



# Development Permit Application

Referral Form – RDCK File DP2610Hn

Date: October 8, 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 NOVEMBER 9, 2026). If no response is received within that time, it will be assumed that your agency's interests are unaffected.**

**LEGAL DESCRIPTION & GENERAL LOCATION:**

375 East Wilson Creek Road, Rosebery, Electoral Area 'H'

LOT 7 DISTRICT LOT 6513 KOOTENAY DISTRICT PLAN NEP70681 (PID: 025-321-749)

**PRESENT USE AND PURPOSE OF PERMIT REQUESTED:**

The subject property is located in the rural area of Rosebery on the south side of East Wilson Creek Road and east of Dennis Creek. There is an existing dwelling and accessory buildings located outside of the Watercourse Development Permit Area (WDPA). The dwelling is serviced by on-site water and wastewater services. The only building presently located in the WDPA is the existing powerhouse building.

This Watercourse Development Permit (WDP) application has been submitted to authorize the upgrade of an existing waterline (penstock) related to a hydro electric power generating station on the subject property. The existing 8" penstock will be replaced with a larger 16" diameter penstock to allow the power station to operate more effectively. The existing penstock that is proposed to be replaced diverts water from Dennis Creek and runs a length of approximately 140 metres before entering the existing powerhouse at the northwest corner of the subject property.

Approximately 320 square metres of land within the WDP Area will be impacted by the proposed penstock replacement project, however only 170 square metres of proposed disturbance is located within the Streamside Protection and Enhancement Area (SPEA).

| AREA OF PROPERTY AFFECTED | ALR STATUS | ZONING | OCP                                                                    |
|---------------------------|------------|--------|------------------------------------------------------------------------|
| 5.3 ha (13.2 acres)       | n/a        | n/a    | Rural Residential (R3) in Official Community Plan Bylaw No. 1967, 2009 |

**APPLICANT:** Masse Environmental Ltd. c/o Amber Warkentin

**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.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <input checked="" type="checkbox"/> MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE<br><input checked="" type="checkbox"/> HABITAT BRANCH<br><input checked="" type="checkbox"/> FRONTCOUNTER BC<br><input checked="" type="checkbox"/> ARCHAEOLOGY BRANCH<br><input type="checkbox"/> AGRICULTURAL LAND COMMISSION<br><input type="checkbox"/> REGIONAL AGROLOGIST<br><input type="checkbox"/> ENERGY & MINES<br><input type="checkbox"/> MUNICIPAL AFFAIRS & HOUSING<br><input checked="" type="checkbox"/> INTERIOR HEALTH, HBE TEAM<br><input type="checkbox"/> SCHOOL DISTRICT NO. | REGIONAL DISTRICT OF CENTRAL KOOTENAY<br>DIRECTORS FOR:<br><input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input checked="" type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K<br>ALTERNATIVE DIRECTORS FOR:<br><input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K<br><input type="checkbox"/> APHC AREA<br><input checked="" type="checkbox"/> RDCK FIRE SERVICES<br><input checked="" type="checkbox"/> RDCK EMERGENCY SERVICES<br><input checked="" type="checkbox"/> RDCK BUILDING SERVICES<br><input type="checkbox"/> RDCK UTILITY SERVICES<br><input type="checkbox"/> RDCK RESOURCE RECOVERY |
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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](mailto:info@rdck.ca) | Fax: 250.352.9300

|                                                                                                                                                                |                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> WATER SYSTEM OR IRRIGATION DISTRICT<br><input checked="" type="checkbox"/> UTILITIES (FORTIS, BC HYDRO, NELSON HYDRO, COLUMBIA POWER) | <input type="checkbox"/> RDCK REGIONAL PARKS |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|

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](mailto:info@rdck.bc.ca), or RDCK Privacy Officer, Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4.

# RDCK Map



- RDCK Streets
- Electoral Areas



0 0.18 0.35 km

Scale: 1:18,056  
October 2, 2026 3:49 PM  
Size: 8.5 x 11"



The map data are approximate for reference only.  
The Regional District of Central Kootenay is not  
liable for any errors or omissions on this map nor  
any loss or damage resulting from its use.

# RDCK Map



- Address Points
- Cadastre Property Lines
- RDCK Streets
- - - Electoral Areas



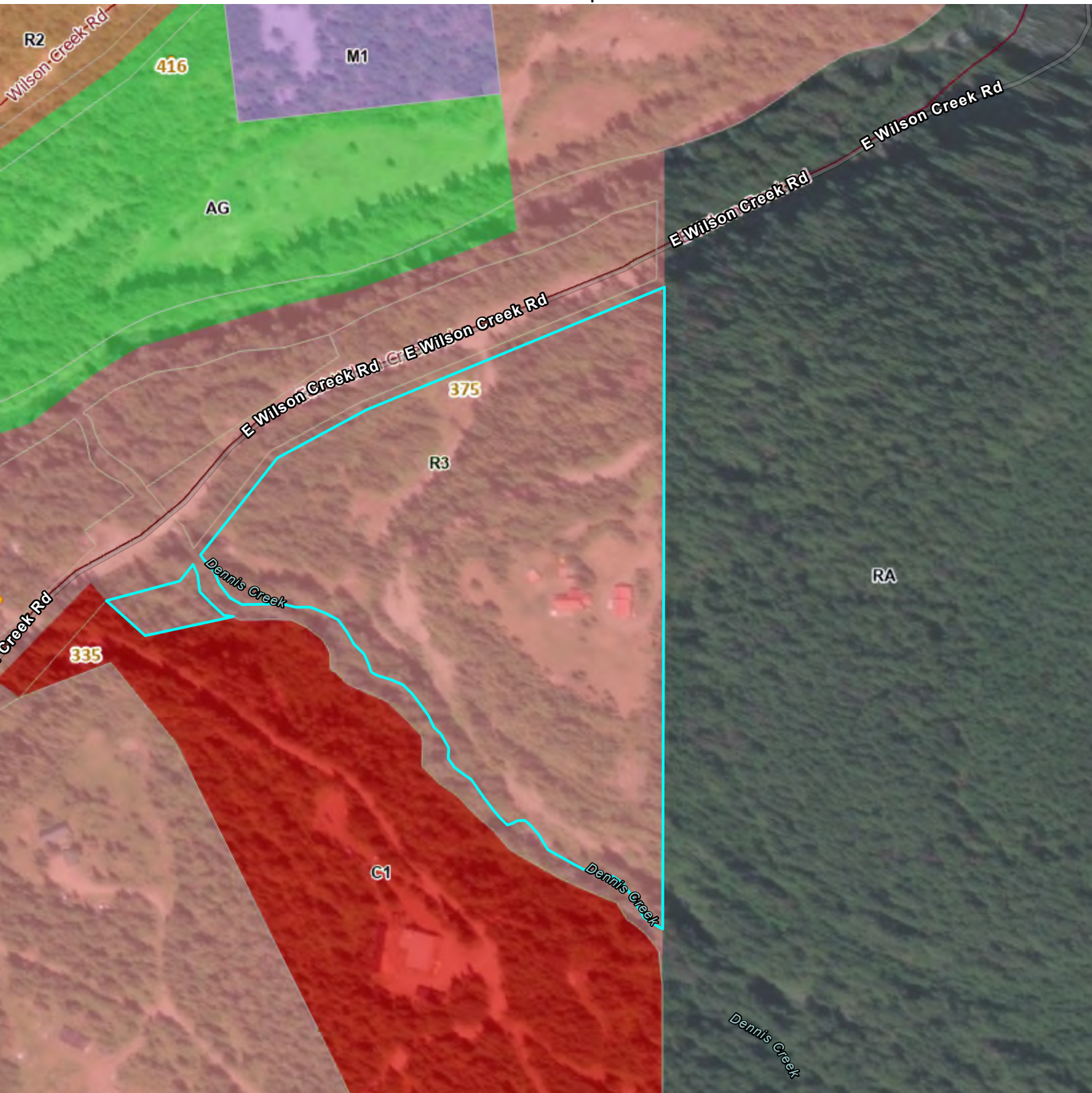
0 0.04 0.09 km

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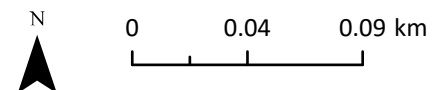


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# RDCK Map



- |                         |                     |
|-------------------------|---------------------|
| Address Points          | Commercial          |
| Cadastre Property Lines | Country Residential |
| RDCK Streets            | Industrial          |
| Official Community Plan | Resource Area       |
| Legend                  | Rural Residential   |
| Agriculture             | Electoral Areas     |



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October 2, 2026 3:50 PM  
Size: 8.5 x 11"



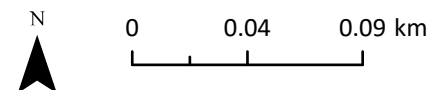
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# RDCK Map



- Address Points
- Cadastre Property Lines
- RDCK Streets
- Development Permit Areas
- DPA Type
- Environmentally Sensitive Residential Cluster

- Industrial
- Watercourse
- Streams and Shorelines
- Lakes and Rivers
- Electoral Areas

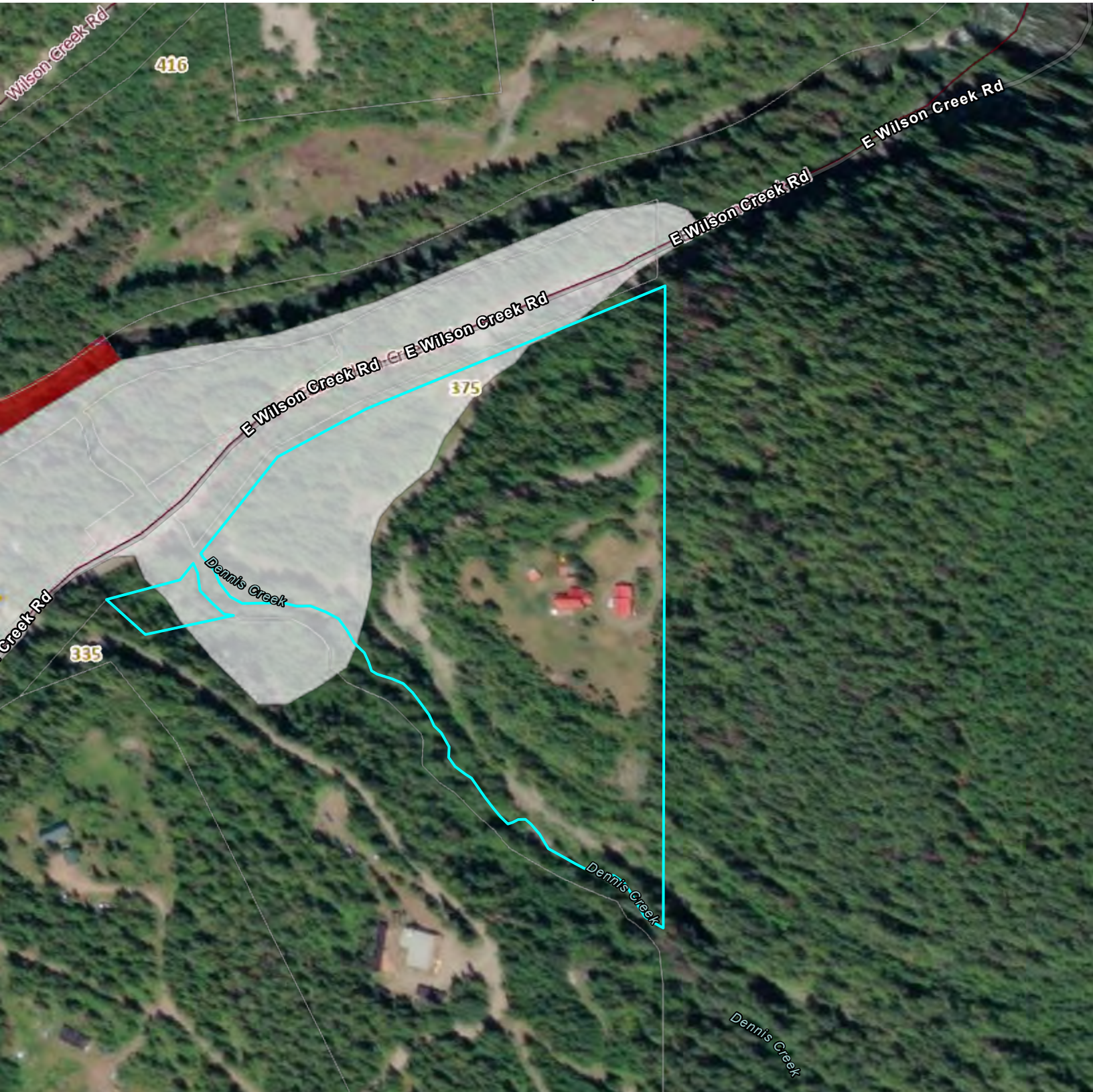


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Size: 8.5 x 11"



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# RDCK Map



- Address Points
- Cadastre Property Lines
- RDCK Streets
- High
- Not Studied
- Electoral Areas

NDMP 2 - Steep Creek Hazard Rating - 2020 Composite

Composite Rating

Very High



0 0.04 0.09 km

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Size: 8.5 x 11"



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LOT 7 PLAN NEP 70 681  
DISTRICT LOT 6513  
ROOTENAY LAND DISTRICT

AREA H  
PID 025-321-749



375 East Wilson Creek Road, Rosebery BC  
Riparian Assessment V1.0



Prepared for:  
**Alex Joseph**  
375 East Wilson Creek Road  
Rosebery, BC T2C 3V8

August 10, 2026

## 375 East Wilson Creek Road Riparian Assessment

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

Project Number 2026-1300

## 375 East Wilson Creek Road Riparian Assessment

### Riparian Assessment Report Revision History

| Name                  | Date            | Version |
|-----------------------|-----------------|---------|
| Amber Warkentin, ATAg | August 10, 2026 | 1.0     |

### ***Disclosure Statements***

This report has been prepared by Amber Warkentin, ATAg. and Fiona Lau, ASCT.

1. The authors are 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 Alex Joseph at his 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, Alex Joseph. 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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## 375 East Wilson Creek Road Riparian Assessment

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## 1 INTRODUCTION

Masse Environmental Consultants Ltd. was retained by Alex Joseph (Owner) to conduct a riparian assessment on his property at 375 East Wilson Creek Road, Rosebery, BC (Lot 7, Plan NEP70681, District Lot 6513, Kootenay Land District, PID: 025-321-749). A Riparian Assessment Report is required under the Electoral Area 'H' Comprehensive Land Use Bylaw for a Waterfront Development Permit, as the project falls within 30 meters of Dennis Creek's high-water mark (HWM). The proposed work involves upgrading a section of the existing micro-hydro system by replacing a 140 m length of 8-inch penstock with a 16-inch penstock.

A site visit was completed on July 7, 2026, by Amber Warkentin (ATAg) and Fiona Lau (AScT) to conduct a riparian assessment on the Property. The assessment evaluates the current condition within 30 m of the HWM of a watercourse (RDCK Area H, Slocan Lake North), calculates a Streamside Protection and Enhancement Area (SPEA) setback following the methodology of the Riparian Area Protection Regulation (RAPR; BC 2019), identifies potential environmental impacts from the development, 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 'H' Comprehensive Land Use Bylaw 1967, 2009
- 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

## 2 PROJECT OVERVIEW

### 2.1 Site Description

#### 2.1.1 Location

The subject Property is located at 375 East Wilson Creek Road, Rosebery, BC. The Property is 13.22 acres in size, has a southwest aspect and is sloped downhill towards Dennis Creek. It is bordered by private property and Wilson Creek to the north (divided by East Wilson Creek Road), public land to the east, and Dennis Creek to the south and west (Figure 1).

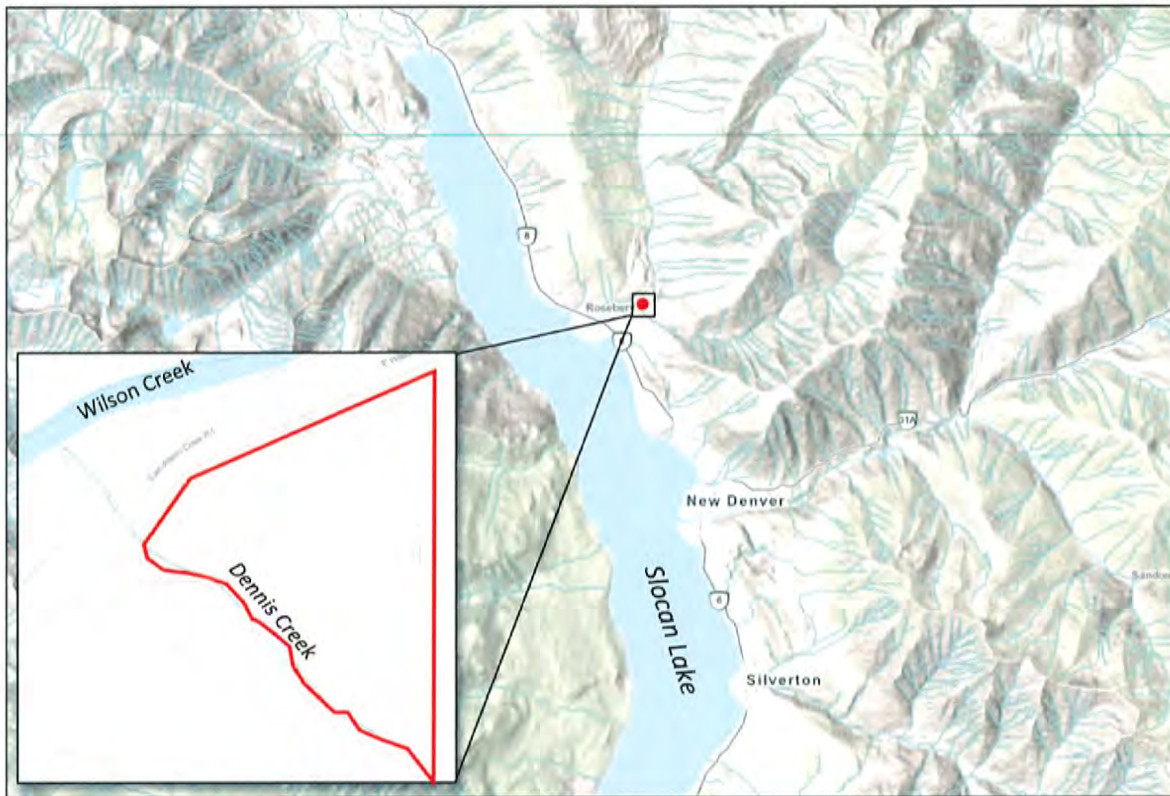


Figure 1. Location of Subject Property.

#### 2.1.2 Existing Development

The Property was purchased by the Owner in 2002. There were no structures on the Property at the time of purchase, and the property was previously used for logging road access, where the majority of land was clearcut.

Existing development within the 30 m WDP Area of Dennis Creek consists of micro-hydro infrastructure including a powerhouse measuring approximately 8.9 m x 6 m (Photo 1 and Photo 2) and two sections of penstock pipe through a cleared area and along a steep cobble slope (Photo 3 to Photo 5). The Owner holds Conditional Water Licences 131176 and 134243 which authorize diversion, powerhouse and penstock construction and use of water from Dennis Creek. Water licences available upon request. Tree clearing was previously completed as part of the construction of the micro-hydro infrastructure installation in December 2015.

Refer to Appendix 1 for Site Plan showing existing development.

### 375 East Wilson Creek Road Riparian Assessment



Photo 1. Powerhouse within 30 m WDP area (July 7, 2026).



Photo 2. North side of powerhouse facing Dennis Creek (July 7, 2026).



Photo 3. Two sections of penstock alignment (Google Earth Imagery, 2023).



Photo 4. Penstock alignment within 30 m WDP area, section 1 (July 7, 2026).



Photo 5. Penstock alignment within 30 m WDP area, section 2 (July 7, 2026).

## 375 East Wilson Creek Road Riparian Assessment

### 2.1.3 Watercourses and Aquatic Habitat

Dennis Creek (WSC: 340-047200-91700-04100) is a third order stream that originates from the Goat Range of the Selkirk Mountains and has a length of ~10.3 km before entering Wilson Creek. Dennis Creek discharges into Wilson Creek approximately 200 m north from the powerhouse. Fish species reported in Dennis Creek include bull trout (*Salvelinus confluentus*).

Fish species reported in Wilson Creek include bull trout (*Salvelinus confluentus*), Kokanee (*Oncorhynchus nerka*), mountain whitefish (*Prosopium williamsoni*), rainbow trout (*O. mykiss*), sculpin (*Cottus* sp.), and Westslope cutthroat trout (*O. clarkii lewisi*). Two culverts are noted as obstructions in the Dennis Creek Stream Report. Under certain flow conditions the culverts can be a migration barrier to fish (Habitat Wizard 2026).

The reach of Dennis Creek adjacent to the proposed work area has an average width of 6 m, a gradient of 10%, and cascade-pool morphology. Large boulders and cobbles make up the primary substrate and large woody debris was present in some sections along the creek (Photo 6 to Photo 9).



Photo 6. Cascade-pool morphology of Dennis Creek (July 7, 2026).



Photo 7. Large woody debris present in Dennis Creek (July 7, 2026).

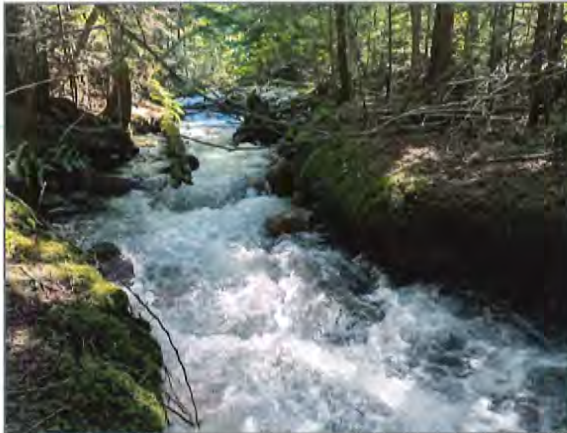


Photo 8. Dennis Creek at end point of stream assessment (July 7, 2026).



Photo 9. Outflow from powerhouse to Dennis Creek (July 7, 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. This subzone is highly productive with a great variety of tree species (MacKillop and Ehman 2016).

The undisturbed riparian vegetation along Dennis Creek consists of a mixed forest with some mature trees (Photo 10). Tree species include Western redcedar (*Thuja plicata*), Western hemlock (*Tsuga heterophylla*), white pine (*Pinus monticola*), black cottonwood (*Populus. trichocarpa*) and paper birch (*Betula papyrifera*) (Photo 11). Shrubs include mountain alder (*Alnus incana*), snowberry (*Symphoricarpos albus*), Douglas maple (*Acer glabrum*), Oregon grape, (*Berberis aquifolium*), baldhip rose (*Rosa gymnocarpa*), soopolallie (*Shepherdia canadensis*), black huckleberry and saskatoon (*Amelanchier alnifolia*) (Photo 12). The understory is an assemblage of prince's pine, queen's cup, twinflower, falsebox, rattlesnake plantain (*Goodyera oblongifolia*) and bracken fern (*Pteridium aquilinum*).

The disturbed riparian area exists along the penstock alignment between the connection box and the pumphouse. The upper section is a steep exposed cobble bank (Photo 12), where the lower section is a previously cleared area with vegetation limited to thimbleberry (*Robus parviflorus*), grasses and invasive species (Photo 13).



Photo 10. View of riparian vegetation along Dennis Creek (July 7, 2026).



Photo 11. Riparian vegetation along Dennis Creek (July 7, 2026).



Photo 12. Steep cobble bank along penstock alignment (July 7, 2026).



Photo 13. Vegetation along existing penstock alignment (July 7, 2026).

#### 2.1.4.1 Invasive Species

Invasive species observed within the riparian area include knapweed (*Centaurea* spp), hawkweed (*Hieracium* spp), oxeye daisy (*Leucanthemum vulgare*) and white cockle (*Silene latifolia*). Invasive species were mostly confined to the disturbed right-of-way (Photo 14 and Photo 15). Refer to Appendix 2 for reference material on knapweed, hawkweed and oxeye daisy.

See Section 6.10 for Invasive Species Management.



Photo 14. Hawkweed within riparian area of Dennis Creek (July 7, 2026).



Photo 15. Knapweed, hawkweed and oxeye daisy present throughout penstock right-of-way (July 7, 2026).

#### 2.1.5 Wildlife

Riparian ecosystems provide key habitat features, including water, shelter, and food, and often function as migration corridors linking aquatic, riparian, and upland environments. No significant wildlife observations were made during the site visit; however, many species are likely to occur or migrate through (Photo 16). Mature coniferous trees offer perching and nesting habitat for raptors and owls. Wildlife reported within a 1 km radius of the Property includes northern alligator lizard (*Elgaria coerulea*), elk (*Cervus elaphus*), little brown myotis (*Myotis lucifugus*) and grey wolf (*Canis lupus*) (BC iMap 2025).

Reptile and amphibian species endemic to the area may also occur, including chorus frog (*Pseudacris regilla*), Columbia spotted frog (*Rana luteiventris*), Coeur d'Alene salamander (*Plethodon idahoensis*), garter snake (*Thamnophis* sp.), Northern alligator lizard (*Elgaria coerulea*), long-toed salamander (*Ambystoma macrodactylum*), and Western toad (*Anaxyrus boreas*) (BCCDC, 2025). The warm, rocky, sloped area in the upper section of the project may provide suitable habitat for reptiles (Photo 17).

Several wildlife snags were observed within the riparian area and provide habitat and roosting opportunities for wildlife (Photo 18).



Photo 16. Riparian area providing suitable habitat for wildlife (July 7, 2026).



Photo 17. Warm, rocky area that may provide suitable habitat for reptiles (July 7, 2026).



Photo 18. Wildlife snag within SPEA (July 7, 2026).

#### 2.1.5.1 Species at Risk

Species at risk information pertinent to the Property was obtained through the following online databases with a 1 km buffer: BC Conservation Data Center, Habitat Wizard, iNaturalist, Global Biodiversity Information Facility and eBird. The query results are presented in Appendix 3.

Based on these queries, fourteen species at risk were identified as having potential to occur in and around the Property (Table 1). Many of these species are wide ranging or have broad habitat requirements and may transiently use the area, however; no critical habitat, dens, or nests for species at risk were identified during the site visit.

Table 1. Species at Risk with the potential to occur on the Property.

| English Name                                          | Scientific Name                              | BC List | COSEWIC | SARA |
|-------------------------------------------------------|----------------------------------------------|---------|---------|------|
| Coeur d'Alene Salamander                              | <i>Plethodon idahoensis</i>                  | Blue    | SC      | SC   |
| Western Toad                                          | <i>Anaxyrus boreas</i>                       | Yellow  | SC      | SC   |
| Western Screech-Owl,<br><i>macfarlanei</i> subspecies | <i>Megascops kennicottii<br/>macfarlanei</i> | Blue    | T       | T    |
| Lewis's Woodpecker                                    | <i>Melanerpes lewis</i>                      | Blue    | T       | T    |
| Williamson's Sapsucker                                | <i>Sphyrapicus thyroideus</i>                | Blue    | E       | E    |
| Barn Swallow                                          | <i>Hirundo rustica</i>                       | Yellow  | SC      | T    |
| Westslope Cutthroat Trout                             | <i>Oncorhynchus clarkii lewisi</i>           | Blue    | SC      | SC   |
| Bull Trout                                            | <i>Salvelinus confluentus</i>                | Blue    | SC      |      |
| Grizzly Bear                                          | <i>Ursus arctos</i>                          | Blue    | SC      | SC   |
| Caribou (Southern Mountain<br>Population)             | <i>Rangifer tarandus (pop.1)</i>             | Red     | E       | E    |
| Little Brown Myotis                                   | <i>Myotis lucifugus</i>                      | Blue    | E       | E    |
| Yuma Myotis                                           | <i>Myotis yumanensis</i>                     | Blue    |         |      |
| Townsend's Big-eared Bat                              | <i>Corynorhinus townsendii</i>               | Blue    |         |      |
| Western Skink                                         | <i>Plestiodon skiltonianus</i>               | Blue    | SC      | SC   |

1 BC Conservation Status (CDC): Red = extirpated, endangered, or threatened. Blue = special concern. Yellow = secure. 2COSEWIC/SARA: Endangered (E) = Facing imminent extirpation or extinction. Threatened (T) = Likely to become endangered. Special concern (SC) = May become a threatened or an endangered. Species listed on Schedule 1, SARA are legally protected.

### 3 REGULATORY OVERVIEW

#### 3.1 Streamside Protection and Enhancement Area (SPEA)

A detailed assessment of the subject property was conducted to calculate the SPEA setback for Dennis Creek as per the RAPR. The SPEA for the subject Property was determined based on the large woody debris (LWD) and litter fall and insect drop Zones of Sensitivity (ZOS) which were plotted 15 m inland from the HWM of Dennis Creek and the shade ZOS plotted 19.8 m south from the HWM of Dennis Creek. Therefore, within the Property, the SPEA was determined to be 15 m from the HWM of Dennis Creek as it is determined based on the ZOS with the greatest width (Table 2). Results for the Zones of Sensitivity (ZOS) and SPEA are presented in Table 2 and Appendix 1.

Table 2. Results of detailed RAPR assessment within subject property from Dennis Creek.

| Feature Type | SPVT <sup>1</sup> | Zones of Sensitivity |                              |       | SPEA <sup>3</sup> |
|--------------|-------------------|----------------------|------------------------------|-------|-------------------|
|              |                   | LWD <sup>2</sup>     | Litter Fall &<br>Insect Drop | Shade |                   |
| Dennis Creek | TR                | 15 m                 | 15 m                         | 0 m   | 15 m              |

<sup>1</sup> SPVT: site potential vegetation type (TR-tree)

<sup>2</sup> LWD- large woody debris

<sup>3</sup> SPEA- streamside protection and enhancement area

#### 4 PROPOSED DEVELOPMENT

The proposed development includes approximately 140 m of excavation to upgrade a new 16-inch HDPE penstock (minimum wall thickness of 1.185 inches and an inside diameter of 13.5 inches), replacing the existing 8-inch section near the powerhouse (See Site Plan for proposed development). The purpose of the upgrade is to decrease resistance within the pipe, which will effectively increase power generation at the powerhouse. There will be no increase to the diversion flow rate or usage rate. The penstock will be replaced within the existing alignment, using a medium-sized excavator and a dump truck.

The first section of penstock, from the powerhouse to the bend in pipe, will involve removing the existing pipe and installing and replacing with new pipe along the existing cleared alignment. The trench is estimated to be approximately 1 m wide and 1 m deep. Material will be side cast directly next to the trench and backfilled when complete. A new vault with a thrust block, approximately 1 m by 1 m and 1 m deep, will be installed at the southeast corner of the powerhouse to secure the new pipe.

The second section of penstock, from the bend in pipe to the uphill connection box will involve removal of cobble from a steep sloped area below the Owner's driveway (~5 m x 35 m). This will include cutting into the bank to create access for the excavator, removing the existing pipe and entrenching the new pipe into the base of the access alignment. Excavated spoil will be temporarily stockpiled in a designated cleared area north of the cut bank and subsequently returned to its original location after pipe installation.

#### 5 IMPACT ASSESSMENT

Following the existing alignment, penstock replacement requires both material excavation and vegetation removal inside and outside the SPEA. Within the 15 m SPEA (170 m<sup>2</sup> total impact), vegetation clearing is limited to grasses and invasives (mostly Section 1; minimal in Section 2). Within the remaining 30 m WDP area (320 m<sup>2</sup> impact), works involve grass and invasives removal and trench excavation.

Potential ecological impacts associated with the proposed development include:

- **Temporary Vegetation Loss:** Ground clearing within the alignment, though restricted primarily to grasses and invasive species.
- **Erosion & Sedimentation Risk:** Increased vulnerability of exposed soils to surface runoff from trenching and earthworks.
- **Herptile Disturbance:** Potential harm or habitat displacement for reptiles utilizing the cobble slope microhabitat.
- **Invasive Species Spread:** Risk of introducing or propagating non-native invasive plant species via equipment movement and ground disturbance.
- **SPEA Material Deposition:** Hazard of sloughing soil and rolling cobble entering the SPEA during steep-slope excavation.

## 6 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.

### 6.1 Danger Trees

No danger trees were observed; however, professional assessment of danger trees is outside the scope of this report and should be conducted by a certified Danger Tree Assessor. Any proposed danger tree removal should be assessed by a certified arborist. Trees felled within the SPEA should be left as coarse woody debris and should be replaced according to the provincial tree replacement criteria. Where possible, danger trees should be topped rather than felled.

### 6.2 Windthrow

Clearing of trees is not proposed within the WDP area and not anticipated to be an issue for this development. A formal assessment of windthrow risk is beyond the scope of this report, and any such assessment should be conducted by a Registered Professional Forester (RPF).

### 6.3 Slope Stability

The sloping terrain in the first section of pipe replacement creates a potential for cobble rock spoil to move downslope into the riparian area during excavation. To address slope stability concerns, the Owner plans to stack logs along the toe edge of the slope to contain falling rock and prevent introduction of

materials into the forested riparian area (Photo 19 and Photo 20). Logs will be left in place to secure the rock and removed once the installation is complete.

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.



Photo 19. Sloped cobble terrain to forested riparian area (July 7, 2026).



Photo 20. Toe edge of sloped section where additional logs will be placed (July 7, 2026).

### 6.4 Protection of Trees and Vegetation in the SPEA

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

- Avoid removal of any vegetation within the SPEA, that is outside of the proposed development.
- Protect existing tree roots along the SPEA boundary.
- Plant native vegetation in areas that have been impacted to improve the resilience of existing and potential vegetation.
- Trees with wildlife attributes (cavities, peeling bark), should be left standing where they do not pose a threat to structures.
- Any future developments on the Property should consider clearly identifying limits of disturbance along the SPEA boundary to prevent impacts to trees and their roots within the SPEA. This should include: no trenching through the root zone, no paving around trees, no changes to ground level around trees, no parking under trees, and no concrete washout or other pollutants around trees (BC 2019).

### 6.5 Encroachment

Protection measures to minimize effects of encroachment within the SPEA include:

- Stacked log retention will be placed at the toe edge of the cobble slope to prevent rock from entering the forested riparian area.
- Avoid any new developments or additional disturbance within the SPEA.
- Restrict human use to existing trails, and minimize noise, bank disturbance and vegetation trampling (BC 2019).

#### **6.6 Erosion and Sediment Control**

Erosion and sediment control measures are required due to soil disturbance within the development area. To mitigate for this, the disturbed soils will be reseeded as soon as the project is completed. If future construction is planned outside of the SPEA, careful consideration should be given to prevent the discharge of sediment laden water into the SPEA or Dennis Creek (BC 2019).

#### **6.7 Stormwater Management**

The following mitigation measures will help decrease stormwater impacts to the SPEA:

- Do not use the vegetated area within the SPEA to filter sediment laden water.
- Stormwater management infrastructure should not be located in the SPEA and any discharges to streams will require meeting the *Water Sustainability Act* and any other applicable legislation.

#### **6.8 Wildlife Protection**

To minimize disturbance to wildlife, and their habitat, the contractor will walk in front of machine prior to starting work to ensure that reptiles are not present within work area. If any reptiles are spotted within the worksite, work will be halted immediately. Work will only re-commence once wildlife has left the worksite. QEP will be contacted, as required.

#### **6.9 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.

#### **6.10 Invasive Plant Management**

Invasive species were observed within the 15 m SPEA. Land use activities can potentially increase prevalence of these invasive plant species which can out-compete native riparian vegetation, causing damage to habitat and ecosystem function. The following mitigation measures are recommended to reduce impacts of plant species.

## 375 East Wilson Creek Road Riparian Assessment

- Monitor existing invasive plants to ensure they do not spread or increase in distribution.
- Hand pull or mow invasive plants noted in Section 2.1.4.1.
- Any equipment used for construction activities should be thoroughly washed and inspected before entering the site to prevent the import of new invasive plant seeds and root fragments.
- All exposed soils should be re-vegetated following construction activities.

### 7 REVEGETATION PLAN

Mitigation for impacts of the development within the Dennis Creek SPEA is based on the hierarchy of mitigation options outlined in RDCK 2024 to achieve a no net loss of habitat. 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.

In the case of this property, previous works have already been completed under the approved Water License. Avoidance and minimizing are therefore not possible; however, mitigation to help reverse the impacts are proposed. This includes removing invasive weeds and revegetating the disturbed areas. The total revegetation area within the SPEA is estimated to be ~170 m<sup>2</sup> and within the 30 m WDP area is estimated to be ~320 m<sup>2</sup>.

Revegetation will include:

- Hand pull or mow invasive species prior to seeding.
- Seed disturbed soils with Interior Dryland Seed Mix (Table 3).
- Seeding should not occur during periods of hot dry weather unless irrigated regularly. Preferred seeding periods are in the spring or fall.

Table 3. Recommended Interior Dryland Seed Mix.

| Species              | Latin Name                     | Weight % |
|----------------------|--------------------------------|----------|
| Bluebunch wheatgrass | <i>Pseudoroegneria spicata</i> | 30       |
| Sandberg's bluegrass | <i>Poa secunda</i>             | 25       |
| Idaho fescue         | <i>Festuca idahoensis</i>      | 15       |
| Slender wheatgrass   | <i>Elymus trachycaulus</i>     | 10       |
| Annual ryegrass      | <i>Lolium multiflorum</i>      | 10       |
| June grass           | <i>Koeleria macrantha</i>      | 5        |
| Sand dropseed        | <i>Sporobolus cryptandrus</i>  | 4        |
| Yarrow               | <i>Achillea millefolium</i>    | 1        |

\*Applied at a rate of 20 kg/ha

No trees are expected to be removed as part of the development. If trees are removed, the Owner will adhere to the BC Tree Replacement Criteria for replanting.

## 8 ENVIRONMENTAL MONITORING AND POST INSPECTION

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

- QEP will conduct a post inspection and prepare an environmental summary report once the project is complete. This report will be submitted to the RDCK.

## 9 CONCLUSION

The riparian area assessment conducted within the 30 m WDP Area in accordance with the *Riparian Areas Protection Regulation* determined that the appropriate setback for the subject Property, the SPEA, is 15 m measured from the HWM of Dennis Creek. To offset impacts with vegetation removal, revegetation is proposed. In addition, measures to protect the integrity of the SPEA are provided to ensure SPEA protection from future development.

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,



Amber Warkentin, ATAg  
Masse Environmental Consultants Ltd.

Reviewed by,



Fiona Lau, ASCT  
Masse Environmental Consultants Ltd.

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**APPENDIX 1. SITE PLAN**



Date: July 22, 2026

Prepared by: AW and FL

Scale: As shown

## LEGEND

- 30 m WDP and Riparian Assessment Area
- 15 m SPEA
- Litterfall/Insect Drop and LWD ZOS (15 m)
- Shade ZOS (0 m) on north side of Creek
- Existing Structures
- Penstock pipe replacement section

- Subject Property Boundary
- Temporary cobble stockpile location
- Dennis Creek
- New vault and thrust block (~1 m x 1 m)
- Temporary access cut in bank
- Construction access

**MASSE**  
ENVIRONMENTAL

/// Total disturbance within SPEA (~170 m<sup>2</sup>)

**APPENDIX 2. INVASIVE SPECIES FACTSHEETS**

# Knotweeds

Japanese knotweed — *Fallopia japonica*  
Giant knotweed — *Fallopia sachalinensis*  
Bohemian knotweed — *Fallopia x bohemica*  
Himalayan knotweed — *Polygonum polystachyum*

## About Knotweeds

Four knotweed species are currently found in British Columbia: Japanese knotweed (*Fallopia japonica*), Giant knotweed (*Fallopia sachalinensis*), Bohemian knotweed (*Fallopia x bohemica*), and Himalayan knotweed (*Polygonum polystachyum*). All four species are similar in appearance, biology, impacts, distribution, and methods of control and will be discussed under the general title of “knotweeds”.

Knotweeds are one of the 100 worst invasive species as identified by the International Union for Conservation of Nature (IUCN) and a top-ten invasive species for control in BC. Its ability to tolerate a range of soil types and climates means that it has the potential to spread much further than it has to date.

## Distribution

Knotweeds are native to Asia and were introduced to British Columbia as an ornamental plant. In British Columbia, they are found in the following regions: Vancouver Island, Central Coast, Sunshine Coast, North Coast (Haida Gwaii), Lower Mainland, Nechako, Cariboo, Thompson-Okanagan and the Kootenays.



Bohemian Knotweed Distribution  
(June 2016)



Himalayan Knotweed Distribution  
(June 2016)



Giant Knotweed Distribution  
(June 2016)



Japanese Knotweed Distribution  
(June 2016)

## Legal Status

Knotweeds are designated as provincially noxious under the *Weed Control Act*. They are also regulated under the *Forest and Range Practices Act* and *Community Charter*.

## Identification

A “**Key to Identification of Invasive Knotweeds in BC**” is available online at: [www.for.gov.bc.ca/hra/Publications/invasive\\_plants/Knotweed\\_key\\_BC\\_2007.pdf](http://www.for.gov.bc.ca/hra/Publications/invasive_plants/Knotweed_key_BC_2007.pdf)

**Flowers:** Small, white/green flowers grow in showy, plume-like, branched clusters along the stem and leaf axils (joints).

**Stems:** Green stems, or canes, are hollow with varying thicknesses, upright, and bamboo-like with reddish-brown/red speckles. Stems are generally 1-5 m in height and grow in large, dense thickets. Stems may persist through the winter as bare, grey or straw colored hollow stalks.



Japanese Knotweed  
© Illustrated Flora of BC

**Rhizomes:** At maturity, rhizomes are thick and woody and can spread up to 20m laterally. Rhizomes have reduced leaf scales that span every 2-4 cm. The underside of the rhizomes has adventitious roots that travel into the soil with penetrable force.

**Leaves:** Predominantly heart- to triangular-shaped on all species except Himalayan, which are elongated and tapered. Leaves on all species, except giant knotweed, are 8-10 cm wide and 15 cm in length. Giant knotweed leaves are generally twice the size of the other 3 species. A distinguishing feature for Japanese knotweed is the zigzag pattern in which leaves are arranged along the plant's arching stems.

**Fruits:** Typically dark, glossy, 8 to 9 mm long and three-winged. Not all fruits are fertile.

**Similar Native Species:** Knotweeds, also referred to as “false bamboo” are often confused with Dogwood (*Cornus spp*)



L-R: Giant Knotweed, Japanese Knotweed, Himalayan Knotweed; J-H: Knotweed

and Lilac (*Syringa vulgaris*) as the leaf shape of many woody shrubs and small/young trees can look very similar to knotweed. These species can be differentiated by leaves that grow opposite each other along a woody stems.

## Ecological Characteristics

**Habitat:** Knotweeds are often found in riparian areas stockpiled material (example: soil, aggregate, mulch), derelict land, road and railway right of ways and gardens. They prefer moist soil and full or partial sun.

**Reproduction:** Both root and stem fragments can regenerate — making knotweeds very easy to spread. The primary mode of reproduction is vegetative. Reproduction can occur from as little as 0.7 grams of stem or root tissue. Buried rhizomes can regenerate from depths up to 1m. Historically, knotweeds in their introduced range spread by vegetative means and from a very small number of initial introductions resulting in many knotweed infestations being clones. However, in British Columbia, knotweeds successfully reproduce vegetatively and by viable seed.

**Hybridization:** Bohemian knotweed is a hybrid between Japanese and Giant knotweed. Bohemian knotweed possesses higher variability than the parent species. For example, Bohemian knotweed leaves are a blend of both parents- they are slightly longer than wide (about mid way between parents for size) and are typically shallowly cordate at the base. Hybrid plants are able produce large numbers of wind-dispersed viable seeds that germinate at rates approaching 100% in some populations.

**Dispersal:** Plants are often spread through contaminated equipment and soil, and improper disposal of removed plant material. Plants are also dispersed through wind, wildlife, cutting and mowing, flooding events and through human actions such as selling, purchasing, and trading knotweed plants.



Japanese Knotweed through concrete; CABl

# \$3 billion

## ESTIMATED ANNUAL CONTROL COST OF JAPANESE KNOTWEED IN THE UK

## Impact

**Economic:** Knotweeds can grow through concrete and asphalt, damaging infrastructure. This results in significant control, management and repair costs. In the UK, the annual control cost of Japanese knotweed, on a national scale, is estimated at \$3 billion (USD). Other impacts include reduction of property values. In the UK, there have been examples where people have been unable to secure a mortgage or insurance on knotweed infested properties.

**Ecological:** Knotweeds grow rapidly, forming monocultures that limit resources for native plants. Their ability to out-compete native species threatens biodiversity and ecosystem functions. Also, knotweed roots lack the true root hairs necessary to bind to the soil, resulting in erosion and stream sedimentation along banks of creeks and rivers where it has become established.

**Social:** Knotweeds are a nuisance to anglers, boaters and other aquatic recreationalist as infestations impede access to the waterbody. They also affect homeowners as knotweed rhizomes and stems can push through asphalt, building foundations, concrete retaining walls and drains causing significant damage. Due to their rapid growth, knotweeds can impact sightlines and block signs along highways, affecting the safety of motorists. They have also been known to reduce the stability and integrity of the rail bed and compromise train safety.

# Integrated Pest Management

*IPM is a decision-making process that includes identification and inventory of invasive plant populations, assessment of the risks that they pose, development of well-informed control options that may include a number of methods, site treatment, and monitoring.*

Because knotweeds have the ability to reproduce vegetatively through root and stem tissues, management options must be carefully evaluated on a site by site basis to avoid further spread and complications. Eradication of this plant typically requires a dedicated, multi-year, planned approach.

## A. Prevention

- » Report infestations:
  - **Regional Invasive Species Committees:** [www.bcinvasives.ca/about/partners/bc-stakeholders/regional-committee-map](http://www.bcinvasives.ca/about/partners/bc-stakeholders/regional-committee-map)
  - **Online:** [www.gov.bc.ca/invasive-species](http://www.gov.bc.ca/invasive-species)
  - **Toll Free:** 1-888-933-3722
- » Do not purchase, trade, or grow knotweed. Instead, grow regional native plants as they are naturally adapted to the local environment and are non-invasive. For a list of non-invasive alternative plants, please see the Invasive Species Council of BC's Grow Me Instead booklet: ([www.bcinvasives.ca](http://www.bcinvasives.ca)).
- » Maintain or establish healthy plant communities that are resistant to invasion by invasive plants.
- » Remove plants, plant parts, and seeds from personal gear, clothing, pets, vehicles, and equipment before leaving the infested area.
- » Ensure soil, gravel, and other fill material are not contaminated with knotweed.
- » Take special care when controlling knotweed near streams, or ditch lines, to prevent the movement of plant parts downstream.
- » Bag or tarp plants, plant parts, and seeds before transporting to a designated disposal site (e.g. landfill).



## B. Biocontrol

Biological Control or biocontrol is the use of an invasive plant's natural enemies (chiefly insects, parasites and pathogens) — to reduce its population below a desired level.

A sap sucker psyllid, *Aphalara itadori*, has been studied as a potential biological control in the Pacific north-west. *A. itadori* feeds on the sap in the phloem cells of the leaves and stems resulting in twisted and deformed leaves and, more importantly, damage to the meristems and reduced biomass.

In 2012, host range screening was completed for *A. itadori* and a permit to import the psyllid into Canada was submitted to the Canadian Food Inspection Agency in October 2012. The agent has been permitted for release and Agriculture and Agri-Food Canada is at a very early research stage of trying to identify the conditions required for establishment. For the current availability of *A. itadori*, please visit: [www.for.gov.bc.ca/hra/Plants/biocontrolHome.htm](http://www.for.gov.bc.ca/hra/Plants/biocontrolHome.htm).

## C. Chemical Control

Herbicide recommendations and use must first consider site characteristics and be prescribed based on site goals and objectives. Individual herbicide labels should be reviewed, prior to use, for specific site and directions for use. Herbicides should be applied by certified pesticide applicators.

- » There are many targeted techniques available to selectively apply systemic herbicides to knotweed, such as, hand spraying, back pack spraying, and wipe on applications.
- » Effective herbicides include: imazapyr, glyphosate, triclopyr and aminopyralid.

## D. Mechanical Control

**Important:** Mechanical control on its own is not an effective management tool. Manual control is only recommended under specific circumstances and should be carried out with extreme caution due to the likelihood of spread through root and stem fragments. Mechanical control is a time consuming treatment option that will require dedication of frequent removal over numerous years. All removed plant material should be disposed of properly (see disposal section).

- » **Mowing** can deplete root reserves over time so the plant is less successful at regenerating after cutting. However, in most cases, repeated frequent mowing fails to eradicate even small patches of knotweed unless carried out over numerous years.
- » **Digging** has shown to be effective on very small and recently established populations if done thoroughly (i.e. all root and shoot tissue are successfully removed) and followed by restoration of native plant communities.
- » **Burning** is not recommended as the plants contain high water content and all plant tissue, particularly the rhizomes, may not burn.
- » **Grazing** may result in short term reduction of above-

ground plant matter. Grazing must be done by trained animals continuously throughout the growing season for numerous years.

- » **Cutting** may be effective for small populations if repeated several times a year with constant monitoring. Cutting should be repeated until root reserves are depleted (usually several years). Cutting is most effective when followed up with herbicide application.

## Recommended Control Strategy

Chemical control with a systemic herbicide is the recommended treatment strategy for knotweeds due to their extensive root structure and aggressive growth and reproduction. This treatment method is the easiest, most cost effective, and successful treatment method. Knotweeds typically require treatment with herbicide for 3-5 years.

For control of knotweed species on crown land, please review the **2016 Herbicide Guidelines For Control Of Knotweed Species On Crown Lands**, available at: [www.for.gov.bc.ca/hra/plants/publications/2016\\_Herbicide\\_Summary\\_for\\_Control\\_of\\_Knotweeds\\_on\\_Crown\\_Lands.pdf](http://www.for.gov.bc.ca/hra/plants/publications/2016_Herbicide_Summary_for_Control_of_Knotweeds_on_Crown_Lands.pdf)

## Disposal

*Disposal of invasive plants varies by regions within BC. If you would like specific information on how to dispose your invasive plants, please contact your local government or regional invasive species organization.*

- » Chemically treated knotweed canes can be left on site to compost.
- » Manually removed knotweed plants, plant parts and seeds must be bagged or tarped before transporting to a designated disposal site (e.g. landfill or transfer station). Note: It is recommended that transfer stations provide disposal bins intended solely for invasive plants. This will ensure the plant matter within the container is transported in a sealed unit and properly disposed of at the landfill. All cut plant parts should undergo deep burial (at least 5m deep) at a landfill.
- » Burning at home is not recommended as extreme temperatures are required to completely desiccate the plant.
- » Do not compost knotweed. Home composting is likely to increase the spread of this species.
- » Soil contaminated with knotweed plant material or seed should be handled carefully and either under go deep

burial or disposed of at a suitable disposal site. Disposal sites should be far enough away from water and drinking wells to enable herbicide treatment. Disposal sites should be monitored and treated as needed.

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Thank you to the BC Ministry of Environment and the BC Ministry of Transportation and Infrastructure for providing project funding, and to those who advised the development of these management recommendations.

ADDITIONAL  
CONTACT INFO



K. Weller



Invasive Species  
Council of BC

## FACTSHEET

APRIL 2019

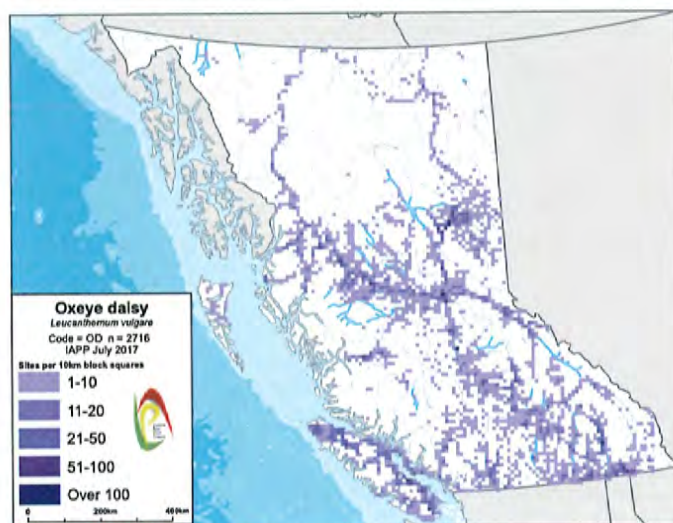
# Oxeye Daisy *Leucanthemum vulgare*

## About Oxeye Daisy

Native to Eurasia, Oxeye daisy was introduced to North America in the late 1700s through seed mixes and as an ornamental. By 1800, it became widely established across North America and has become a persistent invader along roadsides, pastures and rangelands.

## Legal Status

Invasive Plants Regulation, Forest and Range Practices Act;  
Noxious Weed (Regional), BC Weed Control Act.



## Distribution

Common in BC south of the 56th parallel. Of major concern in: Cariboo, Okanagan, Peace River, Thompson and Omineca.

## Identification

**Flowers:** Typical daisy appearance; single flower heads at end of branches have white ray flowers and yellow disc flowers. Flower head diameter is approximately 5 cm. White petal tips are notched.

**Stems:** Single to a few erect stems. Sometimes branched. Height 0.2–0.8 m.

**Leaves:** Basal leaves are stalked, coarsely divided, and 4–15 cm long. Leaves are smaller and clasping toward the shoot.



S. Dewey, Bugwood.org

**Fruits:** Ribbed black achenes (simple, dry, one-seeded fruit).

**Similar Species:** (i) Scentless chamomile or scentless mayweed (*Tripleurospermum inodorum*) has smaller flowerheads (2–3 cm diameter) and has finely divided leaves (almost fern-like); (ii) Shasta daisy (*Leucanthemum × superbum*), an ornamental, is larger (approximately 6–12 inches taller) and has flower heads with greater diameter.

## Ecological Characteristics

**Habitat:** Resides in moist to dry areas such as roadsides, pastures, waste areas, grasslands, and forested areas within low to mid-elevations.

**Reproduction:** Perennial plant that reproduces by seed and underground stems.

**Dispersal:** Perennial plant that reproduces by seed and underground stems. A single plant can produce up to 26,000 seeds.



J Leekie



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## Impacts

**Economic:** Economic impacts of oxeye daisy infestations to the forest industry are not well known and require further research. Economic costs of control may be reduced by matching silviculture brushing activities with brushing/mowing of daisy infestations to reduce seed production. Impacts to agriculture are better understood. Infestations decrease available forage for grazing livestock, especially when dense.

**Ecological:** Infestations can also decrease forage for wildlife, decrease local plant biodiversity, and may decrease vegetative ground cover due to its growth form, thereby increasing the area of exposed soil on site.

## Integrated Pest Management

*IPM is a decision-making process that includes identification and inventory of invasive plant populations, assessment of the risks that they pose, development of well-informed control options that may include a number of methods, site treatments, and monitoring.*

## Prevention

- » Avoid wildflower seed mixes that contain oxeye daisy.
- » Resist invasion of oxeye daisy by managing tenured areas appropriately to maintain healthy plant communities.

## Mechanical Control

- » Mowing may effectively reduce seed production, but should be repeated as it may stimulate vegetative growth.
- » Grazing by sheep and goats may reduce oxeye daisy populations.
- » Pulling or digging up plants, ensuring that all roots are removed, may reduce oxeye daisy populations. New shoots may emerge from remaining root portions.
- » Follow-up treatments will be required as seeds can remain viable in the soil for many years.

## Biocontrol

- » No biocontrol agents are currently available for oxeye daisy in BC. Further research is required.



## Chemical Control

Herbicide recommendations and use must consider site characteristics and be prescribed based on site goals and objectives. Herbicide labels and other sources of information must be reviewed before selecting and applying herbicides.

- » Glyphosate or dicamba applied alone will control of oxeye daisy, but should be applied when shoots are young and growing.
- » Metsulfuron methyl or picloram or aminopyralid or clopyralid applied alone or any of these herbicides mixed with 2,4-D provide effective control of oxeye daisy.
- » Application of pesticides on Crown land must be carried out following a confirmed Pest Management Plan (Integrated Pest Management Act) and under the supervision of a certified pesticide applicator. <https://www2.gov.bc.ca/gov/content/environment/pesticides-pest-management>
- » Fertilizer applied after herbicide treatment increases growth of desirable vegetation and reduces re-invasion of oxeye daisy. There is evidence that shading can reduce oxeye daisy biomass.
- » 2006/07 field trials by the BC Ministry of Agriculture indicate that aminopyralid, picloram, picloram plus 2,4-D, or dicamba can give excellent to very good control.

## References/Links

- » *Leucanthemum vulgare* - Oxeye Daisy - Garry Oak Ecosystems Recovery Team. [http://www.goert.ca/documents/InvFS\\_oxeyedaisy.pdf](http://www.goert.ca/documents/InvFS_oxeyedaisy.pdf)
- » BC Ministry of Agriculture. Field Guide to Noxious Weeds and Other Selected Invasive Plants of British Columbia. Oxeye Daisy. [www.agf.gov.bc.ca/cropprot/weedguid/oxeyed.htm](http://www.agf.gov.bc.ca/cropprot/weedguid/oxeyed.htm)
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- » E-Flora BC, an Electronic Atlas of the Plants of BC. [www.eflora.bc.ca/](http://www.eflora.bc.ca/)
- » Montana State University Extension Service. Oxeye Daisy. <http://msuextension.org/publications/AgandNaturalResources/MT200002AG.pdf>
- » *Leucanthemum vulgare* Lam. oxeye daisy. United States Department of Agriculture. <https://plants.usda.gov/core/profile?symbol=LEVU>

# Yellow Hawkweeds

*Hieracium* spp.

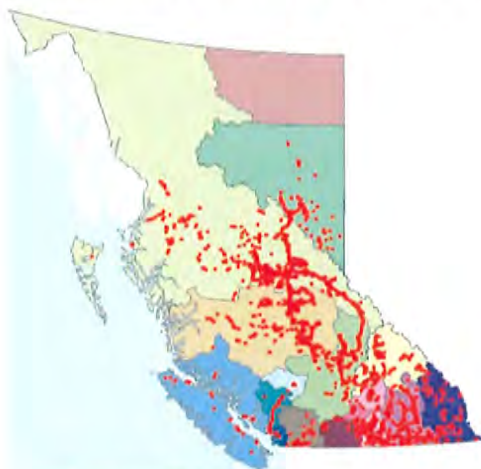
## About Yellow Hawkweeds

There are 12 species of hawkweeds with yellow flowers in British Columbia. These species readily hybridizes which makes both identification and management complicated. For the purpose of this document, all species of exotic hawkweeds that produce yellow flowers and found in British Columbia will be collectively called “yellow hawkweed”.

**Exotic hawkweed species found in BC:** Meadow hawkweed (*Hieracium caespitosum*), whiplash hawkweed (*Hieracium flagellare*), kingdevil hawkweed (*Hieracium floribundum*), yellowdevil hawkweed (*Hieracium glomeratum*), pale hawkweed (*Hieracium lactucella*), mouse ear hawkweed (*Hieracium pilosella*), tall hawkweed (*Hieracium piloselloides*), smooth hawkweed (*Hieracium laevigatum*), common hawkweed (*Hieracium lachenalii*), European hawkweed (*Hieracium sabaudum*), spotted hawkweed (*Hieracium maculatum*), wall hawkweed (*Hieracium marorum*)

## Legal Status

Yellow hawkweeds are not listed under the *BC Weed Control Act Regulation*. Mouse-eared hawkweed (*Hieracium pilosella*) is a priority provincial EDNR (Early Detection Rapid Response) species. Meadow hawkweed (*Hieracium pilosella*) is listed in the *Forest and Range Practices Act*, Invasive Plant Regulations lists.



Yellow Hawkweeds Distribution  
(2011)

## Distribution

These species are found scattered across the province and can be abundant in the various locations of the province. Various species are found in all regions of BC. Introduced yellow hawkweeds are a major concern in all regions of the province.

## Identification

**Flowers:** Hawkweed species produce conspicuous yellow to pale yellow or white ray flowers borne singly or in clusters on top of stems.

**Stems:** Hawkweeds produce upright and typically solitary and unbranched stems that can be smooth to moderately hairy. When broken, stems secrete a milky juice.

**Leaves:** Produce a basal rosette of leaves that vary from elliptical to ovate shaped, typically narrowed at the petiole. Upper stem leaves are absent or reduce in size along the stem.

**Fruits:** Achenes are dark ribbed, narrowed at the base, 2 mm in length and have a white to tawny pappus.

**Similar Native Species:** White hawkweed (*Hieracium albiflorum*), Canadian hawkweed (*Hieracium canadense*), hound's-tongue hawkweed (*Hieracium cynoglossoides*), slender hawkweed (*Hieracium gracile*), Scouler's hawkweed (*Hieracium scouleri*), woolly hawkweed (*Hieracium triste*), narrow-leaved hawkweed (*Hieracium umbellatum*)

**Similar Non-Native Species:** In British Columbia, there are 13 different species of introduced hawkweeds, however it is easy to distinguish *Hieracium aurantiacum* from other *Hieracium* species as it produces orange flowers instead of yellow flowers.



Yellow Hawkweeds  
© Illustrated Flora of BC



## Ecological Characteristics

**Habitat:** Hawkweeds have a preference for well-drained and coarse textured soils with low organic matter. There are many habitats in B.C. which have these soil types such as fields, meadows, forest clearings, pastures, farmland and other various habitats.

**Reproduction:** Hawkweed species are able to propagate through large seed production, long distance dispersal, high germinability and root fragments.

**Dispersal:** Small seeds and root fragments spread through intentional and unintentional human activity allowing this species to travel large distances and colonize new locations.

## Impact

**Economic:** Hawkweeds compete with desirable native species and negatively impacts ranching and agriculture, resulting in decreased yields and reduced quality of forage and low stocking rates on grazing areas.

**Ecological:** Yellow hawkweeds can have a negative impact on biodiversity, native flora and fauna, and rare protected species.



# Agriculture

**IS NEGATIVELY IMPACTED  
RESULTING IN DECREASED YIELDS**

## Integrated Pest Management

*IPM is a decision-making process that includes identification and inventory of invasive plant populations, assessment of the risks that they pose, development of well-informed control options that may include a number of methods, site treatment, and monitoring.*

### A. Prevention

- » Educate gardeners and horticulturists to prevent active distribution and trading.
- » Do not move any soil that could possibly contain seeds or root fragments.
- » Clean vehicles, personal gear, boots, and animals that have been in contact with contaminated soil or in infested areas.
- » Purchase weed free feed for horses and cattle.
- » Minimize disturbance caused by human activities and maintain healthy ecosystems.

## B. Mechanical Control

Mowing before flowers bloom will help reduce the seed production however soil disturbances may help this species to spread. Very small infestations can be hand-pulled however great care needs to be taken to ensure that roots and stolons are carefully bagged and not spread.

## C. Cultural Control

Application of fertilizers may enhance the competitive abilities of desirable species such as perennial grasses, legumes and other forbs to reduce hawkweed infestations or resist against hawkweed invasion.

## D. Chemical Control

Herbicide recommendations and use must first consider site characteristics and be prescribed based on site goals and objectives. Herbicide labels and other sources of information must be reviewed before selecting and applying herbicides.

- » Picloram alone and plus 2, 4-D, aminopyralid alone and plus 2, 4-D effectively provide longer term control when applied to actively growing plants (spring and early summer). Dicamba alone and plus 2,4-D provide effective shorter term control.
- » Treatment with fertilizer to stimulate growth of surrounding desirable species to facilitate competition is recommended.

Application of pesticides on Crown land must be carried out following a confirmed Pest Management Plan (*Integrated Pest Management Act*) and under the supervision of a certified pesticide applicator. [www.env.gov.bc.ca/epd/ipmp/](http://www.env.gov.bc.ca/epd/ipmp/)



Yellow Hawkweed, J. Leekie

## Disposal

**Note:** Disposal of invasive plants varies by region. Contact your local government for specific information on how to dispose of your invasive plants.

- » Manually removed plants, plant parts and seeds must be bagged or tarped before transporting to a designated disposal site (e.g. landfill or transfer station).
- » It is recommended that transfer stations provide disposal bins intended solely for invasive plants. This will ensure the plant matter within the container is transported in a sealed unit and properly disposed of at the landfill. All cut plant parts should undergo deep burial (at least 5m deep) at a landfill.
- » Burning or composting at home is not recommended as extreme temperatures are required to completely desiccate the plant.



Yellow Hawkweed, Nicole Kimmel



## References/Links

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<https://www.fs.fed.us/database/feis/plants/forb/hiecae/all.html>

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Thank you to the BC Ministry of Environment and the BC Ministry of Transportation and Infrastructure for providing project funding, and to those who advised the development of these management recommendations.

ADDITIONAL  
CONTACT INFO

**APPENDIX 3. SPECIES AT RISK QUERY RESULTS**

| English Name                                       | Scientific Name                            | BC List   | COSEWIC | SARA        |
|----------------------------------------------------|--------------------------------------------|-----------|---------|-------------|
| Amphibians                                         |                                            |           |         |             |
| Western Tiger Salamander                           | <i>Ambystoma mavortium</i>                 | Red       | E       | 1-E (2018)  |
| Coeur d'Alene Salamander                           | <i>Plethodon idahoensis</i>                | Blue      | SC      | 1-SC (2003) |
| Western Toad                                       | <i>Anaxyrus boreas</i>                     | Yellow    | SC      | 1-SC (2018) |
| Northern Leopard Frog                              | <i>Lithobates pipiens</i>                  | Red       | E       | 1-E (2003)  |
| Birds                                              |                                            |           |         |             |
| Eared Grebe                                        | <i>Podiceps nigricollis</i>                | Blue      |         |             |
| Western Grebe                                      | <i>Aechmophorus occidentalis</i>           | Red       | SC      | 1-SC (2017) |
| American White Pelican                             | <i>Pelecanus erythrorhynchos</i>           | Red       | NAR     |             |
| Double-crested Cormorant                           | <i>Nannopterum auritum</i>                 | Blue      | NAR     |             |
| American Bittern                                   | <i>Botaurus lentiginosus</i>               | Blue      |         |             |
| Great Blue Heron, <i>herodias</i> subspecies       | <i>Ardea herodias herodias</i>             | Blue      |         |             |
| Green Heron                                        | <i>Butorides virescens</i>                 | Blue      |         |             |
| Black-crowned Night-Heron                          | <i>Nycticorax nycticorax</i>               | Red       |         |             |
| Surf Scoter                                        | <i>Melanitta perspicillata</i>             | Blue      |         |             |
| American Goshawk, <i>atricapillus</i> subspecies   | <i>Accipiter atricapillus atricapillus</i> | Blue      | NAR     |             |
| Swainson's Hawk                                    | <i>Buteo swainsoni</i>                     | Red       |         |             |
| Rough-legged Hawk                                  | <i>Buteo lagopus</i>                       | Blue      | NAR     |             |
| Gyr Falcon                                         | <i>Falco rusticolus</i>                    | Blue      | NAR     |             |
| Prairie Falcon                                     | <i>Falco mexicanus</i>                     | Red       | NAR     |             |
| American Golden-Plover                             | <i>Pluvialis dominica</i>                  | Blue      |         |             |
| American Avocet                                    | <i>Recurvirostra americana</i>             | Blue      |         |             |
| Upland Sandpiper                                   | <i>Bartramia longicauda</i>                | Red       |         |             |
| Long-billed Curlew                                 | <i>Numenius americanus</i>                 | Yellow    | T       | 1-SC (2005) |
| Short-billed Dowitcher                             | <i>Limnodromus griseus</i>                 | Red       | E       |             |
| Red-necked Phalarope                               | <i>Phalaropus lobatus</i>                  | Blue      | SC      | 1-SC (2019) |
| California Gull                                    | <i>Larus californicus</i>                  | Red       |         |             |
| Caspian Tern                                       | <i>Hydroprogne caspia</i>                  | Blue      | NAR     |             |
| Forster's Tern                                     | <i>Sterna forsteri</i>                     | Red       | DD      |             |
| Band-tailed Pigeon                                 | <i>Patagioenas fasciata</i>                | Blue      | SC      | 1-SC (2011) |
| Barn Owl                                           | <i>Tyto alba</i>                           | Blue      | T       | 1-T (2018)  |
| Western Screech-Owl                                | <i>Megascops kennicottii</i>               | No Status | T       | 1-T         |
| Western Screech-Owl, <i>macfarlanei</i> subspecies | <i>Megascops kennicottii macfarlanei</i>   | Blue      | T       | 1-T (2005)  |
| Short-eared Owl                                    | <i>Asio flammeus</i>                       | Blue      | T       | 1-SC (2012) |
| Common Nighthawk                                   | <i>Chordeiles minor</i>                    | Blue      | SC      | 1-SC (2023) |
| Black Swift                                        | <i>Cypseloides niger</i>                   | Blue      | E       | 1-E (2019)  |

|                                                            |                                       |           |     |             |
|------------------------------------------------------------|---------------------------------------|-----------|-----|-------------|
| White-throated Swift                                       | <i>Aeronautes saxatalis</i>           | Blue      |     |             |
| Lewis's Woodpecker                                         | <i>Melanerpes lewis</i>               | Blue      | T   | 1-T (2012)  |
| Williamson's Sapsucker                                     | <i>Sphyrapicus thyroideus</i>         | Blue      | E   | 1-E (2006)  |
| White-headed Woodpecker                                    | <i>Dryobates albolarvatus</i>         | Red       | E   | 1-E (2003)  |
| Olive-sided Flycatcher                                     | <i>Contopus cooperi</i>               | Yellow    | SC  | 1-SC (2023) |
| Horned Lark, <i>merrilli</i> subspecies                    | <i>Eremophila alpestris merrilli</i>  | Red       |     |             |
| Barn Swallow                                               | <i>Hirundo rustica</i>                | Yellow    | SC  | 1-T (2017)  |
| Canyon Wren                                                | <i>Catherpes mexicanus</i>            | Blue      | NAR |             |
| Sage Thrasher                                              | <i>Oreoscoptes montanus</i>           | Red       | E   | 1-E (2003)  |
| Yellow-breasted Chat                                       | <i>Icteria virens</i>                 | Red       | E   | 1-E (2003)  |
| Lark Sparrow                                               | <i>Chondestes grammacus</i>           | Blue      |     |             |
| Bobolink                                                   | <i>Dolichonyx oryzivorus</i>          | Red       | SC  | 1-T (2017)  |
| Evening Grosbeak                                           | <i>Coccothraustes vespertinus</i>     | Yellow    | SC  | 1-SC (2019) |
| Fish                                                       |                                       |           |     |             |
| Columbia Sculpin                                           | <i>Cottus hubbsi</i>                  | Blue      | SC  | 1-SC (2003) |
| Shorthead Sculpin                                          | <i>Cottus confusus</i>                | Blue      | SC  | 1-SC        |
| White Sturgeon                                             | <i>Acipenser transmontanus</i>        | No Status | E/T | 1-E         |
| Cutthroat Trout, <i>lewisi</i> subspecies                  | <i>Oncorhynchus clarkii lewisi</i>    | Blue      | SC  | 1-SC (2010) |
| Bull Trout                                                 | <i>Salvelinus confluentus</i>         | Blue      | SC  |             |
| Umatilla Dace                                              | <i>Rhinichthys umatilla</i>           | Red       | T   | 3 (2005)    |
| Mammals                                                    |                                       |           |     |             |
| Little Brown Myotis                                        | <i>Myotis lucifugus</i>               | Blue      | E   | 1-E (2014)  |
| Yuma Myotis                                                | <i>Myotis yumanensis</i>              | Blue      |     |             |
| Silver-haired Bat                                          | <i>Lasionycteris noctivagans</i>      | Yellow    | E   |             |
| Hoary Bat                                                  | <i>Lasiurus cinereus</i>              | Blue      | E   |             |
| Townsend's Big-eared Bat                                   | <i>Corynorhinus townsendii</i>        | Blue      |     |             |
| White-tailed Jackrabbit                                    | <i>Lepus townsendii</i>               | Red       |     |             |
| Northern Bog Lemming, <i>artemisiae</i> subspecies         | <i>Synaptomys borealis artemisiae</i> | Blue      |     |             |
| Grizzly Bear                                               | <i>Ursus arctos</i>                   | Blue      | SC  | 1-SC (2018) |
| Wolverine                                                  | <i>Gulo gulo</i>                      | No Status | SC  | 1-SC (2018) |
| Wolverine, <i>luscus</i> subspecies                        | <i>Gulo gulo luscus</i>               | Blue      | SC  | 1-SC (2018) |
| American Badger                                            | <i>Taxidea taxus</i>                  | Red       | E   | 1-E (2018)  |
| Mountain Goat                                              | <i>Oreamnos americanus</i>            | Blue      |     |             |
| Bighorn Sheep                                              | <i>Ovis canadensis</i>                | Blue      |     |             |
| Reptiles                                                   |                                       |           |     |             |
| Painted Turtle - Intermountain - Rocky Mountain Population | <i>Chrysemys picta</i> pop. 2         | Blue      | SC  | 1-SC (2007) |
| Western Skink                                              | <i>Plestiodon skiltonianus</i>        | Blue      | SC  | 1-SC (2005) |
| Northern Rubber Boa                                        | <i>Charina bottae</i>                 | Yellow    | SC  | 1-SC (2005) |

|                                                     |                                          |      |     |             |
|-----------------------------------------------------|------------------------------------------|------|-----|-------------|
| North American Racer                                | <i>Coluber constrictor</i>               | Blue | T   | 1-T (2023)  |
| Insects                                             |                                          |      |     |             |
| Hairy-necked Tiger Beetle                           | <i>Cicindela hirticollis</i>             | Blue |     |             |
| Silver-spotted Skipper, <i>clarus</i> subspecies    | <i>Epargyreus clarus clarus</i>          | Blue |     |             |
| Checkered Skipper                                   | <i>Pyrgus communis</i>                   | Blue |     |             |
| Common Sootywing                                    | <i>Pholisora catullus</i>                | Blue |     |             |
| Nevada Skipper                                      | <i>Hesperia nevada</i>                   | Blue |     |             |
| Sandhill Skipper                                    | <i>Polites sabuleti</i>                  | Red  |     |             |
| Tawny-edged Skipper, <i>themistocles</i> subspecies | <i>Polites themistocles themistocles</i> | Blue |     |             |
| Sonora Skipper                                      | <i>Polites sonora</i>                    | Blue | NAR |             |
| Lilac-bordered Copper                               | <i>Lycaena nivalis</i>                   | Blue |     |             |
| Dione Copper                                        | <i>Lycaena dione</i>                     | Blue |     |             |
| Behr's Hairstreak                                   | <i>Satyrrium behrii</i>                  | Red  | E   | 1-E (2003)  |
| Half-moon Hairstreak                                | <i>Satyrrium semiluna</i>                | Red  | T   | 1           |
| California Hairstreak                               | <i>Satyrrium californica</i>             | Blue |     |             |
| Immaculate Green Hairstreak                         | <i>Callophrys affinis</i>                | Blue |     |             |
| Eastern Tailed Blue                                 | <i>Cupido comyntas</i>                   | Blue |     |             |
| Mormon Metalmark                                    | <i>Apodemia mormo</i>                    | Red  | E   | 1-E (2005)  |
| Mormon Fritillary, <i>erinna</i> subspecies         | <i>Speyeria mormonia erinna</i>          | Red  |     |             |
| Albert's Fritillary                                 | <i>Boloria alberta</i>                   | Blue |     |             |
| Viceroy                                             | <i>Limenitis archippus</i>               | Red  |     |             |
| Jutta Arctic, <i>chermocki</i> subspecies           | <i>Oeneis jutta chermocki</i>            | Blue |     |             |
| Monarch                                             | <i>Danaus plexippus</i>                  | Red  | E   | 1-E (2023)  |
| Sinuous Snaketail                                   | <i>Ophiogomphus occidentis</i>           | Blue |     |             |
| Lance-tipped Darner                                 | <i>Aeshna constricta</i>                 | Blue |     |             |
| Vivid Dancer                                        | <i>Argia vivida</i>                      | Blue | SC  | 1-SC (2019) |
| Alkali Bluet                                        | <i>Enallagma clausum</i>                 | Blue |     |             |
| Molluscs and Gastropods                             |                                          |      |     |             |
| Herrington Fingernailclam                           | <i>Sphaerium occidentale</i>             | Blue |     |             |
| Striated Fingernailclam                             | <i>Sphaerium striatinum</i>              | Blue |     |             |
| Banded Tigersnail                                   | <i>Anguispira kochi</i>                  | Blue | NAR |             |
| Pale Jumping-slug                                   | <i>Hemphillia camelus</i>                | Blue |     |             |
| Magnum Mantleslug                                   | <i>Magnipelta mycophaga</i>              | Blue | SC  | 1-SC        |
| Coeur d'Alene Oregonian                             | <i>Cryptomastix mullani</i>              | Blue |     |             |
| Subalpine Mountainsnail                             | <i>Oreohelix subrudis</i>                | Blue |     |             |
| Glossy Valvata                                      | <i>Valvata humeralis</i>                 | Red  |     |             |
| Threeridge Valvata                                  | <i>Valvata tricarinata</i>               | Red  |     |             |

|                     |                                    |      |   |            |
|---------------------|------------------------------------|------|---|------------|
| Prairie Fossaria    | <i>Galba bulimoides</i>            | Blue |   |            |
| Dusky Fossaria      | <i>Galba dalli</i>                 | Blue |   |            |
| Golden Fossaria     | <i>Galba obrussa</i>               | Blue |   |            |
| Attenuate Fossaria  | <i>Galba truncatula</i>            | Blue |   |            |
| Wrinkled Marshsnail | <i>Stagnicola caperata</i>         | Blue |   |            |
| Widelip Pondsnaill  | <i>Stagnicola traski</i>           | Blue |   |            |
| Star Gyro           | <i>Gyraulus crista</i>             | Blue |   |            |
| Non-Vascular Plants |                                    |      |   |            |
| abrading ring       | <i>Arctoparmelia subcentrifuga</i> | Blue |   |            |
| Vascular Plants     |                                    |      |   |            |
| whitebark pine      | <i>Pinus albicaulis</i>            | Blue | E | 1-E (2012) |

Open Governemnt License - BC. Search Criteria. Animals OR Plants OR Lichens OR Macrofungi OR Slime Molds OR Ecosystem Realm-Groups: All

## **19.0 DEVELOPMENT PERMIT AREAS**

### **Background**

The OCP may designate Development Permit Areas under the authority of local government legislation. Unless otherwise specified, a development permit must be approved by the Regional Board prior to any development or subdivision of land within a designated Development Permit Area.

Development Permit Areas allow for implementation of special guidelines for the protection of the natural environment, protection from hazardous conditions, for revitalization of designated areas, or to guide the form and character of development within the Slocan Lake North Plan area.

Where land is subject to more than one Development Permit Area designation, a single development permit is required. The application will be subject to the requirements of all applicable Development Permit Areas, and any development permit issued will be in accordance with the guidelines of all such Areas.

### **Development Permit Area #1: Watercourse Development Permit (WDP) Area**

#### **Category**

The WDP area is designated under Section 488(1) (a) of the *Local Government Act* and applicable provisions of the *Community Charter* for the protection of the natural environment, its ecosystems, and biological diversity.

#### **Area**

The WDP area is comprised of:

1. Riparian assessment areas (Figure 1) for fish and wildlife habitat and drinking water, which include all watercourses and adjacent land:
  - a. within 30 metres of the high water mark of a watercourse;
  - b. within 30 metres of the top of the ravine bank in the case of a ravine less than 60 metres wide; and
  - c. within 10 metres of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse.

“high water mark” means the visible high water mark of a watercourse where the presence and action of the water are so common and usual, and so long continued in all ordinary

years, as to mark on the soil of the bed of the watercourse a character distinct from that of its banks in vegetation as well as in the nature of the soil itself, and includes the active floodplain;

“top of ravine bank” means the first significant break in a ravine slope where the break occurs such that the grade beyond the break is latter than 3:1 for a minimum distance of 15 metres measured perpendicularly from the break and the break does not include a bench within the ravine that could be developed;

“watercourse” includes any of the following: a watercourse, intermittent or not; a pond, lake, river, creek or brook, and a ditch, spring or wetland that is connected by surface flow to a watercourse.

### **Justification**

The primary objective of this Development Permit Area designation is to regulate development activities in watercourses and their riparian areas so as to protect aquatic habitat; and to conserve, enhance, and where necessary, restore watercourses and their riparian areas.

The impact of development on watercourses can be minimized by carefully examining the proposed development and taking appropriate measures in relation to the environmentally sensitive riparian areas land.

### **Determining whether development falls within the WDP Area**

To confirm whether a proposed development is within land identified as a riparian assessment area in the WDP area for which a Development Permit application is required, the following applies:

Any area located within 30 metres of the high water mark of a watercourse; within 30 metres of the top of the ravine bank in the case of a ravine less than 60 metres wide; and within 10 metres of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse;

Unless the proposed development or alteration of land is clearly outside the riparian assessment area the location of the development shall be determined accurately by survey in relation to the WDP Area to determine whether a development permit application is required.

### **Guidelines**

A Development Permit is required, except where specified under the exemptions section, for development or land alteration on land identified as a riparian assessment area within the WDP Area. Where not exempt, development requiring a development permit includes any of the following associated with or resulting from residential, commercial or industrial

activities or ancillary activities to the extent that they are subject to local government powers under Local government legislation the:

- a. removal, alteration, disruption or destruction of vegetation;
- b. disturbance of soils;
- c. construction or erection of buildings and structures;
- d. creation of non-structural impervious or semi-impervious surfaces;
- e. flood protection works;
- f. construction of roads, trails, docks, wharves and bridges;
- g. provision and maintenance of sewer and water services;
- h. development of drainage systems;
- i. development of utility corridors;
- j. subdivision as defined in section 455 of the *Local Government Act*.

**Development shall be in accordance with the following guidelines:**

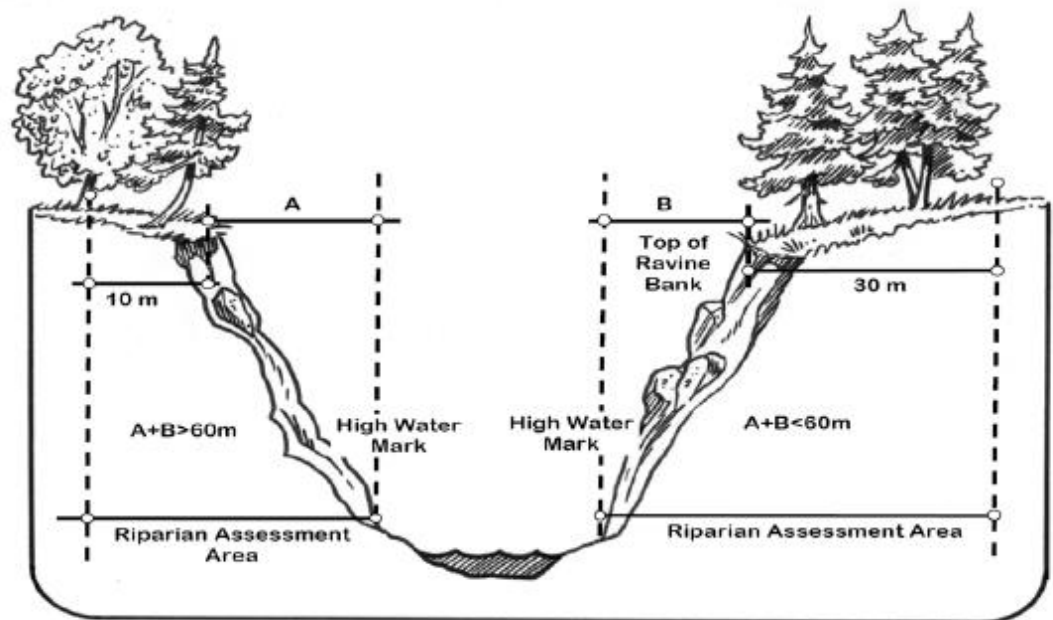
1. All development proposals subject to this permit will be assessed by a Qualified Environmental Practitioner (QEP) in accordance with the Riparian Areas Regulation established by the Provincial and/or Federal governments as used elsewhere in the Province;
2. A WDP shall not be issued prior to the RDCK ensuring that a QEP has submitted a report certifying that they are qualified to carry out the assessment, that the assessment methods have been followed, and provides in their professional opinion that a lesser setback will not negatively affect the functioning of a watercourse or riparian area and that the criteria listed in the Riparian Areas Regulation has been fulfilled, and;
3. The Riparian Areas Regulation implemented through the WDP does not supersede other Federal, Provincial and or local government requirements, including that of other development permit areas, building permits, flood covenants, Federal or Provincial authorization. Land subject to more than one development permit area designation must ensure consistency with the guidelines of each development permit area, to provide comprehensive stewardship of both fish and wildlife habitat.

**Exemptions**

The WDP area does not apply to the following:

1. existing construction, alteration, addition, repair, demolition and maintenance of farm buildings;

2. existing institutional development containing no residential, commercial or industrial aspect;
3. reconstruction, renovation or repair of a permanent structure if the structure remains on its existing foundation. Only if the existing foundation is moved or extended in to a riparian assessment area would a WDP be required; and
4. an area where the applicant can demonstrate that the conditions of the WDP Area have already been satisfied or a development permit for the same area has already been issued in the past and the conditions in the development permit have all been met, or the conditions addressed in the previous development permit will not be affected.



**FIGURE 1: RIPARIAN ASSESSMENT AREA:** means the area within 30 m of the high water mark of a watercourse; within 30 m of the top of the ravine bank in the case of a ravine less than 60 m wide; and within 10 m of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse. Applies only to residential, commercial and industrial designations.

Source: British Columbia Ministry of Environment, *Riparian Areas Regulation Implementation Guidebook*, March 2005