BCTS
BC Timber Sales
Chinook

BCTS Chinook Business Area

Forest Stewardship Plan

Haida Gwaii
Natural Resource District

2019-2024

August 30, 2019

Table of Contents

List of Tables

Appendices

1.0 Clarifications

In this Forest Stewardship Plan (FSP, "the Plan", "this Plan"), where terms are used that are defined in the *Haida Gwaii Land Use Objectives Order* (HGLUOO), Forest and Range Practices Act (FRPA) or the *Forest Planning and Practices Regulation* (FPPR), the definition of the term is as per the Order, Act or Regulation (e.g., "tree-length" and "intergovernmental process" are as defined in the HGLUOO). Where there is confusion or conflict between the HGLUOO, FPRA or the FPPR, the order of precedence is as follows: HGLUOO, then FRPA, then the FPPR.

"Plan Area" means the areas covered by Forest Development Unit (FDU) A (refer to FSP map in Appendix A).

"Plan Holder" means the Timber Sales Manager.

"Active Bear Den" means a bear den identified by a Qualified Professional that either has a bear actively using it or illustrates signs that a bear is or will be using that den for winter hibernation in that year.

"Adaptive Management Plan" means a monitoring or research initiative that is developed and implemented during operational planning, timber harvesting, silviculture treatment, or road construction, including maintenance and deactivation phases, to examine the outcomes of management strategies and practices that vary from default legislative requirements, the results of which will inform the development of future management strategies and practices.

"Black Bear den" means a cavity within a tree, a snag, a stump or a log, greater than 0.80 meters in diameter which shows evidence of use by Black Bears for winter hibernation;

"Cedar" means, unless specified otherwise, western red cedar (*Thuja plicata*) or yellow cedar (*Cupressus nootkatensis*).

"CMT" means culturally modified tree, as defined in the HGLUOO. Furthermore, as noted within the HGLUOO, s. 1(2), the HGLUOO is in conflict with FPPR s. 10. However, consistent with FPPR s. 12(4) the objective established under the HGLUOO prevails in regard to the date for a CMT (i.e., 1920, rather than 1846, as defined under the *Heritage Conservation Act* and referenced in the FPPR).

"Development Area" a specific area associated with a cutblock or road that includes the timber harvesting area and reserved and retained areas within and adjacent to the harvest area as required under the LUOO. The development area is the outer boundary as shown on the site plan map which includes stand level retention, reserve and management zones and mapped reserves. The reserved and retained areas will be unique to each development area and will not overlap those of an adjacent development area unless they are no longer required.

"Direct Tributary" means a portion of a tributary stream that is a minimum of 100m in length and has the same stream order as the most downstream reach of the tributary.

"High priority invasive plants" are those identified by the Haida Gwaii Invasive Plants Management Association (IPMA), which are listed in Appendix D of the BCTS Chinook Business Area, Invasive Plant Best Management Practices document.

"Maintain" where it is used in conjunction with the word reserve or management zone as prescribed in legislation, regulation and the HGLUOO means the reserve or management zone will be used for a single development area and not used to satisfy LUOO requirements for multiple development areas. It does mean that where reserves and management areas are required for multiple LUOO objectives in a single development area, the reserves will be co-located where possible within the development area.

"Operational Feasibility" means a goal can be completed without unreasonable difficulty, without compromising safety, employing unnecessary means and / or incurring extreme costs to achieve an outcome.

Where a result cannot be achieved due to operationally feasibility a factor is increasing the difficulty, adding unnecessary steps, and / or adding extreme costs. A Qualified Professional or operational specialist will provide a rationale for review in an intergovernmental process when the rationale of operational feasibility is used.

"Practicable" is as intended in FRPA General Bulletin Number 3, dated June 9, 2005.

"Qualified Professional" is an applied scientist or technologist who is registered and in good standing with an appropriate B.C. professional organization constituted under an Act. A Qualified Professional must be acting under that association's code of ethics and is subject to the organization's disciplinary action.

"Significant Public Viewpoint" is a place or location on water or land that is accessible to the public, provides a viewing opportunity and has relevance to the landscape being assessed, e.g., a stretch of highway or waterway leading toward a harvest unit where the harvest unit is within the drivers' field of view while driving (not adjacent), a highway rest stop, recreation site park, marine anchorage, group of homes, settlement or community or a tourist-related commercial enterprise.

"Stand Level Retention" is intact patches of trees and understory vegetation in a development area used to assist in achieving the LUOO objectives. Stand level retention will range from a minimum of 0.25 ha to several hectares in size.

"Tree-length" refers to the width(s) of reserve and management zones and is defined in the HGLUOO, and the associated HGLUOO Schedule 5. The site-specific tree-length used (i.e., assigned height) will be documented in the site plan. Only one of the following methods will be used in a given development area depending on the age of the stand.

1) Immature and Mature Forest stands: the Timber Sales Manager will determine the dominant site series within the required reserve and management zone and reference Column A of the HGLUOO Schedule 5 to determine the buffer width for the site series.
2) Old Forest stands: the Timber Sales Manager will measure the tallest old trees in the management and reserve zone adjacent to the feature. For objectives that are represented as point features, such as monumental cedar or black bear dens, tree lengths may be derived directly from the tallest tree surrounding the feature or the feature itself.

"Timber Sales Manager" means delegated staff or Licensees as provided by the Timber Sale Licence document

"Western Yew Patch" means five or more western yew trees where each yew tree is within 5 meters of another Yew Tree.

"Western Yew Tree" a Western Yew Tree that is not included in a Western Yew Patch.

The abbreviation "s." is used to indicate a numbered section or sections of the indicated Act or Regulation.

The capitalized word "Section" or "Sub-section" is used in the singular or plural to refer or cross reference to a numbered clause or section within this FSP.

Where the HGLUOO, or Schedules contained therein, are referenced in this Plan, they are referenced as they were on the date of approval of this FSP.

2.0 Abbreviations

"AAC" means annual allowable cut
"AFU" means active fluvial unit
"AIA" means an Archaeological Impact Assessment completed by a Professional Archeologist
"BEC" means Biogeoclimatic Ecosystem Classification
"CFI" means Cultural Feature Identification
"CHN" means Council of the Haida Nation
"CMT" means Culturally Modified Tree
"CSA" means Cedar Stewardship Area
"DBH" means diameter at breast height or the diameter of a tree 1.3m above the point of germination.
"DDM" means Delegated Decision Maker(s)
"The District" means Haida Gwaii Natural Resource District
"ECA" means Equivalent Clearcut Area
"FDU" means Forest Development Unit
"FPPR" means the *Forest Planning and Practices Regulation*
"FRPA" means the *Forest and Range Practices Act*
"FSP" means the Forest Stewardship Plan
"GAR" means the *Government Actions Regulation*
"GWM" means General Wildlife Measure
"HGLUOO" means the *Haida Gwaii Land Use Objectives Order*
"HTFF" means Haida Traditional Forest Feature
"HTHF" means Haida Traditional Heritage Feature
"IAPP" means the provincial Invasive Alien Plant Program
"IPMA" means Invasive Plant Management Association
"LU" means "Landscape Unit", which are as established in the HGLUOO, Schedule 1
"FLNRORD" means (Ministry of) Forests, Lands, Natural Resource Operations and Rural Development
"NAR" means Net Area to be Reforested
"NWIPC" means the Northwest Invasive Plant Council
"PAS" mean Permanent Access Structure
"RBA" means Residual Basal Area
"RMA" means Riparian Management Area,
"RMZ" means Riparian Management Zone
"RP" means Road Permit
"RRZ" means Riparian Reserve Zone
"SU" means Standards Unit
"TEM" mean Terrestrial Ecosystem Mapping
"TFL" means Tree Farm License
"TL" means Timber License
"TSA" means Timber Supply Area
"TSL" means Timber Sale License
"VRI" means Vegetation Resources Inventory

"WHA" means Wildlife Habitat Area

3.0 Application

FRPA s. 3(4)

Plan Signatories & Tenures

This FSP applies to the Timber Sales Manager and existing and future timber sales in FDU A for the life of the Plan. In accordance to FRPA s. 3(2), the Timber Sales Manager must prepare and obtain the minister's approval of an FSP that includes an FDU entirely containing the area.

Designations in Effect prior to Submission

FPPR s. 14(2)

The FSP map shows the designations and other areas listed in FPPR s. 14(3) that were in effect on the date the FSP was submitted for approval.

Designations in effect at the time of submission are summarized in Table 1, below.

Table 1: Designations in Effect in the Plan Area at Time of Plan Submission

Designation Category	Designation Details	FDU	Date Designated
Ungulate Winter Ranges	N/A	N/A	N/A
Wildlife Habitat Areas	northern goshawk: WHA #6-001 WHA #6-002	A	September 13, 2001 May 14, 2003
	marbled murrelet: WHA #6-041 WHA #6-046	A	April 7, 2003
Fisheries Sensitive Watersheds	NA	A	NA
Scenic Areas	VQO's established for the TSA VQOs for TSA and TFLs consolidated and mapped	A	December 22, 2005
Community Watersheds	Honna River, Slarkedus Creek, Tarundl Creek Queen Charlotte Community Watershed	A	June 15, 1995 Sept. 11, 1997
Old Growth Management Areas	N/A	N/A	N/A
Areas in which commercial timber harvesting is prohibited	As shown on the FSP Map (Protected Areas, Reserves, Private Land/ areas outside of FDU A)	A	N/A
Recreation Sites	Rennell Sound, Kagan Bay, Clapp Basin, Moresby Camp, Mosquito Lake	A	Objectives Effective December 31, 1997
Recreation Trails	Five "5" Mile Beach, Slatechuck Mountain/Sleeping Beauty	A	Objectives Effective December 31, 1997

Areas within Forest Development Units Subject to Timber Sale Licences

FPPR s. 14 (2)(b) and 14(3)(j)&(k)

Table 2, below, shows the areas within the Plan Area that are subject to a TSL held by (or entered into) by the Timber Sales Manager and in effect on the Date of Submission.

Table 2: Active TSLs & RPs

Plan Signatory	Approved RPs	Approved TSLs
BCTS	R20981, R21182, R20662, R20688*, R21139, R18429, R20219, R21184*, R20982*	A93737, A93566, A92174, A93121*, A93120, A88784, A91146, A93738*, A85374*

* Indicates a TSL or RP that includes a permit or block that did not reach consensus at the Solutions Table.

Table 3, below, shows the areas within the Plan Area that are Declared Areas held by the Timber Sales Manager.

Table 3: Active Declared Areas

Plan Signatory	Tenure	Declared Areas	
		Cutblocks	Roads
BCTS		LAW003, BON525, BON527, SKIA450, SKI522, GRE313, GRE316, GRE507, GRE511	JUN1600, BM2800, BM2890, HAA18150, Spur 26-1, GM1200, GM1300

* Indicates a block and associated road that did not reach consensus at the Solutions Table.

4.0 Term

FRPA s. 6(1)(a)(b); 6(2)

The term of this FSP commences on the date of FSP approval by the DDM and expires five (5) years after the date of approval, or another date specified in writing by the minister or DDM.

5.0 Map

FRPA s. 5(1)(a) and FPPR s. 14

The FSP map appended to this document (Appendix A) shows the FDU, tenures and other features of the Plan Area. The map also provides an overview of the Plan Area, including major topographic features and related information that will take effect with the approval of this FSP.

6.0 Results & Strategies

Haida Gwaii Land Use Objectives Order

On December 16, 2010 the Minister of Natural Resource Operations signed the HGLUOO, which established objectives for the purpose of the FRPA. Results and Strategies have been created to meet all of these objectives, the FRPA and objectives established under GAR, as provided below. The results and strategies found in Sections 6, 7, 8, and 9 apply to FDU A.

Cultural Objectives

Cedar Stewardship Areas (CSA)
HGLUOO s. 3

6.1 The Timber Sales Manager will not harvest within CSAs, as identified in the HGLUOO, Schedule 3.

6.2 Despite Section 6.1, circumstances may arise where harvesting within CSAs for commercial purposes is desired. Where harvesting is proposed within a CSA, the Timber Sales Manager will ensure all of the following:

a) any proposed harvest activities with CSAs are consistent with the CHN's CSA Management Plan (Appendix 3 of the FSP Supporting Document) and the outcome of an intergovernmental process;

b) the total CSA harvested is ≤ 10% of the total of all CSAs (2,536.3ha, as indicated in Table 4, below), and that no more than 250ha is harvested in a 10-year period;

c) the CSA harvest within a given Landscape Unit, for each 10-year period, will be proportional to the occurrence of CSAs within the LU (see Table 4, below);

d) a ledger is maintained and updated annually at a minimum, which tracks any CSA harvest activities; and

e) where CSAs overlap tenures outside of the Plan Area, make reasonable efforts to consult with the relevant tenure holder(s) to ensure that the aggregate CSA harvest level does not exceed the limits described in s. 6.2(b) and (c).

Table 4: Maximum CSA Harvest by Landscape Unit

Landscape Unit	CSA (ha)	Maximum Total CSA Harvest Potential (ha) (10 % threshold)*	Maximum Total CSA Harvest By Area (ha)*
Eden Lake	3,150.80	315.08	250.00
Honna	1,362.70	136.27	136.27
Ian	5,857.20	585.72	250.00
Jalun	210.80	21.08	21.08
Louise Island	228.10	22.81	22.81
Lower Yakoun	6,933.90	693.39	250.00
Masset Inlet	3,310.70	331.07	250.00
Naikoon	284.70	28.47	28.47
Otun	473.00	47.30	47.30
Rennell	304.70	30.47	30.47
Sewell	69.10	6.91	6.91
Skidegate Lake	1,335.90	133.59	133.59
Tlell	933.20	93.32	93.32
Yakoun Lake	897.70	89.77	89.77
Total	**25,352.5**	**250.0***	**250.0***

*** The Maximum harvest of Cedar Stewardship Areas cannot exceed 250.0 ha over 10 years.**

Cultural Feature Identification
HGLUOO s. 4

6.3 Prior to harvest commencement or road construction activities in a development area, the Plan Holder will ensure a CFI Survey has been completed for the proposed area by a surveyor certified by the CHN and submitted, to the District and the CHN during the consultation process.

Haida Traditional Heritage Features
HGLUOO s. 5

6.4 HTHFs are defined as being those features listed in Schedule 2 of the HGLUOO. To identify and protect Class 1 and Class 2 HTHFs in development areas, the following strategies are employed:

a) The CHN will be canvassed for known HTHFs at the planning stages of block development prior to CFI work and reconnaissance of a development area.
b) Where additional Class 1 or 2 features could be present, based on the results of an AOA, CFI findings and/or information provided by the CHN regarding Class 1 & 2 HTHF's and Archaeological sites, the AIA survey area will extend a minimum of the reserve and management zone(s) width required to buffer the Class 1 or 2 HTHF beyond the proposed harvest.
c) The Plan Holder will share findings of Class 1 or 2 features with the CHN to determine the cultural significance of that feature.
d) Where potential HTHFs are located, AIAs will be completed by a professional archaeologist who holds a valid permit for archaeological work on Haida Gwaii, including subsurface work and tidal zones. A person designated by the CHN will be in attendance with the archaeologists to confirm the finding and search for other features;
e) Where a development area is below 25m in elevation, AIAs will be completed by a professional archaeologist and a person designated by the CHN will be in attendance;

f) Where any HTHF or CMT(s) are found, AIAs will be completed by a professional archaeologist and a person designated by the CHN will be in attendance;
g) Where the CFI surveyor expects a likelihood of subsurface features, AIAs will be completed by a professional archaeologist and a person designated by the CHN will be in attendance; and
h) Where archaeological evidence is documented in the adjacent area, AIAs will be completed by a professional archaeologist and a person designated by the CHN will be in attendance.

All confirmed findings by the archaeologists will be recorded and submitted to the Provincial Archaeological Site Registry through the BC Archaeology Branch. This will ensure site registration, recording and location of the feature, and protection of the archaeological feature under the *Heritage Act*.

6.5 Where Class 1 HTHFs are located, they will be retained and a 500m (minimum width) reserve, measured from the edge of the HTHF, will be maintained to protect the HTHF, subject to (a) and (b).

a) Where a reduction of the reserve is required for road access, other infrastructure, or to address a safety concern and no practicable alternative exists, the Timber Sales Manager may reduce the size of the reserve consistent with the outcome of a completed intergovernmental process.

b) Where necessary to address site specific values, the reserve may be decreased by up to 0.5 tree-lengths from the outer edge of the zone, provided there is no net loss of reserve area within the development area. Site specific values will be determined by the signing Forester and documented within the site plan.

6.6 Where Class 2 HTHFs are located, they will be retained and a 100m (average width) reserve, measured from the edge of the HTHF, will be maintained to protect the HTHF, subject to (a) and (b).

a) Where reduction of the reserve is required for road access, other infrastructure, or to address a safety concern and no practicable alternative exists, the Timber Sales Manager may reduce the size of the reserve consistent with the outcome of a completed intergovernmental process.

b) Where necessary to address site specific values, the reserve may be decreased by up to 0.5 tree-lengths from the outer edge of the zone, provided there is no net loss of reserve area within the development area. Site specific values will be determined by the signing Forester and documented within the site plan.

6.7 Where the Class 2 HTHF is a “Karst Feature” as identified in Schedule 2 of the HGLUOO, it will be managed in accordance with Section 6.6, and:

a) the Timber Sale Manager will undertake to comply with the GAR, “*Order to Identify Karst Resource Features for the Queen Charlotte Islands*”, effective September 15, 2006.

Haida Traditional Forest Features
HGLUOO s. 6

6.8 Where Class 1 HTFFs are located, they will be retained and a 1.0 tree-length (average width) reserve, measured from the edge of the HTFF, will be maintained to protect the HTFF. Adjacent to the reserve a 1.0 tree-length (average width) management zone, measured from the edge of the reserve, will be maintained to protect the reserve, subject to (a), (b) and (c).

a) Where necessary to address site specific values, the Class 1 HTFF management zone located in Section 6.8, may be decreased by up to 0.5 tree-lengths from the outer edge of the management zone, provided there is no net loss of management zone area within the development area.

b) The area of the reserve and management zones may be reduced, if necessary for road access, other infrastructure or to address safety concerns or to protect the Class 1 HTFF from windfall, provided:

i) an intergovernmental process is completed; and

ii) an adaptive management plan is developed and implemented.

c) Despite Section 6.8, a Class 1 HTFF may be altered or removed, provided:

i) an intergovernmental process is completed; and

ii) the alteration or removal is required for road access or other infrastructure and there is no practicable alternative.

6.9 Where Class 2 HTFF features (excluding hellebore) are located within a development area, ≥ 50% of the located occurrences will be retained and their integrity protected using sufficient stand level retention to maintain the integrity of the HTFF. Additional strategies for preserving the integrity of HTFFs may include the following:

a) adjusting operational boundaries to exclude HTFF areas; and

b) modifying harvest practices near HTFFs.

6.10 Where Indian hellebore, a Class 2 HTFF, is located:

a) 50% of the area of Indian hellebore HTFF's will be retained in stand level retention; or

b) 50% of the Indian hellebore features will be retained in addition to:

i) maintaining directional falling away from the features;

ii) retaining non-merchantable trees around the features; and

iii) maintaining a machine-free zone around the feature.

6.11 Despite Sections 6.9 and 6.10 above, a Class 2 HTFF may be altered or removed, provided that:

a) the alteration or removal is required for road access or other infrastructure and there is no practicable alternative; and

b) an intergovernmental process is completed.

Cedar Retention
HGLUOO s. 7

6.12 The Timber Sales Manager will retain a minimum of 15% of the combined pre-harvest cedar composition of the development area, measured in hectares where development areas are either:

a) > 10ha and the pre-harvest cedar (western red cedar and yellow cedar) content is >30%; or

b) ≤ 10ha and the pre-harvest cedar (western red cedar and yellow cedar) content is >60%.

6.13 The areas that contribute to the cedar retention requirements will be calculated by summing the weighted cedar content for the contributing areas, in hectares, based on the current vegetation resource inventory mapping for the applicable polygons.

6.14 The Timber Sales Manager will meet the 15% cedar retention requirement using the following strategies in the order they appear below:

a) areas designated to contribute to the cedar retention requirement will be co-located with reserves, management zones, and stand level retention areas designated for other objectives associated with the current development area and exclude areas previously designated for other development areas;
b) where existing cedar reserves are insufficient to meet the cedar retention requirements, then additional cedar retention areas will be retained; and
c) cedar retention areas will have an area ≥ 1.0 ha and be large and contiguous to the extent practicable. Cedar retention areas will have a range of diameters representative of the pre-harvest stand as prescribed by a Qualified Professional.

Cedar Harvest

6.15 The Plan Holder will manage cedar harvest in the TSA consistent with *Ministerial Order 75.02(2)-01/TSA25* as per *Ministerial Direction given to BC Timber Sales from Minister Doug Donaldson, dated August 27, 2018* and described below:

a) the Plan Holder will, over the five (5) year term of the Order, limit the sale of cedar to a maximum of the Plan Holder's proportionate share of the cedar partition volume within TSA 25. The Plan Holder apportionment in TSA 25 is 175,868m^3, the annual cedar partition volume is 66,981m^3 and the five (5) year term volume of cedar will be a maximum of 334,905m^3;
b) any undercut annual cedar partition volume from a previous year can be brought forward;
c) the Plan Holder will not sell more than 110% of the available cedar partition volume which includes the annual cedar partition volume plus any undercut cedar partition volume from previous years.
d) the cedar allocation will change with future AAC determinations and the Plan Holder will adopt subsequent applicable Ministerial Orders or Ministerial Direction.

Cedar Regeneration

6.16 To ensure that cedar (red and yellow) is maintained into the future, the Timber Sales Manager will ensure cedar is regenerated within a SU of a development area at a density consistent with the naturally occurring percentage of cedar for the predominant BEC site series of the SU. The even aged stocking standards presented in Appendix C prescribe the minimum stems per hectare of cedar that will be established as free growing stems at the free growing declaration. The prescribed minimum cedar target is based on analysis of TEM, VRI, and cruise data to determine the average cedar content of old or mature forest inventory polygons by BEC site series pre-harvest.

6.17 The percentage of red and yellow cedar and the location of planted cedar within the SU will be determined by the prescribing Forester based on the proportion of site series, available microsites, and the even aged stocking standards in Appendix C.

The Timber Sales Manager will use the following strategies to meet the objective:

a) meet the minimum stocking standard for cedar by planting and/ or natural regeneration;

b) use a Qualified Professional to assess the hazard of deer browse and where the hazard is moderate to high, determine the appropriate type of protection for planted cedar and the projected removal schedule;

c) fill plant an area once if the cedar content falls below the minimum stocking standard for cedar. (The cedar composition will be assessed using the FLNRORD Silviculture Survey Procedures Manual);

d) use the following criteria to determine acceptable cedar at free growing:

   i) good form and vigour as per Appendix B; and

   ii) free growing height ≥ 1.2m tall; and

e) determine that the minimum stocking standard for cedar is achieved with free growing surveys conducted between six (6) and 20 years post-harvest commencement. The Timber Sales Manager will declare that the minimum cedar content has been met when the free growing declaration is submitted and available in RESULTS.

6.18 The cedar regeneration requirement for a given cutblock may be lower than those set in Section 6.17 (a), provided that the new requirement is consistent with the outcome of a completed intergovernmental process.

Western Yew Retention
HGLUOO s. 8

6.19 Where western yew patches are located within a development area, they will be protected by establishing areas of stand level retention.

6.20 Despite 6.19, western yew patches may be altered or removed to accommodate operational requirements for road and bridge construction.

6.21 Where individual western yew trees are found in a harvest area and they are not within a western yew patch, they will be retained where practicable.

6.22 Despite section 6.21, where 100% of individual western yew trees cannot be retained in a development area because of safety, or it is not practicable, the Plan Holder will remove western yew trees to the minimum extent practicable. The Timber Sales Manager will complete an intergovernmental process if it is anticipated that 75% or greater of the total stems of western yew found cannot be retained in the development area.

Cultural Cedar Stands
HGLUOO s. 9

6.23 Where cultural cedar stands are located, they will be retained and a 0.5 tree-length (minimum width) reserve will be maintained to protect the feature. The reserve will be protected by maintaining a 1.0 tree-length (average width) management zone, measured from the outer boundary of the reserve, subject to 6.24, 6.25, and 6.26.

6.24 Where removal of a cultural cedar stand is required for road access, other infrastructure, to address a safety concern, or for operational feasibility the Timber Sales Manager will complete an intergovernmental process and:

a) remove the cultural cedar stand, consistent with the outcome of the intergovernmental process;

b) alter a CMT in a cultural cedar stand in accordance with an alteration permit issued by the Archaeological Branch; and

c) the harvested trees, monumental or CMT, will be managed in accordance with the outcome of the intergovernmental process.

6.25 Where a reduction in the size of the reserve is required for road access, other infrastructure, for operational feasibility or to address a safety concern the Timber Sales Manager may reduce the area of the reserve(s) consistent with the outcome of a completed intergovernmental process.

6.26 Where a reduction in the size of the management zone is necessary to address operational constraints or a safety concern, the Timber Sales Manager may reduce the area of the management zone(s) consistent with the outcome of a completed intergovernmental process.

Culturally Modified Trees
HGLUOO s. 9

6.27 Where CMTs are located, they will be retained and a 0.5 tree-length (minimum width) reserve will be maintained to protect the feature. The reserve will be protected by maintaining a 1.0 tree-length (average width) management zone, measured from the outer boundary of the reserve, subject to 6.28, 6.29, and 6.30.

6.28 Where alteration or removal of a CMT is required for road access, other infrastructure, to address a safety concern, or for operational feasibility, the Timber Sales Manager may alter or remove the CMT, consistent with the outcome of a completed intergovernmental process and in accordance with an alteration permit issued by the Archaeological Branch. The harvested CMT will be managed in accordance with the outcome of the intergovernmental process.

6.29 Where a reduction in the size of the reserve is required for road access, other infrastructure, for operational feasibility or to address a safety concern the Timber Sales Manager may reduce the area of the reserve(s) consistent with the outcome of a completed intergovernmental process.

6.30 Where a reduction in the size of the management zone is necessary to address operational constraints or a safety concern, the Timber Sales Manager may reduce the area of the management zone(s) consistent with the outcome of a completed intergovernmental process.

Monumental Cedar
HGLUOO s. 9

6.31 Where monumental cedar > 120cm DBH are located, they will be retained and a 0.5 tree-length (minimum width) reserve will be maintained to protect the feature. The reserve will be protected by maintaining a 1.0 tree-length (average width) management zone, measured from the outer boundary of the reserve, subject to 6.32, 6.33, and 6.34.

6.32 Where windfirming or removal of a monumental cedar >120cm DBH is required for road access, other infrastructure, to address a safety concern, for operational feasibility or due to a request from the Cultural Wood Access Program to harvest >120cm monumental, the Timber Sales Manager may windfirm or remove the >120cm DBH monumental cedar consistent with the outcome of a completed intergovernmental process.

6.33 Where a reduction in the size of the reserve is required for road access, other infrastructure, for operational feasibility or to address a safety concern the Timber Sales Manager may reduce the area of the reserve(s) consistent with the outcome of a completed intergovernmental process.

6.34 Where a reduction in the size of the management zone is necessary to address operational constraints or a safety concern, the Timber Sales Manager may reduce the area of the management zone(s) consistent with the outcome of a completed intergovernmental process.

6.35 When monumental cedars are >100cm and ≤120cm DBH are located, they will be retained and a 0.5 tree-length (minimum width) reserve will be maintained to protect the feature. The reserve will be protected by maintaining a 1.0 tree-length (average width) management zone, measured from the outer boundary of the reserve, subject to 6.36 and 6.37.

6.36 Despite Section 6.35, a monumental cedar >100cm and ≤120cm DBH located in a development area, and not located within a cultural cedar stand may be harvested, subject to (a) and (b).

a) At least one monumental cedar or 10% of the monumental cedar >100cm and ≤120cm are protected within the development area.

b) The monumental cedar is not required for a cultural use as indicated by an intergovernmental process or the Haida Gwaii Cultural Wood Program.

6.37 Where a reduction in the size of the monumental cedar reserve is required for road access, other infrastructure, for operational feasibility or to address a safety concern the Timber Sales Manager may reduce the area of the reserve(s) consistent with the outcome of a completed intergovernmental process.

6.38 Where a reduction in the size of the monumental cedar management zone is necessary to address operational constraints or a safety concern, the Timber Sales Manager may reduce the area of the management zone(s) consistent with the outcome of a completed intergovernmental process.

6.39 When monumental cedars are harvested they will be identified in the TSL and 100% of the monumental cedars will be marked and delivered to the Haida Gwaii Natural Resources Office and turned over to the Cultural Wood Access Program.

Social Objectives

Forest Stewardship Plan Implementation

6.40 The Timber Sales Manager will adhere to the 2018 Haida Gwaii FSP Implementation Agreement regarding results and strategies in this Plan.

Information Sharing

FPPR s. 10, 20, 21, 22

6.41 The Plan Holder will ensure that a primary forest activity will not cause damage to a cultural heritage resource that is:

a) referred to in s. 10 of the FPPR, as it was on the Date of Submission;
b) likely to be adversely impacted by that primary forest activity;
c) not conserved or protected through:
   i) legislation, plans or policies; or
   ii) other means or arrangements, developed or accepted through information sharing with the Haida Nation; and
d) important, valuable and scarce in the context of a traditional use by the Haida Nation, based on input from the Haida Nation.

6.42 The Timber Sales Manager will share information related to primary forest activities as it relates to cultural heritage resources that are the focus of traditional use and continued importance to the Haida Nation as determined by the Haida Gwaii Management Council through the *Kunst'aa guu – Kunst'aayah Reconciliation Protocol*. Information will be shared with the Haida Nation through the Solutions Table as per the protocol. In this process the Timber Sales Manager will:

a) identify areas where harvesting and/ or road construction activities are planned and request information with regard to cultural heritage resources that are the focus of traditional use and continued importance;
b) keep a record of any information provided by the Haida Nation on cultural heritage resources that are the focus of traditional use and continued importance within the area; and
c) document how management activities will accommodate cultural heritage resources that are the focus of traditional use and continued importance, or why efforts to accommodate the traditional use were not made.

Development Area Referrals

6.43 The Timber Sales Manager will adhere to requirements of the Haida Gwaii Management Council and the Solutions Table for development area referrals and spatial data uploads. This includes development area line work and the HGLUOO Feature Spatial information as well as sharing all assessments upon request by the Haida Nation.

Public Engagement

6.44 The Timber Sales Manager will, at a minimum of once annually, host a public engagement meeting on Haida Gwaii.

6.45 The Timber Sales Manager will, at a minimum of once annually, meet with the Village Councils of Old Massett, Skidegate, Masset, Port Clements, Queen Charlotte and Sandspit.

6.46 The Timber Sales Manager will annually post the current FSP, appendices, and development plans on the Chinook Business Area's FSP page of the BCTS website.

6.47 Prior to submission to the Solution Table, the Timber Sales Manager will advertise each proposed development in the form of an information sharing package (inclusive of overview maps and shape files) on the Chinook Business Area's Forest Stewardship Plan page of the BCTS website for a period of 60 days during which the public will have the opportunity to review and comment.

6.48 The Timber Sales Manager will participate in Haida Gwaii "All Licensee'" public forums and discussions as scheduled.

Annual Reporting and Data Submission
HGLUOO s. 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17 and 23

6.49 Where applicable HGLUOO features and associated reserves, management zones, no work zones and stand level retention are maintained by the Timber Sales Manager, the feature(s) and associated reserve(s), management zone(s), will be documented for each proposed development area and the Timber Sales Manager will submit the digital spatial data, at a minimum, along with the development area shape(s) at the time of TSL (cutting authority) submission, to the CHN and to the Province of BC. See Table 5 for specific reporting activities required under the HGLUOO.

6.50 Any features not recorded within a development area and not reported at time of TSL submission will be submitted by December 31st of each year to the CHN and to the Province of BC.

Table 5: Summary for HGLUOO Objectives Requiring Annual Reporting and Data Submission

Objective Requiring Annual Reporting & Data Submission	Reporting Element	FSP Section Reference
Class 1 HTHFs	HTHF & Reserve	6.4
Class 2 HTHFs	HTHF & Reserve	6.6
Class 1 HTFFs	HTFF & Reserve	6.8
Class 2 HTFFs	HTFF & applicable stand level retention	6.9
Cedar Retention	Cedar retention areas	6.12
Western Yew Retention	Western Yew Patches, individual Yew Tree retention, & applicable stand level retention	6.19, 6.21
Cultural Cedar Stands, CMTs & Monumental Cedar	Cultural Cedar Stands, CMTs, Monumental Cedar, Reserves, Reserves & Management Zones	6.31, 6.35
Type I Fish Habitat	Type I Fish Habitat, Reserve & applicable Management Zone	6.58
Type II Fish Habitat	Type II Fish Habitat, No-Harvest Zone & Management Zone	6.60
Active Fluvial Units	Active Fluvial Unit & Management Zone	6.62, 6.63, 6.64
Forested Swamps	Forested Swamp & Management Zone	6.83
Ecological Representation	Old Forest Reserves	6.89
Red & Blue-listed Plant Communities	Red & Blue-listed Plant Communities	6.92, 6.93,6.94
Black Bear Dens	Black bear dens (existing & newly discovered) and associated no work zones	6.95,6.96,6.97,6.98,6.99
Marbled Murrelet Habitat	Class 1 or 2 area identified	6.100,6.101
Northern Goshawk Habitat	New nests reserve zones and restricted activity zones	6.102, 6.103,6.104,6.105
Great Blue Heron Nests	New nests reserve zones and restricted activity zones	6.106, 6.107
Saw-whet Owl Nests	New nests reserve zones and restricted activity zones	6.108, 6.109, 6.110
Forest Reserves	Forest Reserves	6.112, 6.113
Spatial Reporting	Development Area Shapes	6.44

Recreation Resources
FRPA s. 180, 181, s.56

6.51 The Timber Sales Manager will undertake to comply with the legislative requirements of FRPA s. 180, 181 and s. 56 as they relate to established recreation sites and trails. As of the date of Plan submission, there are six recreation sites and four recreation trails established (no interpretive sites established) with designated objectives within the Plan Area (refer to Table 1, above).

6.52 Prior to proposing timber harvest or road construction in an area adjacent to a designated recreation site or trail with established objectives, the Timber Sales Manager will consult with the government agency responsible for the recreation site or trail, to ensure that the proposed activity will be conducted in accordance with the established objectives applicable to the area.

6.53 Where "non-motorized access" is the applicable established objective for the designated recreation site or trail, and proposed new road construction will provide motorized access to the recreation resource, the Timber Sales Manager will:

a) deactivate the road, to a condition which re-establishes the degree of motorized access similar to that which existed prior to harvest operations within two years of the TSL expiry; or
b) obtain written approval from the government agency responsible for the recreation site or trail, to maintain access for further operations or activities, and the access will be established as per the approval.

Visual Quality
FRPA s. 180, 181, FPPR s 1.1 9.2, GAR s. 7(2),

6.54 Primary forest activities proposed by the Timber Sales Manager will be consistent with the *HGNRD Stewardship Policy for Managing Visual Resources on Haida Gwaii* established by the District Manager and outlined in the letter (sent to all licensees on April 10, 2013), and any subsequent amendments made by the District Manager.

6.55 Where there is an established VQO, the Timber Sales Manager will complete a detailed Visual Impact Assessment using a Qualified Professional. The assessment will ensure that proposed harvest and road construction activities including the current state of the landform meet the established VQO consistent with FRPA s. 1.1.

6.56 Where primary forest activities are adjacent to Highway 16, the Timber Sales Manager will ensure the design of primary forest activities considers:

a) roadside visual design principles;
b) information received through public engagement; and
c) highway viewing angle.

Aquatic Habitats

6.57 For the purposes of this FSP, the locations of Type I and II fish habitat are as mapped in Schedule 4 of the HGLUOO, unless field assessment indicates otherwise. Where there is a conflict between the HGLUOO and the field assessment as to the location of the Type I or II fish habitat the field assessment shall prevail.

For the purposes of defining stream riparian classes, the following is provided:

a) the riparian reserve begins at the outer edge of the Type I or II Fish Habitat, including the active floodplain; and
b) the riparian management zone begins at the outer edge of the riparian reserve, or if there is no riparian reserve, the edge of the stream channel bank. As the HGLUOO does not specify an RMA width for upland streams the FSP will adopt FPPR requirements regarding RMA's s. 47 2(e) and 47 3(a) and (b).

Type I Fish Habitat
HGLUOO s. 10

6.58 With reference to individual development areas, where Type I fish habitat occurs, it will be retained and a 2.0 tree-length (minimum width) riparian reserve, measured from the outer edge of the Type I habitat, will be maintained to protect the Type I fish habitat, subject to a) and b).

a) Where necessary to address site-specific values, the Type I reserve identified under Section 6.58 may be increased or decreased by up to 0.5 tree-lengths, measured from the outer edge of the reserve, provided there is no net loss of Type I reserve area within the development area.

b) Within an individual development area, up to 5% of the total area of the Type I habitat reserve may be altered or removed, provided that:
   i) the integrity of the Type I fish habitat is maintained; and
   ii) the alteration or removal is required for road or bridge construction or to address a safety concern and no practicable alternative exists.

6.59 Despite Section 6.58 the area of the reserve zone in a development area may be further altered or removed, provided that:

a) the alteration or removal is required for road and bridge construction, or to address a safety concern, and there is no practicable alternative;
b) a Qualified Professional completes an assessment of the risk that primary forest activities pose to the fish stream;
c) the integrity of the Type I fish habitat is maintained;
d) an adaptive management plan is developed and implemented; and
e) an intergovernmental process is completed.

Type II Fish Habitat
HGLUOO s. 11

6.60 With reference to individual development areas, where Type II fish habitat occurs, it will be retained and a 1.0 tree-length (minimum width) riparian reserve, measured from the outer edge of the Type II habitat, will be maintained to protect the Type II fish habitat. Adjacent to the reserve a 0.5 tree-length (average width) management zone will be maintained to protect the reserve, subject to a) b) and c.

a) Within an individual development area, up to 5% of the total area of the Type II habitat reserve may be altered or removed, provided that the integrity of the Type II fish habitat is maintained.

b) Within an individual development area, the total area of the Type II habitat management zone may be reduced by up to 20%, measured in hectares or basal area.

c) The retention of trees within the management zone will be based on consideration of the likelihood of damages to the reserve caused by windthrow.

6.61 Despite Section 6.60, the combined area of the Type II habitat reserve and management zones may be further reduced, provided that:

a) the alteration or removal is required for road and bridge construction, or to address a safety concern, and there is no practicable alternative;
b) an assessment of risk to the fish stream from the forest development and disturbance is completed by a Qualified Professional;
c) the integrity of Type II fish habitat is maintained;
d) an adaptive management plan is developed and implemented; and
e) an intergovernmental process is completed.

Active Fluvial Units
HGLUOO s. 12

6.62 With reference to individual development areas, where naturally occurring AFUs are identified, any forest located within the AFU will be retained and a 1.5 tree-length (minimum width) management zone, measured from the outer edge of the AFU, will be maintained to protect the AFU.

6.63 Despite Section 6.62, within an individual development area, the amount of mature and old forest within the AFU management zone(s) may be reduced by up to 10%, measured in hectares.

6.64 In addition to Section 6.63, within an individual development area, the amount of mature and old forest within the AFU management zone(s) may be further reduced by an additional 10%, measured in hectares, provided that:

a) sufficient functional riparian forest is retained to protect the integrity of the AFU; and

b) an adaptive management plan is developed, documented and implemented prior to reducing the size of the AFU management zone(s) under Section 6.62.

Upland Stream Areas
HGLUOO s. 13

6.65 Within each watershed sub-unit indicated on HGLUOO Schedule 6, and where development areas are proposed by the Timber Sales Manager, the Timber Sales Manager will do the following:

a) complete a watershed analysis by a Qualified Person that determines the hydrologic recovery of polygons in upland stream area, where the watershed forest area includes all land area with the exception of Type 1 and 2 fish habitat area;

b) ensure that rate of harvest within a watershed sub-unit is consistent with the watershed analysis results and that at least 70% of the forest area, measured in hectares, in the upland stream area is hydrologically recovered; and

c) maintain and update a ledger, that tracks the development activities within watershed sub-units.

6.66 Despite Section 6.65, <70% of the forest, measured in hectares, in the upland stream area may be retained, provided that the Timber Sales Manager ensures the following:

a) the revised upland stream area retention percentage is consistent with the outcome of a completed intergovernmental process;

b) a watershed assessment that indicates the watershed sub-unit sensitivity to forest development and disturbance; and the amount, type and distribution of forest cover that is required to sustain natural hydrological and fluvial process is completed by a Qualified Professional;

c) the rate of harvest within a watershed sub-unit is consistent with the watershed assessment results provided in Section 6.65 (b); and

d) an adaptive management plan is developed, documented and implemented prior to reducing the upland stream area retention percentage below 70%, measured in hectares.

6.67 Where upland streams are direct tributaries to Type I or II fish habitat, sufficient vegetation, which may include trees, will be retained to maintain stream bank and channel stability, as determined by a Qualified Professional.

6.68 In upland stream areas, where stream channels are incised, (gullies greater than 3m deep) have steep gradients (greater than 50%) and support riparian plant communities that are dependent on high-humidity microclimates, sufficient trees and vegetation will be retained to maintain the riparian plant community as determined by a Qualified Professional.

Sensitive Watersheds
HGLUOO s. 14

6.69 Within each sensitive watershed indicated on HGLUOO Schedule 7, and where development areas are proposed by the Timber Sales Manager, the Timber Sales Manager will do the following:

a) complete a watershed analysis by a Qualified Person that indicates the watershed ECA condition;

b) maintain and update a ledger which tracks the development activities within the sensitive watersheds.

6.70 Within each sensitive watershed indicated on HGLUOO Schedule 7, and where development areas are proposed by the Timber Sales Manager, harvest rates will be consistent with the following:

a) watersheds ≥ 500ha, up to 5% of the watershed area may be harvested in a 5-year period;

b) watersheds < 500ha, up to 10% of the watershed area may be harvested in a 10-year period;

c) despite Sub-sections a) and b), no harvesting will occur in sensitive watersheds with an ECA ≥ 20%; and

d) harvest rates and ECAs will be based on the watershed analysis required under Section 6.69, above.

6.71 Despite Section 6.70, for a given sensitive watershed, the Timber Sales Manager may maintain a rate of harvest and/ or an ECA that exceeds the threshold, provided the Timber Sales Manager ensures the following:

a) the revised rate of harvest and/ or ECA threshold is consistent with the outcome of a completed intergovernmental process;

b) a watershed sensitivity assessment is completed by a Qualified Professional indicating the watershed sensitivity to past, current and proposed forest development and disturbance; and the amount, type and distribution of forest cover required to sustain natural hydrological and fluvial process;

c) the rate of harvest within the watershed is consistent with the watershed assessment results provided in b) above; and

d) an adaptive management plan is developed, documented and implemented prior to increasing the rate of harvest and/ or ECA for the watershed.

Community Watersheds
FPPR s. 8.2

6.72 Prior to proposing primary forest activities within a community watershed to which s. 8.2 of the FPPR applies, the Timber Sales Manager will do all of the following:

a) complete a watershed assessment to assess the current watershed condition; the potential impacts on water quality, water quantity, including risks to public health, and timing of water flows from primary forest activities; using a Qualified Professional and provide a harvest schedule within the community watershed which maintains the factors identified in the community watershed assessment;

b) ensure that primary forest activities are consistent with any recommendations made in the watershed assessment;

c) ensure the watershed assessment indicated in Sub-section a), is updated by a Qualified Professional at least every five years, unless no additional primary forest activities are proposed; and

d) annually maintain and update a ledger which tracks the development activities within the community watershed.

6.73 Prior to development activities within a community watershed, the Timber Sales Manager will form an agreement that documents:

a) who is responsible for completing the watershed assessment and any updates that may be required;

b) how the rate of harvest will be allocated, consistent with the watershed analysis; and

c) who is responsible for tracking the rates of harvest within the community watershed.

Wetland Riparian Classes
FPPR s. 48

6.74 Where a wetland meets the definition of Type I or II Fish Habitat, as defined in the HGLUOO, then the wetland is classed as Type I or II Fish habitat and managed accordingly, otherwise, the Timber Sales Manager adopts the FPPR requirements of s. 48 in relation to wetland riparian classes and minimum riparian reserve and management zone widths.

Lake Riparian Classes
FPPR s. 49

6.75 Where a lake meets the definition of Type I or II fish habitat, as defined in the HGLUOO, then the lake is classed as Type I or II Fish habitat and managed accordingly, otherwise the Timber Sales Manager adopts the FPPR requirements of s. 49 in relation to lake riparian classes and minimum riparian reserve and management zone widths.

Restrictions in a Stream, Wetland or Lake Riparian Management Area
FPPR s. 50

6.76 For Type I fish habitat, Type II fish habitat, and upland streams; and wetlands and lakes that do not meet the definition of Type I or II fish habitat, as defined in the HGLUOO; the Timber Sales Manager adopts the FPPR requirements of s. 50 (1) in relation to restrictions within a riparian management area. For all riparian management areas, the Timber Sales Manager adopts the requirements of s. 50 (2) and (3).

Restrictions in a Stream, Wetland or Lake Riparian Reserve Zone
FPPR s. 51

6.77 For streams, wetlands and lakes that do not meet the definition of Type I or II fish habitat, as defined in the HGLUOO, the Timber Sales Manager will adopt the FPPR requirements of s. 51 in relation to restrictions of activities within a riparian reserve zone.

Retention of Trees within the Riparian Management Zones
FPPR s. 12(3)

6.78 Retention of trees within riparian management zones will be as follows:

a) for Upland Streams, the retention of trees within riparian management zones, measured in basal area, will be prescribed by the signing Forester and documented within the Site Plan in consideration of the factors listed in FPPR Schedule 1, s. 2 as of the date of submission of the FSP; and

b) for wetlands and lakes that do not meet the definition of Type I or II fish habitat, as defined in the HGLUOO, with respect to FPPR s. 12(3), unless specific wildlife and/ or biodiversity values are identified in the riparian management area of a wetland or lake, retention of trees within the RMZ will be based on consideration of the likelihood of damages to the riparian feature or RRZ caused by windthrow. Basal area retention will range from 0-100%, as deemed appropriate by the signing Forester and documented within the Site Plan.

Biodiversity

Soils
FPPR s. 5 (not subject to approval)

6.79 The Timber Sales Manager undertakes (FPPR s. 12.1(1)) to comply with the legislated requirements setting limits for soil disturbance and for permanent access structures as outlined in FPPR s. 35 and 36.

Maximum Cutblock Size
FPPR s. 64

6.80 The Timber Sales Manager undertakes (FPPR s. 12.1(3)) to comply with the legislated requirements in relation to maximum cutblock size (FPPR s. 64).

Adjacency
FPPR s. 65

6.81 The Timber Sales Manager undertakes (FPPR s. 12.1(3)) to comply with the legislated requirements in relation to harvesting adjacent to another cutblock (FPPR s. 65).

Stand Level Wildlife & Biodiversity
FPPR s. 9.1

6.82 The Timber Sales Manager will undertake to comply with *FPPR* s.12.1(4), the legislated requirements in relation to wildlife tree retention (FPPR s. 66) and restriction on harvesting in a wildlife tree retention area (FPPR s. 67).

Forested Swamps
HGLUOO s. 15

Forested Swamps refer to the following BEC types: CWH wh1 – 12; CWH wh2 – 06; CWH vh2 – 13 (referred to as western red cedar-Sitka spruce/ skunk cabbage ecological communities under the HGLUOO).

6.83 With reference to individual development areas, where forested swamp areas ≥0.25ha occur, they will be retained and a 1.5 tree-length (average width) management zone will be maintained to protect the forested swamp.

6.84 Within the management zone maintained under Section 6.83, >70% of the forest, measured in hectares, will be retained as mature or old forest.

6.85 Where previous alteration or harvesting has reduced the amount of mature or old forest below 70%, 100% of the mature or old forest will be retained unless removal is required for road construction or crossings.

6.86 Despite Section 6.85, the amount of mature or old forest retained in the management zone may be reduced to 60%, measured in hectares, provided that:

a) the amount of mature and old forest retained is sufficient to maintain the integrity of the forested swamp; and

b) an adaptive management plan is developed, documented and implemented prior to reducing the percentage of mature and old forest below 70%, measured in hectares.

Ecological Representation
HGLUOO s. 16

6.87 Within each Landscape Unit indicated in HGLUOO Schedule 10, and where development areas are proposed by the Timber Sales Manager, the Timber Sales Manager will do the following prior to development activities:

a) use a Qualified Professional, maintain the current analysis of ecological representation which indicates the current inventory of old forest by site series and LU; and

b) establish an agreement for each LU that documents:

i) who will complete the ecological representation analysis;

ii) how the required old forest retention will be allocated;

iii) how old forest recruitment, consistent with Section 6.91 below, will be allocated; and

iv) who will track old forest retention.

6.88 The Timber Sales Manager will maintain and update a ledger, annually at a minimum, which tracks the depletions and additions to the old forest inventory by site series and LU.

6.89 Where development activities are proposed within a forest area that is classified as a rare or common site-series, consistent with HGLUOO Schedule 10, the Timber Sales Manager will retain the amount (measured in hectares) of old forest greater than or equal to the share of applicable target listed for said site-series in Schedule 10, consistent with Section 6.87.

6.90 Where practicable, old forest areas that are retained consistent with Section 6.89, will include habitat for local species at risk and regionally important wildlife, including, but not limited to:

a) northern goshawk nesting and foraging habitat;

b) marbled murrelet nesting habitat, great blue heron nesting habitat, and northern saw-whet owl core nesting areas; and

c) black bear dens and denning habitat.

6.91 Where there is insufficient old forest available to meet the requirements under Section 6.89, the Timber Sales Manager will identify, retain and recruit old forest stands where necessary, through natural processes. To meet the objective in the shortest possible timeframe, older stands will be chosen before younger stands when identifying recruitment areas.

Strategies that will be used to recruit old forest stands include:

a) identification of mature stands which exhibit old forest characteristics and are on the appropriate BEC site-series in the LU that are constrained for other reasons and designating them as Wildlife Tree Retention Areas to meet the ecological representation requirement.; and

b) where additional representation is required unconstrained mature stands on the appropriate BEC site series that exhibit old forest characteristics will be identified and designated as Wildlife Tree Retention Areas set aside to meet the ecological representation requirements.

Red and Blue-Listed Ecological Communities
HGLUOO s. 17

6.92 With reference to individual development areas, where red or blue-listed ecological communities ≥0.25ha occur, they will be retained.

6.93 Despite Section 6.92, up to 5% of the area of each type of red-listed ecological community occurring in a development area may be altered or harvested if required for road access or to address a safety concern.

6.94 Despite Section 6.92, up to 30% of the area of each blue-listed ecological community occurring in a development area may be altered or harvested if the harvesting is required for:

a) road access or to address a safety concern; or

b) a reason other than one specified in Sub-section (a), provided that the harvesting is consistent with the outcome of a completed intergovernmental process.

Wildlife

Black Bear Dens
HGLUOO s. 18

6.95 With reference to individual development areas, where a black bear den is confirmed by a Qualified Professional, a 20m radius (minimum width) reserve zone will be maintained around the den. The reserve zone will be protected by a 1.0 tree-length (average width) management zone, measured from the outer edge of the reserve zone.

6.96 If an active black bear den is identified by a Qualified Professional, then a two-tree-length no-work zone will be maintained from the management zone during the winter hibernation season between November 15th and April 15th. If a cub is present the time will be extended to May 15th. Primary forest activities including hauling will not occur in the no-work zone during the time period specified above unless permitted by a completed intergovernmental process.

6.97 Despite Section 6.95, alteration or removal of a black bear den or its reserve, or both may occur, provided that:

a) the alteration and, or removal is consistent with the outcome of a completed intergovernmental process;

b) the alteration and/ or removal is required for road access or to address a safety concern; and

c) the alteration or removal does not occur during the winter hibernation season.

6.98 For the purposes of recruiting future black bear den sites, where practicable:

a) suitable western red cedar or yellow-cedar will be retained within the management zone identified in Section 6.95; and

b) trees, snags, stumps and logs >80cm in diameter will be retained within stand level retention associated with the development area.

6.99 Despite Section 6.95, alteration or removal of trees within the management zone may occur, outside of the winter hibernation season, consistent with any of the following:

a) the alteration and/ or removal is required to accommodate operational requirements for road or bridge construction and no practicable alternative exists; or

b) for any existing road under active tenure, the alteration and/ or removal is required to accommodate: road maintenance, deactivation, the removal of danger trees, brushing and clearing within a right-of-way, for safety purposes; or

c) the alteration and/ or removal is required to mitigate the impact of windthrow.

Marbled Murrelet Nesting Habitat
HGLUOO s. 19

6.100 Where development areas are proposed in a LU, the Timber Sales Manager will:

a) retain an amount of marbled murrelet nesting habitat within each LU greater than or equal to the LU target area listed in HGLUOO Schedule 9;

b) ensure the nesting habitat referred to in Sub-section (a), is

i) within the areas shown in HGLUOO Schedule 11; or

ii) in an area different than the area identified in HGLUOO Schedule 11, provided the nesting habitat is Class 1 or 2, as identified by a Qualified Professional; and

c) maintain and update a ledger, annually at a minimum, which tracks the depletions and additions to the marbled murrelet nesting habitat retention inventory, by LU.

6.101 In respect of the WHAs, the Timber Sales Manager will comply with the applicable GWMs, as per FPPR s. 69.

Northern Goshawk Habitat
HGLUOO s. 20

6.102 The Timber Sales Manager will retain all Northern Goshawk reserves as shown on HGLUOO Schedule 12.

6.103 If the Timber Sales Manager discovers a potential Northern Goshawk nest that is outside the HGLUOO Schedule 12 reserves, the Timber Sales Manager will do all of the following:

a) cease block and road development, or harvesting and road-building activities

i) maintain a restricted activity zone for a minimum of 800m around the potential nest pending the advice of a Qualified Professional and report the location of the potential nest to the Council of the Haida Nation and the Province of BC as soon as practicable; and

ii) maintain a reserve zone around the nest site that is a minimum of 200 hectares in area and that maximizes the best available nesting and foraging habitat to protect the integrity of the nest site.

b) follow the recommendations of a Qualified Professional for managing primary forest activities around the nest and surrounding area; and

c) where there has been previous alteration in the reserve area consider recruitment of mature and old forest in the reserve through natural processes

6.104 Despite Sections 6.102 and 6.103, Northern Goshawk reserves (HGLUOO Sch. 12) and reserves may be reduced, provided that:

a) the reduction is consistent with the outcome of a completed intergovernmental process;

b) the reduction is required for road access, where no practicable alternative exists, or to address a safety concern;

c) the reduction does not occur during Northern Goshawk breeding season; and

d) there is no net loss to the Northern Goshawk reserve area.

6.105 In respect of the WHAs, the Timber Sales Manager will comply with the applicable GWMs, as per FPPR s. 69.

Great Blue Heron Nesting Habitat
HGLUOO s. 21

6.106 Where great blue heron nest sites occur or are identified

a) they will be protected with an area of 45 hectares that is a minimum radius of 350m (minimum width), measured from the edge of the nest site

b) an additional restricted activity zone of 150m starting 350m from the nest site will be maintained during the great blue heron breeding season

6.107 Where a person conducting primary forest activities under this FSP discovers a new potential great blue heron nest site, the person will:

a) cease harvesting and road-building activities within a 350m radius of the potential nest pending the advice of a Qualified Professional and report the location of the potential nest to the Council of the Haida Nation and the Province of BC as soon as practicable;

b) follow the recommendations of a Qualified Professional for managing primary forest activities around the nest and surrounding area; and

c) report the location of the confirmed nest to the Council of the Haida Nation and the Province of BC as soon as practicable.

Northern Saw-whet Owl Nesting Habitat
HGLUOO s. 22

6.108 The Timber Sales Manager will retain all northern saw-whet owl reserves, as shown on HGLUOO Schedule 12.

6.109 Where a person conducting block and road development, harvesting, or road construction discovers a new potential northern saw-whet owl nest, the person will:

a) immediately cease operations within a 180m radius of the potential nest pending the advice of a Qualified Professional, and report the location of the potential nest to the Council of the Haida Nation and the Province of BC as soon as practicable; and

b) follow the recommendations of a Qualified Professional for managing primary forest activities around the nest and surrounding area and if the nest is confirmed maintain a 10 hectare reserve zone centered on the nest;

6.110 Where practicable, northern saw-whet owl core nesting areas will be identified and retained within stand level retention and other no-harvest or management zone areas and distributed across the landscape, with a target maximum inter-patch spacing of 1,400m.

Forest Reserves

HGLUOO s. 23

6.111 The Timber Sales Manager will retain all the Forest Reserves, as shown on HGLUOO Schedule 8.

6.112 Despite Section 6.111, the area of an individual Forest Reserve may be reduced by up to 5%, provided that:

a) applicable results and strategies within this FSP address the target requirements indicated in HGLUOO Schedules 9 and 10;

b) the remaining Forest Reserve is ≥ 5.0ha; and

c) the reduction is necessary to:

i) accommodate operational requirements for road or bridge construction, where no practicable alternative exists; or

ii) accommodate road maintenance, deactivation, removal of danger trees, brushing and clearing within a right-of way, or for safety purposes, on any existing road under active tenure; or

iii) to mitigate the impact of windthrow.

6.113 Despite Section 6.111, a portion of a Forest Reserve may be moved to another location within the same Landscape Unit, provided that:

a) the alteration of the Forest Reserve is consistent with the outcome of a completed intergovernmental process;

b) applicable results and strategies within this FSP (i.e., Ecological Representation) address all of the target requirements indicated in HGLUOO Schedules 9 and 10 for the applicable LU;

c) the portion removed is ≤ 20ha;

d) the areas retained are > 200m in width;

e) the relocation does not result in any Forest Reserve that is < 5.0ha; and

f) the relocation follows the recommendations of an assessment completed by a Qualified Professional which focuses on identifying candidate reserve areas consistent with meeting the HGLUOO objectives established for marbled murrelet nesting habitat and ecological representation.

Recruitment in Reserves, Management Zones & Stand Level Retention
HGLUOO s. 5, 6, 10, 11, 15 and 20

6.114 Where some or all of the reserves, management zones or stand level retention areas established under the applicable HGLUOO objectives (refer to Table 6, below) have been previously altered or harvested, the Timber Sales Manager will provide for recruitment of mature and old forest in the reserve, management zone or stand level retention area through natural processes.

For the management zones associated with Cultural Cedar Stands, CMTs and Monumental Cedar, the Timber Sales Manager will maintain or recruit, in the shortest possible timeframe, at least 90% of the forest as mature and old forest, through natural processes. Where the recruitment strategy is to use natural processes, the Timber Sales Manager will not harvest any of the existing mature or old forest in the management zone until the 90% threshold has been attained.

Table 6: Recruitment Summary Table, by HGLUOO Objective

Objective Requiring Recruitment	Recruitment Location	FSP Section Reference
Class 1 HTHFs	Reserve	6.4
Class 2 HTHFs	Reserve	6.6
Class 1 HTFFs	Reserve	6.8
Class 2 HTFFs	Applicable Stand Level Retention	6.9
Cultural Cedar Stands, CMTs & Monumental Cedar	Management Zones	6.31
Type I Fish Habitat	Type I Fish Habitat & Reserve	6.58
Type II Fish Habitat	Type II Fish Habitat & Reserve	6.60
Active Fluvial Units	Active Fluvial Unit & Management Zone	6.62
Forested Swamps	Management Zone	6.83
Existing Northern Goshawk Reserves	Reserve	6.102
New Northern Goshawk Nesting Reserves	Reserve	6.103

7.0 Measures for Invasive Plants:

FRPA s. 47

7.1 The Timber Sales Manager will adhere to the current BCTS Chinook Invasive Plant BMP, which includes as Appendix D, the Haida Gwaii IPMA Plant List. This BMP will be updated to include changes to the IPMA Plant Lists as they are made available. The BMP is included as Appendix 20 of the FSP Supporting Document.

7.2 The Timber Sales Manager will review the provincial Invasive Alien Plant Program (IAPP) database prior to undertaking any forest operations to determine the presence of invasive plants near the proposed forest development block or road. A field review will be completed to determine if new invasive plants exist or if existing invasive plants have spread beyond the location identified in the IAPP database. When new invasive plants are identified, or plants have spread beyond the reported location, this information will be reported to the IAPP database and documented in the Site Plan.

7.3 Measures to prevent the introduction and/or the spread of invasive plants will be specified in a plan which will include:

a) the season / time of grass seed application;
b) the requirement that contractors and licensees are to wash equipment capable of disturbing soils in the harvesting or road building phase in areas known to contain invasive plants to ensure that invasive plant reproductive material is removed prior to being transported;
c) the requirement there is to be no storage of equipment, logs or wood residue in areas of infestation;
d) the requirement that there is to be no use of material from infested soils;
e) requirement to dispose of invasive plant, if removed, using best practices as recommended by the NWIPC, to the extent practicable; and
f) records of the location and timing of grass seeding.

7.4 Monitoring for invasive plants will occur as part of routine cut block and road inspections and during scheduled silviculture surveys. When new invasive plants are identified, or plants have spread beyond the reported location, this information will be reported to the IAPP database.

7.5 Grass seed used will:

a) be high sod-forming content except in areas that are planted with tree seedlings;
b) meet the Common #1 Forage Grade standard for varietal purity established by the Canada Seed Growers Association for seed of that kind of species (*Seeds Act*, *Seeds Regulation*. 2(1)); and
c) consist of a Haida Gwaii reseeding Mixture (in accordance with Canada's *Seeds Regulation*, or better.

7.6 Timing and application of grass seeding will conform to the following:

a) application will take place when germination has the best probability of success;
b) application will take place within one year of the disturbance;
c) an additional application of grass seed will be made if germination levels cover less than 80% of the treatment area for a total of two applications; and
d) where seeding is not successful, fertilization and scarification treatments will be considered.

7.7 Newly disturbed soils in the following areas will not be grass seeded:

a) soils that will be occupied by seedlings as part of the Net Area to be Reforested; and
b) soils where there are no known invasive plants within 500m of disturbed soils.

7.8 Grass seed must be applied where:

a) disturbed soils are created by forest harvesting or road construction activities;
b) disturbed soil has been created within 20m of the high-water mark of any stream, wetland or lake regardless of 7.6 above; and
c) forest harvesting, or road construction activities is within a RMA of an adjacent water body that is capable of transporting reproductive plant material.

7.9 Roadside brushing will conform with the following measures:

a) prior to prescribing roadside machine-based brushing a Qualified Professional will determine if invasive plants are in the area of the proposed brushing; and
b) the Qualified Professional will, where practicable, modify roadside brushing treatment timing and methods to minimize the spread of established invasive plants.

8.0 Climate Change

8.1 The Timber Sales Manager will adhere to the BCTS Climate Change Strategy and adhere to the Chief Forester's Seed Transfer Guidelines that include climate-based seed transfer guidelines.

8.2 The Timber Sales Manager will implement ongoing research as it relates to performance of particular species and climate change.

9.0 Stocking Standards

Stocking Standards - General

FPPR s. 44

9.1 FPPR s. 44(1) applies in all situations or circumstances under the Plan where a free growing stand is required to be established under FRPA s. 29.

9.2 For the purposes of FPPR. s 44(1)(a) and (b), Appendix C specifies the regeneration date, free growing height and stocking standards for the situations or circumstances where FPPR s. 44(1) applies.

Stocking Standards for development areas with Free Growing obligations have been provided in Appendix C. Stocking standards are to be assigned and documented within Site Plans, by the prescribing Forester.

Standards Applying to Pre-FSP Plans and Prescriptions

FRPA s. 197

9.3 For cutblocks where stocking standards set out in the Code or in a pre-Code prescription would otherwise apply (including a Site Plan, Silviculture Prescription or Pre-harvest Silviculture Prescription), the Plan Holder may elect to, for the purposes of otherwise specifying stocking standards under FRPA s. 197(4, 5 or 7) within an FDU as specified by FPPR s. 14(1)(d or e) and where ecologically appropriate, have stocking standards approved under this Plan apply to standards units within such cutblocks. For each standards unit, this election is to be made prior to the previously specified Late Free Growing date by electronically updating the Ministry's RESULTS system to indicate the replacement FSP standard and providing notice to the Ministry of Forests, Haida Gwaii Forest District (by way of e-mail or some similar method).

10.0 Signatures of Persons Required

The Timber Sales Manager Signature

Timber Sales Manager	Authorized Signatory & Title	Signature	Date
BC Timber Sales – Chinook Business Area 46360 Airport Road Chilliwack, BC V2P 1A5 Ph: 778.704.7097	Stacey Gould, Timber Sales Manager		August 30, 2019

Signing Forester

Peter Barss, RPF
Planning Officer, BC Timber Sales, Chinook Business Area.

Date: August 30, 2019

I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the Work.

Appendix A: FSP Map

FSP Map located as separate file to reduce file size

Appendix B: Cedar Regeneration (and Free Growing) Acceptability Criteria

Table 7: Free growing damage Criteria for even-aged (age class 1) coniferous trees

Location of damage	Type of damage	Tree being assessed is UNACCEPTABLE if:	Host species	Likely damage agents & damage agent codes	Comments
Stem	**Wound** (including sunscald and girdling)	• the tree has any wound which is greater than 33% of the stem circumference, or • the tree has a wound which is greater than 20% of the total length of the stem, or • the tree has a wound centred on an infection caused by a stem rust, canker, or dwarf mistletoe (See Note under Stem: Infection).	All	squirrel AS, beaver AZ, vole AV, porcupine AP, hare AH, Warrens root collar weevil IWW, sequoia pitch moth ISQ, fire NB, windthrow NW, sunscald NZ, logging TL, mechanical TM.	A **wound** is defined as an injury in which the cambium is dead (e.g., sunscald) or completely removed from the tree exposing the sapwood. Measure the wound across the widest point of the exposed sapwood (or dead cambium when the tree is damaged by sunscald). Healed over wounds (=scars) are acceptable. See Figure A5-1.
Stem	**Insect mining at root collar**	• the tree is currently attacked by a bark-mining insect such as a weevil or a beetle and exhibits symptoms such as foliage discoloration, thinning, and/or reduced height growth increments	Pl, Sx	root collar weevil IWW.	Only trees that are symptomatic should be checked for insect infestation or mining damage. Non-symptomatic trees are presumed to be unaffected by insect mining.
Stem	**Deformation** (including crook, sweep, fork, browse, and dead or broken top)	• the pith is horizontally displaced more than 30 cm from the point of defect and originates above 30 cm from the point of germination.	For sweep, all except Cw and Hw	Defoliators ID, white pine (spruce) weevil IWS, lodgepole pine terminal weevil IWP, northern pitch twig moth ISP, sequoia pitch moth ISQ, cattle AC, deer AD, elk AE, moose AM, frost NG, hail NH, snow NY, drought ND, logging TL, mechanical TM.	For **horizontal displacement** see Figure A5-2.
		• the tree leader has been killed three or more times in the last five years (weevil only).	Sx, Ss, Pl	White pine (spruce) weevil IWS, lodgepole pine terminal weevil IWP.	This criterion applies only for terminal weevil damage.
		• the tree has two or more leaders with no dominance expressed after five years growth and the fork originates above 30 cm from the point of germination.	All	terminal weevils (IWS, IWP), frost NG, animal damage A.	**Leader dominance** occurs when the tallest leader is at least 5 cm taller than the second tallest leader. See Figure A5-3.
		• the tree has a dead or broken top at a point that is >2 cm (>3 cm for the coast) in diameter.	All		
Stem	**Infection** (including cankers and galls)	• any infection occurs on the stem.	All	comandra blister rust DSC, stalactiform blister rust DSS, white pine blister rust DSB, western gall rust DSG, atropellis canker DSA.	**Note**: Wounds caused by rodent feeding around rust cankers should have stem rust recorded as the causal agent.
Branch	**Infection** (cankers)	• an infection occurs on a live branch less than 60 cm from the stem.	Pw, Pl, Py	white pine blister rust DSB, comandra blister rust DSC, stalactiform blister rust DSS.	See Figure A5-4.
Branch	**Galls**	• a gall rust infection occurs on a live branch less than 5 cm from the stem.	Pl, Py	western gall rust DSG.	See Figure A5-4.

Location of damage	Type of damage	Tree being assessed is UNACCEPTABLE if:	Host species	Likely damage agents & damage agent codes	Comments
Branch	**Gouting**	• any adelgid **gouting** occurs on a branch.	Ba, Bg, Bl	balsam woolly adelgid IAB.	**Gouting** is defined as excessive swelling of a branch or shoot caused by balsam woolly adelgid, and is often accompanied by misshapen needles and buds. It is most common on branch tips and at nodes near the ends of branches. Consult a recent distribution map to identify the geographic extent of this pest.
Foliage	**Defoliation**	• >80% of tree foliage has been removed due to defoliating insects or foliage disease.	All	defoliators ID, foliage diseases DF.	
Stem or Branch	**Dwarf mistletoe infection**	• any infection occurs on the stem or a live branch, or • a susceptible tree is located within 10 m of an overtopping tree, which is infected with dwarf mistletoe.	Hw, Pl, Lw, Fd	hemlock dwarf mistletoe DMH, lodgepole pine dwarf mistletoe DMP, larch dwarf mistletoe DML, Douglas-fir dwarf mistletoe DMF.	**Note:** To confirm infection, the surveyor must observe mistletoe aerial shoots or basal cups on regeneration or on live or dead fallen brooms. **Overtopping tree** is a tree that is three or more times taller than the median height of the trees being assessed.
Roots	**Root disease**	• sign(s) or a definitive combination of symptoms of root disease are observed.	All	armillaria root disease DRA, laminated root rot DRL, tomentosus root rot DRT, annosus root disease DRN, blackstain root disease DRB.	**Signs** are direct evidence of the pathogenic fungus including fruiting bodies, distinctive mycelium or rhizomorphs. **Symptoms** include foliar chlorosis or thinning, pronounced resin flow near the root collar, reduced recent leader growth, a distress cone crop, and wood decay or stain. An individual symptom is not sufficient to identify a root disease.
		• infected tree found in plot. See comments for well-spaced tree net down calculation. The multiplier for DRA is **two**, except in BEC zones PPdh1 and 2, IDFxh1, IDFdm1 and 2, MSdk1, and MSdm1 where the multiplier is **one**.	All	armillaria root disease DRA.	**Note:** All conifer species are considered susceptible. Broadleaf species are considered **not susceptible** for survey purposes only. **Example:** How to apply net down for root disease. If root disease-infected trees are found in the plot: 1. In the first sweep, determine the total number of healthy, well-spaced trees using the prescribed minimum inter-tree distance (MITD) (e.g., 12 trees) ignoring the M-value; 2. In a second independent sweep, determine the number of well-spaced **infected** trees (including dead infected trees and for DRT only, infected stumps) using MITD (e.g., one infected tree); 3. Multiply the number from step 2 by the multiplier for the specific root disease and subtract this number from the number of **susceptible** healthy well-spaced trees found in step 1 (e.g., for DRA: 12-1(2) = 10). The result is the maximum number of free growing trees tallied for the plot.
		• infected conifer found in plot. See comments for well-spaced tree net down calculation. The multiplier for DRL is **four**.	Fd, Sx, Se Lw, Ba, Bg	laminated root rot DRL.	**Note:** Bl, Cw, Pl, Pw, Py, and broadleaf species are considered **not susceptible** for survey purposes only.
		• infected conifer or stump found in plot. See comments for well-spaced tree net down calculation. The multiplier for DRT is **two**.	Se, Sx	tomentosus root rot DRT.	**Note:** Ba, Bl, Cw, Fd, Pl, Pw, Py and broadleaf species are considered **not susceptible** for survey purposes only.
		• infected conifer found in plot. See comments for well-spaced tree net down calculation. The multiplier for DRN is **two**.	Ba, Hw, Ss	annosus root rot DRN.	**Note:** Bg, Bl, Cw, Cy, Fd, Hm, Pl, Pw, Py, Sx and broadleaf species are considered **not susceptible** for survey purposes only.

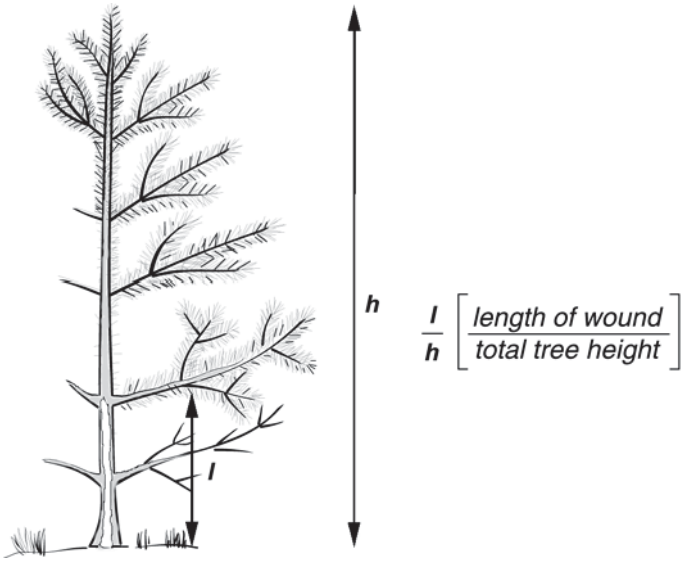

Figure 1: Calculation of wound along stem length

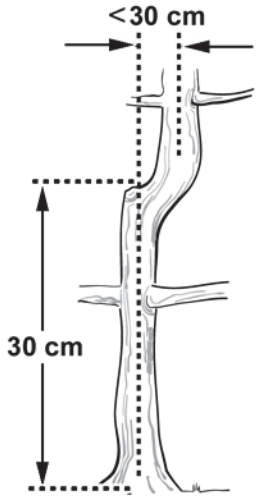

Figure 2: Determining horizontal displacement and height above point of germination when assessing stem deformation

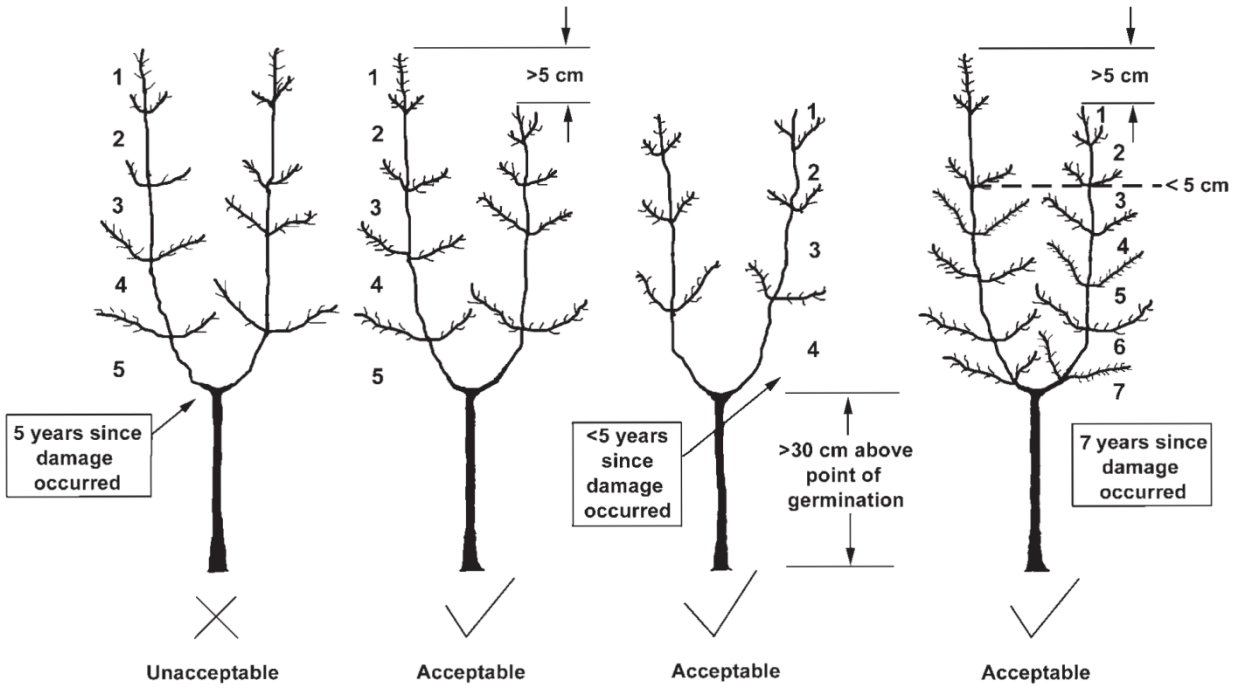

Figure 2: Acceptable and unacceptable forks.

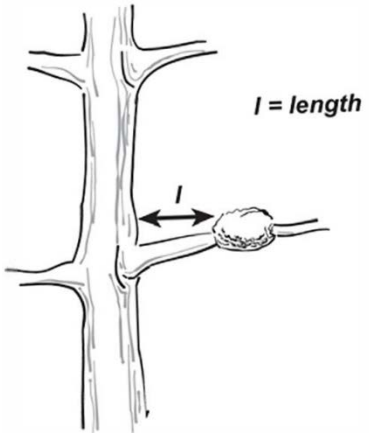

Figure 3: Distance measurement from point of infection by canker or gall to main stem.

Appendix C: Even Aged Stocking Standards

Table 8: Even Age Stocking Standards

1. CWHwh1 – even aged

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
01	Hw/2.0 Ss/3.0 Cw/1.2 Dr/4.0	900	200	500	2.0 (Dr/1.5)	6	20
01s	Hw/2.0 Cw/1.2 Ss/3.0 Plc/2.0	900	150	500	2.0	6	20
02	Cw/1.2 Hw/1.3 Plc/1.3 Ss/2.0	900	200	500	2.0	6	20
03	Ss/3.0 Cw/2.0 Hw/2.8 Yc/1.2 Dr/4.0	900	100	500	2.0 (Dr/1.5)	6	20
04	Cw/1.2 Hw/1.3 Yc/1.2 Plc/1.3 Ss/2.0 Dr/4.0	900	275	500	2.0 (Dr/1.5)	6	20
05	Hw/2.8 Cw/1.2 Ss/3.0 Dr/4.0	900	100	500	2.0 (Dr/1.5)	6	20

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
06	Hw/2.8 Cw1.2 Yc/1.2 Ss/3.0 Hm/2.8 Dr/4.0	800	100	400	1.5	6	20
07	Ss/3.0 Cw/2.0 Hw/2.8 Dr4.0	900	100	500	2.0 (Dr/1.5)	6	20
08	Ss/3.0 Cw/2.0 Dr/4.0	900	100	500	2.0 (Dr/1.5)	6	20
10	Cw/1.2 Yc/1.2 Hw/1.3 Plc/1.3 Ss/2.0 Hm/0.8	800	200	400	1.5	6	20
11	Plc/1.3 Cw/1.2 Yc/1.2	400	150	200	1.5	6	20
12	Cw/1.2 Hw/1.3 Yc/1.2 Plc/1.3 Ss/1.3	800	150	400	1.5	6	20

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
13	Cw/1.2 Hw/1.3 Plc/1.3 Ss/2.0	400	100	200	1.5	6	20
14	Ss/3.0 Hw/2.0 Cw/1.5	900	100	500	2.0	6	20
15	Ss/3.0 Cw/1.5 Plc/2.0 Hw/2.0	400	100	200	1.5	6	20
16	Ss/3.0 Hw/2.0 Cw/1.5	900	100	500	2.0	6	20
17	Ss2.0 Cw/1.2 Hw/1.3	400	100	200	1.5	6	20
18	Ss/2.0	400	0	200	1.5	6	20
	*Mixedwood strategy on the CWHwh1 site series' 03, 05, 06, 07, and 08: where red alder is being managed as a leading species it will comprise ≥ 80% of the Free Growing stand; the target density will be 800-1200 sph; estimated rotation age of 50-70 years, with a target of 30cm DBH at rotation age.						

2. CWHwh2 – even aged

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
01	Hw/2.0 Cw/1.2 Ss/1.5 Yc/1.5 Hm/1.0	900	175	500	2.0	6	20
02	Hw/2.0 Cw/1.2 Yc/1.5 Ss/1.5 Hm/1.0	900	175	500	2.0	6	20
03	Hw/2.0 Cw/1.2 Yc/1.5 Ss/1.5	900	175	500	2.0	6	20
04	Hw/2.0 Cw/1.2 Yc/1.5 Ss/1.5	800	100	200	1.5	6	20
05	Yc/1.2 Cw/1.2 Hw/1.3 Hm/0.8 Ss/1.0	400	100	200	1.5	6	20
06	Yc/1.2 Cw/1.2 Hw/1.3 Hm/0.8 Ss/1.0	800	200	400	1.5	6	20

3. CWHvh2 – even aged

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
01	Cw/1.2 Hw/2.0 Yc/1.5 Dr/4.0 Ss/3.0 Plc/1.3	900	275	500	2.0 (Dr/1.5)	6	20
02	Plc/1.3 Cw/1.2 Yc/1.2 Hw/1.3	400	100	200	1.5	6	20
03	Cw/1.2 Hw/1.3 Plc/1.3 Yc/1.2 Ss/2.0 Dr/4.0	800	250	400	1.5 (Dr/1.5)	6	20
04	Hw/1.8 Ss/3.0 Cw//1.2 Dr/4.0 Yc2.0	900	150	500	2.0 (Dr/1.5)	6	20
05/06	Cw/1.5 Ss/3.0 Hw/1.8 Yc/1.5 Dr/4.0	900	100	500	2.0 (Dr/1.5)	6	20

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
07	Cw/1.5 Ss/3.0 Hw/1.8 Yc/1.5 Dr/4.0	900	150	500	2.0 (Dr/1.5)	6	20
08	Ss/3.0 Cw/1.5 Hw/1.8 Dr/4.0	900	100	500	2.0 (Dr/1.5)	6	20
09	Ss/4.0 Hw/1.8 Cw/1.5	900	100	500	2.0	6	20
11	Cw/1.2 Yc/1.2 Hw/1.3 Plc/1.3	800	250	400	1.5	6	20
12	Cw/1.2 Yc/1.2 Plc/1.3	400	150	200	1.5	6	20
13	Cw/1.2 Yc/1.2 Ss/2.0 Hw/1.3 Plc/1.3	800	200	400	1.5	6	20
14	Ss/2.0 Cw/1.2 Hw/1.3 Plc/1.3	400	100	200	2.0	6	20

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
15	Ss/3.0 Cw/1.5 Hw/2.0	900	100	500	2.0	6	20
16	Ss/3.0 Cw/1.5 Hw/2.0 Plc/1.5	400	100	200	2.0	6	20
17	Ss/2.0 Cw/1.2 Hw/1.3	900	100	500	2.0	6	20
18	Ss/2.0 Cw/1.2	400	100	200	2.0	6	20
	*Mixedwood strategy on the CWHvh2 site series' 03, 04, 05/06, 07 and 08: where red alder is being managed as a leading species it will comprise ≥ 80% of the Free Growing stand; the target density will be 800-1200 sph; estimated rotation age of 50-70 years, with a target of 30cm DBH at rotation age.						

4. MHwh – even aged

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
01	Hw/1.0 Yc/1.2 Hm/1.0 Cw/1.2 Ss/1.5	900	150	500	2.0	6	20
02	Hm/1.0 Yc/1.2 Cw/1.2 Hw/1.0 Ss/1.0	400	150	200	1.5	6	20
03	Hw/1.0 Ss/1.5 Cw/1.2 Yc/1.2 Hm/1.0	900	150	500	2.0	6	20
04	Cw/1.2 Yc/1.2 Hw/2.0 Hm/1.0 Ss/2.0	900	150	500	2.0	6	20
05	Cw/1.2 Yc/1.2 Hw/2.0 Hm/1.0 Ss/1.5 Plc/2.0	900	150	500	2.0	6	20

Site Series	Species and Min. FG height (m)	Target Stocking Standard (sph)	Minimum P Cedar (sph)	Min Stocking Standard (sph)	Min Inter-tree Distance (m)	Regen Date (years)	FTG (years)
06	Cw/1.2 Yc/1.2 Hw/0.8 Hm/0.8 Ss/1.5	800	150	400	1.5	6	20
07	Cw/1.2 Yc/1.2 Hw/0.8 Hm/0.8 Ss/1.0	900	200	500	1.5	6	20
08	Cw/1.2 Yc/1.2 Hw/0.8 Hm/0.8	400	200	200	1.5	6	20
09	Cw/1.2 Yc/1.2 Hw/0.8 Hm/0.8 Ss/1.0	800	200	400	1.5	6	20

Species Acceptability

Ecologically suitable species are provided in the stocking standards in the tables above. The suitability/ acceptability of regeneration will be determined in the field by a Qualified Professional based on site-specific soil moisture, nutrient, aspect and elevation characteristics and tree performance in response to the site. Tree species that are ecologically suitable and commercially valuable are listed in the standards provided in Appendix C.

Sitka Spruce (Ss)

On marginal sites: CHWwh1 (01s, 04, 10, 12); CWHwh2 (02, 05, 06); CWHvh2 (01, 13); MHwh (02, 03, 04, 06, 07, 09) where Ss is accepted, it will only be accepted to a maximum of 50% of the stems per hectare in the Minimum Stocking Standard. Furthermore, on these sites, Ss will be limited in terms of its acceptance at regen and Free-Growing to microsites that are medium or better, in terms of productivity (Soil Nutrient Regimes C-E). Sitka spruce will be targeted on elevated and productive microsites. In terms of elevation, Ss will be focused on lower elevation sites (especially in the MH subzone) and planted within the applicable elevation range for the stock.

Lodgepole Pine (Plc)

On marginal sites: CHWwh1 (01s, 02, 04, 10, 13, 14); CWHwh2 (02, 05, 06); CWHvh2 (11, 13, 14, 16); and MHwh (05) where Plc is accepted, it will only be accepted to a maximum of 50% of the stems per hectare in the Minimum Stocking Standard. Furthermore, on these sites, Plc will be limited in terms of its acceptance at regen and Free-Growing to microsites that are medium or poorer, in terms of productivity (Soil Nutrient Regimes A-C). Lodgepole pine will be targeted on depressional, folisolic and other poor productivity microsites.

Red Alder (Dr)

Natural red alder ingress will be defaulted to a preferred species on all sites within 3 metres of any stream banks where harvesting is permissible.

Free Growing Criteria

Conifers

An acceptable conifer crop tree must:

a) Be free from brush competition (consistent with the crop tree to brush height ratio for the BEC applicable BEC unit).
b) Be of good health, form and vigour and meet the Free Growing damage criteria for conifers, as provided in Appendix B, above.

Red Alder

An acceptable red alder crop tree must:

a) Be free from brush competition (consistent with the crop tree to brush height ratio for the BEC applicable BEC unit).
b) Not have a tree pith that is laterally displaced more than 30 cm from the location of the root-crown pith.
c) Not originate from a cut stump.
d) Have one dominant live leader.
e) Not have a wound that is greater than 10% of the stem circumference nor is greater than 10% of the total length of the stem.
f) Not have any fungal infections or insect infestations affecting tissues below the bark surface, visible without destructive sampling.
g) Not be browsed so as to limit its ability to become a crop tree.

Minimum Inter-Tree Distance

The Minimum Inter-Tree Distances have been specified in the stocking standards tables above, however, for all sites, the minimum inter-tree distance may be reduced to 1.5m, in the following circumstances:

a) within 20.0m of the road centre-line; or
b) immediately adjacent to stream or riparian areas, naturally Non-Productive Areas, or areas (≥50m^2) covered with unplantable slash; or
c) on helicopter logged areas, where slash treatment is not practicable; or
d) on any talus site; or
e) immediately adjacent to retained single trees.

Brush Competition at Free-Growing

The crop tree to brush height ratio at Free Growing is as follows:

a) For CWHwh1, CWHwh2 and CWHvh2 BEC units, the ratio is 150%.
b) For MHwh BEC Units, the ratio is 125%.

Free Growing Window

The Free Growing window is to be 6 years after the regen obligation has been met, and no later than 20-years after the commencement of harvesting for the development area.

Mixed Conifer – Hardwood Management

Red alder may be the leading species in mixed-hardwood/ conifer (i.e., micro-patch mixed wood)) management situations. Where red alder is the leading species (≥ 80%) the hardwood stocking standard may be applied. Where red alder is not the leading species, it will not be accepted as a crop tree.

On an annual basis, the Timber Sales Manager will manage a maximum of 200ha to hardwood stocking standards in the Chinook Business Area. The 200ha will be allocated proportionally to management units based on the AAC for the Plan Area in each Forest District.

Where red alder is included as a suitable species, the strategy will to pre-stratify the development area, and assign conifer or red alder stocking standards, consistent with the Site Plan. The minimum patch size for identifying and assigning the alder stocking standard will be 0.25ha.

Minimum Preferred Cedar (Stems per hectare)

The minimum preferred cedar per hectare includes red and yellow cedar based on the prescription developed by the Qualified Professional. Establishing a minimum preferred target for cedar will ensure that cedar seedlings are tallied as well spaced trees at free growing and ensure cedar, which meet the minimum height criteria are tallied in the silviculture label for the for the standard unit.

The minimum preferred cedar is derived from an analysis that merged Vegetation Resource Inventory (VRI) and Terrestrial Ecosystem Mapping (TEM) polygons to determine the percentage of red and yellow cedar by volume for the site series of the polygon. The datasets used are available at following locations:

VRI: https://catalogue.data.gov.bc.ca/dataset/vri-forest-vegetation-composite-polygons-and-rank-1-layer
TEM: http://www.env.gov.bc.ca/esd/distdata/ecosystems/TEI/TEI_Data/

Percent cedar by volume was chosen as the variable because it is readily extractable from the VRI data and when compared to percent cedar by stems per hectare from cruise compilations it generated the highest percent cedar. Percentages were averaged by leading site series in the table and then applied to the target stocking standard to generate a target stems per hectare for cedar. The minimum preferred cedar target was calculated by multiplying the target cedar stems per hectare by the ratio of target stocking to minimum stocking. Cruise data for blocks over the last five years of operations was also analyzed by site series to determine the cedar percentage and where the percent cedar exceeded the TEM / VRI analysis the cruise percentages were used to establish cedar targets.

In all cases this methodology ensures that a minimum of 100 stems per hectare will be established in future managed stands in all site series except the CWH vh1 18 site series which is dominated by Sitka spruce. This approach ensures that where cedar seedlings are ecologically suited to the site series they will be re-established regardless of their presence in the pre-harvest stand and ensures that BCTS establishes a sustainable volume of cedar for future generations and regardless of previous management strategies which were not concerned with sustainability of cedar.

Appendix D: Land Use Order Schedules

The Haida Gwaii Land Use Objectives Order and Schedules can be found in the following link:

http://www.haidagwaiimanagementcouncil.ca/index.php/land-use-orders/