



Attachment to the Agreement with for Cut Block Reconnaissance in the Taylor FDU.

## 1. THE SERVICES

The primary nature of Phase 1 of this contract will be a twenty year total chance plan for the Taylor FDU with the following objectives:

- Analyze Timber Supply Report of the Alberni Valley Community Forest License – K2D completed June 2014 (Available on request by interested contractors)
- Develop a 20 year total chance plan, with an estimated long term sustainable rate of harvest of 4000m<sup>3</sup> per year, which accesses the available timber in the Taylor FDU in the most cost efficient order. The high elevation Old Growth would be prioritized leaving the lower elevation second growth to reach culmination but the lower elevation second growth and deciduous stands need to be incorporated into the plan.
- Determine the viability of different logging systems (helicopter, sky line, grapple, hoe chuck and other cable systems and partial harvest systems) to create the most cost efficient methods of harvesting, which generate the highest rate of return to the AVFCF.
- Develop Base work for Engineering to Cutting Permit of 45000 m<sup>3</sup> in the Taylor FDU to go towards 2014 to 2018 Cut Control and develop base work for future cut control.
- Investigate potential route corridors of this area to access the most amount of timber at the lowest cost.
- Investigate potential cut block locations and create most efficient time line for harvesting.
- Flag and map the reconnaissance line of the preferred road location.
- Prepare a field reconnaissance report and map.
- Prepare a map that includes approximate block boundaries and field reconnaissance report with volume, grade and species breakdown.
- **Field work is to be completed by November 30, 2014**

## 2. DESCRIPTION:

- **Objective:** The prime objective is to develop the maximum amount of timber, in the Taylor FDU for the next 20 years, for the lowest total logging cost while ensuring the logging plan meets regulatory requirements related to safety and other resource values.
- **Project Timelines:** Field work will take place during the summer and early fall season.
- **AVCF Manager Participation:** It is expected that the contract work will be conducted with close coordination with the AVCF Manager. At times, the AVCF Manager will accompany contractor crews on site. The contractor will maintain regular contact with the AVCF Manager and provide progress updates on a bi-weekly basis.
- **Deliverables/Methodology/Standards:** This project will be comprised of a pre-field assessment, field reconnaissance and associated report.

### 2.1 Pre-Field Investigation:

An in-depth review of the Timber Supply Analysis Report for Community Forest License–K2D Alberni Valley identify features and control points along potential route (“recce”) locations, including:

- major stream crossings requiring bridges or major culverts;

- rock bluffs, benches, passes, saddles, and other dominant terrain features, including unstable terrain;
- road grades and potential switchback locations. Alternate routes are identified where the photo study does not indicate a clear preference of one route over another;
- harvesting systems and potential location of landings; topographic features that affect logging or road construction;
- potential disposal sites for excavation spoil or debris;
- alienated lands, including power line, gas pipeline, or micro hydro pipeline;
- current access to and junction with existing roads;
- log dumps, mill yards, or other destinations;
- avalanche chutes;
- talus slides;
- swamps and wet areas;
- visual quality objectives;
- landbase exclusions or other higher level plan requirements (WHA, OGMA, etc.);
- green-up/adjacency considerations;
- forest cover and stand condition; and
- potential environmentally sensitive areas.

## **2.2 The Working Map:**

*The working map provides a visual summary of all information gathered during the pre-field investigation. Once assembled, it provides a picture of:*

- an outline of the study boundaries;
- routes to be explored in the field;
- the location, volume, and species of timber to be assessed;
- limitations to development identified during the pre-field investigation;

And any other information required to ensure that the combined development costs are minimized while maximizing the development of merchantable timber and following all legal requirements.

## **2.3 Field Reconnaissance:**

The following reconnaissance steps are recommended:

1. Walk the proposed road routes, field checking all control points, such as switchback locations, bridge sites, rock bluffs, passes, etc.
2. Mark a continuous grade line to provide best line joining all control points with intervisible yellow flagging tape.
3. Note the grades between control points. Use road specifications as general guidelines (see attachment), and discuss with AVCF Manager where roads outside of these guidelines may be required to access timber.
4. Mark switch-backs with yellow flagging by approximating the best alignment.
5. Provide detailed notes on soils and topographic features, including:
  - stream crossings where channel and bank disturbances can be prevented or mitigated, locations that require site plans, and data required for minor stream crossings;
  - location, extent and condition of bedrock (rippable versus requires blasting), and the potential as ballast;
  - location and extent of gravel sources and the potential for use as subgrade and surfacing materials;
  - end haul sections and potential waste areas;
  - existing road reconstruction/upgrade requirements (if any);
  - potential heli service landings and drop sites; and
  - recommended construction methods and potentially appropriate alternatives.

- Note any difficulties to logging the area - special precautions that may have to be taken;
  - Walk adjacent timber to determine appropriate access locations for "go ahead roads";
  - Identify any safety concerns to logging and road construction; and
  - Identify any special resource features in the area.
6. Assess proposed Cut Blocks and Note timber values:
- walk potential cut-block to determine harvest method (falling/yarding);
  - Estimate species composition, anticipated grades/end-use sorts (quality);
  - Estimate species volumes and stand volumes;
7. Confirm or evaluate the need for any additional information or assessments that may include:
- terrain stability field assessments;
  - riparian classification of streams, wetlands, and lakes;
  - visual impact assessments;
  - karst / cave assessments;
  - wind throw assessments;
  - forest health assessments;
  - archaeological impact assessments;
  - wildlife assessments; and
  - Species at Risk assessments.
8. Bridge and Major Culvert Location: Consider the planned road corridor; locate the crossing site to provide an acceptable horizontal and vertical alignment for the road, including;
- stream width;
  - upstream and downstream watercourse alignment;
  - stream bank stability;
  - whether stream banks are fairly even in height on both sides;
  - availability of local materials for construction;
  - access to both sides of watercourse during construction phase;
  - potential for debris buildup; and
  - potential for stream bank erosion.

Ideally, the crossing of a waterway should be located at right angles to the centerline of the waterway and should include approach tangents of a minimum 15 m in length. The maximum grade on bridge decks should be 5%.

#### **2.4 Total Chance Plan Report and Maps:**

The Report and Maps will show the Taylor FDU and the best options for proposed block and road locations. This total chance plan report will assist in Phase 2 and 3 of this contract and future engineering contracts. The report will help the AVCFC determine the most efficient and cost effective order for engineering proposed cut blocks and roads. A final overview map will be part of final report and will be done in ARC GIS (ESRI) to the standards set in Appendix 2. The final report and maps will be submitted digitally and in hard copies. The final report and map will show the following:

- identify the need for any additional information or assessments to be carried out by the appropriate professionals (terrain, stream, archaeological, visual, karst, etc.);
- proposed block location
- proposed method of harvesting for each proposed block

- an evaluation report that estimates the species composition, volume and grades by species and forest cover attributes for each proposed block (ground truth current inventory analysis)
- proposed time line for harvesting proposed blocks
- If a block is marginally economic, an assessment of the recommended logging method for a potential cut-block broken out by cost phase
- A map of the potential cut blocks at a 1:5000 scale.
- proposed road location
- terrain conditions and road sections that are in unstable or potentially unstable terrain;
- road sections with side slopes over 60% or where slope instability indicators are found;
- control points and topographic features (e.g., rock bluffs, swamps, avalanche paths, landslides, and debris slides), including those that may be used as photo ties;
- the sections of road that encroach on public utilities;
- the sections of road that are adjacent to or cross private property, Crown leases, or mineral and placer claims or leases (where possible, alienated lands should be avoided);
- riparian areas;
- stream crossings where channel and bank disturbances can be prevented or mitigated;
- locations that require site plans;
- major and minor stream crossings;
- potential landing locations, including heli service landings and drop sites;
- soil type;
- maximum road grades and switchback curve radii;
- location, extent and condition of bedrock (rippable versus requires blasting), and the potential as ballast;
- location and extent of gravel sources and the potential for use as subgrade and surfacing materials;
- end haul sections and potential waste areas;
- recommended construction methods and potentially appropriate alternatives;
- Final Report And Maps Due **March 1, 2015**

### **3.0 ROAD SPECIFICATION GUIDELINES (for an off-highway logging truck)**

#### *Dimensions:*

- permanent road width is 5 meters
- temporary road width is 5 meters

#### *Favorable:*

- Sustained favorable grade not to exceed 18% (any road plans with grades > than 18% must have a risk assessment as per Worksafe regulations and guidelines).
- Maximum allowable grade in pitches not longer than 200 meters is 24%.

#### *Adverse:*

Sustained adverse grade not to exceed 10%.  
 Maximum allowable on momentum grade not longer than 100 meters is 14%.  
 Not to be used as a starting grade from landings or loadouts.

#### *Switchbacks:*

- *All adverse switchbacks will need contract coordinator approval*
- Grade not to exceed 8%.
- A switchback constitutes the travel from the beginning of the curve (BC) to the end of the curve (EC) plus one truck length along each tangent there from.

*Alignment:*

- Average design speed, 30 kilometres per hour.
- Minimum radius of curves, 65 meters in control section.
- Minimum radius of switchback curves, 18 meters.

**4. SUBCONTRACTORS**

Only the following are approved by the Province to be Subcontractors under this Agreement:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

<b>Role or Function</b>	<b>Name of Person / Phone # / email Address</b>	<b>Professional / Technical Designation and Experience (minimum mandatory requirement)</b>
Senior Forest Engineer(s)	Insert required information	RFT/RPF. Five years Coastal Cut Block engineering including conventional and helicopter layout.
Forest Engineer(s)	Insert required information	RFT/RPF. Two years of Coastal Cut Block engineering experience.
GIS / mapping Technician	Insert required information	Three years experience in GIS forest related work, and in producing maps for forest development submissions.
Head Timber Cruiser	Insert required information	RFT - Five years old growth coastal cruising experience as a head cruiser.