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February 11, 2015

To: Interior Executive Directors

From: Honourable Steve Thomson, Minister of Ministry of Forests, Lands and Natural Resource Operations

Re: **Amendment No. 2 to the Interior Appraisal Manual (IAM)**

The following sections have been amended:

Section 2.2.1 (2) (a) – Changed Circumstances

This subsection defines the meaning of a changed circumstance due to a change in harvest method. It has been updated to remove the direct link to highest stumpage and instead, links it to more general requirements in the manual. The change was necessary as it was being interpreted in a way that did not support a change from a lower cost harvest method to a higher cost harvest method in situations that required a method different than originally appraised.

Section 3.1 – Highest Stumpage

Section 3.1 gives this district manager the discretion to deem a harvest method or transportation route "unsuitable". The level of discretion is currently not well defined. This amendment adds specific conditions for the district manager to consider in his determination.

Section 3.5 – Point of Appraisals (POA)

Points of Appraisals (POA) are generally removed from the manual when 5 years has passed since the last mill associated with the POA was capable of producing lumber and chips. Four POAs are scheduled for removal in this amendment. The Lytton, Lumby and Slocan POAs are scheduled for removal effective July 1, 2016, May 31, 2017, and October 24, 2018 in that order. The Valemount POA is removed effective immediately.

Section 3.6.1 – Water Transportation Specified Operations

The eligibility for a water transportation cost estimate in an appraisal was never been well defined in the IAM. This amendment adds specific conditions when a water transportation route should be considered in an appraisal.

Section 4.3.3 (3) – Engineered Cost Estimates

This subsection currently specifies that equipment and labour rates used in a detailed Engineering Cost Estimate (ECE) are based on the time the costs are incurred; or if they have not been incurred, at the time of the appraisal data submission. This amendment clarifies that in addition to equipment and labor rates, other costs estimate information such as for culvert costs or additional stabilization material also follow the same procedure.

Section 6.4.1 – Salvage of Damaged Timber

Updates are to clarify the definition of Damaged Timber. The definition will now specifically include dead and damaged trees affected by the list of damaging agents. In addition, drought, landslide and flooding have also been included in the list of damaging agents.

This definition affects the eligibility of small scale salvage tenure operators and blanket salvage permit major tenure holders.

Section 6.4.2 – Blanket Salvage Permits

This section defines blanket salvage permits and a cutting authority's eligibility for blanket salvage stumpage rates.

The section is updated to:

- 1) align with the Deputy Minister Memo dated January 29, 2016 - *Harvesting under a Blanket Salvage Permit*. The new memo removes the requirement for blanket salvage permits to align with District Forest Health Strategies and replaces it with District Guidelines; and
- 2) add an exception to the maximum size of a cut block (15 hectares) for silviculture systems other than clear cut.

Housekeeping

- Main title page – reference to the cost base used in the manual.
- Section 1.1, 2.2.3, 4.1, and 6.9 – To remove the references to Section 21 (BCTS section 21 TSLs) of the *Forest Act* as it was repealed, and all remaining tenures have expired.
- Section 2.2.3(1) (c) – This subsection allows for licensees to re-cruise and/or recompile their cruise information to improve the decay/waste/breakage estimates (and blowdown in some cases) in stands affected by mountain pine beetle. This amendment removes the second option to only recompile their cruise information as it is no longer applicable.
- Section 3.5.1 – To clarify for water transportation, that the primary cycle time is calculated to the log dump, unless the log dump is deemed unsuitable by the district manager.
- Section 4.3.2.2 – 1) To correct a reference to a road “segment” and replace with road “section”; 2) For clarity, “stand alone” is removed.
- Section 4.3.3 (5) and (6) – Edited to provide consistent terminology with other sections of the manual.
- Section 4.3.3 (10) (f) – To clarify development projects and the eligibility/non-eligibility of mobilization/demobilization costs in an engineered cost estimate. New wording is required to remove timing of the equipment on the site in determining the eligibility of the costs.

Interior Executive Directors

- Section 5.1 (3) (a) – To clarify that stumpage rates are fixed for Forestry Licences to Cut entered into under a BCTS licence.
- Section 6.4.1 (4) (c) – To clarify the exception to the maximum size of a cut block (5 hectares) for silviculture systems other than clear cut.
- Section 6.4.1 (5) (c) – To clarify that stumpage rates for small scale salvage tenures for Damaged Timber can also be determined by a full appraisal.
- Section 6.6 (Table 6-7) – To remove Ootsa Lake from the list as it is already included as a “reservoir” lake.
- Section 6.7 (2) (d) – To clarify Occupant Licences to Cut within a Controlled Recreation Areas are excluded from this section.

This amendment will come into force on February 15, 2016. Copies of the amendment and the amended IAM are available at the following link:

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

Further amendments or revisions to this manual require my approval.



Steve Thomson
Minister

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TIMBER PRICING BRANCH

Interior Appraisal Manual

Effective July 1, 2015

Cost Base of: 2013

Includes Amendments

Amendment No. 1

Amendment No. 2

Effective Date

November 1, 2015

February 15, 2016



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1 Introduction

1.1 Definitions

In this manual:

“**AAC**” means Allowable Annual Cut;

“**Act**” means *Forest Act*;

“**Agreement**” means a form of agreement granting rights to harvest Crown timber referred to in section 12 of the *Act*, or a pulpwood agreement;

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

“**Applicable Volume**” means:

1. Except as provided in sections 2.2.1(2)(e) and 4.3(12), and subject to paragraph (2) of this definition, where the harvesting is authorized on a cutting authority area under an agreement other than a BCTS licence, the Total Net Coniferous Volume
2. Where the cutting authority is cruised based and the deciduous timber has not been reserved, the Total Net Cruise Volume
3. Where the harvesting is authorized on a cutting authority area under a BCTS licence, the Total Net Cruise Volume;

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

“**Appraisal Summary Report**” means the appraisal summary report from the cruise compilation for the cutting authority area;

“**Attack Volume**” means the volume of green, red, grey or other insect attack reported in the appraisal summary report;

“**BCTS**” means BC Timber Sales;

“**BCTS licence**” means a timber sale licence entered into under section 20 of the *Act*;

“**Billing history record**” means a record of log scale data derived from a record kept by 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*;

“**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*;

- c. The regional revenue staff may agree to a written request from the licensee to extend the submission deadline date of a Changed Circumstance Certification. Any request will require a work plan that includes a new proposed submission date.
2. This subsection applies to cutting authorities issued on or after July 2, 2014. For those cutting authorities issued prior to July 2, 2014 use section 2.2.1(1) as it was prior to July 1, 2014.

In this manual a changed circumstance means a circumstance where:

- a. **The most recent appraisal or reappraisal included a harvest method that is different than the harvest method planned or used (i.e. by the licensee or a contractor working on the licensee's behalf) on the cutting authority area in an amount that exceeds the greater of 1000 m³ or 10% of the Total Net Cruise Volume. If the changed circumstance is to a higher cost harvest method, the appraisal data submission must include a rationale why the change is required.**
- b. The licensee or a contractor working on the licensee's behalf carries out or will carry out development on the cutting authority area such that there will be a difference of at least 10% between
 - i. the total appraised development cost estimate if it is recalculated under chapter 4 on the basis of the development actually carried out, to the extent this development is in accordance with chapter 4, and
 - ii. the total appraised development cost estimate 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. Except as provided in subsections 4 or 5 of this section, the cutting authority is scale based and there has been a change¹ in the harvest area for the cutting authority when compared to the appraisal map submitted that exceeds the lesser of:
 - i. Five hectares, or
 - ii. Five percent of the harvest area for the cutting authority indicated on the appraisal map prior to the change,
- d.
 - i. The cutting authority is cruise based and there has been a change¹ in the harvest area for the cutting authority when compared to the most recent appraisal map submitted that exceeds three hectares.
 - ii. The area used for cruise based billing must only be changed to reflect the new area when:

¹ Measured as the absolute change, e.g. an addition of 5 hectares and the subtraction of 5 different hectares is a 10-hectare change for the purposes of this section.

- a. the harvest area has decreased and the cutting authority has been amended,
 - b. the harvest area has increased, or
 - c. the change in harvest area described in this subsection triggers a changed circumstance under this section.
- e. Timber is authorized for harvest under a cutting authority that has either a fixed stumpage rate or a stumpage rate that is adjusted quarterly and at least 15% of the Total Net Cruise Volume of the timber that was considered in the appraisal of the cutting authority area authorized for harvest under that cutting authority has been suddenly and severely damaged except where timber on a cutting authority area has been damaged by a fire for which the licensee was responsible and the licensee failed to comply with the *Wildfire Act* or *Wildfire Regulations*. The only timber that can be considered in the reappraisal is the standing timber remaining on the cutting authority area after the sudden and severe damage.
- f. A cutting permit authorizing the harvesting of timber was issued before July 1, 2010 and surrendered on or after July 1, 2010, because of the planned Interior pricing policy changes July 1, 2010, and
- i. the volume of all of the timber in all of the cutblocks where harvesting has not started, hereinafter referred to as the remaining timber, is greater than 25% of the volume of timber that was on the cutting authority area when the cutting permit was issued, and
 - ii. the district manager is satisfied that the remaining timber or harvest method is significantly different from the timber that has been harvested under the cutting permit.
- g. A cutting permit authorizing the harvesting of timber on the cutting authority area was issued before July 1, 2010, timber harvesting has started on the cutting authority area, and
- i. the right to harvest timber remaining on the cutting authority area hereinafter referred to as the remaining timber has been transferred by the timber sales manager after July 1, 2010 on behalf of the licensee to whom the cutting permit had been issued, and
 - ii. the district manager is satisfied that the remaining timber or harvest method is significantly different from the timber that was harvested on the cutting authority area prior to the transfer of the right to harvest the remaining timber.
- h. The most recent appraisal or reappraisal:
- i. included a Camp specified operation and a camp was never used ; or

following the date when the event that caused the sudden and severe damage stopped on the cutting authority area.

4. Except as provided in subsection 2 of this section, where the most recent reappraisal is a minister's directed reappraisal under section 2.2.2 or an insect damage reappraisal under section 2.2.3, the effective date of a changed circumstance reappraisal:
 - a. Under section 2.2.1(2)(f) or 2.2.1(2)(g) is the day after the date of the most recent appraisal or reappraisal that is not a reappraisal under sections 2.2.1(5), 2.2.2 or 2.2.3.
 - b. Under any other subsection of this section, is the day after the date of the most recent appraisal or reappraisal that is not a reappraisal under sections 2.2.1(5), 2.2.2 dated after July 1, 2010, or a reappraisal under section 2.2.3.

2.2.2 Minister's Direction

The Minister may at any time direct the determination, redetermination or variance of a stumpage rate and that,

- a. a determined, redetermined or varied stumpage rate be effective on any future date, and that,
- b. the determination, redetermination or variance be made in accordance with any other directions that the Minister may direct.

2.2.2.1 Minister's Direction Procedure

1. The licensee must submit to the district manager an interior appraisal data submission, if requested by the district manager within forty-five days of the Minister's direction.
2. Thereafter, the procedure for determining, redetermining or varying a stumpage rate under section 2.2.2 must be the same procedure as that required by subsections 2.1(3) through 2.1(11) except as may otherwise be directed by the Minister.

2.2.3 Reappraisals Due to Insect Damage

1. a. A cutting authority with an adjustable stumpage rate may be reappraised on or after April 1, 2006 in accordance with this subsection if the licensee submits a revised ADS to the district manager.
 - i. Cutting authorities that have not been reappraised in accordance with this section may be reappraised once on or after July 1, 2014 during the remaining term and all extensions,
 - ii. Cutting authorities that have been reappraised once in accordance with this section prior to July 1, 2014 may be reappraised once on or after July 1, 2014 during the remaining term and all extensions,

- iii. Cutting authorities that have been reappraised twice in accordance with this section prior to July 1, 2014 may not be reappraised in accordance with this section.
- b. The revised appraisal data submission is the appraisal data submission that was used in the most recent appraisal or reappraisal of the cutting authority area prior to the revision, hereinafter referred to in this section as the original ADS, with changes permitted only to the cruise data in the original ADS in accordance with the paragraphs (c) and (d) of this subsection.
- c. **Subject to subsection (1)(d) of this section, the licensee may** update the insect attack and the down tree code information for all the original trees in each plot in the field for codes 1, 2, 3, 5, 6, 7, 8, E and G as defined in the Cruising Manual and recompile the cruise for the cutting authority area by using the cruise data from the cruise in the original ADS for the plots in that part of the cutting authority area where timber has been harvested and combining that with the cruise data with updated insect attack and down tree codes for the plots in that part of the cutting authority area where timber has not been harvested.
- d. If a cutting authority area is reappraised in accordance with section 2.2.1.1 and the effective date of the changed circumstance reappraisal is prior to a reappraisal for that cutting authority area under section 2.2.3, then the cutting authority area must be reappraised subsequent to the changed circumstance reappraisal using only the same information and effective date as the original reappraisal under section 2.2.3 (except for information that has changed as a result of the changed circumstance reappraisal under section 2.2.1).
- e. Notwithstanding any other paragraph of this section, other data must be changed if it is required by the manual in effect at the time of the reappraisal and was not submitted in the original ADS.

2.2.3.1 Insect Damage Reappraisal Procedure

The insect damage reappraisal procedure is the procedure required by section 2.1(2) through 2.1(7).

2.2.3.2 Effective Date of an Insect Damage Reappraisal

The effective date of an insect damage reappraisal is the first day of the month following the month in which the reappraisal is submitted in ECAS.

3 Final Estimated Winning Bid

3.1 Highest Stumpage

1. Except as provided in section 5.1 and chapter 6 of this manual,
 - a. The licensee must submit, and the person determining the stumpage rate must use, the combination of harvest method, development, and transportation route that produces the highest stumpage rate once the point of appraisal has been determined in accordance with section 3.5.
 - b. If the harvest method or transportation route is deemed unsuitable under subsection (2) or (3) of this section, then the licensee must submit, and the person determining the stumpage rate must use, the combination of harvest method, development and transportation route that produces the next highest stumpage rate.
2. The district manager may deem a harvest method unsuitable if satisfied that one or more of the following conditions would prevent the use of the harvest method.
 - 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, or
 - 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, or
 - c. visual quality objectives.
3. The district manager may deem a transportation route unsuitable if satisfied that one or more of the following conditions would prevent the use of the transportation route.
 - a. In the case of a road section or bridge,
 - i. the road section or bridge has become impassable to logging trucks for reasons outside the control of any licensee, and the condition of impassability is expected to persist for at least one year, without extraordinary efforts (i.e. impassability unrelated to lack of use or maintenance, or ordinary reconstruction or reactivation efforts) to remedy the condition; or
 - ii. the road section is restricted or inappropriate for industrial traffic use, for reasons outside the control of the licensee.
 - b. In the case of an Appraisal Log Dump, the log dump site has been permanently decommissioned (i.e. no authorisations are in place for the use of the site for water transportation of logs, and reclamation of the site is complete).
 - c. In the case of a body of water, changes in the flow or depth of the water have rendered log transportation unfeasible and, are expected to persist for at least one year.

4. The harvest method or transportation route planned or used (i.e. by the licensee or a contractor working on the licensee's behalf) is not determinative in the unsuitability assessment.
5. A determination of a district manager under subsection (3) is applicable to all cutting authorities issued in the same district on or after the date of the determination, until the determination has been revoked or, if expressly limited as to duration, has expired.
6. A district manager shall revoke a determination made in his or her district under subsection (3) when of the opinion that the condition(s) that led to the determination have ceased to exist, and the revocation is deemed to take effect on the date when those condition(s) of unsuitability ceased.

3.2 MPS Lumber Selling Prices

Selling prices for MPS are based on three-month averages of lumber market values reported by licensees and published monthly by Timber Pricing Branch. They are aggregated by zone based on Points of Appraisal in Table 3-4. When the average market values (AMVs) are approved by the director they become an integral part of this manual.

3.2.1 Lumber AMVs

1. Unless otherwise specified in this section, the species lumber AMVs are based on a three month average of lumber selling prices two (2) months prior to the date of publication. They are derived by dividing the total sales value by the total sales volume.
2. If there is insufficient data reported the AMVs for a species may be determined using a procedure approved by the director.
3. The volume that is manufactured to Canadian Lumber Standard/American Lumber Standard (CLS/ALS) sizes is reported in foot board measure (fbm). Lumber manufactured in non-CLS/ALS sizes is adjusted to equivalent CLS/ALS sizes. The total volume for each species includes all sizes and grades of rough and dressed lumber in the green and dried state. Also included is finger-jointed lumber and machine stress rated lumber.
4. The total net sales value for each species or species group is reported in Canadian dollars (FOB) mill.

3.2.2 Calculation of the Real Stand Selling Price (RSP)

1. The total lumber selling price (SP) in $\$/\text{m}^3$ is determined for each coniferous species using lumber recovery factors (LRF) from the cruise compilation summary, LRF update add-ons and the current applicable lumber AMV for the species and zone.
 - a. Zonal LRF update add-ons are found in Table 3-1, by species.
 - b. Lumber AMVs as published every month.
 - c. Calculation of total species lumber selling price.
 - i. If the cruise LRF for Lodgepole pine (LO) has been reduced for Mountain Pine Beetle, the reduction must be added back as follows:
 Final LO Cruise LRF = $\text{LO Cruise LRF} + (\text{LO green attack volume} * 3 + \text{LO red attack volume} * 33 + \text{LO grey attack volume} * 83) \div \text{LO pine volume}$.
 - ii. Species Appraisal LRF = Species Cruise LRF + Species LRF update add-on.
 - iii. Species SP ($\$/\text{m}^3$) = Species AMV($\$/\text{mbm}$)/1000 * Species Appraisal LRF.

- d. The stand SP is the volume-prorated sum of the species SP.
- e. The real stand SP (RSP) is the stand SP divided by the CPIF, as defined in section 3.3.

Table 3-1 LRF Update Add-ons for MPS

Species	Zone 5 (Northern Interior)	Zone 6 (Skeena)	Zone 7 (Southern Interior)	Zone 8 (Southern Cariboo)	Zone 9 (Ft. Nelson- Peace)
Lodgepole Pine	107	81	97	96	88
Spruce	128	107	121	117	106
Balsam	120	101	110	110	97
Douglas Fir	97	-	84	86	-
Larch	93	-	84	86	-
Cedar	72	52	66	62	-
Hemlock	74	55	69	67	-
White Pine	91	-	82	82	-
Yellow Pine	-	-	85	90	-

3.3 Estimated Winning Bid Variables

Where volume data is used in the calculation of the variable that calculation must include the Total Net Deciduous Volume unless otherwise indicated in the description of that variable below. The descriptions are in the order that the variable appears in the EWB equation on page 3-10.

CPIF	=	Consumer Price Index Factor calculated as $CPI/109.3$.
RSP	=	Real Stand Selling Price for coniferous species ($\$/m^3$). See section 3.2.
CEDAR	=	Fraction of Total Net Coniferous Volume that is cedar.
CEDAR DECA Y	=	Cedar decay % from the appraisal summary report/100
ZONE 6	=	Skeena selling price zone variable. Zone 6 = 1 if cutting authority is appraised with selling price zone 6, otherwise zone 6 = 0.
HEMBAL	=	Fraction of Total Net Coniferous Volume that is hemlock and balsam.
LAYP	=	Fraction of Total Net Coniferous Volume that is larch and yellow pine.
FIRYP	=	Fraction of Total Net Coniferous Volume that is Douglas fir and yellow pine.
DRY_BELT	=	DRY_BELT = 1 if the cutting authority is located in the Rocky Mountain or 100 Mile House Districts. Otherwise, DRY_BELT is the fraction of the Net Merchantable Area of the cutting authority that is located in Dry Belt Douglas Fir Zones as per the table in the Cruising Manual. If the BEC zone/subzone combination does not appear in that table, then the following logic must apply: If the subzone is very dry (begins with x) then the zone/subzone combination is Dry Belt. If the subzone is dry (begins with d) then the zone/subzone combination is Dry Belt only if the BEC zone is IDF, MS or PP. If the subzone is not very dry or dry (does not begin with x or d) then the zone/subzone combination is not Dry Belt.
CABLE	=	Fraction of harvest method volume that is appraised as overhead cable yarding (includes Skyline < 600m horizontal).

VOL	=	The zonal volume from Table 3-3 for the cutting authority unless: The cutting authority is a BCTS cutting authority; if so then use the Total Net Coniferous Volume for the cutting authority. The cutting authority is not a BCTS cutting authority and, the sum of all the AAC's for all the licences that the licensee has in the same TSA as the cutting authority being appraised is less than the zonal volume indicated in Table 3-3 for the selling price zone in which the cutting authority is located, if so, then use the greater of: The Total Net Coniferous Volume, or The sum of the AAC volumes described above
DECAY	=	Prorated coniferous species decay % (from appraisal summary report)/100.
FIRE	=	Fraction of Total Net Coniferous Volume that is fire damaged.
VPT	=	Cutting authority average net volume per tree, from appraisal summary report (m ³).
VPH_CON	=	Net coniferous volume per hectare (m ³ /ha).
CYCLE	=	Hauling round trip cycle time (Primary Cycle time) + Secondary Cycle Time). See sections 3.5.1 and 3.5.2.
CYCLE_INC6	=	CYCLE – 6.0 hours. If < 0, then 0.
ZONE_9	=	Fort Nelson - Peace selling price zone variable. Zone 9 = 1 if cutting authority is appraised with selling price zone 9, otherwise Zone 9 = 0.
DECID	=	Fraction of the Total Net Cruise Volume that is the Total Net Deciduous Volume.
CB	=	1 if cruise-based, 0 if scale based.
RG35	=	1 if Total Net Coniferous Volume of timber on the cutting authority area is comprised of 35% or greater red and grey Mountain Pine Beetle attacked Lodgepole pine, otherwise RG35 = 0.
AUC2014	=	2014 Auctions variable. AUC2014 = 1.
GREY	=	Fraction of Total Net Coniferous Volume that is grey Mountain Pine Beetle attacked Lodgepole pine.

LAG	=	Lag in years. LAG = 0 if Zone 5 or Zone 6 as defined in Section 3.5 or Cariboo Chilcotin District or Quesnel District, otherwise LAG = 2.
*GSCC_Vol	=	Volume in m3 of the cutting authority area that is to be ground skid clear cut
*GSPC_Vol	=	Volume in m3 of the cutting authority area that is to be ground skid partial cut
*GSCC_Slope	=	Slope of the cutting authority area that is to be ground skid clear cut.
*GSCC_Slope15	=	(GSCC Slope -15%) or 0 whichever is greater
*GSPC_Slope	=	Slope of the cutting authority area that is to be ground skid partial cut.
*GSPC_Slope15	=	(GSPC Slope -15%) or 0 whichever is greater
*GSCCPC_Slope	=	$[(GSCC_Slope15 * GSCC_Vol + GSPC_Slope15 * GSPC_Vol) / (GSCC_Vol + GSPC_Vol)]$
GS_SLOPE	=	(GSCCPC_Slope) 2 or 1225 whichever is less
GS_FRACTION	=	Fraction of harvest method volume that is appraised as ground skid clear cut and ground skid partial cut
DECK	=	Fraction of cutting authority volume that has been decked and/or partially harvested in the timber sale licence. Cutting authority volume = total net cruise volume + volume of decked/partially harvested timber + right-of-way volume.
DANB	=	Average number of bidders for the proxy district, in which the cutting authority area is located (see Table 3-2).
PC	=	Fraction of harvest method volume that is appraised as partial cut. $PC = (100 - CAPCUT \%) / 100$. See section 4.5 for definition of CAPCUT %. The 80% limit in the definition of CAPCUT in section 4.5 does not apply.
SLOPE	=	Cutting authority average slope from the appraisal summary report (%).
CPI	=	Monthly B.C. Consumer Price Index (CANSIM 326-0020, 2002 = 100) x 1.1787.

*Not an Estimated Winning Variable. These are components of the variable GS_SLOPE.

3.3.1 Haul Method Variable

1. Haul method does not contribute to the calculation of a stumpage rate but must be determined for the transportation route to the point of appraisal, and reported in the appraisal data submission.
2. The haul method is Off-highway when loaded logging trucks can travel in whole over roads administered under the *Industrial Roads Act* and Forest Service Roads as defined in the *Forest Act*.
3. The haul method is Highway when loaded logging trucks must travel in whole or in part over roads administered under:
 - a. the *Transportation Act*, or
 - b. the *Industrial Roads Act* and Forest Service Roads (as defined in the *Forest Act*) where prolonged known road restrictions (e.g., bridge load limit, narrow road, through rock cut, Regulations under the *Workers Compensation Act*, etc.) prevent the use of oversize loads.

Table 3-2 Proxy District Average Number of Bidders (DANB)¹

District	Proxy District	TFL #	Geographic Area of TSA	TSA#	Supply Block	DANB
DCC	DCC		Williams Lake	29	Other than A, B, C, D	2.8
	DCH		Williams Lake	29	A, B, C, D	2.6
DCS	DCS					4.3
DFN	DFN					1.0
DJA	DJA					2.5
DKA	DHW	18	Robson Valley Kamloops	17 11	A	2.7
	DKA		Excluding proxy district DHW			4.0
DKM	DKM					1.6
DMH	DMH					3.9
DMK	DMK					2.0
DND	DND					2.6
DOS	DOS					3.4
DPC	DPC					1.2
DPG	DHW	18	Robson Valley Kamloops	17 11	A	2.7
	DPG		Excluding proxy district DHW			3.7
DQU	DQU					3.3
DRM	DRM					2.3
DSE	DAB	3, 8, 23	Arrow Boundary		1 2	2.7
	DCO	55, 56	Golden Revelstoke		7 27	2.2
	DKL		Kootenay Lake		13	2.2
DSS	DSS					2.5
DVA	DVA					2.9

¹ From the 5-year auction dataset.

Table 3-3 Zonal Volume¹

Zone	Total Net Coniferous Volume (m3)
5	52,535
6	53,046
7 OK	38,901
7 SE	36,732
8	48,549
9	42,041

¹For the purposes of applying the volume variable in the estimated winning bid equation, first determine the applicable selling price zone for the cutting authority area from Table 3-4 for the highest stumpage point of appraisal. Then if the SP zone is zone 7, use the descriptions below to pick the appropriate zonal volume from Table 3-3 based on which district the cutting authority area is located in.

7OK = Cascades, Okanagan Shuswap, 100 Mile House, and Thompson Rivers Forest Districts excluding Kamloops TSA Block A.

7SE = Prince George, Rocky Mountain and Selkirk Forest Districts plus Kamloops TSA Block A

3.4 Estimated Winning Bid Equation

Using the variables defined in section 3.3, the selling price calculated in section 3.2.2 and the equation below, calculate the estimated winning bid (EWB).

$$\begin{aligned}
 \text{EWB} &= \text{CPIF} * [7.966 \\
 (\$/\text{m}^3) &+ 0.2614 * \text{RSP} \\
 &+ 17.15 * (\text{CEDAR} * (1 - \text{CEDAR DECAF}) * (1 - \\
 &- 9.054 * \text{HEMBAL} \\
 &- 6.888 * \text{LAYP} \\
 &- 6.249 * (\text{FIRYP}) * \text{DRY_BELT} \\
 &- 17.96 * \text{CABLE} \\
 &+ 1.143 * \ln(\text{VOL}/1000) \\
 &- 26.63 * \text{DECAF} \\
 &- 10.91 * \text{FIRE} \\
 &+ 4.951 * \ln(\text{VPT}) \\
 &+ 0.006516 * (\text{VPH_CON}) \\
 &- 1.429 * (\text{CYCLE} + (0.5 * \text{CYCLE_INC6})) \\
 &- 5.724 * \text{ZONE_9} \\
 &- 11.69 * \text{DECID} \\
 &- 4.079 * (\text{CB} * (1 - \text{RG35})) \\
 &- 4.397 * (\text{CB} * \text{RG35}) \\
 &+ 5.463 * \text{AUC2014} \\
 &- 1.138 * (\text{GREY} * (7 - \text{LAG})) * \text{CB} * \text{RG35} \\
 &- 0.006427 * \text{GS_SLOPE} * \text{GS_FRACTION} \\
 &+ 45.54 * \text{DECK} \\
 &+ 0.8689 * \text{DANB} \\
 &- 5.843 * \text{PC} \\
 &- 0.03108 * \text{SLOPE}]
 \end{aligned}$$

If EWB less than \$0.25/m³ then EWB = \$0.25/m³

Note: ln = natural logarithm.

3.5 Point of Appraisal (POA)

1. The POAs that may be considered for use in the appraisal are set out in Table 3-4 unless:
 - a. five years have passed from the date that a milling facility was permanently rendered incapable of producing lumber and chips, and
 - b. it was the only milling facility associated with that POA, or
 - c. The appraisal effective date is past the expiry date for that POA indicated in subsection (4) of this section.
2. The POA chosen for the appraisal must:
 - a. Not be excluded by the conditions in subsection 1 of this section,
 - b. Be based on transportation routes that have not been deemed unsuitable by the district manager, and
 - c. Be the POA with the lowest transportation and development cost (TRDEV) using the following calculation:

$$\begin{aligned}
 TRDEV \text{ Cost } (\$/m^3) &= [1.429 * [CYCLE + (0.5 * CYCLE_INC6)] * CPIF] \\
 &+ [(SOs + DC) * (CPI/138.8)]
 \end{aligned}$$

Where:

- CYCLE = the cycle time as defined in section 3.3 and measured in accordance with section 3.5.1 and 3.5.2.
- CYCLE_INC6 = as defined in section 3.3.
- CPIF = as defined in section 3.3.
- SOs = the sum of the transportation specified operations that apply to the transportation route from sections 3.6.1 and 3.6.2.
- DC = Total Development Cost in the appraisal.
- CPI = as defined in section 3.3.

3. Except as provided in Table 3-3, the selling price zone indicated in Table 3-4 for the point of appraisal determined under this section must be used in the appraisal.

Table 3-4 Points of Appraisal

Northern Interior (Zone 5)			
Bear Lake	Fort St. James	Mackenzie	Smithers
Burns Lake	Fraser Lake	Prince George	Strathnaver
Clear Lake	Houston	Quesnel	Vanderhoof
Engen	Isle Pierre		

Skeena (Zone 6)	
Terrace	Kitwanga

Southern Interior (Zone 7)			
Adams Lake	Galloway	Merritt	Thrums
Armstrong	Grand Forks	Midway	Vavenby
Canal Flats	Kelowna	Princeton	Westbank
Canoe	Lavington	Radium	Ymir
Castlegar	Lumby	Revelstoke	
Craigellachie	McBride	Slocan	
Creston			
Elko			

South Cariboo (Zone 8)				
100 Mile House	Chasm	Lytton	Squamish	Williams Lake

Fort Nelson - Peace (Zone 9)	
Chetwynd	Fort St. John

- The following Points of Appraisal will expire on the date indicated: Clear Lake (April 30, 2016), Slocan (October 24, 2018), Lumby (May 31, 2017), Lytton (July 1, 2016).

3.5.1 Primary Cycle Time

- The primary cycle time includes loading, hauling, weighing, unloading, return time, and unavoidable delays.
- If a district has developed standard cycle time schedules from specific road junctions to the point of appraisal, the person who determines the stumpage rate must use these schedules to calculate the Primary Cycle Time in subsection (3) of this section, except to the extent that he or she considers variation necessary to account for sudden and significant changes in road accessibility not reflected in the existing schedules.

3. To determine the primary cycle time, use distances each rounded to the nearest 0.1 km using the following procedure:
 - a. Determine the weighted average cycle time to the common junction in accordance with the following steps:
 - i. Establish the geographical center point of each cutblock and project a line from this point to the nearest road, marking the intersection of the line and the nearest road as the junction for the cutblock;
 - ii. From the junction in subparagraph (a)(i), determine the cycle time to the nearest point over which all appraised timber on the cutting authority area must travel on the way to the point of appraisal (the “common junction”); and
 - iii. Weight the cycle time from the junction for each cutblock to the common junction by the Total Net Cruise Volume for each cutblock to determine the weighted average cycle time to the common junction.
 - b. Determine the cycle time from the common junction by road to:
 - i. the mill associated with the point of appraisal (POA) that is closest to the cutting authority area point of appraisal chosen in accordance with Section 3.5;
 - ii. in the case of a route to the point of appraisal involving rail transportation, the appraisal place of unloading for placement on railcars; or
 - iii. in the case of a route to the point of appraisal involving water transportation:
 - aa. the location closest by road to the cutting authority area that is listed in Appendix VI; **and that has not been determined unsuitable under s. 3.1(3);** or
 - bb. any closer location to the cutting authority area not included in Appendix VI that has in place authorizations allowing use of the location as a transfer point for water transportation of timber; and
 - c. Sum the times calculated under subsection 3(a) and 3(b), and add an estimate for unavoidable delay of 75 minutes for cable yarding systems or 60 minutes for all other systems.

3.5.2 Secondary Cycle Time

1. The secondary cycle time is when logs must be truck hauled following dewatering. To determine the secondary cycle time, use distances each rounded to the nearest 0.1 km from the reload site to the closest mill associated with the point of appraisal.
2. If a district has developed standard cycle time schedules from specific road junctions to the point of appraisal, the person who determines the stumpage rate must use these schedules to calculate the secondary cycle time in subsection (1) of this section, except to the extent that he or she considers variation necessary to account for sudden and significant changes in road accessibility not reflected in the existing schedules.

3.6 Specified Operations

1. Only the specified operations described in sections 3.6.1 to 3.6.7 may be considered in an appraisal or reappraisal.
2. Where appropriate, specified operations are weighted according to the applicable net cruise volume.
3. Before a specified operation is used in an appraisal it must be approved by the person who determines the stumpage rate and the supporting information must be made available upon request.

3.6.1 Water Transportation

1. Water transportation **is the transportation of** logs by water between the cutting authority and the point of appraisal or reload. **Specified Operation amounts for water transportation are deemed to include** all costs of dumping, booming, developing and operating dumping and booming grounds, and towing; **or, in the case of water transportation of logs by barge, all analogous costs involved in the barging of logs.**
2. **The appraisal transportation route must include water transportation if:**
 - a. **a navigable water body is situated between the cutting authority and the point of appraisal determined in accordance with section 3.5; or**
 - b. **there is historical precedent for log transportation on the water body or, in the opinion of the person determining the stumpage rate, such transportation would be feasible for a licensee to establish;**

and the use of water transportation in the appraisal produces highest stumpage in accordance with section 3.1.

The transportation route planned or used (i.e. by the licensee or a contractor working on the licensee's behalf) is not determinative of the appraisal transportation route.

3. **The portion of the appraisal transportation route that involves water transportation shall be measured from the appraisal log dump site or transfer point determined in accordance with section 3.5.1 (3)(b)(iii) to the mill dewater or reload site.**

4. Appraisal transportation routes using water transportation shall include an amount for each of the following:

Dump and Boom

Reservoir Lakes and Marine: = \$3.42/m³
 (Reservoir: Arrow, Kinbasket, Ootsa, Revelstoke, and Williston)

Natural Lakes: = \$3.42/m³

Tow

All: = \$1.89/m³

Dewater and Reload

All: = \$2.58/m³

(Only considered if the mill infeed is not located on the same lake,
 or a dam transfer is require)

3.6.2 Special Transportation Systems

A special transportation system specified operation may be used in the appraisal where geographic conditions dictate its use.

The cost estimates include all costs associated with servicing the appropriate cutting authorities, (excluding all on-site costs of owning and operating a camp facility) and operation of bubble systems where applicable.

The recognized special transportation systems are as follows:

1. Railway

a. Truck-to-Rail Transfer

When logs are appraised by railway for part of the way between the cutting authority and the point of appraisal, the cost estimate for the truck-to-rail transfer part of the phase is:

$$\text{All} = \$2.58/\text{m}^3$$

b. Railway Transportation

The railway transportation cost estimate is based on the following table for the points of origin shown. Otherwise, the best information on hand is used.

Table 3-5 Rail Log Transportation

Origin	Cost Estimate	Point of Appraisal
Leo Creek	\$13.18/m ³	Fort St. James
Lovell	\$17.31/m ³	Fort St. James
Bear Lake	\$24.27/m ³	Fort St. James
Minaret Creek	\$26.66/m ³	Fort St. James
Niteal	\$23.23/m ³	Fort St. John

2. Barge/Ferry Used for Truck Haul (Private)

When a truck haul road is interrupted by a body of water and the operation of a barge/ferry system is the most efficient means to provide a transportation link to harvesting areas, the specified operation for this phase, regardless of ownership is:

All lakes = \$4.17/m³

3. Barge/Ferry Not Used for Truck Haul (Private)

When a cutting authority can be served only by water, and daily (operating days only) ferry/barge services are feasible for crew transportation, the specified operation for this phase, regardless of ownership is:

All lakes = \$1.29/m³

3.6.3 Camp Costs

1. A camp specified operation may be included in an appraisal if all of the criteria in this section are met for the cutting authority area being appraised.
2. Workers, who work on the cutting authority area, must reside in the camp and travel each day of work during timber harvesting and hauling operations from the camp to the cutting authority area.
3. The licensee submitting the appraisal must incur the following:
 - a. Costs to establish the camp either through capital expenditure or through long term lease arrangements, and
 - b. Costs to operate and maintain the camp.
4. The camp must:
 - a. Be comprised of buildings or structures of a permanent or semi-permanent nature,
 - b. Have a cookhouse(s) and a bunkhouse(s),
 - c. Have full time camp staff, and
 - d. Be located outside of a support centre listed in Table 3-6.
5. Where two licensees share the costs referred to in paragraph three and four of this section for a single camp:
 - a. There must be a written agreement between the two licensees documenting the cost sharing arrangement and specifying each party's contribution,
 - b. One of the two licensees must not contribute more than 60% of the costs, and
 - c. Each licensee must compile a statement of costs net of recoveries and Total Net Cruise Volume attributable to its harvesting operations serviced by the camp.

- 6. Where a cutting authority area serviced by a camp:
 - a. Rail access only = \$3.61/m³,
 - b. Non-rail access remote camp = \$3.66 /m³
 - i. “Non-rail access remote camp” is defined as a camp located greater than:
 - ii. Five (5) hours loaded one-way log truck haul to a support centre, or
 - iii. Three (3) hours loaded one-way log truck haul to a support centre and the primary log haul is to either a log dump for water transportation and/or a rail siding for a rail transportation specified operation.
 - c. Non-rail access all other camps = \$1.35/m³

Table 3 6 Support Centres

North Area			
Burns Lake Houston Kitimat Chetwynd Vanderhoof	Kitwanga New Hazelton Fort St. James Fort Nelson McBride	Smithers Stewart Fraser Lake Mackenzie Valemount	Terrace Prince George Fort St. John Dawson Creek

South Area			
Boston Bar Clearwater Hope Canal Flats Castlegar Cranbrook Williams Lake	Kamloops Kelowna Lillooet Creston Ferne Golden	Merritt Pemberton Penticton Grand Forks Greenwood Invermere Princeton	Salmon Arm Vernon Nakusp Nelson Revelstoke 100 Mile House Quesnel

3.6.4 Skyline and Intermediate Support Skyline

- 1. Except as provided in paragraph 4 of this section, a skyline specified operation cost estimate may be included in an appraisal for each cut block where the average yarding distance (slope) is greater than 300 meters, or intermediate supports are used.

2. The average yarding distance is determined by:
 - a. Drawing a series of transects (minimum four) with their origin at a tower landing, being equi-angle apart and measured to the back-line. This is done for each block; blocks will not be amalgamated for the purpose of average yarding distance calculation.
 - b. Yarding distance will be measured as slope distance from the centre of the tower landing to the falling boundary.
 - c. The sum of transect lengths divided by the number of transects equals the average yarding distance.
3. Where the ministry and the licensee agree that forest and land management is better served by the use of a “skyline system” in a particular logging chance, then the average yarding distance greater than 300 meters requirement is waived.
4. Cut blocks where the average yarding distance is 600 meters or greater (measured horizontally) will be considered as helicopter in the appraisal.
5. The specified operation cost estimate is: $\$4.34/\text{m}^3$ for the harvest method volume appraised as skyline.

3.6.5 Helicopter Logging

The specified operation cost estimate is $\$88.59/\text{m}^3$ for the harvest method volume appraised as Heli.

3.6.6 Horse Logging

The specified operation cost estimate is $\$8.67/\text{m}^3$ for the harvest method volume appraised as horse.

3.6.7 High Development Cost

For BCTS timber sale licences only, where the development cost estimate (DC) determined under chapter 4, is greater than $\$2.66/\text{m}^3$, the high development cost specified operations estimate (HDC) is calculated as follows:

$$\text{HDC } \$/\text{m}^3 = \text{DC} - 1.30$$

$$\text{If } \text{DC} \leq 2.66, \text{ HDC} = 0$$

3.7 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 that are applicable to the appraisal or reappraisal of the cutting authority area.

2. Expressed as an equation:

$$\text{FEWB} = \text{EWB} - (\text{SO} \times (\text{CPI} \div 138.8))$$

Where:

EWB = The Estimated Winning Bid determined under section 3.4.

SO = The sum of the applicable specified operations in the appraisal or a reappraisal of a cutting authority area as may be calculated under section 3.6 expressed in $\$/\text{m}^3$.

CPI = Monthly BC Consumer Price Index (refer to section 3.3).

3. Where the FEWB calculated under subsection 2 of this section is less than $\$0.25/\text{m}^3$, then the FEWB must be $\$0.25/\text{m}^3$.

4 Tenure Obligation Adjustments

4.1 Tenure Obligation Adjustment

1. Except where a cutting authority area is the area authorized for harvest under a timber sale licence entered into under section 20 of the *Act*, and subject to subsection (2) of this section, the types of costs that may be used in the calculation of the tenure obligation adjustment (TOA) in the appraisal or reappraisal of a cutting authority area are:
 - a. the final forest management administration cost,
 - b. the total development cost,
 - c. the final total road management cost, and
 - d. the total silviculture cost.
2. A cost referred to in subsection 1 of this section may only be used in the appraisal or reappraisal of a cutting authority area if:
 - a. The holder of the cutting authority authorizing harvesting on the cutting authority area will incur that kind of cost:
 - b. when exercising an authority or carrying out an obligation under the cutting authority, or
 - c. subject to section 4.3, when carrying out an activity on a road when acting under the authority of the Crown, a road permit holder, a road use permit holder, or a private road owner.
3. In this chapter:
 - a. "development" means road development, cattleguards, fencing and pipeline crossings.
 - b. "road" includes bridges, drainage structures and any other pertinent structures that are part of the road.
4. The tenure obligation adjustment is calculated under section 4.9.

- necessitated by a changed circumstance reappraisal as authorized under paragraph (k) of this section.
- d. Costs for in-block development are not eligible for inclusion in the agreement unless the person who determines the stumpage rate is satisfied that they are required to access future tributary timber.
 - e. The road portion that may be included in the agreement ends at the far boundary of the first cutting authority being appraised.
 - f. The agreement is entered into only for the purposes of determining a stumpage rate and confers no obligation on the Crown to compensate the licensee for any unamortized costs.
 - g. The agreement must be signed by the licensee and the regional manager, and must not be for a term, including extensions, longer than ten years unless otherwise approved by the regional manager.
 - h. The regional manager and licensee may not amend the agreement to adjust the total amount apportioned or, consequentially, any part amount apportioned to a tributary cutting authority, except as authorized under this subsection.
 - i. The apportionment specified in the agreement under this section may be adjusted once during the total term of the agreement, provided the adjustment is between or among only those tributary cutting authorities included in the agreement that have not yet been issued at the time of the adjustment.
 - j. One additional tributary cutting authority that was not previously identified in the agreement may be added once during the total term of the agreement.
 - k. In the event of a changed circumstance reappraisal of the first cutting authority, the amounts specified in the agreement must be amended to reflect proportionately the new total amount of the apportioned development cost estimate as determined in the changed circumstance reappraisal among only those cutting authorities included in the agreement that have not yet been issued as of the submission date of the changed circumstance reappraisal.
3. The regional manager will not enter into any new extended road amortization agreements for cutting permits issued under a woodlot licence with an effective date after November 30, 2008

4.3.2 Tabular Cost Estimates

Tabular costs are determined using the procedures and criteria in this section for the total length of road that the submitting professional certifies is required to remove the timber from the cutting authority area.

4.3.2.1 Subgrade Construction

1. The subgrade construction cost estimate includes:
 - a. clearing,
 - b. grubbing,
 - c. stripping,
 - d. debris disposal,
 - e. stump removal,
 - f. ditch construction,
 - g. turnout construction (not landings),
 - h. material costs, and
 - i. installation of culverts with diameters under 950 mm or the equivalent cross-section area or single log abutment culverts up to 3.4 m span.

Right-of-way felling and logging is excluded.

4.3.2.2 Subgrade Construction Variables

For appraisal purposes the following subgrade construction variables are recognized:

1. Section length: (L)
 - a. Each section should be representative of a single soil moisture code. Section lengths are recorded to the nearest 0.1 km. Each section should be 1 km or longer, although some individual section lengths less than 1 km but greater than or equal to 0.100 km are acceptable for extreme variations of slope or % rock. The section length includes that portion traversing through landings.
 - b. All road segments less than 0.100 km, are to be aggregated with other adjacent road sections, making appropriate adjustments to average site conditions using the distance-weighted averages for the site variables for that section.
 - c. A short spur road less than 0.100 km may be aggregated with a similar road section.
2. Road Types:
 - a. Long Term (LT) - A long term road is a road with a continuous raised sub-grade and ditch line (the raised sub-grade and ditch line may be interrupted for short section

<100 m in length (e.g., when crossing a short section of rock or at the crest of a hill). In flat terrain the ditch line may simply be the depression created when sub-grade material is excavated to create a raised sub-grade.
 - b. Short Term (S) - A short term road is a road with the stumps removed and a bladed running surface. There may be elements of ditching and elevated grade, particularly around wet areas but these features are not continuous.

- | | | |
|----|---------------------------------|--|
| b. | Remedial Fences and Wing Fences | \$1,224 per 100 m
(post and wire, post and rail and/or log snake fence construction only), used to mitigate the removal of natural range barriers |
| c. | Logging Debris Fences | \$250 per 100 m
(logging debris used to protect sensitive riparian areas within a cut block) |
2. For pipeline crossings, the following cost estimates apply:
- \$3,076 per single pipe crossing
 - \$3,085 per pipe in multiple pipe crossings (where 2 or more pipes are crossed within the same right-of-way)
3. The cost estimates for subsections (1) and (2) include materials, transportation and installation.

4.3.3 Detailed Engineering Cost Estimates (ECE)

1. Where the tabular cost estimating procedures of this manual cannot be used due to their physical limitations, the cost of a project must be estimated by preparing a detailed engineering cost estimate. The regional manager may approve standardized procedures for preparing cost estimates for those activities listed in subsection (7) of this section for use in projects as listed below.
2. Where specific development projects involve detailed engineering cost estimates, the district manager must be advised of project details no later than 60 days before the start of work on the project, unless otherwise agreed to between the district manager and the licensee.
3. For appraisal purposes, development project costs for ECEs are made on the basis of
 - a. site-specific data using the definitions found in section 4.3.2.2 for common subgrade construction variables, and
 - b. for costs incurred prior to the appraisal data submission, the **cost estimate information (such as for tabular culvert costs or additional stabilization material equations), and** equipment and labour rates specified in Appendix I at the time the costs were incurred. Otherwise, use the **cost estimate information, and** equipment and labour rates specified in Appendix I at the time of the appraisal data submission.

Due consideration is given to arm's length competitive bids for any specific project. The Crown is not liable for any difference between the appraisal estimate and the licensee's actual costs.

4. If the ECE is re-estimated once after construction as provided in section 2.2(4) (using more accurate on site information) the new detailed engineering cost estimate replaces the original (used in the initial appraisal).
 - a. Detailed engineering cost estimates originally estimated using ministry approved competitive bids may be re-estimated once after construction provided the original call to tender included a methodology for adjusting the bid price based on more accurate site information and re-estimation of those costs is performed in accordance with that methodology.
 - b. ECE's are not re-estimated due to labour and/or equipment rates being updated periodically in Appendix I.
5. Where the actual on-site information is known prior to the appraisal **data submission** that information must be used in the ECE as determined by the person who determines the stumpage rate.
6. Where road sections estimated using an ECE are **adjacent** with tabular cost estimates, costs for mobilization and demobilization will only be allowed for special equipment not required for the construction of the tabular roads. The costs for placement or addition of stabilizing material must be determined using section 4.3.2.5 unless the material is placed in conjunction with geo fabric, geo grids, corduroy or where the stabilizing material requires processing such as screening or crushing.
7. The following specific situations are considered for detailed engineering cost estimates:
 - a. New construction of long term, primary access road sections, that will have 300 000 m³ of harvested Crown timber hauled over them annually for at least ten years.
 - b. Road construction on uphill side slopes greater than 50%.
 - c. When rock percent as calculated in section 4.3.2.2(4) is greater than 50%, or terrain class 4 and 5.
 - d. End haul construction (of roads and landings) requiring removal by truck of excavated material to a separate area to avoid side casting on steep and/or sensitive sites.
 - e. Overland construction to provide a roadbed by trucking in material for extensive filling; see page 81 of Forest Road Engineering Guidebook for a more detailed description.
 - f. Log bridges and non-log bridges (including ice bridges) that are not included in the subgrade cost estimates. Eligible costs are described in section 4.3.3(10).
 - g. Structural maintenance of bridges, substructure and cribwork.
 - h. Road Reactivation activities necessary to re-open a road where there were no prior road management obligations.

- and delivery costs.
- iii. Where used bridge materials are purchased by the licensee from a legally non-associated party, only the cost of purchasing and transporting those materials approved by the person determining the stumpage rate may be included in the bridge cost estimate in addition to the costs listed above.
 - e. Site plans, designs and layouts.
 - f. The costs of mobilization and demobilization may be included in the engineered cost estimate if the equipment is not required for adjacent tabular road, bridge or culvert construction.
11. GST/HST and supervision costs other than as stated above, are not to be included in the engineered estimate.
12. Where different timber volumes are used for separate cost estimates, the unit costs are rounded to the nearest cent before totalling.

4.3.3.1 Trending of Detailed Engineering Costs

Detailed engineering costs are not trended.

4.4 Road Management

1. Where the licensee is obliged to carry out road management activities, the road management cost estimate includes but is not limited to, costs for the following:

- | | |
|--|---|
| a. all access management | m. minor flood and storm damage repair |
| b. all deactivation | n. non-structural maintenance of bridges |
| c. bridge re-decking/wearing surface replacement | o. road ripping |
| d. brushing | p. road use charges paid to other licensees |
| e. cattle guard cleanout | q. roadside treatments |
| f. cross ditch construction | r. sanding |
| g. culvert removal | s. seasonal erosion control |
| h. culvert repairs and thawing | t. sign maintenance |
| i. culvert replacement | u. |
| j. ditching | v. slough removal |
| k. dust control | w. snowplowing and refreezing |
| l. grading | x. spot gravelling (< 0.3 km distance) |
| m. grass seeding | y. water bar construction (seasonal) |

The cost estimate for all road management carried out on logging operations depends on the geographic location of the cutting authority area (refer to Table 4-3).

Cutting authorities issued under forms of tenure not located administratively within a tree farm licence area or timber supply area will be assigned the road management cost estimate for the TFL or TSA/supply block in which the cutting authority is geographically located.

5 Stumpage Rate Determination

5.1 Stumpage Rate Determination for a Cutting Authority Entered into Under a BCTS Licence

1. Sections 5.1.1 through 5.1.3 are the policies and procedures for determining the upset for a cutting authority that is entered into under a BCTS licence.
2. a. The Market Pricing System for BCTS can only be used in the appraisal of a BCTS licence where data is available to do a full appraisal.
b. Where the data is not available to do a full appraisal of a cutting authority area, the appraisal must use the procedures outlined in chapter 6 of this manual.
3. a. All upsets for section 20 timber sale licences advertised on or after November 1, 2003, and Forestry Licences to Cut entered into under section 47.6(3) of the *Forest Act* and subject to section 6.7 of this manual, are fixed for the term and all extensions except where:
 - i. a reappraisal is done under section 2.2.1(2)(e) due to sudden and severe damage, or
 - ii. a Minister's directed reappraisal is done under section 2.2.2.

5.1.1 Upset Stumpage Rates (Upset)

1. The upset can either be an upset rate (\$/m³) or an upset value (\$).
2. The variable cost to prepare the timber for sale (VCU) is calculated by the timber sales manager.
3. Except as otherwise provided in this section the upset for a timber sale licence shall not be less than the greater of either:
 - a. The indicated upset determined by the regional revenue staff under section 5.1.2, or
 - b. The VCUUnless approved by the Executive Director, BCTS.
4. Where applications for a timber sale licence with an upset determined under subsections (3) or (6) of this section have been invited but no applications have been received, the upset for the re-advertised timber sale shall be no less than the VCU.
5. a. The upset for decked timber or partially harvested timber shall be the upset requested by the timber sales manager.
b. If the Timber Sales Manager intends to sell the decked timber or partially harvested timber competitively as a lump sum, the upset value is the upset value requested by the Timber Sales Manager multiplied by the volume of the decked or partially harvested timber as determined by an authorised scaler using a method approved by the minister.

Table 6-3 Coniferous Average Sawlog Stumpage Rates by Smallest Geographic Unit

TSA is Smallest Geographic Unit			
District	Rate (\$/m ³)	TSA	Rate (\$/m ³)
Cascades	23.54	Lillooet	3.79
		Merritt	25.93
Coast Mountain (excluding North Coast Timber Supply Area)	3.93	Cascadia Blks 9,10,11	2.16
		Kalum	2.16
		Nass	6.30
		Pacific Bks 28A,28B	2.16
Nadina	15.62	Lakes	22.41
		Morice	14.60
Peace	8.40	Dawson Creek	7.03
		Fort St John	9.29
Prince George	23.84	Robson Valley	13.98
Quesnel	20.37	Cascadia Bks 5,6,7,8	20.37
		Quesnel	20.37
Rocky Mountain	16.51	Cranbrook	17.54
		Invermere	15.79
Selkirk	19.59	Arrow	20.52
		Boundary	20.70
		Cascadia Blks 1,2,3	20.52
		Cascadia Blk. 4	15.41
		Golden	19.97
		Kootenay Lake	18.79
Skeena Stikine	12.37	Revelstoke	15.41
		Bulkley	15.32
		Cassiar	3.58
		Kispiox	12.52

District/District Portion is Smallest Unit			
TSA	Rate (\$/m ³)	District/District Portion	Rate (\$/m ³)
Prince George	24.27	Fort St. James	25.30
		Vanderhoof	8.28
Williams Lake	22.27	Cariboo Chilcotin	22.27
		Williams Lake TSA Blocks, A, B, C, D, E & I	5.57

District & TSA are the same		
District	TSA	Rate (\$/m ³)
Fort Nelson	Fort Nelson	8.40*
Mackenzie	Mackenzie	20.95
Okanagan Shuswap	Okanagan	19.83
Thompson Rivers	Kamloops	20.40
100 Mile House	100 Mile House	11.95

*Regional rate

Region is Smallest Unit			
Area	Rate (\$/m ³)	Region	Rate (\$/m ³)
North	16.19	Northeast	8.40
		Omenica	23.15
		Skeena	11.14
South	19.73	Cariboo	19.30
		Kootenay Boundary	18.44
		Thompson-Okanagan	20.85

6.4 Salvage Timber Stumpage Rates

6.4.1 Post-Harvest Material or Damaged Timber

1. This section applies to cutting authorities issued under licences which do not have an allowable annual cut.
2. Post-Harvest Material is **defined as**:
 - a. wooden culverts and bridges, or
 - b. post logging residue.
3. Damaged Timber is **defined as**:
 - a. **Trees that are dead or damaged as a result of wind, fire, snow press, drought, landslide, flooding; or**
 - b. **Trees as a result of the effects of forest pests or disease that are dead; or**
 - c. **Trees that require management and control of insect infestation or will die within one year (sanitation timber salvage), as determined by the district manager.**
4. Except as provided in section 6.2.1(1)(c)(ii), the criteria and methodology for the calculation of salvaged timber stumpage rates are:
 - a. Post-harvest material may not be combined in the same cutting authority area with damaged timber.
 - 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 be adjacent to or contiguous with an existing cutting authority area.
 - c. **Cut block(s) must be less than or equal to 5 hectares in size; (unless the silviculture system used on the cut block is other than clear cutting, and at the completion of harvest the trees retained on the harvested area conform to the specifications in the Chief Forester's Reference Guide for Forest Development Plan Stocking Standards for the applicable silviculture system).**
 - d. Salvage logging stumpage rates may only be determined for a cutting authority where more than one-third of the total estimated volume of coniferous timber to be harvested in the cutting authority area is damaged timber.
 - e. Post-Harvest Material 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. Except as provided in section 2.2.2, a stumpage rate determined under this section is fixed for the term of the cutting authority and all extensions.
5. a. The Damaged Timber sawlog stumpage rate for each species of coniferous timber is the rate in Table 6-4 for the Forest Zone in which the cutting authority area is located.
- b. Where the Crown is responsible for basic silviculture on the cutting authority area, the stumpage rate for each species of coniferous timber must be the sum of the rate determined under paragraph (a) of this subsection and the silviculture levy determined under section 5.3.
- c. Notwithstanding paragraph (a), the stumpage rate for Damaged Timber may be determined through a full appraisal in accordance with chapters 1, 2, 3, 4 and 5.
6. The Post-Harvest Material sawlog stumpage rate for each species of coniferous timber is the rate in Table 6-5 for the forest zone in which the cutting authority area is located.

Table 6-4 Coniferous Average Sawlog Stumpage Rates for Salvage of Damaged Timber by Forest Zone and Species in \$/m³

FOREST ZONE	BALSAM	CEDAR	FIR	HEMLOCK	LARCH	L. PINE	SPRUCE	W. PINE	Y. PINE	OTHER ¹
North Central	13.57	32.28	21.44	14.55	-	13.14	20.78	-	-	13.22
North East	4.27	-	-	-	-	6.71	8.13	-	-	5.36
North West	4.46	7.04	-	4.04	-	8.36	7.78	-	-	5.07
South Central	0.61	-	0.28	-	-	3.77	7.66	-	-	2.63
South East	10.85	20.50	21.38	10.88	19.60	14.57	17.11	14.74	18.66	12.35
South West	11.12	15.80	15.40	11.30	20.01	19.49	19.94	17.43	-	13.25

¹ Average for the Forest Zone

Table 6-5 Coniferous Average Sawlog Stumpage Rates for Salvage of Post-Harvest Material by Forest Zone and Species in \$/m³

FOREST ZONE	BALSAM	CEDAR	FIR	HEMLOCK	LARCH	L. PINE	SPRUCE	W. PINE	Y. PINE	OTHER ¹
North Central	5.65	28.69	11.91	6.06	-	8.76	11.54	-	-	5.51
North East	1.78	-	-	-	-	4.48	4.52	-	-	2.23
North West	1.86	6.25	-	1.68	-	5.57	4.32	-	-	2.11
South Central	0.25	-	0.25	-	-	2.51	4.26	-	-	1.10
South East	4.52	18.22	11.88	4.53	10.89	9.71	9.51	9.83	12.44	5.15
South West	4.63	14.04	8.56	4.71	11.12	13.00	11.08	11.62	-	5.52

¹ Average for the Forest Zone

6.4.2 Blanket Salvage Cutting Authorities

1. This section may apply to cutting authorities issued under licences with an allowable annual cut or maximum harvest volume; excluding Community Forest Agreements in section 6.1.1, Woodlots Licences in section 6.1.2, BCTS or any timber in the Research Forests noted in Table 6-7.
2. Cutblocks amended into blanket salvage cutting authorities prior to February 15, 2016, must use section 6.4.2 of this manual as it was prior to February 15, 2016.
3. Cutblocks amended into blanket salvage cutting authorities on or after February 15, 2016 must be consistent with the Deputy Minister Memo: *Harvesting under a Blanket Salvage Permit (For Interior Regions)* signed January 29, 2016, where the cutblocks must be:
 - a. less than or equal to 15 hectares in size and 5000 m³ in volume; (unless the silviculture system used on the cut block is other than clear cutting, and at the completion of harvest the trees retained on the harvested area conform to the stocking standards specified in an approved Forest Stewardship Plan); and
 - b. issued for purposes of harvesting damaged timber as defined in section 6.4.1 (3); and
 - c. consistent with *District Guidelines for Blanket Salvage Cutting Authorities*.
4. The stumpage rate for each species of coniferous timber on the cutting authority area is the stumpage rate for that species indicated in Table 6-4 for the forest zone in which the cutting authority area is located.
5. All blanket salvage cutting authorities are scale based for billing.
6. A stumpage rate determined under this section must be re-determined annually on June 1st in accordance with this section.

6.6 Miscellaneous Stumpage Rates

Unless otherwise specified in this manual, the stumpage rates, at the time of scale for timber harvested for the purposes described, in the districts listed, in the forest district specific section of Table 6-7 are as prescribed in that table. This table does not apply to cruise based cutting authorities.

Table 6-7 Miscellaneous Stumpage Rates

All Interior Forest Regions

Species	Code ¹	Product	Reserve Stumpage Rate
All Species	SB	Shake & Shingle Bolts, Blocks and Blanks.	\$5.30/m ³
All Species	SK	Shakes	\$6.00/m ³
Cedar	PR	Posts & Rails (Split and Round)	\$3.00/m ³
All other Species	PR	Posts & Rails (Split and Round)	\$1.20/m ³
All Species	MT	Mining Timbers	\$3.00/m ³
All Species	FW	Firewood	\$0.50/m ³
Yew		All	\$0.25/m ³
All Species	CH	Wood chips from post-harvest material where a waste assessment has been made ²	\$0.25/m ³
All Species	HF	Hogged tree material from post-harvest material where a waste assessment has been made ²	\$0.25/m ³
All Species		Grades 4 and 6, except where the upset stumpage rate is determined under section 6.2.1(1)(a) and (b) and 5.1.1(5)	\$0.25/m ³
Deciduous Species		All, except grades 4 and 6 and except where the upset stumpage rate is calculated under section 6.2.1(1)(a) and (b) and 5.1.1(5)	\$0.50/m ³
All Species	SS	Stakes & Sticks.	\$1.20/m ³
All Species	XM	Christmas Tree Length: under 3m	\$0.20/each
		3-5 m	\$1.00/each
		over 5 m	\$1.50/each
All Species		Logs salvaged below the high water levels of Reservoir Lakes and the Shuswap, Slokan, Kootenay, Mineral, and Babine Lakes	\$0.25/m ³
All Species		Marine Beachcomb	\$0.70/m ³
All Coniferous		For logs harvested from the following Research Forests: Alex Fraser (UBC), Aleza Lake (UBC and UNBC), College of New Caledonia (CNC), and Fort St. James (UNBC)	\$0.25/m ³
All Species		Firmwood Reject	NIL

¹ Special Forest Products as described in the Special Forest Products Regulation under the Act.

² Where the post-harvest material is removed under a different tenure from the original cruise based cutting authority, a waste assessment is not required.

District/TSA Specific

Description of Activity	Forest District	Reserve Stumpage Rate
New Crown land area disturbed for mining exploration trails, seismic lines ¹ , gas or oil well sites and right-of-way to well sites ² , or, authorizations for investigative purposes issued under the Land Act.	Ft. Nelson Mackenzie Peace Rocky Mountain	\$ 836 /ha \$ 1066 /ha \$ 1025 /ha \$ 1385 /ha

¹ The corresponding district reserve stumpage rate from the above table is adjusted according to the category of line clearing as follows:

- Category 1 - no adjustment
- Category 2 - 1/2 of the reserve stumpage rate
- Category 3 - 1/3 of the reserve stumpage rate

The gross area for each category reported as new line on either; the Oil and Gas Commission's Geophysical Final Plan cover sheet or an As Cleared Plan is multiplied by the reserve stumpage rate as adjusted above (refer to Appendix V for category definitions).

² For pipe line rights-of-way a stumpage rate must be determined by using the above rates for cutting authorities containing 2000 m³ or less, of merchantable coniferous volume. For pipe line rights-of-way cutting authorities greater than 2000 m³ use section 6.7.

6.7 Specific Licences to Cut

1. This section applies to:
 - a. Master licences to cut,
 - b. Occupant licences to cut, and
 - c. Forestry licences to cut :
 - i. Issued under section 47.6(3) of the *Act* in conjunction with an activity funded out of the BCTS account,
 - ii. Issued in conjunction with a works contract other than BCTS, or Issued for a fence line or protection of a fence line administered under the *Range Act*.
2. This section does not apply to:
 - a. Cutting authorities issued for any of the activities listed in Table 6-7 that have an area reserve stumpage rate in the following districts: Fort Nelson, Peace, Mackenzie, or Rocky Mountain, or
 - b. The proposed Site C reservoir and dam site, or
 - c. Projects where cruising of the timber to be harvested on any tenure listed in subsection (1) has been initiated for use in a full appraisal prior to November 1, 2013, or
 - d. Cutting authorities issued within a Controlled Recreational Area.
3. Unless otherwise directed under section 2.2.2, the stumpage rate for any tenure listed in subsection (1) issued on or after November 1, 2013, must be the stumpage rate prescribed in Table 6-3 for the smaller of the area of the forest district, timber supply area, region, or Area in which the entire cutting authority area for the tenure is located, plus the average basic silviculture cost¹ for all species for the applicable Interior Area in which the cutting authority area is located at the time the stumpage rate is determined.
4. Where the licensee will have a silvicultural obligation imposed by the Ministry then the basic silviculture cost is not added under subsection (3) of this section.
5. Where the timber felled on the cutting authority area of any tenure listed in subsection (1) will not be removed from the site the volume used for billing may be estimated using an alternate method of scale approved by the Minister.

¹ From the Interior Basic Silviculture Costs published quarterly and available on the Timber Pricing Branch website.

6. Except as provided under paragraph (7) of this section, the stumpage rate determined under this section will be re-determined annually on June 1st.
7. The stumpage rate determined under this section for a forestry licence to cut issued under section 47.6(3) of the *Act* is fixed for the term and all extensions.

6.8 Controlled Recreation Areas (CRAs)

1. The sawlog stumpage rate for coniferous timber harvested under any cutting authority issued for a cutting authority area within a CRA is the stumpage rate approved by the director for each quarter.
2. The stumpage rate determined under subsection (1) is redetermined on the anniversary date of the cutting authority in accordance with this section.
3. Notwithstanding any other subsection in this section, the stumpage rate may be determined through a full appraisal in accordance with chapters 1, 2, 3, 4 and 5.

6.9 Cruise Based Stumpage Calculations

1. Pursuant to section 106 of the *Forest Act*, and subject to subsection 2 of this section, the amount of stumpage payable on Crown timber will be calculated using information provided by a cruise of the timber before it is cut where the timber is authorized for harvest:
 - a. Under a cutting authority issued or entered into prior to June 1, 2010 where:
 - i. the stumpage rate is adjustable,
 - ii. the Total Net Coniferous Volume of timber on the cutting authority area is comprised of 35% or more red and grey Mountain Pine Beetle (MPB) attacked Lodgepole pine¹, and
 - iii. timber harvesting has not started on the cutting authority, or,
 - b. Under a cutting authority issued or entered into on or after June 1, 2010 where:
 - i. the stumpage rate is adjustable,
 - ii. the licensee applied for a cutting permit and submitted an ADS to the district manager before June 1, 2010, and,
 - iii. the Total Net Coniferous Volume of timber on the cutting authority area is comprised of 35% or more red and grey MPB attacked Lodgepole pine¹, or,
 - c. Under a cutting authority issued or entered into on or after June 1, 2010 where:
 - i. the stumpage rate is adjustable,
 - ii. the licensee submitted an ADS to the district manager on or after June 1, 2010, and
 - iii. the Total Net Coniferous Volume in each cutblock within the cutting authority area is comprised of 35% or more red and grey MPB attacked Lodgepole pine¹, or,
 - d. Under a timber sale licence with a fixed stumpage rate, which meets the criteria in paragraph (1)(c) (ii) and (iii) of this section, or a timber sale licence with a fixed stumpage rate where the executive director, BCTS has approved cruise based under section 106 of the *Act*, or
 - e. Under a cutting authority that meets the criteria of section 6.4.3.

¹ The absolute fraction to the nearest 0.1% derived from dividing the sum of the Red and Grey attack volumes in each cutblock by the total net coniferous cruise volume in each cut block (both from the appraisal summary report from the cruise compilation).

2. Except as provided in subsections (3) of this section, and section 5.1.3(4), the stumpage rate effective July 1, 2010 for a cutting authority where the stumpage payable is cruise based must be calculated as stand as a whole in accordance with the following:
 - a. the stumpage rate is determined using chapters 1, 2, 3, 4, 5, or section 6.4.3 of this manual,
 - b. the stumpage rate determined under paragraph (a) of this subsection must apply to the net merchantable volume on the cutting authority area.
3. Except as provided in subsections (4) and (5) of this section, if, after a reappraisal under section 2.2.3 of this manual:
 - a. the Total Net Coniferous Volume in each cutblock within the cutting authority area is comprised of 35% or more red and grey MPB attacked Lodgepole pine, and
 - b. timber harvesting has not yet started on the cutting authority area, the stumpage payable may be cruise based.
4. Where an occupant licence to cut has been issued for the purposes of removing timber for agriculture, the stumpage payable must be scale based.
5. Where a non-replaceable forest licence (NRFL) or a forestry licence-to-cut (FLTC) was advertised on the basis of competition, and the successful bidder's bonus bid only applied to the sawlog portion of the volume advertised, the stumpage payable for cutting permits issued under these licences must remain scale based.
6. Where the sawlog volume of a cutting authority was advertised on the basis of competition and
 - a. The cutting authority was issued prior to June 1, 2010, and
 - b. The stumpage payable is cruise based,the bonus bid must be prorated by the person who determines the stumpage rate using Tables 4-5 or 4-6 of this manual as per section 4.6.

6.10 Section 103(3) of the Act

Stumpage for the purposes of section 103(3) of the *Act* must be calculated in accordance with the procedure approved by the Director. The stumpage rate is fixed.