AQUATERRA ENVIRONMENTAL LTD.

ENVIRONMENTAL ASSESSMENT

Anmore Lands

Environmental Assessment

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1 PROJECT BACKGROUND

The Anmore Lands (the 'site'), as illustrated in **Figure 1**, consists of undeveloped areas situated to the north and south of Sunnyside Road within the Village of Anmore and is currently owned by Icona Properties ('Icona'; the 'client'). Icona retained AquaTerra Environmental Ltd. ('AquaTerra') to evaluate aquatic and terrestrial habitats, environmentally sensitive areas, unique habitat features, sensitive species, and to evaluate potential development opportunities and constraints associated with the proposed preliminary development plan (**Figure 2**) for the site. Environmental assessments and monitoring have been on-going by AquaTerra personnel since 2014, as discussed in Section 2.

2 SUMMARY OF HISTORICAL ENVIRONMENTAL STUDIES

AquaTerra has been conducting assessments, studies and monitoring for the site and surrounding area since 2014. Specifically, a preliminary study of the site was completed by AquaTerra in 2014 focusing on terrestrial and aquatic habitats and their inhabitants. The area to the south of Sunnyside Road was further assessed by AquaTerra in 2015 and re-assessed in 2019 providing supplementary fish, fish habitat and species at risk data. In 2018 (updated in 2019), a detailed watercourse assessment was conducted for watercourses to the north and south of Sunnyside Road, followed by a preliminary detailed Riparian Areas Protection Regulation (RAPR) assessment with a focus on Schoolhouse Creek, its tributaries and the main stem of Doctors Creek. From 2020 – 2022, a total of eleven (11) groundwater monitoring wells were installed by Aplin Martin and AquaTerra in select locations south of Sunnyside Road. These wells were monitored routinely by AquaTerra personnel to evaluate groundwater conditions. In 2022 and 2023, AquaTerra completed a detailed terrestrial environmental assessment to supplement the inventory and assessment data collected in 2014 and 2015 with a focus on the area north of Sunnyside Road. Between August 2023 and October 2023 AquaTerra re-assessed the area to the south of Sunnyside Road, completing terrestrial and aquatic assessments and evaluating for any changes in habitat mapping and habitat function relative to the 2014 and 2015 data.

Figure 1. Icona Properties – Anmore Lands, approximate site boundary (Red Polygon) and surrounding area.

3 ENVIRONMENTAL ASSESSMENT OBJECTIVES

The primary objectives of this Environmental Assessment are to:

1. Collect, compile and report relevant historical reports, background information and data to-date of issuance;
2. Review historical data and determine any notable changes in habitat and/or habitat function based on updated field assessments;
3. Prepare detailed figures and tables summarizing field assessment findings and outlining potential development opportunities and constraints;
4. Review and address environmental requirements associated with Anmore's Official Community Plan (OCP);
5. Review Icona's proposed preliminary development and collect and compile focused, detailed aquatic, riparian and terrestrial field assessments to identify potential development opportunities and constraints;
6. Complete an Environmental Assessment report based on the client's development proposal, field assessments, and Anmore's OCP; and
7. Provide recommendations and guidance for next steps.

4 REPORT LIMITATIONS

Data provided in this Environmental Assessment is a compilation of data collected by AquaTerra from 2014 – 2023, presented chronologically. Updates to this EIA are anticipated to be required prior to onset development to ensure accurate and precise data are represented, and will be contingent on changes and advancement of the proposed development.

Consequently, while findings and conclusions documented in this Environmental Assessment has been prepared in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar circumstances, this report is not intended, nor is it able, to provide a totally inclusive review of past or present environmental conditions within the site area. This report is intended to provide information to reduce, but not necessarily eliminate, uncertainty regarding the potential for opportunities and constraints associated with site development.

5 SITE OVERVIEW – BIOPHYSICAL CONDITIONS

The site occupies areas to the north and south of Sunnyside Road, comprising a total area of approximately 60 hectares. While both areas share similar environmental attributes, the area south of Sunnyside Road is more varied in its vegetation distribution, assemblage and age class with a notably larger presence of invasive species relative to the area situated to the north of Sunnyside Road, which consists primarily of a stand of similar age-class coniferous forest. The areas north and south of Sunnyside Road are discussed in detail in Section 5.1 and Section 5.2, respectively.

5.1 North of Sunnyside Road

The project area to the north of Sunnyside Road comprises an area of approximately 40 hectares and consists primarily of undeveloped, forested stands, which have been historically logged. Dominant forest stands consist of second- and third-growth, mature coniferous stands dominated by Coastal Western Hemlock (*Tsuga heterophylla*), with lesser amounts of Western Red Cedar (*Thuja plicata*), and Douglas Fir (*Pseudotsuga menziesiii var. menziesii*). Boundary areas consist of mixed forest dominated by Western Hemlock and Red Alder (*Alnus rubra*). Sub-canopy / shrub layer consists of pockets of dense Salmonberry (*Rubus spectabilis*), Vine Maple (*Acer circinatum*), and Red Huckleberry (*Vaccinium parvifolium*), and sub-dominant Salal (*Gaultheria shallon*) and Trailing Blackberry (*Rubus ursinus*). The forest floor (herbaceous layer) consists of dominant fern species such as Sword Fern (*Polystichum munitum*) and Deer Fern (*Blechnum spicant*), with select areas covered by dominant moss species including Step Moss (*Hylocomium splendes*) and Wavy-leaved Cotton Moss (*Buckiella undulata*). Invasive species presence was minimal, although species including Himalayan Blackberry (*Rubus armeniacus*), English Ivy (*Hedera helix*), and English Holly (*Ilex aquifolium*) were observed sporadically along roadside edges. English Ivy and English Holly were also observed in small patches throughout the assessed portion of the site, with the potential for spread if unmanaged. Schoolhouse Creek North bisects the property on the eastern portion of the site with multiple tributaries associated with the watercourse, and Doctors Creek bisects the property on the western portion of the site with various tributaries and one wetland associated with the watershed.

5.2 South of Sunnyside Road

The project area to the south of Sunnyside Road comprises an area of approximately 20 hectares, and is dominated by logged forested stands and is also the location of a historical gun range that is regenerating to semi-naturalized conditions. Second and third-growth coniferous stands contain

a greater proportion of Western Red Cedar than the north, while native species vegetation within the sub-canopy and herbaceous layer remain consistent. Invasive species presence was greater than areas north of Sunnyside Road, with English Ivy, Scotch broom (*Cytisus scoparius*), Himalayan Blackberry, and Japanese Knotweed (*Reynoutria japonica*) observed. English Ivy infestations were most prevalent among roadside edges while blackberry was established sporadically in large patches with infestations most densely concentrated at the historical gun range area, forming a large dense monoculture. Additionally, Scotch Broom was observed within the former gun range site gun range site. Japanese Knotweed infestations are observed predominantly along the western site boundary fronting 1st Avenue. Some recent clearing of Himalayan Blackberry and Red Alder had occurred in the vicinity of the gun range to facilitate site access, geotechnical and survey work. Schoolhouse Creek North and S - Trib - 5 bisect the site. Doctors Creek Main Stem and Schoolhouse Creek – North and associated tributaries bisect the southern portion of the site.

6 MUNICIPAL DEVELOPMENT FRAMEWORK

This section outlines the applicable municipal environmental requirements with the Village of Anmore relating to development (OCP Bylaw No. 532, 2014)[1].

6.1 Natural Environment

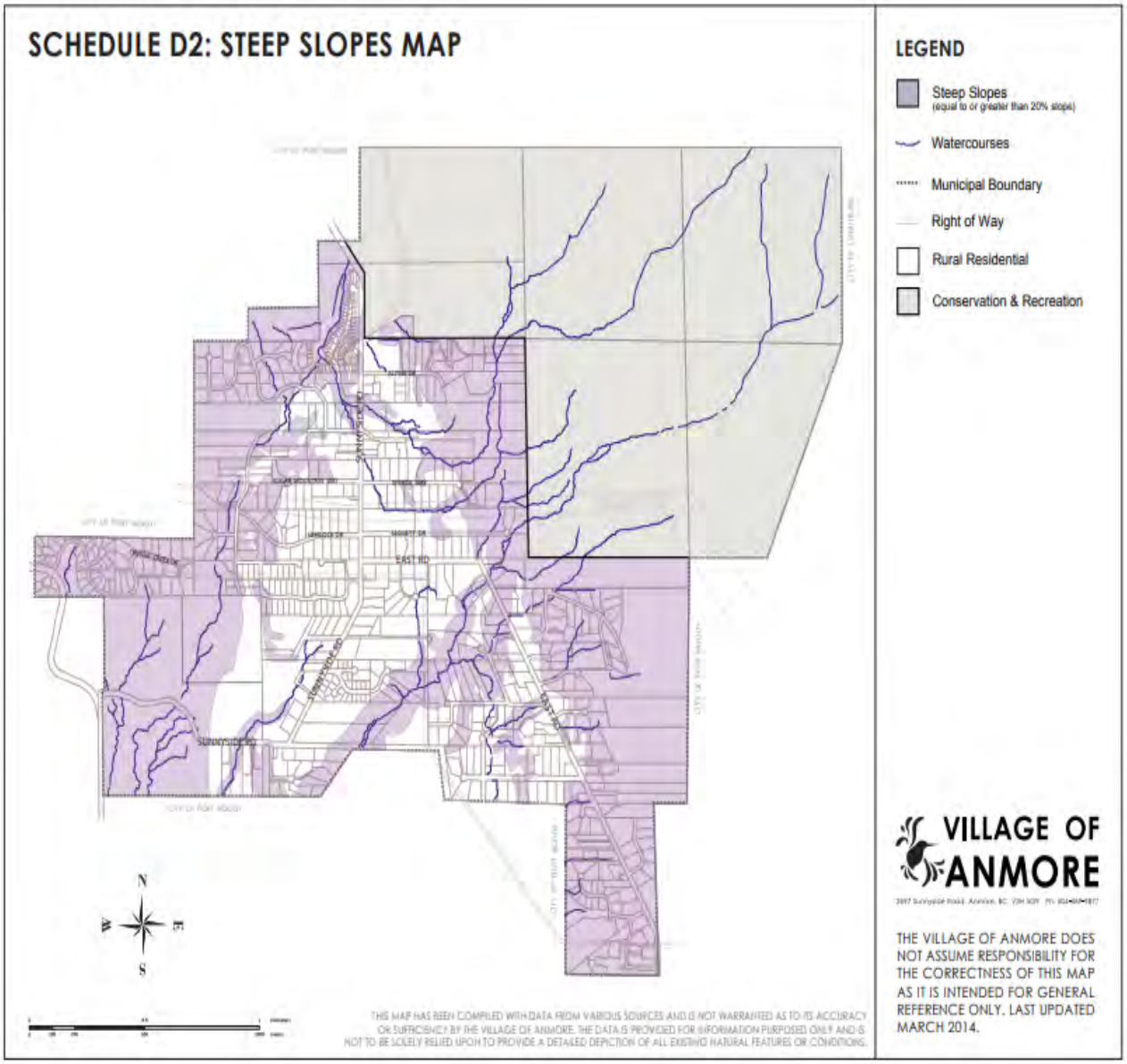
The current Village of Anmore OCP[1] from 2014 identifies the site as a Special Study Area. Chapter 7 of the OCP focuses on the environment, identifying those areas of the municipality that may contain environmental attributes that are worthy of retention or special care. The Village strongly supports the promotion and preservation of the long-term health of surrounding terrestrial, aquatic and riparian ecosystems, species of concern and sensitive environmental areas.

Environmental impacts of future development include several policies including development permit guidelines and bylaws to ensure appropriate measures be taken when development occurs in areas with steep slopes to prevent erosion and limit the visual and environmental impacts to these areas. OCP Schedule D2 - Steep Slopes Map, identifies the site as containing steep slopes **(Insert 1)**. Other measures include the encouraged retention of existing trees and additional tree

[1] Available online here: https://anmore.com/wp-content/uploads/2019/04/Bylaw-532-2014-OCP-Full-Consolidated-April-2019.pdf

/ planting materials, inclusion of integrated stormwater management plans, and cooperation with regional, provincial, and federal environmental agencies to ensure effective management of environmentally sensitive areas. The Village of Anmore encourages the retention and enhancement of wildlife corridors and the use of the Dark Sky principles to reduce light pollution as part of the wildlife protection policies.

Insert 1: Official Community Plan (OCP) – Schedule D2 – Steep Slopes Map

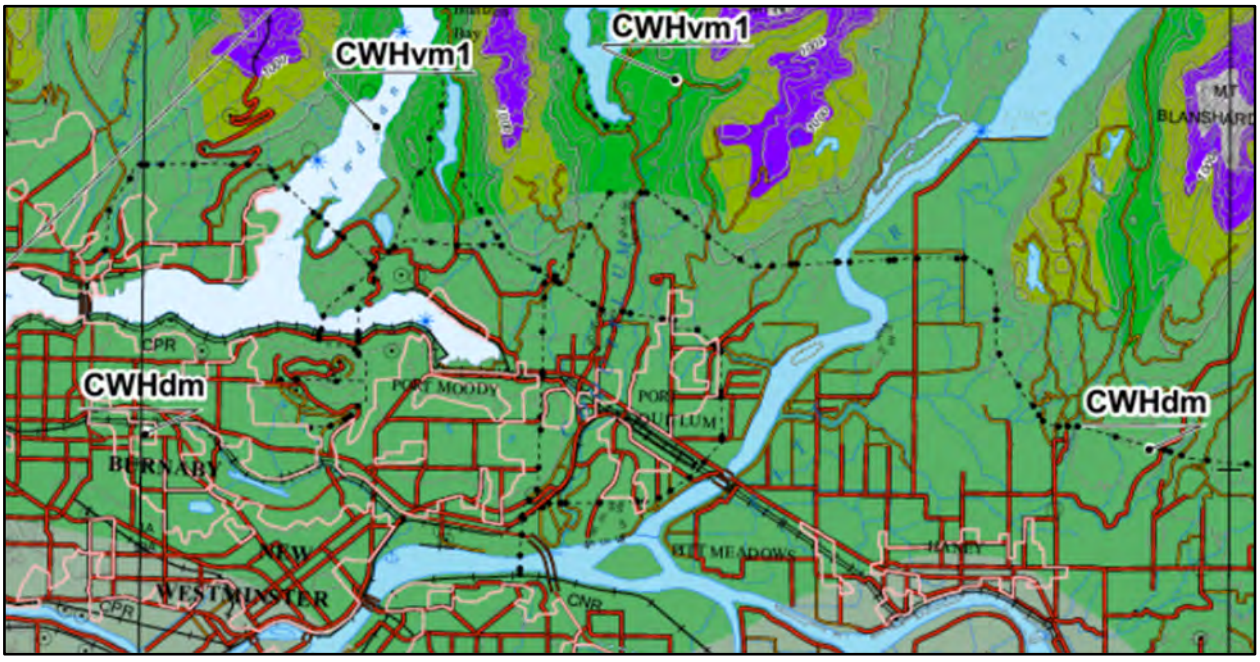


7 BACKGROUND REVIEW RESULTS

7.1 Biogeoclimatic Zone

The site is situated within the Coastal Western Hemlock (CWH) biogeoclimatic zone (**Figure 2**), which occurs at low to middle elevations mostly to the west of the coastal mountains, along the entire British Columbia Coast and on into both Alaska and Washington/Oregon. The CWH consists of 10 subcategories of continentality (hypermaritime, maritime, and submaritime subzones) and precipitation (very dry, dry, moist, wet, and very wet). Applicable to the site is the Coastal Western Hemlock Dry Maritime Subzone (CWHdm), occurring at low elevations on the mainland and immediately adjacent islands. Elevational limits range from sea level to approximately 650 m. The CWHdm has warm, relatively dry summers and moist, mild winters with little snowfall. Growing seasons are long and feature only minor water deficits on zonal sites. Mean annual temperature is approximately 8°C and ranges from 5.2 °C to 10.5 °C among the CHW subzones. The mean annual precipitation for the zone is 2228 mm (ranging from 1000 to 4400 mm) (MOF, 1991).

Figure 2. Biogeoclimatic Zone (CWHdm) for the Site and Surrounding Area.



The following climate information is based on data collected by Environment & Climate Change Canada (ECCC) at the Port Moody Glenayre STP weather station (49° 16'45.000 N, 122° 52'53.000 W; 129.5 meters [m] elevation) between 1981 and 2010, located approximately 4.2 kilometers (km) northeast of the site. ECCC has not collected annual data at this weather station since 2010.

Daily Mean Temperature	Not listed
Precipitation	1969 mm/year
Highest Monthly Avg.	October, 138.6 mm
Lowest Monthly Avg.	April, 59.0 mm

7.2 Local Ecology

Dominant forest species of the drier maritime subzones (including the CWHdm subzone) typically have a substantial component of Douglas-fir, along with Western Hemlock and Western Redcedar (*Thuja plicata*). Salal (*Gaultheria shallon*), Dull-Oregon Grape (*Mahonia nervosa*) and Red Elderberry (*Vaccinium parvifolium*) typify the poor-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.

7.3 Federal and Provincial Databases and Mapping Utilities

Accessible federal, provincial and public databases as well as mapping utilities were queried to collect pertinent biophysical information associated with the site. Results are provided in the following sections.

7.3.1 BC Species & Ecosystems Explorer – Species-at-risk overview (https://a100.gov.bc.ca/pub/eswp/)

Species listed on the BC Species & Ecosystems Explorer for the Village of Anmore and surroundings was queried on 12 October 2023 and 29 January 2024 to evaluate which species may be present within or adjacent to the site. The list was evaluated based on available local area habitats and known habitat requisites for each species. The result is the following comprehensive

list of provincially and federally ranked species-at-risk potentially occurring on-site along with their respective rankings:

Mammals

- Pacific Water Shrew (*Sorex bendirii*) – Red; Endangered
- Snowshoe Hare (*Lupus americanus washingtonii*) – Red; no federal status
- Townsend's Big-eared Bat (*Corynorhinus townsendii*) – Blue; no federal status
- Townsend's Mole (*Scapanus townsendii*) – Red; Endangered
- Trowbridge's Shrew (*Sorex trowbridgii*) – Blue; no federal status

Birds

- Band-tailed Pigeon (*Patagioenas fasciata*) – Blue; Special Concern
- Barn Swallow (*Hirundo rustica*) – Blue; Special Concern
- Common Nighthawk (*Chordeiles minor*) – Yellow; Special Concern
- Great Blue Heron (*Ardea herodias fannini*) – Blue; Special Concern
- Green Heron (*Butorides virescens*) – Blue; no federal status
- Olive-sided Flycatcher (*Contopus cooperi*) – Blue; Special Concern
- Western Screech-Owl (*Megascops kennicottii kennicottii*) – Blue; Threatened

Reptiles and Amphibians

- Coastal Tailed Frog (*Ascaphus truei*) – Yellow; Special Concern
- Northern Red-legged Frog (*Rana aurora*) – Blue; Special Concern
- Northern Rubber Boa (*Charina bottae*) – Yellow; Special Concern
- Western Toad (*Anaxyrus boreas*) – Yellow; Special Concern

Invertebrates

- Dun Skipper (*Euphyes vestris*) – Blue; Threatened
- Monarch (*Danaus plexippus*) – Red; Endangered
- Oregon Forestsnail (*Allogona townsendiana*) – Red; Endangered
- Threaded Vertigo (*Nearctula* sp.) – Blue; Special Concern

Vascular Plants

- American Sweet-flag (*Acorus americanus*) – Blue; no federal status
- Streambank Lupine (*Lupinus rivularis*) – Red; Endangered

- Vancouver Island Beggarticks (*Bidens amplissima*) – Blue; Special Concern
- Washington Springbeauty (*Claytonia washingtoniana*) – Red; no federal status

Mosses

- Poor Pocket Moss (*Fissidens pauperculus*) – Red; Endangered
- Roell's Botherella (*Brotherella roellii*) – Red; Endangered

A detailed discussion of those federally listed sensitive species that may utilize the site is included in Section 8.3.3.

7.3.2 Conservation Data Center (http://www.env.gov.bc.ca/atrisk/ims.htm)

The BC Conservation Data Center (CDC) database was queried on 12 October 2023 and 29 January 2024 to obtain details on known occurrences of rare animal species or plant communities for the site and surrounding areas. The CDC is part of the Wildlife Inventory Section of the Resource Inventory Branch of the BC Ministry of Environment[2] (MOE) that uses a listing process to identify species that are candidates for legal designation as extirpated, endangered, or threatened (**Red-listed**), as well those species that are of special concern (**Blue-listed**).

The results of the CDC query indicated no records of rare species or plant community's occurrence in the CDC database mapped specifically for the site. Four (4) non-sensitive elemental occurrences were recorded within approximately five (5) kilometers of the site, which are summarized in **Table 1**. Two (2) occurrences were recorded approximately three (3) kilometers from the site boundary. The potential for these species to occur within or adjacent to the site is discussed in Section 8.3.3. A summary of the CDC mapping results is provided in **Appendix A**. No listed plant communities of concern were queried or identified within the site or adjacent to the site boundaries.

[2] Presently referenced as the Ministry of Forests (MoF); formerly Ministry of Forests, Lands and Natural Resource Operations (MFLNRO).

Table 1. BC Conservation Centre Results – Organized by Distance from Site

Shape ID	Common Name	Scientific Name	Provincial; Federal Ranking*	Observed Location	Distance from Site	Last Observed
72700	Pacific Water Shrew	*Sorex bendirii*	Red; EN	Terrestrial; Mixed Forest	235 m	1897
122033	Roell's Brotherella	*Brotherella roellii*	Red; EN	Mossom Creek	350 m	2017
142314	Snowshoe Hare	*Lupus americanus washingtonii*	Red	Village of Anmore	700 m	2020
137927	Snowshoe Hare	*Lupus americanus washingtonii*	Red	Village of Belcarra	2.9 km	2017
81215	Washington Springbeauty	*Claytonia washingtoniana*	Blue	Admirality Point	4.0 km	2005

*EN: Endangered (federal ranking).

7.3.3 BC iMAP (http://maps.gov.bc.ca/ess/sv/imapbc/)

The BC iMAP database and mapping utility was queried on 12 October 2023 and 29 January 2024. Query results confirm that the site and surrounding area are not part of a designated or proposed Wildlife Habitat Area (WHA) nor is the site situated within a Wildlife Management Area (WMA). Similarly, no reported amphibians, reptiles, birds, or mammals have been mapped within the site area boundaries.

7.3.4 Community Mapping Network (http://www.cmnbc.ca)

The Sensitive Habitat Inventory Mapping (SHIM) database, the Great Blue Heron (GBHE) Management Team database, and the Wildlife Tree Stewardship (WiTs) database were queried on 12 October 2023 and 29 January 2024 to evaluate watercourse features and the potential for raptor or heron nests within or adjacent to the site boundaries. One (1) watercourse, referenced as Schoolhouse Creek, and several tributaries are mapped in the SHIM database. Schoolhouse Creek is identified as "fish bearing", and the tributaries are mapped as "Unknown" as illustrated in **Appendix B**. The watercourse originates from Buntzen Lake and eventually confluences with the Port Moody inlet, draining into the Pacific Ocean.

The review of the Great Blue Heron (GBHE) Management Team database and Wildlife Trees Stewardship (WiTs) database did not identify any existing or historic raptor or heron nests within the site boundaries. Two (2) Bald Eagle (*Haliaeetus leucocephalus*) nests and one (1) Great Blue Heron *(Ardea herodias fannini)* nesting locations were mapped within approximately seven (7) km from the site as illustrated in **Figure 3** and **Table 2**. The status of the identified colony is unknown.

Figure 3. Map view of GBHE Management Team and Wildlife Tree Stewardship database results.

Table 2. GBHE Management Team and Wildlife Tree Stewardship database results.

Identification	Common/Scientific Name	Distance to site (km)
GBHE-208-004	Great Blue Heron *(Ardea herodias fannini)*	2.3
BAEA-204-044	Bald Eagle (*Haliaeetus leucocephalus*)	6.1
BAEA-204-045	Bald Eagle (*Haliaeetus leucocephalus*)	6.6

7.3.5 Habitat Wizard (http://maps.gov.bc.ca/ess/hm/habwiz/)

The province of British Columbia's "Habitat Wizard" mapping utility was queried on 12 October 2023 and 29 January 2024 to evaluate the presence of watercourses and fish within or adjacent to the site boundaries. Habitat Wizard indicated one (1) watercourse bisecting the site referenced as Schoolhouse Creek. The database illustrates the historical presence of provincially blue-listed Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*) within Schoolhouse Creek approximately 750 m south of the site boundary.

7.3.6 Fisheries Information Summary System (FISS) (http://www.env.gov.bc.ca/fish/fiss/index.html)

The BC Fisheries Information Summary System (FISS) was queried on 12 October 2023 and 29 January 2024 to evaluate the presence of watercourses and fish presence within or adjacent to the site boundaries. FISS results indicated one (1) watercourse bisecting the site identified as Schoolhouse Creek North. Results did not indicate fish presence within the site boundaries at the time of the query.

8 FIELD ASSESSMENT DETAILS

Since 2014, AquaTerra personnel conducted assessments and studies using various field assessment methods to document existing watercourse characteristics, aquatic and terrestrial habitat attributes, and unique natural features within the site area north and south of Sunnyside Road which are discussed in detail in the following sections.

8.1 Aquatic and Riparian Habitats – Historical Assessment Summary

In November 2014, AquaTerra Environmental conducted a preliminary baseline study identifying aquatic habitats and their inhabitants to the north and south of Sunnyside Road. A detailed field survey was conducted by AquaTerra personnel in November 2014, to document existing watercourse attributes, aquatic habitat features, and unique natural habitat areas. A high accuracy Trimble GeoXH GPS unit with GeoBeacon received, as well as handheld Garmin GPS units were utilized to collect watercourse and riparian habitat data in the field, including the location of culverts, the orientation of watercourses, watercourse substrate details, and other notable observations.

In 2015 AquaTerra conducted a supplementary fish, fish habitat and species at risk assessment to augment the preliminary 2014 Development Feasibility report. AquaTerra personnel utilized comparable sampling methods and assessed the same attributes as in the 2014 preliminary study. Additionally, the watercourse High Water Mark (HWM) was flagged with pink 'creek' flagging tape for inclusion in a detailed topographical survey, completed by Aplin & Martin. In February 2019, AquaTerra personnel provided an updated fish, fish habitat and species at risk assessment focusing on the lands situated within the Village of Anmore.

In 2018, AquaTerra Environmental conducted a Detailed Watercourse Assessment for watercourses within the site boundaries north of Sunnyside Road. Between January and September 2017, four (4) tributaries; two (2) within Doctors Creek (D-Trib 2, and D-Trib 4), and two (2) within Schoolhouse Creek North (S-Trib 5-4, and S-Trib 6), were routinely assessed (typically twice per month). Each of the assessed tributaries were sampled at two (2) separate locations (upper reach and lower reach). The watercourses were each evaluated for Flow Velocity, Wetted Width, and Water Depth. Data was then compiled, analyzed to evaluate watercourse habitat function and hydraulic contribution to downstream reaches.

A preliminary detailed Riparian Areas Protection Regulation (RAPR) assessment was conducted by AquaTerra personnel in March 2019, encompassing the main stem of Doctors Creek and Schoolhouse Creek North, south of Sunnyside Road in Anmore. The site was thoroughly traversed and identified watercourses were tracked to the site boundary or the source, such as a groundwater seepage. Watercourse wetted width measurements and gradient were recorded using a collapsible ruler and clinometer in accordance with the detailed RAPR methodology. Streambed composition and riparian vegetative assemblage were also recorded at each assessed watercourse and the watercourses were divided into reaches, where appropriate.

Between January 2020 and October 2022, five (5) groundwater monitoring wells were installed by Aplin Martin, and six (6) groundwater monitoring wells were installed by AquaTerra Environmental and subsequently monitored by AquaTerra personnel twice per month. These well locations were installed at select locations south of Sunnyside Road. Results collected during monitoring events included:

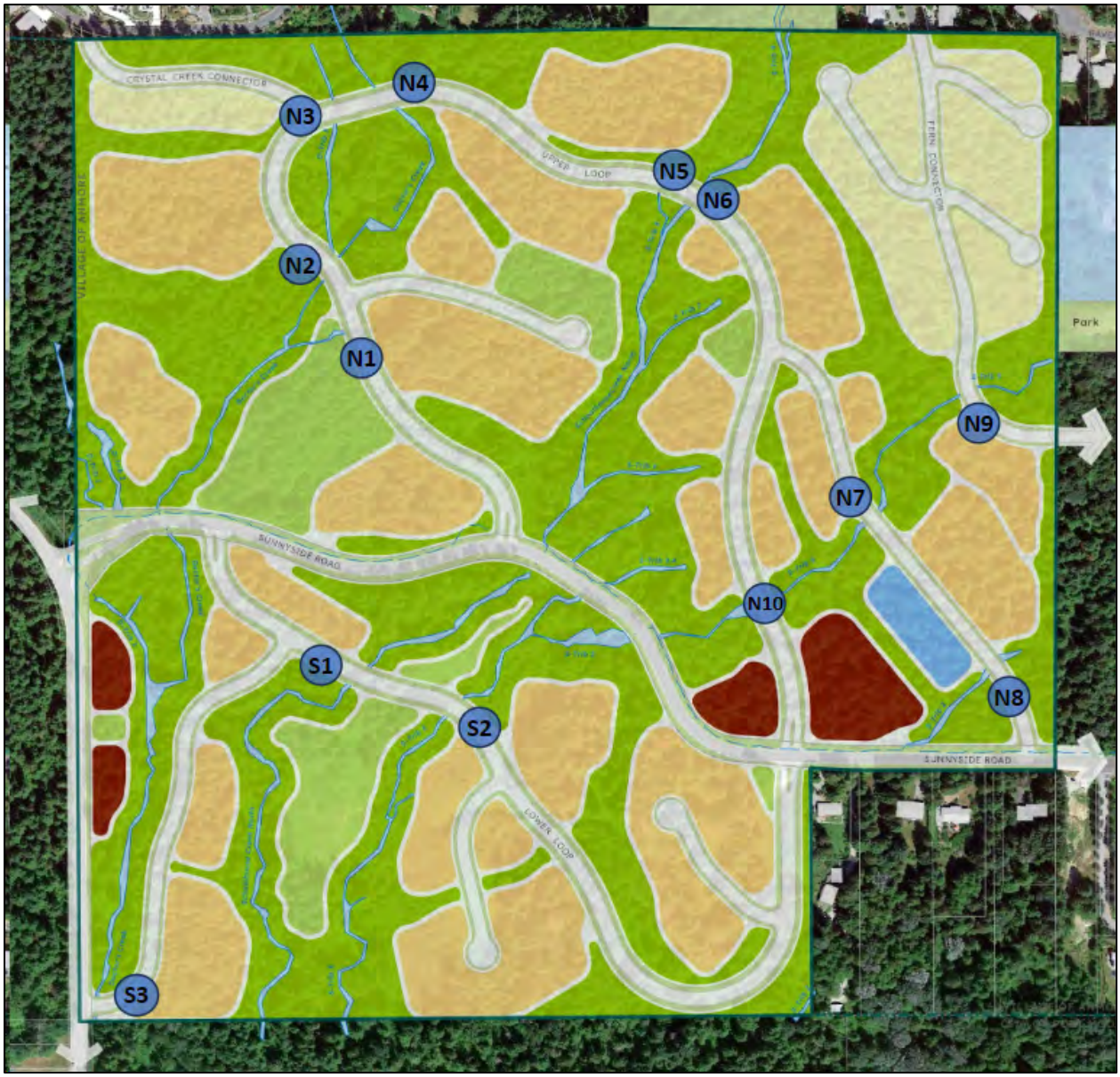
- Depth below the top of the well;
- Top of well to the ground; and
- Water depth below ground.

Based on survey files shared with AquaTerra, an unknown watercourse was observed which had not been identified in previous studies. In April 2023, AquaTerra personnel returned to the site to map and identify the source of the 'unknown tributary' using a handheld Garmin GPS Unit.

Between August 2023 and October 2023 AquaTerra personnel recorded stream characteristics at each proposed stream crossing within the site (**Figure 4**). The results were used to inform mitigation recommendations and appropriate stream / watercourse crossings at each location in an effort to effectively mitigate the minimization of impacts, assess habitat function as aquatic habitat function and contribution, to evaluate potential regulatory considerations, and to ensure the maximization of wildlife movement through riparian corridors.. The following observations were recorded at each location:

- Water presence;
- Substrate type and proportions;
- Channel morphology and depth;
- Vegetation type and percent cover; and
- Width at high water mark.

Figure 4. Locations of Stream Assessments Completed between August 2023 & October 2023.



8.2 Fish and Amphibian Presence – Historical Assessment Summary

In November 2014, AquaTerra personnel set ten (10) baited gee (minnow) traps throughout identified watercourses north and south of Sunnyside Road in the main stem of Schoolhouse Creek North, Doctors Creek, and various tributaries. Incidental observations of amphibians and reptiles were documented (discussed in Section 9.3).

Supplementary data was collected in December 2015 where additional baited gee (minnow) traps were set within upper reaches of Schoolhouse Creek and Doctors Creek, where feasible, to

provide additional data for the watercourses in Anmore, within, and adjacent to the site boundaries. Presence / Not detected surveys were conducted for amphibians during this supplementary assessment.

8.3 Terrestrial Habitat – Historical Assessment Summary

During the 2014 preliminary assessment, AquaTerra personnel collected terrestrial vegetation data and conducted a high-quality aerial imagery assessment. Information collected during the assessment included canopy cover, tree species, shrub species, and herbaceous species along with percent cover. Unique habitat features, such as rocky outcrops and areas of high biodiversity were also assessed and documented. Using data from the field survey and aerial interpretation, the site was categorized into various habitat types with approximate boundaries.

To validate the accuracy of previous preliminary reports, provide additional resolution and detail relative to the preliminary reports, and evaluate the interpretation of the high-resolution 2018 aerial photograph, AquaTerra conducted a detailed terrestrial environmental assessment in June 2022. Transect lines were traversed and terrestrial vegetation information from 165 plots (approximately 20 m x 20 m grid) was collected within the site area north of Sunnyside Road. Collected vegetation plot data included tree species, shrub species, and herbaceous species. Unique habitat features, such as rocky outcrops, wildlife trees, and areas of high biodiversity were also assessed and recorded.

Between August 2023 and October 2023, additional terrestrial assessments were completed to the south of Sunnyside Road. These assessments were meant to further validate the findings of previous reports and to inform the findings of this EIA. Nineteen (19) vegetation plots were selected within proposed areas of development and within the gun range site. Plot data included tree species, shrub species, herbaceous species, and percent canopy cover, and number of wildlife trees. While completing vegetation plots, areas with specific landscape features, such as large areas of Himalayan Blackberry and patches of Japanese Knotweed were also recorded.

8.4 Wildlife and Wildlife Habitats – Historical Assessment Summary

In the 2014 and 2022 studies, wildlife observations, including direct and indirect signs (scat, pellets, feathers, plucking stations, bedding areas, tracks, and potential den sites) were recorded incidentally during the terrestrial habitat assessments. Additionally, raptor nest sites, high value wildlife trees, and areas potentially utilized by species-at-risk were also assessed.

In 2023, the status of a raptors nest was re-evaluated and wildlife observations were recorded as part of terrestrial surveys south of Sunnyside Road. In April 2023, AquaTerra personnel returned to site to determine the status of a raptor nest previously identified in 2014 on the northeast corner of the site. Transect lines were traversed in the vicinity of the nest and AquaTerra personnel inspected the area for any indication of raptor nests. Between August 2023 and October 2023, incidental wildlife observations were recorded during terrestrial surveys. The presence of Pileated Woodpecker nests were also assessed in areas north and south of Sunnyside Road based on the new requirements under the updated Migratory Birds Convention Act (MBCA) in 2022.

9 FIELD ASSESSMENT RESULTS

9.1 Aquatic Habitats

A total of sixteen (16) watercourses were identified within the Anmore Lands site boundaries, north and south of Sunnyside Road between 2014 and 2023. Anticipated minimum setbacks were identified based on the municipal framework parameters for the Village of Anmore and are summarized in **Table 3**. The setbacks apply to the most current, comprehensive watercourse survey, illustrated in **Figure 5**.

Table 3. Identified Watercourses within Site Boundaries (2014 – 2023) with Associated Anticipated Minimum Watercourse Setbacks per the Preliminary Detailed Riparian Areas Protection Regulation (RAPR) Methodology.

Watercourse ID	Fish-bearing (Y)es, (N)o, (U)known	Municipality	Anticipated Minium Setback
Doctor's Creek main stem	Y	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 1	U	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 2	N	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 3	N	Anmore	10 m from High Water Mark

Table 4. Con't.

Watercourse ID	Fish-bearing (Y)es, (N)o, (U)known	Municipality	Anticipated Minimum Setback
Doctor's Creek Wetland	N	Anmore	15 m from High Water Mark
Schoolhouse Creek North main stem	Y	Anmore	10-15 m from Top-of-Bank[1]
Schoolhouse Creek Tributary 3	U	Anmore	10-15 m from Top-of-Bank[1]
Schoolhouse Creek Tributary 5	Y	Anmore	10-15 m from Top-of-Bank[1]
Schoolhouse Creek Tributary 5-2	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 5-3	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 5-4	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 6	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 7	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 8	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 9	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 10 **Further assessment required**	U	Anmore	10 m from High Water Mark

1 – watercourse width varied significantly along the creek. Under RAR, the setback is based on average watercourse widths in 100 m intervals.

Figure 5. Current Site Watercourse Mapping / Survey Details as of June 2024.

Field data from the 2018 / 2019 Detailed Watercourse Assessment study was compiled and analyzed to provide a general summary of attributes including:

1) Permanence;
2) Length;
3) Hydraulic Inputs;
4) Habitat Condition;
5) Food / Nutrient Inputs;
6) Impacted Areas;
7) Flow Dynamics; and
8) Flow Contribution.

Results of this analysis for the watercourses of interest are provided in **Table 4**.

Table 5. Watercourse Evaluation Framework Parameter Rankings.

ID	Permanence	Length	Hydraulic Inputs	Habitat Condition	Food / Nutrient Inputs	Impacted Areas	Flow Dynamics	Flow Contribut -ion
S-Trib 5-4	Permanent	Short	Low-to-Moderate	Intact	Minor	None	Low - Moderate	Low - Moderate
S-Trib 6	Permanent	Moderate	Low-to-Moderate	Intact	Moderate	None	Low - Moderate	Low - Moderate
D-Trib 2	Non-permanent	Moderate	Low	Intact	Minor	None	Low	Low
D-Trib 4	Non-permanent	Short	Low	Intact	Minor	None	Low	Low

A summary of watercourse consolidation potential for the assessed watercourses within the site boundaries was evaluated based on the parameters denoted in **Table 4** and is provided in **Table 5**. The upper and lower reaches of S-Trib 5-4 and S-Trib 6 were deemed to be permanent watercourses based on data collection and analysis. S-Trib 5-4 had moderate potential for consolidation, whereas S-Trib 6 had low potential for consolidation. The upper reach of D-Trib 2 was considered permanent and the lower reach was considered ephemeral, although both reaches of the tributary had low potential for consolidation. Both reaches of D-Trib 4 were ephemeral and had high potential for consolidation.

Table 6. Watercourse Consolidation Potential Summary.

Watercourse	Last Date of Observed Flow	Permanent or Ephemeral	Potential for Consolidation
S-Trib 5-4 Lower	-	PERMANENT	MODERATE
S-Trib 5-4 Upper	-	PERMANENT	MODERATE
S-Trib 6 Lower	-	PERMANENT	LOW
S-Trib 6 Upper	-	PERMANENT	LOW
D-Trib 2 Lower	NO FLOW	EPHEMERAL	LOW
D-Trib 2 Upper	17-Jun-17	PERMANENT	LOW
D-Trib 4 Lower	17-Jun-17	EPHEMERAL	HIGH
D-Trib 4 Upper	18-May-17	EPHEMERAL	HIGH

Based on the preliminary detailed RAPR assessment completed in 2019 for the southern portion of the site including Doctors Creek, Schoolhouse Creek North, and S-Trib 5, the Streamside Protection & Enhancement Areas (SPEAs) were calculated as being a minimum of 10 m from the High Water Mark (HWM) for identified watercourses noting that it excluded arborist and geotechnical considerations, which could result in modifications to the SPEAs. Retaining a geotechnical engineer and a registered arborist were recommended to provide input during the design and construction periods and to verify the SPEA setbacks.

Groundwater well water monitoring data has been collected and documented internally by AquaTerra and was issued to Icona Properties on a regular basis in an updated Excel file with the intent on evaluating changing groundwater conditions on a seasonal and annual basis, to facilitate development, design parameters, and stormwater management.

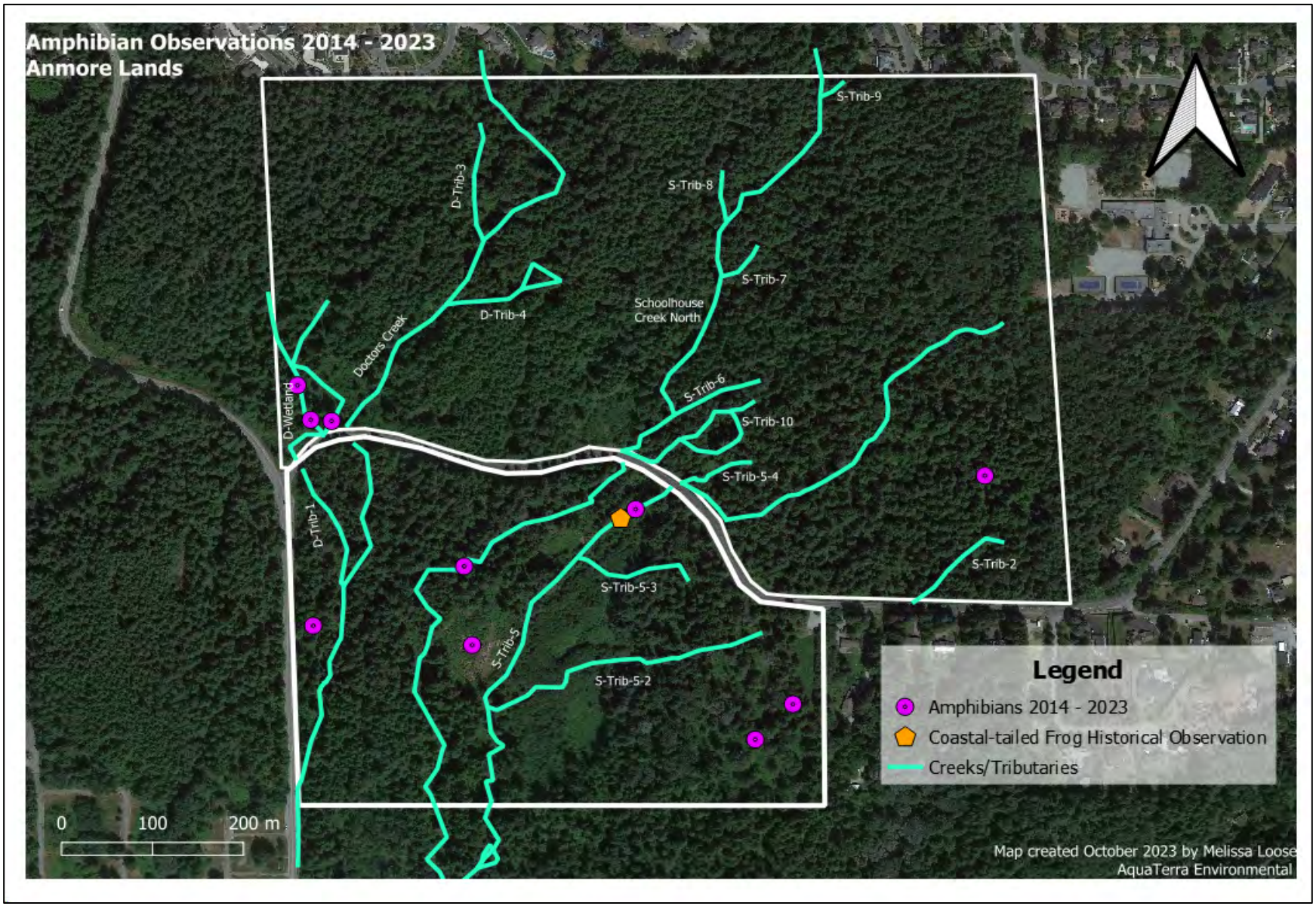
In 2023, AquaTerra personnel assessed the proposed stream crossings illustrated in the Land Use Plan provided by Icona Properties. Stream crossings N1, N3, N4, and N5 were dry and contained primarily organic substrate. N2 was situated at the point of confluence of Doctors Creek and D-Trib-3 resulting in a wide crossing with primarily cobble, gravel, and sand substrate. The stream cover consisted primarily of native riparian vegetation. Schoolhouse Creek North (N6) location had a cobble-gravel substrate, stream cover, and presence of large woody debris (LWD). South of Sunnyside Road, survey results from Schoolhouse Creek North (S1) and S-Trib-5 (S2) included observations of step-pool morphology, boulder-cobble-gravel-sand substrate, and stream cover. Doctors Creek, S3 stream crossing location had low flows at the time of the

assessment with dense stream cover and primarily gravel and sand substrate. A complete summary of the results from stream crossing surveys completed between August 2023 and October 2023 have been summarized in **Appendix C**.

9.1.1 Amphibians and Reptiles

Amphibians observed during the 2014 field surveys were limited to a Northwestern Salamander (*Ambystoma gracile*), located in the Schoolhouse Creek North, south of Sunnyside Road. AquaTerra personnel identified several Northern Red-legged Frogs (*Rana aurora*) within Schoolhouse Creek, and Doctor's Creek corridors during the 2015 field surveys. Personnel also recorded one incidental observation of Northern Red-legged Frog within Doctor's Creek, north of Sunnyside Road in September 2023. Northern Red-legged Frogs are provincially blue-listed (Special Concern) and are designated as a species of 'Special Concern' federally. Reptile observations were limited to the yellow-listed (Not-at-Risk) Northern Alligator Lizard (*Elgaria coerulea*) on the eastern site boundaries north of Sunnyside Road. The Coastal Tailed Frog (SARA Schedule 1) has been historically recorded within the Schoolhouse Creek North watershed south of Sunnyside Road. Amphibian and Species at Risk observations are illustrated in **Figure 6**. Limited observations locally are likely associated with the inconspicuous nature of these species. Habitats within the site area may be utilized by a variety of common amphibian and reptile species including Pacific Tree Frog (*Pseudacris regilla*), Long-toed Salamander (*Ambystoma macrodactylum*), Ensatina (*Ensatina eschscholtzii*), Common Garter Snake (*Thamnophis sirtalis*), and Northwestern Garter Snake (*Thamnophis ordinoides*).

Figure 6. Amphibian Observations within Site Boundaries – 2014 to 2023.



9.1.2 Fish

Minnow trapping results from the 2014 preliminary assessment included the capture of one (1) juvenile Coho Salmon (*Oncorhynchus kisutch*) (fry) within the Schoolhouse Creek North main stem and one (1) Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*) within Schoolhouse Creek – Tributary 3 (south of Sunnyside Rd.). A spawning Coho Salmon pair were observed within Tributary 5 (south of Sunnyside Rd.) near the confluence with the main stem to the south of the site.

The 2015 fish presence assessment resulted in numerous fish captures limited to the resident Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*), which is a provincially blue-listed (Special Concern) species. No fish were captured in the surveyed watercourses north of Sunnyside Road, although several Coastal Cutthroat Trout were captured immediately south of Sunnyside Road inhabiting the connected watercourses. The 2014 and 2015 fish presence survey results are illustrated in **Table 6.**

Table 7. Fish Capture Results from 2014 and 2015 Assessments.

Watercourse ID	Year	Fish Capture Results	Comments
Schoolhouse Creek North	2014	1 Coho Salmon	-
Schoolhouse Creek Tributary 3	2014	1 Cutthroat Trout	-
Doctor's Creek main stem	2015	5 Cutthroat Trout	-
Doctor's Creek Tributary 1	2015	No Captures	Gradient barrier near Sunnyside Rd; otherwise, no other barriers observed
Doctor's Creek Tributary 2	2015	No Trapping Conducted	Insufficient Water
Doctor's Creek Tributary 3	2015	No Trapping Conducted	Insufficient Water
Doctor's Creek Wetland	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek North main stem	2015	2 Cutthroat Trout	-
Schoolhouse Creek Tributary 3	2015	4 Cutthroat Trout	-
Schoolhouse Creek Tributary 5	2015	2 Coho (adult spawning pair)	-

Table 8. Con't.

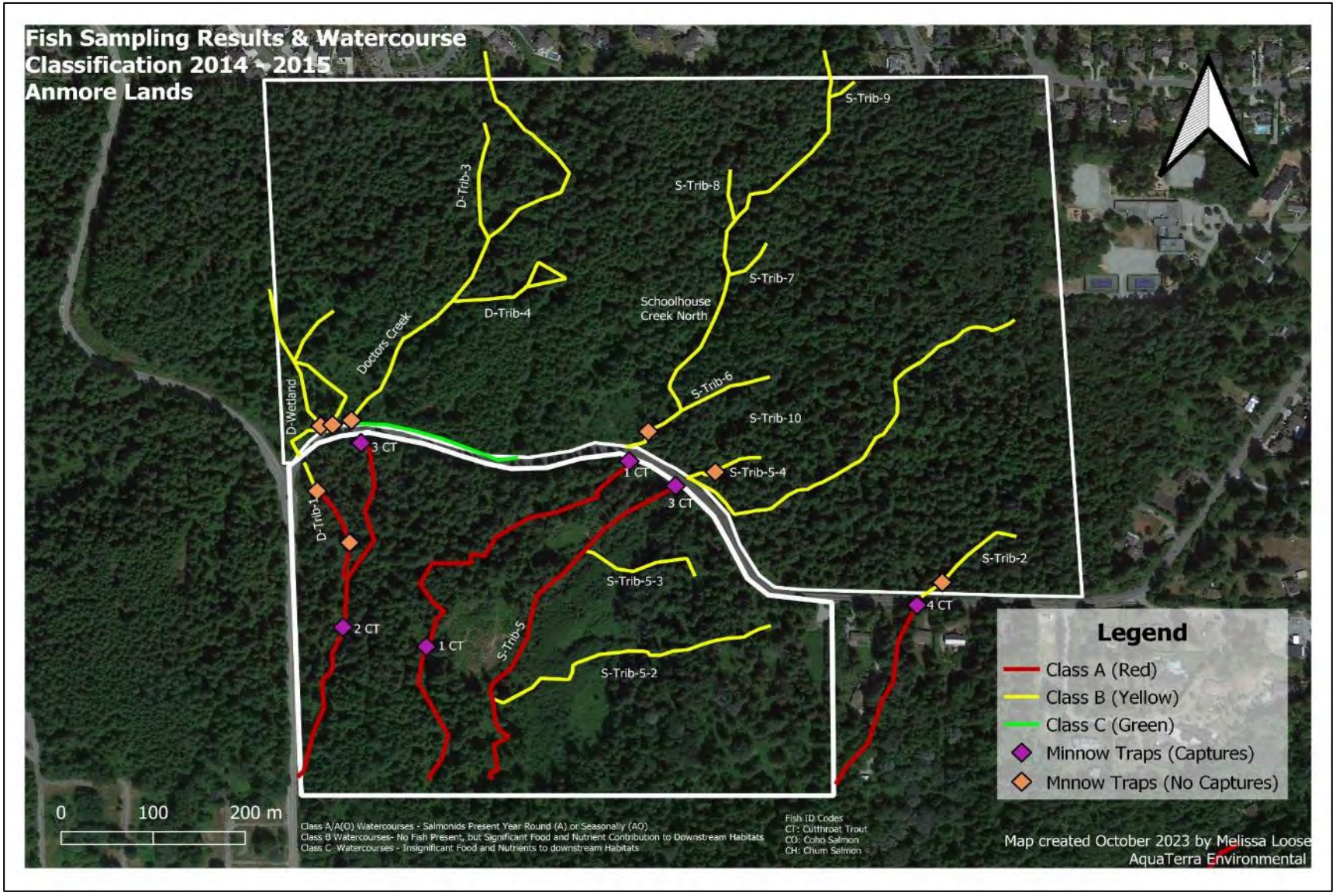
Watercourse ID	Year	Fish Capture Results	Comments
Schoolhouse Creek Tributary 5-2	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 5-3	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 5-4	2015	No Captures	Perched culvert and potential gradient barrier at Sunnyside Road
Schoolhouse Creek Tributary 6	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 7	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 8	2015	No Trapping Conducted	Insufficient Water

Based on the 2014 and 2015 fish capture results, the watercourses within the project area were classified as either:

1) fish-bearing (red-coded);
2) non fish-bearing, but providing significant food and nutrient value to downstream fish populations (yellow-coded); or
3) non fish-bearing and insignificant food and nutrient value (green coded).

The watercourses to the north of Sunnyside Road were classified as non-fish bearing, although providing significant food and nutrient value to downstream fish population (yellow-coded). In some instances, perched culverts and/or steep grades limited the potential for fish habitat to the north of Sunnyside Road. Immediately south of Sunnyside Road, watercourses were generally classified as fish bearing (red-coded). Watercourse classifications are illustrated in **Figure 7**.

Figure 7. Fish Sampling Results and Watercourse Classification 2015.



9.2 Terrestrial Habitats

Based on the 2014 preliminary assessment and the updated 2022 detailed terrestrial assessment, the site was dominated by mature second-growth / tertiary-growth coniferous forest with pockets of mature mixed forest, rocky outcroppings and riparian areas. The summary of terrestrial vegetation plot details north of Sunnyside Road collected in 2022 studies are provided in **Appendix D**. Four (4) different habitat types were identified including:

1) Mature second-growth / tertiary-growth coniferous forest;
2) Mixed forest;
3) Regenerating forest; and
4) Wetland.

Vegetation plots and various habitat types based on vegetation assessment details are illustrated in **Figure 8**, which is in general agreement with the preliminary habitat mapping completed by AquaTerra in 2014. An abundance of wildlife trees being actively utilized by wildlife and other potential wildlife trees were also documented. Unique terrestrial habitat features including wildlife trees, rocky outcroppings and encountered tributaries are provided in **Figure 9**.

Figure 8. Mapped Habitat Types and Vegetation Plots north of Sunnyside Road (2022 & 2023).

Figure 9. Mapped Locations of Unique Habitat Features north of Sunnyside Road (Terrestrial Assessment 2022).

Results from the terrestrial assessment to the south of Sunnyside Road completed between August and September 2023 were similar to the area north of Sunnyside Road, with the exception of the remediated gun range site and large patches of invasive species (**Figure 10).** Terrestrial assessments also found a greater proportion of mature Western Redcedar amongst second-growth coniferous forest when compared to areas north of Sunnyside Road. Similar to the north, an abundance of wildlife trees and habitat features exist throughout the southern portion of the site (**Figure 11**). The summary of south terrestrial vegetation plot results are provided in **Appendix E**. Six (6) different habitat types were confirmed as noted during previous assessments, consisting of:

1) Mature second-growth / tertiary-growth coniferous forest;
2) Mixed forest;
3) Deciduous forest;
4) Regenerating forest;
5) Mixed regenerating forest / invasive species; and
6) Invasive species dominated areas.

Figure 10. Mapped Habitat Types and Vegetation Plots south of Sunnyside Road (Terrestrial Assessment 2023).

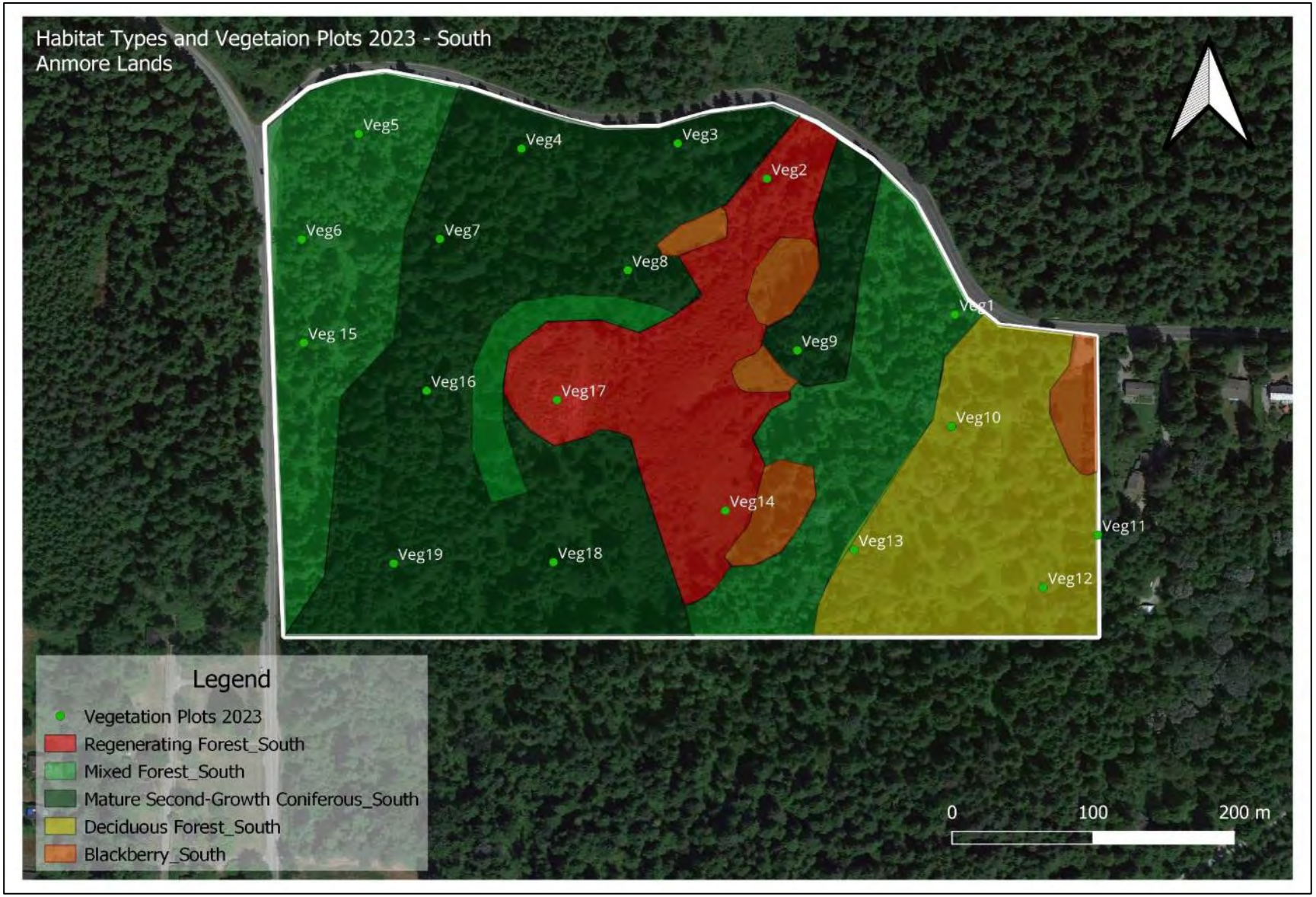


Figure 2. Mapped Locations of Unique Habitat Features south of Sunnyside Road (Environmental Assessment - 2023).

9.2.1 Invasive Species

Several invasive species were observed throughout the site during the 2014, 2022 and 2023 site assessments. These species included Himalayan Blackberry, English Ivy, English Holly, Scotch Broom, Japanese Knotweed and Spotted Touch-me-not (*Impatiens glandulifera*). Areas with the highest densities of invasive species included the edges of roadways and areas adjacent to development.

The distribution of native species differed between the areas north and south of Sunnyside Road. In the northern site, small pockets of English Ivy, English Holly, and Spotted Touch-me-not were observed throughout the assessed portion of the site, although minimal observation of invasive species was observed through the mid-section of the site. In the south, an estimated 240 m^2 area of Japanese Knotweed is established at the western border near the intersection of 1st Ave and Sunnyside Road, and additional small patches of Japanese Knotweed were observed along the north edge of Sunnyside Road. Immediately south of the temporary gravel parking lot is a large patch of Himalayan Blackberry, and additional large patches exist within and along the borders of the remediated gun range site. Scotch broom is also present among juvenile Western Hemlock and Black Cottonwood at the center of the remediated site. In the absence of management and/or treatment, these invasive species will continue to impact and degrade the available habitats on-site. Spotted Touch-me-not is particularly detriment to aquatic ecosystems and can proliferate and spread rapidly in the absence of proper controls and management.

9.3 Wildlife

A summary of common and sensitive terrestrial wildlife or terrestrial wildlife sign (pellets, scat, tracks, etc.), if any, observed during the field surveys are outlined in the following sections.

9.3.1 Mammals

From 2014 to 2023, direct mammal observations were limited to the Douglas Squirrel (*Tamiasciurus douglasii*) and Black-tailed Deer (*Odocoileus hemionus* ssp. *columbianus*). Indirect mammal observations included Raccoon (*Procyon lotor*) scat and tracks, Coyote (*Canis latrans*) scat, Black-tailed Deer pellets, and tracks, and Black-bear (*Ursus americanus*) scat and tracks. Multiple kill sites with feathers and bones were observed indicating the presence of a carnivorous mammal(s). Observations are illustrated in **Figure 12** & **Figure 13**.

Figure 3. Mammal Observations Including Direct and Indirect Observations – North.

Figure 13. Mammal Observations Including Direct and Indirect Observations - South

9.3.2 Birds

Bird observations were documented over the course of the field assessments in 2014 and 2023 included the following species:

1. Northwestern Crow (*Corvus caurinus*);
2. American Robin (*Turdus migratorius*);
3. Bald Eagle (*Haliaeetus leucocephalus*);
4. Black-capped Chickadee (*Poecile atricapillus*);
5. Brown Creeper (*Certhia americana*);
6. Cedar Waxwing (*Bombycilla cedrorum*);
7. Chestnut-backed Chickadee (*Poecile rufescens*);
8. Common Raven (*Corvus corax*);
9. Dark-eyed Junco (*Junco hyemalis*);
10. Downy Woodpecker (*Picoides pubescens*);
11. Golden-crowned Kinglet (*Regulus satrapa*);
12. Hairy Woodpecker (*Picoides villuosus*);
13. Northern Flicker (*Colaptes auratus*);
14. Olive-sided Flycatcher (*Contopus cooperi);* Pacific-slope Flycatcher (*Empidonax difficilis*);
15. Pacific Wren (*Troglodytes pacificus*);
16. Pileated Woodpecker (*Dryocopus pileatus*);
17. Purple Finch (*Haemorhous purpureus*);
18. Red-breasted Nuthatch (*Sitta canadensis*);
19. Red-breasted Sapsucker (*Sphyrapicus ruber*);
20. Red Crossbill (*Loxia curvirostra*);
21. Rufous Hummingbird (*Selasphorus rufus*);
22. Song Sparrow (*Melospiza melodia*);
23. Spotted Towhee (*Pipilo maculatus*);
24. Steller's Jay (*Cyanocitta stelleri*);
25. Swainson’s Thrush (*Catharus ustulatus*);
26. Townsends Warbler (*Setophaga townsendi*);
27. Warbling Vireo (*Vireo gilvus*);
28. Wilson’s Warbler (*Cardellina pusilla*); and
29. Owl (sign; pellets).

Bird observations were collected during the months of November 2014, June 2022, and between August 2023 - October 2023. The early – mid-summer timing of the June assessment, inside of the active nesting season, is anticipated to be the primary reason for the abundant bird activity observed during the field assessment. AquaTerra notes that Pileated Woodpecker individuals and nests are now protected year-round under the updated (2022) *Migratory Birds Convention Act,* which will necessitate nest assessments and up to 3 years of monitoring prior to being eligible for removal (if inactive during this period)[3]. Owl pellets were observed near the southern site boundary. Based on the large, undisturbed, second growth and mixed forest with abundant snags, this site is anticipated to be regularly utilized by numerous bird species for nesting and foraging. One (1) raptor nest was observed in the northeastern site boundary during the 2014 site assessment. No raptor nests were identified during 2022 field assessments. A follow up assessment focusing on the status of the raptors nest identified in 2014 was conducted on 14 February, 2023. No raptors nests were observed during the follow up assessment.

9.3.3 Species-at-Risk

Observed species-at-risk during the field assessments between 2014 and 2023 included Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*; provincially blue-listed), Northern Red-legged Frog (*Rana aurora;* provincially blue-listed), and the Olive-sided Flycatcher (*Contopus cooperi;* provincially blue-listed). Coastal Tailed Frog (*Ascaphus truei*) and Pacific Water Shrew (*Sorex bendirii*) have been historically documented in connecting and nearby watercourses. A ranking of potential for provincially and federally listed rare and endangered species is provided in **Table 7.**

[3] https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/fact-sheet-nest-protection-under-mbr-2022.html

Table 7. Ranking potential for Federally-listed Rare and Endangered Species.

Common and Scientific Names	Status[2]	Potential Occurrence Ranking	Rationale
MAMMALS			
Pacific Water Shrew *Sorex bendirii*	Red; EN	**CONFIRMED (HISTORICAL RECORD)**	The Pacific Water Shrew requires riparian habitat including but not limited to dense wet forests, marshes, streams, or bogs. Due to the excess of water resources and riparian habitat on site, there is potential for suitable habitat for this species. There is a reported historical record for this species in the watershed to the south of the site.
Snowshoe Hare *Lupus americanus washingtonii*	Red	**HIGH**	The Snowshoe Hare is often associated with coniferous and mixed forest stands with a dense understory. Given the coniferous and mixed forest stands, and patches of dense understory, some suitable habitat lies within site boundaries. Unconfirmed observations of this subspecies near the Burrard inlet have been documented, although there have been minimal observations over the years in the Lower Mainland. Snowshoe Hare have been observed in the region but not specifically on-site.
Trowbridge's Shrew *Sorex trowbridgii*	Blue	**HIGH**	This shrew species is more terrestrial relative to the Pacific Water Shrew, although it does frequent water. Due to the prevalence of coniferous and mixed forest, there is a potential for this species to occur.
Townsend's Mole *Scapanus townsendii*	Red; EN	**LOW**	The Townsends's Mole generally inhabits more open canopy habitats with riparian areas nearby. Suitable habitat may be present within the site in specific areas although minimal open canopy habitat was observed throughout the site. Records for this species are limited to areas in the Fraser Valley, south of the Fraser River.
BIRDS			
Band-tailed Pigeon *Patagioenas fasciata*	Blue	**MODERATE - HIGH**	Prevalence of suitable berries present on-site and some coniferous forests provide favorable nesting potential.
Barn Swallow *Hirundo rustica*	Blue, TH	**LOW**	Generally, forages and nests in open areas. Minimal open areas suitable for nesting results in low probability of encountering this species.
Common Nighthawk *Chordeiles minor*	TH	**MODERATE**	Utilizes a wide range of habitats including mountains and plains in open and semi-open habitats. Specific habitats include open forests, savannah, grasslands, fields, and areas around cities and towns. Given the variable habitat conditions, there is a potential for this species to occur.
Great Blue Heron *Ardea herodias* ssp. *Fannini*	Blue; SC	**LOW - MODERATE**	Although watercourse and riparian areas are present on-site, the predominantly closed canopy will limit use by this species.

Table 7. Con't.

Common and Scientific Names	Status[2]	Potential Occurrence Ranking	Rationale
Olive-Sided Flycatcher *Contopus cooperi*	Blue; TH	**CONFIRMED**	Suitable foraging and nesting habitat exist within the site, likely transitory en-route to more suitable breeding habitat.
Western Screech-Owl *Megascops kennicottii* ssp. *Kennicottii*	Blue; SC	**MODERATE**	May occasionally roost and forage in forested areas. Site of a sufficient size to support this species. Preference given to larger tracts of contiguous, undisturbed areas away from developed areas.
AMPHIBIANS AND REPTILES			
Northern Red-legged Frog *Rana aurora*	Blue; SC	**CONFIRMED**	This species is directly associated with streams, ponds and marshes although have been identified away from water sources in moist forests. Suitable habitat exists within the site area. Historical AquaTerra records nearby.
Western Toad *Anaxyrus boreas*	SC	**MODERATE**	Suitable foraging, dispersal and breeding habitat exists within the site area.
Coastal Tailed Frog *Ascaphus truei*	Yellow; SC	**HIGH (HISTORICALLY CONFIRMED)**	Permanent watercourse on-site, but may convey insufficient flows year-round and average temperature / substrate may preclude this species.
Northern Rubber Boa *Charina bottae*	SC	**LOW**	Generally utilize rocky outcrop areas which are not prevalent within the site boundaries.
INVERTEBRATES			
Dun Skipper *Euphyes vestries*	Blue; TH	**LOW**	Utilizes a wide variety of habitats including wetlands, fields, meadows, right-of-ways, etc.
Monarch *Danaus plexippus*	Blue; SC	**LOW - MODERATE**	Has been observed in low moist spots in fields, meadows, right of ways, etc., but typically prefers large tracts of undisturbed, natural habitat. Anthropogenic activities (habitat degradation, fragmentation and introduction of invasive species) are thought to be the primary reason for this species decline.
Oregon Forestsnail *Allogona townsendiana*	Red; EN	**LOW**	Some suitable habitat (Big-leaf Maple) within the site area. Did not identify Stinging Nettle during the field survey, which is commonly found alongside forestsnails. This species is generally found in the Fraser Valley to the south of the Fraser River.
Threaded Vertigo *Nearctula* sp.	Red, SC	**MODERATE**	Often found in moist deciduous and mixed wood forests at low elevations in areas dominated by Bigleaf Maple and ferns. Due to the lack of Bigleaf maple dominant forests, habitat is generally unsuitable.

Table 7. Con't.

Common and Scientific Names	Status[2]	Potential Occurrence Ranking	Rationale
PLANTS			
Streambank Lupine *Lupinus rivularis*	Red, EN	**LOW**	Often found along riverbanks and within open woods including natural riverbank habitats and gravelly railway beds and dykes. Aquatic habitats are generally unsuitable.
Vancouver Island Beggarticks *Bidens amplissima*	Red; EN	**LOW - MODERATE**	Often found in wetland and shoreline areas including ditches, wet fields and marshes as well as old riverbeds, pond margins, streamside and river edges. Marginally suitable habitat on-site.
Washington Springbeauty *Claytonia washingtoniana*	Red	**LOW - MODERATE**	Moist to mesic mossy rock outcrops and forests in the lowland and montane zones. Minimal rocky outcrop areas are present on site.
MOSSES			
Poor Pocket Moss *Fissidens pauperculus*	Red, EN	**LOW - MODERATE**	Found on bare, moist soil banks often growing with *Fissidens bryoides*. Observed on silty damp slopes or outcrops that are wet in winter and dry in summer shaded by Douglas-fir and Western Hemlock. Some suitable areas on-site.
Roell's Botherella *Brotherella roellii*	Red	**LOW – MODERATE**	Forms mats on rotten logs, stumps and bases of trees in cool-to-moist mixed deciduous and conifer forests at low elevations along valley margins. Some suitable areas on-site.

[2] Federal status is SC = Special Concern; TH = Threatened; EN = Endangered

10 NEXT STEPS

As the project design advances, AquaTerra recommends the following next steps in support of a comprehensive Environmental Impact Assessment, which will be required to facilitate approvals at the municipal and provincial levels:

1. Complete an updated detailed Riparian Areas Protection Regulation (RAPR) once a detailed site development plan has been completed to establish the wetland and watercourse setbacks for the site with consideration for increased Streamside Protection & Enhancement Area (SPEA) setbacks to account for wildlife corridor and species at risk protection above the provincial minimums;
2. Complete a detailed Environmental Impact Assessment once the layout details have been established;
3. Complete a detailed arborist assessment for the site, identifying significant trees as well as danger trees and windthrow boundaries that could modulate the watercourse / wetland setbacks under the detailed RAPR methodology;
4. Conduct supplementary field studies during appropriate times of the year (i.e., May – August and October - December) with a focus on sensitive terrestrial and aquatic species;
5. Set-up remote wildlife cameras to monitor wildlife use and evaluate suitable wildlife corridor locations;
6. Conduct an invasive species survey during the late spring-early summer and identify high risk areas to be managed during development;
7. Collect baseline (pre-development) water quality data and flow data to determine variability in water quality seasonally and to assist in post-construction stormwater modelling efforts;
8. Engage stakeholders and municipalities early on to provide input and facilitate regulatory approvals;
9. Identify and test soil at the former gun range area to evaluate the need, if any, for remediation; and
10. Develop a preliminary development plan based on the information provided by the project team and stakeholders, with consideration for the Village of Anmore environmental policies and the guiding development principles outlined in Section 12.

11 CLOSURE

This Environmental Assessment report summarizes the environmental background information applicable to the proposed Anmore Lands development site, north and south of Sunnyside Road based on findings between 2014 and 2023 field studies and preliminary development information provided for review. The data is inclusive of aquatic, terrestrial and their associated inhabitants serving to identify potential environmental impacts over the duration of the development when the detailed design layout is established.

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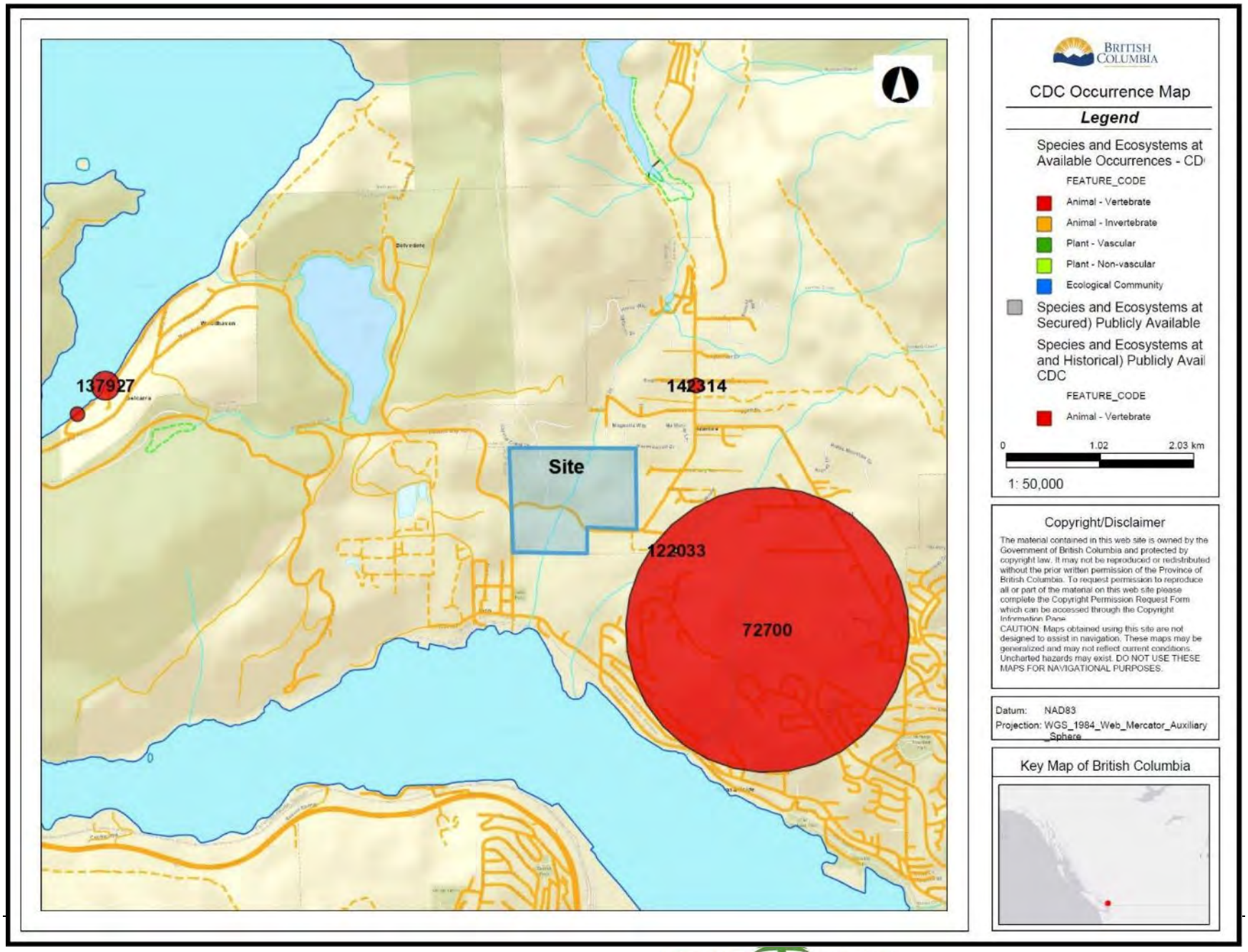
APPENDIX A

Conservation Data Center Mapping Results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72700
BRITISH COLUMBIA
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Species and Ecosystems at
Available Occurrences - CD
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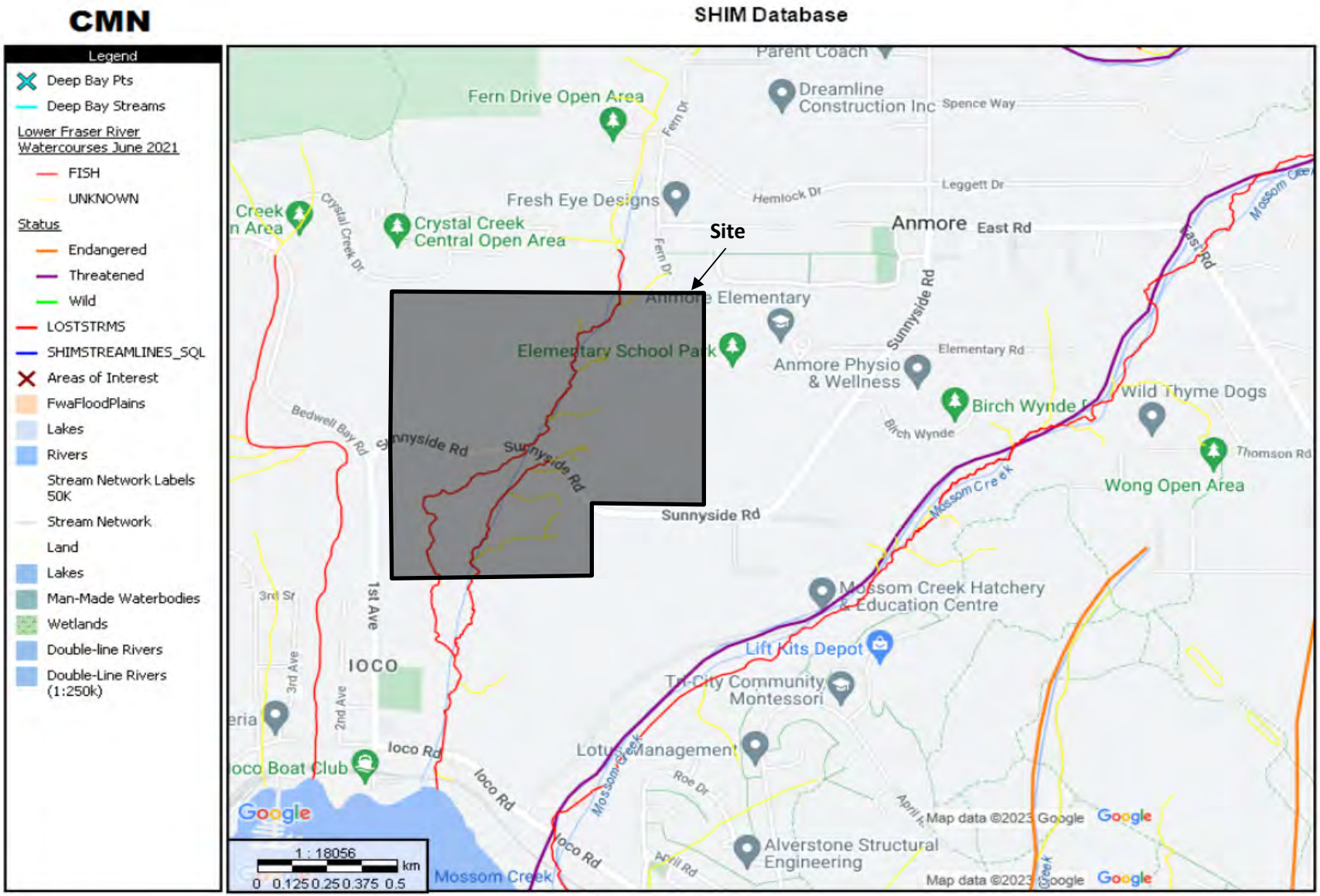
Datum: NAD83
Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere
Key Map of British Columbia

APPENDIX B
SHIM Mapping Results



APPENDIX C

Creek Crossing Assessment Findings 2023

Crossing ID	Water present?	Substrate (% Boulder/Cobble /Gravel/Sand/Organic)	Vegetative cover (%)	Approximate Width at HWM (m)	Comments
N1 (D-Trib-4)	No	-	80	-	• Reassess during wet conditions. • Primarily organic substrate • Native riparian vegetation.
N2 (Doctors Creek)	Yes	0/5/70/15/10	50	2.1	• Point of confluence with Doctors Creek Main Stem and D-Trib-3. • English Ivy covering the creek banks with some native riparian vegetation
N3 (D-Trib-3)	No	0/5/25/10/60	90	0.9	• Dense native riparian vegetation • Narrow channel with low flows
N4 (Doctors Creek)	No	0/5/10/15/70	90	2.0	• High volume of CWD • Himalayan Balsam present along the banks • Dense native riparian vegetation
N5 (S-Trib-8)	No	0/0/5/10/80	10	2.4	• Steep gradient • Primarily organic substrate • High volume of CWD
N6 (Schoolhouse Creek N)	Yes	5/50/30/15/0	50	3.7	• Steep ravine • Cascade and step pool morphology • High volume of CWD • Native riparian vegetation

Crossing ID	Water present?	Substrate (% Boulder/Cobble /Gravel/Sand/Organic)	Vegetative cover (%)	Approximate Width at HWM (m)	Comments
N7 (S-Trib-5)	-	-	-	-	*Not assessed*
N8 (S-Trib-2)	-	-	-	-	*Not assessed*
N9 (S-Trib-5)	-	-	-	-	*Not assessed*
N10 (S-Trib-5)	No	0/0/50/40/10	40	2.1	• Dense Himalayan Balsam along the banks and within creek bed • Reassess during wet conditions
S1 (Schoolhouse Creek N)	Yes	5/50/35/10/0	40	3.8	• High volume of CWD creating pools and shade • Potentially good fish habitat
S2 (S-Trib-5)	Yes	5/50/40/5/0	50	2.2	• Steeper gradient creating step pools • Ideal spawning substrate
S3 (Doctors Creek)	Yes	0/30/40/30/0	90	2.3	• Himalayan blackberry present along banks • Native riparian vegetation • Low flows

APPENDIX D

2022 Terrestrial Vegetation Plot Data – North of Sunnyside Road

APPENDIX D

Icona Properties – Anmore Lands North 2022 Terrestrial Vegetation Plot Data

Common Name	Scientific Name	Plot Number – B1 – B15														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree Cover																
Western Redcedar	*Thuja plicata*	✓	✓	✓		✓	✓	✓	✓			✓			✓	✓
Coastal Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*	✓	✓	✓					✓							
Big Leaf Maple	*Acer macrophyllum*											✓	✓	✓	✓	✓
Red Alder	*Alnus rubra*		✓			✓				✓			✓	✓	✓	✓
Paper Birch	*Betula papyrifera*												✓	✓		

Shrub Cover																
Beaked Hazelnut	*Corylus cornuta*															✓
Vine maple	*Acer circinatum*	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Salal	*Gaultheria shallon*	✓	✓	✓	✓					✓			✓			
Elderberry	*Sambucus nigra*	✓		✓									✓		✓	
Salmonberry	*Rubus spectabilis*	✓		✓	✓	✓		✓		✓			✓	✓	✓	✓
Oceanspray	*Holodiscus discolor*									✓						
Trailing Blackberry	*Rubus ursinus*				✓	✓						✓	✓			
Huckleberry	*Vaccinium parvifolium*	✓		✓		✓	✓		✓	✓					✓	✓
False Azalea	*Menziesia ferruginea*			✓												
Devils Club	*Oplopanax horridus*			✓												
Herbaceous Cover																

Wall-lettuce	*Lactuca muralis*							✓	✓	✓						✓
Starflower	*Trientalis borealis*	✓														
Foamflower	*Tiarella trifoliata*								✓				✓	✓		✓
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lady fern	*Athyrium filix-femina*			✓									✓			
Spiny Wood Fern	*Dryopteris expansa*	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓	
Deer Fern	*Struthiopteris spicant*	✓	✓	✓	✓	✓			✓	✓			✓	✓	✓	
Invasive																
English Holly	*Ilex aquifolium*	✓				✓										
English Ivy	*Hendera helix*	✓							✓							✓
Spotted Touch-Me-Not	*Impatiens Parviflora*							✓		✓						✓

Common Horsetail	*Equisetum arvense*											✓				
Himalayan Blackberry	*Rubus americanus*															✓

Common Name	**Scientific Name**	**Plot Number – B15 – B30**														
		16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Tree Cover																

Western Redcedar	*Thuja plicata*	✓	✓	✓				✓	✓	✓						
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*					✓	✓					✓	✓	✓	✓	
Red Alder	*Alnus rubra*		✓						✓							
Paper Birch	*Betula papyrifera*															✓
Shrub Cover																
Vine Maple	*Acer circinatum*	✓		✓	✓	✓	✓			✓	✓				✓	
Salal	*Gaultheria shallon*		✓			✓	✓	✓	✓		✓	✓	✓		✓	✓
Elderberry	*Sambucus nigra*				✓								✓			
Japanese Knotweed	*Reynoutria japonica*															
Salmonberry	*Rubus spectabilis*	✓	✓	✓	✓	✓					✓		✓			✓

Trailing Blackberry	*Rubus ursinus*		✓			✓			✓	✓						
Huckleberry	*Vaccinium parvifolium*		✓		✓				✓	✓	✓	✓	✓	✓	✓	
False Azalea	*Menziesia ferruginea*						✓		✓				✓			
Indian Plum	*Oemleria cerasiformis*			✓												
Dull Oregon Grape	*Mahonia nervosa*								✓							
Herbaceous Cover																
Starflower	*Trientalis borealis*					✓				✓			✓			
Foamflower	*Tiarella trifoliata*	✓	✓	✓									✓			
Western Trillium	*Trillium ovatum*				✓											
Clasping Twistedstalk	*Streptopus amplexifolius*				✓											
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓		✓	✓	✓	✓	✓	✓					✓

Lady Fern	*Athyrium filix-femina*						✓									✓
Spiny Wood Fern	*Dryopteris expansa*	✓	✓	✓	✓	✓	✓			✓	✓					
Deer Fern	*Struthiopteris spicant*	✓		✓	✓	✓					✓	✓	✓			✓
Bracken fern	*Pteridium aquilinum*					✓		✓	✓			✓		✓		
Invasive																
English Holly	*Ilex aquifolium*				✓											
English Ivy	*Hendera helix*				✓											
Himalayan Blackberry	*Rubus americanus*															✓

Common Name	Scientific Name	Plot Number – B31 – B45														
		31	32	33	34	~~35~~	~~36~~	~~37~~	~~38~~	~~39~~	~~40~~	41	42	43	44	45
Tree Cover																
Western Redcedar	*Thuja plicata*			✓	✓	*Not in scope of work*						✓				✓
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓							✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*		✓													
Black Cottonwood	*Populus balsamifera*													✓		
Mountain Ash	*Sorbus aucuparia*	✓														
Big Leaf Maple	*Acer macrophyllum*			✓												
Red Alder	*Alnus rubra*											✓				✓
Paper Birch	*Betula papyrifera*												✓	✓	✓	✓
Shrub Cover																

Beaked Hazelnut	*Corylus cornuta*					*Not in scope of work*		✓			
Vine maple	*Acer circinatum*							✓	✓	✓	✓
Salal	*Gaultheria shallon*		✓	✓				✓			
Elderberry	*Sambucus nigra*	✓						✓			
Salmonberry	*Rubus spectabilis*	✓			✓			✓	✓	✓	✓
Ninebark	*Physocarpus capitatus*										
Trailing Blackberry	*Rubus ursinus*	✓					✓	✓		✓	
Huckleberry	*Vaccinium parvifolium*	✓	✓	✓	✓		✓				✓
False Azalea	*Menziesia ferruginea*	✓	✓								
Herbaceous Cover											
Wall-lettuce	*Lactuca muralis*					*Not in scope of work*	✓			✓	
Western Sword	*Polystichum munitmum*			✓			✓	✓	✓	✓	✓

Fern											
Lady fern	*Athyrium filix-femina*									✓	
Spiny Wood Fern	*Dryopteris expansa*			✓	✓			✓	✓		
Deer Fern	*Struthiopteris spicant*	✓			✓			✓		✓	
Licorice Fern	*Polypodium glycyrrhiza*				✓						
Bracken fern	*Pteridium aquilinum*	✓	✓				✓	✓			
Invasive											
Spotted Touch-Me-Not	*Impatiens Parviflora*					*Not in scope of work*	✓				

Common Name	Scientific Name	Plot Number – B46 – B60														
		46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Tree Cover																
Western Redcedar	*Thuja plicata*		✓	✓	✓											
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*		✓		✓	✓	✓	✓								✓
Red Alder	*Alnus rubra*									✓						
Paper Birch	*Betula papyrifera*									✓						
Shrub Cover																
Beaked Hazelnut	*Corylus cornuta*			✓												
Vine maple	*Acer circinatum*	✓		✓		✓	✓	✓		✓	✓	✓		✓	✓	✓
Salal	*Gaultheria shallon*	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓

Elderberry	*Sambucus nigra*											✓			✓	
Salmonberry	*Rubus spectabilis*		✓	✓						✓		✓				
Trailing Blackberry	*Rubus ursinus*			✓												✓
Huckleberry	*Vaccinium parvifolium*	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	
False Azalea	*Menziesia ferruginea*						✓	✓								
Dull Oregon Grape	*Mahonia nervosa*		✓		✓	✓										
Herbaceous Cover																
Starflower	*Trientalis borealis*													✓		
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓
Lady fern	*Athyrium filix-femina*															
Spiny Wood Fern	*Dryopteris expansa*	✓		✓		✓	✓	✓					✓	✓	✓	✓

Deer Fern	*Struthiopteris spicant*	✓	✓	✓			✓	✓		✓	✓	✓				
Bracken fern	*Pteridium aquilinum*		✓			✓	✓	✓								✓
Invasive																
English Holly	*Ilex aquifolium*														✓	✓
Himalayan Blackberry	*Rubus americanus*											✓				

Common Name	Scientific Name	Plot Number – B61 – B75														
		61	~~62~~	~~63~~	~~64~~	~~65~~	~~66~~	67	68	69	70	71	72	73	74	75
Tree Cover																
Western Redcedar	*Thuja plicata*		*Not in scope of work*								✓			✓		✓
Western Hemlock	*Tsuga heterophylla*	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*	✓						✓	✓	✓	✓				✓	✓
Black Cottonwood	*Populus balsamifera*															✓
Red Alder	*Alnus rubra*												✓			✓
Shrub Cover																
Vine maple	*Acer circinatum*	✓	*Not in scope of work*					✓	✓	✓	✓	✓	✓	✓		✓
Salal	*Gaultheria shallon*	✓						✓	✓		✓			✓		✓
Salmonberry	*Rubus spectabilis*							✓	✓					✓	✓	

Oceanspray	*Holodiscus discolor*											
Trailing Blackberry	*Rubus ursinus*				✓			✓		✓		
Huckleberry	*Vaccinium parvifolium*				✓	✓	✓		✓	✓		
Herbaceous Cover												
Western Sword Fern	*Polystichum munitmum*			✓			✓	✓	✓	✓	✓	✓
Lady fern	*Athyrium filix-femina*											✓
Spiny Wood Fern	*Dryopteris expansa*	✓						✓	✓	✓	✓	✓
Deer Fern	*Struthiopteris spicant*	✓						✓	✓			✓
Bracken fern	*Pteridium aquilinum*				✓	✓	✓					
Invasive												
English Holly	*Ilex aquifolium*	✓	*Not in scope of work*		✓		✓					

Common Name	Scientific Name	Plot Number – B76 – B92																
		76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Tree Cover																		
Western Redcedar	*Thuja plicata*	✓	✓	✓							✓	✓	✓					✓
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Red Alder	*Alnus rubra*																	✓
Shrub Cover																		
Vine maple	*Acer circinatum*		✓	✓		✓	✓			✓			✓					
Salal	*Gaultheria shallon*	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓			
Elderberry	*Sambucus nigra*	✓	✓															✓
Salmonberry	*Rubus spectabilis*	✓			✓							✓						✓

Oceanspray	*Holodiscus discolor*																	
Trailing Blackberry	*Rubus ursinus*	✓	✓	✓				✓							✓	✓		
Huckleberry	*Vaccinium parvifolium*	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓
Dull Oregon Grape	*Mahonia nervosa*			✓		✓												
Thimbleberry	*Rubus parviflorus*		✓															
Herbaceous Cover																		
Wall-lettuce	*Lactuca muralis*																	✓
Starflower	*Trientalis borealis*			✓	✓					✓								
Foamflower	*Tiarella trifoliata*											✓						
Cleavers	*Galium aparine*									✓								
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓			✓

Lady fern	*Athyrium filix-femina*																	
Spiny Wood Fern	*Dryopteris expansa*		✓	✓	✓		✓	✓										
Deer Fern	*Struthiopteris spicant*	✓										✓		✓	✓	✓	✓	
Bracken fern	*Pteridium aquilinum*										✓		✓	✓			✓	
Invasive																		
English Holly	*Ilex aquifolium*				✓													
English Ivy	*Hendera helix*									✓								

Common Name	Scientific Name	Plot Number – M1 – M15														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree Cover																
Western Redcedar	*Thuja plicata*	✓	✓		✓	✓		✓	✓	✓	✓			✓		
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓
Douglas Fir	*Pseudotsuga menziesii*	✓										✓				
Bigleaf Maple	*Acer macrophyllum*	✓		✓												
Red Alder	*Alnus rubra*						✓								✓	
Western Mountain Ash	*Sorbus scopulina*									✓						
Shrub Cover																
Vine Maple	*Acer circinatum*		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓

Salal	*Gaultheria shallon*		✓									✓	✓	✓		
Lady Fern	*Athyrium filix-femina*		✓		✓	✓	✓		✓							
Elderberry	*Sambucus nigra*											✓	✓			✓
Salmonberry	*Rubus spectabilis*					✓				✓	✓				✓	✓
Trailing Blackberry	*Rubus ursinus*							✓		✓	✓			✓		
Huckleberry	*Vaccinium parvifolium*	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓		
Indian Plum	*Oemleria cerasiformis*															
Stink Currant	*Ribes bracteosum*					✓										
Herbaceous Cover																
Starflower	*Trientalis borealis*				✓						✓					
Foamflower	*Tiarella trifoliata*					✓	✓								✓	✓
Western Sword	*Polystichum munitmum*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Fern																
Spiny Wood Fern	*Dryopteris expansa*		✓	✓				✓			✓	✓	✓	✓	✓	✓
Deer Fern	*Struthiopteris spicant*		✓	✓	✓	✓			✓	✓	✓	✓		✓		✓
Licorice Fern	*Polypodium glycyrrhiza*							✓								
Bracken fern	*Pteridium aquilinum*		✓				✓									
Invasive																
English Holly	*Ilex aquifolium*						✓	✓		✓						
English Ivy	*Hendera helix*					✓		✓								
Himalayan Blackberry	*Rubus americanus*															✓
Laurel								✓		✓						
Common Horsetail	*Equisetum arvense*										✓					

Spotted Touch-me-not	*Impatiens Parviflora*														✓	✓

Common Name	Scientific Name	Plot Number – M16 – M30														
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Tree Cover																
Western Redcedar	*Thuja plicata*	✓	✓			✓	✓	✓	✓		✓		✓	✓		✓
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*				✓			✓			✓					
Red Alder	*Alnus rubra*	✓					✓									
Mountain Ash	*Sorbus aucuparia*											✓				
Black Cottonwood	*Populus balsamifera ssp. trichocarpa*															✓
Shrub Cover																
Vine Maple	*Acer circinatum*	✓	✓	✓	✓	✓					✓	✓			✓	✓

Salal	*Gaultheria shallon*	✓				✓		✓	✓		✓	✓	✓	✓	✓	✓
Elderberry	*Sambucus nigra*	✓		✓		✓										✓
Salmonberry	*Rubus spectabilis*	✓		✓		✓	✓	✓				✓	✓	✓	✓	✓
Trailing Blackberry	*Rubus ursinus*		✓													✓
Huckleberry	*Vaccinium parvifolium*	✓	✓			✓		✓	✓	✓	✓	✓		✓		✓
False Azalea	*Menziesia ferruginea*															
Indian Plum	*Oemleria cerasiformis*													✓	✓	
Thimbleberry	*Rubus parviflorus*					✓										
Hardhack	*Spirea douglasii ssp. douglasii*						✓									
False Azalea	*Menziesia ferruginea*								✓							
Herbaceous Cover																

Foamflower	*Tiarella trifoliata*			✓		✓		✓					✓			✓
Skunk Cabbage	*Lysichiton americanum*					✓							✓	✓	✓	
Western Buttercup	*Ranunculus occidentalis*						✓									
Bunchberry	*Cornus canadensis*											✓				
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓	✓								✓			✓
Lady Fern	*Athyrium filix-femina*		✓										✓			
Spiny Wood Fern	*Dryopteris expansa*	✓	✓	✓	✓	✓	✓		✓					✓	✓	✓
Deer Fern	*Struthiopteris spicant*						✓		✓			✓	✓	✓	✓	✓
Bracken fern	*Pteridium aquilinum*							✓		✓	✓	✓		✓		✓
Invasive																
English Ivy	*Hendera helix*				✓											

Himalayan Blackberry	*Rubus americanus*						✓					✓				
Common Horsetail	*Equisetum arvense*					✓	✓						✓	✓		
Spotted Touch-me-not	*Impatiens Parviflora*	✓	✓	✓												

Common Name	Scientific Name	Plot Number – M31 – M45														
		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Tree Cover																
Western Redcedar	*Thuja plicata*								✓	✓	✓	✓			✓	✓
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*						✓		✓			✓	✓	✓	✓	
Bigleaf Maple	*Acer macrophyllum*		✓													
Red Alder	*Alnus rubra*	✓	✓	✓								✓				✓
Black Cottonwood	*Populus balsamifera ssp. trichocarpa*	✓														
Shrub Cover																
Vine Maple	*Acer circinatum*		✓	✓			✓	✓		✓	✓	✓	✓			✓

Salal	*Gaultheria shallon*					✓				✓	✓	✓	✓	✓	✓	✓
Salmonberry	*Rubus spectabilis*	✓	✓	✓	✓	✓		✓		✓		✓				✓
Trailing Blackberry	*Rubus ursinus*	✓					✓									
Huckleberry	*Vaccinium parvifolium*	✓	✓		✓		✓			✓	✓		✓	✓	✓	
Devils Club	*Oplopanax horridus*									✓						
Herbaceous Cover																
Starflower	*Trientalis borealis*			✓								✓				
Foamflower	*Tiarella trifoliata*		✓	✓	✓							✓				
Skunk Cabbage	*Lysichiton americanum*															✓
Rattlesnake Plantain	*Goodyera oblongifolia*								✓							
Lady Fern	*Athyrium filix-femina*		✓		✓	✓						✓			✓	

Spiny Wood Fern	*Dryopteris expansa*			✓	✓	✓		✓				✓	✓	✓		
Deer Fern	*Struthiopteris spicant*	✓	✓		✓	✓	✓			✓	✓	✓	✓		✓	
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Bracken fern	*Pteridium aquilinum*	✓					✓		✓		✓		✓	✓	✓	
Invasive																
English Holly	*Ilex aquifolium*												✓		✓	
English Ivy	*Hendera helix*		✓													

Common Name	Scientific Name	Plot Number – M46 – M60														
		46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Tree Cover																
Western Redcedar	*Thuja plicata*				✓		✓	✓		✓	✓			✓		✓
Western Hemlock	*Tsuga heterophylla*	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*			✓	✓		✓		✓	✓		✓	✓			✓
Shrub Cover																
Vine Maple	*Acer circinatum*	✓				✓		✓	✓	✓	✓			✓	✓	✓
Salal	*Gaultheria shallon*	✓		✓	✓		✓		✓	✓	✓	✓	✓			✓
Salmonberry	*Rubus spectabilis*		✓			✓									✓	
Trailing Blackberry	*Rubus ursinus*						✓		✓		✓	✓	✓	✓		✓
Huckleberry	*Vaccinium parvifolium*	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓		✓

Dull Oregon Grape	*Mahonia nervosa*							✓								
Herbaceous Cover																
Starflower	*Trientalis borealis*													✓		
Foamflower	*Tiarella trifoliata*		✓													
Wall Lettuce	*Lactuca muralis*													✓		
Skunk Cabbage	*Lysichiton americanum*		✓													
Western Sword Fern	*Polystichum munitmum*								✓		✓			✓	✓	✓
Lady Fern	*Athyrium filix-femina*									✓						
Spiny Wood Fern	*Dryopteris expansa*						✓	✓						✓	✓	✓
Deer Fern	*Struthiopteris spicant*	✓	✓			✓	✓									
Bracken fern	*Pteridium aquilinum*		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	

Invasive																
English Holly	*Ilex aquifolium*						✓		✓		✓					

Common Name	Scientific Name	Plot Number – M61 – M71										
		61	62	63	64	65	66	67	68	69	70	71
Tree Cover												
Western Redcedar	*Thuja plicata*						✓	✓	✓			
Western Hemlock	*Tsuga heterophylla*		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	*Pseudotsuga menziesii*				✓	✓	✓	✓		✓	✓	
Bigleaf Maple	*Acer macrophyllum*					✓						
Shrub Cover												
Vine Maple	*Acer circinatum*	✓			✓		✓	✓				
Salal	*Gaultheria shallon*				✓		✓	✓	✓		✓	✓
Salmonberry	*Rubus spectabilis*		✓	✓								
Trailing Blackberry	*Rubus ursinus*	✓	✓	✓				✓				

Cutleaf Blackberry	*Rubus laciniatus*		✓									
Huckleberry	*Vaccinium parvifolium*	✓	✓	✓		✓		✓	✓	✓	✓	
False Azalea	*Menziesia ferruginea*											
Indian Plum	*Oemleria cerasiformis*										✓	
Dull Oregon Grape	*Mahonia nervosa*				✓		✓					
Herbaceous Cover												
Starflower	*Trientalis borealis*		✓	✓								
Wall Lettuce	*Lactuca muralis*			✓								
Western Sword Fern	*Polystichum munitmum*	✓	✓	✓			✓	✓	✓	✓		✓
Lady Fern	*Athyrium filix-femina*	✓	✓						✓			
Spiny Wood Fern	*Dryopteris expansa*	✓									✓	
Deer Fern	*Struthiopteris spicant*							✓	✓			✓

Bracken fern	*Pteridium aquilinum*			✓		✓	✓			✓		
Invasive												
English Holly	*Ilex aquifolium*				✓		✓					✓

APPENDIX E

2023 Terrestrial Vegetation Plot Data – South of Sunnyside Road

Icona Properties - Anmore Lands South 2023 Terrestrial Vegetation Plot Data

Common Name	Scientific Name	Plot Number: VP 1 - VP 19																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Tree Cover																				
Western Redcedar	*Thuja plicata*		Y	Y	Y	Y	Y	Y				Y	Y	Y		Y	Y		Y	
Coastal Western Hemlock	*Tsuga heterophylla*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y	Y	Y	Y	Y
Douglas Fir	*Pseudotsuga menziesii*									Y								Y		
Big Leaf Maple	*Acer macrophylla*		Y				Y				Y	Y	Y	Y						Y
Red Alder	*Alnus rubra*					Y	Y				Y	Y	Y					Y	Y	
Paper Birch	*Betula papyrifera*																			
Shrub Cover																				
Beaked Hazelnut	*Corylus cornuta*							Y												
Vine Maple	*Acer circinatum*	Y	Y	Y	Y						Y	Y	Y	Y		Y				Y
Sitka Mountain-Ash	*Sorbus sitchensis*			Y				Y			Y									
Salal	*Gaultheria shallon*		Y	Y				Y	Y				Y				Y			
Red Elderberry	*Sambucus racemosa*					Y	Y						Y	Y						
Bitter Cherry	*Prunus emarginata*		Y						Y											
Salmonberry	*Rubus spectabilis*	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		
Oceanspray	*Holodiscus discolor*																			
Cascara Buckthorn	*Frangula purshiana*										Y									
Thimbleberry	*Rubus parviflorus*		Y											Y				Y		
Trailing Blackberry	*Rubus ursinus*	Y	Y	Y				Y			Y							Y		
Huckleberry	*Vaccinium parvifolium*	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y			Y	Y		Y	Y
False Azalea	*Menziesia ferruginea*				Y		Y	Y											Y	
Hardhack	*Spiraea douglasii*																	Y		
Willow	*Salix spp.*		Y																	
Indian Plum	*Oemleria cerasiformis*	Y	Y																	
Devils Club	*Oplopanax horridus*																			
Herbaceous Cover																				
Wall-lettuce	*Latuca muralis*											Y								
Hairy cat's-ear	*Hypochaeris radicata*																	Y		
Starflower	*Trientalis borealis*		Y																	
Foamflower	*Tiarella trifoliata*																			
Skunk Cabbage	*Lysichiton americanum*	Y																		
Western Sword Fern	*Polystichum munitmum*	Y		Y	Y	Y		Y		Y			Y			Y				Y
Lady Fern	*Athyrium filix-femina*	Y		Y		Y											Y			
Spiny Wood Fern	*Dryopteris expansa*			Y	Y			Y		Y	Y	Y	Y	Y					Y	
Licorice Fern	*Polypodium glycyrrhiza*												Y							
Creeping Dogwood	*Cornus canadadensis*							Y					Y	Y						
Bracken Fern	*Pteridium aquilinum*		Y					Y	Y			Y	Y			Y	Y	Y	Y	Y
Pearly Everlasting	*Anaphalis margaritacea*		Y															Y		
Deer Fern	*Struthiopteris spicant*	Y			Y	Y	Y	Y		Y				Y		Y	Y		Y	
Invasive																				
English Holly	*Ilex aquifolium*			Y						Y	Y		Y						Y	
English Ivy	*Hedera helix*	Y	Y			Y	Y				Y		Y							
Spotted Touch-Me-Not	*Impatiens parviflora*																			
Common Horsetail	*Equisetum arvense*	Y																		
Himalayan Blackberry	*Rubus armeniacus*		Y			Y												Y		
Scotch Broom	*Cytisus scoparius*																	Y		
Japanese Knotweed	*Reynoutria japonica*																			
Cut-leaf Blackberry	*Rubus laciniatus*		Y																	
Common Foxglove	*Digitalis purpurea*																	Y		

APPENDIX F
Field Site Photographs

APPENDIX C
Field Survey Site Photographs

November 2014 – Middle reach of Schoolhouse Creek North of Sunnyside Road.

November 2014 – Doctors Creek wetland area north of Sunnyside Road.

November 2014 – Rocky outcrop north of Sunnyside Road, east of Doctors Creek,

May 2015 - Provincially Blue-listed (Special Concern) Red-legged Frog observed throughout the site.

September 2017 – Lower reach of S-Trib 5-4 during low flow conditions.

September 2017 – Upper reach of S-Trib 5-4 during low flow conditions.

September 2017 – Upper reach of D-Trib 2 during low flow conditions.

September 2017 – Upper reach of D-Trib 4 during low flow conditions.

June 2022 - Coastal Western Hemlock and Sword Fern dominant stands.

June 2022 - Riparian area with dominant salmonberry, and ferns.

June 2022 - Wildlife tree with activity.

June 2022 - Isolated patches of Spotted Touch-me-not.

June 2022 - Wildlife tree with cavities.

June 2022 - Potential kill site.

June 2022 - Mossy Forest floor in coniferous dominant stands.

June 2022 - Rocky outcropping.

June 2022 - Wetland area on the southwestern corner of the site with high volume of garbage.

June 2022 - Owl scat observed.

June 2022 - Pileated woodpecker actively utilizing wildlife tree.

June 2022 - Moss dominated forest floor.

June 2022 - Black-tailed deer observed (doe and fawn).

June 2022 - Patches of dense salmonberry observed throughout the site.

June 2022 - Skunk cabbage and other riparian vegetation observed near watercourses.