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May 31, 2002

To: Regional Managers – Interior

From: The Honourable Michael de Jong
Minister of Forests

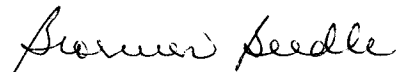
Re: Amendment No. 8 to the *Interior Appraisal Manual*

I hereby approve Amendment No. 8 to the *Interior Appraisal Manual*, and attach a copy for your use. The following sections have been amended.

- | | |
|---------------------|--|
| Section 3.3(5): | Slocan is added to Table 3-3 as a point of appraisal qualifying for shipping differential cost estimates. |
| Section 4.2: | References to the <i>Cruise Compilation User Manual</i> and the <i>Cruise Compilation Design Manual</i> have been deleted and replaced with references to the <i>Cruise Compilation Manual</i> . |
| Section 4.3.2.2(2): | Definitions have been revised for operation and block roads. |
| Section 4.10: | Definitions have been revised for the net area to be reforested when calculating the appraisal cost estimates. |



This amendment will come into force on June 1, 2002. Further amendments or revisions to the manual require my approval.



for Michael de Jong
Minister of Forests

Attachment

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Interior Appraisal Manual*



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MANUAL TITLE

Interior Appraisal Manual

REVISION No.

8

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June 1, 2002

PUBLICATIONS CO-ORDINATOR

Judy Laton
Revenue Branch

AUTHORIZATION (Name, Title)

W. Howard
Director, Revenue Branch

Please make the following changes to your copy of the above Ministry manual. Please insert the following specified pages and **file this notice** immediately after the Amendments Tab.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
	TABLE OF CONTENTS		
REMOVE	Chapter 3	9 - 10	
INSERT	Chapter 3	9 - 10	
REMOVE	Chapter 4	3 - 4 13 - 14 55 - 56	
INSERT	Chapter 4	3 - 4 13 - 14 55 - 56	
REMOVE	Index	3 - 4	
INSERT	Index	3 - 4	
INSERT	Minister's Letter and Transmittal Sheet		Behind Amendments Tab

3. Chip Yield Factors

Table 3-2 Chip Yield Factors

Species	Factor (BDU/fbm)
Balsam	.00072
Cedar	.00067
Fir	.00098
Hemlock	.00089
Larch	.00119
Lodgepole Pine	.00087
Spruce	.00076
White Pine	.00078
Yellow Pine	.00095

4. Determination of Stud Log Percent

The stud log percent is determined as follows:

The stud log percent for each stud species (spruce, balsam, lodgepole pine, Douglas fir and larch) is determined from the cruise compilation summary. The stud log percent is defined as the net volume of 5 m logs with top diameters under 20 cm expressed as a percentage of the total net cruise volume. The stud log percent is calculated and rounded to the nearest whole percentage point.

The percent stud AMV is determined as follows:

- If the stud log percent is 45 or greater and less than or equal to 65:

$$\text{the percent stud AMV} = (5 * \text{stud log \%}) - 225,$$
- If the stud log percent is less than 45, the percent stud AMV = 0, and
- If the stud log percent is more than 65, the percent stud AMV = 100.

5. Shipping Differential

The Shipping Differential for the following points of appraisal are:

Table 3-3 Shipping Differentials

\$0.58/m ³	\$1.01/m ³	\$5.80/m ³
Bear Lake	Adams Lake	Fort Nelson
Fort St. James	Clear Lake	
Mackenzie	Louis Creek	
Quesnel	Merritt	
Strathnaver	Midway	
	Okanagan Falls	
	Princeton	
	Slocan	
	Thrums	
	Westbank	
	Ymir	

6. Manufacturing Cost Differential

Table 3-4 Manufacturing Cost Differential

\$5.95/m ³
Fort Nelson

7. Calculation of Total Species End Product Selling Price

- a. Lumber AMV = $(\% \text{ Stud AMV}/100) * (\text{Stud AMV}/1000)$
 $+ (1.0 - (\% \text{ Stud AMV}/100)) * (\text{Random AMV}/1000),$
- b. Lumber SP = Lumber AMV * Appraisal LRF,
- c. Chip SP = Chip Value * Chip Yield, and
- d. Total Species SP = Lumber SP + Chip SP - D.

4.1.1 Specified Operations

In addition to the logging methods and phase costs that are covered by this manual, there are specified operations which require special cost estimating. Table 4-1 contains a complete list of specified operations for which certain phase cost estimates are based on the information on hand rather than on the tables and formulas in this manual. Other phase cost estimates in this manual are combined with the specified operation cost estimate to determine the total operating cost. Where appropriate, specified operations are weighted according to the applicable net cruise volume.

Specified operations shall be recognised only when the treatment is required within the Silviculture Prescription, Cutting Authority Document or the Forest Development Plan as dictated by site conditions. Where a specific treatment is not required based on these conditions, the conventional cost estimate shall apply.

Further information on specified operations may be obtained from the Regional Appraisal Coordinators.

Table 4-1 Specified Operations

Specified Operations	Affected Phase
Salvage of small patches of damaged or diseased timber dispersed over a large area ¹	Tree-to-Truck (Section 4.4), Transportation (Section 4.5.1 and 4.5.2), Road Maintenance (Section 4.6), Overhead (Section 4.8.1), and Silviculture (Section 4.10).
Kinbasket Lake Barge/Ferry not used for truck haul (private)	Special Transportation Systems (Section 4.5.4)
Root Disease Control (Pushover Logging and Stump Removal) ²	Silviculture (Section 4.10)
Skidder Swinging (includes all ground skidding methods) ³	Tree-to Truck (Section 4.4)

1. The Regional Manager or their designate will determine which of the affected phases listed in the table apply.
2. Felling of trees by pushing them over to expose the root ball for root disease control purposes. The root balls may or may not be piled and burned.
3. Skidder swing will only be considered between harvest methods listed in Section 4.4.1 (four methods), in order to deliver logs to an existing or appraised road/landing.

4.2 Appraisal Data Requirements

The cruise and all other pertinent information required for the appraisal must be submitted by the licensee with the appropriate Interior Appraisal Data Submission to the District Manager.

Unless otherwise specified by the Director, Revenue Branch, cruise data must be gathered and compiled according to the approved interior standard timber utilization specifications in Table 4-2 below and in accordance with the following Ministry of Forests publications:

- *Cruising Manual* (*Cruising Manual* web site: <http://www.for.gov.bc.ca/revenue/manuals/cruising/>),
- *Cruise Compilation Manual*,
- Regional Publications - (e.g., *Operational Cruising Requirements in a Forest Region*), and
- Forest Service Policies - (e.g., *Timber Utilization Standards, Policies & Procedures for the Interior of the Province*).

Table 4-2 Standard Timber Utilization Requirements

Description	
The following standard timber utilization requirements must be used for all appraisals.	
Stumps (Measured on the side of the stump adjacent to the highest ground.)	
• no higher than	30.0 cm
Diameter (outside bark) at stump height	
• lodgepole pine: all timber that meets or exceeds	15.0 cm
• all other species: all timber that meets or exceeds	20.0 cm
Top diameter (inside bark or slab thickness)	
• for all species and ages, except cedar older than 141 years, all timber that meets or exceeds	10.0 cm
Top diameter (inside bark or slab thickness)	
• for cedar older than 141 years, all timber that meets or exceeds	15.0 cm
Minimum length	
• log or slab	3.0 m

In order to verify the accuracy of the cruise compilation program, the licensee must provide, on request, photocopies of the tally sheets and a magnetic copy of the data list in a format prescribed by the Regional Manager.

4.3.2.1 Subgrade Construction

The subgrade construction cost estimate includes:

- clearing,
- grubbing,
- stripping,
- debris disposal,
- stump removal,
- ditch construction,
- turnout construction (not landings),
- material costs, and
- installation of culverts with diameters up to 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)

Road sections are recorded in multiples of 0.1 km. Each section should be representative of a single moisture class. Each section should be 1 km or longer, although some individual section lengths less than 1 km but greater than 0.1 km are acceptable for extreme variations of slope or percent rock. The section length includes that portion traversing through landings. For ground skidding, short roads (up to and including 100 m long) that access single landings are included in the tree-to-truck cost estimates (Section 4.4) and are not eligible for development cost estimates.

2. Road Type:

- Operational Roads (OP): - are generally built under the authority of a road permit but portions may be constructed under the cutting authority. An operational road exists within a cutblock when the road accesses timber beyond the cutblock or is intended to access timber beyond the block as shown on a forest development plan, and there is a physical separation of the blocks or cutting authorities. Blocks or cutting authorities that share a common boundary are not considered separate for the purposes of defining the road type.
- Block Roads (BLOCK): - are generally built under the cutting authority and include roads which are located completely within the cutblock, contiguous to the edge of a cutblock, access separate portions of a cutblock covered under the same silviculture prescription, or access a series of cutblocks that share a common boundary. Those cutblocks that share boundaries may be included in the cutting authority being appraised or a different cutting authority.

- Snow Roads (WINTER): - snow roads are a form of overland construction that uses clean snow and ice as fill. Suitability of materials is not an issue as all are frozen. Stripping is limited to large stumps that cannot be easily covered with snow or ice. Cuts into mineral or organic soil must not exceed 0.3 m in depth for sustained distances or 0.5 m in depth for distances up to 5 m. This road type includes operational and block road categories. Stabilizing costs are not applicable. Snow (winter) roads constructed on side slopes of greater than 15% are appraised as block roads.

3. Uphill Side Slope: (SLOPE %)

Uphill side slope percent may show a variation (+/- 15% about the average) within any section length and represents the average of all slopes in the section to a maximum of 50%, except Road Group 1 where 59% is the maximum. To derive an average for uphill side slope percent, several representative cross-section measurements are taken along the section length and the sum of one-half of the distance on each side of the measurement is applied as a weight against the measurement at that cross-section. The uphill side slope percent is measured at right angles to the road centreline and is recorded to the nearest integer. Where the road is located on a bench, the uphill side slope of the bench is used.

4. Percent Rock: (ROCK %)

Rock includes bed rock and large boulders. It may be rippable or may require drilling and blasting. Rock percent may show a variation (+/- 15% about the average) within any section length and represents the average of all rock percents in the section to a maximum of 50%, except Road Group 1 where 59% is the maximum. To derive an average percent rock, several representative cross-section measurements are taken along the section length and the percent rock calculated. The sum of one-half of the distance on each side of where the measurements were taken is applied as a weight against the percent rock calculated at that cross-section. The percent rock is determined as follows:

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

Where:

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

H = the total vertical cut height of all materials above the bottom of the ditch

To determine the percent rock for roads not yet constructed, constructed roads on similar land/rock forms are used as a guide.

The net area to be reforested (NAR) is to be taken from the cruise area with appropriate net down factors. The NAR must not be larger than the area directly attributed to the appraised volume of the cutting authority.

Individual areas of non-commercial brush (NCBR) of less than four hectares growing on productive forest land are included in the applicable treatment regime(s) used to calculate the basic silviculture cost estimate. Subject to approval by the District Manager, these areas are eligible for a cost estimate of 1.2 times the applicable treatment regime(s) cost. Individual areas of NCBR greater than 4 ha in size must not be included in the appraisal.

In the case of mixed stands where the cutting authority document requires mandatory utilization of deciduous timber, the deciduous area is included in the applicable treatment regime(s) used to calculate the basic silviculture cost estimate and the deciduous volume is included in the total net merchantable volume for the calculation of silviculture cost estimates.

Each treatment regime cost estimate is determined as follows:

$$(\$) = \text{treatment regime cost } (\$/\text{ha}) * [\text{Net merchantable area} + (\text{NCBR} * 1.2)] * R$$

Where:

Net merchantable area = Net area to be reforested.

NCBR = individual areas of non-commercial brush of 4 hectares or less in size.

R = volume removal factor and is calculated for each treatment regime area.

$$R = \frac{\text{Volume Required to be Harvested}}{\text{Total Net Cruise Volume}}$$

Where:

R = 1 if the entire volume is required to be harvested (i.e., clear cut).

R = 1 for treatment regime G in all cases.

The Basic Silviculture Cost Estimate is determined as follows:

$$\$/\text{m}^3 = \frac{\text{Summation of Treatment Regime Cost Estimates}}{\text{Total Net Volume (m}^3\text{)}}$$

Each portion, by area, of a cutting authority that requires less than 90 percent volume removal must have one or more separate treatment regime cost estimates (i.e., partial cut areas and clear cut areas may not be combined). Any areas with 90 percent or more removed will be considered a clear cut and deemed equal to 100%.

4.11 Manufacturing Cost Estimates

In the interior, appraisal calculations include estimates of the cost of manufacturing lumber and chips. Manufacturing cost estimates are developed from a survey of sawmills and encompass all phases of manufacturing beginning with the dewatering of logs or unloading of logging trucks at the mill log yard, (land or water or satellite log yards), and ending when the lumber and chips have been loaded on rail cars or trucks for transport to market.

The survey collects actual costs to the licensee, including wages, benefits, overtime, depreciation, fuel, supplies, repair, maintenance, applicable licences, insurance, etc. from a representative sample of interior operations.

The cost estimates reflect average conditions, operating practices, and phase accounting allocations experienced in the survey data. Because of this averaging, no additions to or subtractions from these estimates are permitted to reflect operation-specific conditions.

The estimates have an effective cost base date of July 1, 1999, and will be used for all appraisals, reappraisals and adjustments of stumpages rates.

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