



Fuel Management Proposal Bear Lake



Deliver or Mail to: Prince George Forest District Prince George, BC, V2L1P8 District Manager: Greg Rawling Protection Officer: Harry Offizier	For office use only (Date received by District Manager)
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Prepared by: Bruce Blackwell, RPF	Contact information: 3087 Hoskins Rd, North Vancouver, BC, V7J3B5 Ph: 604-985-8769 Email: bablackwell@bablackwell.com
Location (Map attached)	This unit is located adjacent Hart Hwy and Hart Lake Road, Bear Lake 93J057/93J047

A. TENURE IDENTIFICATION

FLTC: N/A LETTER OF AUTHORIZATION	CLIENT NO: 00147061	ESF SUBMISSION ID: N/A	LICENSEE NAME: REGIONAL DISTRICT OF FRASER-FORT GEORGE
TIMBER MARK: N/A	MAPSHEET: 93J057/93J047	LOCATION: BEAR LAKE	
TERM REQUESTED FOR LICENCE:	1 year	COMMENTS: Treatments are scheduled for completion within one year. Field marking convention: Falling boundary ribbon is both orange and black striped and white and blue striped. Corners are painted in pink and labelled with a metal tag stating block name, falling corner and date. Riparian reserve zones are marked with orange riparian reserve zone ribbon.	

B. AREA SUMMARY

Gross Area (Ha)	14.0		
Net Treatment Area (Ha)	14.0		
Reserve Zones (Ha)	0		
TU	Area Description	NAR (ha)	Treatment
A	SBSmk1-01 PI (Sxw)	14.0	Hazard tree removal
	<i>Critical site conditions that affect the timing of operations:</i> - Given high archaeological potential and riparian issues in TUD, all harvesting activities will take place when soil is dry or frozen or an adequate snowpack exists to prevent soil disturbance		
	<i>Safety:</i> These units are within the Community of Bear Lake and adjacent to busy public roadways. Appropriate precautions must be taken to ensure that safety of workers, the public and road users is maintained during the operations.		

C. SITE PLAN OBJECTIVES

This site plan is consistent with the Bear Lake Community Wildfire Protection Plan. This site plan is consistent with Higher Level Plan objectives that include:

- Protection of public safety both within and adjacent to the Community;
- Enhancement of the ability of Fire Rescue to protect both public and private property at risk within the Community;
- Improvement of the ability of the Community to protect both life and property values at risk;

- Enhancement of natural barriers that reduce the continuity of fuel loads and wildfire risk;
- Removal of lodgepole pine that has been attacked and killed by the continuing mountain pine beetle outbreak and could pose a hazard to people and property;

Specifically, within a five year period this site plan will:

- Address the removal of overstory hazard trees identified as a fire and safety risk to the Community of Bear Lake;
- Address rehabilitation of forests impacted by the mountain pine beetle;
- Minimize negative impacts on the aesthetic values, cultural values, soil, non-targeted vegetation, water and air quality and wildlife;
- Meet or exceed the stand level planning and practice requirements of the Forest and Range Practices Act; and,
- Address rehabilitation of disturbed areas upon project completion.

D. SOIL DISTURBANCE

TU	Hazard Ratings			Maximum Allowable Soil Disturbance (%)	Sensitive Soils (Y/N)	Texture	Coarse Fragments
	Soil Compaction	Soil Erosion	Soil Displacement				
A	L	L-M	L	<10%	N	S	<35%
Soil Conservation Comments: The soil protection objective is to minimize site disturbance and potential long term productivity losses. No permanent roads will be constructed. Any temporary roads constructed to as part of treatment operations will be rehabilitated. All removal operations are restricted to dry periods (to be determined by the contract monitor) and or winter conditions when the ground is frozen. The site is not within a Community Watershed. Slope stability is not a concern within the treatment area.							

E. SILVICULTURAL/ TREE REMOVAL SYSTEMS

Treatment Units (TUs)	Area (ha.)	Harvest method	Non-Harvesting Treatments
A	14.0	Hazard Tree Removal	Pile and burn/chip and remove/buck and pile for firewood
Silvicultural Constraints	Minimize scarring and marking on overstory leave trees. Only remove hazard trees within 1.5 tree lengths of trails, roadways and railways. No harvested timber is to be removed from the site.		
Harvesting Constraints	Harvesting to occur during periods of dry conditions and or when the ground is frozen. Acceptable conditions to be determined by the contract monitor.		

F. REVIEW AND APPROVAL INFORMATION

The following information is required for the Ministry to assess this fuel management proposal. It is the responsibility of the signing professional or technician to ensure this information is complete and accurate. Some of the information provided may be included in a Forestry Licence to Cut that may be issued as a result of this fuel management proposal.

LAND STATUS, FOREST PLANNING, MAPPING AND REFERRALS	
Appropriate investigations have been conducted to ensure that the area included in the prescription is vacant Crown land. The area proposed does not overlap or conflict with private land, an Indian reserve, a park or protected area, and is not otherwise encumbered in a manner that would prevent issuance of a Forestry Licence to Cut.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
This application is consistent with a Community Wildfire Protection Plan for the area. If there is no CWPP for the area, BCFS Protection staff must have signed off on the proposed treatment.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Map(s) are attached and comply with the standard required.	Yes <input checked="" type="checkbox"/>
A map using IGDS format has been produced and a digital file has been submitted to the MOF.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
The proposal has been referred to the appropriate major licensee and BCTS and documentation of the response is available indicating no significant reasons to prevent the proposed operations.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
The major licensee and/or BCTS have been provided with an accurate location and assessment of potential impact on silviculture from use of trails and landings in plantations.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
A field assessment has been conducted and all resource values that could be materially affected by this fuel management proposal have been appropriately addressed.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>

The area has been checked for the following values and features and appropriate management is described

<i>below if an issue is noted.</i>	
Other leases, licences or permits:	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Mining, petroleum or other sub-surface or surface tenures:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Ungulate winter range:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Wildlife habitat areas:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Lakeshore management zone (consistent with any lakeshore management zone objectives):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Visual Quality (check 'No' if the cutblock is not consistent with visual quality requirements): Overlapping VQO polygons 1305, 1307, 1309, 1272 are partial retention	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Community watershed:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Domestic water licence intakes or water delivery infrastructures that might be affected:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Old Growth Management Areas:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Forest Ecosystem Networks:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Range tenures: fences, natural range barriers –(referral required if harvesting within a range tenure):	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Recreation resources, features, recreation site, forest interpretive site or recreation trail: No mapped recreation resources are noted in the units but two mapped recreation trails are adjacent to the units.	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Archaeological Resources:	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Cultural Heritage Resources (Referral required to appropriate First Nations):	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Wildlife habitat features: [Must comply with FPPR s. 70(2) unless exempted under section 92(2)]	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Resource features: [Must comply with FPPR s. 70(1) unless exempted under section 91(1)]: a KARST potential area is mapped immediately adjacent to the treatment area but does not overlap.	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Other(specify) Non-sensitive CDC Element:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Written comments received from public review or referral:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Issue: Other leases, licences or permits	Guide outfitter area: Guiding certificate No: 700627, Dirk Schuirmann Non-pine trees will be retained where possible up to a target crown closure of 35% and understory trees will be protected/retained.
Issue: Classified lakes	While Duck Lake is classified as Lakeshore Class A (BCTS Forest Stewardship Plan), the riparian management area widths have been assigned as per the Forest Planning and Practices Regulation [B.C. Reg. 14/2004] classifications in order to effectively reduce fuel hazards within these treatment areas.
Issue: Archaeological Resources	An archaeological impact assessment was conducted by Archer CRM (Elissa Gagnon, Archaeologist) for TUD. The report is dated August 25, 2008 and was authored by Dana Evaschuk. In-field archaeological potential was considered high based on proximity to Duck Lake but all subsurface tests were negative and no CMTs were identified. Given high archaeological potential, all harvesting activities will take place when soil is dry or frozen or an adequate snowpack exists to prevent soil disturbance. No harvesting will occur within the RRZ. In accordance with the recommendations made in the Archer AIA report, if archaeological materials or other heritage remains are uncovered during construction, work in the area of the find must immediately cease and the project supervisor is to be notified. The project supervisor will notify the MOFR and the relevant First Nations of any unanticipated archaeological findings.
Issue: Cultural heritage resources	Referrals have been completed by the Ministry of Forests and Range.
Issues: Written comments from public review	Written comments have not been collected but this process arises out of the CWPP process and has the full support of both the Regional District and the Bear Lake Community Commission as can be demonstrated in records of meeting minutes and resolutions.

BOUNDARY, ROAD, LANDING, AND TRAIL	
Block boundaries are clearly marked on site and accurately mapped.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
The condition of existing trails will be assessed and documented prior to harvest after consultation with the contractor undertaking the work.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Existing roads and landings are in a condition suitable for use without modification.	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Proposed road construction in the FLTC area is shown on map (including reconstruction of deactivated or non-status roads)	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Road use is to be authorized by the FLTC and such roads must also be identified on the map.	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Trails will be marked in the field prior to harvest after consultation with the contractor undertaking the work.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Trails will be GPS'd and incorporated into harvest maps.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>

STAND ATTRIBUTES	
A bark beetle survey has been conducted in a manner consistent with the district forest health strategy or locally established guidelines.	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Harvesting will be limited to intermediate cutting without regeneration objectives and the area will retain a stocked stand that meets the post harvest stocking and quality characteristics described in Table 1 (The establishment of a free growing stand is not required).	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Partial cutting will be carried out to retain a stand that meets the post harvest stocking and quality characteristics described in Table 1 (The establishment of a free growing stand is required).	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Upon completion of harvesting it is proposed that a free-growing stand will be established in accordance with the stocking requirements and dates described in Table 2 below.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
All clearcut areas will be < 1 ha. (including consideration of adjacent areas) [FPPR section 46(3)(a)]	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

RIPARIAN MANAGEMENT & BIODIVERSITY	
Streams, wetlands and lakes are correctly classified and indicated on the map.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Appropriate timing for removal of any skid trail crossings of streams and non-classified drainages is identified:	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Harvest in RMA is consistent with Forest Planning and Practices Regulation (s. 52(1) may not apply)	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Harvest is planned in the RMZ identified on the map (describe the post harvest stand structure, trees to be removed or provide a table similar to Table 1)	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> No <input type="checkbox"/>
RRZ's have been marked in the field to prevent harvest (if No, complete the next row of this table)	Yes <input type="checkbox"/> NA <input type="checkbox"/> No <input checked="" type="checkbox"/>
Harvest is planned in an RRZ identified on the map (describe the post harvest stand structure, trees to be removed or providing a table similar to Table 1)	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Wildlife tree retention Must provide 7% wildlife tree retention unless exempted under FPPR s. 91: Where appropriate individual trees may be left as wildlife trees to maintain biodiversity values. Additionally, some dead trees may be retained if they are not considered a public safety hazard.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

RIPARIAN ASSESSMENTS						
TU	Riparian I.D. and Class.	RRZ Width (m)	RMZ Width (m)	RRZ Leave Tree Species and Spacing	Stems/ha	Comments (Indicate if in a community watershed)
D	L1-B/W5	10	50	See post harvest stand structure	See post harvest stand structure	Trees that area a safety hazard within 1.5 m of trails, railway or roadway will be felled or modified in the RRZ and RMZ. No roads will be constructed. Fall and yard away within the RMA.

TU	Post Harvest Stand Structure					
D	Trees to be Retained	Species Composition	All trees unless classified as a hazard tree.			
		Quality Characteristics	All trees unless classified as a hazard tree.			
		Crown class or Size	All trees unless classified as a hazard tree. At least 10% of the basal area within the stand will be retained following treatment.			

Notes: Minimise scarring and marking on retained trees. After danger tree treatment, all non-hazard, live trees and some dead standing trees that are not within 1.5 tree lengths of trails, railway or roadway will remain. It is estimated that this will constitute approximately 20% of the current stems (dead and alive). Where removals occur within the RRZ, hazard trees should be modified to leave approximately 10 stubs/ha (3-5 m height) where they are not a hazard to workers. If necessary, no work zones should be established around stubs and standing wildlife trees throughout the unit.

SEASONAL CONSTRAINTS AND SLOPE STABILITY	
All season harvest recommended for this site (low potential for Archaeological Resources and suitable soil conditions)	Yes <input type="checkbox"/> NA <input checked="" type="checkbox"/>
The harvest is to occur only when soil is dry or frozen, or when adequate snow pack exists to ensure minimal soil disturbance to sensitive soils. Maximum Soil Disturbance Limit: 10 %	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
The prescribed harvest area has been field assessed by an archaeologist and no further archaeological work is prescribed. Forest practices will proceed as per archaeologist's recommendations.	Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Primary forest activities under this fuel management proposal will not materially reduce slope stability on the area or on adjacent areas.	Yes <input checked="" type="checkbox"/>

NOTICE OF SPECIAL CONCERNS FOR THE DISTRICT MANAGER TO CONSIDER
Include any requests for exemptions or variances
Allow timber to be bucked for firewood and stacked at roadside for collection by Bear Lake residents.

NON-HARVESTING FUEL MANAGEMENT TREATMENTS

Slash Disposal:

Pile and Burn	Slash will be piled and burned on-site for disposal. Residual slash loading should not exceed 5kg/m ² (50 tonnes/ha). Where there is any retained tree cover, thinning and/or slash should be pulled to the roadside/landing/open area and burned to minimize any potential scorch of residuals. Burning is to be completed while there is still snow on the ground. No burning of slash accumulations will occur within a RRZ.
Chipping	If pile and burn is not feasible, slash will be chipped and removed from the site for disposal. Residual slash loading should not exceed 5kg/m ² (50 tonnes/ha). Chip and remove debris at roadside. The Ministry of Forests and Range must assess waste levels on the site prior to chipping and removal.
Removal of Hazard Tree Timber	Timber greater than approximately 6 inches will be bucked (lengths not exceeding 1.5 m) and piled along trails or roadside where it is accessible for community firewood collection. All other material will be piled and burned, or chipped and removed from the site.

COARSE WOODY DEBRIS MANAGEMENT STRATEGIES
Comments: Current levels of surface coarse woody debris are low throughout the site plan area. In all units, target 10 pieces/ha > 12 cm diameter and > 5 m in length distributed randomly throughout the area. Of the CWD retained, approximately 2/3 will lie flat to the forest floor and 1/3 can be elevated.

Description of Other Treatments: It is expected that this fuel treatment will significantly reduce wildland urban interface fire risk for a period of up to 25 years. After this time it is expected that the pole sapling stage and/or understory regeneration will create ladder fuels that are likely to increase the crown fire hazard. Maintenance at this time may include pre-commercial and understory thinning to maintain the effectiveness of the treatment and public safety. Given our limited understanding of the longevity of these types of treatments, a number of permanent photo plots will be established to monitor treatment outcomes.

Fuel Management Objectives

- Removal of the dead beetle killed lodgepole pine to protect public safety
- All non-hazard trees, regardless of species, will be retained to protect riparian and archaeological values
- Minimize the creation of surface fuel by limiting slash accumulations to < 5 kg/m²

Tree Removal Objectives

- Minimize soil disturbance (<10 %) and forest floor displacement
- Removals will be done only when soil conditions are dry and or frozen and covered by snow
- All timber will be felled and removed away from lakeshore riparian area (one identified) before it is bucked and piled or disposed of
- Minimize visual impact of harvest – stumps cut close to the soil surface (less than or equal to 20 cm height)
- Trees will be felled and removed in a manner that protects the advanced regeneration
- Do not fall trees within 1.5 tree lengths of BC Hydro lines

Rehabilitation Objectives

- If unacceptable levels of soil disturbance are identified, the contract monitor will develop an appropriate rehabilitation plan

RPF PRINTED NAME		Registered Professional Foresters Signature and Seal
Bruce A. Blackwell	RPF 2073	
DATE SIGNED		
November 15 th , 2009		
I certify that I have reviewed this document and I have determined that this work has been done to standards acceptable of a Registered Professional Forester.		
ACKNOWLEDGEMENT BY LOCAL GOVERNMENT REPRESENTATIVE		
I certify that I have reviewed this fuel management proposal, all assessments and fieldwork. I agree it is consistent with the recommendations contained within the Community Wildfire Protection Plan, or with the objective of reducing fire hazard in the community interface area.		
Signature:		
REPRESENTATIVE NAME:		DATE SIGNED:

