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January 10, 2002

To: Regional Managers -Interior

From: The Honourable Michael de Jong
Minister of Forests

Re: Amendment No. 6 to the *Interior Appraisal Manual*

I hereby approve Amendment No. 6 to the *Interior Appraisal Manual*, and attach a copy for your use. The following sections have been amended:

Section 4.3.2.3: Subgrade Cost Estimate. Revised text in Table 4-3 clarifies which supply blocks are included in Road Groups 5 and 6.

Section 4.5.1(1): Truck Haul Variables. For harvesting related to bark beetle infested timber, the revised text enables the calculation of hauling cycle time to the licensees' normal point of appraisal under certain conditions.



This amendment will come into force on the date of this memo. Further amendments or revision to this manual require my approval.

A handwritten signature in black ink, appearing to be "Michael de Jong".

Michael de Jong
Minister

Attachment

pc: Bill Howard, Director, Revenue Branch

All Subscribers, *Interior Appraisal Manual*



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Judy Laton
Revenue Branch

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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
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Table 4-3 Road Groups

Road Group #	Districts Included	Within the Geographic Boundary of a TSA, SB and TFL
1	Kalum, Kispiox	
2	Bulkley - (Cassiar), Lillooet	
3	Lakes, Morice	
4		Williams Lake TSA, SBs J, K & L Prince George TSA, SBs G & H, TFLs 30, 53 Quesnel TSA, SBs E, F, G, H & I, TFL52 100 Mile House TSA, SBs, G & H
5	Vanderhoof	Prince George TSA, SBs C, E, F & I
6		Mackenzie TSA, SBs G through P, Prince George TSA SB's A & B
7	Dawson Creek Fort St. John Fort Nelson	Mackenzie TSA, SBs A through F
8	Chilcotin	Williams Lake TSA, SBs F, G, H, I and P Quesnel TSA, SBs A, B, C & D, TFL5 100 Mile House TSA, SBs A, B, C, D, E, F
9	Kamloops Merritt Penticton Vernon	
10	Boundary Cranbrook Invermere	
11	Arrow Columbia (Golden, Revelstoke) Kootenay Lake	
12	Clearwater Robson Valley Salmon Arm	Williams Lake TSA, SBs M & N

Woodlot and Timber Licence cutting authorities are assigned to the road group for the area in which they are geographically located.

4.3.2.4 Drainage Structures

An appraisal may include a cost estimate for large drainage structures only where their requirement is substantiated by field data. Such structures shall be placed so as to maintain the natural drainage pattern of the area crossed by the proposed road. All pipe culverts under 950 mm in diameter and all single log abutment culverts under 3.5 m span length are included in the subgrade cost estimates (see Section 4.3.2.1).

See page 39 of the *Forest Road Engineering Guidebook* for a detailed description.

See pages 85 (Pipe Culverts) and 93 (Log Culverts) of the *Forest Road Engineering Guidebook* for detailed description.

1. Culverts

The cost estimates for the supply and installation of culverts from 0.95 m to 1.8 m in diameter are determined from Table 4-4 that follows. Detailed engineering cost estimates are required for larger metal culverts (culverts smaller than 0.95 m are included in the subgrade costs). No interpolation of values is permitted. Total installation cost for culverts includes all costs of transporting the culvert to the jobsite and all costs of installation of the culvert to the final subgrade stage.

The final prorated tree-to-truck cost estimate is determined according to the following equation where each component is rounded to the nearest cent before totalling:

$$\begin{aligned} \$/\text{m}^3 = & \frac{(\text{Cost Heli})(^V \text{Heli})}{(\text{TNCV})} + \frac{(\text{Cost Horse})(^V \text{Horse})}{(\text{TNCV})} + \frac{(\text{Cost OC(C)})(^V \text{OC(C)})}{(\text{TNCV})} + \\ & \frac{(\text{Cost OC(P)})(^V \text{OC(P)})}{(\text{TNCV})} + \frac{(\text{Cost GS(C)})(^V \text{GS(C)})}{(\text{TNCV})} + \frac{(\text{Cost GS(P)})(^V \text{GS(P)})}{(\text{TNCV})} + \frac{(\text{Cost SK})(^V \text{SK})}{(\text{TNCV})} \end{aligned}$$

Where:

Cost	=	cost estimate (\$/m3) including any damaged timber additive
V	=	volume (m3) required to be logged by each system
Heli	=	helicopter logging
Horse	=	horse logging
GS (C)	=	ground skidding (clear cut)
GS (P)	=	ground skidding (partial cut)
OC(C)	=	overhead cable logging (clear cut)
OC(P)	=	overhead cable logging (partial cut)
SK	=	skyline logging
TNCV	=	total net cruise volume (m ³)

4.5 Log Transportation

The log transportation phase covers all aspects of log movement from the place of initial loading to the point of appraisal, including truck haul, rail, water and other specialized transportation. The use of Section 4.5.1, 1., c. does not affect any other provision that requires the use of the least cost point of appraisal.

4.5.1 Truck Haul Variables

1. Cycle Time:

For appraisal purposes, weighted average Cycle Time (CT) is the estimated time in hours (rounded to the nearest 0.1 hour) for transporting logs from the centre of a cutting authority area to:

- a. the least cost point of appraisal,
- b. the appraisal place of unloading in the case of water or rail transport, or
- c. where the harvest transfer to control a bark beetle infestation has passed the economic test specified by the Ministry of Forests, and;
 - i. if the Minister of Forests has given approval for the temporary transfer of cutting rights from one timber supply area or TFL to another timber supply area or TFL in order to control a bark beetle infestation, the place that would have been the point of appraisal if the timber had been harvested in the timber supply area or TFL from which the cutting rights have been transferred, or
 - ii. if the Regional Manager has given approval for the temporary transfer of cutting rights within a timber supply area in order to control a bark beetle infestation, the place that would have been the point of appraisal if the transfer of cutting rights had not taken place.

Paragraphs c., i. and ii. above expire December 31, 2002.

2. To determine weighted average cycle time:

- a. establish the geographical centre point of each cutblock and project this point to the nearest road for measurement purposes,
- b. from this centre point, determine the cycle time to the nearest junction serving all cutblocks,
- c. weight the cycle time for each cutblock by the volume on the cutblock and determine the average weighted cycle time to the junction. If the cutblock volume is not available, the cutblock area is used, and
- d. determine the cycle time from the junction to:

- i. the least cost point of appraisal,
- ii. the appraisal place of unloading,
- iii. if the economic test is passed and the Minister of Forests has given approval for the temporary transfer of cutting rights from one timber supply area or TFL to another timber supply area or TFL in order to control a bark beetle infestation, the place that would have been the point of appraisal if the timber had been harvested in the timber supply area or TFL from which the cutting rights have been transferred, or
- iv. if the economic test is passed and the Regional Manager has given approval for the temporary transfer of cutting rights within a timber supply area in order to control a bark beetle infestation, the place that would have been the point of appraisal if the transfer of cutting rights had not taken place.

Paragraphs iii. and iv. above expire December 31, 2002.

and add this to the average weighted cycle time from 'c.' above.

The cycle consists of loading, hauling, weighing, unloading, return time, and unavoidable delays. The cycle time will normally be determined by taking into consideration all the factors that may affect it: distance, expected rate of speed, necessary delays, expected standard of roads and their maintenance, traffic density, and seasonal weather conditions.

In many cases standard cycle time schedules from specific road junctions to the point of appraisal have been developed and should be used (Sector times).

Unavoidable delays are periods when the truck is on the job but not operating due to unpredictable delays such as; tightening binder chains, minor repairs made by driver, checking and adjusting brakes, minor delays prior to loading and unloading, refuelling, etc. Unavoidable delay time does not include any breakdown which requires shop repair, the services of a skilled mechanic, or a spilled load of logs. The time for load, unload and unavoidable delay is set at 75 minutes for cable yarding systems (see Section 4.4.3 (4)) and 60 minutes for all other systems (see Section 4.4.3 (1), (2), & (3)).

3. Haul Method

Cost estimates do not recognize different types of logging trucks. The estimate is based upon the possible haul method, either highway or off-highway and not specifically on the licensee's particular method.

Highway hauling is assumed when loaded logging trucks must travel in part over roads administered under the *Highway Act*, without truck-to-truck transfer, to the point of appraisal, or on roads administered under the *Highway (Industrial) Act* where prolonged known road restrictions prevent the use of oversize loads, or in all instances where the volume per tree is less than 0.20 m³.

Off-highway hauling is assumed when loaded logging trucks can travel over roads administered under the *Highway (Industrial) Act* to the point of appraisal, or to a recognized reload. Where prolonged known restrictions (e.g., bridge load limit, narrow road, through rock cut, WCB Regulations, etc.) prevent the use of oversize loads, highway haul is assumed.

4.5.2 Truck Haul Cost Estimates

4.5.2.1 Primary Haul

The primary truck haul cost estimate is determined from the following equation.

1. Highway Haul

For all highway haul equations if the CT is greater than 0 then the minimum is \$0.14/m³. If CT = 0 then \$/m³ = 0.

$$\$/\text{m}^3 = \text{CONSTANT} + (2.02 * \text{CT}) - (1.01 * \text{CE\%/100}) + (2.24 * \text{HE\%/100}) + (1.23 * \text{LA\%/100}) - (0.32 * \text{PL\%/100}) - (1.75 * \text{PW\%/100}) - (0.89 * \text{SP\%/100})$$

Where:

REGION	:	Kamloops	Prince George *	Other
CONSTANT	=	-0.13	-0.48	0.12

* Excluding FNP

2. Off-Highway Haul

For all off-highway haul equations if CT is greater than 0 then the minimum is \$0.29/m³. If CT = 0 then \$/m³ = 0.

$$\$/\text{m}^3 = \text{CONSTANT} + (1.38 * \text{CT}) - (2.22 * \text{CE\%/100}) + (1.12 * \text{HE\%/100}) - (0.46 * \text{SP\%/100})$$

Where:

REGION	:	Cariboo	Kamloops	Nelson	Other
CONSTANT	=	1.36	1.13	1.26	0.54

For both highway and off-highway.

CT = Cycle time to the nearest 0.1 hours

CE = Cedar LA = Larch

HE = Hemlock SP = Spruce

PL = Lodgepole Pine PW = White Pine

For both hauling equations, the species listed are the species percents taken from the Appraisal Data Submission to the nearest 1.0 percent.

4.5.2.2 Secondary Haul

The secondary haul cost estimate is made when logs must be truck hauled between the dewater and reload site to the appraisal point.

$$$/m^3 = 1.862 * CT$$

CT for the secondary haul is determined using the method described in Section 4.5.1(2).

4.5.3 Water Transportation Cost Estimate

A water transportation cost estimate is made when logs must be transported by water between the cutting authority and the point of appraisal or reload. The estimate includes the costs of strapping logs on the truck, dumping, booming, developing and operating dumping and booming grounds, and towing. The cost estimate for reservoir lakes applies to all marine appraisals and to Arrow, Kinbasket, Ootsa, Revelstoke and Williston Lakes. All other lakes receive the natural lake cost estimate.

1. Dump and Boom:

Reservoir Lakes and Marine: $$/m^3 = \4.55

Natural Lakes: $$/m^3 = \2.18

2. Tow:

All $$/m^3 = 1.0176 + 0.002736 * d$

Where; d = one-way tow distance in kilometres

3. Dewater and Reload:

All $\$/\text{m}^3 = \1.97

Only considered if the mill infeed is not located on the same lake, or a dam transfer is required. Otherwise dewatering is part of the manufacturing cost estimate.

4.5.4 Special Transportation Systems

A special transportation system is recognized 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.

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:

B.C. Rail - Dease Lake Extension: $\$/\text{m}^3 = \4.05

All Other Railways: $\$/\text{m}^3 = \3.35

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 4-6 BC Rail Log Transportation

Origin	Cost Estimate ($\$/\text{m}^3$)	Point of Appraisal
Leo Creek	8.35	Fort St. James
Lovell	11.19	Fort St. James
Bear Lake	16.09	Fort St. James
Minaret Creek	17.59	Fort St. James
Niteal	15.25	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 system is feasible to provide the road link for logging trucks, the cost estimate for this phase, regardless of ownership is:

Reservoir Lakes	$\$/\text{m}^3 = \3.98
-----------------	--------------------------

Natural Lakes	$\$/\text{m}^3 = \2.02
---------------	--------------------------

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

The cost estimate includes all costs associated with the operation of the systems and includes bubble systems where applicable.

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

All lakes	$\$/\text{m}^3 = \0.72
-----------	--------------------------

4.6 Road Maintenance

Where the licensee is obliged to carry out road maintenance, routine road maintenance includes but is not limited to, the following:

- grading
- snowplowing and freezing in
- sanding
- spot gravelling (< 0.3 km distance)
- culvert repairs and thawing
- culvert removal (< 950 mm)
- culvert replacement (< 950 mm)
- non-structural maintenance of bridges
- bridge re-decking/wearing surface replacement
- ditching
- snow road reconstruction
- road use charges paid to other licensees
- seasonal erosion control
- roadside treatments
- sign maintenance
- dust control
- brushing
- minor flood and storm damage repair
- slough removal (restricted to 250 m³ or less material volume per slough)
- water bar construction (seasonal)
- road ripping
- cross ditch construction
- grass seeding

The cost estimate for all routine maintenance carried out on logging operations depends on the geographic location of the cutting authority area (refer to Table 4-7).

Cutting authorities issued under forms of tenure not located administratively within a Tree Farm Licence area or Timber Supply Area will be assigned the routine road maintenance cost estimate for the TFL or TSA/Supply Block in which the cutting authority is geographically located.

The geographic location is recognized by Forest Region, Timber Supply Area and Supply Block, and Tree Farm Licence as follows.

Table 4-7 Road Maintenance Cost Estimates

Region	TFL #	TSA	TSA #	Supply Block	\$/m3
Prince Rupert	1 41	Bulkley	3	All	2.70
		Cassiar	4	All	2.17
		Cranberry	42	All	2.17
		Kalum	10	All	2.17
		Kispiox	12	All	1.56
		Lakes	14	All	1.56
		Morice	20	All	1.60
		Nass	43	All	2.17
					2.17
Region Avg.:					2.17
					1.82

Region	TFL #	TSA	TSA #	Supply Block	\$/m3
Kamloops	15	Kamloops	11	1	2.15
		Kamloops	11	2, 3, 4	1.13
		Lillooet	15	All	2.89
		Merritt	18	All	1.05
		Okanagan	22	1, 2, 3	2.36
		Okanagan	22	4, 5	1.84
		Okanagan	22	6, 7, 8, 9	2.81
	18				2.36
	33				2.15
	35				2.81
	49				1.13
					1.84
Region Avg.:					1.83

Region	TFL #	TSA	TSA #	Supply Block	\$/m3
Prince George		Dawson Creek	41	All	1.86
		Fort Nelson	8	All	4.00
		Fort St. John	40	All	3.05
		Mackenzie	16	All	2.34
		Prince George	24	A, B, C	1.53
		Prince George	24	D	1.34
		Prince George	24	E, F, I	1.45
		Prince George	24	G, H	4.20
		Robson Valley	17	All	2.30
	48				1.86
	30				1.45
	53				4.20
	42				1.53
Region Avg.:					1.90

Region	TFL #	TSA	TSA #	Supply Block	\$/m3
Nelson		Arrow	1	All	3.10
		Boundary	2	All	2.34
		Cranbrook	5	All	1.76
		Golden	7	All	4.35
		Invermere	9	All	2.10
		Kootenay Lake	13	All	3.13
		Revelstoke	27	All	3.04
	3				3.10
	23				3.10
	8				2.34
	14				2.10
	55				3.04
	56				3.04
Region Avg.:					2.61

Note: TFL 13 has been rolled into a Forest Licence and therefore dropped from the table.

Region	TFL #	TSA	TSA #	Supply Block	\$/m3
Cariboo		Quesnel	26	A, B, C, D	0.53
		Quesnel	26	E, F, G, H, I	1.13
		Williams Lake	29	A, B, C, D, E, I	0.97
		Williams Lake	29	F, G, H, J	1.09
		Williams Lake	29	K, L	1.12
		Williams Lake	29	M, N	2.53
		100 Mile House	23	All	1.37
	5				0.53
	52				1.13
Region Avg.:					1.04

4.7 Road and Land Use Charges

Prior to a road or land use charge being included in an appraisal, the licensee must:

- a. submit a "Request for Approval of a Road Use Charge" form with the Appraisal Data Submission; and
- b. receive written approval of the road or land use charge from the Regional Manager.

1. Charges as a Share of Road Maintenance

- a. No recognition is made of such charges. The routine road maintenance cost estimate, Section 4.6, includes all relevant costs whether incurred directly by the licensee or by payment to another party for services performed.

2. Charges Other Than for Road Maintenance

There are three main categories of road status:

a. Forest Service Roads

A road that is declared, determined, built, maintained or modified by the ministry, as defined in forest legislation. No road use charges will be considered in appraisals,

b. Permitted Roads

Roads built on Crown land, authorized by road permit or other cutting authority documents. This category also includes foreshore leases, camp areas and dryland sorts. No road use charges will be considered in appraisals,

c. Other Roads

Road use charges for roads on Indian Reserves or on private land owned by an arm's length third party and not subject to a lease held by the licensee, their affiliate or an agent of either, may be considered in appraisals provided there is no lower cost route capable of development through Crown land.

The charges recognized must be reasonable, must not exceed compensation that might be determined under forest legislation and must be proven through the presentation of auditable documents.

3. Other Land Use Charges

Only non-governmental land use charges will be considered in appraisals.

4.8 Administration and Other Costs

4.8.1 Overhead

Overhead cost estimates are for the related administration and supervisory activities attributed to development, tree-to-truck, transportation and basic silviculture that occur at the head office, branch office and camp or operation.

Overhead costs include:

- Office Operations,
- Scaling,
- Cruising,
- Environmental Protection,
- Consultants fees (Section 4.3.3),
- Archaeological surveys,
- Waste and Residue surveys,
- Right-of-way easements,
- Foreshore and other land leases,
- Tree marking Beetle probing & Pheromone baiting,
- Engineering (road layout, survey (including geotechnical surveys), and design), other than those applicable as Engineered Cost Estimate.

Cost estimates by forest district are shown in the following table:

Table 4-8 Overhead Cost Estimates

District	\$/m ³	District	\$/m ³
100 Mile House	7.17	Kispiox	7.50
Arrow	10.10	Kootenay Lake	10.31
Boundary	7.79	Lakes	6.66
Bulkley (Cassiar)	6.73	Lillooet	11.08
Chilcotin	6.48	Mackenzie	6.83
Clearwater	9.09	Merritt	7.20
Columbia (Golden, Revelstoke)	12.24	Morice	6.59
Cranbrook	8.09	Penticton	7.55
Dawson Creek	7.30	Prince George	6.85
Fort Nelson	7.28	Quesnel	6.95
Fort St. James	6.78	Robson Valley	9.37
Fort St. John	6.40	Salmon Arm	8.47
Horsefly	7.09	Vanderhoof	6.61
Invermere	9.43	Vernon	7.53
Kalum	10.84	Williams Lake	7.45
Kamloops	7.65		

4.8.2 Isolated Cutting Authority Areas

An isolated cutting authority area has no continuous road access to the nearest support centre (listed in Section 4.4.2(6)). The exception is where there is continuous road access, but the route is not routinely used to transport people, equipment or supplies to the cutting authority area. Continuous road access includes public ferry service, private daily ferry and daily barge service.

For isolated cutting authorities not serviced by camps the isolation cost estimate covers, the costs of moving people, equipment and supplies to and across the non-road portions of the route to the cutting authority area whether by crew boat, periodic barge service, air, or rail.

For isolated cutting authorities serviced by camps, the isolation cost estimate includes the depreciation, maintenance and operating costs of any camp facilities and the non-recoverable costs incurred for a cookhouse, family quarters, bunk houses, shop, office and other pertinent buildings. However, the costs of moving people, equipment or supplies by road from the isolated camp location to the cutting authority are covered by the distance variable in the tree-to-truck equation.

The cost estimates for isolated cutting authorities with the following access are:

Rail access: $\$/\text{m}^3 = 8.84$

Water access: $\$/\text{m}^3 = 5.70$

4.8.3 Low Volume Cost Estimate

All fully appraised cutting authorities are eligible for a specific low volume cost estimate in addition to all other phase cost estimates.

1. Where the licence to which the cutting authority belongs has an Allowable Annual Cut of Crown timber greater than 0 m^3 and less than $3\,000 \text{ m}^3$;

$$\$/\text{m}^3 = 9.69$$

In a case where the AAC of a licence has been temporarily increased through a determination made by either a District Manager or a Regional Manager under Section 8(6) of the *Forest Act*, the AAC, as it was prior to the temporary increase, will be used to determine whether or not the licensee is entitled to receive this cost estimate in the appraisal.

2. Where the licence to which cutting authority belongs has an AAC of $3\,000 \text{ m}^3$ or greater and the net cruise volume for the cutting authority is less than $3\,000 \text{ m}^3$;

The cost estimate is:	Ground Skidding	$\$0.67/\text{m}^3$
(prorated by volume)	All Other	$\$0.00/\text{m}^3$

3. Where the licence to which cutting authority belongs has no AAC and the cutting authority net cruise volume is less than 3 000 m³;

$$$/\text{m}^3 = 0.03$$

4.9 Post-Logging Treatment Costs

Post-logging costs are those which are incurred after logging because of treatments specified in the cutting authority. All post-logging requirements are included in the tree-to-truck phase.

4.10 Basic Silviculture Cost Estimate

Basic silviculture cost estimates are made for all cutting authorities where basic silviculture is required.

Basic silviculture treatment regime(s) cost estimates include all treatment costs that are required to achieve the free-growing stocking standards, as referred to in the *Silviculture Practices Regulation* (B.C. Reg. 108/98).

The following table lists the treatment regimes and associated cost estimates (\$/ha) for each group of forest districts.

Table 4-9 District Silviculture Groupings

Group 1	Group 2	Group 3	Group 4
Columbia	Arrow Kalum Lillooet Kootenay Lake	Clearwater Invermere Robson Valley	Salmon Arm Cranbrook

Group 5	Group 6	Group 7	Group 8
Kispiox Boundary Kamloops Penticton Vernon	Merritt Dawson Creek Williams Lake Horsefly 100 Mile House	Prince George Quesnel Bulkley (Cassiar) Fort St. James Mackenzie Morice Lakes Vanderhoof	Chilcotin Fort St. John Fort Nelson

Table 4-10 Treatment Regime Cost Estimates

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Regime	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha	\$/ha
A	3624	2984	2991	3060	2465	2511	2391	2442
B	3011	2534	2539	2582	2100	2046	1969	2033
C	1787	1854	1929	2615	1474	1371	1315	1358
D	1242	1855	2075	3589	1407	1201	1138	1164
E	2422	2100	2040	2202	1759	1599	1605	1626
F		2014	1961		1702	1627	1591	1629
G	889	1311	1443	2768	972	916	777	886
H	3087	2294	2125	2396	1961	2115	1955	2025
I		1607	1421	1697	1407	1463	1338	1436
J		411			294	307	248	342
K		94	82	93	65	90		
M	2012	1571	1476	1885	1213	1520	1335	1446

All regimes assume a combination of manual and chemical brushing and weeding (i.e., a blended cost estimate).

Where stump removal for root disease control is required, a cost estimate may be determined as a specified operation as described in Section 4.1.1.

The area requiring basic silviculture treatment includes only the portion of the land on which the licensee is required to establish a free-growing crop of trees, as specified in the *Forest Practices Code of British Columbia Act*. Basic silviculture treatment may not be required on some cutting authorities (e.g., right-of-way, licence-to-cut (gravel pit)).

Basic silviculture cost estimates will not be included in the appraisal where silviculture is specified as not required in the licence document, cutting authority or by applicant's agreement.

If available, the net area to be reforested is to be taken from the “Silviculture Prescription” (SP); otherwise the best information at hand (i.e., cruise area with appropriate net down factors) will be used.

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

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:

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

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.

Table 4-11 Untrended Manufacturing Cost Estimates

Untrended Manufacturing Cost Estimates (\$/m³) 1999 Cost Survey Base		
	Species	Manufacturing cost (\$/m³) 0% Decay
Northern Interior (Zone 5)	LO	34.30
	SP	35.30
	BA	37.35
	FI, LA, WH, YE	50.00
	CE	46.75
	HE	44.49
Skeena (Zone 6)	LO	30.14
	SP	30.98
	BA	33.53
	CE	42.45
	HE	39.27
Southern Interior (Zone 7)	LO	38.31
	SP	38.47
	BA	41.14
	FI, LA, WH, YE	54.79
	CE	53.19
	HE	51.41

Untrended Manufacturing Cost Estimates (\$/m ³) 1999 Cost Survey Base		
Southern Cariboo (Zone 8)	Species	Manufacturing cost (\$/m ³) 0% Decay
	LO	36.70
	SP	37.23
	BA	39.73
	FI, LA, WH, YE	52.37
	CE	47.24
	HE	45.45

Fort Nelson/Peace (Zone 9)	LO	31.14
	SP	31.93
	BA	33.48

To derive the manufacturing cost estimate for decay % from 1 to 50, use the above table values in the following equation:

The cost estimate is calculated to four decimal places, then rounded to the nearest cent. Where decay exceeds 50 percent, the manufacturing cost estimate for 50 percent decay is used.

Manufacturing cost (\$/m³) = decay% * 0.1789 + base value from table.

For a list of points of appraisal by zone, refer to Section 2.5.

4.12 Cost Trend

Cost trend factors are separately applied to the total logging, silviculture and manufacturing cost estimates. The factors cover the period from the effective date of the cost base to the effective date of the rate calculation. Cost trend factors are applied at the appraisal effective date and at the date of each stumpage adjustment.

For trend factors applicable prior to July 1, 2001, refer to earlier *Interior Appraisal Manuals*.

Appraisal Effective Dates From October 1, 1993 to September 30, 1994

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.443	1.0
January 1 to March 31, 2002	1.443	1.0
April 1 to June 30, 2002	1.443	1.0
July 1 to September 30, 2002	1.443	1.0

Appraisal Effective Dates From October 1, 1994 to July 31, 1995

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.403	1.0
January 1 to March 31, 2002	1.403	1.0
April 1 to June 30, 2002	1.403	1.0
July 1 to September 30, 2002	1.403	1.0

Appraisal Effective Dates From August 1, 1995 to July 31, 1996

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.303	1.0
January 1 to March 31, 2002	1.303	1.0
April 1 to June 30, 2002	1.303	1.0
July 1 to September 30, 2002	1.303	1.0

Appraisal Effective Dates From August 1, 1996 to November 30, 1997

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.183	1.0
January 1 to March 31, 2002	1.183	1.0
April 1 to June 30, 2002	1.183	1.0
July 1 to September 30, 2002	1.183	1.0

Appraisal Effective Dates From December 1, 1997 to August 31, 1998

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.083	1.0
January 1 to March 31, 2002	1.083	1.0
April 1 to June 30, 2002	1.083	1.0
July 1 to September 30, 2002	1.083	1.0

Appraisal Effective Dates From September 1, 1998 to September 30, 1999

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	1.02	1.0
January 1 to March 31, 2002	1.02	1.0
April 1 to June 30, 2002	1.02	1.0
July 1 to September 30, 2002	1.02	1.0

Appraisal Effective Dates From October 1, 1999 to August 31, 2000

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	0.97	1.0
January 1 to March 31, 2002	0.97	1.0
April 1 to June 30, 2002	0.97	1.0
July 1 to September 30, 2002	0.97	1.0

Appraisal Effective Dates From September 1, 2000 to June 30, 2001

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
October 1 to December 31, 2001	0.99	1.0
January 1 to March 31, 2002	0.99	1.0
April 1 to June 30, 2002	0.99	1.0
July 1 to September 30, 2002	0.99	1.0

Appraisal Effective Dates On or After July 1, 2001

<u>Appraisal Effective Date or Stumpage Adjustment Date</u>	<u>Trend Factor</u>	
	<u>Logging and Silviculture</u>	<u>Manufacturing</u>
July 1 to September 30, 2001	1.0	1.0
October 1 to December 31, 2001	1.0	1.0
January 1 to March 31, 2002	1.0	1.0
April 1 to June 30, 2002	1.0	1.0
July 1 to September 30, 2002	1.0	1.0

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