

SITE PLAN CP 408 BLOCK 3 COOPER CREEK CEDAR LTD.

A. TENURE IDENTIFICATION

LICENCE NO.: FL A30171	CP: 408	BLOCK: 3	TIMBER MARK: FE5408	UTM: 499086E , 5574053N	LICENSEE NAME: Cooper Creek Cedar (CCC)
AREA UNDER TENURE (ha): 44.8	MAPSHEET/OPENING #: 082K035	ELEVATION: 860 – 910m	LOCATION: Greyhorse		

B. AREA SUMMARY

AREA OF NO PLANNED REFORESTATION (ha) (NPR)									
PERMANENT ACCESS	ROCK	WATER	SWAMP	OTHER NP	NC>4ha	WILDLIFE TREE RETENTION AREA (HA):	IMMATURE	OTHER (NP Brush)	TOTAL NPR AREA
0.8	-	-	-	-	-	4.8	-	-	5.6
NET AREA TO BE REFORESTED (ha)									
SU	SU AREA DESCRIPTION								NET AREA TO BE REFORESTED:
A	<p>ICH mw2 101⁹ 104¹ Aspect is variable, ranging from NE to East and SW to West. Slope position is middle to upper (ridgeline), with mainly short broken discontinuous slopes. Slopes range from 5 – 65%, but in most areas slopes are <40%. Surface soils and subsoil texture is Silt Loam (SiL). Soils are well drained. Coarse fragment content ranges from low to moderate (8 – 55%) in surface horizons and subsoils. Moisture regime is predominantly mesic, and nutrient regime is medium. Humus form is a thin mor (3.5 – 5.0cm on average). Rooting depth is 25 - 35cm.</p> <p>Average stand density (all species) is 727 stems/ha. Most stems fall within the 20 – 55cm DBH classes, with <5% of stems in the 60 – 95cm DBH classes. Approximate species densities are Hw 382 stems/ha, Cw 200 stems/ha, Fd 119 stems/ha, Lw 24 stems/ha, and Sx 2 stems/ha. The understory contains low to moderate densities of Cw Hw poles, saplings and regen that have poor form and are suppressed. There are also 97 stems/ha of dead LwCwHw(Sx), mainly in the 20 – 70cm DBH classes.</p> <p>SU A has Non-Sensitive soils. SU A will be logged via ground based harvest methods and a clearcut silviculture system.</p>								35.2
B	<p>ICH mw2 104⁸ 101¹ 103¹ Aspect is West to Southwest facing. Slope position is upper (ridgeline), with mainly short broken discontinuous slopes. Slopes range from 17 – 53%. Surface soils and subsoil texture is Silt Loam (SiL). Soils are well drained. Coarse fragment content is low (20 - 25%) in surface horizons and subsoils. Moisture regime is predominantly submesic, and nutrient regime is medium. Humus form is a thin mor (2.5cm thickness on average). Rooting depth is 30cm.</p> <p>Average stand density (all species) is similar to SU A.</p> <p>SU B has Non-Sensitive soils SU B will be logged via ground based harvest methods and a clearcut silviculture system.</p>								4.0
TOTAL NET AREA TO BE REFORESTED:									39.2
TOTAL AREA UNDER THE PLAN:									44.8

SOIL DISTURBANCE

SU	Max. Allowable Soil Disturbance (%)	Max. Amount TAS May Exceed MASD Prior to Rehab (%)	Max. Allowable Soil Disturbance For Roadside Work Areas (%)	Maximum Permanent Access Structures (%)
A	10.0	5.0	25.0	1.8
B	10.0	5.0		

SU	CRITICAL SITE CONDITIONS THAT AFFECT THE TIMING OF OPERATIONS AND HOW THEY AFFECT THEM
A, B	<ul style="list-style-type: none"> Avoid machine travel during periods of soil saturation to reduce soil compaction and soil displacement risk. Use designated harvesting trails during summer months, or a supporting snow pack in the winter. Spot piling along roadsides, landings, and within the NAR may be necessary to remedy high levels of coarse woody debris.

RESULTS AND STRATEGIES

Biodiversity Objectives	
Result or Strategy Description	3.5.3 - Old and Mature Forest
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	<p>'KBHLP Objective 2 – Old & Mature Forests' 'KBHLP Objective 5 – Connectivity' Field data collection found this block to be ICH mw2, and the block lies within Connectivity Corridor. For the ICH mw2, there is a Mature + Old forest requirement in this landscape unit (K17), and the Old forest target is met with OGMA area.</p> <p>Analysis completed by Timberland (Sept 6, 2018) shows that post-harvest there will be a surplus of Mature + Old within the Landscape Unit ICH mw2 as a whole, and also within connectivity corridor.</p>
Result or Strategy Description	3.5.3 - Green-up
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	'KBHLP Objective 4 – Green-up' – The proposed cutblock is consistent with FPPR Section 65(2).

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Result or Strategy Description	3.5.1 - Objectives set by Government for Biodiversity – Landscape Level
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	Biodiversity Emphasis. 'KBHLP Objective 4 – Green-up' The proposed cutblock and adjacent cutblocks comply with Sections 64 and 65 of the FPPR.
Cultural Heritage Resources	
Result or Strategy Description	3.7 - Objectives set by Government for Cultural Heritage Resources
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	A referral letter dated July 11, 2018, for CP 408 development was sent to the appropriate individual(s) and/or group(s). Cooper Creek Cedar Ltd did not receive any comments from First Nations identifying any concerns with the proposed development that had the potential of impacting cultural heritage values.
Recreation Resources	
Result or Strategy Description	4.3 - Recreation
Applies:	NO
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	The proposed cutblock is not located within a designated Recreational Area or Trail with legal objectives; therefore, managing for Recreation Resources is not applicable.
Riparian Management	
Result or Strategy Description	3.4.1 - Objectives set by Government for Riparian Areas
Applies:	NO
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	1) There are no streams within or directly adjacent to this block. 2) See Section E.1 for Riparian Management Strategies. 3) See Section F for management strategies related to Temporary Access Structures and Soil Disturbance that should be used during and post-harvest in order to prevent/reduce soil disturbance and sediment delivery.
Soil Objectives	
Result or Strategy Description	3.1 - Objectives set by Government for Soils [FPPR Section 5 and 12.1(1)]
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	(FPPR Section 35 & 36) 1) SU A and SU B do not contain Sensitive soils, and soil disturbance will not exceed 10% . Specific measures for mitigating soil disturbance levels are addressed under Section F of this Site Plan. 2) Areas of the block where temporary access structures are required will be rehabilitated. 3) Specific rehabilitation measures are addressed under Section F of this Site Plan. 4) PAS will not exceed the recommended limit of 7.0% and is estimated at 1.8% . 5) Areas within the block assigned to roadside work areas will not exceed 25% .
Visual Objectives	
Result or Strategy Description	3.6 – Visual Quality
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	A Visual Impact Assessment for CP 408 was completed by Timberland Consultants Ltd in September, 2018. Portions of two cutblocks (blocks 5 and 7) fall within polygons with a VQO of Modification, and the remaining cutblocks fall within area that is Not Visually Sensitive. Analysis showed that blocks 5 and 7 were only partially visible to non-visible from Highway 31 viewpoints; therefore the proposed development of CP 408 meets the established VQO of Modification.
Water Management Objectives	
Result or Strategy Description	3.4.4 - Consumptive Use Streams
Applies:	NO
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	'KBHLP Objective 6' – Does not apply - Block 3 is partially located (west side of block) within the Meadow Creek Watershed. Matt Creek is located ~1200m to the West of the block. Matt Creek is a lower order stream that flows into Meadow Creek. Meadow Creek has six domestic use PODs, the closest of which is >6.0km from block 3 . Referral letters were sent to Meadow Creek water users on August 22, 2018 and no comments or concerns were received. The distance between the block and PODs will help avoid or minimize disturbance to water quality.
Wildlife Objectives	
Result or Strategy Description	3.3.1 - Objectives set by Government for Wildlife - Species at Risk – Section 7 of the FPPR
Applies:	NO
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	The block is not within a Wildlife Habitat Area. There were no sightings of Species at Risk during field development of this cutblock.
Result or Strategy Description	3.5.2 - Objectives set by Government for Wildlife and Biodiversity – Stand Level
Applies:	YES
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	(FPPR Section 66 & 67) There are two Wildlife Tree Retention Area planned for this block, totalling 4.8 ha . Overall wildlife tree retention percentage is approximately 10.7% . The WTRA % meets the minimum % requirements stated in the FSP.
Result or Strategy Description	3.3.2 – Ungulate Winter Range
Applies:	NO
How the Result or Strategy Applies to the Site (or Rationale if it does not apply)	Block 3 is outside designated Ungulate Winter Range.

ADDITIONAL COMMENTS

<p>Consistency Statement</p> <p>This block is consistent with the 2018 – 2023 Forest Stewardship Plan – Cooper Creek Cedar Ltd. Forest Licence A30171, approved January 26, 2018.</p> <p>This Site Plan is prepared for CP 408 block 3, in accordance with FRPA Section 10(1), (2) & (3).</p>
<p>Community Watersheds</p> <p>FSP Section 3.4.3</p> <p>Not applicable - the proposed block is not located within a Community Watershed.</p>
<p>Enhanced Resource Development Zones</p> <p>FSP Section 3.2.1</p> <p>'KBHLP Objective 7 – Enhanced Resource Development Zones – Timber'</p> <p>Block 3 is not within an Enhanced Resource Development Zone. The requirement to create a Result/Strategy for this objective does not apply.</p>
<p>Fire Maintained Ecosystems</p> <p>FSP Section 3.5.3</p> <p>'KBHLP Objective 8 – Fire maintained Ecosystems'. There are no NDT 4 ecosystems in the FDUs under this FSP, therefore the fire-maintained ecosystem objective is not applicable.</p>
<p>Fisheries Sensitive Watersheds</p> <p>FSP Section 3.4.2</p> <p>At the time the FSP was developed there were no designated "Fisheries Sensitive Watersheds" in FDUs in the FSP, therefore the requirement to create a Result/Strategy for this objective does not apply.</p>
<p>Invasive Plants</p> <p>FSP Section 4.1 – Invasive Plants</p> <p>The IAPP website was checked on October 2, 2018. The following invasive species were reported in nearby areas to CP 408: Common tansy, Canada Thistle, Chicory, Hawkweed species, Oxeye Daisy, Orange Hawkweed, Spotted Knapweed, St. John's wort, Yellow Hawkweed, and Burdock species.</p> <p>Measures to prevent the introduction or spread of invasive plants noted in the FSP include:</p> <ul style="list-style-type: none"> • Cleaning equipment before moving from a work site with existing infestations to a new work site. • Minimizing soil disturbance during primary forest activities (PFA). • Reseed exposed mineral soil, resulting from a PFA in the first available fall or spring within 12 months following the soil disturbance. Plan planting of cutblocks as soon after harvesting as possible. • During PFAs minimize soil disturbance by: <ul style="list-style-type: none"> - harvest on a snowpack, when feasible - random skid to designated skid trails to minimize skidder traffic on the ground - utilize benches for skid trails to minimize side cuts - utilize brush to construct skid trails to reduce contact with the ground - use overhead cable harvesting systems on steep ground • Where grass seeding is undertaken, CCC will use certified grass seed (Canada common #1 or better grade) from reputable suppliers to ensure premium quality free of invasive plant seed, or a seed mix recommended by a MFLRNO range specialist. • See FSP for additional strategies and practices regarding invasive plants.
<p>Natural Range Barriers</p> <p>FSP Section 4.2</p> <p>Not applicable. There are no range tenures located in the FDUs covered by this FSP.</p>
<p>Timber</p> <p>FSP Section 3.2 - Timber</p> <p>As per Sec 12(8) of the FPPR, results or strategies are not required for an objective set by government for timber.</p>
<p>Wildlife - Caribou</p> <p>FSP Section 3.3 and 3.5.3</p> <p>'KBHLP Objective 3 – Caribou' was cancelled and replaced by <i>GAR Order #U-14-012 – Mountain Caribou – Southwest Kootenay Planning Unit</i>. This block does not fall within a Caribou Management Zone.</p>
<p>Wildlife – Grizzly Bear Habitat - Connectivity</p> <p>FSP Section 3.3 and 3.5.3</p> <p>'KBHLP Objective 5 – Grizzly Bear Habitat & Connectivity Corridors'. Not applicable to the FDU which includes this block.</p> <p>Block 3 falls within Connectivity Corridor area. Applicable targets for Old and Mature forest will be met following harvest.</p>

STOCKING REQUIREMENTS

SU	NAR	Standards ID #	Other Performance Standards
A	35.2	1057465	See Section H - Stocking Requirements
B	4.0	1057474	See Section H – Stocking Requirements

C. MANAGEMENT OBJECTIVES & STRATEGIES

<p>C.1 MANAGEMENT OBJECTIVES</p> <ul style="list-style-type: none"> Objectives for CP 408 Block 3 include meeting visual quality objectives, and retaining stand structure and forage values for wildlife. Harvest this mature stand of Hw Cw Fd (Lw Sx) for saw logs, chips and value-added products and manage for healthy, free growing stands of planted and natural Fd Lw Cw Hw (Pw) in SU A, and Fd Lw (Cw Pw Py PI Hw) in SU B. Wildlife Tree Retention Area (WTRA): Two patches are planned for retention, totaling 4.8 ha in size. Kootenay Boundary Land Use Plan – Implementation Strategy (June 1997): This block is located within Resource Management Zone K-S08 (Lardeau, Cooper and Meadow Creeks – Special Resource Management Zone) and within the designated Landscape Unit K17 (Goat Range) – High BEO Assignment.
<p>C.2 CONDITIONS THAT MUST EXIST AFTER HARVEST OR TREATMENT TO ACCOMMODATE KNOWN FOREST RESOURCES</p>
<p>C.2a WILDLIFE</p> <p>Stand Level attributes/ concerns identified:</p> <p>Ungulate Winter Range: Block 3 is outside designated Ungulate Winter Range.</p> <p>Slope values are low to moderate in SU A and B, with few steeper pitches. Lower to middle elevation ICH mw2 site conditions. Aspect is variable in SU A, and West to Southwest in SU B. Terrain has short, broken, discontinuous slopes. Lower to middle slope landscape location, with localized ridges. Vegetation cover is low over most of the unit. Existing coarse woody debris levels are Low ($\leq 45\text{cm}$ diameter) in most areas. Mistletoe commonly noted in Lw.</p> <p>SU A and B: Stand type is: Hw6Cw2Fd2(LwSx). Low densities of Hw Cw Fd vets are present.</p> <p>Average stand density (all species) is 727 stems/ha. Most stems fall within the 20 – 55cm DBH classes, with <5% of stems in the 60 – 95cm DBH classes. Approximate species densities are Hw 382 stems/ha, Cw 200 stems/ha, Fd 119 stems/ha, Lw 24 stems/ha, and Sx 2 stems/ha. The understory contains low to moderate densities of Cw Hw poles, saplings and regen that have poor form and are suppressed. There are also 97 stems/ha of dead LwCwHw(Sx), mainly in the 20 – 70cm DBH classes.</p> <p>Forest cover adjacent to the block is dominated by immature stands in cutblocks harvested between 1977 and 1996, with lesser amounts of mature stands.</p> <p>Actions prescribed:</p> <p>Total Area specified for the retention of wildlife trees: 4.8 ha (10.7% of gross area)</p> <p>Wildlife Tree Retention Areas (WTRA's):</p> <p>WTRA-1 (2.6 ha) Cw5Hw4Fd1. This WTRA is located on the Southern side of the block. Density is 100 sph; Height range is 25 – 35m; DBH range is 25 – 50cm; Age class is 5 – 7. Crown closure is 25%. Cw Hw Fd vets and snags are present. WTRA contains a receiving area with steepened banks around a small wetland. Wildlife signs inside the patch included scat, game trails, and bear bark stripping on Cw.</p> <p>WTRA-2 (2.2 ha) Cw7Hw2Fd1(Sx). This WTRA is located on the Northern side of the block. Density is 800 - 900sph; Height range is 24 – 32m; DBH range is 20 – 55cm; Age class is 5 – 7 with some older stems present. Crown closure is 25%. Cw Hw Sx vets noted with DBH of >100cm, along with small to large Cw Hw Lw Fd snags. WTRA contains open wetland area and denser stands, with scattered CWD (DBH $\geq 50\text{cm}$). Wildlife sign includes ungulate scat and wolf tracks.</p> <p>WTRA's will provide stand structure values for wildlife, perching and cover values, and visual values. Coarse woody debris values will also be created over time from dead and fallen stems.</p> <p>Snags Retain safe snags <5m tall in SU A and B where operationally feasible. Snags with evidence of wildlife use are preferred.</p>
<p>C.2c FISHERIES</p> <p>There are no fish streams within or adjacent to the block. See Section E.1 for Riparian Management Strategies.</p>
<p>C.2d WATERSHEDS</p> <p>See RESULTS AND STRATEGIES (3.4.4 - Consumptive Use Streams).</p>
<p>C.2e RECREATION</p> <p>See RESULTS AND STRATEGIES (4.3 – Recreation).</p>
<p>C.2f BIOLOGICAL DIVERSITY</p> <p>Landscape Unit - K17 (Goat Range): High BEO Assignment.</p>
<p>C.2g VISUAL RESOURCE MANAGEMENT</p> <p>See RESULTS AND STRATEGIES (3.6 – Visual Quality).</p>
<p>C.2h CULTURAL HERITAGE</p> <p>See RESULTS AND STRATEGIES (3.7 - Objectives set by Government for Cultural Heritage Resources).</p> <p>See section E.5 for Archaeological information.</p>
<p>C.2i RANGE</p> <p>Not applicable. There are no range tenures located in the FDU's covered by this FSP.</p>

C.2j OTHER RESOURCES

Trapping / Guiding:

Trappers or guiding license holders in the area will be identified and notified through the Forest Stewardship Planning process.

Windthrow:

Windthrow hazard is **Very Low** for adjacent immature stands where previous harvesting has occurred. Older cutblocks surround most of the block perimeter.

Patches of mature timber outside the Northwest and Southwest sides of the block will have a **Moderate** windthrow hazard. These stands have already been exposed to winds from previous harvesting and/or have a more open stand structure. Fd and Lw in these stands have good rooting properties.

The block is large in size, somewhat irregular in shape, and has a lower slope location.

Soils in **SU A and B** are well drained. Rooting depth is 25 - 35cm with low to moderate coarse fragment content.

CONDITIONS NOT APPLICABLE TO THIS SITE PLAN

THE FOLLOWING CONDITIONS WERE CONSIDERED, AND FOUND NOT TO BE APPLICABLE TO THIS SITE PLAN:

None identified.

D. ECOLOGICAL INFORMATION AND SITE CHARACTERISTICS

D.1 STANDARDS UNITS AND CRITICAL SITE CONDITIONS

SU	TREATMENT UNIT	ZONE	BIOGEOCLIMATIC			SITE TYPE
			SUBZONE	VARIANT & PHASE	SITE SERIES	
A	1	ICH	mw	2	101 ⁹ 104 ¹	-
B	1	ICH	mw	2	104 ⁸ 101 ¹ 103 ¹	-

E. MANAGEMENT STRATEGIES

E.1 RIPARIAN MANAGEMENT STRATEGIES

RIPARIAN RESERVE ZONE (RRZ)

RIPARIAN/ LAKE ID	RIPARIAN/ LAKE CLASS	HARVESTING Y/N	SU XREF	DESCRIPTION OF THE PURPOSE AND EXTENT OF REMOVAL OR MODIFICATION OF TREES AND ANY RELATED FOREST PRACTICES IN RIPARIAN RESERVE ZONE(S)
N/A	-	-	-	-

RIPARIAN MANAGEMENT ZONE (RMZ)

RIPARIAN/ LAKE ID	HARVESTING Y/N	SU XREF	MANAGEMENT STRATEGIES FOR RIPARIAN 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 OR DENSITY FOR RMZ (S) AND LMZ (S).
N/A	-	-	-

NON-CLASSIFIED (NC) RIPARIAN AREAS

RIPARIAN/ LAKE ID	SU XREF	MANAGEMENT STRATEGIES
N/A	-	-

Riparian Assessment was completed by Timberland in **September 2018**.

- 1) No streams or NCDs are within or directly adjacent to the block.
- 2) **Fall and skid timber away from riparian features** (streams, NCD's, wetland) where practicable. Any debris entering a riparian feature as a result of harvesting will be removed upon completion of harvesting activities unless it does not obstruct water flow or its removal would cause further damage to the riparian feature. **Minimize crossings on watercourse channels** to the extent possible.
- 3) Where **watercourses** are crossed more than once, it is recommended to place a temporary skid bridge (e.g.: logs placed in draw) in order to prevent a potential diversion of flow.
- 4) All **machine trails** and **crossings** should be fully rehabilitated upon the completion of harvesting. Excess material that could cause redirection of natural drainage patterns should not be left at crossing locations.
- 5) **All surface drainage patterns** should be maintained and any that are disrupted as a result of harvesting operations should be restored immediately.
- 6) **A post-harvest inspection** should be completed to assess the amount of logging debris/excess soil within the wetted perimeter of all subtle drainage features. All natural drainage patterns should be maintained and left free of excess debris (slash or soil) that could result in a redirection of seasonal surface runoff/drainage diversion.
- 7) **Basal area retention** levels for the in-block RMZ's: Not applicable.

E.2 FOREST HEALTH MANAGEMENT STRATEGIES					
SU	Code	Nelson Region DRA Risk Factors	Points	Relative Risk	Comments
A, B	DRA	Site factors Host factors Inoculum potential Disease factors	8 3-6 0 3-8	H M L L-M	<ul style="list-style-type: none"> • Armillaria is present at very low levels in this stand. • The Nomographic Zones in Section 3.0 of the "Armillaria Root Disease Management Guidelines for the Nelson Forest Region" (June 1998) indicate that Alternative or Intensive deferred treatments for root disease management are appropriate for this site, should Armillaria become a problem. • Alternative treatments will include planting (and/or managing for) a species mixture that includes species tolerant and /or moderately susceptible to Armillaria (e.g.: Lw, Cw, Hw, Pw in SU A; Lw, Cw, Hw, Pw, Py, Pl in SU B). Fd and Sx (highly susceptible) may be included in the planting mixture but should be limited to a combined maximum of 50% of the mix. Microsite selection should reflect buffer zones around infected stumps, if they can be identified. • Hand-pulling (preferred) or pop-up spacing (alternative) should be considered in the future should Armillaria become a limiting factor in meeting regeneration or free growing requirements (see section H). • Stumping or pushover harvesting treatments are not suitable due to low sign of Armillaria and high soil hazards.
			14-22	L-M	
Other Forest Health Factors					
SU	Code	%	Comments		Current risk to inventory
A, B	IWS	0	If Sx is planted in the post-harvest stand, monitor for white pine (spruce) weevil during silviculture surveys.		nil
A, B	DML	50	Lw forms 3% of the current stand density and 2% of the current stand volume (DBH range 20 – 45cm). Mistletoe was noted in Lw throughout the block (vet and mature layers).		nil
A, B	IBD	<3	Absent to Very Low incidence of Douglas-fir beetle. Fd forms approximately 16% of the current stand density and 20% of the current stand volume. (DBH range 20 – 55cm).		Low - Moderate
A, B	DSB	0	Pw is present in very minor amounts in the current stand. A small amount of Pw may be planted. Plant only rust resistant stock. Expect high incidence of white pine blister rust on any naturally regenerated Pw.		nil
Expected future risks and actions					
<p>A FOREST HEALTH/PEST INCIDENCE ASSESSMENT IS NOT REQUIRED. Forest health information was collected during SP field data collection in September 2018.</p> <p>Future risks include seedling drought mortality and stress during summer months. Lower elevation ICH mw2 site conditions, with variable aspect..</p> <p>SU A and B: Average species composition of the pre-harvest stand (stand density) is approximately Hw 53% Cw 28% Fd 16% Lw 3% (Sx). Low densities of Hw Cw Fd vets are present.</p> <p>The age of mature trees in the stand, based on ages taken during cruising, is 83 – 171 years (average 110 years).</p>					

E.3 VEGETATION MANAGEMENT STRATEGIES	
LIVESTOCK TO BE USED FOR VEGETATION MANAGEMENT: YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/>	
Current Brush Hazard:	
SU A and B: Low levels of brush inside harvest boundaries. Higher brush cover noted in adjacent older cutblocks.	
Future Brush Hazard:	
<p>SU A: Future hazard is Moderate to High due to birch (mostly snags) throughout block likely to seed and sprout after harvest, and mesic moisture conditions. Disturbed areas outside the block were seen to have moderate or higher cover of bracken fern, alder, and deciduous trees. Within open areas of the WTRA there was a higher concentration of alder.</p> <p>SU B: Future hazard is Moderate due to maple and birch noted on slope. Potential for dry shrub complex.</p> <p>Potential competitor species include aspen, birch, maple, western yew and bracken fern.</p>	
Species Complex:	
<p>SU A: Current vegetation includes western yew, one-leaved foamflower, bunch berry, falsebox, rosy twisted stalk, queen's cup, oak fern, maple, and small amounts of gooseberry, devil's club, birch leaved spirea and twinflower.</p> <p>SU B: Current vegetation includes tall Oregon-grape, western yew, maple, and prince's pine.</p>	
Brushing Methods: Should brushing become necessary, manual treatments are the preferred methods.	
Anticipated Timing/Constraints: Treatment needs will be assessed through periodic walkthroughs and silviculture surveys. Treatment timing will be prescribed at the time of brush assessment.	
Note: Where possible, avoid brushing Vaccinium spp in order to maintain huckleberry picking values, and to maintain forage on site for grizzly and black bears.	

E.4 COARSE WOODY DEBRIS (CWD) MANAGEMENT STRATEGIES
<p>CWD levels are Low (<15% ground cover) in most areas, with lesser areas of Moderate (15 - 25% ground cover). CWD is predominantly composed of ≤ 45cm diameter stems of LwCwHw(Pw). Most stems are older with advanced decay, no bark or losing bark.</p> <p>CWD levels are expected to be Moderate post-harvest. Post-harvest CWD will consist of unmerchantable existing levels and snags, along with residue and breakage. A reduction of CWD levels is anticipated through clean harvesting practices and/or site preparation for planting, if required. (FPPR Section 68): Retain a minimum of 4 logs per hectare, each being at least 2 metres in length and at least 7.5cm in diameter at one end. See the SITE PREP section (K.1) for CWD management strategies.</p>

E.5 ARCHAEOLOGICAL IMPACT ASSESSMENT
<p>Archaeological Overview Mapping of the CP 408 area shows that block 3 does not fall within a polygon that has a potential rating. An Archaeological Impact Assessment is not required.</p>

F. SOIL CONSERVATION

F.1 SITE DISTURBANCE						
SU	HAZARD RATINGS			SOIL CHARACTERISTICS		
	SOIL COMPACTION	SOIL DISPLACEMENT	SURFACE SOIL EROSION	DEPTH TO UNFAVOURABLE SUBSOIL (cm)		TYPE OF UNFAVOURABLE SUBSOIL
				MIN(cm)	MAX(cm)	
A	High	High	High	60+	60+	None to 60cm
B	High	High	High	60+	60+	None to 60cm

F.2 SOIL DISTURBANCE LIMITS		
<p>SU A: ARE THERE SENSITIVE SOILS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>SU B: ARE THERE SENSITIVE SOILS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>MAX. PROPORTION OF TOTAL AREA UNDER THE PRESCRIPTION ALLOWED FOR PERMANENT ACCESS STRUCTURES (PAS): 1.8%</p> <p>Roadside harvesting and temporary landings will be used.</p> <p>DEACTIVATION OF PERMANENT ACCESS STRUCTURES: Any permanent access structures (e.g.: roads, landings) will be deactivated – debris will be piled & burned; water control will be installed around all landings.</p>		
SU	MAXIMUM ALLOWABLE SOIL DISTURBANCE WITHIN THE NET AREA TO REFOREST (%)	MAXIMUM EXTENT SOIL DISTURBANCE LIMITS MAY BE TEMPORARILY EXCEEDED TO CONSTRUCT TEMPORARY ACCESS STRUCTURES OR EXCAVATED OR BLADED TRAILS (%)
A	10%	5%
B	10%	5%
<p>MASD for Roadside Work Areas: 25%</p> <p>Any temporary access structures (e.g.: road, landing, excavated or bladed trails) will be rehabilitated to the extent necessary to bring the SU net area back into compliance with the specified soil disturbance limits.</p> <p>See Section F.4 below for description of temporary access structures and/or excavated or bladed trails, if any.</p> <p>Avoid harvesting during spring freshet/breakup conditions when soils are saturated, in order to reduce soil displacement and compaction.</p> <p>Areas of steep slopes >35% are present in parts of SU A and B, and are noted on the Harvest Plan map.</p>		
F.3 REHABILITATION TIME FOR TEMPORARY ACCESS STRUCTURES		
MAXIMUM ALLOWABLE TIME TO COMPLETE REHAB (MEASURED FROM COMPLETION OF HARVEST): 1 YEAR		

F.4 MANAGEMENT STRATEGIES FOR TEMPORARY ACCESS STRUCTURES				
SU	GENERAL LOCATION:	MAX ALLOWABLE HEIGHT OF CUTBANKS (m)	AVERAGE HEIGHT OF CUTBANKS (m)	EQUIPMENT TO BE USED (IF OTHER THAN EXCAVATOR)
A, B	Blading or excavating is expected to occur in parts of the unit with moderate to steep slopes.	0.8	0.3	Skidder, cat.
<p>Temporary Landings:</p> <p>SU A: 6 landings @ 0.2 ha = 1.2 ha</p> <ul style="list-style-type: none"> SU A: Roadside harvest with landings. Favourable skidding with minimal adverse skidding. Two main ridges, running north/south in central area of block between the two WTRA's, may require some hoe chucking due to 45 – 55% slopes. If broadcast burn treatment is anticipated, disperse non-merchantable woody debris and slash on site during harvest to enhance fuel levels. See Section E.1 for stream management strategies. <p>The following will apply for any excavated/bladed trails that are required:</p> <ul style="list-style-type: none"> Maximum trail width is 4m. Actual dimensions of bladed trails may vary depending on topography. The amount of bladed trail constructed will be kept to a minimum. <p>Short sections that become bladed trails where a non-bladed trail crosses a hump or ridge will be exempt from rehabilitation requirements provided that the soil disturbance limits in this SP are not exceeded.</p> <p>Rehabilitation for bladed or excavated trails:</p> <p>Any bladed or excavated trails will be rehabilitated as follows:</p> <ul style="list-style-type: none"> De-compact the trail, including removing or redistributing woody debris that is concentrating subsurface moisture Return displaced surface soils, retrievable side-cast and berm materials on the excavated portion of the area Re-contour the slope Re-establish natural surface drainage IF soil erosion may cause sediment to enter a stream or wetland, place some woody debris over exposed mineral soils, and revegetate exposed mineral soils. 				

G. SILVICULTURAL SYSTEMS

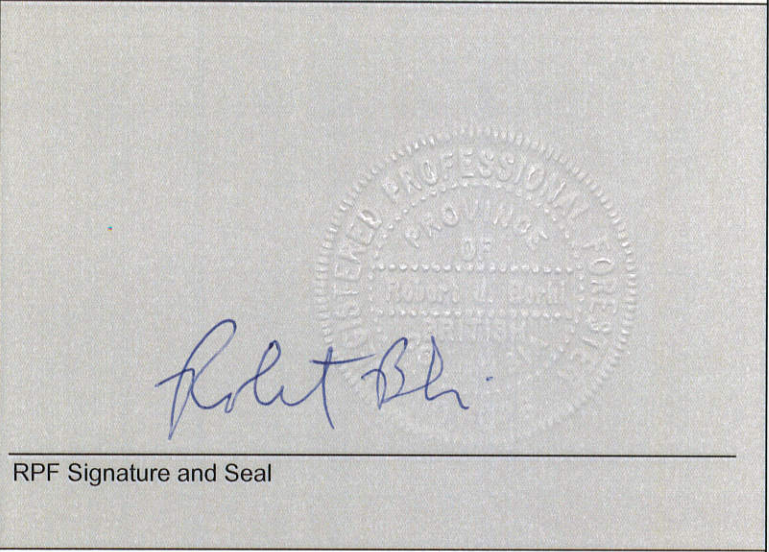
SILVICULTURAL SYSTEMS	
SU	SYSTEM / VARIANT / PHASE
A, B	Clear-cut silviculture system.
SU	STAND STRUCTURE AND SITE CONDITION - COMMENTS
A, B	<p>Post-harvest stand structure will be even-aged with one age class.</p> <p>Planted trees and natural regeneration will include Fd Lw Cw Hw (Pw Sx BI) in SU A, and Fd Lw Cw (Hw Pw Py PI Sx) in SU B.</p> <p>Wildlife Tree Reserve Areas (WTRAs): 4.8 ha</p> <p>Leave trees</p> <p>No mature leave trees are planned in SU A or B.</p> <p>Snags</p> <p>Retain safe snags <5m tall in SU A & B where operationally feasible. Snags with evidence of wildlife use are preferred.</p>

H. STOCKING REQUIREMENTS (as per DSE South Columbia Default Stocking Standards Version 1.0, April 1, 2018)

H.1 ADMINISTRATION INFO and ASSESSMENT DATES								
SU Regime #	SU A – 1 1057465 SU B – 1 1057474		FREE GROWING ASSESSMENT PERIOD (years)					
Name:	SU A - ICH mw2 101 SU B – ICH mw2 104							
SU	REGENERATION DATE (YEARS)		EARLY		LATE			
A	4		9		20			
B	7		12		20			
H.2 STOCKING REQUIREMENTS FOR SILVICULTURAL SYSTEMS OTHER THAN SINGLE TREE SELECTION								
SU	PREFERRED SPECIES		ACCEPTABLE SPECIES		POST SPACING DENSITY (stems/ha)		MAX CONIFEROUS (stems/ha)	
	SPECIES	MINIMUM HEIGHT (m)	SPECIES	MINIMUM HEIGHT (m)	MAX	MIN		
A	Fd ⁵⁸ Lw Cw Hw ²⁰¹ Pw ³¹	Lw Pw – 2.0 Fd – 1.4 Cw Hw – 1.0	BI ^{10,13,500} Sx ^{10,13}	BI Sx – 1.0	1800	700	10,000	
B	Cw ^{10,201} Fd ⁵⁸ Lw Pw ³¹	Lw Pw – 2.0 Fd – 1.4 Cw – 1.0	PI Hw Py ^{9,14,203} Sx ^{10,13}	PI – 2.0 Hw Py Sx – 1.0	1800	700	10,000	
SU	WELL SPACED TREES/ha				MINIMUM PRUNING HEIGHT <i>(delete if not applicable)</i>	RESIDUAL STAND STRUCTURE (other than single tree selection)		HEIGHT RELATIVE TO COMPETITION (% Tree over brush)
	TARGET pa	MIN pa	MIN p	MIN inter-tree DISTANCE		BA (m ² /ha)	DENSITY (SPH)	
A	1200	700	600	2.0 *	-	-	-	150%
B	1200	700	600	2.0 *	-	-	-	150%
Footnotes								
9	Suitable on warm aspects.							
10	Suitable on cool aspects.							
13	Suitable at upper elevations.							
14	Suitable at lower elevations.							
31	Must use of blister rust resistant stock. See BC Journal of Ecosystems and Management 10(1):97-100 for supplementary information.							
58	South Area – Fd limited to a max 50% of preferred and acceptable well-spaced stems due to root rot. See Root Rot Handbook (2017, in press).							
201	Maximum 50% of preferred and acceptable well-spaced trees.							
203	Recommended on sites for climate change adaptation.							
500	DSE: Advance BI regen: <1.5m tall at time of harvest, >75% live crown, >10cm leader, no scars, forks, crooks, or sweeps, and Apical dominance >1 as measured by comparing ratio of leader height to length of most recent branch.							
*	MITD: For site series that <u>do not already have reduced MSS</u> , a reduced mitd of 1.7m may be used to facilitate planting superior microsites, when sites have: mechanical site preparation (mounding & disk trenching), been previously fill planted, or conditions where obstacle planting for snow creep is necessary. Reduced MITD applies to PLANTED TREES ONLY.							
<p>This block is located at lower to middle elevations of the ICH mw2 biogeoclimatic unit.</p> <p>SU A has a variable aspect, and SU B has a warm aspect (refer to map).</p> <p>Py is potentially an acceptable species for planting in parts of SU B based on aspect and elevation.</p> <p>See Section K for planting stock recommendations.</p>								

R

I. ADMINISTRATION

SITE PLAN PREPARED BY (RPF SIGNATURE AND SEAL):	
<p>Robert Borhi _____ RPF Name (Printed)</p> <p>Date: <u>10/12/2018</u> RPF #: <u>3026</u></p>	 <p style="text-align: center;"> _____ RPF Signature and Seal </p>
SITE PLAN ATTACHMENTS:	MAJOR LICENSEE SIGNING AUTHORITY:
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SP MAP(S) <input type="checkbox"/> ARCHAEOLOGICAL IMPACT ASSESSMENT <input type="checkbox"/> TERRAIN STABILITY FIELD ASSESSMENT <input type="checkbox"/> VISUAL IMPACT ASSESSMENT <input type="checkbox"/> RIPARIAN ASSESSMENT <input type="checkbox"/> FOREST HEALTH / PEST INCIDENCE ASSESSMENT <input checked="" type="checkbox"/> SOIL CONSERVATION TABLE <input checked="" type="checkbox"/> OTHER: <u>REFORESTATION PRESCRIPTION</u> <input checked="" type="checkbox"/> OTHER: <u>ARMILLARIA RISK ASSESSMENT MATRIX</u> 	<p>_____ Licence Holder Signing Authority Signature</p> <p>_____ Licence Holder Signing Authority Name (Printed)</p> <p>Date: _____</p>

	Standards Units					TOTAL HA	%
	A	B					
HAZARD RATINGS:						44.8	
Compaction	High	High					
Soil Displacement	High (20)	High (16)					
Surface Erosion	High (28 - 30)	High (29)					
Forest Floor Displacement	High (17)	High (17)					
Mass Wasting	High (39)	Moderate (29)					
Harvest System	Ground based	Ground based					
TOTAL AREA	40.8	4.0				44.8	
Wildlife Tree Patches / NP Nat							% WTP/IMM
WTRA	4.8	-				4.8	10.7
NP brush	-	-				-	-
Permanent Access Structures							% Disturbance
Proposed roads	0.5	0				0.5	1.1
Existing roads	0.3	0				0.3	0.7
Landings	0	0				0	0
Total disturbance permanent access structures	0.8	0				0.8	1.8
NET AREA TO BE REFORESTED	35.2	4.0				39.2	
Sensitive Soils (Y/N)	No	No					
Temporary Access Structures: Road, landing, excavated or bladed trails that will be rehabilitated (% of NAR).	5% (excavated/bladed trails, landings)	5% (excavated/bladed trails)					
Max. Allowable dispersed Soil Disturbance (% of NAR by Standards Unit) as a result of harvesting, mechanical site preparation, or hazard abatement activities.	10%	10%					
Comments:							
Existing road (permanent access):							
SU A: Section 1: 64m x 5m = 0.03 ha							
SU A: Section 28: 107m x 10m + 282 x 5m = 0.25 ha							
Proposed roads (permanent access):							
SU A: Spur 1: 81m x 10m = 0.08 ha							
SU A: Spur 2: 70m x 10m + 42m x 5m = 0.09 ha							
SU A: Spur 3-3: 344m x 10m = 0.34 ha							
Proposed Landings (temporary):							
SU A: 6 landings @ 0.2 ha = 1.2 ha							
See Section F for Soil Conservation and Management of Temporary Access Structures.							

K.1 SITE PREP					
SU	PREFERRED			ALTERNATE	
A, B	<ul style="list-style-type: none"> - Pile, or pile and burn, slash accumulations on roadsides and landings, or within the NAR. - Piling treatment during dry weather conditions or when soils not saturated. - Burn piles in the spring or fall. Up to 20% of piles may be left unburned to contribute to wildlife habitat and coarse woody debris values. 			<ul style="list-style-type: none"> - No site prep, plant as is. - * Mechanical site preparation (e.g.: mounding, scarification) where necessary and feasible, combined with brush/slash piling, utilizing an excavator. - ** Broadcast burn or Spot burn if needed within the NAR to reduce excessive slash cover. Low to Moderate intensity burn, impact rank 2 to 3. 	
<p>* SU A: Mechanical site preparation (such as mounding) could be considered, however there are no significant wet areas in this unit. ** Broadcast burn or Spot burn is a good option to reduce slash levels prior to planting, and improve soil warming on Northeast aspects.</p>					
<p>Site Limiting Factors include: Well drained soils. Submesic to Mesic soil moisture. Low to Moderate existing CWD levels. Few areas of $\geq 35\%$ slopes in SU A and SU B. Lower elevation ICH mw2 location. Moderate slash hazard expected from snags, breakage, non-merch and fine slash. If burn treatment is anticipated, retain woody debris and slash on site during harvest. Variable aspect, ranging from NE to East and SW to West. No streams within harvest boundary.</p> <p>Note: A decision on whether or not Site Preparation is needed will be made during a Post-Harvest assessment. If needed, the type of Site Preparation and portion(s) of the block needing treatment will be determined at that time.</p>					
K.2 PLANTING / SEEDLING REQUIREMENTS					
STOCK					SEASON
SU	SPECIES	AGE	TYPE	CNTR	
A	Fd Lw Cw (Pw)	1+0	PSB	410 / 412A	May / June
B	Fd Lw Cw (Pw PI Py)	1+0	PSB	410 / 412A	May / June
A, B	<ol style="list-style-type: none"> 1) Manage for a mixed species stand of preferred and acceptable species to the extent possible. 2) Refer to stocking standards (Section H.2) for footnote comments on elevation, aspect, and other limitations. 3) Target Cw to moister areas and depressions. 4) On dryer (west to southwest facing) sites, increase Fd and Lw and in the planting mixture (also PI and Py in SU B). 5) Recommend Fd to account for $\leq 50\%$ of planting stock due to root disease potential. 6) On steeper slopes, plant trees on the uphill or downhill side of stumps to help minimize snow creep and snow press. 7) Expect low to moderate levels of Hw Cw Fd Lw natural regeneration. 8) Plant as soon as possible after harvest or site preparation. NOTE: A Post Harvest assessment will be completed to determine if site preparation is needed prior to planting. If site preparation is needed, the assessment will help to determine what method will be most effective. 9) In moist or wet areas, target trees to elevated microsites. 10) Monitor for signs of ungulate browsing during silviculture surveys. 				
K.3 BRUSHING					
SU	PREFERRED			ALTERNATE	
A, B	- Manual brushing with hand tools or power saws.			- None	
<p>Current Brush Hazard: SU A and B: Low levels of brush inside harvest boundaries. Higher brush cover noted in adjacent older cutblocks. SU A: Species found on site include western yew, one-leaved foamflower, bunch berry, falsebox, rosy twisted stalk, queen's cup, oak fern, maple, and small amounts of gooseberry, devil's club, birch leaved spirea and twinflower. SU B: Species found on site include tall Oregon-grape, western yew, maple, and prince's pine.</p> <p>Future Brush Hazard: SU A: Future hazard is Moderate to High due to birch (mostly snags) throughout block likely to seed and sprout after harvest, and mesic moisture conditions. Disturbed areas outside the block were seen to have moderate or higher cover of bracken fern, alder, and deciduous trees. Within open areas of the WTRA there was a higher concentration of alder. SU B: Future hazard is Moderate due to maple and birch noted on slope. Potential for dry shrub complex.</p> <p>Competitor species: Potential competitor species include aspen, birch, maple, western yew and bracken fern.</p> <p>Anticipated Timing/Constraints: Treatment needs will be assessed through periodic walkthroughs and silviculture surveys. Treatment timing will be prescribed at the time of brush assessment.</p> <p>Note: Where possible, avoid brushing Vaccinium spp in order to maintain huckleberry picking values, and to maintain forage on site for grizzly and black bears.</p>					