



Woodlot Licence #W1639

Woodlot Licence Plan #1

2006 to 2016

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Authorized Licensee Signature:

[Print Name]

[Signature]

[Date]

Disclaimer

Recognizing the special nature of management on a woodlot licence, this disclaimer forms part of the Woodlot Licence Plan (WLP) for Woodlot Licence Number W1639 and advises that:

- the decision to operate under one or more of the Default Performance Requirements provided in the Woodlot Licence Planning and Practices Regulation (WLPPR) is the sole responsibility of the woodlot licence holder, and involved no detailed oversight or advice from the prescribing registered professional forester,
- this disclaimer is signed on the explicit understanding and information provided by government that the use and achievement of a Default Performance Requirement meets the expectations of government with respect to the management of woodlot licences,
- the undersigned Registered Professional Forester certifies that this Woodlot Licence Plan and the supplemental information fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work.

Signed _____

Seal:

Name (Print) Wolfram Wollenheit

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I. Content of the Woodlot Licence Plan (WLP)

1. Plan Area

This plan covers the entire 410.9 ha encompassed in the Woodlot Licence.

2. Map and Information

Table 1: Map and Information Content

Information Item	Map	Text	N/A
Forest cover	√		
Topography; (unless exempted by DM)	√		
Location of streams, wetlands and lakes as shown on forest cover maps, terrain resource inventory maps and fish and fish habitat inventory maps.	√		
Riparian classification of streams, wetlands and lakes <u>if shown on maps</u>	√		
Identification of fish streams	√	√	
Biogeoclimatic zones and subzones (unless exempted by DM)		√	
Public utilities (transmission lines, gas & oil pipelines, and railways)			√
Existing roads	√		
Special Situations that may not Apply to the WL area			
Resource Management Zones, Landscape Units or Sensitive Areas	√	√	
Wildlife Habitat Areas (unless exempted by DM)			√
Scenic Areas	√	√	
Ungulate Winter Ranges	√	√	
Community Watersheds	√	√	
Fisheries Sensitive Watersheds			√
Community and domestic water supply intakes that are licensed under the Water Act and any related water supply infrastructures			√
Contiguous areas of sensitive soils			√
Temporary or permanent barricades to restrict vehicle access	√	√	
Private property within or adjacent to the woodlot licence area			√
Resource features other than wildlife habitat features and archaeological sites (unless the location of the resource feature is not to be disclosed)			√

All of the applicable information required to be addressed under Section 8(1) of the Woodlot Licence Planning and Practices Regulation (WLPPR) and checked above are identified on the maps in Appendix I & II and/or the text that follows.

Biogeoclimatic Zones and Subzones

The woodlot licence area is entirely within the CWH xm1 biogeoclimatic zone.

Resource Management Zones, Landscape Units or Sensitive Areas

The entire woodlot licence area is within the Sayward Landscape Unit – RMZ 31 as outlined in the Vancouver Island Land Use Plan. The Area is also covered by the Sayward Landscape Unit Plan. This woodlot licence plan is consistent with the applicable government objectives specified within both Higher-level planning documents.

Scenic Areas

Scenic areas have been established within the woodlot licence area as identified on the map in Appendix I. Portions of the southern boundary foreshore on Campbell Lake are identified in the Campbell River Forest District Identified Resource Features Inventory as an Identified Resource Feature. This area falls within a portion of UWR along the lakeshore.

Community Watersheds

Portions of the woodlot are within the John Hart Community Watershed (CWS Code 920.049). Where streams are located within the community watershed they are defaulted to stream classes S2 through S4 and are provided protection through the combination of riparian reserves and/or riparian management zones. A fish barrier is located in the lower-most reach of Creek 5 prohibiting fish passage to upper reaches and subsequent fisheries surveys designate this creek as fish negative. The District of Campbell River Watershed Management Plan allocates Risk Zones A, B throughout portions of the woodlot and provides recommendations for management.

Ungulate Winter Ranges

Four ungulate winter ranges (UWRs) have been established over a portion of the woodlot licence area, as identified on the map in Appendix I. The areas covered by these UWRs differ from those presented in the Sayward Landscape Plan and in the supporting material for the Legal Notice regarding the establishment of Ungulate Winter Ranges in the Strathcona TSA.

The changes to the UWRs in the woodlot licence are a result of co-ordinated efforts between the licensee and the Ministry of Environment to physically define the UWR on the ground using hard boundaries. Portions of the boundaries are located and marked in the field and have been GPS traversed upon review by Ministry of Environment staff. The final UWR boundaries as shown in this plan are approved by the Ministry of Environment and will be amended accordingly in the Sayward Landscape Plan. A total of 81.2 ha or 19.8% of the total woodlot area is allocated to the UWRs.

Recreation

Table 2: Recreational Resource Inventory for W1639

Polygon	Prominent Feature	Significance	Impact Management
1563	Visual landscape, small lakes, coniferous forest	C (Moderate)	Area requires special management considerations to protect or maintain recreational values.
1574	Large mammals, coniferous forest, openings	D (Low)	Normal forest management practices are adequate to maintain recreational values.
1583	Visual landscape, lake shore, coniferous forest	C (Moderate)	Area requires special management considerations to protect or maintain recreational values.

Under the Sayward Landscape Plan, the western portion of the woodlot licence area is defined as 'Developed' resource land, whereas the eastern portion is defined as 'Modified' resource land. It is anticipated that regular woodlot licence management with small cutblock sizes up to 5 ha maintains the recreational and visual values. Along the south shore, towards Big Bay, a recreation constraint area has been established as a plan objective of the Sayward Landscape Plan. Any

development within this area requires an exemption granted by the District Manager of the Ministry of Forests and Range in Campbell River.

Temporary or Permanent Barricades That Restrict Vehicle Access

At the time of preparing this woodlot licence plan, within the woodlot licence area there is one permanent gate on Jeremy Road to restrict vehicle access. This installation was placed to limit firewood cutting by visitors in the adjacent Loveland Bay Provincial Park. Future placements of temporary or permanent barriers as either metal gates or berms to restrict vehicle access are identified on the map in Appendix I & II. The purpose of the future installations will be to deter illegal activities, reduce fire hazard, stop garbage dumping and minimize firewood theft.

Resource Features Other Than Wildlife Habitat Features, Archaeological Sites

At the time of preparing this woodlot licence plan, no resource features have been established within the woodlot licence area under the Government Actions Regulation. There are also no resource features within the woodlot licence area that have been “made known” by the District Manager under the regulations of the *Forest Practices Code of BC Act*.

3. Areas Where Timber Harvesting Will Be Avoided

At the time of writing this woodlot licence plan, there are no portions of the woodlot licence area where the woodlot licence holder is aware of a legal requirement to completely avoid harvesting.

4. Areas Where Timber Harvesting Will Be Modified

Areas covered under this plan in which timber harvesting will be modified to protect and manage resources are marked on the WLP maps. A description of the modification by area is as follows:

- ☒ Riparian reserve zones (RRZs) are not planned for regular harvesting other than for those purposes specified by regulation, such as tree removal for the purpose of creating trails or for carrying out a sanitation treatment. RRZs are denoted in light red shading on the map.
 - The riparian reserve zone (RRZ) located around Creek 5 (S3) below the road crossing (see map), that runs roughly parallel to Brewster Lake FSR and drains into John Hart Lake, will be avoided. The RRZ for this S3 creek will consist of a 20 m reserve on both sides of the creek.
 - The riparian reserve zone (RRZ) located adjacent to Campbell Lake (L1). The RRZ for this L1 lake will consist of a 10 m reserve located from the foreshore. Part of this reserve lies within the Ungulate Winter Range.
 - The riparian reserve zone (RRZ) located adjacent to Reed Lake (L2). The RRZ for this L2 lake will consist of a 10 m reserve located from the foreshore.
 - The riparian reserve zone (RRZ) located adjacent to Wetland 6 (W2) in the northwest portion of the woodlot. The RRZ for this W2 wetland will consist of a 10 m reserve located from the foreshore.

- ☒ Riparian Management Zones (RMZs = light green horizontal hatching)

Table 2 (below), outlines how timber harvesting will be modified based on the stream and wetland classification. Depending on the present stand structure, terrain, windthrow risk and block configuration, the retention level will be uniform, grouped or spatially distinct. In general, understory and unmerchantable cedar and other conifers of good form and vigour will be maintained to the greatest extent practicable to provide for riparian cover and bank stability.

Table 2: Modification of Harvesting in RMZs by Riparian Classification

RIPARIAN CLASS	INTENT OF MANAGEMENT	CHARACTERISTICS	SPECIES TO RETAIN	RETENTION LEVEL POST HARVEST (stems/ha)
S3 (Fish bearing or community watershed) =1.5 - 5.0m)	<ul style="list-style-type: none"> Maintain the integrity of the RRZ Assist in maintaining wildlife attributes within the RMA, such as wildlife tree cover, nesting and perching habitat and diversity of vertical forest structure. 	Windfirm, has at least Moderate wildlife tree value	Fd, Cw, Hw, PI, Dr and Ac	25 - 100%
S4 (Fish bearing up to 1.5m)	<ul style="list-style-type: none"> Maintain stream bank integrity Provide shaded cover, LWD and litter 	Windfirm, may have Low wildlife tree value		25 - 100%
S5 and S6 (Non-fish >3m and < 3m)	<ul style="list-style-type: none"> Minimize debris transport to lower reaches of stream 	Windfirm		0 - 100%
L1 (lake > 5 ha) & L2 (lake 1-5 ha)	<ul style="list-style-type: none"> Maintain the integrity of the RRZ Assist in maintaining VQO, recreation potential and wildlife attributes within the RMA. 	Windfirm, has at least Moderate wildlife tree value		25 - 100%
W2 (wetland 1-5 ha)	<ul style="list-style-type: none"> Maintain the integrity of the RRZ Assist in maintaining wildlife attributes within the RMA. 	Windfirm		0 - 100%
W4 (wetland 0.5-1 ha)	<ul style="list-style-type: none"> Assist in maintaining wildlife attributes within the RMA 	Windfirm		0 - 100%

Fd = Douglas fir, Cw = western red cedar, Hw = western hemlock, PI = lodgepole pine, Dr = red alder, Ac = cottonwood

- ☒ Partial cutting has been both proposed and approved in the UWR (see blocks 3 & 6) to diversify the horizontal and vertical structure of the stand and to encourage development of old growth character so as to enhance ungulate habitat over the long-term. Within the foreseeable future the licensee, in conjunction with Rod Negrave Ph.D., R.P.F., of the Ministry of Forests - Research and Inventory branch, hope to carry out quantitative research focused on 'Enhancing the recruitment of old-growth attributes in second-growth Coastal stands.' This project is presently under funding proposal to the Forest Investment Accounts – Forest Science Program (project # Y07 – 1259).

Where operations are proposed within the ungulate winter ranges, as shown on the map, approval for operations will be sought from the Ministry of Environment. Consistent with Section 10 (d) of the Woodlot Licence Planning and Practice Regulation, the above statement(s) does not specify a result or strategy in relation to the management objectives for Ungulate Winter Range. Proposed operations and variations to the 'distribution' are based on numerous field reviews and interagency / licensee co-ordination. Maintenance of habitat attributes within the proposed areas will be consistent with stated government objectives for UWR's and all harvesting will be completed within the guidance provided by these objectives[D1].

- ☒ Retention, Partial Retention and Modification Visual Quality Objectives. Harvesting will be modified to maintain the intended visual quality from Loveland Bay Provincial Park and Campbell Lake respectively.

The following process will be used to ensure harvest areas are managed consistent with the established VQO such that activities are not visually evident, remain subordinate or where visually dominant that they have characteristics that appear natural. Designed openings will follow the line and form of the landscape. The assessment procedures outlined in the Visual Impact Assessment (VIA) guidebook 2001 will be used to direct design and assist in evaluation.

Recently-established VQOs and polygons are Downloaded from:

ftp://ftp.for.gov.bc.ca/DCR/external/!publish/CRFD_legal_direction/Scenic/Vqo/Maps/vqodecmap3.pdf

- ☒ For the protection of drinking water, management of woodlot activities on the Crown portion and within the John Hart Lake Community Watershed will be guided by the Best Management Practices as outlined in table 4 of the District of Campbell River - Proposed Development Regulations and Guidelines for Watershed Protection. Existing roads may require minor clearing and upgrading to ensure the safety of industrial users and the adequacy of drainage structures. Efforts will be directed to limit turbidity resulting from woodlot activities[D2].

Before commencement of road construction or deactivation in a community watershed the licensee will provide at least 48 hours notice to the District of Campbell River as per S. 73 of the Woodlot Licence Planning and Practice Regulation[D3], unless exempted by the District Manager of the Ministry of Forests and Range under section S.78 of the WLPPR.

When logging is carried out in the Community Watershed, pre-harvest mapping will be accompanied by an access management / deactivation plan consistent with Objective 14 of the Sayward LUP. Road deactivation within Risk Zone A will be used to discourage over-night camping, recreational use and associated garbage and human waste.

- ☒ Along the south shore, towards Big Bay, a recreation constraint area has been established as a plan objective of the Sayward Landscape Plan. Any development within this area requires an exemption granted by the District Manager of the Ministry of Forests and Range in Campbell River.

5. Strategy to Conserve and Protect Cultural Heritage Resources

The woodlot lies within the traditional territories of three First Nations and the area of interest of the Hamatla Treaty Society. A list of these First Nations, the Society, and their contact information is provided below. In addition to the information sharing process that is implemented for the approval of this plan, First Nations and other interested parties are welcome during the term of this plan to review planned developments upon their own initiative. Documentation of all consultation with affected First Nations is to be included within the supplemental information (Part II) of the final submission of the plan.

The following First Nations will be consulted:

Hamatla Treaty Society

1441-A Island Highway
Campbell River, B.C. V9W 2E3
Ph: 287-9460, Fax: 287-9469

Cape Mudge First Nation

PO Box 220
Quathiaski Cove, BC
V0P 1N0
Ph: 285-3316, Fax: 285-2400

Campbell River First Nation

1400 Weiwaikum Road
Campbell River, BC
V9W 5W8
Ph: 286-6949, Fax: 287-8838

Comox First Nation

3320 Comox Road
Courtenay, BC
V9N 3P8
Ph: 339-4545, Fax: 339-7053

An Archaeological Overview Assessment (AOA) has been completed for the area of the Woodlot Licence. The completed study assessed the lakeshore areas (within 50 m) as having moderate to high potential for archeological sites other than CMT sites, and low potential for CMTs. The inland portions are reported to contain a low potential for archeological sites of any type. It was recommended that an archeological impact assessment be conducted if there is ground disturbance, such as road building, within 50 m of inland lakes. For inland areas no archeological field reconnaissance or archeological impact assessment was recommended. It should be noted that the AOA considered the present lakeshore of Campbell Lake and not the historic water front which is estimated to be greater than 100m from the present location. Therefore, no archeological impact assessment will be conducted if there is ground disturbance, such as road building, within 50 m of Campbell Lake.

If the licensee or any personnel connected with the Woodlot Licence operation finds evidence of traditional use or cultural heritage values, the Ministry of Forests Aboriginal Liaison Officer will be notified and all work will cease within the immediate (30 m) area. The licensee will cooperate fully, as requested by the Ministry of Forests Aboriginal Liaison Officer.

The following results and strategies (Table 3) for managing cultural heritage values will apply. These are based on known cultural heritage issues of interest to First Nations in the Campbell River Forest District. Specific issues identified or provided by First Nations during the WLP consultation process will be addressed in the final submission of the plan.

Table 3: Results and Strategies for Cultural Heritage Resources

<i>Cultural Heritage Value</i>	<i>Results & Strategies</i>
Cedar	<p><i>Result:</i></p> <ul style="list-style-type: none"> • Enable continued access to red cedar for traditional use by local First Nations.
	<p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Based on availability of stock and ecological suitability (e.g. Cw listed as preferred species), a component of Cedar will be planted in the woodlot to ensure a long-term supply. • Naturally occurring young cedar trees (including poles) will be retained where operationally feasible.
Traditionally Used Plants	<p><i>Result:</i></p> <ul style="list-style-type: none"> • Enable continued access to traditionally used plants for traditional use by local First Nations.
	<p><i>Strategies:</i></p> <ul style="list-style-type: none"> • When local First Nations have indicated specific interest in traditional use plants, the licensee will identify the presence of such plants in planned harvest areas and communicate this to the interested First Nations prior to cutting permit submission. This is to allow for review by the local First Nations and that any collections of traditional use plants can be initiated by the local First Nations prior to harvest. • A no-pesticide use policy is implemented in this Woodlot Licence. Manual brushing and early planting of large stock is the preferred method to overcome brush problems.
Cultural Heritage Resources	<p><i>Result:</i></p> <ul style="list-style-type: none"> • Harvest plans will consider identified cultural heritage resources.
	<p><i>Strategies:</i></p> <ul style="list-style-type: none"> • The Licensee will share information with local First Nations upon request and be available for field reviews.

6. Wildlife Tree Retention Strategy

Note: the proportion of the Woodlot Licence area that is occupied by wildlife tree retention areas is specified in the “Performance Requirements” section of this plan.

Individual Wildlife Trees

a) Species and Characteristics

Desired species are (in order of preference): Fd, Cw, Hw, Dr, Mb with a minimum dbh of 50cm. The following table describes the characteristics of individual trees that will guide the selection of wildlife tree to be retained from harvesting.

Table 4: Wildlife tree value and characteristics for all species

	HIGH (at least two of the listed characteristics)	MEDIUM	LOW
CHARACTERISTICS	<ul style="list-style-type: none"> • Internal decay (heartrot or natural/excavated cavities present) • Crevices present (loose bark or cracks suitable for bats) • Large brooms present • Active or recent wildlife use • Current insect infestations • Tree structure suitable for wildlife use (e.g. large nest, hunting perch, bear den, etc.) • Largest tree on site (height and/or diameter) and/or veterans • Locally important wildlife tree species 	<ul style="list-style-type: none"> • Large, stable trees that will likely develop two or more of the characteristics listed under HIGH 	<ul style="list-style-type: none"> • Trees not covered by HIGH or MEDIUM categories

From: Wildlife Tree Committee recommendations available at - <http://www.for.gov.bc.ca/hfp/wlt/wlt-policy-02.htm>

Given the nature of the historic logging and the thrifty second-growth stands present on the woodlot few trees in a given stand may have ‘high’ value attributes. As such, a minimum of 1 tree per hectare will be adopted as a threshold for retention where the highest value attained is medium. Trees will be left as dispersed individuals or as a groups internally or externally to harvest areas.

Additionally, all cottonwood where present will be retained when worker safety permits. The licensee has committed within the current Management Plan for W1639 to retain Old Growth features by reserving entire polygons and/or single trees.

b) Conditions Under Which Individual Wildlife Trees May Be Removed

Specific conditions that influence the decision of where individual wildlife trees may be removed include:

- worker safety;
- the significance of forest health risk to surrounding stands;
- the ability to retain other wildlife trees to perform as suitable wildlife habitat; and
- the availability of wildlife trees and CWD in adjacent areas.

All workers involved with the removal of potential wildlife trees will be informed of developed standards prior to fieldwork to help mitigate unnecessary removals. The rationale for the removal of individual wildlife trees will be documented and made available to compliance staff upon request.

c) Replacement of Individual Wildlife Trees

Individual trees will be replaced if they are of 'high' wildlife value. Replacement trees will be selected using criteria outlined above with a preference for selecting trees that have two or more high wildlife tree value characteristics. Additionally, the main goal for wildlife tree retention is to retain all stems within wetland and streamside reserves (WTPs).

Wildlife Tree Retention Areas

a) Forest Cover Attributes

Wildlife tree patches (WTPs) are planned preferably in constrained areas for long-term retention (e.g. UWR and riparian reserve zones). The presently reserved area and basal area equivalent that contributes to the WTPs for W1639 are shown on the 1:5000 WLP maps and occupies 32.87 ha or approximately 8% of the woodlot area.

Given the shape of the woodlot and the presence of the natural features the distribution and characteristics of the wildlife tree patches follows the FPC biodiversity guidebook recommendations (Sept 1995) and the Ecological Guiding Principles proposed by the Wildlife Tree Committee. The allocation of WTPs via basal area equivalent will be used to calculate the contributing area where partial cutting is proposed within the UWR. For this calculation 40m²/ha will be used as reference for a fully stocked stand. For example, where operations are proposed that reduces the stocking to half (20m²/ha) twice the area will be required to fulfil WTP area requirements. This method will be used to allocate 625 m² of basal area throughout the southern UWR. The basal area equivalent will be maintained throughout the term of this plan and will only be used where contributing stems are to be retained for a full rotation and are considered windfirm enough to do so

The WTPs include some representative larger trees (DBH > average operational cruise) with moderate to high value to wildlife and regenerating stands with future wildlife potential.

Table 5: Forest Cover Attributes of Existing Wildlife Tree Patches

Wildlife tree patch ID	Size (ha)	Forest Cover Attributes	Productive Ground	Comments:
WTP 1	6.20	15 F(H) 9414-18	95%	Established in UWR where no future management is proposed.. Existing old growth vets, character and rock openings.
UWR	15.64*	Various	100%	Within UWR where long term retention objective is to develop old growth character. A total of 625 m² of basal area equivalent will be maintained throughout the term of this plan and will only be counted where stems are reserves for a full rotation.
Riparian reserves	10.56	Various	100%	Generally mixed species stands on medium to high productivity sites adjacent to streams ,wetlands or lakes.
Riparian reserves (Private)	0.47	Various	100%	Generally mixed species stands on medium to high productivity sites adjacent to S4 streams.
	32.87	* Area based on basal area equivalent requirements at full stocking (40m ² /ha). This area value will change (increase) with time as potential operations within the UWR alter stocking levels.		

The size, shape and location of the presently shown reserves that contribute to WTPs is subject to change upon further engineering work, creek classification, thinning and GPS mapping. Final mapping and location of WTPs adjacent to cutblocks will be shown on pre-harvest mapping required by Section 33 of the *Woodlot Licence Planning and Practices Regulation (WLPPR)*.

Through on-going observation, there will be potential for identifying and locating nesting trees, and other important habitat trees for retention. No nesting sites or bear dens requiring specific habitat or tree retention have been identified to date.

The minimum proportion of the woodlot licence area for long-term WTPs retention is 32.87 ha (8%) as per S.52(1) of the WLPPR. At any given time there will be at least this amount of Wildlife Tree Retention Area in the Woodlot Licence with equal or better wildlife habitat attributes as shown in Table 5.

b) Conditions Under Which Trees May Be Removed from Wildlife Tree Retention Areas:

Stand-specific issues that influence the decision of where salvage may be appropriate for WTPs include:

- worker safety;
- the significance of forest health risk to surrounding stands;
- the ability of the retained wildlife trees to perform as suitable wildlife habitat; and
- the availability of wildlife trees and CWD in adjacent harvest areas.

Salvage of windthrown timber is permitted within WTPs where it is not within RRZ and where windthrow impacts 25% to 50% of the dominant or co-dominant stems. Salvage of windthrown timber and harvesting of remaining standing stems is permitted within WTPs where windthrow exceeds 50% of the dominant or co-dominant stems; or where forest health issues pose a significant threat to areas outside the WTP.

Individual trees may be felled but not removed if considered a safety hazard. Unsafe wildlife trees will be only protected by no-work zones or re-design of cutblock configuration, if they exhibit exceptional high wildlife tree values combining the following characteristics: wildlife tree value category HIGH applicable, DBH > 50 cm, wildlife tree class 2 – 8, > 20 m high, conks or decay present, wildlife use present (nesting, cavities, recent feeding, denning), species Fd, Cw, Hw, Ba, Ss, Ac or Dr.

c) Replacement of Trees Removed from Wildlife Tree Retention Areas:

Given the nature of the adjacent stands and existing WTPs, the felling of danger trees within a distance from harvest edges defined in the specific cutting authority will not be a common occurrence or threaten the long-term integrity and usefulness of the WTPs. As such, no strategy for the specific replacement of individual trees within WTPs is presented.

Where salvage/harvesting is planned and authorized within a non-RRZ wildlife tree patch, a suitable replacement WTP of at least equivalent quality will be identified concurrently to achieve the retention target. Where all or part of a WTP is salvaged, the salvaged area should be replaced with other suitable habitat in the nearest possible location. If a WTP suffers blowdown, but is not salvaged, it need not be replaced. Replacement areas must have equal or better wildlife values. For non-riparian WTPs, attempts will be made to incorporate important features such as snags, marking, perch and nesting trees, dens, and other significant wildlife features. All such activities will be documented.

7. Measures to Prevent Introduction or Spread of Invasive Plants

The introduction or spread of invasive plants, specifically Scotch Broom (*Cytisus scoparius*) into the woodlot licence area through the use of standard practices is possible given the location and access to the woodlot by a multitude of users. In the event that Broom becomes established as a result of licensee activities it will be brushed repeatedly and the area grass seeded and monitored. Vehicle access will be restricted via gates or berms as shown on the WLP maps.

Where it is known or reasonably expected that machinery is to be transported from a contaminated site, on or off the woodlot, cleaning of tires, tracks, bucket, undercarriage, etcetera will be completed prior to transportation. Ballast material for road construction will be sourced within the woodlot where possible to avoid seed laden fill common to local pits such as those on General Hill. All newly constructed roads will be seeded if Broom establishment becomes a concern. Efforts will be made to minimize soil disturbance.

Seed mixtures used for the above purposes or for those under S.29 of the WLPPR will be assessed to ensure that their use does not introduce other invasive species. Additional species listed in the Invasive Plants Regulation (reg. 18/2004) if identified and located on the woodlot will be managed accordingly.

8. Measures to Mitigate Effect of Removing Natural Range Barriers

No measures or activities are proposed. There are no rangelands or natural range barriers present on the woodlot.

9. Stocking Information for Specified Areas

The stocking standards indicated in Appendix III apply to areas where the establishment of a free growing stand is not required and harvesting is limited to commercial thinning, removal of individual trees, or a similar type of intermediate cutting, and for harvesting special forest products. This type of harvesting may be carried out anywhere on the woodlot license area, except for areas where harvesting is to be avoided.

10. Performance Requirements

Soil Disturbance Limits

Alternative - WLPPR s.24(1)(a):

8% of Net Area to be Reforested except

- a) up to a maximum of 30% in localised areas (standard unit basis) dominated by heavy salal or salmonberry where light soil raking using an excavator mounted brush rake will be prescribed to disturb and stir up the salal / salmonberry roots to create planting spots to facilitate seedling establishment and achieve early brush control. While this treatment may create dispersed wide to very wide scalps (thus the increased limit), the objective is a mixed substrate of soil and forest floor and not a complete removal of the forest floor.
- b) up to a maximum of 15% in wet site units with fluctuating water tables or prolonged periods of standing water in the winter (CWHxm 12, 13, 14, 15). In these areas 400-600 mounds per ha may be created (where prescribed) using an excavator bucket to create suitable micro sites. This will result in dispersed deep gouges.

Clarification and rationale is provided in the supplementary information attached to the plan. See Section II - 4.

Permanent Access Structures

Default - WLPPR s.25:

The maximum area occupied by permanent access structures is as follows:

For Cutblocks ≥ 5 ha – 7% of the total cutblock area

For Cutblocks < 5 ha – 10% of the total cutblock area

For the Total Woodlot Licence Area – 7% of the total Woodlot Licence area

Use of Seed

Default - WLPPR s.32:

Adoption of Chief Forester's Standards for Seed Use

Stocking standards

Alternative - WLPPR s. 35(1)(a):

The stocking standards, regeneration dates and free growing dates are indicated in Appendix III.

Clarification and rationale is provided in the supplementary information included with the plan. See Section II - 4.

Width of Stream Riparian Areas

Alternative - WLPPR s.36(4)(a):

The width of stream riparian areas will be as specified in Section 36(4) of the WLPPR except for one variation, along the middle portion of Brewster Lake Road. The variation will limit the width of the Riparian Management Zones (RMZs) between Creek 5 and Brewster Lake Road to the distance between the stream bank and the road right of way (foot of fill slope) on the creek side.

Clarification and rationale is provided in the supplementary information included with the plan. See Section II - 4.

Width of Wetland Riparian Areas

Default - WLPPR s.37(3)(b):

The minimum width of the riparian reserve zone, riparian management zone and riparian management area are as described in WLPPR s.37(3)(b).

Width of Lake Riparian Areas

Default - WLPPR s.38(2)(b):

The minimum width of the riparian reserve zone, riparian management zone and riparian management area are as described in WLPPR s.38(2)(b).

Additionally, an extended lake side riparian management zone of 50m has been established along the shores of Campbell Lake to assist in maintaining the VQO and recreational potential in the area. This areas will be managed as described in Table 2 and associated text listed within Section 4 – ‘Areas where Timber Harvesting will be Modified.’

Restrictions in a Riparian Reserve Zone

Default - WLPPR s.39(1):

Cutting, modifying or removing trees in a riparian reserve zone is limited to the purposes described in Section 39(1) of the WLPPR.

Restrictions in a Riparian Management Zone

Default - WLPPR s.40(1)(b)(c) or (d):

Construction of a road in a riparian management zone is limited to the conditions described in Section 40(1) of the WLPPR without additional conditions to allow road construction being provided in the woodlot licence plan.

Wildlife Tree Retention

- Default - WLPPR s.52(1)(c):
8 % of the woodlot licence area

Coarse Woody Debris

- Default: WLPPR s.54(1)(b)
Area on Coast – minimum retention of 4 logs per ha = 5 m in length and =30 cm in diameter at one end.

Resource Features

Unless exempted by the district manager, the woodlot licence holder will

- Default WLPPR s.56(1)(b): Ensure that forest practices do not damage or render ineffective a resource feature.

Note: Only the performance requirements in Part 3 (Practice Requirements) of the WLPPR for which an alternative can be proposed are shown in this Woodlot Licence Plan. The remaining performance requirements in Part 3 are not shown, nor are the performance requirements in Part 4 (Roads).

Appendix I: Woodlot Licence Plan Map (Crown Portion)

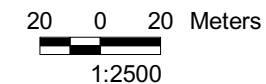
Appendix II: Woodlot Licence Plan Map (Private Portion)

Woodlot License Plan Map

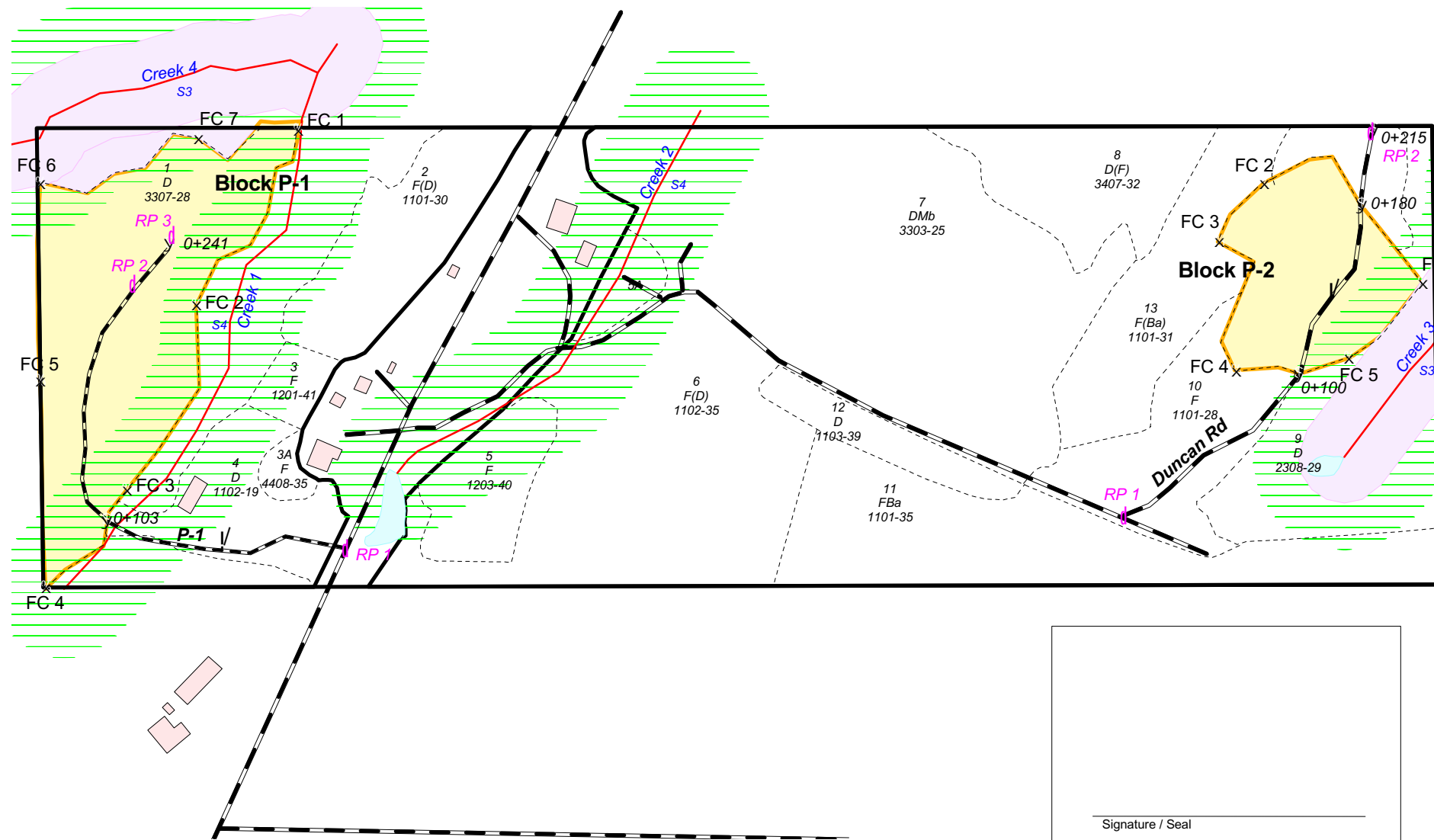
Woodlot Licence W1639 Campbell Lake North



Ministry of Forests
Campbell River District



Licencee: Duncan Devlin
 Area: 10.9 ha
 Reference Map: 92K004
 Datum: NAD 83
 UTM Zone: 10
 UTM: 332000E 5547600N
 TSA: 7 Strathcona
 FIZ: B
 P.S.Y.U.: Quadra
 Inv. Reg.: 4
 Comp.: 19
 Drafted: May 08, 2006
 By: ECON consulting



- X Falling Corner
- ∇ Landing Station
- y Station
- Y Culvert
- U Bridge
- Y Wildlife Tree
- E Swamp
- O Plot Location
- d RP
- P Parking
- t Old Iron Post
- o Blow Down
- o Snag
- o Veteran
- A Water Intake
- a Viewpoint
- L Quarry
- o Gate
- X Opening
- Block Boundary
- Main Road
- Road (existing)
- Trail (existing)
- Old railroad grade
- Hiking Trail
- S1-S4 Fish Creek
- S5-S6 Creek
- NCD non-classified drainage
- Not classified Creek
- Bluff
- Waterline
- 10m Contour Interval
- Forest Cover
- Building
- Lake
- Reserve Zone
- Riparian Management Zone
- Archeol. Sens. Zone
- Private Portion
- Block

Signature / Seal

Date

Appendix III: Alternative Stocking Standards

Table: A

ADMINISTRATION																										
Vancouver Forest Region			Campbell River Forest District				Licensee: Loveland Forestry Ltd.										Woodlot Licence #W1639				February 10, 2006					
ID #	BEC		Preferred Species						Acceptable Species								Stocking (w/s)			Min Inter Tree Dist (m)	Regen Delay	FG Date	Tree Ht > Brush (min %)	Post Spacing Density		Comments:
	Zone & variant	Site Series	1	Ht (min)	2	Ht (min)	3	Ht (min)	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	Target P&A (sph)	Min P&A (sph)	Min P (sph)	MITD (m)	Max (yrs)	Late (yrs)		Min	Max	
A	CWHxm	01/04	Fd	3.0					Pw ⁵	2.5	Hw ⁸	2.0	Cw	1.5	Lw ⁸	1.5	900	500	400	2.0	3	12	150	500	1500	None – Zonal site
B	CWHxm	02	Fd	2.0					Pl	1.25	Pw ⁵	2.5					400	200	200	2.0	3	12	150	200	800	Avoid logging – xeric site, shallow soils
C	CWHxm	03	Fd	2.0					Cw	1.0	Pw ⁵	2.5	Lw ⁸	1.5	Pl ⁶	1.25	800	400	400	2.0	3	12	150	400	1200	None
D	CWHxm	05/07	Cw	2.0	Fd	4.0			Bg	3.5	Pw ⁵	2.5					900	500	400	2.0	3	12	150	500	1500	None
E	CWHxm	06	Fd	3.0	Cw	1.5	Hw	2.0	Pw ⁵	2.5							900	500	400	2.0	6	14	150	500	1500	None
F	CWHxm	10	Act	4.0	Dr ⁴	4.0	Mb ⁴	4.0									800	400	400	1.5	3	12	150	400	1200	Floodplain - low bench
G	CWHxm	11 ¹	Cw	1.0					Pl ¹	1.25							400	200	200	1.5	3	12	150	200	800	Avoid logging – wet and very poor
H	CWHxm	12 ¹	Cw	1.0					Hw ⁴	1.5	Pw ⁵	2.5	Ss ⁷	1.5			800	400	400	1.5	3	12	150	400	1200	Organic soils - avoid ground based equipment
I	CWHxm	13/14 ^{1,2}	Bg	3.5	Cw	2.0	Fd ¹	4.0	Ss ^{7,9}								900	500	400	1.5	3	12	150	500	1500	Fluctuating water table
J	CWHxm	15 ^{1,2}	Cw	2.0					Ss ^{7,9}								800	400	400	1.5	3	12	150	400	1200	Fluctuating water table
K	CWHxm	01/06	Dr ⁴	3.0	Mb	3.0											1200	1000	800	1.5	3	12	150	800	1500	High density deciduous management
L	CWHxm	05/07/08/ 09 ¹ /12/13/ 14 ^{1,2} /15 ^{1,2}	Act	4.0	Dr ⁴	4.0	Mb	4.0									1200	1000	800	1.5	3	12	150	800	1500	High density deciduous management
M	CWHxm	01/04/06	Cw	1.5	Pw ⁵	2.5			Fd ³	3.0	Hw ⁸	2.0					900	500	400	2.0	3	12	150	500	1500	Alternate species root rot treatment
N	CWHxm	03	Cw	1.0	Pw ⁵	2.5			Fd ³	2.0	Pl	1.25	Lw ⁸	1.5			800	400	400	2.0	3	12	150	400	1200	Alternate species root rot treatment
O	CWHxm	02	Pw ⁵	2.5					Pl ⁶	1.25	Fd ³	2.0		1.5			400	200	200	2.0	3	12	150	200	800	Avoid logging – xeric site, shallow soils
P	CWHxm	05/07	Cw	2.0	Pw ⁵	2.5			Fd ³	4.0	Bg ³	3.5					900	500	400	2.0	3	12	150	500	1500	Alternate species root rot treatment
Q	CWHxm	11	Cw	1.0					Pl ⁶	1.25							400	200	200	1.5	3	12	150	200	800	Alternate species root rot treatment
R	CWHxm	12	Cw	1.0	Pw ⁵	2.5			Hw	1.5	Ss ⁷	1.5					800	400	400	1.5	3	12	150	400	1200	Alternate species root rot treatment
S	CWHxm	13/14 ²	Cw	2.0					Bg ³	3.5	Fd ³	4.0	Ss ^{7,9}				900	500	400	1.5	3	12	150	500	1500	Alternate species root rot treatment

Foot Notes

- 1 Elevated microsites are preferred
- 2 These sites represent areas with strongly fluctuating water tables. They are often found as mosaics in combination with other sites. Elevated microsites are preferred, either mechanical or natural
- 3 Bg and Fd are not acceptable within 10m of second-growth stumps, except stumps of Cw, Pw, Lw and deciduous spp.
- 4 Avoid gleyed soils and frost pockets
- 5 Pw must be free of blister rust within 10 cm of the stem and be pruned as per Ministry guidelines or be blister rust resistant stock ($\geq 50\%$ resistance). Pw may occupy 5% on all sites except sites 04 & 05 where 20% will be the upper limit of the Free-Growing composition. When used for root rot treatment no limit on percent composition is set.
- 6 Restricted to nutrient-very-poor sites
- 7 Risk of weevil damage, use resistant stock where possible. Ss will not exceed 20% of the free growing stand on site series or 5% of the free growing stand on 13, 14, & 15 site series on a dispersed basis. Clumps not to exceed 0.1ha in size.
- 8 Hw is not acceptable on site series 04. Larch (Lw) will be used as an alternative species in W1639 in site series 03 and 04 only with approval from CRFD as more field data becomes available or as MOFR policy provides clearance.
- 9 May be planted on prepared mounds

Stocking Standards - General Comments

This table has been developed from the *Reference Guide for FDP Stocking Standards* dated December 11, 2002 and the standards established in the Woodlot Licence Forest Management Regulations (January 31, 2004) Division 2 of Part 6, Schedule A, Table A as well as the correlated guidelines and site interpretation for the Vancouver Forest Region (VFR). Where site series have similar stocking standards, they have been combined. Sections A-J are the general stocking standards. Sections K & L are the deciduous stocking standards. Sections M-S apply to sites affected by root rot.

'Biogeoclimatic unit' or 'BEC' means the zone, subzone, variant and site series described in the most recent field guide published by the Ministry of Forests for the identification and interpretation of ecosystems, as applicable to a harvested area.

Site series with the comment of 'avoid logging'; floodplain site series or sites with strongly fluctuating water tables have been included. However, management on these sites will be limited and will generally be restricted to areas within a mosaic of better sites. In some cases where there are fluctuating water tables, mounding may be prescribed to create better microsites if successful regeneration is possible. If regeneration success is in question, such areas would be excluded from harvest, and built in to a retention strategy.

Where standards units (SUs) are comprised of an un-mappable mosaic of site series, the practice will be to manage for the stocking standards, noted by the ID#, of the dominant site series provided that the tree species are suitable (i.e. preferred and/or acceptable) in all site series contained within the SU.

A limited number of scattered deciduous trees will be tolerated on all conifer plantations: to provide a nurse crop, promote nutrient cycling or for general biodiversity objectives. Allow up to 50 spha as deciduous ghost trees during surveys on all sites such that these stems have no impact on the free growing status of sampled trees. Where deciduous tree are within 10m of each other they will not be accepted for dispersed single stems due to increased competitive density effects. As such the deciduous stem in question will impact the free growing status of sample trees.

The minimum inter-tree spacing is generally reduced to 1.5 m under the following site-specific conditions: frequent bedrock, large blocky colluvium, hygric sites, and disturbed roadside areas

amongst slash accumulations (up to 10 m from the travelled portion of the road). On machine mounded sites the minimum inter-tree spacing is reduced to 1.0 m.

Deciduous Management

Recommended Regime: The product objective is to manage for high quality knot-free sawlogs on a 40 - 50 year rotation. Establishment of a stand with high densities (1500 sph) is required to achieve a target of 1200 stems/ha at free-growing. At approximately age 10 (but not earlier) and stand height 12 to 16 m., space to 900 stems/ha. Dead branch prune the crop trees early and continue density regulation treatments approx. every 10 years to maintain good crown forms and eliminate low quality stems.

The establishment of a second crop conifer layer (Cw, Ss) before or after density treatment is optional. If a cedar or Sitka spruce understory is planted in addition, then the natural pruning of the alder would be enhanced. The removal of the alder at harvest age is operationally possible, while leaving a fully stocked, semi-mature conifer pole stand behind.

Where conifers are established underneath a designated deciduous stand, the stand's regeneration and free to grow status will be measured using the deciduous standards only. The minimum free growing height criterion for deciduous species is based on the tallest conifer standard for each site series. Damage criteria for deciduous species have not been formally established. General free-growing criteria will be adopted, such that well spaced stems will be of good form, health and vigour.

Stocking Standards – Specified Areas

For salvage of scattered windthrow or root rot mortality, openings of up to 0.1 ha in size are acceptable, not requiring pre-harvest mapping, associated regeneration and requirements to establish a Free Growing stand. No long-term impact on timber yield is expected as the subject areas are likely to regenerate naturally or will be planted concurrent with harvest in adjacent areas

Table B: Stocking Information for Specified Areas

Target from Table A standards	Layer*	Stocking**		
		Target pa	MIN pa	MIN p
(stems/ha)		(well-spaced/ha)		
900 - 1200	1	400	200	200
	2	500	300	250
	3	700	400	300
	4	900	500	400
800	1	300	150	150
	2	400	200	200
	3	600	300	300
	4	800	400	400

*Stand Layer definition

Tree Layer 1	Mature	trees >= 12.5 cm dbh
Tree Layer 2	Pole	trees 7.5 cm to 12.4 cm dbh
Tree Layer 3	Sapling	trees >= 1.3 m height to 7.4 cm dbh
Tree Layer 4	Regeneration	trees < 1.3 m height

** pa - preferred and acceptable species p - preferred species

Preferred and acceptable species and "Target from Table A standards" are as specified in Table A by biogeoclimatic ecosystem classification (BEC) site series

II Supplemental Information Required to Be Submitted in Support of the Woodlot Licence Plan

1. Review and Comment

a) Advertising

A copy of the ad in the Campbell River Mirror on May 5, 2006 is included.

b) Referrals

The following First Nations were contacted in order to be consulted:

Hamatla Treaty Society
1441-A Island Highway
Campbell River, B.C. V9W 2E3
Ph: 287-9460, Fax: 287-9469

Cape Mudge First Nation
PO Box 220
Quathiaski Cove, BC
V0P 1N0
Ph: 285-3316, Fax: 285-2400

Campbell River First Nation
1400 Weiwaikum Road
Campbell River, BC
V9W 5W8
Ph: 286-6949, Fax: 287-8838

Comox First Nation
3320 Comox Road
Courtenay, BC
V9N 3P8
Ph: 339-4545, Fax: 339-7053

c) Copy of written comments received

No written comments, other than the comments from the Ministry of Forests were received.

d) Revisions made as a result of comments received

There were no revisions made as a result of public comments. The revisions made as a result of comments from the agencies are detailed in the cover letter of this submission.

2. First Nations Communication

Included in this supplemental information section is a copy of the 'First Nations Information Sharing Checklist' an external consultation checklist provided by the Campbell River forest district. Included with the checklist for are all letters, minutes and correspondence.

3. Exemptions

N/A

4. Rationale in Support of Proposed Alternative Performance Requirements

SOIL DISTURBANCE LIMITS

These are site preparation treatments but would be conducted concurrent with or immediately following harvesting resulting in soil disturbances that may meet the assessment criteria for scalps and gouges. The increased limits are maximums only and are included to increase the silvicultural flexibility on these sites. These site conditions will normally constitute a small proportion of an average harvest area. Prescription and application of these treatments will consider critical site factors including soil sensitivity and erosion potential.

STOCKING STANDARDS

Alternative stocking standards are proposed given the location and the licensee's intent to facilitate intensive forest management and to improve site productivity and species/product diversity. Additionally, existing standards with respect to the use of broadleaf species lack measurable and enforceable standards for implementation and are therefore defined further within the alternative stocking standards. Full details and listing of the stocking standards are provided in Appendix 3.

All areas of harvest will undergo pre-harvest mapping as per Section 33 of the Woodlot Licence Planning and Practices Regulation. At that stage the fundamental decision will be made if either conifer or a broadleaf standard will apply and the Standard Unit ID will be assigned.

Forest health concerns raise additional issues as to the appropriateness of the defaults in areas where root rot (e.g. *Phellinus weirii*) impacts the regeneration and long-term health and productivity of the preferred species. The proposed alternative stocking standards promote healthy stands that protect adjacent resources and values (e.g. on infected zonal sites (01) adjacent to a S4 creek or recreational trail where stumping is not appropriate to control sediment or to maintain visual appearance). In these cases the establishment of Douglas-fir (preferred) may prove difficult and unsuited in the long-term due to re-infection.

The Chief Forester's stocking standards indicate black cottonwood (Act), red alder (Dr) and bigleaf maple (Mb) as being productive, reliable and feasible regeneration options on several site series within the CWHxm1. The attached Alternative Stocking Standards will be used and includes the standards for both pure broadleaf stands and mixed woods regeneration. The use of broadleaf is proposed in consideration of the Chief Forester's memorandum dated August 22nd, 2000 and the supporting note 'Common Principles for the Management of Red Alder within the Coast Forest Region' dated August, 2004. The management for broadleaf species is proposed on a limited scale and is consistent with the management assumptions adopted in the last Annual Allowable Cut (AAC) calculation.

The broadleaf standards are also supported by the following research literature:

- Hibbs *et al.* The Biology and Management of Red Alder (1994),
- E.B. Petersons *et al.* FRDA Report 250 – Black Cottonwood and Balsam poplar manager's handbook for British Columbia (1996).
- L. Sigurdson *et al.* 2nd draft report on Weyerhaeuser's Red Alder Management Practices (1998),

- P.J. Courting *et al.* Forest Research Extension Note 016 - Red Alder management trials in the Vancouver Forest Region (2002).

The minimum density post-spacing shown corresponds to the values recommended in the Establishment to Free-growing Guidebook for the VFR– i.e. the same as the minimum-stocking standard for conifer stands.

Higher stocking is noted for the deciduous stands to ensure self-pruning and may include a conifer component. The maximum density post-spacing has been increased to allow for two-stage spacing entries in order to manage snow press, blow down risks and provide the opportunity to capture the small-diameter resource.

The minimum height criterion is based on the tallest conifer standard of the particular site series since the listed hardwoods are at least as rapid growing as their conifer counterpart. If a cedar or Sitka spruce understory is planted in addition to the full hardwood stocking, then the natural pruning of the alder would be enhanced. However, the stand's status will only be measured using the broadleaf standards. The removal of the alder at harvest age is operationally possible, while leaving a fully stocked, semi-mature conifer pole stand behind.

Damage criteria for broadleaf species have not been established. No significant insect or disease outbreaks have been recorded for existing alder trials to date. General free-growing criteria will be adopted and damaged assessed by the survey technician at the time of the survey. Well-spaced stems will be of good form, health and vigour. Species specific damage criteria will be used upon development.

WIDTH OF STREAM RIPARIAN AREAS

Alternative widths of stream riparian areas are proposed to manage the forested area adjacent to Brewster Lake Road, an existing and historic road grade that is constructed within the riparian management zones of a single water feature. Where the road is constructed in close proximity to Creek 5 the standard RMZ width extends across the road grade. In locations where the default riparian width would extend across the road the purpose of the management zone, - to protect the streamside riparian structure and vegetation, is no longer applicable. The alternative concerns an exemption to the default riparian areas acknowledging that the road is already established, is in a good condition and location, and that relocation would result in additional permanent access structures. Given the road location, efforts will be made to protect water quality and quantity within the said water feature by limiting further brushing and clearing on the creek side of the road beyond the minimum required for user safety.

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