CUTBLOCK AND ROAD SITE PLAN

CUTBLOCK IDENTIFICATION				
Licence: K2D/AVCF	Cutting Permit: 003	Block: TS1	Timber Mark TBD	FDU: B (Taylor)
Silvicutlrue System: Retention	Opening Number: 92F.024	Location: Sproat Lake	Lattitude: 49° 16' 36''	Longitude: 125°19' 36''
TAUP(ha): 22.4	NAR (ha): 18.2	NP NAT (ha): 0	NP UNN (ha /%): 1.7ha/7.4%	P.A.S. Limit (%): 7%

Road Name	Section	Length	Location
TA568D	0+000 to 1+663 Case 1 Reconstruction	1663m	Taylor
TA568D	0+000 to 0+849 New Construction	849m	
TA568D1	0+000 to 0+087 New Construction	87m	
TA568D2	0+000 to 0+187 New Construction	187m	
TA568D2-2A	0+000 to 0+031 New Construction	31m	
TA568E1	0+000 to 0+115	115m	
TA568E2	0+000 to 0+159	159m	
TA568E3	0+000 to 0+075	75m	

SOIL DISTURBANCE				
SU	Compaction	Displacement	Surface Erosion	Soil Disturbance Limit (%)
A	Moderate	Very High	High	5
B	High	Moderate	High	5
C	Moderate	High	High	5
D	Moderate	High	High	5

COMMENTS

Use puncheon or rubber matting in sensitive areas and **stop work if the following soil disturbances cannot be avoided**:

>Wheel/Track Ruts, Compacted Areas, Gouges, Scalps<

Rehabilitate compacted areas and roadsides by de-compacting with hoe (preferably grapple attachment) while avoiding scalps larger than 1.5 x 1.5 m. Grass seed exposed mineral soil within 1 year of completion of harvest. Wide gouge and wide scalp are not countable soil disturbance categories in de-stumping areas.

Maximum Roadside Disturbance Limit: 25%

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RESULTS & STRATEGIES	
RESULT OR STRATEGY	HOW THE STRATEGY OR RESULT APPLIES TO THE SITE
5.1.1a Order Establishing Sproat Lake Landscape Unit and Objective – Objective 1: Old Growth Management Areas (OGMAs)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • OGMAs have been established for the Sproat Lake Landscape Unit on July 18, 2005. • OGMA NAN_splk_54 is located directly adjacent to the proposed harvest area but does not encroach onto it. This OGMA surrounds most of the proposed harvest area with the exception of the northwest corner. No other OGMAs are located in the vicinity of the proposed harvest area. Permissible activities that may occur for this OGMA include: o removal of danger trees, or brushing and clearing within the right-of-way on existing roads for safety purposes, o felling of trees for guyline clearance, tailhold anchor trees, (except high value wildlife trees) or danger trees along cutblock boundaries or within the right-of-way on new road/bridge alignments to meet safety requirements, o The AVCFC may carry out boundary pruning of trees within the OGMA. • No replacement OGMA is needed since there are no known OGMA infringements.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 2: Wildlife Tree Retention (WTR)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • A 1.4ha (7.0%) WTRA has been retained adjacent to the block, meeting minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone. This WTRA contains old growth Hw,Cw,Yc,Fdc representative of the pre-harvest stand. • AVCF will ensure that the 5 year average of WTR will met the minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone by ensuring that each individual block meets this target. • AVCF will ensure that the WTR are distributed across the landscape by ensure that each WTR is directly adjacent to their corresponding cutblock, which is planned to be distributed across the license area. Permissible activities that may occur for this WTRA include: o Removal of danger trees, o WTPs with a high likelihood of windthrow may be pruned or topped to maintain the integrity of the WTP.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 3: Special Management Zone 17 (SMZ 17)	• The proposed harvest area is within SMZ 17 of the Sproat Lake Landscape Unit • Sustain forest ecosystem structure and function within the portion of Special Management Zone 17 located in the Sproat Lake Landscape Unit, by retaining mature and old forests (i.e. >80 years of age) on an area covering at least 25 per cent of the total forested area of the SMZ portion located within the landscape unit. • The strategy is consistent with AVCF Management Plan objectives and strategies for landscape level biodiversity (S 13.3.9.2).
5.1.2a Vancouver Island Land Use Plan Higher Level Plan Order –	• The proposed harvest area is within SMZ 17. • Sustaining forest ecosystem structure and function in SMZ 17 as per VILUP Objective 1a) will

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Objective 1a: Sustain forest ecosystem structure and function in SMZs	be managed as per the strategy for Objective 3 of the Sproat Lake Landscape Unit Plan, included in section 5.1.1 of the FSP.
5.1.2b Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1b: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area is within SMZ 17. • The proposed harvest area is designed in a manner that is consistent with retaining structural forest attributes and elements with important biodiversity functions that exist in each of the following the established WTRA, internal retention patches and adjacent OGMA. These retention areas contain old growth Hw,Cw,Yc,Fdc representative of the pre-harvest stand along with streams, gullied features and wet areas, maintaining functional biodiversity within the retained forest.
5.1.2c Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1c: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area is within SMZ 17. • The NAR of the proposed harvest area is 18.2ha and will be harvested using a retention silviculture system. The cutblock has been designed with well distributed internal retention and a forest influence calculated at 50%, meeting the definition of retention silviculture system of the Silviculture Systems Handbook for British Columbia (2003), as referenced in the FSP.
5.1.2d Vancouver Island Land Use Plan Higher Level Plan Order – Objective 2.	• The proposed harvest area is within SMZ 17, however this objective is not applicable since this block is not intended to to recover timber damaged by fire, insects, wind or other similar events.
5.2.1 Soils (FPPR s.35-36)	• Soil disturbance limits comply with Section 35 of the FPPR. Limits are listed in SOIL DISTURBANCE section of the Site Plan. • Permanent access structures comply with Section 36 of the FPPR. Permanent access structures for the development are 9.7%. The area occupied by permanent access structures exceeds 7% due to the size, topography and engineering constraints of the cutblock and safety of road users. The permanent access structure limit is exceeded by as little as practicable.
5.2.2 Wildlife – MAMU (FPPR s.7)	• The Notice specifies the amount, distribution and attributes of wildlife habitat required for Marbled Murrelet and consequently a result or strategy is required.
5.2.3 Water, Fish, Wildlife and Biodiversity within Riparian Areas (FPPR s.47-52)	• For each riparian class of stream found in and adjacent to the harvest area, the minimum riparian management area (RMA) width, riparian reserve zone (RRZ) width and riparian management zone (RMZ) width, on each side of the stream, are as per the table in FPPR 47(4). • There are no wetlands or lakes, in or adjacent to the harvest area. • Road *TA568E1 end landing* will be constructed in the RMA of stream 3 because there is no other practicable option for locating the road. • Trees in the RRZ of stream 9 are planned to be cut, modified or removed for the following purpose(s): o felling or modifying a tree that is a safety hazard, if there is no other practicable option for addressing the safety hazard; o topping or pruning a tree that is not wind firm; creating guyline tiebacks;

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	• Streams within the development area are a direct tributary to an S2 and S3 stream. Retention is not required along streams 1, 3, 4, 5, 5A, 7, 8 and 10. Operators are to maintain stream bank or channel stability during harvest operations.
5.2.4 Community Watersheds (FPPR s.8.2)	• The proposed harvest area is within the Sproat Lake Community Watershed. • CWAP recommendations have been followed and assessments completed to ensure low to moderate material adverse hydrological effects will occur as a result of forest practices.
5.2.5 Wildlife and Biodiversity – Landscape Level (FPPR s.64-65)	• The net area to be reforested is in accordance with the result or strategy for VILUP HLP Order Objective 1(c). (FSP s. 5.1.2c) • The previously harvested and adjacent cutblock 2430 is not considered to be greened-up. However, the combined NAR of the proposed harvest area (18.2ha) and the previously harvested adjacent cutblock 2430 (9.5ha) is less than 40ha, meeting the 40ha maximum opening size.
5.2.6 Wildlife and Biodiversity – Stand Level (FPPR s.66-67)	• Wildlife tree retention targets are in accordance with the results or strategy for the approved Sproat Lake Landscape Unit Plan Objective 2. (FSP s. 5.1.1b) • No signs of bear dens were observed during field work.
5.2.7 Cultural Heritage Resources (FPPR s.10)	• Field reviewed by Hupacasath First Nation was completed on October 30, 2012; results have not been released. *It will be the responsibility of the licensee to ensure all First Nations parties involved are accommodated for and requirements are met.* • If, during harvesting, any evidence of traditional use or cultural heritage values is found notify the AVCF Manager and the Ministry of Forests Aboriginal Liaison Officer and cease work within a 30m radius of the area.
5.3.1 Visual Quality Objectives (FPPR s.7 – GAR Order)	• The development area is within an area with a scenic area with a visual quality objective of Partial Retention. A visual impact assessment completed by Darren Hiller September 2012, shows that the development will remain within the required visual quality objectives for the area.

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STOCKING STANDARDS

SU	Standards ID	NAR (ha)	Biogeoclimatic Ecosystem Classification				Regeneration Method	Preferred Species	Acceptable Species
			Zone	Subzone	Variant	Site Series			
A	1028545	11.9	CWH	mm	2	$01_{50}03_{40}04_{10}$	Plant	Cw Fd[10] Yc Hw Hm[12]	Ba
B	1028545	2.9	CWH	mm	2	$01_{50}06_{40}10_{10}$	Plant	Cw Fd[10] Yc Hw Hm[12]	Ba
C	1028578	2.3	MH	mm	1	$01_{80}05_{20}$	Plant	Ba Hm Yc	Hw[13,26]
D	1028537	1.1	CWH	mm	1	$01_{60}03_{40}$	Plant	Fd Cw	Hw

([10]) Restricted to southerly aspects. ([12]) Restricted to upper elecations of biogeoclimatic unit. ([13]) Restricted to lower elevations of biogeoclimatic unit. ([26]) Minor Component.

SU	Regen. Date (yrs)	FG Date Late (yrs)	MITD (m)	TSS (sph)	MSSp (sph)	MSSp (sph)	Min. FG Ht. by Species		Crop Tree to Brush Ratio %)
							Species	Ht (m)	
A	6	11	2.0	900	500	400	Ba Hw Hm Cw Yc Fd Yc	1.75 1.25 1.0 1.0 1.0 2.25 1.0	150
B	6	11	2.0	900	500	400	Ba Hw Hm Cw Fd Yc	1.75 1.25 1.0 1.0 2.25 1.0	150
C	7	11	2.0	900	500	400	Hw Ba Hm Yc	1.0 0.6 1.0 1.0	125
D	6	11	2.0	900	500	400	Hw Fd Cw	2.0 3.0 1.5	150

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CRITICAL FACTORS AND REGENERATION COMMENTS

Harvesting: Block boundaries are established with orange flagging, orange tags, and falling corners. Boundary trees may be harvested when they are adjacent to an existing road or block. All other boundary trees should not be felled or damaged.

Windthrow: A windthrow assessment was completed by Meridian Forest Services on October 26, 2012. Block 1 has been assessed as having a moderate to low windthrow risk. Blowdown of some trees adjacent to the eastern edge of the boundary is expected but is considered acceptable as it does not pose a water quality risk and will contribute to CWD. The remaining edges are parallel or lee of the wind with a minimal risk. No treatment has been prescribed.

Terrain Stability: A final Terrain Stability Report was completed by Aztec Geoscience Inc, November 2012. Cut block TS1 was assessed as having a low likelihood for landslide initiation with respect to timber harvesting. The report makes the following recommendations:

- Coastal rainfall shutdown criteria be applied during operations;
- FC 16 to FC 20 and FC 34 to FC 35 are recognized as potential rockfall hazards;
- All stream crossing should be armoured with coarse rock material;
- Yarding disturbance is minimized over the sensitive microsite (FC2 to F/L2-1).

Recreation: A small winter cabin has been constructed by a local recreationalist. The cabin is to be protected during all operations and has been identified on the harvest and road construction maps. An old hiking trial runs along the western edge of creek 2, it is planned to be brushed out and used more frequently in the future. Spur TA568E3 is to be constructed for the purpose of accessing this trail. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations.

Root Rot: No significant root rot infection centers were identified in this block during fieldwork. Endemic spot infections may exist but no treatment is prescribed.

Coarse Woody Debris: Retain a minimum of 4 logs/ha each being at least 5m in length and 30 cm in diameter at one end.

Wildlife Tree Retention Areas: WTRA totaling 1.4 ha have been designated for TS1. This is equivalent to 12.2% of the total area to be harvested. There is additional area in the riparian reserve of creek 9 and adjacent the eastern boundary that contains tree retention not designated at WTRA and not included in this calculation.

Invasive Plants: Broom occurs along sections of TA568. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

Natural Range Barriers: Natural range barriers do not apply to the proposed harvest area.

Regeneration: Plant promptly following harvesting to minimize the potential need for future brushing treatments. Focus Cw on water receiving sites and in areas of root rot infection indicated on the map. Block TS1 has a low brush competition hazard.

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Recommended Planting Prescription:

SU	NAR (ha)	Species	Percent (%)	Stock Type	Stems/ha	Total Stems
A	11.9	Fd Cw Yc	50 30 20	315A or smallest available	500 300 200	1000
B	2.9	Fd Cw Yc	50 30 20	315A or smallest available	500 300 200	1000
C	2.3	Yc (Ba)	70 30	410A or Larger	700 300	1000
D	1.1	Fd Cw	70 30	410A or Larger	700 300	1000
A more detailed planting prescription is to be completed during the Post-Harvest Assessment.						

RIPARIAN MANAGEMENT					
Riparian Class of Feature	S4 S4 S4 S4 S4 S4 S4 S4 S4 S2 S4	Designation on Map	Stream 1 Stream 2 Stream 3 Stream 4 Stream 5 Stream 5A Stream 6 Stream 7 Stream 8 Stream 9 Stream 10	Falling and/or Skidding or Yarding Across a Stream	No No Yes Yes No No Yes Yes No No No

Stream 9 is located adjacent to the West side of the boundary. Stream 9 is an S2 non- fish bearing stream, located within a community watershed and is situated in a major gulley, surrounded by an OGMA. A buffer of 30 meters or greater has been left on stream 9. Fish habitat has been observed approximately 1 km downstream (Triton Consulting 1993).

All other creeks have been classified as non-fish bearing S4's. They are within a community watershed with stream widths less than 1.5m. All S4 creeks have a low transportation potential. Streams 5, 5A, 8 and 10 have connectivity to fish bearing streams. These streams are to be fall away yard away and machined cleaned concurrent or post-harvest. Minimize machine crossing locations and the number of passes over the remaining creeks.

Retain cedar and non-merchantable stems within the RMZ (indicated in green shading) where operationally practicable.

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RPF SIGNATURE AND SEAL	
Prepared By: _____ Name (Printed)	 Andrew Kenyon 2012.12.07 13:44:22 -08'00'
Signing RPF: _____ RPF Name (Printed)	
Date Signed (dd/mm/yy) _____ RPF Number _____	RPF Signature and Seal
"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."	

RPF SIGNATURE AND SEAL	
Reviewed By: Mona Desgroseilliers, RPF Name (Printed)	 Mona Desgroseilliers 2012.12.06 15:02:30 -08'00'
Signing RPF: Mona Desgroseilliers, RPF RPF Name (Printed)	
06/12/12 Date Signed (dd/mm/yy) _____ 4410 RPF Number	RPF Signature and Seal
"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."	

SITE DEGRADATION ESTIMATE

A: DESCRIPTION OF AREA

TENURE
AVCF

CP
03

BLOCK	Ha
TS1	22.4

B: Natural Non-Productive

Type	Ha
CREEK	0.00
SWAMPS	0.00
SLIDES	0.00
ROCK OPENINGS	0.00
OTHER / RESERVES	0.00
	Total NNP 0.00

C: UNNATURAL NON-PRODUCTIVE (before Rehab.)

Type	START	END	AMOUNT	LENGTH (M)	SLOPE	WIDTH (M)	Ha	%
TA568D	307	426	1	119	15	6	0.07	0.32
	718	840	1	122	15	6	0.07	0.33
	1369	1396	1	27	15	6	0.02	0.07
TA568D1	0	87	1	87	8	10	0.09	0.39
TA568D2	54	187	1	133	10	10	0.13	0.59
TA568D2-2A	0	31	1	31	5	10	0.03	0.17
TA568E	56	200	1	144	15	6	0.09	0.39
	200	849	1	649	15	12	0.78	3.48
TA568E1	0	20	1	20	8	5	0.01	0.04
	20	115	1	95	10	10	0.10	0.56
TA568E2	0	159	1	159	10	10	0.16	0.71
TA568E3	0	75	1	75	3	10	0.08	0.33
Landings							0.00	0.32
							1.65	7.38

D: SUMMARY

TYPE	Ha	%
GROSS AREA	22.4	100
NATURAL NON-PRODUCTIVE AREA	0.0	0.00
UNNATURAL NON-PRODUCTIVE AREA	1.7	7.38
REHABILITATION AREA	0.0	0.00
NET AREA TO BE REFORESTED	18.2	81.25

E: COMMENTS:

PREPARED BY: A. Kenyon **DATE:** 04-Dec-12