



INTERFOR

ANCILLARY INFORMATION – Site Plan (original)

North Island Replacement Forest Stewardship Plan

A. TENURE IDENTIFICATION

LICENCE NO: FL A19232	CP: 159	BLOCK NO: CHM260	LICENSEE NAME: Interfor Corporation
TOTAL AREA UNDER PLAN (ha): 3.9 ha	MAPSHEET: 92L014	LOCATION: Chamiss Bay	
GROSS HARVEST AREA (ha): 3.4 ha	REGION: West Coast Region DISTRICT: Campbell River District	LOCATION COORDINATES: Latitude: 50° 11' 47" Longitude: 127° 23' 16"	

B. AREA SUMMARY

SU	TOTAL AREA UNDER PLAN (TAUP)	AREA (ha)		NP NAT (slide)	RESERVES	WTR	NET AREA TO BE REFORESTED (NAR)
		PERMANENT ACCESS					
		ROADS	OTHER				
1	3.7	0.3	---	---	---	---	3.4
RET	0.2	---	---	---	---	0.2	---
TOTAL	3.9	0.3	0.0	0.0	0.0	0.2	3.4

C. ECOLOGICAL INFORMATION AND AREA DESCRIPTION

C.1 ECOLOGY						
SU	ELEVATION (m)		BIOGEOCLIMATIC CLASSIFICATION			
	RANGE	AVG.	ZONE	SUBZONE / VARIANT	SITE SERIES	GRID LOCATION
1	200-250	225	CWH	vm 2	09 (70%) / 06 (30%)	4-6/A-C
C.2 AREA DESCRIPTION						
1	<p>SU 1 is located on lower gradual slopes between 10 and 30% and averaging 20%. The aspect is southeast. The block is located in low elevation subdued terrain and is subject to cool air ponding resulting in a vm2 subzone variant.</p> <p>The overstory is dominated by YcHwCwBa. There is a low presence of hemlock dwarf mistletoe. The regeneration is low to moderate and composed mostly of HwYcCw saplings and poles. The understory is dominated by salal and <i>vaccinium</i> spp. The herb layer is inconsistent with varying amounts of deer fern, bunchberry, fern leaved goldthread, grasses and skunk cabbage. The mosses are predominantly step, lanky and sphagnum with scattered oregon beaked.</p> <p>The soils are fSiL (fine silty loams). Soil depth averages 100+cm in depth. The CFC is 50% small and angular.</p>					
C.3 PREVIOUS STAND CHARACTERISTICS						
STAND TYPE	SU	SPECIES	AGE CLASS	HEIGHT CLASS	STOCKING CLASS	Site Index / Source (Source: Forest Cover Polygon / Code: H)
MAT	1	Yc Hw Cw Ba	9	3	1	12

D. LAND USE OBJECTIVES – FSP S. 1.6.1

D.1 LANDSCAPE UNIT PLANS
This block is located in the Kashutl LU. Therefore landscape objectives for the Sayward LU do not apply.

LICENCE NO: FL A19232	BLK: CHM260	CP: 159	OPENING NUMBER: 92L014	PAGE: 2 of 6	RUN DATE: 12/19/17
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D.2 NON-SPATIAL OLD GROWTH OBJECTIVES

The old-growth retention target for the Kashutl LU (Low BEO) within the CWH vm1 is 13% and the CWH vm 2 is 13% (Regional Landscape Unit Planning (RLUP) Database v3.2, August 15, 2005). Draft OGMA's that meet the intent of the NSOG Order have been delineated but are not established / final. Block CHM260 is not located within the vicinity of any of the draft OGMA's. Harvesting activities within this block are in compliance with the Order and consistent with FSP S. 1.6.1.2.

D.3 VANCOUVER ISLAND LAND USE PLAN

The Vancouver Island Land Use Plan (VILUP) higher-level plan applies to the North Island FSP area. Block CHM260 is located within the Kashutl General Resource Management Zone (RMZ 14) in which HLP objectives 15 and 16 apply. The block is consistent with objectives 15 and 16, regarding retention of old-growth forests to meet old seral targets D.2 and marbled murrelet habitat requirements F.1.

E. SOILS – FSP S. 1.6.2.1

E.1 SOIL HAZARD RATINGS

HAZARD RATINGS – if logging methods other than cable or aerial are proposed
(a high or very high rating in any category is considered a sensitive soil)

SU	SOIL COMPACTION	SOIL DISPLACEMENT	SURFACE EROSION
1	H	L	H

NOTE: Proposed harvest method is via ground based yarding. The hazard ratings have been provided in order to determine soil sensitivity only.

E.2 SOIL DISTURBANCE LIMITS

SU	MAXIMUM ALLOWABLE SOIL DISTURBANCE WITHIN THE NET AREA TO BE REFORESTED (%)
1	5

Ground Based Yarding - Ground based harvest may be possible in sections of the block and methods including: mechanical falling, processing (limbing and bucking); hoe forwarding; and cable yarding with a mobile backspare, may be used where slope, terrain, and soil conditions permit.

The following precautions will apply to ground based operations:

- Avoid ground based harvesting during extended periods of rainfall or when soil moisture is high.
- Wet sensitive soils exist in localized depressions and near streams and NCDs. To avoid soil disturbance on sensitive soils, ensure adequate brush matting and puncheon are used. Run on higher ground wherever possible. Monitor ground based harvesting in moist to wet site conditions and adjust practices or shut down if excessive rutting or compaction occurs.
- Maintain a 5m machine free zone on streams. Choose low impact areas for stream crossings.
- Interfor's Standard Operating Procedures for hoechucking and backspare trails will be followed.

If soil disturbance limits are exceeded (eg. deep ruts, soil compaction, etc.), the affected area will be rehabilitated.

E.3 PERMANENT ACCESS STRUCTURE LIMITS

The estimated Permanent Access Structure (PAS) associated with block CHM260 is 0.3 ha or 8.1% of the gross block area (3.7). As per FPPR section 36(1)a(i) PAS can be greater than 7% if there is no other practicable option, in regards to, the size, topography and engineering constraints of the cutblock. Block CHM260 is a small block located adjacent to an existing mainline and the PAS associated with the block is based on the actual road size.

E.4 MANAGEMENT STRATEGIES FOR TEMPORARY ACCESS STRUCTURES

No temporary access structures are planned for use within this block.

E.5 REHABILITATION FOR TEMPORARY ACCESS STRUCTURES

MAXIMUM ALLOWABLE TIME TO COMPLETE REHABILITATION (MEASURED FROM COMPLETION OF HARVEST): N/A

E.6 TERRAIN STABILITY

A Terrain Stability Hazard Assessment was not required for CHM260 as there is no newly proposed road, the slopes average 30% (below the 60% which requires a TSFA). No signs of slope instability were identified during block layout and field review.

E.7 WINDTHROW

Minor historic windthrow was noted during the site plan fieldwork. Winds were noted predominantly from the Southeast direction. Based on the windthrow assessment completed for block CHM260 there is an overall low windthrow risk for the post-harvest block boundary edges. No treatment is planned.

Any minor windthrow which occurs will be managed as coarse woody debris.

LICENCE NO: FL A19232	BLK: CHM260	CP: 159	OPENING NUMBER: 92L014	PAGE: 3 of 6	RUN DATE: 12/19/17
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F. WILDLIFE – FSP S. 1.6.2.2

F.1 WILDLIFE
There are no established wildlife habitat areas (WHA) or Ungulate Winter Ranges (UWR) within the vicinity of this block.
Marbled Murrelet (<i>B. marmoratus</i>) – Marbled Murrelet (MAMU) are known to exist in the FSP area. Block CHM260 does not contain any suitable class 1, 2 or 3 habitat as per the heli-survey completed in the area. According to the North Island MAMU Habitat calculations completed June 2016 the defined amount required by the Notice has been met in the Kashutl Landscape Unit and the harvesting of this block will not impact the required amount.
Great Blue Heron (<i>Ardea herodias fannini</i>) – There is potential for Great Blue Heron foraging locations within 10km of the proposed harvest area (ocean, lakes); however, no occupied habitat was found within or adjacent to the block.
Red-legged Frog (<i>Rana aurora</i>) – No occupied habitat was identified. As per the Accounts and Measures for Managing Identified Wildlife – Accounts V.2004, there is no highly suitable habitat (breeding habitat) within or adjacent the harvest area. There are no lakes or wetlands in the near vicinity. For terrestrial habitat, red legged frogs use a variety of seral stage forests (young, mid, old seral) which are abundant in the landscape unit.
Keen's Long-eared Myotis (<i>Myotis keenii</i>) – No occupied habitat was identified. As per the Accounts and Measures for Managing Identified Wildlife – Accounts V.2004, there is no highly suitable habitat within or adjacent to the block.

G. WATER, FISH, WILDLIFE AND BIODIVERSITY WITHIN RIPARIAN AREAS – FSP S. 16.2.3

G.1 FISH				
The objective of this plan is to maintain stream bank integrity and protect water quality through the management of the Riparian Management Area (RMA). Stream classifications were completed by D.R. Clough Consulting June 15, 2017. The closest fish stream is the Ououkinsh river which is over 1km from the block.				
G.2 RIPARIAN MANAGEMENT STRATEGIES				
RIPARIAN MANAGEMENT ZONE (RMZ)				
There are no streams associated with the this block.				
STREAM / LAKE I.D.	STREAM / LAKE CLASS	HARVESTING Y/N	GULLY Y/N	MANAGEMENT STRATEGIES FOR STREAM OR LAKESHORE MANAGEMENT AREAS INCLUDING: PROTECTING STREAM BANKS (if there is no RRZ), MAINTAINING SHADE, AND DEBRIS MANAGEMENT. IF FELLING AND/OR YARDING ACROSS STREAMS. INCLUDE EITHER THE RESIDUAL BASAL AREA <u>OR</u> DENSITY FOR RMZ(S) AND LMZ(S).
1	S5	Y	N	This stream is classified in the field as an S5 and has a 30 m RMZ. Where the RMZ overlaps the boundary it will be harvested. Basal area retention within the RMZ is not required. Fall and yard away.
2, 3, 4A	S6	Y	N	These streams are classified in the field as S6 and have 20 m RMZs. Where the RMZs of these streams overlap the boundary they will be harvested to maintain operational feasibility and safety requirements. Basal area retention within the RMZ is not required. Cross-stream falling and yarding will occur. Avoid limbing and bucking within the streams to minimize debris inputs.
ALL	S6	Y	N	Embedded CWD will be left in place to maintain stream bank integrity. Remove introduced logging debris that may cause stream blockages concurrent with harvesting. Removal of additional, inadvertently deposited debris/slash will be done if the final or interim Phase Inspection Report (PIR) deems it necessary.
FPPR 52(2)	Section 52(2) stream 1 is a direct tributary of the Ououkinish River a S1 stream. Stream 1 is located outside of the harvest area and a minimum 5 m buffer has been maintained between the stream bank and the harvest area.			
FPPR 50(1)	Section 50(1) does not apply as there are no RMA encroachments associated with this block.			

LICENCE NO: FL A19232	BLK: CHM260	CP: 159	OPENING NUMBER: 92L014	PAGE: 4 of 6	RUN DATE: 12/19/17
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H. COMMUNITY WATERSHEDS – FSP S. 16.2.4

H.1 COMMUNITY WATERSHEDS
This block is not located within a designated Community Watershed. No community or domestic water supplies are located near this block.

I. WILDLIFE AND BIODIVERSITY – FSP S. 16.2.5

I.1 BIODIVERSITY
I.1a LANDSCAPE-LEVEL BIODIVERSITY
Block CHM260 has a NHA of 3.7 ha. It is located adjacent to CHM222, CHM257A and CHM257B. CHM222 was declared Free to Grow (FTG) in 2004 and has at least 75% of the net reforested area stocked such that the average height of the tallest 10% of the trees is greater than 3m. CHM257A and CHM257B are not yet free to grow. CHM257A has a NHA of 6.3 ha. CHM257B has a NHA of 6.2 ha. CHM260, CHM257A and CHM257B have a net opening size of 16.2 ha. As CHM222 meets green up requirements and the net opening is less than 40 ha, CHM260 meets FPPR Sections 64 and 65 .
I.1b STAND-LEVEL BIODIVERSITY
Block CHM260 is located within the Kashutl Landscape Unit (LU) – Low Biodiversity Emphasis Option (BEO). The wildlife tree retention (WTR) requirement within the Kashutl LU – CWH vm1 is 7% (minimum) of the gross harvest area as per FPPR s.66. A 0.2 ha WTR patch has been established in association with this block meeting the above requirement.

J. CULTURAL HERITAGE RESOURCES – FSP S. 1.6.2.6

J.1 CULTURAL HERITAGE
This block is located in the asserted traditional territory of the Ka:'yu:'k't'h' / Che:k:tle7et'h' First Nation (KCFN) and the MaaNulth First Nation.
J.2 MANAGEMENT STRATEGIES FOR CULTURAL HERITAGE RESOURCES / ARCHAEOLOGICAL SITES
Information sharing with the Maa-Nulth First Nations occurred between August 12, 2013 and June 24, 2015. Potential impacts to cultural and heritage sites have been addressed and no further concerns were identified for this block.
Information sharing with the KCFN occurred between May 20, 2010 and June 16, 2015 with all concerns or comments being addressed.
An Archaeological Overview Assessment was completed by Baseline Archaeological Services Ltd. March 25, 2015 in which a low archaeological potential was identified and no further work was recommended.
If any previously unidentified cultural heritage resources are <i>discovered</i> during harvesting, stop work and notify supervisor and/or Interfor personnel.

K. VISUAL QUALITY OBJECTIVES – FSP S. 1.6.4.1

K.1 VISUAL RESOURCE MANAGEMENT
Block CHM260 is not located within a "Known Scenic Area".

L. INVASIVE PLANTS – FSP S. 1.8

L.1 INVASIVE PLANTS
No invasive plants were noted within or adjacent to the plan area. The risk of establishment and/or spread of invasive plant species are deemed to be low in the block. Site disturbance greater than 0.1 ha contiguous area will be assessed post-harvest for treatment. Prompt reforestation should suppress shade intolerant invasive plants.

M. MANAGEMENT STRATEGIES

M.1 FOREST HEALTH MANAGEMENT STRATEGIES
Interfor has recorded and evaluated the occurrence of detected forest health factors currently causing damage or which may cause damage in the area under the site plan. A low to moderate incidence of Hemlock Dwarf Mistletoe (DMH) was noted throughout the block. The 3 m knockdown rule will apply to this block. The primary focus for reforestation in this block will be non-host species (CwYc).
M.2 COARSE WOODY DEBRIS MANAGEMENT STRATEGIES
CWD will be retained for soil conservation, retention of nutrient capital and wildlife habitat considerations. The residue from harvesting (including tops, limbs, low-grade logs and non-merchantable material) will make up the majority of CWD retained over the rotation.

LICENCE NO: FL A19232	BLK: CHM260	CP: 159	OPENING NUMBER: 92L014	PAGE: 5 of 6	RUN DATE: 12/19/17
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N. SILVICULTURAL SYSTEMS

SU	SILVICULTURAL SYSTEM & METHOD	Basal Area % Retention	Maximum stems per hectare retained	Minimum stems per hectare retained	Variable Retention Type
1	Clearcut with Reserve / Removal	N/A	---	---	---
SU	COMMENTS				
1	STAND STRUCTURE AND SITE CONDITION:	Block CHM260 is located within the lower reaches of the Ououkinish River Valley. The pre-harvest stand is old growth. Cw(24%), Yc(70%), Ba(6%)			
1	LEAVE TREE SPECIES AND FUNCTION:	Block CHM260 will be harvested using a clearcut silviculture system. One 0.2 ha WTR patch will be reserved adjacent to the block. The function of this reserve will be to provide structural diversity, mature stand attributes in the regenerating stand, future CWD, a source of future wildlife trees in order to meet biodiversity objectives.			

O. STOCKING STANDARDS – FSP S. 1.7

O.1 STOCKING STANDARDS								
SU	NAR (ha)	MOF ID#	SPECIES (*)	WELL SPACED TREES/HA		MINIMUM INTERTREE SPACING (m)	REGEN DELAY (years)	LATE FREE GROWING (years)
			ECOLOGICALLY SUITABLE SPECIES (height-m)	TSS (sph)	MSS (sph)			
1	3.4	1052829	Cw / 1.0 Hw ⁵ / 1.8 Hm / 0.8 Yc / 1.0 Ba / 1.5	800	400	2.0	3	20
(*) FOOTNOTES - AS PER FSP STOCKING STANDARDS – TABLE 2 (STANDARDS FOR EVEN-AGED STANDS):								
All	5.	Hw and Hm are acceptable in the transition zone between two biogeoclimatic zones such as the CWHvm2, CWHmm2, and MH zones.						

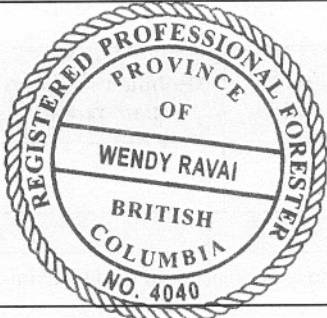
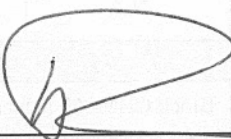
P. SILVICULTURE PLAN

P.1 SILVICULTURE PLAN								
All seed and vegetative material used in accomplishing this plan will be used in accordance to the Chief Forester's Standards for Seed Use (November 2004), Changes to Seed Transfer Limits (April 2005) and subsequent amendments.								
SU1	CWH vm2 SS09 leading							
Reforestation: PLANT								
Prompt planting of 800 sph Cw (70%) and Yc(30%) in year one (post-harvest) is recommended in order to meet regeneration delay early. Plant throughout the SU. Planting should target raised microsites. Hw can be expected to ingress post-harvest and will supplement the planted stocking. Fertilization at time-of-plant is not required. Seedling protectors are not required (i.e. deer activity noted in pre-harvest stand was not high).								
Vegetation Management Strategies:								
SU 1 has a low brush hazard (L). Salal. Competing vegetation will be monitored during scheduled surveys. If the survey indicates that competing vegetation will impede regeneration and/or free-growing obligations from being met a brushing treatment will be scheduled. Prompt stand establishment is recommended. A pre-planting survey is suggested as pre-planting treatment maybe required.								
P.2 SEEDLING REQUIREMENTS								
SU / Type	NAR (ha)	Species	Age Class	Stock Type	Seed Zone	Elevation (m)	Trees per ha	Total Trees
1 / PLT	3.4	Cw Yc	1+0	412A/B	M	200-250	560 240	1,904 816

ADMINISTRATION

ANCILLARY INFORMATION PREPARED BY (RPF SIGNATURE AND SEAL):

LICENCE NO: FL A19232	BLK: CHM260	CP: 159	OPENING NUMBER: 92L014	PAGE: 6 of 6	RUN DATE: 12/19/17
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 <p>Wendy Ravai , RPF RPF Name (Printed)</p> <p>Date: Dec. 19, 2017</p>	<p>Document by: Wendy Ravai, RPF Fieldwork by: Wendy Ravai, RPF</p> <div style="text-align: center;">  </div> <p>RPF Signature and Seal</p>
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ANCILLIARY DOCUMENTS ON FILE:
<ul style="list-style-type: none"> ☒ 1:5000 SITE PLAN MAP ☒ FIELD DATA CARDS (e.g., SP cards, forest health evaluations, site information, plantability, etc.) ☐ TERRAIN STABILITY RATIONALE ☒ ARCHAEOLOGICAL OVERVIEW ASSESSMENT / CMT SITE REVIEW ☐ VISUAL IMPACT ASSESSMENT ☒ SOIL HAZARD ASSESSMENT ☒ RIPARIAN ASSESSMENTS ☐ RIPARIAN SUMMARY ☒ DRAFT OGMA SUMMARY ☒ MAMU ASSESSMENT ☐ FOREST HEALTH / PEST INCIDENCE ASSESSMENT ☒ CRUISE SUMMARY ☒ WINDTHROW FIELD ASSESSMENT CARD