



Harrop-Procter Community Co-operative

SITE PLAN CP143 Block 9

A. TENURE IDENTIFICATION

LICENSE	C.P.	BLOCK	LOCATION	UTM
K1B	143	9	4.8 km East Harrop Mainline Section C4 (Low Road)	496000E 5492200N

B. AREA UNDER THE PLAN

Gross Area	PAS	NP	WTRA	Other Reserves	Other (specify)	NAR
13.4	0.5	-	2.2	-	-	10.7

C. 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 (%)
1	10	5	25	7.0
SU	CRITICAL SITE CONDITIONS THAT AFFECT TIMING OF OPERATIONS			
1	No yarding operations when soils are saturated or during heavy hillslope runoff.			

D. RESULTS AND/OR STRATEGIES

This Site Plan is consistent with HPCC's approved Forest Stewardship Plan and the Forest and Range Practices Act and Regulations (FRPA S.10(2)(b)).

Value/Objective	FSP Section	Reference	How the result or strategy applies to the site
Soils	4.1	FPPR S.35 Soil disturbance	Maximum allowable soil disturbance is 10%.
		FPPR S.36 PAS	PAS will not exceed 7%.
Timber	4.2	FPPR S. 12(8)	N/A
Wildlife	4.3	Species at Risk strategy	No observations of species at risk during block planning and design.
		GAR #U-4-012 Mountain Caribou	N/A. The block is outside of the area covered by this GAR Order.
Riparian	4.4	Riparian Management Areas—	N/A. There are no streams in the block.

Areas		RRZ and RMZ	
Fish Habitat	4.5	FPPR S.8.1	N/A. The block is not in a Fisheries Sensitive Watershed.
Water	4.6.1	Community Watersheds	N/A. The block is not in a Community Watershed.
	4.6.2	Domestic Watersheds	<p>This block is in the Harrop Creek domestic watershed. A detailed Harrop Creek watershed assessment was completed in 2006, and a watershed update was completed in July 2010. Harvesting in Block 9 will be consistent with the recommendations of the watershed assessment.</p> <p>POD's have been mapped. Water agreement holders were sent notification/ consultation letters on June 30, 2010 and were invited to provide comments on this block.</p> <p>No timber harvesting will occur within a 100 m radius upslope of a licensed waterworks.</p>
Biodiversity	4.7	HLPO RMZO 1: Biodiversity Emphasis	Harrop Creek is in Landscape Unit K-9. KBLUP-IS assigned Landscape Unit K-9 a 'Low' biodiversity emphasis.
		HLPO RMZO 2: Old and Mature Forest	This block is in the ICHdw1 (NDT 3). This block is not in a proposed OGMA and does not include any 'Old' forests. Old forest requirements will be managed through OGMA's. 'Mature' forest targets are easily met in K-9.
		HLPO RMZO 4: Green-up	Green-up height is 3.0 m in this block, which is in a Scenic Area.
		FPPR S.64 Maximum cutblock size	Cut block size is <40 ha.
		FPPR S.65 Adjacency	The combined area of this cutblock and non-greened-up portions of adjacent cutblocks does not exceed 40ha.
		Wildlife tree retention strategy	WTRA's account for 16.4% of the gross block area.
Visual Quality	4.8	Visual quality objectives	This block is in a Scenic Area with a Retention VQO. A Visual Impact Assessment has been completed. The VIA indicates that the VQO will be met.
Cultural Heritage Resources	4.9	CHR strategy	<p>Archaeological Overview Assessments indicate that this area has 'low' archaeological potential.</p> <p>Referral letters were sent out to the appropriate First Nations on June 30, 2010.</p>
Recreation	4.10	Recreation trails and sites	N/A. No recreation trails or sites in the block. Mill Lake Trail is crossed by the road that accesses this block. A sign and/or physical barrier will be erected adjacent to the road to control motorized access to the trail.

E. STOCKING REQUIREMENTS

SU	NAR	STANDARDS ID #	OTHER STOCKING REQUIREMENTS
1	10.7	18059	N/A
Comments		-	

F. ADDITIONAL COMMENTS

-

G. ADMINISTRATION

RPF PRINTED NAME	RPF SIGNATURE and SEAL
DATE SIGNED	
I certify that I have reviewed this document and, while I did not personally supervise the work described, I have determined that this work has been done to standards acceptable of a Registered Professional Forester.	

The attached map forms an integral part of this site plan.

SITE PLAN SUPPORT DOCUMENT

LICENSE	C.P.	BLOCK	LOCATION	UTM
K1B	143	9	4.8 km East Harrop Mainline Section C4 (Low Road)	496000E 5492200N

1 SITE DESCRIPTION OVERVIEW

BEC	Elevation (m)	Aspect	Slope (%)	Terrain and Soils
ICHdw1-01a	920 – 1060	West	40 – 65 (avg. 50)	zsdMvb – V, well-drained sandy loam over loamy sand
Species composition		Special site features		Other site factors
Fd60 Lw20 Cw15 (Pl,Hw,Py)		-		-

2 ASSESSMENTS

TERRAIN STABILITY FIELD ASSESSMENTS (TSFA's)—including gentle over steep assessments

DATE	CONSULTANT	RECOMMENDATIONS
July 2010	Perdue Geotechnical Services	<p>General Timber Harvesting Recommendations (CP143 Blocks 9,10,11):</p> <ol style="list-style-type: none"> Ground skidding across natural drainage paths should be avoided where practical. If this cannot be avoided, harvesting should be conducted during the drier months of the year, or effort made to ensure timber is skidded butt-first to minimize potential ground disturbance within such drainage features. Spring snow melt and prolonged or heavy periods of rainfall would constitute excessively wet site conditions. A post-harvest inspection should be completed to remove logging debris from the wetted perimeter of all watercourses and subtle drainage features to ensure an accumulation of coarse woody debris does not result in a drainage diversion. All temporary skid trails may be built using debris-supported fill slopes to reduce cut bank excavation and the potential for groundwater interception. Drainage control measures should be implemented to ensure all natural drainage paths are maintained. All trails should be rehabilitated upon completion of the proposed timber harvesting. If harvesting is to be conducted during winter months, trails should be seasonally deactivated prior to the spring freshet by out-sloping where practical and installing cross ditches to maintain natural drainage patterns.
COMMENTS	<p>Perdue recommendations will be followed. Note: Cable harvesting in Block 9. No ground skidding planned.</p> <p>Perdue: "No evidence of instability was observed throughout the proposed harvest area or the immediate surrounding slopes during the field review."</p> <p>The projected ECA over sensitive slopes "is not expected to have a significant adverse hydrological effect".</p> <p>"Likelihood of landslide initiation following the proposed harvesting of Block 9 is rated as Low."</p>	

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HYDROLOGICAL/ WATERSHED ASSESSMENTS		
DATE	CONSULTANT	RECOMMENDATIONS
March 2006	Aqua Environmental Associates	<p>Relevant recommendations:</p> <p>3) In gullied terrain, encourage channel and gully stability by establishing windfirm reserves for the entire area within the inner gorge of gullies showing signs of moisture (presence of stream or relevant plant indicators). Where 'dry' gullies (no stream and no relevant plant indicators) at least 2 metres in depth connect with these 'wet' gullies, extend the reserve to include the area within the inner gorge of the connected dry gully.</p> <p>4(a) Where development is planned upslope of Class IV or V terrain:</p> <ul style="list-style-type: none"> • Avoid altering drainage patterns onto these slopes • In the absence of following the recommendations of a professional site-specific assessment, limit the ECA over sensitive sites (Class IV or V terrain) to 20% • Ensure that Detailed Terrain Stability Assessments include explicit consideration and field review of all potential downslope changes in groundwater loading which might affect slope stability. <p>(c) Use of partial cuts (single-tree selection, group selection, etc.) can be helpful in reducing the potential for changes in hillslope hydrology..</p> <p>5) (a) Use cable harvesting techniques on all Class IV terrain.</p> <p>(b) Do not harvest on Class V terrain.</p> <p>7) If the risk-reduction strategies and recommendations in this report are followed and the total drainage road density does not exceed 1.0km/km², the following guidelines may be used as a planning tool in your risk-management planning:</p> <ul style="list-style-type: none"> • To maintain a very low risk of your activities to the flow regime and to the stability of the alluvial fan, maintain weighted ECA at or below 15% and limit harvest rates to a maximum of 5% incremental ECA in five years and 10% in ten years (etc.) <p>15) Once the initial layout and site plans are prepared for the Harrop Face and areas downslope of the Harrop Mainline, retain the services of an appropriate qualified professional to review your plans in light of the downslope water resource values.</p>
July 2010	Aqua Environmental Associates	<p>Watershed assessment report card update for the Harrop Creek Watershed</p> <p>Weighted ECA of the Harrop Creek drainage is currently 9.1%. Proposed CP143 logging and road building would increase the weighted ECA to 10.1%. ECA would "in general terms, be considered to be at low levels hydrologically"</p>

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COMMENTS	<p>Rec. 3: All gullies in Block 9 are dry gullies.</p> <p>Recs. 4(a), 4(c), and 15: Block 9 is upslope of Class V terrain above Harrop Creek. As per Aqua recommendations 4(a) and 15, following initial block layout and site plan development, Perdue Geotechnical Services completed a terrain stability field assessment for Block 9 (July 2010). The assessment explicitly considered potential downslope changes to groundwater loading that might affect slope stability, based on HPCC's planned 'seed tree' harvest in Block 9. Perdue concluded that the projected ECA over sensitive slopes "is not expected to have a significant adverse hydrological effect". Perdue indicated a 'Low' likelihood of landslides initiation following proposed Block 9 logging. See TSFA recommendations and comments above. RE: drainage patterns—No ground-based logging in Block 9. Any accumulations of yarding debris that could potentially block natural drainage patterns will be removed from Block 9 gullies immediately following harvest.</p> <p>Rec. 5 The harvest area of this block is not in Class IV or V terrain.</p> <p>Rec. 7: As per Aqua (July 2010), the total road density will be 0.13 km/km² and the weighted ECA will be 10.1%. Incremental ECA from 2005 to 2010 will be 2.3%.</p>
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RIPARIAN ASSESSMENTS					
SU	Riparian I.D. and Class.	RMZ Width (m)	RRZ Width (m)	BA or SPH Retained	Comments (Indicate if in a community watershed)
-	-	-	-	-	-
COMMENTS	Not applicable (no streams in Block 9).				

SOIL ASSESSMENTS						
		HAZARD RATINGS		SOIL CHARACTERISTICS		
SU	Soil Comp	Surface Erosion	Soil Disp	Depth To Unfavourable Subsoil		Sediment Delivery Risk (Community Watersheds)
				Min(cm)	Max(cm)	
1	L – M	H	H	40	>60	bedrock
COMMENTS	See Silviculture Prescription Plot Cards.					

VISUAL IMPACT ASSESSMENTS	
RESULTS	Visual Impact Assessment (July 2, 2010) indicates that Block 9 is visible from a very oblique angle from the highway viewpoint. VIA indicates that the Retention Visual Quality Objective will continue to be met.
COMMENTS	Seed tree harvest will retain scattered large overstory trees with large crowns.

PEST INCIDENCE SURVEY INFORMATION
Pest Specific Comments
No observations of Douglas-fir beetle, or any other significant pests.

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Forest Health Comments

No major Armillaria root rot centers.

ARCHAEOLOGICAL IMPACT ASSESSMENTS

DATE	CONSULTANT	RECOMMENDATIONS
-	-	-
COMMENTS	AOA mapping (Choquette 2002, and Kutenai West Heritage Consulting 2001) indicates that there is Low archaeological potential in this area, and no archaeological impact assessments are required.	

2 RESERVES/ WILDLIFE TREE RETENTION

Wildlife Tree Patches (inside or attributed to the block)		
I.D.#	# ha	Ecosystem and timber type
WTP1	0.67	ICHdw1-01a; semi-open, multi-layered stand with mature FdLwCw(At), scatted FdLw vets, advanced FdCw regeneration and patchy shrub layer
WTP2	1.54	ICHdw1-01a; semi-open, multi-layered stand with mature FdLwCw, scatted FdLw vets, advanced FdCw regeneration and patchy shrub layer
COMMENTS	In addition, there will be 4 m2/ha retention of seed trees/ wildlife trees within the NAR (approx. 10% retention of dominant/co-dominant layer 1 trees).	

3 FSP CONSIDERATIONS / RATIONALES

Value/ Objective	FSP Section	Reference	Consideration/ Rationale
Soils	4.1	FPPR S.35 Soil disturbance	10% limit. No 'sensitive soils' per FPPR S.35
		FPPR S.36 PAS	PAS will be approximately 3.5% of gross block area.
Timber	4.2	FPPR S. 12(8)	N/A
Wildlife	4.3	Species at Risk strategy	No observations of species at risk during block planning and design.
Riparian Areas	4.4	Riparian Management Areas— RRZ and RMZ	N/A. There are no streams in the block.
Fish Habitat	4.5	FPPR S.8.1	N/A. The block is not in a Fisheries Sensitive Watershed.
Water	4.6.1	Community Watersheds	N/A. The block is not in a Community Watershed.
	4.6.2	Domestic Watersheds	See HYDROLOGICAL/ WATERSHED ASSESSMENTS section above. Block is more than 1 km from nearest POD.
Biodiversity	4.7	HLPO RMZO 2: Old and	Stand age is approximately 100 years, with a few scattered vets.

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		Mature Forest	
		FPPR S.64 Maximum cutblock size	Gross area of block is 13.4 ha, NAR is 10.7 ha.
		FPPR S.65 Adjacency	<p>CP138-6 SU1 TUA (seed tree cut, not stocked/ greened up) is adjacent to this Block. CP138-3 SU1 (seed tree cut, not stocked/ greened up) is adjacent to CP138-6 SU1 TUA.</p> <p>The total combined area of the new block and not stocked/ greened portions of adjacent harvested blocks will be 10.7 ha (Block 9) + 1.9 ha (Block 3) + 2.0 ha (Block 6) = 14.6 ha. (Maximum allowable is 40 ha per FPPR S.64 and S.65).</p> <p>Note that CP138-6 TUB and CP138-3 SU2 and SU3 have residual basal areas $\geq 18\text{m}^2/\text{ha}$ ($\geq 40\%$ basal area retention) and have no regeneration objectives, and thus are considered stocked/ greened-up for the purposes of Adjacency calculations.</p>
		Wildlife tree retention strategy (WTRA's)	WTRA's account for 16.4% of the gross block area. CP143 WTRA's account for 12.8% of the combined areas of CP143 Blocks 9, 10, and 11. FSP minimum commitments of 3.5% WTRA per cutblock and 7% WTRA per cutting permit are exceeded.
Visual Quality	4.8	Visual quality objectives	See VIA comments above.
Cultural Heritage Resources	4.9	CHR strategy	<p>Archaeological Overview Assessments indicate that this area has 'low' archaeological potential.</p> <p>Referral letters were sent out to the appropriate First Nations on June 30, 2010.</p>
Recreation	4.10	Recreation trails and sites	Mill Lake Trail is crossed by the road that accesses this block. A sign and/or physical barrier will be erected adjacent to the road to control motorized access to the trail.

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HARVEST PLAN

LICENSE	C.P.	BLOCK	LOCATION	UTM
K1B	143	9	4.8 km East Harrop Mainline Section C4 (Low Road)	496000E 5492200N

1 STAND DESCRIPTION

SU	STRATUM/ TU	SPECIES COMPOSITION (OVERSTORY)	AVERAGE BASAL AREA	NOTES
1	-	Fd60 Lw20 Cw15 (Pl,Hw,Py)	42	Fd healthy, approx. 100 years old, generally 30-50 cm dbh, and 30 – 35 m tall

2 SILVICULTURAL/ HARVEST SYSTEMS

SU	STRATUM/ TU	HARVEST SYSTEM	SILVICULTURE SYSTEM / VARIANT	RESERVE TYPE
1	-	Cable	Seed tree	Wildlife tree patches and 4m ² /ha retention in NAR.

3 LEAVE TREE SPECIES AND FUNCTIONS

SU	Species		Minimum Leave Tree Characteristics Including Form, Health And Vigour
	Pref.	Accept	
1	Fd, Lw, Py	Pw, Cw	Residual basal area 4 m ² /ha (range 3 – 6 m ² /ha). Residual trees to include vets, dominant and co-dominant trees >22.5cm dbh and with >30% live crown.
COMMENTS		Retain approximately 25 trees per hectare (based on average 45 cm dbh). Preferred leave trees will have deep crowns and low height: diameter ratios (preferred <90). Retention to be generally well dispersed through the NAR, with occasional small clumps of retention (<0.1 ha), e.g. in gullies.	

4 SOIL DISTURBANCE AND REHABILITATION

SU	Sensitive Soils (Y/N)	Max. Allowable Soil Disturbance (%)	Max. Amount TAS May Exceed MASD Prior To Rehab (%)	Max. Allowable Soil Disturbance for Roadside Work Areas (%)	Permanent Access Structures (%)
1	N	10	5	25	0%
SU	CRITICAL SITE CONDITIONS THAT AFFECT THE TIMING OF OPERATIONS				
1	No yarding operations when soils are saturated or during heavy hillslope runoff.				
COMMENTS		Cable yarding. Surface erosion and soil displacement hazards are high, with gullied terrain. Cable yarding corridors to be located along ridges wherever possible. Gully sidewalls and gully bottoms must not be scoured. Intermediate support may be required to provide adequate suspension.			

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REHABILITATION	There are no planned temporary access structures that will require rehabilitation. If any temporary access structures are constructed, they must be fully rehabilitated upon completion of harvesting.
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5 PERMANENT AND TEMPORARY ACCESS CALCULATION SUMMARY

Description of Access Structure	SU	Dimensions Length x Width	Temporary Access		Permanent Access	
			Area (ha)	% of NAR	Area (ha)	% Gross
Proposed Roads	1	470 X 10	-	-	0.47	
Existing Roads	-	-	-	-	-	
Landings	-	-	-	-	-	
Skid/ forwarding trails	-	-	-	-	-	
Out of Blk Ldgs	n/a	~20 X 50 m landing in CP138-3	-	-	(0.1)	
Total Temporary			0	0		
Total Permanent					0.47	3.5

6 RIPARIAN RETENTION AREA SUMMARY

SU	Riparian ID and Class	RMZ Width (m)	RRZ Width (m)	BA or SPH Retained	Comments (indicate if in a community watershed)
1	N/A	-	-	-	N/A—no riparian areas

7 COARSE WOODY DEBRIS

COARSE WOODY DEBRIS MANAGEMENT STRATEGIES
Retain a minimum of 10 logs per ha CWD, each >5 meters in length and >20 cm diameter. Retain larger diameter CWD where possible, including large, non-merchantable logs.

8 ADDITIONAL NOTES/ CONSTRAINTS

Landings	There are no landings indicated within Block 9 boundaries. Existing landing at POC of East Harrop Mainline Section C4 (Low road), and/or CP143 Block 10 landing may be used.
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SILVICULTURE PLAN

LICENSE	C.P.	BLOCK	LOCATION	UTM
K1B	143	9	4.8 km East Harrop Mainline Section C4 (Low Road)	496000E 5492200N

ECOLOGICAL INFORMATION

Standard Unit	NAR (ha)	Zone	Subzone	Variant/Phase	Site Series (series - %)	Elevation (m)			Aspect	Slope position	Soil Texture
						Min	Max	Avg			
1	10.7	ICH	dw	1	01a	920	1060	1000	West	Mid	SL/ LS

RATIONALE FOR STOCKING STANDARD SELECTION

STANDARDS UNIT	CHANGE FROM STANDARD PRACTICE (for example moving Pref. to Acpt or change in MITD)	COMMENT: (for example forest health (DRA) or rocky site)
SU 1	N/A	

STOCKING REQUIREMENTS

Standard unit	BEC	Standards ID	Regen Delay	Early Free-Growing	Late free-growing
1	ICHdw1-01a	18059	7	12	20

Regeneration Layer

SU 1—ID #18059										
Preferred Species			Acceptable Species			Post Spacing Density (sph)				Max Coniferous (sph)
Species	Min Hgt (m)	Footnotes	Species	Min Hgt (m)	Footnotes	Min	-	Max	-	-
Fd	1.4		Bg	1.0		Well Spaced Trees (sph)				
Lw	2.0		Hw	1.0						
Py	1.0					Target Pref/Acc	Minimum PrefAcc	Minimum Pref	Min Horizontal Dist. Pref/Acc (m)	
Pw	2.0					1200	700	600	1.7	
Cw	1.0					Planting or natural regeneration?			Height Relative to Competition (%)	
PI	2.0					Natural with fill planting as required			150	
Other Required Stocking Information : None										

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SITE PREPARATION	
Area	TECHNIQUE (S) / LIMITING FACTORS/ COMMENTS
SU 1	Not required.
PLANTING or NATURAL REGENERATION	
Area	TECHNIQUE (S) / LIMITING FACTORS/ COMMENTS
SU 1	Natural regeneration to be assessed 3 – 4 years post-harvest to assess need for fill planting to meet stocking requirements.
BRUSHING / STAND TENDING	
Area	TECHNIQUE (S) / LIMITING FACTORS/ COMMENTS
SU 1	Conduct manual brushing if required.

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