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# New Coast Appraisal Manual Highlights

The new *Coast Appraisal Manual* includes clarification to policy, an update to the market pricing system, and an update of the tenure obligation adjustments and specified operations to March 1, 2016. By section, the significant changes are as follows:

Section #	Comment
1.1	Added definition
2.1	Updated name change for Great Bear Rainforest
2.1.2	Updated link
2.2.2(1)	Revised cutting authority configuration requirement
2.2.4, 2.2.4(2)	Revised cutting authority configuration requirement and updated name change
2.3.1, 2.3.2	Updated links
3.3	Consequential change related to Section 3.6
3.3.7	Name change
3.4(2)(a)	Log values and quarterly adjustments
3.6	Identifies manual to use
4.2	Revised section title and updated list of variables. Updated average number of bidders table

4.2.1	Defines use of average log market value schedules
4.2.2.1	Updated section
4.2.4	Haul distance in calculation of stumpage rate
4.3	Updated Estimated Winning Bid equation
4.4	Numbering revision
4.4.2	Updated Inland Water Transportation cost estimate
4.4.3	Updated Clayoquot Sound Operating cost estimate
4.4.6	Updated Tree Crown Modification cost estimates
4.4.7	Updated Ecosystem Based Management Operating cost estimate
4.4.8	Added Long Haul cost estimate
4.4.9	Added High Development cost estimate
4.5	Numbering revision
5.2	Updated forest planning and administration cost
5.3.1.1(2)	Revises tributary cutting authority rule, and limits the application of new road construction costs to 5 years

5.3.2.1	Revised requirements for extended road amortization
5.3.3.1	Updated tabular road costs table
5.3.3.2.1	Updated tabular log bridge costs table
5.3.3.2.2	Updated permanent/portable bridge costs table
5.3.3.2.3	Updated culvert costs table
5.3.4(5)	Updated dates
5.4	Updated road management cost estimate
5.6	Updated basic silviculture cost table
5.7	Updated Low Grade Fractions table
5.8.1	Updated Market Logger Cost
5.8.2	Updated BCTS Infrastructure and Services cost adjustment
5.8.3	Updated Competitive Timber Sales Specified Operations Adjustment
5.9	Updated Return to Forest Management Factor
7.1	Updated name change for Great Bear Rainforest

7.2	Updated rates for community forest agreements and woodlot licences
7.2.1(b)	Revised wording for Northern Coast Zone
7.3(7)	Revised tributary wording
7.7(3)	Updated silviculture cost adjustment for linear tenures
7.10	Updated name change for Great Bear Rainforest
Appendix 1	Updated Equipment and Labour Rates
Appendix 1X	Added weblink for Amortization Agreement Form

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# **1 Definitions and Interpretations**

## 1.1 Definitions and Interpretations

In this manual:

“**Act**” means *Forest Act*;

“**Accurate**” for the purposes of Section 105.1 of the *Act* as it applies to this manual means submitted in accordance with the requirements of this manual;

“**Anniversary date**” means the annual recurrence of the month and day when the term of the cutting authority began;

“**Appraisal Data Submission (ADS)**” means the information required by the person who determines the stumpage rate to determine the stumpage rate including a forest professional’s signed submission in the form required by the director and any other information required by the regional manager or district manager;

“**Billing history record**” means a record of log scale data derived from a record kept by the Timber Pricing Branch of log scale data reported on stumpage invoices issued by the Timber Pricing Branch for timber scaled under Section 94 of the *Act*; and for greater certainty does not include billing data from cruise based cutting authorities; but for any cutting authority with an effective date prior to October 1, 2012, the billing history record to be used in a minister-directed reappraisal under Section 3.3.8 shall include billing data from cruise based cutting authorities;

“**BCTS**” means BC Timber Sales;

“**BCTS licence**” means a timber sale licence entered into under Section 20 of the *Act* or Section 21 as it was before it was repealed;

“**Bonus Bid**” means a bonus bid described in Section 103(1)(d) of the *Act*;

“**Bonus Offer**” means a bonus offer described in Section 103(2) of the *Act*;

“**Coast Area**” means West Coast and South Coast forest regions or Coast Forest Region;

“**Coast Mountain Forest District**” means that part of the Coast Mountain forest district that is within the geographic boundaries of the **Great Bear Rainforest North**;

“**Coniferous cruise volume**” means that part of the total net cruise volume which is coniferous timber;

“**Controlled Recreation Area**” means controlled recreation area as defined in the *Resort Timber Administration Act*;

“**Cruise based billing cutting authority**” means a cutting authority where under Section 106 of the *Act* the stumpage payable is calculated using information provided by a cruise of the timber conducted before the timber is cut;

“**Cutting authority**” means:

- a. a cutting permit issued under a forest licence, a timber sale licence, a timber licence, tree farm licence, a community forest agreement, a community salvage licence, a woodlot licence, a master licence to cut, a forestry licence to cut, or First Nations woodland licence;
- b. a timber sale licence that does not provide for the issuance of a cutting permit,
- c. all other licences to cut, or
- d. a road permit;

“**Cutting authority area**” means the area where timber may be harvested under authority of;

- a. a cutting permit,
- b. a timber sale licence that does not provide for the issuance of a cutting permit,
- c. a licence to cut, or
- d. a road permit;

“**Deciduous timber**” means timber that is any of the alder, birch, cottonwood and maple species;

“**Detailed engineering**” means non-tabular;

“**Director**” means director of Timber Pricing Branch of the Ministry of Forests, Lands and Natural Resource Operations;

“**District manager**” means:

- a. Except as provided in paragraph (b) of this definition, the district manager or district manager’s designate;
- b. Where the cutting authority area being appraised or reappraised is located in a controlled recreation area designated under the *Resort Timber Administration Act*, then district manager means an employee of the Ministry to whom the minister has delegated the minister’s powers and duties under Section 2 of the *Resort Timber Administration Act*;

“**Effective Date**” means, unless otherwise specified in the manual:

- a. the date the stumpage rate is determined when required for advertising for competitive award, or





harvesting activities on that area, and has an average stabilized subgrade width greater than seven metres;

"**Manual**" means *Coast Appraisal Manual*;

"**Mature coniferous timber**" means coniferous timber that is 121 years old or older;

"**Minister**" means Minister of Forests, Lands and Natural Resource Operations;

"**Ministry**" means Ministry of Forests, Lands and Natural Resource Operations;

"**Net cruise volume**" means the gross volume of all species listed in Section 4.2.3(1), plus alder, birch, cottonwood and maple in the cutting authority area minus the volume of decay, waste and breakage in that timber unless otherwise specified in the *Cruising Manual*;

"**Old growth coniferous timber**" means coniferous timber that is 141 years old or greater;

"**Problem forest stands**" means a cut block approved by the district manager for inclusion in the coast problem forest stand pilot project under Section 2.2.3;

"**Regional manager**" means regional executive director of the Ministry or except for Section 2.1.1(1)(a), regional executive director's designate;

"**Regulations**" means regulations under the *Act*;

"**Remaining volume**" means the total net cruise volume of a cutting authority area minus the total volume of timber in the billing history record of the cutting authority area on the effective date of the reappraisal of the cutting authority area;

"**Road Permit**" means road permit or the timber mark for a road permit that is associated with the applicable tenure listed in Section 115(1) of the *Act*;

"**Scale Based cutting authority**" means a cutting authority where under Part 6 of the *Act*, the stumpage payable is based on a scale of the timber harvested from the cutting authority area;

"**Second growth coniferous timber**" means coniferous timber that is less than 141 years old;

"**Selling price zone 51**" means the table of coast market pricing system log values for old growth coniferous timber, approved by the Director, Timber Pricing Branch;

"**Selling price zone 52**" means the table of coast market pricing system log values for second growth coniferous timber, approved by the Director, Timber Pricing Branch;

"**Skyline**" means any method of yarding where the logs are fully suspended above the ground by a short span, long span, or multi-span system using a carriage with standing or running lines;

"**Stumpage Appraisal Parameter**" means the BC Consumer Price Index and applicable Coast Domestic or Export-Adjusted Log Values approved by the Director;

"**Timber Pricing Branch**" means Timber Pricing Branch of the Ministry of Forests, Lands and Natural Resource Operations;

"**Timber Sales Manager**" means the timber sales manager or the timber sales manager's designate;

"**Total net cruise volume**" of a cutting authority area (tncv) is the product of the net cruise volume per hectare of the cutting authority area (ncv/ha) multiplied by the total merchantable timbered area to be harvested under the cutting authority (tmta). Expressed

$$tncv = \frac{ncv}{ha} \times tmta$$

as an equation:            ha            ;

"**Tributary cutting authority area**" means a cutting authority area from which timber must be transported over the road that is developed, or a cutting authority area to which bulk fuels, supplies, equipment and harvesting crews necessary to carry out the day-to-day harvesting activities on that area must be taken on a regular basis over the road that is developed;

"**Unit cost**" means cost estimate expressed in dollars per cubic metre;

"**Woodchips**" means timber that has been cut into small pieces by a chipper and is made from post-harvest material where a waste assessment has been made. Where the post-harvest material is removed from an area that is or was a cruise based billing cutting authority, a waste assessment is not required.

## **2 Scope and Requirements**

## 2.1 Terms of Reference

1. Pursuant to Section 105 of the *Act*, the provisions of this manual are the policies and procedures to be used in the determination, redetermination and variance of stumpage rates for Crown timber harvested in the Coast Area (except Manning Park) and **including** all cutting authority areas within the **Great Bear Rainforest North**.

### 2.1.1 Responsibility for Stumpage Determinations

1. The following employees are authorized to determine, redetermine and vary rates of stumpage:
  - a. The director, and employees of the Timber Pricing Branch of the Ministry, and
  - b. Regional managers, regional appraisal coordinators and employees of the regional revenue sections, of the Ministry.
2. The employees of the Timber Administration Section, Resort Development Branch of the Ministry are authorized to determine or redetermine stumpage rates in accordance with Section 7.8(1) or (2).

### 2.1.2 Market Pricing System Parameters

1. The Market Pricing System parameters are compiled, calculated and/or adopted by Timber Pricing Branch.
2. Once approved by the director they become an integral part of this manual.
3. The parameters are published by Timber Pricing Branch.
4. Current and historical parameters may be found at the following web site:

<http://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/coast-timber-pricing/coast-appraisal-parameters>

### 2.1.3 Minimum Stumpage Rate

A stumpage rate determined using this manual shall not be less than the prescribed minimum stumpage rate.

## 2.2 Numbering System

The following exemplifies the numbering system that is used in this manual.

- 1. = Chapter
- 1.1 or 1.1.1.1 = Section
- 1.1.1.1 (2) = Section with subsection
- 1.1.1 (2)(a) = Section with subsection and paragraph.
- Table 4-2 = Table 2 within Chapter 4

### 2.2.1 Calculation Conventions

1. Every calculation required to be performed will be performed to the full capacity of a calculating machine with the results truncated at four places of decimals and rounded to two places.
2. A result from 5 to 9 will be rounded upward and a result from 1 to 4 will be rounded downward.
3. Each calculation of a tenure obligation adjustment or specified operation adjustment expressed in dollars per cubic metre will be rounded to the nearest cent.
4. Where a value is specified as a limit, for example a constraint or a requirement for an equation,
  - a. the value will be treated as an absolute value, and
  - b. an actual measurement or record will not be rounded before use unless otherwise specified in this manual.

### 2.2.2 Cutblocks within a Cutting Authority Area

1. Except as provided for in subsections 1(c), 2, 5 and Section 2.2.4, all cutblocks within a cutting authority area must:
  - a. have each of their geographic centres within the same appraised point of origin area as identified in Section 4.2.5.3; and
  - b. be fully contained within the same timber supply block, or in the case of a cutting authority area under a tree farm licence, be contained within the same forest district.
  - c. For a cutting authority issued under Section 20 of the *Forest Act* within the **Great Bear Rainforest North**:
    - i. have each of their geographic centres within the same appraised point of origin area as identified in Section 4.2.5.3; and
    - ii. **must be located and fully contained within only:**

- i. the Mid Coast; or
- ii. the North Coast

Timber Supply Area, as designated or prior designated, as applicable, by the Minister under the Act.

2. A cutting authority approved by the district manager under Section 2.2.3:
  - a. is not constrained by subsection 1 above;
  - b. must be located anywhere within the same timber supply area, or in the case of a tree farm licence or first nations woodland licence, be contained within the same forest district, where the licensee is entitled to harvest under the licence that the cutting authority has been issued under; and
  - c. is not eligible for an extended road amortization agreement.
3. Helicopter single standing stem selection as described in Section 4.4.4 must not be combined with any other harvest method within the same cutting authority area.
4. Except as provided in subsection (3) of this section, there are no other restrictions on what types of harvest methods may be used in or which types of timber can be contained in a cutting authority area.
5. The road right of way that provides access to and is sold as part of a BCTS licence, is exempt from the requirement to be located within the same timber supply block or tree farm licence as the BCTS licence.

### **2.2.3 Coast Problem Forest Stands Pilot**

1. A problem forest stand is a cutblock comprised completely of one or more of the following stand characteristics:
  - a. Poor timber types (old growth timber height class 3 or less), or
  - b. located at elevations greater than 700 metres, or
  - c. greater than 80% old growth hemlock/balsam.
2. A cutting authority considered for this pilot must be under a tree farm licence, a First Nations woodland licence or a replaceable forest licence and have one or more cutblocks meeting the criteria of subsection 1.
3. Licensees participating in this pilot must submit appraisal information allowing for the determination of the value differential in accordance with the requirements prescribed by the director.
4. Licensees must not exceed their value allocations for this pilot.

5. Cutting authority applications under this pilot will not be accepted after March 31, 2017.
6. The minister may terminate this pilot at any time.

## 2.2.4 Great Bear Rainforest North (GBRN)

1. This section does not apply to:
  - a. cutting authorities entered into under Section 20 of the *Act*; and
  - b. subject to Section 7.10, to any cutting authority appraised in accordance with Chapter 7.
2. A cutblock(s) within a cutting authority area other than within a cutting authority described in subsection 1 above, for the purposes of the **GBRN**:
  - a. must be located and contained within the same forest district where the licensee is entitled to harvest under the licence that the cutting authority has been issued under; **and**
  - b. **must be located and fully contained within only:**
    - i. **the Mid Coast; or**
    - ii. **the North Coast**  
**Timber Supply Area, as designated or prior designated, as applicable, by the Minister under the Act; or**
    - iii. **that part of Tree Farm Licence No. 25 within the Coast Mountain and North – Island Central Coast Forest Districts, or within Forest Licence A91438**
  - c. is not approved under a Section 2.2.3 cutting authority.



## 2.3 Appraisal Data Submission Requirements

### 2.3.1 Cruise Information

1. Except as provided for under subsection 7, and unless otherwise specified by the director, cruise data must be gathered and compiled in accordance with the following Ministry publications and the coast timber merchantability specifications in Table 2-1:
  - a. *Cruising Manual*, at the following website:  
<http://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/timber-cruising/timber-cruising-manual>.
  - b. *Cruise Compilation Manual* at the following website:  
<http://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/timber-cruising/cruise-compilation-manual>

**Table 2-1 Coast Timber Merchantability Specifications**

Description	Mature	Immature
The following coast timber merchantability specifications must be used in all appraisals.		
1. Maximum stump height (measured from the top of the stump down to the highest ground level adjacent to the stump)	30.0 cm	30.0 cm
2. Minimum slab thickness for cedar only	15.0 cm	10.0 cm
3. Minimum top diameter (inside of the bark)	15.0 cm	10.0 cm
4. Minimum length of a log or slab	3.0 m	3.0 m

2. When cruise information is submitted to the district manager or the regional manager in order to determine a stumpage rate or an upset stumpage rate, that information must include:
  - a. The cruise compilation reports, and
  - b. The ASCII data files (i.e. .dat and .red or .pr).
  - c. The CSV (if applicable, also the percent reduction CSV file) for appraisals submitted on or after November 1, 2013, when the cruise was compiled using the 2013.00 version of the approved cruise compilation program.
3. When requested by the district manager, a copy of the original field data and traverse notes must be provided by the licensee.
4.
  - a. The cutting authority area will be appraised using the total net cruise volume of timber authorized for harvest in that area.
  - b. The total area of merchantable timber in the cutting authority area is obtained from the appraisal summary of the cruise compilation report.

5. If the licensee or BCTS modifies its application for a cutting authority the applicant must recompile the cruise data when any of the compiled plots used in the cruise lie outside the boundaries of the proposed cutting authority area.
6.
  - a. Where a boundary of a cutting authority area has been changed after the appraisal or reappraisal of the cutting authority area, every reappraisal of the cutting authority area must use the total net cruise volume of the cutting authority area as it is after the boundary has changed.
  - b. If, after a cruise compilation or recompile was used for an appraisal or reappraisal, the total of all additions or deletions of areas containing merchantable timber made to the cutting authority area exceeds fifteen hectares or fifteen percent of the area containing merchantable timber, whichever is less, the entire cruise must be recompiled.
7. The holders of the following types of agreements and cutting authorities are exempt from the requirement to provide a timber cruise:
  - a. Community forest agreements and woodlot licences under Section 7.2,
  - b. Salvage cutting authorities under Section 7.4,
  - c. Cutting authority areas with less than 2 500 m<sup>3</sup> of timber volume that have been authorized under Section 7.5(1) to use tabular rates,
  - d. Decked timber under Section 7.6(1),
  - e. Linear tenures under Section 7.7 with not more than 2 500 m<sup>3</sup> of timber volume, and
  - f. Controlled recreation areas under Section 7.8.
8. The person who determines the stumpage rate may direct that cruise information be gathered and compiled fully or partially for linear tenures under Section 7.7 with more than 2 500 m<sup>3</sup> of timber volume that have been authorized to use tabular rates.

### 2.3.2 Appraisal Data Forms

1. Unless otherwise specified in paragraph (b) or (c) of this Section, the form of appraisal data submission required by the director for:
  - a. The market pricing system is the Electronic Commerce Appraisal System (ECAS) which can be found at:  
<http://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/electronic-commerce-appraisal-system>
  - b. Miscellaneous timber pricing policies is the miscellaneous appraisal data submission (Misc ADS) which can be found at:  
<http://www.for.gov.bc.ca/rco/revenue>

- c. Community forest agreements and woodlot licences is the Tabular Rate Form for Community Forest and Woodlot (Tab Rate Form), which can be found at:  
<http://www.for.gov.bc.ca/rco/revenue/>

A submission under subsection c) is not required to be made by a forest professional.

### **2.3.3 Appraisal Map**

The appraisal map must be completed in accordance with the requirements of Appendix V of this manual, and must be submitted with the appraisal data submission in ECAS.

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# **3 Appraisals, Reappraisals and Quarterly Adjustments**

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### **3.2 Appraisal Process**

1. Except where the sawlog stumpage rate or an upset stumpage rate is determined in Chapter 7:
  - a. an appraisal is a process used to determine a stumpage rate for a cutting authority area using the manual in effect on the effective date of the cutting authority.
  - b. the appraisal is effective on the effective date of the cutting authority.
2. A forest professional on behalf of a licensee or BCTS shall submit an appraisal data submission to the district manager when the licensee or BCTS makes an application for a cutting authority.
3. The district manager may require the forest professional to complete and submit an estimated stumpage rate calculation for both helicopter and cable methods of harvesting when the district manager is not satisfied that the method proposed by the licensee or BCTS is the only method that is suitable for the area intended to be harvested.
4. The district manager may review the appraisal data submission and may inform the forest professional of any omissions, or errors, or provisions of the manual that, in the opinion of the district manager, the forest professional may not have considered.
5. The forest professional may consider the district manager's information and may revise the appraisal data submission.
6. The district manager shall give any information supplied by the forest professional under this section to the person who determines the stumpage rate together with any other information that the district manager considers relevant to the appraisal.
7. The person who determines the stumpage rate may review the appraisal data submission, and information supplied by the district manager and may inform the forest professional of any omissions, or errors, or provisions of the manual that, in the opinion of the person who determines the stumpage rate, the forest professional may not have considered.
8. The forest professional may consider the information and may revise the appraisal data submission.
9. The person who determines the stumpage rate shall consider:
  - a. the information provided by the forest professional,
  - b. the information provided by the district manager, and
  - c. any other information available to the person who determines the stumpage rate that is relevant to the appraisal.

10. The person who determines the stumpage rate may change the information in ECAS when determining the stumpage rate.
11.
  - a. For licensees, once Regional revenue staff determines the stumpage rate, Timber Pricing Branch's General Appraisal System will advise those licensees who have been submitted an email address that the stumpage determination has been made.
  - b. The details of the licensee's stumpage determination will be made available on the web in Timber Pricing Branch's GAS application.
12. For BCTS, once Regional revenue staff determines the upset, BCTS will be advised by email from Timber Pricing Branch's General Appraisal System of the upset determination.



### 3.3 Reappraisals

1. Where these policies and procedures require a reappraisal to be performed, except as provided in Section 3.6, the stumpage rate must be redetermined in accordance with the relevant policies and procedures that are or were in effect as the case may be on the effective date of the reappraisal.
2. Except as provided in subsection (3) of this section or sections 3.3.1(1)(d), 3.3.2, 3.3.3, 3.3.4 or 3.3.5 or otherwise directed by the Minister under Section 3.3.8, a reappraisal is a complete reassessment of the cutting authority area at the time of the reappraisal by the person who determines the stumpage rate taking into account:
  - a. a revised appraisal data submission submitted by the licensee in accordance with this manual, and
  - b. information available to the person who determines the stumpage rate.
3. Road development costs originally estimated using ministry approved competitive bids may not be re-estimated in a reappraisal.

#### 3.3.1 Changed Circumstances

1. A changed circumstance on or in relation to a cutting authority area means a circumstance where:
  - a.
    - i. the licensee or a contractor working on the licensee's behalf has harvested or will harvest at least fifteen percent of the volume of timber on the cutting authority area using a harvest method that is different from the harvest method used in the most recent appraisal or reappraisal of the cutting authority area, and
    - ii. the different harvest method when taken into account in a changed circumstance reappraisal will produce the highest stumpage rate within the meaning of Section 4.1.
  - b. there will be a difference of at least fifteen percent between the total road development unit cost in the changed circumstance reappraisal and the total road development unit cost that was used in the most recent appraisal or reappraisal where this difference results from circumstances other than a change in the manual or a change as a result of a stumpage adjustment.

- c. the cutting authority is scale based and land containing merchantable timber has been either added to or deleted<sup>1</sup> from the cutting authority area since the most recent cruise compilation or recompilation that was used in that most recent appraisal or reappraisal that exceeds either:
  - i. fifteen hectares or
  - ii. fifteen percent of the area of the cutting authority area as it was prior to the addition or deletion of the land, or
- d. at least fifteen percent of the total net cruise volume that was used in the most recent appraisal or reappraisal of the cutting authority area has been suddenly and severely damaged, unless the timber was damaged by a fire for which the licensee was responsible and the licensee failed to comply with the *Wildfire Act* and Regulations.
- e. the cutting authority is cruise based billing and there has been a change<sup>1</sup> in the harvest area when compared to the most recent appraisal map submitted that exceeds three hectares.

The area used for cruise based billing shall only be changed to reflect the new area when:

- i. the harvest area has decreased and the cutting authority has been amended,
  - ii. the harvest area has increased, or
  - iii. the change in harvest area described in this subsection triggers a changed circumstance under this Section.
- f. the cutting authority is scale-based, consists of two or more cutblocks, has expired or has been surrendered, and one or more intact cutblocks remain and greater than fifteen percent of the cutting authority area remains unharvested.
    - ii. The cutting authority will be reappraised:
      - aa. excluding all applicable appraisal information associated with the intact cutblock(s), provided that at least one cutblock in the cutting authority is not an intact cutblock; or
      - bb. including all applicable appraisal information associated with the timber removed, provided that each cutblock in the cutting authority is an intact block.

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<sup>1</sup> Measured as the absolute change, e.g. an addition of 15 hectares and the subtraction of 15 different hectares is a 30-hectare change for the purposes of this section.

- iii. Planned and existing road development cost estimates associated with the intact cutblock(s) that is excluded from the cutting authority reappraisal may be included in future appraisals or reappraisals.
  - iv. This subsection is only applicable to cutting authorities with an effective date on or after September 1, 2016.
2. The licensee must notify the district manager immediately of a changed circumstance.
  3. Where the district manager believes that a changed circumstance has occurred, the district manager will notify the licensee of that belief.
  4. A cutting authority area other than a cutting authority area that is the subject of a road permit or a cutting authority with fixed rates must be reappraised when a changed circumstance has occurred.
  5. Where a cutting authority area is reappraised because of a changed circumstance, any bonus bid or bonus offer in existence prior to the reappraisal does not change and remains in effect.

#### 3.3.1.1 Changed Circumstance Reappraisal Procedure

1. Where the cutting authority area must be reappraised because of a changed circumstance, the licensee shall submit to the district manager an appraisal data submission.
2. Thereafter, the reappraisal procedure shall be the procedure required by Section 3.2(2) through 3.2(11).

#### 3.3.1.2 Effective Date of Changed Circumstance Reappraisal

1. Except as provided in subsections (2) and (3) of this section, a reappraisal because of a changed circumstance under Section 3.3.1(1) is effective on the day after the effective date of the most recent appraisal or reappraisal of the cutting authority area prior to the changed circumstance reappraisal.
2. Where the changed circumstance is a result of sudden and severe damage referred to in subsection 3.3.1(1)(d), the effective date of the reappraisal is the first day of the month following the date when the event that caused the sudden and severe damage stopped on the cutting authority area.
3. A Section 3.3.8 minister directed reappraisal after January 15, 2009, will not be considered an appraisal or reappraisal for the purpose of determining the effective date of the changed circumstance reappraisal.

### **3.3.2 Annual Reappraisal of a Road Permit**

1. Subject to Sections 3.3.7 and 7.3, a cutting authority area that is the subject of a road permit must be reappraised effective February 1 of every year.
2. The stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

### **3.3.3 Annual Reappraisal of Salvage Logging Stumpage Rates**

1. Except where a cutting authority requires the payment of a bonus bid or a bonus offer, where the stumpage rate for a cutting authority has been determined under Section 7.4, the cutting authority area authorized for harvest under that cutting authority must be reappraised effective March 1st of every year.
2. A stumpage rate determined under subsection 1 of this section will be a fixed stumpage rate between the time that the cutting authority area is reappraised and the time that it is subsequently reappraised.

### **3.3.4 Annual Reappraisal of a Linear Tenure**

1. Subject to Section 7.7, a cutting authority area that is the subject of a linear tenure must be reappraised effective March 1 of every year.
2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

### **3.3.5 Annual Reappraisal of a Cutting Authority in a Controlled Recreation Area**

1. Subject to Section 7.8, a cutting authority area within a controlled recreation area must be reappraised annually on the anniversary date of the cutting authority.
2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

### **3.3.6 Annual Reappraisal of a Cutting Authority with Stumpage Rates Determined Under Section 7.5**

1. A cutting authority area with stumpage rates determined under Section 7.5 must be reappraised effective March 1 of every year.
2. A stumpage rate determined under subsection (1) of this section will be a fixed stumpage rate until the cutting authority area is reappraised.

### **3.3.7 Annual Reappraisal of a Cutting Authority in the Great Bear Rainforest North**

1. Subject to Section 7.10, all road permits, and a cutting authority area with an effective date on or after June 15, 2016, located within the Great Bear Rainforest North must be reappraised effective March 1 of every year.
2. Stumpage rates determined under subsection (1) of this section will be fixed stumpage rates until the cutting authority area is reappraised.

### **3.3.8 Minister's Direction**

1. The Minister may direct:
  - a. a determination, redetermination or variance of a stumpage rate at any time, and that
  - b. the determined, redetermined or varied stumpage rate will be effective on any future date.

#### **3.3.8.1 Minister's Direction Procedure**

1. If requested by the person responsible for stumpage determinations, the licensee shall submit to the district manager an appraisal data submission within forty-five days of the request.
2. Thereafter, the procedure for determining, redetermining or varying a stumpage rate under Section 3.3.8 shall be the same procedure as that required by subsections 3.2 (3) through 3.2 (12) except as may otherwise be directed by the minister.





### 3.6 Correctable Errors

1. In this section, a correctable error means:
  - a. an error made by a Ministry employee in selecting or transcribing the correct log grade source, or
  - b. a stumpage adjustment calculation that has not been made by using a stumpage appraisal parameter in effect on the effective date of the stumpage adjustment.
- 1.1 The inclusion of billing data from cruise based cutting authorities in the billing history record for cutting authorities with effective dates prior to October 1, 2012, is not a correctable error for purposes of subsection 1(a).
2. Where a person believes that a correctable error has been made in a stumpage determination, that person shall give written notice of the correctable error as follows:
  - a. in the case of an appraisal or a reappraisal, the notice shall be given to the regional manager, and in the case of a quarterly adjustment, the notice shall be given to the director, and
  - b. the notice shall identify the stumpage determination, the correctable error, and the cause of the correctable error to the extent reasonably possible.
3. The regional manager or the director, upon receipt of the notice shall determine whether or not a correctable error was made.
4. Where the regional manager or the director determines that a correctable error has not been made, the person who determined the stumpage rate or director shall notify the person who gave the notice of the correctable error.
5. Where the regional manager or the director determines that a correctable error has been made, then:
  - a. the regional manager or the director will notify the person who gave the notice of the correctable error,
  - b. the regional manager or the director will take reasonable steps to ensure that all licensees who may have been affected by a similar correctable error are informed of the decision, and
  - c.
    - i. where the regional manager determines that a correctable error has been made in an appraisal or a reappraisal the cutting authority area shall be reappraised to correct the error by the person who determined the stumpage rate, using the procedure under subsections 3.2(7) to 3.2 (8), and,
    - ii. the effective date of the reappraisal shall be the first day of the month following the date on which the notice of the correctable error was



- received by the regional manager; and
- iii. the stumpage rate will be determined using the manual in effect on the effective date of the most recent appraisal or reappraisal prior to the correctable error reappraisal.
- d. i. where the director has determined that a correctable error has been made in the calculation of a quarterly stumpage adjustment, the adjustment must be correctly recalculated unless the cutting authority, the appraisal manual or the application and tender for a timber sale licence specifies that the stumpage rate is fixed, and,
- ii. the effective date of the redetermined rate shall be the first day of the month following the date on which the notice of the correctable error was received by the director.

### **3.7 Redetermination of Stumpage Rate by Agreement**

1. If within twenty-one days of the date of determination or redetermination of a stumpage rate, (the “original stumpage rate”) the licensee and an employee of the ministry authorized under Section 2.1.1 (the “employee”) agree to a redetermination consistent with the version of the manual used for the original stumpage rate, the employee may redetermine the original stumpage rate.
2. The stumpage rate redetermined under subsection (1) shall be effective on the same date as the original stumpage rate.
3. The licensee and the employee may agree to extend the twenty- one day period referred to in subsection (1).

# **4 Estimated Winning Bid**

## **4.1 Appraisal Methodology**

1. Except as provided in Section 6.1 and Chapter 7, the licensee must submit an appraisal data submission for the cutting authority area that is capable of being used to produce the highest stumpage rate for the cutting authority area.
2. Except as provided in Section 6.1 and Chapter 7, the person who determines the stumpage rate must estimate the stumpage rate for a cutting authority area in a manner that will produce the highest stumpage rate for the cutting authority area.
3. For each part of the cutting authority area, the person who determines the stumpage rate must use the procedures in this manual that must be used for the harvest method that produces the highest stumpage rate other than a method that the district manager states is unsuitable for that part of the cutting authority area.
4. Regardless of the harvest method that the holder of a cutting authority uses or intends to use on the cutting authority area or a part of the cutting authority area, or any other fact or law pertaining to the harvest method to be used, the district manager when deciding whether a harvest method is unsuitable may only consider:
  - a. the physical features and terrain stability of the cutting authority area and the areas through which access to the cutting authority area may be gained,
  - b. the physical features of the areas outside of the cutting authority area that may be affected by the harvesting in or the transportation of the timber from the cutting authority area, and
  - c. visual quality objectives.

## 4.2 Estimated Winning Bid (EWB) Variables

In this section, the estimated winning bid (EWB) equation variables are described in the order that they appear in the EWB equation (refer to Section 4.3). Note that *components* of an applicable, associated EWB variable are marked with an asterisk (\*). For example the *component* CPI is associated with the variable CPIF.

CPIF	CPI divided by 109.3.
*CPI	Monthly BC Consumer Price Index (CANSIM 326-0020, 2002 = 100) multiplied by 1.1787.
ALP	Average coniferous log selling price estimate expressed in \$/m <sup>3</sup> . This is based upon a consideration of log grades and species for the cutting authority area, and schedules of export-adjusted log market values for those cutting authorities that are collected and published by the Timber Pricing Branch.
CEDARCYPRESS	The fraction of the coniferous cruise volume that is cedar and cypress. CEDARCYPRESS is in decimal form, rounded to 2 decimal places.
SLOPE	The average side slope percentage for that part of the cutting authority area that will not be helicopter yarded.
HELI	The fraction of the total net cruise volume, including deciduous volume, of timber in a cutting authority area that must be helicopter yarded or yarded by skyline where logs are fully suspended more than 600 m in a straight line to the centre of the closest possible landing. This is calculated by dividing the total volume of timber that must be helicopter yarded or skyline yarded over 600 m by the total net cruise volume of the cutting authority area. HELI is in decimal form, rounded to 2 decimal places.
VPH	$[1 - (HS + HSSSS)] * NHSVPH + (HS + HSSSS) * 308$ VPH is expressed in m <sup>3</sup> /ha and is rounded to 2 decimal places.
*HS	The fraction of the total net cruise volume, including deciduous volume, of timber in a cutting authority area that will be harvested by a helicopter selection method (excluding helicopter single standing stem selection). HS is in decimal form, rounded to 2 decimal places.
*HSSSS	The fraction of the total net cruise volume, including deciduous volume, of timber in a cutting authority area that will be harvested by helicopter single standing stem selection (Section 4.4.4). HSSSS is in decimal form, rounded to 2 decimal places.
*NHSVPH	Non-helicopter selection volume per hectare is the cruise volume of coniferous timber per hectare for that part of the cutting authority area that will not be harvested by a helicopter selection method or





## 4.2.1 Log Selling Prices

1. The Timber Pricing Branch shall:
  - a. Compile invoiced free on board log market values using prime, domestic, arm's-length sales reported to the Timber Pricing Branch prior to sixty days before the stumpage rate adjustment date that have occurred in areas adjacent to:
    - i. the Strait of Georgia;
    - ii. the Strait of Juan de Fuca;
    - iii. Alberni Inlet east of a line drawn south from Amphitrite Point;
    - iv. Quatsino Sound;
    - v. Johnstone Strait; the Queen Charlotte Strait south of a line drawn west from Cape Caution; and
    - vi. Fraser River west of Hope.
  - b. Subject to subsections 1(c) and 2 of this section compile schedules of average domestic and average export-adjusted log market values by species and log grade using sales data for each one-month reporting period. The data shall be summarized into a three-month schedule of average domestic and average export-adjusted log market values by species and log grade for old growth timber stumpage rate determinations. A three-month schedule of average domestic and average export-adjusted log market values by species and log grade for second growth stumpage determinations shall also be produced. These schedules can be found at:  
<http://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/coast-timber-pricing/coast-appraisal-parameters>
  - c. Appraisals or reappraisals effective on or after March 1, 2016, shall use the average log market schedules referred to in subsection 1(b) that have been adjusted for export values, unless otherwise specified in Section 3.6. Appraisals or reappraisals effective prior to March 1, 2016, shall use the domestic average log market values schedules.
2. The volumes and prices of alder, birch, cottonwood and maple shall not be included in the schedules of average domestic and average export-adjusted log market values.
3. The director shall approve schedules of average domestic and average export-adjusted log market values for use in stumpage appraisals, reappraisals and quarterly adjustments.

### 4.2.1.1 Coniferous Timber

1. The volume of old growth coniferous timber and the volume of second growth coniferous timber in a cutting authority area will each be compiled from the timber cruise of the cutting authority area on a tree by tree basis.





6. Where the log grade percentages must be determined in accordance with Section 4.2.2.2(7) and where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 4-4, the two-year billing history record shall be for the two-year period ending on the corresponding date in Column 2 of Table 4-4 which immediately precedes the effective date of the appraisal or reappraisal.

**Table 4-4: Billing History Record Dates**

<b>Column 1 Date of Appraisal or Reappraisal</b>	<b>Column 2 Billing History Record Ends on the Preceding</b>
January 1 to 31	November 30
February 1 to 28/29	December 31
March 1 to 31	January 31
April 1 to 30	February 28/29
May 1 to 31	March 31
June 1 to 30	April 30
July 1 to 31	May 31
August 1 to 31	June 30
September 1 to 30	July 31
October 1 to 31	August 31
November 1 to 30	September 30
December 1 to 31	October 31

#### 4.2.2.2 Log Grade Percentage Criteria

The person who determines the stumpage rate will apply the following criteria when determining the log grade percentages to be used for the cutting authority area being appraised or reappraised:

1. The log grade percentage is the percentage by volume that a log grade is of the total net cruise volume for the species of timber being considered.
2. Except as provided in subsection (5) and (6) of this Section and Section 4.2.2.4, the log grade percentages for a species of timber are derived from the billing history record.
3. The source of log grade percentages may vary by species of timber.
4. a. Except as provided in paragraph (b) of this subsection, before a two year billing history record for a species of timber can be used in an appraisal or reappraisal, the volume of that species of timber in that two year billing history record must be at least 25 percent of the net cruise volume of that species in





- i. the same licensee that prior to the consolidation held one or more of the consolidated licensees (the "original licensee"), or
- ii. a licensee legally associated to the original licensee,

for the purposes of Section 4.2.2.3.1 or 4.2.2.3.2, the billing history record for the licence resulting from the consolidation will be the two-year history from the common pool of:

- c. all the records for the consolidated licences, and
  - d. the records for the licence resulting from the consolidation,
- for so long as condition (b) continues to exist.

#### 4.2.2.3 Source of Log Grade Percentages for Each Cutting Authority Area

1. Except for those harvest methods, cutting authorities or cutting authority areas referred to in subsection 4.2.2.2(5), 4.2.2.2(6), 4.2.2.2(7), 4.2.2.2(8), and 4.2.2.2(9) the log grade percentages for each species of timber for the cutting authority area being appraised or reappraised will be determined in accordance with:
  - a. Section 4.2.2.3.1, where the cutting authority area is entirely within the geographic boundaries of one tree farm licence, or
  - b. Section 4.2.2.3.2, where the cutting authority area is entirely within the geographic boundaries of one timber supply area.

**4.2.2.3.1 Log Grade Percentages for a Cutting Authority Area Within the Geographic Boundaries of a Tree Farm Licence**

Where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of a single tree farm licence area, the log grade percentages for the cutting authority area will be determined in the following manner:

1. a. Where at least eighty percent of the timber in the cutting authority area is second growth coniferous timber, the log grade percentages for that cutting authority area will be determined in accordance with the requirements of subsection 4.2.2.2(5).  
b. Where at least eighty percent of the timber in the cutting authority area is not comprised of second growth coniferous timber, the person determining the stumpage rate will proceed to subsection 2 of this section.
2. a. Where the cutting authority area is the only cutting authority area in the cutting authority and is entirely within the geographic boundaries of a single timber licence, the person determining the stumpage rate will proceed to subsection 3 of this section.  
b. Where subsection 2 (a) of this section is not applicable, the person determining the stumpage rate will proceed to subsection 4 of this section.
3. a. Where the species being considered has a billing history record for cutting permits issued under the timber licence under which the cutting permit that authorizes harvesting on the cutting authority area being appraised or reappraised has been issued that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.  
b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 4 of this section.
4. a. Where the species being considered has a billing history record derived from cutting permits issued under the tree farm licence or licence to cut and their associated road permits authorizing harvest in that part of the tree farm licence area that lies within the geographic boundaries of the forest district that contains the cutting authority area being appraised or reappraised and that billing history record meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.  
b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection (5) of this section.
5. a. Where the species being considered has a billing history record derived from cutting permits issued under the tree farm licence or licence to cut and their associated road permits authorizing harvest and that billing history meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the

- source of the log grade percentages for that species.
- b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection (6) of this section.
6.
    - a. Where the species being considered has a billing history record for cutting authority areas in that part of the tree farm licence area that lies within the geographic boundaries of the forest district that contains the cutting authority area being appraised or reappraised that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
    - b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection (7) of this section.
  7.
    - a. Where the species being considered has a billing history record for cutting authority areas in a tree farm licence area that contains the cutting authority area being appraised or reappraised that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
    - b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection (8) of this section.
  8.
    - a. Where the species being considered has a five-year billing history for cutting authority areas in a tree farm licence area that contains the cutting authority area being appraised or reappraised, and that record includes at least 100 m<sup>3</sup> of scale for that species then that billing history record will be the source of the log grade percentages for that species.
    - b. Where there is no such billing history record, the person determining the stumpage rate will use the log grade percentages for that species from the cruise compilation.

#### **4.2.2.3.2 Log Grade Percentages for a Cutting Authority Area Within a Timber Supply Area**

Where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of a single timber supply area, the log grade percentages for the cutting authority area will be determined in the following manner:

1.
  - a. Where at least eighty percent of the timber in the cutting authority area is second growth coniferous timber, the log grade percentages for that cutting authority area will be determined in accordance with the requirements of subsection 4.2.2.2(5).
  - b. Where at least eighty percent of the timber in the cutting authority area is not second growth coniferous timber the person determining the stumpage rate will proceed to subsection 2 of this section.



2. a. Where the cutting authority area is entirely within the geographic boundaries of one or more timber licences, the person determining the stumpage rate will proceed to subsection 3 of this section.
- b. Where the cutting authority area is not entirely within the geographic boundaries of one or more timber licences, the person determining the stumpage rate will then proceed to subsection 4 of this section.
3. a. Where the cutting authority area being appraised or reappraised is authorized for harvest under a cutting permit issued under a timber licence, and the species being considered has a billing history record for cutting permits issued under that timber licence and any other timber licence with which that licence has been amalgamated and approved by the district manager that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
- b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 6 of this section.
4. a. Except for the Pacific timber supply area (44), where the cutting authority area in a timber supply block being appraised or reappraised is authorized for harvest under a cutting permit issued under either a forest licence or licence to cut, and the species being considered has a billing history record for cutting permits issued under the licence authorizing harvest in that same timber supply block and associated road permits, and that billing history record meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
- b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 5 of this section.
5. a. Where the cutting authority area in a timber supply area being appraised or reappraised is authorized for harvest under a cutting permit issued under either a forest licence or licence to cut, and the species being considered has a billing history record for the cutting permits issued under the licence authorizing harvest in that same timber supply area and associated road permits and that billing history record meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
- b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 6 of this section.
6. a. Where the cutting authority area is within the geographic boundaries of the Pacific timber supply area (44), the person determining the stumpage rate will proceed to subsection 7 of this section.

- b. Where the cutting authority area is not within the geographic boundaries of the Pacific timber supply area (44), the person determining the stumpage rate will proceed to subsection 9 of this section.
7.
  - a. Where the cutting authority area being appraised or reappraised is authorized for harvest under a licence to cut or under a cutting permit issued under either a forest licence, timber licence or licence to cut, and the species being considered has a billing history record for all cutting authority areas that have been authorized for harvest within the district in the Pacific timber supply area (44) that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
  - b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 8 of this section.
8.
  - a. Where the cutting authority area being appraised or reappraised is authorized for harvest under a licence to cut or under a cutting permit issued under either a forest licence, timber licence or a licence to cut, and the species being considered has a five-year billing history for cutting authority areas that have been authorized for harvest within the district in the Pacific timber supply area (44), and that record includes at least 100 m<sup>3</sup> of scale for that species then that billing history record will be the source of the log grade percentages for that species.
  - b. Where there is no such billing history record, the person determining the stumpage rate will use the log grade percentages for that species from the cruise compilation.
9.
  - a. Where the cutting authority area being appraised or reappraised is authorized for harvest under a licence to cut or under a cutting permit issued under either a forest licence, timber licence or licence to cut, or a First Nations woodland licence and the species being considered has a billing history record for all cutting authority areas that have been authorized for harvest in that timber supply block that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.
  - b. Where there is no such billing history record, the person determining the stumpage rate will proceed to subsection 10 of this section.
10.
  - a. Except for the Pacific timber supply area (44), where the cutting authority area being appraised or reappraised is authorized for harvest under a licence to cut or under a cutting permit issued under either a forest licence, timber licence or licence to cut, or a First Nations woodland licence and the species being considered has a billing history record for all cutting authority areas that have been authorized for harvest in that timber supply area that meets the criteria of subsection 4.2.2.2(4), then that billing history record will be the source of the log grade percentages for that species.



#### 4.2.3.1 Stand Selling Price Calculation

1. Subject to subsection 2 of this section:

- a. a species grade value for a species of timber in a cutting authority area is the product of the percentage of that grade of that species as derived from Section 4.2.2 multiplied by the average log market value for that grade of that species of timber,
- b. a species selling price for a species of timber in a cutting authority area is the sum of all of the species grade values for that species of timber in the cutting authority area,
- c. the rounded species selling price is the species selling price for a species of timber in a cutting authority area rounded to the nearest cent,
- d. a species value is the product of the rounded species selling price multiplied by the species net cruise volume in the cutting authority area, and
- e. the stand selling price is the quotient of the sum of all of the species values in a cutting authority area divided by the total net cruise volume of all of the species in the cutting authority area.

2. For the purposes of determining a stand selling price:

- a. in the Pemberton, Yale and Nahatlatch timber supply blocks:
  - i. all spruce is deemed to be Engelmann spruce, and
  - ii. the hemlock and balsam species grade average log market values will be used to determine the species grade values for all spruce in the cutting authority area,
- b. where outside the Pemberton, Yale and Nahatlatch timber supply blocks:
  - i. Engelmann spruce is identified as the predominant spruce species in the cruise of the cutting authority area, or
  - ii. the district manager determines that Engelmann spruce is the predominant spruce species in the cutting authority area,

the hemlock and balsam species grade average log market values will be used to determine the species grade values of all spruce in the cutting authority area,

- c. where a cutting authority area is located on Cortes Island or on an Island between Vancouver Island and the British Columbia mainland west of a line drawn between Grief Point near Powell River and the Tsawwassen ferry terminal, and south of 50 degrees north latitude, the second growth Douglas-fir species grade average log market values will be used to calculate the species selling price for all Douglas-fir timber.

## 4.2.4 Haul Distance

1. Haul distance must be determined and reported on the appraisal data submission, and may contribute to the calculation of a stumpage rate as provided in Section 4.4.8.
2. The haul distance for a cutting authority area being appraised or reappraised shall be determined as follows:
  - a. For each cutblock in the cutting authority area from which any timber may be removed by road from that cutblock:
    - i. determine for that cutblock the point that is the closest point on a road to the geographical centre of the cutblock,
    - ii. determine the shortest distance by road from the point on the road determined in subparagraph (i) of this paragraph to the appraisal log dump for that cutblock, measured in kilometres (km) and rounded to the nearest 0.1 km,
    - iii. weight for that cutblock the distance determined in subparagraph (ii) of this paragraph by the net cruise volume of timber on the cutblock.
  - b. Determine the average weighted distance of all the cutblocks for which a weighted distance was determined in subparagraph (iii) of paragraph (a), rounded to the nearest 0.1 km.
  - c. Haul distance (HD) is the average weighted distance calculated in paragraph (b) of this subsection plus the rehaul distance in the case of inland water transportation as described in Section 4.4.2.
  - d. Where a rehaul is required for inland water transportation, the appraisal log dump is the final log dump at the end of the rehaul.

## 4.2.5 Marine Log Transportation

### 4.2.5.1 Point of Appraisal

1. The Point of Appraisal is Gambier Island.

### 4.2.5.2 Appraisal Log Dump

1. Except for those appraisal log dumps in Appendix VI that are listed in more than one district, for subsections 2, 3, 4 a) and 4 b) below, the appraisal log dump must be located in the same forest district as the cutting authority area.
2. Except as provided in subsection 3 of this section, where any timber may be removed from any part of a cutblock by road, the appraisal log dump for that cutblock that must be used in the appraisal or reappraisal of the cutting authority area is the closest location by road listed in Appendix VI to that cutblock.



**Table 4-5 Points of Origin Areas**

<b>Point of Origin Area</b>	<b>Code</b>
Barkley-Clayoquot	BKCL
Bute Inlet	BUTE
Chilliwack-Silverhope	CHSH
Courtenay-Comox	COCO
Dewdney	DEWD
Drury-Seymour	DRSE
Esperanza	ESPE
Gilford-Knight	GKIN
Graham Island	GRIS
Harrison	HARR
Jervis-Sechelt	JEIS
Juan de Fuca	JUDF
Kelsey-Adam	KEAD
Kokish	KOKI
Lower Mainland	LOMD
Menzies-Sayward Forest	MESF
Mid-Coast	MIDC
Moresby Island	MOIS
Nahatlatch	NAHT
Nootka Sound	NOSO
North Coast	NTHC
Pitt Meadows	PIME
Port McNeill-Hardy	POMH
Quatsino Sound	QUSO
Sloquet	SLOQ
Southeast Vancouver Island	SOVI
Sproat Lake	SPLK
Squamish-Pemberton	SQPM
Sunshine Coast	SUCO
Thurlow	THUR

### 4.3 Estimated Winning Bid (EWB) Equation

1. The equation used in the calculation of the estimated winning bid (EWB) is:

$$\begin{aligned} \text{EWB (\$/m}^3\text{)} = & \text{CPIF} * [ -34.72 \\ & + 0.8349 (\text{ALP/CPIF}) \\ & + 14.90 (\text{CEDARCYPRESS}) \\ & - 0.3340 (\text{SLOPE(1-HELI)}) \\ & - 38.67 (\text{HELI}) \\ & + 17.23 (\text{VPH/1000}) \\ & - 0.07456 (\text{LOCATION}) \\ & + 15.77 (\text{DFIR2G}) \\ & - 8.241 (\text{GAMBDIST400}) \\ & + 5.955 (\text{CRUISE}) \\ & - 7.493 (\text{ISOLATED}) \\ & - 3.866 (\text{LUMPSUM}) \\ & + 1.309 (\text{Ln(VOL/1000)}) \\ & + 0.8308 (\text{DISTAVGNBID}) ] \end{aligned}$$

2. The EWB shall be rounded to 2 decimal places.
3. Where the calculated EWB is less than \$0.25, the EWB shall be \$0.25.

Note: Ln = natural logarithm



## 4.4 Specified Operations

1. The specified operations in sections 4.4.1 to 4.4.9 may be considered in an appraisal or a reappraisal.

### 4.4.1 Skyline

1. A skyline adjustment expressed in  $\$/\text{m}^3$  may be calculated for those areas within a cutblock that:
  - a. are 600 metres or greater measured in a straight line horizontal distance from the centre of the closest possible landing or place where a landing may be located, and
  - b. are yarded by skyline.
2. The skyline adjustment may be calculated by adding the volume of timber to which the skyline may apply to the volume of timber to be helicopter yarded as prescribed in Section 4.2.

### 4.4.2 Inland Water Transportation

1. An inland water transportation adjustment will be determined for that part of the cutting authority area where timber must be towed on Great Central, Owikeno or Powell Lake or any other inland water authorized by the person that determines the stumpage rate in order for the timber to be transported to the point of appraisal.
2. The adjustment shall be \$5.62 per cubic metre.

### 4.4.3 Clayoquot Sound Operating Costs

1. For the purposes of this section the Clayoquot Sound area is:

That part of the Hesquiat Peninsula, Esowista Peninsula, and the islands, sea and all lands and waters draining into the Pacific Ocean from the height of land between Escalante Point and Quisitis Point.
2. An adjustment of  $\$6.95/\text{m}^3$  will be included in an appraisal or a reappraisal of a cutting authority area that is located entirely within the Clayoquot Sound area.

#### 4.4.4 Helicopter Single Standing Stem Selection

1. In this manual helicopter single standing stem selection means the harvesting of standing single trees that have been marked, limbed, undercut and wedged and then broken from the stump and removed using a helicopter.
2. This adjustment may only be included in the appraisal or reappraisal of a cutting authority area if:
  - a. helicopter single standing stem selection is the only harvest method that has been permitted by the district manager to harvest timber in the cutting authority area, and
  - b. helicopter single standing stem selection is also, the only harvest method used to harvest all of the timber in the cutting authority area.
3. The adjustment for helicopter single standing stem selection includes the cost of marking, climbing, limbing, undercutting, wedging, breaking and removal of the tree by helicopter.
4. The adjustment for helicopter single standing stem selection is \$37.78/m<sup>3</sup>.

#### 4.4.5 Destumping for Root Disease Control

1. Destumping is the activity of:
  - a. lifting and rolling of stumps out of the ground to lessen soil disturbance and root breakage,
  - b. destumping may also include the shaking of stumps to remove soil, and
  - c. raking the area immediately around the hole to remove any large root pieces.
2. A destumping adjustment will be determined for that part of the cutting authority area where destumping for root disease control is required. The treatment area must be accurately delineated and shown on the appraisal map and be included in the site plan.
3. The adjustment shall be \$1,114.00 per hectare of area that will be destumped.

#### 4.4.6 Tree Crown Modification

1. Where the protection of trees is deemed necessary by a forest professional to achieve forest management objectives, a tree crown modification adjustment may be considered in the appraisal or reappraisal.
2. For the purposes of subsection (1), tree crown modification means the removal of 25% to 50% of the tree crown of standing trees by spiral pruning or tree topping.
3. The adjustment is the sum of the costs for all of the trees that are modified divided by the total net cruise volume of the cutting authority area.

4. The area requiring tree crown modification must be shown or described on the appraisal map and the calculations in support of the appraisal submission must be available for inspection upon request by the district manager.
5. The gross number of potential stems per hectare to treat will be based on the cruise stand table for the timber type that the treatment area is located within or is adjacent to. The potential stems exclude dead and deciduous trees.
6. The rate for tree crown modification:
  - a. for each old growth coniferous tree that is modified is \$35.39, and
  - b. for each second growth coniferous tree that is modified is \$16.86.

#### 4.4.7 Ecosystem Based Management Operating Costs

1. Except as provided in subsection (2) of this section, the ecosystem based management adjustment may be considered in the appraisal of a cutting authority area that lies wholly within that part of the Coast Area when the licensee has an approved forest stewardship plan which conforms with the objectives listed under the Land Use Order to which land use objectives have been made applicable by orders made by the Minister of Natural Resource Operations pursuant to Section 93.4 of the *Land Act* entitled:
  - a. South Central Coast Order, dated July 27, 2007,
  - b. Central and North Coast Order, dated December 19, 2007, and
  - c. Haida Gwaii Land Use Objectives Order, dated December 16, 2010.
2. The ecosystem based management adjustment shall not be considered in the appraisal or reappraisal of a cutting authority area that is authorized for harvest under:
  - a. a woodlot licence referred to in Section 1(3) of the South Central or Central and North Coast orders,
  - b. a community forest agreement referred to in Section 1(4) of the South Central or Central and North Coast orders, or
  - c. the tree farm licence or non-replaceable forest licences that are referred to in Section 1(4) of the South Central Coast Order.
3. The adjustment shall be \$3.72 per cubic metre.

#### 4.4.8 Long Haul Cost

Where the haul distance (HD) determined under Section 4.2.4 is greater than 100 km, the long haul cost specified operations estimate (LHC) is calculated as follows:

$$\text{LHC } (\$/\text{m}^3) = (\text{HD} - 100) * 0.135$$

$$\text{If } \text{HD} \leq 100, \text{ LHC} = 0$$



## 4.5 Final Estimated Winning Bid

1. Subject to subsection 3 of this section the Final Estimated Winning Bid (FEWB) is the difference between the estimated winning bid and the total of the specified operations adjustments that are applicable to the appraisal or reappraisal of the cutting authority.

2. Expressed as an equation:

$$\text{FEWB} = \text{EWB} - \text{SOA}$$

Where:

EWB = The Estimated Winning Bid determined under Section 4.3.

SOA = The sum of specified operations adjustments in an appraisal or a reappraisal of a cutting authority area as may be calculated under sections 4.4.1 through 4.4.9 and expressed in \$/m<sup>3</sup>.

3. Where the FEWB calculated is less than \$0.25/m<sup>3</sup>, then the FEWB shall be \$0.25/m<sup>3</sup>.

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- vi. switchbacks with over 10 000 m<sup>3</sup> excavation volume to complete the designed grade percent and horizontal alignment,
  - vii. bank height road sections with rock faces exceeding 7.50 metres in vertical height, and
  - viii. projects approved by the regional manager.
- b. the non-tabular road unit cost is the sum of the non-tabular road unit cost estimates.
5. Bridge Cost Estimates
- a. except where a bridge cost estimate cannot be calculated using Table 5-2 or 5-3 each bridge cost estimate must be determined using the appropriate table.
  - b. where the bridge cost estimate cannot be made using one of the appropriate tables, a non-tabular bridge cost estimate may be calculated under Section 5.3.4.
  - c. where bridge materials are reused by the original purchaser at a different site, the bridge cost estimate may include the cost of dismantling the materials at the site where they were previously used, and transportation to and installation at the different site, but may not include the initial materials cost and delivery costs.
  - d. where used bridge materials are purchased by the licensee from a legally non-associated party, only the lowest possible cost of purchasing and shipping those materials may be included in the bridge cost estimate.
  - e. the bridge unit cost is the sum of the bridge unit cost estimates for all of the bridges.
6. Culvert Cost Estimates
- a. except where a culvert cost estimate cannot be calculated using Table 5-4, each culvert cost estimate must be determined using that table.
  - b. where the culvert cost estimate cannot be made using Table 5-4 the non-tabular culvert cost estimate may be calculated under Section 5.3.4.
  - c. the culvert unit cost is the sum of the culvert unit cost estimates for all of the culverts.
7. The total of the unit costs for tabular roads, non-tabular roads, bridges and culverts is the total new road construction unit cost.













**5.3.3.2.1 Log Bridges**

1. Cost estimates for log bridges are based on span lengths (distance between the centres of the top sill logs) and average crib height (distance from the bottom of the bottom sill log to the point where the stringer rests on the top sill log as measured along the centre line of the bridge) from Table 5-2. The average crib height is the numerical average of the crib heights on both banks of the water course.
2. Table 5-2 is used for estimating costs of all timber-decked and gravel surfaced log bridges with span lengths from 3.5 to 20.4 m and crib heights from single log to 5.4m.

**Table 5-2: Log Bridge Cost Estimates Expressed in Thousands of Dollars**

Span Length (m)	Multi-Log Crib Average Crib Height (m)				
	Single Log Sill 1	2	3	4	5
4	2.7	4.4	7.2	11.2	16.4
5	3.6	5.3	8.2	12.2	17.3
6	4.8	6.5	9.3	13.3	18.5
7	6.1	7.8	10.7	14.7	19.9
8	7.7	9.4	12.3	16.3	21.4
9	9.5	11.2	14.1	18.1	23.2
10	11.5	13.2	16.0	20.0	25.2
11	13.7	15.4	18.2	22.3	27.4
12	16.1	17.8	20.7	24.7	29.8
13	18.7	20.4	23.3	27.3	32.4
14	21.5	23.2	26.1	30.1	35.3
15	24.6	26.3	29.1	33.2	38.3
16	27.8	29.5	32.4	36.4	41.6
17	31.3	33.0	35.9	39.9	45.0
18	34.9	36.7	39.5	43.5	48.7
19	38.8	40.5	43.4	47.4	52.6
20	42.9	44.6	47.5	51.5	56.6

**5.3.3.2.2 Permanent or Portable Bridges**

1. Cost estimates for permanent or portable bridges, built of any material except logs, are based on total span length and average abutment height (distance from the ground surface interface to the bottom contact point with the girders) from Table 5-3. Each bridge abutment must be measured at the mid-point, from the ground surface interface to the bottom contact point with the girders. Each measured abutment height is then added together and averaged to get a resultant abutment height.
2. Table 5-3 is used for estimating costs of permanent or portable bridges with span lengths from 2.0 to 30.4 m and abutment heights from 0 to 6.4 m.

3. Table 5-3 includes costs for supervision, design, site preparation, supply and installation, freight and haulage (excluding barging), and rip-rap to flood design. Barging costs are allowed as an add-on to the tabular cost estimate. If the barging of bridge materials is done in conjunction with other equipment/materials, then the cost of barging the bridge material should be prorated by the licensee. This table covers any bridge with L60 to L165 load rating.
4. Table 5-3 does not apply to:
  - a. multi-span bridges: A construction estimate form must be completed.
  - b. pile driving: Where piles may be driven to depths of 13 m or more, a construction estimate form must be completed for the bridge construction.
  - c. portable bridges that are reused (see Section 5.3.1).
  - d. cost estimates for bridge sizes outside the table limits and pipe culverts greater than the aforementioned sizes require non-tabular cost estimates completed in accordance with Section 5.3.4.
  - e. extra width bridges with one or more additional stringers and/or deck panels installed (i.e., exceeding 4.9 metres in total width between guardrails measured at mid-span).

**Table 5-3: Permanent/Portable Bridge Cost Estimates Expressed in Thousands of Dollars**

Span Length (meters)	Abutment Height (meters)						
	0	1	2	3	4	5	6
2	9.5	15.1	31.7	59.5	98.4	148.4	209.5
3	10.7	16.2	32.9	60.6	99.5	149.5	210.6
4	12.2	17.8	34.5	62.2	101.1	151.1	212.2
5	14.3	19.8	36.5	64.3	103.1	153.1	214.2
6	16.7	22.3	39.0	66.7	105.6	155.6	216.7
7	19.7	25.2	41.9	69.7	108.6	158.6	219.7
8	23.1	28.6	45.3	73.1	111.9	161.9	223.0
9	26.9	32.5	49.1	76.9	115.8	165.8	226.9
10	31.2	36.7	53.4	81.2	120.1	170.1	231.2
11	35.9	41.5	58.1	85.9	124.8	174.8	235.9
12	41.1	46.7	63.3	91.1	130.0	180.0	241.1
13	46.7	52.3	69.0	96.7	135.6	185.6	246.7
14	52.8	58.4	75.1	102.8	141.7	191.7	252.8
15	59.4	64.9	81.6	109.4	148.3	198.3	259.4
16	66.4	71.9	88.6	116.4	155.3	205.3	266.4
17	73.8	79.4	96.0	123.8	162.7	212.7	273.8
18	81.7	87.3	103.9	131.7	170.6	220.6	281.7
19	90.1	95.6	112.3	140.1	178.9	228.9	290.1
20	98.9	104.4	121.1	148.9	187.7	237.7	298.8
21	108.1	113.7	130.3	158.1	197.0	247.0	308.1
22	117.8	123.4	140.0	167.8	206.7	256.7	317.8
23	128.0	133.5	150.2	178.0	216.9	266.8	328.0
24	138.6	144.1	160.8	188.6	227.5	277.5	338.6
25	149.6	155.2	171.8	199.6	238.5	288.5	349.6
26	161.1	166.7	183.4	211.1	250.0	300.0	361.1
27	173.1	178.6	195.3	223.1	262.0	312.0	373.1
28	185.5	191.1	207.7	235.5	274.4	324.4	385.5
29	198.4	203.9	220.6	248.4	287.2	337.2	398.3
30	211.7	217.2	233.9	261.7	300.6	350.6	411.7

**5.3.3.2.3 Culverts**

1. All pipe culverts 0.3 m diameter to 1.8 m diameter are estimated using Table 5-4.
2. All wood culverts up to 3.4 m span length are estimated at \$1000.00 each.

**Table 5-4 Culvert Cost Estimate**

Diameter (m)	Cost per lineal metre	Diameter (m)	Cost per lineal metre
0.3	\$44.00	0.9	\$132.00
0.4	\$63.00	1.0	\$150.00
0.5	\$81.00	1.2	\$238.00
0.6	\$91.00	1.4	\$440.00
0.7	\$98.00	1.6	\$548.00
0.8	\$113.00	1.8	\$650.00

### 5.3.4 Non-tabular Cost Estimates

1. The cost for any of the non-tabular projects identified in Section 5.3.1.1(4)(a) will be estimated by preparing a non-tabular cost estimate. The regional manager may approve a standardized methodology to estimate the cost for the following projects:
  - a. end hauling,
  - b. road reconstruction and replacement,
  - c. stabilizing material, including:
    - i. capping,
    - ii. surfacing,
    - iii. material hauls (greater than 3.2 km),
    - iv. bridge approaches,
    - v. fords,
    - vi. culverts,
    - vii. keyed-in fills,
  - d. overlanding, including:
    - i. trucked in fills,
    - ii. large fills,



#### 5.3.4.1 Data Requirements

1. A project requiring a non-tabular cost estimate must be designed so as to require only the amount of materials and labour that are necessary to build a safe and functional structure.
2. The data that may be required by the district manager for non-tabular “excavation and fill” cost estimates are:
  - a. plans, profiles, cross-sections showing the ground and design grade lines,
  - b. volume summary sheets giving quantities by various soil types,
  - c. time and materials, equipment and labour, repairs, drainage structures and surfacing where required, and
  - d. a cost estimate for the project.
3. The data that may be required by the district manager for non-tabular reconstruction cost estimates are:
  - a. a map showing details of the project including stations, drainages, and other information important to the project,
  - b. time and materials, equipment and labour, estimate for excavation, repairs, drainage structures, re-ditching, and resurfacing where required, and
  - c. a cost estimate for the project.
4. The data that may be required by the district manager for non-tabular bridge and culvert construction cost estimates are:
  - a. for permanent structures of 30.4 m span or greater: plans, specifications and design for the proposed structure, detailed materials cost estimate, equipment and labour, amount of timber accessed by the structure, and usage in years for harvesting all the timber,
  - b. for permanent structures of 20.4 m span or less: an economic comparison between a log structure and the permanent structure, and
  - c. for pipe culverts greater than 1.8 m in diameter: the same information as required for permanent structures of 30.4 span or greater.





## 5.5 Road Use Charges

1. A road use charge may be used in the calculation of a tenure obligation adjustment, if:
  - a. the road to which the road use charge applies is required to transport logs from the cutting authority area to the appraisal log dump,
  - b. the road use charge is not referred to in subsection 2(a), or 2(b) or 2(c) of this section,
  - c. the licensee submits to the district manager with the appraisal data submission:
    - i. a completed Request for Approval of a Road Use Charge Form,
    - ii. a map showing the location of the road and a copy of the written road use agreement, and
    - iii. written confirmation by the regional manager that the road use charge specified in the application, or an amount specified by the regional manager is approved, and
  - d. the term of the road use agreement is completely within the period for which the appraisal or reappraisal shall apply, and
  - e. the licensee promises in writing to submit a copy of every auditable monetary transaction evidencing payment by the licensee for road use when that is requested by the regional manager.
2. A road use charge may not be used in the calculation of a tenure obligation adjustment, if it is:
  - a. a share of road maintenance charge,
  - b. a charge with respect to a road that is declared, determined, built, maintained or modified by the provincial government,
  - c. a charge with respect to a road on Crown land.
  - d. a charge for a road on an Indian reserve or on private land owned by a third party at arm's length from the licensee and not subject to a lease held by the licensee, its affiliate or agent of either the licensee or the third party, unless
    - i. there is no route capable of being used to build a road at a lower cost through Crown land, and

- ii. the charge is:
  - aa. reasonable,
  - bb. does not exceed compensation that could be determined under the forestry legislation, and
  - cc. is established to the satisfaction of the district manager by the licensee by way of auditable documents.

### **5.5.1 Land Use Charge**

A land use charge may not be considered in an appraisal or a reappraisal.

## 5.6 Basic Silviculture Cost

1. Except where basic silviculture performed or to be performed on a cutting authority area is or will be funded by the Crown or an agent of the Crown a basic silviculture cost may be used in the calculation of a tenure obligation adjustment where the licensee is required to perform basic silviculture on the cutting authority area being appraised or reappraised.
2. The basic silviculture cost depends on the geographic location of the cutting authority area being appraised or reappraised as described in Table 5-5.

**Table 5-5: Basic Silviculture Cost**

Where the cutting authority area is located in:	The basic silviculture cost expressed in \$/m <sup>3</sup> is:
Campbell River Forest District	3.04
Chilliwack Forest District	5.77
Coast Mountain (North Coast) Forest District	6.83
Haida Gwaii Forest District	5.09
North Island - Central Coast Forest District	2.83
Sea to Sky (Squamish) Forest District	6.31
South Island Forest District	3.64
Sunshine Coast Forest District	4.31



## 5.8 Market Logger Cost

### 5.8.1 Market Logger Cost

1. The market logger cost (MLC) is used in the calculation of the tenure obligation adjustment in an appraisal or reappraisal of a cutting authority area. MLC is expressed in \$/m<sup>3</sup>.
2. Where the volume of second growth coniferous timber in a cutting authority area is less than eighty percent of the volume of all of the coniferous timber in that cutting authority area, the MLC is calculated as follow:

$$\text{MLC} = \frac{8.27 (1 - \text{HW}) - \text{BCTS}}{1 - \text{LG}} + \text{CTSSO}$$

3. Where the volume of second growth coniferous timber in a cutting authority area is at least eighty percent of the volume of all of the coniferous timber in that cutting authority area, the MLC is calculated as follows:

$$\text{MLC} = \frac{6.76 (1 - \text{HW}) - \text{BCTS}}{1 - \text{LG}} + \text{CTSSO}$$

4. For the purpose of subsection 5.8.1(2) and 5.8.1(3):

HW = Is the fraction of the cutting authority area's volume harvested by helicopter to a water drop

LG = Low grade number calculated under Section 5.7

BCTS = BCTS cost from Section 5.8.2

CTSSO = Competitive timber sales specified operation cost from Section 5.8.3

### 5.8.2 BC Timber Sales Infrastructure and Services

The cost of infrastructure and services provided by BC Timber Sales for competitive timber sale licences (minus specified operations in the MPS data set) is \$0.13/m<sup>3</sup>.

### 5.8.3 Competitive Timber Sales Specified Operations Adjustment

The cost of the competitive timber sales specified operation (CTSSO) already included in the competitive timber sale licences that are in the MPS dataset is \$0.25/m<sup>3</sup>.



## 5.10 Tenure Obligation Adjustment

1. The tenure obligation adjustment is used to calculate the stumpage rate for a cutting authority other than a timber sale licence entered into under Section 20 of the *Act*.
2. The tenure obligation adjustment (TOA) is calculated as follows:

$$\text{TOA} = \frac{\text{FPA} + \text{LVC} + \text{RD} + \text{RM} + \text{RU} + \text{BS}}{1 - \text{LG}} * \text{RFM} - \text{MLC}$$

Where:

FPA	= forest planning and administration cost
LVC	= low volume cost
RD	= total road development cost
RM	= road management cost
RU	= road use charges cost
BS	= basic silviculture cost
LG	= low grade number
RFM	= return to forest management
MLC	= market logger cost



## **6 Stumpage Rate Determination**

## **6.1 Stumpage Rate Calculation for a Cutting Authority Entered into Under Section 20 of the Act**

Sections 6.1.1 through 6.1.4 are the policies and procedures for calculating a stumpage rate for a cutting authority that is entered into under Section 20 of the *Act*.

### **6.1.1 Indicated Upset Stumpage (IUSR)**

1. Except as provided by subsections (2), (3), and (4) of this section, the indicated upset stumpage rate for a timber sale licence shall be the greater of:
  - a. seventy percent of the final estimated winning bid (FEWB) for that timber sale licence calculated according to Section 4.5,
  - b. the variable cost to prepare the timber sale (VCU), or
  - c. an IUSR requested by the timber sales manager.
2. Where applications for a timber sale licence with an IUSR determined under Section 6.1.1(1) have been invited but no applications have been received, the IUSR determined by the person authorized to determine the stumpage rate for the re-advertised timber sale licence shall not be less than the VCU when that IUSR is requested by the timber sales manager.
3. Where the executive director, BCTS, does not anticipate that applications for a timber sale licence with an IUSR determined under Section 6.1.1(1) will be received due to market conditions or timber profile, the IUSR shall be equal to the IUSR approved by the executive director, BCTS.
4.
  - a. The IUSR for decked timber that is administered by BCTS shall be the IUSR requested by the timber sales manager.
  - b. If the timber sales manager intends to sell the decked timber competitively requiring a bonus offer, the indicated upset stumpage is the IUSR from (a) of this subsection multiplied by the volume determined by an authorized licenced scaler using a method approved by the minister.
5. Where the invitation to tender for timber authorized for harvest under a timber sale licence requires a bonus offer and the amount of stumpage payable will be based on a cruise of the timber as authorized under Section 106 of the *Act*, the indicated upset stumpage shall be the total net cruise volume of the timber sale licence multiplied by the IUSR derived under subsection 1 of this section.
6. The variable cost to prepare the timber for sale (VCU) shall be calculated by the timber sales manager.

### **6.1.2 Prescribed Minimum Stumpage Rate**

The minimum stumpage rate is prescribed by the minimum stumpage rate regulation (BC Regulation 354/87). The current minimum stumpage rate is \$0.25 per cubic metre.

### **6.1.3 Upset Stumpage Rate**

The upset stumpage rate for a timber sale licence is the greater of:

1. the indicated upset stumpage rate, or
2. the prescribed minimum stumpage rate.

### **6.1.4 Stumpage Rate**

1. The stumpage rate is the total of the upset stumpage rate plus the bonus bid that must be paid by the licensee.
2. Where the upset stumpage rate is determined under Section 6.1.1(5) the stumpage rate applies to the timber species and volumes specified by the executive director, BCTS.

## **6.2 Stumpage Rate Calculation for a Cutting Authority Other than a Cutting Authority Entered into Under Section 20 of the Act or a Cutting Authority for which a Stumpage Rate is Determined Under Chapter 7**

Sections 6.2.1 through 6.2.5 are the policies and procedures for determining a stumpage rate for a cutting authority other than timber sale licence entered into under Section 20 of the Act or a cutting authority for which a stumpage rate is determined under Chapter 7.

### **6.2.1 Indicated Rate (IR)**

1. The IR is the difference between the final estimated winning bid (FEWB) determined for the cutting authority under Section 4.5 and the tenure obligation adjustment (TOA) determined under Section 5.10.
2. Expressed as an equation:

$$\text{IR} = \text{FEWB} - \text{TOA}$$

### **6.2.2 Prescribed Minimum Stumpage Rate**

The minimum stumpage rate is prescribed by the Minimum Stumpage Rate Regulation (BC Regulation 354/87). The current minimum stumpage rate is \$0.25 per cubic metre.

### **6.2.3 Reserve Stumpage Rate**

The reserve stumpage rate for a cutting authority is determined by selecting the greater of:

1. the indicated rate, or
2. the prescribed minimum stumpage rate.

### **6.2.4 Upset Stumpage Rate**

The upset stumpage rate is the total of the reserve stumpage rate plus any administration and silviculture levies which may be charged under Section 7.4.1.

### **6.2.5 Total Stumpage Rate**

The total stumpage rate is the upset stumpage rate plus the bonus bid, if any, that must be paid by the licensee.

# **7 Miscellaneous Timber Pricing Policies**

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## **7.1 Average Stumpage Rates by District and Species**

1. Timber Pricing Branch shall produce a schedule of average sawlog stumpage rates for each species of timber in each forest district of the Coast Area, and for the Great Bear Rainforest **North**. Those rates are effective on the date they are approved by the director.

## 7.2 Community Forest Agreements and Woodlot Licences

1. a. Except as provided for under Section 7.2.1, the sawlog stumpage rate (\$/m<sup>3</sup>) for each species of coniferous timber and zone harvested under a cutting authority issued under a community forest agreement or woodlot licence and their associated road permits will be:

Species	Zone	
	Northern Coast	Southern Coast
Balsam	\$1.96	\$0.85
Hemlock	\$1.38	\$1.14
Cedar	\$2.64	\$3.82
Cypress	\$2.51	\$1.23
Fir	\$4.72	\$1.87
Spruce	\$0.57	\$1.85
Other	\$2.11	\$1.80

- b. The Northern Coast Zone is the Haida Gwaii Forest District, Coast Mountain (North Coast) Forest District and that part of the North Island-Central Coast Forest District within TFL 25 and all Crown land within the Mid-Coast Timber Supply Area boundaries as designated or prior designated, as applicable, by the Minister under the Act.
- c. The Southern Coast Zone is the Coast Area except the Northern Coast Zone as defined in 1(b).
- d. The stumpage rate determined under paragraph (a) of this subsection shall be redetermined on March 1st of each year in accordance with this subsection.
2. The sawlog stumpage rate for each species of coniferous timber harvested under a salvage permit issued under a woodlot licence is the rate prescribed in the table in Section 7.2(1)(a) for the zone in which the salvage permit applies.
3. Section 7.3, 7.4, 7.4.1, 7.5 and 7.6 do not apply to community forest agreements, woodlot licences and associated road permits.

### **7.2.1 Woodlot Licences with Cutting Authorities under MPS**

1. Where a cutting authority has been issued under a woodlot licence with an effective date after November 30, 2008, with an extended road amortization agreement that has been entered into under Section 5.3.2.1, the stumpage rate will be calculated using the market pricing system.
2. The sawlog stumpage rate for a road permit is calculated using the procedures in Section 7.3 until a cutting permit has been issued with tabular rates as specified under Section 7.2(1)(a). Stumpage rates for road permits will also change to tabular rates on that date.



### 7.3 Road Permits

1. Except as provided in subsection (2) of this section, and subject to section 7.10 the stumpage rate for a road permit will be determined using Ministry stumpage billing history records.
  2. The stumpage rate for a road permit issued in conjunction with a timber sale licence entered into under Section 20 of the *Act* will be the stumpage rate applicable to the cutting authority that authorizes harvesting in the cutting authority area to which the road permit provides access.
  3. For the purposes of this section a stumpage billing history record of timber harvested under a timber licence where the timber licence area is within a tree farm licence area, will be included with and be considered the stumpage billing history record of timber harvested under the tree farm licence.
  4. a. Where the Ministry has a stumpage billing history record of 500 cubic metres or greater of timber harvested under:
    - i. a licence within the same district as the area to which the road permit applies, the stumpage rate for a road permit is the weighted average sawlog stumpage rate of cutting authorities other than a road permit, for cutting authority areas that are located in the same forest district as the area to which the road permit applies, and that are issued under the licence that entitles the licensee to apply for the road permit, or
    - ii. if licensee uses a single road permit for multiple licences within the same district as the area to which the road permit applies, the stumpage rate for the road permit is the weighted average sawlog stumpage rate of all cutting authorities other than the road permit, for all cutting authority areas that are located in the same forest district as the area to which the road permit applies, and that are issued under the licence(s) that entitle the licensee to harvest, including the licence that entitles the licensee to apply for the road permit.
  - b. The weighted average stumpage rate is the sum of the stumpage billed for all coniferous sawlogs during the billing period referred to in paragraph (c) of this subsection, divided by the sum of the volume of those species and grades.
  - c. The billing period referred to in paragraph (b) of this subsection for a road permit appraisal or reappraisal, will be updated annually effective February 1st and will be the twelve month period ending November 30<sup>th</sup>.
5. Where there is less than 500 cubic metres in the stumpage billing history records from which the stumpage rate may be determined under subsection (4), and the licence that the cutting authority is issued under does not provide for an allowable annual cut or has an allowable annual cut of Crown timber equal to or greater than 7 000 m<sup>3</sup>, the stumpage rate for a road permit is the weighted average sawlog stumpage rate of:

- a. all cutting authorities other than road permits, that are issued under the licence to which the road permit applies that entitles the licensee to apply for the road permit.
  - b. where there is less than 500 cubic metres in the stumpage billing history record from which the stumpage rate may be determined under paragraph (a) of this subsection, the person determining the stumpage rate will proceed to subsection (c) of this section.
  - c. all the cutting authorities that do not provide for an allowable annual cut or have an allowable annual cut of Crown timber equal to or greater than 7 000 m<sup>3</sup>, other than road permits and timber sale licences entered into under Section 20 of the *Act*, that are for areas located in the same forest district as the area to which the road permit applies.
6. Where there is less than 500 cubic metres in the stumpage billing history records from which the stumpage rate may be determined under subsection (4), and the licence that the cutting authority is issued under has an allowable annual cut of Crown timber less than 7 000 m<sup>3</sup> per year, the stumpage rate for a road permit is the weighted average sawlog stumpage rate of:
- a. All cutting authorities other than road permits and timber sale licences entered into under Section 20 of the *Act*, that are for licences that have an allowable annual cut of less than 7 000 m<sup>3</sup> in the same forest district as the area to which the road permit applies.
  - b. Where there is less than 500 cubic metres in the stumpage billing history record from which the stumpage rate may be determined under paragraph (a) of this subsection, the person determining the stumpage rate will proceed to subsection (c) of this section.
  - c. All cutting authorities other than road permits and timber sale licences entered into under Section 20 of the *Act*, that are for licences that have an allowable annual cut of less than 7 000 m<sup>3</sup> in the same timber supply area as the area to which the road permit applies.
  - d. Where there is less than 500 cubic metres in the stumpage billing history record from which the stumpage rate may be determined under paragraph (c) of this subsection, the person determining the stumpage rate will proceed to subsection (e) of this section.
  - e. All cutting authorities other than road permits and timber sale licences entered into under Section 20 of the *Act*, in the same forest district as the area to which the road permit applies.
7. The cost of a road constructed under a road permit may be eligible for inclusion as a tenure obligation adjustment under Chapter 5 in the appraisal of a tributary cutting authority.
8. All road permits will be reappraised in accordance with Section 3.3.2.

## 7.4 Salvage Logging Stumpage Rates

1. The source of salvaged timber is:
  - a. Post-Harvest Material:
    - i. wooden culverts and bridges, and
    - ii. post-logging residue, and
  - b. Damaged Timber:
    - i. blowdown green and aged timber, and
    - ii. fire, disease, insect or physically damaged timber.
2. The qualifying criteria and methodology for calculating salvage logging stumpage rates for round logs is specified below:
  - a. post-harvest material must not be combined in the same cutting authority area with timber damaged through natural events.
  - b. except where damage to adjacent or contiguous timber occurs after harvesting is completed on the adjacent primary logging cutting permit area and the harvesting equipment has been demobilized from the area, damaged timber salvage cutting authority areas must be scattered, and not adjacent or contiguous to an existing cutting authority area.
  - c. the total cutting authority area for damaged salvage harvesting may vary in size but individual clearcut openings within the cutting authority area shall not exceed three hectares.
  - d. only damaged trees and hazard trees as approved by the Ministry may be removed on a damaged timber salvage cutting permit.
  - e. post-harvest salvage may only occur after primary logging has been satisfactorily completed and residue and waste assessments have been submitted to and accepted by the Ministry.
  - f. salvage cannot occur on a road right-of-way which has an active timber mark associated with it.
  - g. the stumpage rate will be fixed for a period not exceeding one year.
3. Where the source of the salvaged timber is damaged timber, the stumpage rate for each species of the salvaged timber in a forest district will be determined using the schedule of average sawlog stumpage rates for damaged timber approved by the director.



## **7.5 Cutting Authority Area With Less than 2 500 m<sup>3</sup> of Timber Volume**

1. Where a cutting authority area has less than 2 500 m<sup>3</sup> of timber the stumpage rate may, at the discretion of the regional appraisal coordinator, be determined by using the stumpage rates approved by the director under Section 7.1 for each of those species in the forest district in which the cutting authority area is located.
2. The stumpage rate determined under this section shall be redetermined in accordance with Section 3.3.6.

















# **Appendices**

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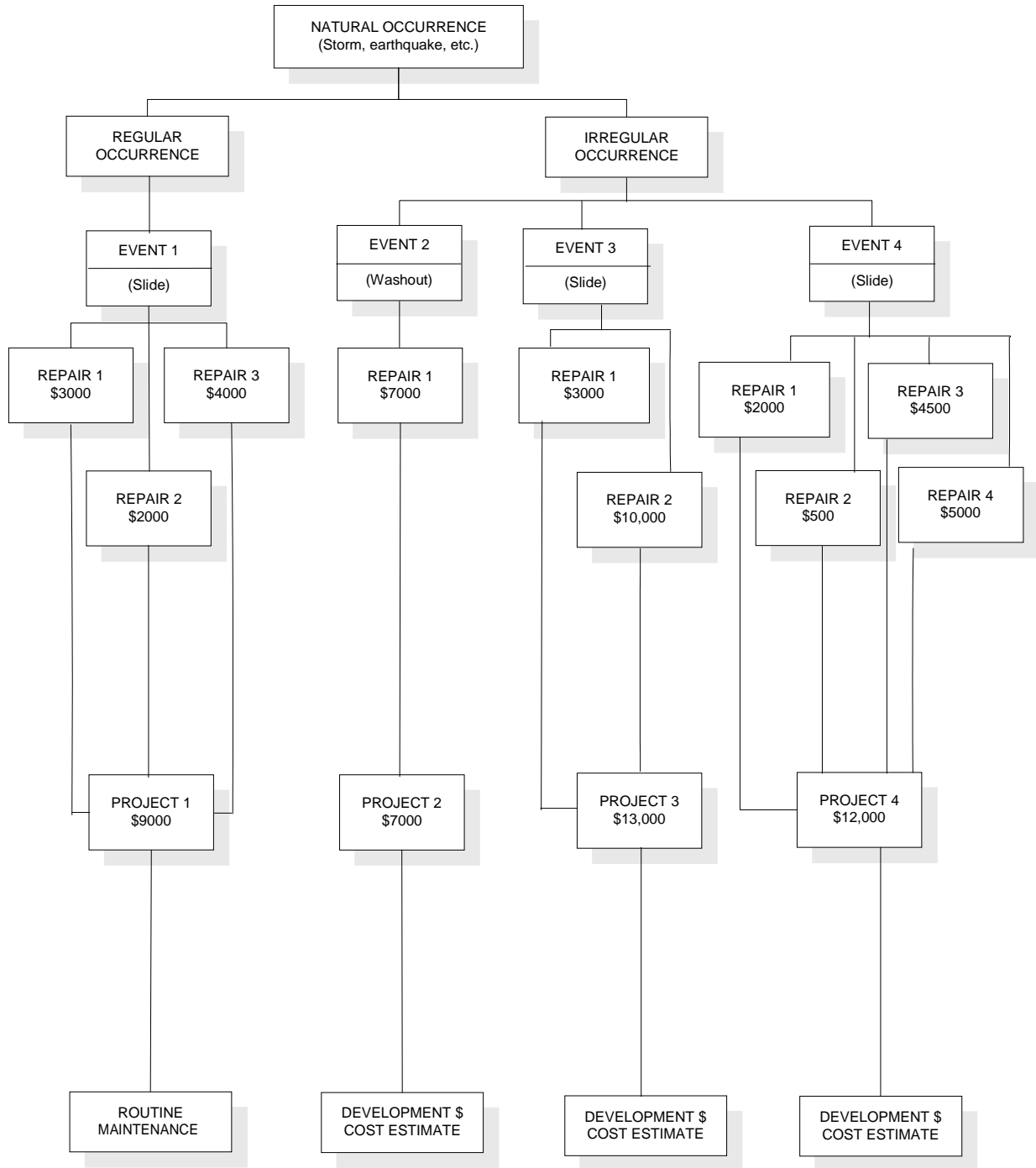








### Appendix II Reconstruction and Replacement





## Appendix IV Rock Mass Classification

Surface Hardness	Weathering on Surface				
	W1	W2	W3	W4	W5
H2	R2	R2	R2, R3	R3, R4	R4, R5
H3	R3	R3	R3, R4	R4, R5	
H4	R4	R4	R4, R5		
H5	R5	R5			

### Hardness Factors:

- H2 Can be scraped and peeled by a pocket knife with difficulty. Shallow indentations (i.e., 1/16 inch to 1/8 inch) made by firm blow of geological pick.
- H3 Cannot be scraped or peeled with a pocket knife. Hand-held specimen can be fractured with single firm blow of hammer end of geological pick.
- H4 Hand-held specimen requires more than one blow with hammer end of geological pick to fracture it.
- H5 Hand-held specimen is very hard and requires many blows of hammer end of geological pick to fracture it.

### Weathering Factors:

- W1 The rock shows no loss of strength or any other effect of weathering other than slight staining on a few discontinuities\*.
- W2 The intact rock is slightly discoloured but not noticeably lower in strength than the fresh rock. The discontinuities are discoloured and some discolouration extends into the rock.
- W3 The intact rock is discoloured and noticeably weakened. Discontinuities are stained and/or contain filling comprising altered material.
- W4 Discolouration and weakening extends throughout rock mass and rock mass tends to crumble somewhat. Rock can be excavated with geological pick.
- W5 The rock is totally discoloured and decomposed and is entirely changed to a soil but the original structure of the rock is mostly preserved.

\* The term discontinuities refers to natural breaks, shears or faults in the bedrock.

Surface Hardness	Average Block Diameter				
	0 to 3"	3" to 6"	6" to 1'	1' to 4'	4'+
R2	RMC1	RMC2	RMC2	RMC2	RMC2
R3	RMC2	RMC2	RMC3	RMC3	RMC3
R4	RMC2	RMC3	RMC4	RMC4	RMC4
R5	RMC3	RMC4	RMC5	RMC5	RMC5

## Description of RMC Values:

- RMC1** Rock crumbles under firm blows with the point of a geological pick and can be peeled by a pocket knife (R1). The average block diameter is not important. The rock may be harder (R2) but must have an average block diameter of less than 3 inches. This rock can be excavated by free digging or ripping.
- RMC2** Rock can be scraped and peeled by a pocket knife with difficulty and shallow indentations (i.e., 1/16 inch to 1/8 inch) can be made by a firm blow of a geological pick (R2) and has an average block diameter greater than 3 inches. The rock may be somewhat harder (R3) but must have an average block diameter less than 6 inches or hard (R4) and have an average block diameter less than 3 inches. The rock is usually rippable.
- RMC3** Rock cannot be scraped or peeled with a pocket knife. Hand-held specimen can be fractured with a single firm blow of the hammer end of a geological pick (R3) and has an average block diameter greater than 6 inches. Rock may be harder (R4) but must have an average block diameter of 3 to 6 inches or very hard (R5) and have an average block diameter of less than 3 inches. The rock is usually not rippable.
- RMC4** Hand-held specimen requires more than one blow with hammer end of geological pick to fracture (R4) and has an average block diameter greater than 6 inches. Rock may be very hard (R5) but must have an average block diameter of 3 to 6 inches. The rock must be blasted.
- RMC5** Hand-held specimen is very hard and requires many blows of the hammer end of a geological pick to fracture it (R5) and has an average block diameter greater than 6 inches. The rock must be blasted.

## **Appendix V Appraisal Map Content**

1. The appraisal map(s) submitted with the appraisal data submission must be at a scale of 1:5000 or 1:10000. Additional maps at other scales may also be included as required.
2. At a minimum, the maps shall provide the following information:
  - a. Cutting authority area boundary and block boundaries.
  - b. Delineation of timber to be harvested and timber to be retained within the cutting authority area.
  - c. Delineation of areas by harvest method.
  - d. Delineation of areas where tree crown modification is planned.
  - e. Delineation of areas where destumping for root disease control is required.
  - f. The geographic centre and common junction of the permit for truck haul distance calculations.
  - g. Existing roads.
  - h. Roads to be constructed.
  - i. Location of roads/structures that are the subject of non-tabular estimates.
  - j. Location, size and types of culverts and bridges.
3. For appraisal data submission where an extension is requested reference may be made to the original map submitted.
4. The appraisal map may be attached to the initial appraisal data submission in electronic format prior to the cutting permit being approved.

## Appendix VI Appraisal Log Dumps

### Chilliwack Forest District

District: Chilliwack							
Location	ALD Code	Co-ordinates (Approximately)					
		Latitude			Longitude		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Coquitlam, Pacific Custom Log Sort	COPA	49	13	22	122	50	35
Delta, Northwest Hardwoods	DENH	49	08	26	123	02	18
Whonnock, Pioneer	WHON	49	10	17	122	29	2
Haney, Northview Sort	HANO	49	12	33	122	35	53
Harrison Bay DLS	HABA	49	14	45	121	57	25
Harrison Lake - 20 Mile Bay	HLTM	49	31	29	121	53	01
Harrison Lake - Bear Creek	HLBC	49	31	38	121	45	41
Harrison Lake – Head	HLHE	49	44	14	122	08	49
Harrison Lake - Silver River DLS	HLSR	49	34	33	121	49	16
Harrison Lake - Trio Creek (Westwood Bay)	HLTC	49	37	56	121	58	07
Hatzic, Dyke Road	HADR	49	08	46	122	14	42
Indian Arm	INDA	49	27	50	122	52	39
Pitt Lake – Head	PLHE	49	32	32	122	35	48
Port Coquitlam, Valiant Sort	POCO	49	14	47	122	44	09
Sardis, Cattermole DLS	SACA	49	08	32	122	03	35
Sardis, Probyn DLS	SAPR	49	08	35	122	04	26

















<b>District: Coast Mountain (North Coast)</b>					
<b>Location</b>	<b>ALD Code</b>	<b>Co-ordinates (Approximately)</b>			
		<b>Latitude</b>		<b>Longitude</b>	
		<b>Degrees</b>	<b>Minutes</b>	<b>Degrees</b>	<b>Minutes</b>
Ursula Channel - Bishop Bay Log Dump	UCBB	53	26	128	53
Ursula Channel - East Gribble Island Log Dump	UCGI	53	21	128	55
Ursula Channel - Goat Harbour	UCGH	53	21	128	50
Ursula Channel - Proposed BCTS	UCTS	53	29	128	57
Ursula Channel - Riordan Creek Log Dump	UCRC	53	26	128	57
Verney Passage - Cheenis Creek	VPCC	53	33	129	01
Whale Channel - Cornwall Inlet, Drake Inlet Log Dump	WCDI	53	08	128	58
Work Channel - Bill Lake	WCBL	54	23	130	05
Work Channel - Marion Creek	WCMC	54	21	130	03
Work Channel - Union Inlet	WCUI	54	33	130	24



<b>District: Campbell River</b>							
<b>Location</b>	<b>ALD Code</b>	<b>Co-ordinates (Approximately)</b>					
		<b>Latitude</b>			<b>Longitude</b>		
		<b>Degrees</b>	<b>Minutes</b>	<b>Seconds</b>	<b>Degrees</b>	<b>Minutes</b>	<b>Seconds</b>
Hardwicke Island – South East at Chancellor Channel	HACC	50	25	12	125	45	50
Johnstone Strait - Bear Bay	JSBB	50	21	38	125	39	09
Johnstone Strait - Eve River	JSER	50	28	06	126	17	21
Johnstone Strait - Hardwicke Island South West	JSHI	50	24	56	125	55	20
Johnstone Strait - Havannah Channel, South of East Cracroft Island	JSHA	50	31	55	126	13	33
Johnstone Strait - Kelsey Bay	JSKB	50	23	49	125	57	40
Johnstone Strait - Naka Creek	JSNC	50	28	38	126	25	16
Johnstone Strait - Port Neville Head	JSPH	50	33	04	125	57	47
Johnstone Strait - Port Neville West	JSPW	50	31	05	126	04	14
Johnstone Strait - South East Bay	JSSE	50	27	41	126	11	58
Johnstone Strait - Tuna Point, Sunderland Channel	JSTP	50	28	16	125	59	00
Kyuquot Channel – Cachalot Inlet	KYCA	50	00	03	127	10	15
Kyuquot Sound - Amai Inlet	KYAM	50	01	27	127	10	23
Kyuquot Sound - Chamiss Bay	KYCH	50	04	01	127	17	11
Kyuquot Sound - Eelstow Passage	KYEE	50	06	04	127	10	35
Kyuquot Sound - Hohoae Island	KYHO	50	02	00	127	14	00
Kyuquot Sound - Kashutl River	KYKA	50	11	06	127	18	02
Kyuquot Sound - Kauwinch River, Kashutl Inlet	KYKR	50	08	12	127	15	56
Kyuquot Sound - Tahsish Inlet	KYTA	50	06	11	127	05	47
Kyuquot Sound - Union Island East	KYUE	50	01	33	127	14	31
Kyuquot Sound - Union Island West	KYUW	50	00	58	127	18	51
Loughborough Inlet - Cooper Reach East	LICR	50	41	44	125	26	48
Loughborough Inlet - Beaver	LIBE	50	30	02	125	37	32
Loughborough Inlet - Heydon Bay	LIHB	50	34	53	125	34	14
Loughborough Inlet - Poison Creek	LIPC	50	38	07	125	31	40
Loughborough Inlet - Poison (North)	LIPN	50	39	15	125	30	51









<b>District: South Island</b>							
<b>Location</b>	<b>ALD Code</b>	<b>Co-ordinates (Approximately)</b>					
		<b>Latitude</b>			<b>Longitude</b>		
		<b>Degrees</b>	<b>Minutes</b>	<b>Seconds</b>	<b>Degrees</b>	<b>Minutes</b>	<b>Seconds</b>
Otter Point Log Sort	OPLS	48	22	10	123	46	16
Saltspring Island, Burgoyne Bay	SIBU	48	47	37	123	31	21
Port Alberni, Ship Creek	PASC	49	13	17	124	48	42
Shoal Island DLS	SHOA	48	52	54	123	38	07
Stewardson Inlet	STEW	49	25	26	126	18	37
Sydney Inlet	SYIN	49	26	07	126	13	43
Stewardson Inlet (Mouth)	STEM	49	26	39	126	17	49
Strait of Georgia - Valdes Island	SGVI	49	03	54	123	39	19
Tofino Inlet - Rankin Cove	TIRC	49	10	30	125	42	21
Uchuklesit Inlet - Silverside DLS	UISI	49	00	22	125	02	11
Uchuklesit Inlet - Snug Cove	UISC	49	00	58	125	01	58
Ucluelet (East)	UCLU	48	58	25	125	34	21
Vargas Island	VARG	49	12	-	125	58	-







<b>District: North Island - Central Coast</b>					
<b>Location</b>	<b>ALD Code</b>	<b>Co-ordinates (Approximately)</b>			
		<b>Latitude</b>		<b>Longitude</b>	
		<b>Degrees</b>	<b>Minutes</b>	<b>Degrees</b>	<b>Minutes</b>
Thompson Sound DLS	THSD	50	48	126	01
Tribune Channel, London Point	TCLP	50	47	126	07
Wakeman Sound	WAKE	51	02	126	31
Walbran Island, Taylor Bay	WITB	51	30	127	36
Wallace Bay - Cousins Inlet	WBCI	52	17	127	45
Watson Island - Turnbull Cove	WITC	50	57	126	49
West Cracroft Island - Port Harvey	WCPH	50	34	126	17
West Cracroft Island - Potts North	WCPN	50	34	126	28
Yeo Cove, Yeo Island	YCYI	52	18	128	11





## Appendix VIII Non-Tabular Cost Estimates

### VIII.1 Non-Tabular Cost Estimates

1. The cost information contained in this appendix are to be used in conjunction with the Detailed Engineering Estimates for Coast Stumpage Appraisal – February 1, 2001 and as amended to September 1, 2002.
2. A non-tabular cost estimate must be calculated on the basis that the construction project will be completed using commonly used logging road construction practices and that the roads will have single lane width roads, turnouts and landings.
3. Weighted averages for each variable (e.g., uphill side slope, rock, etc.) are applied to each road section. Averages are obtained by weighting the cross-section measurements taken at representative points along the road by the applicable road section length.

### VIII.2 Subgrade Construction

1. The estimated cost per kilometre for subgrade construction is provided for each combination of construction category and uphill side-slope for two rock mass classification categories, 'RMC 5 Only' and 'Other RMCs'.
2. Construction category (CC) is determined on the basis of the percent rock in relation to the total volume of all materials.
3. The percent rock is determined as follows:

$$\% \text{rock} = \frac{h^2}{H^2} * 100\%$$

Where:

h = the vertical cut height of all rock measured from the bottom of the ditch

H = the total vertical cut height of all materials including organic layers, glacial till and hardpan measured from the bottom of the ditch

4. Construction category may show a range of variation (+ one CC) within any section length, and is recorded to the nearest integer. Hardpan is CC1, whether drilled and blasted or not. Rippable rock and boulders may occur in CC2 to CC6.
5. The following table defines the construction categories.







### VIII.3 Additional Stabilizing Material

1. Stabilizing material is gravel or broken rock which is placed on the road subgrade to provide stable support and a running surface for logging related equipment. Some stabilizing material may be created on site during subgrade construction. If additional stabilizing material is required it may be obtained from the adjacent cut-bank or trucked in.

### VIII.4 Additional Stabilizing Material Cost Estimate

1. The total cost estimate per kilometre for the stabilizing material is:

$$\text{Cost Estimate (\$/km)} = V \text{ multiplied by } U$$

Where:

- a. V is the loose volume of additional stabilizing material expressed in cubic metres of material per kilometre of road, and
  - b. U is the cost estimate of the additional stabilizing material expressed in dollars per loose cubic metre of material.
2. The volume of rock or gravel expressed in cubic metres required to stabilize one kilometre of road which includes the length of turnouts and landings is calculated as follows:
    - a. Where rock is used,  $VR = 1000D (W + 1.0D)$ ,
    - b. Where gravel is used,  $VG = 1000D (W + 1.5D)$ ,

Where:

- i. W is the stabilized road width and has the value of 6.2 metres,
- ii. D is the loose depth of stabilizing material measured in metres determined from the Table VIII-3,
- iii. VR is the volume of rock, and
- iv. VG is the volume of gravel.



- b. The cost estimates assume borrow pits are located adjacent to a road right-of-way. If an access road must be constructed to a borrow pit to build a road to a cutting authority area (the cutting authority area road), then a road cost estimate may be calculated for that access road and included as part of the road development adjustment in the appraisal of the first cutting authority area accessed by the cutting authority area road.
- c. Where the material to be used to stabilize the subgrade will be moved less than 0.1 km, the cost estimate for each material is:
- |                          |                        |
|--------------------------|------------------------|
| i. Gravel                | \$5.65/m <sup>3</sup>  |
| ii. Soft and Medium Rock | \$9.03/m <sup>3</sup>  |
| iii. Hard Rock           | \$11.86/m <sup>3</sup> |

Where: m<sup>3</sup> = cubic metre of stabilizing material

- d. Where the material to be used to stabilize the subgrade must be moved a distance of 0.1 km or further, the cost estimate for each material is:
- |                          |                                    |
|--------------------------|------------------------------------|
| i. Gravel                | \$(7.74 + 0.616 d)/m <sup>3</sup>  |
| ii. Soft and Medium Rock | \$(11.11 + 0.616 d)/m <sup>3</sup> |
| iii. Hard Rock           | \$(13.94 + 0.616 d)/m <sup>3</sup> |

Where:

‘d’ is the distance that the material must be moved from the source of the material to the mid-point of the road section to be stabilized.

- e. In this section:
- i. ‘Soft-medium-Rock’ is rock where less than 60 percent of the rock from the excavation is RMC 5.
  - ii. ‘Hard Rock’ is rock where 60 percent or more of the rock from the excavation is RMC 5.









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