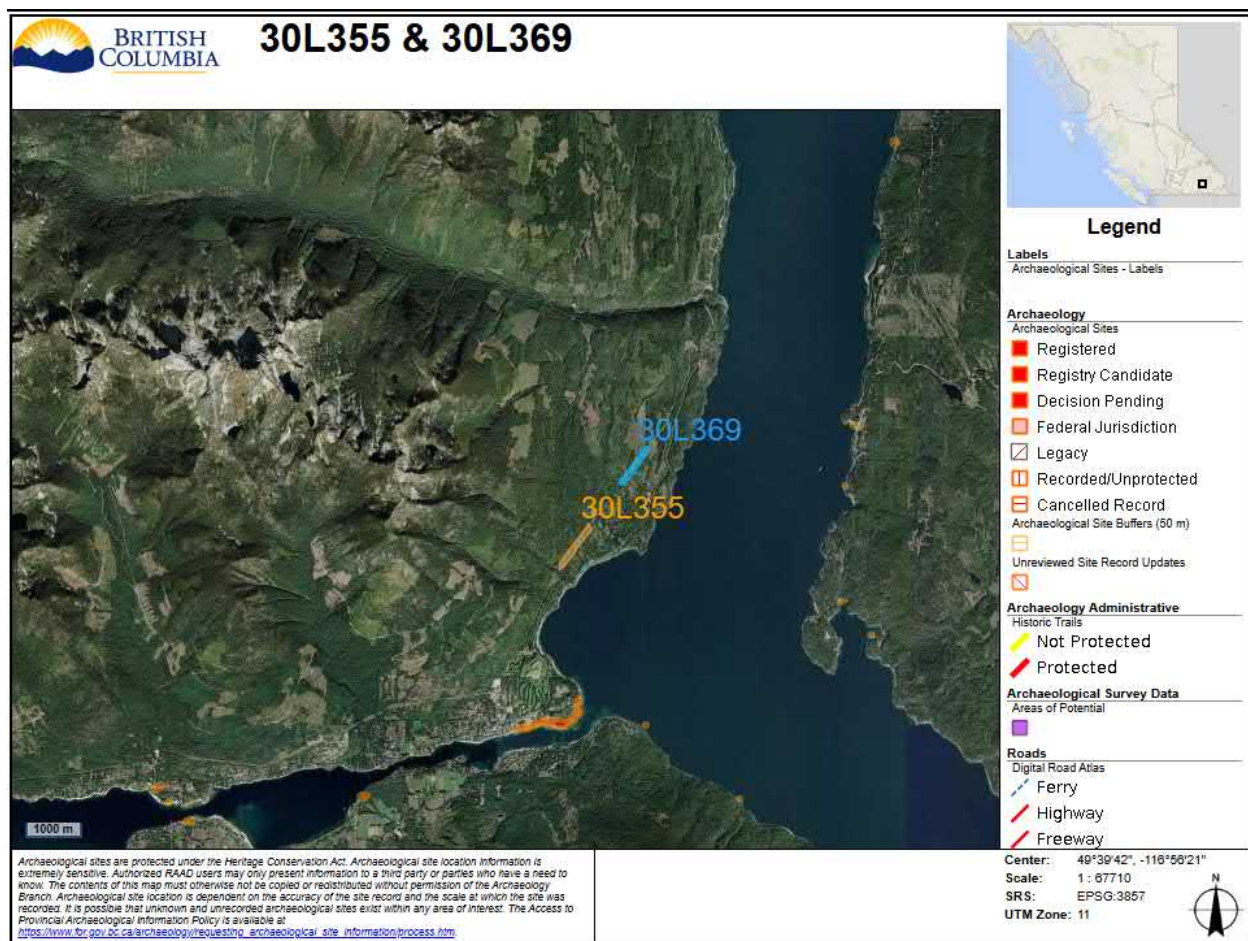


Figure 1 – 30 Line 355 and 369 Tree Management Zone

Relevant Legislation

The *Heritage Conservation Act (HCA)* extends automatic legal protection to heritage sites (archaeological sites and historic places) if they pre-date 1846 or are of unknown age but may pre-date 1846.

Management of the *HCA* is the responsibility of the Archaeology Branch, Ministry of Forest and the Heritage Branch, Ministry of Tourism, Arts, Culture and Sport. Together, the Archaeology Branch and Heritage Branch share responsibility for issuing permits under Section 12.2 of the *HCA* which authorizes archaeological inspections and investigations and for issuing permits under Section 12.4 of the *HCA* authorizing impacts to protected sites.

Desktop Archaeological Review Methods

The desktop archaeological review consisted of accessing the following information:

- Remote Access to Archaeological Data (RAAD) application for recorded archaeological sites, historic place sites, and existing archaeological potential models
- Provincial Consultative Areas Database to identify First Nations and related organizations with an asserted interest in the study area
- Orthophoto imagery

Desktop Archaeological Review Results

Consultative Areas Database

A review of the British Columbia Consultative Areas Database, identified the following First Nations and First Nations organizations have an asserted interest:

- ʔaqʔam
- ʔakisqʔnuk First Nation
- Ktunaxa Nation Council
- Lower Similkameen Indian Band
- Okanagan Indian Band
- Okanagan Nation Alliance
- Osoyoos Indian Band
- Shuswap Band
- Sinixt Confederacy
- Snpink'tn Indian Band
- Tobacco Plains Indian Band
- Upper Nicola Band
- yaqan nuʔkiy

Archaeological Potential

According to the Archaeological Overview Assessment layer in the RAAD application, the 30 Line Right-of-Way TMZ is situated in an area that has been modeled as having low archaeological potential by the Arrow Forest District archaeological overview assessment (AOA) that was developed in 1996 (Figure 2).

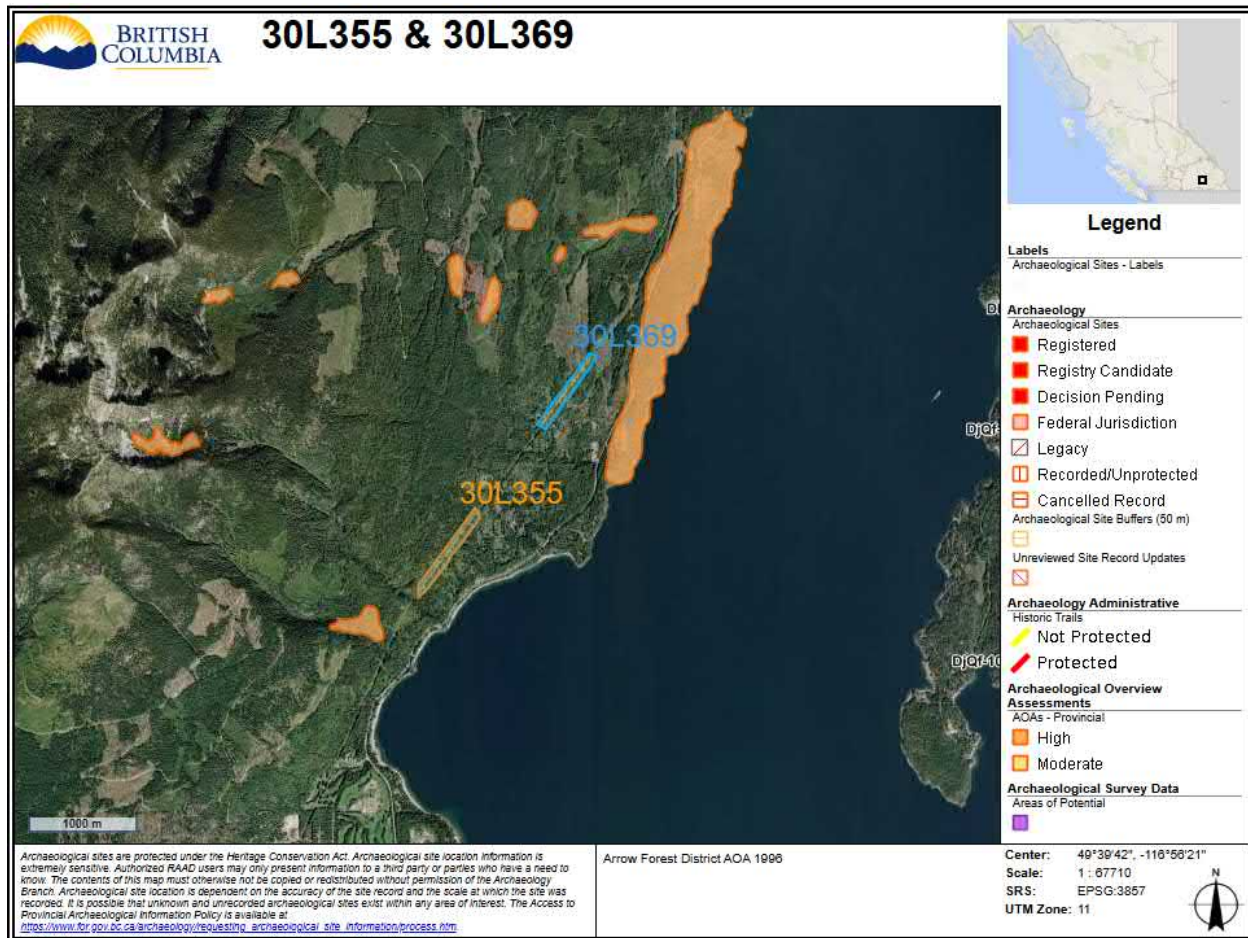


Figure 2 - Archaeological Potential

Archaeological and Historic Place Sites

A review of the Provincial Heritage Register (PHR) as accessed through the RAAD application identified that there are no heritage sites (archaeological sites, historic places – formally recognized, or historic places – not recognized) within the 30 Line Right-of-Way TMZ (Figure 3). There are 5 registered heritage sites within 5 km of the portion of the 30 Line Right-of-Way TMZ encompassing 30L355 and 30L369 (Table 1). The registered archaeological sites in the vicinity of the 30 Line Right-of-Way TMZ are predominantly associated with Kootenay Lake.

Table 1. List of Nearest Archaeological Sites

Borden Number	Distance from 30 Line TMZ	Description
DjQf-1	3.83 km to east of 30L369	Precontact – Surface - Lithics
DkQf-2	4.07 km to east-northeast of 30L369	Precontact – Subsurface - Faunal
DjQf-2	2.55 km to south of 30L355	Precontact – Surface – Lithics, Hearth Features
DjQf-6	3.45 km to south-southeast of 30L355	Postcontact – Transportation – CPR Barge Wreck
DjQf-10	4.65 km to east-southeast of 30L369	Precontact – Surface - Lithics
DjQf-8	5.54 km southeast of 30L369	Precontact – Surface - Lithics

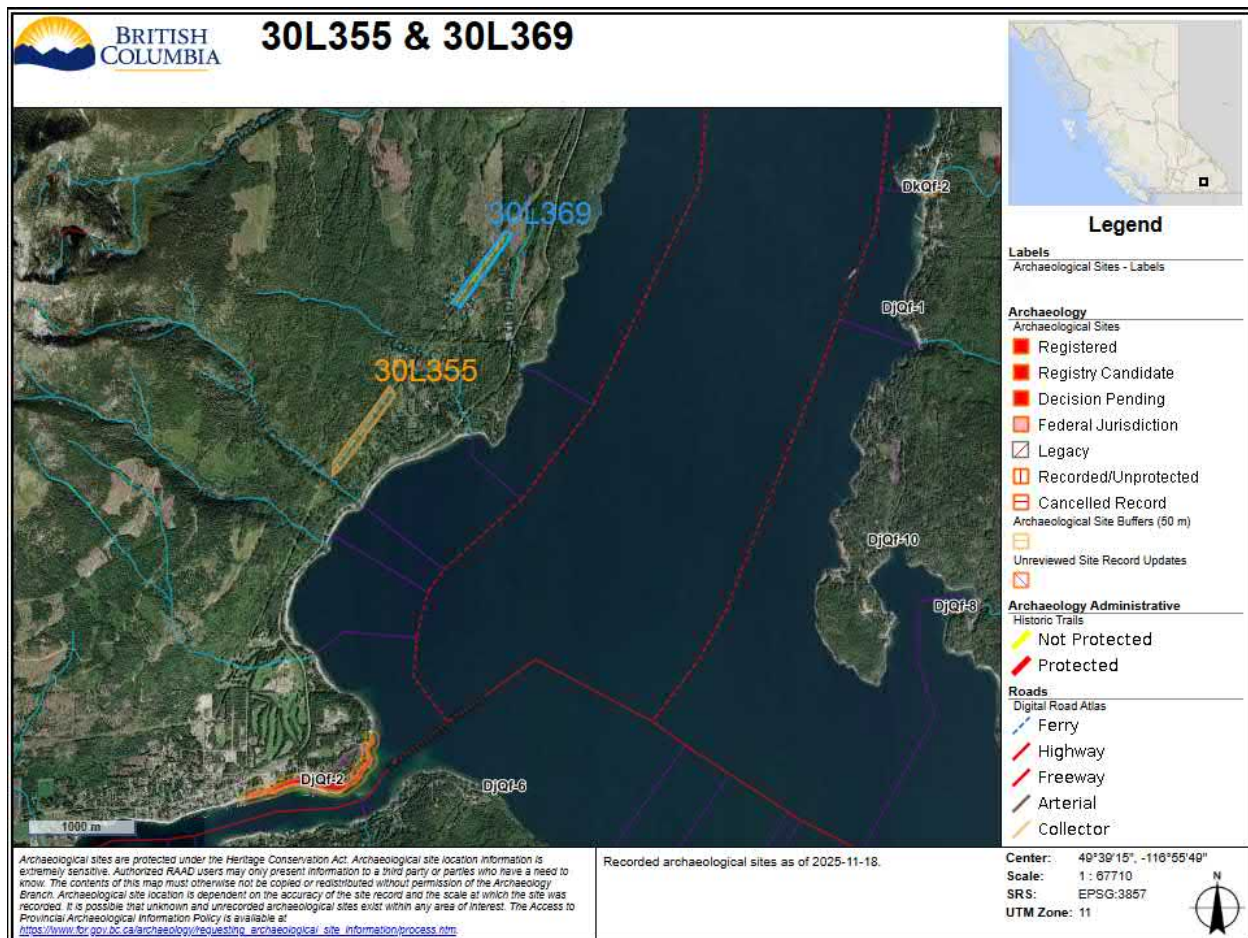


Figure 3 - Archaeological Sites, Historic Places - Formally Recognized, Historic Places - Not Recognized

Expected Archaeological Site Types

Based on the known heritage resources around Kootenay Lake and the topography of the 30 Line Right-of-Way TMZ, it is expected that lithics scatters are the most likely heritage sites that would be encountered within the 30 Line Right-of-Way TMZ. Culturally Modified Tree (CMT) sites may also be encountered. CMT sites that are automatically protected under the *Heritage Conservation Act* are not anticipated to be within the 30 Line Right-of-Way TMZ based on tree stand age data available through iMapBC for areas that have not been recently cleared.

- The projected tree stand age within the 30L355 TMZ is between 95 years and 120 years.
- The projected tree stand age within the 30L369 TMZ is between 88 years and 112 years.

Desktop Archaeological Review Summary and Discussion

Based on the available information, the 30 Line Right-of-Way TMZ does not intersect any registered archaeological sites or historic places, nor does it overlap or intersect with any modeled areas of moderate and/or high archaeological potential.

The likelihood of the Project impacting heritage resources within the 30 Line Right-of-Way TMZ is considered to be low based on the results of the archaeological predictive modelling for the area, the sloping terrain and, the general absence of registered sites in similar topographic settings.

A low likelihood of impacting heritage resources does not mean that there is no likelihood and as such, the possibility of encountering heritage resources during FortisBC Inc. activities within the 30 Line Right-of-Way TMZ does exist. To address this possibility, FortisBC Inc. has developed a Heritage Resource Management (Chance Finds) Procedure to provide instruction on how to proceed if heritage resources are encountered. In the event that possible heritage resources are encountered within the 30 Line Right-of-Way TMZ, FortisBC Inc. work in proximity to the possible heritage resources will stop and the FortisBC Inc. Archaeologist will be contacted to provide further direction.

In the event that the presence of heritage resources is confirmed within the 30 Line Right-of-Way TMZ, an archaeological assessment will be undertaken. FortisBC Inc. work will not proceed in proximity to the confirmed heritage resource until the BC Archaeology Branch, Ministry of Forests provides authorization. FortisBC Inc. has access to a *Heritage Conservation Act* permit that is applicable for undertaking archaeological assessments within the 30 Line Right-of-Way TMZ.

Appendix II: Heritage Resource Management(Chance Finds)

Heritage Resource Management (Chance Finds)

DOCUMENT NUMBER: 1136

DOCUMENT TYPE: PROCEDURE

Owner: Kristoff, Leslie

SML: Wylie, Christopher

Utility: Electric, Gas

Approved Date: July 31, 2024

Effective Date: July 31, 2024

Next Review Date: July 31, 2026

CATEGORY: ENVIRONMENT, HEALTH & SAFETY - ENVIRONMENTAL MANAGEMENT - TERRESTRIAL
RESOURCE MANAGEMENT

Document History: This document replaces 1136 Archaeological Resource Management (Chance Finds) dated 5 June 2020.

Summary of Changes

In July 2024, this document was updated with significant changes to the following sections - Definitions, Scope, Procedure, and Legislation and Indigenous Policies. The Communication and Enforcement section and the Related Information section were added.

Overview

This document specifies the procedures that FortisBC will follow upon discovering unanticipated potential heritage resources or human remains (i.e., Chance Finds) to remain compliant with applicable municipal, provincial, and federal legislation as well as applicable Indigenous policies.

Audience

This procedure applies to all employees and contractors of FortisBC who discover a potential heritage resource or human remains.

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Definitions

Archaeological Site – A location that contains physical evidence of past human activity and that can be studied by archaeological methods of investigation, including site survey, excavation, and data analysis.

Fossil – The preserved remains, traces or imprints of organisms from the geological past, but does not include human remains or artifacts, or limestone, dolomite, coal, petroleum, natural gas.

Heritage Conservation Act – The *Heritage Conservation Act* (HCA) is provincial legislation that provides for the protection and conservation of heritage sites (e.g. archaeological sites and historic places) and objects within BC and once regulations have been developed, will require that all discoveries of sites or objects that may have heritage value be reported to the Minister.

All archaeological sites, whether on Provincial Crown or private land, including land that is underwater, that predate AD 1846 are automatically protected under the HCA. Certain sites, including human burials and rock art sites with heritage value, are automatically protected, regardless of their antiquity. Shipwrecks and plane wrecks greater than two years of age are also protected under the HCA provided that they have been abandoned by their owner. The HCA does not distinguish between those heritage sites which are “intact” (i.e., those sites which are in a pristine, or undisturbed state) and those which are “disturbed” (i.e., those sites which have been subject to alteration, permitted or otherwise). All heritage sites, regardless of condition, are protected by the HCA, as described above.

HCA-protected sites or objects cannot be disturbed or altered without a permit issued under Section 12.2 or Section 12.4 of the HCA and a person may be liable to obtain and pay for an archaeological impact assessment as a condition of a permit.

Heritage Resource – A collective term for heritage sites and objects.

Heritage Site – As defined in the BC *HCA*, whether designated or not, land, including land covered by water, that has heritage value to British Columbia, a community or an aboriginal people. This may include archaeological sites, historic places, or fossil sites.

Heritage Object – As defined in the BC *HCA*, whether designated or not, personal property that has heritage value to British Columbia, a community or an aboriginal people.

Historic Place (Formally Recognized) – Defined by the eligibility requirements for inclusion in the British Columbia and Canadian Registers of Historic Places. Comprised of

places that have been formally recognized for their heritage value by some form of legislative enactment (order-in-council, bylaw, or council resolution) by the province, a local government or a regional district. Federally designated National Historic Sites are also included in this site category.

Historic Place (Not Recognized) – Not protected and not formally recognized by government. Many of these places are non-designated historic sites such as heritage buildings identified through various thematic studies. This also includes records for historic places that have been un-designated, de-registered and/or destroyed.

Scope

Construction activities such as, though not limited to, clearing, grading and excavation have the potential to disturb heritage resources. Therefore, a FortisBC Professional Archaeologist may be involved in the planning and construction phases of a project to minimize the risk of unexpected impacts to heritage sites and objects as a result of FortisBC activities. This document specifies the procedures that FortisBC will follow upon discovering unanticipated potential heritage resources or human remains (i.e., Chance Finds). In no way does CRL1136 attempt to define or limit title and/or rights of the affected First Nations.

Heritage Resource Management (Chance Find) Procedure

Initial Response

If the activities of FortisBC or one of our contractors inadvertently uncover a potential heritage site, object, fossil, or human remains:

1. **STOP** construction in the immediate vicinity of the potential heritage resource or human remains.
2. Contact FortisBC Archaeology
 - a. FortisBC Manager, Archaeology:
Christopher Wylie
Office: 250-868-4577 / Cell: 250-215-0942
 - b. FortisBC Archaeologist:
Ben Vickers-Redhead
Office: 250-380-5754 / Cell: 250-584-3656

Note: If neither above contact is available, call Dispatch at:

Electric

During business hours	Dispatch 1-855-849-2931
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After Hours	Control Centre 1-844-544-0722
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Gas

24 Hours

Dispatch
1-866-231-3322

3. For a Heritage Site or Object **OR** unidentifiable bone:
 - a. FortisBC Archaeology will contact a qualified consulting archaeologist for further guidance.
4. For a possible or obvious fossil:
 - a. FortisBC Archaeology will contact a qualified consulting palaeontologist for further guidance.
5. For obvious Human Remains:
 - a. FortisBC Archaeology will contact the FortisBC Project Manager, the local policing authority, the Office of the Coroner, a qualified consulting archaeologist, appropriate Indigenous communities, and appropriate Provincial Regulators (e.g. BC Archaeology Branch, BC Energy Regulator).

Depending on the type of resource, the qualified consulting archaeologist/palaeontologist, possibly in consultation with appropriate Provincial Regulators and/or local Indigenous communities, will advise on further action.

6. Complete the required reporting in Utility Risk Management (URM). Contact FortisBC Archaeology or Environment for assistance with URM if required.

Initial Action

Depending on the nature of the situation, one of the following is likely:

1. Heritage Site or Object **OR** unidentifiable bone:
 - a. Based on a review of the chance find by a qualified consulting archaeologist, it may be decided that there are no further concerns, allowing construction to continue as planned.

OR

 - b. A field visit by a qualified consulting archaeologist will be required to assess the nature of the chance find and to identify an appropriate course of action.
2. Fossil:
 - a. Based on a review of the chance find by a qualified consulting palaeontologist, it may be decided that there are no further concerns, allowing construction to continue as planned.

OR

 - b. A field visit by a qualified consulting palaeontologist will be required to assess the nature of the chance find and to identify an appropriate course of action.
3. Obvious Human Remains:

- a. The appropriate Indigenous community(s), a qualified consulting archaeologist, the Provincial Regulator(s), the local policing authority, and the Office of the Coroner will be contacted. The coroner will determine if the human remains are forensic.
- b. If the human remains are forensic, the local policing authority and/or coroner will take control of the chance find area until their investigation is complete.
- c. If it is determined that the human remains are archaeological, FortisBC will work with the appropriate Indigenous community(s) and the Provincial Regulator(s) to ensure the respectful treatment of the human remains.
- d. The appropriate Indigenous community(s) will be consulted regarding protocols, if necessary, for the respectful recovery, handling, and/or disposition of the human remains.

Management Options

In the event that the presence of heritage resources is confirmed, the following management options will be considered when deciding how to proceed with construction activity. Multiple management options may be employed. For example, construction activity may proceed with both construction monitoring and the application of protection measures.

In the event that archaeological human remains are identified, they will be assumed to be Indigenous and the appropriate Indigenous community(s) will be consulted regarding protocol for the respectful treatment of the human remains. Should it be determined that the archaeological human remains are not Indigenous, the appropriate community will, if possible, be consulted regarding protocol for the respectful treatment of the human remains. Management Options 1 and 3 will be considered when deciding how to proceed with construction in instances where human remains are involved.

Option 1

Avoidance through project redesign. This option results in minimal impact to the heritage site and/or human remains, and is the most preferable from a heritage resource management perspective. It can also be the least expensive option from a construction perspective. Redesigning a project may require completion of an impact assessment. FortisBC has applicable HCA permits to conduct an archaeological impact assessment (AIA) approximately two months after finalization of a project redesign. A fossil impact assessment (FIA) requires approval of a FIA Plan by the BC Fossil Management Office prior to commencing.

Option 2

Construction monitoring. Where avoidance is not possible, monitoring under the conditions of appropriate permits and/or authorizations (e.g. HCA permit, Indigenous Cultural Heritage Investigation Permit, approved Fossil Impact Mitigation Plan) may be undertaken to mitigate project impacts by ensuring that any adverse project impacts on the heritage resource that could not be predicted or evaluated prior to construction are addressed. Monitoring may also assess the effectiveness of mitigation measures, as well as the magnitude, severity or duration of an impact. Construction may be delayed approximately two to twelve months to allow for acquisition of, and/or compliance with permit(s) and/or authorizations.

Option 3

Mitigative excavation. This “data recovery” option can be expensive and destructive and can delay construction by approximately a year. Consequently, mitigative excavation is not a preferred option.

For archaeological human remains, mitigative excavation to respectfully remove the human remains for reburial in a location chosen by the appropriate Indigenous community(s) would be completed in consultation with the relevant community(s) and the Provincial Regulator(s). The removal of archaeological human remains and subsequent reburial might involve the conduct of ceremonies or certain procedures that could incur costs and delay construction.

Option 4

Application of site protection measures. Site protection measures to facilitate construction while minimizing impact to heritage resources may include temporary and/or long term strategies. Temporary strategies could include erecting fencing or barricades to protect the site, while longer term solutions could include capping the site area with fill.

Appropriate site protection measures should be identified on a site-specific basis in consultation with local Indigenous communities and appropriate Provincial Regulator(s). Additional permitting and/or authorizations as well as further studies (e.g. impact assessments, investigations) may be required before applying site protection measures.

Legislation and Indigenous Policies

Changes to legislation and Indigenous policies can occur at any time. FortisBC staff must ensure they remain aware of current legislation and Indigenous policies. Legislation that may apply to heritage resources is listed below.

For more information regarding environmental legislation and its applicability to FortisBC, please refer to the Environmental Compliance Directory.

Summary of Applicable Legislation & Indigenous Policies

Municipal

- *Local Government Act*
- *Vancouver Charter*

Provincial

- *Heritage Conservation Act*
- *Energy Resource Activities Act*
- *Land Act*
- *Park Act*
- *Ecological Reserve Act*
- *Protected Areas of British Columbia Act*
- *Environment and Land Use Act*
- *Coroners Act*

Federal

- *Canadian Environmental Assessment Act, 2012*
- *Historic Sites and Monuments Act*
- *Parks Canada Agency Act*

Indigenous

- Various policies, subject to change (Professional Archaeologist to advise FortisBC)

Communication and Enforcement

As outlined in the procedure above.

Related Information

Indigenous Archaeological Chance Find Procedures

FortisBC recognizes that many Indigenous communities in British Columbia have developed their own archaeological chance find procedures. Where FortisBC has been provided a copy of an Indigenous community's archaeological chance find procedure, the FortisBC Archaeology team member will, in the event of a chance find, review the appropriate Indigenous community(s) archaeological chance find procedure to ensure that the requirements of Indigenous community(s) archaeological chance find procedure is followed in addition to the requirements of CRL1136.

Communication and Enforcement

As outlined in the procedure above.

Related Information

Some links below are only available internally. Contact the Subject Matter Lead (SML) of the document for access if required.

Other References:

- [EMR 03-16 Approval record](#)
- [Gas Distribution Archaeological or Heritage Site Procedures OPS-00170](#)

Appendix III: Pileated Woodpecker Nesting Cavity Identification Guide

BEST MANAGEMENT PRACTICES FOR IDENTIFYING PILEATED WOODPECKER NESTING CAVITIES

Bird Nesting Window: Mar 25 – Aug 20 (approximate)																													
Regulation	Migratory Birds Convention Act (MBCA)																												
Purpose & Audience	The purpose of this document is to provide a resource for crews and contractors to aid in determining if a cavity in a wood pole belongs to a Pileated Woodpecker. Pileated Woodpecker nests are protected year-round under Schedule 1 of the MBCA.																												
Regulatory Risk	• Migrating birds, their nests and eggs are protected from inadvertent harming, killing, disturbance and destruction under the MBCA. • Failure to comply can result in fines and a federal Stop Work Order. The company can be listed as an Environmental Offender by Environment & Climate Change Canada																												
Resources	All info here was taken from the Pileated Woodpecker Cavity Identification Guide https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/pileated-woodpecker-cavity-identification-guide.html																												
Pileated Woodpecker Cavity Characteristics																													
Summary of key differences among cavity types <table><tr><th>Characteristics</th><th>Cavity type: nesting</th><th>Cavity type: roosting</th><th>Cavity type: feeding</th></tr><tr><td>Number of holes</td><td>1</td><td>> 1</td><td>> 1</td></tr><tr><td>Edge texture</td><td>smooth</td><td>smooth</td><td>rough</td></tr><tr><td>Hole shape</td><td>round or teardrop</td><td>oval</td><td>irregular</td></tr><tr><td>Hole size</td><td>~12 cm high ~9 cm wide</td><td>7.5 – 10 cm wide 10 – 12.5 cm high</td><td>variable</td></tr><tr><td>Cavity depth</td><td>0.75 m</td><td>4.3 m</td><td>0.05 to 0.2 m</td></tr><tr><td>Tree type</td><td>solid, with heart rot</td><td>hollow</td><td>dead and decaying</td></tr></table>		Characteristics	Cavity type: nesting	Cavity type: roosting	Cavity type: feeding	Number of holes	1	> 1	> 1	Edge texture	smooth	smooth	rough	Hole shape	round or teardrop	oval	irregular	Hole size	~12 cm high ~9 cm wide	7.5 – 10 cm wide 10 – 12.5 cm high	variable	Cavity depth	0.75 m	4.3 m	0.05 to 0.2 m	Tree type	solid, with heart rot	hollow	dead and decaying
Characteristics	Cavity type: nesting	Cavity type: roosting	Cavity type: feeding																										
Number of holes	1	> 1	> 1																										
Edge texture	smooth	smooth	rough																										
Hole shape	round or teardrop	oval	irregular																										
Hole size	~12 cm high ~9 cm wide	7.5 – 10 cm wide 10 – 12.5 cm high	variable																										
Cavity depth	0.75 m	4.3 m	0.05 to 0.2 m																										
Tree type	solid, with heart rot	hollow	dead and decaying																										
Key Traits of Nesting Cavity (to differentiate from other cavity types): • Single round/teardrop hole • Cavity is approx. size of a grapefruit • No other holes near cavity entrance																													
Action	Notify Amy Duncan (Terrestrial Biologist) if you think you’ve found a Pileated Woodpecker nesting cavity. Do not remove the pole. Send photos and the asset tag to Amy Duncan (250-608-5147 amy.duncan@fortisbc.com).																												

CAVITY TYPE	APPEARANCE
NESTING • Nesting trees normally contain only one entrance hole; It is rare to find a tree with more than one nest cavity, but when several nest cavities are encountered, entrance holes are over 1 m apart • Nest cavities have an internal diameter of 20 cm (8") and are up to 75 cm (30") deep • Entrance holes can be circular or slightly oval (tear drop shaped) with a vertical diameter of 12 cm (5") and a horizontal diameter of 9 cm (3.5") • Entrances have smooth edges/surfaces • Cavity may appear dark from the outside, but lead to a hollow chamber	
ROOSTING • Used for sleeping/roosting at night • Often found in hollow trees • May have numerous entrances (2 to 10+) • Average 28 cm internal diameter and 4.3 m in length • Roost cavity entrance holes may be close together (less than 1 m apart) • Entrance holes are oval and 7.5 cm (3") to 10 cm (4") wide by 10 cm (4") by 12.5 cm (5") high	
FEEDING • Feeding cavities are more irregular in shape instead of symmetrical • They have rough edges and surfaces • They only extend 5 cm (2") to 20 cm (8") into a tree and then stop – no chamber • They appear lighter in color compared to roosting or nesting cavities	

Appendix IV: Caribou Habitat Identification and Management Guideline

CARIBOU HABITAT IDENTIFICATION AND MANAGEMENT GUIDELINE

Southern Mountain pop. (Rangifer tarandus)



Utility	Electric	Kootenay	Subject Matter Lead	Amy Duncan
	Gas	Zones 5		
Effective Date		June 2021	Review Date	Nov 2024
Status	Species at Risk Act (SARA; Federal)			Threatened
	Committee on the Status of Endangered Wildlife in Canada (Federal)			Endangered
	BC Conservation Data Center (Provincial)			Red-listed (at risk)
	Also protected under: Wildlife Act, Forest & Range Practices Act			
- PENALTIES INCLUDE FINES UP TO \$300K OR A STOP WORK ORDER -				
Threats	- Off-road Utility vehicle and ATV use - Vegetation Management - Right-of-Way construction and Access upgrades - Invasive species introduction		FortisBC Mitigation	- Review EMP prior to construction - Reduce invasives transfer - May require on-site monitoring by QEP - Avoid removal of old growth trees or those having
Species Identification			Habitat and Distribution	
 - Bigger than mule deer but smaller than elk - Coloration varies by season; body hair is medium-brown in fall, with white hair on the rump and in a ruff under the throat; color becomes paler in winter - Caribou cows grow antlers and bull antlers are extremely large relative to their body size			- The provincial range for Caribou includes the Rocky Mountains south of the Yellowhead Highway, and parts of the Cariboo, Monashee, Purcell and Selkirk mountains. - Habitat use is uniquely suited to the forests and climate of the Interior Wet Belt - Rely on arboreal lichen as a their primary food source in winter, and only very old forests provide abundant lichen 