

November 25, 2020

Jacob Edenloff, Land Development Planner
City of Coquitlam
3000 Guilford Way
Coquitlam, BC
V3B 7N2

Re: Tree Replacement plan in Fremont Park, adjacent to 3561 Gislason Avenue, Coquitlam

Diamond Head Consulting Ltd. (DHC) was asked by the City of Coquitlam to provide a replanting and restoration plan for Fremont Park in the area associated with the adjacent 3561 Gislason. Michael Harray, RPF; and Mike Coulthard, RPF, RPBio. have reviewed the site and prepared a planting plan based on available planting spots, anticipated disturbance on the site, the site's ecology, and considerations of climate change.

Background:

The western edge of Fremont Park will be affected by planned residential development adjacent to it. In anticipation of the development, the City retained DHC to prepare a *Stand Stability Assessment, Arborist Report* and accompanying *Tree Management Plan*. The two reports provide a rating of the windthrow risk on the site and recommend tree removal and retention to minimize risk to the future development. Protection measures were recommended for suitable edge trees and are described both in the Arborist Report and Tree Management Plan.

This replanting plan addresses the requirement to replace the trees recommended for removal in the area north of Gislason in the park. Tree replacement criteria were calculated using provincial guidelines for replacement trees by diameter class. The total number of required replacement trees is 97.

Observations:

Existing landscape

The assessed area focuses on the western boundary of Fremont Park, a newly created forested park in the City of Coquitlam. We assessed the boundary from the southwest corner of the park on Victoria Drive north to a newly constructed road that cuts off the northwest corner of the park.

The forested area within this project area includes an uneven aged second growth stand. It was originally cleared following logging and fire approximately 80 years ago. It now has an uneven structure with canopy gaps and a range of tree sizes and ages. There are two distinct stand types found within the study area.

Stand Type 1. This stand type is located along the northern part of the site. It is typified by a low density of young pioneer deciduous trees with scattered conifers. The density is 25-50 stems/ha of the older trees; distribution is uneven with large canopy openings. Deciduous trees in this area generally are in very poor condition due to their age. Red alder are most abundant, of which the oldest trees have dead tops, declining crowns and/or decay in the stem. A vigorous shrub layer of vine maple, hazelnut and salmon berry dominate the understory.

Stand Type 2. This stand is at the south end of the assessment area. It is mature and predominantly coniferous. The stand is moderately dense (400 stems/ha) with the dominant trees reaching 40-45m tall. The species composition includes mostly western hemlock with Douglas-fir and a minor component of bigleaf maple and western redcedar. Recent development and road construction at the southwest corner of this stand has damaged some trees..

Forest ecology

The subject site is in the CWHdm BEC Zone. The soils are rich and fresh (05 Site Series), supporting a dense shrub layer where coniferous trees have not regenerated well. Indicator plants and trees observed across the site include: Douglas-fir, red alder, salal, red huckleberry, vine maple, hazelnut, salmonberry, sword fern, and spiny wood fern.

Planting opportunities and rationale

- Our planting prescription uses tree species that are found on the site and in the surrounding area, as they are the best adapted to the ecology of the site;
- A mature forest canopy and/ or shrub layer is already present over much of the site, making the planting conditions challenging;
- Shade tolerant species will be required where established vegetation will compete with young trees;
- Western hemlock and red alder are common on the site but appear to be in decline throughout the forest. These species are not recommended as replacement trees as they are not expected to adapt well to changing climate conditions;
- Small trees such as vine maple and hazelnut have been recommended in the planting prescription because they are thriving on the site and provide good wildlife habitat (standard silvicultural planting prescriptions focus on future timber volume – not applicable in a park setting);
- Planting locations focus on clumps of trees, especially in those areas that have been disturbed by tree removal;
- Clumps of trees will maintain the heterogeneity of the forest cover, and add a new cohort of long-lived trees to the park;
- A triangular patch which has been disturbed for road works has also been included in the planting plan. Trees can be planted elsewhere if there are other plans for this space.

Planting prescription and maintenance

- Planting should occur outside of the driest summer months (May-September);
- All trees should be planted from #5 pots or larger – not ball and burlap;
- Proper selection of microsites will help the trees survive in the long term; we suggest hiring a firm with experience in restoration or forestry planting, and/ or having a RPF supervise the planting;
- Minor brushing may be required to create growing space for tree establishment;
- Project and planting success could be improved if paired with removal of invasive species - ie. planting on ground disturbed by the removal of Himalayan blackberry or English Ivy;
- Shade-tolerant species will be more successful in the deciduous dominated stand where there is significant competition from the shrub layer.

Species	Percentage of planting	Number of trees	Comments
Douglas-fir	30	29	Long-lived tree already thriving on the site. Best in full-sun, open locations.
Western-red cedar	15	14	Long-lived tree suitable for planting in the shade of other species.
Sitka Spruce	10	10	Long-lived tree suitable for planting in the shade of other species.
Western white pine	10	10	Rare on the site, but historically more common. Recommended to enhance biodiversity. Acceptable as a minor planting species per the Land Management Handbook 28.
Bigleaf maple	15	14	Suitable for planting in the shade of other trees.
Beaked hazelnut	10	10	Small tree provides good habitat for birds and mammals. Abundant on the site. Shade tolerant.
Vine maple	10	10	Shade tolerant tree abundant on the site.
Total		97	

Costing for Replacement Planting

	Units	Unit Cost	Total Cost
Large trees, #5 pot	77	\$50	3850
Small trees #2pots	20	\$40	800
Delivery	1	\$200	200
Planting crew	3 days	\$1200	3600
			8450

Please don't hesitate to call us if you have any questions regarding the material discussed in this report.

Sincerely,

Project Staff:



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
Biologist in Training

Supervisor



Mike Coulthard, R.P.Bio., R.P.F.
Senior Forester, Biologist
Certified Tree Risk Assessor (46)

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

Photographs



Figure 1: The forest floor under the conifer dominated stand will present good planting opportunity once the smaller hemlocks are removed.



Figure 2: Shade tolerant species are required where planting under the site's vigorous shrub layer.



Figure 3: The lack of understory visible at the edge of the mature conifer stand presents good opportunity for planting

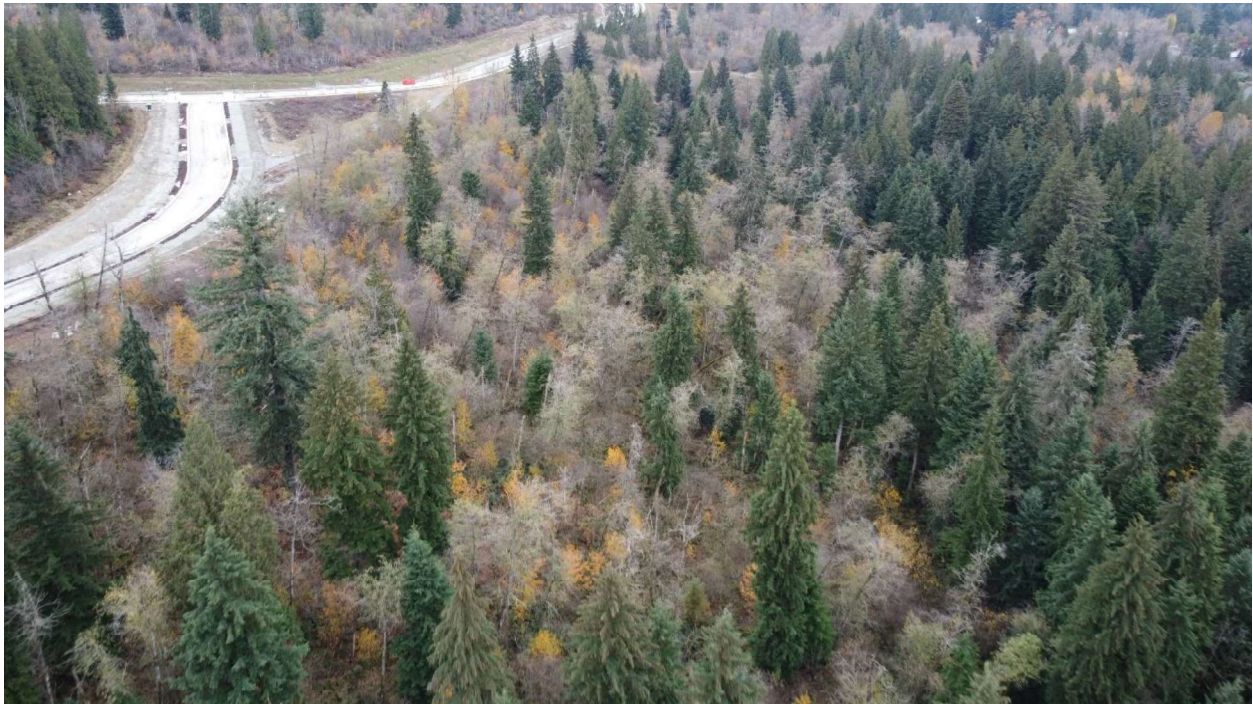


Figure 4: Stand Type 1. Note bare triangle in top of image. The planting plan seeks to maintain the species and structural diversity of the site.



Figure 5: A vibrant shrub community will require that planting be field fit. The best location for groups of trees are those areas currently occupied by invasive species, or in large gaps between existing trees.

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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, discoloured 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 every effort has been made to ensure that any trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will not be subject to structural failure or decline. The Client acknowledges that it is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.
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- 7) In preparing this report, Diamond Head has relied in good faith on information provided by certain persons, Government Bodies, government registries and agents and representatives of each of the foregoing, and Diamond Head assumes that such information is true, correct and accurate in all material respects. Diamond Head accepts no responsibility for any deficiency, misinterpretations or fraudulent acts of or information provided by such persons, bodies, registries, agents and representatives.
- 8) Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
- 9) Loss or alteration of any part of this report invalidates the entire report.



February 4, 2021

City of Coquitlam
3000 Guildford Way
Coquitlam BC V3B 7N2

Attention: Kerry Thompson, File Manager:

**RE: Proposed rezoning of lands at 3561 Gislason Avenue, Coquitlam (the “Lands”)
City of Coquitlam File: PROJ 20-073
Works to Protect and Enhance Fremont Park Forested Edge**

We are writing to you today concerning the works and security deposit to be provided by us to the City of Coquitlam in connection with the development of the Lands (the “Development”). We acknowledge that certain works are required to mitigate the risk of windthrow resulting from the creation of a new forested edge at the boundary of Fremont Park.

Given the proximity of the proposed development to Fremont Park, we have worked with staff and hereby agree to implement the below strategy:

1. Prior to fourth and final reading of *Bylaw No. 5091, 2020*, provide a security deposit for the replanting works in the amount of **\$9,295** to ensure that such works are carried out as specified herein, to the satisfaction of the General Manager Parks, Recreation, Culture and Facilities (PRCF);
2. Undertake the proposed tree removals and mitigation at the time of site clearing for the future development, in cooperation with the future developer and in accordance with the recommendations of the Arboricultural Inventory and Report and accompanying Tree Management Plan by Diamond Head Consulting, both dated January 25, 2021 (Attachment 1);
3. Following site clearing and prior to replanting works, submit a report by a Registered Professional Forester to re-assess tree health and confirm removal and replanting works needed to stabilize the windfirm boundary along the forested edge;
4. Upon staff review of the RPF report and staff approval to proceed, complete replanting works in accordance with the Tree Replacement Plan by Diamond Head Consulting dated November 26, 2020 (updated January 25, 2021) (Attachment 2); and
5. Following installation of the replanting works, contact the Urban Forestry division to perform an on-site inspection. The security deposit will be released should the works be found satisfactory by the GM PRCF, and may be withheld in whole or in part pending the correction of any works found to be deficient.

Yours truly,

Curtis Scott

Curtis Scott
Manager Development, City Land

Attach:

1. Arboricultural Inventory and Report and Tree Management Plan (doc# 3974948)
2. Tree Replacement Plan (doc# 3974949)