West Fraser Mills Ltd

Quesnel TSA/TFL 52 SITE PLAN

ADMINISTRATION

Operating Area: SOV

Opening Number: B.C.G.S. Mapsheet 93A.093

Aerial Photos: 30BCC 06004 No. 119 - 121

Location: Swift River – Meridian FSR Br. 2

District: Quesnel

Region: Cariboo Forest Region

Licencee: West Fraser Mills Ltd.

Previous Stand: B 70% S 30% 834 **SI:** 9 **Source:** H

Licence: TFL52 **CP:** 310 **Block:** F7

Prescription Gross Area:				11.6
Reserves	WTP: 1.2	CLA: - - -		1.2
Total Opening Area:				10.4
Nat. NP Area:				0.0
Perm. Access Structures Area (Est):				0.4
Net Area to be Reforested:				10.0

SOIL CONSERVATION

DISTURBANCE, DISPLACEMENT, HAZARD RATING

This plan is consistent with the results and strategies listed under Section 6.3.1 of the 2012 FSP.

Hazards	SU 1		
Compaction	H		
Displacement	M-H		
Erosion	H		
Max % of the NAR that may be Occupied by Soil Disturbance, excluding the any area covered by a roadside work area *(FPPR s.35 3(a) & (b)):*	10		

A terrain stability field assessment ☐ **has been completed** ☒ **is not required**
This plan is consistent with the results and recommendations of the assessment, and ensures that harvesting will not contravene Section 37 Forest Planning and Practices Regulation

Comments: In 1999, GeoWest Environmental Consulting completed a "Terrain Survey Intensity Level C" over the east part of TFL 52.

This block is not within or adjacent to any unstable or potentially unstable mapped polygons.

Maximum Percent of Total Opening Area Allowed for by Permanent Access Structures: **7 %** *(FPPR) section 36)*
Permanent Access Structures (Percent of the cutblock area): 3.8 %

To minimize the area attributed to permanent access structures, attempt to construct the in-block roads as narrow as practicable, subject to the constraints of safety and operational and environmental values.

Actual soil disturbance will be minimized by using appropriate harvesting machinery during suitable operating conditions.
The soil disturbance of the roadside work area will not exceed 25% (FPPR s.35 3(c)).

Temporary Access Structures: *If any, refer to map for general location.*
Must not exceed soil disturbance limits above by more than 5% of the area of the SU excluding area covered by roadside work area (FPPR s.35 4 (b) i)
Max time to Rehabilitation after Harvesting: *If not specified earlier, then before the regeneration Date (FPPR s.35 4bii)*
Measures (if any) required to mitigate delivery of sediment to streams, wetlands and lakes:
Rehabilitation must be in accordance with FPPR sections 35 (6) and (7).

Other Soil Conservation Comments: Minimize detrimental site disturbance by operating ground-based harvesting equipment under sufficiently dry soil conditions, or preferably in winter conditions with snow pack or frozen soils.

Hazards relating to soil disturbance are high. During road construction and harvesting operations, maintain normal drainage patterns.

BIODIVERSITY MANAGEMENT

Coarse Woody Debris: A minimum of 4 logs per hectare, each being a minimum of 2m in length and 7.5 cm in diameter at one end shall be left on site as per section 68(b) of the Forest Planning and Practices regulation.

Logs from dead trees (which would not serve as brooding habitat for spruce beetle) would be best suited for this prescribed CWD retention.

Landscape Level Biodiversity: Will the new portion of cutblock area with BA retention < 40%, along with the area of adjacent non-conforming portions in adjacent cutblocks ("green-up") be > 60ha? ☒ **Yes** ☐ **No.**

This block is for the salvage of heavily fire damaged timber from a 2017 wildfire. It is adjacent to one recently harvested opening (770-3 = 50 ha) which also connects with non-greened up CP 310-F6 and 484-A.
The proposed harvest of this block **will** create a non-greened-up opening GREATER than 60 hectares.

This block is in the ESSFwk1 portion of the Swift Landscape Unit, and within the *Cottonwood ERDZ (Enhanced Resource Development Zone)* under the *Cariboo-Chilcotin Land Use Plan*. The upper 1.5 hectares is within the mapped ESSFwc3 subzone.
Review page 6 for a discussion of the seral stage and patch-size status related to the proposed harvest of this block in the Swift LU.
This plan is consistent with the results and strategies listed under Sections 6.1.1, 6.1.2.1, 6.2.1 and 6.3.7 of the 2012 FSP.

Stand Level Biodiversity: The Swift Landscape Unit / ESSF wk1 BEC zone requires 8% Wildlife Tree Reserve (WTR). Refer to the rationale on Page 6 regarding patch size and wildlife tree reserve retention.

No occurrence of deciduous trees was noted, but they may occur at a trace level. Any that are present may be left standing for

	snag and coarse woody debris recruitment, or stubbed and left on site, or harvested. To provide roosting and perching habitat, stub, on average, at least one tree per hectare of NAR (10) on conventionally harvested areas. When selecting stubbing candidate trees, avoid green spruce which could create IBS brooding habitat. Trees with pre-existing heart rot, evidence of such (basal scars), or heavy fire damage provide the best opportunity for cavity nesters. Stubs should be cut as tall as possible with the harvest machine that is used, and may be distributed individually, or preferably, in clumps of 3 or more. The stubs along with any standing retention trees will provide elements of post-harvest structural diversity and a recruitment source for coarse woody debris. Construct a minimum of five (5) piles to augment small mammal habitat. Piles should be approximately **2m x 2m** wide x **1.5**m high. The locations of optimal pile construction are not specified but should be placed away from roadsides. It would be most beneficial to construct the piles near timber edges, reserve patches, and riparian zones. Roadside harvesting operations may yield high levels of roadside debris. Cull wood may be subject to some form of debris management such as burning or otherwise disposed of.

WTP Description:	Species Composition (by %)	AGE CLASS	HEIGHT CLASS	CROWN CLOSURE %	SITE INDEX	DENSITY (Stems/ha)	Reference Year
Wildlife Tree Reserves Estimate from Cruise & FC map	$B_{80\%}$ $S_{20\%}$	8	3	40	8	450	2016 & 1997
Conservation Legacy Areas	N/A						

This plan is consistent with the results and strategies listed under Sections 6.1.2.2, 6.2.2 and 6.3.8 of the 2012 FSP.

Old Growth Management Areas: Are there any changes to the Old Growth Management Areas? ☐ Yes ☒ No ☐ NA
This plan is consistent with the results and strategies listed under Section 6.1.2.1 & 6.2.3 of the 2012 FSP.

RIPARIAN MANAGEMENT

There are no harvesting or other related forest practices proposed in the riparian reserve zone, except as provided for under section 51 of the FPPR or under 6.2.6.2 of the 2012 FSP. Management strategies listed below are consistent with the results and strategies under the 2012 FSP sections 6.1.4, 6.15, 6.2.5, 6.2.6, 6.2.10 and 6.3.4.

Riparian	Class	Windthrow Hazard	Residual Stems Per Ha or Other Basal Area to be Retained in RMA/Other Management Strategies
Stream Swift River S2	S2	Low	Swift River (Class S2, 50m riparian management area - RMA) is located >1200 m south of the block. A critical fish habitat zone is identified along the Swift River. No impact on the Swift River or the associated fish habitat is anticipated from the proposed harvest of this block.
Drainages Depressions Seepages	Non-classified	Not Applicable	There are scattered seepages, drainages and depressions observed within and adjacent to the block. Low site water collection and surface flows are expected during spring runoff and rain events. Soil conservation is an important management issue in any of the water receiving sites. Minimize detrimental soil disturbance and take care not to adversely impact the natural hydrology by monitoring or restricting machine traffic in these sites.

A riparian assessment ☒ has been completed ☐ is not required

The features listed above have been classified according to the Quesnel 2012 FSP sections 6.2.5, 6.3.4 inclusive of sections 9.3(Table 3) & 9.4(Table 4).

Other Comments: Stream classifications confirmed by Davis Environmental – qualified registered professional

FOREST HEALTH

PEST

Pest Species Present:	The block has extensive fire damage throughout. There is little to no volume that is suitable as spruce bark beetle habitat. Monitor this area if salvage is not conducted prior to 2019 spring flight.
Pest Data Information (incidence or damage data)	No data available (comparative cruise used). No pest incidence identified during planning operations
Actions Proposed:	- Excessive accumulations of slash will be managed to abate fire hazards. - Regenerate sufficient trees to withstand pest losses. - Initiate spruce bark beetle control actions (trap trees, pheromone baits etc) if populations reach unacceptable levels

WINDTHROW

Hazard:	Windthrow risk on the timbered edges is low because stems are heavily burned (no live crown). Burned stems are expected to fall over during the next ten to twenty years.
Actions Proposed:	Adjacent timber faces will be monitored for blowdown and any potential or developing forest health concerns. Incidental levels of windthrow need not be addressed, as it will serve to augment on-site CWD objectives.

ECOLOGY

Ecology	SU 1	
Subzone/Variant	ESSF wk1	
Assoc/Site Series	$01_{80\%}$ $04_{20\%}$	
NCBR Ha	0.0	
Humus Form	Mor	
Humus Depth	0-2 cm (burned)	
Texture	SiL, L	
Aspect	S-SE	
Elevation Range (m)	1435-1540	
Slope Avg/Range (%)	36 / (10 – 45)	
Slope Pos (Macro/Meso)	Mid / Mid-Lower	
CF% Avg/Range	40 / (25 – 80)	
Depth to Unfavourable Subsoil *(cm)*	20 - 50+ cm Bedrock, seasonal seepage in depressional sites	
Depth to Water Restricting Layer *(cm)*	20 - 50+ cm	
MOF Stocking ID	1041556	

Silviculture System: clearcut

Comments: For the standard unit, refer to the Stocking Standards as described in Section 7 and associated tables in the West Fraser Mills Quesnel TSA / TFL52 Forest Stewardship Plan 2012.

INTEGRATED RESOURCE MANAGEMENT

Quesnel 2012 FSP Consistency – Section numbers refer to the objectives as listed under the Quesnel 2012 Forest Stewardship Plan. Sections not listed here have been addressed in the preceding pages or are not applicable at the site level. Actions (if any) identify how the intended results or strategies described in the forest stewardship plan apply to the site.

6.1.3 Deciduous Stands: Is harvesting proposed in deciduous leading Stands that are within the QERDZ in the Quesnel TSA FDU? ☐ Yes ☐ No ☒ N/A

Actions (if any) to manage deciduous stands: Not applicable.

6.1.7.1 Mountain Caribou (East): The opening area of this site plan is within a mountain caribou *Wildlife Habitat Area*? ☐ Yes ☒ No

Actions (if any) to maintain Mountain Caribou habitat: The block boundary is adjacent to Wildlife Habitat Area 5-093 Mountain Caribou NO-HARVEST ZONE. The proposed harvest of this block is not expected to materially impact the values associated with the WHA.

6.1.7.2 Northern Caribou (West): The opening area of this site plan is within a northern caribou *Wildlife Habitat Area*? ☐ Yes ☒ No

Actions (if any) to northern caribou habitat: Not applicable.

6.1.8 Mule Deer: The opening area of this site plan is within declared mule deer winter range? ☐ Yes ☒ No

Actions (if any) to manage mule deer winter range: Not applicable.

6.1.9, 6.2.12 Grizzly Bear: This opening overlaps the following Grizzly Bear habitat capability unit(s): ☐ Low ☐ Moderate ☒ High ☐ Very High ☐ N/A

Actions (if any) to manage Grizzly Bear: The grizzly bear habitat capability is classified as HIGH within the entire block. All conditions specified in Sec. 6.2.12 of the FSP relating to HIGH habitat capability must be adhered to. There are no critical foraging habitats, such as salmon or trout spawning reaches or shoals, or herb dominated avalanche tracks or run-out zones impacted by this opening. No active dens were identified within or near the block.

6.1.9, 6.2.11 Moose: Are there any identified high value wetlands for moose adjacent to the harvest area? ☐ Yes ☒ No

Actions (if any) to manage Moose: Not applicable. No identified High Value Wetlands for Moose are located near this block.

6.1.10 Other Species at Risk: ☐ apply to this site plan ☒ do not apply to this site plan

Actions (if any) to manage Other Species at Risk: Not applicable.

Migratory Bird Incidental Take Pre-Harvest Risk Assessment and Considerations: The block is entirely within Rank 4 migratory bird habitat capability as per the BC Migratory Bird GIS layer. Implementation of BMPs reduces the incidental take risk to LOW (< Rank 4).

6.1.11 Range: Has the associated range unit been identified as not having adequate range opportunities to meet the associated AUM's because of forest management activities? ☐ Yes ☒ No

Actions (if any) to manage for range: Not applicable.

6.1.12, 6.2.9 Visuals: A visual impact assessment ☐ has been completed ☒ is not required

Actions (if any) to manage visual quality:

This block is does not overlap nor is it within proximity to any established visual quality objective (VQO) polygons.

6.1.15, 6.2.10 Backcountry/Trails Are there any buffered trails within or in close proximity to the opening area of this site plan? ☐ Yes ☒ No

Actions (if any) to manage buffered trails: Not applicable.

6.2.4 Critical Habitat for Fish: Does this block or associated roads impact the critical fish habitat data layer? ☐ Yes ☒ No

There is a zone of critical fish habitat (CFH) along the Swift River to the south. At the nearest point, this block is >1200 metres from the Swift River CFH. The proposed harvest of this block is not expected to impact the values associated with this zone.

Rationale on file if yes? ☐ Completed and filed ☐ No

6.2.7 Mature Birch Retention: Does this block fall within the *Cariboo-Chilcotin Birch Areas for First Nations* data layer? ☐ Yes ☒ No

Actions to manage mature birch retention: Not applicable.

6.2.8 Grasslands: Does this block fall within the *Cariboo-Chilcotin Grassland Benchmark Area* data layer? ☐ Yes ☒ No

Actions to grassland retention: Not applicable.

6.3.10 Cultural Heritage Resources:

As per section 6.3.10 (c) of the FSP, if a previously unidentified cultural heritage resource feature is encountered during harvesting or road building activities, operations will cease to the extent necessary to protect the feature until an MFLNRO and the concerned First Nations can be notified.

Archaeological Sites:

No portion of this block falls within the high potential polygons produced by the 2009 Quesnel Forest District GIS Model of Archaeological Potential.

An archaeological evaluation ☐ has been completed ☒ is not required in accordance with section 6.3.10 (1) of the 2012 FSP.

This site plan is consistent with the results and recommendations of the assessment as per section 6.3.10 (2).

Actions (if any) to Manage and Conserve Archaeological Sites: Not applicable.

Non-Archaeological Cultural Heritage Resources: Not applicable.

Protocols that are in place have been followed for the applicable first nation(s) ☒ Yes AND / OR In the absence of such protocols, then

A 60-day referral to MoFLNRORD and the applicable first nation(s). ☒ has been completed ☐ is not required in accordance with section 6.2.10 (3)

6.3.11 Recreation trails and Recreation Sites: ☐ applies to this site plan ☒ does not apply to this site plan

Actions (if any) to manage recreation trails and recreation sites: Not applicable.

8.1 Invasive Plants: All newly built roads will be grass seeded within one year to minimize the opportunity for weed species establishment. The commitment to establish grass does not apply to areas that cannot support the establishment of grass seed germination. Common no.1 seed will be used to minimize the introduction of invasive plant species. When using mulch, only straw will be used, to minimize the risk of introducing weed species. Any findings of invasive plants by the agreement holder will be reported to the MFLNRO.

8.2 Natural Range Barriers

Development of this site ☐ Will ☒ Will not remove or render ineffective a natural range barrier IDed by the range holder or the Ministry of Forests & Range.

8.3 Other

Refer to the LiDAR based 2m- interval contour coverage for a comprehensive determination of the areas and the magnitudes of the slopes within this block.

→ **Carefully consider all aspects of SAFETY, prior to operating ground-based equipment on any steep slopes.**

SIGNATURES			
Field Assessment Completed By:	Chris Elden, RPF West Fraser Westforest Consultants Ltd.	**Date:** **Date:**	2016 - 2018 2017 - 2018
Form Completed By:	Chris Elden, RPF	**Date:**	2019/01/02
Peer Reviewed By:	Bob Chipera, RPF	**Date:**	2019/01/02
Attachments: ☒ 1:10,000 SP Map ☒ Rationales	**Licensee Acknowledgement of Commitment** Stuart Lebeck, RPF Woods Manager		**Licensee RPF's Signature** Chris Elden, RPF Planning Coordinator
	2019/01/02 **Date Signed (Y/M/D)**		**2019/01/02** **Date Signed (Y/M/D)**

RATIONALES

General Rationale:
There are several key components to the CCLUP Biodiversity Conservation Strategy; no-harvest areas, seral targets for mature and mature + old, patch size distribution, and stand level management. For the most part no-harvest, seral targets and stand level management are met through spatially fixed areas or requirements to meet a minimum level of retention. However, patch size targets are somewhat different in that there is no fixed spatial area and the distribution of patches, and patch size, change over time. Patch size distribution within any given LU-BEC-NDT unit may change over a relatively short period of time as large areas are either logged or as older logged areas mature. To balance the socio-economic objectives of the Cariboo-Chilcotin Land Use Plan (CCLUP) with the biodiversity objectives patch size distribution targets will have to be phased in over several rotations. The current strategy is to identify the size and distribution of harvest openings based on 20-year age increments, then plan additional openings that will move the distribution in the early seral (0-20 yr age group) towards the desired target distribution. Consideration is given to the aging of existing openings over time and how this will affect the current patch size and distribution. It is generally believed that if efforts are made to improve the current distribution, then the desired target distribution may be obtained within one or two rotations. Leave areas such as old growth management areas, caribou no-harvest, and mature stands contributing to the mature + old target are used to stabilize patch size through time. Therefore, consideration is given to the size and distribution of leave areas when determining how fast to move towards the desired target patch size distribution. RBCS update #4 states *"The target values represent a vision of the desired future condition of harvest block sizes and will not necessarily be achievable on initial harvest passes in a watershed."*

LU-BEC-NDT Rationale:
CP 310 Block F7 is within the ESSFwk1 biogeoclimatic zone in the Swift Landscape Unit. The most current data for the seral and patch size analysis is used in this site plan.

- The Swift Landscape Unit (LU), ESSF wk1, NDT 1 polygon Seral Stage distribution analysis (dated February 16, 2018) estimates there is in excess of 2000 hectares of 'Mature + Old' (M+O) available for harvest consideration over the required M+O targets in each of these zones.

- The table below indicates the February 16, 2018 patch size distribution.

Swift-ESSF-NDT1 Age Group 0- 20 years			
Opening Area (ha):	**0-40**	**41-80**	**80-250**
Target %:	30-40	30-40	20-40
Target Ha:	962-1283	962-1283	641-1283
Actual Ha:	939	1236	1032
Status:	Within target levels	Within target levels	Within target levels

Considering the current distribution, the strategy in the Swift LU, ESSF NDT 1 would be to target new patches in each of the three opening-area categories, especially in the 0-40 and 80-250-hectare categories, while maintaining the overall balance.

This block will contribute to the early seral patch size <40ha category which is appropriate given the discussed target ranges.
The target patch size values for each NDT represent the ideal long-term condition of harvest block sizes. This condition of harvest block sizes may not be achievable on an initial pass of an operating area and may take 2 or more rotations to achieve.
Knowing what the patch size targets are and knowing where the actual patch size distribution is in relation to these targets allows one to make conscious decisions to move towards the 'ideal' target distribution at a landscape level.

The objective is to duplicate natural disturbance characteristics for this block. It is in the ESSFwk1 BEC zone with a Natural Disturbance Type 1, ecosystem with rare stand initiating events. The irregular boundary shape and dispersed wildlife tree reserve distribution will help mimic a disturbance pattern characteristic of the NDT 1 landscape unit. The wildlife tree reserve area has also been increased above the target levels due to the impacts of the 2017 wildfire in the vicinity.

Interior stand structure and landscape connectivity will be provided by: Old Growth Management Areas, wildlife tree reserves, riparian management areas, critical fish habitat, wildlife habitat areas (caribou modified and no-harvest areas), provincial parks, and inter-patch leave strips.