BRITISH COLUMBIA

Ministry of Forests

Revenue Branch

MEMORANDUM

File: 280-20/195-30/CAPP

FEB 28 2001

To: Regional Managers - Coast

From: The Honourable Gordon Wilson
Minister of Forests

Re: Amendment No. 5 to the *Coast Appraisal Manual*

I hereby approve Amendment No. 5 to the *Coast Appraisal Manual* and attach a copy for your use.

Section 7.3.1 has been amended by revising the source for log grades under the Market Pricing System.

This amendment will come into force on March 1, 2001. Further amendments or revisions to this manual require my approval.

J. Pack
Acting Deputy Minister
per Gordon F. D. Wilson
Minister

Attachment

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Coast Appraisal Manual*

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7.3 Log Selling Prices

Invoiced (f.o.b.) log market values are compiled from prime, domestic, arms-length sales reported to occur in areas adjacent to the Strait of Georgia; the Strait of Juan de Fuca and the Alberni Inlet east of a line drawn south from Amphitrite Point; Johnstone Strait; the Queen Charlotte Strait south of a line drawn west from Cape Caution; and the Fraser River west of the bridge at the confluence of the Pitt River. The cut off date for the collected log market value input is approximately forty-five (45) days prior to the stumpage rate adjustment date.

For the Market Pricing System a set of average log market values by species and log grade is developed using sales data for each three-month reporting period. The three-month sales data is used to produce a schedule of average market values by species and log grade for mature timber stumpage rate determinations published monthly by Revenue Branch for stumpage rate calculations.

The same three-month schedule is adjusted on a species grade level to create a schedule for MPS second growth average log market values to be used for second growth MPS stumpage rate determinations. See Section 2.7 for the definition of second growth.

The second growth schedule adjustment table will be reviewed and/or updated as determined by the Director, Revenue Branch.

7.3.1 Log Grade Percentage

Log grade percentages are obtained for each species of timber in each cutting authority area being appraised or reappraised as described in Sections 7.3.1.1, 7.3.1.2, 7.3.1.3 and 7.3.1.4.

7.3.1.1 Billing History Record

The log scale data reported on stumpage invoices issued by Revenue Branch of the Ministry of Forests is the billing history record. The billing history record is kept by the Ministry of Forests.

A billing history record of a particular geographic area is a record of log scale data reported on stumpage invoices issued by the Revenue Branch of the Ministry of Forests for timber harvested in that geographic area.

Except as provided in Sections 7.3.1.2, 7.3.1.3 and 7.3.1.4, the part of the billing history record that will be used when the Appraisal Coordinator does an appraisal or reappraisal of a cutting authority area will be the two year billing history record as determined in Table 7-1 and Table 7-2. The date of issue on the stumpage invoice determines whether or not the log scale data is included in the two year billing history record.

Where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 7-1, the two year billing history record for the Licence or TSA shall end on the corresponding date in Column 2 of Table 7-1 which immediately precedes the effective date of the appraisal or reappraisal.

Table 7-1: Billing History Record for Licence or TSA

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

Where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 7-2, the two year billing history record for the cutting authority shall end on the corresponding date in Column 2 of Table 7-2 which immediately precedes the effective date of the appraisal or reappraisal.

Table 7-2: Billing History Record for Cutting Authority (Mark)

Date of Appraisal or Reappraisal	Billing History Record Ends on the Preceding
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

7.3.1.2 Log Grade Percentage Criteria

To determine the log grade percentages to be used for the cutting authority area being appraised or reappraised, the Appraisal Coordinator will apply the following criteria:

1. The log grade percentage is the percentage by volume that log grade is of the total volume, of the species of timber being considered.

2. Except as provided in Sections 7.3.1.2 (6, 7 and 8) and 7.3.1.4, 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. Before a two year billing history record for a species of timber can be used in an appraisal or reappraisal, that two year billing history record must be at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater.

5. a. Where there is not at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, within the two year billing history record of a Tree Farm Licence area or a Timber Supply Area, the billing history record that will be used for that species of timber will be the five year billing history record, and

   b. where the effective date of the appraisal or reappraisal falls within the period of the year listed in Column 1 of Table 7-1 or Table 7-2, the five year billing history shall end on the corresponding date in Column 2 of Table 7-1 or Table 7-2, which immediately precedes the effective date of the appraisal or reappraisal.

6. For the appraisal or reappraisal of a cutting authority area of a cutting authority issued under a Woodlot Licence the log grade percentages for each species of timber will be derived from the cruise compilation algorithm predictions.

7. For the appraisal or reappraisal of a cutting authority area of a cutting authority issued under the Small Business Forest Enterprise Program, or a replaceable Timber Sale Licence that does not consist of second growth (as defined in Section 2.7), the log grade percentages for each species of timber will be derived from:

   a. the two year billing history record, where the two year billing history record for that cutting authority includes at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, or

   b. the cruise compilation algorithm predictions, where the two year billing history record for that cutting authority does not include at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater.

8. For the appraisal or reappraisal of a cutting authority area consisting:

   a. second growth (as defined in Section 2.7) and that does not meet the criteria under 6. And 7. (above), or

   b. partial harvesting where 80% of the cutting authority volume is in cut blocks having at least 30% volume retention.

   The log grade percentages for each species of timber will be derived from:

   a. the two year billing history record, where the two year billing history record for that cutting authority includes at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3 whichever is greater, or

b. the cruise compilation algorithm preditions, where the two year billing history record for the cutting authority does not include at least 25% of the cutting authorities net cruise volume of that species or 2 000 m^3 whichever is greater.

9. Separation of cruise summary log grade data may be required for Cedar grades D and K, F and L, and I and M. These grades are separated by using the proportional grade percentages from the first appropriate level in Section 7.3.1.3.

7.3.1.3 Source of Log Grade Percentage for Each Cutting Authority

Except for those cutting authorities listed under Section 7.3.1.2 (6., 7. and 8.), the log grade percentages for each species of timber for the cutting authority area being appraised or reappraised will be determined using:

1. Section 7.3.1.3.1, where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of one Tree Farm Licence.

2. Section 7.3.1.3.2, where the cutting authority area being appraised or reappraised is entirely within the geographic boundaries of one Timber Supply Area.

7.3.1.3.1 Log Grade Percentages for a Cutting Authority 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 Appraisal Coordinator will determine the log grade percentages for that cutting authority area in the following manner:

1. a. If second growth timber (as defined in Section 2.7) refer to Section 7.3.1.2 (8.), or

   b. if cutting authority is not second growth, the Appraisal Coordinator will proceed to Subsection 2. of this section.

2. a. If 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 Appraisal Coordinator will proceed to Subsection 3. of this section.

   b. If Subsection 2. a. is not applicable, the Appraisal Coordinator will proceed to Subsection 4. of this section.

3. a. If the species being considered has a billing history record for that Timber Licence that meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 4. of this section.

4. a. If the species being considered has a billing history record for the portion of the Tree Farm Licence area that lies within the geographic boundaries of the forest district that contains the cutting authority area and that meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 5. of this section.

5. a. If the species being considered has a two year billing history record for the entire Tree Farm Licence area that contains at least 25% of the cutting authorities' net cruise volume of that species or 2 000 m^3whichever is greater, then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will determine the log grade percentages for that species in accordance with Section 7.3.1.2 (5.).

7.3.1.3.2 Log Grade Percentages for a Cutting Authority 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 Appraisal Coordinator will determine the source of the log grade percentages in the following manner:

1. a. If second growth timber (as defined in Section 2.7) refer to Section 7.3.1.2 (8.), or

   b. if cutting authority is not second growth, the Appraisal Coordinator will proceed to Subsection 2 of this section.

2. a. If the cutting authority area is entirely within the geographic boundaries of a Timber Licence(s), the Appraisal Coordinator will proceed to Subsection 3. of this section, or

   b. if not, the Appraisal Coordinator will then proceed to Subsection 4. of this section.

3. a. If the species being considered has a billing history record for that Timber Licence(s) that meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 6. of this section.

4. a. If the species being considered has a billing history record for the supply block of the Timber Supply Area for the cutting authorities that were issued under the same licence as the cutting authority area being appraised or reappraised and that billing history record meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 5. of this section.

5. a. If the species being considered has a billing history record for the Timber Supply Area for the cutting authorities that were issued under the same licence as the cutting authority area being appraised or reappraised and that billing history record meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 6. of this section.

6. a. If the species being considered has a billing history record for the entire supply block in the Timber Supply Area that meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will proceed to Subsection 7. of this section.

7. a. If the species being considered has a two year billing history record for the entire Timber Supply Area that meets the criteria of Section 7.3.1.2 (4.), then that billing history record will be the source of the log grade percentages for that species, or

   b. if there is no such billing history record, the Appraisal Coordinator will determine the log grade percentages for that species in accordance with Section 7.3.1.2 (5.).

7.3.1.4 Damaged Timber

If the regional manager determines that the timber in a cutting authority area is significantly damaged, then notwithstanding Sections 7.3.1.1, 7.3.1.2 and 7.3.1.3, the log grade percentages for the cutting authority area being appraised or reappraised may be estimated from available site specific information.

7.3.2 Calculation of Stand Selling Price

To calculate the stand selling price, use the procedures in Section 3.3. Note that for the calculation of stand selling price under MPS the volumes and prices of Alder, Birch, Maple, and Cottonwood are omitted from the calculation.

Section 3.3.1 Low Volume Cypress Exception does not apply to MPS.

7.4 Stumpage Calculations

7.4.1 List of MPS Variables

MARKET STUMPAGE PRICE	Market Stumpage Price for the cutting authority in $/m^3$.
ALP	Average log selling price estimate ($/m^3$) based upon log grades and species for the cutting authority area, and schedules of log market values collected and published by Revenue Branch.
VPH	Volume per hectare in m^3/ha. Calculated by dividing the total net coniferous cruise volume (m^3) by the total merchantable area (ha).
HP	Fraction of coniferous volume that will be helicopter logged. This is calculated by dividing the coniferous volume to be harvested by helicopter by the cutting authority area's total net cruise volume.
SOR	The untrended specified operation cost estimate ($/m^3$) as determined by the Regional Appraisal Coordinator. For the list of specified operations refer to Section 4.1.1.
HD	Truck haul distance (km). This is calculated using the procedures in Section 4.5.1.
ln (NB)	The natural logarithm of the number of bidders competing for the cutting authority.
VOL	Total net cruise volume of coniferous timber (m^3).
CPIF	BC Consumer Price Index (P110000) for current month divided by the base CPI of 109.3.

7.4.2 Preliminary Upset Stumpage Rate (Step 1)

Use the following equation to calculate the preliminary upset stumpage rate.

Preliminary Market Stumpage Price = [-56.1836 + 0.9916 (ALP/CPIF) + 14.6050 (VPH/1000) - 36.8188 (HP) - 6.4322 (RS) - 0.7053 (SOR/CPIF) - 0.1232 (HD) + 10.4944 * ln (NB) - FD] * CPIF

Where:

RS = 1, where the cutting authority area is accessible only by air or water and is not serviced by public ferries. Otherwise RS = 0.

FD = 9.2977 (North Coast Forest District)

16.1047 (Port McNeill Forest District)

19.1108 (Mid Coast Forest District)

15.6639 (Queen Charlotte Islands Forest District)

Otherwise FD = 0

NB = 5.3 (Coastal average number of bidders)

Preliminary Upset Stumpage Rate ($/m^3) = Preliminary Market Stumpage Price * (1-Discount Factor)

Where:

Discount factor = 0.30 or DCDF (see Section 7.4.6.1)

7.4.3 Number of Bidders (Step 2)

Use the equation below to calculate the estimated number of bidders.

Number of Bidders = 2.4176 + 0.03876 (Margin/CPIF) + 0.09650 (Δ ALP/CPIF) + 0.1760 (VOL/1000) - 0.00247 (VOL/1000)^2 - 2.2607 (HP) - 2.0634 (BARGEDUM) - 2.5571 (CTDUM) - 2.2939 (SKYDUM) - 2.9484 (ADUM) - 2.5990 (BLOWD) + FD

If VOL is greater than 35 000, then VOL = 35 000.

If the calculated number of bidders is less than 2, then the number of bidders = 2.

Where:

Margin = average log price current month - preliminary upset stumpage rate

Δ ALP = ALP current month minus ALP previous month ($/m^3)

FD = 1.0440 (South Island Forest District)

Otherwise FD = 0

The following variables take a value of 1 if the cutting authority area requires these specified operations, otherwise they are set to zero.

BARGEDUM

BARGEDUM = 1, where part of the route from local tie-up grounds at the appraised point of origin to point of appraisal is exposed to the open ocean swell. Otherwise BARGEDUM = 0.

Only points on the West Coast of Vancouver Island north of Port Renfrew, (except those routes totally east of a line drawn from Cape Beale to Amphitrite Point, including Ucluelet Harbour), and all points north of Cape Caution on the mainland are considered to require barge transportation.

CTDUM

CTDUM = 1, where the volume harvested from the cutting authority area is by commercial thinning. Otherwise CTDUM = 0.

Commercial thinning is a silviculture treatment that "thins" out overstocked second growth stands by removing trees that are large enough to be manufactured into lumber, post or pole products. It is carried out to improve the health and growth rate of the remaining crop trees. The cut is from "below" for the entire even-aged stand.

SKYDUM

SKYDUM = 1, where the cutting authority is harvested using a skyline system. Otherwise SKYDUM = 0.

Skyline logging includes any logging method that has short span, long span, or multispan systems using standing or running lines.

Logs must be a suspended clear of the ground to qualify as a skyline system and the average yarding distance must be greater than 300 m measured from the landing.

ADUM	ADUM = 1, where an A-frame is used to yard timber on the cutting authority area. Otherwise ADUM = 0. A-frame logging uses an A-frame spar with a yarder mounted on a large log float. The float is positioned along the shoreline and logs are yarded directly from the stump to the shore.
BLOWD	BLOWD = 1, where 50% or more of the net cruise volume in a cut block is blowndown. Otherwise BLOWD = 0.

7.4.4 Market Stumpage Price (Step 3)

Calculate the Market Stumpage Price using the equation below and the number of bidders (NB) calculated from Step 2. If number of bidders (NB) is less than 2, NB = 2.

Market Stumpage Price = [-56.1836 + 0.9916 (ALP/CPIF) + 14.6050 (VPH/1000) - 36.8188 (HP) - 6.4322 (RS) - 0.7053 (SOR/CPIF) - 0.1232 (HD) + 10.4944 * ln (NB) - FD] * CPIF

Where:

FD =	9.2977	(North Coast Forest District)
	16.1047	(Port McNeill Forest District)
	19.1108	(Mid Coast Forest District)
	15.6639	(Queen Charlotte Islands Forest District)

Otherwise FD = 0

7.4.5 Total Obligation Adjustment

This section does not apply to cutting authority areas under timber sale licences under Section 20 or 21 of the *Forest Act*. The Total Obligation Adjustment for those cutting authority areas is zero ($0.00m^3).

The Total Obligation Adjustment is the sum of the following:

- Overhead: the total corporate and forestry overhead cost estimate, from Section 4.6.1,
- road construction: the development cost estimate, from Section 4.3,
- market logger road cost: - $3.10/m^3,
- road maintenance: the routine maintenance and deactivation cost estimate, from Section 4.5.3,
- road and land use charges: the road use charges estimate, from Section 4.5.4,
- silviculture: the basic silviculture cost estimate, from Section 4.8,
- camp costs; dump, sort and boom: $6.42/m^3, and
- market logger overhead: - $4.00/m^3.

These adjustments are untrended and updated only at reappraisal.

7.4.6 Indicated Stumpage Rate

The Indicated Stumpage Rate is calculated using the following equation:

$$IR = (MSP * (1 - DF)) - TOA$$

Where:

IR	=	Indicated Stumpage Rate
MSP	=	Market Stumpage Price (as calculated in Section 7.4.4)
DF	=	Discount Factor (as calculated in Section 7.4.6.1)
TOA	=	Total Obligation Adjustment (as calculated in Section 7.4.5)

7.4.6.1 Discount Factor

For cutting authority areas not under timber sale licences under Section 20 or 21 of the *Forest Act*, the discount factor is zero.

For cutting authority areas under timber sale licences under Section 20 or 21 of the *Forest Act*, the discount factor is the greater of 0.30 or the high development cost discount factor (DCDF).

Where:

DCDF	=	(DC-3.10)/MSP
DC	=	Estimated development costs borne by the licensee, calculated using the procedures in Section 4.3
MSP	=	Market Stumpage Price calculated using the procedures in Section 7.4.4 and a discount factor of 0.30

If DCDF is greater than 0.30, the indicated stumpage rate is recalculated by performing the calculations in Sections 7.4.2, 7.4.3, 7.4.4, and 7.4.6, using the DCDF as the discount factor.

7.4.7 Prescribed Minimum Stumpage Rate

The Minimum Stumpage Rate is prescribed by the *Minimum Stumpage Rate Regulation* (B.C. Reg. 354/87). The current Minimum Stumpage Rate is $0.25 per cubic metre.

7.4.8 Reserve Stumpage Rate

For each timber mark in a cutting authority area, except those for timber licences, the Reserve Stumpage Rate is the greater of:

- the indicated stumpage rate, or
- the prescribed minimum stumpage rate.

For each timber mark in a cutting authority area, for a timber licence the Reserve Stumpage Rate is the greater of:

- the indicated stumpage rate reduced according to Section 105 of the *Forest Act*, or
- the prescribed minimum stumpage rate.

7.4.9 Upset Stumpage Rate

The Upset Stumpage Rate is equal to the Reserve Stumpage Rate.

Where a timber sale licence with stumpage rates calculated using MPS does not receive any bids and is subsequently awarded directly under Section 23 (1)(e) of the *Forest Act*, the advertised upset stumpage rate applies.

7.4.10 Total Stumpage Rate

The Total Stumpage Rate is the Upset Stumpage Rate plus any Bonus Bid.

7.5 Deciduous and Miscellaneous Forest Products

The stumpage rate for deciduous sawlogs, all species grade "Y" and other miscellaneous forest products are found in Section 6.6.

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