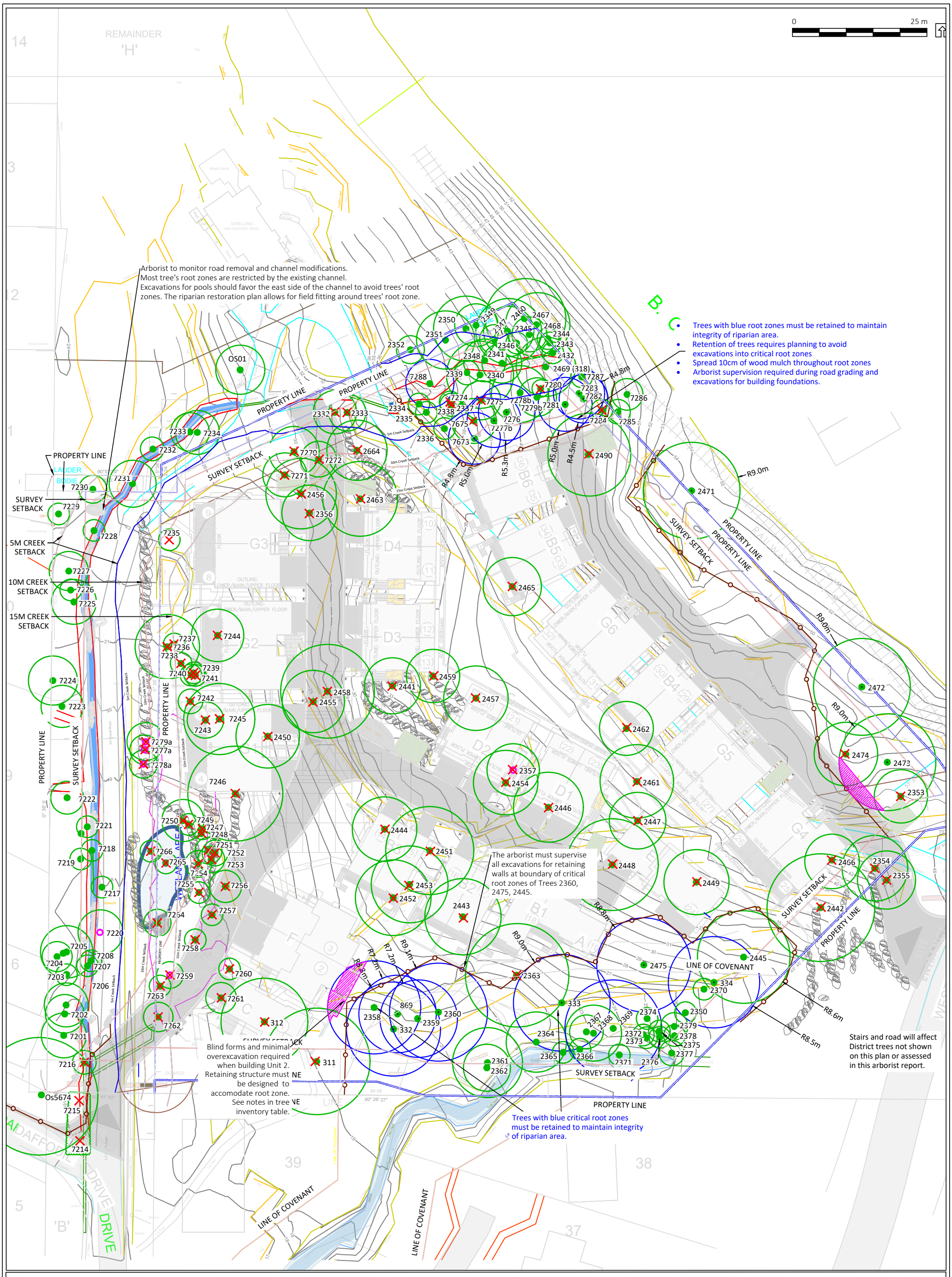


LEGEND

- TREE PROTECTION ZONE
- AREA OF CONFLICT
- TREE PROTECTION FENCE
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED
- TREE TO BE REMOVED

REFERENCE DRAWINGS

1. Base Survey by: Chapman surveying
2. A 1 00 OVERALL SITE PLAN NOV 10 22
3. MS2868-19046-TO4

NOTES

1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. (½ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
5. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
6. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

DIAMOND HEAD

3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886

Drawing title: Tree Management Plan
Project address: Daffodil Drive
Client: Aquila

Drawing No: 5
Date: 2023/03/22
Drawn by: MH
Page Size: TABLOID 11"x17"

# Arboricultural Inventory and Report

For:
Aquila

Site Location:
Daffodil Drive

DISTRICT LOT 1374 PARCEL C REFERENCE PLAN 3355
EXCEPT REFERENCE PLAN 11716
PID 010-068-775
(No street address)
West Vancouver, BC

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Submitted to:
Jamie Harper

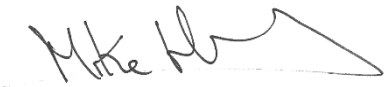
Date: September 16, 2021
Updated: February 28, 2023
**March 22, 2023**

DIAMOND HEAD
3559 Commercial Street
Vancouver, BC 604.733.4886

The following Diamond Head Consulting staff conducted the on-site tree inventory and prepared or reviewed the report.

All general and professional liability insurance and staff accreditations are provided below for reference.

**Supervisor:**

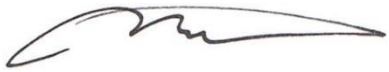


Michael Harrhy, B.Sc., MSFM
Registered Professional Forester
ISA Certified Arborist (PN-8025A)
ISA Tree Risk Assessment Qualified (TRAQ)
BC Wildlife and Danger Tree Assessor (P2528)
Biologist in Training

**Project Staff:**

Mitch Davis, Dip. Forest and Natural Areas Management
ISA Certified Arborist (PN-9077 A)
ISA Tree Risk Assessment Qualified (TRAQ)

**Senior Review:**



Mike Coulthard, R.P.Bio., R.P.F.
Senior Forester, Biologist
ISA Tree Risk Assessment Qualified (46)
BC Wildlife and Danger Tree Assessor

Please contact us if there are any questions or concerns about the contents of this report.

**Contact Information:**

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**Insurance Information:**

WCB: # 657906 AQ (003)
General Liability: Northbridge General Insurance Corporation - Policy #CBC1935506, $10,000,000
Errors and Omissions: Lloyds Underwriters – Policy #1010615D, $1,000,000

**Scope of Assignment**:
Diamond Head Consulting Ltd. (DHC) was retained to complete an arboricultural assessment to supplement the proposed development application. This report contains an inventory of protected on and off-site trees and summarizes management recommendations with respect to future development plans and construction activities. Off-site trees are included because pursuant to municipal by-laws, site owners must include the management of off-site trees that are within the scope of the development. This report is produced with the following primary limitations, detailed limitations specified in Appendix 7:

1) Our investigation is based solely on visual inspection of the trees during our last site visit. This inspection is conducted from ground level. We do not conduct aerial inspections, soil tests or below grade root examinations to assess the condition of tree root systems unless specifically contracted to do so.

2) Unless otherwise stated, tree risk assessments in this report are limited to trees with a *high* or *extreme* risk rating in their current condition, and in context of their surrounding land use at the time of assessment.

3) The scope of work is primarily determined by site boundaries and local tree-related bylaws. Only trees specified in the scope of work were assessed.

4) Beyond six months from the date of this report, the client must contact DHC to confirm its validity because site base plans and tree conditions may change beyond the original report's scope. Additional site visits and report revisions may be required after this point to ensure report accuracy for the municipality's development permit application process. Site visits and reporting required after the first submission are not included within the original proposal fee and will be charged to the client at an additional cost.

**The client is responsible for:**

- Reviewing this report to understand and implement all tree **risk**, removal and protection requirements related to the project.
- Understanding that we did not assess trees off the subject property and therefore cannot be held liable for actions you or your contractors may undertake in developing this property which may affect the trees on neighboring properties.
- Obtaining a tree removal permit from the relevant municipal authority prior to any tree cutting.
- Obtaining relevant permission from adjacent property owners before removing off-site trees and vegetation.
- Obtaining a timber mark if logs are being transported offsite.
- Ensuring the project is compliant with the tree permit conditions.
- Constructing and maintaining tree protection fencing.
- Ensuring an arborist is present onsite to supervise any works in or near tree protection zones.

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# 1.0 Introduction

## 1.1 Site Overview

The subject site is a large, forested lot near Eagle Harbour in the city of West Vancouver. It is accessed from Daffodil Drive to the south, and from Westport road to the east. Two watercourses flow through the site before converging together on Daffodil Drive. Eagle Creek flows along the southern property line, and a ditch runs along the north and east property lines. Both watercourses require that a 10m riparian setback be protected. Most of site has moderate slope and a southern aspect. The western most 15-20m of the site is flat and is where a driveway exists. A small wetland has developed on the uphill side of this road.

There are two forest types on site including a dense, mature coniferous forest, and a young, open deciduous forest. The larger by area is the mature conifer stand which consist of Douglas fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), with scattered bigleaf maple (*Acer macrophyllum*). The mature conifers likely originated following logging of the area 80-100 years ago. They form a homogenous stand with a dense canopy. Except for a few very large Douglas fir trees that stand taller than the surrounding stand, most of the trees within this stand have not adapted to stand alone and rely on the shelter provided by adjacent trees for stability. Soils in this stand are rocky, dry, and relatively thin.

Some of the trees have been topped in the past, resulting in the growth of large multi-stem tops. These old topping injuries are usually at about 10m above the ground, and the trees may have grown up to 35m. These may pose a risk to future development and infrastructure. Evaluating the risk posed by topped trees will require aerial assessments by a climber.

A second, distinct stand type is found on the flat western portion of the property. This stand has an open canopy with smaller trees. Species include a mix of pioneer deciduous and native conifers. Red alder (*Alnus rubra*) is the most common species, with scattered western redcedar and western hemlock trees. Soils are wet in this area which along with recent disturbance has influenced the trees that are growing here. The low-density structure of this stand has produced several nice, open grown cedars with good retention potential. Many of the red alder in this stand are generally healthy, but are not suitable for retention adjacent to a development because of the shallow rooting caused by a high water table resulting in a high windthrow risk.

Follow this link or go to https://www.youtube.com/watch?v=f32Di6vAqAo to watch a short drone flyover of the site.

## 1.2 Proposed Land Use Changes

The proposed development consists of subdividing the property into 36 residential units. The riparian area of Eagle Creek will be dedicated as park land, and the riparian area on the tributary will be protected under a covenant. Some habitat compensation and improvement works are planned for the tributary. In preparing this report, we reviewed the following information:

- Overall site plan, Aquilla, Oct 31, 2022
- Topographic and tree survey. Chapman Land Surveying Ltd, Oct 27, 2022

## 1.3 Report Objective

This report has been prepared to ensure the proposed development is compliant with the West Vancouver Interim Tree Bylaw No. 4892, 2016. Refer to Bylaw No 4892 for the complete definition of protected trees, summarized below as:

a) Any tree greater than 75 cm DBH, or in the case of a tree with multiple stems, a combined stem DBH of 75 cm or more;
b) Any replacement tree;
c) Any retained tree; d) Any heritage tree;
d) Any tree located within a Watercourse Protection Area or Foreshore Protection Area;
e) Any tree of the following species, greater than 20 cm DBH: i. Arbutus (*Arbutus menziesii*); ii. Garry Oak (*Quercus garryana*); iii. Pacific yew (*Taxus brevifolia*); iv. Pacific dogwood (*Cornus nuttallii*); v. Yellow cedar (*Cuppressus nootkatensis*); vi. Shore pine (*Pinus contorta var contorta*) that lie within the protected shoreline area as defined using the Provincial ecosystem zone mapping;
f) Any tree that contains an active nest of any bird, or the nest, whether active or not, of an eagle, peregrine falcon, gyrfalcon, heron, osprey, or burrowing owl;
g) Any tree that constitutes the habitat of a protected wildlife species under the Provincial Wildlife Act or Federal Migratory Bird Act.

This report outlines the existing condition of protected trees on and adjacent to the property, summarizes the proposed tree retention and removal, and suggests guidelines for protecting retained trees during the construction process.


Figure 1. The Daffodil Drive project site in context of the surrounding landscape and infrastructure.

# 2.0 Process and Methods

Michael Harrhy and Mitch Davis of DHC visited the site in April 2021. The following methods and standards are used throughout this report.

## 2.1 Tree Inventory

Trees on site and trees shared with adjacent properties were marked with a numbered tag and assessed for attributes including: species; height measured to the nearest meter; and, diameter at breast height (DBH) measured to the nearest centimeter at 1.4 m above grade. Off-site trees were inventoried, but not tagged. The general health and structural integrity of each tree was assessed visually and assigned to one of five categories: *excellent; good; moderate; poor; or dying/dead*. Descriptions of the health and structure rating criteria are given in 0.

Tree retention value, categorized as *high, medium, low, or nil,* was assigned to each tree or group of trees based on their health and structure rating, and potential longevity in a developed environment. Descriptions of the retention value ratings are given in 0. Recommendations for tree retention or removal were determined by taking in to account a tree's retention value rating, its location in relation to proposed building envelopes and development infrastructure.

## 2.2 Tree Risk Assessment

Tree risk assessments were completed following methods of the ISA Tree Risk Assessment Manual[1] published in 2013 by the International Society of Arboriculture, which is the current industry standard for assessing tree risk. This methodology assigns risk based on the likelihood of failure, the likelihood of impact and the severity of consequence if a failure occurs. Only on-site hazard trees that had *high* or *extreme* risk ratings in their current condition and in context of their surrounding land use were identified and reported in section 3.2. Appendix 5 gives the likelihood and risk rating matrices used to categorize tree risk. DHC recommends that on-site trees be re-assessed for risk after the site conditions change (e.g. after damaging weather events, site disturbance from construction, creation of new targets during construction or in the final developed landscape).

## 2.3 Tree Protection

Tree protection zones were calculated for each tree according to a 10 x DBH radius but may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions.

[1] Dunster, J.A., Smiley, E.T., Matheny, N. and Lilly, S. (2013). Tree Risk Assessment Manual. *International Society of Arboriculture*. Champaign, Illinois.

## 3.0 Findings and Discussion

The tree inventory is summarized in Table 1. A complete tree inventory is provided in 6.0.

### Trees On-site

There were 163 trees inventoried on the site. 79 of these trees are greater than 75cm DBH and considered protected under the Interim Tree Bylaw. 94 are between 10 and 74cm DBH and are protected as they are growing within the riparian setback areas. More than half of the trees (104) inventoried were given a 'moderate' retention value rating, meaning that they have potential to be retained but would need to be retained within groups or require treatments to make them stable. 28 are rated as high value, meaning that they have the characteristics required to be retained as individuals or at a stand edge. These high value trees require few treatments and bringing good amenity value to the project.

Tree retention opportunities on this site are limited by the grading and road works required for the development. Most trees within the core of the site require a stable group to be retained successfully. Retaining such a group is not feasible considering the site plan and required grading.

A group of red alder within the habitat compensation area in the southwest of the site is recommended for removal. These trees are not adapted to exposure, and the anticipated changes to hydrology is expected to cause the trees to decline and die. Removing and replacing the trees will create a more stable forest edge in the long term. It will also facilitate the creation of the proposed wetland habitat.

Root zones have been prescribed based on the species and tree conditions to ensure they will remain healthy and stable. Minor root zone conflict with the proposed building envelopes is expected, but can be managed to an acceptable level with proper planning and site supervision.

Successful retention of the significant edge trees will require:

- Maintenance of grades within the root zone, only building up with clear gravel when required
- Arborist supervision during foundation excavation to prune roots as required
- Planning of foundation excavation and landscape design to minimize required over excavation
- Installation of an automatic irrigation system to help compensate for any root loss.

### Trees on Adjacent Properties

Few offsite trees have root zones that extend into the subject property. There were 7 privately owned off-site trees with tree protection zones extending into the subject site. Three trees growing on City property are within the zone of influence of the project. The connection to Daffodil Drive will require removal of a hemlock hedge (inventoried as two trees to mark each end) growing on City property. Offsite tree 567, a large cedar, is at the margin of the proposed road works but can be retained with the prescribed tree protection barriers.

The site entrance off Westport Road, and a proposed staircase and trail connection is included on the landscape plan. These features will likely affect trees that were not inventoried or assessed as part of this plan. The District-owned parcel off Westport was not included in this assessment.

Table 1: Summary of the tree inventory from Daffodil Drive containing the number of trees categorized by retention value and the recommended number to be retained or removed. The complete tree inventory is provided in 6.0.
*Note that City tree count does not include an assessment of trees affected by the proposed staircase off Westport Road.

| Tree Species | Retention Value | | | | Recommendation | | | |
|---|---|---|---|---|---|---|---|---|
| | High | Medium | Low | Nil | Remove | Retain | Wildlife | Total |
| **On-site and shared trees** | | | | | | | | |
| Big-Leaf Maple | | 5 | 4 | 3 | 8 | 4 | | 12 |
| Bitter Cherry | | 1 | | | | 1 | | 1 |
| Cascara | | 2 | 1 | | 1 | 2 | | 3 |
| Douglas-Fir | 12 | 15 | 2 | 1 | 15 | 15 | | 30 |
| Red Alder | | 21 | 14 | | 10 | 20 | 5 | 35 |
| Western Hemlock | | 6 | 1 | 1 | 5 | 3 | | 8 |
| Western Red Cedar | 14 | 50 | 12 | 1 | 34 | 42 | 1 | 77 |
| On-site totals | 26 | 100 | 34 | 6 | 73 | 87 | 6 | 166 |
| **Off-site trees** | | | | | | | | |
| Big-Leaf Maple | | | 1 | | | 1 | | 1 |
| Douglas-Fir | | | 1 | | | 1 | | 1 |
| Paper Birch | | | 1 | | | 1 | | 1 |
| Red Alder | | 1 | | 1 | | 2 | | 2 |
| Western Red Cedar | 3 | | | | | 3 | | 3 |
| Off-site totals | 3 | 1 | 3 | 1 | | 8 | | 8 |
| **City trees*** | | | | | | | | |
| Western Hemlock | | 2 | | | 2 | | | 2 |
| Western Red Cedar | | 1 | | | 1 | | | 1 |
| City totals | | 3 | | | 3 | | | 3 |
| GRAND TOTAL | | | | | 76 | 79 | 22 | 177 |

### 3.1 Windthrow risk assessment

Creating new forest edges and exposing trees to increased wind forces can result in windthrow, the failure of trees and forests during strong winds. We have identified the best available forest edges within 30m of the riparian areas to maintain the integrity of the forest within the protected riparian areas, and to minimize the risk of tree failures striking the proposed development. Trees that we recommended for retention are highlighted in blue on the Tree Management Plan. Loss of the recommended edge trees may have a cascading effect as weak trees that are unsuitable for retention are exposed, necessitating additional removals to minimize the risk of catastrophic stand failure.

The overall risk of windthrow on this site is moderate. In the mature conifer stand that covers most of the site, the stand has grown in a relatively dense, uniform structure. Most trees within this stand are not suitable for exposure. Dominant Douglas-fir and cedars that are taller than the surrounding stand and are well adapted to oncoming winds are the most stable trees. These dominant trees are typically larger than 75cm; the tree bylaw is a fair proxy for their identification.

The best available edges around Eagle creek in the south of the property consists of a solid row of conifers that have benefited from greater moisture availability and more growing room. This row protects a group of relatively weak red alder found along the banks of the watercourse. If the identified trees are adequately protected, the likelihood of windthrow around Eagle Creek is low.

The tributary in the northeast of the property has a greater likelihood of windthrow due to greater stem density, weaker trees, and poor rooting in coarse rocky ground. This forest edge will experience the greatest increase in wind forces following land clearing as it will be perpendicular to southern storm winds and be exposed at the top edge of the slope above the development. We have identified the best available forest edge, which is outside the 10m riparian setback.

Around the wetland and ditch found in the west of the site, the risk of windthrow is not expected to change because of the development or tree removals to accommodate restoration efforts. This stand is relatively short and there are large openings between trees; the trees are somewhat stable and adapted to withstand oncoming winds. Saturated soils reduce the rooting strength of the stand. There is no practical forest edge outside of the protected riparian area.

### 3.2 Tree Risk Assessment

There were no trees on this site that posed a *high* or *extreme* risk at the time of assessment. This is mainly because there are currently no structures or targets within striking range of most trees. The proposed development will create new forest edges and introduce new targets close to these trees. Recommendations have been made to reduce the risk of failure of retained trees. We recommend that the forest edges be reassessed for risk following land clearing.

## 4.0 Tree Replacement

The District of West Vancouver Tree Bylaw enables the requirement that replacement trees be planted for trees that are removed. The District will decide the quantity of replacement trees required and the project arborist or landscape architect can then prepare a tree replacement plan showing the location and species. Note that the concurrent Wildfire Hazard Assessment and DP permit guidelines require that no coniferous species be planted within 10m of a structure.

## 5.0 Summary and Next Steps

This Arboricultural Inventory Report outlines the existing condition of protected trees on and next to the proposed development, summarizes the proposed tree retention and removal, and suggests guidelines for protecting retained trees during the construction process. The owner is responsible for understanding and implementing all tree risk, removal and protection requirements related to the project and detailed in this report.

The supplied landscape plan includes several features that are offsite, including a staircase and grading from Westport Road. The proposed staircase and grading is offsite and not included in the scope of this assessment, but expect that it will affect a number of offsite trees.

Retention of trees and understory vegetation within the developable area is unlikely. The majority of the forest on the site <75cm DBH and therefore not protected under the bylaw.

Careful planning and arborist supervision during excavations for building foundations is required to protect retained trees 2358, 2360, 2475, 2445; and for road construction adjacent to trees 7676, 7277b, 7276, 7281, and 2473. Construction will require vertical excavations to avoid encroachment into the critical root zones. Blind forming and shotcrete retaining may be required. Arborist supervision is required during road grading. We recommend that the root zones of trees in this area be enhanced with 10cm of wood mulch and irrigation. The root zone enhancements will help the trees recover and adapt to new exposure.

We recommend that trees retained after the initial clearing be reassessed for risk by a qualified arborist, and that the land clearing activities be supervised by the project arborist. The project arborist can work to identify additional smaller trees that may be suitable for retention outside of the building envelopes and grading areas.

The project developer must also:

- Obtain a tree removal permit from the relevant municipal authority before any tree cutting.
- Get permission from adjacent property owners before removing off-site trees and vegetation on their respective properties.
- Obtain a timber mark if logs are being transported off site.
- Ensure the project is compliant with the tree permit conditions.
- Construct and maintain tree protection fencing.
- Have an arborist on site to supervise any works in or near tree protection zones.

Diamond Head did not assess trees growing outside of the subject property, including a District-owned lot on Westport Road. We, therefore, cannot be held liable for you or your contractors' actions developing this property that may affect trees on neighboring properties. Diamond Head recommends that on-site trees be re-assessed for risk after the site conditions change (e.g., after damaging weather events, site disturbance from construction, creation of new targets during construction or in the final developed landscape).

## 6.0 Tree Protection During Construction

The following tree protection measures should be considered during the construction process. Additional measures are provided in Appendix 6.

- A permanent tree protection zone should be established at the dimensions shown in Appendix 1. A tree protection fence should be established out from the base of all trees. Within these tree protection zones, no work activities or disturbance is permitted;
- Excavation that takes place within 2 meters of the base of any trees to be protected should be done carefully to ensure that roots are not ripped back toward the trees. A certified arborist should be on site to monitor the excavation if work is to be taken place within this zone. As soon as roots that are greater than 5cm in diameter are encountered, the remaining areas around the roots should be excavated with hand tools and the roots pruned off clean;
- Excavation and construction activities adjacent to protected trees can influence the moisture availability to their roots. Soil moisture conditions within the tree protection zones should be monitored during hot and dry weather. When soil moisture conditions are dry, supplemental irrigation should be provided; and
- If there are concerns regarding the clearance required for machinery and workers within the tree protection zone or just outside it, the project arborist should be consulted so that a pruning prescription can be developed or a zone surrounding the crowns can be established. All heavy machinery working adjacent to the trees (excavators, cranes, dump trucks, etc.) operating machinery within five meters of the crowns of these trees should be made aware of the proximity of these trees to their activities. If there is to be a sustained period of machinery working within five meters of the crowns of these trees a line with coloured flags should be suspended at the height of the crowns along the length of the protected trees.

## Appendix 1 Complete Tree Inventory Table

The complete tree inventory below contains information on tree attributes and recommendations for removal or retention. Tree ownership in this inventory table is not definitive, its determination here is based on information available from the legal site survey, GPS locations, and field assessment during site visits. Tree Protection Zones are measured from the outer edge of a tree's stem. If using these measurements for mapping the tree protection zone, ½ the tree's diameter must be added to the distance to accommodate a survey point at the tree's center. Where tree protection fencing is proposed to vary from the minimum municipal TPZ, comments will be included in the Retention/TPZ comments and shown on the Tree Management Plan. The TPZ is the tree protection zone size required by the relevant municipal bylaw or, if not defined, the project arborist.

Note that tree in this table include those significant trees> 75cm, and trees >15cm which are located within a riparian setback area.

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 311 | On Site | Western Red Cedar | Thuja plicata | 152 | 30 | Good | Growing at toe of slope. Two stems union at 2m. Good attachment. Dominant tree in stand. | High | Remove | In conflict with proposed buildings and grading for walls. | 9.1 |
| Surveyed | 312 | On Site | Big-Leaf Maple | Acer macrophyllum | 124 | 25 | Poor | Heavily decayed base. Kretzschmaria at base. Stem overgrown with ivy. | Nil | Remove | In conflict with proposed building. | 7.4 |
| Surveyed | 332 | On Site | Douglas-Fir | Pseudotsuga menziesii | 103 | 30 | Good | Growing at toe of slope. Existing edge tree. Single straight stem. Codominant tree in stand. | High | Retain | This tree can be retained, but it is vulnerable to exposure following removal of 2358. Maintain grades within critical root zone. | 6.2 |
| Surveyed | 333 | On Site | Western Red Cedar | Thuja plicata | 123 | 30 | Good | Growing at toe of slope. Existing edge tree. Single straight stem. Dominant tree in stand. A great candidate for retention. Within protected riparian area | High | Retain | Design team to confirm finished grading around perimeter of building 19 will accommodate the critical root zone. The proposed building and grading for landscaping will likely push into the critical root zone of this tree. Arborist supervision is essential during excavations for building foundation, retaining walls, and landscaping. | 9.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 334 | On Site | Western Red Cedar | Thuja plicata | 100 | 30 | Moderate | Growing at toe of slope. Lateral branches forming secondary stems at 10 and 12m. Existing edge tree. Edge adapted and stable. Provides cover for weak alder to the south. | Medium | Retain | Design team to confirm finished grading around perimeter of building 24 will accommodate the critical root zone. The proposed building and grading for landscaping will likely push into the critical root zone of this tree. Arborist supervision is essential during excavations for building foundation, retaining walls, and landscaping. | 8.0 |
| Surveyed | 869 | On Site | Western Hemlock | Tsuga heterophylla | 66 | 30 | Moderate | Codominant in group of larger conifers. Acceptable in group. Fair rooting in slope and old stump. | Medium | Retain | This tree can be retained, but it is vulnerable to exposure following removal of 2358. Maintain grades within critical root zone. | 4.0 |
| Surveyed | 2332 | On Site | Douglas-Fir | Pseudotsuga menziesii | 62 | 20 | Moderate | Growing between paved driveways. Codominant tree. Midway up slope. Buttress roots on west side. Asymmetrical crown. Stream within north dripline. | Medium | Remove | In conflict with proposed driveway. Removal may affect stability of remaining trees. | 3.7 |
| Surveyed | 2333 | On Site | Douglas-Fir | Pseudotsuga menziesii | 53 | 20 | Moderate | Growing between paved driveways. Codominant tree. Midway up slope. Buttress roots on west side. Asymmetrical crown. Stream within north dripline. | Medium | Remove | In conflict with proposed driveway. Removal may affect stability of remaining trees. | 3.2 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2334 | On Site | Red Alder | Alnus rubra | 21 | 6 | Moderate | Growing on slope. Extreme sweep west. Corrected. Asymmetrical crown. Suppressed. | Medium | Retain | Protect and retain. | 1.3 |
| Surveyed | 2335 | On Site | Red Alder | Alnus rubra | 14 | 10 | Moderate | Growing on slope. Extreme sweep west. Corrected. Asymmetrical crown. | Medium | Retain | Protect and retain. | 0.8 |
| Surveyed | 2336 | On Site | Red Alder | Alnus rubra | 22 | 16 | Moderate | Growing on slope. Extreme sweep west. Corrected. | Medium | Retain | Protect and retain. | 1.3 |
| Surveyed | 2337 | On Site | Western Red Cedar | Thuja plicata | 31 | 25 | Moderate | Codominant tree. Extreme sweep. Corrected, asymmetrical crown. Stem fused with 2338. Existing edge tree. | Medium | Wildlife | Not expected to be stable following removal of stronger edge trees. Wildlife tree at safe height. Also will reduce wildfire hazard risk. | 1.9 |
| Surveyed | 2338 | On Site | Western Red Cedar | Thuja plicata | 23 | 18 | Moderate | Subordinate tree. Extreme sweep. Corrected, asymmetrical crown. Stem fused with 2337. Existing edge tree. | Medium | Remove | Remove to mitigate wildfire threat. | 1.4 |
| Surveyed | 2339 | On Site | Western Red Cedar | Thuja plicata | 35 | 23 | Moderate | Growing on slope. Stream within north dripline. Asymmetrical crown. Dead secondary stem union at 1m, included bark. | Medium | Retain | Maintain existing grading throughout root zone. | 2.1 |
| Surveyed | 2340 | On Site | Western Red Cedar | Thuja plicata | 96 | 30 | Moderate | Topped at 20m. Multiple forks at topping. Large buttress roots. Moderate edge tree. | Medium | Retain | Aerial inspection recommended. Will Likely be a lower risk because of the distance to the development. | 5.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2341 | On Site | Western Red Cedar | Thuja plicata | 61 | 25 | Moderate | Stream within southern dripline. Stilted roots. Unable to see if topped. Moderate edge tree. | Medium | Retain | This tree may not be stable once exposed. | 3.7 |
| Surveyed | 2343 | On Site | Cascara | Rhamnus purshiana | 39 | 18 | Moderate | East phototripic lean. Partially suppressed. Asymmetrical crown. | Medium | Retain | This tree may not be stable once exposed. Outside zone of influence. | 2.3 |
| Surveyed | 2344 | On Site | Cascara | Rhamnus purshiana | 28 | 18 | Moderate | East phototripic lean. Suppressed. Asymmetrical crown. | Medium | Retain | This tree may not be stable once exposed. Outside zone of influence. | 1.7 |
| Surveyed | 2345 | On Site | Western Red Cedar | Thuja plicata | 50 | 25 | Moderate | Subordinate tree. Asymmetrical crown. Moderate ivy up stem. | Medium | Retain | This tree may not be stable once exposed. Maintain grades and exclude machines from root zone. | 3.0 |
| Surveyed | 2346 | On Site | Western Red Cedar | Thuja plicata | 44 | 30 | Moderate | Codominant. Growing on slope. Stream within south dripline. Moderate ivy growth up stem. | Medium | Retain | This tree may not be stable once exposed. Outside zone of influence. | 2.6 |
| Surveyed | 2347 | On Site | Western Red Cedar | Thuja plicata | 42 | 30 | Moderate | Codominant. Growing on slope. Stream within south dripline. Moderate ivy growth up stem. Asymmetrical crown. Unable to see top. | Medium | Retain | This tree may not be stable once exposed. Outside zone of influence. | 2.5 |
| Surveyed | 2348 | On Site | Western Red Cedar | Thuja plicata | 26 | 16 | Moderate | Suppressed. Symmetrical crown. Growing on slope. | Medium | Retain | Lift prune crown to 5 m. | 1.6 |
| Surveyed | 2349 | On Site | Douglas-Fir | Pseudotsuga menziesii | 72 | 25 | Moderate | Topped at 18m. One leader from topping site. Growing on slope. | Medium | Retain | This tree may not be stable once exposed. | 4.3 |
| Surveyed | 2350 | On Site | Western Red Cedar | Thuja plicata | 93 | 30 | Moderate | Fork at 18m. Included bark. Growing on slope. Slight westward sweep to stem. | Medium | Retain | Set back from proposed clearing boundary | 5.6 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2351 | On Site | Western Red Cedar | Thuja plicata | 83 | 39 | Moderate | Three stems growing from large rotted nurse stump. Large buttress roots. Growing on slope. All three stems topped at 16m. Main stem forked at 16m. | Medium | Retain | Set back from proposed clearing boundary | 5.0 |
| Surveyed | 2352 | On Site | Western Red Cedar | Thuja plicata | 40 | 30 | Moderate | Existing edge tree. Asymmetrical crown. Cannot see top. Moderate ivy growth up stem. | Medium | Retain | Set back from proposed clearing boundary | 2.4 |
| Surveyed | 2353 | On Site | Western Red Cedar | Thuja plicata | 76 | 25 | Moderate | Growing on slope. Intermediate tree in stand. Topped at 12m. Multiple leaders from top. Existing edge tree. | Medium | Remove | In conflict with proposed driveway and grading. | 4.6 |
| Surveyed | 2354 | On Site | Big-Leaf Maple | Acer macrophyllum | 94 | 25 | Moderate | Growing on slope. Existing paved driveway 1.5m from stem. Multiple stems union at 3m. Appears to have been topped multiple times throughout life. | Medium | Remove | In conflict with proposed road | 5.6 |
| Surveyed | 2355 | City | Western Red Cedar | Thuja plicata | 83 | 25 | Moderate | Growing on slope. Existing edge tree. Asymmetrical crown. Existing driveway 1.5m from stem. Recommend survey to determine in on or off site. | Medium | Remove | In conflict with proposed road | 5.0 |
| Surveyed | 2356 | On Site | Western Red Cedar | Thuja plicata | 79 | 25 | Moderate | Growing on slope. Single straight stem. Asymmetrical crown. Codominant tree in stand. Existing edge tree. | Medium | Remove | In conflict with proposed road | 4.7 |
| Surveyed | 2357 | On Site | Douglas-Fir | Pseudotsuga menziesii | 75 | 25 | Moderate | Growing on slope. Slight sweep to stem. Topped at 20m. Multiple leaders. Intermediate tree in stand. | Medium | Remove | In conflict with site grading. | 4.5 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2358 | On Site | Western Red Cedar | Thuja plicata | 133 | 30 | Good | Growing at toe of slope. Existing edge tree. Single straight stem. Good taper. Well adapted anchor tree for others in row. Retention recommended. | High | Retain | Some conflict with building 2 is expected, approximately 15%. Plan to use blind forms in building construction and minimize over-excavation. The rear-yard retaining structure must be designed and constructed to avoid excavation into root zone; it must be designed in consultation witht he project arborist. Arborist supervision is required for all work within critical root zone. Spread 10cm of wood mulch through root zone. Note that this tree is sensitive to construction and may die as a result of the encroachment. Prune tree's crown to maintain 10m clearance from building. | 8.0 |
| Surveyed | 2359 | On Site | Western Hemlock | Tsuga heterophylla | 85 | 30 | Good | Growing at toe of slope. Existing edge tree. Single straight stem. Codominant tree in stand. Suitable with neighbouring conifers. | Medium | Retain | Maintain grades within root zone. Protect with tree protection barriers. | 6.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2360 | On Site | Western Red Cedar | Thuja plicata | 108 | 30 | Moderate | Strong natural edge tree at toe of slope. Moderate cavity at base acceptable for species. Good potential with adjacent conifers. Retention recommended. | High | Retain | A portion of the root zone will be affected by the retaining wall below Unit 17. Arborist supervision is required during wall construction. Plan to minimize over excavation. | 8.6 |
| Surveyed | 2361 | On Site | Big-Leaf Maple | Acer macrophyllum | 100 | 25 | Moderate | Growing at north edge of creek. Stem abutting 2362. Asymmetrical crown,. | Medium | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 6.0 |
| Surveyed | 2362 | On Site | Western Red Cedar | Thuja plicata | 67 | 25 | Moderate | Growing at north edge of creek. Stem abutting 2361. Asymmetrical crown,. | Medium | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 4.0 |
| Surveyed | 2363 | On Site | Western Hemlock | Tsuga heterophylla | 92 | 30 | Moderate | Growing at toe of slope. Existing edge tree. Single straight stem. Dominant tree in stand. Crown appears thin and slightly stressed. This tree will be sensitive to construction and would require an extra large root protection zone. Suitable at edge. | Medium | Remove | In conflict with proposed building and retaining structures. | 9.2 |
| Surveyed | 2364 | On Site | Western Red Cedar | Thuja plicata | 86 | 25 | Moderate | Growing on top on bank of stream. Stem forked at 8m. | Medium | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 5.2 |
| Surveyed | 2365 | On Site | Red Alder | Alnus rubra | 23 | 14 | Moderate | Growing at bottom of bank of creek. Swept stem. Corrected. | Medium | Retain | Outside zone of influence. | 1.4 |
| Surveyed | 2366 | On Site | Red Alder | Alnus rubra | 17 | 14 | Moderate | Growing at bottom of bank of creek. Swept stem. Corrected. | Medium | Retain | Outside zone of influence. | 1.0 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2367 | On Site | Western Red Cedar | Thuja plicata | 48 | 18 | Poor | Growing on top on bank of stream. Decay column be at base. Topped at 14m. | Low | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 2.9 |
| Surveyed | 2368 | On Site | Western Red Cedar | Thuja plicata | 80 | 25 | Moderate | Growing on top on bank of stream. Single straight stem. Asymmetrical crown. Existing edge tree. | Medium | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 4.8 |
| Surveyed | 2369 | On Site | Western Red Cedar | Thuja plicata | 104 | 39 | Good | Growing on top on bank of stream. Single straight stem. Symmetrical crown. Existing edge tree. | High | Retain | Arborist to supervise proposed pathway construction within critical root zone. | 9.0 |
| Surveyed | 2370 | On Site | Western Red Cedar | Thuja plicata | 28 | 12 | Poor | Suppressed. Significant sweep to stem. Corrected. Asymmetrical crown. | Low | Retain | Can be retained within riparian area, but only with larger cedars adjacent. Maintain grades and exclude machines from critical root zone. | 1.7 |
| Surveyed | 2371 | On Site | Red Alder | Alnus rubra | 21 | 14 | Moderate | Growing at bottom of bank of creek. Swept stem. Corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.3 |
| Surveyed | 2372 | On Site | Red Alder | Alnus rubra | 24 | 14 | Moderate | Growing midway up creek bank. Suppressed. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.4 |
| Surveyed | 2373 | On Site | Red Alder | Alnus rubra | 15 | 14 | Moderate | Growing midway up creek bank. Suppressed. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 0.9 |
| Surveyed | 2374 | On Site | Red Alder | Alnus rubra | 19 | 20 | Moderate | Growing mat top of creek bank. Partially suppressed. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.1 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2375 | On Site | Red Alder | Alnus rubra | 25 | 20 | Moderate | Growing at top of creek bank. Partially suppressed. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.5 |
| Surveyed | 2376 | On Site | Red Alder | Alnus rubra | 15 | 20 | Moderate | Growing at top of creek bank. Partially suppressed. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 0.9 |
| Surveyed | 2376 | On Site | Red Alder | Alnus rubra | 24 | 20 | Moderate | Growing midway on creek bank. Partially suppressed. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.4 |
| Surveyed | 2377 | On Site | Red Alder | Alnus rubra | 36 | 20 | Moderate | Growing at bottom of creek bank. Partially suppressed. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 2.2 |
| Surveyed | 2378 | On Site | Red Alder | Alnus rubra | 27 | 20 | Moderate | Growing midway on creek bank. Partially suppressed. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.6 |
| Surveyed | 2379 | On Site | Red Alder | Alnus rubra | 39 | 25 | Moderate | Growing at top of creek bank. Dominant Alder in group. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 2.3 |
| Surveyed | 2380 | On Site | Red Alder | Alnus rubra | 25 | 20 | Moderate | Growing at top of creek bank. Stem bowed south. Not corrected. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 1.5 |
| Surveyed | 2432 | On Site | Western Red Cedar | Thuja plicata | 33 | 18 | Moderate | Subordinate in stand. Asymmetrical crown. Stream within south dripline. | Medium | Retain | Requires cover provided by larger cedars adjacent. | 2.0 |
| Surveyed | 2441 | On Site | Western Red Cedar | Thuja plicata | 80 | 30 | Good | Growing on slope. Single straight stem. Symmetrical crown. Dominant tree in stand. | High | Remove | In conflict with proposed building, retaining walls and grading. | 4.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2442 | On Site | Douglas-Fir | Pseudotsuga menziesii | 118 | 40 | Good | Growing on slope. Dominant tree in stand. Symmetrical crown. Slight sweep to stem. Unrestricted rooting area. Unable to see top. Good taper and structure. A good candidate for retention. | High | Remove | In conflict with proposed building, walls, and staircase. | 9.4 |
| Surveyed | 2443 | On Site | Western Red Cedar | Thuja plicata | 109 | 30 | Poor | Large wound 12m up south side of stem. Decay present. Asymmetrical crown. | Low | Remove | In conflict with proposed building. | 6.5 |
| Surveyed | 2444 | On Site | Douglas-Fir | Pseudotsuga menziesii | 92 | 30 | Good | Growing on slope. Single straight stem. Asymmetrical crown. Codominant tree in stand. | High | Remove | In conflict with proposed road | 5.5 |
| Surveyed | 2445 | On Site | Douglas-Fir | Pseudotsuga menziesii | 115 | 30 | Good | Existing edge tree. Multiple stems union at base. DBH 85 and 50cm. No inclusion at union. Naturally edge adapted, this is a strong tree and a good candidate for retention. | High | Retain | Design team to confirm finished grading around perimeter of buildings 24 and 25 will accommodate the critical root zone. The proposed building and grading for landscaping will likely push into the critical root zone of this tree. Arborist supervision is essential during excavations for building foundation, retaining walls, and landscaping. | 8.1 |
| Surveyed | 2446 | On Site | Douglas-Fir | Pseudotsuga menziesii | 100 | 30 | Moderate | Growing on slope. Asymmetrical crown. Dominant tree in stand. Possibly historic codom break at 10m. Completely occluded. | Medium | Remove | In conflict with required grading. | 6.0 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2447 | On Site | Western Red Cedar | Thuja plicata | 81 | 30 | Moderate | Growing on slope. Large buttress roots. Moderate sweep at base of stem. Corrected. Codominant tree in stand. | Medium | Retain | Design team to confirm finished grading around perimeter of building 19 will accommodate the critical root zone. The proposed building and grading for landscaping will likely push into the critical root zone of this tree. Arborist supervision is essential during excavations for building foundation, retaining walls, and landscaping. | 4.9 |
| Surveyed | 2448 | On Site | Western Red Cedar | Thuja plicata | 131 | 25 | Poor | Growing on slope. Large column of decay visible up stem. Stem crooked in multiple places. | Low | Remove | In conflict with proposed building. | 7.9 |
| Surveyed | 2449 | On Site | Western Red Cedar | Thuja plicata | 93 | 30 | Good | Growing on slope. Large buttress roots. Single straight stem. Codominant tree in stand. Symmetrical crown. | High | Remove | In conflict with proposed building. | 5.6 |
| Surveyed | 2450 | On Site | Douglas-Fir | Pseudotsuga menziesii | 91 | 30 | Moderate | Growing on toe of slope. Single straight stem. Decay visible on north side of stem up 1.5m. Asymmetrical crown. Codominant tree in stand. | Medium | Remove | In conflict with proposed building. | 5.5 |
| Surveyed | 2451 | On Site | Western Red Cedar | Thuja plicata | 126 | 30 | Moderate | Growing on slope. Swept stem. Corrected. Asymmetrical crown. Abnormally large root flare. Codominant tree in stand. | Medium | Remove | In conflict with proposed building. | 7.6 |
| Surveyed | 2452 | On Site | Douglas-Fir | Pseudotsuga menziesii | 108 | 30 | Good | Growing on slope. Single straight stem. Asymmetrical crown. Dominant tree in stand. | High | Remove | In conflict with proposed building. | 6.5 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2453 | On Site | Douglas-Fir | Pseudotsuga menziesii | 110 | 30 | Good | Growing on slope. Single straight stem. Asymmetrical crown. Dominant tree in stand. | High | Remove | In conflict with proposed building. | 6.6 |
| Surveyed | 2454 | On Site | Western Red Cedar | Thuja plicata | 92 | 30 | Moderate | Growing on slope. Asymmetrical crown. Codominant tree in stand. | Medium | Remove | In conflict with required grading. | 5.5 |
| Surveyed | 2455 | On Site | Douglas-Fir | Pseudotsuga menziesii | 89 | 25 | Poor | Sitting on large Boulder. Very large buttress root to east. Significant sweep to stem. Corrected. Asymmetrical crown. | Low | Remove | In conflict with proposed road | 5.3 |
| Surveyed | 2456 | On Site | Western Red Cedar | Thuja plicata | 101 | 30 | Good | Growing on slope. Single straight stem. Symmetrical crown. Dominant tree in stand. | High | Remove | In conflict with proposed road | 6.1 |
| Surveyed | 2457 | On Site | Western Red Cedar | Thuja plicata | 92 | 25 | Poor | Growing on slope. Fork at 20m. Intermediate tree in stand. Large column of decay visible up stem. | Low | Remove | In conflict with required grading. | 5.5 |
| Surveyed | 2458 | On Site | Western Red Cedar | Thuja plicata | 134 | 25 | Dying | Extensive decay column throughout stem. Broken top. | Nil | Remove | In conflict with proposed road | 8.0 |
| Surveyed | 2459 | On Site | Western Red Cedar | Thuja plicata | 76 | 25 | Moderate | Growing on slope. Single straight stem. Symmetrical crown. Codominant tree in stand. South side of stem fusing with 10cm dbh fir. | Medium | Remove | In conflict with proposed building. | 4.6 |
| Surveyed | 2461 | On Site | Western Red Cedar | Thuja plicata | 105 | 30 | Good | Growing on slope. Large buttress roots. Single straight stem. Symmetrical crown. Codominant tree in stand. | Medium | Remove | In conflict with proposed building, retaining walls and grading. | 6.3 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2462 | On Site | Western Red Cedar | Thuja plicata | 77 | 30 | Moderate | Growing on slope. Large buttress roots. Slight sweep at base of stem. Asymmetricalcrown. Codominant tree in stand. | Medium | Remove | In conflict with proposed building. | 4.6 |
| Surveyed | 2463 | On Site | Western Red Cedar | Thuja plicata | 107 | 30 | Good | Growing on slope. Single straight stem. Symmetrical crown. Dominant tree in stand. | High | Remove | In conflict with proposed road, building. | 6.4 |
| Surveyed | 2465 | On Site | Douglas-Fir | Pseudotsuga menziesii | 83 | 25 | Poor | Topped at 18m. Multiple leaders. Intermediate tree in stand. Existing driveway 2m north of stem. | Low | Remove | In conflict with building envelope | 5.0 |
| Surveyed | 2466 | On Site | Douglas-Fir | Pseudotsuga menziesii | 78 | 39 | Moderate | Growing on slope. Existing paved driveway 1.5m north of stem. Appears to have been historically topped at 8m. One leader. Codominant tree in stand. | Medium | Remove | In conflict with proposed building envelope. | 4.7 |
| Surveyed | 2467 | On Site | Douglas-Fir | Pseudotsuga menziesii | 94 | 30 | Moderate | Growing on slope. Codominant tree. Stem forked at 20m. Moderate ivy growth up stem. | Medium | Retain | Outside zone of influence. | 5.6 |
| Surveyed | 2468 | On Site | Western Red Cedar | Thuja plicata | 115 | 30 | Moderate | Growing on slope. Codominant tree. Stem forked at 18m. | Medium | Retain | Outside zone of influence. | 6.9 |
| Surveyed | 2469 | On Site | Western Red Cedar | Thuja plicata | 92 | 30 | Moderate | Growing on slope. Codominant tree. Asymmetrical crown. Main stem enveloping smaller stem at 2.5m. Heavy inclusion. Unable to see if topped. | Medium | Retain | Outside zone of influence. | 5.5 |
| Surveyed | 2470 | On Site | Western Red Cedar | Thuja plicata | 85 | 30 | Moderate | Growing on slope. Dominant tree. Asymmetrical crown. Main stem enveloping smaller stem at 2.5m. Heavy inclusion. | Medium | Retain | Outside zone of influence. | 5.1 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2471 | On Site | Douglas-Fir | Pseudotsuga menziesii | 91 | 30 | Moderate | Growing on slope. Possible restricted rooting from large boulders in dripline. Single straight stem. Cannot see top. Codominant tree in stand. | Medium | Retain | Maintain grades within root zone. | 5.5 |
| Surveyed | 2472 | On Site | Douglas-Fir | Pseudotsuga menziesii | 98 | 30 | Good | Growing on slope. Codominant tree in stand. Symmetrical crown. Unrestricted rooting area. Unable to see top. | High | Retain | Maintain grades within root zone. | 5.9 |
| Surveyed | 2473 | On Site | Douglas-Fir | Pseudotsuga menziesii | 93 | 30 | Good | Growing on slope. Codominant tree in stand. Symmetrical crown. Existing edge tree. Slight sweep to stem. Unable to see top. | High | Retain | Some conflict with proposed road. Retaining this tree requires that road cut be designed to minimize slope. Retaining wall or shotcrete may be required. | 9.0 |
| Surveyed | 2474 | On Site | Douglas-Fir | Pseudotsuga menziesii | 91 | 30 | Good | Growing on slope. Codominant tree in stand. Symmetrical crown. Existing edge tree. Bird nest up 10m on south side. Unknown if active or of what species. Slight sweep to stem. Unable to see top. | High | Remove | In conflict with proposed road. | 5.5 |
| Surveyed | 2475 | On Site | Douglas-Fir | Pseudotsuga menziesii | 103 | 45 | Moderate | Growing on slope. Slight sweep to stem. Large symmetrical crown. Existing edge tree. Strongly rooted and naturally edge adapted this is a good anchor tree for the riparian area. Previously topped. New attachments look okay from the ground but should be inspected aerially if planning to retain adjacent to dwellings. | High | Retain | Given 8x root zone because of slope. Maintain grades within root zone. A climber should inspect unions and prune as necessary. | 8.2 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 2490 | On Site | Douglas-Fir | Pseudotsuga menziesii | 91 | 40 | Good | Large dominant tree at crest of slope. Towers over surrounding stand. A good anchor tree for riparian setback area. | High | Remove | In conflict with proposed road | 5.5 |
| Surveyed | 2664 | On Site | Western Red Cedar | Thuja plicata | 86 | 30 | Good | Edge tree with asymmetrical crown north. Mother root zone is compacted gravel and about 1.5m higher than the south side. | Medium | Remove | In conflict with proposed road, grading and walls. | 5.2 |
| Surveyed | 7201 | On Site | Western Red Cedar | Thuja plicata | 64 | 23 | Moderate | Natural edge tree at south end of hedgerow. Located at top of ditch west side. Good taper. Deep crown. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 3.8 |
| Surveyed | 7202 | On Site | Western Red Cedar | Thuja plicata | 55 | 23 | Moderate | Natural edge tree at south end of hedgerow. Located at top of ditch west side. Good taper. Deep crown. Forms good screen for neighbouring property. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 3.3 |
| Surveyed | 7203 | On Site | Western Red Cedar | Thuja plicata | 63 | NA | Moderate | Codominant in hedge row. Major sweep in base. Corrected. Base 203m west of ditch,. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 3.8 |
| Surveyed | 7204 | On Site | Western Red Cedar | Thuja plicata | 43 | 20 | Moderate | Natural edge tree at south end of hedgerow. Located at top of ditch west. Smaller intermediate tree. Required rest of hedge row for stability. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 2.6 |
| Surveyed | 7205 | On Site | Western Red Cedar | Thuja plicata | 75 | 23 | Good | Dominant with deep crow. Good buttress. 2.5m from top of ditch. Codom from 2m. Good attachment. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 4.5 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7206 | On Site | Western Red Cedar | Thuja plicata | 30 | 18 | Moderate | Group of three similar trees. Weak unions. Suppressed but acceptable in hedge. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 1.8 |
| Surveyed | 7207 | On Site | Western Red Cedar | Thuja plicata | 20 | 18 | Poor | Suppressed but acceptable in hedge. | Medium | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 1.2 |
| Surveyed | 7208 | On Site | Western Red Cedar | Thuja plicata | 25 | 18 | Poor | Suppressed but acceptable in hedge. | Low | Retain | Retain hedgerow. Works on east side of existing ditch will be acceptable. | 1.5 |
| Surveyed | 7214 | City | Western Hemlock | Tsuga heterophylla | 30 | 15 | Moderate | South end of hedgerow. All moderate hemlocks on west side of ditch, near road. Vulnerable to changes in road width and ditch location. | Medium | Remove | A portion of this hedgerow will need to be removed to accommodate the new road. | 1.8 |
| Surveyed | 7215 | City | Western Hemlock | Tsuga heterophylla | 30 | 15 | Moderate | South end of hedgerow. All moderate hemlocks on west side of ditch, near road. Vulnerable to changes in road width and ditch location. | Medium | Remove | A portion of this hedgerow will need to be removed to accommodate the new road. | 1.8 |
| Surveyed | 7216 | On Site | Red Alder | Alnus rubra | 34 | 20 | Good | Young. Vigorous. Growing close to ditch. Venerable to changes to driveway. | Medium | Remove | Will not tolerate changes to stream and road. | 2.0 |
| Surveyed | 7217 | On Site | Western Red Cedar | Thuja plicata | 17 | 12 | Good | Young. Vigorous. Tree between road and ditch. Good potential if grade can be maintained. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 1.0 |
| Surveyed | 7218 | On Site | Red Alder | Alnus rubra | 27 | 12 | Good | Young. Vigorous. Tree west side of ditch. Good potential if grade can be maintained. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 1.6 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7219 | On Site | Red Alder | Alnus rubra | 24 | 12 | Good | Young. Vigorous. Tree west side of ditch. Good potential if grade can be maintained. Moderate ivy. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 1.4 |
| Unsurveyed | 7220 | On Site | Western Red Cedar | Thuja plicata | 64 | 20 | Moderate | Large buttress roots. Saturated ground. Good structure. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 3.8 |
| Surveyed | 7221 | On Site | Red Alder | Alnus rubra | 32 | 14 | Moderate | Intermediate tree. Saturated ground. Requires 7220 for stability. | Low | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 1.9 |
| Surveyed | 7222 | On Site | Western Red Cedar | Thuja plicata | 47 | 26 | Moderate | Large buttress roots. Saturated ground. Good structure. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 2.8 |
| Surveyed | 7223 | On Site | Big-Leaf Maple | Acer macrophyllum | 60 | 25 | Moderate | Tall straight single stem. Moderate crown. Asymmetrical crown. Exposed possibly 5 years ago. Appears stable. Assessment limited. Inaccessible. Not tagged. | Medium | Retain | Design rearing pools outside of tree's critical root zone. Arborist to monitor rearing pool construction. | 3.6 |
| Surveyed | 7224 | Off Site | Western Red Cedar | Thuja plicata | 70 | 20 | Good | Open grown. Large crown. Amazing tree house bolted to stem. Assessment limited. Inaccessible. | High | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 4.2 |
| Surveyed | 7225 | On Site | Douglas-Fir | Pseudotsuga menziesii | 64 | NA | Good | Open grown. Good stem structure. Unrestricted rooting. Good candidate for retention. | High | Retain | Maintain grades within root zone. | 3.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7226 | On Site | Douglas-Fir | Pseudotsuga menziesii | 24 | 18 | Moderate | Subordinate to but acceptable with 7225. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 1.4 |
| Surveyed | 7227 | On Site | Western Red Cedar | Thuja plicata | 56 | 18 | Good | Best if kept with 7225. Acceptable on own. Good taper. Asymmetrical crown. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 3.4 |
| Surveyed | 7228 | On Site | Bitter Cherry | Prunus emarginata | 22 | 10 | Good | Young. Good within area. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 1.3 |
| Surveyed | 7229 | On Site | Big-Leaf Maple | Acer macrophyllum | 32 | 20 | Moderate | Young and open grown. Minor decay at base. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 1.9 |
| Surveyed | 7230 | On Site | Big-Leaf Maple | Acer macrophyllum | 40 | 20 | Moderate | Cop pics of three stems with other vegetation mixed within. Protect to dripline. 4m. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 2.4 |
| Surveyed | 7231 | On Site | Red Alder | Alnus rubra | 67 | 24 | Moderate | Large mature with good structure. Requirpres large root zone. Will be venerable to work within root zone. Beginnings of crown die back. | Medium | Retain | Maintain grades in root zone, avoid root zone when constructing habitat compensation. | 4.0 |
| Surveyed | 7232 | Off Site | Red Alder | Alnus rubra | 34 | 23 | Dying | Dying alder. Recommend survey to determine location. | Nil | Retain | With riparian area. A poor tree but expected to be low risk. Reassess. | 2.0 |
| Surveyed | 7233 | Off Site | Red Alder | Alnus rubra | 63 | 23 | Poor | Two stems. Heavy inclusion. Historic crown failures. Recommend convert to wildlife as 4m. | Low | Retain | With riparian area. A poor tree but expected to be low risk. Reassess. | 3.8 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7234 | Off Site | Big-Leaf Maple | Acer macrophyllum | 55 | 20 | Moderate | Single straight stem. Well adapted to opening to north. Moderate ivy should be removed. Southern portion of root zone at shoulder of driveway. Review grading plan. | Medium | Retain | Protect and retain. | 3.3 |
| Surveyed | 7235 | On Site | Western Hemlock | Tsuga heterophylla | 23 | 14 | Poor | Rooted in nurse stump. Damaged roots. Not recommend for retention. | Low | Remove | Remove to mitigate wildfire threat. Will not be stable and will pose a hazard to proposed development. Removal recommended. | 1.4 |
| Surveyed | 7236 | On Site | Western Red Cedar | Thuja plicata | 70 | 20 | Good | Straight stem. Good taper. Unrestricted rooting. Exploring options to retain this tree would be worthwhile. | High | Remove | Remove to mitigate wildfire threat. In conflict with proposed walls and grading. | 4.2 |
| Surveyed | 7237 | On Site | Cascara | Rhamnus purshiana | 21 | 8 | Poor | Asymmetrical crown. Suppressed by adjacent spacecraft. Only acceptable with cedar . | Low | Remove | In conflict with building 6/7 development | 1.3 |
| Surveyed | 7238 | On Site | Big-Leaf Maple | Acer macrophyllum | 21 | 8 | Poor | Not suitable for exposure. Poor health and structure. | Low | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 1.3 |
| Surveyed | 7239 | On Site | Big-Leaf Maple | Acer macrophyllum | 21 | 8 | Poor | Not suitable for exposure. Poor health and structure. Decay at base. | Nil | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 1.3 |
| Surveyed | 7240 | On Site | Big-Leaf Maple | Acer macrophyllum | 21 | 8 | Poor | Not suitable for exposure. Poor structure. Asymmetrical crown. | Low | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 1.3 |
| Surveyed | 7241 | On Site | Big-Leaf Maple | Acer macrophyllum | 29 | 20 | Poor | Extreme sweep in base. Extensive decay throughout stem. | Nil | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 1.7 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7242 | On Site | Western Hemlock | Tsuga heterophylla | 35 | NA | Moderate | Intermediate in stand. Can only be retained with larger trees. Asymmetrical crown. Sweep in base. Corrected. | Medium | Remove | Remove to mitigate wildfire threat. Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 2.1 |
| Surveyed | 7243 | On Site | Big-Leaf Maple | Acer macrophyllum | 52 | 25 | Moderate | Multiple stems with good unions. Asymmetrical crown. Could only be retained if entire adjacent group retained. Biased to west. | Low | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 3.1 |
| Surveyed | 7244 | On Site | Western Red Cedar | Thuja plicata | 75 | 27 | Good | A large codominant tree. Good taper and structure. Exposed to west. A good candidate for retention, especially with adjacent large cedars. | High | Remove | In conflict with grading and building envelope. | 4.5 |
| Surveyed | 7245 | On Site | Western Red Cedar | Thuja plicata | 66 | 20 | Good | Good taper. Straight stem. Good candidate for retention with adjacent trees. | High | Remove | In conflict with proposed building | 6.6 |
| Surveyed | 7246 | On Site | Western Red Cedar | Thuja plicata | 84 | 20 | Good | Good taper. Deep crown. Has leader wobble. Suitable for retention alone. | High | Remove | In conflict with proposed building envelope. | 8.4 |
| Surveyed | 7247 | On Site | Red Alder | Alnus rubra | 29 | 18 | Moderate | Intermediate in stand growing in wet soil. Moderate vigour. Not suitable for exposure. | Low | Remove | Conflicts with grading and retaining wall construction | 0.0 |
| Surveyed | 7248 | On Site | Western Red Cedar | Thuja plicata | 20 | 12 | Moderate | Young healthy tree. Too small to pose risk. | Medium | Remove | in conflict with retaining wall and wetland construction | 1.2 |
| Surveyed | 7249 | On Site | Red Alder | Alnus rubra | 60 | 18 | Moderate | Intermediate in stand growing in wet soil. Moderate vigour. Not suitable for exposure. Two equal sized stems. Phototropic lean west. | Low | Remove | Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 3.6 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7250 | On Site | Red Alder | Alnus rubra | 27 | 18 | Moderate | Intermediate in stand growing in wet soil. Moderate vigour. Not suitable for exposure. Two stems. Phototropic lean west. | Low | Wildlife | Not suitable for exposure at edge. Likely to fail. Wildlife at safe height. | 1.6 |
| Surveyed | 7251 | On Site | Red Alder | Alnus rubra | 37 | 20 | Moderate | Mature codominant. Phototropic lean west. Sensitive to site changes due to age. Wildlife. | Low | Wildlife | Not suitable for exposure at edge. Likely to fail. Wildlife at safe height. | 2.2 |
| Surveyed | 7252 | On Site | Red Alder | Alnus rubra | 38 | 20 | Moderate | Mature codominant. Phototropic lean west. Sensitive to site changes Europe to age. Wildlife. | Low | Wildlife | Not suitable for exposure at edge. Likely to fail. Wildlife at safe height. | 2.3 |
| Surveyed | 7253 | On Site | Red Alder | Alnus rubra | 38 | 20 | Moderate | Mature codominant. Phototropic lean west. Sensitive to site changes due to age. Wildlife. | Low | Wildlife | Not suitable for exposure at edge. Likely to fail. Wildlife at safe height. | 2.3 |
| Surveyed | 7254 | On Site | Western Red Cedar | Thuja plicata | 38 | 16 | Good | Young tree. Somewhat suppressed. Long term potential. | High | Remove | Remove to mitigate wildfire threat. Removal recommended to stabilize edge. Location uncertain - may be within 10m setback. | 2.3 |
| Surveyed | 7255 | On Site | Red Alder | Alnus rubra | 27 | 15 | Moderate | Mature codominant. Phototropic lean west. Sensitive to site changes due to age. Broken top. Wildlife. | Low | Wildlife | Not suitable for exposure. Wildlife to safe height. | 1.6 |
| Surveyed | 7256 | On Site | Red Alder | Alnus rubra | 46 | 30 | Moderate | Mature codominant. Phototropic lean west. Sensitive to site changes due to age. Wildlife if possible. | Low | Remove | In conflict with road. | 2.8 |
| Surveyed | 7257 | On Site | Red Alder | Alnus rubra | 41 | 20 | Poor | Phototropic lean west. Sensitive to site changes due to age. Unstable rooting. Wildlife if possible. | Low | Remove | In conflict with road | 2.5 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7258 | On Site | Red Alder | Alnus rubra | 26 | 20 | Poor | Phototropic lean west. Sensitive to site changes due to age. Unstable rooting. Wildlife if possible. | Low | Remove | In conflict with road | 1.6 |
| Unsurveyed | 7259 | On Site | Big-Leaf Maple | Acer macrophyllum | 38 | 12 | Poor | Broken top. Multiple poorly attach leaders. | Low | Remove | In conflict with road | 2.3 |
| Surveyed | 7260 | On Site | Red Alder | Alnus rubra | 22 | 15 | Moderate | Young pole. Pistol butt. Weak rooting in wet soil. | Low | Remove | In conflict with road | 1.3 |
| Surveyed | 7261 | On Site | Red Alder | Alnus rubra | 44 | 25 | Moderate | Average codominant. Somewhat adapted to opening at west. Heavy ivy. | Low | Remove | Not suitable for exposure at edge. Likely to fail. Wildlife at safe height. Conflicts with building C envelope | 2.6 |
| Surveyed | 7262 | On Site | Western Red Cedar | Thuja plicata | 42 | 17 | Moderate | Intermediate tree. Rooting in soft saturated soil. | Medium | Remove | In conflict with road. | 2.5 |
| Surveyed | 7263 | On Site | Western Red Cedar | Thuja plicata | 29 | 12 | Moderate | Rooting in saturated soils. Moderate form. Good riparian tree, too small to be risk. | Low | Remove | In conflict with road | 1.7 |
| Surveyed | 7264 | On Site | Western Hemlock | Tsuga heterophylla | 39 | 14 | Moderate | Open grown, moderate structure. Rooting in soft saturated ground. | Medium | Remove | In conflict with road | 2.3 |
| Surveyed | 7265 | On Site | Red Alder | Alnus rubra | 24 | 14 | Poor | East lean. Rooting in soft saturated soils. Stem broken at 7m. | Low | Remove | Will not be stable and will pose a hazard to proposed development. Removal recommended. | 1.4 |
| Surveyed | 7266 | On Site | Western Hemlock | Tsuga heterophylla | 20 | 12 | Moderate | Young intermediate. | Medium | Retain | Small tree will not pose a risk. Maintain grades within root zone. | 1.2 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7270 | On Site | Red Alder | Alnus rubra | 72 | 30 | Moderate | Large mature alders growing as pair of equal 36cm stems. Strong phototropic lean north to neighbouring property. On margin of setback area. Not recommended for retention without cover of stand to south. | Medium | Remove | In conflict with proposed road | 4.3 |
| Surveyed | 7271 | On Site | Western Red Cedar | Thuja plicata | 63 | 30 | Good | Codominant in dense stand of conifers. Asymmetrical crown north. Needs support of surrounding stand. | Medium | Remove | Remove to mitigate wildfire threat. In conflict with proposed road | 3.8 |
| Surveyed | 7272 | On Site | Western Red Cedar | Thuja plicata | 51 | 30 | Moderate | Codominant in stand. Limited taper. Moderate decay at base. Needs surrounding trees for stability. | Low | Remove | In conflict with proposed road | 3.1 |
| Surveyed | 7274 | On Site | Western Red Cedar | Thuja plicata | 33 | 25 | Moderate | Intermediate tree with very asymmetrical crown, biased west. Retention without 2763 is not recommended. | Low | Remove | Remove to mitigate wildfire threat. Will not be stable following removal of trees to south. Removal recommended to mitigate hazard. | 2.0 |
| Surveyed | 7275 | On Site | Western Red Cedar | Thuja plicata | 56 | 25 | Poor | Weak base with pistol butt and decay. Intermediate in stand. Not a good edge tree. | Low | Remove | Remove to mitigate wildfire threat. Will not be stable following removal of trees to south. Removal recommended to mitigate hazard. | 3.4 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7276 | On Site | Douglas-Fir | Pseudotsuga menziesii | 62 | 30 | Good | Relatively dominant. Crooked stem from past injury. One of the only available edge trees. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. | 5.0 |
| Surveyed | 7280 | On Site | Western Hemlock | Tsuga heterophylla | 25 | 25 | Poor | Suppressed. Weak rooting. Leans north. | Nil | Remove | Remove to mitigate wildfire threat. Unsuitable for retention due to condition | 1.5 |
| Surveyed | 7281 | On Site | Western Red Cedar | Thuja plicata | 77 | 35 | Moderate | Good taper and vigour. Candelabra top from past topping may be salvageable. Requires pruning. Not a strong edge tree but the only available option at 10m setback. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. | 4.6 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7282 | On Site | Douglas-Fir | Pseudotsuga menziesii | 63 | 35 | Moderate | Good taper and vigour. Crooked top from past pruning appears to have sealed and has tolerable structure. Not a strong edge tree but the only available option at 10m setback. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. | 3.8 |
| Surveyed | 7283 | On Site | Western Red Cedar | Thuja plicata | 56 | 35 | Good | Decent codominant tree with single straight stem and moderate crown, good taper. Tall. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. | 3.4 |
| Surveyed | 7284 | On Site | Western Red Cedar | Thuja plicata | 27 | 15 | Moderate | Small, suppressed tree with limited taper and deep crown. May be structurally sound but will be sensitive to increased solar exposure on south slope. | Low | Remove | Remove to mitigate wildfire threat. Not expected to survive exposure and grading to accommodate parking spots. | 1.6 |
| Surveyed | 7285 | Off Site | Douglas-Fir | Pseudotsuga menziesii | 35 | 25 | Moderate | Younger codominant with good structure. Emergent crown. Limited taper, but not too tall to retain. | Medium | Retain | NA | 2.1 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7286 | Off Site | Paper Birch | Betula papyrifera | 45 | 15 | Good | Healthy coppice of 6 equal stems. | Medium | Retain | NA | 2.7 |
| Surveyed | 7287 | On Site | Western Red Cedar | Thuja plicata | 24 | 20 | Moderate | Small, suppressed tree with limited taper and deep crown. May be structurally sound but will be sensitive to increased solar exposure on south slope. | Low | Retain | May decline. Retain and monitor. Irrigation system will improve retention outcome. | 1.4 |
| Surveyed | 7288 | On Site | Western Red Cedar | Thuja plicata | 69 | 35 | Good | Tall, edge adapted tree beside watercourse. Deep crown. Moderate taper. | Medium | Retain | preserve existing grades within root zone. Lift prune crown to 5 m. | 4.1 |
| Surveyed | 7673 | On Site | Douglas-Fir | Pseudotsuga menziesii | 74 | 30 | Moderate | Dominant edge tree is a fair candidate for retention. Previously topped. Aerial inspection of wound recommended if target within 20m. Root zone slopes steeply to west, and is interrupted by cutslope and ditch on low side. About 2m below. Provides cover for weaker cedars closer to stream. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. | 4.4 |
| Surveyed | 7675 | On Site | Douglas-Fir | Pseudotsuga menziesii | 64 | 30 | Dead | Spongy snag with conks. Hazard to future development. | Nil | Remove | NA | 3.8 |
| Unsurveyed | 7277a | On Site | Western Red Cedar | Thuja plicata | 42 | 8 | Moderate | Topped for line clearance. Growing in group. Rooting in soft soil. Acceptable for retention in wetland area. | Medium | Remove | Remove to mitigate wildfire threat. In conflict with proposed grading and retaining wall. | 2.5 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7277b | On Site | Douglas-Fir | Pseudotsuga menziesii | 42 | 30 | Good | Relatively dominant. Crooked stem from past injury. One of the only available edge trees. Possible tagging error. Spiral prune if retaining. | Medium | Retain | Plan to avoid excavations into root zone. Blind forming may be required. Arborist to supervise foundation excavations. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. Cover root zone with 10cm of wood mulch. Spiral prune. | 3.4 |
| Unsurveyed | 7278a | On Site | Western Red Cedar | Thuja plicata | 40 | 8 | Moderate | Topped for line clearance. Growing in group. Rooting in soft soil. Acceptable for retention in wetland area. | Medium | Remove | Remove to mitigate wildfire threat. In conflict with proposed grading and retaining wall. | 2.4 |
| Surveyed | 7278b | On Site | Douglas-Fir | Pseudotsuga menziesii | 62 | 30 | Moderate | Average codominant. Crooked stem from past topping. One of the only available edge trees. Aerial inspection recommended. | Medium | Retain | Engineer to review grading requirements around road to confirm that excavations will not extend into critical root zone. Arborist to supervise grading for road. The loss of this edge tree would have cascading effects and require the removal of additional trees within riparian setback area. | 3.7 |
| Unsurveyed | 7279a | On Site | Western Red Cedar | Thuja plicata | 12 | 10 | Moderate | Growing in group. Rooting in soft soil. Acceptable for retention in wetland area. | Medium | Remove | Remove to mitigate wildfire threat. In conflict with proposed grading and retaining wall. | 0.7 |

| Surveyed? | Tag # | Location | Species Common Name | Botanical Name | DBH (cm) | Height (m) | Health and Structure Rating | Comments | Retention Value Rating | Retain/ Remove | Retention/TPZ Comments | *TPZ (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Surveyed | 7279b | On Site | Western Red Cedar | Thuja plicata | 55 | 30 | Moderate | Codominant in stand. Two tops with fair union at old topping injury. Moderate taper, small crown. | Medium | Retain | Preserve existing grades within root zone. | 3.3 |
| Surveyed | OS01 | Off Site | Western Red Cedar | Thuja plicata | 70 | 20 | Good | Open grown. Full crown. Driveway within south dripline. | High | Retain | Outside zone of influence | 4.2 |
| Surveyed | Os5674 | Off Site | Western Red Cedar | Thuja plicata | 104 | 20 | Moderate | Large open grown tree prominent on neighbouring property. Multiple stems, but good crown. Root zone extends to ditch. | High | Retain | Build fences at edge of shoulder. Minor encroachment for road work expected withing root zone. | 10.4 |

# Appendix 2 Site Photographs

Photo 1. Overhead view of the subject area's canopy. Note transition between deciduous stand at lower elevations and the conifers on the slope. Also note significant Douglas fir at right of frame. (probably tree #2452)

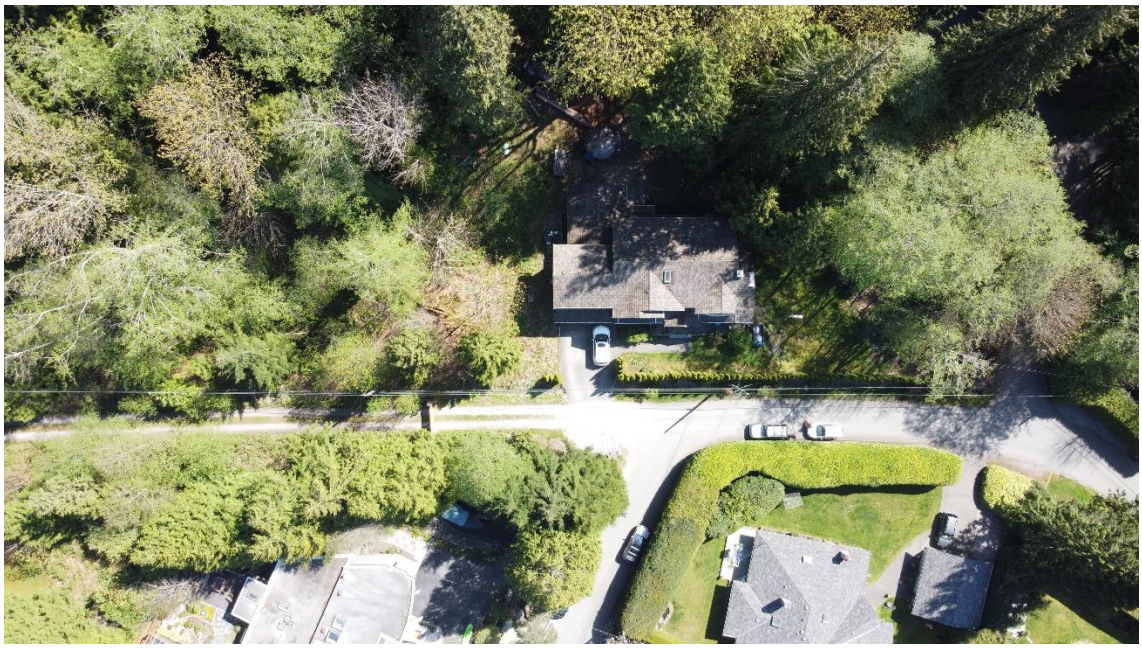

Photo 2. Overhead view of the southwest corner of the site at Daffodil Drive, The ditch is obscured, but the row of offsite trees is visible west (below) the road.

Photo 3. The middle of the site is a dense mix of native conifers with a closed canopy.

Photo 4. Typical crowns of conifers within the site. These trees have grown in a competitive environment and typically have small crowns and slender stems.

Photo 5. The existing asphalt road / easement at the top of the site


Photo 6. The riparian setback for the tributary. Much of the setback is a gravel road and shoulder, although many small deciduous trees fall within the setback area.

Photo 7. Looking south down the existing gravel driveway. Note open grown crowns of smaller trees along the property line.

# Appendix 3 Tree Health and Structure Rating Criteria

The tree health and structure ratings used by Diamond Head Consulting summarize each tree based on both positive and negative attributes using five stratified categories. These ratings indicate health and structural conditions that influence a tree's ability to withstand local site disturbance during the construction process (assuming appropriate tree protection) and benefit a future urban landscape.

**Excellent:** Tree of possible specimen quality, unique species or size with no discernible defects.

**Good:** Tree has no significant structural defects or health concerns, considering its growing environment and species.

**Moderate:** Tree has noted health and/or minor to moderate structural defects. This tree can be retained, but may need mitigation (e.g., pruning or bracing) and monitoring post-development. A moderate tree may be suitable for retention within a stand or group, but not suitable on its own.

**Poor:** Tree is in serious decline from previous growth habit or stature, has multiple defined health or structural weaknesses. It is unlikely to acclimate to future site use change. This tree is not suitable for retention within striking distance of most targets.

**Dying/Dead:** Tree is in severe decline, has severe defects or was found to be dead.

# Appendix 4 Tree Retention Value Rating Criteria

The tree retention value ratings used by Diamond Head Consulting provide guidance for tree retention planning. Each tree in an inventory is assigned to one of four stratified categories that reflect its value as a future amenity and environmental asset in a developed landscape. Tree retention value ratings take in to account the health and structure rating, species profile*, growing conditions and potential longevity assuming a tree's growing environment is not compromised from its current state.

**High:** Tree suitable for retention. Has a good or excellent health and structure rating. Tree is open grown, an anchor tree on the edge of a stand or dominant within a stand or group. Species of *Populus, Alnus* and *Betula* are excluded from this category.

**Medium:** Tree suitable for retention with some caveats or suitable within a group**. Tree has moderate health and structure rating, but is likely to require remedial work to mitigate minor health or structural defects. Includes trees that are recently exposed, but wind firm, and trees grown on sites with poor rooting environments that may be ameliorated.

**Low:** Tree has marginal suitability for retention. Health and structure rating is moderate or poor; remedial work is unlikely to be viable. Trees within striking distance of a future site developments should be removed.

**Nil:** Tree is unsuitable for retention. It has a dying/dead or poor health and structure rating. It is likely that the tree will not survive, or it poses and unacceptable hazard in the context of future site developments.

* The species profile is based upon mature age and height/spread of the species, adaptability to land use changes and tree species susceptibility to diseases, pathogen and insect infestation.

** Trees that are 'suitable as a group' have grown in groups or stands that have a single, closed canopy. They have not developed the necessary trunk taper, branch and root structure that would allow then to be retained individually. These trees should only be retained in groups.

# Appendix 5 Risk Rating Matrices

Trees with a *probable* or *imminent* likelihood of failure, a *medium* or *high* likelihood of impacting a specified target, and a *significant* or *severe* consequence of failure have been assessed for risk and included in this report (Section 3.2). These two risk rating matrices showing the categories used to assign risk are taken without modification to their content from the International Society of Arboriculture Tree Risk Assessment Qualification Manual.

**Matrix 1: Likelihood**

| Likelihood of Failure | Likelihood of Impacting Target | | | |
|---|---|---|---|---|
| | **Very Low** | **Low** | **Medium** | **High** |
| **Imminent** | Unlikely | Somewhat Likely | Likely | Very Likely |
| **Probable** | Unlikely | Unlikely | Somewhat Likely | Likely |
| **Possible** | Unlikely | Unlikely | Unlikely | Somewhat Likely |
| **Improbable** | Unlikely | Unlikely | Unlikely | Unlikely |

**Matrix 2: Risk Rating**

| Likelihood of Failure and Impact | Consequences of Failure | | | |
|---|---|---|---|---|
| | **Negligible** | **Minor** | **Significant** | **Severe** |
| **Very Likely** | Low | Moderate | High | Extreme |
| **Likely** | Low | Moderate | High | High |
| **Somewhat Likely** | Low | Low | Moderate | Moderate |
| **Unlikely** | Low | Low | Low | Low |

# Appendix 6 Construction Guidelines

Tree management recommendations in this report are made under the expectation that the following guidelines for risk mitigation and proper tree protection will be adhered to during construction.

Respecting these guidelines will prevent changes to the soil and rooting conditions, contamination due to spills and waste, or physical wounding of the trees. Any plans for construction work and activities that deviate from or contradict these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

**Tree protection Zones**

Tree protection zones (TPZs) are specifically intended to protect a tree's roots from negative construction impacts. TPZs are required to retain good health and vigor of the tree during development and in the future landscape. The TPZ boundary is measured as a radius in all directions from the outer surface of the tree's stem. The TPZ radius is determined by the extent of tree protection zones according to local municipal bylaw specifications and may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions.

**Tree Protection Zones**

Tree protection zones (TPZs) are fenced areas around the recommended TPZ. Within a TPZ, no construction activity, including materials storage, grading or landscaping, may occur without project arborist approval. Within the TPZ, the following are tree preservation guidelines based on industry standards for best practice and local municipal requirements:

- No soil disturbance or stripping.
- Maintain the natural grade.
- No storage, dumping of materials, parking, underground utilities or fires within TPZs or tree driplines.
- Any planned construction and landscaping activities affecting trees should be reviewed and approved by a consulting arborist.
- Install specially designed foundations and paving when these structures are required within TPZs.
- Route utilities around TPZs.
- Excavation within the TPZs should be supervised by a consultant arborist.
- Surface drainage should not be altered in such a way that water is directed in or out of the TPZ.
- Site drainage improvements should be designed to maintain the natural water table levels within the TPZ.

**Tree Protection Fences**

Prior to any construction activity, tree protection fences must be constructed at the root protection zone perimeter. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2" by 4" lumber with orange plastic mesh screening. Tree protection fences must be

constructed prior to tree removal, excavation or construction and remain intact throughout the entire duration of construction.

**Tree Crown Protection and Pruning**

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of a tree's crown should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of a tree's crown, a of line of colored flags should be suspended at eye-level of the machinery operator for the length of the protected tree area. Any concerns regarding the clearance required for machinery and workers within or immediately outside tree protection zones should be referred to the project arborist so that a zone surrounding the crowns can be established or pruning measures undertaken. Any wounds incurred to protected trees during construction should be reported to the project arborist immediately.

**Unsurveyed Trees**

Unsurveyed trees identified by DHC in the Tree Retention Plan have been hand plotted for approximate location only using GPS coordinates and field observations. The location and ownership of unsurveyed trees cannot be confirmed without a legal surveyed. The property owner or project developer must ensure that all relevant on- and off-site trees are surveyed by a legally registered surveyor, whether they are identified by DHC or not.

**Removal of logs from sites**

Private timber marks are required to transport logs from privately-owned land in BC. It is property owner's responsibility to apply for a timber mark prior to removing any merchantable timber from the site. Additional information can be found at: http://www.for.gov.bc.ca/hth/private-timber-marks.htm

**Regulation of Soil Moisture and Drainage**

Excavation and construction activities adjacent to TPZs can influence the availability of moisture to protected trees. This is due to a reduction in the total root mass, changes in local drainage conditions, and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree root protection zones should be monitored during hot and dry weather. When soil moisture is inadequate, supplemental irrigation should be provided that penetrates soil to the depth of the root system or a minimum of 30 cm.
- Any planned changes to surface grades within the TPZs, including the placement of mulch, should be designed so that any water will flow away from tree trunks.
- Excavations adjacent to trees can alter local soil hydrology by draining water more rapidly from TPZs more rapidly than it would prior to site changes. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

**Root Zone Enhancements and Fertilization**

Root zone enhancements such as mulch, and fertilizer treatments may be recommended by the project arborist during any phase of the project if they deem it necessary to maintain tree health and future survival.

**Paving Within and Adjacent to TPZs**

If development plans propose the construction of paved areas and/or retaining walls close to TPZs, measures should be taken to minimize impacts. Construction of these features would raise concerns for proper soil aeration, drainage, irrigation and the available soil volume for adequate root growth. The following design and construction guidelines for paving and retaining walls are recommended to minimize the long-term impacts of construction on protected trees:

- Any excavation activities near or within the TPZ should be monitored by a certified arborist. Structures should be designed, and excavation activities undertaken to remove and disturb as little of the rooting zone as possible. All roots greater than 2 cm in diameter should be hand pruned by a Certified Arborist.
- The natural grade of a TPZ should be maintained. Any retaining walls should be designed at heights that maintain the existing grade within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- Compaction of sub grade materials can cause trees to develop shallow rooting systems. This can contribute to long-term pavement damage as roots grow. Minimizing the compaction of subgrade materials by using structural soils or other engineered solutions and increasing the strength of the pavement reduces reliance on the sub-grade for strength.
- If it is not possible to minimize the compaction of sub-grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

**Plantings within TPZs**

Any plans to landscape the ground within the TPZ should implement measures to minimize negative impacts on the above or below ground parts of a tree. Existing grass layer in TPZs should not be stripped because this will damage surface tree roots. Grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs, but new topsoil layer should not be greater than 20 cm deep on top of the original grade. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. A two-meter radius around the base of each tree should be left unplanted and covered in mulch; a tree's root collar should remain free from any amendments that raise the surface grade.

**Monitoring during construction**

Ongoing monitoring by a consultant arborist should occur for the duration of a development project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are

respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on by a consulting arborist:

- Health and condition of protected trees, including damage to branches, trunks and roots that may have resulted from construction activities, as will the health of. Recommendations for remediation will follow.
- Integrity of the TPZ and fencing.
- Changes to TPZ conditions including overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failures to maintain and respect the TPZ are observed, suggestions will be made to ensure tree protection measures are remediated and upheld.
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning.
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

# Appendix 7 Report Assumptions and Limiting Conditions

1) Unless expressly set out in this report or these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. ("Diamond Head") makes no guarantee, representation or warranty (express or implied) regarding this report, its findings, conclusions or recommendations contained herein, or the work referred to herein.

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4) Conditions affecting the trees subject to this report (the "Conditions", include without limitation, structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discolored foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this report may exist. Unless otherwise stated information contained in this report covers only those Conditions and trees at the time of inspection. The inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While

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9) Loss or alteration of any part of this report invalidates the entire report.