Support Document
BC Timber Sales - Kootenay Business Area

☒ Original
☐ Amendment #

LICENCE #	LOCATION	OPERATING PLAN #	BLOCK #	BLOCK PRE #	ROADS
TA0915	Smallwood	20190122	1	SMA-016A	No licensee construct roads
TA0915	Smallwood	20190122	2	SMA-018	No licensee construct roads
TA0915	Smallwood	20190122	3	SMA-017	KLTA0915Garrity3110 270m (Proposed, TEMP)

THE FOLLOWING INFORMATION IS ATTACHED FOR INFORMATION ONLY AND DOES NOT FORM PART OF THE SITE PLAN

This document describes planning items and identifies action items.
Action items for BCTS are highlighted in blue. Action items for Contractors and Agreement holders are highlighted in yellow.

1. ASSESSMENT INFORMATION

1(a) VISUAL IMPACT ASSESSMENT

Block 1: The entire block overlaps Visual Landscape Inventory (VLI) Polygon #119 which has an Established Visual Quality Objective (EVQO) of Partial Retention.

Block 2: The eastern 3/4 of the block overlaps VLI Polygon #119 which has an EVQO of Partial Retention. The western 1/4 does not overlap a VLI polygon.

Block 3: The entire block overlaps VLI Polygon #121 which has an EVQO of Partial Retention.

This proposed development:
A Visual Impact Assessment was completed by Coastfor Enterprises (VIA-1026), based on the Forest and Range Evaluation Program (FREP) Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards. The final determination of the VIA was:

As assessed from all identified Significant Public Viewpoints, the altered forest landscape resulting from the Proposed Development, when considered alongside existing visual condition, will meet the ***Partial Retention*** category of altered forest landscape (FPPR 1.1). The altered forest landscape resulting from the size, shape and location of cutblocks and roads will be consistent with or subordinate to:

i) easy to see,
ii) small to medium in scale, and
iii) natural and not rectilinear or geometric in shape.

This altered forest landscape will achieve the ***Partial Retention*** Established Visual Quality Objective applicable to the scenic area.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results & Strategies Sections:
- 5.5. Visual Quality - Scenic Areas and Visual Quality Objectives

Other Documents / Assessments / Resources (as applicable):
- Visual Impact Assessment

1(b) Forest Health

Descriptions below identify the significant forest health issues noted during block development.

DOUGLAS-FIR BEETLE (IBD)
This proposed development: An active Douglas-Fir Beetle (IBD) infestation is present. An IBD management strategy was implemented by BCTS. This program included:
- Contracting Nazca in 2018 to conduct IBD surveys in all blocks.
- Implementing a trap tree program in all blocks.
- Developing a detailed management approach and leave tree prescription to manage the IBD infestation and future risk.

Block 1: This block is this proposed development's least affected by IBD. No green attack was noted during layout but some grey attack was. (Lw is a leading species in the NE block corner and most of those Lw are dead from an unknown cause.)

Block 2: Green and grey IBD attack is present.

Block 3: Green and grey IBD attack is present. This block is this proposed development's most affected by IBD, with hundreds of green attack trees present, particularly in the central/southern portion of the block.

ARMILLARIA (DRA)
This proposed development: Small (<0.25ha) suspect DRA root disease centres were noted sporadically within all blocks during leave tree marking.

FOREST HEALTH CONSIDERATIONS IN LEAVE TREE STRATEGY
The leave tree strategy developed and leave tree marking completed excludes green, red and gray attack IBD impacted stem from being retained. Marked leave trees adjacent to suspect DRA root disease centres focused on species less susceptible to perpetuating DRA impact within the stands post-harvest. Refer to "TA0915_ScheduleB_Clarifications.pdf" for full details.

Contractors and Agreement Holders will:

1. Remove trap trees concurrent with harvest operations.
    a. Refer to “TA0915_map_TrapTree_Bk#” for trap tree locations.
    b. Trap tree locations are identified in the field with Pink/Black Polka-Dot ribbon banners
2. Remove IBD impacted stems consistent with the overall harvest plan for this TSL, as described elsewhere.

BCTS will:
Use a variety of approaches to appropriately manage the post-harvest risk associated with the IBD infestation. These tools may include:
1. A post-harvest trap tree program.
2. The use of MCH on retained Fd to repel future IBD attacks.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan:
- Stocking Requirements Comments

Other Documents / Assessments / Resources (as applicable):
- Silviculture Plan
- Armillaria Assessment
- Fd Beetle Assessment

1(c) CULTURAL HERITAGE RESOURCES

FIRST NATIONS REFERRAL
The proposed development is located within the asserted traditional territories of the following First Nations Councils/Alliances (as found within the BCTS ArcGIS database): **Ktunaxa Nation Council, Qwelminte Secwepemc and Okanagan Nation Alliance.**

BCTS is responsible for completing referrals and has their own specialist covering all aspects of which FN to contact. Referrals were provided as per the FSP and Site Plans, either directly to First Nations or indirectly via Alliances/Councils. Specific referral details are found within the First Nations Consultation Sign-off.

The referral period was from January 25, 2019 to March 28, 2019 (20190122 Referral). Ktunaxa Nation Council, Qwelminte Secwepemc and Okanagan Nation Alliance were referred. Qwelminte Secwepemc requested and was granted an extension to May 8, 2019. Penticton Indian Band (Okanagan Nation Alliance) identified the proposed development in their CHR plan for the area. No other comments were received.

BCTS is proceeding with the proposed development.

BCTS is committed to:
1. Working with the First Nations to find amicable resolutions should any concerns be identified in future.
2. Filing a completed First Nations Sign-Off with the Site Plans to demonstrate consistency with the Site Plan Strategies.
3. Amending Site Plans and/or this Support Document as necessary to document rationales, incorporate feedback, and make changes to this proposed development to reflect BCTS’ approach to managing First Nations consultation.

CULTURAL HERITAGE REVIEW (CHR)
This proposed development: Penticton Indian Band (Okanagan Nation Alliance) identified the proposed development to their CHR plan for the area. The result of the CHR was that the proposed development was selected for a PFR.

PRELIMINARY FIELD RECONAISSANCE (PFR)
This proposed development: A PFR was conducted by Penticton Indian Band (Okanagan Nation Alliance) in June 2019. The PFR is summarized in an undated document titled “PIB Field Report for Proposed Harvest Area BCTS Kootenay Smallwood 15-55,16, 16-A, 17, 18”. Excerpts from the report are paraphrased below.
Block 1 SMA-016A & Block 3 SMA-017: Harvest was allowed with exceptions and under duress. Specific block management recommendations were made.
Block 2 SMA-018: Penticton Indian Band does not consent to harvest due to valuable syilx resources and use.

BCTS staff engaged in significant follow-up consultation with Penticton Indian Band to find amicable resolutions, including a joint field review. BCTS’ expectation after the field review was that Penticton Indian Band representatives would follow-up with a report, which would likely consent to the harvesting plans that were reviewed (all blocks). A follow-up report was not received despite numerous follow-ups by BCTS. BCTS gave Atlas direction to complete outstanding elements of the Proposed Development on June 19, 2020. BCTS referral specialists and other staff files would contain detailed notes regarding the above consultation process and rationales to proceed with the Proposed Development, if required.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.6 Cultural Heritage Resources

Support Document Sections:
- 1(d) Archaeological Overview / Impact Assessment

Other Documents / Assessments / Resources (as applicable):
- First Nations Consultation Summaries
- First Nations Consultation Sign-offs
- Cultural Conservation Values Attribute Recce Form
- Operational Plan / Landscape Level Assessment

1(d) ARCHAEOLOGICAL OVERVIEW / IMPACT ASSESSMENT

ARCHAEOLOGICAL OVERVIEW ASSESSMENT (AOA) & ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA)
This proposed development does not overlap an AOA polygon. An AIA is not required, nor was one completed.

BCTS and Contractors and Agreement Holders should:
In the event of any unanticipated discovery(s) of archaeological materials as a result of this development, ensure staff and contractors are aware of the following:
- All ground disturbances in the immediate vicinity of the suspected find(s) must be suspended at once,
- BC Timber Sales, Kootenay Business Area; Timber Sales Manager must be informed (250-825-1100), as soon as possible, of the location of the archaeological remains and the nature of the disturbance,

- Ministry of Forests, Lands, and Natural Resource Operations, Archaeology Branch; Manager must be informed (250-953-3357), as soon as possible, of the location of the archaeological remains and the nature of the disturbance, and
- All sensitive information is to remain confidential unless the applicable First Nation agrees to its release.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.6 Cultural Heritage Resources

Support Document Sections:
- 1(c) Cultural Heritage Resources

Other Documents / Assessments / Resources (as applicable):
- AIA Assessment
- ADR Assessment
- Archaeological Chance Find Procedure
- Operational Plan / Landscape Level Assessment

1(e) TERRAIN STABILITY / SITE REVIEW & AVALANCHE ASSESSMENT

This proposed development:

TERRAIN STABILITY ASSESSMENT (TSA) REPORT:
The BCTS Terrain Stability Management Model was applied for this proposed development. Block 2 overlaps a Potentially Unstable Terrain Polygon. The Terrain Stability Decision & Documentation Tool was completed by BCTS and indicated that an assessment was required.

A Terrain Stability Assessment & Soil Erosion Assessment was completed by Sitkum Consulting Ltd. (Tedd Robertson, P.Geo. Eng.L. Geoscientist) on Feb. 26, 2020. The report was updated on July 7, 2020 to reflect minor changes to final block configuration and management. For prescribed road works and general recommendations, refer to ***"TA0915 _Assess_TSA_SEA"***.
All changes suggested by Sitkum in developing the final TSA & SEA Report have been incorporated into this TSL.
All residual hazards, residual partial risks and residual risks are estimated to be **Low to Very Low**.
Completion of the Terrain Stability Risk Assessment Tool by the BCTS Coordinating Professional and Management is not required.

Contract and Agreement Holders must:

1. **Refer to the TSA Report in its entirety, including:**
   - **Section 5.0 RECOMMEDATIONS: for recommendations to reduce the likelihood of redirected runoff and landslide initiation.**
   - **Appendix C – Road Construction Recommendations Summary Table: for summarized specific road construction recommendations.**
2. **Follow TSA Report recommendations unless otherwise directed and documented by a Qualified Registered Professional (QRP).**

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.1 Soils
- 5.4.1 Water in Community Watersheds
- 5.4.2 Consumptive Use Streams
- 5.8.1 Road Maintenance
- 5.8.2 Revegetation Following Road Construction and Deactivation

Support Document Sections:
- 1(g) Soil Assessment

Other Documents / Assessments / Resources (as applicable):
- Site Plan SU Descriptions
- Terrain Stability Assessment / Site Review
- Terrain Stability Management Model Decision & Documentation Tool

1(f) RIPARIAN ASSESSMENT

RECOMMENDED MANAGEMENT PRACTICES
This proposed development:
BCTS and Contract and Agreement Holders will:
1. Follow recommendations from the Terrain Stability Assessment and Soil Erosion Assessment Report (Section 5.0).
2. Follow recommendations from the Hydrologic Assessment Report.

FSP 5.3.1 5 RESULT 1
Sections 47, 48 & 49 of the FPPR (Riparian Classes)
This proposed development: Riparian classification was implemented according to Sections 47, 48 & 49 of the FPPR.

FPPR Section 50 (Restrictions in a RMA).
This proposed development: No roads will be constructed within a Riparian Management Area (RMA) of any classified riparian feature associated with this proposed development.

FPPR Section 51 (Restrictions in a RRZ).
This proposed development: No cutting, modifying or removal of trees within a Riparian Reserve Zones (RRZs) will occur on any riparian feature associated with this proposed development.

FPPR Section 52(2) (Restrictions in a RMZ).
This proposed development: There are no Riparian Management Zones (RMZs), for any S4, S5 or S6 streams that flow directly into S1, S2, S3 streams or the ocean, that are associated with this proposed development. Block 3's S6-1 was thought to potentially flow in to the S2 section of Garrity Creek but recently improved LiDAR water delineation shows that it does not.

FPPR Section 53 (Temperature Sensitive Streams).
There are no temperature sensitive streams designated within any of the FDUs identified in the FSP as of the submission date of the

FSP.

FSP 5.3.1 5 RESULT 2B - RIPARIAN ASSESSMENT

This proposed development:

A Riparian Assessment was completed for the proposed development. Results are summarized within the Riparian Assessment. For the purposes of FSP 5.3.1 5 Result 2b, the following tree retention levels in RMZs within a cutblock are summarized from the Riparian Assessment. (Note**:** This retention does not include individual stem retention within the block.)

Block 1 - FSP 5.3.1 5 Result 2b				
Stream	**i. % of the Pre-Harvest Stems Per Hectare to be retained in RMZ within the cutblock**		**ii. Regular/irregular, single/grouped retention**	**iii. number, species, size & characteristics**
	Calculated	**Target**		
N/A – No RMZs overlap this block.				

Block 2 - FSP 5.3.1 5 Result 2b				
Stream	**i. % of the Pre-Harvest Stems Per Hectare to be retained in RMZ within the cutblock**		**ii. Regular/irregular, single/grouped retention**	**iii. number, species, size & characteristics**
	Calculated	**Target**		
N/A – No RMZs overlap this block. However, Garrity Creek (S5) comes within 60m of this block. See Riparian Assessment for more information.				

Block 3 - FSP 5.3.1 5 Result 2b				
Stream	**i. % of the Pre-Harvest Stems Per Hectare to be retained in RMZ within the cutblock**		**ii. Regular/irregular, single/grouped retention**	**iii. number, species, size & characteristics**
	Calculated	**Target**		
S6-1	85%	10-100%	Trees are irregularly distributed as groups, within Reserve-2 and WTRA-4.	Distribution, species, size and characteristics will be as they naturally occur within the RMZ/WTRA.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:

Site Plan Results and Strategies Sections:

- 5.3.1.5 Water, Fish, Wildlife and Biodiversity within Riparian Areas

Support Document Sections:

- 2(b) Group WTRA Calculations

Other Documents / Assessments / Resources (as applicable):

- Riparian Assessment
- WTRA Cards
- Harvest Plan

1(g) SOIL ASSESSMENT

HAZARD RATINGS					SOIL CHARACTERISTICS			
Block	SU	Soil Comp	Soil Disp	Soil Erosion	Depth to Unfavourable Subsoil		Type of Unfavourable Subsoil	Sediment Delivery Risk (Community Watersheds)
					Min. (cm.)	Max. (cm.)		
1	1	M	L	L	50	>50	None noted to 45cm	N/A
2	1	M	L	M	35	>48	None noted to 30/48 cm (2 plots)	N/A
3	1	M	H	H	45	>45	None noted to 40/45 cm (2 plots)	N/A
	2	H	M	H	70	70	Rock, likely fragment	N/A
	3	H	M	H	80	>80	None noted to 75 cm	N/A
	4	M	H	H	45	>45	None noted to 40/45 cm (2 plots)	N/A

Comments:

No blocks contain sensitive soils.

Block 3: SU4 was demarcated as separate from SU1 for the administrative purpose of prohibiting bladed and excavated trails under FSP Section 5.1.2. SU1 soil assessments apply to SU4.

SOIL EROSION ASSESSMENT:

A Terrain Stability Assessment & Soil Erosion Assessment was completed by Sitkum Consulting Ltd. (Tedd Robertson, P.Geo. Eng.L. Geoscientist) on Feb. 26, 2020. The report was updated on July 7, 2020 to reflect minor changes to final block configuration and management. For general recommendations, refer to ***"TA0915 _Assess_TSA_SEA"***.

All changes suggested by Sitkum in developing the final TSA & SEA Report have been incorporated into this TSL.

All residual hazards, residual partial risks and residual risks are estimated to be **Low.**

Contract and Agreement Holders must:

1. **Follow requirements identified in section 1(e) TERRAIN STABILITY / SITE REVIEW & AVALANCHE ASSESSMENT above.**

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.1 Soils
- 5.8.1 Road Maintenance
- 5.8.2 Revegetation Following Road Construction and Deactivation

Support Document Sections:
- 1(e) Terrain Stability / Site Review / Avalanche Assessment

Other Documents / Assessments / Resources (as applicable):
- Site Plan SU Descriptions
- Terrain Stability Assessment / Site Review
- Harvest Plan

1(h) WINDTHROW ASSESSMENT

This proposed development: A windthrow assessment was completed for the proposed development. No windthrow concerns were noted in the field.

Windthrow assessment matrices indicate a moderate windthrow hazard for leave trees and block edges. A safe work plan should be developed when working around leave trees. There is low existing blowdown in all blocks. Canadian Wind Energy Atlas data was incorporated into the assessments. Schedule B retention targets windfirm species.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Other Documents / Assessments / Resources (as applicable):
- Windthrow Assessments
- Canadian Wind Energy Atlas
- SP Data cards
- Schedule B
- Harvest Plan

1(i) WATERSHED / HYDROLOGICAL ASSESSMENT

A Hydrological Assessment completed by Statlu Environmental Consulting March 28, 2019. The report assessed the Falls Creek, Falls East Face Unit, Garrity Creek, Smallwood West Face Unit, Smallwood Creek and the Sproule Creek Watershed. There are numerous downslope water licenses associated with the report, most of which are for domestic use. Specific water licenses mentioned within the report which are most closely associated with this proposed development are listed below. The TSA report also lists PODs.

COMMUNITY WATERSHEDS
This proposed development is not located within a Community Watershed. Refer to "TA0915_Assess_Hydro_Community" for details.
FPPR Sections 60(2), 61, 62, & 63:
There are no requirements under these FPPR Sections that are applicable.

DOMESTIC WATERSHEDS
This proposed development: The proposed development is located within the Smallwood West Face Domestic Watershed, the Garrity Creek Domestic Watershed, and the Falls East Face Domestic Watershed.

DOMESTIC WATER LICENCES
This proposed development: The proposed development is associated with domestic water licenses.

FPPR Section 59 (Protecting Water Quality)
Contractors and Agreement Holders carrying out primary forest activities must not cause material that is harmful to human health to be deposited in, or transported to, water that is diverted for human consumption by a licensed waterworks. Mitigation measures have been implemented to ensure this (see water licenses listed below), but poor practices could still lead to sedimentation and other impacts to water quality to the domestic water licenses. Post-harvest rehabilitation including water control is important in controlling impacts to water sources. Refer to the Hydrological Report, Terrain Stability Report and those sections within this Support Document for any identified risks and mitigating factors to minimize those risks.

FPPR Section 60(1) (Licensed Waterworks)
Contractors and Agreement Holders carrying out primary forest activities must not damage licensed waterworks. Mitigation measures have been implemented to ensure this (see water licenses listed below), but poor practices could still lead to damaging waterworks. Refer to the Hydrological Report, Terrain Stability Report and those sections within this Support Document for any identified risks and mitigating factors to minimize those risks. PODs PD27201 and PD28296, listed below, and their associated water lines, are inside this development's block boundaries. No other active waterworks were identified as being inside or within two tree lengths of this development's block boundaries.

The water licenses most associated with this development are:

Block 1: Water Licence # C044236 / POD # PD27201
- Location: The POD and associated wetland are in WTRA-1. The associated licensed waterworks line runs through SU1 and crosses under the Smallwood2000.
- This surface water POD appears to be active
- POD Source Name: Nygaard Swamp
- Purpose: Irrigation, private
- Protection: The POD and the water pipe have been flagged. WTRA-1 covers the POD, the wetland it draws water from, and a 30m buffer around the wetland. The water line has been protected with MFZ where it overlaps the HU.

Contractors and Agreement Holders will:
1. Not construct any skid crossing across the waterline through the MFZ.
2. Only cross the waterline using the established KL6877.17Smallwood2000 road subgrade.

Block 2: None

Block 3: Water Licence # C053446 / POD # PD28296
- Location: The POD is in Reserve-5. The licence holders expects that the water pipe is entirely within Reserve-5 as well, until

the pipe exits the block.
- This groundwater POD appears to be active
- POD Source Name: Ellis Spring
- Purpose: Domestic
- Protection: The POD and the assumed pipe location have been flagged. Reserve 5 covers the POD, a minimum 20m buffer around it, the expected water pipe where it overlaps the block, and the area upslope to the Garrity3100. Reserve-6 covers much more area upslope of the POD, above the Garrity3100, providing added protection to underground flow contributing to the POD (as recommended from the TSA assessment).

Block 3: Water Licence # C042847 / POD # PD28305
- Location: Outside the block but direct connectivity to SUs 1 and 3 exists via NCD-1 and S6-1
- Current activity is unknown as it lies within private land so it was not assessed.
- POD Source Name: Toye Brook
- Purpose: Domestic
- Protection: WTRA-2 and Reserve-4 cover most of NCD-1 and S6-1. MFZ has been applied to 5m/side for NCD-1 and S6-1 where they overlap HU as well as within Reserve-4. A streamside management zone of 30m/side has been applied to each side of S6-1. Particular requirements have been applied to the skid crossing on S6-1. See "Consumptive Use Streams" section below.

Block 3: Water Licence # C116254 / POD # PD76061
- Location: The licence is registered near the block boundary, in WTRA-9
- Field crews searched for signs of the POD and pipe and none were found so it is either currently inactive or further downstream in private land
- POD Source Name: Picton Spring
- Purpose: Domestic
- Protection: WTRAs 8 and 9 cover minimum 10m/side for all of NCD-4 and most of NCD-2, which could both flow into or affect the water licence. A machine crossing of NCD-2 was required for machine access to the SW block corner but skidding through this crossing is not permitted. MFZ has been applied to 5m/side for NCDs 2 and 4 where they overlap HU.

Additional protection for water licenses:
- Streamside management zone in Block 3's SU1
- Retention in all blocks

No other water licenses are inside this development's block boundaries. Other domestic water licences are down gradient of the development, but they are less directly associated with it by being (further) outside the block boundaries or less connected, or not connected, via surface flow.

BCTS:
1. Has had considerable consultation with stakeholders and is committed to ongoing engagement.
2. Is tracking stakeholder/tenure communications and commitments external to Site Plans and Support Documents.
3. Will make Contractors and Agreement Holders aware of any stakeholder/tenure commitments at the time of pre-work.

CONSUMPTIVE USE STREAMS (KBHLPO Section 6)
Block 1: No consumptive use streams.
Block 2: Garrity Creek (S5) is a consumptive use stream. Streamside management zone is external to the block. Refer to "TA0915_Assess_Hydro_KBHLPO_CUS_SMZ_GarrityCk.pdf".
Block 3: S6-1 is a consumptive use stream, because it flows in to the Toye Brook water intake, which is licensed for human consumption, and there not a stream order reduction before flowing into the water intake. NCD-1 is not a consumptive use stream, but it flows in to S6-1, so it is partly being treated as a consumptive use stream as well.

Specific Measures prescribed by a QRP for the SMZ to safeguard water licensed for human consumption:
Block 3's S6-1 and NCD-1: WTRA-2 and Reserve-4 cover a total of 85% of S6-1's 20m/side RMA. A minimum 30m/side streamside management zone has been applied to S6-1 as well. Most of that streamside management zone is also covered by WTRA-2 and Reserve-4. A 5m/side MFZ has been applied to S6-1 and NCD-1.

Contractors and Agreement Holders will
To further minimize the likelihood of increased sediment entering NCD-1 and S6-1:
1. Follow Terrain Stability Assessment Report recommendations (Section 5.0).
2. Construct only one bladed trail through the streamside management zone. (The bladed trail is necessary for safe skidding considering the moderately steep terrain.)
3. Ensure only one skid crossing for each of S6-1 and NCD-1 is used.
4. Retain as much non-merchantable vegetation as practicable in the MFZs of S6-1 and NCD-1 (as is standard for all classified streams and NCDs).

HYDROLOGIC ASSESSMENT / ECA
This proposed development: A Hydrologic and ECA Assessment was performed by Statlu Consulting Ltd. on March 28, 2019. The following two tables summarize key data from that assessment relative to expected ECA increases from this proposed development, and the associated hydrologic hazards. (Note: The assessment assumed more harvesting and road construction would occur than is planned for in this development, so actual increases to ECA and hydrologic hazard will be less than shown.)

Watershed or Face Unit	Related Block	Resultant ECA after Harvesting (% of watershed area)	Total Road Density (km/km2)	Hydrologic Hazard (ECA range)
Falls East Face Unit	Block 3	19%	0.84	Very low to low (15-20%)
Garrity Creek	Block 2	17%	1.42	Very low to low (15-20%)
Smallwood West Face Unit	Blocks 1 & 2	14%	1.35	Very low (0-15%)

Recommendations From Statlu Assessment:

Assessment Recommendation	How the Recommendation is being Addressed
1. Mineralized Bedrock – Follow FREP Extension Note 42's recommendations to identify, recognize and avoid acid-generating rock along road networks to reduce the acid rock drainage risk to downslope water quality to low.	*Acid rock drainage was addressed in the Terrain Stability Assessment and Report. The assessment considered to FREP Extension note 42 recommendations.*
2. Physical Infrastructure – Map and flag all water license infrastructure, and assign site-specific protective measures to protect infrastructure, to reduce the risk of damage to licensed waterworks to low.	*This has been done as noted above in the Domestic Water Licenses section* *Contract and Agreement Holders must be aware of and cautious around physical infrastructure, particularly the water lines which overlap the HU in Block 1 and RES-5 in Block 3.*
3. Sedimentation - Implement measures to control erosion along and sediment delivery to NCD-1 and S6-1 which flow in to Toye Brook, as well as NCD-14 and NCD-11 which may flow in to Toye Brook.	*This has been done as noted above in the Domestic Water Licenses and Consumptive Use Streams sections. Contract and Agreement Holders must be adhere to all points in those sections, and be cautious in general of sedimentation around these watercourses.*
4. Terrain Stability	A Terrain Stability Assessment was completed. Refer to TSA & SEA Report Section 5.0 RECOMMEDATIONS.

Additional recommendations for harvesting around riparian features in general (not specific to this development) can be found in the FREP Extension Note #41 as well as the BCTS – Kootenay FREP Riparian Results Summary 2018.

Summary of Hydrological Risks Caused by This Development (as stated in Statlu Assessment)**:**

Risk of sedimentation: Low throughout the development. Toye Brook (Block 1) initially had a moderate risk but that has been reduced to low by using mitigation measures stated above in the Domestic Water Licenses and Consumptive Use Streams sections.

Risk of physical damage to licensed waterworks: Low throughout the development. This was initially moderate to high for both occurrences but that has been reduced to low by using mitigation measures stated above in the Domestic Water Licences section.

Risk of changes to timing, duration, magnitude, and frequency of stream flows: Low to very low throughout the development.

Risk of reducing water quality: Low throughout the development.

Risk of changes to channel pattern and channel stability: Low throughout the development.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:

- 5.4.1 Water in Community Watersheds
- 5.4.2 Consumptive Use Streams

Other Documents / Assessments / Resources (as applicable):

- Riparian Assessment
- Watershed Assessment
- Statlu Environmental Consulting Hydrologic Assessment for Taghum/Beasley, March 28, 2019, Project Number 18-190
- Kootenay-Boundary Higher Level Plan Order
- FREP Extension Notes #41 and #42
- BCTS – Kootenay FREP Riparian Results Summary 2018
- Terrain Stability Assessment / Site Review

1(j) WILDLIFE ASSESSMENT

FPPR 7(2) NOTICES AND GAR 9-13 ORDERS
This proposed development: At the time of signing and sealing of this Support Document, the following Notices under FPPR Section 7(2) and Orders under the GAR Sections 9 to 13 are applicable to the proposed development:

1. Categories of Species at Risk. Made under authority of section 13(1) of the GAR (in effect May 3, 2004, May 30, 2005,Jun 6, 2006 and July 18, 2011)
2. Wildlife Habitat Features in the Kootenay Boundary Region (Order M213). Made under the authority of section 11 (1) of the GAR (in effect July 1, 2018).
3. Ungulate Winter Range #U-4-001 - West Kootenay (Arrow TSA, Kootenay Lake TSA, Revelstoke TSA, TFL 3, TFL 23). Made under the authority of sections 9(2) and 12(1) of the GAR (in effect February 2007).

BCTS and Contract and Agreement Holders are to ensure that active primary forest activities are compliant with all Notices and Orders in place at the time that tenures/ authorizations are approved.

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1. Categories of Species at Risk
This Order establishes a list of species of wildlife that are a category of species at risk (SAR) that may be affected by forest or range management on Crown land and require protection in addition to that provided by other mechanisms.

This proposed development:
Summary
No SAR were identified during field or planning activities associated with this proposed development. Field crews exhibited due care an attention in watching for suspect SAR during the normal course of forest development activities and none were identified, either within or adjacent to the proposed development. Planning staff searched available databases and did not identify known locations of SAR within or adjacent to the proposed development.
Refer to "TA0915_Assess_Wildlife_SAR" for full assessment details.

BCTS and Contract and Agreement Holders will:

1. If a suspect SAR is identified during active primary forest activities, STOP WORK and follow BCTS Environmental Field Procedures (EFPs) and refer to Site Plan Section 5.3.2.4 Strategy 2d.

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2. Wildlife Habitat Features in the Kootenay Boundary Region

This Order established Wildlife Habitat Features (WHFs) (a) through (n), wherever they are found within the Kootenay Boundary Regions. These WHFs and this GAR Order relates, but are not limited, to FPPR 72(2).

This proposed development:

Bat Nursery Roosts and a Significant Wallow were identified within and adjacent to the proposed development. No other WHFs were identified within or adjacent to the proposed development. Field crews exhibited due care and attention in watching for other suspect Wildlife Habitat Features (stick nests, cavity nests, burrows, dens, licks, wallows, high value wildlife trees, roosts and springs) during the normal course of forest development activities.

BCTS and Contract and Agreement Holders will:

1. If a new suspect WHF is identified during active primary forest activities, STOP WORK and follow BCTS Environmental Field Procedures (EFPs).

Bat Nursery Roosts

Summary

Bat Nursery Roosts (BNRs) were identified **in all three blocks** through a collaborative process between BCTS and Atlas. Twenty-one (21) features were classified as High Quality Suitable Bat Roost Trees and defaulted to Wildlife Habitat Features (WHFs) under this Order. Management of BNRs was implemented according the WHF Field Guide and previous RPBio guidance to ensure they are not damaged or rendered ineffective. These are shown with red "W" symbols on the HP map and green "W" symbols on the SP map.

Refer to "TA0915_Assess_Wildlife_WHF_BNR" and "TA0915_map_Assess_Wildlife_WHF_BNR_Bk#" for full assessment details and management approach.

Management

Habitat Reserve Zones, *Habitat Management Zones*, and *Disturbance Management Zones* were implemented following the above referenced guidance.

For all three of the above *Zones:*

1. Acceptable activities will vary with the potential level of the disturbance as per WHF Field Guide Table 58.
2. The sensitive timing window applicable to these features is April 30 – September 1.
3. WHFs and *Zones* are shown on maps "TA0915_map_Assess_Wildlife_WHF_BNR_Bk#"

BCTS and Contractors and Agreement Holder will:

1. Refer to "TA0915_Assess_Wildlife_WHF_BNR" and "TA0915_map_Assess_Wildlife_WHF_BNR_Bk#" for full assessment details and management approach.
2. Comply with the timing restrictions outlined in WHF Field Guide Table 58, which in brief summary means…
   Not conduct high or very high impact levels of disturbance (i.e. mechanized operations) between April 30th – September 1st, within or adjacent to this proposed development, unless otherwise directed by QRP (bat specialist).

BCTS will:

1. Complete the FLNRORD data capture template for the newly identified WHFs.
2. Submit data for the newly identified WHFs to FLNRORD annually by June 1st (FPPR s. 86(3)(b)).
3. Place a "Wildlife Tree Sign" on the newly identified BNRs near public roads to protect these features and educate the public on their high ecological value.
4. Consider landscape level management of bat habitat in developing future cutblocks and roads.

A Significant Wallow

Summary

A Significant Wallow was identified in **Block 3** (WTRA-2). Management of the Significant Wallow was implemented according the WHF Field Guide and RPBio guidance to ensure it will not be damaged or rendered ineffective. The Significant Wallow is shown with a red "W" symbol on the HP map and a green "W" symbol on the SP map.

Refer to "TA0915_Assess_Wildlife_WHF_SigWallow" for full assessment details and management approach.

Contractors and Agreement Holders will:

Block 3:

1. Not undertake primary forest activities[1] between September 1st and November 1st
2. Re-establish existing access restrictions on the Garrity3100 road post-harvest.
3. Rehabilitate the Garrity3110 temporary road post-harvest.
4. Avoid field reconnaissance, layout, cruising, or tree planting between September 1st and November 1st, within 100 m of the wallow. Workers will leave the area if animals are observed approaching or at the site.

BCTS will:

Block 3:

1. Not undertake primary forest activities[1] between September 1st and November 1st
2. Maintain access restrictions on the Garrity3100 until the road is rehabilitated (BCTS to determine). Access restrictions may be temporarily lifted as required for specific operations, provided the plans appropriately consider impacts to the wallow.
3. Reseed or replant roads according to FSP requirements.
4. Rehabilitate the Garrity3100 permanent post-silviculture activities.
5. Avoid field reconnaissance, layout, cruising, or tree planting between September 1st and November 1st, within 100 m of the wallow. Workers will leave the area If animals are observed approaching or at the site.
6. Complete the FLNRORD data capture template for the newly identified WHF.
7. Submit data for the newly identified WHFs to FLNRORD annually by June 1st (FPPR s. 86(3)(b)).

[1] FPPR (1) Definitions:

"primary forest activity" means one or more of the following:

(a) timber harvesting;

(b) silviculture treatments;

(b.1) wildlife habitat enhancement;
(c) road construction, maintenance and deactivation;

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3. Ungulate Winter Range #U-4-001

Order U-4-001 (updated and approved February 15, 2007) establishes the General Wildlife Measures (GWMs) (Schedule 1) for the Ungulate Winter Range shown on Schedule A (itself approved December 4, 2006).

This proposed development:

Summary

This proposed development overlaps the ICHdw BEC Subzone Management Unit (MU) 216. The Priority Ungulate Species for this MU is Mule Deer. The most recent UWR analysis was completed in 2020. A planning harvest area for this proposed development was included in the analysis. The analysis indicated that GWMs 1-3 would be met with ample buffers. The final harvest area of this proposed development is changed versus the planning harvest area. GWMs 1-3 continue to be met with ample buffers. GWM 4 to prohibit broadcast aerial application of herbicides will be implemented.

Refer to "TA0915_Assess_Wildlife_UWR" for full assessment details.

Contractors and Agreement Holders will:

1. Not undertake broadcast aerial application of herbicides.

BCTS will:

1. Not undertake broadcast aerial application of herbicides.
2. Integrate the final harvest areas associated with this proposed development into future UWR analyses.

SPECIES OF MANAGEMENT CONCERN (SMC)

BCTS manages the varied legal requirements related a diversity of Species of Management Concern (SMC) through the application of the document titled "Species of Management Concern in the Kootenay Business Area" (BCTS, updated 2019). This document and related assessments have natural overlaps with other assessments completed for this proposed development (E.g. SAR Assessment).

Summary

No SMC were identified during field or planning activities associated with this proposed development. Field crews exhibited due care an attention in watching for suspect SMC during the normal course of forest development activities and none were identified, either within or adjacent to the proposed development. Planning staff searched available databases and did not identify known locations of SMC within or adjacent to the proposed development.

Refer to "TA0915_Assess_Wildlife_SMC" for full assessment details.

BCTS and Contract and Agreement Holders will:

1. If a suspect SMC is identified during active primary forest activities, STOP WORK and follow BCTS Environmental Field Procedures (EFPs) and refer to Site Plan Section 5.3.2.4 Strategy 2d.

Other

Barred Owl

BCTS staff observed a breeding pair of Barred Owls entering and exiting a snag in **Block 3**. The snag is located in RES-6 and is marked on the HP map with a black bird symbol. "OWL" was sprayed on the tree with blue paint, and it was marked with pink flagging tape. Barred Owls are not listed as extirpated, endangered, threatened or of special concern under COSEWIC or SARA. They are also not listed in BCTS's Kootenay Business Area Species of Management Concern Practices Document. The snag was identified as having significant wildlife value, and treated as an enduring nest, so the migratory bird BMP L01: Enduring Nest Identification was applied and the snag was placed into a Reserve.

Refer to "TA0915_Assess_Wildlife_WHF_BarredOwl" for full assessment details.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:

Support Document Sections:

- 1(l) Species at Risk Assessment
- 2(a) WTRAs (Inside or attributed to the block)

Site Plan Results and Strategies Sections:

- 5.3.1.5 Water, Fish, Wildlife and Biodiversity within Riparian Areas
- 5.3.1.7 Wildlife and Biodiversity - Stand Level
- 5.3.2.1 Grizzly Bear Habitat and Connectivity Corridors
- 5.3.2.4 Species at Risk, Regionally Important Wildlife, Ungulate Winter Range and Wildlife Habitat Areas

Other Documents / Assessments / Resources (as applicable):

- Operational Plans / Landscape Level Assessment
- Riparian Assessment
- FPPR 7(2) Notices and GAR 9-13 Orders
- BCTS's Kootenay Business Area Species of Management Concern Practices Document

1(k) FISHERIES ASSESSMENT

This proposed development:

There are currently no Fisheries Sensitive Watersheds designated within the FDUs of applicable FSP #601 2017 to 2022.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:

Site Plan Results and Strategies Sections:

- 5.3.1.5 Water, Fish, Wildlife and Biodiversity within Riparian Areas
- 5.3.2.4 Species at Risk, Regionally Important Wildlife, Ungulate Winter Range and Wildlife Habitat Areas
- 5.3.3 Fish Habitat in Fisheries Sensitive Watersheds

Support Document Sections:

- 1(e) Terrain Stability / Site Review / Avalanche Assessment

Other Documents / Assessments / Resources (as applicable):

- Terrain Stability Assessment / Site Review
- Watershed Assessment

1(l) MIGRATORY BIRDS

This proposed development: Field crews watched for conspicuous and enduring nests during fieldwork. No nests were identified. However, the snag which barred owls were seen entering and exiting has been treated as a nest. The following tables summarize the migratory birds nest density ranking model shows that this proposed development:

Block	Determination	BMPs Required
1	Rank 4 (moderately high)*	(1) Scheduling outside Restricted Period, OR (2) One or more BMPs with DoP rank 2
2	Rank 5 (high)*	(1) Scheduling outside Restricted Period, OR (2) Two or more BMPs with DoP rank 2
3	Rank 5 (high)*	(1) Scheduling outside Restricted Period, OR (2) Two or more BMPs with DoP rank 2

* Despite IBD impact, migratory bird approach to be applied as per usual, as per BCTS direction.

Contractors and agreement holders will:

1. Ideally schedule harvesting for outside of the R1 Restricted Period for zone A2, April 23 to August 1. If the specified end date is simply not workable, an earlier end date of July 20th may be used as an alternative.
2. If scheduling outside of Restricted Periods is not possible, the following BMPs have been/will be are applied to this proposed development which meet or exceed the BMP requirements above:
    a. L01 Enduring Nest Identification (DoP Rank 2): Field crews watched for conspicuous and enduring nests during fieldwork. No nests were identified. Contractors and agreement holders undertaking timber harvesting and road construction associated with this proposed development shall follow the Stop Work procedures in EFP 05 Harvesting under the BCTS Environmental Management System (EMS) if a previously unidentified active nest is encountered. If unsure whether a nest is active vs. inactive, follow the Stop Work procedures in EFP 05.
    b. L04 Wildlife Tree, Snag and Stub Retention (unplanned) (DoP Rank 2): Contractors and agreement holders undertaking timber harvesting and road construction associated with this this proposed development shall retain windfirm snags and stubs that do not present a safety hazard as per the Schedule B / Harvest Plan. It is important at all times when planning and implementing activities related to wildlife tree retention to meet WorkSafe BC Regulations.
    c. Pl2 Planned Retention (DoP rank 2): Wildlife Tree Retention Areas (WTRAs) have been designated for this TSL, according to FSP Appendix 3, and provide high-value habitat for Migratory Birds. The attributes of these WTRAs are described under Support Document Section 2(a) WTRAs, below.
3. Follow chance find procedures (Migratory Bird SOP step 16).

BCTS will:

1. Ensure contractors receive training requirements (Migratory Bird SOP step 1).

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:

- Migratory Bird Assessment

1(m) GREEN-UP ASSESSMENT

FPPR Section 64 (Maximum Cutblock Size):
Blocks #1 & 2:
The Net Area to Reforest (NAR) of these cutblocks does not exceed 40ha.
Block #3:
The Net Area to Reforest (NAR) of this cutblock exceeds the FPPR Section 64(1) 40ha limit.
This proposed development:
In compliance with FPPR Section 64(2): Timber harvesting is being carried out on the cutblock for sanitation treatments related to active Douglas-fir Beetle infestation and wildfire urban interface risk and the holder ensures, to the extent practicable, that the structural characteristics of the cutblock after timber harvesting has been substantially completed resemble an opening that would result from a natural disturbance.

FPPR Section 65 (Harvesting Adjacent to another Cutblock):
This proposed development:
The limits related to harvesting adjacent to another non-greened-up existing cutblock in FRRP Section 65(2) do not apply, as per FPPR Section 65(4) where FPPR Section 64(2) applies to this block.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:

- 5.2.2 Enhanced Resource Development Zones - Timber
- 5.3.1.3 Green-up
- 5.3.1.6 Wildlife and Biodiversity - Landscape Level

Other Documents / Assessments / Resources (as applicable):

- Operational Plan / Landscape Level Assessment
- Green-up Assessment

1(n) OTHER ASSESSMENTS

COLLABORATION ASSESSMENT
This proposed development: A collaboration assessment was completed on September 20, 2019 by Della Peterson, RFT of BCTS. The assessment indicated that referrals were completed, and the objectives set by government will be achieved within this shared landscape unit.

FIRE/FUEL HAZARD ASSESSMENT AND ABATEMENT
All Cutblocks: Post-harvest logging debris should be carefully managed. This is an important consideration in implementing the wildfire urban interface stocking standards.

Options for post-harvest debris and fire spread management include, but are not limited to:

- piling and burning,
- spot or broadcast burn treatments
- significant fuel removal or modification by hand or mechanical treatments.

Ensure WTRAs are protected with adequate slash-free zones or fireguards.

BCTS and/or Contract and Agreement Holders will:

1. Conduct and document post-harvest fire/fuel hazard assessments and abatements as required by the Wildfire Act and Regulation. Abatement methods must consider risk to other values identified within this document including, but not limited to: domestic water users, community watershed, WHFs, Schedule B coarse woody debris requirements, private land and public and worker safety.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 4.5.1 Collaboration within Shared Management Units

Other Documents / Assessments / Resources (as applicable):
- Collaboration Assessment

1(o) ECOLOGICAL AND BIODIVERSITY INFORMATION

Block	SU	LMH 70 BEC	KBHLPO						
			Landscape Unit	Biodiversity Emphasis Option	Mature Forest Target Table 2.5	BEC	NDT	OGMA Overlap	Connectivity Corridor Overlap
Block 1	1	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No
Block 2	1	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No
					No	ICHmw2	2	No	No
Block 3	1	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No
	2	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No
	3	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No
	4	ICHdw1	K10	Intermediate	Yes	ICHdw	3	No	No

Comments

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.3.1.1 Biodiversity Emphasis
- 5.3.1.2 Old and Mature Forest

Other Documents / Assessments / Resources (as applicable):
- OGMA Replacement Assessment

2. RESERVE / RETENTION INFORMATION
This proposed development:

2(a). WTRAs (Inside or attributed to the block)

Block	I.D.#	Area (ha)	Inventory Label	RESULTS Reserve Type	RESULTS Objective Code	Description (The composition is based on the Mature Dominant Species from the WTRA Assessment Cards)
1	1	2.5	23414748 Fdi 655-0/26	WTRA	RMA	This WTRA is in the northern portion of the block. Its co-dominant layer is comprised of approximately: Fd 40%, Bg 20%, Cw 20%, Hw 10% and Sx 10% at average 31m tall and 44cm DBH, 15-20% CC and 600 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve NCW-1. 2. To preserve POD and associated water quality. 3. To preserve WHFs 324 and 319 which are potential bat nursery roosts. 4. To preserve habitat for wildlife and migratory birds. 5. To preserve other high value wildlife trees. 6. To exclude wet ground from the HU.
	2	0.5	24214873 HwFdi(Lw) 646-0/17	WTRA	OTH	This WTRA is in the eastern portion of the block. Its co-dominant layer is comprised of approximately: Cw 50%, Fd 10%, Lw 10%, Ep 10%, Hw 10%, and Bg 10% at average 23m tall and 35cm DBH, 10-15%CC and 700 stems/ha. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHF 156 which is a potential bat nursery roost. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve other high value wildlife trees. 4. To improve visual quality.
1	**WTRA Total**	**3.0**				
2	1	1.1	15734818 Fdi 645-0/19	WTRA	OTH	This WTRA is in the south-eastern portion of the block. Its codominant layer is comprised of approximately: Fd 60%, Cw 20%, and Lw/Py/Hw/Bg 20% at average 33m tall and 55cm DBH, 10-15% CC and 600 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHF 401 which is a potential bat nursery roost. 2. To remove rocky, low volume, low productivity,

						and difficult access area from the HU. 3. To preserve habitat for wildlife and migratory birds. 4. To preserve other high value wildlife trees. 5. To improve visual quality.
	2	0.8	15734818 Fdi 645-0/19	WTRA	OTH	This WTRA is in the north-eastern portion of the block. It is comprised of approximately: Fd 60%, Lw 10%, Cw 10%, Bg 10% and At/Py 10% at 33-40m tall with 55-85cm DBH, 0-20% CC and 800 stems/ha. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHF 210 which is a potential bat nursery roost. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve other high value wildlife trees. 4. To preserve visual quality.
	3	0.8	11075023 SeLw(PwFdi) 844-0/16\st	WTRA	OTH	This WTRA is in the northern portion of the block. It is comprised of approximately: Fd 50%, Lw 20%, Bg 20%, and Cw 10% at 30-46m tall with 50-80cm DBH, 15-20% CC and 1,100 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHF 103 which is a potential bat nursery roost. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve other high value wildlife trees. 4. To preserve visual quality.
	4	0.3	13465008 Fdi(PwCwLw) 645-0/20\sl	WTRA	TIM	This WTRA is in the central portion of the block. It is comprised of approximately: Fd 100% at 20-40m tall with 30-50cm DBH, 10% CC and 400 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To remove a small steep area from a conventional HU. 2. To exclude low productivity/low value area from the HU. 3. To preserve habitat for wildlife and migratory birds. 4. To preserve high value wildlife trees. 5. To preserve visual quality.
2	**WTRA Total**	**3.0**				
3	1	0.7	9334364 BgFdiLw(Cw) 746-0/19	WTRA	OTH	This WTRA is in the northern portion of the block. It is comprised of approximately: Cw 70%, Fd 20% and Lw 10% at 19-29m tall with 19-50+cm DBH, 70% CC and 800 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHFs 149 and 237 which are potential bat nursery roosts. 2. To preserve a section of NCD-16. 3. To preserve habitat for wildlife and migratory birds. 4. To preserve other high value wildlife trees. 5. To preserve visual quality.
	2	3.2	11704370 FdiBgCw 746-0/19	WTRA	RMA	This WTRA is in the north eastern portion of the block. It is comprised of approximately: Cw 40%, Hw 30%, Fd 20% and Sx/Bg 10% at 29-38m tall with 50-110cm DBH, 22% CC and 850 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve a wallow. 2. To preserve WHFs 141 and 138 which are potential bat nursery roosts. 3. To preserve area used for recreation by local residents. 4. To preserve riparian features and water quality. 5. To preserve habitat for wildlife and migratory birds. 6. To preserve other high value wildlife trees. 7. To preserve visual quality.
	3	2.6	9334364 BgFdiLw(Cw) 746-0/19	WTRA	OTH	This WTRA is in the south western portion of the block. It is comprised of approximately: Cw 40%, Fd 30% and Lw 30% at 18-30+m tall with 20-50+cm DBH, 50% CC and 800 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHFs 222, 223, 224 and 403 which are potential bat nursery roosts. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve other high value wildlife trees. 4. To preserve visual quality.
	7	1.2	9374075 FdiLw(Bl) 647-0/21	WTRA	OTH	This WTRA is in the north eastern portion of the block. It is comprised of approximately: Fd 70%, Cw 10%, Lw 10%, and Bg/At 10% at 30-44m tall with 50-80cm

						DBH, 20-25% CC and 1,000 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve WHFs 310 and 407 which are potential bat nursery roosts. 2. To remove a steep, rocky area from the HU. 3. To preserve habitat for wildlife and migratory birds. 4. To preserve other high value wildlife trees. 5. To preserve visual quality.
	8	0.4	7244066 FdiBg(Lw) 745-0/20\sl	WTRA	SEN	This WTRA is in the southern portion of the block. It is comprised of approximately (Co-Doms): Cw 40%, Fd 30%, Lw 20%, and Bg 10% at 20-30m tall with 30-50cm DBH, 75% CC and 500 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve water quality for the POD on the southern boundary of WTRA-9. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve high value wildlife trees. 4. To preserve visual quality.
	9	0.2	7244066 FdiBg(Lw) 745-0/20\sl	WTRA	SEN	This WTRA is in the southern portion of the block. It is comprised of approximately (Co-Doms): Cw 40%, Fd 40%, and Lw 20% at 25-40m tall with 30-50cm DBH, 75% CC and 600 sph. The primary (but not exclusive) purposes of this WTRA are: 1. To preserve water quality for the POD on the southern boundary of this WTRA. 2. To preserve habitat for wildlife and migratory birds. 3. To preserve high value wildlife trees. 4. To preserve visual quality.
3	**WTRA Total**	**8.3**				

2(a). **Reserves** (Inside or attributed to the block)

Block	I.D.#	Area (ha)	Inventory Label	RESULTS Reserve Type	RESULTS Objective Code	Comments
1	3	0.2	23414748 Fdi 655-0/26	Group	TIM	The primary (but not exclusive) purpose of this Reserve is: 1. To preserve a section of NCD-1 and its surrounding riparian area.
	4	0.1	23414748 Fdi 655-0/26	Group	TIM	The primary (but not exclusive) purpose of this Reserve is: 1. To preserve a section of NCD-1 and its surrounding riparian area.
1	**RES Total**	**0.3**				
2	1	1.3	13474762 FdiSe(BlEp) 644-0/19\st	Group	TIM	The primary (but not exclusive) purposes of this Reserve are: 1. To preserve a deciduous leading area for migratory birds and wildlife. 2. To preserve visual quality.
2	**RES Total**	**1.3**				
3	4	1.4	11704370 FdiBgCw 746-0/19	Group	TIM	The primary (but not exclusive) purposes of this Reserve are: 1. To preserve water quality in S6-1, primarily for a downstream POD. 2. To preserve an area frequented by local hikers. 3. To preserve WHF 408 which is a potential bat nursery roost. 4. To preserve habitat for wildlife and migratory birds. 5. To preserve high value wildlife trees. 6. To preserve visual quality.
	5	1.3	11704370 FdiBgCw 746-0/19	Group	TIM	The primary (but not exclusive) purposes of this Reserve are: 1. To preserve water quality for the POD in this Reserve. 2. To protect the POD and the water pipe which is assumed by the landowner and BCTS to run SW from the POD along the high side of the old road (where the ditch would be) into private property. 3. To address terrain stability issues. 4. To preserve habitat for wildlife and migratory birds. 5. To preserve high value wildlife trees. 6. To preserve visual quality.
	6	1.5	9334364 BgFdiLw(Cw) 746-0/19	Group	TIM	The primary (but not exclusive) purposes of this Reserve are: 1. To preserve water quality for the POD in Reserve-5. 2. To address terrain stability issues. 3. To preserve the snag which barred owls were seen entering and exiting.

						4. To preserve habitat for wildlife and migratory birds. 5. To preserve high value wildlife trees. 6. To preserve visual quality.
	10	0.2	9294345 BgFdiLw(Cw) 646-0/19	Group	TIM	The primary (but not exclusive) purpose of this Reserve is: 1. To preserve a section of NCD-16 and its surrounding riparian area.
3	**RES Total**	**4.4**				

Contractors and Agreements Holders:

1. May fall and remove individual standing green or red-attack Douglas-fir beetle (IBD) impacted Douglas-fir (Fd) trees within Reserves, and may remove individual blowdown green or red-attack Douglas-fir beetle (IBD) impacted Douglas-fir (Fd) trees within Reserves.
   Where this is undertaken:
   a. Do not confuse Reserves with WTRAs. See Site Plan Section 5.3.1.7 Result 3 and Strategy 4 for restrictions relating to WTRAs.
   b. "Reserve" boundaries should be treated similar to "Machine Free Zone" boundaries in that they should not be crossed by machinery.
   c. Utilize safe hand-falling techniques to fell trees such that they may be reached by machinery located external to the "Reserve" boundary.
   d. Removal of non-target stems and damage to understory vegetation should be limited to the extent practicable considering safety and operation requirements.
   e. Unless necessary to address an immediate safety hazard, do not fall and leave IBD impacted Fd trees that will not be reachable by machinery situated external to the "Reserve" boundaries. Leaving IBD impacted Fd trees may exacerbate the IBD infestation. Preferably, discuss options to address unreachable IBD impacted Fd trees with BCTS prior to undertaking operations. Where trees require immediately falling to address a safety hazard discuss options for subsequent removal with BCTS.
   f. **Within Block 3's Reserve 4:** Exhibit extreme caution to not disturb or increase sediment delivery to S6-1 within this Reserve. This feature is also protected by "Machine Free Zone" within the Reserve. For any IBD impacted Fd tree falling and yarding:
      i. As always, do not cross the "Machine Free Zone" with machinery.
      ii. Do not fall or yard trees across the "Machine Free Zone". Always fall and yard away.
      iii. Where operations have the potential to damage or otherwise negatively impact this feature, discuss options with BCTS prior to undertaking operations.
      iv. If damage to this feature occurs or is even suspected to have occurred, STOP WORK immediately and contact BCTS right away.
   g. **Within Block 3's Reserve 5:** Exhibit extreme caution to not disturb or damage the POD or the water pipe within this Reserve. Both features are mapped. The features are also protected by "Machine Free Zone" within the Reserve. For any IBD impacted Fd tree falling and yarding:
      i. As always, do not cross the "Machine Free Zone" with machinery
      ii. Do not fall or yard trees across the "Machine Free Zone". Always fall and yard away, as if this were a natural riparian feature.
      iii. Where operations have the potential to damage or otherwise negatively impact these features, discuss options with BCTS prior to undertaking operations.
      iv. If damage to these features occurs or is even suspected to have occurred, STOP WORK immediately and contact BCTS right away.

2(b) Dispersed WTRA Calculations

For the purposes of FSP 5.3.1.7 Results 2 and the additional Strategies, the following are calculated below:

- Dispersed retention (Strategy 2c)

Contribution of areas of individual trees and clumps or patches (disbursed retention) which are less than 0.25 ha in size that will contribute to the required WTRA percentage on the basis of the total basal area of the trees retained divided by the average basal area of the associated forest type (FSP 5.3.1.7 Strategy 2c). Calculations below are made at the block level, which as a weighted average of the forest types within each block, is in compliance with the FSP.

Block	NAR (ha)	Retained BA (m2/ha)	Total BA (m2/ha)	BA % Retained	BAREA* (ha)
1	6.8	17.4	54.0	32%	2.19
2	24.5	16.9	44.3	38%	9.35
3	44.8	16.1	50.8	32%	14.20
Green Cells Auto-Calculate					

* **Basal Area Retention Equivalent Area** $= \frac{Retained\ m^2/ha \text{ (block level from Leave Tree Report)}}{Total\ m^2/ha \text{ (block level from Full Compilation)}} * NAR$

2(c) Block and TSL Level WTRA Calculations

For the purposes of FSP 5.3.1.7 Result 2 and the additional Strategies, the following are calculated below:

- TSL level WTRA(s) (Strategy 2a)
- Relations of WTRA(s) to one or more cutblock (Strategy 2b)
- Block level WTRA retention (Strategy 2d)

Block	NAR + PAS Area (ha)	Grouped WTRA (ha)	Dispersed WTRA (ha) (BAREA)	Total WTRA Area (ha)	WTRA % of NAR + PAS
1	7.1	3.00	2.19	5.19	73.1%
2	26.6	3.00	9.35	12.35	46.4%
3	46.5	8.30	14.20	22.50	48.4%
TSL Total	**80.2**	**14.30**	**25.74**	**40.04**	**49.9%**
Green Cells Auto-Calculate					

3. ACCESS SUMMARY

3(a) PERMANENT ACCESS STRUCTURES

Permanent Access Calculations															
Block		PAS Limit Without Rationale		Planned Roads				Planned Trails				Planned Landings			Est. PAS	
#	Gross Block Area (ha)	% of GBA	Area of GBA (ha)	Rd. Name	Length (m)	Width (m)	Area (ha)	Trail Name / #	Length (m)	Width (m)	Area (ha)	# Landings	Size (ha)	Area (ha)	Total Area (ha)	% of Total Blk Area
1	10.3	7%	0.72	KL6877.17 Smallwood2000 (Existing)	310	10	0.31	None			0.00	0		0.00	0.31	3.0%
2	30.9	7%	2.16	KL6877.18 Garrity1800 (Existing)	1,260	12	1.51	None			0.00	0		0.00	2.13	6.9%
				KL06877.02 Garrity (Existing)	1,230	5	0.62	None			0.00	0		0.00		
3	59.2	7%	4.14	KL6877.07 Garrity3100 (Existing)	1310	12	1.57	Existing Trail	253	4	0.10	0		0.00	1.67	2.8%
Green Cells Auto-Calculate																

FPPR Section 36 (Permanent Access Structure Limits)
This proposed Development:
The maximum amount of area in a cutblock that can be occupied by permanent access structures (PAS), without a rationale, is 7%. The PAS associated with each of these cutblocks is less than 7%.

Note: Due to the nature of the PAS areas associated with the block, including existing openings located within the block, the above method of calculating PAS (length x width) is challenging. The spatial delineation of PAS as captured on the Site Plan Map is a better method.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.1 Soils

Support Document Sections:
- 1(e) Terrain Stability / Site Review / Avalanche Assessment
- 1(g) Soil Assessment

3(b) TEMPORARY ACCESS STRUCTURES

Pre-Rehabilitation Maximum Allowable Soil Disturbance (MASD) Calculations for Planned Temporary Access Structures

Block & SU		MASD Final Limit		MASD Temp Exceeded		Planned Roads				Planned Trails				Est. Pre-Rehab Soil Disturbance	
SU	NAR (ha)	% of NAR	Area (ha)	% of NAR	Area (ha)	Rd. Name	Length (m)	Width (m)	Area (ha)	Trail Name / #	Length (m)	Width (m)	Area (ha)	Area (ha)	% of NAR
Bk1 SU1	6.8	10%	0.68	5%	0.34	KL6877.17Smallwood2000	120	10	0.12	None			0.00	0.12	1.8%
Bk2 SU1	24.5	10%	2.45	5%	1.23	None			0.00	Skid trail	260	10	0.26	0.26	1.1%
BK3 SU1	21.1	10%	2.11	5%	1.06	KLTA0915Garrity3110	270	5	0.14	Skid trail	100	10	0.30	0.44	2.1%
										Skid trail	200	10			
BK3 SU2	12.8	10%	1.28	5%	0.64	KLTA0915Garrity3110	20	5	0.01	Access trail	580	10	0.93	0.94	7.3%
										Backspar trail	40	10			
										Backspar trail	220	10			
										Yarder trail	40	5			
										Yarder trail	20	5			
										Yarder trail	60	10			
BK3 SU3	9.7	10%	0.97	5%	0.49	KLTA0915Garrity3110	240	5	0.12	Backspar trail	300	10	0.37	0.49	5.1%
										Yarder trail	70	10			
BK3 SU4	1.2	10%	0.12	5%	0.06	None			0.00	None			0.00	0.00	0.0%

Green Cells Auto-Calculate

FPPR Section 35 (Soil Disturbance Limits):
This proposed Development: SUs associated with this cutblock are not predominantly comprised of sensitive soils. The maximum allowable soil disturbance (MASD) limit is therefore 10% of the NAR. The MASD limit for roadside work areas is 25%. The pre-rehabilitation soil disturbance estimate, resulting from planned temporary access structures, is less than the MASD limit for all SUs. Temporary access structures may exceed the MASD by a maximum of 5% of the area covered by SUs (excluding the roadside work area). Any excess must be rehabilitated prior to the regeneration date.

Temporary landings have been excluded from these soil disturbance calculations as these are considered "roadside work areas" for which limits are calculated separately under FPPR Section 35. Any planned temporary trail lengths within temporary landings are also considered part of the “roadside work areas” and have been excluded from the above calculations.

Contractors and agreements holders will:

1. Ensure final soil disturbance meets FPPR Section 35 requirements (including temporary access structures, gouges, ruts, scalps or compacted areas).

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategies Sections:
- 5.1 Soils

Support Document Sections:
- 1(e) Terrain Stability / Site Review / Avalanche Assessment
- 1(g) Soil Assessment

4. OTHER SUPPORTING INFORMATION

4(a) HLP / FSP CONSIDERATIONS

This proposed development: Refer to the Site Plan for information regarding consistency with the results, strategies, objectives, and measures of the British Columbia Timber Sales (BCTS) Kootenay Business Area Forest Stewardship Plan (FSP) #601 2017-2022 and the Kootenay Boundary Higher Level Plan Order.

4(b) RANGE COMMENTS

RANGE AGREEMENT HOLDER REFERRALS
This proposed development does not overlap active Range Tenures. There are no known natural range barriers associated with the proposed development. No referrals are required.

RANGE OFFICER REFERRALS
This proposed development does not overlap active Range Tenures. No referrals are required.

BCTS:

1. Is tracking stakeholder/tenure communications and commitments external to Site Plans and Support Documents.
2. Will make Contractors and Agreement Holders aware of any stakeholder/tenure commitments at the time of pre-work.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategy Sections:
- 6.2 Measures to Mitigate the Loss of Natural Range Barriers

Other Documents / Assessments / Resources (as applicable):
- Operational Plan / Landscape Level Assessment
- Range Assessment

4(c) RECREATION COMMENTS

INTERPRETIVE FOREST SITES, RECREATION SITES OR RECREATION TRAILS IDENTIFIED ON FDU MAPS
This proposed development: The proposed development is within or adjacent to the following established interpretive forest sites, recreation sites and/or recreation trails identified on the FDU maps.
Interpretive Forest Sites: None.
Recreation Sites: Smallwood Creek Recreation Bike Trail REC6948

- Overlap/adjacency: This trail does not overlap this proposed development , nor is it adjacent. It is located ~140m NE of Block 2.
- Legal Objectives: This feature does not have any known established legal objected.
- Agreement or Tenure Holder: The Nelson Cycling Club holds an agreement or tenure in relation to this feature.
- Management of proposed development in relation to this recreation feature: None.
- Proposed Development may affect this recreation feature (if yes, a FRR Section 16 letter is required): No

Recreation Trails: Smallwood Recreational Site - REC31958

- Overlap/adjacency: Overlaps virtually this entire proposed development.
- Legal Objectives: This feature does not have any known established legal objected.
- Agreement or Tenure Holder: Nelson Cycling Club holds an agreement or tenure in relation to this feature. A referral was provided under the operational plan.
- Management of proposed development in relation to this recreation feature: None
- Proposed Development may affect this recreation feature (if yes, a FRR Section 16 letter is required): Yes

FRR Section 16 Authorization

This proposed development: A Forest Recreation Regulation Section 16 authorization letter is required. The Recreation Officer was referred under the operational plan. A Forest Recreation Regulation Section 16 authorization letter was issued by Justin Dexter, Recreation Officer, Kootenay Boundary District, on August 23, 2019. This letter grants authorization to proceed with all operational works associated with the proposed development within REC31958.

- Additional requirements of the Sec 16 authorization: None.

BCTS:

1. Is tracking stakeholder/tenure communications and commitments external to Site Plans and Support Documents.
2. Will make Contractors and Agreement Holders aware of any stakeholder/tenure commitments at the time of pre-work.

GENERAL RECOMMENDATIONS FOR MANAGING PUBLIC SAFETY

The road systems in the area are frequently used by ATVs, snowmobiles, hikers, hunters, mountain bikers, berry pickers, campers and outdoor enthusiasts. The following recommendations are made to assist in ensuring public safety.

Contract and Agreement Holders are to:

1. Keep roads free of debris and in good working order. Operations must be conducted to ensure public safety.
2. Use appropriate radio communication when traveling along roads.
3. Post clear signage informing the public of harvesting and/or hauling activities. Signage content must follow WorkSafeBC regulations. The placement of signage must be strategic in terms of the location of operational activities and must specifically address the expectation of industrial operations.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategy Sections:

- 5.7 Recreation Resources

Other Documents / Assessments / Resources (as applicable):

- Operational Plan / Landscape Level Assessment

4(d) INVASIVE SPECIES COMMENTS

Site Location	Site ID (s)	Species & code(s)	Existing / Newly identified	Location details / comments
Within this Proposed Development	116992	Spotted Knapweed (SK) Rush Skeletonweed (RS) Chicory (CY) Canada Thistle (CT) Yellow Devil Hawkweed (YD) Yellow Hawkweed (YH) Oxeye Daisy (OD) Common Tansy (TC)	Existing	SE corner of Block 2, along the Garrity FSR, at UTM 11U 466870 5482672. Site registered in 2001.
Adjacent to this Proposed Development	114468	Diffuse Knapweed (DK) Common Tansy (TC) Spotted Knapweed (SK)	Existing	En route to Blocks 2 and 3, at junction of Smallwood and Garrity FSRs, 230m NW of Block 1. Site registered in 2001.
	269964	Common Tansy (TC) Yellow Hawkweed (YH) Orange Hawkweed (OH)	Existing	En route to all blocks, on Smallwood FSR switchbacks at 1km, 200m south of Block 1. Site registered in 2010.
	339940	Bohemian Knotweed (BO)	Existing	En route to all blocks, at junction of Beasley Rd and Queen Victoria Rd, between Hwy and Smallwood FSR. Site registered in 2018.

This proposed development: Known invasive plant infestations were identified in the general area of this proposed development using the MFLNRORD Invasive Alien Plant Program (IAPP) database as accessed on January 17th, 2020.

BCTS will:

1. Monitor and report-on all identified invasive plants within this proposed development, according to FSP Measure 6.1 Strategy 4.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Site Plan Results and Strategy Sections:

- 6.1 Measures to Prevent the Introduction or Spread of Invasive Plants

Other Documents / Assessments / Resources (as applicable):

4(e) TRAPPER / GUIDE OUTFITTER COMMENTS

TRAPLINE

This proposed development: This proposed development overlaps Trapline Tenure TR0415T003. Referrals were provided as part of the operational plan.

GUIDE OUTFITTER

This proposed development: This proposed development does not overlap a Guide Outfitting Tenure.

BCTS:

1. Is tracking stakeholder/tenure communications and commitments external to Site Plans and Support Documents.
2. Will make Contractors and Agreement Holders aware of any stakeholder/tenure commitments at the time of pre-work.

REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:
Other Documents / Assessments / Resources (as applicable):

- Operational Plan / Landscape Level Assessment

4(f) OTHER RESOURCES COMMENTS

MINERAL TENURES

This proposed development: This proposed development overlaps mineral tenures.
Block #1: This block overlaps mineral tenures 1060511, 1057393 and 1060515.
Block #2: This block overlaps mineral tenures 1057365 and 1057393.
Block #3: This block overlaps mineral tenures 349882 and 1057365.

PRIVATE LAND

This proposed development: The proposed development is adjacent to private land. Referrals were provided under the operational plan.
Block #1:
This block is adjacent to private land to the south and east. Formal land surveys for private land parcels adjacent to this block were not initiated by BCTS in the development process. Land survey monuments were located in the field by Atlas for all key private land parcels. Block boundaries were variably buffered off private land boundaries according to the field located land survey monuments. This block overlaps legal spatial private land parcels, however field work established that the block does not overlap these parcels as they are marked in the field. Refer to "TA0915_Bk1_SMA-016A_Assess_PrivateLand" for a detailed map, notes and photographs. The Site Plan Map and Harvest Plan Maps show adjusted private land parcels to exhibit how the block is adjacent to, but does not overlap, the private land parcels in the field. The aforementioned assessment (map) shows both the adjusted and legal private land parcels. The adjacent parcel identifier is 010646035 (see Site Plan Map).
Block #2:
This block is not adjacent to private land.
Block #3:
This block is adjacent to private land to the south, west and east. Formal land surveys for private land parcels adjacent to this block were not initiated by BCTS in the development process. Land survey monuments were located in the field by Atlas for some key private land parcels along the western block boundary. Other property markers were located in the field along the remaining southern and eastern block boundaries. Block boundaries were variably buffered off private land boundaries according to the field located land survey monuments and other property markers. This block overlaps legal spatial private land parcels, however field work established that the block does not overlap these parcels as they are marked in the field. Refer to "TA0915_Bk3_SMA-017_Assess_PrivateLand" for a detailed map, notes and photographs. The Site Plan Map and Harvest Plan Maps show adjusted private land parcels to exhibit how the block is adjacent to, but does not overlap, the private land parcels in the field. The aforementioned assessment (map) shows both the adjusted and legal private land parcels. The adjacent parcel identifiers are 016475453, 016444965, 016468686, 015381455, 007918542 and 014146088 (see Site Plan Map).

OTHER TENURES

This proposed development: The proposed development does not overlap any other Land Use Tenures.

BCTS:

1. Is tracking stakeholder/tenure communications and commitments external to Site Plans and Support Documents.
2. Will make Contractors and Agreement Holders aware of any stakeholder/tenure commitments at the time of pre-work.

4(g) DEFINITIONS

Refer to the Final Deliverables Checklist for a listing of specific documents referred to with generic names within Site Plans and this Support Document.

5. ADMINISTRATION

☒ ORIGINAL | ☐ AMENDMENT#

RPF PRINTED NAME	RPF'S SIGNATURE & SEAL
Richard Cane, RPF	
DATE SIGNED	
Jul 27, 2020	
"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 the standards expected of a member of the Association of British Columbia Forest Professionals."	