



Quesnel TSA/TFL 52 SITE PLAN

ADMINISTRATION

Operating Area: SBO
 Opening Number: B.C.G.S. Mapsheet 93H.003
 Aerial Photos:
 Location: Pleasant Valley Crk / 26A Rd
 District: Quesnel
 Region: Cariboo Forest Region
 Licencee: West Fraser Mills Ltd.
 Previous Stand: P_{40%} S_{30%} B_{30%} 735 SI: 20 Source: H

Licence: TFL52 CP: 907 Block: 54

Prescription Gross Area: 47.0
 Reserves WTP: 2.5 CLA: - - - 2.5
 Total Opening Area: 44.5
 Nat. NP Area: 0.0
 Perm. Access Structures Area (Est): 1.1
 Net Area to be Reforested: 43.4

SOIL CONSERVATION

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		
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. Block 54 partially overlaps a Class 4 polygon. The indications from the information available is that there is not more than a low risk of harvesting related terrain instability on Block 54.

See the "907-54 & 66 TSFA Rationale for information on the terrain stability in this area.

No indicators of terrain instability were identified during the phases of block engineering or site data collection.

Maximum Percent of Total Opening Area Allowed for by Permanent Access Structures: 7 % (FPPR section 36)
 Permanent Access Structures (Percent of the cutblock area): 2.5 %

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: Harvesting is planned as a partial cut with machine access via designated forwarding trails. Monitor and address any excessive soil disturbance or re-direction of surface and subsurface water caused by the trails.

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.

CP 907 Block 54 is planned to be partial cut and will create a greened-up opening LESS than 60 hectares in size. CP 233-3 is a 10-hectare non-greened up opening contiguous with the south boundary of Block 54.

Block 54 is located in the ESSFwk1 portion of the Antler Landscape Unit, with a minor overlap into the SBSwk1. It is within the Quesnel Highlands SRDZ (Enhanced Resource Development Zone) under the Cariboo-Chilcotin Land Use Plan.

Review page 6 for a discussion of the seral stage and patch-size status related to the proposed harvest of this block in the Antler 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 :

Create approximately one stub tree per hectare of NAR to provide cavity nesting opportunity. When selecting stubbing candidate trees, avoid green spruce which could create IBS brooding habitat. Trees or snags with pre-existing heart rot or basal scars 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 in clumps. The stubs along with the residual stand will provide elements of post-harvest structural diversity and a recruitment source for coarse woody debris.

Create small mammal habitat by processing the tops and limbs of a few trees off the forwarding trails approximately every 100 metres. It has been documented that relatively small debris piles left on site can contribute to post-harvest habitat within the cutblock for a variety of furbearers.

WTP Description:	Species Composition (by %)	AGE CLASS	HEIGHT CLASS	CROWN CLOSURE %	SITE INDEX	DENSITY (Stems/ha)	Reference Year
Wildlife Tree Patches Estimate from Cruise	S 83% P 10% B 7%	8	3	50	14	625	2016
Conservation Legacy Areas	N/A						

Cutblocks that are located within the Antler Landscape unit / ESSF wk1 BEC zone require 8% Wildlife Tree Reserve designation. Sufficient WTR area has been retained on the cutting permit to fulfill the requirements. Within the block, the desired 500 meter timber-to-timber dash distance will be met.

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?

This plan is consistent with the results and strategies listed under Section 6.1.2.1 & 6.2.3 of the 2012 FSP.

☐ Yes ☒ No ☐ NA

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 Labeled: Pleasant Valley Creek	S3	Low	Block 54 is >160 metres from Pleasant Valley Creek and outside of the 50-metre riparian management area. There is a Critical Fish Habitat Management zone along Pleasant Valley Creek. No impact on the creek or the associated fish habitat is anticipated from the proposed harvest of 907-54.
Lakes Labeled: Unnamed Lake	L1	Moderate	Block 54 is >160 metres from the unnamed lake situated along Pleasant Valley Creek and outside of the 50-metre riparian management area.
Streams Labeled: McKinnon and Macintosh S3	S3	Moderate	S3 streams requiring a 20-metre riparian reserve and 20-metre riparian management zones parallel the north and south boundaries. McKinnon Creek is on the north side, and Macintosh Creek is along the south block boundary. A minimum 20-metre wide reserve area has been maintained on these streams. The portion of the RMA outside of the reserve will be managed as per SU 1.
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. The more notable drainages are illustrated on the attached map. Machine free zones have been flagged on the main non-classified drainages. 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:

FOREST HEALTH

PEST	Pest Species Present:	Spruce beetle (<i>Dendroctonus rufipennis</i>) and Western balsam bark beetle (<i>Dryocoetes confusus</i>) have an endemic presence in this block and surrounding stands. No bark beetle green-attack was observed.
	Pest Data Information (incidence or damage data)	(refer to the timber cruise damage summary for CP 907, Block 54 dated Nov. 22, 2017).
	Actions Proposed:	<ul style="list-style-type: none"> - Excessive accumulations of slash will be managed to abate fire hazards. - Regenerate sufficient trees to withstand pest losses (TFL52 target of planting 1800 sph).
WINDTHROW	Hazard:	<p>Prevailing winds for this area are from the south to southwest.</p> <p>Along the windward mature-timber faces, the post-harvest windthrow hazard is expected to be MODERATE. There have been minimal windthrow impacts on the boundaries of recently created openings on similar site conditions. See the windthrow assessment for specific details. The partial cut prescription targets removal of the dead, and generally smaller diameter stems.</p>
	Actions Proposed:	<p>Adjacent timber faces will be monitored for windthrow 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.</p>

ECOLOGY

Ecology	SU 1	
Subzone/Variant	ESSFwk1	
Assoc/Site Series	01 _{80%} 04 _{20%} 07 _{trace}	
NCBR Ha	0.0	
Humus Form	Mor	
Humus Depth	3 - 8 cm	
Texture	Si, SiL, L,	
Aspect	SW	
Elevation Range (m)	1240 – 1398m LiDAR	
Slope Avg/Range (%)	30 / (5 – 55)	
Slope Pos (Macro/Meso)	Mid / upper-lower	
CF% Avg/Range	30 / (20 – 60)	
Depth to Unfavourable Subsoil (cm)	10 - 50+ cm Seasonal seepage in depressional sites	
Depth to Water Restricting Layer (cm)	10 - 50+ cm	
MOF Stocking ID	N/A*	

Silviculture System: Uniform shelterwood – see the Block 54 reduced cruise compilation for an estimate of the stems that will be targeted for removal.

This block is considered stocked if there is >20m²/ha of residual basal area. If there is <20m²/ha of basal area then the Deviation From Potential (DFP) stocking standard will be used – Standards Regime 1003122.

If any NAR areas greater than one hectare do not meet the above standards, then the Standards Regime for the ESSFwk1, 1041505 will be used.

Comments: The long term management vision for this area is to conduct periodic stand entries, either using uniform removal, or small patches, to maintain both the visual quality objectives, and stand productivity. This first entry is considered a preparation cut to remove the dead and most susceptible stems, and to gradually expose the residual stems to higher wind loads (improve long term wind resilience).

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 caribou habitat:

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 MODERATE to HIGH within Block 54. All conditions specified in Sec. 6.2.12 of the FSP relating to MODERATE and HIGH habitat capability must be adhered to an the applicable portion of the block. 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 Block 54.

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: A review of the GIS special habitat-rank layers, proximity to permanent water bodies, and layout best management practices related to migratory bird habitat was conducted. Migratory Bird Incidental Take Pre-Harvest Risk assessment indicates that this block is ranked as having a LOW risk of impact based on habitat assessment and the implementation of BMPs.

6.1.11 Range: Has the associated range unit been identified as not having adequate range opportunities to meet the associated AUM's as a result 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 almost entirely within a Partial Retention polygon. Refer to the visual impact assessment for details on how it is designed to maintain the visual resource values.

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
 Not applicable. There is a zone of critical fish habitat along Pleasant Valley Creek. The block is >300 metres from the critical fish management zone at the nearest point. The proposed harvest of Block-54 is not expected to impact the values associated with Pleasant Valley Cree or the associated critical fish habitat.
 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:

Block 54 slightly overlaps into a zone identified in 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: The AIA did not identify any archaeological or cultural heritage values within Block 54.

Non-Archaeological Cultural Heritage Resources:

Several post-1846 CMTs were identified outside the west boundary of Block 54. Do not cut CMTs except for safety reasons. If they must be cut, stub them above the CMT scar if possible.

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 MFLNRO 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.

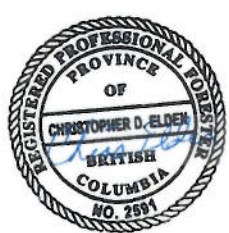
8.1 Invasive Plants: All newly built roads will be grass seeded within one year to minimize the opportunity for weed species establishment. The commitment to establish grass does not apply to areas that cannot support the establishment of grass seed germination. Common no.1 seed will be used to minimize 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 2m- interval contour coverage for TFL52 for a most comprehensive determination of the areas and the magnitudes of the slopes within Block 54.

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

SIGNATURES		
Field Assessment Completed By:	Davis Environmental Ltd. MSc., RPBio. Chris Elden, RPF West Fraser Consus Management Ltd. Lee Roodenberg, Colleen Moorhouse	Date: 2014 Autumn Date: 2015 - 2017 Date: 2016 - 2017 Date: June 27, 2017 Date:
Form Completed By:	Chris Elden, RPF	Date: 2018/03/26
Peer Reviewed By:	Mike Sakakibara, RPF	Date: 2018/03/29
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
	2018/04/2 Date Signed (Y/M/D)	2018/04/02 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 sizes, changes over time. Patch size distribution within any given LU-BEC-NDT unit may vary over a relatively short period of time as large areas are either disturbed, or meet the mature threshold. In an effort 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, and 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, critical fish habitat, and mature stands contributing to the mature + old target are used to stabilize the patch size distribution 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:

The Antler Creek Landscape Unit (LU), ESSF NDT 1 polygon Seral Stage distribution analysis (dated April 2017) indicates a 2235ha surplus of 'Mature + Old' (M+O) above the required M+O targets on TFL52.

The Landscape Unit Patch Size assessment for the ESSF NDT 1, within the Antler Creek LU completed by West Fraser Mills (January 2016) indicates that the current patch size distribution for early seral target in the 0-40 is exceeded, and that the 40-80ha and >80 ha categories are within or below the target ranges as per the following table.

Note that the area of CP 907 was included in this analysis, and therefore is not additional to the results expressed.

Antler ESSFwk1		January 2016			
NDT1	0-40 ha.	41-80 ha.		80-250 ha.	
Percent	30-40	30-40		20-40	
Target ha.	608 810	608	810	405	810
Actual	949	778		299	

Considering the current distribution, the strategy in the Antler Creek LU, ESSF NDT 1 would be to target more new patches for the >80ha category, and to a lesser extent, the 41-80ha category while trying minimize the amount of patches in the <40ha category as existing patches move from age-class 1 to age-class 2 over the next few years. Block 54 is planned as a partial cut retaining >50% of the stand basal area, and therefore it should not have a significant impact on the age class of the stands within the block.

Permanent Old Growth Management Areas, caribou no-harvest, and wildlife tree patches within the Antler Creek LU will provide for interior stand structure. Landscape connectivity will be provided for by old growth management areas, riparian management areas, wildlife tree patches, critical fish habitat, caribou no-harvest and modified harvest areas, and inter-patch leave strips.