

WOODLOT LICENCE # 1610

WOODLOT LICENCE PLAN

First Term
September 1, 2005 to August 31, 2014

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Discovery Forestry

Operators of Woodlot Licence # W1610
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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 W1610 and advises that:
 - the decision to operate under one or more of the Default Performance Requirements (DPR) 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 has been retained to provide advice on the practice of professional forestry with regard to items such as applicable results and strategies and other required measures that do not have a default performance requirements provided in the WLPPR and for alternative performance requirements as described in this plan.

Original signed/sealed

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1.0 MANDATORY CONTENT FOR A WOODLOT LICENCE PLAN

1.1 PLAN AREA

This plan covers the entire area of the Woodlot Licence, which consists of 1 block of private (or Schedule A) land with an area of 53 ha and 2 blocks of crown (or Schedule B) land amounting to 370 ha, for a total area of 423 ha.

The Schedule A land consists of that part of **District Lot 137**, Quadra Island, Sayward District, which is classified as Managed Forest No. 82. It is located at the north end of Hyacinthe Bay on the east side of Quadra Island. It is bordered by crown land (TFL 47) to the north, by a combination of private land and crown land (Hyacinthe Point Sensitive Area) to the east, by private land to the south, and by the remainder of DL 137 (not part of MF No. 82) to the west. (Map 1 of Appendix 5). One of the licensees resides on this property.

The two Schedule B blocks consist of:

The **Village Bay Block** consists of parts of DL 17 and DL 61, Sayward District, Quadra Island. It is located on the east side of Quadra Island, between the south shore of Village Bay and September Creek, which flows south into Open Bay. The block adjoins Woodlot W1898 to the north, and Woodlot W0025 and a private lot to the south. September Creek makes the western boundary. (Map 2 of Appendix 5)

The **Gowlland Harbour Block** consists of parts of DL 219 and DL 220, Sayward District, Quadra Island. The block is located immediately to the north of Gowlland Harbour and the Copper Bluff Peninsula. It is bordered by the crown land of TFL 47 (TimberWest) to the north, by the North Gowlland Harbour Road to the east, Discovery Passage to the West and private land to the south. (Map 3 of Appendix 5).

1.2 WOODLOT RESOURCE INFORMATION

Recent work completed for the submission of this plan included a root rot survey of the majority of the Village Bay Block, a general mapping update (blocks and roads) and a review of wildlife tree patches within the woodlot area.

The Woodlot Licence Plan Maps (Maps 1-3 in Appendix 5) include the following information:

- forest cover,
- topography,
- location and riparian class of streams and wetlands,
- the location of public utilities (transmission lines),
- domestic water supply intakes,

- existing roads,
- recreation trails,
- known scenic areas (per Campbell River Forest District July 25, 2001)¹,
- private property within and adjacent to the woodlot,
- areas where timber harvesting will be avoided or modified to manage and/or protect resource values.

The following do not apply to the woodlot and are not shown:

- wildlife habitat areas,
- ungulate winter ranges,
- community watersheds or fisheries sensitive watersheds,
- licensed community water supply intakes and infrastructure,
- contiguous areas of sensitive soils,
- temporary or permanent barricades to restrict vehicle access.

Other information pertaining to the woodlot is described as follows:

- biogeoclimatic ecosystem classification

The woodlot is within the CWH xm biogeoclimatic subzone² where the average rainfall can range from 120 to 200 cm/year. Without disturbance, the coastal environment produces a climax forest cover of Western Hemlock and other shade-tolerant species. However, past fires and logging have resulted in a forest cover that is dominated by Douglas Fir and locally by Red Alder. The general terrain of the woodlot is rolling, with numerous rock outcroppings, often in the form of prominent rock knobs. Slopes range from flat to vertical, but are generally moderate in the operable forest areas.

- resource management zones

The woodlot licence area is covered under the Vancouver Island Land Use Plan (VILUP), which is legislated under the Land Act. Quadra Island is contained within Resource Management Zone (SMZ) 19. See Appendix 1 for the requirements of the Vancouver Island Summary Land Use Plan of February 2000.

The Quadra Island Official Community Plan, Bylaw 1996 (#1840) of the Regional District of Comox-Strathcona places all the crown forestlands and private 'Managed Forest' land on the island into a Silviculture Zone. Appendix 2 describes the requirements for that zone, which are viewed as an expression of community wishes as the Regional District Board has no regulatory authority with respect to forestry on Crown Land or in Managed Forests.

¹ New draft VQO's (2005) are in the process of being established for CRFD and these will apply once ordered by the DM.

² The Gowlland Harbour Block and DL 137 are within the CWH xm1 and the Village Bay Block is CWH xm2.

- other resource features
The Ministry of Forests recreation inventory information pertaining to the WLP area is summarized in the following table and the polygons are shown on the Crown WLP map. The private portion of the woodlot has no recreational inventory.

Table 1: Recreational resource inventory for W1610.

Mapsheet / Polygon	Prominent Feature	Significance / Sensitivity	Mgmt. Class	Impact Management
92 K 014 Gowlland Harbour Block				
38	Missing Link Trail, Copper Mine Trail	B / M	1	Trails have been upgraded to roads within Woodlot. The Quadra Island Recreation Society - Trail Committee will be consulted at the layout stage on blocks planned within 50m of the trails. Temporary trail closures during operations (for safety) will be advertised and implemented as needed.
39	Bluffs and shoreline on Discovery Passage	C / H	1	Reserve area – no trail impacts anticipated
40	Copper Mine Trail	C / M	2	As per polygon. 38 (above)
41	Blindman’s Bluff	B / M	1	Reserve area – no trail impacts anticipated
42	Missing Link Trail	B / M	1	As per polygon 38 (above)
92 K 015 Village Bay Block				
6	Hunting, Shellaligan Pass Trail	C / M	2	The Quadra Island Recreation Society - Trail Committee will be consulted at the layout stage on blocks planned within 50m of the trail. Temporary trail closures during operations (for safety) will be advertised and implemented as needed.
7	Shellaligan Pass Trail	B / H	0	Within shoreline reserve zone. As per polygon 6 (above).
92 K 014 Village Bay Block				
19	W2 wetland	C / M	1	No karst features found. RMZ on wetland and on September Ck. Archaeological Impact Assessment found no evidence of aboriginal use.
21	Shellaligan Pass Trail inland section, hunting, Mtn Biking	C / M	2	As per polygon 6 (above)
22	Mushroom picking, hunting	C / M	1	No conflicts expected

- other tenures:
 - Trapline TR0115T923 (currently vacant) overlaps the woodlot
 - A Guide outfitter tenure overlaps the woodlot
 - Several mineral tenures (# 400770, 400779, 400780, and 400781) overlap portions of the Gowlland Harbour Block.

All other features and resource values relevant to the management of the woodlot but not mentioned in the text of this plan are indicated on the enclosed maps.

1.3 AREAS WHERE TIMBER HARVESTING WILL BE AVOIDED

Areas covered under this plan where timber harvesting will be avoided to manage resource values, protect resource features and to manage the interests of private property owners and aboriginal peoples, are denoted on the three maps in Appendix 5. Specifically these areas can be described as follows:

- Ocean shore reserve zones of 50 m along coastline sections of Discovery Passage (Gowlland Block) and Village Bay. The Village Bay shoreline reserve contains most of the coastline section of the Shellaligan Pass trail and most of the areas identified as having low to moderate archaeological potential.
- Area between the shoreline reserve and the BC Hydro power line (Gowlland Harbour Block).
- All of Blindman's Bluff (Gowlland Harbour Block).
- The Riparian Reserve Zone (RRZ) along Blindman's Creek (Gowlland Harbour Block).
- Wetlands and RRZ's along September Creek (Village Bay Block).
- A so-called FEN (Forest Ecosystem Network reserve), part of a system of reserves that the Forest Service planned some time ago, but never implemented, with the exception of this particular one. It is located in the northeast corner of the Village Bay Block, along Basset Creek.
- Two wildlife tree patches (WTP's), one of which is located in Block V1 (formerly WTP 27, located in a small pre-woodlot clearcut in the Village Bay Block) and the other (formerly WTP 11) located within the Schedule A land of the DL137 block.

The total area of the reserves described above amount to 82.4ha or 19.6% of the total woodlot area. Of this area 8% is designated as Wildlife Tree Patches (see section 1.6-Wildlife Tree Retention Strategy)

1.4 AREAS WHERE TIMBER HARVESTING WILL BE MODIFIED

Areas where timber harvesting will be modified to manage and protect riparian resource values are denoted on the map with light green cross-hatching. This applies to the following areas within the woodlot:

- Riparian Management Zones (RMZs)

Table 2 below outlines how timber harvesting will be modified based on the stream and wetland classification.

Table 2: Modification of harvesting in RMZs by riparian classification.

RIPARIAN CLASS	RMA		INTENT OF RMZ MANAGEMENT	SPECIES TO RETAIN	RMZ RETENTION LEVEL POST HARVEST (% basal area)
	RRZ WIDTH (m)	RMZ WIDTH (m)			
S2 (Fish bearing >5.0m-20m wide)	30	20	<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. 	Fd, Hw, Cw, Ss, Pw, Dr, and Mb	25 – 100%
S3 (Fish bearing 1.5 - 5.0m wide)	20	20	<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. 		25 – 100%
S4 (Fish bearing up to 1.5m wide)	0	30	<ul style="list-style-type: none"> • Maintain stream bank integrity • Provide shading cover, LWD and litter 		25 – 100%
S6 (non-fish ≤3m wide)	0	20	<ul style="list-style-type: none"> • Minimize debris transport to lower reaches of stream • Retain understory Cw, and other understory trees and vegetation as much as possible 		0 - 100%
W2 (Wetland 1-5ha)	10	20	<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. 		0 - 100%
W4 (Wetland 0.5-1ha)	0	30	<ul style="list-style-type: none"> • Assist in maintaining wildlife attributes within the RMZ such as wildlife tree cover, nesting and perching habitat and diversity of vertical forest structure. 		0 - 100%

1.5 REMAINING AREAS

The remaining areas of the woodlot represent the portions of the woodlot where normal forest management activities will take place in accordance with the strategies, objectives, performance measures and other requirements as established:

- in the Woodlot Management Plan,
- by Government through legislation, regulation and directive,
- and through this Woodlot Licence Plan as described in the following sections.

1.6 MANAGEMENT STRATEGIES

PROTECTING AND CONSERVING CULTURAL HERITAGE RESOURCES

W1610 is located within the traditional territories of several First Nations listed in Section 2.1. In addition to the information sharing process implemented in accordance with the requirements under WLPPR 17(3.1), including a request for information about cultural heritage resources on the woodlot, First Nations (and other interested parties) will be welcome during the term of this plan to review planned developments upon their own initiative. Documentation of all consultation with affected First Nations is included in Appendix 4.3 of this plan.

No known traditional uses of cultural heritage resources (other than possibly hunting) are known by the licensee to be currently undertaken on an ongoing basis within the Woodlot Licence area.

The potential of past use of certain areas has been identified through Archaeological Assessments of portions of the woodlot. An archaeological review (AOA) (Gowlland Harbour and Village Bay blocks, Arcas, 1996), two refined archaeological overview assessments (AOA) (Village Bay Block and portion of DL 137, Arcas 2002) and an archaeological impact assessment (AIA) (portions of Village Bay Block, Baseline, 2004) have been completed for the Woodlot.

Areas of low infield potential have been identified along parts of September Creek and are generally protected within the riparian reserve zone. One recently barked stripped cedar tree (CMT) was found near a shoreline in the Village Bay block.

In general the areas of moderate to high potential (or sensitivity) for archaeological features (and by extension traditional use) are located along the ocean shoreline sections of the woodlot [Box 1 - below]. These areas are largely protected within the 50 m ocean shoreline reserve zones. Additional protection extending up to 100m from the shorelines (or anywhere else in the woodlot should archaeological resource features be discovered) is afforded through measures required under the Heritage Conservation Act (BC).

The 1996 Archaeological Review identified zones of moderate to high potential for archaeological sites other than CMT's and low potential for CMT's within 100m of shoreline sections of Gowlland Harbour and Village Bay (Zone 4) and low potential for all types of sites over the remainder of the woodlot (Zone 5). The more detailed 2002 AOA's identified a moderate potential for archaeological sites within block D2 on DL 137. They also identified a moderate potential for archaeological sites other than CMT's and a low potential for CMT sites within 100m of the west shore of Village Bay between Bassett Creek and Wren Creek, a moderate potential for non-CMT archaeological sites within 50m of the wetlands associated with September Creek, and a low potential for archaeological sites including CMT sites on the remaining lands of the woodlot. The AIA conducted in 2004 included a field assessment of the moderate potential areas within the Village Bay block. The conclusion was that the surveyed areas had a low potential for CMT's and low to moderate potential for sub-surface archaeological deposits. No archaeological sites were identified in the survey and one recently barked stripped cedar was noted along the shoreline of Village Bay. The AIA recommended no further archaeological work for Woodlot 1610.

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. No specific issues were identified or provided by First Nations during the WLP consultation process.

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"> To enable continued access to red cedar by First Nation’s for traditional uses. <p><i>Note: There is currently very little cedar present on the woodlot other than what has been planted since 1983. There are no known monumental cedar, few mature cedar trees and fewer understory cedar poles or advance regeneration.</i></p>
	<p><i>Strategies:</i></p> <ul style="list-style-type: none"> Based on availability of stock and ecological suitability, a component of Cedar will continue to be planted in the woodlot to ensure a long-term supply. Naturally occurring cedar trees (including poles) will be retained where operationally feasible.
Traditionally Used Plants:	<p><i>Result:</i></p> <ul style="list-style-type: none"> First Nation’s People will have continued access to traditionally used plants.
	<p><i>Strategies:</i></p> <ul style="list-style-type: none"> When First Nations have indicated specific interest in traditionally used plants, the licensee will identify the presence of any 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 First Nations and that any collections of plants can be initiated by First Nations prior to harvest.
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 First Nations upon request and be available for field reviews.

WILDLIFE TREE RETENTION STRATEGY

INDIVIDUAL WILDLIFE TREES

a) Species and Characteristics:

The following table describes the species and characteristics of individual trees that will guide the selection of wildlife trees to be retained.

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>

Woodlot W1610 is fortunate to have a significant number of veteran (old growth) trees (mostly Douglas Fir) randomly distributed throughout the license area. These trees add structural and biological complexity to the mainly second growth forest and all will be retained as wildlife trees barring specific issues [see (b.) below]. In some cases, second growth trees will also be retained as wildlife trees to supply wildlife and biological diversity values and/or for the recruitment of future veterans, to vary the age classes on the Woodlot, to reduce wind fetch in long openings, and/or to act as a seed source.

In general a minimum average of 1 wildlife tree per hectare will be retained and these may be left as dispersed individuals or as groups, either internally or externally to harvest areas.

Western yew, crab apple, and cascara will also be retained, provided worker safety and other objectives, such as regeneration, can be met.

b) Conditions under which Individual Wildlife Trees may be removed:

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

- worker safety;
- forest health risk to surrounding stands;
- the ability of other, nearby, retained 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 these standards to avoid unnecessary removals.

c) Replacement of Individual Wildlife Trees

If individual wildlife trees with ‘high’ wildlife values have to be removed under Section (b), efforts will be made to replace them with high value or recruit trees if there are less than 2 high value wildlife trees within a radius of 200 metres.

WILDLIFE TREE RETENTION AREAS

a) Forest Cover Attributes:

Portions of the long-term reserves established along riparian features, shorelines, the FEN, Blindman’s Bluff, two WTP’s and inoperable areas also have functional wildlife tree retention attributes. These features are shown on woodlot maps and are described in the table below. Together these areas encompass 82.4 hectares or 19.6% of the woodlot area. (Including a 1.4 ha WTP located on Schedule A land.) The reserve areas encompass forest cover attributes representative of the entire range of forest cover types present within the woodlot. The general forest cover attributes of the existing reserve areas are described in the table below (Table 5).

Because the percentage of reserve areas exceeds the minimum requirements under the WPPR for wildlife tree retention (8%) by a factor of 2.3, the majority of wildlife tree patches (#’s 1, 12, 21, 22, 23, 24, 25, 26) previously shown in forest development plans and/or site plans are rescinded under this plan and WTP functions reassigned to portions of the long term reserve areas. Two existing WTP’s (#’s 11, 27) will be retained as wildlife tree retention areas. Any veteran (old growth) trees situated within any of these former WTP’s will remain fully reserved as ‘Individual Wildlife Trees’ under strategies for individual trees.

For the purposes of this plan, 33.8 ha or 8% of the woodlot is designated as Wildlife Tree Retention Area. The portions and location of the long-term reserves that are designated as Wildlife Tree Retention Areas are described in Table 5.

Table 5: Forest Cover Attributes of designated Wildlife Tree Retention Areas (WTPs)

Long Term Reserve Area	Area (ha)	WTP* (ha)	General Forest Cover Attributes	Comments
50 m ocean shoreline reserve zones along 1. Discovery Passage (Gowlland Harbour Block) and 2. East side of Village Bay block.	3.43 (Gowlland) 10.21 (Village)	3.43 10.21	PIF 3205-20, FPI(D) 4505-37 PIF(Mb) 4406-32 F(MbDH) 4507-35 FH(PI) 3305-27 F(DHMB) 5508-35, FPI	Forested, mature second growth conifer stands with pockets of veteran trees (Fd, PI). Eagle perch trees and nest trees present. Steep rocky terrain in most areas except creek outlets. These areas are designated as WTP
Area between Discovery Passage shoreline reserve and the BC Hydro power line (Gowlland).	16.53		Fd PI, R	Sparsely forested, steep to flat with frequent rock outcrops. Pockets of mature second growth and veteran Fd, PI.
All of Blindman's Bluff (Gowlland Harbour Block),	14.03 (rock/NP) 20.16 (forested)	9.1	R, F(PI) 4302-22, FPI 4405-28, F 3406-33,	Primarily non-commercial with forested lower slopes. 93% exposed rock (polygon 14 and 16) with sparsely forested Fd, PI (31.9 ha) (upper portions and bluffs) For WTP purposes an estimated 50% (6.8ha) of polygon 14 is forested and is designated as WTP. 7% mature second growth and mixed vets (Fd PI – polygons 8, 12, 13, 15) on lower slopes (2.3ha). This area is designated as WTP.
RRZ along Blindman's Creek (Gowlland Harbour Block),	2.96	2.96	DF(Bg) 3304-29, F3404-35	Mature mixed second growth deciduous / conifer stands: Designated as WTP
Wetlands and RRZ's along September Creek (Village Bay Block)	5.25	5.25	D(F) 4408-31, FCD 4505-37 F4506-38,	Mature mixed second growth deciduous / immature conifer stands. Designated as WTP
"Forest Ecosystem Network" (FEN) reserve, located in the northeast corner of the Village Bay Block along Basset Creek.	8.36	1.5	D(SF)3407-30 (along creek) Uplands: FH 4505-34, FH(PI)3305-27	Productive bottomland, thrifty second growth. 20m RRZ portion of Basset Creek is designated WTP.
WTP 27 (Village Bay Block)	0.06	0.02	1 Fd > 1m dbh, 3 Fd 70-90cm dbh, 1 Fd 40cm dbh, 4 Fd < 20cm dbh, 1 Ss 40cm dbh, 2 Ss < 20cm dbh.	In Village Bay Block V1. 60% (0.04ha) exposed NP rock, 40% (0.02ha) productive site series 05-07. 1 Fd 80cm dbh leaning, soon to fall Productive component is designated as WTP, has stand level function.
WTP 11 (DL137 block)	1.36	1.36	F(DHMB) 5508-35	Mixed second growth stands. Designated as WTP
Totals: (WL Area = 420.45ha)	82.35 (19.6%)	33.8 (8%)		

*Effective WTP areas are adjusted (by estimation) for open rock outcroppings as per <http://www.for.gov.bc.ca/hfp/wlt/wlt-policy-04.htm> Because of the proportion of long term reserves exceeds the WTP requirements and because the woodlot overall has a high proportion of mature stands relative to disturbed areas, a detailed analysis of each designated WTP area (for actual stocking rock netdowns) has not been completed.

The selection of WTP areas considers provincial policies and the findings of the ecological inventory for W1610 (Triton, 1998) that identified marine shorelines, deciduous forest types and riparian/wetland types in the woodlot as key habitat areas where a significant portion and diversity of wildlife occurs.

b) Conditions under which Trees may be removed from Wildlife Tree Retention Areas:

Stand-specific issues that influence the decision of where salvage or felling of trees in reserves may be appropriate 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 areas.

Individual trees may be felled but **not removed** from reserve areas if considered a safety hazard. However, if unsafe wildlife trees exhibit exceptional high wildlife tree values combining the following characteristics, they will be protected by no-work zones or by the re-design of cutblock configuration:

- *wildlife tree value category HIGH applicable,*
- *DBH > 100 cm,*
- *wildlife tree class 2 – 8,*
- *> 20 m high,*
- *conks or decay present,*
- *wildlife use present (nesting, cavities, recent feeding, denning),*
- *species Cw, Hw, Bg, Ss, Mb, or Fd*

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

Given the nature of the existing reserves and their adjacent stands, the felling of danger trees within a distance from harvest edges defined in any specific cutting authority will not threaten the long-term integrity and usefulness of any of these reserve/retention areas. Therefore no strategy for the specific replacement of individual trees within WTPs is presented.

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

MEASURES TO PREVENT INTRODUCTION OR SPREAD OF INVASIVE PLANTS

There is only one invasive species (Scotch Broom) of potential concern although it is not currently a problem on the woodlot. There is no range use on the woodlot. The introduction or spread of invasive plants, specifically Scotch Broom into the woodlot licence area is unlikely under current forest management practices. In the event that Scotch Broom or another invasive species does become established it will be manually removed and the affected area grass seeded and monitored. All newly constructed roads will be seeded if Scotch Broom establishment were to become a concern. Seed mixtures used for the above purposes or for those under Section 29 of the WLPPR will be assessed to ensure that their use does not introduce other invasive species. In addition, machinery will be cleaned before entering W1610 if it is known to be coming from another site that has invasive species.

MEASURES TO MITIGATE EFFECT OF REMOVING NATURAL RANGE BARRIERS

There are no range tenures on Quadra Island therefore no measures or activities are required or proposed.

STOCKING INFORMATION FOR SPECIFIED AREAS

The Uneven-aged Stocking Standards³ for single tree selection, as found in the MoF publication “Reference Guide for FDP Stocking Standards”, are adopted for the following specified areas:

- areas subject to commercial thinning,
- the removal of individual trees, or
- other types of intermediate cutting and /or
- areas subject to the harvest of special forest products.

For the purposes of this plan, commercial thinning, the removal of individual trees, intermediate cutting, or the harvest of special forest products may take place anywhere within the woodlot except in areas where harvesting will be avoided. Specified areas will be defined through pre-harvest mapping as per Section 33 of the WLPPR. For salvage of scattered windthrow or root rot mortality, openings of up to 0.1 ha in size are acceptable, not requiring regeneration. For openings larger than 0.1 ha even-aged stocking standards will apply.

One exception to the default standards will apply. In the case of deciduous stands established under this WLP where initial stocking densities will be 1000-1200 sph (see Appendix 3 ‘Alternative Stocking Standards’), and where these stands may be in the future subject to commercial thinning, the target stocking for standards will be as follows:

³ Un-even aged management, such as single tree selection is not considered and the adoption of these standards for specified areas does not imply that these areas will be managed as uneven-aged stands. These standards are considered appropriate for the described specified areas, which usually remain stocked after harvesting.

Table 6: Deciduous stocking targets for specified areas

Target Standard	Tree Layer	Target	Min pa	Min p
1200	1	400	200	200
	2	500	300	250
	3	700	400	300
	4	900	500	400

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

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

Table 6 specifies a reduction in the targets and minimums for tree layer 1 as compared to the default standards. The reason for this is that the default standards have been developed for conifer stands, which have different crown characteristics from deciduous species. Under deciduous management regimes, while initial densities will be higher to promote self-pruning and encourage stem development, lower target thinning densities in managed stands may be applied during later stages of the rotation.

1.7 PERFORMANCE REQUIREMENTS

Those performance requirements in Part 3 (Practice Requirements) of the WLPPR for which an alternative can be proposed are shown in this Woodlot Licence Plan (below). The remaining performance requirements defined in Part 3 and Part 4 (Roads) of the WLPPR also apply to this plan but are not shown here.

SOIL DISTURBANCE LIMITS

Soil disturbance limits will follow the default value of 8% across the Woodlot *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 in order to create planting spots, facilitate seedling establishment, and establish early brush control. While this treatment may create dispersed wide to very wide scalps (thus the increased limit), the result will normally be to create a lightly mixed substrate of soil and forest floor and should not result in 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 (CWH xm 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.

Rationale: these are site preparation treatments to be conducted concurrent with or immediately following harvesting will result in soil disturbance that may meet the assessment criteria for scalps and gouges. The increased limits are maximums only and are included to increase 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.

PERMANENT ACCESS STRUCTURES

The defaults as specified in Section 25 of the WLPPR are adopted. These involve the following limits:

- Cutblocks ≥ 5 ha – 7% of cutblock area
- Cutblocks < 5 ha – 10% of cutblock area
- Total Woodlot Area – 7% of Woodlot Licence area

USE OF SEED

The defaults as specified in Section 32 of the WLPPR, which requires the adoption of Chief Forester's Standards for Seed Use are adopted.

STOCKING STANDARDS

Alternative stocking standards are prescribed and are included in tabular format in Appendix 3. The rationale is described in Section II of this plan.

Operational Trials with alternative species:

Consistent with the resource management goals stated in the Management Plan to *produce high quality forest products, to explore new concepts for efficient, economic, and low impact forest management, and to manage a small part of the woodlot for deciduous species*, and Section 4.4.10 of the Management Plan which discusses our experience with exotic species on DL 137 (outside the WL) and our interest in several non-native species and states that *"if permission can be obtained, some experimental plantings will be continued on a small scale"*:

- Experimental trials of the following species may be established within the woodlot to evaluate their feasibility and performance when planted in a forest setting and to produce high quality, high value sawlogs or veneer logs.
 - Sugar Maple
 - White Ash
 - Black Cherry
 - Black Walnut
 - Red and White Oak
 - Black Locust
 - Giant and Coastal Sequoias
 - Yellow Cedar
 - Hybrid Poplar

Trials would be limited to:

- a maximum of 0.1ha in size for pure or mixed plantations of these alternative species and,
- the area of trials will not exceed 1% of the woodlot area.
- Individual trees may be planted amongst native species but will be treated as ghost trees and will not exceed 50sph.

Minimum stocking standards will correspond with deciduous standards (L&M) except for the sequoias which will correspond with the coniferous standards for the relevant site series if planted. These experimental species will be considered preferred at free growing providing they achieve a height greater than the lowest minimum acceptable height listed for acceptable trees in the site series.

- The licensee will notify the Ministry of Forests in advance of establishing an operational trial and provide information regarding location, species and stocking. Trials will be assigned a separate treatment unit in pre-harvest mapping and be identified in the field. The licensee will monitor performance.

WIDTH OF STREAM RIPARIAN AREAS

The defaults as specified in Section 36(4) of the WLPPR are adopted.

WIDTH OF WETLAND RIPARIAN AREAS

The defaults as specified in the Section 37(3) of the WLPPR are adopted.

WIDTH OF LAKE RIPARIAN AREAS

The defaults as specified in Section 38(2) of the WLPPR are adopted.

RESTRICTIONS IN RIPARIAN RESERVE ZONES

The defaults as specified in Section 39 of the WLPPR, which restricts the cutting, modifying or removing of trees in riparian reserve zones except for the purposes described in Section 39(1) of the WLPPR, are adopted.

In accordance with section 39 (2.1) of the WLPPR, there are no plans to construct a road within a block across any of the identified riparian reserve zones in this WLP.

RESTRICTIONS IN A RIPARIAN MANAGEMENT ZONE

The defaults specified in Section 40 of the WLPPR are adopted.

WILDLIFE TREE RETENTION

The defaults specified in Section 52(1) of the WLPPR is adopted. It specifies that the proportion of the Woodlot Licence area that is dedicated to wildlife tree retention areas have to be no less than the least of the following:

- The proportion specified for the area in a land use objective, or
- The proportion specified in the WLP, or
- 8 percent.

The applicable land use objectives (Appendix 1) do not specify a percentage. The present plan hereby adopts the default retention level of **8 percent**⁴. See Table 5 under Strategies for Wildlife Tree Retention Areas for a description of areas designated for wildlife tree retention.

⁴ The 8% default is designated from within existing long term reserves which comprise 19.6 percent of the woodlot. The additional area retained in these reserves complements the area designated as Wildlife Tree Retention Areas.

COARSE WOODY DEBRIS

The defaults as specified in Section 54(1) of the WLPPR are adopted. This specifies the retention of a minimum of 4 logs per ha ≥ 5 m in length and ≥ 30 cm in diameter at one end.

RESOURCE FEATURES

The defaults as specified in Section 56(1) of the WLPPR are adopted. These impose a duty on Licensees to ensure that forest practices do not damage or render ineffective any resource features.

2.0 SUPPLEMENTAL INFORMATION REQUIRED TO BE SUBMITTED IN SUPPORT OF THE PROPOSED WOODLOT LICENCE PLAN

2.1 REVIEW AND COMMENT

ADVERTISING

An advertisement was placed in the North Islander (Campbell River) and in the Discovery Islander (Quadra Island), on June 10, 2005. A copy is included in Appendix 4.1. Additionally, notices were placed on the bulletin boards at the Quadra Island Community Hall and on the Quadra Island ferry to further raise awareness and solicit comment.

REFERRALS

This plan was referred to the District Manager, Ministry of Forests, Campbell River Forest District, and to the following First Nations for review and comment.

Laich-Kwil-Tach K'omoks Tlowitsis Council of Chiefs (Hamatla Treaty Society)
Campbell River Indian Band
Klahoose First Nation
K'ómoks First Nation (Comox)
Wewaikai First Nation (Cape Mudge)
Xwémalhkwa First Nation (Homalco)

As arranged with the Aboriginal Liaison Officer of the Campbell River Forest District, consecutive records of all communications and meetings with each First Nation are attached in Appendix 4.3.

The trapline (TR0115T923), which overlaps the woodlot licence, is currently vacant.

The guide outfitter whose territory overlaps the woodlot licence area has been notified.

COPY OF WRITTEN COMMENTS RECEIVED

Written comments were received from the following respondents:

- Homalco Indian Band – May 9, 2005
- Quadra Island Forest Watch - June 10, 2005
- Quadra Island Trails Committee – June 10, 2005-09-02
- Ray Grigg via email & MoF – July 11, 2005
- Ministry of Forests (via email from Jim Simpson) – August 2 & 8, 2005
- Hamatla Treaty Society – August 16, 2005

All comments were reviewed by the woodlot licensee, (Rolf Kellerhals and Grant Hayden), and by the licensee’s forester (Len Apedaile, RPF, of Econ Consulting).

REVISIONS MADE AS A RESULT OF COMMENTS RECIEVED

Several edits, minor revisions and additions were made as a result of comments received. These are contained in this version of the plan and are referenced in the table below. For a full list of changes and additions to the WLP please refer to the final submission cover letter.

Page #	Description of Change
1	<p><i>Section 1.2</i></p> <ul style="list-style-type: none"> Revised section title Updated Gowlland and Village Bay Maps (Appendix 5) to include reference to adjacent private lands (per QIFW comments)
2	<ul style="list-style-type: none"> Added reference to May 2005 draft VQO’s (per QIFW comments) BEC: footnote added regarding xm1 and xm2 application to WL
3	<p><i>Table 1:</i></p> <ul style="list-style-type: none"> Clarification edits under “Impact Management” column for consistency between polygons and regarding consultation commitments for blocks near recreation trails (per QIFW & Trail Committee comments).
4	<ul style="list-style-type: none"> clarification edits to first two bullets (per QIFW comments), edits to last paragraph: update to reserve ‘area’ and ‘%’ based on recalculation, and ref to WTP area
5	<p><i>Table 2:</i></p> <ul style="list-style-type: none"> addition of bullet to S6 stream management intent per MoF comments (note there are no S5 streams in W1610)
6, 7	<p><i>Cultural Heritage Resources:</i></p> <ul style="list-style-type: none"> text edits & rewording, addition of Table 3 results and strategies for cedar, medicinal plants and spiritual areas (per MoF comments) (note page 7 is new)
	subsequent pages are renumbered per addition of new page 7 – following comments refer to new and (original) page numbers
9 (8)	<p><i>Wildlife Tree Retention Areas, a) Forest Cover Attributes:</i></p> <ul style="list-style-type: none"> clarification edits to text to describe designation of WTPS within long term reserve areas; (per QIFW, Trail Committee, Ray Grigg and MoF comments) updated reference to % of long term reserve area from 19.7% to 19.6% based on recalculation – changes to other references in WLP text also made
10 (9)	<p><i>Table 5:</i></p> <ul style="list-style-type: none"> renumbered table (4 to 5) added ‘area’ columns and WTP designation descriptions to clarify portions of reserves designated as WTP’s (per MoF comments)
12 (10)	<p><i>Measures to Prevent Introduction or Spread of Invasive Plants:</i></p> <ul style="list-style-type: none"> added sentence regarding cleaning of machinery (per MoF comments)
12 (11)	<p><i>Stocking Information for Specified Areas:</i></p> <ul style="list-style-type: none"> added footnote to clarify intent regarding the use of ‘Uneven-aged Stocking Standards ’ (per Mof Comments) added comment regarding application of even-aged stocking standards to areas > 0.1ha. added Table # & title to deciduous stocking standards clarification edits to last paragraph
14 (12)	<p><i>Soil Disturbance Limits:</i></p> <ul style="list-style-type: none"> changed limits for salal/salmonberry raking and mounding to 30% and 15% respectively (per MoF comments) + minor text edits for clarification
16 (13)	<i>Wildlife Tree Retention:</i>

Page #	Description of Change
	<ul style="list-style-type: none"> • change of designated WTP % for woodlot from 12% to 8% (per QIFW, Trail Committee, Ray Grigg, and MoF comments)
27, 28 (22, 23)	<p data-bbox="342 296 721 321"><i>Appendix 3: Alternative Stocking Standards</i></p> <ul style="list-style-type: none"> • removal of footnote 8 reference from Ss (on table) (per MoF comments) • revision of footnote 4 regarding restrictions on Dr on 02 and 04 site series (per MoF comments) • revision of footnote 7 referring to restrictions and limits on use of Ss (per MoF comments) • revision of footnote 8 referring to Hw restrictions and proportion of free growing stand references for Hw & Lw (per MoF comments) • minor clarification edits to descriptive text
Maps	<ul style="list-style-type: none"> • added labels to show adjacent private land along south boundary of Gowlland Harbour Block and south-west corner of Village Bay Block (per QIFW comments)

2.2 EXEMPTIONS

No exemptions from FRPA or WLPPR requirements are requested.

2.3 RATIONALE IN SUPPORT OF PROPOSED ALTERNATIVE PERFORMANCE REQUIREMENTS

STOCKING STANDARDS

The alternative stocking standards (see Appendix 3) that apply under this Woodlot Licence Plan comprise minor modifications to the default standards to reflect circumstances, experience, and management regimes particular to the woodlot. These are consistent with the licensee's intent to manage the woodlot to produce high quality forest products, maintain site productivity, explore new concepts for efficient, economic, and low impact forest management as well as to manage a small part of the woodlot for deciduous species.

The table of stocking standards presented in Appendix 3 has been developed from the *Reference Guide for FDP Stocking Standards* dated December 11, 2003 and from 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 related guidelines and site interpretation for the Vancouver Forest Region (VFR). The table represents a synthesis of these requirements and describes how they will apply to the woodlot.

The primary differences from the default standards are:

- Where site series have similar stocking standards, they have been combined.
- The latest free growing date for most site series has been set at 12 years which is consistent with the FPC WLFMR Schedule A, Table A the previous defaults for woodlots.
- Sitka spruce (Ss) has been added as an acceptable species on sites with fluctuating water tables where mechanical mounding is undertaken. On wet sites and sites with fluctuating water tables, we have had success with mounding to create micro planting sites for Sitka spruce, cedar and alder. We propose to continue doing this on a small scale and have therefore added Ss as an acceptable species and have reduced the minimum inter-tree distance to 1.0m on mounded sites.

In addition, two sections have been added to the stocking standards table:

1. to define stocking standards that will apply to deciduous (broadleaf) management. as existing standards for the use of deciduous species lack measurable standards for implementation. The Chief Foresters stocking standards accept black cottonwood (Act), red alder (Dr) and bigleaf maple (Mb) as productive, reliable and feasible regeneration options on several site series within the CWHxm1 zone. The use of deciduous species will be implemented in consideration of the Chief Foresters 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 deciduous species is proposed on a limited scale and is consistent with the management assumptions adopted in the Management Plan Annual Allowable Cut (AAC) calculation.
2. to further define alternative conifer stocking standards that will apply to sites affected by root disease.

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3. 0 APPENDICES

APPENDIX 1: Vancouver Island land Use Plan: SMZ-19-Quadra Island

Location: comprises all provincial Crown forest on Quadra Island outside of protected areas, excluding the northern portion (north of Small Inlet), as well as the southern, mostly private portion.

Total Area: approximately 15,800 ha

Primary Values (see LIARC report)

1. Ecosection biodiversity/ representation
2. Coastal and shorelands wildlife values
3. Visual qualities, esp. in association with marine recreation and major road corridors

Overall Management Guidance: focus should be on biodiversity conservation at the intermediate level of significance with active replacement of old seral forest attributes and ages in CWH xm forests; maintenance of scenery/recreation and tourism values associated with shoreline, major road corridors and high recreation use areas, as well as maintenance of coastal wildlife habitats

Primary Objectives

Biodiversity:

Description: this zone comprises the majority of the Quadra draft landscape unit, which also comprises portions of the Quadra-Cortes RMZ (#32), as well as protected areas; the zone is dominated by the CWHxm2 variant; while old forests are rare in this variant, a significant amount of mid-seral/mature second growth forests are protected in the Main Lakes Chain protected area

Objective: *General Biodiversity Conservation Management*

Strategies: to the extent that old seral forest retention will be required within the contributing land base portions⁵ of the landscape unit, such retention should be concentrated⁶ within the SMZ-portion of the landscape unit; maintain existing old forest in the zone, as well as second growth with high portion of veteran trees; manage to replace old forest in the long term (>150 years) in accordance with old seral targets for intermediate BEO; focus old seral replacement in CWHxm2, concentrated along riparian areas and, where possible, adjacent to existing old seral forest; recruit old seral habitat blocks with higher priority on forest interior conditions than on old seral connectors; maintain harvest opportunity in second growth by identifying some old growth recruitment areas in early seral forest; recruit mature forest in the mid (>50 years) term, building gradually towards a mature seral target of 25%; actively create mature and old seral forest attributes through suitable management strategies, such as variable density thinning or partial cutting silvicultural systems

Visual Resources:

Description: primary visually sensitive areas along coastline and major road corridors, secondary values surrounding lakes and along hiking routes

Objective: *Special Visual Resource Management*

⁵ contributing land base: this is the timber harvesting land base (THLB) which contributes to the allowable annual cut (AAC), as defined in the Timber Supply Review for a timber supply area or tree farm licence;

⁶ 'concentrated': the intent is to retain old seral forest required for the LU to a greater degree within the SMZ, and to a lesser degree within the RMZ portion of the LU.

Recreation Resources:

Description: recreational use and values in Wyatt Bay/Small Inlet (heritage trail, portage), trails in Mount Seymour and Chinese Mts., as well as Morte and Nugedzi Lake areas; shoreline

Objective: *Special Recreation Resource Management* in above areas; *General Recreation Resource Management* in other less frequented/significant areas

Tourism Resources:

Description: kayaking and boating along shoreline, scenic values and hiking opportunities

Objective: *Special Tourism Management* with focus on above mentioned values and activities

Wildlife:

Description: high values for marine/coastal species (eagles, waterfowl); moderate upland/interior forest habitat values (capability for marbled murrelet, northern goshawk)

Objective: *Special Wildlife Management* with emphasis on coastal species and habitats;

Strategies: develop habitat management strategies for coastal species

Fish:

Description: high values, particularly associated with lakes

Objective: *General Fish Management*

Water:

Description: generally stable terrain, low equivalent clearcut area

Objective: *General Watershed Management*

Secondary Objectives**Timber:**

Description: overall moderate productivity, almost entirely in second growth forests

Objective: *Special Timber Resource Management*

Cultural Heritage Resources:

Objective: *General Cultural Heritage Resource Management*

Cave/Karst:

Objective: *General Cave/Karst Management*

Access:

Objective: *General Access Management*

Non-Forest Resource Descriptions**Aquaculture:**

Description: some moderate to good potential for finfish culture and shellfish culture and some existing operations

APPENDIX 2: Quadra Island Official Community Plan

Bylaw 1996, # 1840, of the Regional District of Comox-Strathcona

PART V • PLAN IMPLEMENTATION

3.7 FORESTS / SILVICULTURE

The forests of Quadra Island provide for its residents, both human and non-human, a great variety of things from spirituality to an income through logging. Somewhere in between lies a home for wildlife, recreation uses, and other types of harvests. The following policy sections reflect the Community's recognition of the forests' diversity of values and desire to promote responsible sustainable stewardship of these values.

It should be noted that some areas that fall within the Agricultural Land Reserve (ALR) are included in the Silviculture designation. In such areas the policies shall be as indicated in the following section 3.8 relating to Agriculture.

The following general policies apply to all forested lands regardless of designation:

1. The importance of the Island's forest cover in the provision of green space, recreational opportunities, timber and forest products, buffers, wildlife habitat, protection of groundwater resources, and biodiversity shall be considered in all development proposals and these values shall be respected.
2. Department of Fisheries and Oceans, Ministry of Agriculture, Fisheries and Food, Ministry of Environment, Lands and Parks, Ministry of Forests, forest licence holders, private landowners, and the Community shall be encouraged to work cooperatively in the establishment of a comprehensive identification, inventory, and assessment of forest resources and features such as, streams, creeks, wildlife habitats, watershed protection areas and other sensitive areas.
3. Programs or initiatives which promote sustainable stewardship of the forest resource, in all of its aspects, shall be encouraged.
4. The economic importance of a sustainable forest industry to the Island community shall be recognized and endorsed.
5. Ministry of Forests and private forest companies shall be encouraged to maintain active consultation with Island residents, such as the Quadra Island Forest Resources Committee, respecting forest management plans for the Island.
6. Programs or initiatives which promote small scale, sustainable, community and private woodlot operations shall be encouraged and endorsed.
7. Ministry of Forests, forest companies, and local community groups, such as the Quadra Island Forest Resources Committee, shall be encouraged to work cooperatively in the establishment of a notification process whereby the local community is advised of Island based silviculture management plans and harvesting employment opportunities.
8. Forestry related light industrial proposals or initiatives which meet appropriate environmental standards shall be considered; in particular, value-added processing of forest products which promote local employment and economic benefit to the Island.

9. Stewardship of forested areas to protect environmental values, in particular, groundwater resources and wildlife habitat areas shall be strongly encouraged.

Silviculture Designation Policies:

Forestry is the most extensive land use on the Island and those lands designated Silviculture reflect a recognition of the value those lands hold for existing or future forestry purposes. The following general policies apply to all lands designated Silviculture as shown on Schedule A-1:

1. Forest management standards in compliance with the “Forest Practices Code of British Columbia Act and Regulations” shall be strongly endorsed for all forested lands.
2. The retention, protection, and enhancement of Forest Land Reserve (FLR) lands shall be encouraged.
3. A minimum lot size of 16 hectares (40 acres) shall apply to all those lands designated Silviculture.
4. Where land is located within the FLR a minimum parcel size shall only apply when that land is:
 - a) excluded from the FLR; or
 - b) approved for subdivision within the FLR pursuant to the Forest Land Reserve Act, Regulations thereto, or Orders of the Commission; or
 - c) exempted by the Forest Land Reserve Act, Regulations thereto, or Orders of the Commission.
5. New public roads, utility corridors, or public serve uses, except for bicycle, bridle and foot paths, shall be discouraged from locating on FLR lands.

APPENDIX 3: ALTERNATIVE STOCKING STANDARDS

A. ADMINISTRATION																											
Vancouver Forest Region			Campbell River Forest District						Licensee: Rolf & Markus Kellerhals, Grant Hayden								Woodlot Licence #W1610						September 6, 2005				
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)	MIT D (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			900	500	400	2.0	3	12	150	500	1500	None		
B	CWHxm	02	Pl	1.25	Fd	2.0		Pw ⁵	2.5	Lw ⁸	1.5					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	Pl ⁶	1.25	Lw ⁸	1.5	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	Bg	3.0	Pw ⁵					900	500	400	2.0	6	14	150	500	1500	None		
F	CWHxm	08/09 ¹	Cw	2.0	Bg	3.5		Ss ⁷	4.0							900	500	400	1.5	3	12	150	500	1500	Floodplain - medium/high bench		
G	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		
H	CWHxm	11 ¹	Pl ¹	1.25	Cw	1.0										400	200	200	1.5	3	12	150	200	800	Avoid logging – wet and very poor		
I	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		
J	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		
K	CWHxm	15 ^{1,2}	Cw	2.0				Ss ^{7,9}								800	400	400	1.5	3	12	150	400	1200	Fluctuating water table		
L	CWHxm	01/04/06	Dr ⁴	3.0	Mb	3.0										1200	1000	800	1.5	3	12	150	800	1500	High density deciduous management		
M	CWHxm	05/07/08/ 09 ¹ /02/13/ 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		
N	CWHxm	01/04/06	Cw	1.5	Pw ⁵	2.5		Fd ³	3.0	Hw ^{8,3}	2.0					900	500	400	2.0	3	12	150	500	1500	Alternate species root rot treatment		
O	CWHxm	03	Cw	1.0	Pw ⁵	2.5		Fd ³	2.0	Pl ^{3,6}	1.25	Lw ⁸	1.5			800	400	400	2.0	3	12	150	400	1200	Alternate species root rot treatment		
P	CWHxm	02	Pw ⁵	2.5				Pl ^{3,6}	1.25	Fd ³	2.0	Lw ⁸	1.5			400	200	200	2.0	3	12	150	200	800	Avoid logging – xeric site ,shallow soils		
Q	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		
R	CWHxm	08/09	Cw	2.0				Bg ³	3.5	Ss ^{3,7}	4.0					900	500	400	1.5	3	12	150	500	1500	Alternate species root rot treatment		
S	CWHxm	11	Cw	1.0				Pl ^{3,6}	1.25							400	200	200	1.5	3	12	150	200	800	Alternate species root rot treatment		
T	CWHxm	12	Cw	1.0	Pw ⁵	2.5		Hw ³	1.5	Ss ^{3,7}	1.5					800	400	400	1.5	3	12	150	400	1200	Alternate species root rot treatment		
U	CWHxm	13/14 ²	Cw	2.0				Bg ³	3.5	Fd ³	4.0	Ss ^{3,7,9}				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 Trees are not acceptable within 10 m of second growth stumps, except Cw, Pw, Lw and deciduous species.
- 4 Dr is not acceptable on 02 and 04 site series (too dry). Avoid planting in 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)
- 6 Restricted to nutrient-very-poor sites and as a minor species only
- 7 Risk of weevil damage, use resistant stock where available, Ss will not exceed 20% of the free growing stand on 08 & 12 site series or 5% of the free growing stand on 09,13,14,&15 site series on a dispersed basis. Clumps will not to exceed 0.1ha in size.
- 8 Hw is not acceptable on site series 04. The proportion of the free-growing stand comprised of Hw or Lw if established will not exceed 20%. Lw will not exceed 5% of the free growing stand on site series 02.
- 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-K are the general stocking standards. Sections L,M are the deciduous stocking standards. Sections N-U 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. These standards apply to both variants (xm1 & xm2) where they occur in the woodlot.

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 included within a mosaic of better sites. In some cases where there are fluctuating water tables, mounding may be prescribed to create better microsites.

Where standards units (SUs) are comprised of an unmappable 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 in all site series contained within the SU.

The minimum density post-spacing shown here 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 (although mixed stand management is not being proposed). 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.

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 sph as ghost trees during surveys on all sites. No deciduous within 10m of each other will be accepted for dispersed single stems due to increased competitive density effects.

Reduction of inter-tree spacing to 1.5 m is acceptable for 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).

Reduction of inter-tree spacing to 1.0 m is acceptable on mounded sites only.

Deciduous Management

Deciduous production and management is supported by the following research:

- L.Sigurdson *et al.* 2nd draft report on Weyerhaeuser's Red Alder Management Practices (1998),
- 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).
- P.J. Courtin *et al.* Forest Research Extension Note 016 - Red Alder management trials in the Vancouver Forest Region (2002).

Regime: The product objective is to manage for high quality knot-free sawlogs on a 40 - 50 year rotation. Establish 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 before 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 minimum free growing height criterion for deciduous species is based on the tallest conifer standard for each site series.

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.

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.

APPENDIX 4: Review and Comment Information

Appendix 4.1 PUBLIC REVIEW AND CORRESPONDENCE

WOODLOT LICENSE W1610

PUBLIC VIEWING OF THE 10-YEAR WOODLOT LICENSE PLAN

The draft 10-year Woodlot License Plan for Woodlot W1610 was made available for public review on June 10, 2005 for a period of 30 days ending July 11, 2005.

Copies of the plan could be viewed at the Quadra Island Library, and at the Ministry of Forests, Campbell River Forest District Office (370 South Dogwood Street). The plan was also available for viewing at the Licensees residences. An electronic copy of the plan could be requested by emails addressed to mail@econ.ca. Five requests were received. There was also an open house held at the Quadra Community Centre, Room #1, on June 20, 2005 from 16:00 to 20:00, with 16 members of the public signing our attendance record, six of whom made comments. A copy of the record, including comments, is shown below.

In addition to these comments, three written public submissions were received. They are shown below with our responses. (Two letters were also received from First Nations and are included in Appendix 4.3 below)

The review process was also advertised in two local newspapers. Copies of the ads are shown below.

Appendix 4.2 REFERRALS TO AGENCIES AND LICENSEES

The letter to the Licensee of the overlapping guide-outfitter territory is shown below. A phone message was left for us by the licensee, Mr. Peter Klaui, stating that he has no concerns with our plan.

The licensed trap line overlapping the woodlot is presently vacant.

There are several active mineral tenures in the Gowlland Harbour Block – no referrals were made with respect to these tenures.

A copy of the draft Woodlot Licence Plan was sent to the Ministry of Forests. Preliminary comments were discussed between Len Apedaile RPF of Econ Consulting and Jim Simpson, Woodlot Licence Coordinator on Friday July 29. Written comments were then received from Jim Simpson by email on August 2 and August 8.

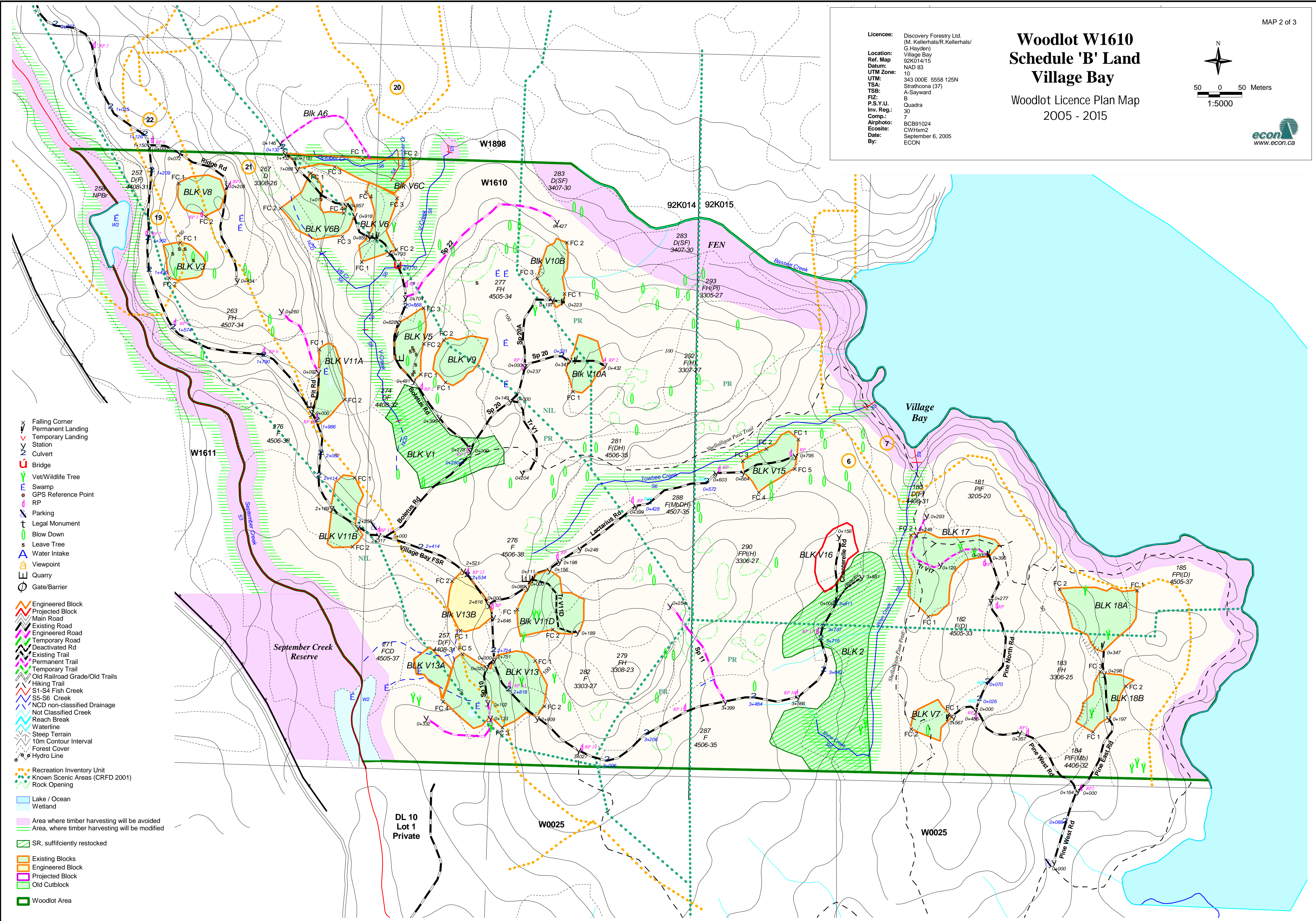
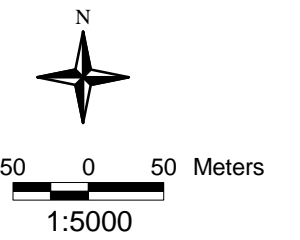
Copies of all correspondence are attached below:

APPENDIX 5: Woodlot Maps

Licencee: Discovery Forestry Ltd.
 (M. Kellerhals/R. Kellerhals/
 G. Hayden)
 Location: Village Bay
 Ref. Map: 92K014/15
 Datum: NAD 83
 UTM Zone: 10
 UTM: 343 000E 5558 125N
 TSA: Strathcona (37)
 TSB: A-Sayward
 FIZ: B
 P.S.Y.U. Quadra
 Inv. Reg.: 30
 Comp.: 7
 Airphoto: BCB91024
 Ecosite: CWFHm2
 Date: September 6, 2005
 By: ECON

Woodlot W1610 Schedule 'B' Land Village Bay

Woodlot Licence Plan Map
 2005 - 2015



- x Falling Corner
- Permanent Landing
- Temporary Landing
- Station
- Culvert
- Bridge
- Vet/Wildlife Tree
- Swamp
- GPS Reference Point
- RP
- Parking
- Legal Monument
- Blow Down
- Leave Tree
- Water Intake
- Viewpoint
- Quarry
- Gate/Barrier
- Engineered Block
- Projected Block
- Main Road
- Existing Road
- Engineered Road
- Temporary Road
- Deactivated Rd
- Existing Trail
- Permanent Trail
- Temporary Trail
- Old Railroad Grade/Old Trails
- Hiking Trail
- S1-S4 Fish Creek
- S5-S6 Creek
- NCD non-classified Drainage
- Not Classified Creek
- Reach Break
- Waterline
- Steep Terrain
- 10m Contour Interval
- Forest Cover
- Hydro Line
- Recreation Inventory Unit
- Known Scenic Areas (CRFD 2001)
- Rock Opening
- Lake / Ocean
- Wetland
- Area where timber harvesting will be avoided
- Area, where timber harvesting will be modified
- SR, sufficiently restocked
- Existing Blocks
- Engineered Block
- Projected Block
- Old Cutblock
- Woodlot Area

Licencee: Discovery Forestry Ltd.
(M. Kellerhals/R. Kellerhals/
G. Hayden)

Location: Gowland Harbour

Ref. Map: 92K014

Datum: NAD 83

UTM Zone: 10

UTM: 338 000E 5553 000N

TSA: Strathcona (37)

TSB: A-Sayward

FIZ: B

P.S.Y.U.: Quadra

Inv. Reg.: 30

Comp.: 6

Airphoto: BCB91031

Ecosite: CWHxm1

Date: September 6, 2005

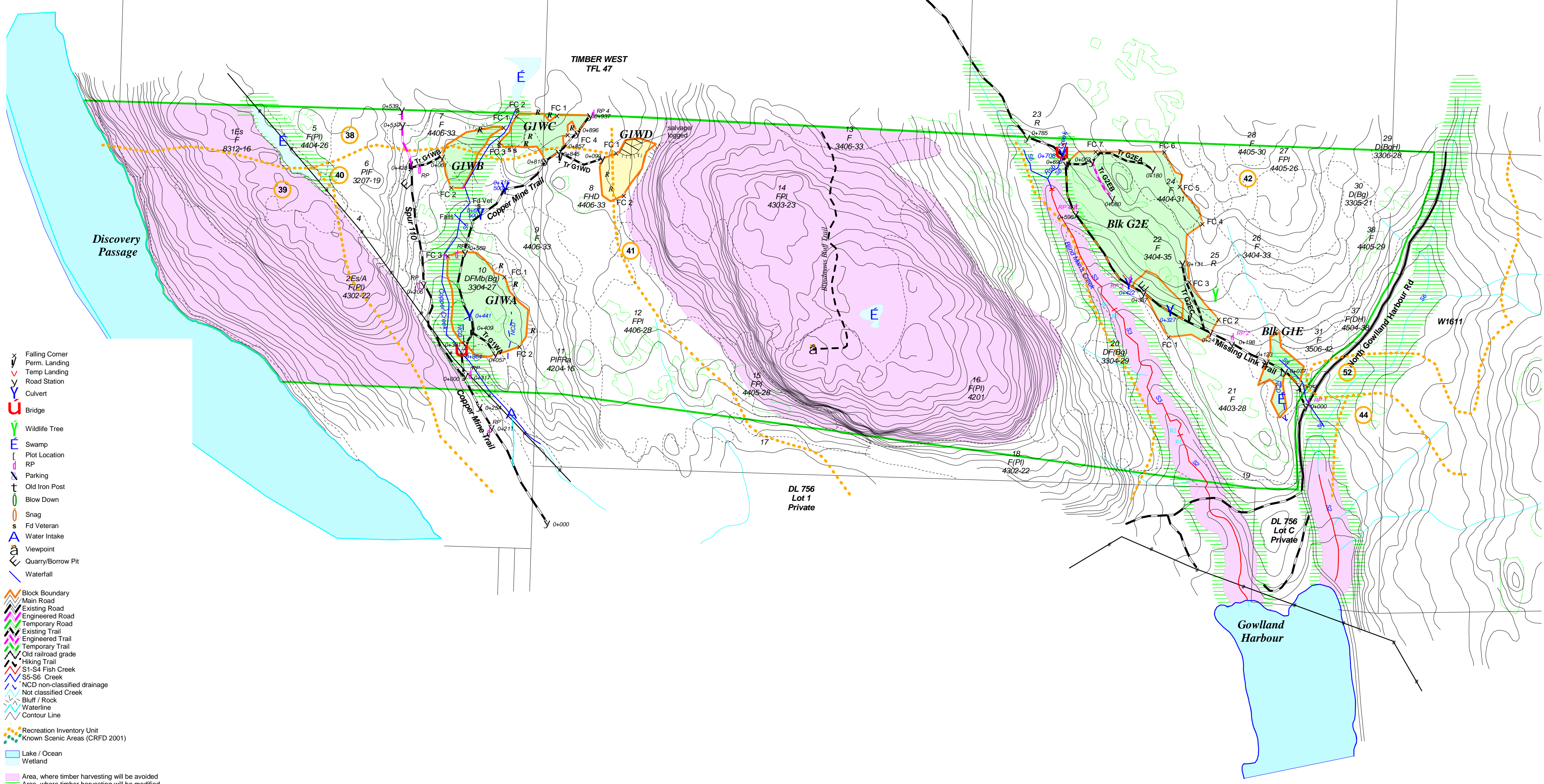
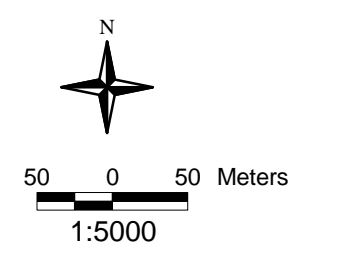
By: ECON

Woodlot Licence W1610

Schedule 'B' Land

Gowland Harbour

Woodlot Licence Plan Map
2005 - 2015



- Falling Corner
- Perm. Landing
- Temp Landing
- Road Station
- Culvert
- Bridge
- Wildlife Tree
- Swamp
- Plot Location
- RP
- Parking
- Old Iron Post
- Blow Down
- Snag
- Fd Veteran
- Water Intake
- Viewpoint
- Quarry/Borrow Pit
- Waterfall
- Block Boundary
- Main Road
- Existing Road
- Engineered Road
- Temporary Road
- Existing Trail
- Engineered Trail
- Temporary Trail
- Old railroad grade
- Hiking Trail
- S1-S4 Fish Creek
- S5-S6 Creek
- NCD non-classified drainage
- Not classified Creek
- Bluff / Rock
- Waterline
- Contour Line
- Recreation Inventory Unit
- Known Scenic Areas (CRFD 2001)
- Lake / Ocean
- Wetland
- Area, where timber harvesting will be avoided
- Area, where timber harvesting will be modified
- Existing Blocks
- Engineered Block
- Projected Block
- Old Cutblock
- Woodlot Area

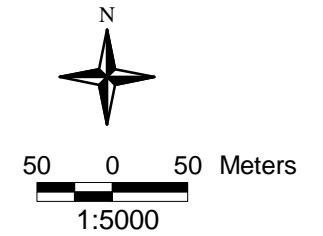
DL 756
Lot 1
Private

DL 756
Lot C
Private

WOODLOT LICENCE W 1610 Schedule A Land Quadra Island D.L.137

Woodlot Licence Plan Map
2005 - 2015

Ministry of Forests
Campbell River District



Licence: Discovery Forestry Ltd
(R.Kellerhals / M.Kellerhals / G.Hayden)
Location: Hyacinthe Bay
Reference Map: 92K014
Datum: NAD 83
UTM Zone: 10
UTM: 340500E 5555800N
Ecosite: CWHxm1
Drafted: September 6, 2005
By: ECON consulting



- x Falling Corner
- Y Landing, permanent
- V Landing, temporary
- y Road Station
- Y Culvert
- U Bridge
- Y Wildlife Tree
- E Swamp
- [Plot Location
- RP
- P Parking
- t Old Iron Post
- o Blow Down
- s Snag
- s Leave Tree
- A Water Intake
- a Viewpoint
- Engineered Block
- Projected Block
- Existing Road
- Deactivated Rd
- Engineered Road
- Temporary Road
- Existing Trail
- Permanent Trail
- Temporary Trail
- Old Railroad Grade/Old Trails
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- Steep Terrain
- 10m Contour Interval
- Forest Cover
- Hydro Line
- Recreation Inventory Unit
- Known Scenic Areas (CRFD 2001)
- Lake/Ocean
- Wetland
- Area where timber harvesting will be avoided
- Area, where timber harvesting will be modified
- Archeol. Sens. Zone
- Existing Blocks
- Engineered Block
- Projected Block
- Old Cutblock
- Woodlot Area
- Lot Line

