
**Terms of Reference
For
Highway 97 Assessment of Existing
Infrastructure: Identification of the Potential
Constraints to Economic Growth &
Movement of Goods**



Ministry of Transportation and Infrastructure

**Northern Region
213 - 1011 4th Avenue
Prince George, British Columbia
V2L 3H9**

November 2008

BACKGROUND

The Northern Region of the BC Ministry of Transportation & Infrastructure (henceforth “Ministry”) along with Northern Development Initiative Trust (Northern Development) has an interest in conducting a comprehensive study focused on the recommendations and cost analysis to potentially upgrade eight low clearance overhead railway crossings and the Salmon River and Parsnip bridges located between Quesnel and Dawson Creek on Highway 97 to current clearance standards, and the implications for economic growth and diversification over the next 15 years. The seven structures currently have a minimum clearance of 4.64 metres and industry has stated that vertical clearances and width constraints hamper their ability to diversify manufacturing as well as supply and freely move large equipment and loads to and from Northeast BC and the rest of the province.

A few examples of loads that have had to be sourced or trucked through Alberta rather than up or down Highway 97 include compressor station components, pre-manufactured homes, wind turbine towers, large dozers, drilling tanks, bridge components, and off-highway coal and ore trucks, and pre-manufactured grinding mill parts used in the mining industry. The agriculture industry needs the ability to haul combines from the Peace to the interior, and in the future drilling rigs should be able to move between the northeast and the interior. The inability to move many large loads up and down Highway 97 through the section from Quesnel to Dawson Creek impairs the ability of BC manufacturers and suppliers to competitively quote against companies from outside the province on service and repair, supply, or major construction contracts within BC. Costs increase when heavy equipment and loads have to be broken down to move safely under the bridge and rail overheads, or transported around the Pine Pass through Alberta.

It is acknowledged that the existence of overpasses, by their nature, constrain the heights permitted by commercial traffic. The question at hand is the degree to which the existence of these height constraints is having a tangible and substantial impact in the economy. The alignments of railway level crossings, as well as other road features, may also constrain the trucking industry. This study is geared toward better understanding the actual impact of existing road features on economic

diversification as well as recommendations and cost impacts to mitigate those constraints.

This study would satisfy the Ministry's mandate to provide for the safe and efficient movement of people and goods. As well, the study would meet the Highway 97 corridor strategy of improving safety and traffic flows. The highway supports a diverse regional economy that depends, in large part, on transportation and resource industries. It also provides access to oil and gas resources, forestland, mining, parks and recreational areas throughout the northern region of the province.

OBJECTIVES

- Identify and assess existing commercial usage and current potential commercial usage of the section of Highway 97 corridor between Quesnel and Dawson Creek.
- Identify road features constraining the commercial usage on the section of Highway 97 corridor between Quesnel and Dawson Creek;
- Quantify the economic impacts of the current commercial constraints on the Highway 97 corridor between Quesnel and Dawson Creek
 - Assess and quantify commercial traffic using other transportation corridors to move equipment and large loads both directions between the Northeast region and the rest of BC, due to Highway 97 height constraints
 - Assess and quantify the potential increase in inter-regional and intra-provincial procurement, should the identified bridges, and rail overpasses increase their height constraints based on more current design standards.
 - Assess time savings for oversized load transport versus existing alternative routes, should Fort George region industry have improved height clearances based on today's design standards
 - Assess and quantify cost differential of moving goods (and services) between affected regions vs existing alternative transportation routes for oversized loads
 - Assess employment levels in industries that utilize the Highway 97 transportation corridor to ship equipment, or manufactured product and growth opportunities for these industries.
- Develop and evaluate alternatives which will mitigate the identified problems/constraints to economic growth and movement of goods;

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- Recommend the modifications/improvements to Highway 97 infrastructure that has been identified as preventing or restricting business opportunities (large equipment and manufactured goods: supply, service and repair) between northeast BC and the rest of the Province.
- Quantify the costs of identified road feature improvements required to mitigate the constraints arising from existing road features on the Highway 97 corridor between Quesnel and Dawson Creek
- Determine if a positive benefit cost exists for identified road feature improvements and how long it may take to realize a positive return on investment.
- In addition, identify other road features which may be restricting or preventing business opportunities in the region;

STUDY AREA

Seven railway overpasses and the Salmon River and Parsnip bridges located between Highway 26 (Quesnel) and Highway 2 (Dawson Creek) on Highway 97 should be studied (Figure 1). They are:

Name	Segment	Recorded Vertical Clearance* (metre)	LKI
Bellows BCR Overpass	1150	4.96	15.74
Hixon BCR Overpass	1150	4.90	51.74
Stoner BCR Overpass	1150	4.70	75.80
Red Rock BCR Overpass	1150	4.64	83.69
Bijoux BCR Overpass	1160	6.30	34.31
West Pine BCR Overpass	1160	4.92	77.82
East Pine BCR Overpass	1170	5.00	32.39
Salmon River Bridge	1155	5.40	27.67
Parsnip River Bridge	1155	5.05	155.93

* need to be confirmed by study.

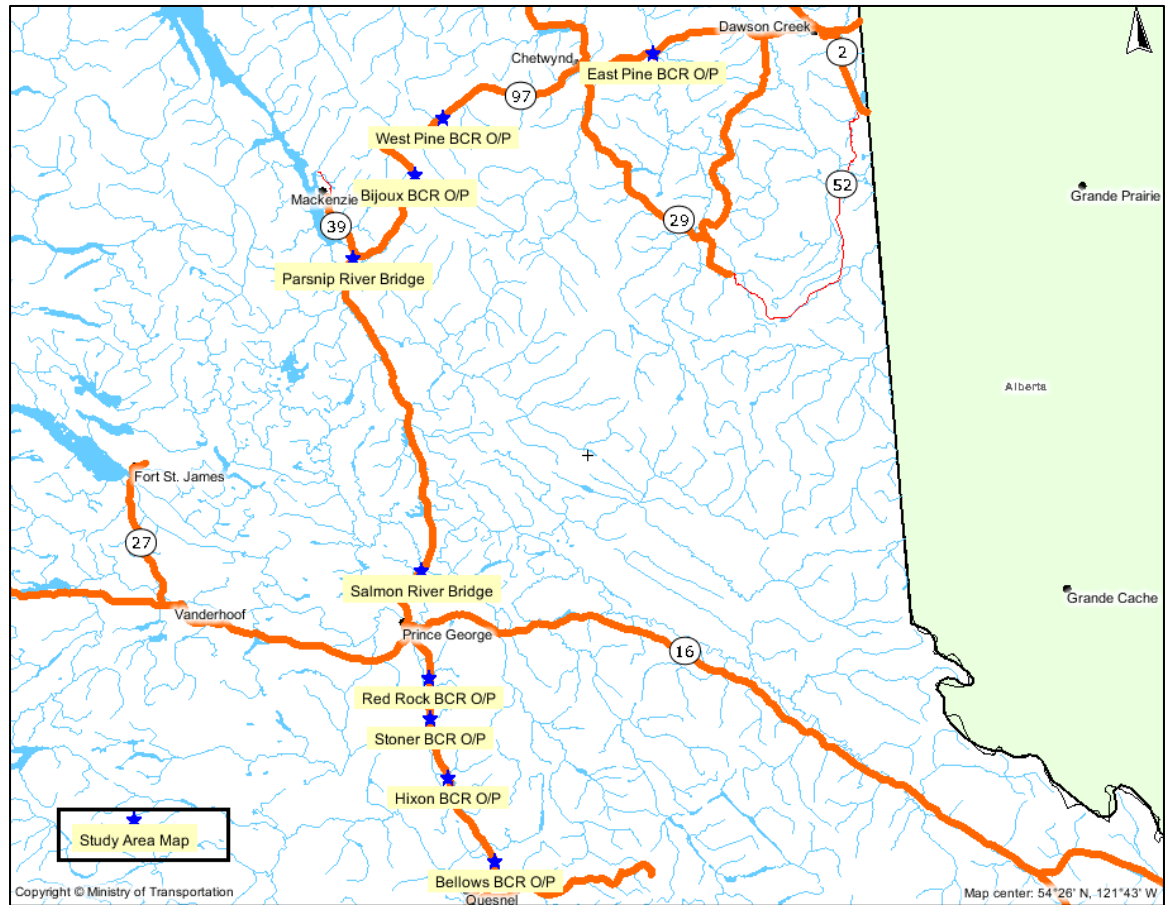


Figure 1 Study Area

THE GENERAL SERVICES REQUIREMENTS

Identify Problems and Assess Needs

The consultant should identify current and future problems and/or constraints with the study bridges and the existing railway overpasses along Highway 97 between Quesnel and Dawson Creek, as they relate to oversized truck traffic, and what growth impacts will be, assuming no changes to the present highway infrastructure.

The consultant should review, if available, any previous reports, plans, drawings, and any other relevant material to be familiar with the background, procedures, and

recommendations. The consultant must treat the reports confidentially and must return reports together with a submission of the proposal.

The consultant will, at this stage, review the goals and objectives defined for this study to ensure that they indeed satisfy the identified problems and the recognized needs. The consultant shall identify any further requirements to complete the assignment.

Collect Information and Analyze

The consultant will inventory and report on the existing structures in the table on page 5 including but not limited to:

- lanes
- structures including ages
- vertical and lateral clearances (actual field measurements required)
- highway geometrics
- utilities
- accesses
- photos and map locations

The consultant will investigate and document the types and sizes of oversized loads transported along the study corridor. The consultant will analyze traffic characteristics at the study railway crossings along the study corridor as well as alternative transportation corridors between Quesnel and Dawson Creek (including via Alberta highways). The Ministry will provide available traffic counts to the consultant (Appendix A). The consultant will collect and analyze oversized truck traffic and their origins/destinations. The consultant will analyze industry situated in the Fort George region, Cariboo, Northwest and remainder of BC that would likely diversify into the Peace region and northern Alberta markets, should oversized truck traffic have market access via the Highway 97 corridor. The consultant will identify the industry sectors impacted and use relevant data to project the magnitude of increase in trade between the regions, should constraints in transportation infrastructure be mitigated. The consultant will also use relevant data to assess changes in delivery times and in employment levels.

Information and input from the municipalities, regional districts, ICBC, CVSE, RCMP, transportation/freight companies, major construction companies, forestry and mining equipment suppliers, trucking associations, energy industry, manufacturers and other agencies and stakeholders should be solicited. The consultant will also be responsible for collecting any other sources of information which are useful for conducting this study. The consultant should be advised that all

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data, information, and material obtained by the consultant to carry out this study are the property of the Ministry.

The consultant will investigate and document current standards of minimum vertical clearance between the top of the highway and the bottom of the structures in BC and Canada. The consultant should also document all the relevant design standards, acts and regulations (i.e. Motor Vehicle Act, TAC, Transport Canada, BC Commercial Transportation Act & Regulations, etc.). The consultant should identify the highway infrastructure's deficiencies at the study railway crossings.

Develop and Evaluate Alternatives

The consultant shall identify at a planning level, the technical opportunities and constraints which should be considered for this study. These would include such considerations as:

- topographical, geotechnical, and environmental
- land use plan
- economic development plan
- historical and/or archaeological sites
- Indian reserves/First Nations issues, if any
- water bodies and watershed areas
- river/creek crossing
- highway and network road connections
- railway and utilities corridors
- bridges and culverts
- agricultural and forest land reserve
- fish and wildlife habitat areas

Note that this list is not all inclusive. The consultant must use engineering knowledge and judgment in determining any other opportunities and constraints identifiable at a planning level.

The consultant should identify and develop several feasible alternate solutions in order to address and/or mitigate the road features in the highway infrastructure that may be constraining economic growth and movement of goods. The proposed solutions should be based on identified issues, the collected information, analysis and minimum vertical clearance standards. Furthermore, the potential solutions should consider both current and future land use and economic development, as well as the movement of traffic in a safe, efficient, and effective manner.

The consultant shall identify, at a planning level, those impacts, opportunities and constraints, which should be considered for this study.

The consultant should provide planning level cost estimates for each alternative based upon probable conditions or factors that may affect the project, including: preliminary property acquisition costs; utility relocation; engineering; project management and construction. Unit costs should be applied against typical breakdown of road construction components. The cost estimates must be done by a senior cost estimator who has experience with the ministry projects. The development of the cost estimates shall follow the ministry's Project Cost Estimating Guidance which can be found at, <http://www.th.gov.bc.ca/publications/planning/index.htm>.

The consultant should provide, on a broad level, a comparative assessment of the advantages and disadvantages of each alternative, with specific reference to the identified issues, cost estimates, associated benefits, traffic analysis, social and environmental impacts, geotechnical concerns, and any other approved evaluation processes.

The consultant should present the evaluation of alternatives in a complete and orderly manner (i.e., poor to excellent on a basis of points or other enumeration) clearly demonstrating the merits of each alternative with a minimum of subjective, arbitrary, or uninformed opinion.

The consultant must substantiate their preferred alternatives. The consultant must also recommend the modifications/improvements to Highway 97 infrastructure that will address the deficiencies that are preventing or restricting business opportunities in north central and northeast BC.

Report and Presentation

The consultant will prepare and present a draft report of the findings and recommendations to Project Committee for their review and comments. This is a major milestone, and will require the approval of the Project Committee prior to the commencement of the final plan and report.

The consultant shall obtain the comments from the Project Committee and finalize the report and drawings.

TIME FRAME

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This study must be substantially completed by May 15, 2009 with all work on this project being completed by May 31, 2009. In order to meet the deadline, it is assumed that the project will be started no later than December 19, 2008.

STUDY MANAGEMENT AND REPORTING RELATIONSHIP

This work will be prepared for the Northern Region of the B.C. Ministry of Transportation and Infrastructure.

Liaison with the consultant will be coordinated through Mr. George Lomas, Senior Project Manager, of the Regional Office of the Ministry of Transportation & Infrastructure, Northern Region.

The Committee will consist of the following persons or designates:

Janine North or Dean McKinley Northern Development

Scott Gordon Energy Services BC

Ministry of Transportation and Infrastructure

Bill Rose Project Manager

Rick Blixrud District Manager Transportation

Renee Mounteney District Manager Transportation

Greg Woollacott Regional Manager, Planning & Partnerships

Gord Wagner Regional Manager, Engineering

Avi Ickovich Manager, Program Development

The consultant will be directed to work with this Committee throughout the study process.

Throughout the study, the consultant must undertake site inspections and field reconnaissance in accordance with the objectives outlined in the terms of reference. In order to be cost effective, these site inspections and field reconnaissance should, when ever possible, be tied to proposed meetings with the Project Committee and/or community meetings.

Throughout the study, the consultant will attend meetings with the Project Committee to present study progress and preliminary recommendations. The consultant will also prepare and report minutes of meetings to the Committee. The consultant will provide a proposed meeting schedule. At least three meetings in Prince George, inclusive of final presentation, are anticipated. The Project Committee approval will be required for major phases of the work that are identified in the study. For each major phase of the work, the consultant shall prepare and report technical memorandum to the Committee.

In the schedule, the consultant must clearly identify project milestones. It is critical that the consultant performs satisfactorily according to the agreed milestones.

In addition to meetings with the Project Committee, at least two review meetings are required in the consultant's office located in British Columbia, at times identified by the ministry's Project Manager.

Other meetings may be required to allow for presentations to the ministry, other ministries, municipalities, the public, and other relevant agencies on an **as-need basis**.

For the purpose of this study, it is imperative that the consultant must directly communicate with individual agencies involved and gather direct input for the study.

FINAL PRODUCT REQUIRED

Procedures, calculations, findings, and recommendations are to be presented in a report format.

The consultant will prepare and submit to the Project Committee, ten copies of draft reports with the appropriate text, plans and graphics.

The consultant will furnish the Project Committee with ten copies of the final report, a digital (pdf format) copy and a copy which can be easily reproduced using a photo copier.

All inventory and information gathered and collected by the Consultant, all calculations and results relating to this study, and any other computer files or programs necessary to edit the above data, shall become the property of the Ministry. At the conclusion of the project, the consultant will return all documents and other materials provided by the Ministry.

All deliverables created as a result of this contract will belong to the Ministry, and are subject to the Freedom of Information and Protection of Privacy Act. Note: Some information obtained from companies may be confidential. Proponents should ensure that they can guarantee that confidential information will be protected from electronic or physical access.

PROPOSAL TERMS AND CONDITIONS

- 1 Prospective consultants are requested to submit a written proposal providing the following:
 - Details of methodology to perform work. The proposed schedule will be presented on a flow chart identifying tasks and project milestone and suggested Project Committee meeting times. A work plan summary will also be presented identifying task assignment of personnel by name, classification, the percentage of specific task hours and the percentage of total project hours.
 - References, relating to similar recent studies which the firm has completed, that may be contacted to verify performance and timely delivery.
 - Credentials and experience of the firm or sub-consultants with respect to economic impact studies.

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- A statement as to the managerial ability of the consultant to maintain adequate staff and schedules, and establish logical project planning. Included should be the name of the consultant's representative that will be able to communicate freely with ministry's representative and/or Project Committee during the course of the project. The availability of the consultant's representative and staff working (including sub-consultant, if applicable) on this assignment at any time with short notice is required.
- All time and travel expenses incurred to carry out this study will be paid based on in-province (British Columbia) status, from the consultant's office in the Province. Disbursements and travel costs will be reimbursed as per the Schedule of Reimbursable Travel Expenses (H0461c) which is available as an attachment to the RFP.
- Provide resumes of the personnel and/or sub-consultants who will be assigned to project components highlighting their applicable qualifications and experience as related to in referenced projects. The study must be undertaken by, or under the supervision of engineers that are registered with the Association of Professional Engineers of the Province of British Columbia.
- A brief firm history.
- Declaration of any potential conflict of interest, and a statement as to other major commitments which the consultant has during the project duration and how this will affect this project.
- Six copies of the proposal shall be submitted in an envelope clearly marked: **Highway 97 Assessment of Existing Infrastructure: Identification of the Potential Constraints to Economic Growth & Movement of Goods**. The proposal shall include the technical proposal and the proposed fee schedule.

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- 2 The proposal portion will be evaluated on the basis of:
 - Understanding of the assignment
 - Methodology outlined to complete the assignment
 - Availability of staff and facilities in British Columbia
 - Experience of any third party consultants, if applicable
 - Relevant economic and engineering experience of key staff and firm
 - Ministry References
 - Outline of final product that consultant is willing to produce.
 - The identification of an up-to-date scheduling, quality control, quality assurance and management, and cost control system the consultant will use for all tasks under this assignment.
 - Proposal Estimate.
 - A Ministry Consultant Proposal Evaluation form for this study is presented in Appendix B.

- 3 The consultant should determine and make provision for an initial start up meeting(s), investigation time and regular Project Committee meetings in Prince George.

- 4 A disclosure budget and supporting information must be submitted under Fee Estimate for **Highway 97 Assessment of Existing Infrastructure: Identification of the Potential Constraints to Economic Growth & Movement of Goods**. Failure to meet this requirement will result in rejection of the proposal. A sample disclosure budget format and the required supporting information are presented in Appendix C.

- 5 If a proposal is accepted by the Ministry, expenditures up to the amount proposed, or as otherwise agreed, will be authorized as will the mutually agreed date for the completion of the services provided by the consultant. Advance notice for any increase in the total remuneration or extensions to the time required to complete the services is obligatory. No over-expenditure or extension of time will be permitted without prior authorization in writing.

- 6 All proposals must be firm offers, and valid for sixty calendar days following the last day to accept proposals. All proposals will become the property of the Ministry.

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- 7 There may not necessarily be a proposal accepted.
- 8 A contract will be developed with the successful consultant by the Ministry of Transportation and Infrastructure. Provisions of the successful proposal will form part of the agreement. The contract will be a fixed fee contract.
- 9 Contract administration for this consulting assignment will be through the Ministry of Transportation and Infrastructure, Northern Regional Office, in Prince George.
- 10 All proposals are confidential and will be so treated. Information outlined in these Terms of References must be held in confidence by the recipient firms.
- 11 Proposals will be received until 14:00 hours, December 5, 2008 at the office of:

BC Ministry of Transportation and Infrastructure
213 - 1011 Fourth Avenue
Prince George, British Columbia
V2L 3H9
Attention: Bill Rose
Project Manager

APPENDIX A

REFERENCE MATERIAL AVAILABLE FOR REVIEW

1. Traffic Counts

Available traffic counts can be found at

<http://www.th.gov.bc.ca/trafficData/index.asp>

2. Landmark Kilometre Inventory System (LKI)

3. Accident Statistics (Ministry Highway Accident System)

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APPENDIX B CONSULTANT PROPOSAL EVALUATION

PROJECT : Highway 97 Assessment of Existing Infrastructure: Identification of the Potential Constraints to Economic Growth & Movement of Goods Study

NATURE OF WORK: Economic and engineering assessment of specific existing Hwy 97 bridge and railway overheads, and how they may constrain economic growth and the movement of goods along a portion of the Hwy 97 corridor.

LOCATION : Highway 97 between Quesnel and Dawson Creek, BC

CONSULTANT : _____

<u>EVALUATION CRITERIA</u>	<u>POINT BREAKDOWN</u>	<u>ASSIGNED</u>	<u>POINTS</u>
<u>A. MANAGEMENT</u>			
1. Quality Control, Assurance and Management	5	_____/5	
 <u>B. CONSULTANT EVALUATION</u>			
		<u>Economic Component</u>	<u>Engineering Component</u>
1. References/Past Performance	10	_____/5	_____/5
2. Resources	5	_____/2.5	_____/2.5
3. Project Manager/Team Experience	25	_____/12.5	_____/12.5
 <u>C. PROPOSAL EVALUATION</u>			
1. Understanding/Clarity	10	_____/10	
2. Methodology	20	_____/20	
3. Quality of Proposal	10	_____/10	
4. Proposal Estimate	15	_____/15	
TOTAL	<u>100</u>	_____/100	

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EVALUATION DATE: _____ EVALUATED BY: _____

RECOMMENDATIONS:

SIGNATURE OF RECOMMENDING OFFICIAL

Position

NAME OF RECOMMENDING OFFICIAL

Date of Approval

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APPENDIX C

PROPOSAL BUSINESS PROFILE INFORMATION

1. Task and Task Time

The consultant will list all tasks and time to be carried out during the project. The consultant will also assign the person-hours proposed for each task and indicate the total.

2. The consultant will provide the following Business profile information:

- (a) The portion of the firm's capacity in person months (committed time) that is committed now for the next 6 months (6 month capacity) thus:

$$(\text{Committed Time}/6 \text{ Month Capacity}) \times 100$$

- (b) What other projects, similar to the subject contract/proposal, have you worked on in the last 3 years?

3. The consultants will provide the following information:

- (a) Personnel Profile

- (i) Given the number of full-time staff (i.e. professional, technical and other support), what is the ratio of your fees over salaries paid in your company? Provide this ratio for the last business year.
- (ii) What is the percentage of salary rate applied toward personnel benefits?

- (b) Contract/Proposal Disclosure Budget listing the following information:

- (i) List of personnel, their titles, position, function and specialities, indicating their proposed individual project hours, fee rates and costs on the attached form.
- (ii) Other direct project costs and disbursements including all travel and incidental expenses (detail breakdown).

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**PROPOSAL ESTIMATE FORM
(PROJECT NAME)**

A. Project Fees (Personnel Costs)

Name	Functional Specialty	Charge Rate	Hours	Cost
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
TOTAL PERSONNEL COSTS (A)				_____

B. Expenses (Detail Breakdown)

Travel	_____
Meetings with Project Committee	_____
Disbursements	_____
TOTAL EXPENSE COSTS (B)	_____
TOTAL PROPOSAL ESTIMATE: A+B	_____

Note:

The CONSULTANT FEES AND EXPENSES BREAKDOWN (overleaf) outlines the items and how they should be calculated.

If more space is required, please use a separate sheet using the format shown above.

The hourly rates must not exceed Consulting Engineers of BC (CEBC) guideline.

CONSULTANT FEES AND EXPENSES BREAKDOWN

1. Currency and taxes:

Prices quoted are to be:

- in Canadian dollars
- inclusive of duty, where applicable; FOB destination, delivery charges included and where applicable, and
- exclusive of Goods and Services Tax and Provincial Sales Tax

2. SALARIES

Unit rate of pay which does not include any benefits

Note: The consultant is **not** to provide the following information with this proposal but may wish to base his/her Fee Proposal on the information. The Ministry may request this information in the future.

3. PAYROLL BURDEN

Expressed as a percentage of "Salaries", and should include:

- Statutory Holidays
- Annual Vacation
- Sick Leave
- Pension Plan
- Worker's Compensation
- Canada Pension
- Employee Benefits (Health and Dental Care, Training, etc)

4. OVERHEAD

Expressed as a percentage of "Salaries" plus "Payroll Burden", and should include:

- Financing charges
- Rent and Office expenses
- Taxes
- Insurance, Professional and General Liability
- Depreciation on Office Equipment
- Utility Costs
- Non Billable Time
- Business Risk Cost

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- Office costs for administering payroll
- Printing, faxing, and other office related cost

5. **FEES = SALARIES x (1+PAYROLL BURDEN) x (1+OVERHEAD)**

6. **EXPENSES**

7. **TOTAL PROPOSAL COST = FEES + EXPENSES**