



## ENVIRONMENTAL ASSESSMENT FOR 3542 OTTER POINT ROAD

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CORVIDAE PROJECT #2019-010  
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SOLUTION ORIENTED. PROTECTION OF THE ENVIRONMENT. ABSOLUTE INTEGRITY. OPEN COMMUNICATION. RESPECT.

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## 1 INTRODUCTION

Corvidae Environmental Consulting Inc. (Corvidae) has been contracted to provide this Environmental Assessment (EA) for the proposed subdivision and development to 3542 Otter Point Road (the property), property ID 009499369, zoning Rural A.

This document addresses the requirements in Section 5.3.1 of Capital Regional District (CRD) Bylaw No. 3819 and provides an assessment on the environmental conditions on the property, potential impacts of the proposed development of access and clearing for building construction, and recommendations on protection of environmentally sensitive features and methods to minimize impacts of the proposed development.

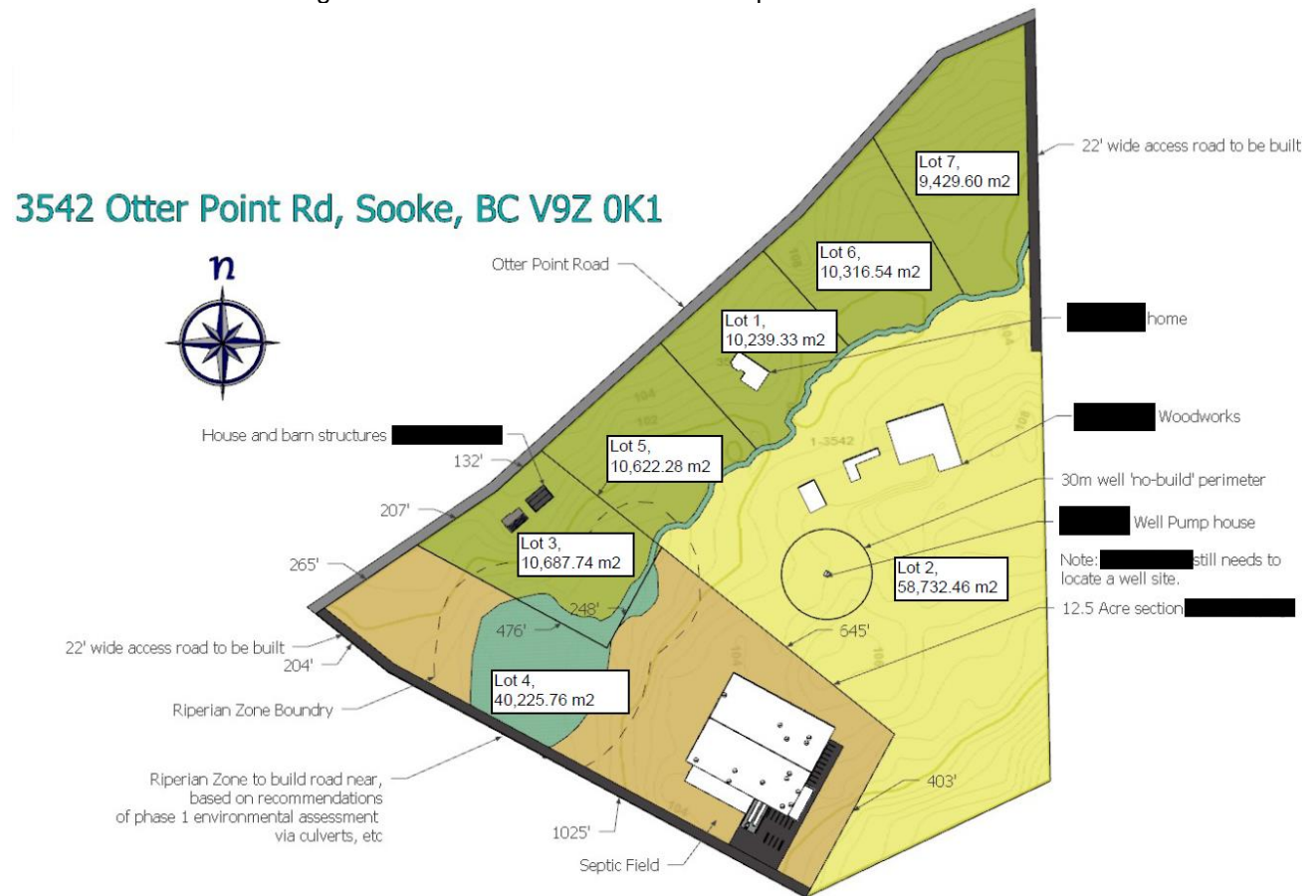
### 1.1 PROJECT BACKGROUND

The landowner [REDACTED] are subdividing the property at 3542 Otter Point Road, which is approximately 37 acres (15 ha). Currently, an access road and a residence are located near the mid-point of the northwestern property line (see Figure 1). Further along the access road, the property owner operates a sawmill and logging operation (Photo 1). With the exception of the trees immediately adjacent to the watercourse and wetland, the southern two thirds of the property have been logged recently (Photo 2). Due to the recent timing for logging, the removal of trees in this area is not reflected on the available aerial imagery.

The property owner intends to subdivide the property into five residential lots and two 4 hectare lots for a sawmill and aquaponics facility. The current owner will retain ownership of the eastern portion of the property where the existing residence and sawmill are located (Lots 1a-d and 2). The western portion will be divided into two lots, approximately 1 hectare (2.47 acres) for the road side (northern) Lot 3 and 3.5 hectare (8.64 acres) for the southern Lot 4 (Figure 1). The plan for the property is subdivision, and re-zoning of Lots 1a-d and 3 to residential and Lots 2 and 4 to light industrial (or zoning designated by CRD with review of planned land use).



Figure 1 – 3542 Otter Point Road – Proposed Subdivision



## 1.2 REGULATORY FRAMEWORK

This environmental assessment is designed to comply with the provisions set out in the Otter Point Official Community Plan (OCP) for development permit areas and for compliance with the provisions for environmental protection contained in the following relevant legislation:

### Municipal

- Capital Regional District Otter Point OCP, Bylaw No. 3819

Development Permit Area No. 3: Watercourses and Wetland Areas. Defined as the area within 30 metres (100 feet) of the natural boundary of watercourses, wetlands and lakes as outlined on Map 5c. Designated as a Development Permit Area, the "Watercourses DPA", under Section 919.1(1)(a) of the Local Government Act, for protection of the natural environment, its ecosystems and biological diversity.

- The property is zoned as Rural A. Bylaw No. 3819 states:

Building strata development on Rural A zoned lands is not supported. However, for Rural A parcels created prior to adoption of this Plan, a rezoning could be considered to permit a subdivision which would permit a density of 1 parcel per ha up to 4 ha and 1 parcel per 2 ha for each additional 2 ha portion of the property; (page 21, Section 3.1.1.d.).

The plan for the property is subdivision, and re-zoning of the 1 hectare and 4 hectare lots only, Lots 1a-d are planned to remain the same: no change in land-use, averaging 1 ha each, R2 zoning.

### Provincial

British Columbia Wildlife Act (1996)

Invasive Species Council of British Columbia

BC Weed Control Act (1996, current as of October 2016)

### Federal

Migratory Birds Act (1994)





## 2 ENVIRONMENTAL SITE ASSESSMENT

Corvidae completed a site visit on February 19, 2019 as part of the subdivision application and subsequent re-zoning application for Lots 2 and 3. A qualified professional biologist (QEP) walked the property subject to the proposed subdivision and examined any Environmentally Sensitive Areas, specifically the wetland and watercourses on the property. Appendix A shows photos of the property taken during the field visit.

### 2.1 LANDSCAPE AND SOILS

Soils in the Biogeoclimatic zone are typically moderately deep Orthic Humo-Ferric Podzols with Hemimor humus forms (Pojar et al. 1991). The soils on the site were a sandy clay loam.

The topography of the property is varied. The property generally slopes from the back (southern side) north towards the watercourse and wetland area, and from Otter Point Road south to the wet areas. Throughout the upland areas on the property there are small undulations, both natural and those created by logging access and equipment.

### 2.2 VEGETATION

The project is located within the Coastal Western Hemlock (CWH) biogeoclimatic zone, and specifically in the western variant of the Very Dry Maritime subzone (classified as CWHxm2). Drier subzones of the CWH are typically dominated by components of western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) (Pojar et al. 1991). Salal (*Gaultheria shallon*), dull Oregon-grape (*Mahonia nervosa*), and red huckleberry (*Vaccinium parvifolium*) typify the poorly to moderately developed shrub layer. Oregon beaked moss (*Kindbergia oregana*), step moss (*Hylocomium splendens*), lanky moss (*Rhytidiadelphus loreus*), and flat moss (*Plagiothecium undulatum*) dominate the well-developed moss layer (Pojar et al. 1991).

The property was once entirely forested, but currently only the portion closest to the road and surrounding the wetland contain mature coniferous forest. In addition to the clear cut on the rear two-thirds of the property, a small area in the western portion of the property near the road has been cleared (Photo 3). The wetland is dominated with shrubs and sedges (Photos 4 and 5), and mature alder trees (Photo 6) along the western property line. During the site assessment the species in Table 1 were found on the site.

Table 1. Plant Species observed on site during field visit on February 19, 2019.

Common Name	Scientific Name	BC Provincial Status <sup>1</sup>	SARA Schedule 1 Status <sup>2</sup>
Western redcedar	<i>Thuja plicata</i>	Yellow	--
Western hemlock	<i>Tsuga heterophylla</i>	Yellow	--
Douglas-fir	<i>Pseudotsuga menziesii</i>	Yellow	--
Big leaf maple	<i>Acer macrophyllum</i>	Yellow	--
Red alder	<i>Alnus rubra</i>	Yellow	--
Salal	<i>Gaultheria shallon</i>	Yellow	--
Sword fern	<i>Polystichum munitum</i>	Yellow	--
Deer fern	<i>Blechnum spicant</i>	Yellow	--
Evergreen huckleberry	<i>Vaccinium ovatum</i>	Yellow	--
Common rush	<i>Juncus laccatus</i>	Yellow	--



Common Name	Scientific Name	BC Provincial Status <sup>1</sup>	SARA Schedule 1 Status <sup>2</sup>
Grass sp.	--	--	--
Sedge sp.	--	--	--
Salmonberry	<i>Rubus spectabilis</i>	Yellow	--
Hardhack	<i>Spiraea douglasii</i>	Yellow	--
Himalayan blackberry	<i>Rubus armeniacus</i>	Invasive	--
English holly	<i>Ilex aquifolium</i>	Invasive	--

<sup>1</sup> BC Conservation Data Centre (CDC) 2019

<sup>2</sup> Government of Canada 2019

## 2.3 WILDLIFE

The forested habitat is found in the Coastal Western Hemlock biogeoclimatic zone is home to many wildlife species. Black-tailed deer, black bear, marten and gray wolf are the most common large mammals in this zone on Vancouver Island. For bird species in this zone, the following typically occur: great horned owl, barred owl, ruffed grouse, band-tailed pigeon, northern flicker, hairy woodpecker, common raven, Steller's jay, chestnut-backed chickadee, red-breasted nuthatch, varied thrush, red-tailed hawk, Townsend's warbler. For amphibians, the following can occur: western toad, Pacific treefrog, western redbacked salamander. (Pojar et al. 1991)

Wildlife habitat present on the property includes mature forest, riparian habitat and wetland habitat. No wildlife species of concern were observed in the project area during the site visit. No dens, nests or burrows were found. No bird nests or amphibians were observed during the assessment, however, the timing of the field visit, and the weather conditions were not suitable for breeding bird or amphibian surveys.

During the site assessment the species in Table 2 were found on the site.

Table 2. Wildlife Species observed on site during field visit on February 19, 2019.

Common Name	Scientific Name	BC Provincial Status <sup>1</sup>	SARA Schedule 1 Status <sup>2</sup>
Pacific wren	<i>Troglodytes pacificus</i>	Yellow	--
Oregon junco	<i>Junco hyemalis</i>	Yellow	--
Chestnut-backed chickadee	<i>Poecile rufescens</i>	Yellow	--
American robin	<i>Turdus migratorius</i>	Yellow	--
Douglas's squirrel (tracks)	<i>Tamiasciurus douglasii</i>	Yellow	--
Black-tailed deer (tracks and scat)	<i>Odocoileus hemionus columbianus</i>	Yellow	--

<sup>1</sup> BC CDC 2019

<sup>2</sup> Government of Canada 2019

## 2.4 SPECIES AT RISK

A query of the BC CDC iMap tool yielded occurrences of the following 2 species at risk within a two-kilometer radius of the property (BC CDC 2019). Species are listed in Table 3 and the location of occurrences in relation to the property is provided in Figure 2.



**Table 3. Species at Risk that may occur in the vicinity of 3542 Otter Point Road**

Common Name	Scientific Name	BC Provincial Status <sup>1</sup>	SARA Schedule 1 Status <sup>2</sup>
Ermine, anguinae subspecies	<i>Mustela erminea anguinae</i>	Blue-listed	--
Painted Turtle - Pacific Coast Population	<i>Chrysemys picta pop. 1</i>	Red-listed	Endangered

<sup>1</sup> BC CDC 2019

<sup>2</sup> Government of Canada 2019

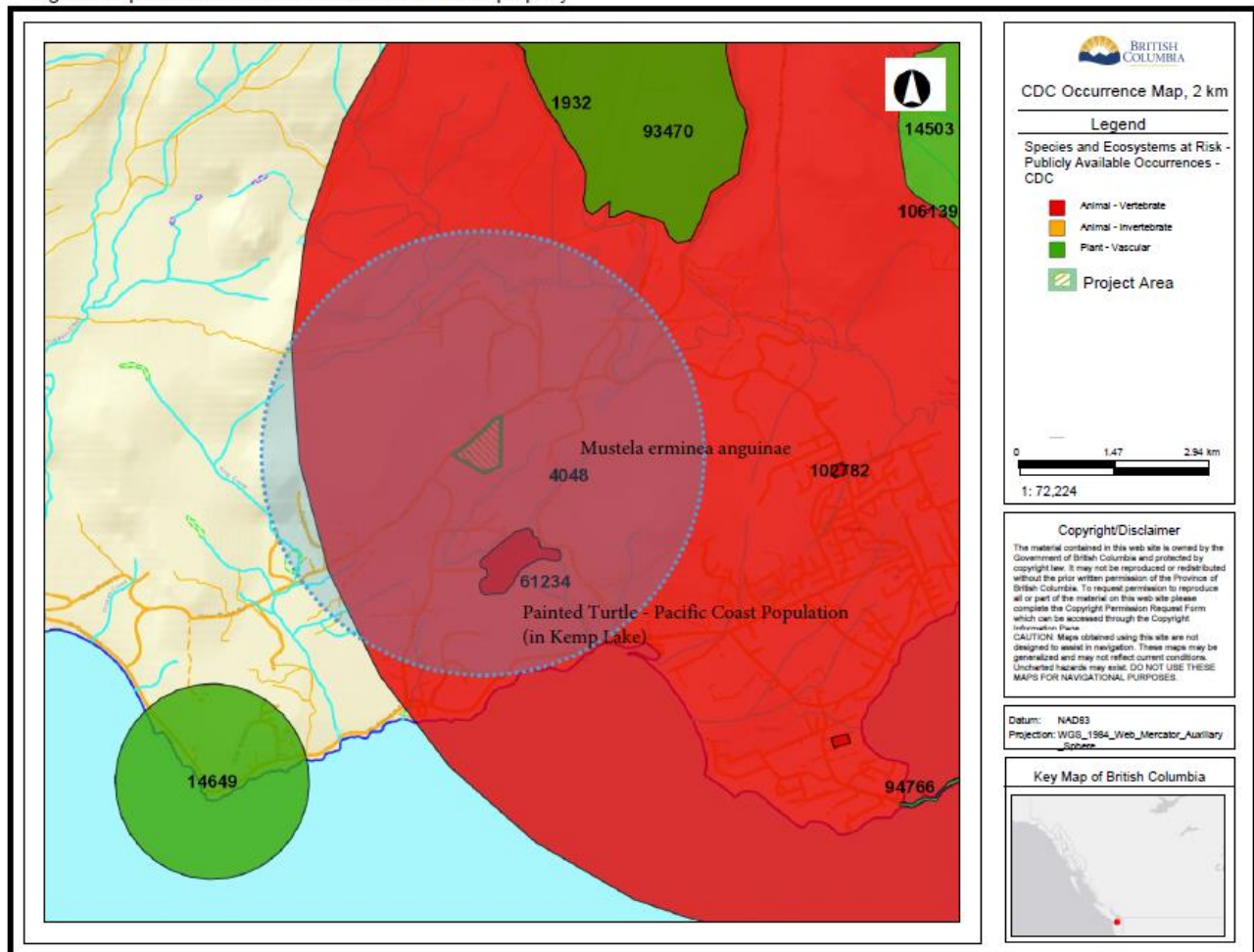
The ermine (*Mustela erminea anguinae*) is widespread throughout BC in a variety of habitats (e.g. forests, meadows, wetlands, agricultural and cultivated fields) and over a wide elevation range. Foraging habitat for this species is present on the forested portions of the property.

The Keen's Myotis (*Myotis keenii*), a cave-roosting bat species, occurs at elevations of 0 to 1100 m above sea level. Foraging occurs over a wide variety of habitat including intertidal areas, estuaries, upland forests, wetlands, and riparian areas. Suitable rock crevices or caves do not occur on the property, however, suitable foraging habitat is present.





Figure 2. Species at Risk Records within 2 km of the property



## 2.5 RIPARIAN AREAS AND AQUATIC ECOSYSTEMS

A large wetland is present on the property in the southwest portion, included in the area mapped as a Riparian/Wetland Sensitive Ecosystem by CRD. During the site visit on February 19, 2019, the boundaries of the wetland were mapped (Figure 1).

The wetland is fed by an unmapped watercourse (drainage/creek) running from the northeastern most corner of the property, between the existing residential and sawmill areas. The watercourse passes under the sawmill access road through a culvert. On the downstream side of the culvert, the watercourse opens into a marshy wetland area. This continues through the riparian forest (Photo 7) to the large wetland in the property's southwest. A small portion of the watercourse is channelized (Photo 8), however, the majority is wide and marshy (Photo 5).

The site visit was done in late winter, during the wettest season, and therefore likely measured the wetland at its most saturated. In the summer, the wetland area will be much drier than during the field visit, as evident by the type of vegetation.

Along the property's southwestern boundary, the wetland and riparian areas are constrained by historical addition of fill to the neighbouring property (Photo 9). Approximately 500 m downstream, the drainage is dammed and used as a water supply for agriculture (ALM Farm).

There are no fish occurrence records on the property, and the watercourse and wetland do not provide suitable fish habitat due to the shallow, seasonal nature of the wetland and creek flow, and because the dam downstream would serve as a barrier to fish passage.

Adjacent to the watercourse and wetland is riparian habitat. The wet areas are in a depression on the property, and the terrain slopes upwards on both sides. Therefore, the vegetation transitions from riparian vegetation to upland forest within 5 to 20 m of the watercourse and wetland periphery. A preliminary 30 m SPEA has been applied to the mapped wetland boundary in Figure 1. This 30 m setback is in accordance with the CRD Bylaw No. 3819, as stated in Section 1.2 of this report.

## 3 POTENTIAL ENVIRONMENTAL EFFECTS

The potential impacts from the project on the environment will be:

- loss of existing vegetation and disturbance of soils,
- introduction and spread of invasive plant species,
- change in wildlife habitat availability and wildlife mortality risk,
- sediment movement in the project area, and
- modification of the wetland and riparian habitat.

These impacts have already occurred on the eastern and southeastern areas of the property where logging activities and lumber operations are ongoing. Historically there has been disturbance to the northwest area (Lot 2) as evident by clearing, an old access road and stumps. This appears to have happened several years, perhaps decades, ago.

If a dwelling is constructed on Lots 3 and 4 there will be similar disturbances – clearing for construction, building foundations and construction of the home, access creation, and surrounding landscaping.

The proposed aquaponic facility on Lot 4 is proposed in the previously cleared area. The facility construction will involve noise and ground disturbance during grading and facility construction. Clearing of vegetation and wetland modification will occur during the creation of the access road to the rear portion of the property.



## VEGETATION

Where cleared areas are constructed for facilities, residences and access roads, there will be a permanent loss of vegetation. The potential effects of these changes include loss of biodiversity of plant species and increased susceptibility to invasive plants not only in the cleared area but also in adjacent plant communities. Cleared areas have increased wind strength and increased light and moisture penetration. This may result in changes to the canopy structure and understory plant species in the adjacent forest.

Invasive plants are particularly adept at colonizing degraded plant communities and disturbed soils in high traffic areas, such as the margins of roads and parking areas. Invasive plants establish readily in disturbed areas as they have a wide ecological tolerance and grow and propagate quickly. The effects of invasive plant establishment may be the reduction or displacement native species by capturing resources and occupying habitats.

## WILDLIFE AND WILDLIFE HABITAT

Clearing and construction of the project will alter habitat structure and result in direct habitat loss or alteration. This will directly impact the forested, riparian and wetland habitats. Habitat loss and alteration can cause displacement of wildlife, use of less suitable habitat, reduced foraging ability (Bird et al. 2004), increased energy expenditure (Jalkotzy et al. 1997) and lower reproductive success (Habib et al. 2007).

Reduced habitat effectiveness can occur as a result from the creation of habitat edges, habitat fragmentation, or sensory disturbance (e.g., noise, artificial light, proximity to facilities and infrastructure, human activity and traffic). The effectiveness of wildlife habitat may be affected by sensory disturbance such as noise associated with construction and long-term activities at the aquaponics facility. Noise effects on wildlife can potentially include habitat loss through avoidance, increased energy expenditure, changes in normal behaviours (e.g., feeding) and impaired communication between individuals, such as songbirds. In addition, reduction in habitat connectivity may create barriers to wildlife movement. Many wildlife species avoid crossing openings or move more slowly in open areas (Jalkotzy et al. 1997), effectively resulting in habitat fragmentation.

During clearing and construction of the Project, there will be an increase wildlife mortality risk. Wildlife mortality may occur due to wildlife collisions with vehicles or equipment, loss or disruption of habitat (e.g., clearing and soil handling has potential to destroy nests, dens, overwintering sites), sensory disturbance (i.e., nest abandonment) and human conflict.

## WETLAND MODIFICATION AND SEDIMENT CONTROL

Installation of the access road through the wetland and riparian habitat will alter the hydrological patterns of the drainage. The unmapped watercourse has been modified historically for the installation of the sawmill access road and culvert. Existing extensive modification and addition of fill has also occurred on the adjacent property to the west. Implementation of mitigation measures will serve to restore and maintain the drainage of water to the southwest.

Removal of vegetation and ground disturbance may expose soils to erosion and can result in the movement of sediment on the property. Damage or degradation of soil surfaces during construction can include loss of soil structure, increased erosion, and soil compaction, which can negatively affect post-construction reclamation efforts.

## RESIDUAL ENVIRONMENTAL EFFECTS

The rezoning and subdivision of the property will not have any environmental impacts.



The residual environmental impacts of the activities on the property will be reduced by the implementation of the mitigation measures recommended in Section 4 of this report. The environmental disturbance in this rural community will be long-term due to the permanence of the road and buildings; and is considered a moderate impact because of the removal of the vegetation (invasive and otherwise). The moderate impact is due to the logging having already occurred on most of the property prior to the site assessment.

## **4 RECOMMENDED ENVIRONMENTAL PROTECTION MEASURES**

The mitigation measures provided in this report are to meet regulatory requirements and protect habitat. The regulatory requirements include the Section 11 with the provincial government and CRD Bylaw No. 3819. Section 11 is the Apply for a Change Approval or Submit Notification of Instream Work, where a change approval is requested for written authorization to cross a waterbody.

Vegetation clearing should be outside of the migratory bird window (prior to March 15th or after August 15th). Whenever possible, all grading and construction work for the access road and buildings should be done during dry conditions. Construction of the access road should occur when the water levels in the wetland are at their lowest (summer).

### **PROTECTION OF THE RIPARIAN AREA AND WETLAND**

No clearing should occur within the SPEA, with the exception of the access road installation. The SPEA should be clearly marked prior to any clearing or construction, to ensure no disturbance occurs within this sensitive riparian and wetland ecosystem.

### **ACCESS ROAD INSTALLATION**

All construction for the access road to the rear of the property and proposed aquaponic facility site should occur in the dry season, when the water levels in the watercourse and wetland are lowest (or completely dry). Only the area required for the access road (4 m) should be cleared: the boundaries for vegetation clearing should be clearly marked before construction commences.

As part of the Section 11 application, Corvidae will provide the culvert size, length and quantity for the drainage to reach under the access road. The culverts will be directed to the same area where the water is diverted to now, the diversion caused by the fill put in the neighbouring property. The specifications for the culverts, road base, timing and area will all be provided as part of the Section 11 and a Construction Environmental Management Plan to the CRD and the proponent.

### **POLLUTION CONTROL, FUELING AND SPILL RESPONSE**

All equipment accessing the property should be in good working order. Any leaks should be repaired prior to commencing work. Any fueling of equipment will be done with drip-trays underneath on site, on the road or set staging area. There will be no fueling of equipment within 30 m of the watercourse and wetland.

All fuel containers and other potentially deleterious substance containers will be secured so that they may not be emptied or upset by vandals when left overnight in the area.

A large, labeled mobile spill kit capable of mitigating spills of 100 litres of fuel is recommended to be kept on site adjacent. The kit should contain the following materials or equivalent:

- absorbent pads (hydrocarbons and antifreeze)





- absorbent socks (oil, gas & diesel)
- a jar of plug n dike (leak stop compound)
- 1 spill instruction sheet

## REVEGETATION

Measures taken to minimize soil degradation and compaction include:

- Maintaining soil structure by excavating the soil layers separately and storing covered with tarps.
- Re-applying the separated topsoil as the surface layer prior to commencing with reclamation and landscaping efforts.
- Revegetating exposed soil as soon as possible following construction.
- Implementing weed management measures as required under the Weed Control Act. This includes:
  - Assessing the source for the gravel and ensuring it is weed free and clean (not full of silt).
  - Cleaning all equipment prior to entering the site to avoid spreading of invasive species.

Corvidae recommends landscaping all disturbed areas with native vegetation to compete with invasive species, reduce irrigation requirements and provide wildlife habitat.

## INVASIVE SPECIES

Two invasive species were observed on site: Himalayan blackberry and English holly.

Invasive weed control is difficult for established populations. Immediate eradication of new and small infestations should be a high priority. Hand-pulling and cutting are effective on young plants. All plant material must be disposed of by burning or landfill. Invasive species removal should occur in spring, before the plants flower and seed.

## WILDLIFE AND WILDLIFE HABITAT

Measures taken to minimize impacts on wildlife and wildlife habitat include:

- Follow the best management guidelines outlined in:
  - “Guidelines for Amphibian and Reptile Conservation during Urban and Rural Development in British Columbia – 2014” (Ministry of Environment 2014a).
  - “Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia” (Ministry of Environment 2014b).
- Where suitable, retain habitat that provides shelter for wildlife, such as downed logs and standing dead trees.
- Avoid removal of established trees or shrubs, where possible.
- Undertake all vegetation clearing and access road construction outside the amphibian breeding season (March 15 to August 15; Environment Canada 2017). If this is not possible, a QEP must conduct pre-construction surveys to identify any breeding activity within the footprint and recommend appropriate mitigation.



- Undertake all vegetation clearing outside the bird migratory season and breeding bird window (March 15 to August 15; Environment Canada 2017). This will include the breeding window for raptors particularly for eagles and osprey which extends from January to August (Ministry of Environment 2014). If this is not possible, a QEP must conduct pre-construction surveys to identify any nesting activity within the footprint and recommend appropriate mitigation.

#### EROSION AND SEDIMENT CONTROL MEASURES

The primary focus of erosion and sediment control planning is erosion control; if there is no erosion then there is no sediment. Erosion control is far more cost effective to implement and manage than sediment control.

Site specific controls have been developed based on a site visit and experience from past projects. Erosion controls, listed in Table 4, are recommended to be maintained for the duration of building any dwellings and removed completely following landscaping.

Table 4. Erosion and Sediment Control Mitigation Measures

Activity	Potential Impacts	Mitigation Measures
Clearing of existing vegetation	Exposure of underlying soils to erosion	Install silt fencing to prevent sediment laden runoff from entering the watercourse or wetland.  Minimize amount of time soils are exposed, plant native vegetation and landscaping materials within the growing season following removal of non-native vegetation and landscaping.
General construction	Sediment laden runoff	Store soils in dry, flat areas, outside of the SPEA.
Restoration and native vegetation	--	Planting of native species of grasses, shrubs and trees in the green space areas, which naturally have deep roots to aid in soil stabilization, compete against weeds and do not require irrigation.

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## APPENDIX A – SITE PHOTOGRAPHS

Photo 1. Clearcut area and existing sawmill. February 19, 2019.



Photo 2. Recently clearcut area (proposed Lot 3 and proposed location of aquaponics facility). February 19, 2019.





Photo 3. Cleared area in western portion of the property (proposed Lot 2) near Otter Point Road. February 19, 2019.



Photo 4. Open wetland area at 3542 Otter Point Road. February 19, 2019.





**Photo 5. Sedge dominated wetland area with mature forest adjacent. February 19, 2019.**



**Photo 6. Mature alder with shrubby understory at the westernmost margin of the wetland. February 19, 2019.**





Photo 7. Mature forest habitat adjacent to the watercourse and wetland. February 19, 2019.



Photo 8. Channelized portion of the unmapped watercourse on the property. February 19, 2019.



Photo 9. Filled area on adjacent property to the west of 3542 Otter Point Road (view north).  
February 19, 2019.

