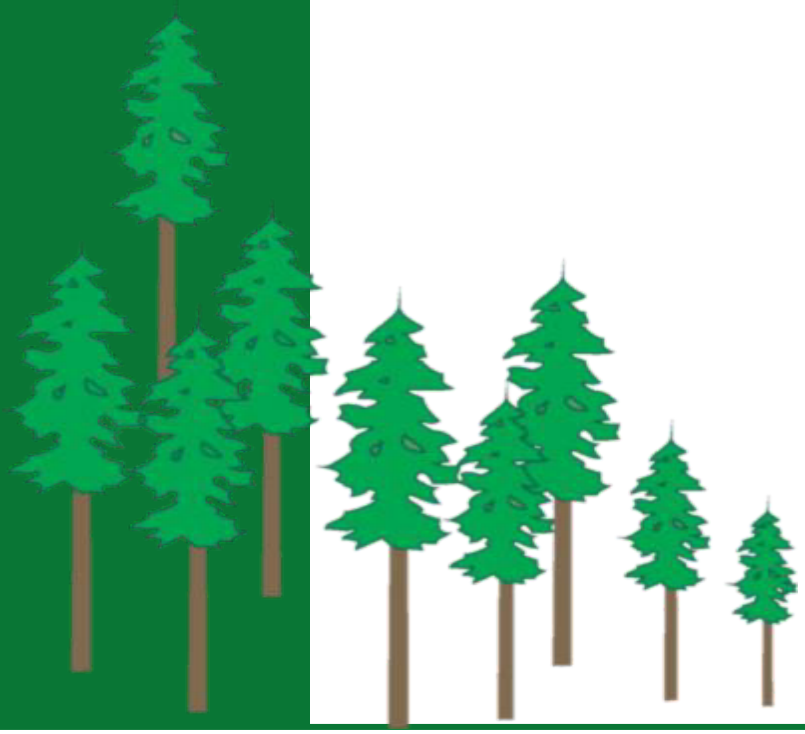
BRITISH COLUMBIA

Coast Appraisal Training

Module 5
Road Development Cost



Coast Area
January 2025

Disclaimer: This document is intended for use during appraisal training activities and as a general guide to appraisals. It is not intended as a basis for legal interpretation of the *Coast Appraisal Manual* (*CAM*) or the *Coast Area Engineering Cost Estimate (ECE) Procedures*. If there is any discrepancy between these materials and the *CAM* or the *ECE Procedures*, the *CAM* and *ECE Procedures* in force on the effective date of the cutting authority will prevail. The *CAM* and *ECE Procedures* are available via the website of the Government of British Columbia. If there are questions about a specific appraisal issue, please contact Coast Area Pricing appraisal staff at the Coast Area office.

Module 5 – Development Cost

Contents

INTRODUCTION

Purpose of the Road Development Cost TOA

A tenure obligation adjustment (TOA) in the Market Pricing System (MPS) is to account for a cost that a non-auctioned timber licence holder would incur that an auction timber licence holder would not. The Road Development Cost TOA is one of the eight TOAs that exist in the CAM.

The Road Development Cost TOA is for timber extraction infrastructure construction and reconstruction activities required to access the Crown timber.

NOTE
- Auction timber licence holder timber extraction infrastructure that they may construct is accounted for in their bid for the stand of timber.

POLICY FRAMEWORK OVERVIEW

Section 5.3 of the Coast Appraisal Manual (CAM) provides the appraisal policy framework for the Tenure Obligation Adjustment - Road Development Cost.

For the purposes of an appraisal, timber extraction infrastructure activities are broadly categorized into two categories: “New Road Construction” and “Road Reconstruction”. These categories are further classified by tabular and non-tabular development (engineering cost estimate) activities. The term Engineering Cost Estimate is synonymous with previously used term Non-Tabular Development Cost (NDC). Engineering Cost Estimate is to be the term used moving forward. Engineering Cost Estimate development is further classified by Engineering Cost Estimate (ECE) project type.

Bank height tabular development costs are provided for in the appraisal of New Road Construction and for end haul (ECE Type 6) if there is a signed contract with cost being partially paid at the bank height rate.

NOTE ⇒ Measurement of bank height categories are to Ministry standard of metre by metre.

The tabular costs are provided on the basis that the New Road Construction is Class 5 Single Lane Off-Highway Road, constructed using common logging road construction practices, and accounts for turnouts and landings.

New Road Construction that does not coincide with the tabular parameters must be appraised as Engineering Cost Estimate development. All Road Reconstruction must also be appraised as ECE development. Engineering Cost Estimate development is grouped by project type which are appraised individually or in combination as described in the ECE Procedures that are published by the TPB in conjunction with the CAM.

The appraisal of road development that does not conform to either the tabular parameters or the ECE Procedures is only valid if a supporting rationale is accepted by the Timber Pricing Coordinator.

New Road Construction

The appraisal of New Road Construction includes:

- new subgrade construction;
- placement of stabilizing material on the new subgrade;
- construction / installation of the associated drainage structures; and
- other necessary types of structures pertaining to the road that the Timber Pricing Coordinator authorizes.

Road Reconstruction

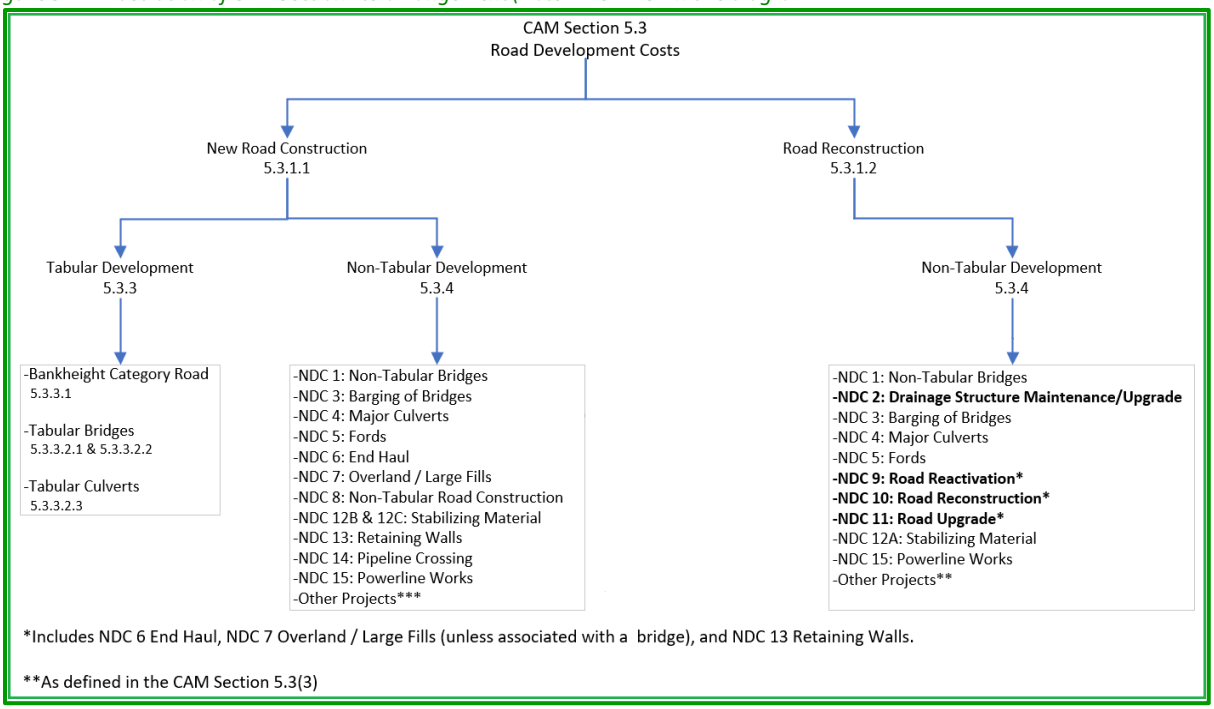
The appraisal of Road Reconstruction relates to the improvement of existing roads, excluding regular Road Management activities, and includes:

- road prism: reactivation, reconstruction, upgrade, or surfacing (as specified);
- bridge: replacement, upgrade, major structural repair, or decking (as specified); and
- culvert replacement on non-active roads.

Dual Use of Terminology "Road Reconstruction" in the CAM

The CAM has dual use of the term "road reconstruction" with differing meanings. Section of 5.3.1.2 of the CAM describes "Road Reconstruction" as a broad category of development activity (as differentiated from "New Road Construction"). However, within this classification Section 5.3.4 of the CAM also describes the ECE project types "road reactivation", "road reconstruction" and "road upgrade". For clarity in this document the broad category will be referred to as "Road Reconstruction" and the sub-category ECE project type will be referred to as ECE Reactivation, ECE Road Reconstruction, or ECE Road Upgrade.

Figure 5-1 – Illustration of CAM Section 7.3 arrangement (Note NDC = ECE in this diagram



DEVELOPMENT COST ELIGIBILITY

General Eligibility

Road development cost may only be considered for inclusion in an appraisal of a cutting authority if the timber extraction infrastructure provides access to crown timber.

Tributary Cutting Authority Area

Road development may only be considered in an appraisal if the road is located:

- along the route that timber from the cutting authority must be transported over, or
- along the regular route that bulk fuels, supplies, equipment and/or harvesting crews must be transported over, for the purpose of day-to-day harvesting activities on the cutting authority.

Exception – Development Cost Distribution Agreements

Road development cost may be included in an appraisal even if is not tributary to the cutting authority area where development cost distribution is authorized through a Development Cost Distribution Agreement from the same point of origin area.

Use of older existing Amortization Agreements and Extended Road Amortization Agreements must be tributary to the original cutting authority providing the costs.

Previous Road Development

Costs from previously completed road development may not be considered in an appraisal if:

- the development was already included in the appraisal of another cutting authority. There is an exception to this on surrendered cutting authorities with signed exceptions where no harvesting took place,
- the development was completed for the purpose of accessing private timber, or
- the development was completed in whole or part for a purpose unrelated to the harvesting of timber.

Access to both Crown and Private Timber

Where road development provides access to both crown and non-crown timber the development cost used in the appraisal must be prorated. Only the crown share of the cost may be considered in the appraisal. The cost must be prorated by considering the estimated crown versus non-crown timber volume that may be transported over the road; the timber volume estimates are limited to the area within the water drainage catchment area where the road development occurs.

Note that the cost of previously completed road development may not be considered in an appraisal if the development originally only provided access to private timber.

Expiry of Costs

New Road Construction costs may only be appraised if the effective date of the cutting authority is within five years of the road construction. A rationale may be provided and if accepted can extend the time period to a total of six years. The CAM does not provide limitation to this effect regarding the appraisal of Road Reconstruction costs. The RED may approve a further extension of two years for further First Nation reconciliation or other Government objectives.

Drainage Structure Costs

The cost of a drainage structure may only be appraised if its necessity is substantiated by field conditions.

Road Reconstruction Costs

A Road Reconstruction project may only be appraised in one cutting authority (i.e. not multiple cutting authorities); the cutting authority may be proposed or existing (i.e. where the post-harvest ADS has not yet been received).

DISTRIBUTION OF DEVELOPMENT COSTS

Extended Road Amortization

An Extended Road Amortization Agreement refers to a type of distribution agreement. The policy providing for this type of agreement ended April 1, 2018; and can be referenced in CAM Amendment No. 1 effective March 1, 2018 (section 5.3.2.1). When compared to Development Distribution Agreements the difference with an Extended Road Amortization Agreement is primarily the requirement of identifying the involved cutblocks and distribution amounts in advance; and agreements formed prior to March 1, 2016, were not limited to a ten-year term.

Development Cost Distribution Agreement

The policy providing for Development Cost Distribution Agreement (DCDA) is the current framework for creating agreements. A DCDA between a licensee and the government may be formed authorizing the distribution of development costs from a first cutting authority to multiple receiving cutting authorities. Agreements are permissible when:

- the agreement is included with the Initial Appraisal of the first cutting authority,
- the first cutting authority's total development cost exceeds $4.00/m^3$,

  NOTE • development cost previously amortized or distributed into the first cutting authority, may not be used to meet the $4.00/m^3$ threshold to trigger a distribution agreement!

- the first and receiving cutting authorities are within the same point of origin area, and
- the first and receiving cutting authority's license(s) are exclusively and entirely held by the same licensee.
- there is an exception to receiving cutting authorities being in the same point of origin area when a major flood causes damage more than $2.5 million in damage to infrastructure. The SDM may approve amendments or new agreements that allow use of DCDA costs within the same management unit and district.

The agreement must be signed by the regional executive director (or designate), and costs may not be distributed after the ten-year term (beginning on the effective date of the first cutting authority), unless otherwise approved by the regional executive director.

Development costs associated with FESBC cannot be distributed to receiving cutting authorities.

Agreements are not permissible for fully appraised woodlot licence cutting authorities effective after November 30, 2008.

Pre-PHARM – Development Distribution

An agreement where the first cutting authority is effective prior to April 1, 2019, may not have the distribution amount revised; unless the first cutting authority requires an amendment and changed circumstance reappraisal. In this case, the agreement must be amended with the new total development cost; any increase in total development cost may only be distributed to cutting authorities not already issued as of the changed circumstance submission date.

PHARM – Development Distribution

An agreement where the first cutting authority is effective on or after April 1, 2019 through December 31, 2024, may not have the distribution amount revised; unless the first cutting authority total development cost changes because of a post-harvest ADS. In this case, the agreement must be amended with the new total development cost. If the total development cost increases, the increased amount can be applied to:

- the first cutting authority, or
- a receiving cutting authority at the time of its post-harvest ADS or future receiving cutting authority.

If the total development cost decreases, the decreased amount must be:

- applied to the first cutting authority,
- applied to a receiving cutting authority at the time of its post-harvest ADS, or
- deducted from the unallocated amount.

An agreement where the first cutting authority is effective on or after January 1, 2025 may have the distribution amount grossed up using the CPI inflation amount to the cost base in effect on the effective date of the receiving cutting authority.

The procedures for Development Cost Distribution Agreements are further detailed in Module 10.

ROAD MANAGEMENT VERSUS ECE RECONSTRUCTION AND ECE REACTIVATION

Road Management

Road Management activities are accounted for in an appraisal via the Road Management Cost TOA.

Road Management is defined as: grading, brush control, minor surfacing repairs, sanding, snowplowing, ditch maintenance / repair, replacement of culverts less than or equal to 0.9m diameter on active roads, slough removal confined to ditchline, deactivation, minor repairs to roads due to slides, erosion, and flood damage, and road use charges (except those described in the CAM Section 5.5).

ECE Road Reconstruction

ECE Road Reconstruction relates to road development on an active road which exceeds routine road management and:

- the road is a wilderness road that has not had industrial use for at least 5 years; or
- the road work is required as a result of storm damage.

Routine maintenance on a wilderness road must not be considered ECE Road Reconstruction.

ECE Road Reactivation

ECE Road Reactivation relates to road development of a non-active road.

Active Road: See Road Definitions

Non-Active Road: See Road Definitions

Wilderness Road: a wilderness road is as defined in the Forest Planning and Practices Regulation (FPPR).

Road Development Unit Cost

The appraised road development cost is a $/m^3 unit cost and is calculated as follows:

[Unit Cost] = [Total Appraisable Road Development Cost] / [TNCV)].

Where:

- "TNCV" means Total Net Cruise Volume;
- [Total Appraisable Road Development Cost] = [New Road Construction Cost] + [Road Reconstruction Cost].
- "New Road Construction Cost" means the sum of all the appraisable costs of new road construction: tabular roads, ECE roads, bridges, and culverts.
- "Road Reconstruction Cost" means the sum of all the appraisable costs of road reconstruction ECE projects.

Exception – Sudden and Severely Damaged Timber Reappraisal

If a sudden and severely damaged timber reappraisal is required, then the completed road development and the volume of timber remaining on the cutting authority is used to calculate the unit cost. This enables the value of completed road development to be accounted for in the billing of the remaining volume (see CAM for details).

TABULAR VERSUS ENGINEERING COST ESTIMATE PROJECTS

Criteria for Road Subgrade and Stabilizing Material

New Construction

New road subgrade and associated stabilizing material is appraised using a tabular cost if the road section is constructed without drilling and blasting, or where drilling and blasting results in cutbank vertical rock face height of 7.50m or less; these tabular costs are organized by Bank Height Category.

However, if the road construction is associated with a ford, end haul, overland construction, large fill, retaining wall, pipeline crossing, main access road, uphill sideslope over 150%, multiple gullies, switchback excavation exceeding 10,000m^3, or highway approach requiring asphalt, then the appraisal cost may be an ECE instead. In this case the ECE project definitions should be reviewed to determine the applicability.

The Bank Height Category tabular road costs only apply to new road subgrade construction on forest floor where no previous structure is present. The Bank Height Category tabular costs in the CAM reflect the average construction cost of a single lane logging road designed to meet the specifications of a Class 5 Road. The Class 5 Road design specification has a stabilized road width of 5 metres and an average stabilized road width of 6.2 metres to account for widening (e.g. curves), turnouts and landings.

Therefore, when road subgrade / stabilizing material is constructed that is more than single lane width or **not** constructed with common logging road construction practices, it may be appraisable as an ECE cost if a supporting rationale is accepted by the Timber Pricing Coordinator. If the rationale is not accepted only the tabular cost is appraisable.

Additional Stabilizing Material

The cost of additional stabilizing material required to construct tabular subgrade may be appraisable as an ECE cost and is supplemental to the Bank Height tabular cost (See ECE Type 12C).

Capping

The cost of capping tabular subgrade may be appraisable as an ECE cost and is supplemental to the Bank Height tabular cost. (See ECE 12B).

Reconstruction

All Road Reconstruction must be appraised asan engineering cost estimate.

Special Projects

The appraisal of road development that does not conform to either the tabular parameters or the ECE Procedures may be valid if a supporting rationale is accepted by the Timber Pricing Coordinator.

Criteria for Drainage Structures

Criteria for Wood Culverts

It is recognized that the ABCFP / APEGBC associations define a wooden culvert as <6.0m span length. For appraisal purposes a wood culvert is a log drainage structure with a span length of 3.4m or less and the appraisal is tabular. If the span length of a log drainage structure is more than 3.4m then the structure is appraisable as log bridge (see Criteria for Bridges).

NOTE
- A log structure with a measured span length of 3.5 metres has a rounded length of 4m and is therefore appraised as a log bridge.

Criteria for Pipe Culverts

A circular pipe culvert exceeding 1.8m diameter, elliptical pipe culvert with a span width exceeding 1.8m, pipe arch / open bottom arch culvert with a span width exceeding 2.13m, and other culverts (excluding log/wood culverts) with a maximum design discharge of >6 m^3/s are appraised as ECE structures; the remaining size pipe culvert is tabular.

Criteria for Bridges

Log Bridge Design Criteria

The following log bridge design criteria is considered an ECE project (non-tabular):
- span length exceeding 12.4m; or
- crib height more than 2.4m.

The remaining log bridge designs are tabular.

Permanent / Portable Bridge Design Criteria

Any of the following permanent / portable bridge design criteria is considered an ECE project (non- tabular):
- concrete substructure load bearing material (excluding abutments);
- multi-span structure;
- piles driven 13m or more in depth;
- width greater than standard 4.9m at mid-span (between guardrails);
- load rating not within L60 to L165;
- span length not within 2.0 - 25.4m; or
- abutment height more than 2.4m.
- bridge rentals

Bridge Replacement Projects

All bridges installed as part of Road Reconstruction (i.e. a bridge replacement project) must be appraised as an ECE cost regardless of the bridge size or characteristics.

Note that a bridge installation project is not considered Road Reconstruction if it is installed in a new location (i.e. there was never a bridge located there before), or installed in an old location where the terrain is in a natural state (i.e. the terrain has become recontoured or was never excavated, and there is no pre-existing bridge structure material affecting the installation).

Re-Used Bridge Structures

A used bridge structure purchased at arm's length is **not** considered 're-used' for the purposes of an appraisal; the appraised cost may be tabular or non-tabular (an ECE project). A re-used bridge structure that is not newly purchased is an ECE project regardless of the bridge size or characteristics. Where an installed bridge is purchased in conjunction with timber cutting rights, the purchase costs cannot be considered in an appraisal.

The following diagram can be used to determine if the bridge is tabular or non-tabular (an ECE project):

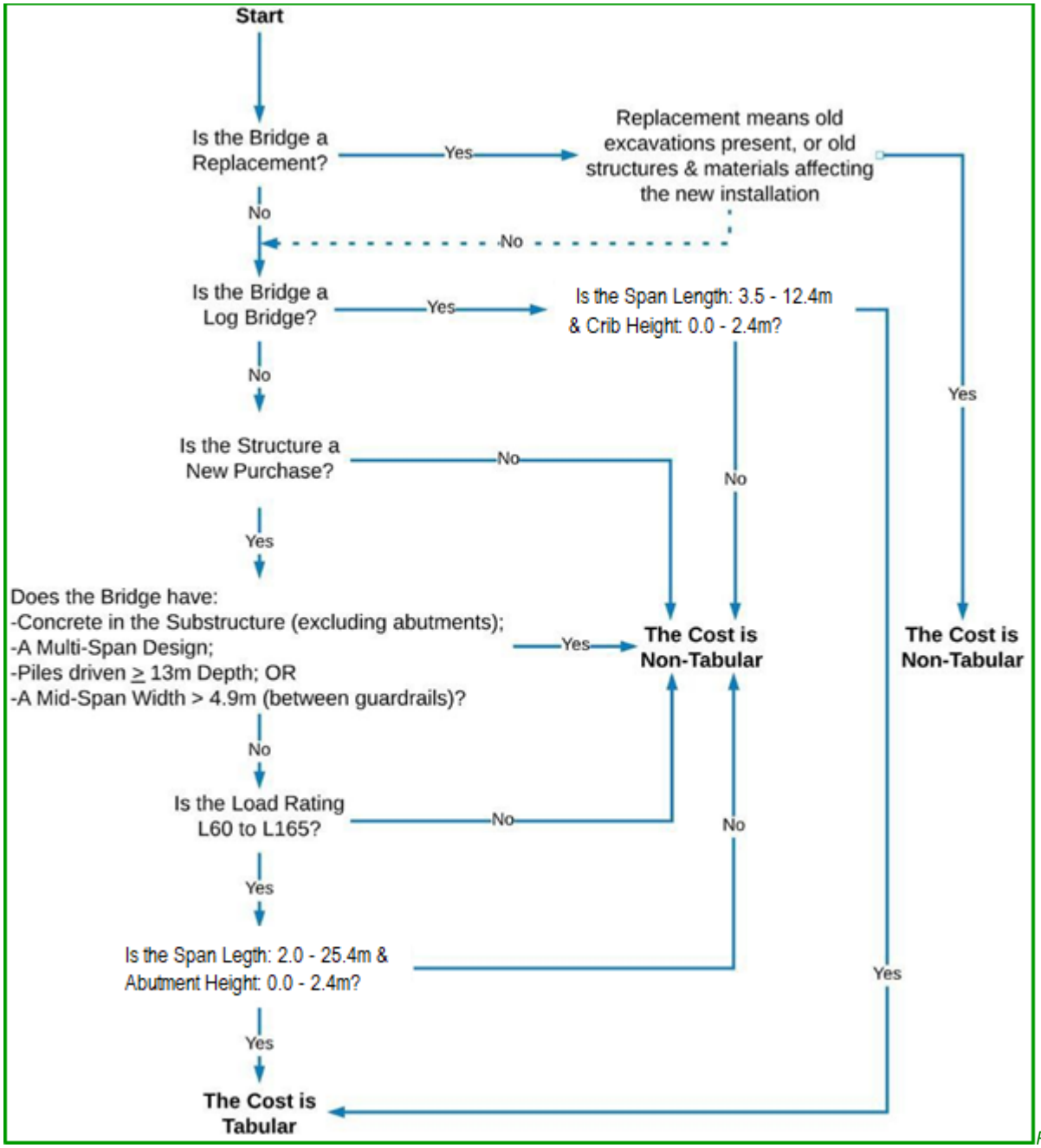


Figure 5-2 – Bridge Appraisal Decision Matrix.

BANKHEIGHT TABULAR ROAD

Description of Bank Height Categories

The tabular cost of subgrade construction and stabilizing material is organized by Bank Height Category, the appraisable costs are provided in Table 5-1 of the CAM (units of dollars per kilometre).

Other Material

Where drilling and blasting is not required during subgrade construction the Bank Height Category is determined based on the source of the stabilizing material applied on the subgrade (i.e. local ballast, pit run ballast, or rock ballast).

Rock

Where drilling and blasting is required to construct the subgrade the Bank Height Category is determined by the vertical height of the cutbank's drilled and blasted rock face.

Rock Mass Classification

The Bank Height Categories are further classified by rock mass classification (i.e. rock hardness, weathering, and block diameter). The Rock Mass Classification (RMC) relates to the surface hardness, weathering and block diameter of rock encountered during forest road development, as described in Appendix III of the CAM. For the purposes of an appraisal the rock mass classification is determined by examining the rock conditions encountered in the field. RMC 1-4 is considered "Soft/Medium", and RMC 5 is considered "Hard".

Add-on

The cost of a Bank height Category may be subject to an Isolated or Point of Origin Area add-on depending on location.

Stabilizing Material Sourced from End Haul Spoil

If the source of stabilizing material is spoil generated by concurrent active end haul construction, then the Bank Height Category is OMLB. The cost of generating and transporting the Stabilizing Material is accounted for in the appraised cost of the end haul construction.

If the source of stabilizing material is spoil that is retrieved from an end haul spoil site, then the Bank Height Category is OMPR. The cost of generating and transporting the material to the spoil site is accounted for in the appraised cost of the end haul construction. The cost of trucking the stabilizing material from the spoil site to the new road subgrade is accounted for by the value of OMPR.

Stabilizing Material Sourced from Other Road Sections (except End Haul)

If the source of stabilizing material is from a different road section, and the material requires truck haul then the Bank Height Category is OMPR. The cost of generating the stabilizing material is accounted for in the appraised cost of the other road section. The cost of trucking the stabilizing material is accounted for by the value of OMPR.

Bank Height Category Measurement

Road Section Length

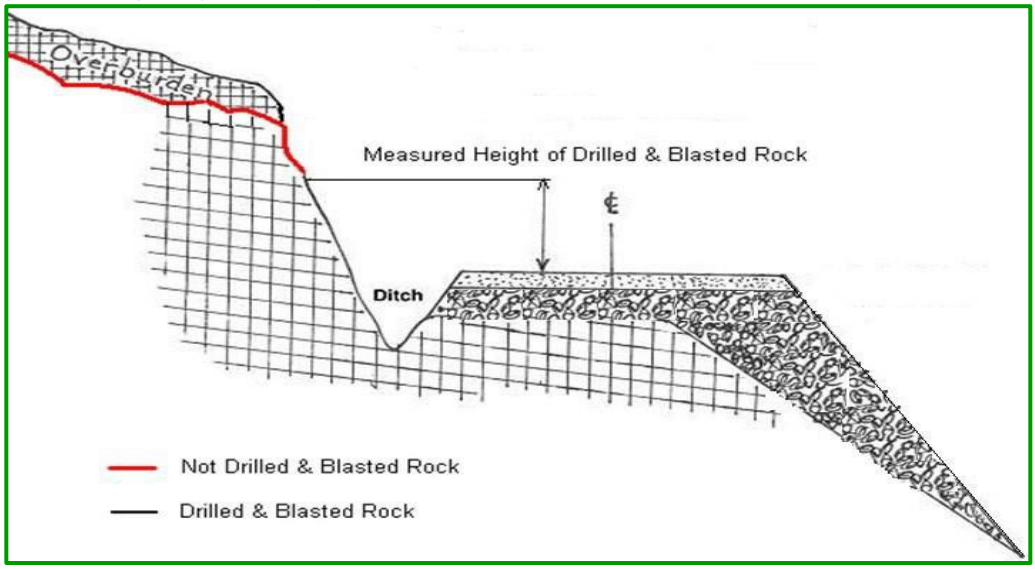
The road section length is measured along the centerline to the nearest metre; and the entire section must consist of the same Bank Height Category. The road section length may be measured over pipe culverts and wood culverts. The span length of log bridges and the deck length of permanent or portable bridges are excluded from the road section length. Road section lengths are required to the nearest metre and may be subject to a Ministry field review.

Rock Face Height

Rock bank height is the vertical height of the cutbank's drilled and blasted rock face which is determined by measuring the distance from the top of the stabilized road surface to the top of the drilled and blasted rock face at right angles to the road centre line (Figure 5-3). The bank height measurement is required to the nearest metre and may be subject to a Ministry field review. If a rock through-cut is encountered, then the bank height measurement is based on the height of the higher rock face.

NOTE
- If a section of the rock face (rock cut) was incidentally fractured above the line of drilling and slides away it is considered not to have been drilled and blasted.

Figure 5-3 – Diagram of a Bank Height Rock Face Measurement.



Road Widenings

The bank height may not be measured along the rock face of a road section where road widening has occurred beyond the road specification design width due to the establishment of pits or quarries. The bank height at widenings due to pits or quarries may be determined by:

- taking measurements prior to the removal of extra material,
- using the height of the rock face as per the road specification design width, or
- taking measurements at the start and end of the pit/quarry road edge widening to determine an average rock face height.

Additional Cost Provisions

Point of Origin Area Add-on

An addition to the Bank Height Category tabular road cost is appropriate if the road section being appraised is located within one of the Point of Origin Areas specified in Table 5-1 of the Coast Appraisal Manual. The add-on will apply to all road sections if they are all within the same Point of Origin Area.

Isolated Add-on

An addition to the Bank Height Category tabular road cost is appropriate if the road section being appraised provides access to an isolated cutblock within the cutting authority; in which case the additional cost per kilometer is pro-rated; for example:

Example

Cutting authority with three cutblocks, with a total net cruise volume of 16,910 m^3 as follows:

Cutblock	Volume	Isolated
311	4,525 m^3	YES
418	5,858 m^3	NO
419	6,527 m^3	NO

Isolated Add On: $6,915 per km as per the Dec 15, 2019 CAM
Prorated Fraction: 4,525 m^3 / 16,910 m^3 = 0.2676
Isolated Additive: $6,915 per km * 0.2676 = $1,850.45 per km

The resulting prorated isolated additive of $1,850.45 per km is then added to all roads submitted for the cutting authority area regardless of the cutblock that is being accessed.

Appraisal of Capping and Additional Stabilizing Material

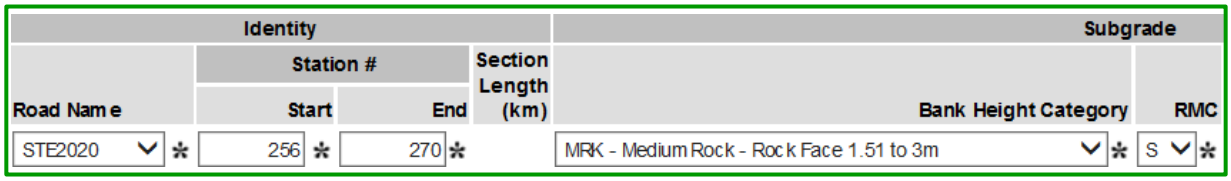
If applicable, Capping (as defined in ECE Procedures Project Type 12B) may be appraised supplemental to the tabular cost using the ECE Procedures.

If Additional Stabilizing Material (as defined in ECE Procedures Project Type 12C), is applied to the road section, then the cost of trucking the additional distance may be appraised supplemental to the tabular cost using the ECE Procedures.

Submission Requirements

Bank Height Category tabular road is appraised in the "ECAS37 – Tabular Roads" screen by completing the appraisal data elements in Figure 5-4. The General Appraisal System (GAS) will use the appraisal data elements to automatically calculate the tabular road section costs.

Figure 5-4 – Example Bank Height Category in ECAS37 screen.



Pre-Construction

Prior to construction, the road section Bank Height Category may be estimated by a Qualified Registered Professional (QRP). The use of geometric road design is encouraged especially if the bank height is likely to exceed TOE. Within a geometric design the use of QRP derived ground type definitions that reflect field conditions is also encouraged (for example this may include consideration of slope variation of different materials such as bedrock, glacial till (hardpan), large colluvium (talus), small colluvium (rocks with soil), weathered till (soil with rocks), other material (sand, etc.)).

NOTE
- the professional requirement pertaining to a geometric road design is described in Section 4.3.3 of "Guidelines for Professional Services in the Forest Sector – Forest Roads" June 2012
- This is located at:

  https://www.egbc.ca/getmedia/b76d39fb-f39c-4939-8bc7-2c48013c4895/APEGBC-Guidelines-Professional-Services-Forest-Roads.pdf.aspx.

Post Construction

Post construction, the appraised tabular cost of road subgrade must correspond to the constructed field conditions encountered. The characteristics of the road may be subject to Ministry review.

TABULAR BRIDGES

The tabular costs of log bridges are provided in Table 5-2 of the CAM (in thousands of dollars per bridge). The values are provided for timber decked or gravel surfaced log bridges. The values account for the cost of procuring unscaled logs and constructing / installing the structure. In the unlikely event that unscaled logs are not available then the cost of transporting scaled logs from a scale site may be accepted as an ECE cost if a rationale is accepted by the Timber Pricing Coordinator.

The tabular costs of permanent / portable bridges are provided in Table 5-3 of the CAM (in thousands of dollars per bridge). The values account for design, site preparation, material supply, freight & haulage, installation, supervision, crib / abutment back-filling, bridge protection features (e.g. rip rap), and certification.

The cost of barging bridge structure components is not accounted for by the tabular cost and therefore may additionally be appraised as an ECE cost using the ECE Procedures (Type 3).

The cost of a newly purchased second-hand structure with tabular design characteristics is appraisable as a tabular bridge.

Bridge Height Measurement

The crib or abutment height of a bridge is the average of two heights measured at the width's mid-point of each end, to the nearest 0.1 metre, and is the distance from:

1. the bottom contact point of the log stringer (Figure 5-6) or girder (Figure 5-7), to the
2. 'original' ground surface interface, which when the bridge design requires:
    a. compacted leveling material (Figure 5-5a) at the bottom crib log or abutment structure; or
    b. structural rock pads (Figure 5-5b) at the bottom of the structural rock pad.

Figure 5-5a - Bridge Abutment Measurement Compacted Material.

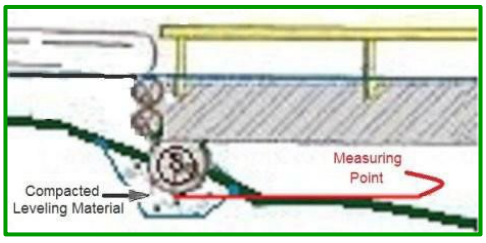
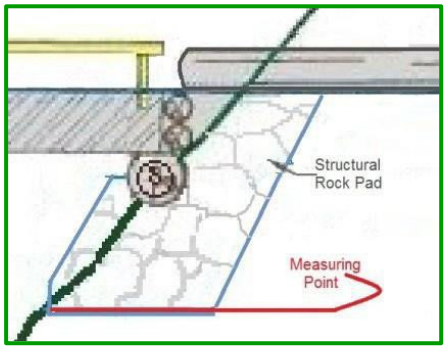


Figure 5-5b - Bridge Abutment Measurement Structural Rock Pad.



The average crib or abutment height that is entered in ECAS is calculated as follows:

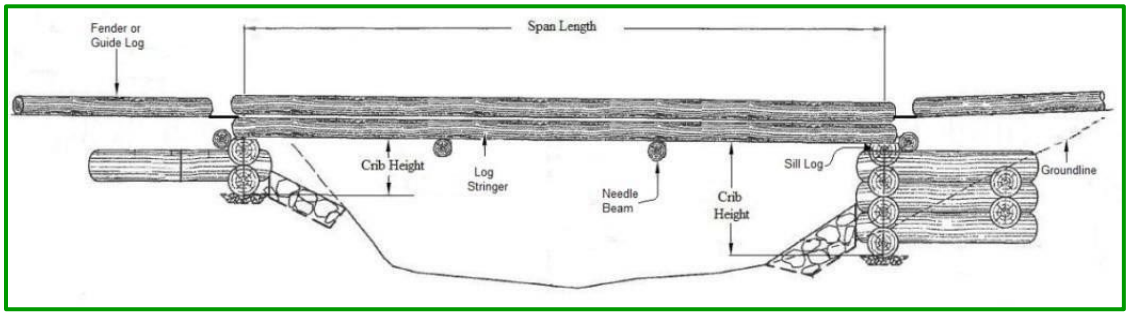
1. the height of each bridge end is measured to the nearest 0.1 metre (e.g. 0.14 or less is rounded to 0.1, and 0.15 or greater is rounded to 0.2);
2. the two measurements are added together;
3. the sum is divided by two; and
4. the resultant is then rounded to the nearest metre to determine the average crib or abutment height (e.g. 0.4 is rounded to 0, and 0.5 is rounded to 1).

Bridge Span Length Measurement

The span length of a bridge is the length measured to the nearest 0.1 metre and rounded to the nearest metre (e.g. 10.4 is rounded to 10, and 10.5 is rounded to 11). The span length of a

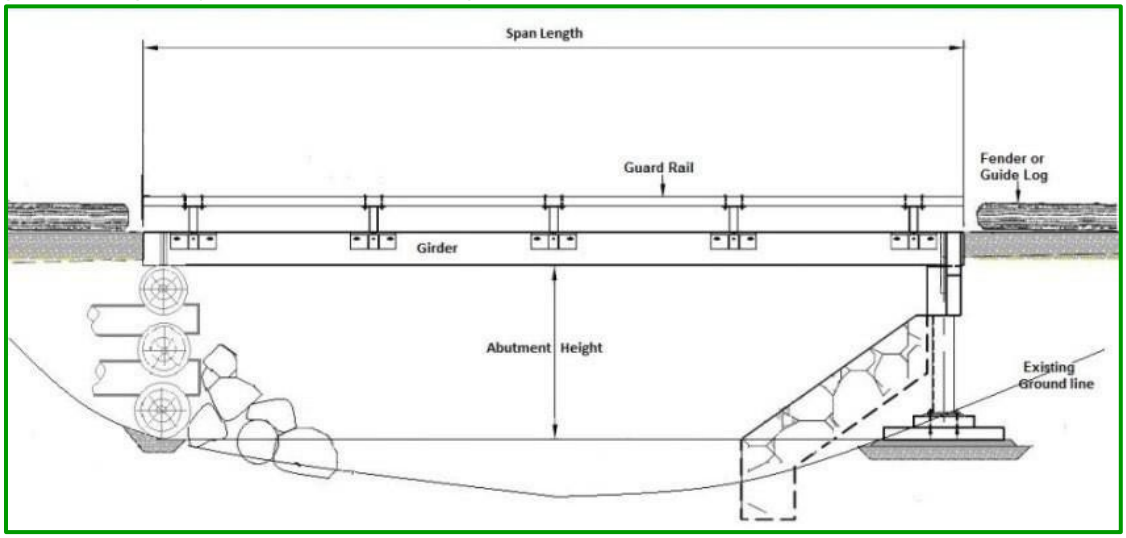
A. **log bridge** is measured from the centre of the sill log on one end to the centre of the sill log on the opposite end of the bridge, as illustrated in example Figure 5-6;

Figure 5-6 – Diagram of a Log Bridge Structure.



B. **permanent or portable bridge** is measured from the bridge panel edge on one end to the bridge panel edge on the opposite end of the bridge, as illustrated in example Figure 5-7.

Figure 5-7 – Diagram of a Permanent/Portable Bridge Structure.



Submission Requirements

Tabular bridges are appraised in the "ECAS35 – Bridges" screen by completing the appraisal data elements in Figure 5-8. The General Appraisal System (GAS) will use the appraisal data elements to automatically calculate the tabular bridge cost.

Figure 5-8 – Example Log Bridge in ECAS35 screen.

		Stn #				
Type	Road Name	Start	End	Bridge Type	Crib Height(m)	Span Length (m)
N *	STE2020 *	692 *	698 *	L *	2 *	6 *

Pre-Construction

Prior to construction, the appraised tabular bridge cost is estimated from the bridge characteristics as prescribed by a Qualified Registered Professional (QRP). Additionally, the bridge location, size, and type must be identified on the appraisal map.

Post Construction

Post construction the appraised tabular bridge cost must reflect the actual constructed bridge characteristics encountered in the field. The characteristics of the bridges may be subject to Ministry Review.

APPRAISAL OF TABULAR CULVERTS

The appraised cost of a wood culvert (≤3.4m) is provided in Section 5.3.3.2.3(2) of the CAM. The tabular cost of wood culverts accounts for the cost of procuring unscaled logs and constructing / installing the structure. In the unlikely event that unscaled logs are not available then the cost of transporting scaled logs from a scale site may be accepted as an ECE cost if a rationale is accepted by the Timber Pricing Coordinator.

The tabular costs of pipe culverts are provided in Table 5-4 of the CAM and are expressed in dollars per lineal metre of culvert length. The tabular cost of pipe culverts accounts for culverts made of any material other than logs and includes the cost of couplers if required.

Culvert Measurements

The span length of a wood culvert is measured in the same manner that a log bridge span length is measured.

The size of a pipe culvert refers to the maximum inside height or maximum inside width of the culvert opening, measured to the nearest tenth of a metre.

Pipe culvert length is measured in metres to the nearest whole number along the centerline of the culvert.

Submission Requirements

Pipe Culverts within an ECE Project

A culvert with tabular dimensions associated with an ECE project may have a tabular cost appraised as per "Column B" of Table 5-4 in the CAM.

"Column B" accounts for the cost of the culvert material only; the installation cost is appraised hourly and not necessarily differentiated from the other hourly activities of the ECE project. The tabular cost value is added to the project's total cost by listing the culvert as a "Materials Cost" within the ECE Form (See Appendix 4 of the ECE Procedures).

NOTE
- The tabular cost is not applicable if the ECE project was constructed via a tendered contract which included the purchase price of culvert material.

The new EXCEL ECE Form can populate the ECE Project culvert diameter, length and location in the "Culvert Details worksheet" and it will automatically populate the "ECE Form worksheet".

NOTE
- CRITICAL that double costs for ECE Projects not occur.
- Double cost occurs when the culvert cost is included in the ECE Form and then again in the ECAS36 - Culverts screen.
- The Culvert cost is not applicable if the ECE project was constructed via a tendered contract which included the purchase price of culvert material.

See Module 10 for guidance on population of the Culvert EXCEL spreadsheet or the Culvert Details worksheet within the ECE Form workbook.

Pre-Construction

Prior to construction, the total appraised tabular culvert cost is estimated from the culvert information (diameter, length, location, and type) prescribed by a Qualified Registered Professional (QRP). Additionally, each culvert diameter, location, and type must be identified on the appraisal map.

Post Construction

Post construction, the total appraised tabular culvert cost must reflect the actual constructed culvert information (diameter, length, location, and type) encountered in the field. The characteristics of the culverts may be subject to Ministry review. It is generally understood that road construction crew will install culverts in the most appropriate location which may result in minor changes to the assigned culvert location; however, if upon Ministry field review the culverts cannot be discerned an up-to-date georeferenced map may be required.

APPRAISAL OF ECE (NON-TABULAR) DEVELOPMENT

Licensee and Forest Professional's Responsibilities

An ECE project may only be appraised if the holder of the cutting authority incurred or will incur that kind of cost. The appraised cost must be established based on commonly used and cost-effective road and drainage structure construction practices; Forest Professionals must act in the best and most efficient manner relating to layout, design, and construction of timber extraction infrastructure. Submissions must be reasonable for site conditions and consistent with the CAM and the ECE Procedures.

Appraisal of Planned / Incomplete Project

The appraised cost of a planned or incomplete ECE development project may be estimated by QRP Estimate or Detailed Calculation; alternatively, the appraised cost may be established by Tendered Contract.

QRP Estimate

The QRP Estimate is a professional's cost estimate founded on experience and internal cost tracking of previously completed similar projects.

Alternatively, the "Detailed Engineering Estimate for Coast Stumpage Appraisal – Cost Estimate Methodology" in effect on March 31, 2019, may be used to generate a QRP Estimate. This method may underestimate costs as the cost base is not being updated.

Detailed Calculation (pre-construction)

The pre-construction Detailed Calculation is a cost estimate established by considering the geometric road design, project site plans, published equipment productivity, estimated labour and equipment hours required, labour and equipment rates as per the CAM, and local quotes for materials or professional services required.

Tendered Contract

The appraisal cost of an ECE project may be established by advertising a contract and using the lowest bid of a competitive bid process (i.e. a publicly advertised tender or limited tender with three or more bids). The tendered contract may encompass the ECE project, a portion of the project, or a combination of projects. The tendered contract must not include ineligible costs.

Appraisal of Complete Project

The appraised cost of a completed engineering cost estimate project must be established via Detailed Calculation or Tendered Contract.

Detailed Calculation (post-construction)

The post-construction Detailed Calculation is a cost calculation established by considering the invoiced equipment hours, invoiced labour hours, labour, and equipment rates as per the CAM, invoiced material costs, and invoiced professional service costs.

Tendered Contract

As previously described ("Appraisal of Planned / Incomplete Project").

Transition Projects

The cost of ECE Projects that commenced prior to April 1, 2019 may alternatively be calculated using the Cost Estimate Methodology (CEM) or the Construction Estimate Formula (CEF) as outlined within the 'Detailed Engineering Estimates for Coast Stumpage Appraisal' (DEE) document effective March, 31 2019.

If the DEE is used, written documentation verifying the project's start / completion dates must be provided by the licensee within the ADS; additionally, all relevant DEE submission requirements must be adopted within the ADS.

However, regardless of a project's start date, any ECE Project where the associated road development activity was completed on or after April 1, 2020, may not be appraised using the DEE, unless otherwise approved by the Timber Pricing Coordinator.

Evidence and Documentation

Documentation may be required by the Ministry to verify the acceptability of development costs in an appraisal; if documentation is inadequate development costs may not be appraisable.

Completed ECE projects - appraised value of less than $25,000

ECE projects with an appraised value of less than $25,000 must have on-site physical evidence that the project occurred. Where on-site physical evidence may not be evident after completion of primary harvesting activities, documentation of the project is required (i.e. georeferenced photos, contracts, invoices, journal entries, emails, professional statements, or drainage structure record statements and drawings).

Completed ECE projects - appraised value greater than or equal to $25,000

If the appraised value of an ECE project is greater than or equal to $25, 000 then full documentation of the project is required (i.e. georeferenced photos, contracts, invoices, journal entries, or emails). Full documentation must clearly detail the equipment type, equipment hours, labour type, labour hours, professional service costs, and material costs related to the ECE project.

Tendered Contract

If the appraised cost of an ECE project is established via Tendered Contract the licensee must provide a copy of the awarded contract; and must provide documentation that verifies how the contract was advertised, the bidding process, parties involved in bidding, and bid amounts received. The licensee must also identify any bidders that are not at arm’s length.

Eligible Costs

The following cost sources are eligible to be included in the appraisal of an ECE project:

Materials & Associated Freight

⇒ material that is required / installed as part of the ECE project, and the material's associated freight charges – freight must be prorated if equipment or material unrelated to the project is transported at the same time;

Labour

⇒ road construction crew labour that is required on the ECE project (equipment operators must be accounted for within the equipment's rate);

Equipment

⇒ equipment work time required on the ECE project;

Mobilization / Demobilization

⇒ transportation of heavy equipment by barge or lowbed if the heavy equipment is only required for the ECE project and is not otherwise required or used in adjoining tabular road, bridge or culvert construction – mobilization / demobilization must be prorated if equipment or material unrelated to the project is transported at the same time, or if the equipment transported is used in conjunction with other ECE projects;

Professional Services

⇒ arm's length QRP services if specifically related to the project's: structural design drawing, general arrangement drawing, or construction certification;

⇒ arm's length QRP supervision if the supervision pertains to a critical aspect of the project to ensure design conformance during construction and the construction is specifically related to a:

- ♦ stream complex crossing[1]; or
- ♦ specialized project that requires technical QRP supervision;

⇒ professional services must be prorated if the service billing itemization is insufficient, and the cost includes work associated with other ECE projects or unrelated work;

Other

⇒ traffic control that is required for the project;

⇒ stream diversion or isolation required for the project by a QRP, Ministry of Environment, or required by Fisheries and Oceans Canada;

Taxes

⇒ the associated provincial sales tax (PST); but not GST.

[1] A complex crossing is a stream crossing that does not meet all the requirements of a simple crossing as defined in the APEGBC/ABCFP Professional Practice Guidelines – Section 4.0 of "Guidelines for Professional Services in the Forest Sector – Crossings V.2". Website: https://www.egbc.ca/getmedia/97dcbad3-5482-416a-9bc0-55b3c662e71a/APEGBC-Guidelines-for-Forest-Sector-Crossings.pdf.aspx.

Ineligible Costs

Costs accounted for under another Tenure Obligation Adjustment (TOA) or within the Market Pricing System (MPS) Estimated Winning Bid (EWB) Equation may not be included in the Road Development Cost TOA. This includes the Forest Planning and Administration Cost TOA and the Road Management TOA (these TOAs are priced using information collected from the annual Coast Crown Tenure Management Cost Survey). Without limitation to cost sources not identified, the following cost sources must **not** be considered in the appraisal of an ECE project:

Human Resources

- employee professional membership fees;
- employee recruitment;
- employee relations;
- employee training;
- employee wages (unless eligible as ECE project labour);
- employee salaries, benefits, bonuses, or relocation;

Project Workforce[2]

- biologists or environmental monitor supervision;
- camp operations;
- communications (e.g. telephone, radio, internet, etc.);
- crew time during transportation to and from the work site;
- crew transportation charters (e.g. charter of an aircraft or boat, etc.)
- crew transportation vehicles (e.g. operation of a: pickup truck, boat, aircraft, ATV, etc.);
- crew transportation fares (e.g. ferry fares, flight tickets, etc.);
- entertainment;
- first aid attendants, emergency transportation vehicles, medical treatments, medical evacuations;
- meals;
- qualified registered professionals[3][4];
- safety supplies;
- travel and accommodation;

[2] Includes employees in addition to contract crew and consultants.

[3] Unless an arm's length QRP service specifically related to the project's: structural design drawing, general arrangement drawing, construction certification, supervision.

[4] Or unless specifically authorized by the Timbe Pricing Coordinator prior to the submission of the appraisal.

Forest Planning

- assessments and surveys required under Forest & Range Practice Act;
- consultants / contractors[3];
- cruising;
- forest engineering (e.g. layout, design, and surveys such as stream or terrain assessments, etc.);
- information technology and data processing;
- licences, permits, or fees;
- mapping, documents, or reports;
- silviculture;

Forest Road Construction

- debris or waste management;
- logs required for bridges / culverts unless approved by the timber pricing coordinator;
- negligence (e.g. improper road infrastructure: maintenance, installation, or prescriptions);
- re-used materials, except for a reused bridge structure that has been purchased at arm's length;
- right-of-way easements, foreshore leases, and other land leases;
- right-of-way logging;
- skid / back spar trails (e.g. construction, deactivation, rehabilitation, or slashing);
- tabular road development, except where end haul, bank height plus hourly is used;
- tabular costs provided in the CAM, except costs from Column B of Table 5-4;

Forest Harvesting Operations

- cutblock logging and all post-logging activities;
- direct or indirect harvesting costs;
- log dumps
- scaling / sorting operations
- timber: falling, bucking, yarding, loading, hauling, scaling, sorting, towing, barging, storage;

Road Management

- brush control;
- deactivation;
- ditch maintenance and repair;
- grading;
- minor repairs to roads due to slides, erosion, and flood damage;
- minor surface repairs;
- replacement of culverts <0.9m diameter on active roads;
- road management fees;
- road use charges;
- sanding;
- slough removal (confined to ditch line);
- snowplowing;

Environmental

- environmental or forest protection;
- fire guards, fire hazard abatement (e.g. debris burning, etc.), fire protection;
- forest certification;
- forest insect or disease
- forest inventory;
- grass seeding;
- tree crown modification;

Corporate

- annually reoccurring costs;
- asset depreciation / amortization;
- business related corporate costs (e.g. advertising, capital gain/loss, taxes other than PST, etc.);
- discretionary costs;
- equipment / vehicle: rental, lease, ownership, insurance, licencing, fuel, & maintenance;[5]
- expenses for purposes other than earning logging income;
- financing;
- information systems;
- insurance;
- legal fees;
- office operations;
- penalties or fines;
- property rentals;
- royalties;
- service agreements;
- short term incentives;
- stumpage;
- subscriptions; and
- utilities.

Disclaimer

Despite the list of ineligible cost sources, complex atypical ECE projects may expose licensees to cost sources not typically encountered; if the licensee wishes to appraise these types of costs, then the specific costs require Timber Pricing Coordinator approval prior to the inclusion of the costs in an ADS.

[5] Unless included in the blue book "All Found" equipment rate, or within a reasonable all found equipment rate charged by an arm's length contractor, and the rate is related to equipment work time required on the ECE project.

Labour Rates

Labour and equipment rates apply to the appraisal of an ECE Project, unless the cost is established by Tendered Contract.

Labour associated with an ECE development cost project may be included in a ECE Project using the applicable CAM Appendix I rate (see example from December 15, 2019 CAM in Figure 5-9). Labour types are described in the CAM Appendix 1 that is listed in the United Steelworkers Workers Agreement that is in place on the effective date of the cutting authority may used in the ECE Project.

Figure 5-9 – Example of Labour Categories in the CAM.

LABOUR DESCRIPTION	GROUP	*$/HOUR
Labourer	Group I	41.79
Roadman	Group II	42.14
Crib/Culvert Maker, Powderman	Group VII	44.24
Landingman	Group VIII	44.81
Rockdriller & Powderman (for load & blast only)	Group VII & XI	98.07
Bridgeman	Tradesman	54.80
Faller, including powersaw cost		78.41

Blue Book Equipment Rate(s)

Equipment rates for an ECE project are obtained from the Blue Book (*'The Blue Book' – Equipment Rental Rate Guide* published by the B.C Road Builders & Heavy Construction Association). The Blue Book that must be used to obtain equipment rates for an ECE project is dependent upon the effective date of the appraisal (IADS or PHADS) or sudden & severe damage reappraisal of the cutting authority.

NOTE ⇒ For quick reference/convenience Appendix I of the appraisal manual contains a list of the most recent three-year-old equipment.
⇒ The list is of commonly used equipment in construction of timber extraction infrastructure.
⇒ Use of the equipment rates in Appendix 1 is ONLY APPLICABLE if the piece of equipment is three-year-old or less!

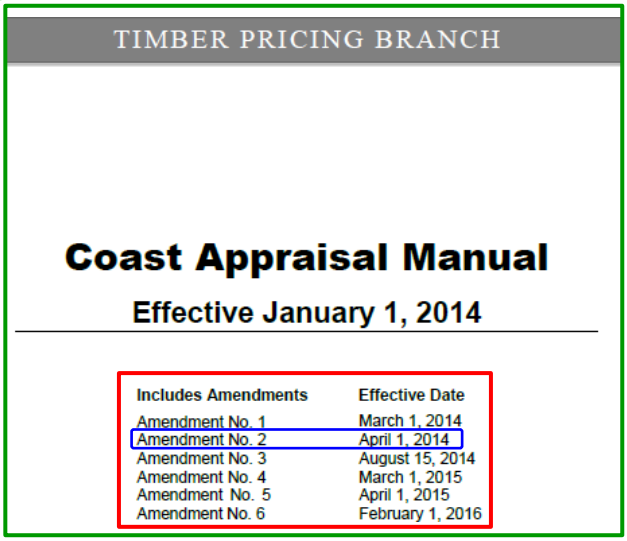
Applicable Appraisal Manual

The applicable appraisal manual is predicated upon the effective date of the cutting authority appraisal (IADS or PHADS) or reappraisal (sudden & severe damage). The applicable appraisal manual version (highlighted in yellow Figure 5-10a) is the date that the Minister of Forests authorized the CAM to come into force.

Figure 5-10a – CAM Version

The 'except for' to the appraisal manual date (highlighted in yellow Figure 5-10a) is when the Minister has updated the equipment rates in Appendix 1 using an Amendment. This occurred once on the Coast to the January 1, 2014 CAM in amendment #2 (outlined in blue Figure 5-10b).

Figure 5-10b – CAM Version Amendment



This means that for cutting authorities whose effective date of the appraisal or reappraisal is between:

Effective Date of Cutting Authority	Applicable CAM	Effective Date of Cutting Authority	Applicable CAM
March 1, 2016 to December 14, 2017	March 1, 2016	December 15, 2019 to December 14, 2020	December 15, 2019
December 15, 2017 to December 14, 2018	December 15, 2017	December 15, 2020 to December 14, 2021	December 15, 2020
December 15, 2018 to December 14, 2019	December 15, 2018	December 15, 2021 to December 14, 2022	December 15, 2021

Blue Book Version

The Blue Book version to be used as the source of equipment rates for a ECE project, is dependent upon the "source year" provided in the applicable appraisal manual Appendix I (outlined in fuchsia in Figure 5-11a).

Figure 5-11a – Applicable Blue Book Source

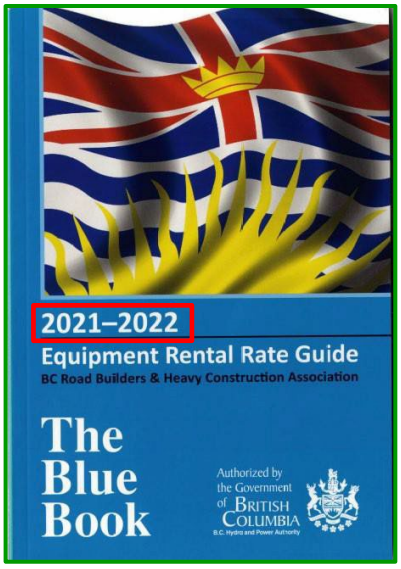
Appendix I Equipment and Labour Rates

a. "All Found" Equipment Rates (Source: 2021-2022 B.C. Road Builders & Heavy Construction Association, Equipment Rental Rate Guide ("The Blue Book"))

[1,2]EQUIPMENT DESCRIPTION	[3]BLUE BOOK SECTION	[3]BLUE BOOK CLASS	BLUE BOOK MODELS (this table uses 3-year old machine unless only "out-of-date" model is available)	$/HR
Drilling Equipment - Rock Drill	1.4		750 cfm Compressor or Equivalent Tank Drill Outfit (2 Operators included)	272.95

Using the source year from the appraisal manual 'The Blue Book' version is obtained (outlined in red Figure 5 -11b).

Figure 5-11b – Blue Book Cover



Blue Book Section

The Blue Book is broken into 17 broad sections and within each section there are sub-sections (outlined in fuchsia Figure 5-12) based upon the type of equipment. See The Blue Book 'Table of Contents' for full list.

Figure 5-12 – The Blue Book Section

SECTION 7.3 ECAVATORS
HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG)

CLASS 7

68000 - 87999 lbs (30.84 - 39.92 Tones)	2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
	AF $ 209.75	$ 202.00	$ 194.60	$ 187.60
MANUFACTURE	LO $ 155.25	$147.50	$ 140.10	$ 133.10
Case	CX350D	CX350C	CX330	170C, 89050, 9050B
Caterpillar	330, 330 F L, 335, 335F L, 336, 336 GC, 336 F L, 336F L XE	328D, 329 E/E L/F, 335F CR, 336 E/E H/E L/E LH	328DL-CR, 330DL, 336DL	229, 330 BL, 330 CL, 330L, EL300B
Daewoo				330-3, 330C-V, 400LC3
Deere	300GLC, 345GLC, 350G-LC, 380GLC		350D-LC	330C-LC, 330-LC, 370C, 370-LC
Doosan	DX300LC-5, DX350LC-5	DX350LC		

Blue Book Class

Within each of the sub-sections there are 'CLASS' (outlined in orange Figure 5-12) of equipment which are based upon the equipment's;

1. operating weight in pounds or tonnes (outlined in red Figure 5-12),
2. power in flywheel horsepower,
3. capacity in yards/cubic metres, or
4. capacity in cubic feet per minute, diameter, or tonnes.

Equipment Rate/HR

The equipment Rate/HR (rate per hour) for a piece of equipment model that has been used on the ECE project are found:

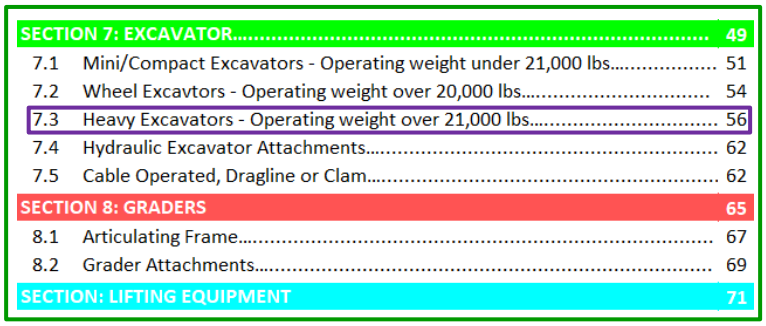
1. by identifying from the timecards or from the owner of the piece of equipment the;
   a. manufacturer,
   b. model,
   c. year of manufacture.

   NOTE
   - use the Internet if some information not available.

2. in the equipment owner's manual, Internet or information already available to you regarding the
   equipment's obtain the;
   a. operating weight in pounds or tonnes capacity,
   b. power in flywheel horsepower capacity,
   c. capacity in yards/cubic metres, or
   d. capacity in cubic feet per minute, diameter, or tonnes.

3. in the appropriate SECTION in The Blue Book using the equipment's;
   a. Type – search the Table of Contents to find section (outlined in purple Figure 5-13) for a 'Heavy Excavator',

   Figure 5-13 – The Blue Book Table of Content



   b. capacity from step 2 (outlined in red Figure 5-12) to find the CLASS,
   c. make, model, year to find equipment rate per hour.

4. dollar per hour rate that:
   a. includes operator (code is **AF**).
   b. does not include operator (code is **LF**).

5. Attachment(s) if applicable.

   NOTEs
   - Attachment are specific to a SECTION.
   - Most common attachment(s) are in SECTION 7:
     ⇒ See section *7.4 A* for heavy excavator attachments.
     ⇒ Section *7.4 A* identifies 5% for Brush Guard package and 5% for manufacture designed hydraulic thumb.
     - ❖ This is where Appendix 1 of CAM obtains the 10% increase to equipment rate.

Example I – Equipment Listed in The Blue Book

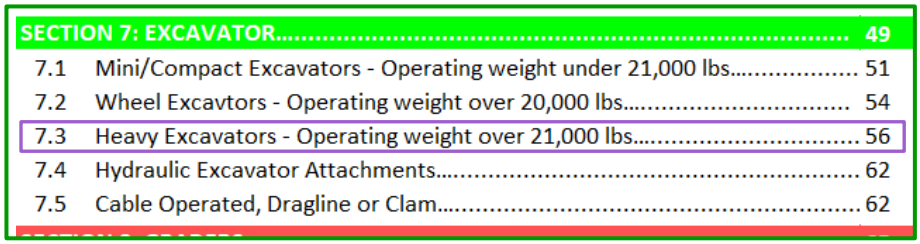
Excavator model **Cat 330DL** provided on the timecard.

In discussion with the licensee, they provided that the piece of equipment is an excavator with operating weight around 78,000 lbs, manufactured by Caterpillar in 2008, with a brush guard package and a hydraulic thumb.

The process to find the equipment rate in the appliable Blue Book in force on the effective date of the appraisal or sudden & severe damage reappraisal is:

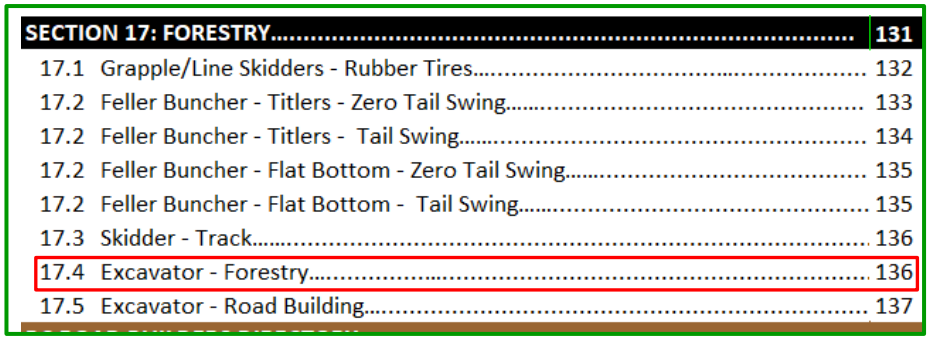
1. using the table of contents search for an excavator of 78,000 lbs, resulting in an excavator;
   a. Heavy in section 7.3 (outlined in purple Figure 5-14a), or

Figure 5-14a – The Blue Book Table of Content #1



   b. Forestry in section 17.4 (outlined in red Figure 5-14b).

Figure 5-14b – The Blue Book Table of Content #2



2. in section 7.3 (dashed blue outline in Figure 5-15a) move through the tables to find the table for an excavator of 78,000 lbs.

   For this example The Blue Book provides the equipment is within the range of "68000 **to 87999 lbs** " (outlined in red Figure 5-15a) making it a CLASS 7 (outlined in orange Figure 5-15a),

Figure 5-15a – The Blue Book Class 7 Table #1

SECTION 7.3 EXCAVATORS HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG) CLASS 7					
68000 - 87999 lbs (30.84 - 39.92 Tones)		2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
	AF	$ 209.75	$ 202.00	$ 194.60	$ 187.60
MANUFACTURE	LO	$ 155.25	$147.50	$ 140.10	$ 133.10
Case		CX350D	CX350C	CX330	170C, 89050, 9050B
Caterpillar		330, 330 F L, 335, 335F L, 336, 336 GC, 336 F L, 336F L XE	328D, 329 E/E L/F, 335F CR, 336 E/E H/E L/E LH	328DL-CR, 330DL, 336DL	229, 330 BL, 330 CL, 330L, EL300B
Daewoo					330-3, 330C-V, 400LC3
Deere		300GLC, 345GLC, 350G-LC, 380GLC		350D-LC	330C-LC, 330-LC, 370C, 370-LC
Doosan		DX300LC-5, DX350LC-5	DX350LC		

3. using the manufacturer column (dashed yellow outline in Figure 5-15a), find the manufacturer "**Caterpillar**"(highlighted in yellow Figure 5-15a),

4. search across the equipment manufacture row for "Caterpillar"(dashed fuchsia outline Figure 5-15b) to find ***Cat 330DL*** which is one of the common models listed (dashed outline in orange Figure 5-15b).

5. the equipment rate is found by looking up the column (dashed outline in red Figure 5-15b) containing the equipment model found in step 4 for the AF (includes operator) equipment rate.

   For this example, the equipment rate is **$194.60** (highlighted in yellow Figure 5-15b).

Figure 5-15b – The Blue Book Class 7 Table #2

SECTION 7.3 EXCAVATORS HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG) CLASS 7					
68000 - 87999 lbs (30.84 - 39.92 Tones)		2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
	AF	$ 209.75	$ 202.00	$ 194.60	$ 187.60
MANUFACTURE	LO	$ 155.25	$147.50	$ 140.10	$ 133.10
Case		CX350D	CX350C	CX330	170C, 89050, 9050B
Caterpillar		330, 330 F L, 335, 335F L, 336, 336 GC, 336 F L, 336F L XE	328D, 329 E/E L/F, 335F CR, 336 E/E H/E L/E LH	328DL-CR, 330DL, 336DL	229, 330 BL, 330 CL, 330L, EL300B
Daewoo					330-3, 330C-V, 400LC3
Deere		300GLC, 345GLC, 350G-LC, 380GLC		350D-LC	330C-LC, 330-LC, 370C, 370-LC
Doosan		DX300LC-5, DX350LC-5	DX350LC		

6. as equipment was listed in section 7.3 CLASS 7, there is no need to search section 17.4.
7. attachment(s) calculation (if attachment is present on the equipment).
   For this example, there is a brush guard and hydraulic thumb designed by a manufacturer.
   $194.60 per hr (from step 6) * 0.1 (10% percent) = 19.46
   $194.60 per hr + $19.46 = $214.06 per hr
8. populated the equipment rate cell in ECE Form with resultant from step 7 of **$214.06**.

Example II – Equipment Make &/or Model Not Listed in The Blue Book

Equipment listed in timecard is a **Cat 320 L**.

From discussions with the licensee this piece of equipment also has a brush guard package and a hydraulic thumb, but they do not know the date the equipment was manufactured.

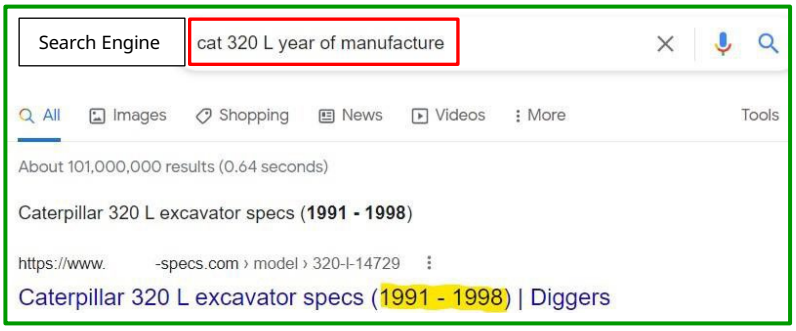
The process to find the equipment rate in The Blue Book in force on the effective date of the appraisal or reappraisal is:

1. More information will be required to use The Blue Book. Suggested process to find this piece of equipment is run a search in Internet to find the:

   a. year of manufacture (outlined in red Figure 5-16a).

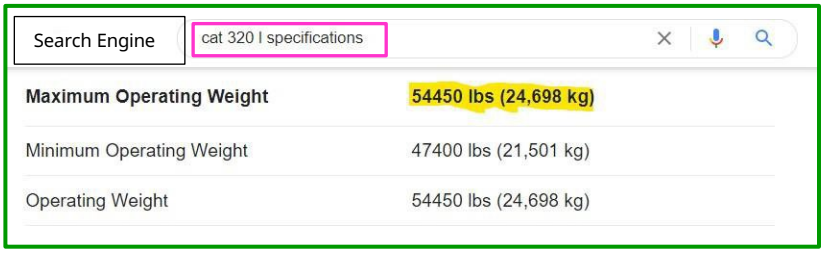
      NOTE
      - often this is the first step to be able to find the year column in a section of The Blue Book.

Figure 5-16a – Internet Search #1



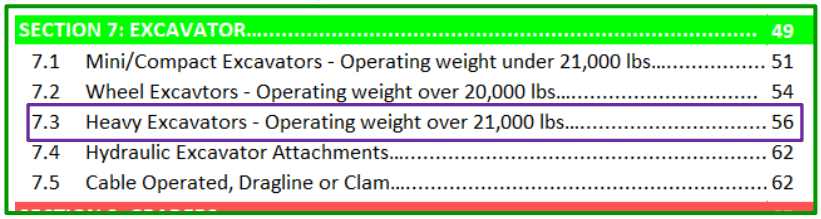
   b. capacity (outlined in fuchsia Figure 5-16b).

Figure 5-16b – Internet Search #2



2. using the table of contents search for an excavator of 54,450 lbs (from step 1(b)). Results for this example is section 7.3 – Heavy Excavator (outlined in purple Figure 5-17).

Figure 5-17 – The Blue Book Table of Content



3. in section 7.3 (dashed blue outline in Figure 5-18a) move through the tables to find the table for an excavator of 54,450 lbs (from step 1(b)).
   For this example The Blue Book provides the equipment is within the range of "51000 **to 58999 lbs** " (outlined in red Figure 5-18a) making it a CLASS 5 (outlined in orange Figure 5-18a).

Figure 5-18a – The Blue Book Class 5 Table #1

SECTION 7.3 EXCAVATORS HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG) CLASS 5					
51000 - 58999 lbs (23.13 - 26.76 Tones)		2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
	AF	$ 156.45	$ 151.35	$ 146.50	$ 141.90
MANUFACTURE	LO	$ 101.95	$96.85	$ 92.00	$ 87.40
Case		CX250C, CX250D	CX225MSR, CX235C	CX225SR,CX240	125B, 9040, 9040B
Caterpillar		323, 325F, 325F L, 326	320E L, 320 ELR, 320E N, 320E RR, 320EL-LR	320CLU, 320DL-RR, 321CL-CR, 324DL	225D, 225D LC, 322 BL, 322L, 322CL-CR
Deere		245G, 250G-L		225D-LC, 240D-LC	225C-LC-RTS, 230-LC, 230C-LC, 790E LC
Doosan		DX225LC-5, DX235LCR-5, DX225LC-5	DX225LCR		

4. using the manufacturer column (dashed yellow outline in Figure 5-18a), find the manufacturer "**Caterpillar**"(highlighted in yellow Figure 5-18a),

5. search across the equipment manufacturer row for "Caterpillar"(dashed fuchsia outline Figure 5-18b) for a model ***320L***.
   For this example, the search for a Cat 320 L provides it is not one of the common models listed.

Figure 5-18b – The Blue Book Class 5 Table #2

SECTION 7.3 EXCAVATORS HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG) CLASS 5					
51000 - 58999 lbs (23.13 - 26.76 Tones)		2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
	AF	$ 156.45	$ 151.35	$ 146.50	$ 141.90
MANUFACTURE	LO	$ 101.95	$96.85	$ 92.00	$ 87.40
Case		CX250C, CX250D	CX225MSR, CX235C	CX225SR,CX240	125B, 9040, 9040B
Caterpillar		323, 325F, 325F L, 326	320E L, 320 ELR, 320E N, 320E RR, 320EL-LR	320CLU, 320DL-RR, 321CL-CR, 324DL	225D, 225D LC, 322 BL, 322L, 322CL-CR
Deere		245G, 250G-L		225D-LC, 240D-LC	225C-LC-RTS, 230-LC, 230C-LC, 790E LC
Doosan		DX225LC-5, DX235LCR-5, DX225LC-5	DX225LCR		

NOTE
- This step provides an example of how to search for common equipment models.

6. as the equipment model is not listed the year of manufacture and the CLASS table will find the equipment rate.

   For this example, the:

   a. year of manufacture from step 1(a) provides that the year column of "2007 **- older** " (dashed red outlined Figure 5-18c) is used because the year of manufacture is between 1991 & 1998, as per Internet search, and

b. equipment rate is the equipment rate is **$141.90** (highlighted in yellow Figure 5-18c).

Figure 5-18c – The Blue Book Class 5 Table #3

SECTION 7.3 EXCAVATORS HEAVY HYDRAULIC EXCAVATORS - OPRATING WEIGHT OVER 21,000 LBS (9,526 KG) CLASS 5					
51000 - 58999 lbs		2021 - 2018	2017 - 2013	2012 - 2008	2007 - older
(23.13 - 26.76 Tones)	AF	$ 156.45	$ 151.35	$ 146.50	$ 141.90
MANUFACTURE	LO	$ 101.95	$96.85	$ 92.00	$ 87.40
Case		CX250C, CX250D	CX225MSR, CX235C	CX225SR,CX240	125B, 9040, 9040B
Caterpillar		323, 325F, 325F L, 326	320E L, 320 ELR, 320E N, 320E RR, 320EL-LR	320CLU, 320DL-RR, 321CL-CR, 324DL	225D, 225D LC, 322 BL, 322L, 322CL-CR
Deere		245G, 250G-L		225D-LC, 240D-LC	225C-LC-RTS, 230-LC, 230C-LC, 790E LC
Doosan		DX225LC-5, DX235LCR-5, DX225LC-5	DX225LCR		

7. attachment(s) calculation (if applicable).

   For this example there is a brush guard and hydraulic thumb designed by the manufacturer.

   $141.90 per hr (from step 6) * 0.1 (10% percent) = 14.19

   $141.90 per hr + $14.19 = $156.09 per hr

8. populated the equipment rate cell in ECE Form with resultant from step 7 of **$156.09**.

Description of ECE Projects

The following project types are defined in the ECE Procedures:

1. Bridge Exceeding Tables in CAM

Description

This project type accounts for a bridge installation project where the bridge project characteristics do not correspond to the tabular bridge parameters, where a portable bridge is reused in another location or where a bridge rental is used.

Appraisable Costs

The appraisable costs may include: the production of a structural design drawing / general arrangement drawing by an arm's length QRP, structure purchase, site preparation, installation, structural fill, riprap, roadside barriers, signage and arm's length QRP supervision/certification. Freight from the manufacturer/supplier may be included if the structure is newly purchased. Removal, transportation, re-installation, and repair may be included if the structure is reused; the removal of abutments may also be included if the abutments are reused. In addition to the above, bridge rental costs may be included for up to 3 months use, if applicable.

Appraisable & Ineligible Costs – Reused Bridges

The cost of removing, transporting, repair, and re-installation of a reused bridge structure may be included in the appraisal.

The cost of deactivating the previous installation location, the original purchase cost, and previous transportation costs (i.e. delivery or transportation associated with a prior installation) are not acceptable in the ECE project. Deactivation at the previous installation site is not acceptable because the cost is considered Road Management Deactivation and accounted for in the Road Management TOA. Removal of abutments is considered deactivation unless the abutments are also reused.

Second-Hand Bridges

The cost of a newly purchased secondhand structure, with non-tabular (ECE) design characteristics, is appraisable using the lowest reasonable purchase and freight cost, provided the bridge was not purchased in conjunction with timber harvesting rights.

NOTE
- If the project and bridge structure have tabular characteristics use a tabular bridge cost, i.e. new road construction.

Combinations

Any "large fills" or "barging" associated with the bridge project must be combined into the bridge project.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information, if applicable, is required: bridge site plan, general arrangement drawings, structural design drawings, geometric road design, and corporate asset number.

2. Drainage Structure Maintenance or Upgrade

Description

This project type accounts for structural maintenance or structural upgrade of bridges and major culverts.

Structural maintenance means repair or replacement of a bridge or culvert's structural components with comparable materials to maintain the bridge or culvert's original design standard.

Structural upgrade means the design enhancement of a bridge or culvert's load rating or physical properties.

Appraisable Costs

The appraisable cost of **structural maintenance** may include: bridge sub/superstructure components, bridge deck panels (if >10% deck area repaired), bridge timber decking (if >50% deck area repaired), structural steel, the structural components of major culverts, structural fill, riprap, roadside barriers, and arm's length QRP structural design drawings / supervision / certification.

The appraisable cost of **structural upgrade** may include: bridge sub/superstructure components, upgrade of decking material to a higher standard, additional structural support, structural steel, the structural components of major culverts, structural fill, rip-rap, roadside barriers, and arm's length QRP structural design drawings / supervision / certification.

Ineligible Costs

Repair or replacement of asphalt decking may not be included. Repair of bridge deck concrete surfaces or bridge approach concrete surfaces by means of concrete topping may not be included.

Other Costs

Other structural maintenance or upgrade activities may be appraised if authorized by the Timber Pricing Coordinator.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information is required: bridge/culvert site plan, general arrangement drawings, structural design drawings, pre-maintenance / upgrade photos of structural components affected, and previous inspection reports / maintenance records.

3. Barging of Bridge Structure Components

Description

This project type accounts for barging of bridge structure components and includes barging of "tabular" and "ECE (non-tabular)" bridges. For clarity, this project type also accounts for barging of reused portable bridges required in a new location.

Appraisable Costs

The appraisable costs may include: loading / unloading of the barge and the shortest reasonable one-way barge transportation of the bridge structure components. Costs must be prorated if ineligible equipment or material is also transported on the barge.

Ineligible Costs – Tabular Bridge Project

Barging of any equipment or material, other than the bridge components, must not be included. Barge diversion costs must not be included.

Ineligible Costs – ECE Bridge Project

Barging of equipment or materials not related to the bridge project must not be included. Barging of equipment that will also be used in tabular road construction or harvesting accessible from the barge off-load location must not be included. Barging of ECE specific equipment that will also be used on other ECE projects must be prorated. Barge diversion costs may not be included.

Combinations

Barging of an ECE bridge must be combined with the bridge's ECE project. Barging of a tabular bridge is a distinct ECE project. The cost of barging must be appraised within the same cutting authority that the cost of the bridge is being appraised within.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information is required: the loading / unloading location of the barge, and the manifest / waybill which describes barge contents transported.

4. Major Culvert Installation

Description

This project type accounts for the installation of:

- **pipe culverts** having a diameter greater than 1800mm,
- **pipe arch culverts** having a span of 2130mm or greater,
- **open bottom arch culverts** having a span of 2130mm or greater,
- **or other culverts** (excluding log/wood culverts) with a maximum design discharge of $\geq$6 m^3/s.

Appraisable Costs

The appraisable costs may include: the production of a general arrangement drawing / structural design drawing by an arm's length QRP, structure purchase, site preparation, installation, structural fill, riprap, roadside barriers, signage and arm's length QRP supervision/certification. Freight from the manufacturer/supplier may be included if the structure is newly purchased. Stream channel work may be included if required on an embedded pipe culvert.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information, if applicable, is required: culvert site plan, general arrangement drawings, structural design drawings, and geometric road design.

5. Ford Construction

Description

This project type accounts for the installation of ford type stream crossings, i.e. when a road crosses a stream and the drainage structure is non-erodible material so that water may pass over or through the road prism material.

Appraisable Costs

The appraisable costs may include: the production of a general arrangement drawing / structural design drawing by an arm's length QRP, structure purchases, grubbing / stripping, development of ford structural material, installation, subgrade construction, stabilizing material, culverts, roadside barriers, signage, and arm's length QRP supervision/certification.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information, if applicable, is required: ford site plan, general arrangement drawings, structural design drawings, and geometric road design.

6. End Haul Construction

Description

This project type accounts for the transportation of cut material generated during road construction that is excessive because it cannot be side casted due to steep terrain, sensitive sites, or unstable terrain and therefore must be placed in a truck and removed at least 10 metres.

Steep terrain means the natural downhill side slope is ≥55%, or where the excavated material's angle of repose precludes the use as fill material.

Sensitive site means that the side casting of excavated material would: have a material adverse effect on forest resources (e.g. streams, visuals, wildlife, habitat, etc.), or increase the risk of slope failure.

Unstable terrain means terrain that has been identified as such by a terrain specialist.

Appraisable Costs

The appraisable costs may include: grubbing / stripping, excavation of the end haul construction road section, trucking of excess material to the nearest feasible spoil site, subgrade construction, stabilizing material, and culvert material.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information is required: end haul construction geometric designs (which show plan, profile, cross-section, and mass haul information), and a terrain stability assessment or QRP rationale. Where the bank height cost plus hourly method is used a copy of the contract detailing that method of payment is required.

7. Overland Construction & Large Fills

Description

This project type accounts for: overland construction due to weak soils; and large fills required at bridge approaches, culverts, and ground depressions.

Weak soils mean: thick organic soils with slopes <20% which requires extensive amounts of material delivered by truck to construct a stable road subgrade.

Large fills at a bridge means: the approach fill material is more than 0.8m depth.

Large fills at a culvert means: the fill depth is more than 0.8m depth and the distance from the stabilized road surface to the bottom of the fill below the culvert is ≥3.0m.

Large fills at a ground depression means: the fill depth along a road section is more than 0.8m depth for at least 20m length, and the fill depth reaches a maximum of at least 3 metres.

Appraisable Costs

The appraisable costs may include: generating / installation of fill material, subgrade construction, stabilizing material, and culvert material. Overlanding due to weak soils may include geo-synthetic products and puncheon. Large fills may include grubbing / stripping.

Combinations

Large fills associated with an ECE bridge must be combined with the bridge project. Large fills associated with an ECE culvert must be combined with the culvert project.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, a geometric design (which shows plan, profile, cross-section, and mass haul information) is required.

8. New Road Construction Exceeding Table Values in CAM

Description

This project type accounts for new construction of mainline roads, roads where the pre-construction uphill side slope is over 150%, roads with consecutive gullies, roads with large excavation switchbacks, road sections approaching a highway junction which requires asphalt to shed dirt, and roads where the bank height rock face exceeds 7.50m in vertical height.

Mainline road means a main access road with a stabilized road surface >6m accessing at least 300,000m^3 of timber within the next 10 years.

Consecutive gullies means two or more gullies over 10m deep at centerline within a 300m section of road.

Large excavation switchback means a switchback which requires 10,000m^3 of excavation volume to maintain the design grade and alignment.

Appraisable Costs

The appraisable costs may include: grubbing / stripping, generating / installation of fill material, subgrade construction, stabilizing material, and culvert material.

Asphalting may only be appraised if the asphalt is required by the Ministry of Transportation and Infrastructure.

Combinations

If applicable, asphalting projects may be combined with any other associated ECE Project.

Supporting Information

In addition to the evidence / documentation requirements of the CAM: a QRP rationale must be provided to the Timber Pricing Coordinator and must be accepted by the Timber Pricing Coordinator prior the appraisal of a Type 8 ECE project; and a geometric design (which shows plan, profile, cross-section, and mass haul information) is required.

9. Road Reactivation

Description

This project type accounts for the re-establishment of a road prism, where the road was not subject to road management obligations prior to the project (e.g. the road wasn't under a road permit / licence). Note that de-built roads (i.e. an old road where the existing subgrade was ripped and the ground was re-contoured) are excluded from this project type because any associated road construction would be considered new road construction for appraisal purposes.

Appraisable Costs

The appraisable costs may include: grubbing / stripping, generating / installation of fill material, subgrade construction, stabilizing material, and culvert material.

Combinations

If applicable, associated Bridge and Drainage structures up to 18 metres, End Haul Construction, Overland Construction, Large Fills, or Retaining Wall Construction may be combined into Road Reactivation.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, pre-construction georeferenced photos reflecting road conditions in both woods and camp direction are required.

10. Road Reconstruction

Description

This project type accounts for the re-establishment of a road prism, where the road was subject to road management obligations prior to the project (e.g. the road was already under a road permit / licence); and is limited to:

A. **reconstruction of wilderness roads** which have not had industrial use for at least five years; or

B. **storm damage repairs** which exceed CAM Section 5.4 Road Management requirements.

Appraisable Costs

The appraisable costs may include: removal of vegetation from the road prism that cannot be removed by grader, generating / installation of fill material, widening of the road prism, subgrade construction, stabilizing material, ditching, culvert cleaning, and culvert material.

Ineligible Costs

Any routine maintenance that may be classified as Road Management as per Cam Section 5.4; for example, ditching, culvert cleaning, or removal of vegetation with a grader where no other engineering cost estimate work is required within the project.

Combinations

If applicable, associated Bridge and Drainages up to 18 metres, End Haul Construction, Overland Construction, Large Fills, or Retaining Wall Construction may be combined into Road Reconstruction.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information is required: pre-construction georeferenced photos reflecting road conditions in both woods and camp direction, and documentation demonstrating that industrial use has not occurred on the road within the last five years.

11. Road Upgrade

Description

This project type accounts for the upgrade of a road's design to a higher design specification required due to changes to:

A. **road design/construction standards**, i.e. since the road's construction there has been an evolution of how roads are designed or constructed which requires a road upgrade;

B. **industrial traffic standards**, i.e. since the road's construction there has been evolution of timber extraction / lowbed equipment design or usage which requires a road upgrade;

C. **development planning**, i.e. the original purpose of the road has been expanded and the road will become a more significant / longer haul route because of being required to access additional timber; and these factors necessitate a higher-level design standard; or

D. **safety**, i.e. due to an increase in industrial traffic volume or a known documented work safety issue a change to the road's width or alignment is required.

Appraisable Costs

The appraisable costs may include: road re-alignment, grubbing / stripping, subgrade construction, stabilizing material, and culvert material. Lengthening or adding pullouts may be included if they are required as part of the new design standard.

Combinations

If applicable, associated Bridge and Drainage structures up to 18 metres, End Haul Construction, Overland Construction, Large Fills, or Retaining Wall Construction may be combined into Road Upgrade.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, a geometric design (which shows plan, profile, cross-section, and mass haul information) is required. A QRP rationale may be required for acceptance of appraisal costs.

12. Placement of Stabilizing Material

Description

This project type accounts for surfacing on existing roads, capping on new roads, or additional stabilizing material on new roads.

A. **Surfacing** means:
   - -the placement of gravel on an existing road to maintain a running surface that meets road design specifications;
   - -that is required because previous surface material has been lost due to extensive wear and tear; and
   - -the surfacing project is a section of road 500m or longer and surfacing material is applied at a depth of at least 0.1m.

B. **Capping** means: the placement of material on new bank height category road construction sections because the subgrade is not capable of supporting industrial traffic, or the road without capping is constructed of material that damages tires of timber extraction equipment.

C. **Additional Stabilizing Material** means: the construction of subgrade on new bank height category road which has insufficient suitable material available, and therefore suitable material must be hauled more than 3.2km from the nearest source to construct the subgrade (as measured from the source to the centre point of the receiving tabular bank height road section).

Surfacing / Capping – Appraisable Costs

The appraisable costs of surfacing or capping activities may include: development, loading, and transportation of material. The appraisal of surfacing may also include application / spreading of the surfacing material.

Additional Stabilizing Material – Appraisable Costs

Movement of material within 3.2km of bank height category road is included in the tabular cost, thus Additional Stabilizing Material accounts for the movement of material beyond 3.2km. Because it would be too onerous for a licensee to record trucking hours beyond 3.2km versus trucking hours within 3.2km, the cost of Additional Stabilizing Material activity is always appraised using the **cost estimate method outlined within Type 12 of the ECE Procedures**. Additional Stabilizing Material may **not** be appraised using actual machine hours or material costs.

Ineligible Costs

Relating to surfacing of existing roads the following costs may not be appraised: recovery of gravel from the road edges; recovery of gravel through normal surface maintenance; ditch cleaning, or spot gravel application / surfacing projects less than 500m length

Combinations

Capping and Additional Stabilizing Material activities are only related to bank height category road, and the cost appraised is in addition to the tabular rate. Do not include the bank height category tabular cost in the ECE project.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, a geometric design (which shows plan, profile, cross-section, and mass haul information) is required. A QRP rationale may be required for acceptance of appraisal costs.

13. Retaining Wall Construction

Description

This project type accounts for retaining wall construction projects associated with roads due to slope instability, stream erosion, or as otherwise approved by the Timber Pricing Coordinator.

Appraisable Costs

The appraisable costs may include: the production of a retaining wall site plan / general arrangement by an arm's length QRP, structure components purchase, site preparation, installation, structural fill, riprap, roadside barriers, signage and arm's length QRP supervision/certification. Freight from the manufacturer/supplier may be included if the structure components are new.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, a geometric design (which shows plan, profile, cross-section, and mass haul information) is required.

14. Pipeline Crossing Construction

Description

This project type accounts for new road construction which must cross an existing pipeline which requires the licensee to follow established crossing requirements as described within the pipeline's:

- engineering standards / practices;
- design / construction guidelines; or
- ground disturbance pipeline protection requirements for road crossings.

Appraisable Costs

If the pipe will be protected using protective material, the appraisable costs may include:

⇒ protective covering material purchase,
⇒ material freight,
⇒ excavation of the pipe by hand labour or hydrovac truck, and
⇒ installation of protective covering materials.

If the pipe will be clear spanned using a bridge, the appraisable costs may include:

⇒ bridge materials,
⇒ abutment materials,
⇒ transportation of materials,
⇒ pipe locating work via hand labour or hydrovac truck, and
⇒ equipment / labour of installing the bridge.

NOTE
- See ECE Type 1 for other appraisable bridge costs that may be considered.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, the following supporting information, if applicable, is required: bridge site plan, structural design drawings, general arrangement drawings, and geometric road design.

15. Powerline Work

Description

This project type accounts for activities under and adjacent to powerlines, such as increasing the height of an existing powerline above a road, relocating an existing powerline away from a road, or burying an existing powerline below a road for the purpose of meeting clearance distance required by WorkSafeBC.

Appraisable Costs

The appraisable costs may include: equipment and labour costs for removing or installing power poles, power pole material, and installation or movement of the powerline. Costs incurred to prevent damage to a powerline without relocating it are also appraisable, including: use of blasting mats, endhaul and the cost of a third party supervisor during drilling/blasting (e.g. BC Hydro).

Ineligible Costs

Any costs not directly related to the cost of improving the clearance distance; and the cost associated with interrupted electrical service or lost electricity revenue is not appraisable.

Supporting Information

In addition to the evidence / documentation requirements of the CAM, a QRP rationale must be provided to the Timber Pricing Coordinator and must be accepted by the Timber Pricing Coordinator prior to the appraisal of a Type 15 ECE project.

Combining ECE Projects

Drainage Structures

Bridge, ford, or culvert ECE projects (i.e. installation, replacement, maintenance, or upgrade) can be combined with type 9, 10 and 11 project types for lengths up to and including 18 metres. Drainage structures larger than this must be separate ECE projects and may not be combined. Barging of ECE bridge structure components is considered part of the bridge project.

Projects with the same Project Type

With exception to bridge or culvert ECE projects; for appraisal purposes ECE projects with the same project type are considered a single project if separated by road length less than or equal to 100 metres length.

Adjacent Tabular Road

Bank height category tabular road less than or equal to 100m length located between ECE projects may be combined with an adjacent project if the project type is “End Haul Construction”, “Overland Construction & Large Fills”, or “New Road Construction Exceeding Table Values in CAM”. Similarly, tabular road sections of 25 metres or less at the start or end of a road and adjacent to these project types, may be combined with the ECE project. Therefore, if the other adjacent ECE project is also the same project type, then both of the ECE projects and the bank height category road may be combined into one project representing one continuous road section.

ECE Reactivation, Reconstruction, and Upgrade

“End Haul Construction”, “Overland Construction & Large Fills”, and “Retaining Wall Construction” projects contiguous with an ECE Reactivation project may be combined into the ECE Reactivation project. Likewise, this concept is applicable to ECE Reconstruction and ECE Upgrade projects. However, large fills associated with an ECE bridge or culvert projects may not be combined, unless they are associated with drainage structures that are 18 metres in length or less.

Retaining Wall Construction

“Retaining Wall Construction” may be combined into “End Haul Construction” on a new road if the projects are contiguous.

Administration of Combined Projects

Project combinations may only occur if the road sections share the same road name as defined in the Forest Tenures Administration system.

Combined projects must result in one continuous uninterrupted section of road (except projects with the same project type which may be separated by road length of 100 metres or less). The appraisal of combined projects requires the ECE Cost Form Addendum (Appendix 4b of the ECE Procedures); the form must identify and describe the ECE projects and/or bank height category road that is combined.

Submission Quality

As per CAM Section 3.2.1, the Ministry is **not** required to conduct regular in-depth reviews of non-BCTS initial ADS's. The information submitted in an Initial ADS should therefore not be considered as an indication as to the type of information, methods, costs, or submission quality likely to be accepted by the Ministry upon submission of the corresponding post-harvest ADS.

ECE Forms and supporting documentation attached in an appraisal must be organized in a logical sequential manner and must correspond to the other Engineering Cost Estimate information submitted (e.g. information submitted on the "ECAS 40 – Engineering Cost Estimate"screen). Files attached in an appraisal that relate to the "ECAS 40 – Engineering Cost Estimate" screen must be named and numbered as described on the ECAS 40 screen.

Drainage Structure Upgrades on an FSR

The applicable ministry engineer must be notified 30 days prior to any upgrade on a Forest Service Road (FSR) bridge or ECE culvert; and where required by the ministry engineer the general arrangement drawings, structural design drawings, and supervision cost by an arm's length QRP is appraisable as an ECE cost. Any FSR bridge replacement or repair cost paid by the crown may not be considered in an appraisal.

ECE FORM - Submission Requirements

See Coast Appraisal Training Module 10.

ECAS - Submission Requirements

See Coast Appraisal Training Module 9.

- End of Module 5 -