



DEVELOPMENT PERMIT NO. DP001171

DOUGLAS JARVIE

CYNTHIA JARVIE

Name of Owner(s) of Land (Permittee)

3258 STEPHENSON POINT ROAD

Civic Address

1. This development permit is issued subject to compliance with all of the bylaws of the municipality applicable thereto, except as specifically varied or supplemented by this permit.
2. This development permit applies to and only to those lands within the municipality described below, and any and all building structures and other developments thereon:

Legal Description:

LOT 2, SECTION 11, WELLINGTON DISTRICT, PLAN VIP61952

PID No. 023-207-574

3. The land described herein shall be developed strictly in accordance with the following terms and conditions and provisions of this permit and any plans and specifications hereto which shall form a part thereof.

Schedule A Location Plan

Schedule B Proposed Site Plan

Schedule C Environmental Summary

**Schedule D Vegetation Management Plan and
Three-Year Monitoring and Maintenance Plan**

Schedule E Proposed Landscape Plan and Details

- a) If the applicant does not substantially commence the development permitted by this permit within two years of the date of this permit, the permit shall lapse.

4. This permit is not a building permit nor does it constitute approval of any signage. Separate applications must be made for a building permit and sign permit.
5. "City of Nanaimo Zoning Bylaw 2011 No. 4500" is varied as follows:
 - Section 6.3.1.5. – *Location and Siting of Buildings and Structures to Water Courses* – reduce the minimum watercourse setback from 30m to 6.9m as measured from the top of bank of Cottle Creek in order to permit the construction of the proposed single residential dwelling and site improvements.

CONDITIONS OF PERMIT

1. The subject property is developed in accordance with the proposed Site Plan prepared by Kate Stefiuk Studio, received 2020-JUN-01, as shown on Schedule B.
2. The subject property is developed in accordance with the Environmental Assessment prepared by Toth and Associates Environmental Services dated 2019-OCT-21, as shown on Schedule C.
3. The subject property is developed and maintained in substantial compliance with the Vegetation Management Plan and Three-Year Monitoring and Maintenance Plan prepared by Kate Stefiuk Studio, received 2019-NOV-29, as shown on Schedule D.
4. Security is to be submitted prior to building permit issuance and held for three years from the date of completion, to ensure the lot is developed in accordance with the proposed Vegetation Management Plan and Three-Year Monitoring and Maintenance Plan. A certified Letter of Completion is required from a qualified professional at the end of the three-year maintenance period.
5. The subject property is developed in accordance with the proposed Landscape Plan and Details prepared by Kate Stefiuk Studio, received 2020-JUN-01, as shown on Schedule E.
6. Permanent, post and rail fencing adjacent Cottle Creek with signage identifying the environmentally-sensitive area is to be installed prior to Building Permit issuance.
7. Discharge of the Fish & Wildlife Covenant (EJ95044) or proof of encroachment permission from Provincial Ministry required prior to Building Permit issuance.

8. Tree removal permit issuance required prior to Building Permit issuance.
9. Temporary construction fencing identifying the 15m setback to the sea is to be in place prior to any construction activity.

AUTHORIZING RESOLUTION PASSED BY COUNCIL
THE 15TH DAY OF JUNE, 2020.


Corporate Officer


Date

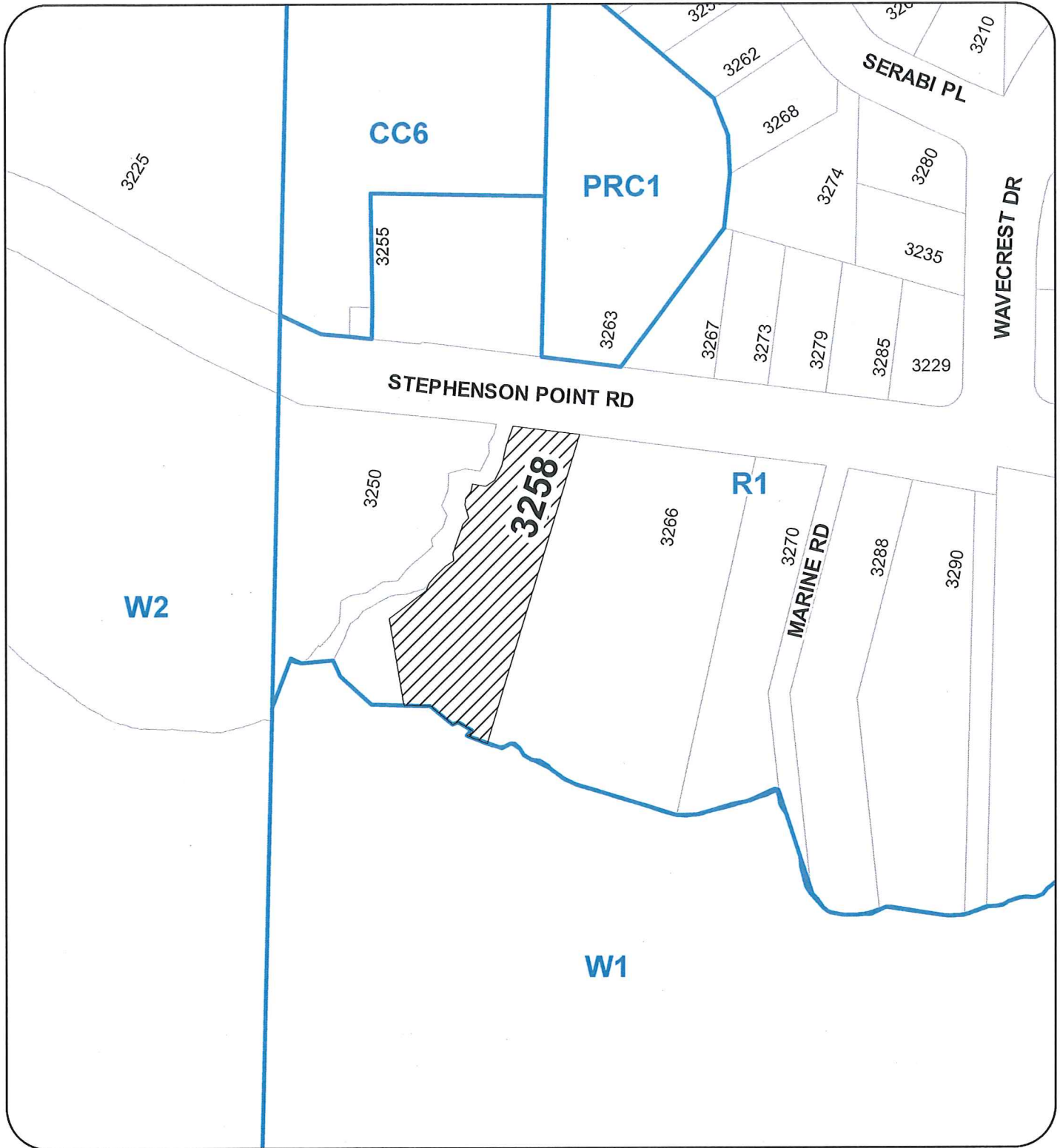
SR/n

Prospero attachment: DP001171

Development Permit DP001171
3258 Stephenson Point Road

Schedule A

LOCATION PLAN



DEVELOPMENT PERMIT NO. DP001171

LOCATION PLAN

Civic: 3258 STEPHENSON POINT ROAD

Legal: LOT 2, SECTION 11, WELLINGTON DISTRICT, PLAN VIP61952



SUBJECT PROPERTY

Development Permit DP001171
3258 Stephenson Point Road

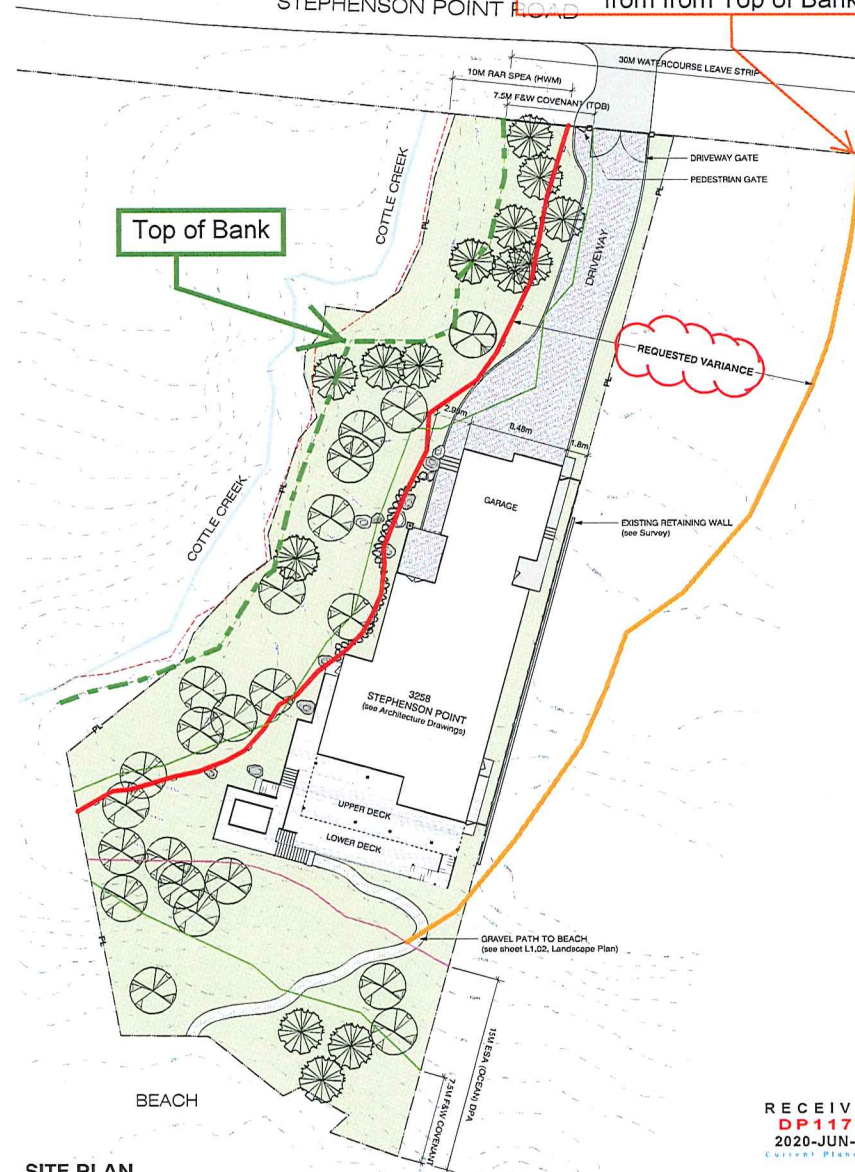
Schedule B

PROPOSED SITE PLAN

Required 30m Watercourse Setback
from from Top of Bank



CONTEXT PLAN
NTS



KATE STEFIUK STUDIO
1470 Nelson Street Nanaimo BC V9S 2K2
250-753-8893
kate.stefiuk@gmail.com

CLIENT
DOUG & CINDY JARVIE
3378 Greyhawk Drive Nanaimo BC V9T 6T4
250-758-3237

NO.	DATE	ISSUE
1	2019-11-29	ISSUE FOR AQUATIC DP
7	2020-06-01	REQUESTED FOR AGRICULTURE DP

NO.	DATE	REVISION
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PROJECT
JARVIE RESIDENCE
3258 Stephenson Point Road
Nanaimo, B.C.

SITE PLAN

We warrant and certify that we have prepared the information contained in this plan to the best of our knowledge and belief, and that it is true and correct. We warrant and certify that we are a duly licensed professional person in the province of British Columbia.

PROJECT 19034
DB KCS CB HS
SCALE 1:600
DATE October 31, 2019

L1.01

DEVELOPMENT DATA	
Civic Address 3258 Stephenson Point Road, Nanaimo, BC, V9T 1K2	
Legal Description: Lot 2, Section 11, Wellington District, Plan V9P1952	
Zoning: R1 (Single Dwelling Residential)	
Development Permit Area: Watercourse Development Permit Area (Cottle Creek); and Environmentally Sensitive Area - Ocean (Departure Bay)	
Total Parcel Area:	2,217m ² 100%
Aquatic OP Area:	2,202m ² 99%
Net Developable Area:	15m ² 1%
Proposed Developable Area:	1,078m ² 49%
Proposed Building Footprint:	320m ² 14%
Proposed Paved Area:	220m ² 10%
Proposed Deck Area:	138m ² 6%
Proposed Landscape Area:	400m ² 18%

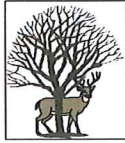
Refer to Sheet L1.02 for Landscape Plan
Refer to Sheet L2.01 for Plant Notes & Planting Plan North
Refer to Sheet L2.02 for Plant List & Planting Plan South

LEGEND	
SYMBOL	DESCRIPTION
	30M WATERCOURSE LEAVE STRIP
	10M RAR SPEA
	7.5M FSW COVENANT
	15M ESA (OCEAN) DPA
	STEPPING STONE PATH
	BOULDERS (salvaged from site)
	DECK (refer to Architectural Drawings)
	DRIVEWAY (permeable paving)
	GRAVEL PATH (see sheet L1.02, Landscape Plan)
	GREEN SPACE (see sheet L1.02, Landscape Plan)
	EXISTING DECIDUOUS TREE
	EXISTING CONIFEROUS TREE

SITE PLAN
SCALE 1:200

RECEIVED
DP 1171
2020-JUN-01
Coastal Planning

ENVIRONMENTAL SUMMARY



Toth and Associates Environmental Services

6821 Harwood Drive, Lantzville, B.C. V0R 2H0

Tel: (250) 390-7602

E-mail: stoth@shaw.ca

May 28, 2020

Doug Jarvie

2238 The Jib,

Nanoose Bay, BC. V9P-9B6

**Re: Environmental Summary for proposed development of 3258 Stephenson Point Road,
Nanaimo.**

Toth and Associates conducted an environmental assessment of the proposed residential development of the 0.2217 ha undeveloped property located at 3258 Stephenson Point Road (the subject property) on March 29, 2019. The subject property is located within the City of Nanaimo's 30 m from top of bank Watercourse Development Permit Area (DPA 1) associated with Cottle Creek, and 15 m from natural boundary Environmentally Sensitive Area (DPA 2) for the ocean. DPA2 is also designated a Development Approval Information Area.

The proposed development plan includes construction of a single family residential home, driveway, and associated supporting infrastructure (e.g. power, water, sewer, gas), yard and landscaping. All of these development activities will occur outside the SPEA setbacks, with the possible exception of potential temporary intrusion / disturbance during excavation along the west side of the proposed foundation, the extent of which will largely be dictated by the requirements of Section 20 of WorkSafe BC's *Occupation Health and Safety Regulation* regarding excavations.

Our prior experience with Cottle Creek gained over the past 27 years includes several RAR assessments and detailed fish habitat assessments, water quality and fish population sampling. Fish cannot access Cottle Creek from the ocean due to channel gradients exceeding 24% grade immediately upstream of the ocean. However, Cottle Creek does support a population of resident cutthroat trout, most of which appear to be downstream migrants from Cottle Lake.

The stream channel through the subject property is cut through sandstone, with large blocks of sandstone within the channel, frequent cascades and near vertical sandstone banks. Forest cover consists of mature Douglas-fir, western redcedar, red alder, arbutus and a few Garry oak, with an understorey largely comprised of introduced invasive species including spurge laurel, cotoneaster, Asian plum, daffodil and Himalayan blackberry. Most of the trees within the ocean setback are covered with English ivy. Native plant species include tall Oregon-grape, salal, salmonberry, common snowberry, pacific sanicle, yerba buena, Indian plum and Saskatoon.

Evidence of wildlife use included raccoon, introduced gray squirrel and blacktail deer. There was no evidence (e.g. significant game trails) found on site to suggest that the subject property serves as a wildlife corridor. No raptor or heron nests were observed on the subject property.

Our provincial *Riparian Areas Regulation* (RAR) Detailed Assessment prepared for the proposed development determined that Cottle Creek would receive Streamside Protection and Enhancement

Environmental Summary for proposed development of 3258 Stephenson Point Road, Nanaimo

Area (SPEA) setbacks of 10.0 m from high water mark. The RAR Assessment (#5936) was reviewed and accepted by the province on January 14, 2020.

Based on current conditions within the Coast ESA DPA, I believe that remediation / rehabilitation of the 15 m DPA is warranted as a condition of development. As indicated previously, the vegetation community within the DPA is largely composed of invasive species and the viability of many of the trees has been impacted by English ivy infestation.

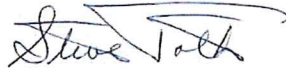
It is my understanding that since our field assessment you have removed by hand the vast majority of invasive plants (spurge laurel, Himalayan blackberry, English ivy and Scotch broom) from the property.

A detailed Landscape Plan has been prepared for the development by Kate Stefiuk Studio. The plan includes planting of approximately 1,329 native plants representing 24 different species. Implementation of the plan will ensure that the ecological community on the property following development is far superior to current ecological conditions.

Based on our assessment, residential development of the portions of the property located outside the 10 m SPEA setback and 15 m Coast ESA DPA can be undertaken without causing significant environmental impacts.

Please contact us if you require any additional information.

Sincerely,
Steve Toth, ASCT, R.P.Bio.



Toth and Associates Environmental Services



**VEGETATION MANAGEMENT PLAN AND
THREE-YEAR MONITORING AND MAINTENANCE PLAN**

8.0 VEGETATION MANAGEMENT PLAN

8.1 Site Overview

The existing plant communities on the parcel are representative of a convergence of coastal Garry oak, moist riparian and drier upland sites characteristic of the Coastal Douglas Fir biogeoclimatic zone. This includes a mix of Douglas fir, arbutus, grand fir, bigleaf maple, and western redcedar that transitions to a more Garry oak meadow dominated zone as the parcel slopes toward the ocean.

The dominant indigenous understorey species is Oregon grape, with salal and sword fern also common to the site. Overall, however, the understorey has been largely overtaken by invasive species, primarily Daphne/ spurge laurel. Other invasive species observed at the site include English ivy, English holly, and Himalayan blackberry.

The western edge of the parcel is bounded by Cottle Creek, which displays common riparian plant communities, and an understory less impacted by invasive species.

8.2 Indigenous Plants on Site

The following indigenous plants were observed on site visits conducted between April and October, 2019:

Botanical Name	Common Name
Evergreen Trees	
<i>Psuedotsuga menziesii</i>	Douglas fir
<i>Abies grandis</i>	Grand fir
<i>Thuja plicata</i>	Western redcedar
<i>Arbutus menziesii</i>	Arbutus
Deciduous Trees	
<i>Acer macrophyllum</i>	Bigleaf maple
<i>Quercus garryana</i>	Garry oak
<i>Alnus rubra</i>	Red alder
Shrubs	
<i>Holodiscus discolor</i>	Oceanspray
<i>Mahonia nervosa</i>	Dull Oregon Grape
<i>Mahonia aquifolium</i>	Tall Oregon Grape
<i>Gaultheria shallon</i>	Salal
<i>Symphoricarpos albus</i>	Snowberry
Herb Layer	
<i>Polystichum munitum</i>	Swordfern
<i>Sanicula crassicaulis</i>	Pacific Sanicle
<i>Satureja douglasii</i>	Yerba Buena

8.3 Approach

To justify development on a parcel currently considered a sensitive and protected environment, the approach to this Vegetation Management Plan is to employ a Landscape Restoration Strategy across the entire parcel. This includes establishing reference ecosystems from within Coastal Douglas Fir biogeoclimatic zone to guide revegetation; identifying complimentary plant species that contribute to restoration objectives; and employing measures to address the anticipated impacts of development.

To implement this strategy, the parcel is divided into a Restoration Zone and a Residential Development Zone, each with distinct restoration objectives and activities. The Restoration Zone is further divided into two Subzones reflecting the distinct, but overlapping riparian and Garry oak ecosystems that characterize the protected SPEA along Cottle Creek and the Environmentally Sensitive Area adjacent to the ocean. Altogether, the zones are:

- Zone 1: Restoration
 - Subzone 1: Riparian Area
 - Subzone 2: Coastal Garry Oak Area
- Zone 2: Residential Development

Within Zone 1: Restoration, the Landscape Restoration Strategy fulfills the following objectives:

1. **Protect Restoration Zone from Disturbance.**
2. **Remove Invasive Species.**
3. **Create conditions to promote natural revegetation of indigenous species.**
4. **Revegetate with target and complimentary indigenous species.**
5. **Monitor Restoration and Maintain Landscape.**

Within Zone 2: Residential Development, the Landscape Restoration Strategy fulfills the following objectives:

1. **Protect Adjacent Areas from the impacts of Residential Development**
2. **Remove Invasive Species.**
3. **Create conditions to promote natural revegetation of indigenous species.**
4. **Create a naturalized-like setting for the outdoor yard area by revegetating with target species and complementary indigenous and ornamental species.**
5. **Incorporate long term protective measures into the site plan.**

8.4 Zone 1: Restoration

8.4.1 Subzone 1: Riparian Area

The Riparian Area, as shown on Schedule 4, Site Plan, coincides with the Streamside Protection Enhancement Area (SPEA), as required by the Provincial Riparian Areas Regulation, measuring 10m from the high water mark of Cottle Creek.

Riparian Area Reference Ecosystem

The reference ecosystem for the Riparian Area is the Douglas Fir – Grand Fir – Oregon Grape site association of the Coastal Douglas Fir biogeoclimatic zone. When mature and undisturbed, this ecosystem is characterized by the following plant community:

Tree Layer	Shrub Layer	Herb Layer
Douglas-fir	Dull Oregon-grape	Sword fern
Western redcedar	Salal	Braken fern
Grand fir	Oceanspray	Vanilla-leaf
Western flowering dogwood	Baldhip rose	Three-leaved foamflower
Bigleaf maple		

Riparian Area Complimentary Plant Species

Complimentary species for the Riparian Area include indigenous species found within the adjacent Coastal Garry Oak Area; any indigenous species already noted on the site, and indigenous species found more generally across the Coastal Douglas Fir biogeoclimatic zone that are known to be particularly resilient, are widely available; or contribute specifically to riparian habitat value including kinnikinnick (*Arcostaphylos uva-ursi*), evergreen huckleberry (*Vaccinium ovatum*), Nootka rose (*Rosa nutkana*) and shore pine (*Pinus contorta*). Schedule 6, Planting Plan includes a list of plants to be used in the restoration of the Riparian Area.

Anticipated Impacts of Development on the Riparian Area

Portions of a narrow stepping stone path along the west side of the proposed home is the only development proposed within the Riparian Area. Machinery is to avoid encroaching into the Riparian Area. Any compaction arising from encroachment that may occur is to be decompacted, covered with a minimum of 5mm (2") of mulch, and replanted with indigenous species.

The natural gradient of the site causes runoff to flow south, toward the ocean, so sedimentation and erosion resulting from development has minimal potential to flow into the Riparian Area or Cottle Creek.

Restoration activities designed to re-establish and protect the Douglas Fir – Grand Fir – Oregon Grape site association are the primary activities proposed for the Riparian Area. This may cause short-term soil disturbance due to the removal of invasive species. For protection over the long term, permanent measures are incorporated into the overall site design to discourage disturbance of the Riparian Area.

8.4.2 Riparian Area – Landscape Restoration Objectives and Activities:

Objective 1. Protect Riparian Area from Disturbance

- Activity 1. Erect orange construction fencing along the SPEA boundary to protect the riparian area during construction (refer to Schedule 3, Tree Management Plan for Tree Protection Fence detail).
- Activity 2. Incorporate permanent fencing along the edge of the SPEA into the landscape design to discourage intrusion into Riparian Area (refer to Schedule 5, Landscape Plan).
- Activity 3. Create a separate pet enclosure to function as a `dog-run`, providing an outdoor space for domestic pets away from the Riparian Area (refer to Schedule 5, Landscape Plan).

Objective 2. Remove Invasive Species

- Activity 1. Employ appropriate hand removal methods, as described in section 8.7 Invasive Species Removal for invasive species found within the Riparian Area.
- Activity 2. Apply 50mm (2") of organic mulch to gaps in understory arising from the removal of invasive species.

Objective 3. Create conditions to promote natural revegetation of indigenous species.

- Activity 1. Eliminate any compaction within the Riparian Area by making disturbed soil rough and loose.
- Activity 2. Use logs and woody debris from trees felled on site to minimize soil erosion due to rainfall, emulate natural conditions and create microhabitats for local biodiversity.

Objective 4. Revegetate with Target Species

- Activity 1. Plant gaps in understory arising from invasive plant removal with drifts of species typical to the Douglas Fir – Grand fir – Oregon Grape site association as well as complimentary plant species described above (refer to Schedule 6, Planting Plan).
- Activity 2. Implement Schedule 3, Tree Management Plan. Within the Riparian Area, plant 18 of the 25 replacement trees required as a result of removing 14 significant trees from the parcel (refer to schedule 6, Planting Plan).

Objective 5. Monitoring and Maintenance

- Activity 1. Implement section 9.0 Three-Year Monitoring and Maintenance Plan provided below to control invasive species while indigenous species planted in the Riparian Area are re- establishing.

8.4.3 Subzone 2: Coastal Garry Oak Area

The Coastal Garry Oak Area coincides with the City of Nanaimo, Environmentally Sensitive Area (Ocean) Development Permit Area, which extends 15m from the natural boundary of Departure Bay. Proposed development within the Coastal Garry Oak Area is confined to a permeable, 1.5m pathway providing access from the proposed home and yard to the beach along Departure Bay.

Coastal Garry Oak Area Reference Ecosystem

The reference ecosystem for the Coastal Garry Oak Area is the Douglas fir – Shorepine – Arbutus site association of the Coastal Douglas Fir biogeoclimatic zone. When mature and undisturbed, this ecosystem is characterized by the following plant community:

Tree Layer	Shrub Layer	Herb Layer
Douglas Fir	Oceanspray	Alaska oniongrass
Arbutus	Dull Oregon-grape	Swordfern
Garry Oak	Snowberry	Pacific sanicle
	Salal	

Coastal Garry Oak Area Complimentary Plant Species

Complimentary species for the Coastal Garry Oak Area include indigenous species found within the Riparian Area; any indigenous species already noted on the site, and indigenous species found more generally across the Coastal Douglas Fir biogeoclimatic zone that are known to be particularly resilient, are widely available; or contribute specifically to Garry oak meadow habitat. Examples include indigenous grasses, common camas (*Camassia quamash*), yarrow (*Achillea millefolium*), nodding onion (*Allium cernuum*), woolly sunflower (*Eriophyllum lanatum*), field chickweed (*Cerastium arvense*), kinnikinnick (*Arcostaphylos uva-ursi*), evergreen huckleberry (*Vaccinium ovatum*), Nootka rose (*Rosa nutkana*) and shore pine (*Pinus contorta*). Schedule 6, Planting Plan includes a list of plants to be used in the restoration of the Coastal Garry Oak Area.

Anticipated Impacts of Development on Coastal Garry Oak Area

The only development proposed within the Coastal Garry oak area is the construction of a narrow footpath providing access to the waterfront. No trees will be removed to accommodate the proposed path, unless noted in Schedule 3, Tree Management Plan. The path will be constructed of gravel when not located on existing native sandstone found on the site. Field-fitted dry stack rock and boulders will be used to accommodate access along steeper portions of the path, creating natural stair features and retaining structures. The area of disturbance to create the path will be confined to a 2-metre width. Any disturbance will be restored according to the restoration objectives outlined in section 8.4.4, below.

It is anticipated that an increased volume of runoff will arise from the construction of a residential dwelling. To mitigate against the potential increase in rainwater runoff flowing into the Garry Oak Area during storm events, rock pits to enable infiltration are to be included to intercept rooftop runoff.

Restoration activities designed to remove invasive species and re-establish and protect the Douglas-fir-Shorepine-Arbutus site association are proposed for the Coastal Garry Oak Area. This will focus on

increasing the number of Garry oak trees and replicating a Garry oak meadow in the area. Localized placement of soil to support restoration activities may be required.

8.4.4 Coastal Garry Oak Area Restoration Objectives

Objective 1. Protect Coastal Garry Oak Area from Disturbance

Activity 1. Indicate the edge of the Coastal Garry Oak Area with brightly coloured flagging tape to discourage unnecessary encroachment by machinery.

Objective 2. Remove Invasive Species

Activity 1. Employ appropriate hand removal methods, as described in 8.7 Invasive Species Removal, for invasive species found within the Coastal Garry Oak Area.

Activity 2. Apply 50mm (2") of organic mulch to gaps in understorey arising from the removal of invasive species.

Objective 3. Create conditions to promote natural revegetation of indigenous species.

Activity 1. Eliminate any compaction within the Coastal Garry Oak Area by making the soil surface rough and loose.

Activity 2. Use logs and woody debris from felled trees to minimize soil erosion due to rainfall, emulate natural conditions and create microhabitats for local biodiversity.

Objective 4. Revegetate with Target Species

Activity 1. Plant gaps in understory arising from invasive plant removal with drifts of species typical to the Douglas-fir-Shorepine-Arbutus site association and complementary plant species (listed above) for revegetation in the Coastal Garry Oak Area.

Activity 2. Implement Schedule 3, Tree Management Plan. Within the Coastal Garry Oak Area. Plant 7 of the 25 replacement trees, primarily Garry oak, within the Coastal Garry Oak Area required as a result of removing 14 significant trees from the parcel.

Objective 5. Monitoring and Maintenance

Activity 1. Implement section 9.0 Three-Year Monitoring and SMaintenance Plan to control invasive species while indigenous species planted in the Coastal Garry Oak Area are establishing.

8.5 Residential Development Zone

The Residential Development Zone represents the remainder of the parcel, extending from the road right-of-way along Stephenson Point Road to the Environmentally Sensitive Area (Ocean) Development Permit Area to the south, and the SPEA along Cottle Creek to the west. This Zone is dedicated to supporting the R1 Single Dwelling Residential use for which the parcel is zoned.

8.5.1 Residential Development Zone Reference Ecosystem

The reference ecosystem for the Residential Development Zone is the Douglas fir- Salal site association of the Coastal Douglas Fir biogeoclimatic zone. When mature and undisturbed, this ecosystem is characterized by the following plant community:

Tree Layer	Shrub Layer	Herb Layer
Douglas-fir	Salal	Vanilla-leaf
Western redcedar	Dull Oregon-grape	Bracken fern
Grand fir	Oceanspray	Sword fern
Bigleaf maple	Baldhip rose	
Western flowering dogwood	Snowberry	
Arbutus	Western trumpet honeysuckle	

8.5.2 Residential Development Zone Complimentary Plant Species

Complimentary species for the Residential Development Zone include indigenous species found within the Restoration Zone; any indigenous species already noted on the site, and indigenous species found more generally across the Coastal Douglas Fir biogeoclimatic zone that are known to be particularly resilient, are widely available; or contribute specifically to Garry oak meadow habitat including indigenous grasses, common camas (*Camassia quamash*), yarrow (*Achillea millefolium*), nodding onion (*Allium cernuum*), woolly sunflower (*Eriophyllum lanatum*), field chickweed (*Cerastium arvense*), kinnikinnick (*Arcostaphylos uva-ursi*), evergreen huckleberry (*Vaccinium ovatum*), Nootka rose (*Rosa nutkana*) and shore pine (*Pinus contorta*).

Complimentary species in the Residential Development Zone also include non-invasive ornamental species that reinforce the naturalized, park-like character desired for the outdoor yard area, including rhododendrons (*Rhododendron spp.*), strawberry bush (*Arbutus unedo*), pink flowering dogwood (*Cornus kousa*), and boxwood (*Buxus spp.*). Refer to Schedule 5, Planting Plan for complete plant list.

8.5.3 Anticipated Impacts of Development in the Residential Development Zone

As implied by the name, the Residential Development Zone is the portion of the parcel in which development related activities are concentrated. This includes the construction of a driveway, a home, and a landscaped yard and garden area. Realizing this development involves removal of 14 significant trees from the Zone, to be replaced with 25 indigenous trees planted across the site; as well as the removal of understory species, and the construction of decks, a hot tub area and other areas intended for human use.

The new driveway will be constructed with pavers for permeability. Roof areas will generate increased rainwater runoff, to be managed in rock pits for infiltration. Runoff will be directed away from Cottle Creek, mimicking the natural flow of water on the site.

The overall goal for the Residential Development Zone is to accommodate the intended use of the parcel, while removing invasive species, preventing their future establishment, and revegetating open spaces with target species and other indigenous and appropriate ornamental species that strengthen the natural, park-like character of the setting.

8.6 Residential Development Zone Restoration Objectives:

Objective 1. Protect Adjacent areas from the Impacts of Residential Development

- Activity 1. All existing and new plants, site services, curbs, paving, structures, and all other features shall be protected against damage during construction.
- Activity 2. Take appropriate measures to ensure that no spillage of fuels, fertilizers, toxic construction materials, or other toxic wastes occurs, and where use of such materials is necessary, to ensure that adequate containment facilities and clean-up equipment are used.
- Activity 3. No toxic or waste materials, fuels and fertilizers shall be stored adjacent to or dumped into water courses or any other water body either on or off the job site, or in a location where spillage could result in seepage into a watercourse
- Activity 4. All toxic wastes and other material shall be disposed of in a manner acceptable to the owner and in accordance with municipal, provincial and federal regulations.

Objective 2. Remove Invasive Species

- Activity 1. Employ appropriate mechanical and/ or hand removal methods, as described in 8.7 Invasive Species Removal, below, for invasive species found within the Residential Development Zone.
- Activity 2. Apply a minimum of 50mm (2") of organic mulch to the outdoor yard area to ensure successful establishment of indigenous and ornamental plantings.

Objective 3. Create conditions to promote natural revegetation of indigenous species.

- Activity 1. Eliminate compaction caused by construction within the Residential Development Zone by making compacted soils rough and loose.
- Activity 2. Minimize areas planted with grasses. Select an upland Garry oak mix that includes species representative of the Garry oak meadow ecosystem for grassy areas.

Objective 4. Create a naturalized setting by Revegetating with Target Species and Appropriate Indigenous and Ornamental Species

- Activity 1. Target species typical to the Douglas-fir-Salal site association as well as complementary plant species (listed above) for revegetation in the Residential Zone
- Activity 2. Implement Schedule 3, Tree Management Plan. Within the Residential Development Zone, remove 14 significant trees which are to be replaced with 25 trees as compensation planted within the Restoration Zone.
- Activity 3. Implement 9.0 Three-Year Monitoring and Maintenance Plan provided below to control invasive species while planted areas within the Residential Development Zone are establishing.

Objective 5. Incorporate long term protective measures into the site plan

- Activity 1. Include permanent fencing along the outer edge of the SPEA.

- Activity 2. Provide a dog run adjacent to the home to provide an outdoor space for domestic pets.
- Activity 3. Include rock pits, infiltration chambers and other best management practices to manage rainfall onsite without negatively affecting Cottle Creek, or other protected areas.

8.7 Invasive Plant Removal

The understory species on the parcel at 3258 Stephenson Point are predominantly non-indigenous invasive species. The foundation for the Landscape Restoration Strategy for the site is to remove invasive species and prevent their re-establishment. This is necessary in order for the target indigenous species for each reference ecosystem to establish, thrive and eventually self-propagate.

The following invasive plants were observed on visits conducted between April and October, 2019:

Botanical Name	Common Name
<i>Daphne laureola</i>	Daphne, Spurge Laurel
<i>Rubus discolor</i>	Himalayan Blackberry
<i>Hedera helix</i>	English Ivy
<i>Ilex aquifolium</i>	English holly

It is the responsibility of the owner or contractor to identify and remove invasive plant species that may be on the site in the future.

8.8 REMOVAL METHODS

8.8.1 Daphne (*Daphne laureola*)

Caution: *Daphne* contains naturally occurring toxins that can cause skin and respiratory irritation. Always wear protective clothing including eye protection and a breathing mask when working with *Daphne*. Never transport cuttings in an enclosed vehicle.

Condition	Removal Method	Timing	Other considerations
Mature Plants and Young Shrubs	Hand Removal: Cut stem below the soil line. Push or kick bypass loppers into the ground at the base of the plant. Close them to cut the stem below ground.	Summer	<ul style="list-style-type: none"> • Avoid direct skin contact with the plant. • Cut the bottom of the stem where there is an obvious colour change between stem and root. • Inspect stem for a diagonal cut that bisects the area of colour change. • Minimize soil disturbance. • Seed or plant with indigenous species following removal

Large patches of seedlings	Mechanical Removal Cutting with weed eater.	Summer. For 3- years following removal of mature plants.	<ul style="list-style-type: none"> • Caution: This method releases vapours that can cause respiratory irritation. Wear protective gear. Ensure others are not in vicinity. • Avoid damaging nearby plants. • Plant with target indigenous species after treatment.
Smaller patches of seedlings	Cutting with hand tool.	Summer. For 3- years following removal of mature plants.	<ul style="list-style-type: none"> • Labour intensive. • Produces less toxic vapour than a weed eater. • Cut below lowest point where leaves occur. • Wear protective clothing and avoid direct skin contact with the plant. • Plant with target indigenous species after treatment.

8.8.2 Himalayan Blackberry (*Rubus discolor*)

Condition	Removal Method	Timing	Other considerations
Any size patch in Riparian or Coastal Garry oak area	Manual control using loppers, hand clippers or brush saw.	Aug. to Oct. (before roots form from draping shoots.)	<ul style="list-style-type: none"> • Remove cut canes to expose root crown or burl. • Remove root crowns and burls using a pick axe or Pulaski. • Take care to remove plant debris from site as root fragments can regrow. • Avoid damaging indigenous plants.
Large, thick patch in Residential Development Zone	Remove biomass with backhoe and scrape down to soil	Any time.	<ul style="list-style-type: none"> • Repair compaction from machinery by scraping soil surface to make it rough and loose. • Avoid damaging indigenous plants. • Do not encroach into sensitive or protected areas.
Draping Tips Beginning to Root	Hand extraction with paring knife	As soon as tips root (Oct. – Nov.)	<ul style="list-style-type: none"> • Pulling alone is insufficient for removing roots.

New Growth from Root Fragments or Root Crown	Manual Control using loppers or hand clippers.	2-3 times per year, for at least three years.	<ul style="list-style-type: none"> Eradication may take up to 5-years.
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8.8.3 English Ivy (*Hedera helix*)

Condition	Removal Method	Timing	Other considerations
Mature plants climbing trees	Use saw, clippers, loppers or similar to physically remove 1m tall band of ivy at waist to breast height around circumference of affected tree.	Fall	<ul style="list-style-type: none"> Ivy above band removed may be left in place to die on the tree. Ensure band is kept clear of new growth as dead ivy may function as a ladder for new growth. Ensure all contact between roots and upper parts of ivy plants are severed.
Lower portion of mature plants on tree trunk after climbing portions are severed	Pry roots from base of trunk and soil using grub hoe, cable winch or come-along.	Late Fall (Nov.)	<ul style="list-style-type: none"> Roots may be over 3m (10 feet) long.
Juvenile mats spreading horizontally on ground	Dig out roots using paring knife, weed wrench or similar and roll into 2-person manageable piles.	Late Fall (Nov.)	<ul style="list-style-type: none"> Lift gently or roots will break and resprout In protected areas, minimize soil compaction by laying planks to work from Be cautious of juvenile and emerging indigenous plants

8.8.4 English Holly (*Ilex aquifolium*)

Condition	Removal Method	Timing	Other considerations
Seedling	Hand-pull from ground.	Anytime	<ul style="list-style-type: none"> Minimize soil disturbance. Do not confuse with juvenile or emerging Oregon grape specimens.
Small shrub	Cut off at ground level	Summer to Fall	<ul style="list-style-type: none"> Avoid dispersing berries if present. If present, use tarp for removal. Wear pants, long sleeves, gloves and eye protection to avoid scratches. Monitor for sprouts and remove using clippers.
Large Shrub or Tree	Cut off at ground level. Remove roots if possible or damage stump with axe.	Spring to Summer (before seed formation)	<ul style="list-style-type: none"> Avoid scattering seeds If seeds have formed, remove debris using a tarp or garbage bags Wear pants, long sleeves, gloves and eye protection to avoid scratches. Stump is likely to resprout for several growing seasons. Monitor for sprouts and remove using clippers.

9.0 THREE YEAR MONITORING AND MAINTENANCE PLAN

9.1 General:

Monitoring and maintenance will take place for three years from the time of acceptance of Substantial Completion of the project.

9.2 Monitoring

Monitoring will include inspection, documentation and reporting of the health of retained trees and planted specimens; natural regeneration and invasive species removal.

9.3 Maintenance Strategies:

- Hand removal of invasive plants in Restoration Zone.
- Indigenous plants shall be allowed to regenerate naturally.
- Replacement planting as required to compensate for invasive plant and hazard tree removal and die-off of any planted specimens. Cover with 50mm of organic mulch following planting.
- Leave fallen leaves, woody debris and other natural litter in place.

9.4 Maintenance Procedures and Frequencies for all Zones

Procedure	M	A	M	J	J	A	S	O	Frequency
Inspection		X		X		X		X	4 times per year
Reporting		X		X		X		X	4 times per year
Litter Removal									As required for safety. Otherwise, litter to remain in place.
Weeding		X		X		X		X	4 times per year minimum.
Invasive Removal		X		X		X			3 times per year
Mulching		X		X		X			Following invasive removal.
Replacement Planting	X						X	X	Compensation for invasive or hazard tree removal, or die-off.
Repair									As required.
Tree Hazard Assessment									As required.
Pruning									Undertaken to remove broken or dying branches for safety.
Fire Management		X	X	X	X	X	X	X	As required to reduce the risk of ignition and spread of fire.

9.5 Maintenance Operations

Landscape maintenance operations shall include the removal of all invasive plants, and careful removal of all other weeds, taking care to retain all indigenous plants that are naturally regenerating.

The area is intended to be naturalized and park-like, so an informal appearance is desirable with weeds kept to a minimum. Plants should be kept healthy with regular watering as required, until establishment (minimum 3-years). Plants should not be trimmed or pruned except for safety and to reduce fire risk.

The maintenance period shall be from the time of planting until three years from the date of Substantial Completion of the landscape works. After the first year, the owner or contractor will contact the Landscape Architect for inspection.

Maintenance operations for the planted shrubs and ground covers shall include:

- Watering and weeding, being careful not to remove naturally regenerating indigenous plants. Weeding should occur at least four times per year. Watering should be at least 3-times per week during the dry summer drought period.
- Weeding must be done when isolated weedy patches have a width of 20cm. Weeding shall remove 80% of weeds. "Isolated" means a weed distribution of no greater than four patches per 5m².
- Invasive plant removal should occur as necessary throughout the growing season. Maintenance operations should, where possible, follow ecologically sound practices such as:
 - Integrated Pest Management (IPM)
 - Plant Health Care (PHC)
 - Composting
 - Application of Organic Mulches

9.6 Plan Review

As part of the monitoring process, an adaptive management approach will be applied to this Vegetation Management Plan. As inspections take place, overall plant health will be determined and changes made if necessary, to ensure the success of the planting.

**PROPOSED LANDSCAPE PLAN
AND DETAILS**

STEPHENSON POINT ROAD

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NO.	DATE	ISSUE
1	2018-11-29	ISSUED FOR AQUATIC DP
2	2020-06-01	REVISED FOR AQUATIC DP

NO.	DATE	REVISION
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PROJECT
JARVIE RESIDENCE
3258 Stephenson Point Road
Nanaimo, B.C.

LANDSCAPE PLAN

I do not warrant or accept any liability for the use of this landscape plan. The user shall be responsible for obtaining all necessary permits and approvals from the appropriate authorities.

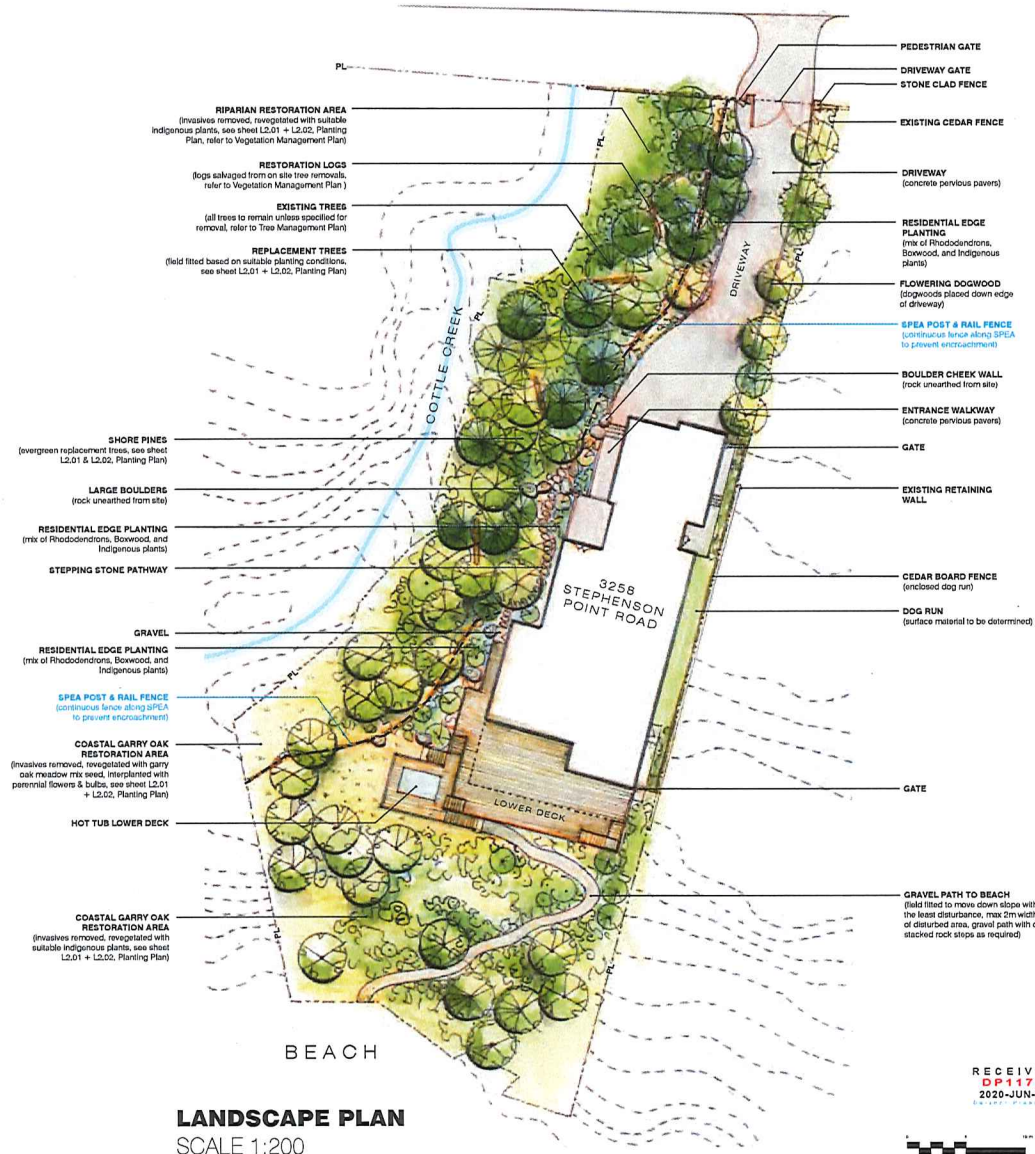
PROJECT 1:200
DB **KS** **CB** **KS**
SCALE 1:200
DATE October 31, 2019

L1.02

DESIGN PRECEDENTS



Refer to Sheet L1.01 for Site Plan & Notes
Refer to Sheet L2.01 for Plant Notes & Planting Plan North
Refer to Sheet L2.02 for Plant List & Planting Plan South



LANDSCAPE PLAN
SCALE 1:200

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2020-JUN-01
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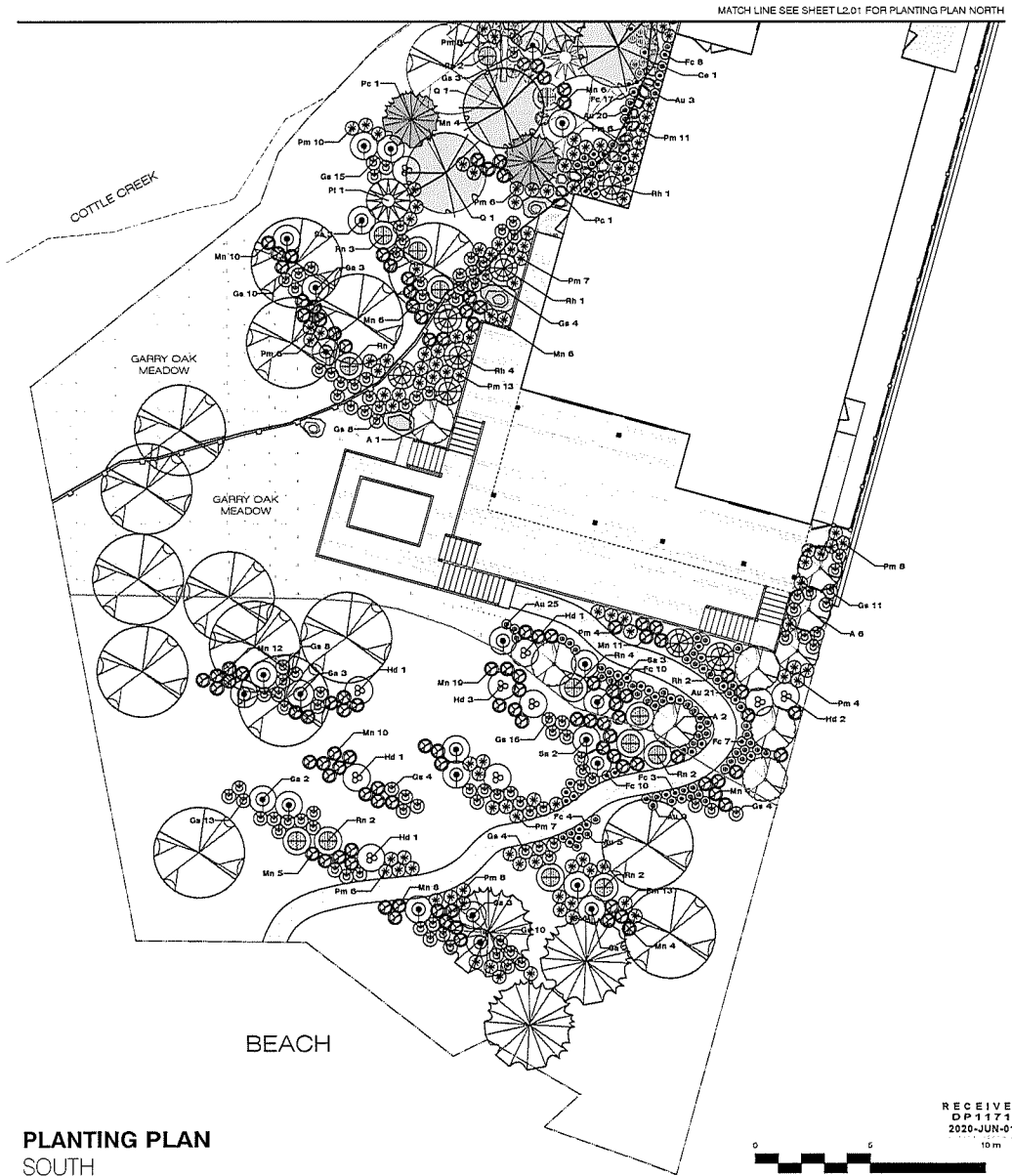
PLANT LIST

Z1 Restoration Zone
Z2 Residential Development Zone

Key	Z1	Z2	TOTAL	Botanical Name	Common Name	Spacing	Pot Size
Evergreen Trees							
P	9	1	10	<i>Pseudotsuga menziesii</i>	Douglas Fir	1.5m ht.	
Pc	4	3	7	<i>Pinus contorta</i>	Shore Pine	1.5m ht.	
Deciduous Trees							
A	1		1	<i>Acer macrophyllum</i>	Big Leaf Maple	1.5m ht.	
Co	2	3	5	<i>Cornus edulis white wonder</i>	Eddies White Wonder Dogwood	2m ht.	
Ck	3	3	6	<i>Cornus kousa 'Satomi'</i>	Red Flowering Kousa Dogwood	2m ht.	
Q	2		2	<i>Quercus garryana</i>	Garry Oak	1.5m ht.	
Evergreen Shrubs							
A	9		9	<i>Arbutus unedo</i>	Strawberry Bush	2 m o.c.	#1
Bo		102	102	<i>Buxus sempervirens Rakot</i>	Boxwood	80 cm o.c.	#1
Ga	132	44	176	<i>Gaultheria shallon</i>	Salal	60 cm o.c.	#1
Hd	14	3	17	<i>Holodiscus discolor</i>	Oceanspray	1.2 m o.c.	#1
Mn	142	53	195	<i>Mahonia nervosa</i>	Dull Oregon Grape	60 cm o.c.	#1
Pi	4		4	<i>Philadelphus lowii</i>	Mock-orange	2 m o.c.	#1
Rh	21	21	42	<i>Rhododendron varietalis</i>	Rhodod.	1.2 m o.c.	#1
Rn	12	4	16	<i>Rosa nutkana</i>	Nootka Rose	1.2 m o.c.	#1
Sa	37	3	40	<i>Symphoricarpos albus</i>	Snowberry	1.2 m o.c.	#1
Vo	7		7	<i>Vaccinium ovatum</i>	Evergreen Huckleberry	60 cm o.c.	#1
Groundcovers / Ferns / Perennials							
Am	28	28	56	<i>Achillea millefolium</i>	Yarrow	80 cm o.c.	10 cm
Ac	28	28	56	<i>Allium cernuum</i>	Nodding Onion	80 cm o.c.	10 cm
Au	34	49	83	<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	45 cm o.c.	10 cm
Cc	28	28	56	<i>Camassia quamash</i>	Common Camas	80 cm o.c.	10 cm
Ca	28	28	56	<i>Cerastium arvense</i>	Field Chickweed	80 cm o.c.	10cm
El	28	28	56	<i>Eriophyllum lanatum</i>	Woolly Sunflower	80 cm o.c.	10 cm
Fc	34	30	64	<i>Fragaria chiloensis</i>	Coastal Strawberry	30 cm o.c.	10 cm
Pm	143	145	288	<i>Polystichum munitum</i>	Sword Fern	60 cm o.c.	#1
Seeds							
Wild Grass Area 177m ²	Picksod Garry Oak Upland Mix or equivalent		89% Roanoke Fescue 11% California Oatgrass				

GARRY OAK MEADOW
Seed with Garry Oak Upland Meadow Mix
Plant with a mix of the following (80cm o.c.):
1. Yarrow
2. Nodding Onion
3. Common Camas
4. Field Chickweed
5. Woolly Sunflower

Refer to Sheet L1.01 for Site Plan & Notes
Refer to Sheet L1.02 for Landscape Plan
Refer to Sheet L2.01 for Planting Notes & Planting Plan North



PLANTING PLAN SOUTH

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NO.	DATE	ISSUE
1	2016-11-29	ISSUED FOR AQUATIC CP
2	2016-08-01	RECEIVED FOR AQUATIC CP

NO.	DATE	REVISION
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PROJECT
JARVIE RESIDENCE
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Nanaimo, B.C.

PLANTING PLAN

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PROJECT	10000
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CB	KS
SCALE	1:100
DATE	October 31, 2019

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L2.02