



# OVERVIEW ENVIRONMENTAL ASSESSMENT

Vacant Lots  
PIDs: 027-687-309, 002-811-626, and 028-856-589,  
Anmore, B.C.

Prepared for:  
Anmore Gate & Bella Terra Investments 2 Inc.

Prepared by:  
PHOENIX ENVIRONMENTAL SERVICES LTD.

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## Acronyms Defined

CDC	BC Conservation Data Centre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWHdm	Coastal Western Hemlock, Dry Maritime (biogeoclimatic zone)
DFO	Department of Fisheries and Oceans Canada
MOF	BC Ministry of Forests
ESC	Erosion and Sediment Control
QEP	Qualified Environmental Professional
RAPR	Riparian Areas Protection Regulation, Province of BC, <i>Riparian Areas Protection Act</i> , B.C. Reg 178/2019
RPBio	Registered Professional Biologist (British Columbia)
SAR	Species-At-Risk
SARA	<i>Species at Risk Act</i> (Canada)
SEA	Sensitive Ecosystem Area
SPEA	Streamside Protection and Enhancement Area
TOB	Top of (stream) Bank
WSA	BC <i>Water Sustainability Act</i>



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## 1. INTRODUCTION

Phoenix Environmental Services Ltd. (Phoenix) has been retained by landowners Anmore Gate & Bella Terra Investments 2 Inc. to assess three (3) properties in Anmore, BC (the Site), and to provide an Overview Environmental Assessment report presenting our findings about the environmental features at the Site. The Site consists of three (3) lots with the following PIDs: 027-687-309, 002-811-626, and 028-856-589. The Site is approximately 34.68 acres in size and currently zoned by the Village of Anmore as Residential – RS-1. The Site consists of vacant, forested land with old logging roads and a number of watercourse features. This Overview Environmental Assessment has been requested in order to assess the watercourse features on and nearby the Site, to assess ecological and wildlife attributes at the Site, and determine the applicable streamside setbacks and environmental buffers to incorporate for future development plans.

Phoenix has collaborated with Bianchini Biological Services (BBS) to complete this Overview Environmental Assessment. This assessment has been based on multiple winter field assessments of the Site and surrounding area, review of available information resources (e.g., Village of Anmore mapping system), and previous environmental assessments in the vicinity of the Site conducted by PGL Environmental Consultants (PGL) in 2016 and 2023, and Satori Environmental Services (Sartori) in 2017. Phoenix has assessed the Site to identify and classify existing watercourse drainage features and determine streamside setbacks that are required through provincial and federal regulatory requirements. Bianchini Biological Services (BBS) has conducted a wildlife and vegetation assessment of the Site focusing on species at risk and to identify the wildlife and vegetation values and potential wildlife corridors within the Site. The Site was assessed for occurrences of species listed under the Species at Risk Act (SARA), Committee on the Status of Endangered Wildlife in Canada (COSEWIC), provincial Wildlife Act, provincially Red and Blue-listed species and for general wildlife and vegetation species as well as raptor/heron nests and current wildlife use.

This report describes the existing Site conditions and important environmental features. There has not been an impact assessment conducted at this phase of project planning; however, general recommendations have been provided to guide the development design and minimize impacts to sensitive habitat features. An Environmental Impact Assessment (EIA) report will be prepared once future development plans for the Site have advanced to the permit and approvals stage. This Overview Environmental Assessment is provided to facilitate development planning for the Site by identifying important environmental features that should be conserved and protected through future development plans.



## 1.1 REGULATORY FRAMEWORK

Various municipal, provincial, and federal environmental regulatory requirements apply to the Site. While there are many regulatory requirements for environmental protection in BC, the following key land and water use regulatory requirements are applicable to future development plans for the Site and can be addressed to mitigate detrimental impacts and enhance beneficial effects associated with planned development of the Site.

### 1.1.1 Municipal

The Site is located within the Village of Anmore. The protection of trees within the Village of Anmore is managed by the *Tree Management Bylaw No. 579-2018* which states that the removal of a tree that is  $\geq 20$ cm diameter at breast height must be done under a valid permit issued under the bylaw. Anmore's *Sediment and Discharge-Control-Bylaw No. 309* outlines the erosion and sediment control requirements to prevent erosion of soils and deposition of sediment or silty water into the Village's watercourses and storm sewers.

### 1.1.2 Provincial

The Riparian Areas Protection Regulation (RAPR) under the *BC Riparian Areas Protection Act* prescribes assessment methods and reporting standards for establishing streamside setbacks to be protected from development impacts. The RAPR applies to all local governments in the Lower Mainland and other designated areas of BC where land development near streams is extensively occurring. The Village of Anmore utilizes the RAPR to determine no-disturbance streamside or riparian setbacks and to comply with provincial laws protecting streams and fish habitat.

The *BC Wildlife Act* protects wildlife by establishing regulations for hunting or trapping. Pertinent to the subject Site and surrounding residential areas, it is a contravention of the *BC Wildlife Act* to possess, take, injure, molest, or destroy a bird, its nest, or eggs. During the breeding bird season (March 1 – August 31), the eggs and young in bird nests are to be protected until the young birds have left the nest and the bird nest is no longer active. Nests of designated species including eagles, falcons and herons are protected year-round, regardless of whether they are occupied.

The *BC Environmental Management Act* regulates activities that introduce waste into the environment, store waste, and treat/recycle hazardous waste. The Contaminated Sites Regulation (CSR) under this Act requires that a property be investigated for possible contamination by numerous forms of pollutants following prescribed investigation methods and has established legal standards for environmental quality for various types of land uses (e.g. residential, commercial, industrial) regarding specified contaminants that may be found in soil, soil gases (vapour) and groundwater. The CSR soil, vapour and groundwater quality standards must be met in order for new development to proceed either by confirming the absence of contamination or confirming contamination found has been cleaned up (remediated) before planned development takes place.



The BC *Water Sustainability Act* (WSA) manages use of surface water and groundwater, as well as changes in and around watercourses or streams as defined by the WSA. Changes in or about a stream require prior authorization under the WSA. Commonly occurring and necessary changes to streams, such as culverts for road crossings, overhead pipelines or bridges crossing streams can receive WSA authorization through simple notification to the designated provincial agencies. Other changes in or about a stream such as diverting stream from its existing channel requires a more complex WSA Change Approval. The use of groundwater is also regulated under the Water Sustainability Act.

### 1.1.3 Federal

The Canada *Fisheries Act* includes provisions to protect fish and fish habitat, where fish habitat is water frequented by fish and any other areas on which fish depend directly or indirectly. The Fisheries Act also prohibits pollution of waters frequented by fish. Where works are proposed in or about streams, authorisation from DFO may also be required even if fish are not present in the subject stream. If works have the potential to cause harmful alteration, disruption, or destruction ('HADD') to fish habitat, or to result in the death other than by licensed fishing, DFO requires notification detailing justification for the works, alternatives considered, mitigation measures, and if appropriate, offsetting (compensation) for HADD. Under 2019 amendments to the Canada Fisheries Act, the definition of fish has been expanded to include all fish species, including crustaceans and marine mammals.

The *Species at Risk Act* protects federally listed species at risk from becoming extinct or lost from the wild. The Act covers all species that are listed as being at risk nationally and federally identified critical habitat. The B.C Conservation Data Centre, in consultation with other experts, assign species conservation status ranks. The Red and Blue lists provide a list of species for consideration for more formal designation as Endangered or Threatened, either provincially under the British Columbia Wildlife Act, or nationally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). On private land in BC, technical guidance and best management practices exist to prevent harm to specified plant and animal species that are listed in the *Species at Risk Act* or by COSEWIC.

The *Migratory Birds Convention Act* prohibits the taking or killing of migratory birds and their nests and eggs, as well as prohibiting pollution by harmful substances in areas frequented by migratory birds. Effective July 30, 2022, the Migratory Bird Regulation provides year-round protection of the nests of 18 migratory birds listed under Schedule 1. These nests are protected until they can be determined to be abandoned.



## 2. CONSULTANT QUALIFICATIONS

Matt Fernandez, B.Eng., E.I.T, is a Fisheries Technician with Phoenix Environmental and has been a major contributor to this assessment. Matt completed his B.Eng. degree in Environmental Engineering at the University of Guelph and has studied fish and fish habitat assessment and field skills at Vancouver Island University. Matt has conducted environmental impact assessments throughout the Lower Mainland including RAPR assessments as well as watercourse classifications. Matt has completed provincial and federal regulatory applications, and is experienced with instream work monitoring, aquatic restoration, and habitat assessments.

Ken Lambertsen is a Registered Professional Biologist (R.P.Bio) with over 30 years of experience in conducting stream habitat assessments and environmental impact assessments, as well as other environmental consulting services. Ken has also been a contributor to this assessment. He has completed many environmental assessments entailing ecological communities, wildlife habitats, Species-at-Risk, and other ecologically sensitive features. He has completed numerous consulting assignments for various municipalities entailing stream assessments, stream classification, setback determinations, wildlife and ecological community assessments, and environmental impact assessments. Ken Lambertsen is a Qualified Environmental Professional (QEP) under the B.C. Riparian Areas Protection Regulation.

Claudio Bianchini is a R.P.Bio. and expert wildlife biologist. Claudio formed Bianchini Biological Services after years of experience in terrestrial resource assessment and wildlife management in both government and private sectors. Since 2000, he has provided professional services to government, industry, and private sector clients. These services have included: environmental counsel and monitoring; terrestrial ecosystem mapping; wildlife management plans; wildlife habitat impact assessments and mitigation (planning, construction procedures and sequencing); breeding bird surveys; habitat compensation plans; literature reviews; technical report writing and editing assignments.

## 3. METHODOLOGY

Phoenix has completed a review of available information resources about the Site followed by multiple field assessments of the Site.

### 3.1. DESKTOP RESEARCH

Prior to the field assessment, a literature search was conducted covering the Anmore area, including BC Conservation Data Centre (BCCDC) searches, BC Geographic Warehouse online iMap, South Coast Conservation Program (SCCP), previous reports and local knowledge. The Village of Anmore web mapping services was also reviewed to obtain the most up-to-date aerial imagery and historical imagery was retrieved from Google Earth Pro. The BCCDC website was





searched for all species listed under the SARA, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Provincial Forest and Range Practices Act (FRPA) and the Provincial Wildlife Act that are suspected to occur within habitats identified within the study area. In addition, species listed as Red and Blue-listed by the BCCDC but not specifically covered under legislation were also included. BCCDC data for all records within 2 km of the study area were also reviewed (Appendix A; Figure 3).

Information has been supplemented by observations and data collected for a large vacant parcel adjacent to the north of the Site by PGL Environmental Consultants (PGL) in 2016 and 2023, and Satori Environmental Services (Sartori) in 2017.

### 3.2. FIELD ASSESSMENT

Phoenix conducted a visual inspection of the Site on February 22, and March 6 and 15, 2024, to identify, qualify, and map valuable environmental features and ecologically sensitive areas at the Site. BBS undertook the field work for this assessment on February 22 and March 15, 2024. The field sessions were conducted during the winter season which often brings increased precipitation and snowmelt, resulting in more significant flow in watercourses and a clearer understanding of the natural flow dynamics. Reduced vegetation cover during winter along watercourses provides enhanced conditions for observing the physical characteristics and features of the watercourse, such as channel morphology and riparian vegetation.

In the 24 hours prior to the February 22 visit, there was 11.8 mm of rain and 3 days preceding the February 22 visit, there was about 25 mm of rain. In the 24 hours prior to the March 6 visit, there was 0.0 mm of rain and 3 days preceding the March 6 visit, there was about 15 mm of rain. In the 24 hours prior to the March 22 visit, there was 0.0 mm of rain and 3 days preceding the March 22 visit, there was about 0.0 mm of rain. Additionally, on March 6, there was snow melting off the trees, which would result in more water heading to streams and ditches. In January 2024, a month prior to the field visits, there was approximate 462 mm of accumulative monthly rainfall. February 2024 had approximately 227 mm of accumulative monthly rainfall and March 2024 had approximately 63 mm of accumulative monthly rainfall.

#### 3.1.1 *Federally and Provincially Listed Species and Species of Management Concern*

Eight federally and/or provincially listed species and one species of management concern known or suspected to occur within the Project study area. These species are listed in Table 1.



**Table 1: Federally and/or provincially listed species that may occur within the study area and in similar habitats within 2 km of the Anmore Gate study site (SARA 2024; BCCDC 2024<sup>1</sup>).**

Species  Common/Scientific Name	Federal/Provincial Status		Legislation			Site Occurrence  Expected Onsite Habitat Use
	COSEWIC/SARA Status	BCCDC Status*	SARA	Provincial FRPA	Provincial Wildlife Act	
<b>Vegetation:</b>						
Roell's Brotherella Moss ( <i>Brotherella roellii</i> )	Endangered (2010)	Red	Y	-	-	<b>Unlikely</b> – Although suitable habitat features occur, all records for this species occur below 100 m elevation.
<b>Vertebrates: Amphibians</b>						
Northern Red-legged Frog ( <i>Rana aurora</i> )	Special Concern (2015)	Blue	Y	-	Y	<b>Suitable</b> – Potential general living habitat occurred throughout the forested portions of the study area. Two potential breeding ponds were detected in the RFVT.
Western Toad ( <i>Anaxyrus boreas</i> )	Special Concern (2012)	Blue	Y	-	Y	<b>Suitable</b> – Potential general living habitat occurred throughout the forested portions of the study area. Two potential breeding ponds were detected in the RFVT.
<b>Vertebrates: Birds</b>						
Band-tailed Pigeon ( <i>Patagioenas fasciata</i> )	Special Concern (2008)	Blue	Y	-	Y	<b>Suitable</b> - Breeding habitat may occur within the forests of the study area.
Western Screech-owl ( <i>Megascops kennicottii kennicottii</i> )	Special Concern (2002)	Blue	Y	-	Y	<b>Unlikely</b> – Lack of suitable riparian habitat observed within the study area.
Pileated Woodpecker ( <i>Dryocopus pileatus</i> )	-	Yellow	N	-	Y	<b>Confirmed</b> – Observed and heard drumming and calling within and adjacent to the study area. Feeding sign observed throughout the study area. The mature trees and wildlife trees provide suitable nesting habitat.
<b>Vertebrates: Mammals</b>						
Snowshoe Hare ( <i>Lepus americanus washingtonii</i> )	-	Red	-	-	Y	<b>Suitable</b> – Pellets detected in similar habitat within 250 m the study area in 2017. A BCCDC record occurs within 2 km of the site.
Pacific Water Shrew ( <i>Sorex bendirii</i> )	Endangered (April 2006)	Red	Y	Y	Y	<b>Unlikely</b> – The vegetation and features observed within the seepage sites and ponds provided poor habitat.
Trowbridge's Shrew ( <i>Sorex trowbridgii</i> )	-	Blue	-	-	Y	<b>Unlikely</b> – The minor occurrence of moist vegetation associated with the seepage sites identified within the study area provided limited habitat
*Red = Extirpated, Endangered or Threatened, Blue = Special Concern, Yellow = Apparently secure/not at risk of extinction						



The Site has been walked extensively by two observers: a fish habitat technician and a wildlife biologist. A DJI Mini 4 Pro drone was also used to obtain aerial imagery of the study area and to aid in the detection of potential raptor stick nests and other significant habitat features. All data were recorded into a field notebook. In addition, all wildlife (and their sign) encountered were also recorded, photographed and locations obtained using a handheld Global Positioning Satellite (GPS) receiver. Assessment methods for listed wildlife were adapted from methodologies described in the most recent Best Management Practices (BMP) available. In addition, surveys were also conducted for non-listed wildlife, vegetation and habitat features detected at the site including raptor nest surveys. Potential raptor nest trees were scanned visually with binoculars. All wildlife and wildlife sign encountered were recorded.

## 4. ENVIRONMENTAL SETTING

The following sections outline the environmental conditions at the Site.

### 4.1 SITE LOCATION AND LAND USE

The Site is located in the southeast corner of the Village of Anmore. Refer to the maps and figures in Appendix A for more detail. Most of the land surrounding the Site to the east, south, and west has been developed for residential land use, as such, land use in the surrounding area is nearly exclusively residential. Land to the north of the Site consists of forested, undeveloped land that exhibits old logging roads and public walking trails. The Site study area occurred upslope of East Drive in Anmore, BC. All forested and non-forested areas encountered were assessed during the field program. These areas were part of potential wildlife corridors and habitats that may be used by at least eight federally or provincially listed terrestrial wildlife and vegetation species. In addition, the study area also provides habitat for one woodpecker species of management concern. The study area fell within the Georgia Depression Ecoprovince, Lower Mainland Ecoregion, Fraser Lowland Ecoregion and was situated in the Coastal Western Hemlock Dry Maritime (CWHdm) BGC subzone. The legal description and size information for the properties assessed are listed in Table 2.

**Table 2: Legal Description, PID, and Parcel Size**

Civic Address	Legal Description	PID	Area
N/A	LOT 8, PLAN BCP38521, SECTION 16, TOWNSHIP 39, NEW WESTMINSTER LAND DISTRICT, & SEC 20 & 21	027-687-309	12.03 acres
1720 EAST RD, ANMORE	LOT 71, PLAN NWP61510, SECTION 16&21, TOWNSHIP 39, NEW WESTMINSTER LAND DISTRICT	002-811-626	14.63 acres
EAST RD, ANMORE	LOT 2, PLAN BCP50903, SECTION 16, TOWNSHIP 39, NEW WESTMINSTER LAND DISTRICT	028-856-589	8.02 acres

NOTES: 1. Information sourced from Village of Anmore via <https://islengeering.maps.arcgis.com/>



## 4.2 TOPOGRAPHY AND GEOLOGY

The Site slopes down in various directions. The Anmore Gate section of the Site slopes down to the south-southwest, while the Bella Terra portion features slopes to the south, southwest, and west.

Surficial geology mapping by the Geological Survey of Canada (New Westminster, Map 1484A) shows that native soils across the Site are comprised of two (2) different types: Vashon Drift (Va) at the western extent of the Site and Tertiary (PT) in the eastern portion of the Site. Va soils are described as till, glaciofluvial, glaciolacustrine, and ice-contact deposits, specifically, lodgement till (with sandy loam matrix) and minor flow till containing lenses and interbeds of glaciolacustrine laminated stony silt. PT type is described as Mesozoic bedrock including granitic and associated rock types where bedrock is not at the surface it is overlain by glacial deposits and colluvium (Armstrong & Hicock, 1976).

According to BC Soil Survey mapping (Soils of the Langley-Vancouver Map Area, Luttmerding, 1980), the Site is comprised of three (3) distinct soil polygons. Surficial soils across most of the Site (western and northwestern portion) are described as 50% Buntzen (moderately well drained sandy loam), 30% Cannell (well drained loam), and 20% Steelhead (imperfectly drained sandy loam). The northeast portion of the Site is described as 70% Buntzen (moderately well drained sandy loam) and 30% Cannell (well drained loam). The southern portion of the Site is described as 70% Buntzen (moderately well drained sandy loam) and 30% Steelhead (imperfectly drained sandy loam).

The above descriptions of surficial geology and native soils mapping for the Site are consistent with field observations of high rates of soil permeability and surface water infiltration during prolonged wet weather conditions.

## 4.3 WATERCOURSES

A Phoenix fish habitat technician conducted overview watercourse surveys at the subject Site during three (3) field assessments on February 22, and March 6 and 15, 2024. The field assessments were conducted to identify and classify existing watercourse drainage features and determine streamside setbacks that are required through provincial and federal regulatory requirements.

The watercourses observed by Phoenix varied, including constructed drainage ditches, natural slope-side drainages, and seepage zones fed by groundwater. While some of these watercourses connected to downstream features, others were disconnected and observed to terminate by infiltration into the ground. The watercourse locations are presented on the Watercourse Location Map in Appendix A and described below in the following sections. Table 3 presents a summary of the watercourse classification and associated streamside setbacks.



The Water Sustainability Act (WSA) defines a “stream” as:

- a) a natural watercourse, including a natural glacier course, or a natural body of water, whether or not the stream channel of the stream has been modified, or
- b) a natural source of water supply;  
including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer.

The definition of a stream under the Riparian Areas Protection Regulation (RAPR) is broader. In the RAPR, a “stream” means:

- (a) a watercourse or body of water, whether or not usually containing water, and
- (b) any of the following that is connected by surface flow to a watercourse or body of water referred to in paragraph (a):
  - (i) a ditch, whether or not usually containing water;
  - (ii) a spring, whether or not usually containing water;
  - (iii) a wetland

Almost any watercourse is a RAPR stream if it has a surface water flow connection to another watercourse. However, a watercourse that terminates to ground is not a stream under the RAPR.

**Table 3: Watercourse Classification and Setback Areas**

Watercourse	Classifications		Setback (SPEA) Width
	WSA Stream	RAPR	
<i>Watercourse A</i>	Yes	Not a RAPR-regulated stream	None
<i>Pond A</i>	Yes	Not a RAPR-regulated stream	None
<i>Watercourse B</i>	Yes	Not a RAPR-regulated stream	None
<i>Pond B</i>	Yes	Not a RAPR-regulated stream	None
<i>Watercourse C</i>	Yes	Natural RAPR Stream	10 m (from stream boundary)
<i>Watercourse D</i>	No	RAPR ditch, non-fish-bearing	2 m (from ditch TOB)
<i>Watercourse E</i>	Yes	Natural RAPR Stream	10 m
<i>Watercourse F</i>	Yes	RAPR Channelized Stream	10 m
<i>Watercourse 5 (PGL)</i>	Yes	Natural RAPR Stream	10 m



Refer to the Watercourse Location Map in Appendix A for details. Streams, channelized streams, and ditches regulated under the RAPR are shown in dark blue. Ditches coloured light blue on the Watercourse Location Map have been observed to be flowing during the field assessments but infiltrating and terminating to ground or draining to ponds that are unconnected and isolated. There are ditches coloured orange (Appendix A) that have been previously mapped on topographic surveys of the Site but have been observed to be dry during all field assessments.

Watercourse A comprises two tributary drainage ditches observed to contain flows draining to Pond A, and a short ditch draining from Pond A that soaks into the ground and is not connected by surface flow to other fish habitat streams (i.e. not a RAPR stream). Pond A is the largest pond at the Site. This pond is reported by neighbours to the south of the Site to have been previously constructed and modified by a former owner of the Site. Pond A was identified as the most significant aquatic feature at the Site in terms of its potential for supporting amphibian populations from a wildlife perspective and is discussed further in Section 4.9. Isolated wetlands or ponds (e.g. Pond A) are WSA streams in so far as being a natural source of water supply. However, because isolated ponds are not connected by surface flow to another watercourse or body of water, isolated or confined ponds do not constitute a stream under the RAPR and therefore are not subject to streamside setbacks (SPEA) prescribed by the RAPR.

Watercourse B is a short ditch with observed flows draining to Pond B, another confined or isolated pond. Pond B does not seem to drain into anything (i.e., no outlet ditch with water flowing downstream of the pond). Based on the observed infiltration potential at this Site, it appears evident that the pond infiltrates to ground or recedes to the depth where the pond intersects the water table in this area of the Site. Pond B is a WSA pond but is not a RAPR stream. Watercourse B is a short ditch but is not a RAPR stream. There are no RAPR SPEA that apply to Pond B or Watercourse B.

Watercourse C has been observed to convey minor trickle flow in an unconstructed natural channel within a few metres of its confluence with an off-site adjacent rock lined constructed ditch on the property adjacent to the west of the Site (Watercourse F). Upslope of the mapped extent of Watercourse C (see Appendix A), a shallow channel was observed to be dry and discontinuous, even when other watercourses were flowing. The shallow channel upslope of Watercourse C appears to go sub-surface (e.g., infiltrate into the ground), which is a notable pattern at the Site. Minor flow was observed in this shallow channel originating from an old logging road. However, this flow infiltrated to subsurface as Phoenix followed the feature down from the road on February 22. The flow originating from the logging road appeared to be emerging from the slope cut along the side of the logging road, with no apparent stream up-slope of logging road slope cut. Watercourse C is a RAPR stream and based on its narrow channel width is subject to a 10 m RAPR SPEA, which is the minimum SPEA width under the RAPR.

Watercourse D is an off-site adjacent constructed ditch that begins at the southern property boundary of the Site and ends when flow is conveyed into a culvert. At the upstream extent of this



ditch, there is a perforated pipe that is flowing into the ditch. During a March field visit, this ditch was flowing with a notable amount of water. Along the alignment of Watercourse D, the ditch has been widened to form a small but deep man-made pond, reaching depths of approximately 6-8 feet. The adjacent owner explained during a field assessment that this pond was intentionally constructed to provide firefighting water storage for nearby residences. Watercourse D is a constructed roadside (driveway) ditch that is considered to be a RAPR ditch that is not fish-bearing and is subject to a 2 m RAPR SPEA. As a roadside ditch, Watercourse C meets the description of a corridor drainage or corridor ditch. Corridor ditches are not WSA ditches or streams, as per the 2022 WSA technical guidance document: “A User’s Guide for Changes In and About a Stream in British Columbia”.

Watercourse E is a short segment of natural stream channel that is off-site and adjacent to the south of the panhandle easement extending to the Site from East Road. At the west and downstream extent of the natural stream segment, Watercourse E is conveyed via a stormwater pipe towards a very short ditch along East Road. Watercourse E is a RAPR stream and is subject to a 10 m RAPR SPEA.

Watercourse F is an off-site constructed, rip-rap lined channel extending along the rear yard of the adjacent property to the east of the Site. The ditch terminates at a culvert. This ditch exhibited some flow which increased as it progressed downstream and north along the ditch. The ditch appears to be intercepting shallow groundwater flow, conveying it along the ditch. Presumably, this ditch was specifically installed to keep excess water away from the adjacent homes. Watercourse F is connected to the on-site Watercourse C and as such is a channelized stream under the RAPR and is subject to a 10 m RAPR SPEA.

Watercourse 5 (PGL) is a previously mapped watercourse by PGL and Sartori that was flowing at the time of Phoenix’s assessments. This watercourse is located off-site but is near the northern Site boundary. Watercourse 5 is classified by Phoenix as a RAPR stream and is subject to a 10 m RAPR SPEA.

A Streamside Setback Map showing the above watercourses and RAPR streamside setbacks (SPEA) is presented in Appendix A

#### 4.4 ECOSYSTEMS

The Site falls within a Dry Maritime Subzone of the Coastal Western Hemlock Biogeoclimatic Ecosystem Classification Zone (CWHdm), characterized by warm, relatively dry summers and moist, mild winters with little snowfall. The dominant plant species in climax communities include Douglas-fir, Western hemlock, and Western redcedar. The understory composition typically includes species like salal, red huckleberry, and various mosses. Currently, the Site is predominantly forested, with two (2) distinct vegetation types.



## 4.5 VEGETATION OVERVIEW

Two vegetation types were identified within the Site study area:

1. Regenerating Forest Vegetation Type
2. Mature Forest Vegetation Type

Representative photographs of each of the vegetation types are in Appendix B. A list of vegetation observed within the vegetation types is included in Appendix C. The two vegetation types identified within the subject area are described below.

### 4.5.1 Regenerating Forest Vegetation Type

The Regenerating Forest Vegetation Type (RFVT) occurred entirely within the southern 8.02-acre Bella Terra property (PID 028-856-589). The mixed structural stage 4-6 (20-140 years old) stand was logged approximately 25 years ago and was dominated by regenerating red alder (*Alnus rubra*), paper birch (*Betula papyrifera*), and bigleaf maple (*Acer macrophyllum*) with small patches mature western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*) and Douglas-fir (*Pseudotsuga menziesii*). Refer to Photograph 1 in Appendix B. The mature trees within the RFVT averaged 80-100 years in age. The patchy shrub layer was dominated by moderate to dense areas of salmonberry (*Rubus spectabilis*), salal (*Gaultheria shallon*), vine maple (*Acer circinatum*), western redcedar and western hemlock (Appendix B, Photograph 2). The sparse herb layer was dominated by sword fern (*Polystichum munitum*) with a dense cover of leaf litter. Recent and historical logging access roads were observed, and evidence of past forest fires were also detected. Moderate coarse woody debris (CWD) cover was observed within this vegetation type.

Two man-made ponds (Pond A and Pond B) are located within this vegetation type. Refer to Appendix A, Figure 2 and to Photographs 3 and 4 in Appendix B. The vegetation surrounding these two ponds was dominated by dense growth of Himalayan blackberry (*Rubus armeniacus*) and salmonberry. The ponds were fed by seepages that had been channelized to direct water into the man-made depressions.

### 4.5.2 Mature Forest Vegetation Type

The Mature Forest Vegetation Type (MFVT) occurred within the northern two properties at the Site and encompassed approximately 26.68 acres of the study area (Appendix A; Figure 1). The structural stage 6 (80-140 years old) stand was dominated by mature western redcedar, western hemlock and Douglas-fir with sparse occurrence of red alder (Appendix B; Photograph 5). These mature trees averaged 80-100 years in age. The patchy shrub layer was dominated by moderate to dense areas of salal, red huckleberry (*Vaccinium parvifolium*) and conifer regeneration (Appendix B; Photograph 6). A moderate cover of sword fern dominated the herb layer. Evidence of past forest fires was observed. Moderate CWD cover was observed within this vegetation type.





Recently maintained gravel access roads also bisected this vegetation type. A number of seepage sites were encountered along the access roads.

#### 4.5.3 Wildlife Trees

A wildlife tree is any standing dead or living tree with special features that provides present or future critical habitats for the maintenance or enhancement of wildlife. There are nine (9) classifications of coniferous and six (6) classes of deciduous wildlife trees in various successions from live and healthy with no decay, to stumps and debris (Fenger et al. 2006). Each of these wildlife tree stages provide important habitat and are known to support more than 90 animal species in British Columbia, including cavity nesting birds and mammals (Backhouse 1993). Some of the uses include nesting, feeding, territoriality (i.e. bear mark trees, bird singing sites, etc.), roosting, shelter, and overwintering (Backhouse 1993).

Most of the trees observed in the study area were identified as Class 1 wildlife trees. Class 1 wildlife trees are described as live healthy trees with no decay. Class 2 to 9 wildlife trees were also identified within the study area. Most of the decayed trees were associated with historical logging and fire.

Due to survey timing (winter), no active nests were observed within the study area during the field program. Nest cavities (likely from the previous breeding season) were detected in many of the wildlife trees observed. Forage sign from Pileated Woodpecker (*Dryocopus pileatus*) and Red-breasted Sapsucker (*Sphyrapicus ruber*) were observed on many of the wildlife trees (Appendix B; Photographs 7 and 8). These trees also provided habitat for many bird and mammal species including songbirds, squirrels and bats.

#### 4.6 COARSE WOODY DEBRIS

CWD is typically described as woody debris greater than 0.3 m in diameter. CWD provides critical foraging, nesting, and cover components in the forested ecosystem for small mammals, amphibians, reptiles and invertebrates (Anonymous 1991). Many insectivorous small mammals, birds, and black bears (*Ursus americanus*) feed on insects found in decomposing woody material. CWD provides a safe, moist environment in which species such as salamanders and shrews can forage and seek shelter.

Moderate to high CWD cover (>5%) was recorded within most of the RFVT and MFVT within the study area.

#### 4.7 POTENTIAL VEGETATION SPECIES AND ECOLOGICAL COMMUNITIES

Due to survey timing (winter), the presence of many herbaceous vegetation species could not be confirmed during the field survey. In addition to native plant species, invasive plant species such as Himalayan blackberry and English holly (*Ilex aquifolium*) were also detected. The following



are descriptions for federally and/or provincially listed vegetation species and ecological communities that may occur within 2 km of the subject study site.

#### 4.7.1 *Roell's Brotherella Moss*

Roell's brotherella (*Brotherella roellii*) moss is endemic to the Pacific Northwest, where it is only known from southwestern British Columbia and western Washington. Most of the habitats in British Columbia are remnants of second-growth forests found within city parks and in undeveloped areas or in floodplain regions along waterways. Specific habitats include the trunks of trees, notably red alder, bigleaf maple, western flowering dogwood (*Cornus nuttallii*), and birch (*Betula sp.*) in areas of high humidity. Light intensity, at least after hardwoods drop their leaves in the fall, appears to be important for the moss. In BC, all of the populations of Roell's brotherella occur at low elevations, between 4 and 100 m, within the Coastal Western Hemlock (CWH) biogeoclimatic zone (ECCC 2021).

No Roell's brotherella moss were observed within the study area during the field program. One BCCDC record for this species occurred within 2 km of the study area. The study area occurs between 220 m to 370 m elevation and is not within the known elevation range (<100 m) for this species.

#### 4.7.2 *Ecological Communities*

The BCCDC defines listed ecological communities as natural plant communities and plant associations. These communities and associations include a wide range of known ecosystems with their environmental site requirements such as soil moisture and nutrients, climate, physiographic features and energy cycles. These sites are generally old-growth stands that are usually 500 m<sup>2</sup> or greater. These ecosystems are often the remnants of the natural ecosystems that once occupied a much larger area. Typically, mature and old-growth upland ecological communities are of concern to the BCCDC. In addition, all listed riparian, wetland and estuarine communities at any growth stage are also of concern to the BCCDC (K.A. McIntosh pers. comm.). The listed ecological communities are classified using methodologies and nomenclature developed by Green and Klinka (1994).

Most of the study area occurred on a west facing (~246°) moderate slope (~35%). Of the 25 ecological communities identified within the CWHdm, the BCCDC has listed 21 of these communities with 12 identified as Red-listed and nine (9) as Blue-listed. The Blue-listed Western Hemlock / Flat-Moss (Site Series 01) was observed throughout most of the Anmore Gate study area.

### 4.8 GENERAL WILDLIFE OBSERVATIONS

Wildlife sign and activity were recorded throughout the study area. Sign of Columbian Black-tailed Deer (*Odocoileus hemionus columbianus*) and Coyote (*Canis lantrons*) were detected within



the RFVT and MFVT. Historical records for Cougar (*Puma concolor*) and Snowshoe Hare (*Lepus americanus washingtonii*) also occur at the site (Bianchini 2017). Songbirds were observed flying and feeding in vegetation throughout the area. Foraging sign of Pileated Woodpecker and Red-breasted Sapsucker were observed throughout the Site and one Bald Eagle (*Haliaeetus leucocephalus*) was observed soaring over the study area. One stick nest attributed to Common Raven (*Corvus corax*) was observed in the RFVT (Appendix A; Figure 2; Appendix B; Photograph 9). These forested areas also provided important nesting habitat for other wildlife including raptors such as Cooper's Hawk (*Accipiter cooperii*) and owls. All animal species detected are listed in Appendix D.

#### 4.9 WILDLIFE HABITAT ASSESSMENT

Habitats were assessed for the eight wildlife species listed in Table 1. The following are the results of the habitat assessment for each of the eight species.

##### 4.9.1 Northern Red-legged Frog

In addition to being listed on Schedule 1 of the SARA, the Northern Red-legged Frog (*Rana aurora*) is also listed on the provincial Blue List (BCCDC 2024<sup>1</sup>). Northern Red-legged Frogs in BC are found in moist forests and in forested wetlands (Corkran and Thoms 1996). Adults will often wander far from standing water to forage on small insects or forest invertebrates (Nussbaum et al. 1983 in Ovaska and Sopuck 2004). Generally, they breed in cool, shaded temporary ponds where they attach their eggs to submerged woody debris or vegetation (Corkran and Thoms 1996). Critical habitats for the Northern Red-legged Frog would include all temporary and permanent breeding ponds. CWD would also be considered a critical habitat element for cover and foraging.

No Northern Red-legged Frogs were detected during the field survey. Northern Red-legged Frogs are generally not active in the winter which limits their detection. Two suitable breeding ponds were observed in the RFVT (Appendix A; Figure 2, Appendix B; Photographs 3 and 4). The forested portions of the RFVT and MFVT provided suitable general living habitat for Northern Red-legged Frog and many other amphibian species. No BCCDC records occurred within 2 km of the study area.

##### 4.9.2 WESTERN TOAD

Western Toads (*Anaxyrus boreas*) utilize riparian areas and small, moist depressions for re-hydration (Davis 2000), downed wood for cover in recent clearcuts (Wind and Dupuis 2002) and are one of the few amphibian species found at high elevations (>3,000 m). Western Toads are explosive breeders, with reproduction occurring for a short period in early spring (e.g., during a one to two-week period). They breed in shallow, littoral zones of lakes, temporary and permanent pools and wetlands, bogs and fens, and roadside habitats (Corkran and Thoms 1996; Olson 1992).



Western Toads are expected to occur throughout the forested habitats within the study area. Two suitable breeding ponds were observed in the RFVT (Appendix A; Figure 2: Appendix B; Photographs 3 and 4).

#### 4.9.3 BAND-TAILED PIGEON

The Band-tailed Pigeon (*Patagioenas fasciata*) occurs throughout the Fraser Valley. It frequents both natural and man-made habitats such as edges, openings in mature coniferous, mixed, and deciduous forests, city yards, parks, wooded groves, open bushland, and golf courses (Campbell et al. 1990). It is usually associated with conifer dominated stands with diverse structure and ages (Keppie and Braun 2000).

No Band-tailed Pigeons were detected during the field program. Suitable habitat for this species occurs throughout the forested portions of the study area.

#### 4.9.4 WESTERN SCREECH-OWL

In addition to being listed on Schedule 1 of the SARA, the *kennicottii* subspecies of the Western Screech-owl (*Megascops kennicottii kennicottii*) is also listed on the provincial Blue List (BCCDC 2024<sup>1</sup>). Along the coast, the Western Screech-owl seems to be mostly found in either coniferous or mixed (deciduous or coniferous) forests, particularly near riparian areas. This owl prefers open forest for foraging and requires cavities in old, large trees for nesting and roosting. During the daytime, it roosts in either coniferous or deciduous trees (COSEWIC 2002).

The limited suitable riparian vegetation associated with the seepage areas identified within the study area provided poor habitat for this owl species.

#### 4.9.5 PILEATED WOODPECKER

Significant Pileated Woodpecker foraging sign was observed on many wildlife trees within the Mature Forest and Regenerating Forest Vegetation Types (Appendix B; Photograph 7 and 8). Many of the wildlife trees within the study area provided suitable nesting habitat. No recent nest cavities attributed to Pileated Woodpecker were detected during the field assessments.

#### 4.9.6 SNOWSHOE HARE

The Red-listed Lower Mainland subspecies of the Snowshoe Hare is thought to occupy the foothills of the Coast Mountains, north of the Fraser River (Nagorsen 2005). It has been found in undeveloped areas of the Lower Mainland and Fraser Valley. It is considered critically imperiled since almost the entire native habitat for this species in the lower mainland has been developed. This primarily nocturnal species favours moist semi-open forests with clearings and thickets (McTaggart-Cowan and Guiguet 1965).



No Snowshoe Hares or their sign were detected during the field program. Snowshoe Hare pellets were detected 250 m north of the study area in 2017 (Bianchini 2017). A BCCDC Snowshoe Hare record does occur within 2 km of the study area (Appendix A; Figure 3).

#### 4.9.7 PACIFIC WATER SHREW

Pacific Water Shrews (*Sorex bendirii*) are typically associated with riparian areas (Nagorsen 1996; Craig 2003). Past studies have reported that most water shrews were captured within 25 m of streams, however in moist forests, Pacific Water Shrews can be found up to 1 km from water (Pattie 1973 in Craig 2003). The home range of the Pacific Water Shrew is suspected to be 400 m along a waterbody (Craig 2003).

In British Columbia, capture sites appear to be primarily associated with coniferous or deciduous forest with capture sites located very close to water. Habitat components usually found at Pacific Water Shrew sites include the presence of red alder, bigleaf maple, western hemlock or western redcedar that border streams and skunk cabbage marshes (Nagorsen 1996). In addition, Pacific Water Shrews have also been captured in more open habitat, with dense marsh vegetation. These include reed canary grass vegetated roadside ditches and water bodies within highway medians (pers. obs.). CWD also seems to be an important habitat component. The presence of moist habitat appears to be more important than forest age (Craig 2003).

No Pacific Water Shrews were detected during the field survey. No recent BCCDC records for this species occur within 2 km of the study area. A historical record from 1897 occurs southwest of the study area (Appendix A; Figure 3). The unnamed drainage within the study area provided poor habitat for this listed shrew species.

#### 4.9.8 TROWBRIDGE'S SHREW

The Trowbridge's Shrew (*Sorex trowbridgii*) is Blue-listed by the BCCDC (BCCDC 2024<sup>1</sup>). Trowbridge's Shrew use both riparian and non-riparian forest (Zuleta and Galindo-Leal 1994). In non-riparian forests, the Trowbridge's Shrew has shown a preference for areas with a high moisture regime (Nagorsen 1996).

Critical habitat elements for this species include rich soils and abundant decaying CWD and leaf litter on the forest floor (Nagorsen 1996). Ground litter, woody debris and shrub cover provides a secure environment for tunnelling and nesting.

The minor amount of moist vegetation associated with the seepage sites identified within the study area provided limited habitat for this shrew species.



#### 4.10 WILDLIFE CORRIDORS

Wildlife trails, attributed to deer and coyotes, were detected within the study area. These animals appeared to travel mainly along the access roads, old skid trails and along vegetated edges. In addition to deer and coyotes, these corridors may also be used by many species of birds, amphibians, reptiles and small mammals including the Red-listed Snowshoe Hare.

### 5. ENVIRONMENTAL CONSTRAINTS and BEST MANAGEMENT PRACTICES

The provincial Riparian Areas Protection Regulation (RAPR) prescribes assessment methods and reporting standards for establishing streamside setbacks to be protected from any disturbance and development impacts. Under the RAPR, no development is allowed within the RAPR Streamside Protection and Enhancement Areas (SPEA). Development is defined in the RAPR as “the addition, removal or alteration of soil, vegetation or a building or other structure”. Essentially, no thing is to be placed with the SPEA and no thing in the SPEA is to be damaged. Additional measures to protect the stream and its riparian area and ensure the integrity of the SPEA such as tree protection, windthrow protection, slope protection, avoiding encroachment, sediment and erosion control, and other measures are to be detailed on a site-specific basis in relation to a specific development proposal. Removal of existing buildings or structures, invasive plants and enhancing native vegetation are allowed as being consistent with the intent (enhancement) of establishing the SPEA at the Site. Some forms of development along a stream and its riparian area that are commonly required, such as a storm sewer outfall or a road crossing culvert, are only permitted within a SPEA if such ‘works’ are authorized under the Water Sustainability Act (WSA) or the federal Fisheries Act. There are RAPR streams and RAPR ditches at the west edges of the Site or nearby the Site for which the applicable SPEA are shown on the Streamside Setback Map in Appendix A. It would be best practice to avoid any planned development occurring nearby the mapped SPEA at the Site.

For watercourses and ditches that qualify as a stream under the WSA, changes in or about a WSA stream need to be authorized either through Notification for pre-authorized changes as detailed in the Water Sustainability Regulation (WSR, s. 39) or by a Change Approval. A Change Approval requires detailed and thorough description of the proposed changes to the stream including the riparian area (e.g. relocating or diverting a stream channel) and comprehensive measures to mitigate detrimental impacts. Obtaining a WSA Change Approval entails technical review by BC Ministry of Forests staff as well as stakeholder (e.g. municipality) and indigenous consultation, both of which can require many months to complete. It would be best practice to retain WSA streams in their current condition. The ponds at the Site are WSA streams even though these are isolated or confined water resources, and the WSA requires that these ponds be retained or replaced in the context of proposed development. However, the isolated (unconnected) ponds (Pond A and Pond B) at the Site are not subject to prescribed streamside setbacks (SPEA) under the RAPR. Restricting works involving WSA streams to those that are pre-authorized through a WSA



Notification is another best management practice if changes to the WSA stream is necessary under future development plans for the Site.

Compliance with the RAPR and the WSA will effectively ensure that the prohibitions against the killing of fish (other than by licenced fishing) or harmful alteration, disruption, or destruction of fish habitat under the federal Fisheries Act can be met through planning for future development at the Site. Currently, there are some overlapping regulatory requirements under the federal Fisheries Act and the provincial WSA. For future development activities at the Site that require WSA Notification or Change Approval, an application for Request for Review by the Department of Fisheries and Oceans (DFO) would be good practice. In situations where a stream or ditch provides fish habitat but is not regulated under the WSA, a DFO Request for Review should be submitted to confirm that fish habitat protection with a proposed development activity is satisfactory to DFO.

Under the provincial *Wildlife Act* all native vertebrate wildlife species listed in the *Act* are protected. Under the federal *SARA* all listed wildlife, vegetation species and their legislated Critical Habitats are protected on federal lands and all listed aquatic species and bird species and their legislated Critical Habitats are protected on all lands. Although the *SARA* protects all listed species and their legislated Critical Habitats on federal lands, *The Accord for the Protection of Species at Risk* (1996) and the *Canada-British Columbia Agreement on Species at Risk* (2005) gives the province and local governments the first opportunity to prevent the up-listing of any species listed in the *Act*. If local governments do not prevent the up-listing of a species, then the Minister of Environment may order that the provisions of Sections 32 and 33 of the *SARA* apply to the species of concern.

The Site provides potential habitat for the *SARA* listed Northern Red-legged Frog, Western Toad, Band-tailed Pigeon and Snowshoe Hare. Management options are suggested in the most recent Best Management Practices (BMP) available for most species. Management options may include habitat protection in the form of setbacks or in the event that setbacks cannot be achieved then wildlife salvages may be considered.

Pileated Woodpecker nests are protected year-round under the federal 2022 Migratory Birds Regulation (MBR). Pileated Woodpecker nests are protected for 36 months after reported unoccupied. Once a registered Pileated Woodpecker nest has been confirmed inactive per the MBR (2022) requirements, a permit from Environment and Climate Change Canada can be applied for to relocate or destroy the nest.

Specific ecological communities' area protected under the BC *FRPA* on Crown land and no legislation currently applies to ecological communities on private land. The ecological communities identified to occur within the Site, the Western Hemlock / Flat-moss (CWHdm/01) ecological community is not listed under the *FRPA*. No BMPs currently exist for ecological communities. These ecosystems are important to many wildlife species and are of special concern



due to development pressures. All attempts should be made to protect these ecological communities from being negatively impacted.

## 6. CONCLUSIONS

### 6.1 WATERCOURSES

There are three (3) watercourses and two (2) WSA Ponds within the Site. Watercourse A and Watercourse B are not RAPR streams and are not subject to RAPR streamside setbacks (SPEA). Watercourse C is a RAPR stream that is subject to a 10 m SPEA measured from the Stream Boundary; however, Watercourse C is only a few metres inside the western boundary of the Site. While being WSA ‘streams’ that require retention, or alternatively need to be replaced elsewhere, Pond A and Pond B are both isolated and unconnected to other streams and are not subject to SPEA under the RAPR.

Other watercourses are situated nearby the Site and are streams under the RAPR and are subject to prescribed RAPR SPEA. Refer to the Streamside Setback Map in Appendix A showing the RAPR SPEA applicable to each watercourse. The RAPR SPEA are confined to the west edge of the Site or a portion of the panhandle easement off East Road at the Site.

There are several historical drainage ditches along former logging roads and elsewhere that are presently dry and not fish habitat and not streams under the RAPR or WSA.

### 6.2 VEGETATION AND ECOLOGICAL COMMUNITIES

No SARA listed vegetation species were detected during the field program. Due to survey timing (winter) many herbaceous species could not be identified. The Site exceeds the known elevation range for the provincially listed species Roell’s brotherella moss.

No Terrestrial Ecosystem Mapping (TEM) is available for the Anmore Gate study area. The Blue-listed Western Hemlock / Flat-Moss (Site Series 01) was observed throughout most of the Anmore Gate study area.

#### 6.1.1 Invasive Vegetation Species

Invasive vegetation species such as Himalayan blackberry and English holly were encountered along interfaces of forested areas and access roads. Removal of these invasive plant species at strategic sites would benefit many native wildlife and vegetation species. Invasive plant species on the Site should be removed and managed in association with any future development. Invasive plants and soils containing invasive plant material are to be securely transported and disposed of at facilities that are capable of properly disposing or destroying the plant material. Soils are to be contained and covered during transport and shipped to an authorised facility for deep burial. Due





to the potential for spread of invasive vegetation via equipment, clothing, and machinery, proper cleaning protocols are to be adopted.

## 6.2 WILDLIFE TREES

Most wildlife trees in the Site study area were identified as Class 1 wildlife trees. Many Class 2-9 wildlife trees were also detected within the Site. Potential nest cavities were detected in many of the wildlife trees identified. Foraging sign of Pileated Woodpecker and Red-breasted Sapsucker were observed throughout the Site. All wildlife trees within the Site also provide habitat for secondary cavity nesting birds and roosting bats. Habitat for nesting birds and roosting bats would be improved with the addition of bird and bat boxes at strategic sites.

## 6.3 COARSE WOODY DEBRIS

Moderate to high CWD cover occurred within both the RFVT and MFVT within the Site. Wildlife within the Site would benefit from the retention of CWD in strategic locations.

## 6.4 GENERAL WILDLIFE

Sign of deer, coyote, woodpecker and passerines were detected within the Site. Most of the treed portions within and adjacent to the Site provide potential breeding/roosting habitat for raptors, passerines, woodpeckers and several bat species.

### 6.4.1 MAMMALS

Sign of Columbian Black-tailed Deer and Coyote were recorded. Records for the Red-listed *washingtonii* subspecies of the Snowshoe Hare occur within 250 m of the northern edge of the MFVT. The relatively dry forests and limited areas of moist vegetation within the Site provide poor habitat for the SARA listed Pacific Water Shrew and the provincially Blue-listed Trowbridge's Shrew.

### 6.4.2 BIRDS

A stick nest attributed to Common Raven was detected within the Site. One Bald Eagle was observed flying over the Site. The treed portions of the Site provide suitable breeding and roosting habitat for the Blue-listed Band-tailed Pigeon and many raptor species including Bald Eagle, Cooper's Hawk and owls as well as songbirds and woodpeckers.

Significant Pileated Woodpecker foraging sign was observed on many of the wildlife trees within the Site and one Pileated Woodpecker was observed and heard during the field assessments. Pileated Woodpecker nests are protected year-round under the federal MBR (2022). A Pileated Woodpecker nest survey will be required prior to any clearing or construction activities. If a Pileated Woodpecker nest cavity is detected within the proposed works area and is required for



removal, the nest must be registered with Environment and Climate Change Canada (ECCC) Abandoned Nest Registry. The nest must remain inactive by Pileated Woodpecker, or any other migratory bird species listed under the MBR, for 36 months before an application can be made for a federal permit to relocate or destroy the nest.

### 6.4.3 AMPHIBIANS

No Northern Red-legged Frogs or Western Toads were observed within the Site. Two man-made ponds detected within the RFVT provide suitable amphibian breeding habitat within the assessed area. General living habitat for Western Toad and Northern Red-legged Frog was detected within the forested portions of the Site.

The amphibian best management practices (BMP) recommends minimum 30 m setbacks for all Western Toad and Northern Red-legged Frog breeding habitats (Develop with Care Factsheet 2014).

No BMP currently exist for Band-tailed Pigeon, Pileated Woodpecker and Snowshoe Hare.

### 6.5 WILDLIFE CORRIDORS

Moderately to well-used wildlife corridors were observed within the Site, particularly along the access roads and vegetated edges. The forested areas provide good security habitat for many wildlife species.

## 7. RECOMMENDATIONS

The following recommendations are presented for consideration while planning future development of the Site. Environmental constraints and best management practices have been previously discussed in section 5 of this report.

### 7.1 WATERCOURSES

The watercourses that are subject to streamside setbacks (SPEA) under the RAPR (see Appendix A) are to be protected from disturbance to the greatest extent possible in planning for future development at the Site. While not regulated under the RAPR, Pond A and Pond B are protected under the WSA as unconnected water resources and should be retained in place. There are no prescribed setbacks for these isolated ponds at the Site, but retention of a 30-m vegetated buffer for amphibian breeding and rearing purposes are recommended as per section 8.3 and discussed previously in this report.



If a RAPR stream SPEA needs to be modified under development plans for the Site (e.g. utilities installation along the easement panhandle from East Road), a QEP should prepare applications for authorization under the WSA and a DFO Request for Review.

A QEP should be retained to work with the project engineer to prepare a site-specific erosion and sediment control (ESC) plan. A QEP should also be retained to monitor the implementation and effectiveness of the ESC plan. It is recommended that ESC measures be implemented and monitored during land clearing, grading, and building construction phases of development, including final landscaping. Perimeter control such as silt fence (keyed-in to the ground) lined with crushed rock berm should be implemented to prevent mobilized sediments from reaching nearby water features. All sediment and turbid water should be collected and treated within the development envelope such that no turbid water is discharged from the construction areas.

## 7.2 VEGETATION

The following recommendations should be implemented to protect habitat for sensitive vegetation species:

- Remove invasive vegetation species including Himalayan blackberry and English holly at strategic sites identified by a QEP and revegetate these areas with native species. Removal of these invasive vegetation species will improve the habitat quality of the Blue-listed Western Hemlock / Flat-Moss (Site Series 01) Ecological Community.

## 7.3 TERRESTRIAL WILDLIFE

Within the subject area, the following recommendations should be implemented to protect and improve habitat for all wildlife species:

- Implement a 30 m setback from the two man-made ponds and remove any invasive plant species within the setback to protect habitat for the Northern Red-legged Frog and Western Toad. If these two ponds cannot be protected due to project constraints, then create alternate man-made ponds within the project footprint and revegetate the setback areas with native vegetation.

## 7.4 BIRDS AND BATS

Within the subject area the following recommendations should be implemented to protect and improve habitat for all bird and bat species as well as other wildlife:

- Avoid vegetation clearing or habitat alteration during the songbird breeding season (March 1-August 31) to protect breeding birds and avoid contravention of Section 34 of the Provincial *Wildlife Act* and the Federal *Migratory Birds Convention Act* and Migratory Bird Regulations. If vegetation clearing or habitat alteration must be conducted during the



songbird breeding season, then a nest survey program must be developed and implemented by a QEP prior to the commencement of any clearing or construction activities.

- Conduct a raptor nest survey prior to any proposed works as some raptor species are known to construct nests throughout the year. If a raptor nest is detected of a species protected under Section 34(b) of the *Wildlife Act*, then a species specific nest management plan must be developed and implemented by a QEP prior to the commencement of any clearing or construction activities.
- Conduct a Pileated Woodpecker nest survey prior to any proposed works. The survey must include call playback surveys and active nest searches. If a Pileated Woodpecker nest is detected, then a Pileated Woodpecker nest management plan must be developed and implemented prior to the commencement of any clearing or construction activities. If the Pileated Woodpecker nest tree is identified and is required for removal, then the nest must be registered with the ECCC Abandoned Nest Registry. The nest must remain inactive by Pileated Woodpecker, or any other migratory bird species, for 36 months before a federal permit can be applied for to relocate or destroy the nest.
- Install bird and bat boxes at strategic sites under the direction of a QEP to improve nesting and roosting habitat.

In general, for environmental protection, it is always recommended to avoid detrimental impacts as much as possible, and then to minimize and mitigate unavoidable environmental impacts, and to offset or replace important environmental features and habitat as part of planning and designing the location and nature of proposed development at the Site.

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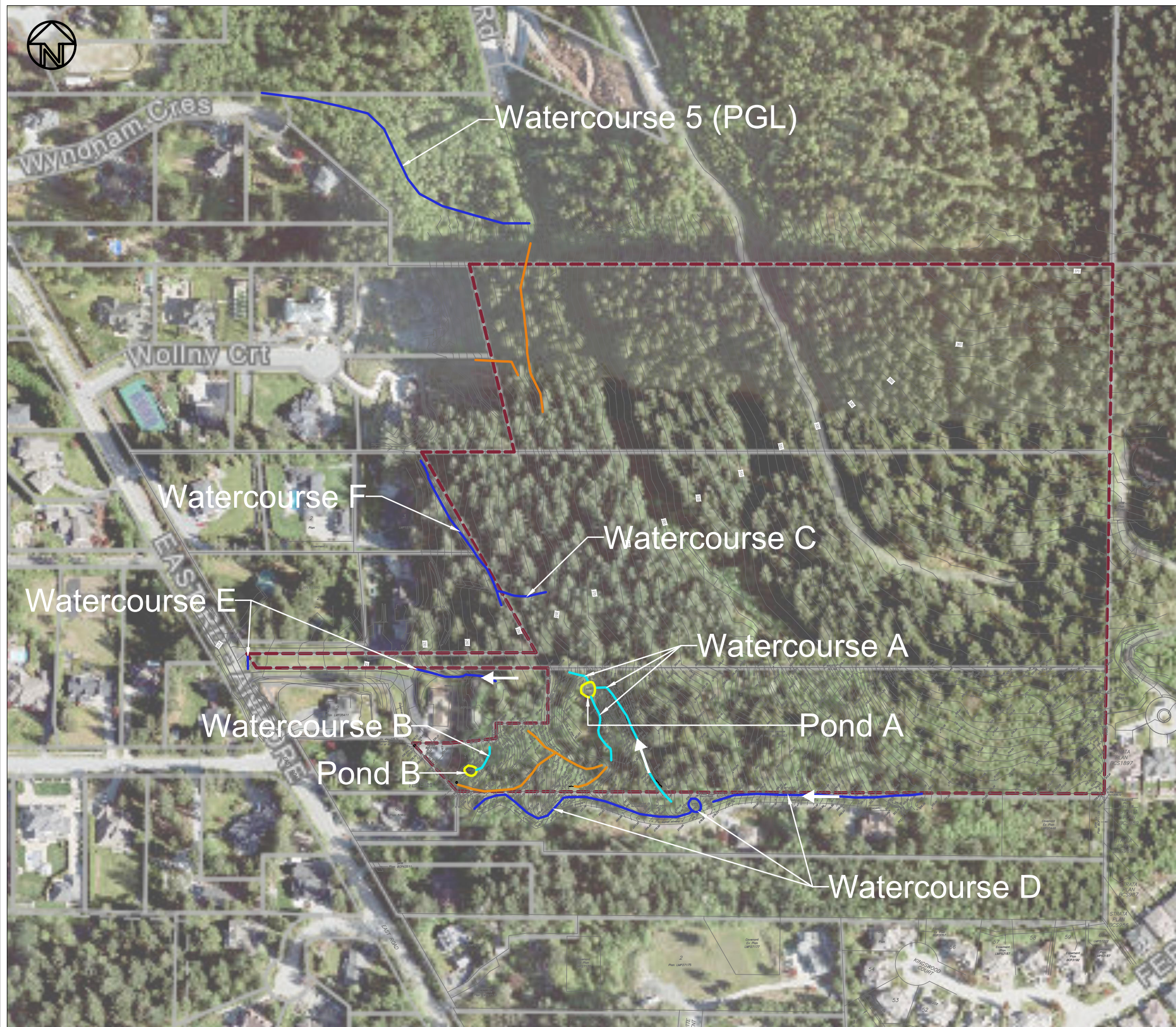
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## APPENDIX A

### Study Area Maps and Figures





**LEGEND:**

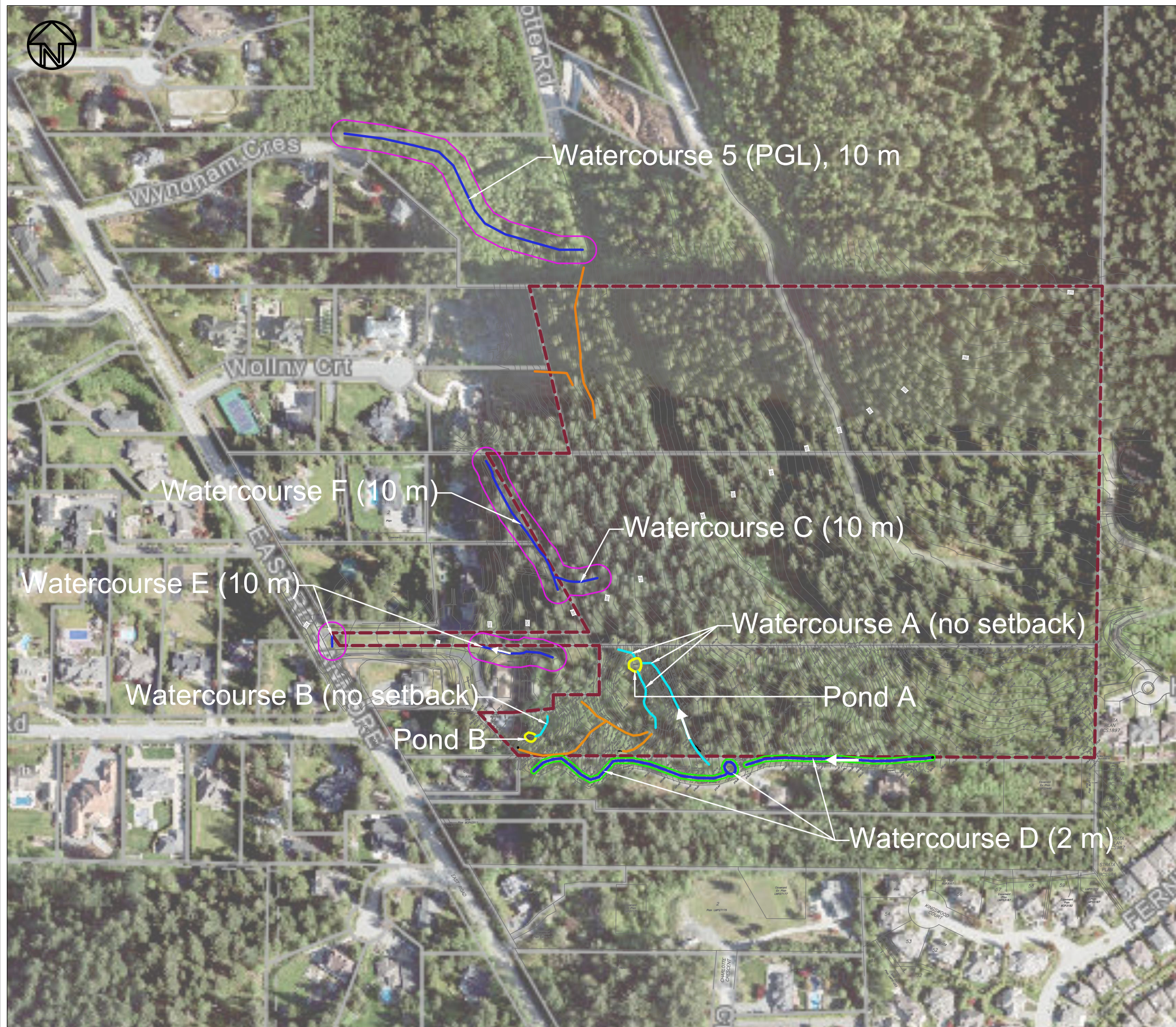
- Site Boundary
- Non-RAPR Watercourse
- RAPR Watercourse
- WSA POND
- Dry, non-RAPR Ditch
- ← Flow Direction











Watercourse Location Map

Anmore Gate & Bella Terra Investments 2 Inc.  
 PID: 028-856-589, 027-687-309, 022-811-626  
 Anmore, BC





**LEGEND:**

-  Site Boundary
-  Non-RAPR Watercourse
-  RAPR Watercourse
-  WSA POND
-  Dry, non-RAPR Ditch
-  10 m RAPR Setback
-  2 m Non-fish-bearing Constructed Ditch Setback
-  Flow Direction



Streamsie Setback Map

Anmore Gate & Bella Terra Investments 2 Inc.  
PID: 028-856-589, 027-687-309, 022-811-626  
Anmore, BC



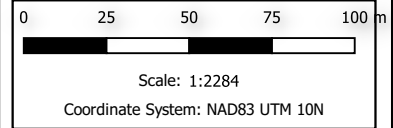
# Anmore Gate Study Area and Lot PIDs



Survey Date:  
February 22 & March  
15, 2024

### Project Data

- Property Lines
- Study Area



Basedata: ESRI/Government of BC  
Mapping by: BBS  
Project number: 125.37  
Drawn by: C. Bianchini  
Date: 2024-03-21

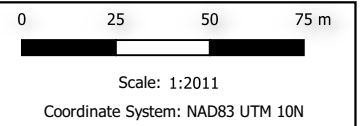
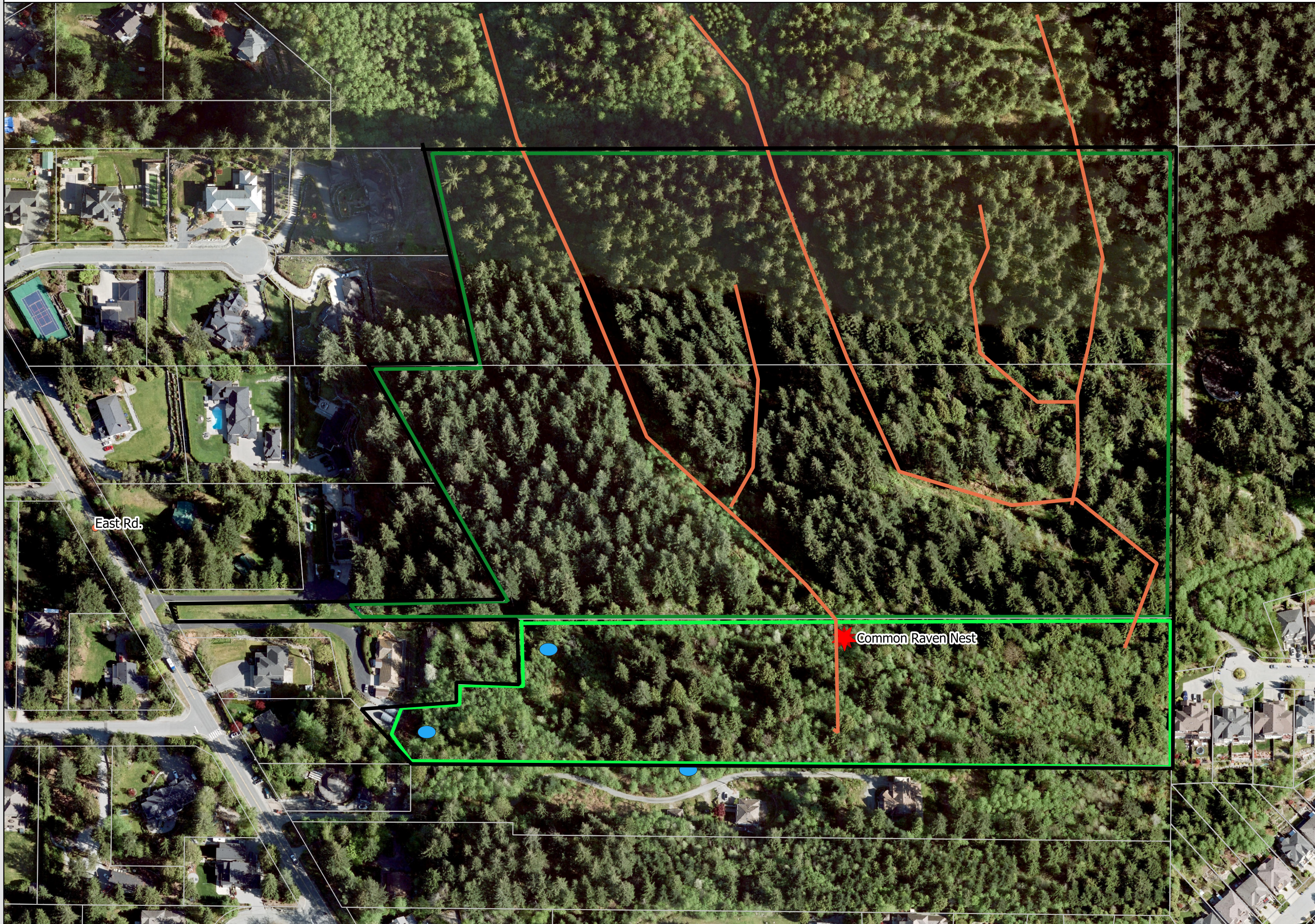
# Anmore Gate Study Area Vegetation Types and Significant Wildlife Findings



Survey Date:  
February 22 & March  
15, 2024

### Project Data

- Study Area
- Property Lines
- Regenerating Forest VT
- Mature Forest VT
- Access Roads
- Ponds
- Common Raven Nest







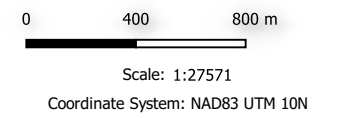
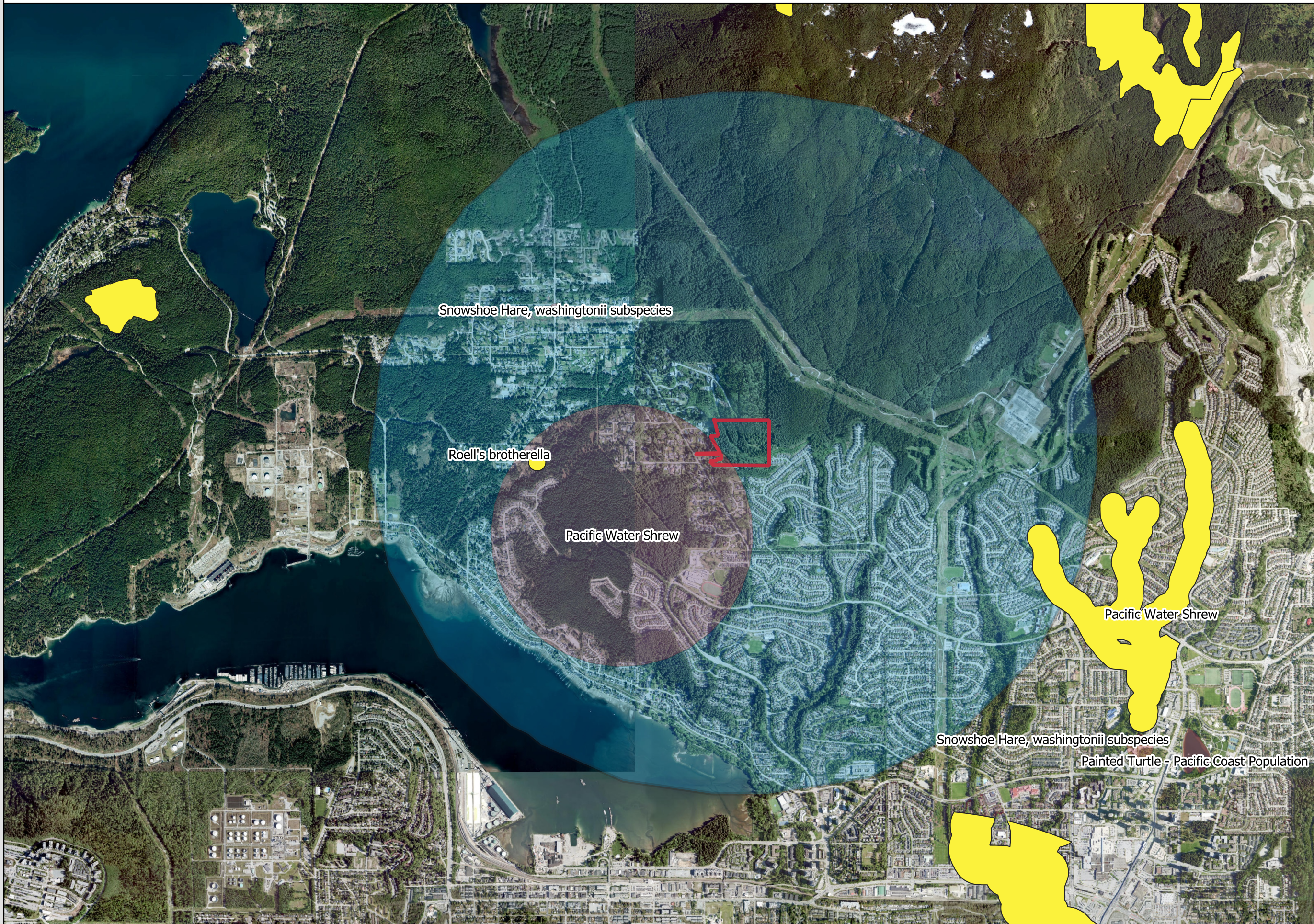
Basedata: ESRI/Government of BC  
Mapping by: BBS  
Project number: 125.37  
Drawn by: C. Bianchini  
Date: 2024-03-21

# Anmore Gate Study Area BCCDC Records and Critical Habitats within 2 km

Survey Date:  
February 22 & March  
15, 2024

### Project Data

-  Study Area
-  2 Km Radius
-  BCCDC Records
-  Critical Habitat



Basedata: ESRI/Government of BC  
Mapping by: BBS  
Project number: 125.37  
Drawn by: C. Bianchini  
Date: 2024-03-21

## **APPENDIX B**

### Site Photos



*HABITAT AND WILDLIFE PHOTOGRAPHS*



Photograph 1. Aerial drone image of the Regenerating Forest Vegetation Type (February 22, 2024).



Photograph 2. Typical understory vegetation composition of the Regenerating Forest Vegetation Type (February 22, 2024).



Photograph 3. A man-made pond detected near the northwest corner of the RFVT (March 15, 2024).



Photograph 4. A man-made pond surrounded by dense shrub vegetation detected near the southwest corner of the RFVT (March 15, 2024).





Photograph 5. Aerial drone image of the Mature Forest Vegetation Type (February 22, 2024).



Photograph 6. Typical understory vegetation composition of the Mature Forest Vegetation Type (February 22, 2024).



Photograph 7. A Class 6 western hemlock wildlife tree with recent Pileated Woodpecker feeding sign observed within the MFVT (February 22, 2024).



Photograph 8. A Class 6 western redcedar wildlife tree with evidence of historical burning and Pileated Woodpecker feeding sign observed within the MFVT (February 22, 2024).



Photograph 9. A Common Raven stick nest detected in a red alder tree within the Regenerating Forest Vegetation Type (February 22, 2024).



*WATERCOURSE PHOTOGRAPHS*



Photograph 10. View of Watercourse A (March 15, 2024).



Photograph 11. View of Watercourse B (March 15, 2024).



Photograph 12. View of Watercourse C (March 15, 2024).



Photograph 13. View of Watercourse D (March 15, 2024).



Photograph 14. View of Watercourse E (March 15, 2024).



Photograph 15. View of Watercourse E (March 15, 2024).



Photograph 16. View of Watercourse F (March 15, 2024).



Photograph 17. View of dry ditch along a historical skidder road at the Site (March 15, 2024).





Photograph 18. View of typical section of a logging road at the Site (February 22, 2024).

## APPENDIX C

Vegetation Species Detected within the Study Area (February  
22 and March 15, 2024)

OVERVIEW ENVIRONMENTAL ASSESSMENT  
Anmore Gate & Bella Terra Parcels, Anmore, B.C.



Vegetation species detected within the study area during the winter feel program (February 22 and March 15, 2024).

Species	Scientific Name*	Regenerating Forest VT	Mature Forest VT
<b>Tree Layer<sup>1</sup>:</b>			
Bigleaf Maple	<i>Acer macrophyllum</i>	✓	✓
Cherry	<i>Prunus sp.</i>		
Douglas-fir	<i>Pseudotsuga menziesii</i>	✓	✓
Paper Birch	<i>Betula papyrifera</i>	✓	
Red Alder	<i>Alnus rubra</i>	✓	✓
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓
Western Redcedar	<i>Thuja plicata</i>	✓	✓
<b>Shrub Layer<sup>2</sup>:</b>			
Bigleaf Maple	<i>Acer macrophyllum</i>	✓	✓
Cherry	<i>Prunus sp.</i>		
Douglas-fir	<i>Pseudotsuga menziesii</i>	✓	✓
English Holly (invasive)	<i>Ilex aquifolium</i>	✓	✓
Evergreen Blackberry	<i>Rubus laciniatus</i>	✓	✓
Hardhack	<i>Spiraea douglasii</i>	✓	
Himalayan Blackberry (invasive)	<i>Rubus armeniacus</i>	✓	✓
Paper Birch	<i>Betula papyrifera</i>	✓	
Osoberry	<i>Oemleria cerasiformis</i>	✓	✓
Red Alder	<i>Alnus rubra</i>	✓	✓
Red Elderberry	<i>Sambucus racemosa</i>	✓	
Red Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓
Salal	<i>Gaultheria shallon</i>	✓	✓
Salmonberry	<i>Rubus spectabilis</i>	✓	✓
Vine Maple	<i>Acer circinatum</i>	✓	✓
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓
Western Redcedar	<i>Thuja plicata</i>	✓	✓
<b>Herb Layer:</b>			
Bracken Fern	<i>Pteridium aquilinum</i>	✓	✓
Common Dandelion	<i>Taraxacum officinale</i>	✓	
Common Plantain	<i>Plantago major</i>	✓	
Common Rush	<i>Juncus effusus</i>	✓	✓
Creeping Buttercup	<i>Ranunculus acris</i>	✓	
Deer Fern	<i>Blechnum spicant</i>	✓	✓
Dull Oregon-grape	<i>Mahonia nervosa</i>	✓	✓
Foxglove	<i>Digitalis purpurea</i>	✓	✓
Grasses	<i>Graminoid sp.</i>	✓	✓
Sedge	<i>Carex sp.</i>	✓	
Sword Fern	<i>Polystichum munitum</i>	✓	✓

<sup>1</sup> Tree Layer: Woody plants >2m in height

<sup>2</sup> Shrub Layer: Woody plants 0-2m in height

\*Scientific and common names from Klinkenberg 2021 (E-Flora BC)

## APPENDIX D

Wildlife Species Detected within the Study Area (February 22  
and March 15, 2024)

OVERVIEW ENVIRONMENTAL ASSESSMENT  
Anmore Gate & Bella Terra Parcels, Anmore, B.C.



*Wildlife species detected within the study area (February 22 and March 15, 2024).*

Species	Scientific Name	Regenerating Forest VT	Mature Forest VT
<b>Amphibians:</b>			
Northern Pacific Tree Frog <sup>1</sup>	<i>Pseudacris regilla</i>	✓	
<b>Birds:</b>			
American Robin <sup>1,2</sup>	<i>Turdus migratorius</i>	✓	✓
Anna's Hummingbird <sup>1,2</sup>	<i>Calypte anna</i>	✓	
Bald Eagle <sup>1,2</sup>	<i>Haliaeetus leucocephalus</i>	✓	
Black-capped Chickadee <sup>1,2</sup>	<i>Poecile atricapillus</i>		✓
Brown Creeper <sup>1</sup>	<i>Certhia americana</i>		✓
Common Raven <sup>1,2</sup>	<i>Corvus corax</i>	✓	✓
Dark-eyed Junco <sup>1,2</sup>	<i>Junco hyemalis</i>	✓	✓
Golden-crowned Kinglet <sup>1,2</sup>	<i>Regulus satrapa</i>	✓	✓
Northwestern Crow <sup>1,2</sup>	<i>Corvus caurinus</i>	✓	
Pacific Wren <sup>1,2</sup>	<i>Troglodytes pacificus</i>	✓	✓
Pileated Woodpecker <sup>3</sup>	<i>Dryocopus pileatus</i>	✓	✓
Red-breasted Sapsucker <sup>3</sup>	<i>Sphyrapicus ruber</i>	✓	✓
Varied Thrush <sup>2</sup>	<i>Ixoreus naevius</i>		✓
<b>Mammals:</b>			
Columbian Black-tailed Deer <sup>4</sup>	<i>Odocoileus hemionus columbianus</i>	✓	✓
Cougar <sup>5</sup>	<i>Puma concolor</i>	✓	
Coyote <sup>4</sup>	<i>Canis latrans</i>	✓	✓
Douglas' Squirrel <sup>3</sup>	<i>Tamiasciurus douglasii</i>	✓	✓
Snowshoe Hare <sup>5</sup>	<i>Lepus americanus washingtonii</i>	✓	

<sup>1</sup>Heard   <sup>2</sup>Seen   <sup>3</sup>Forage Sign   <sup>4</sup>Tracks   <sup>5</sup>Historical Record