

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving Public Works & Government
Services Canada/Réception des soumissions Travaux
publics et Services gouvernementaux Canada
1713 Bedford Row
Halifax, N.S./Halifax, (N.E.)
B3J 1T3
Halifax
Bid Fax: (902) 496-5016

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet NORTHWEST BRIDGE RECONSTRUCTION	
Solicitation No. - N° de l'invitation EA011-150877/A	Date 2014-09-03
Client Reference No. - N° de référence du client EA011-15-0877	
GETS Reference No. - N° de référence de SEAG PW-\$PWA-122-5120	
File No. - N° de dossier PWA-4-72027 (122)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-09-25	Time Zone Fuseau horaire Atlantic Daylight Saving Time ADT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Chinye (PWA), Chukwudi	Buyer Id - Id de l'acheteur pwa122
Telephone No. - N° de téléphone (902) 496-5476 ()	FAX No. - N° de FAX (902) 496-5016
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA STE 204 1 REGENT SQ. CORNER BROOK Newfoundland and Labrador A2H7K6 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Atlantic Region Acquisitions/Région de l'Atlantique
Acquisitions
1713 Bedford Row
Halifax, N.S./Halifax, (N.E.)
B3J 3C9
Halifax
Nova Scot

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation

EA011-150877/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

pwa122

Client Ref. No. - N° de réf. du client

EA011-15-0877

File No. - N° du dossier

PWA-4-72027

CCC No./N° CCC - FMS No/ N° VME

The bid solicitation package is to be inserted at this point and forms part of this document.

Le jointe au dossier de demande de soumissions doit être insérée ici et fait partie du présent document.

REQUEST FOR PROPOSAL (RFP)
NORTHWEST RIVER BRIDGE RECONSTRUCTION, TERRA NOVA NATIONAL
PARK, NL

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SI1 INTRODUCTION

1. Public Works and Government Services Canada (PWGSC) intends to retain an individual consulting firm or joint venture to provide the professional services for the project as set out in this Request for Proposal (RFP).
2. Proponents responding to this RFP are requested to submit a full and complete proposal. The proposal will cover the detailed approach to the work, and the pricing and terms offered. A combination of the technical and price of services submissions will constitute the proposal.

SI2 PROPOSAL DOCUMENTS

1. All instructions, general terms, conditions and clauses identified in the RFP by number, date and title, are hereby incorporated by reference into and form part of this solicitation and any resultant contract.

All instructions, general terms, conditions and clauses identified in the RFP by number, date and title, are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

2. The following are the proposal documents:
 - (a) Supplementary Instructions to Proponents (SI); R1410T (2014-06-26), General Instructions (GI) – Architectural and/or Engineering Services – Request for Proposal; Submission Requirements and Evaluation (SRE);
 - (b) the general terms, conditions and clauses, as amended, identified in the Agreement clause;
 - (c) Project Brief / Terms of Reference;
 - (d) the Supply Arrangement E0225-141687/xxx/PWA**
 - (e) any amendment to the solicitation document issued prior to the date set for receipt of proposals; and
 - (f) the proposal, Declaration/Certifications Form and Price Proposal Form.

3. Submission of a proposal constitutes acknowledgment that the Proponent has read and agrees to be bound by these documents.

SI3 QUESTIONS OR REQUEST FOR CLARIFICATION

Questions or requests for clarification during the solicitation period must be submitted in writing to the Contracting Authority named on the RFP - Page 1 as early as possible. Enquiries should be received no later than 3 working days prior to the closing date identified on the front page of the Request for Proposal. Enquiries received after that date may not be answered prior to the closing date of the solicitation.

SI4 CANADA'S TRADE AGREEMENTS

This procurement is subject to the provisions of the North American Free Trade Agreement (NAFTA), the World Trade Organization - Agreement on Government Procurement (WTO-AGP).

SI5 CERTIFICATIONS

1. Integrity Provisions - Associated Information

By submitting a proposal, the Proponent certifies that the Proponent and its Affiliates are in compliance with the provisions as stated in Section G11 Integrity Provisions - Proposal of R1410T (2014-06-26) General Instructions (GI) – Architectural and/or Engineering Services – Request for Proposal. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

2. Federal Contractors Program for Employment Equity - Proposal Certification

By submitting a proposal, the Proponent certifies that the Proponent, and any of the Proponent's members if the Proponent is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a proposal non-responsive if the Proponent, or any member of the Proponent if the Proponent is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

Canada will also have the right to terminate the Agreement for default if a Consultant, or any member of the Consultant if the Consultant is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Agreement.

The Proponent must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification (see Appendix A - Declaration/Certifications Form), before contract award. If the Proponent is a Joint Venture, the Proponent must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

SI6 - WEBSITES

The connection to some of the Web sites in the RFP is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Employment Equity Act

<http://laws-lois.justice.gc.ca/eng/acts/E-5.401/index.html>

Federal Contractors Program (FCP)

http://www.labour.gc.ca/eng/standards_equality/eq/emp/fcp/index.shtml

Certificate of Commitment to Implement Employment Equity form LAB 1168

<http://www.servicecanada.gc.ca/cgi-bin/search/eforms/index.cgi?app=profile&form=lab1168&dept=sc&lang=e>

Code of Conduct for Procurement

<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

Consent to a Criminal Record Verification (PWGSC-TPSGC 229 form)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>

Lobbying Act

<http://laws-lois.justice.gc.ca/eng/acts/L-12.4/?noCookie>

Contracts Canada

<https://buyandsell.gc.ca/>

Supplier Registration Information

<https://srisupplier.contractsCanada.gc.ca>

Consultant Performance Evaluation Report Form

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913-1.pdf>

Canadian economic sanctions

<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

National Joint Council (NJC) Travel Directive

<http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php>

TERMS, CONDITIONS AND CLAUSES

AGREEMENT

1. The Consultant understands and agrees that upon acceptance of the offer by Canada, a binding Agreement shall be formed between Canada and the Consultant and the documents forming the Agreement shall be the following:
 - (a) the Front Page and this Agreement clause;
 - (b) the General Terms, Conditions and Clauses, as amended, identified as:
 - R1210D (2014-06-26), General Condition (GC) 1 - General Provisions – Architectural and/or Engineering Services
 - R1215D (2014-06-26), General Condition (GC) 2 - Administration of the Contract
 - R1220D (2011-05-16), General Condition (GC) 3 - Consultant Services
 - R1225D (2012-07-16), General Condition (GC) 4 - Intellectual Property
 - R1230D (2012-07-16), General Condition (GC) 5 - Terms of Payment
 - R1235D (2011-05-16), General Condition (GC) 6 - Changes
 - R1240D (2011-05-16), General Condition (GC) 7 - Taking the Services Out of the Consultant's Hands, Suspension or Termination
 - R1245D (2012-07-16), General Condition (GC) 8 - Dispute Resolution
 - R1250D (2012-07-16) R1650D (2012-07-16), General Condition (GC) 9 - Indemnification and Insurance
 - Supplementary Conditions
 - Agreement Particulars
 - (c) Project Brief / Terms of Reference;
 - (d) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
 - (e) the proposal, the Declaration/Certifications Form and the Price Proposal Form.
 - (f) **the Supply Arrangement E0225-141687/xxx/PWA**

2. The documents identified above by title, number and date are hereby incorporated by reference into and form part of this Agreement, as though expressly set out herein, subject to any other express terms and conditions herein contained.

The documents identified above by title, number and date are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

3. If there is a discrepancy between the wording of any documents that appear on the following list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.
- (a) any amendment or variation in the Agreement that is made in accordance with the terms and conditions of the Agreement;
 - (b) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
 - (c) this Agreement clause;
 - (d) Supplementary Conditions;
 - (e) General Terms, Conditions and Clauses;
 - (f) Agreement Particulars;
 - (g) Project Brief / Terms of Reference;
 - (h) the document entitled "Doing Business with the National Capital Area";
 - (i) the proposal.

SUPPLEMENTARY CONDITIONS (SC)

SC1 SECURITY REQUIREMENT

There is no security requirement applicable to this Agreement.

SC2 FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - DEFAULT BY THE CONSULTANT

The Consultant understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Consultant and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the contract. If the AIEE becomes invalid, the name of the Consultant will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Consultant in default as per the terms of the contract.

AGREEMENT PARTICULARS

The Agreement Particulars will be issued at time of award of contract and will identify the fee to be paid to the Consultant for the services determined in the Price Proposal Form.

APPENDIX A - DECLARATION/CERTIFICATIONS FORM

Project Title: Northwest River Bridge Reconstruction – Terra Nova National Park, NL

Name of Proponent:

Street Address:

Mailing Address:

Telephone Number: ()

Fax Number: ()

E-Mail:

Procurement Business Number:

Type of Organization: _____ Sole Proprietorship _____ Partnership _____ Corporation _____ Joint Venture	Size of Organization: Number of Employees _____ Graduate Architects / Professional Engineers _____ Other Professionals _____ Technical Support _____ Other _____
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APPENDIX A - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Federal Contractors Program for Employment Equity - Certification

I, the Proponent, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a proposal non-responsive, or will declare a consultant in default, if a certification is found to be untrue, whether during the proposal evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Proponent's certifications. Failure to comply with any request or requirement imposed by Canada may render the proposal non-responsive or constitute a default under the contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date: _____(YY/MM/DD) (If left blank, the date will be deemed to be the bid closing date.)

Complete both A and B.

A. Check only one of the following:

- () A1. The Proponent certifies having no work force in Canada.
- () A2. The Proponent certifies being a public sector employer.
- () A3. The Proponent certifies being a federally regulated employer being subject to the *Employment Equity Act*.
- () A4. The Proponent certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).
- A5. The Proponent has a combined work force in Canada of 100 or more employees;
and

APPENDIX A - DECLARATION/CERTIFICATIONS FORM (CONT'D)

- A5.1. The Proponent certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Proponent certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Proponent is not a Joint Venture.

OR

- B2. The Proponent is a Joint Venture and each member of the Joint Venture must provide the Contracting Authority with a completed Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the General Instructions)

APPENDIX A - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant (FPS) - Certification

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, proponents must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of proposals is completed, Canada will inform the Proponent of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the proposal non-responsive.

Definitions

For the purposes of this clause,

"former public servant" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- (a) an individual;
- (b) an individual who has incorporated;
- (c) a partnership made of former public servants; or
- (d) a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the *Public Service Superannuation Act* (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the *Supplementary Retirement Benefits Act*, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the *Canadian Forces Superannuation Act*, R.S., 1985, c.C-17, the *Defence Services Pension Continuation Act*, 1970, c.D-3, the *Royal Canadian Mounted Police Pension Continuation Act*, 1970, c.R-10, and the *Royal Canadian Mounted Police Superannuation Act*, R.S., 1985, c.R-11, the *Members of Parliament Retiring Allowances Act*, R.S., 1985, c.M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c.C-8.

APPENDIX A - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Proponent a FPS in receipt of a pension?
YES () NO ()

If so, the Proponent must provide the following information, for all FPS in receipt of a pension, as applicable:

- (a) name of former public servant;
- (b) date of termination of employment or retirement from the Public Service.

By providing this information, proponents agree that the successful Proponent's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Adjustment Directive

Is the Proponent a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? YES () NO ()

If so, the Proponent must provide the following information:

- (a) name of former public servant;
- (b) conditions of the lump sum payment incentive;
- (c) date of termination of employment;
- (d) amount of lump sum payment;
- (e) rate of pay on which lump sum payment is based;
- (f) period of lump sum payment including start date, end date and number of weeks;
- (g) number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

APPENDIX A - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Name of Proponent:

DECLARATION:

I, the undersigned, being a principal of the proponent, hereby certify that the information given on this form and in the attached proposal is accurate to the best of my knowledge. If any proposal is submitted by a partnership or joint venture, then the following is required from each component entity.

..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	
..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	
..... name signature
..... title	
I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture	

During proposal evaluation period, PWGSC contact will be with the following person:_____.

Telephone Number: () _____ Fax Number: () _____

E-mail: _____

This Appendix "A" should be completed and submitted with the proposal, but may be submitted afterwards as follows: if Appendix "A" is not completed and submitted with the proposal, the Contracting Authority will inform the Proponent of a time frame within which to provide the information. Failure to comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the proposal non-responsive.

APPENDIX B - PRICE PROPOSAL FORM

INSTRUCTIONS: Complete this Price Proposal Form and submit in a **separate sealed envelope** with the Name of Proponent, Name of Project, PWGSC Solicitation Number, and the words "PRICE PROPOSAL FORM" typed on the outside of the envelope. Price Proposals are not to include Applicable Taxes.

PROponents SHALL NOT ALTER THIS FORM

Project Title: Northwest River Bridge Reconstruction – Terra Nova National Park, NL

Name of Proponent:

The following will form part of the evaluation process:

REQUIRED SERVICES

Fixed Fee (R1230D (2012-07-16), GC 5 - Terms of Payment)

SERVICES	FIXED FEE
Required Services	
RS1 – Analysis of Project Requirements	\$.....
RS2 – Design Concept	\$.....
RS3 – Design Development	<u>\$.....</u>
RS4 – Construction Documents	<u>\$.....</u>
MAXIMUM FIXED FEES (Required Services-This Award)	\$..... (A)

The following will form part of the evaluation process:

APPENDIX B - PRICE PROPOSAL FORM (CONT'D)

Canada may accept or reject any of the following fees, disbursements and/or hourly rates. Canada reserves the right to negotiate on these fees, disbursements and/or hourly rates.

OPTIONAL SERVICES

Optional Services (NOTE: PWGSC is under no obligation to award any or all of the following services.)

RS5 – Tender Call, Bid Evaluations & Construction

Contract Award Recommendations \$.....

RS6 – Non-Resident Services During Construction

(based on an 80 week Construction period) \$.....

RS8 – Warranty Review

\$.....

MAXIMUM FIXED FEES (Optional Services) \$..... (B)

Time Based Fees (R1230D (2012-07-16), GC 5 - Terms of Payment)

IDENTIFY SERVICE i.e. Resident Site Services *	ESTIMATED HOURS Column A	HOURLY RATES** Column B	TIME BASED FEE Columns AxB
RS7 – Resident Construction Services based on 60 hours per week X 80 weeks	4,800	\$.....	\$.....
MAXIMUM TIME BASED FEES (Optional Services)			\$.....(C)

*Payment will be based on actual hours spent. Travel time and/or expenses will not be reimbursed separately.

** All inclusive hourly rate is applicable to both normal working hours and any other shift work as required.

TOTAL FEE FOR OPTIONAL SERVICES \$..... (B)+(C)

Front Page
General Instructions to Proponents (GI)
Supplementary Instructions to Proponents (SI)
Terms and Conditions

Submission Requirements and Evaluation (SRE)

Project Brief

Description of Project (PD)

Description of Services - Required Services (RS)

Appendix A Declaration/Certifications Form

Appendix B Price of Services Form

Appendix C Doing Business

SUBMISSION REQUIREMENTS AND EVALUATION

- SRE 1 General Information
- SRE 2 Proposal Requirements
- SRE 3 Submission Requirements and Evaluation
- SRE 4 Price of Services
- SRE 5 Total Score
- SRE 6 Submission Requirements - Checklist

SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 GENERAL INFORMATION

1.1 Reference to the Selection Procedure

An 'Overview of the Selection Procedure' can be found in R1410T General Instructions to Proponents (GI3).

1.2 Calculation of Total Score

For this project the Total Score will be established as follows:

$$\begin{array}{rcl} \text{Technical Rating} \times 90\% & = & \text{Technical Score (Points)} \\ \text{Price Rating} \times 10\% & = & \text{Price Score (Points)} \\ \text{Total Score} & = & \text{Max. 100 Points} \end{array}$$

SRE 2 PROPOSAL REQUIREMENTS

2.1 Requirement for Proposal Format

The following proposal format information should be implemented when preparing the proposal.

- Submit one (1) bound original plus five (5) bound copies of the proposal
- Paper size should be - 216mm x 279mm (8.5" x 11")
- Minimum font size - 11 point Times or equal
- Minimum margins - 12 mm left, right, top, and bottom
- Double-sided submissions are preferred
- One (1) 'page' means one side of a 216mm x 279mm (8.5" x 11") sheet of paper
- 279mm x 432 mm (11" x 17") fold-out sheets for spreadsheets, organization charts etc. will be counted as two pages.
- The order of the proposals should follow the order established in the Request for Proposal SRE section

2.2 Specific Requirements for Proposal Format

The maximum number of pages (including text and graphics) to be submitted for the Rated Requirements under SRE 3.2 is **20 pages**.

The following are not part of the page limitation mentioned above;

- Covering letter
- Declaration/Certifications Form (Appendix A)
- Code of Conduct Certifications

- Front page of the RFP
- Front page of revision(s) to the RFP
- Price Proposal Form (Appendix B)

Consequence of non-compliance: any pages which extend beyond the above page limitation and any other attachments will be extracted from the proposal and will not be forwarded to the PWGSC Evaluation Board members for evaluation.

SRE 3 SUBMISSION REQUIREMENTS AND EVALUATION

3.1 MANDATORY REQUIREMENTS

Failure to meet the mandatory requirements will render the proposal as non-responsive and no further evaluation will be carried out.

3.1.1 Declaration/Certifications Form

Proponents must complete, sign and submit the following:

- Appendix A, Declaration/Certifications Form as required.

3.1.2 Integrity Provisions - Associated Information

Proponents who are incorporated, including those submitting proposals as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Proponent. Proponents submitting proposals as sole proprietorship, including those submitting proposals as a joint venture, must provide the name of the owner. Proponents submitting proposals as societies, firms, or partnerships do not need to provide lists of names. If the required names have not been received by the time the evaluation of proposals is completed, Canada will inform the Proponent of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

3.2 RATED REQUIREMENTS

3.2.1 Understanding of the Project: Maximum 3 pages

The proponent should demonstrate understanding of the goals of the project, the functional/technical requirements, the constraints and the issues that will shape the end product.

Information that should be supplied:

- The functional and technical requirements

- Significant issues, challenges and constraints
- Project schedule and cost.

3.2.2 Scope of Services: Maximum 6 pages

The proponent should demonstrate capability to perform the services and meet project challenges and to provide a plan of action.

Information that should be supplied:

- Work Plan/Work Breakdown Structure - detailed breakdown of work tasks and deliverables
- Project schedule - proposed major milestone schedule (Gantt format)
- Risk management strategy

3.2.3 Management of Services: Maximum 5 pages

The Proponent should describe how the services will be managed; how the team will be organized; how the team will be managed. The proponent is also to identify sub-consultant disciplines and specialists required to complete the consultant team.

Information that should be supplied:

- Organization chart with position titles and names (Consultant team)
- Management/Communication strategies

3.2.4 Approach / Methodology: Maximum 6 pages

The proponent should elaborate on aspects of the project considered to be a major challenge. This is the opportunity for the Proponent to describe their approach to resolving design issues.

Information that should be supplied:

- Describe the major challenges and how your team approach will be applied to those particular challenges.

3.3 EVALUATION AND RATING

In the first instance, price envelopes will remain sealed and only the technical components of the proposals which are responsive will be reviewed, evaluated and rated by a PWGSC Evaluation Board in accordance with the following to establish Technical Ratings:

Criterion	Weight Factor	Rating	Weighted Rating
Understanding of the Project	2.0	0 - 10	0 – 20
Scope of Services	3.0	0 - 10	0 - 30

Management of Services	3.0	0 - 10	0 - 30
Approach / Methodology	2.0	0 - 10	0 - 20
Technical Rating	10.0		0 - 100

Generic Evaluation Table

PWGSC Evaluation Board members will evaluate the strengths and weaknesses of the Proponent's response to the evaluation criteria and will rate each criterion with even numbers (0, 2, 4, 6, 8 or 10) using the generic evaluation table below:

	INADEQUATE	WEAK	ADEQUATE	FULLY SATISFACTORY	STRONG
0 point	2 points	4 points	6 points	8 points	10 points
Did not submit information which could be evaluated	Lacks complete or almost complete understanding of the requirements.	Has some understanding of the requirements but lacks adequate understanding in some areas of the requirements.	Demonstrates a good understanding of the requirements.	Demonstrates a very good understanding of the requirements.	Demonstrates an excellent understanding of the requirements.
	Weaknesses cannot be corrected	Generally doubtful that weaknesses can be corrected	Weaknesses can be corrected	No significant weaknesses	No apparent weaknesses
	Proponent do not possess qualifications and experience	Proponent lacks qualifications and experience	Proponent has an acceptable level of qualifications and experience	Proponent is qualified and experienced	Proponent is highly qualified and experienced
	Team proposed is not likely able to meet requirements	Team does not cover all components or overall experience is weak	Team covers most components and will likely meet requirements	Team covers all components - some members have worked successfully together	Strong team - has worked successfully together on comparable projects
	Sample projects not related to this requirement	Sample projects generally not related to this requirement	Sample projects generally related to this requirement	Sample projects directly related to this requirement	Leads in sample projects directly related to this requirement
	Extremely poor, insufficient to meet performance requirements	Little capability to meet performance requirements	Acceptable capability, should ensure adequate results	Satisfactory capability, should ensure effective results	Superior capability, should ensure very effective results

To be considered further, proponents **must** achieve a minimum Technical Rating of **fifty (50) points** out of the hundred (100) points available as specified above.

No further consideration will be given to proponents not achieving the pass mark of fifty (50) points.

SRE 4 PRICE OF SERVICES

All price proposal envelopes corresponding to responsive proposals which have achieved the pass mark of fifty (50) points will be opened upon completion of the technical evaluation. An average price is determined by adding all the price proposals together and dividing the total by the number of price proposals being opened.

All price proposals which are greater than twenty-five percent (25%) above the average price will be set aside and receive no further consideration.

The remaining price proposals are rated as follows:

- A. The lowest price proposal receives a Price Rating of 100
- B. The second, third, fourth and fifth lowest prices receive Price Ratings of 80, 60, 40, and 20 respectively. All other price proposals receive a Price Rating of 0.
- C. On the rare occasions where two (or more) price proposals are identical, the matching price proposals receive the same rating and the corresponding number of following ratings are skipped.

The Price Rating is multiplied by the applicable percentage to establish the Price Score.

SRE 5 TOTAL SCORE

Total Scores will be established in accordance with the following:

Rating	Possible Range	% of Total Score	Score (Points)
Technical Rating	0 - 100	90	0 - 90
Price Rating	0 - 100	10	0 - 10
Total Score		100	0 - 100

The Proponent receiving the highest Total Score is the first entity that the Evaluation Board will recommend for the provision of the required services. In the case of a tie, the proponent submitting the lower price for the services will be selected.

SRE 6 SUBMISSION REQUIREMENTS - CHECKLIST

The following list of documents and forms is provided with the intention of assisting the Proponent in ensuring a complete submission. The Proponent is responsible for meeting all submission requirements.

Please follow detailed instructions in R1410T General Instructions to Proponents, GI16 Submission of Proposal. Proponents may choose to introduce their submissions with a cover letter.

Declaration/Certifications Form - completed and signed - form provided in Appendix A

Integrity Provisions - Associated Information - list of directors/owners

Proposal - one (1) original plus 5 copies required

Front page of RFP

Front page(s) of any solicitation amendment

In a separate envelope:

Price Proposal Form - one (1) completed and submitted in a separate envelope

PROJECT BRIEF

This Project Brief is divided into two sections:

- **Description of Project**
- **Description of Services**
 - Project Administration
 - Required Services, RS 1-4 - Base Contract
 - Required Services, RS 5-8 - Optional Services

For standards relating to the service provisions herein please refer to the document “Doing Business with A&ES”. The standards in “Doing Business with A&ES” must be adhered to in conjunction with this scope of services.

DESCRIPTION OF PROJECT

PD 1 PROJECT INFORMATION

- 1.1 Public Works and Government Services Canada (PWGSC) is seeking proposals from consultants for professional services required to replace the existing Northwest River Bridge with a new river crossing located in Terra Nova National Park, NL.
- 1.2 The professional services required are as follows:
 - .1 Planning/feasibility study.
 - .2 Field and laboratory work, surveys, geotechnical, hydraulic, environmental.
 - .3 Incorporating the requirements of environmental investigations by others and working with PWGSC in the development of, and incorporating requirements of, the Detailed Environmental Impact Analysis required for the project as per CEEA 2012 legislation.
 - .4 Detailed engineering design for approach roadways and bridge.
 - .5 Preparation of construction drawings, specifications and other related construction documents.
 - .6 Respond to inquiries during tender period and evaluate bids after tender close.
 - .7 Provide resident and non-resident services during construction.
 - .8 Perform final warranty review.

1.3 Tombstone Data

PWGSC Project Title	Northwest River Reconstruction
Location of the Project	Terra Nova National Park (TNNP)
PWGSC Project Number	R.060181.001
Client /User	Parks Canada
Project Manager	Noel Hogan, P. Eng. Project Manager PWGSC 1 Regent Square Suite 204 Corner Brook, NL, A2H 7K6

PD 2 PROJECT IDENTIFICATION

2.1 Description

The project mission is to replace the existing Northwest River Bridge in Terra Nova National Park, NL in a cost effective, expedient and environmentally friendly manner. As part of the replacement of this bridge, changes will be required for the golf course underpass on the east approach. This work will also be part of this project.

PD 2 PROJECT IDENTIFICATION (continued)

2.2 Cost

The construction budget for the project is \$5,000,000 (HST excluded), Class “D” Estimate.

2.3 Schedule

Design and tender documents complete: 15 March 2015

2.4 Funding allocation

The project funding has been approved to develop the RS 1 through RS 4 services inclusive. Following award of the consultant services contract the consultant shall commence work up to and including all services for RS 1 to RS 4 inclusive at which time the consultant shall cease any further work until PWGSC has confirmed that additional client funding is available. Upon confirmation of additional future year client funding the consultant will be advised in writing to proceed. Should the project not receive approval to proceed this agreement may be terminated in accordance with GC9.

PD3 PROJECT BACKGROUND

The Northwest River Bridge is a two span (22.9 m each) concrete slab and concrete girder type bridge. The bridge was constructed in 1961 and rehabilitated several times over the past 30 years. The last work completed was the joint replacements in 2011. During the joint replacements the condition of the girders, abutments and pier were found to be severely deteriorated.

The last detailed inspection carried out in March of 2010 by SNC Lavalin Inc found significant concrete deterioration on the pier, abutments and wing walls. The course of action recommended by consultant in their report was to repair these areas but the owner has decided in 2012 to replace the bridge due to the advancing deterioration, high cost of repair versus replacement, and the age of this structure.

The bridge is located adjacent a golf course with an underpass owned by Terra Nova National Park on the east approach. The southwest and southeast property is part of the golf course leased and operated by private lease holders.

The Northwest River Bridge Reconstruction project is considered to be an environmentally sensitive undertaking and will take place within park boundaries. Therefore, it is imperative that all aspects of the project proceed in an environmentally sound manner.

Environmental issues related, but not limited to this project include: water quality, species at risk, land use, scheduled Atlantic salmon river, and other stakeholders concerns (e.g. salmon fishers, golfers).

PD 3 PROJECT BACKGROUND (continued)

The Northwest River is a popular salmon river and species at risk are also located in the area (e.g. *Viola lanceolata* L. and *Antennaria howellii* E). As per federal and provincial regulations there will be restrictions on timing of in water works. Other environmental considerations will have to be considered throughout the design period, such as comments from the public, potential avoidance of species at risk, and incorporation of environmental mitigation measures prescribed by Parks Canada, PWGSC, and other regulators (e.g. Fisheries and Oceans Canada, Transport Canada, etc). As per the Canadian Environmental Assessment Act 2012 (CEAA) Parks Canada is responsible to ensure that carrying out a project on federal land will not likely result in significant environmental effects. The consultant must work closely with PWGSC (on behalf of Parks Canada) to ensure the design and eventual construction of the bridge adhere to CEAA 2012, as well as any other relevant provincial or federal acts, policies and guidelines.

PD 4 EXISTING DOCUMENTATION

4.1 Inspection Reports and Survey Drawing

The following documents are available to all proponents for use in preparing submissions:

- Inspection report for completed in 2010 by SNC Lavalin Inc.: *Structural Inspection of Northwest River Bridge (No. 21)*
- PWGSC partial survey of the project area completed in 2014: PWGSC Topographic Survey Information available consists of delineation of the TCH in the project area of Northwest River Bridge including elevations and delineations of centerline, edge of road including elevations approximately 800 meters East of the bridge and approximately 1050 m West of the bridge. Offset elevations were recorded along roadway North and South sides of TCH including ditches, slopes, edges of banks, top of banks, tree line, power lines, brooks, ditches, river, parking areas, culverts, access roadways, golf course properties including cart paths and greens. Offset elevations were taken up to 60 m from centerline of highway on turn West of bridge. Elevations were taken of Northwest River Bridge deck, curb and approach aprons.

A copy of the 2010 SNC Lavalin Bridge inspection report and PWGSC survey are available upon request from PWGSC Corner Brook, NL office. The bridge inspection report is only available in English.

4.2 Traffic Volumes

The Northwest River Bridge is located on the Trans Canada Highway with very high traffic volumes as noted below. It is the only link east-west for commercial and public land transport. Traffic disruption during construction must be kept to a minimum.

SADT	5004 vpd
WADT	2680 vpd
ADT	3876 vpd

PD 4 EXISTING DOCUMENTATION (continued)

4.3 Water Flow Measurements

http://www.wateroffice.ec.gc.ca/graph/graph_e.html?stn=02YS006

http://www.wateroffice.ec.gc.ca/google_map/google_map_e.html?search_by=p&province=NL

PD 5 PROJECT OBJECTIVES

5.1 General Objectives

- .1 The objective of this project is to replace the existing Northwest River Bridge with a new bridge, and to reconstruct the approach roadways to current NL-DOTW design standards.

The new bridge structure must have the capacity to carry all provincial regulation loads, must meet all current code requirements, and is to provide 75 years of service life. The most economical solution is to be determined by evaluating life-cycle costing for a variety of design and construction alternatives. In addition high performance materials and innovative products and processes are to be evaluated for incorporation wherever possible.

- .2 The Consultant is to provide the necessary consulting and field review services to complete the project. The consultant will undertake the following activities:
 - .1 Feasibility Studies and Engineering Analysis to include:
 - Detailed site surveys.
 - Geotechnical investigation for the bridge and roadway approaches.
 - Hydraulics study.
 - Support to PWGSC in their development of a Detailed Environmental Impact Analysis (as per CEAA 2012) of the proposed project which includes providing and consistently communicating all details of the project required for the analysis.
 - .2 Planning and design to include:
 - Preliminary and Final Engineering Design.
 - Preparation of Construction Drawings and Specifications.
 - Preparation of construction cost estimates in increasing detail, on a continuing basis throughout the life of the project, particularly at the major milestones, as the project is more clearly defined.
 - Field layout of selected alignment and identification of all private lands required for the construction of the western approaches suitable for the purpose of acquisition by the Province of Newfoundland.
 - Support in the preparation of material for use at public consultation meetings to be arranged by PWGSC and Parks Canada, including attendance at these meetings to assist PWGSC and Parks Canada in informing and obtaining public input in the replacement structure design.
 - Incorporation of environmental advice as a result of other government department and stakeholder feedback during the CEAA 2012 process.
 - .3 Tender Inquiries and Bid Evaluation.
 - .4 Non-resident and Resident Services during Construction.
 - .5 Final Warranty Review.

PD 5 PROJECT OBJECTIVES (continued)

- .3 Project shall be implemented in an environmentally responsible manner that will include:
 - .1 Coordinate all environmental issues with PWGSC and the Parks Canada designated Environmental Officers.
 - .2 Provide support to PWGSC in their development of a Detailed Environmental Impact Analysis of the proposed project including consistent communications regarding all details of the project required for the analysis and the implementation of all mitigations measures outlined in the EIA.
 - .3 Conceptual bridge designs to include, where practical, "Clear Span" (DFO definition) option(s) which may avoid the necessity to obtain DFO approval for Serious Harm to Fish.
 - .4 Provide details and incorporate advice provided by PWGSC of mitigation measures required to be included in the construction documents (i.e. plans, specifications, schedules and cost estimates).
 - .5 Should a DFO approval for Serious Harm to Fish be required, details for a proposed compensation package, as outlined by DFO, must be included in the construction documents (plans, specification, schedules and cost estimates). Revise proposed compensation package as necessary to accommodate DFO requirements.
 - .6 Provide drawings and information to assist PWGSC to apply for approval under the Navigation Protection Act, the Species at Risk Act, and the Fisheries Act.
 - .7 Apply risk management techniques throughout the project and adapt risk responses to maximize results of positive events and to minimize adverse effects on quality, cost and schedule.
 - .8 The scope of work for this project includes:
 - .1 Feasibility study to determine the most suitable location for the new crossing.
 - .2 Plan and design a new functionally adequate two-lane crossing, including approach roads. The new structure is to tie into the horizontal and vertical alignment of the existing Trans Canada Highway. Proposed design must include provisions to maintain two (2) lanes of traffic at all times during construction.
 - .3 Design replacement crossing to respect environmental constraints and ensure that any construction-related environmental concerns can be adequately mitigated.
 - .4 Plan and design the approach roads. Parks Canada's policy is to design highway and bridge structures to the applicable standards of the province in which the infrastructure is located. The Trans Canada Highway approaches are to be to NL-DOTW standards.
 - .5 Minimize project risks through development and implementation of a comprehensive risk assessment plan.
 - .6 Implement and maintain effective time and cost controls.
 - .7 All work must meet or exceed the most stringent of federal, provincial health and safety requirements including the Canada Labor Code.

PD 5 PROJECT OBJECTIVES (continued)

- .9 The following design requirements apply to the new bridge structure:
 - .1 Widths: As required for a RLC 100 Series Highway to provincial standards.
 - Traffic lanes: 2
 - Outside shoulders: 2
 - Barriers: 2
 - Pedestrian walkway, on upstream side of bridge
 - .2 Length: to suit environmental considerations and highway alignment requirements.
 - .3 Number of piers: Maximum of 1 (clear span preferred).
 - .4 Channel blockage: 10% maximum at normal water level (2 year return flood).
 - .5 Traffic: Minimize disruption to traffic during construction. Two traffic lanes are to be kept operational during construction at all times.
 - .6 Long-term maintenance: incorporate design features, corrosion protection and durability features to minimize long-term maintenance costs.
 - .7 Complete a feasibility study to assess and compare various span configurations and alignments for the new bridge. Alternative horizontal alignments shall include the existing alignment and alignments offset upstream and downstream of the existing bridge. Alternative vertical alignments shall be investigated for the various horizontal alignments. Span configuration alternatives studied shall include configurations which eliminate Serious Harm to Fish (i.e.: "Clear Span" bridges). The cost of these "Clear Span" bridges shall be compared with the cost of shorter bridges including the estimated cost of design and implementation of compensation for Serious Harm to Fish.
 - .8 Perform detailed geotechnical investigation for the design of the new structure. Sufficient boreholes to be drilled to provide all necessary geotechnical design parameters for the new structure (a minimum of one test hole at each abutment and at each pier of the proposed structure is required). Geotechnical investigations shall also be conducted to establish highway design parameters for the full length of the approach roads (a minimum of one (1) test hole every 300 meters is required). Submit a detailed geotechnical report and assessment. The field work will require, at a minimum, a basic environmental impact analysis, prior to undertaking work. Mitigation measures will be provided and incorporated into the consultant plans.
 - .9 Conduct a hydraulic investigation for the design of the new structure. Investigation may require model studies. Submit a detailed hydrotechnical report and assessment.
 - .10 The existing bridge consists of a steel and concrete superstructure supported by a concrete substructure founded on spread and piled footings. The structure is 50.0 m long, approximately 11.2 m in overall width, and accommodates 2 lanes of traffic.
- .10 Requirements for demolition and removal include the following:
 - .1 Abutment structures to be removed to at least one (1) m below final grade.
 - .2 Land based piers to be removed to depths at least one (1) m below final grade.

PD 5 PROJECT OBJECTIVES (continued)

- .3 Piers in the river to be removed to the elevation of the surrounding river bottom or as recommended by DFO.
- .4 Piles in the river to be removed to the elevation of the surrounding river bottom or as recommended by DFO.
- .5 Abandoned approach and roadway fills to be removed to re-establish original contours or as directed by Parks Canada, and area to be landscaped to suit the natural environment.
- .6 Materials from demolition of existing bridge are to become the property of the contractor.
- .7 Debris removal and disposal to conform with environmental regulations.
- .8 Holes and excavations to be backfilled to surrounding elevations and landscaped to suit the natural environment. All landscaping will have to be consistent with proposed environmental mitigation measures (e.g. to defer the introduction of invasive species, to avoid known localities of species at risk, to reduce erosion).
- .9 Roadway approaches are to be designed to NL-DOTW standards

5.2 Design Criteria

.1 General:

- .1 New Bridge Structure to be of high quality and functionality, accomplished through excellence of concept, design and construction while respecting funding limitations to ensure economy in design and construction.
- .2 New Bridge Structure to be designed for a service life of 75 years, and to meet or exceed required strength, durability, overall stability, safety and serviceability. Appropriate safeguards are to be incorporated to prevent excessive cracking, fatigue, unacceptable deformation, premature corrosion, deterioration of material, undesirable vibration and deflection.
- .3 New Bridge Structure design to be aesthetically pleasing and harmonious with its environment.

.2 Design Codes and Specifications:

- .1 Standards, codes and specifications to be used for the design and construction of the facility are to be the latest edition (including all amendments, supplements and revisions thereto) of the following:
 - .1 CAN/CSA-S6, Canadian Highway Bridge Design Code and current NL-DOTW design practice.
 - .2 Design reference vehicle to be used is CL-625-ONT
 - .3 Provisions for future overlay to be accommodated in the design.
 - .4 Specific reference to the following codes may be required:
 - National Building Code of Canada.
 - AASHTO Standard Specifications for Highway Bridges and Interim Specifications.
 - .5 Geometric Design: Transportation Association of Canada.
 - .6 National Master Specifications CSC/CSI Master Format (current 6 digit version of National Master Specification (North American)) System to be used. Modify format to suit specific needs and to reflect NL provincial requirements.

PD 5 PROJECT OBJECTIVES (continued)

- .7 The Consultant must incorporate other design codes to utilize new developments in structural engineering, as appropriate, in accordance with proper engineering practice. Where such codes are to be used, submit recommendation with evidence of suitability, satisfactory to the Departmental Representative, for approval.
- .8 Load factors and resistance factors to be combined with an annual reliability index appropriate for ultimate limit states, for a 75 year design service life.
- .3 Durability:
 - .1 Submit to the Departmental Representative proposed design details which will ensure durability compatible with a design service life of 75 years.
 - .2 Design details for durability are to be consistent with the latest Canadian Highway Bridge Design Code and Standards and Practices, and are to incorporate the current state of knowledge in the industry.
- .4 Performance Requirements for Corrosion Protection Systems:
 - .1 Structural steel:
 - .1 Structural steel for the superstructure supporting elements to be high strength steel (Grade 350 MPa or higher) and, if painted, to be shop-painted with a high grade 3-coat system.
 - .2 Primer to be inorganic zinc; top coat of high quality urethane.
 - .3 Paint system to pass 5000 hours of ASTM B117 salt fog test with less than 1 mm undercut.
 - .4 For secondary steel, use galvanized (Grade 300) steel.
 - .5 Weathering steel is to be considered.
 - .6 Minimum steel thickness to be 10 mm (except for signs and ancillary steel).
 - .7 All bolts, nuts, washers and anchors, to be either stainless steel or galvanized.
 - .2 Reinforcing steel:
 - .1 Reinforcing steel to be protected against corrosion in deck and in salt exposed areas using adequate concrete cover and galvanizing.
 - .2 Microcomposite steel to be evaluated as an alternative for concrete reinforcement.
 - .3 Carbon or glass fiber reinforced polymer (FRP) reinforcing to be evaluated as an alternative for the top mat of reinforcing steel in a concrete deck option.
 - .3 Prestressing steel:
 - .1 Prestressing steel to be protected against corrosion using the best available methods including adequate concrete cover and galvanizing of plain reinforcing steel and ducts (where applicable).
- .5 Joint Systems:
 - .1 Expansion joint systems:
 - .1 Joint systems to consist of components arranged so as to accommodate imposed translation and rotation at joints.
 - .2 Joint systems to provide for the passage of traffic and to be designed and constructed to minimize impairment of riding characteristics of the roadway.

PD 5 PROJECT OBJECTIVES (continued)

- .3 Joint systems to be watertight so as to prevent damage to underlying structures from water, de-icing chemicals and debris. All joints systems to be tested for water tightness after installation.
- .4 Joints to be designed so that they can be dismantled for ease of maintenance and repair.
- .5 Minimize the number of expansion joints to minimize maintenance costs.
- .2 Integral abutments:
 - .1 Evaluate short-term and long-term costs and savings if expansion joints are eliminated at both abutments. All aspects of design and construction of the expansion joints are to be considered and presented in a separate report to the Departmental Representative.
 - .2 Where practical, incorporate integral abutments in the design subject to approval of the Project Manager.
- .6 Bridge Bearing Systems (if required):
 - .1 Bearings to be designed to transmit all loads and to accommodate all translations and rotations of the structure.
 - .2 Bearings to be designed and detailed so that they can be dismounted to facilitate repairs and/or replacement.
 - .3 All steel including bolts, nuts, washers, anchors, to be either stainless steel or to be galvanized.
 - .4 Jacking provisions to be included in the design to facilitate access to the bearings.
 - .5 Where applicable, bearings to be designed to accommodate integral abutments.
- .7 Roadway Geometry:
 - .1 Geometry to conform to the NL-DOTW standard.
- .8 Traffic Barrier System:
 - .1 Bridge traffic barrier system to be selected to meet performance while respecting the Park setting/potential for view plane appreciation.
 - .2 Approach railing system to be continuous with bridge railing system.
 - .3 Transition section to be designed for a smooth transfer of loads.
- .9 Bridge Roadway Drainage System:
 - .1 Design deck grades to effectively drain the roadway surface.
 - .2 Deck drainage to be designed so that water will not discharge against any structural part of the bridge. The drainage system is to be designed to eliminate deck drains as much as possible, and to ensure that water will safely and effectively drain off the bridge deck without eroding the embankments.
 - .3 Design adequate and effective embankment drains.
- .10 Inspectability:
 - .1 Superstructure design to accommodate inspection of all superstructure elements by mechanical devices.
 - .2 Design support structures to provide access to expansion joints and bearings.
 - .3 Provide access for inspection to the inside of all box structures.

PD 5 PROJECT OBJECTIVES (continued)

.11 Aesthetics:

- .1 In addition to functional requirements, the Consultant must address the issue of aesthetics and the National Park setting in the design of the structure. Design an aesthetically pleasing bridge by taking into account such characteristics as:
 - .1 Harmonious proportions between the relative sizes, shapes and features that will convey a balanced impression;
 - .2 Principles of order in lines and edges of the structure such as limiting the number of directions of lines, utilizing symmetry and repetitiveness, avoiding monotony and unnecessary attachments;
 - .3 Refinement of form by modeling if necessary;
 - .4 Integration with landforms and with the environment, including landscaping
 - .5 Surface texture, colour and character.
 - .6 Given the location of the structure in a National Park the design should incorporate elements to distinguish the entrance to the National Park.

.12 Contract Documents:

- .1 Prepare complete contract documents for the agreed upon option.
- .2 All tender-issue documents to be stamped and signed separately by the Consultant Engineer of Record and the internal checker, both of whom are required to be licensed by PEGNL.

5.3 Design Principles

- .1 The bridge and approaches must be designed using accepted bridge and highway design standards, and are to incorporate high performance materials (where proven practical by life-cycle costing analyses), to satisfy the bridge performance criteria and functional requirements.
- .2 Investigate, assess and analyze a minimum of three (3) alternative horizontal alignments for the bridge. Recommend the optimum alignment option to be further developed in the preliminary planning stage. Recommendation to be accompanied by justification based on comparison of advantages and disadvantages of the alternative alignment options.
- .3 At the preliminary planning stage, investigate, assess and analyze a minimum of five (5) alternative designs for the selected alignment. Each alternative presented must be viable and practical, and is to incorporate a unique structural system. Assessment shall include life-cycle and long term maintenance costing, and verification that the required design load capacity can be achieved for each alternative. The final design option recommended must be accompanied by a full rationalization, comparing advantages and disadvantages of each alternative design.
- .4 Applicable Codes: Planning and design must be completed in accordance with the requirements of appropriate latest acts, codes and regulations by all Authorities having Jurisdiction including the following:

PD 5 PROJECT OBJECTIVES (continued)

- .1 CAN/CSA-S6 Canadian Highway Bridge Design Code (primary code).
- .2 Federal and Provincial Environmental regulations.
- .3 AASHTO Standard Specifications for Highway Bridges and Interim Specifications.
- .4 AISI Handbook of Steel Drainage & Highway Construction Products.
- .5 National Building Code of Canada.
- .6 Navigation Protection Act.
- .7 Federal and Provincial Occupational Health And Safety Regulations.
- .8 Fire Commissioner of Canada Standards.
- .9 Canada Labour Code (including latest revisions of all regulations).
- .10 Provincial and Municipal Traffic Acts and Regulations.
- .11 Provincial Environmental Protection Act
- .12 Federal Fisheries Act
- .13 Canadian Environmental Assessment Act 2012
- .14 Species at Risk Act
- .5 In case of conflict or discrepancy between code requirements and standards, the most stringent requirements will apply.
- .6 The following major processes must be used, from design initiation through construction completion and maintenance and operations:
 - .1 Risk Identification: determine which risks are likely to affect the project and document characteristics of each;
 - .2 Risk Quantification: evaluate risks and risk interactions to assess the range of possible project outcomes;
 - .3 Risk Response Development: define enhancement steps for opportunities and responses to threats;
 - .4 Risk Response Control: respond to changes in risk over the course of the project.
- .7 Incorporate into the structural design an evaluation of high performance construction materials, including life cycle costing analyses of various design alternatives (high performance concrete, etc.). Evaluate and determine performance criteria, functional requirements (e.g. drainage), and general code compliance. Incorporate design details commensurate with a minimum 75 year service life. Structural components shall be protected against corrosion. Industry-proven materials shall be utilized and experimental materials shall be avoided.
- .8 At completion of design stages submit CADD Drawings, specifications, databases and a legible set of neatly bound notes with index. These notes shall include design criteria, assumptions, and detailed analyses and designs for all significant aspects of the structure.
- .9 Definitions: References to various stages of drawings are listed throughout the Project Brief. The definitions are described generally as follows:
 - .1 Design Drawings: means drawings prepared by the Consultant to illustrate the design developed from the approved basic concept. Referred to in the Consultant Agreement as Design Development.

PD 5 PROJECT OBJECTIVES (continued)

- .2 Concept Drawings: means drawings prepared by the Consultant to illustrate the basic design concept. Referred to in the Consultant Agreement as the Concept Design.
- .3 Construction Drawings: means drawings prepared by the Consultant to illustrate the approved design in sufficient technical detail for the Contractor to construct the project.
- .4 Shop Drawings: means drawings prepared by the Contractor, sub-contractors, suppliers or fabricators, etc., illustrating their detailed interpretation of the construction documents, necessary for the fabrication and installation of various items in the project. The Consultant is required to define the extent of, and to review all shop drawings to ensure that they represent a valid interpretation of the design and of the requirements of the construction documents.
- .5 Post-Contract Drawings: means drawings prepared by the Consultant after completion of the “For Tender” construction drawings, to further illustrate the design and to explain, clarify and define the work necessary to complete the project.
- .6 As-Built Drawings: means the marked-up records prepared by the Contractor during the progress of the construction work which indicate the actual location of all features or materials that may be different from the those indicated on the construction documents.
- .7 Record Drawings: means drawings prepared by the Consultant to form an accurate record of the project as built. The Consultant is required to obtain from the Contractor, on completion of the project, as-built drawings indicating all deviations from the construction documents and to transfer this information onto the record drawings, as well as all information prepared by the Consultant to illustrate the work required by Change Orders issued during the performance of the work.

5.4 Sustainable Development

- .1 Planning and design activities for this project are to conform to PWGSC's Sustainable Development Strategy, and are to be consistent with the Canadian Federal Government initiatives to ensure sustainable development.

5.5 Waste Management

- .1 The National Construction, Renovation, and Demolition (CR&D) Non-hazardous Solid Waste Management Strategy (Strategy) provides directions for managing CR&D projects involving non-hazardous solid waste. The strategy is designed to meet the requirements of federal and provincial policies and the objectives of PWGSC's Sustainable

PD 5 PROJECT OBJECTIVES (continued)

Development Strategy (SDS), commitments, and targets, as they relate to non-hazardous waste generated in CR&D projects.

- .2 Delivery of this project shall be in conformance with the waste reduction practices as outlined in the National CR & D Non-hazardous Solid Waste Management Strategy.

5.6 Health and Safety

- .1 PWGSC is responsible to ensure the health and safety of all persons on Crown construction projects, and to respect the rights of federal employees and private sector workers to the protection offered by occupational health and safety regulations. Delivery of this project shall be in conformance with the applicable N.L. provincial construction health and safety acts and regulations, and the Canada Occupational Health and Safety Regulations. **The Consultant must prepare an H&S plan for their employees while on-site during design.**

PD 6 ISSUES

6.1 General

- .1 The Consultant must perform detailed planning and scheduling activities to facilitate the accomplishment of objectives. Planning should be thought of as continuous interactive process involving planning, action, measurement, evaluation and revision.
- .2 Consultant is to establish and utilize a project control system for Planning, Scheduling, Progress Monitoring and Progress Reporting.

6.2 Preparation of the Detailed Schedule

- .1 A detailed project schedule is to be submitted at the end of the analysis of Project Brief Stage. Activities are to be shown for all phases of Concept and Preliminary Design. All necessary reviews and approvals are to be itemized, in addition to Design, Drawings, Specifications and each of the key approval milestones (33%, 66%, 99%), as well as each coordination and review activity leading to acceptance of 100% Tender Documents.
- .2 The schedule is to be in sufficient detail to provide a reasonable basis for progress monitoring and control. The list of activities to be tracked is to be consistent with the Milestones developed and approved in the Master Project Schedule.

6.3 Review and Approval of the Detailed Schedule

- .1 Allow one week (calendar) for review of the proposed detailed schedule by the Departmental Representative. Any revisions to the schedule requested by the Departmental Representative are to be submitted to the Departmental Representative within one week (calendar) after such request.
- .2 At the Departmental Representative's request, and without additional charges, provide all additional information required by the Departmental Representative to validate the Consultant's work schedule.

PD 6 ISSUES (continued)

6.4 Compliance with the Detailed Schedule

- .1 Comply with the approved detailed schedule, and ensure that sub-consultants adhere to this schedule in the planning and coordinating of their work.
- .2 The following table indicates the overall milestones for project completion. The Consultant is to provide an estimated duration in working days for each item.

Description	Estimated Duration
Analysis of Project Requirements	
Feasibility Study/Preliminary Options Evaluation and Class “C” Cost Estimates	
PWGSC Approval of Preliminary Design	
Final Design Concept / Alternatives Evaluation	
PWGSC Approval of Alternatives and Design Concept	
Design Development and Class “B” Cost Estimate	
Design Committee Approvals	
Design Revisions	
Construction Documents (33%)	
Review Documents	
Construction Documents (66%)	
Review Documents	
Construction Documents (99%)	
Review Documents	
Construction Documents (100%) & Class “A” Cost Estimate	
Tender Ready Documents Acceptance	

NOTE: Construction contract documents are to be completed to the Tender Ready Stage by 15 March 2015.

6.5 Progress Monitoring and Reporting

- .1 On a monthly basis prepare a detailed schedule update showing project status effective as of the last day of the month. The detailed schedule is to reflect the following:
 - .1 Progress of each activity to the effective date of the report;
 - .2 Any logic changes, both historic and planned;
 - .3 Estimates for progress and completion milestone dates;
 - .4 Actual start and finish dates of all activities being monitored;
 - .5 Any potential delays, and outstanding issues and concerns from the design teams point of view; and
 - .6 Proposed resolution(s) for any serious planning and scheduling issues.
- 2. Submit a written monthly narrative report consistent with and expanding on, the detailed schedule. The narrative report is to detail the work performed to date, compare actual progress to planned, and present updated forecasts. The report is to

PD 6 ISSUES (continued)

summarize the progress to date, explain current and potential deviations and delays with respect to the detailed schedule, and update the critical path.

3. The monthly narrative report should also have a section dedicated to the environmental process so that PWGSC are kept up to date on the status of requested information required to fulfill the CEAA 2012 obligations, as well as any ongoing environmental issues or concerns.

6.6 Project Cost Estimate

- .1 The construction budget is \$5,000,000.00 (excluding HST), Class “D” Estimate.

6.7 Health and Safety

Public Works and Government Services Canada (PWGSC), recognizes the responsibility to ensure the health and safety of all persons on Crown construction projects and the entitlement of both federal employees and private sector workers to the full protection afforded them by occupational health and safety regulations.

In keeping with the responsibility and in order to enhance health and safety protection for all individuals on federal construction sites, PWGSC will voluntarily comply with the applicable provincial/territorial construction health and safety acts and regulations, in addition to the related Canada Occupational Safety and Health Regulations.

PD 7 CONSULTANT SERVICES

The consultant team for this project must be capable of providing the following services:

Bridge Engineering
Geotechnical engineering
Structural engineering
Landscape architecture
Structural engineering
Civil engineering
Cost control/Schedule
Risk management
Waste management
Sustainable development

DESCRIPTION OF SERVICES

PA 1 PROJECT ADMINISTRATION

INTENT

The following administrative requirements apply during all phases of project delivery.

1.1 PWGSC Project Management

- .1 PWGSC's Departmental Representative assigned to the project is the Departmental Representative with overall responsibility for the project. PWGSC's Departmental Representative is the liaison between the Consultant and Public Works and Government Services Canada.
- .2 PWGSC will administer the project, and is responsible for approving the Consultant's work during all phases of the project.
- .3 Environmental authorizations will be obtained by PWGSC. This will likely include approvals from Fisheries and Oceans Canada, Transport Canada, Environment Canada, and the Province of NL. The consultant is to provide, in a timely manner, information required for the necessary authorizations.

1.2 General Project Deliverables

- .1 Where deliverables and submissions include summaries, reports, drawings, specifications, plans or schedules, six (6) hard copies shall be provided. In addition one (1) copy shall be provided in electronic format unless otherwise specified.
- .2 Submit drawings in Autocad format per PWGSC CADD standards.
- .3 Drawings required for environmental purposes will be required in PDF format.
- .4 Submit specifications in most current NMS MasterFormat.

1.3 Lines of Communication

- .1 Unless otherwise approved by PWGSC's Departmental Representative, the Consultant shall communicate with the PWGSC's Departmental Representative only. There shall be no other official contact between the Department and the Consultant unless otherwise approved.

1.4 Media

- .1 The Consultant will not respond to requests for project related information or questions from the media. Such inquiries shall be directed to PWGSC's Departmental Representative.

1.5 Meetings and Site Visits

- .1 PWGSC'S Departmental Representative will arrange meetings (at least monthly) throughout the entire project development period.

PA 1 PROJECT ADMINISTRATION (continued)

- .2 The Consultant shall attend the meetings with appropriate sub-consultants and in-house specialists and team members, record the issues and decisions, and prepare and distribute minutes within 48 hours of the meeting.
- .3 Allow for the following meetings as a minimum:
 - .1 In Corner Brook, NL:
 - .1 33% design review
 - .2 99% design review
 - .3 Tender review
 - .2 On site in Terra Nova National Park:
 - .1 Consulting contract startup
 - .2 Feasibility Study presentation
 - .3 Conceptual design presentation
 - .4 66% design review
 - .5 Two (2) public consultation meetings
 - .6 Tenders site meeting
 - .6 Pre-construction startup
 - .7 During design: allow for a minimum of two (2) additional site meetings during the design process.
 - .8 During construction and warranty period: allow for a total of twelve (12) site visits by the Consultant's Project Manager or Senior Design Engineer to review construction progress and for warranty review.

NOTE: these 12 site visits are in addition to the site visits required by specialists and sub consultants during construction/fabrication to satisfy code requirements and field reviews, and to assist with Interim and Final Inspections. Site visits required by specialists and sub consultants to satisfy code requirements and field reviews, and to perform Interim and Final Inspections, shall be included as part of the fixed fee for Non-Resident Services during Construction.

PA 1 PROJECT ADMINISTRATION (continued)

1.6 Review and Approval Requirements/Consultant Presentations

.1 The following table summarizes the requirements of reviews and approvals, and Consultant presentations included in Design Stages RS 1 through RS 4:

Chart of Reviews and Approvals	PWGSC	
	Review	Approval
RS1 Analysis of Project Requirements		
Detailed Project Schedule		
Project Scope of Services Report		
Feasibility Study-Preliminary Option		
Class “D” Estimate		
Presentation to Design Review Committee		
RS2 Design Concept		
Geotechnical Investigation & Report		
Hydraulic Study & Report		
Environmental Assessment Study & Report		
Design Options		
Presentation of Recommended Alternatives to Design Review Committee		
Presentation of Preferred Concept to Design Review Committee		
Class ‘C’ Estimate(s)		
RS3 Design Development		
Design Development Documents		
Class ‘B’ Estimate(s)		
RS4 Construction Documents / Tender Call		
33% Construction Drawings and Specs		
66% Construction Drawings and Specs		
Class ‘B’ Estimate(s) (updated)		
99% Construction Drawings and Specs		
Class ‘A’ Estimate(s)		
Seismic evaluation report		
Final Tender Documents		

1.7 Consultant Response Time Requirements

.1 The Consultant’s project team, including their proposed specialists and sub-consultants, shall be available to personally attend meetings and respond to inquiries within 3 working days (72 hours), at PWGSC’s Corner Brook office, from the start of the consulting contract until final design acceptance. During the tender period the consultants and their sub-consultants are expected to respond to inquiries within 2 working days (48 hours).

REQUIRED SERVICES

RS 1 ANALYSIS OF PROJECT REQUIREMENTS

During this stage the Consultant shall review and integrate all the Project Requirements, identify and evaluate conflicts or problems, conduct a feasibility study on alignment schemes, provide alternative strategies, and present and receive approval for project scope, proposed delivery process and schedule, and a class “D” construction cost estimate. The document, when approved, shall become the Project Scope of Services and shall be utilized throughout the balance of the project to monitor project delivery.

1.1 Site Investigations

- .1 Visit site and be familiar with the bridge, river and approach roads.
- .2 Obtain and review existing construction information. Note: existing plans and construction records are limited. Carry out all required field surveys to collect existing information.
- .3 Obtain and review existing geotechnical information, for bridge foundations and within adjacent right of way. PWGSC does not have any original geotechnical information.
- .4 Obtain from others existing records of river flows and plan for hydraulic (model) study studies if necessary.
- .5 Complete preliminary study for widening and realigning the approaches.
- .6 Support to PWGSC in their development of a Detailed Environmental Impact Analysis of the proposed project which includes providing and consistently communicating all details of the project required for the analysis.
- .7 Prepare a report on the site characteristics of the area: i.e. rain/snow (drainage) effects.
- .8 Assemble and review existing documents, codes and standards.
- .9 Investigate availability and capacity of all utilities needed for the project.

1.2 Structural

- .1 Study feasibility of various alignment options for the new bridge. Options to include, as a minimum, the alternative of maintaining the existing highway alignment, and the two alternatives of shifting the highway alignment upstream or downstream.
- .2 Evaluate vertical alignment options to minimize overall construction costs.
- .3 Investigate other options and develop favorable alternatives to preliminary stage. Ensure appropriate information is provided to PWGSC regarding the different alternatives being considered for the purpose of inclusion into the Detailed Environmental Impact Analysis.
- .4 Select options to be developed for the preliminary design stage, with emphasis on minimum life-cycle costs over the intended service life and results of the Detailed Environmental Impact Analysis of the options (in conjunction with other project objectives).
- .5 Identify options for structural systems and materials.
- .6 Identify any high performance structural materials (with proven records) which could be effectively incorporated into the design.
- .7 Identify design requirements (e.g. deck drainage, expansion joints, railings, etc.)
- .8 Assess requirements for stabilizing highway embankment and river banks.

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

.9 Verify total scope of work and prepare report summarizing results of above tasks.

1.3 Specifications

Not applicable at this stage.

1.4 Sustainable Development

- .1 Support PWGSC in their development of a Detailed Environmental Impact Analysis of the proposed project which includes providing and consistently communicating all details of the project required for the analysis.
- .2 Based on the results of the Detailed Environmental Impact Analysis, establish a program to minimize environmental impacts, consistent with the project objectives and economic constraints.

1.5 Planning and Scheduling

- .1 Provide fully qualified and experienced planning & scheduling specialist to provide Planning and Scheduling services in accordance with the following general scope for each of the Stages (RS 1 to RS 8).
- .2 Review the impacts of findings on Project Planning and Scheduling.
- .3 Review, report on, and propose revisions to the proposed plan and schedule.
- .4 Prepare a Work Breakdown Structure for the project which organizes, defines and graphically displays the project through at least 5 levels: project, stage, element, sub-element and work package. Identify Major Elements and Phases of Work.
- .5 Prepare a Project Master Plan to account for all major project activities as identified in the Proposed Major Milestone Schedule and present in the following formats:
 - .1 Diskette containing the electronic files of the schedules.
 - .2 Bar chart showing each activity duration, early/late dates, % complete.
- .6 Submit proposed Project Master Plan and Cash Flow Projection to PWGSC for review and approval. Revise and resubmit as necessary.
- .7 Develop & maintain Detailed Project Schedule, including Bar Charts & Milestones.
- .8 Identify construction tendering and sequencing requirements.
- .9 Progress monitoring and reporting: On a monthly basis, complete a detailed schedule update. Submit a written monthly narrative report based on the Detailed Schedule. This report must summarize progress to date, and explain current and possible delays and any deviations from the schedule.

1.6 Cost Management

- .1 Review impact of above findings on Project Schedule Cost Planning.
 - .1 Review, report on, and propose revisions to the Class "D" estimate. Do not proceed until PWGSC has accepted the revised Class "D" estimate. The revised Class "D" estimate will become the Construction Cost Plan.
 - .2 A Class "D" estimate is based upon a comprehensive statement of requirements in mission terms and an outline of potential solutions. Such an estimate is strictly an indication (rough order of magnitude) of the final project cost.
 - .3 Provide a breakdown of projected cash flow for the total project.

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

- .2 Estimating and Cost Planning:
 - .1 Cost management:
 - .1 Provide a specialist or sub consultant fully qualified and experienced in all aspects of Cost Management. The qualifications and experience shall include: cost estimating, cost planning, cost control (including the use of Elemental Cost Analysis), Risk Analysis, Life Cycle Costing, and Value Engineering techniques.
 - .2 Scope of services:
 - .1 Provide to PWGSC a cost advising and cost monitoring/reporting service. Cost management services shall be provided on a continuing basis from the commencement of project planning and design through to the final stage of detailed design. The services shall include, the preparation of complete estimates (at all stages of design development) taking into account escalation, inflation and contingency costs.
 - .3 Services - basic activities:
 - .1 The team member providing the cost management services shall work with and advise PWGSC and the project team of the costs of individual bridge components and costs of various design elements. Estimates shall be prepared in detail and shall be summarized using an Elemental Analysis format. Acceptable formats are noted under the Submission Standards section following.
 - .4 Reporting:
 - .1 Milestone Reporting:
 - .1 At each of the Milestones specified in this document, provide a complete submission including the required Elemental Summaries, supported by all backup work sheets, clearly detailing the process used in preparing the estimate. The detailed work sheets will be the prime basis on which estimates will be reviewed by PWGSC. Provide cost comparisons and reports identifying and explaining the differences between each succeeding cost estimate.
 - .2 Estimates shall be fully coordinated with schedules.
 - .3 A typical Milestone Report shall contain:
 - .1 Project Estimate Summary;
 - .2 Elemental Estimate Summary;
 - .3 Estimate Back-Up Detail
 - .4 Basis for escalation, inflation and contingency calculations;
 - .5 Detailed measurement and pricing;
 - .6 Narrative;
 - .7 Outline description of estimate basis;
 - .8 Description of information obtained and used in the estimate including the date received;
 - .9 Listing of notable inclusions;
 - .10 Listing of notable exclusions;

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

- .11 Listing of items/issues carrying significant risk;
- .12 Notes on past and forecast Cost Specialist activity;
- .13 Estimate Reconciliation with last submission and with Construction Cost Plan.
- .14 Any other relevant information.
- .2 Monthly Report
 - .1 In addition to the Milestone Reports, submit a Monthly Report outlining activities during the previous month.
 - .2 Identify areas of concern and new information received etc., along with forecast and proposed revisions to the current estimate.
- .5 Submission standards:
 - .1 Elemental analysis: summarize all estimates in an agreed and consistent elemental format. Several variations in format may be acceptable to PWGSC (to be approved through discussion).
 - .2 Trade summary: Where a trade summary is required, those following the Masterformat are preferred, unless otherwise approved by PWGSC.
 - .3 Project Cost Subdivision: show breakdown of the costs of each phase of construction. Provide a further breakdown of the estimates within these phases to show separately the cost of the following:
 - .1 New bridge construction.
 - .2 Approach roads and Golf Underpass rehabilitation.
 - .3 Site work.
 - .4 Where construction is to extend over more than one fiscal year (April 1 to March 31), show breakdown of costs for each fiscal year.
- .6 Submission medium:
 - .1 Provide six (6) hard copies of all reports and cost estimates. Also provide one (1) additional hard copy of the full report including the additional estimate support information to PWGSC.
 - .2 Provide one (1) electronic copy of the total estimate, and summary including support details on CD in an agreed format.
- .7 Timelag:
 - .1 Estimates can only be finalized following design of associated elements. Therefore estimates will lag design, and the cost estimate portion of the Milestone Reports shall follow the Milestone Reports.
 - .2 Submit cost estimate within two weeks after design unless otherwise authorized by PWGSC.
- .8 Use of all available information:
 - .1 Provide a cost estimate based on all currently available information. Information provided during the concept, design development and early working drawing stages may not be complete.

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

- .2 Where requirements are not fully defined, make assumptions in consultation with the project team, and either list the assumptions, or have them incorporated and prepared in a modified outline specification.
 - .9 Techniques: be familiar with and make use of a broad range of cost techniques, especially the following:
 - .1 Risk Analysis: all construction estimates (except the final pre-tender estimate) shall include and identify design, estimating, inflation escalation and currency exchange allowances as are deemed necessary in light of the current information available. Provide a satisfactory explanation of the level and/or amount of all such sums included within any estimate.
 - .2 Scheduling: Consultant's Cost Specialist shall assist other team members by providing quantities, and other quantifiable parameters deemed appropriate to the calculation of a reasoned project time schedule. Time Specialist shall assist Cost Specialist by maintaining an up-to-date schedule of all design activities along with an agreed bidding and Construction Schedule that shall be incorporated, by the Cost Specialist, in the estimates on a timely basis.
 - .3 Life Cycle Costing: Cost information upon which design and construction decisions will be made for alternative materials, methods and systems, shall be based on all available information to ensure that a complete and realistic estimate is presented.
 - .4 Continuing Estimate Process: a process of continual adjustment of previous estimates may be used in place of total re-measurement at each milestone reporting point. This is acceptable, provided that at each monthly reporting point a full and up-to-date Elemental Cost Summary is provided, and that at each milestone reporting point this Elemental Cost Summary is supported by complete, detailed, standalone backup/support documentation.
 - .5 Project Research: Consultant shall visit the sites of work to become familiar with site conditions, site access, etc., analyze local labour and material supply conditions, local bidding practices and competition to establish pricing levels. A written report detailing this reconnaissance activity is required.
- 1.7 Comments (applicable to all disciplines)
- .1 Begin the Analysis of Project Requirement stage following Contract Award, and in accordance with instructions from the Project Manager.
 - .2 Review all available as built drawings as applicable and available
 - .3 Attend Project startup meeting, evaluate scope of work and its technical requirements.

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

- .4 Identify all issues in the Project Brief requiring clarifications and/or more information.
- .5 Provide six (6) hard copies of each submission.
- .6 Reviews: (*reviews by "Departmental Representative" may include other members of the PWGSC project team*)
 - .1 PWGSC's Departmental Representative will review all submissions and will return comments to the consultant, retaining a copy for record purposes. Revise and resubmit documents as required to obtain PWGSC approval of each submission stage. Allow a period of ten (10) working days for the PWGSC review process. Allow for a minimum of two (2) review and resubmission iterations per review/approval submission. Provide a written response for each item raised during PWGSC review before submitting the next submission.
 - .2 PWGSC reviews are not detailed checks of the documents or designs, and in no way relieve the Consultant of professional responsibility for checking the work and that of his sub-consultants.
 - .3 During each review period, maintain full production on the project, and revise documents as necessary and in response to review comments. The extent of revisions necessary will depend largely on the quality and accuracy of work submitted, and on the effectiveness of regular meetings.
- .7 Compliance: comply with the approved review submissions and be responsible for coordinating, directing and reviewing the work of sub-consultants.

1.8 Deliverables

- .1 A 'Project Scope of Services' report (4 copies required) summarizing the findings of Analysis of Project Brief Stage, including the following:
 - .1 Understanding of Scope of Work (Construction as well as Planning & Design)
 - .2 Requirements of the Project
 - .3 Confirmation of Delivery Process and Schedule requirements
 - .4 Clarification of Scope of Work Requirements
 - .5 Work Breakdown Structure and Master Plan
 - .6 Detailed Project Schedule
 - .7 Confirmation of Approved Class "D" Construction Cost Estimate (Construction Cost Plan)
 - .8 Provide As-Built drawings of existing structure in electronic format. (Note: no electronic files exist for the structure with the exception of recent PWGSC survey. Consultant will be required to prepare electronic drawings to describe existing bridge and topography.)
- .2 Allow ten (10) working days for PWGSC review and evaluation.

RS 1 ANALYSIS OF PROJECT REQUIREMENTS (continued)

- .3 Six (6) copies of a feasibility study report on the alignment alternatives, describing and attaching the findings of the following:
 - .1 Adequacy of existing plans and requirements for additional surveys.
 - .2 Site visit.
 - .3 Adequacy of existing geotechnical reports and requirements for additional geotechnical investigations.
 - .4 Requirements of the study.
 - .5 Alternative bridge and highway alignments (horizontal and vertical) and including identification of private lands required for western approach.
 - .6 Alternative structural systems.
 - .7 Drawings outlining each alternative.
 - .8 Recommendations on preferred option.
 - .9 Class “D” estimates
- .4 Proceed to RS 2 Design Concept upon PWGSC acceptance of chosen alignment alternative.

RS 2 DESIGN CONCEPT

2.1 Planning and Design

- .1 Planning and Design will be carried out as two parts:
 - .1 Options Analysis; and
 - .2 Preferred Option.
- .2 At the Options Analysis stage, at least five (5) options shall be explored and documented for the bridge structure replacement (see PD 5 paragraph 5.3.3). Requirements of each discipline involved in the different horizontal and vertical alignments shall be addressed for each alternative. Once the preferred option has been selected and accepted by the PWGSC Design Review Committee, the option shall be developed in more detail to the Design Concept level outlined below. Critical design issues shall be addressed and recommendations made for the resolution of conflicts or concerns.

2.2 Meetings

- .1 Meetings will be held once every four (4) weeks during the Design Concept (RS 2) and Design Development (RS 3) stages to review progress, facilitate communication, and discuss any outstanding issues.
- .2 Meetings will be held at PWGSC office in Corner Brook, NL.
- .3 The Consultant shall be responsible for preparing and distributing minutes of these meetings.

2.3 Site Investigations

- .1 PWGSC partial survey of existing conditions in the project area is available.
- .2 The Consultant is responsible to complete a detailed topographic survey to cover areas affected by all potential alternative highway approach alignments for

RS 2 DESIGN CONCEPT (continued)

approximately one (1) kilometer of each approach of the bridge that are not available in PWGSC survey.

- .3 The Consultant is responsible to complete a detailed hydrographic survey of the Northwest River which may affect, or be affected by, construction at any of the alternative bridge locations, including bank protection works which may be required. At a minimum survey the river and floodplain 500 m upstream and 500 m downstream of the existing bridge.
- .4 Complete geotechnical investigations for bridge foundations. At a minimum drill one (1) test hole at each bridge pier and abutment location; and for the road approach, one (1) test hole every 300 m or less.
- .5 Do hydraulic study, including model studies if necessary.
- .6 Identify and define adequate sources of granular material for highway construction and fill.
- .7 Evaluate site characteristics of area, including assessment of possible environmental impacts, rain/snow/ice effects, etc.
- .8 Verify availability and capacity of all services needed by the project

2.4 Structural

- .1 Design Code: CAN/CSA-S6, CHBDC.
- .2 Assess site requirements including bridge deck drainage, expansion joints and railings.
- .3 Evaluate design alternatives (including high performance structural materials), to consider life cycle costing, long term maintenance, vehicular and pedestrian traffic.
- .4 Determine dead, live and dynamic loads.
- .5 Recommend design options with respect to project objectives, functional requirements, cost/benefit life cycle analyses, plan and schedule.
- .6 Develop design criteria including design loads, and material specifications.
- .7 Prepare concept design of preferred option for new crossing.

2.5 Specifications

- .1 Provide outline specifications for all major components complete with manufacturer's literature when requested, following most current NMS MasterFormat.

2.6 Sustainable Development

- .1 Prepare and evaluate Design Options to address alternative technical and environmental strategies.
- .2 Minimize use of hazardous and toxic materials .
- .3 Perform site evaluations and planning and environmental studies that may be required by PWGSC to fulfill CEAA 2012 obligations.

2.7 Planning and Scheduling

- .1 Review impact of Design Concept Stage with project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update Detailed Schedules, Bar Charts, and Milestone Listings.
- .2 Progress monitoring and reporting: on a monthly basis, complete a detailed schedule update and submit a written monthly narrative report based on the detailed schedule.

RS 2 DESIGN CONCEPT (continued)

This report is to summarize the progress to date, and explain current and possible deviations and delays with respect to the Schedule.

2.8 Cost Management

- .1 Prepare a Class "C" estimate at the highest level of detail commensurate with the available information using elemental and additional detailed costs.
- .2 A Class "C" estimate or Refined Indicative Estimate is based on the general description of the end item sought (e.g. equipment, facility) the production/construction experience, and the market conditions. A Class "C" estimate should be sufficient for making the correct investment decision, i.e. selection of a preferred option (sub-option).

2.9 Summary of Deliverables (applicable to all disciplines)

- .1 Topographic and hydrographic survey plans of existing bridge location and surrounding areas which could be affected by any of the alternative highway alignments and bridge locations. PWGSC partial survey of existing conditions in the project area is available.
- .2 'Design Concept' Report which describes preferred option for review and approval:
 - .1 Drawings for all options of bridge designs, including associated road approach alignments, and a summary of information on which the designs are based.
 - .2 Recommendation for optimum bridge design option, including Class "C" cost estimate and cost benefit/life cycle analysis.
 - .3 Complete concept design for preferred option for new bridge and roadway approaches replacement.
 - .4 Design must include provision to maintain two (2) lanes of traffic at all times during construction.
 - .5 Summary of critical design and commissioning issues to be addressed, and provide recommendations for the resolution of conflicts or concerns.
 - .6 Written responses to comments made by PWGSC on previous submissions.
- .3 Investigate and/or verify existing conditions or facilities (i.e.: prepare to-scale drawings or verify the accuracy of existing drawings and other information furnished by PWGSC).
- .4 Presentation to PWGSC Design Review committee describing recommended alternative designs.
- .5 Preliminary geotechnical report and assessment.
- .6 Preliminary Hydraulic report.
- .7 Summary of bridge code requirements and list of authorities having jurisdiction.
- .8 Report on availability and capacity of all services needed by the project.
- .9 Assessment of space available for mobilization and storage.
- .10 Environmental:
 - .1 Provide data for submissions required for approval by authorities having jurisdiction over the project, including Transport Canada, Fisheries & Oceans Canada, Environment Canada and other approvals necessary to proceed with the project.

RS 2 DESIGN CONCEPT (continued)

- .2 Provide the appropriate information in a timely manner requested by PWGSC for their preparation of a Detailed Environmental Impact analysis of the Project to ensure compliance with CEAA 2012.

Allow ten (10) working days for review and evaluation of presentation by Design Review Committee.

Do not proceed to RS 3 Design Development until written permission is received from the PWGSC Departmental Representative.

RS 3 DESIGN DEVELOPMENT

3.1 General

- .1 At the conclusion of this Stage submit complete design development documents. Illustrate major bridge deck and fit-up conditions and critical design details. Constructability issues shall be considered and resolved. Design and performance data shall be sufficiently detailed to establish final systems criteria. Final horizontal and vertical alignment of approaches shall be defined. Design development shall not be deferred to the Contract Documentation Stage.

3.2 Site Investigations

- .1 Requirements:
 - .1 Finalize reports on site investigations.
 - .2 Develop detailed design of space utilization, illustrating traffic circulation patterns for various construction phases.
 - .3 Develop detailed layouts for storage areas.
- .2 Deliverables:
 - .1 Site Plan, including traffic routes, for each phase of construction work.
 - .2 Final geotechnical report and assessment complete with design parameters for substructure and detailed explanations of results and recommendations.
 - .3 Final Hydraulic report with recommendations for design flood level, scour protection, ice loads, bank protection and debris protection.

3.3 Structural

- .1 Requirements:
 - .1 Design horizontal and vertical alignments of the highway approaches to the bridge.
 - .2 Design new bridge structure (including design of piers, (integral) abutments and superstructure system).
 - .3 Itemize the design criteria and load calculations on which the design is based.
 - .4 Design expansion joints (if required) and information on which the design is based.
 - .5 Design deck drainage system and information on which the design is based.
 - .6 Seismic capacity analysis of bridge using response spectrum approach.
 - .7 Design erosion control measures for embankment slopes.
 - .8 Design any necessary river training structures and scour protection for piers.

RS 3 DESIGN DEVELOPMENT (continued)

- .2 Deliverables:
 - .1 Structural Design plans for all of the above.
 - .2 Calculations of Seismic capacity evaluation of entire structure according to CHBDC.
 - .3 List of all NMS sections to be used.
 - .4 Submit outline specifications for all components and equipment. Outline specifications to include manufacturers' literature describing principal system components proposed for use in the project.

- 3.4 Sustainable Development
 - .1 Requirements:
 - .1 Designs and technical details to reflect sustainable strategies.
 - .2 Provide detailed estimates of Construction Costs, detailed quantity calculations, and inventories of material and equipment.
 - .2 Deliverables:
 - .1 Waste Management Report which includes Phase I Waste Audit Plan and Phase II Waste Diversion Action Plan. Report to include:
 - .1 Detailed strategy for the removal and disposal of hazardous waste;
 - .2 Detailed strategy for the disposal of contaminated waste;
 - .3 Detailed strategy for the disposal or reuse of non-contaminated waste;
 - .4 All revisions to provide a record of the process.

- 3.5 Specifications
 - .1 Requirements:
 - .1 Material performance requirement criteria on:
 - .1 Structural reinforcing materials and concrete.
 - .2 High quality steel paints.
 - .2 Deliverables:
 - .1 Listing of critical construction materials and finishes.
 - .2 Outline of all federal government National Master Specifications (NMS) sections to be used. Identify additional specification sections to be used.

- 3.6 Planning and Scheduling
 - .1 Review impact of Design Development Stage on project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update detailed schedules, bar charts, and milestone dates.
 - .2 Progress monitoring and reporting:
 - .1 Submit detailed schedule update on a monthly basis.
 - .2 Submit a written monthly narrative report based on the detailed schedule. This report shall summarize the progress to date, and explain current and possible deviations and delays with respect to the schedule.

- 3.7 Cost Management
 - .1 Upon completion of design development, prepare a Class "B" Estimate based on the increased level of design detail available.

RS 3 DESIGN DEVELOPMENT (continued)

- .2 This Class “B” (Substantive) Estimate shall be based upon updated parameters such as cost, timing and production or construction.
- .3 The Class “B” Estimate shall provide important technical information for the establishment of realistic project objectives, sufficiently accurate to obtain effective project approval (EPA) from Treasury Board, as necessary.
- .4 The Class “B” Estimate shall be prepared using detailed (elemental) costs i.e. Calculated quantities with minimal allowances or lump sums.
- .5 When accepted, the Class "B" Estimate will become the Preliminary Construction Cost Plan.

3.8 Summary of Deliverables (applicable to all disciplines)

- .1 Design development documents completed and submitted for acceptance. Include summary of critical design issues addressed and recommendations/decisions made to resolve conflicts or concerns. Include the identification of private lands required for the western approach.
- .2 Class ‘B’ Construction Cost Estimate for acceptance by PWGSC.
- .3 Updated Project implementation schedule.
- .4 Written responses to PWGSC comments regarding previous submissions.
- .5 The accepted Design Development Documents will be used to monitor subsequent work. Therefore a complete list of decisions required to allow the work to progress shall be included in the final Design Development Documents. Final deliverable for this Stage shall include all revisions as a record of the process.

3.9 Risk Management

The consultant is to provide support to the Departmental Representative in identifying risks throughout the project life cycle.

See “Doing Business with A&ES” for Risk Management “Definitions” and “Checklist”.

Risk Management Process:

- Identify risk events based on past experience and using proposed checklist or other available lists;
- Qualify/quantify probability of risk event (Low, Medium, High) and their impact (Low, Medium, High);
- Prioritize risk events (i.e. concentrate efforts on risk events with High probability and Medium to High impact);
- Develop risk response (i.e. evaluate alternatives for mitigation. This is the real added-value of risk management); and,
- Implement risk mitigation.

Allow ten (10) working days for PWGSC to review and evaluate the Design Development Documents.

Proceed to RS 4 Construction Documents upon receipt of written permission from the Departmental Representative. Take into consideration all revisions; coordinate and modify documents as required, at no additional cost to PWGSC.

RS 4 CONSTRUCTION DOCUMENTS

Construction documents/deliverables for each stage (33%, 66%, 99% and 100%) are to be completed as follows:

4.1 Deliverables for Design Completed to 33% Stage

- .1 Site Studies:
 - .1 Plans showing traffic control with respect to phased construction planning
 - .2 Site plan showing outline of structure(s), staging area(s), storage area(s), road approaches, detours, private lands required, etc.
- .2 Structural and Civil:
 - .1 List of intended working drawings including geotechnical, hydraulic and site plan.
 - .2 Updated estimates and analyses
 - .3 Design loads and calculations
 - .4 33% complete drawings and schematics
- .3 Sustainable Development:
 - .1 Waste Management Plan Construction Documents - 33%.
- .4 Specifications:
 - .1 Submit Draft Sections from each discipline 33 % complete. Draft specification to include all sections required for the project and effective environmental options.
 - .2 Complete list of all NMS master specification sections to be used in the specification.
 - .3 List of specification divisions and sections.
- .5 Project Planning and Scheduling:
 - .1 Review impact of the 33% stage documents on project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update detailed schedules, bar charts, and milestone dates.
 - .2 Progress monitoring and reporting:
 - .1 On a monthly basis complete detailed schedule update and submit a written monthly narrative report based on the detailed schedule.
 - .2 This report should summarize the progress to date, and explain current and possible deviations and delays with respect to schedule.
- .6 Cost Management
 - .1 During the production of the contract documents, maintain a process of continuing cost control in progressively more detail. At each review of contract documents present an up-to-date estimate to demonstrate compliance with the Construction Cost Plan. Construction documents shall be revised as necessary to keep the estimate within the Construction Cost Plan.
 - .2 Update Class "C" cost estimate, explain any discrepancies. Include, as required:
 - .1 Cash allowances.
 - .2 Alternative prices.
 - .3 Separate prices.
 - .4 Unit prices.
 - .5 Pre-tendered items.
 - .6 Post-tender items.
 - .7 Pre-approved items (as administered by PWGSC).

RS 4 CONSTRUCTION DOCUMENTS (continued)

Allow ten (10) working days for PWGSC review and evaluation of 33% Documents.

Do not proceed to RS 4.2 Construction Documents (66%) until written permission is received from the Departmental Representative. Incorporate comments from 33% review into documents once received.

4.2 Deliverables for Design Completed to 66% Stage

- .1 Site Studies:
 - .1 Plans showing traffic control with respect to phased construction planning
 - .2 Site plan showing outline of structure(s), staging area(s), storage area(s), all road approaches and private lands required, detours, etc.
 - .3 Preliminary drawings for all roadway work.
- .2 Structural and Civil:
 - .1 Plans and details for demolition and construction.
 - .2 66% complete drawings and schematics.
 - .3 Design loads and calculations.
 - .4 Preliminary report on seismic capacity evaluation of structure according to CHBDC.
 - .5 Co-ordinate with site plans and with specifications.
 - .6 Draft specifications 66% complete.
 - .7 Proper orientation of plans and north arrows.
 - .8 General Notes including:
 - .1 Design codes used.
 - .2 Design loads.
 - .3 Strength and grades of concrete, steel and other structural elements.
 - .4 Type and grade of reinforcing steels.
 - .5 Type and grade of fasteners.
 - .6 Special construction requirements.
 - .7 Welding requirements.
- .3 Sustainable Development:
 - .1 Waste Management Plan - Construction Documents to 66%.
 - .2 Inclusion of PWGSC Environmental Mitigation Measures - Design and Monitoring Program to 66%.
- .4 Specifications:
 - .1 Complete draft specification sections for each discipline to conform with 66% complete design. Draft specification to include all sections required for the project, including environmental mitigation and compensation works.
- .5 Project Planning and Scheduling:
 - .1 Review impact of the 66% stage documents on project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update detailed schedules, bar charts, and milestone dates.
 - .2 Progress monitoring and reporting:
 - .1 On a monthly basis complete detailed schedule update and submit a written monthly narrative report based on the detailed schedule.

RS 4 CONSTRUCTION DOCUMENTS (continued)

- .2 This report must summarize the progress to date, and explain current and possible deviations and delays with respect to schedule.
- .6 Cost Management:
 - .1 During the production of the contract documents, maintain a process of continuing cost control in progressively more detail. At each review of contract documents present an up-to-date estimate to demonstrate compliance with the Construction Cost Plan. Construction documents shall be revised as necessary to keep the estimate within the Construction Cost Plan.
 - .2 Prepare Class 'B' cost estimate, explain any discrepancies from previous estimates. Include, as required:
 - .1 Cash allowances.
 - .2 Alternative prices.
 - .3 Separate prices.
 - .4 Unit prices.
 - .5 Pre-tendered items.
 - .6 Post tender items.
 - .7 Pre-approved items (as administered by PWGSC).

Allow Ten (10) working days for PWGSC review and evaluation of 66% Documents.

Do not proceed to RS 4.3 Construction Documents (99%) until written permission is received from the Departmental Representative. Incorporate comments from 66% review into documents once received.

4.3 Deliverables for Design Completed to 99% Stage

- .1 General:
 - .1 Submit, for final approval by PWGSC, complete set of working drawings (99% complete).
- .2 Structural and Civil:
 - .1 Incorporate changes/modifications and/or additions recommended in 66% review.
 - .1 99% complete working drawings and schematics.
 - .2 Finalize structural design consistent with recommendations.
 - .3 Bridge deck profile, road grades and drainage scheme to be coordinated and complete.
 - .4 Assemble complete information for all details, sections, plans and schedules.
 - .5 Ensure information on drawings complies with codes, standards and Project Brief.
 - .6 Finalize General Notes to emphasize important features of the work.
 - .7 Ensure quality of documents meets specified standards.
 - .8 Specifications to be 99% complete and consistent with drawings.
 - .9 Submit final report of seismic capacity evaluation of new bridge verifying conformance with CHBDC .
- .3 Sustainable Development:

RS 4 CONSTRUCTION DOCUMENTS (continued)

- .1 Submit deliverables (99% complete) including:
 - .1 Waste Management Plan Construction Documents.
 - .2 Environmental Mitigation Measures Design.
 - .3 Monitoring Program.
- .4 Project Planning and Scheduling:
 - .1 Review impact of the 99% stage documents on project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update detailed schedules, bar charts, and milestone dates.
 - .2 Progress monitoring and reporting:
 - .1 Complete detailed schedule update.
 - .2 Submit a written narrative report based on the detailed schedule. Report shall summarize the progress to date, and explain current and possible deviations and delays with respect to schedule.
 - .3 Update construction schedule.
- .5 Cost Management:
 - .1 Prepare Class 'A' cost estimate based on complete description of each item, and explain any discrepancies from previous estimates.
- .6 Summary of Deliverables at 99% stage (applicable to all disciplines):
 - .1 Class "A" Estimate (Substantive).
 - .2 Provide written responses to comments made by PWGSC for previous submissions.
 - .3 Six (6) printed copies of 99% plans and specifications. Plans and specifications shall be reviewed and signed by respective disciplines.
 - .4 One (1) set of diskette(s) with a complete set of 99% drawings in CADD format and a complete set of 99% specifications in Word format.
 - .5 Update schedule with explanations for any changes in target dates.
 - .6 Incorporate all necessary standard details and master specification clauses from PWGSC into the construction documents.
 - .7 Submit supporting data, studies, calculations, etc. as may be requested by PWGSC for final reviews and record purposes. This information shall be submitted in bound and indexed volumes.
 - .8 Submit final seismic capacity evaluation report.

Allow ten (10) working days for PWGSC review and evaluation of 99% documents. Do not proceed to RS 4.4 Construction Documents (100%) until written permission is received from the Project Manager. Incorporate comments from 99% review into documents once received.

4.4 Deliverables for Design Completed to 100% Stage (Tender Issue)

- .1 General:
 - .1 All drawings and specifications shall be fully coordinated with other disciplines and 100% tender ready.
- .2 Drawings (100%):

RS 4 CONSTRUCTION DOCUMENTS (continued)

- .1 Drawings shall be reviewed, signed and sealed by the Engineer responsible for the design.
- .2 Drawings shall be fully coordinated with other disciplines.
- .3 Drawings shall be fully coordinated with the specifications.
- .4 Drawings shall be complete in every respect.
- .3 Specifications (100%):
 - .1 Specifications shall be complete in every respect, coordinated with the drawings, and 100% tender ready.
- .4 Sustainable Development:
 - .1 Submit deliverables (100% complete) including:
 - .1 Based upon the Detailed Environmental Impact Analysis Final Waste Management Plan Construction Documents.
 - .2 Based upon the Detailed Environmental Impact Analysis Final Environmental Mitigation Measures Design.
 - .3 Based upon the Detailed Environmental Impact Analysis Final Monitoring Program.
 - .5 Project Planning and Scheduling:
 - .1 Review impact of the 100% stage documents on project planning and scheduling.
 - .1 Review, report on, and propose revisions to the proposed plan and schedule.
 - .2 Maintain and update detailed schedules, bar charts, and milestone dates.
 - .2 Progress monitoring and reporting:
 - .1 Complete detailed schedule update
 - .2 Submit a written narrative report based on the detailed schedule. Report shall summarize the progress to date, and explain current and possible deviations and delays with respect to schedule.
 - .3 Update construction schedule.
 - .6 Cost Management:
 - .1 Prepare Class 'A' (Tender Issue) cost estimate based on 100% plans and specifications, and explain any discrepancies from previous estimates.
 - .7 Summary of Deliverables at 100% stage (applicable to all disciplines):
 - .1 Finalize Class "A" Estimate (Substantive).
 - .2 Provide written responses to comments made by PWGSC for previous submission.
 - .3 Six (6) printed copies of "Tender Issue" plans and specifications. Plans and specifications shall be reviewed, signed and sealed by respective disciplines.
 - .4 Six (6) complete 1/2 size sets of "Tender Issue" drawings.
 - .5 Three (3) sets of diskettes, each with a complete set of "Tender Issue" drawings in CADD format and a complete set of "Tender Issue" specifications in Word format.
 - .6 Update schedule with explanations for any changes in target dates.
 - .7 Submit any missing supporting data, studies, calculations, etc. as may be requested by PWGSC for final reviews and record purposes. This information shall be submitted in bound and indexed volumes.

RS 4 CONSTRUCTION DOCUMENTS (continued)

The project funding has been approved to develop the RS 1 through RS 4 services inclusive. Following award of the consultant services contract the consultant shall commence work up to and including all services for RS 1 to RS 4 inclusive at which time the consultant shall cease any further work until PWGSC has confirmed that additional client funding is available. Upon confirmation of additional future year client funding the consultant will be advised in writing to proceed. Should the project not receive approval to proceed this agreement may be terminated in accordance with R1240D.

OPTIONAL SERVICES, including all related costs, services and deliverables to complete the services as specified in the Project Brief documents:

The Consultant hereby grants to Canada an irrevocable option to acquire the services specified below, under the same terms and conditions as contained in the contract, and in accordance with the rates and fees identified. Canada is not obliged to exercise these options. The option shall only be exercised by the Contracting Authority by providing notification in writing through a formal Contract Amendment.

RS 5 TENDER CALL, BID EVALUATIONS & CONSTRUCTION CONTRACT AWARD RECOMMENDATIONS

5.1 Tender Policy

- .1 PWGSC will tender the work for construction publicly through the Government Electronic Tendering Service (GETS).
- .2 Tenders will only be called after the project has approval under the CEA Act (as required).

5.2 Tender Drawings

- .1 The Consultant's "Tender Issue" plans and specifications will be used to produce the contract documents required for tender call. Sets of contract documents will be provided for the Consultant's use during the bidding period.

5.3 Document Distribution

- .1 Tender documents are normally issued to interested Contractors and major sub-trades through GETS.
- .2 The Consultant shall provide PWGSC with any necessary technical information required for addenda. PWGSC will issue all necessary addenda to the recipients of the Tender Documents.

5.4 Tenderers' Briefing Meeting(s)

- .1 PWGSC's Project Manager may call a briefing meeting(s) to clarify the requirements of the Project.
- .2 Questions arising in such meetings will be answered by written addenda.
- .3 Consultant and Sub-consultants shall attend such meetings and the Consultant shall prepare technical information required for addenda for issue by PWGSC.

5.5 Documentation Interpretation

- .1 Provide PWGSC's Project Manager with additional information, and prepare draft addenda, as required to clarify the intent of any of the Construction Documents. PWGSC will issue the addenda to all participants.

RS 5 TENDER CALL, BID EVALUATIONS & CONSTRUCTION CONTRACT AWARD RECOMMENDATIONS (continued)

5.6 Addenda

- .1 Prepare technical information required for addenda to construction documents when necessary, and submit to Project Manager for assembly and issue. Time is of the essence.
- .2 Amendments to Tender Documents will be issued by PWGSC.
- .3 Normally, addenda are issued no later than seven working days before the tenders close.
- .4 Do not respond directly to inquiries from tenderers: refer such inquiries to PWGSC Departmental Representative.

5.7 Tender Opening

- .1 Tenders will be opened at PWGSC district office in St. John's, NL.

5.8 Tender Evaluation

- .1 PWGSC will review and evaluate technical content and bid prices of the tenders, and make recommendations regarding award of the Construction Contract.

5.9 Construction Contract Award

- .1 The Construction Contract is normally awarded to the low tenderer, if the tender and relevant details are acceptable and the necessary official approvals are obtained.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION

6.1 Pre-Construction Project Requirements

- .1 Construction Schedule:
 - .1 After construction Contract Award, the Consultant and the Departmental Representative shall meet with the Contractor to establish the scope of work and approach to construction operations. This meeting will provide an opportunity to emphasize the importance of compliance with the Planning and Scheduling requirements as set out in the Contract Documents.
 - .2 Within five (5) working days of receipt of the initial schedule from the Contractor, the Consultant shall review the information for adequacy and accuracy by comparing it to the Construction Schedule and cost breakdown developed by the Design Consultant prior to Contract Award. The Consultant shall formally report his findings and recommendations to the Project Manager for further discussion with the Contractor.
 - .3 Once accepted, this schedule will be used as the Baseline Construction Schedule.
 - .4 Assist the Project Manager to review and monitor the schedule.
 - .5 Upon receipt of the Contractor's monthly status report, progress claim and up-to-date project schedule, the Consultant shall review the information by:
 - .1 evaluating, on a general basis, actual progress achieved to date; and
 - .2 comparing current Schedule with previous Schedules.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

.2 Shop Drawing Review:

- .1 Submissions: The Consultant must ensure that the Contractor provides adequate numbers of copies of each shop drawing for review. The Contractor will submit shop drawings with enough lead time that he can respond to drawings returned marked "resubmit" without delaying the approved Construction Schedule.
- .2 Contractor's Approval: All shop drawings are to be reviewed and stamped by the Contractor before submission to PWGSC. By applying the stamp of approval, the Contractor warrants that the drawings have been checked and coordinated with the work of all trades, and that they meet all the requirements of the contract documents.
- .3 Consultant's Review: Review shop drawings promptly. Verify that they are clearly detailed and dimensioned, and do not propose substitution of unacceptable construction or materials. Accept/reject shop drawings and return promptly to the Departmental Representative. Ensure that the Contractor understands that review of shop drawings is aimed at verifying compliance with the general design only and that review by the Consultant will not relieve the Contractor of responsibility for accuracy, quantities involved, or for meeting the requirements of the construction documents.
- .4 Interpretation of the technical contract documents shall be the responsibility of the Consultant.

6.2 Administration During Construction

.1 Construction Progress Meetings:

- .1 Take minutes of regular progress meetings appropriate to the progress of the work, distribute minutes promptly and assist Departmental Representative on all technical issues.
- .2 The following should attend:
 - .1 Contractor.
 - .2 Major Sub-contractors (if invited by the Contractor and agreed to by PWGSC).
 - .3 Resident (if the progress meetings are combined with site meetings).
 - .4 Design Consultant and sub-consultants as required.
 - .5 Departmental Representative, and technical support staff as required
- .3 Location and Time: Record meeting location, date, time and required attendance, including those who are absent.
- .4 Agenda: If certain parties are needed to discuss specific issues, ensure that an agenda is prepared and distributed well in advance to all who must attend.
- .5 Previous Minutes: Review previous minutes for errors in fact, omissions or other discrepancies and ensure that minutes of previous meetings are accepted by all parties and that their acceptance is recorded.
- .6 New Business: Discuss and record all items of new business and identify parties designated for action and follow-up.
- .7 Project Schedule: Once the Contractor's Project Schedule has been accepted by PWGSC, it will form the basis for evaluating the progress of the work. Record all scheduling discrepancies and agreed remedial measures.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

- .8 Budget/Expenditures: Once the Project Cost Breakdown has been reviewed by PWGSC's Departmental Representative and by the Consultant, review value of progress of work against the approved cost breakdown. Record all discrepancies and agreed remedial measures.
- .9 Shop Drawings: Monitor and record the progress of shop drawing review. Review, discuss and record problems, and identify agreed remedial action. Record parties designated for action and follow up.
- .10 Adjournment and Next Meeting: Record adjournment time, and the date, time and place of next meeting. If special information is required for the next meeting, record it here so that timely notice can be given to the parties involved.
- .11 Distribution: Prompt distribution of minutes is imperative - minutes are commonly used as a checklist of actions required. Minutes shall be distributed without delay after the meeting.
- .12 Distribution responsibility: Consultant shall be responsible for distributing minutes. Send one copy to the Contractor, who will copy and distribute the minutes within Contractor's organization.
- .2 Testing Services:
 - .1 Ensure that materials and assemblies are tested as required by the Contract Documents. Require tests of any material and construction on site if there is any doubt regarding quality or performance.
 - .2 Obtain pre-approval from PWGSC's Departmental Representative, and arrange and pay for any supplementary inspections and tests necessary to confirm compliance with Contract Documents other than:
 - .1 Inspections required/specified in the specifications.
 - .2 Inspections and testing for Contractor's convenience.
 - .3 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .3 Before work starts on site prepare a proposal for the supplementary testing program with a detailed cost estimate, and submit to PWGSC's Departmental Representative for approval.
 - .4 Selection of inspection services and testing laboratories are to be pre-approved by PWGSC's Project Manager.
 - .5 Consultant will be reimbursed by PWGSC for the costs of supplementary inspections and testing in accordance with TP 10.
 - .6 Review test reports and forward copies to PWGSC's Departmental Representative.
 - .7 Review materials and assemblies and provide report to PWGSC's Project Manager.
 - .8 Ensure that tests and inspections required by the contract documents are conducted, observe these tests, and report on the tests.
 - .9 Notify PWGSC's Departmental Representative immediately if test results do not meet specified requirements, or if the Contractor does not have tests undertaken as required.
- .3 Design Changes:
 - .1 During construction, changes may be required or requested by the Client, PWGSC's Departmental Representative, the Contractor or the Consultant. Where

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

- changes may affect the Construction Schedule, cost, or design, review the issues with PWGSC's Departmental Representative and provide recommendations to minimize additional costs and delays in construction.
- .2 Design and detail all changes and obtain approval for the change from PWGSC's Departmental Representative before the Contractor is instructed to proceed.
 - .4 Construction Changes:
 - .1 All changes, whether additions or deletions, and including those which do not affect the cost of the project, shall be approved by Change Orders in order to provide a complete record of variations from the original Construction Documents.
 - .2 Provide written recommendations to PWGSC's Departmental Representative for Contemplated Change Notices. Provide reasons for, and estimated costs of changes. The PWGSC Departmental Representative will prepare the Contemplated Change Notice and send it to the Contractor for pricing.
 - .3 Review the Contractor's quotation and prepare a recommendation whether or not to proceed with the change at the quoted price. If PWGSC's Departmental Representative decides that the change should proceed, a Change Order will be issued directly to the Contractor. Approval may be required from the PWGSC's Contracts Department.
 - .4 No payment for any change will be considered until a Change Order has been issued.
 - .5 Contractor's Progress Claims:
 - .1 Progress Payments will be made monthly to the Contractor based on the value of completed work. In some cases partial payment for the value of materials delivered, accepted and adequately protected on the site, may be included in Progress Payments.
 - .2 The Progress Payment claim will be prepared by the Contractor and will consist of "Request for Progress Payment" (DPW 1792), "Cost Breakdown" (DPW 1794) and "Statutory Declaration" (DPW 2835).
 - .3 An authorized signing officer of the Contractor will complete and sign Part 1 of the "Request for Progress Payment" (DPW 1792). The date will be the date of transmission to the Consultant.
 - .4 Review the claim, recommend revisions if necessary, and certify value of work done and material delivered to site by signing the Cost Breakdown sheet of the claim (DPW 1794). Forward the claim with recommendations for adjustments if applicable to PWGSC's Departmental Representative for payment within ten (10) days of receipt from the Contractor.
 - .5 PWGSC's Departmental Representative will complete Part 2 - Progress Report of the Request for Progress Payment and will notify the Contractor of any differences between the amount claimed by the Contractor and the amount considered payable by PWGSC. Such differences, if they occur, will not delay payment of the revised amount. Give prompt attention to resolving such differences.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

- .6 A completed Statutory Declaration (DPW 2835) must accompany all progress payment claims. For Progress Claim No. 1, the declaration that lawful obligations to Subcontractors and suppliers are fully discharged will be marked "not applicable". For Progress Claim No. 2 and all further progress claims, the declaration is applicable, and will indicate the end date of the payment period of the immediately preceding progress claim.
- .7 PWGSC's Departmental Representative will provide all necessary forms to the Contractor.
- .6 Inspection and Acceptance Team:
 - .1 Interim Inspection and Interim Certificate:
 - .1 When the Contractor is satisfied that he has achieved substantial completion he will send PWGSC's Departmental Representative a written request for an inspection.
 - .2 Upon receipt of such a request, verify that it is justified and notify the PWGSC's Departmental Representative who then will assemble an Inspection and Acceptance Team, which may include the following:
 - .1 PWGSC's Departmental Representative and technical staff as required.
 - .2 The Consultant: Representatives of the Consultant.
 - .3 The Resident.
 - .4 The Contractor: The Contractor, Project Superintendent and superintendents for the major sub-trades as required and if invited by the Contractor.
 - .3 The Inspection and Acceptance Team will inspect the work, and list all deficiencies and the cost to correct deficiencies on the standard Inspection and Acceptance form No. DPW 1795. A complete list of deficiencies shall be prepared by the Resident and the Consultant and shall be submitted to the PWGSC's Departmental Representative.
 - .4 Consultant shall sign off the cost breakdown sheet (DPW 1994)
 - .5 PWGSC will then accept the project from the Contractor subject to correction of any listed deficiencies and issues an Interim Certificate of Completion form No. DPW 1976.
 - .7 As-built Records:
 - .1 The Contractor is required to provide as-built mark-up drawings of the Project. The Contractor will provide PWGSC with one (1) full set of plans and specifications marked up to show "as-built" conditions.
 - .2 Following take-over, obtain marked-up documents from the Contractor, showing all changes in construction from the original construction documents. Combine this information with all post-contract drawings, Change Orders, and other modifications, to produce a full set of "as-built" drawings suitable for CADD disk copies.
 - .3 Provide two (2) copies of "as-built" specifications in both hard copy and electronic format, marked-up to show actual "as-built" product.
 - .4 Deliver "as-built" records to the PWGSC's Departmental Representative within two (2) weeks of final completion.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

- .8 Final Inspection and Final Certificate:
 - .1 Inform PWGSC's Departmental Representative when satisfied that all work under the Construction Contract has been completed, including the correction of deficiencies listed on the Inspection and Acceptance form following the Interim Inspection. PWGSC's Departmental Representative will make a final inspection of the project together with the Inspection and Acceptance team, similar to the interim stage.
 - .2 Accompany and assist with the final inspection of the project.
 - .3 As a result of the Final Inspection, PWGSC will make a final payment to the Contractor on the basis of the Final Certificate of Completion.
 - .4 For payment to be made, all parties must complete and sign the following documents:
 - .1 DPW 1794 Cost Breakdown
 - .2 DPW 1795 Inspection and Acceptance
 - .3 DPW 1797 Final Certificate of Completion
 - .4 DPW 2835 Statutory Declaration
 - .5 Assemble completed documents and any required supporting documents, sign-off Cost Breakdown sheet and submit to the PWGSC's Departmental Representative for processing.
- .9 Takeover:
 - .1 The official date of take-over of the project from the Contractor is established by the effective date of the Interim Certificate of Completion per the General Conditions of the Contract. Provide PWGSC with original copy of Contractor's warranties in accordance with the specifications. Verify their completeness and extent of coverage.
- .10 Inspection of Materials and Prefabricated Assemblies:
 - .1 Inspect materials, prefabricated assemblies and components at their source or assembly plant when necessary. Provide written reports to PWGSC's Departmental Representative. Arrange and pay for members of the Consultant's team, including sub consultants, to make the required periodic inspections, and for these inspections to be made timely with respect to the progress of the work.
 - .2 The cost of these inspections shall be part of, and included in, this section.
- .11 Field Services by Sub-consultants:
 - .1 Ensure that Sub-consultants inspect their portion of the work at critical times. Sub-consultants shall provide field review services as appropriate for all elements of construction related to geotechnical, structural, civil and roadway work. The purpose of these reviews is to ensure that all installations conform to the plans and technical specifications.

RS 6 NON-RESIDENT SERVICES DURING CONSTRUCTION (continued)

- .2 The cost of these inspections shall be part of, and included in, the fixed fee bid for RS 6.
- .12 Monthly Progress Reports:
 - .1 Provide a written report to PWGSC's Departmental Representative describing the progress of the work and the value of the work completed at the end of each month.
 - .2 The monthly report shall describe activities of the previous month, identify areas of concern and new information received, and shall identify any forecast revisions to the current estimate.
 - .3 The monthly report shall consist of:
 - .1 Narrative;
 - .2 Description of the basis for estimate revision;
 - .3 Description of new information used in the estimate including the date received;
 - .4 Listing of notable inclusions;
 - .5 Listing of notable exclusions;
 - .6 Listing of items/issues carrying significant risk.
- .13 Delays:
 - .1 Assess whether the construction is proceeding on schedule.
 - .2 Immediately notify PWGSC's Departmental Representative of any impending delay which might affect the critical path of the project.
 - .3 Investigate the cause of delay and assess how corrective action being taken might affect other parts of the construction schedule.
 - .4 If the construction schedule is unlikely to be met, advise PWGSC's Departmental Representative in writing.
- .14 Time Extensions:
 - .1 Review Contractor requests for time extensions and provide recommendations to the Departmental Representative.
 - .2 If a time extension is justified, PWGSC's Departmental Representative will issue a Change Order. Only PWGSC approves requests for time extensions.

RS 7 RESIDENT SITE SERVICES DURING CONSTRUCTION

7.1 Description of Services

The purpose of the Resident Site services is to ensure the presence of the Consultant's full-time representative on site to inspect, co-ordinate and monitor all aspects of the work during the construction of the facility, and liaise with the contractor, PWGSC and other agencies as appropriate to the work. More than one person may be required to suit the hours of construction.

The Resident Site Representative shall be a professional engineer licensed or eligible in the province of Newfoundland and Labrador with experience in both highway and bridge construction, with a minimum of ten (10) years experience.

The Resident Site Representative is responsible for providing full time (including overtime) resident inspection for all aspects of the project, maintaining daily records of all construction work placed and to ensure constant communication amongst the PWGSC Property Manager, the Departmental Representative, design agencies, Contractor, Regional Fire Commissioner and the Provincial Department of Labour.

The Resident Site Representative shall:

- be directly responsible to the Consultant.
- become thoroughly familiar with the Contract documents, the National Building code and all Fire Commissioner of Canada Standards for Construction operations (incl. FCC No. 301 dated June 1982 and the Standard for Welding and Cutting FCC No. 302 dated June 1982). He shall also be aware of all Provincial and Municipal standards for the health and safety of construction workers.
- become thoroughly familiar with the requirements of the Consultant Project Brief and project responsibilities of others which relate to his services.

7.2 Specific Duties and Responsibilities

Provide full time resident inspection, co-ordination and monitoring during the construction work and be responsible to the consultant. In addition, the departmental representative may delegate additional responsibilities subject to consultant's agreement.

Maintain daily records of all construction work placed and ensure constant communication amongst PWGSC Property Manager, the Project Manager, the Regional Fire Commissioner, the Consultant, the Contractor, the appropriate Public Works and Government Services Departmental Representative and Consultants.

Co-ordinate and direct an assistant as approved by PWGSC.

In case of Health and Safety emergencies, the Resident Site Representative is empowered to stop the work, or give orders to protect the safety of the workers or Crown property.

RS 7 RESIDENT SERVICES DURING CONSTRUCTION (continued)

7.3 Inspection and Reporting

The Resident Site Representative shall inspect all phases of the work in progress, for the purpose of bringing to the attention of the Contractor, after checking with the Consultant, and Departmental Representative any discrepancies between the work, the contract documents and accepted construction procedures. He shall keep a daily log of such inspections and shall issue a weekly written report to the Consultant, both for distribution, in the form directed. The Resident Site Representative shall make any other reports or surveys as may be requested by the Departmental Representative through the Consultant.

7.4 Interpretation of the Contract Documents

Interpretation of the contract documents shall be the responsibility of the Consultant. The Consultant may, however, have the Resident Site Representative provide him with information regarding job conditions and may require him to relay day-to-day instructions to the contractor.

It shall be the duty of the Resident Site Representative to assist the Consultant and further inform the Consultant of any anticipated problems which may delay the progress of the work. The method of relaying such information shall be determined by the Consultant.

7.5 Changes in the Work

The Resident Site Representative shall not authorize or order any change in the work which will constitute a change in design or in the value of the contract except as delegated by the Departmental Representative.

The Consultant may call upon the Resident Site representative to assist in the evaluation of changes in the work, where knowledge of job conditions is required.

7.6 Communication & Liaison

The Resident Site representative shall:

1. Convey the Consultant's instructions regarding the required standards of workmanship to the Contractor(s).
2. The matter is then to be brought to the attention of the Contractor's Superintendent. Although informal discussions with Sub-trade Superintendents are usually permissible, (but only with the agreement of the Contractor), the Resident Site representative should not deal directly with foreman or tradesmen, or interfere with the progress of the work.
3. Communicate formally with the contractor via memorandum form only. When this form is issued the Resident Site Representative must immediately file copies with PWGSC and the Consultant.
4. Contact the Consultant immediately when it is apparent that information or action is required of the Contractor, e.g. general instructions, clarifications, sample of shop drawing approvals, requisitions, contemplated change orders, site instructions, details, drawings, etc.

RS 7 RESIDENT SERVICES DURING CONSTRUCTION (continued)

Accompany PWGSC representatives on inspections and report to the Consultant requirements, comments or instructions of the PWGSC's Departmental Representative. Note that the Resident Site Representative must accept such requirements, comments or instructions to be provided to him in writing.

5. Consider and evaluate any suggestions or modifications to the documents advanced by the Contractor and immediately report these to the Consultant with comments.
6. The Resident Site Representative will investigate, schedule and approve in writing, all temporary or permanent connections into any of the buildings' systems prior to the work being done. He shall provide advanced forecasts and advise the PWGSC Property Manager of any interruption of normal building services with a minimum twenty-four (24) hours notice prior to the work being undertaken, where this work cannot be done during the silent hours.

7.7 Daily Log

The Resident Site representative shall keep a daily log recording:

1. weather conditions, particularly unusual weather relative to construction activities in progress;
2. major material and equipment deliveries;
3. daily activities and major work done;
4. start, stop or completion of activities;
5. presence of inspection and testing firms, tests taken, results, etc;
6. unusual site conditions experienced;
7. significant developments, remarks, etc;
8. special visitors on site;
9. authorities given contractor to undertake certain or hazardous works
10. environmental incident
11. reports, instructions from Appropriate Authorities Response Actions.

Note: The log is the personal property of the Resident Site representative. Copies of the log book, certified as copies, are to be provided to PWGSC and consultant at the end of the project.

7.8 Weekly Records

The Resident Site representative shall prepare weekly reports for the Consultant in the form directed:

1. progress relative to schedule;
2. major activities commencing or completed during the week; main activities now in progress;
3. major deliveries of materials and/or equipment;
4. difficulties which may cause delays in completion;
5. materials and labour needed immediately;
6. cost estimates of work completed and materials delivered (cost plus contracts);
7. outstanding information or action required by Consultant or PWGSC;
8. work force;
9. weather;
10. remarks;
11. accidents on site;

RS 7 RESIDENT SERVICES DURING CONSTRUCTION (continued)

12. life safety or building hazards caused by the work, the contractor or his agents.

7.9 Site Records

The Resident Site Representative shall maintain orderly and updated files at the site for the use of the PWGSC, Consultant and himself as follows:

1. Contract and Tender Documents.
2. Approved Shop Drawings.
3. Approved Samples.
4. Samples.
5. Site Instructions.
6. Contemplated Change Orders.
7. Change Orders.
8. Memoranda.
9. Test and Deficiency Reports.
10. Correspondence and Minutes of Meeting.
11. Names, addresses, telephone numbers of Client representatives, Consultant and all Contractors, sub-trades key personnel associated with the contract; including home telephone numbers in case of emergencies.

In addition, the Resident Site Representative shall maintain an updated progress schedule. A reproduction of the original contract drawings shall be carefully preserved and shall be kept marked up to date with all addenda, change orders, site instructions, details, as-built conditions, etc., issued subsequent to the award of the contract.

7.10 Inspection of the Work

The Resident Site Representative shall make on site observations and spot checks of the work to determine whether the work, materials and equipment conform with the contract documents and supplementary conditions. The Site consultant's representative shall advise the Contractor of any deficiencies or unapproved deviations via memorandum and report immediately to the Consultant and PWGSC Construction Representative any of these on which the Contractor is tardy or refuses to correct.

The Resident Site Representative shall arrange for the Consultant's architectural, structural, mechanical, electrical and other consultants to make the periodic inspections required by the Consultant's contract, and for these inspections to be made timely with respect to the progress of the work.

The Resident Site Representative shall also report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.

The Resident Site Representative shall assist in the preparation of all deficiency reports, interim, preliminary, and final, in collaboration with the PWGSC and Consultant's representatives.

The Resident Site Representative shall be responsible for the measurement of all work to be done on a unit-cost basis.

RS 7 RESIDENT SERVICES DURING CONSTRUCTION (continued)

7.11 Site Meetings

The Resident Site Representative shall attend all job-site meetings.

7.12 Inspection and Testing

The Resident Site Representative must see that the tests and inspections required by the contract documents are conducted, and should observe these tests and report the results in the daily log.

The Consultant should be notified if the test results do not meet the specified requirements, or if the Contractor does not have tests undertaken as required.

7.13 Emergencies

In the case of emergency where safety of persons or property is concerned or work is endangered by the actions of the contractor of the elements, to safeguard the interests of PWGSC, the Resident Site Representative shall give immediate written notice to the Contractor of the possible hazard. He shall further, if necessary, stop the work or give orders for remedial work, and contact the Consultant immediately for further instruction.

7.14 Limitations

The Resident Site Representative shall not:

1. Authorize deviations from the contract documents.
2. Conduct tests.
3. Approve shop drawings or samples.
4. Advise the user-client in any matter without obtaining guidance from the Consultant.
5. Accept any work or portions of the building.
6. Enter into the area of responsibility of the Contractor's Field Superintendent.
7. Stop the work unless convinced that an emergency exists as noted above.

7.15 Hazardous Construction Operations

It is the duty of the Resident Site Representative to examine all site conditions and methods to be used by the Contractor undertaking hazardous operations.

Give written authority to undertake hazardous operations to the Contractor, when fully satisfied that all necessary precautions and acts have been taken by the Contractor to safeguard the life safety of the workers and building occupants and Crown property. Written authority shall be countersigned by the Contractor to acknowledge that the latter is aware of the Resident Site representative's instructions and requirements and both parties will retain copies of the authority document signed mutually by them.

The Resident Site Representative shall inspect the areas where hazardous work is under way to ensure that the Contractor is maintaining the agreed safety standards. Any infractions may result in the Resident Site Representative stopping the work. All infractions, or work stoppages ordered shall be reported in writing and verbally to the Consultant and PWGSC Departmental Representative.

RS 8 WARRANTY REVIEW

- 8.1 The warranty period commences at the time of the Interim Certificate of Completion and extends for a period of twelve (12) months. During this period the consultant shall investigate and address any warranty items/ problems with the contractor. Prior to the end of the warranty period the consultant shall carry out a warranty inspection with the necessary specialists and sub-consultants, review with the PWGSC Departmental Representative and address with the contractor.

Doing Business



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- Appendix 'D' User Manual on Directory Structure and Naming Conventions Standards for Construction Tender Documents on CDROM, dated May 2005
- Appendix 'E' Basic Reference Guide on Converting Construction Drawings into Portable Document Format (PDF), dated May 2005

SECTION 1 INTRODUCTION

This document must be used in conjunction with the Terms of Reference (TOR), as the two documents are complimentary. The TOR describes project-specific requirements while this document deals with information common to all projects. In case of a conflict between the two documents, the requirements of the TOR override this document.



SECTION 2 PWGSC NATIONAL CADD STANDARD

Drawings shall be in accordance with PWGSC National CADD Standards and Canadian Standards Association (CSA) B78.3.

Refer to:

<http://www.tpsgc-pwgsc.gc.ca/cadd-standards/text/index-e.html>

The above link is subject to change. The Consultant shall check with the Project Manager to ensure that the link and related information are current and relevant with regards to PWGSC National CADD Standards.

SECTION 3 GUIDE TO PREPARATION OF CONSTRUCTION DOCUMENTS FOR PWGSC

1 Purpose

This document provides direction in the preparation of construction contract documents (namely specifications, drawings and addenda) for Public Works and Government Services Canada (PWGSC).

Drawings, specifications and addenda must be complete and clear, so that a contractor can prepare a bid without guesswork. Standard practice for the preparation of construction contract documents requires that:

- drawings are the graphic means of showing work to be done, as they depict shape, dimension, location, quantity of materials and relationship between building components.
- specifications are written descriptions of materials and construction processes in relation to quality, colour, pattern, performance and characteristics of materials, installation and quality of work requirements.
- Addenda are changes to the construction contract documents or tendering procedures, issued during the tendering process.

2 Principles of PWGSC Contract Documents

PWGSC's contract documents are based on common public procurement principles. PWGSC does not use Canadian Construction Document Committee (CCDC) documents.

The terms and conditions are prepared and issued by PWGSC as well as other related bidding and contractual documents. For information, the clauses are available on the following web site: <http://sacc.pwgsc.gc.ca/sacc/query-e.jsp>. Any questions should be directed to the Project Manager.

3 Quality Assurance

Consultants are required to undertake their own quality control process and must review, correct and coordinate (between disciplines) their documents before sending them to PWGSC.



SPECIFICATIONS

1 National Master Specification

The National Master Specification (NMS) is a master construction specification available in both official languages, which is divided into 48 Divisions and used for a wide range of construction and/or renovation projects. In preparing project specifications, the Consultant must use the current edition of the NMS in accordance with the "NMS User's Guide".

The Consultant retains overriding responsibility for content and shall edit, amend and supplement the NMS as deemed necessary to produce an appropriate project specification free from conflict and ambiguity.

2 Specification Organization

Narrowscope sections describing single units of work are preferred for more complex work, however, broadscope sections may be more suitable for less complex work. Use either the NMS 1/3 - 2/3 page format or the Construction Specifications Canada full-page format.

Start each Section on a new page and show Project Number, Section Title, Section Number and Page Number on each page. Specification date, project title, and consultant's name are not to be indicated.

3 Terminology

Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect. "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.

Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", should not be indicated in the specifications as this promotes inaccurate and inflated bids. Specifications must permit bidders to calculate all quantities and bid accurately. If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices). Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

4 Dimensions

Dimensions are to be in metric only (no dual dimensioning).

5 Standards

As references in the NMS may not be up to date, it is the responsibility of the consultant to ensure that the project specification uses the latest applicable edition of all references quoted. The following is a list of some of the Internet websites which provide the most current publications of standards for reference in the construction specification document.

- CSA standards: <http://www.csa.ca>
- CGSB standards: <http://www.pwgsc.gc.ca/cgsb>



- ANSI standards: <http://www.ansi.org>
- ASTM Standards: <http://www.astm.org>
- ULC standards: <http://www.ulc.ca>
- General reference of standards: <http://www.cssinfo.com>

The NMS website (www.pwgsc.gc.ca/nms) also links to other documents references in the NMS under its "Links" feature.

6 Specifying Materials

The practice of specifying actual brand names, model numbers, etc., is against departmental policy except for special circumstances. The method of specifying materials shall be by using recognized standards such as those produced by Canadian Gas Association (CGA), Canadian General Standards Board (CGSB), Canadian Standards Association (CSA), and Underwriters' Laboratories of Canada (ULC), or by trade associations such as Canadian Roofing Contractors' Association (CRCA) and Terrazzo, Tile, Marble Association of Canada (TTMAC). Canadian standards should be used wherever possible.

If the above method cannot be used and where no standards exist, specify by a non-restrictive, non-trade name "prescription" or "performance" specifications.

In exceptional or justifiable circumstances or if no standards exist and when a suitable non-restrictive, non-trade name "prescription" or "performance" specification cannot be developed, specify by trade name. Include all known materials acceptable for the purpose intended, and in the case of equipment, identify by type and model number.

Acceptable Materials: set up the paragraph format as follows:

Acceptable Materials:

1. ABC Co. Model [_____].
2. DEF Co. Model [_____].
3. GHI Co. Model [_____].

Alternative materials to those specified may be considered during the solicitation period, however, the onus will be on the Consultant to review and evaluate all requests for approval of alternative materials.

The term "Acceptable Manufacturers" should not be used, as this restricts competition and does not ensure the actual material or product will be acceptable. A list of words and phrases that should be avoided is included in the NMS User's Guide.

Sole Sourcing: Sole sourcing for materials and work can be used for proprietary systems (ie. fire alarm systems, EMCS systems). **Substantiation and/or justification will be required.**

Wording for the sole source of work should be in Part 1 as:

"Designated Contractor

- .1 Hire the services of [_____] to do the work of this section."



Wording for the sole source of EMCS systems should be in Part 1 as

“Designated Contractor

- .1 Hire the services of [] or its authorized representative to complete the work of all EMCS sections.”

and in Part 2 as “Materials

- .1 There is an existing [] system presently installed in the building. All materials must be selected to ensure compatibility with the existing [] system.

Wording for the sole source of materials (ie. fire alarm systems) should be in Part 2 as:

“Acceptable materials

- .1 The only acceptable materials are [] .”

Prior to including sole source materials and/or work, the Consultant should contact the Project Manager to obtain the approval for the sole sourcing.

7 Unit Prices

Unit prices are used where the quantity can only be estimated (eg. earth work) and the approval of the Project Manager must be sought in advance of their use.

Use the following wording:

[The work for this section] or [define the specific work if required, e.g. rock excavation] will be paid based on the actual quantities measured on site and the unit prices stated in the Bid and Acceptance Form.

In each applicable NMS section, replace paragraph title "Measurement for Payment" with "Unit Prices”.

Sample of Unit Price Table:

The Unit Price Table designates the Work to which a Unit Price Arrangement applies.

- (a) The Price per Unit and the Estimated Total Price must be entered for each Item listed.
- (b) Work included in each item is as described in the referenced specification section.

Item	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit GST/HST extra	Estimated Total Price GST / HST extra
TOTAL ESTIMATED AMOUNT						
Transfer amount to subparagraph 1)(b) of BA03						

8 Cash Allowances

Construction contract documents should be complete and contain all of the requirements for the



contractual work. Cash allowances are to be used only under exceptional circumstances (i.e. utility companies, municipalities), where no other method of specifying is appropriate. Obtain approval from the Project Manager in advance to include cash allowances and then use "Section 01 21 00 - Allowances" of the NMS to specify the criteria.

9 Warranties

It is the practice of PWGSC to have a 12 month warranty and to avoid extending warranties for more than 24 months. When necessary to extend beyond the 12 month warranty period provided for in the General Conditions of the contract, use the following wording in Part 1 of the applicable technical sections, under the heading "Extended Warranty":

- "For the work of this Section [____], the 12 month warranty period is extended to 24 months.
- Where the extended warranty is intended to apply to a particular part of a specification section modify the above as follows: "For [____] the 12 month ... [____] months."

Delete all references to manufacturers' guarantees.

10 Scope of Work

No paragraphs noted as "Scope of Work" are to be included.

11 Summary and Section Includes in Part -1 General of Section

Do not use "Summary" and "Section Includes."

12 Related Sections

In every section of the specification at 1.1 "Related Sections": coordinate the list of related sections and appendices. Ensure co-ordination among the sections of the specification and ensure not to reference any section or appendices which do not exist.

13 Index

List all the plans and specification sections with correct number of pages, section names and correct drawing titles in the format shown in Appendix A.

14 Regional Guide

The Consultant should contact the Project Manager to obtain the region's requirements for Division 01 or other short form specifications as might be appropriate. For example, it is required in the National Capital Region that regional Section 01 00 10 - General Instructions be used on all projects.

15 Health and Safety

It is required that all project specifications include "Section 01 35 29.06 - Health and Safety Requirements." Confirm with the Project Manager to determine if there are any instructions to meet regional requirements.

16 Designated Substances Report



Include “Section 01 14 25 - Designated Substances Report”

17 Subsurface Investigation Reports

Subsurface Investigation Report(s) are to be included after Section 31 and the following paragraph should be added to Section 31:

Subsurface investigation report(s)

.1 Subsurface investigation report(s) are included in the specification following this section.

When the Project Manager determines that it is not practical to include the subsurface investigation report(s), alternate instructions will be provided.

Where tender documents are to be issued in both official languages, the subsurface investigation report(s) shall be issued in both languages.

In addition to the provision of the Subsurface Investigation Report, the foundation information required by the National Building Code of Canada 2005 (Division C, Part 2, 2.2.4.6) shall be included on foundation drawings.

18 Experience and Qualifications

Remove experience and qualification requirements from specification sections.

19 Prequalification and Pre-award submissions

Do not include in the specification any mandatory contractor and/or subcontractor prequalification or pre-award submission requirements that could become a contract award condition. If a prequalification process or a pre-award submission is required, contact the Project Manager.

There should be no references to certificates, transcripts or license numbers of a trade or subcontractor being included with the bid.

20 Contracting Issues

Specifications describe the workmanship and quality of the work. Contracting issues should not appear in the specifications. Division 00 of the NMS is not used for PWGSC projects.

Remove all references within the specifications, to the following:

- General Instructions to Bidders
- General Conditions
- CCDC documents
- Priority of documents
- Security clauses
- Terms of payment or holdback
- Tendering process
- Bonding requirements
- Insurance requirements



- Alternative and separate pricing
- Site visit (Mandatory or Optional)
- Release of Lien and deficiency holdbacks

DRAWINGS

1 Title Blocks

Use PWGSC title block for drawings and sketches (including addenda).

2 Dimensions

Dimensions are to be in metric only (no dual dimensioning).

3 Trade Names

Trade names on drawings are not acceptable. Refer to SECTION 3, SPECIFICATIONS, 6.0 Specifying Materials for specifying materials by trade name.

4 Specification Notes

No specification type notes are to appear on any drawing.

5 Terminology

Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect. "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.

Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", should not be indicated in the specifications as this promotes inaccurate and inflated bids. Specifications must permit bidders to calculate all quantities and bid accurately. If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices). Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

6 Information to be included

Drawings should show the quantity and configuration of the project, the dimensions and details of how it is constructed. There should be no references to future work and no any information that will be changed by future addenda. The scope of work should be clearly detailed and elements not in contract should be eliminated or kept to an absolute minimum.

7 Drawing Numbers: Number drawings in sets according to the type of drawing and the discipline involved as follows (The requirements of SECTION 2 PWGSC NATIONAL CADD STANDARD will supercede these requirements, where warranted).

During the Design Phase of the project each submission and review must be noted on the Notes block of the drawing title, but at the time of construction document preparation, all revision notes should be removed.

Discipline	Drawing
Demolition	D1, D2, etc.
Architectural	A1, A2, etc.
Civil	C1, C2, etc.
Landscaping	L1, L2, etc.
Mechanical	M1, M2, etc.
Electrical	E1, E2, etc.
Structural	S1, S2, etc.
Interior Design	ID1, ID2, etc.

- 8 Presentation Requirements:** Present drawings in sets comprising the applicable demolition, architectural, structural, mechanical and electrical drawings in that order. All drawings should be of uniform standard size.
- 9 Prints:** Print with black lines on white paper. Blue prints are acceptable for document submissions at 33%, 66% and 99% stages. Confirm with Project Manager the size of prints to be provided for review purposes.
- 10 Binding:** Staple or otherwise bind prints into sets. Where presentations exceed 20 sheets, the drawings for each discipline may be bound separately for convenience and ease of handling.
- 11 Legends:** Provide a legend of symbols, abbreviations, references, etc., on the front sheet of each set of drawings or, in large sets of drawings, immediately after the title sheet and index sheets.
- 12 Schedules:** Where schedules occupy entire sheets, locate them next to the plan sheets or at the back of each set of drawings for convenient reference. See *CGSB 33-GP-7 Architectural Drawing Practices for schedule arrangements*.
- 13 North Points:** On all plans include a north point. Orient all plans in the same direction for easy cross-referencing. Wherever possible, lay out plans so that the north point is at the top of the sheet.
- 14 Drawing Symbols:** Follow generally accepted drawing conventions, understandable by the construction trades, and in accordance with PWGSC publications.



ADDENDA

1 Format

Prepare addenda using the format shown in Appendix B. No signature type information is to appear.

Every page of the addendum (including attachments) must be numbered consecutively. All pages must have the PWGSC project number and the appropriate addendum number. Sketches shall appear in the PWGSC format, stamped and signed.

No Consultant information (name, address, phone #, consultant project # etc.) should appear in the addendum or its attachments (except on sketches).

2 Content

Each item should refer to an existing paragraph of the specification or note/detail on the drawings. The clarification style is not acceptable.

DOCUMENTATION

Translation

When required, all documentation included in the construction contract documents shall be in both official languages.

Ensure that English and French documents are equal in all respects. There can be no statement that one version takes precedence over the other.

Consultant shall provide:

- Per construction document submission, a completed and signed Checklist for the Submission of Construction Documents. See Appendix 'A'.
- Specification: originals printed one side on 216 mm x 280 mm white bond paper.
- Index: as per Appendix 'C'
- Addenda (if required): as per Appendix 'B' (to be issued by PWGSC).
- Drawings: reproducible originals, sealed and signed by the design authority.
- Tender information:
 - Including a description of all units and estimated quantities to be included in unit price table.
 - Including a list of significant trades including costs. PWGSC will then determine which trades, if any, will be tendered through the Bid Depository.
 - Government Electronic Tendering System (MERX): Consultants to provide an electronic true copy of the final documents (specifications and drawings) on one or multiple CD-ROM in Portable Document Format (PDF) without password protection and printing restrictions. The electronic copy of drawings and



specifications is for bidding purposes only and do not require to be signed and sealed. See Appendix 'D' and Appendix 'E'.

PWGSC shall provide:

- General and Special Instructions to Bidders
- Bid and Acceptance Form
- Standard Construction Contract Documents

SECTION 4 CLASSES OF CONSTRUCTION COST ESTIMATES USED BY PWGSC

DESCRIPTION OF THE CLASSES OF ESTIMATES USED BY PWGSC FOR CONSTRUCTION COSTING OF BUILDINGS PROJECTS

Class 'D' (Indicative) Estimate:

Based upon a comprehensive statement of requirements, and an outline of potential solutions, this estimate is to provide an indication of the final project cost, and allow for ranking all the options being considered.

Submit Class D cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors with cost per m² for current industry statistical data for the appropriate building type and location. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class D cost estimate shall be such that no more than a 20% contingency allowance is required.

Class 'C' Estimate:

Based on a comprehensive list of requirements and assumptions, including a full description of the preferred schematic design option, construction/design experience, and market conditions. This estimate must be sufficient for making the correct investment decision.

Submit Class C cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors with cost per m² for current industry statistical data for the appropriate building type and location. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class C cost estimate shall be such that no more than a 15% contingency allowance is required.

Class 'B' (Substantive) Estimate:

Based on design development drawings and outline specifications, which include the design of all major systems and subsystems, as well as the results of all site/installation investigations. This estimate must provide for the establishment of realistic cost objectives and be sufficient to obtain effective project approval.

Submit Class B cost estimates in elemental cost analysis format latest edition issued by the Canadian Institute of Quantity Surveyors. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.



The level of accuracy of a class B cost estimate shall be such that no more than a 10% design contingency allowance is required.

Class 'A' (Pre-Tender) Estimate:

Based on completed construction drawings and specifications prepared prior to calling competitive tenders. This estimate must be sufficient to allow a detailed reconciliation/negotiation with any contractor's tender.

Submit Class A cost estimates in both elemental cost analysis format and trade divisional format latest edition issued by the Canadian Institute of Quantity Surveyors. Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.

The level of accuracy of a class A cost estimate shall be such that no more than a 5% design contingency allowance is required.

SECTION 5 TIME MANAGEMENT

1 Time Management, Planning, and Control

The Time Management, Planning, and Control Specialist (scheduler) shall provide a Project Planning and Control System (Control System) for Planning, Scheduling, Progress Monitoring and Reporting and a Time Management, Planning, and Control Report (Progress Report). It is required that a fully qualified and experienced Scheduler play a major role in providing services in the development and monitoring of the project schedule.

The scheduler will follow good industry practices for schedule development and maintenance as recognized by the Project Management Institute (PMI).

PWGSC presently utilizes the Primavera Suite software and MicroSoft Project for its current Control Systems and any software used by the consultant should be fully integrated with these, using one of the many commercially available software packages.

1.1 Schedule Design

Project Schedules are used as a guide for execution of the project as well as to communicate to the project team when activities are to happen, based on network techniques using Critical Path Method (CPM).

When building a Control System you must consider:

1. The level of detail required for control and reporting;
2. The reporting cycle- monthly and what is identified in the Terms of Reference, but also includes Exception Reports;
3. That the duration must be in days;
4. What is required for reporting in the Project Teams Communications Plan and
5. The nomenclature and coding structure for naming and reporting requirements of activities, schedules and reports.

1.2 Schedule Development

For purposes of monitoring and reporting of project progress and ease of schedule review it is important to maintain a standard for all schedules and reports starting with the Work Breakdown Structure (WBS), identification of Milestones, naming of activities as well as schedule outputs and paper sizing and orientation.

Work Breakdown Structure

When developing the schedule the consultant needs to use PWGSC standards and practices. Two basic requirements are the National Project Management System (NPMS) and a Work Breakdown Structure (WBS), structured supporting the NPMS (Levels 1-4).

The WBS is as follows:

- Level 1 Project Title (NPMS)
- Level 2 Project Stage (NPMS)
- Level 3 Project Phase (NPMS)
- Level 4 Processes to meet Deliverables/Control Points Milestones (NPMS)
- Level 5 Sub-Processes and Deliverables in support of Level 4
- Level 6 Discrete activities. (Work Package)

Not all the Stages, Phases and Processes in the NPMS will be required on all the projects, however the structure remains the same.

Major and Minor Milestones

The Major Milestones are standard Deliverables and Control Points within NPMS and are required in all schedule development. These Milestones will be used in Management Reporting within PWGSC as well as used for monitoring project progress using Variance Analysis. The Minor milestones are process deliverables (Level 4) or sub-process deliverables (level 5) also used in Variance Analysis.

Each Milestone will also be assigned appropriate coding for Status Reporting and Management Reporting.

Milestones must have zero duration and are used for measuring project progress.

Milestones may also be external constraints such as the completion of an activity, exterior to the project, affecting the project.

Activities

All activities will need to be developed based on Project Objectives, Project Scope , Major and Minor Milestones, meetings with the project team and the scheduler's full understanding of the project and it's processes.



Subdivide the elements down into smaller more manageable pieces that organize and define the total scope of work in Levels 5-6 that can be scheduled, costed, monitored and controlled. This process will develop the Activity List for the project.

Each activity is a discrete element of work and is the responsibility of one person to perform.

Each activity will describe the work to be performed using a verb and noun combination (i.e. Review Design Development Report).

Activities should not have durations longer than 2 update cycles, with exception of activities not yet defined in a "Rolling Wave".

Each activity will be assigned at WBS level 6 and appropriately coded for Status Reporting and Management Reporting.

These elements will become activities, interdependently linked in Project Schedules.

Project Logic

Once the WBS, Milestones and Activity List have been developed the activities and milestones can be linked in a logical manner starting with a Project Start Milestone. Every activity and milestone must be linked in a logical manner using either a Finish to Start (FS), Finish to Finish (FF), Start to Start (SS) or Start to Finish (SF) relationship. There can be no open-ended activities or milestones.

A Finish to Start (FS) is the preferred relationship.

When developing relationships avoid the use of lags and constraints in place of activities and logic.

Activity Duration

The activity duration (in days) is the estimated length of time it will take to accomplish a task.

Consideration needs to be taken in how many resources are needed and are available, to accomplish any activity. (Example: availability of Framers during a "Housing Boom".) Other factors are the type or skill level of the available resources, available hours of work, weather etc.

There will be several types of lists and schedules produced from this process, which will form part of the Progress Report.

Activity List

An Activity List identifies all activities including milestones required to complete the whole project.

Milestone List

A Milestone List identifies all project Major and Minor milestones.

Master Schedule

A Master Schedule is a schedule used for reporting to management at WBS level 4 and 5 that identifies the major activities and milestones derived from the detailed schedule. Cash Flow projections can be assigned at WBS level 5 for monitoring the Spending Plan.

Detailed Project Schedule

A Detailed Project Schedule is a schedule in reasonable detail (down to WBS Level 6 and 7) for progress monitoring and control, this will ensure that the schedule shall be in sufficient detail to ensure adequate planning and control.

1.3 Schedule Review and Approval

Once the scheduler has identified and properly coded all the activities; put them into a logical order and then determined the appropriate durations. The scheduler can then analyze the schedule to see if the milestone dates meet the contractual requirements and then adjust the schedule accordingly by changing durations, resource leveling or changing logic.

When the schedule has been satisfactorily prepared the scheduler can present the detailed schedule to the Project Team for approval and be Baseline. There may be several iterations before the schedule meets with the Project Teams agreement and the contractual requirements.

The final agreed version must be copied and saved as the Baseline to monitor variances for reporting purposes.

1.4 Schedule Monitoring and Control

Once Baseline the schedule can be better monitored, controlled and reports can be produced.



Monitoring is performed by, comparing the baseline activities % complete and milestone dates to the actual and forecast dates to identify the variance and record any potential delays, outstanding issues and concerns and provide options for dealing with any serious planning and scheduling issues in report form.

Analyze and report from early start sequence on all activities due to start, underway, or finished for the complete project.

There will be several reports generated from the analysis of the baseline schedule and will form part of the Time Management Report in the Required Services Sections (RS)

Progress Reports

A Progress Report reflects the progress of each activity to the date of the report, any logic changes, both historic and planned, projections of progress and completion the actual start and finish dates of all activities being monitored.

The Progress Report includes:

A Narrative Report, detailing the work performed to date, comparing work progress to planned, and presenting current forecasts. This report should summarize the progress to date, explaining current and possible deviations and delays and the required actions to resolve delays and problems with respect to the Detail Schedule, and Critical Paths.

Narrative reporting begins with a statement on the general status of the project followed by a summarization of delays, potential problems and project status criticality, any potential delays, outstanding issues and concerns and options for dealing with any serious planning and scheduling issues.

A Variance Report, with supporting schedule documentation, detailing the work performed to date, comparing work progress to planned. This report should summarize the progress to date, explaining all causes of deviations and delays and the required actions to resolve delays and problems with respect to the Detail Schedule, and Critical Paths.

A Criticality Report identifying all activities and milestones with negative, zero and up to five days Total Float used as a first sort for ready identification of the critical, or near critical paths through the entire project.

Included in the Progress Report as attachments are: WBS chart, Activity Lists, Milestone Lists, Master Schedules, Detailed Project Schedule

Exception Report



The Scheduler is to provide continuous monitoring and control, timely identification and early warning of all unforeseen or critical issues that affect or potentially affect the project.

If unforeseen or critical issues arise, the Scheduler will advise the Project Manager and submit proposed alternative solutions in the form of an Exception Report.

An Exception Report will include sufficient description and detail to clearly identify:

1. Scope Change: Identifying the nature, reason and total impact of all identified and potential project scope changes affecting the project.
2. Delays and accelerations: Identifying the nature, the reason and the total impact of all identified and potential duration variations.
3. Options Enabling a Return to the project baseline: Identifying the nature and potential effects of all identified options proposed to return the project within baselined duration.

1.5 Standard Submissions

At each submission or deliverable stage provide a complete and updated Progress Report, the contents of each report will vary with requirements and at each project phase. Typically a Progress Report has:

1. Executive Summary;
2. Narrative Report;
3. Variances Report;
4. Criticality Report;
5. Exception Report (as required)
6. Work Breakdown Structure Chart;
7. Activity List;
8. Milestone List;
9. Master Schedule with Cash Flow Projections;
10. Detail Project Schedule (Network Diagram or Bar Charts);

1.6 Schedule Outputs and Reporting Formats

The sheet sizing and orientation is more a suggestion that a role, changes to the paper format may vary to accommodate the information and column information required.

Progress Reports

Paper Size: Letter

Paper Format: Portrait

Title Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Body Text: Narratives for each report to match other reports generated in the D.S.S.

Variance Report Columns: Activity ID, Activity Name, Planned Finish, Revised Finish, Variance, Activity % Complete,

Criticality Report Columns: Activity ID, Activity Name, Duration, Start, Finish, Activity % Complete, Total Float.

Exception Reports

Paper Size: Letter

Paper Format: Portrait

Title Format: Project Title; Report Type; Print Date; Data Date; Revision

Body Text: Narrative to match other reports generated in the D.S.S.

Paper Size: Letter

Paper Format: Landscape

Title Format: Project Title; Report Type; Print Date; Data Date; Revision

Columns: Activity ID, Activity Name, Duration, Remaining Duration, Start, Finish, Total Float.

Work Breakdown Structure (indent tree):

Paper Size: Letter

Paper Format: Portrait

Columns: WBS Code, WBS Name, Duration, Cost estimate, start and finish dates.

Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Activity Lists

Paper Size: Letter

Paper Format: Portrait

Columns: Activity ID, Activity Name, Start, Finish, Predecessor, Successor.

Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

Milestone Lists

Paper Size: Letter
Paper Format: Portrait
Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Start, Finish.

Sort with Early Start, then Early Finish, then Activity ID and without the WBS.

Master Schedule (Bar Chart)

Paper Size: 11X17
Paper Format: Landscape
Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish, Total Float.

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

Detailed Project Schedules (Bar Chart)

Paper Size: 11X17
Paper Format: Landscape
Footer Format: Project Title; Report Type; Print Date; Data Date; Revision Block
Columns: Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish, Total Float.

Sort with Early Start, then Early Finish, then Activity ID and with the WBS.

APPENDIX 'A' - Checklist for the Submission of Construction Documents to PWGSC

Last updated April 22, 2008

Date:		
Project Title:	Project Location:	
Project Number:	Contract Number:	
Consultant's Name:	PWGSC Project Manager:	
Review Stage:		
66%	99%	100%

Item	Verified by:	Comments:	Action by:
Specifications:			
1 National Master Specifications			
1a The current edition of the NMS has been used.			
2 Specification Organization			
2a Either the NMS 1/3 - 2/3 page format or the Construction Specifications Canada full page format is used.			
2b Each Section starts on a new page and the Project Number, Section Title, Section Number and Page Number show on each page.			
2c Specification date and consultant's name are not indicated.			
3 Terminology			
3a The term Departmental Representative is used instead of Engineer, PWGSC, Owner, Consultant or Architect.			
3b Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to", "equivalent to" and "to be determined on site by" are not used.			
4 Dimensions			
4a Dimensions are provided in metric			



only.			
5 Standards			
5a The latest edition of all references quoted is used.			
6 Specifications Materials			
6a The method of specifying materials uses recognized standards. Actual brand names and model numbers are not specified.			
6b Identify if non-restrictive, non-trade name “prescription” or “performance” specifications are used.			
6c Indicate if a list of acceptable materials have been used.			
6d The term “Acceptable Manufacturers” is not used.			
6e Indicate if sole sourcing has been used.			
7 Unit Prices			
7a Unit prices are used only for work that is difficult to estimate.			
8 Cash Allowances			
8a Indicate if cash allowances have been used.			
9 Warranties			
9a Indicate if warranties extend more than a 12 or 24 months period.			
9b Manufacturers guarantees are not indicated.			
10 Scope of Work			
10 No paragraphs noted as “Scope of Work” are included.			
11 Summary and Section Includes			
11a In part 1 of section, paragraphs “Summary” and “Section Includes” are not used.			
12 Related Sections			
12a The list of related sections and appendices are coordinated.			
13 Index			
13a The index shows a complete list of plans and specification sections with the correct number of pages and correct drawing titles and section names.			
14 Regional Guide Specifications			

14a General Instructions is included (Section 01 00 10 in the NCA).			
15 Health and Safety			
15a Section 01 35 29.06 - Health and Safety Requirements is included.			
16 Designated Substances Report			
16 a Section 01 14 25 - Designated Substances Report is included.			
17 Subsurface Investigation Reports			
17a Subsurface Investigation Reports are included in Division 31.			
18 Experience and qualifications			
18a Experience and qualification requirements do not appear in the specification sections			
19 Pre-qualifications			
19a There are no mandatory contractor and/or subcontractor pre-qualification requirements or references to certificates, transcripts or license numbers of a trade or subcontractor being included in the bid.			
20 Contracting Issues			
20a Contracting issues do not appear in the specifications.			
20b Division 00 of the NMS is not used.			
21 Quality Issues			
21a There are no specification clauses with square brackets “[]” or lines “__” indicating that the document is incomplete or missing information.			

Item	Verified by:	Comments:	Action By:
Drawings:			
1 Title Blocks			
1a The PWGSC title block is used.			
2 Dimensions			
2a Dimensions are provided in metric only.			
3 Trade Names			
3a Trade names are not used.			
4 Specification Notes			
4a There is no specification type notes.			
5 Terminology			
5a The term Departmental Representative is used instead of Engineer, PWGSC, Owner, Consultant or Architect.			
5b Notations such as: “verify on site”, “as instructed”, “to match existing”, “example”, “equal to”, “equivalent to” and “to be determined on site by” are not used.			
6 Information to be included			
6a The project quantity and configuration, dimensions and construction details are included.			
6b References to future work and elements not in contract do not appear or are kept to an absolute minimum and clearly marked.			



I confirm that the plans and specifications have been thoroughly reviewed and that the items listed above have been addressed or incorporated. I acknowledge and accept that by signing certifying that all items noted above have been addressed, should it be found during the tendering of these documents or implementation of the project, that the items above were not properly addressed, my firm will be responsible to resolve all related issues at my firm's expense and may receive an unsatisfactory consultant performance evaluation which could have an impact on my firm's ability to obtain work from PWGSC in the future.

Consultant's Representative: _____

Firm name: _____

Signature: _____

Date: _____

APPENDIX 'B' - Sample of Addendum

Last updated April 22, 2008

ADDENDUM No. _____

Project Number: _____

The following changes in the bid documents are effective immediately. This addendum will form part of the contract documents

DRAWINGS

SPEC NOTE: indicate drawing number and title, then list changes or indicate revision number and date, and re-issue drawing with addendum.

- 1 A1 Architectural
 - .1

SPECIFICATIONS

SPEC NOTE: indicate section number and title.

- 1 Section 01 00 10 - General Instructions

SPEC NOTE: list all changes (i.e. delete, add or change) by article or paragraph

- .1 Delete article (xx) entirely.
 - .2 Refer to paragraph (xx.x) and change ...
- 2 Section 23 05 00 - Common Work Results - Mechanical
 - .1 Add new article (x) as follows:



APPENDIX 'C' - Sample of Index

Last updated April 22, 2008

Project No: _____

Index
Page 1 of _____

DRAWINGS AND SPECIFICATIONS

DRAWINGS:

SPEC NOTE: List all Drawings by number and title.

- C-1 Civil
- L-1 Landscaping
- A-1 Architectural
- S-1 Structural
- M-1 Mechanical
- E-1 Electrical

SPECIFICATIONS:

SPEC NOTE: List all Divisions, Sections (by number and title) and number of pages.

<u>DIVISION</u>	<u>SECTION</u>	<u>NO. OF PAGES</u>
DIVISION 01	01 00 10 - General Instructions.....XX
	01 14 25 - Designated Substances Report.....XX
	01 35 30 - Health and Safety.....XX
DIVISION 23	23 xx xx	
DIVISION 26	26 xx xx	



APPENDIX 'D'

USER MANUAL ON DIRECTORY STRUCTURE AND NAMING CONVENTION STANDARDS FOR CONSTRUCTION TENDER DOCUMENTS ON CD ROM

Issued by:
Real Property Contracting Directorate
PWGSC

May 2005

Last Updated: June 3, 2008

Version 1.0

PREFACE

The Government of Canada (GoC) has committed to move towards an electronic environment for the majority of the services it offers. This covers the advertisement and distribution of contract opportunities, including construction solicitations. As a result, it is necessary to obtain a copy of construction drawings and specifications (in PDF format *without* password protection) on one or multiple CD-ROM to facilitate for the GoC the transfer of the construction drawings and specifications electronically to the Government Electronic Tendering System (GETS).

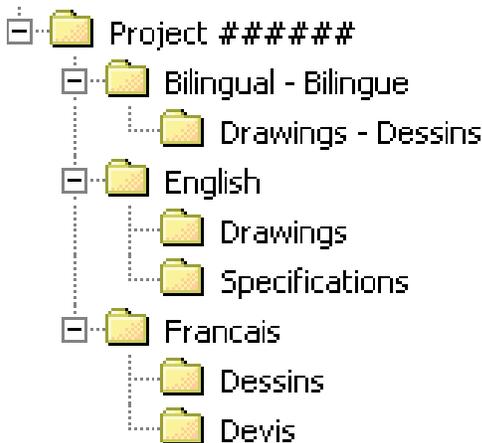
There is therefore a need to adopt a common directory structure and file-naming convention to ensure that the information made available to contractors electronically and in hard (printed) copy is in accordance with the sequence adopted in the real property industries, both for design and construction. This manual defines the standard to be followed by both consultants and print shops at time of formatting and organizing the information, whether drawings and specifications are created by scanning print documents or saved as PDF files from the native software (AutoCAD, NMS Edit, MS-Word, etc...) in which these were created.

It is important to note that the procedure described in this manual is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications. The sole purpose of this manual is to provide a standard for the organization and naming of the electronic files that will be recorded on CD-ROM.

1. DIRECTORY STRUCTURE

1.1 1st, 2nd and 3rd Tier Sub-Folders

Each CD-ROM, whether it is for the original solicitation (tender call) or for an amendment (addendum), must have the applicable elements of the following high-level Directory Structure created:



The following important points are to be noted about the Directory Structure:

- The “*Project #####*” folder is considered the 1st Tier of the Directory Structure where *#####* represents each digit of the Project Number. The Project Number must always be used to name the 1st Tier folder and it is always required. Free text can be added following the Project Number, to include such things as a brief description or the project title;
- The “*Bilingual - Bilingue*”, “*English*” and “*Français*” folders are considered the 2nd Tier of the Directory Structure. The folders of the 2nd Tier **cannot** be given any other names since GETS uses these names for validation purposes. At least one of the “*Bilingual - Bilingue*”, “*English*” and “*Français*” folders is always required, and these must always have one of the applicable sub-folders of the 3rd Tier;
- The “*Drawings - Dessins*”, “*Drawings*”, “*Specifications*”, “*Dessins*” and “*Devis*” folders are considered the 3rd Tier of the Directory Structure. The folders of the 3rd Tier **cannot** be given any other names since GETS also uses these names for validation purposes. There must be always at least one of the applicable 3rd Tier folder in each document.

IMPORTANT: The applicable elements of the Directory Structure (1st, 2nd and 3rd Tier folders) are always required and cannot be modified.

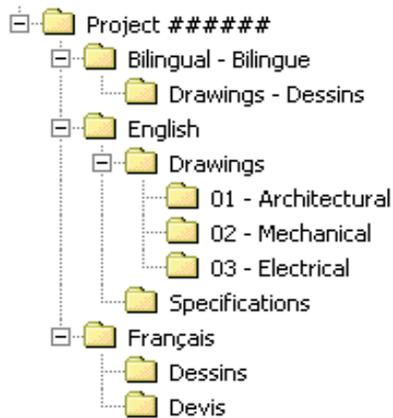
1.2 4th Tier Sub-Folders for Drawings

The “*Drawings – Dessins*”, “*Drawings*” and “*Dessins*” folders must have 4th Tier sub-folders created to reflect the various disciplines of the set of drawings.

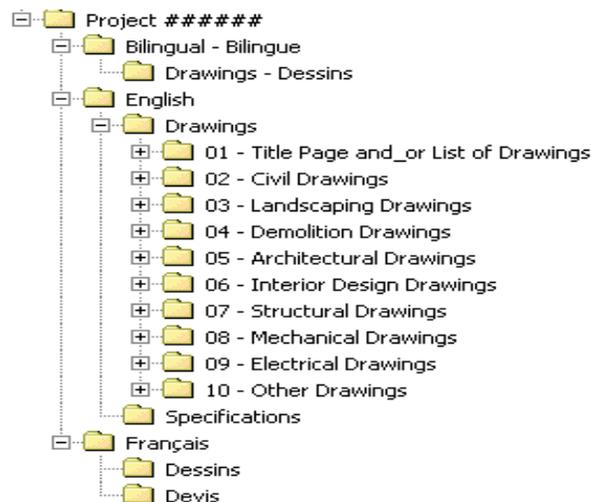
Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “*Drawings – Dessins*”, “*Drawings*” and “*Dessins*” folders.

Note: The first sub-folder must be always reserved for the Title Page and/or the List of Drawings unless the first drawing of the set is an actual numbered discipline drawing.

Examples of 4th Tier sub-folders for drawings:



or



1.2.1 Naming Convention

The 4th Tier sub-folders for drawings must adhere to the following standard naming convention.

For the “*Drawings*” and “*Dessins*” folders:

- Y

Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The title of the folder

Example: 03 – Mechanical

For the “*Drawings - Dessins*” folder:

- Y - Z

Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The English title of the folder

Z = The French title of the folder

Example: 04 - Electrical - Électricité

It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to a specific discipline. For example, “*Architectural*” could be numbered 05 for a project where there is four other disciplines before “*Architectural*” in the set of drawings or 01 in another project where it’s the first discipline appearing in the set.

It is essential to ensure that the order of the drawings on the CD-ROM be exactly the same as in the hard copy set. GETS will sort each drawing for both screen display and printing as per the following rules:

- The alphanumerical sorting is done on an ascending order;
- The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the drawing PDF files in the 01 sub-folder will be printed in alphanumerical order before the drawings in the 02 sub-folder etc...);
- Each drawing PDF file within each sub-folder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Drawing A001 will be printed before Drawing A002, Drawing M02 before Drawing M03, etc...).

1.3 4th Tier Sub-Folders for Specifications

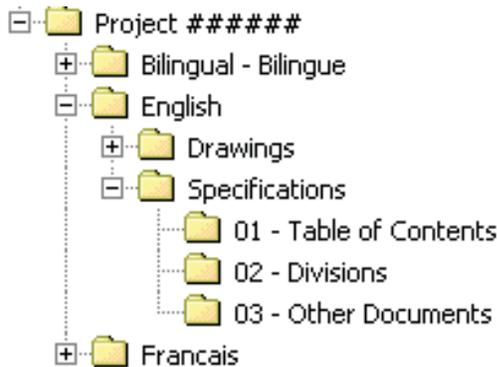
The “*Specifications*” and “*Devis*” folders must have 4th Tier sub-folders created to reflect the various elements of the specifications.

Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “*Specifications*” and “*Devis*” folders.

Examples of 4th Tier sub-folders for specifications:



or



1.3.1 Naming Convention

The 4th Tier sub-folders for specifications must adhere to the following standard naming convention.

For the “*Specifications*” and “*Devis*” folders:

- Y



Where:

= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The title of the folder

Example: 02 – Divisions

It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to an element of the specifications.

It is essential to ensure that the order of the elements of the specifications on the CD-ROM be exactly the same as in the hard copy. GETS will sort each element of the specifications for both screen display and printing as per the following rules:

- The alphanumerical sorting is done on an ascending order;
- The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the specifications PDF files in the 01 sub-folder will be printed, in alphanumerical order before the PDF files in the 02 sub-folder, etc...);
- Each specifications PDF file within each sub-folder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Division 01 will be printed before Division 02, 01 - Appendix A before 02 - Appendix B, etc...).

2. NAMING CONVENTION FOR PDF FILES

Each drawing, specifications division or other document that are part of the tender documents must be converted in PDF format (without password protection) in accordance with the following standard naming convention and each PDF file must be located in the appropriate sub-folder of the Directory Structure.

2.1 Drawings

Each drawing must be a **separate single page** PDF file. The naming convention of each drawing must be:

X### - Y

Where:

X = The letter or letters from the drawing title block (“A” for Architectural or “ID” for Interior Design for example) associated with the discipline

= The drawing number from the drawing title block (one to three digits)





Y = The drawing name from the drawing title block (for bilingual drawings, the name in both English and French is to appear)

Example: A001 - First Floor Details

Each drawing that will be located in the appropriate discipline 4th Tier sub-folders must be named with the same letter (“A” for Architectural Drawings for example) and be numbered. The drawing number used to name the PDF file must match as much as possible the drawing number of the actual drawing (the exception being when leading zeros are required).

The following important points about drawings are to be noted:

- The drawing PDF files within each sub-folder are sorted alphanumerically for both displaying and printing. If there are more than 9 drawings in a particular discipline the numbering must use at least two numerical digits (i.e. A01 instead of A1) in order to avoid displaying drawing A10 between A1 and A2. The same rule applies when there are more than 99 drawings per discipline i.e. three digits instead of two must be used for the numbering (for example M003 instead of M03);
- If drawing PDF files are included in the “*Bilingual - Bilingue*” folder, these cannot be included as well in the “*English*” and/or “*Français*” folders;
- If drawings not associated with a particular discipline are not numbered (Title Page or List of Drawings for example), these will be sorted alphabetically. While this does not represent a problem if there is only one drawing in the sub-folder, it could disrupt the order when there are two or more drawings. If the alphabetical order of the drawings name does not represent the order on the hard copy set, the drawings are to be named as per the following standard convention when converted in PDF format to ensure proper display and printing order.

- Y

Where:

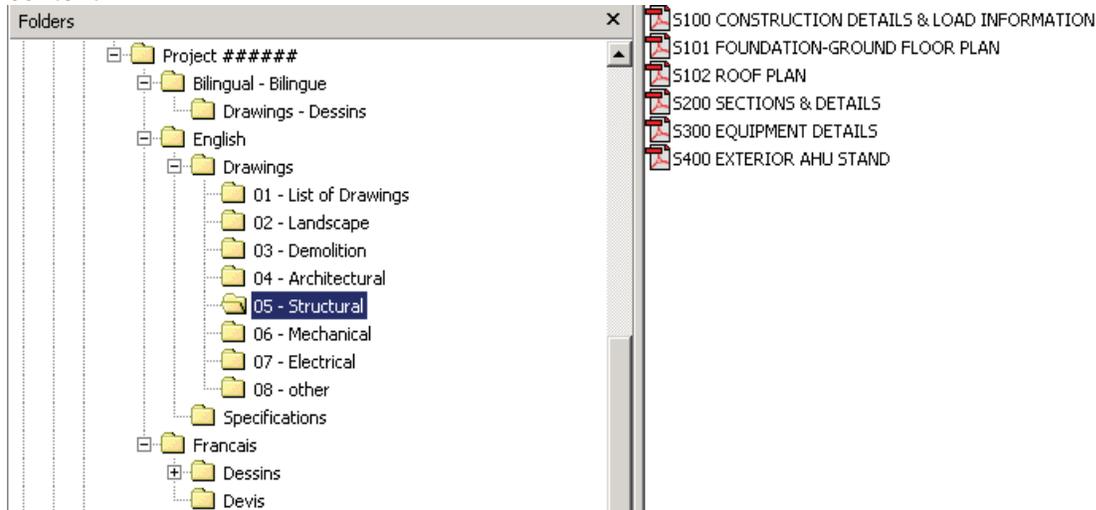
= A two digit number ranging from 01 to 99 (leading zeros must be included)

Y = The name of the drawing

Example: 01 - Title Page
02 - List of Drawings

If numbers are not used in the PDF files name, “*List of Drawings*” will be displayed before “*Title Page*” because “L” comes before “T” in the alphabet.

Example of a 4th Tier Drawings sub-folder's content:



2.2. Specifications

Each Specifications Division must be a separate PDF file and all pages contained in each PDF file must have the same physical size (height, width). The Plans and Specifications Index must also be a separate PDF file. If there are other documents that are part of the Specifications (e.g. Appendix or other) these are to be separate PDF files as well.

2.2.1 Documents other than Specifications Divisions

Because PDF files within the Specifications sub-folders are sorted alphanumerically (in ascending order) for both on screen display and printing order, all files that appear in folders other than the "Divisions" sub-folder must be named using a number:

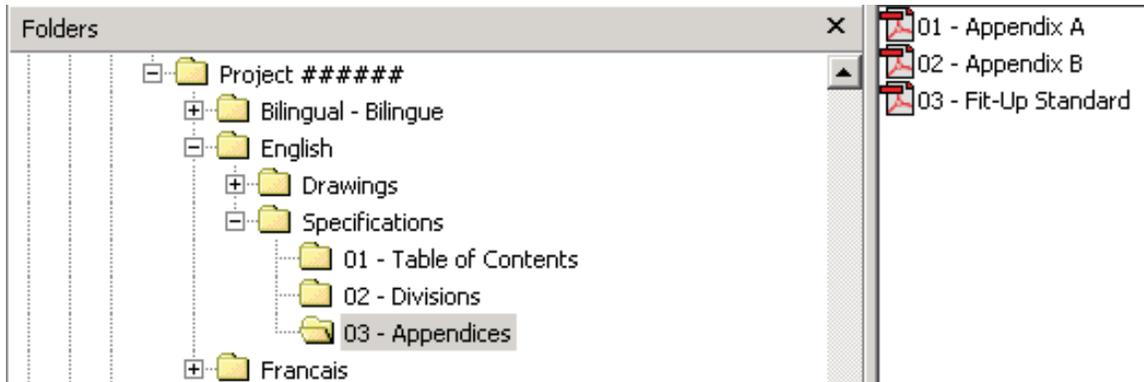
- Y

Where:

= Two digit number ranging from 01 to 99 with leading zeros required
Y = Name of the document

Example: 01 - Plans and Specifications Index

Example of a sub-folder content (sub-folder other than “Divisions”):



2.2.2 Specifications Divisions

The Specifications Divisions must be named as follows:

Division ## - Y

Where:

Division ## = The actual word “Division” followed by a space and a two digit number ranging from 01 to 99 (with leading zeros required)

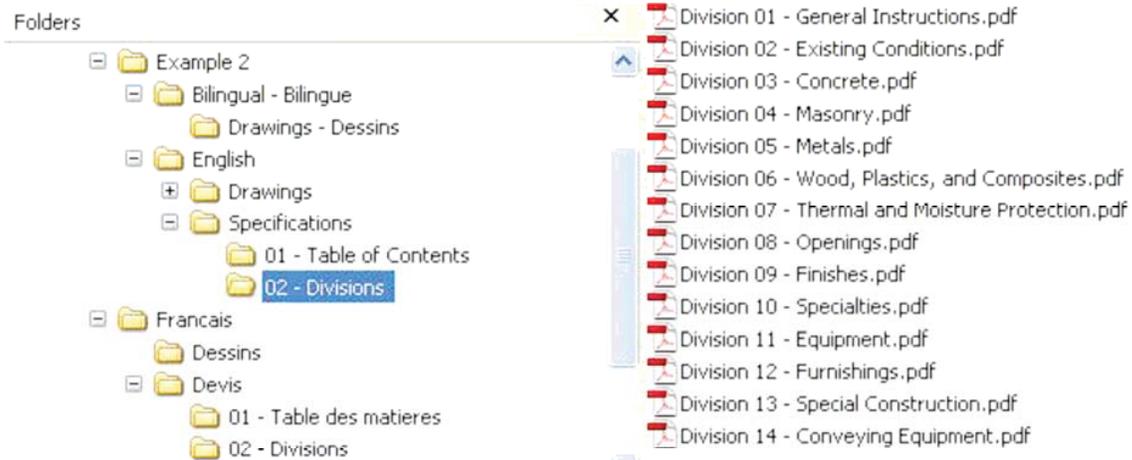
Y = Name of the Specifications Division as per **CSC/CSI MasterFormat™**

Example: Division 05 – Metals

The following important point about specifications is to be noted:

- The Numbering of the Divisions **cannot** be altered from **CSC/CSI MasterFormat™** even if some Divisions are not used in a given project. For example, Division 05 will always remain Division 05 even if Division 04 is not used for a given project.

Example of a “Divisions” sub-folder content:



3. CD-ROM LABEL

Each CD-ROM is to be labeled with the following information:

Project Number / Numéro de projet
Project Title / Titre du projet
 Documents for Tender / Documents pour appel d’offres
 CD X of/de X

Example:

Project 123456 / Projet 123456
 Repair Alexandra Bridge / Réparation du pont Alexandra
 Documents for Tender / Documents pour appel d’offres
 CD 1 of/de 1

APPENDIX 'E'

BASIC REFERENCE GUIDE ON CONVERTING CONSTRUCTION DRAWINGS INTO PORTABLE DOCUMENT FORMAT (PDF)

Issued by:
Real Property Contracting Directorate
PWGSC

May 2005 Last Updated: May 3, 2005

Version 1.0

PREFACE

Portable Document Format (PDF) is the standard format for documents that are posted on the Government Electronic Tendering System (GETS). There is therefore a need to obtain from architectural and engineering consultants an electronic copy of drawings and specifications in PDF for tendering Government of Canada (GoC) construction projects.

In order to have the highest quality in term of resolution and printing, consultants should to the greatest extent possible have the PDF drawing and specification files derived from the native software in which they were created. Scanning is permissible but only in special circumstances, for example when there is no electronic version of a drawing being included in a construction tender package.

The purpose of this document is to provide basic information on the conversion of Computer Aided Design and Drafting (CADD) drawings in PDF. Creating a PDF file from a CADD drawing is a relatively simple process once all the necessary configurations and settings are in place. It actually should not take any longer than it would take to create a plot file or to send a drawing to a printer. The information in this guide is not intended to cover all technical aspects of the conversion, which can be done using various methods, but rather to highlight important points about the process and file settings. The conversion of specifications is not covered in this basic reference guide since it does not require any special configuration or setting.

The information provided in this basic reference guide is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications. The sole purpose of this guide is to provide basic information on the PDF conversion process bearing in mind that additional detailed technical information is available from the various software manufacturers.



1. PRINTER DRIVERS

Adobe Acrobat provides two different printer drivers that are able to convert CADD drawing into PDF format, Acrobat PDF Writer and Acrobat Distiller. Before creating a PDF file from a CADD drawing, a choice must be made as to which one will be used.

Acrobat PDF Writer is a non-PostScript printer driver that works best with documents that don't contain complex graphics

Acrobat Distiller is a PostScript printer driver that works best with documents that contain PostScript fills, Encapsulated PostScript (EPS) graphics, or other complex elements.

It is recommended that Acrobat Distiller be used to create PDF file of architectural and engineering drawings due to their size and complex graphical nature.

2. PRINTER CONFIGURATION

Before converting a CADD drawing to PDF, an Acrobat printer configuration file for the PDF paper size needs to be created. This function can be done in the CADD software rather than using a custom paper size defined for the Acrobat distiller feature. The recommended method is to add a PostScript Adobe plotter in the CADD software and making the necessary setting in terms of media source and size, scale and orientation. The configuration can then be re-used to simplify the conversion process for future files that use the same page size.

As an alternative, although not recommended, a custom-defined size can be created in Acrobat Distiller in the *properties* menu.

3. CREATING PDF FILES

Once the printer configuration has been done in the CADD software, open up Acrobat Distiller and make the necessary settings in the *preferences* and *job options* sub-menu. Ensure that the page size match the sheet size selected in the CADD software to create the file. Particular settings can be saved under different names for future use.

With the Acrobat Distiller application open, ensure the required sheet size is displayed in the *job options* window. Then it is simply a matter of bringing the CADD file into the Acrobat Distiller creation box.

A progress bar will show during the conversion and the newly converted PDF file should open up and be displayed for verification.

4. PDF FILES SETTINGS

4.1 Security

Adobe Acrobat contains security features that can be used to secure the files by restricting any changes to the files. However, since the files will be posted on GETS and will be used for printing copies, the files **must not** be password protected and **must** allow printing.



4.2 Drawing Orientation

The final PDF drawing files must be displayed on the screen in the same direction that the users are intended to view them. This can be achieved by adjusting the setup of the plotter. If the drawing is not oriented properly after the conversion, it can be rotated manually within Adobe Acrobat.

4.3 Font Type

In order to avoid any problems during the conversion and to minimize the potential for font display errors, the fonts used for the production of construction drawings must be *PostScript or True Type fonts*.

4.4 Resolution

Since the PDF files will be used for printing, it is important that a proper resolution be selected. It is recommended to select 600 dots per inch (dpi).

4.5 Scale

When choosing the Plot scale in Adobe, it is important to choose the 1:1 scale to ensure the integrity of the scale from which the drawings were created in the CADD software.

5. SCANNING

Scanning is not recommended and should be done only when the drawing is not available electronically. When scanning a drawing, it is important that it be done in real size (scale 1:1) to ensure that the scale remains intact in subsequent printing. It is recommended that each scanned drawing be opened and verified to ensure that the resolution, scale and border are of an acceptable quality.

6. FINAL CHECKLIST

When the drawing file has gone through the PDF conversion, it is recommended to open it and verify the following:

- That the sheet size displayed is what was intended to be created (the size is viewable in the lower left corner of the drawing).
- That the orientation of the sheet is correct.
- That the line types, line weights and fonts match the CADD drawing.
- That the PDF file is in black and white.
- That each drawing is a single PDF file.
- That the PDF file is not password protected and printable.

If all the items are verified, the PDF file is useable

7. ADDITIONAL INFORMATION

For more information about the creation of PostScript and EPS files please refer to the User's Guide of the CADD software being used to produce the drawings. For more information about creating PDF file please refer to the Acrobat Distiller User's Guide and/or visit the Adobe Web site at www.adobe.com.