

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
Public Works and Government Services Canada  
ATB Place North Tower  
10025 Jasper Ave./10025 ave. Jasper  
5th floor/5e étage  
Edmonton  
Alberta  
T5J 1S6  
Bid Fax: (780) 497-3510

**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**

<b>Title - Sujet</b> Deferred Maintenance CM NRCan	
<b>Solicitation No. - N° de l'invitation</b> EW038-160886/A	<b>Date</b> 2015-09-01
<b>Client Reference No. - N° de référence du client</b> NRCAN EW038-160886	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$PWU-011-10547	
<b>File No. - N° de dossier</b> PWU-5-38119 (011)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-10-13</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Mountain Daylight Saving Time MDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Hugo (RPC), Tammey	<b>Buyer Id - Id de l'acheteur</b> pwu011
<b>Telephone No. - N° de téléphone</b> (780) 497-3917 ( )	<b>FAX No. - N° de FAX</b> (780) 497-3510
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA ATB PLACE NORTH, 5TH FLOOR 10025 JASPER AVENUE EDMONTON Alberta T5J1S6 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**

Public Works and Government Services Canada  
ATB Place North Tower  
10025 Jasper Ave./10025 ave Jasper  
5th floor/5e étage  
Edmonton  
Alberta  
T5J 1S6

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

Solicitation No. - N° de l'invitation

EW038-160886/A

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

NRCAN EW038-160886

Amd. No. - N° de la modif.

File No. - N° du dossier

PWU-5-38119

Buyer ID - Id de l'acheteur

pwu011

CCC No./N° CCC - FMS No/ N° VME

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See Attached.

## **IMPORTANT NOTICE TO BIDDERS**

### **SUPPORT THE USE OF APPRENTICES**

Through Canada's Economic Action Plan 2013, the Government of Canada proposes to support the employment of apprentices in federal construction and maintenance projects. Refer to SI11.

### **INTEGRITY PROVISIONS - BID**

Important changes have been made to the Integrity Provisions - Bid as of July 3<sup>rd</sup> 2015. See GI01, Integrity Provision-Bid of the General Instructions for more information.

**REQUEST FOR PROPOSAL (RFP)**  
**CONSTRUCTION MANAGEMENT SERVICES**  
**Natural Resources Canada**  
**Northern Forestry Centre**  
**Edmonton, Alberta, Project R.077101.001**

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## **SPECIAL INSTRUCTIONS TO BIDDERS**

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### **SI01 INTEGRITY PROVISIONS – DECLARATION OF CONVICTED OFFENCES**

As applicable, pursuant to GI01 of the Declaration of Convicted Offences, paragraph 10 (copied below) of the General Instructions, the Bidder must provide with its bid, a completed [Declaration Form](#), to be given further consideration in the procurement process.

#### Declaration of Convicted Offences

*Where a Bidder or its Affiliate is unable to certify that it has not been convicted of any of the offences referenced under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Bidder must provide with its bid the completed [Declaration Form](#), to be given further consideration in the procurement process.*

### **SI02 BID DOCUMENTS**

The following are the proposal documents:

- (a) Request for Proposals - Page 1;
- (b) Special Instructions to Bidders;
- (c) Supplementary Conditions;
- (d) General Instructions to Bidders;
- (e) Submission Requirements and Evaluation, and
- (f) Annex A - Terms of Reference
- (g) Annex B - PWGSC Procedures and Standards Document
  
- (h) Appendix A - Price Proposal Form
- (i) Appendix B - Division 01 General Requirements
- (j) Appendix C - Health and Safety Requirements
- (k) Appendix D –Estimated Construction Cost

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

### **SI03 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS**

All instructions, clauses and conditions identified in the bid solicitation and resulting contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual issued by Public Works and Government Services Canada (PWGSC). The Manual is available on the PWGSC Website: Standard Acquisition Clauses and Conditions. <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of this bid solicitation and accept the clauses and conditions of the resulting contract.

#### **SI04 DEFINITION OF BIDDER**

**"Bidder"** means the person or entity (or, in the case of a joint venture, the persons or entities) submitting a bid to perform a contract for goods or services or construction. It does not include the parent, subsidiaries or other affiliates of the Bidder, or its subcontractors.

**"A joint venture"** is defined as an association of two or more parties which combine their money, property, knowledge, skills, time or other resources in a joint business enterprise agreeing to share the profits and the losses and each having some degree of control over the enterprise. In order to avoid any conflict of interest, or any perception of conflict of interest, no person or entity acting as an individual Construction Manager or as part of a joint venture Construction Manager, and anyone not at arms length to the Construction Manager, shall be ineligible to submit bids for any construction tenders issued for work tendered as part of this Construction Management Contract. For further clarity, an entity acting as an individual Construction Manager or as part of a joint venture Construction Manager will be deemed to have a Conflict of Interest that would prevent it from being eligible to submit bids for any tenders issued in connection with the Project. This does not limit the Construction Manager's ability to use its own forces when permitted by the Departmental Representative.

#### **SI05 ENQUIRIES DURING THE SOLICITATION PERIOD**

- 1) Enquiries regarding this Request for Proposals must be submitted in writing to the Contracting Officer named on the Request for Proposals - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in GI16 of the General Instructions to Bidders, enquiries should be received no later than ten (10) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.
- 2) To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.
- 3) All enquiries and other communications related to this Request for Proposals sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the Request for Proposals - Page 1. Non-compliance with this requirement during the solicitation period can, for that reason alone, result in disqualification of a proposal.

#### **SI06 REVISION OF BID**

- 1) A bid may be revised by letter or facsimile in accordance with GI11 of the General Instructions to Bidders. The facsimile number for receipt of revisions is (780) 497-3510.

#### **SI07 SITE VISIT**

There will be a site visit **on Thursday September 24, 2015 at 9:00 a.m.** Interested bidders are to meet at the Northern Forestry Centre, 5320 – 122<sup>nd</sup> Street. Edmonton, Alberta.

#### **SI08 LATE SUBMISSIONS**

It is PWGSC policy to return, unopened, submissions delivered after the stipulated closing date and time.

#### **SI09 PROPOSAL VALIDITY PERIOD**

- 1) Canada reserves the right to seek an extension to the proposal validity period prescribed in BA05 of the Price Proposal Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.
- 2) If the extension referred to in paragraph 1) of SI08 is accepted, in writing, by all those who submitted proposals, then Canada shall continue immediately with the evaluation of the proposals and its approvals processes.

- 3) If the extension referred to in paragraph 1) of SI08 is not accepted in writing by all those who submitted proposals then Canada shall, at its sole discretion, either
  - (a) continue to evaluate the proposals of those who have accepted the proposed extension and seek the necessary approvals; or
  - (b) cancel the request for proposals.
- 4) The provisions expressed herein do not in any manner limit Canada's rights in law or under GI12 of the General Instructions to Bidders

#### **SI10 CONDUCT OF EVALUATION**

- 1) In conducting its evaluation of the bids, Canada may, but will have no obligation to, do the following:
  - (a) seek clarification or verification from bidders regarding any or all information provided by them with respect to the bid solicitation;
  - (b) contact any or all references supplied by bidders to verify and validate any information submitted by them;
  - (c) request, before award of any contract, specific information with respect to bidders' legal status;
  - (d) Conduct a survey of bidders' facilities and/or examine their technical, managerial, and financial capabilities to determine if they are adequate to meet the requirements of the solicitation;
  - (e) correct any error in the extended pricing of bids by using unit pricing and any error in quantities in bids to reflect the quantities stated in the bid solicitation; in the case of error in the extension of prices, the unit price will govern;
  - (f) verify any information provided by bidders through independent research, use of any government sources or by contacting third parties;
  - (g) interview, at the sole costs of bidders, any bidder and/or any or all of the resources proposed by bidders to fulfil the requirement of the bid solicitation.
2. Bidders will have the number of days specified in the request by the Contracting Authority to comply with any request related to any of the above items. Failure to comply with the request may result in the bid being declared non-responsive.

#### **SI11 PUBLIC WORKS AND GOVERNMENT SERVICES CANADA APPRENTICE PROCUREMENT INITIATIVE**

1. To encourage employers to participate in apprenticeship training, Contractors bidding on construction and maintenance contracts by Public Works and Government Services Canada (PWGSC) are being asked to sign a voluntary certification, signaling their commitment to hire and train apprentices.
2. Canada is facing skills shortages across various sectors and regions, especially in the skilled trades. Equipping Canadians with skills and training is a shared responsibility. In Economic Action Plan (EAP) 2013, the Government of Canada made a commitment to support the use of apprentices in federal construction and maintenance contracts. Contractors have an important role in supporting apprentices through hiring and training and are encouraged to certify that they are providing opportunities to apprentices as part of doing business with the Government of Canada.
3. Through the Economic Action Plan 2013 and support for training programs, the Government of Canada is encouraging apprenticeships and careers in the skilled trades. In addition, the government offers a tax credit to employers to encourage them to hire apprentices. Information on

this tax measure administered by the Canada Revenue Agency can be found at: [www.cra-arc.gc.ca](http://www.cra-arc.gc.ca). Employers are also encouraged to find out what additional information and supports are available from their respective provincial or territorial jurisdiction.

4. Signed certifications (Appendix 5) will be used to better understand contractor use of apprentices on Government of Canada maintenance and construction contracts and may inform future policy and program development.
5. The Contractor hereby certifies the following:

In order to help meet demand for skilled trades people, the Contractor agrees to use, and require its subcontractors to use, reasonable commercial efforts to hire and train registered apprentices, to strive to fully utilize allowable apprenticeship ratios \* and to respect any hiring requirements prescribed by provincial or territorial statutes

The Contractor hereby consents to this information being collected and held by PWGSC, and Employment and Social Development Canada to support work to gather data on the hiring and training of apprentices in federal construction and maintenance contracts.

To support this initiative, a voluntary certification signaling the Contractor's commitment to hire and train apprentices is available at Appendix 5.

If you accept fill out and sign Appendix 5

*\* The journeyperson-apprentice ratio is defined as the number of qualified/certified journeypersons that an employer must employ in a designated trade or occupation in order to be eligible to register an apprentice as determined by provincial/territorial (P/T) legislation, regulation, policy directive or by law issued by the responsible authority or agency.*

## **SI12 DEBRIEFING**

Should a Proponent desire a debriefing, the Proponent should contact the person identified on the front page of the RFP within 15 working days of the notification of the results of the solicitation. The debriefing will include an outline of the strengths and weaknesses of the submission, referring to the evaluation criteria. The confidentiality of information relating to other submissions will be protected. The debriefing may be provided in writing, by telephone or in person.

## **SI13 COMMUNICATIONS NOTIFICATION**

The Government of Canada requires the successful bidder to notify the Contracting Officer named on the Request for Proposal - Page 1 in advance of their intention to make public an announcement related to the award of a contract.

## **SI14 WEB SITES**

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

Treasury Board Appendix L, Acceptable Bonding Companies  
[Http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL](http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL)

Contracts Canada (Buy and Sell) <https://www.achatsetventes-buyandsell.gc.ca/eng/welcome>  
Canadian economic sanctions <http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

Contractor Performance Evaluation Report (Form PWGSC-TPSGC 2913) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913.pdf>

Bid Bond (form PWGSC-TPSGC 504) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/504.pdf>

Performance Bond (form PWGSC-TPSGC 505) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/505.pdf>

Labour and Material Payment Bond (form PWGWSC-TPSGC 506) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf>

Certificate of Insurance (form PWGSC-TPSGC 357) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/357.pdf>

SACC Manual <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

Schedules of Wage Rates for Federal Construction Contracts [http://www.rhdcc-hrsdc.gc.ca/eng/labour/employment\\_standards/contracts/schedule/index.shtml](http://www.rhdcc-hrsdc.gc.ca/eng/labour/employment_standards/contracts/schedule/index.shtml)

PWGSC, Industrial Security Services <Http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>

PWGSC, Code of Conduct and Certifications  
<Http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/index-eng.html>

## **SUPPLEMENTARY CONDITIONS**

- SC01 Changes to Contract Documents
- SC02 Soliciting Bids
- SC03 Determination of Construction Cost
- SC04 Insurance Terms

### **SC01 CHANGES TO CONTRACT DOCUMENTS**

- 1) R2810D: Add the following sub-paragraph 1) (g) under GC1.2.2  

(g) Terms of Reference
- 2) R2850D: The following paragraph is added to GC5.4:
  - 6) The portion of the Work done under the Fixed Fee shall be invoiced in equal monthly installments over the duration of the Contract. The installments shall be recalculated on a monthly basis to account for any changes in the completion date of the Work."
- 3) R2860D: GC6.4 is replaced in its entirety with the following:

#### **GC6.4 Determination of Price**

- 1) Any adjustment to the price of the Work that is resulting from a change in the Work pursuant to GC6.1 will represent all reasonable and proper costs including delay incurred by or savings accruing to the Contractor in respect of the labour, Plant and Material that are payable as Construction Costs.
- 2) If the final price of the Work, excluding the Contractor's fees, is not within 75 and 125 percent of the Estimated Construction Cost, either party to the Contract may request to negotiate a change in the Contractor's Percentage Fee for the Work outside of these thresholds if:
  - A) there is a demonstrable difference between the cost to the Contractor of performing the Work for the Estimated Construction Cost and the cost to the Contractor of performing the Work for the actual Construction Cost; and,
  - B) if the difference in cost is due solely to the difference in actual and estimated Construction Costs.

The onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation. In no event shall the total amount paid as the Contractor's Percentage Fee, amended as a result of a reduction in the price of the Work, exceed the amount that would have been payable to the Contractor had the price of the Work actually accounted for 75 percent of the Estimated Construction Cost.

- 3) The amount of the Contract shall be the final sum of the Fixed Fee, the actual Construction Cost, the Percentage Fee and any adjustments that are made in accordance with the Contract.

## **SC02 SOLICITING BIDS**

- 1) The Contractor shall solicit bids whenever it is cost effective to do so for any portion of the Work that is estimated at less than \$25,000.
- 2) The Contractor shall solicit a minimum of three bids before any subcontract is entered into for any portion of the Work that is estimated at \$25,000 or more.
- 3) The Contractor, with Canada's agreement, may set aside the requirement to solicit three bids if it is not in the public interest to do so, or less than three firms are capable of performing the Work.

## **SC03 DETERMINATION OF CONSTRUCTION COST**

- 1) The price of any portion of the Work that is subcontracted shall be equal to the amount of the subcontract plus the applicable CM Percentage Fee.
- 2) Any adjustment to the amount of a subcontract shall require Canada's approval in writing. The CM shall not be entitled to any additional fees other than the Percentage Fee.
- 3) Any request for adjusting the amount of a subcontract shall be substantiated with a cost estimate breakdown itemizing all labour, material, and plant costs, and the amount of any allowance. The Contractor shall ensure that all prices included in the breakdown are fair and reasonable and in conformance with the following:
  - (a) Labour rates shall be established in accordance with applicable trade union agreements. Non-union labour rates shall be established in accordance with the General Fair Wage Clause of the Labour Conditions. All labour rates shall require approval by Canada in writing.
  - (b) The costs of all material and plant must represent the actual amount paid to suppliers and said costs are to include all applicable discounts.
  - (c) Allowances shall be negotiated by the Contractor for each change and shall represent the reasonable amount for the nature and complexity of each change.
- 4) The price of any portion of the Work that is not subcontracted or paid for as a Fixed Fee shall be equal to the actual cost of that portion of the Work plus the applicable Contractor's Percentage Fee.

## **SC04 INSURANCE TERMS**

- 1) Insurance Contracts
  - (a) The Contractor must, at the Contractor's expense, obtain and maintain insurance contracts in accordance with the requirements of the Certificate of Insurance. Coverage must be placed with an Insurer licensed to carry out business in Canada.
  - (b) Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract. The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.
- 2) Period of Insurance
  - (a) The policies required in the Certificate of Insurance must be in force from the date of contract award and be maintained throughout the duration of the Contract.
  - (b) The Contractor must be responsible to provide and maintain coverage for Products/Completed Operations hazards on its Commercial General Liability insurance policy, for a period of six (6) years beyond the date of the Certificate of Substantial Performance.

3) Proof of Insurance

- (a) Before commencement of the Work, and no later than thirty (30) days after acceptance of its bid, the Contractor must deposit with Canada a Certificate of Insurance on the form attached herein.
- (b) Upon request by Canada, the Contractor must provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Certificate of Insurance.

4) Insurance Proceeds

In the event of a claim, the Contractor must, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

5) Deductible

The payment of monies up to the deductible amount made in satisfaction of a claim must be borne by the Contractor.

## GENERAL INSTRUCTIONS TO BIDDERS

- GI01 Integrity Provisions – Bid
- GI02 Completion of Bid
- GI03 Identity or Legal Capacity of the Bidder
- GI04 Applicable Taxes
- GI05 Capital Development and Redevelopment Charges
- GI06 Composition of CM team
- GI07 Limitation of Submission
- GI08 Listing of Subcontractors and Suppliers
- GI09 Bid Security Requirements
- GI10 Submission of Bid
- GI11 Revision of Bid
- GI12 Rejection of Bid
- GI13 Bid Costs
- GI14 Procurement Business Number
- GI15 Compliance With Applicable Laws
- GI16 Approval of Alternative Materials
- GI17 Performance Evaluation
- GI18 Conflict of Interest - Unfair Advantage
- GI19 Financial Capability

### GI01 INTEGRITY PROVISIONS - BID

#### 1. Interpretation

For the purposes of these Integrity Provisions, the following definitions apply:

"Administrative Agreement"

is a negotiated agreement between a supplier/potential supplier and the Minister of PWGS as provided for in the [Ineligibility and Suspension Policy](#).

"Affiliate"

is a person, including, but not limited to, organizations, bodies corporate, societies, companies, firms, partnerships, associations of persons, parent companies or subsidiaries, whether partly or wholly-owned, as well as individuals, directors, officers and key employees if:

- i. one controls or has the power to control the other, or
- ii. a third party has the power to control both.

"Control"

means

- a. direct control, such as where:
  - i. a person controls a body corporate if securities of the body corporate to which are attached more than 50 percent of the votes that may be cast to elect directors of the body corporate are beneficially owned by the person and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the body corporate;
  - ii. a person controls a corporation that is organized on a cooperative basis if the person and all of the entities controlled by the person have the right to exercise more than 50 percent of the votes that may be cast at an annual meeting or to elect the majority of the directors of the corporation;
  - iii. a person controls an unincorporated entity, other than a limited partnership, if more than 50 percent of the ownership interests, however designated, into which the entity is divided are beneficially owned by that person and the person is able to direct the business and affairs of the entity;
  - iv. the general partner of a limited partnership controls the limited partnership; and

- v. a person controls an entity if the person has any direct or indirect influence that, if exercised, would result in control in fact of the entity.
- b. deemed control, such as where:  
a person who controls an entity is deemed to control any entity that is controlled, or deemed to be controlled, by the entity
- c. indirect control, such as where:  
a person is deemed to control, within the meaning of paragraph (a) or (b), an entity where the aggregate of
  - i. any securities of the entity that are beneficially owned by that person, and
  - ii. any securities of the entity that are beneficially owned by any entity controlled by that person
 is such that, if that person and all of the entities referred to in paragraph (c)(ii) that beneficially own securities of the entity were one person, that person would control the entity.

"Ineligibility"

means not eligible for contract award.

"Suspension"

means a determination of temporary ineligibility by the Minister of PWGS.

2. Statement

- a. Bidders must comply with the [Code of Conduct for Procurement](#) and be eligible for contract award under the [Ineligibility and Suspension Policy](#). In addition, Bidders must respond to bid solicitations in an honest, fair and comprehensive manner, and that accurately reflect their capacity to satisfy the requirements stipulated in the bid solicitations and resulting contracts, and submit bids as well as enter into contracts only if they will fulfill all obligations of the Contract.
- b. By submitting a bid, bidders confirm that they understand that being convicted of certain offences will render them ineligible to be awarded a contract. Canada will declare non-responsive any bid in respect of which the information requested is incomplete or inaccurate, or in respect of which the information contained in the certifications is found by Canada to be untrue in any respect, at the time of contract award. If it is determined by the Minister of PWGS, after contract award, that the Bidder made a false declaration, Canada will, following a notice period, have the right to terminate the Contract for default.

3. List of Names

- a. Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder. Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s). Bidders bidding as societies, firms, or partnerships do not need to provide lists of names.
- b. If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder 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.
- c. The Bidder must immediately inform Canada in writing of any changes affecting the list of names of directors during this procurement process.

4. Request for Additional Information

By submitting a bid, the Bidder certifies that it is aware, and that its Affiliates are aware, that Canada may request additional information, certifications, validations from a third party qualified by the Minister of PWGS, and other evidentiary elements proving identity or eligibility to contract with

Canada. Canada may also verify the information provided by the Bidder, including the information relating to convictions for certain offences and any conditional or absolute discharges specified in these Integrity Provisions.

5. Lobbying Act

By submitting a bid, the Bidder certifies that neither it nor any of its Affiliates have directly or indirectly, paid or agreed to pay, and will not, directly or indirectly, pay a contingency fee to any individual for the solicitation, negotiation or obtaining of the Contract if the payment of the fee would require the individual to file a return under section 5 of the [Lobbying Act](#).

6. Canadian Offences Resulting in Legal Incapacity

By submitting a bid, the Bidder certifies that:

- a. it and the Affiliates of the Bidder have not been convicted of or pleaded guilty to an offence under any of the following provisions which would result in a legal incapacity under section 750(3) of the [Criminal Code](#) and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:
  - i. paragraph 80(1)(d) (*False entry, certificate or return*), subsection 80(2) (*Fraud against Her Majesty*) or section 154.01 (*Fraud against Her Majesty*) of the [Financial Administration Act](#), or
  - ii. section 121 (*Frauds on the government and Contractor subscribing to election fund*), section 124 (*Selling or Purchasing Office*), section 380 (*Fraud*) for fraud committed against Her Majesty or section 418 (*Selling defective stores to Her Majesty*) of the [Criminal Code](#), or
- b. the Bidder has not been convicted of or pleaded guilty to the offences described in paragraph (a) and certifies that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract as described in (a).

7. Canadian Offences

By submitting a bid, the Bidder certifies that:

- a. the Bidder and the Affiliates of the Bidder have not, in the last three years, from the bid submission date, been convicted of or pleaded guilty to an offence under any of the following provisions for which they would be ineligible for contract award under these Integrity Provisions and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:
  - i. section 119 (*Bribery of judicial officers, etc*), section 120 (*Bribery of officers*), section 346 (*Extortion*), sections 366 to 368 (*Forgery and other offences resembling forgery*), section 382 (*Fraudulent manipulation of stock exchange transactions*), section 382.1 (*Prohibited insider trading*), section 397 (*Falsification of books and documents*), section 422 (*Criminal breach of contract*), section 426 (*Secret commissions*), section 462.31 (*Laundering proceeds of crime*) or sections 467.11 to 467.13 (*Participation in activities of criminal organization*) of the [Criminal Code](#), or
  - ii. section 45 (*Conspiracies, agreements or arrangements between competitors*), section 46 (*Foreign directives*), section 47 (*Bid rigging*), section 49 (*Agreements or arrangements of federal financial institutions*), section 52 (*False or misleading representation*), section 53 (*Deceptive notice of winning a prize*) of the [Competition Act](#), or
  - iii. section 239 (*False or deceptive statements*) of the [Income Tax Act](#), or
  - iv. section 327 (*False or deceptive statements*) of the [Excise Tax Act](#), or
  - v. section 3 (*Bribing a foreign public official*), section 4 (*Accounting*), or section 5 (*Offence committed outside Canada*) of the [Corruption of Foreign Public Officials Act](#), or

- vi. section 5 (*Trafficking in substance*), section 6 (*Importing and exporting*), or section 7 (*Production of substance*) of the [Controlled Drugs and Substance Act](#); or
  - b. the Bidder has not been convicted of or pleaded guilty to the offences described in paragraph (a) and it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible for contract award as described in (a).
- 8. Foreign Offences  
By submitting a bid, the Bidder certifies that:
  - a. the Bidder and its Affiliates have not, in the last three years, from the bid submission date, been convicted of or pleaded guilty to an offence in a jurisdiction other than Canada that would, in Canada's opinion, be similar to an offence referenced in the Canadian Offences Resulting in Legal Incapacity and the Canadian Offences subsections, and for which it would be ineligible for contract award under these Integrity Provisions and for which they have not been pardoned under the Foreign Pardons subsection and:
    - i. the court, before which the Bidder or its Affiliate appeared, acted within the court's jurisdiction;
    - ii. the Bidder or its Affiliate appeared during the court's proceedings or submitted to the court's jurisdiction;
    - iii. the court's decision was not obtained by fraud, and
    - iv. the Bidder or its Affiliate was entitled to present to the court every defence that the Bidder or its Affiliate would have been entitled to present had the proceeding been tried in Canada; or
  - b. it has not been convicted of or pleaded guilty to the offences described in paragraph (a) and certifies that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract as described in (a).
- 9. Ineligibility for Contract Award
  - a. The Bidder confirms that it understands that where it or any of its Affiliates have been convicted of certain offences or have been held responsible of certain acts, as described under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences, the Foreign Offences and the Lobbying Act subsections, the Bidder or its Affiliate is ineligible to be awarded a contract, subject to a Public Interest Exception.
  - b. The Bidder confirms that it understands that it is ineligible for contract award where it has been so determined by the Minister of PWGS under the [Ineligibility and Suspension Policy](#) and that the period of ineligibility or suspension has not expired.
- 10. Declaration of Convicted Offences  
Where a Bidder or its Affiliate is unable to certify that it has not been convicted of any of the offences referenced under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Bidder must provide with its bid the completed [Declaration Form](#), to be given further consideration in the procurement process.
- 11. Period of Ineligibility  
The following rules determine the period for which a Bidder or its Affiliate that has been convicted of certain offences is, ineligible to be awarded a contract:
  - a. for all offences referenced under the Canadian Offences Resulting in Legal Incapacity subsection for which a Bidder or an Affiliate of the Bidder has pleaded guilty to or has been convicted of, the period of ineligibility to be awarded a contract is indefinite, subject to the Canadian Pardons subsection.

- b. subject to an Administrative Agreement, for all offences referenced under the Canadian Offences and Foreign Offences subsections for which a Bidder or an Affiliate of the Bidder has pleaded guilty to or been convicted of, as the case may be, in the last three years, from the bid submission date, the period of ineligibility for contract award is ten years from the date of determination by the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections.
- c. subject to an Administrative Agreement, for violations of matters referenced in the Lobbying Act subsection for which a Bidder or an Affiliate of the Bidder has been found responsible, as the case may be, in the last three years, from the bid submission date, the period of ineligibility for contract award is ten years from the date of determination by the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections.

#### 12. Canadian Pardons

A determination of ineligibility for contract award will not be made or maintained by the Minister of PWGS under these Integrity Provisions, in respect of an offence or act that gave rise or that could give rise to a determination of ineligibility, if the Bidder or its Affiliate has:

- a. been granted an absolute discharge in respect of the offence, or has been granted a conditional discharge in respect of the offence and those conditions have been satisfied;
- b. been granted a pardon under Her Majesty's royal prerogative of mercy;
- c. been granted a pardon under section 748 of the [Criminal Code](#);
- d. received a record of suspension ordered under the [Criminal Records Act](#); and
- e. been granted a pardon under the [Criminal Records Act](#), as that Act read immediately before the day section 165 of the [Safe Streets and Communities Act](#) comes into force.

#### 13. Foreign Pardons

A determination of ineligibility for entering into government contracts will not be made or maintained, as the case may be, by the Minister of PWGS in respect of matters referenced in the Foreign Offences subsection and with respect to an offence or act that gave rise or will give rise to a determination of ineligibility, if the Bidder or its Affiliate, has at any time, benefited from foreign measures that are similar to Canadian pardons, conditional discharges, absolute discharges, record suspensions, or restoration of legal capacities by the Governor in Council.

#### 14. Suspension of Period of Ineligibility

The Bidder confirms that it understands that a determination of ineligibility for entering into government contracts made under these Integrity Provisions may be suspended by the Minister of PWGS through an Administrative Agreement, to the extent that it is permissible in law. The period of ineligibility applicable to that Bidder or its Affiliate and the right to participate in a given procurement process are guided by the terms and conditions of the Administrative Agreement. Subject to the Public Interest Exception, an Administrative Agreement may only suspend a period of ineligibility on solicitations issued after it has been concluded.

#### 15. Period of Ineligibility for Providing False or Misleading Information

The Bidder confirms that it understands that where it has made a false declaration or provided false or misleading information under these Integrity Provisions, the Minister of PWGS will declare a Bidder to be ineligible to be awarded contracts for a period of ten years. The period of ineligibility is effective from the date of determination by the Minister of PWGS.

#### 16. Period of Ineligibility for Breaching Administrative Agreements

The Bidder confirms that it understands that where it has concluded an Administrative Agreement and that it has breached any of its terms and conditions, the Minister of PWGS will lengthen the period of ineligibility for a period to be determined by the Minister of PWGS.

#### 17. Suspension of a Bidder

The Bidder confirms that it understands that the Minister of PWGS may suspend a Bidder from being awarded a contract for a period of up to 18 months, subject to renewal, pending completion of the criminal proceeding, if the Bidder has been charged with any of the offences listed in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences

subsections or if the Bidder has admitted to being guilty of any of these offences. The period of suspension is effective from the date of determination by the Minister of PWGS. A period of suspension does not abridge or suspend all other periods of ineligibility that may be imposed on a Bidder by the Minister of PWGS.

18. Third Party Validation

The Bidder confirms that it understands that where it or any of the Bidder's Affiliates has been subject to a period of ineligibility to be awarded contracts, for which the Canadian Pardons and the Foreign Pardons subsections do not apply, the Bidder must provide by bid closing date, a confirmation from an independent third party, recognized in advance by the Minister of PWGS, confirming that measures have been put in place in order to avoid the reoccurrence of such wrongdoings that led to the convictions. Failure to provide the said confirmation from an independent third party renders this bid non-responsive.

19. Subcontractors

The Bidder must ensure that contracts with first tier subcontractors include Integrity Provisions similar to those imposed in the resulting contract.

20. Public Interest Exception

The Bidder confirms that it understands:

- a. that, with the exception of a legal incapacity to contract resulting from section 750(3) of the Criminal Code, Canada may enter in a contract with a Bidder, or any of its Affiliates, which have been convicted of or have pleaded guilty to any of the offences referenced in the Canadian Offences and Foreign Offences subsections, where Canada considers it necessary to the public interest for reasons which include, but are not limited to:
  - i. the need is one of pressing emergency in which delay would be injurious to the public interest;
  - ii. the Bidder is the only person capable of performing the contract;
  - iii. the contract is essential to maintain sufficient emergency stocks in order to safeguard against possible shortages; and;
  - iv. not entering into the contract with the Bidder would have a significant adverse impact on the health, national security, safety, security or economic or financial well-being of the people of Canada or the functioning of any portion of the federal public administration;
- b. Canada may only enter into a contract with a Bidder under this subsection where the ineligible Bidder has concluded an Administrative Agreement with the Minister of PWGS, on such terms and conditions that are necessary to safeguard the integrity of the procurement process and can apply to any procurement. The Administrative Agreement need not be concluded in advance of the solicitation.

**GI02 COMPLETION OF BID**

1) The bid shall be

- (a) submitted on the Bid and Acceptance Form provided through the Government Electronic Tendering Service (GETS) or on a clear and legible reproduced copy of such Bid and Acceptance Form that must be identical in content and format to the Bid and Acceptance Form provided through GETS;
- (b) based on the Bid Documents listed in the Special Instructions to Bidders;
- (c) correctly completed in all respects;
- (d) signed by a duly authorized representative of the Bidder; and
- (e) accompanied by

- (i) bid security as specified in GI09; and
  - (ii) any other document or documents specified elsewhere in the solicitation where it is stipulated that said documents are to accompany the bid.
- 2) Subject to paragraph 6) of GI12, any alteration to the pre-printed or pre-typed sections of the Bid and Acceptance Form, or any condition or qualification placed upon the bid shall be cause for disqualification. Alterations, corrections, changes or erasures made to statements or figures entered on the Bid and Acceptance Form by the Bidder shall be initialed by the person or persons signing the bid. Initials shall be original(s). Alterations, corrections changes or erasures that are not initialed shall be deemed void and without effect.
- 3) Unless otherwise noted elsewhere in the Bid Documents, facsimile copies of bids are not acceptable.

### **GI03 IDENTITY OR LEGAL CAPACITY OF THE BIDDER**

- 1) In order to confirm the authority of the person or persons signing the bid or to establish the legal capacity under which the Bidder proposes to enter into Contract, any Bidder who carries on business in other than its own personal name shall, if requested by Canada, provide satisfactory proof of
- (a) such signing authority; and
  - (b) the legal capacity under which it carries on business;

prior to contract award. Proof of signing authority may be in the form of a certified copy of a resolution naming the signatory(ies) that is (are) authorized to sign this bid on behalf of the corporation or partnership. Proof of legal capacity may be in the form of a copy of the articles of incorporation or the registration of the business name of a sole proprietor or partnership.

### **GI04 (2015-02-25) APPLICABLE TAXES**

"Applicable Taxes" means the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), and any provincial tax, by law, payable by Canada such as, the Quebec Sales Tax (QST) as of April 1, 2013.

### **GI05 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES**

- 1) For the purposes of GC1.8, "Laws, Permits and Taxes", in the General Conditions of the Contract, only fees or charges directly related to the processing and issuing of building permits shall be included. The Bidder shall not include any monies in the bid amount for special municipal development, redevelopment or other fees or charges which a municipal authority may seek as a prerequisite to the issuance of building permits.

### **GI06 COMPOSITION OF CONSTRUCTION MANAGEMENT TEAM**

- 1) By submitting a proposal, the Bidder represents and warrants that the entities and persons proposed in the proposal to perform the required services will be the entities and persons that will perform the services in the fulfillment of the project under any contractual arrangement arising from submission of the proposal. If the Bidder has proposed any person who is not an employee of the Bidder, the Bidder warrants that it has written permission from such person (or the employer of such person) to propose the services of such person in relation to the services to be performed.

### **GI07 LIMITATION OF SUBMISSIONS**

- 1) While there is no requirement for firms to participate in this procurement in joint venture, they may elect to do so if they see fit. However, only one submission per bidder will be accepted, whether it is submitted by a firm as an individual Bidder or by that firm as part of a joint venture Bidder. If more than one submission is received from a firm acting either individually or in joint venture, all such submissions shall be rejected and no further consideration shall be given to the firm or to any proposed joint venture of which the firm forms part.

- 2) A joint venture is defined as an association of two or more parties which combine their money, property, knowledge, skills, time or other resources in a joint business enterprise agreeing to share the profits and the losses and each having some degree of control over the enterprise.
- 3) An arrangement whereby Canada contracts directly with a Contractor who may retain sub-contractors to perform portions of the work is not a joint venture arrangement. A sub-contractor may be proposed as part of the Construction Management Team by more than one Bidder.
- 4) Notwithstanding paragraph 3. above, in order to avoid any conflict of interest, or any perception of conflict of interest, no firm acting as an individual Bidder or as part of a joint venture Bidder, shall be proposed as a member of another Bidder's Team, either as a sub-contractor or as part of another joint venture Bidder. Failure to comply with this limitation will result in all submissions so involved being rejected.
- 5) Any joint venture must be in full compliance with the requirements of any provincial or territorial law pertaining thereto in the Province or Territory in which the project is located.

#### **GI08 LISTING OF SUBCONTRACTORS AND SUPPLIERS**

- 1) Notwithstanding any list of Subcontractors that the Bidder may be required to submit as part of the bid, the Bidder shall, within 48 hours of receipt of a notice to do so, submit all information requested in the said notice including the names of Subcontractors and Suppliers for the part or parts of the Work listed. Failure to do so shall result in the disqualification of its bid.

#### **GI09 BID SECURITY REQUIREMENTS**

1. The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is \$2,000,000.
2. A bid bond (form [PWGSC-TPSGC 504](#)) shall be in an approved form, properly completed, with original signatures and sealed by the approved bonding company whose bonds are acceptable to Canada either at the time of solicitation closing or as identified in Treasury Board Appendix L, [Acceptable Bonding Companies](#).
3. A security deposit shall be an original, properly completed, signed where required and be either
  - a. a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or
  - b. bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada.
4. For the purposes of subparagraph 3. a. of GI08
  - a. a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;
  - b. if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4.c. of GI08, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and
  - c. An approved financial institution is
    - i. a corporation or institution that is a member of the Canadian Payments Association as defined in the [Canadian Payments Act](#);

- ii. a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";
  - iii. a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;
  - iv. a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the [Income Tax Act](#); or
  - v. Canada Post Corporation.
- 5. Bonds referred to in subparagraph 3. b. of GI08 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be
  - a. payable to bearer;
  - b. accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or
  - c. registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.
- 6. As an alternative to a security deposit an irrevocable standby letter of credit is acceptable to Canada and the amount shall be determined in the same manner as a security deposit referred to above.
- 7. An irrevocable standby letter of credit referred to in paragraph 6) of GI08 shall
  - a. be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,
    - i. is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;
    - ii. is to accept and pay bills of exchange drawn by the Receiver General for Canada;
    - iii. authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or
    - iv. authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;
  - b. state the face amount which may be drawn against it;
  - c. state its expiry date;
  - d. provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;
  - e. provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;
  - f. provide that it is subject to the International Chamber of Commerce (ICC) *Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision*, ICC Publication No. 600, Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and



- 1) Canada may accept any bid, whether it is the lowest or not, or may reject any or all bids.
- 2) Without limiting the generality of paragraph 1) of GI12, Canada may reject a bid if any of the following circumstances is present:
  - (a) the Bidder's bidding privileges are suspended or are in the process of being suspended;
  - (b) the bidding privileges of any employee or subcontractor included as part of the bid are suspended or are in the process of being suspended, which suspension or pending suspension would render that employee or subcontractor ineligible to bid on the Work, or the portion of the Work the employee or subcontractor is to perform;
  - (c) the Bidder is bankrupt or where for whatever reason, its activities are rendered inoperable for an extended period;
  - (d) evidence, satisfactory to Canada, of fraud, bribery, fraudulent misrepresentation or failure to comply with any law protecting individuals against any manner of discrimination, has been received with respect to the Bidder, any of its employees or any subcontractor included as part of its bid;
  - (e) evidence satisfactory to Canada that based on past conduct or behavior, the Bidder, a subcontractor or a person who is to perform the Work is unsuitable or has conducted himself/herself improperly;
  - (f) with respect to current or prior transactions with Canada
    - i. Canada has exercised, or intends to exercise, the contractual remedy of taking the work out of the contractor's hands with respect to a contract with the bidder, any of its employees or any subcontractor included as part of its bid; or
    - ii. Canada determines that the Bidder's performance on other contracts is sufficiently poor to jeopardize the successful completion of the requirement being bid on.
- 3) In assessing the Bidder's performance on other contracts pursuant to subparagraph 2)(d)(iv) of GI12, Canada may consider, but not be limited to, such matters as:
  - (a) the quality of workmanship in performing the Work;
  - (b) the timeliness of completion of the Work;
  - (c) the overall management of the Work and its effect on the level of effort demanded of the department and its representative; and
  - (d) the completeness and effectiveness of the Contractor's safety program during the performance of the Work.
- 4) Without limiting the generality of paragraphs 1), 2) and 3) of GI12, Canada may reject any bid based on an unfavourable assessment of the
  - (a) adequacy of the bid price to permit the work to be carried out and, in the case of a bid providing prices per unit, whether each such price reasonably reflects the cost of performing the part of the work to which that price applies;
  - (b) Bidder's ability to provide the necessary management structure, skilled personnel, experience and equipment to perform competently the work under the Contract; and
  - (c) Bidder's performance on other contracts.
- 5) Where Canada intends to reject a bid pursuant to a provision of paragraphs 1), 2), 3) or 4) of GI12, other than subparagraph 2)(f) of GI12, the contracting Authority will inform the Bidder and provide

the Bidder ten (10) days within which to make representations, before making a final decision on the bid rejection.

- 6) Canada may waive informalities and minor irregularities in bids received if Canada determines that the variation of the bid from the exact requirements set out in the Bid Documents can be corrected or waived without being prejudicial to other Bidders.

#### **GI13 BID COSTS**

- 1) No payment will be made for costs incurred in the preparation and submission of a bid in response to the bid solicitation. Costs associated with preparing and submitting a bid, as well as any costs incurred by the Bidder associated with the evaluation of the bid, are the sole responsibility of the Bidder.

#### **GI14 PROCUREMENT BUSINESS NUMBER**

1. Bidders are required to have a Procurement Business Number (PBN) before Contract award. Bidders may register for a PBN in the Supplier Registration Information system on the Contracts Canada Web site. For non-Internet registration, Bidders may contact the nearest Supplier Registration Agent.

#### **GI15 COMPLIANCE WITH APPLICABLE LAWS**

1. By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.
2. For the purpose of validating the certification in paragraph 1) of GI15, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the request.
3. Failure to comply with the requirements of paragraph 2) of GI15 shall result in disqualification of the bid

#### **GI16 APPROVAL OF ALTERNATIVE MATERIALS**

- 1) When materials are specified by trade names or trademarks, or by manufacturers' or suppliers' names, the bid shall be based on use of the named materials. During the solicitation period, alternative materials may be considered provided full technical data is received in writing by the Contracting Officer at least ten (10) calendar days prior to the solicitation closing date. If the alternative materials are approved for the purposes of the bid, an addendum to the bid documents shall be issued.

#### **GI17 PERFORMANCE EVALUATION**

- 1) Bidders shall take note that the performance of the Contractor during and upon completion of the work shall be evaluated by Canada. The evaluation shall be based on the quality of workmanship; timeliness of completion of the work; project management, contract management and management of health and safety. Should the Contractor's performance be considered unsatisfactory, the Contractor's bidding privileges on future work may be suspended indefinitely.
- 2) The form PWGSC-TPSGC 2913, SELECT - Contractor Performance Evaluation Report Form, is used to record the performance.

#### **GI18 CONFLICT OF INTEREST - UNFAIR ADVANTAGE**

- 1) In order to protect the integrity of the procurement process, bidders are advised that Canada may reject a bid in the following circumstances:

- (a) if the Bidder, any of its subcontractors, any of their respective employees or former employees was involved in any manner in the preparation of the bid solicitation or in any situation of conflict of interest or appearance of conflict of interest;
  - (b) if the Bidder, any of its subcontractors, any of their respective employees or former employees had access to information related to the bid solicitation that was not available to other bidders and that would, in Canada's opinion, give or appear to give the Bidder an unfair advantage.
- 2) The experience acquired by a bidder who is providing or has provided the goods and services described in the bid solicitation (or similar goods or services) will not, in itself, be considered by Canada as conferring an unfair advantage or creating a conflict of interest. This bidder remains however subject to the criteria established above.
- 3) Where Canada intends to reject a bid under this section, the Contracting Authority will inform the Bidder and provide the Bidder an opportunity to make representations before making a final decision. Bidders who are in doubt about a particular situation should contact the Contracting Authority before bid closing. By submitting a bid, the Bidder represents that it does not consider itself to be in conflict of interest nor to have an unfair advantage. The Bidder acknowledges that it is within Canada's sole discretion to determine whether a conflict of interest, unfair advantage or an appearance of conflict of interest or unfair advantage exists.

#### **GI19 FINANCIAL CAPABILITY**

- 1) **Financial Capability Requirement:** The Bidder must have the financial capability to fulfill this requirement. To determine the Bidder's financial capability, the Contracting Authority may, by written notice to the Bidder, require the submission of some or all of the financial information detailed below during the evaluation of bids. The Bidder must provide the following information to the Contracting Authority within fifteen (15) working days of the request or as specified by the Contracting Authority in the notice:
- a. Audited financial statements, if available, or the unaudited financial statements (prepared by the Bidder's outside accounting firm, if available, or prepared in-house if no external statements have been prepared) for the Bidder's last three fiscal years, or for the years that the Bidder has been in business if this is less than three years (including, as a minimum, the Balance Sheet, the Statement of Retained Earnings, the Income Statement and any notes to the statements).
  - b. If the date of the financial statements in (a) above is more than five months before the date of the request for information by the Contracting Authority, the Bidder must also provide, unless this is prohibited by legislation for public companies, the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement), as of two months before the date on which the Contracting Authority requests this information.
  - c. If the Bidder has not been in business for at least one full fiscal year, the following must be provided:
    - i. the opening Balance Sheet on commencement of business (in the case of a corporation, the date of incorporation); and
    - ii. the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement) as of two months before the date on which the Contracting Authority requests this information.
  - d. A certification from the Chief Financial Officer or an authorized signing officer of the Bidder that the financial information provided is complete and accurate.
  - e. A confirmation letter from all of the financial institution(s) that have provided short-term financing to the Bidder outlining the total of lines of credit granted to the Bidder and the amount of credit that remains available and not drawn upon as of one month prior to the date on which the Contracting Authority requests this information.

- f. A detailed monthly Cash Flow Statement covering all the Bidder's activities (including the requirement) for the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures on a monthly basis, for all the Bidder's activities. All assumptions made should be explained as well as details of how cash shortfalls will be financed.
  - g. A detailed monthly Project Cash Flow Statement covering the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures, for the requirement, on a monthly basis. All assumptions made should be explained as well as details of how cash shortfalls will be financed.
- 2) If the Bidder is a joint venture, the financial information required by the Contracting Authority must be provided by each member of the joint venture.
  - 3) If the Bidder is a subsidiary of another company, then any financial information in 1. (a) to (f) above required by the Contracting Authority must be provided by the ultimate parent company. Provision of parent company financial information does not by itself satisfy the requirement for the provision of the financial information of the Bidder, and the financial capability of a parent cannot be substituted for the financial capability of the Bidder itself unless an agreement by the parent company to sign a Parental Guarantee, as drawn up by Public Works and Government Services Canada (PWGSC), is provided with the required information.
  - 4) **Financial Information Already Provided to PWGSC:** The Bidder is not required to resubmit any financial information requested by the Contracting Authority that is already on file at PWGSC with the Contract Cost Analysis, Audit and Policy Directorate of the Policy, Risk, Integrity and Strategic Management Sector, provided that within the above-noted time frame:
    - a. the Bidder identifies to the Contracting Authority in writing the specific information that is on file and the requirement for which this information was provided; and
    - b. the Bidder authorizes the use of the information for this requirement.  
It is the Bidder's responsibility to confirm with the Contracting Authority that this information is still on file with PWGSC.
  - 5) **Other Information:** Canada reserves the right to request from the Bidder any other information that Canada requires to conduct a complete financial capability assessment of the Bidder.
  - 6) **Confidentiality:** If the Bidder provides the information required above to Canada in confidence while indicating that the disclosed information is confidential, then Canada will treat the information in a confidential manner as permitted by the Access to Information Act, R.S., 1985, c.c. A-1, Section 20(1) (b) and (c).
  - 7) **Security:** In determining the Bidder's financial capability to fulfill this requirement, Canada may consider any security the Bidder is capable of providing, at the Bidder's sole expense (for example, an irrevocable letter of credit from a registered financial institution drawn in favour of Canada, a performance guarantee from a third party or some other form of security, as determined by Canada).

## **SUBMISSION REQUIREMENTS AND EVALUATION**

- SRE 1 General Information
- SRE 2 Technical Proposal Submission Requirements and Evaluation
- SRE 3 Price Evaluation
- SRE 4 Basis of Selection

## **SUBMISSION REQUIREMENTS AND EVALUATION**

### **SRE 1 GENERAL INFORMATION**

#### **1.1 Submission of Proposals**

- 1.1.1 Proposals are to be submitted following a "two-envelope" procedure in which Bidders submit technical aspects of their proposal in one envelope and the proposed price and bid security in a second envelope.
- 1.1.2 Submit one (1) original and five (5) copies of the technical proposal (envelope one).
  - Submit a signed proposal, duly completed, in the format requested, on or before the closing date and time, and direct proposals ONLY to the designated office identified on the front page of the Request for Proposal.
- 1.1.3 Submit one (1) signed original of the price proposal and bid security in a sealed envelope (envelope two).
  - Submit a signed Price Proposal Form duly completed, in the format requested, on or before the closing date and time accompanied by bid security per the General Instructions to Bidders.

#### **1.2 Format of Proposals**

- 1.2.1 The following proposal format information should be implemented when preparing the proposal:
  - a) Paper size should be - 216mm x 279mm (8.5" x 11")
  - b) Minimum font size - 11 point Times or equal
  - c) Minimum margins - 12 mm left, right, top, and bottom
  - d) Double-sided submissions are preferred
  - e) 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.
  - f) The order of the proposals should follow the order established in the Request for Proposal SRE section
  - g) The maximum number of pages (including text and graphics) to be submitted for the Rated Requirements under SRE 2 is **thirty (30) pages**. The following are not part of the page limitation:
    - i) Covering letter (optional - contents not evaluated);
    - ii) Front page of the RFP;
    - iii) Front page of revision(s) to the RFP;
    - iv) Appendix A - Price Proposal Form;
    - v) Section Dividers not containing technical information; and
    - vi) 2-page sample quality management report.

**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.

### **1.3 Evaluation of Proposals**

1.3.1. To be declared responsive, a bid must:

- a) comply with all the requirements of the bid solicitation;
- b) meet all mandatory technical evaluation criteria; failure to meet the mandatory requirements will render the proposal as non-responsive and no further evaluation will be carried out.
- c) Price proposal form must be fully completed and accompanied by the required bid security.

1.3.2. Bids not meeting 1.3.1 will be declared non-responsive. Responsive proposals will be evaluated and assigned a score against the criteria described in SRE 2.

**SRE 2 TECHNICAL PROPOSAL SUBMISSION REQUIREMENTS AND EVALUATION** Proponents must achieve a minimum Criterion pass mark of 50%, and a minimum overall Technical Score of 70%.

#### **2.1 Comprehension of the Scope of Services**

1. *What we are looking for:*

Demonstration of an understanding of the overall requirements for construction management services, including specific deliverables, expected approaches, technical expectations, and coordination requirements within the Canadian Government context.

2. *What the Proponent should provide:*

- (a) Broader project goals (federal image, sustainable development, sensitivities);
- (b) Description of the proponent's approach to responding to the project outlined in the TOR;
- (c) Approach and deliverable content for program based project;
- (d) Methodology and supporting documents to prioritize work items and phasing to meet budget and schedule;
- (e) Methodology and supporting documents for working with a consultant in an advisory role;
- (f) Cost Control strategies such as scope adjustment and deliverables;
- (g) Risk management and mitigation approach;
- (h) Schedule Control methodologies and deliverables;
- (i) Describe your understanding and approach to Project structure, Client environment, and contract tendering/award process.

#### **2.2 Team Approach / Management of Services**

1. *What we are looking for:*

A demonstration of how the Construction Management team will be organized and the team's approach and methodology in the delivery of the Required Services in the TOR.

2. *What the Proponent should provide:*

A description of:

- (a) Assignment of the resources and availability of back-up personnel;
- (b) Roles and responsibilities of key personnel complete with proposed typical work breakdown structure, including assigning of resources, time scheduling, level of effort;
- (c) Internal Quality Management techniques and methodologies used by the proponent;

- (d) Demonstration of how the team intends to meet the Project Response Time Requirements;
- (e) Communication strategy;
- (f) Description of how advice will be provided during the design and implementation stages.
- (g) Conflict resolution methodology.

### **2.3 Management of Services and Work**

1. *What we are looking for:*

A demonstration of how the proponent proposes to perform the Services and deliver the Eork while meeting the project constraints.

2. What the Proponent should provide:

- (a) Description of Scheduling Services, explain how schedule control will be applied throughout the delivery of the Project;
- (b) Description of Cost Services, explain how cost control will be applied throughout the delivery of the Project;
- (c) Description of Scope control methodology;
- (d) Description of Quality control methodology, explain how quality control will be applied throughout the delivery of the Project;
- (e) Description of Tendering methodology;
  - i. Describe the tendering practices and identify the Form of Contract that the Proponent will use with the sub-contractors.
- (f) Description of Commissioning methodology;
- (g) Description of engaging and coordinating Hazardous Material Abatement Consultant's scope of work.

### **2.4 Previous Related Experience**

1. *What we are looking for:*

Demonstration that over at least the past 7 years, the Proponent has participated in a range of projects requiring a full scope of services in accordance with the Required Services section of the TOR. The Proponent's participation in these projects should have involved the scope of services listed in the Required Services section.

2. *What the Proponent should provide:*

A brief description of a maximum of three (3) institutional and/or laboratory projects. At least two (2) of these projects must have been Substantially Complete over the last seven (7) years by the Proponent. For the above projects;

- (a) Outline how the project is comparable to the one in the TOR.
- (b) Include the names of senior and project personnel involved as part of the project team complete with respective roles and responsibilities;
- (c) Indicate scope of services rendered, project objectives, constraints and deliverables;
- (d) Describe the team approach to the management of services including the integration and coordination of the project team, including consultant team and other sub-contractors; at all stages of project delivery.
- (e) Describe the team approach to adjusting scope of service to meet budgetary restrictions;
- (f) Describe how scope, quality and risks were managed to achieve clients' expectations;
- (g) Describe how tender documents were prepared to ensure fair, open, competitive and transparent tendering;
- (h) Describe how the proponent applied innovative solutions to prioritizing work items within a program based project;
- (i) Describe how Commissioning was integrated into the project delivery process
- (j) Describe how Hazardous Material Abatement was integrated into the project delivery process;

- (k) Provide the original Project Budget, final project cost and explanations for deviations;
  - (l) Provide original Project Schedule, final project duration and explanations for deviations;
  - (m) Provide Client reference names, address, phone, fax of client contact at working level.
  - (n) Reference checks may be requested and completed. The Contractor must ensure that all references provided are currently available and can be contacted by the PWGSC Evaluation Team within five (5) working days of bid closing.
3. Indicate projects which were carried out in joint venture and the responsibilities of each of the involved entities in each project.

## **2.5 Proponent Key Personnel Expertise and Experience**

1. *What we are looking for:*  
A demonstration that the Proponent has key personnel in-house with the capability, capacity and expertise in each area listed in the Required Services section.  
The CM Team must have a lead person in charge of the team assigned to the position of Senior Construction Manager.
2. *What the Proponent should provide:*  
Submit a maximum of five (5) curriculum vitae (c.v.(s)) of key personnel. Particular attention should be given to the Senior Construction Manager. Each c.v. should:
  - (a) Clearly indicate the years of experience the key personnel has in the provision of the services specified in the Required Services section (if not done with proponent firm, specify name of firm);
  - (b) Include relevant projects, complete with role and services provided by key personnel;
  - (c) Identify anticipated role for the key personnel in this project;
  - (d) Identify academic and/or relevant qualifications such as PMP, Gold Seal, etc.
  - (e) Provide Client reference names, address, phone, fax of client contact at working level.
  - (f) Reference checks may be requested and completed. The Contractor must ensure that all references provided are currently available and can be contacted by the PWGSC Evaluation Team within five (5) working days of bid closing.
  - (g) Name and qualifications of the back-up person for each key personnel.
4. In-house personnel means personnel within the Proponent's organization.
5. Although the quality of the Project Team remains the key to the successful delivery of the project, the Bidder's organization is usually structured to provide management overview and to support those in the field with specialized support services.
  - a. Confirm, given constrained timeline, that proposed team is available immediately for this Project;
  - b. Identify what other corporate resources may be necessary/available and explain how they will assist the Project team in specific areas.
6. In addition to the in-house personnel, provide the Hazardous Material Abatement Consultant team's c.v.(s).

## 2.6 Technical Evaluation and Rating of Solicitation:

Price envelopes will remain sealed and only the technical components of the proposals which are deemed 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
Comprehension of the Scope of Services	1.5	0 - 10	0 – 15
Team Approach / Management of Services	1.0	0 - 10	0 – 10
Management of Services and Work	3.5	0 - 10	0 – 35
Previous Related Experience	2.0	0 - 10	0 – 20
Proponent Key Personnel Expertise and Experience	2.0	0 - 10	0 – 20
Technical Rating (Total)	10.0		0 - 100

To be considered further, proponents Technical Submissions **must** achieve an individual criterion pass mark of 50%, and an overall Technical Score of 70%. **No further consideration will be given to proponents submissions not achieving the minimum technical score(s).**

### SRE 3 PRICE EVALUATION

The price proposal and bid security shall be submitted in a separate sealed envelope. The price envelopes of all responsive proposals will be opened upon completion of technical submission evaluation. The price submitted by the Bidder will be divided by the Technical Score to establish the Price per Point of the Proposal.

### SRE 4 BASIS OF SELECTION

The Bidder whose responsive proposal achieves the lowest overall Price per Point is the first entity that the Evaluation Board will recommend be approached to finalize the details of a Contract for the provision of the required Services and Work. In the case of a tie, the Bidder submitting the lower price will be selected.

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**ANNEX A**  
**TERMS OF REFERENCE**

**ANNEX B**  
**PWGSC PROCEDURES AND STANDARDS DOCUMENT**

**ANNEX C**  
**VOLUNTARY REPORTS FOR APPRENTICES EMPLOYED DURING THE CONTRACT**

**ANNEX D**  
**CERTIFICATE OF INSURANCE**

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## APPENDIX 1

### PRICE PROPOSAL FORM (5 pages)

#### BA01 IDENTIFICATION

- 1) Description of the Work: Construction Management Services  
Deferred Maintenance Program  
NRCan, Northern Forestry Centre
- 2) Solicitation Number: EW038-160886
- 3) Project Number: R.077101.001

#### BA02 BUSINESS NAME AND ADDRESS OF BIDDER

- 1) Name: \_\_\_\_\_
- 2) Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 3) Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_
- 4) PBN: \_\_\_\_\_ E-mail: \_\_\_\_\_

#### BA03 THE OFFER

- 1) The Bidder offers to Her Majesty the Queen in right of Canada to perform and complete the Work for the above named project in accordance with the Proposal Documents for the Total Proposal Amount of

\$ \_\_\_\_\_ excluding GST/HST  
(to be expressed in numbers only)

The above amount represents the sum of (a) the Fixed Fee; (b) Estimated construction cost of \$7,000,000.00; (c) \$7,000,000.00 multiplied by the Contractor's Percentage Fee (a+b+(bxc)).

- (a) A Fixed Fee of \$ \_\_\_\_\_ for the portion of the Work that is defined in Section 2 - CM Advisory and Support Required Services of the Terms of Reference document and for any additional Work that is required to execute the contract other than what is provided for in 1) (b) and 1)(c) of BA03;
- (b) the Estimated Construction Cost of \$7,000,000.00 for all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the

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labour, Plant and Material, other than those provided for in 1)(a) and 1(c) of BA03, that fall within one of the classes of expenditure described in BA04, that are directly attributable to the performance of the Contract;

- (c) the Contractor's Percentage Fee of \_\_\_\_%, that will be applied to the price of the Work that is defined in Section 3 - CM Constructor Required Services in relation to Section 1.6 of the Terms of Reference. The Percentage fee shall cover profit, overhead and general administration costs, all charges relating to the financing of the project, general supervision, site supervision, management and coordination of all sub-trades, and the Contractor's expenses and administrative costs relative to the project.

- 2) Any errors in the addition or multiplication of the amounts in subparagraphs 1)(a), (b), and (c) of BA03 shall be corrected by Canada to obtain the Total Proposal Amount.

#### **BA04 CONSTRUCTION COST OF THE WORK**

- 1) The cost of labour, Plant and Material referred to in subparagraph 1)(b) of BA03 shall be limited to the following categories of expenditure:
- (a) payments to Subcontractors and Suppliers;
  - (b) wages, salaries, bonuses of employees of the Contractor provided they are actually and properly engaged on the Work under the Contract;
  - (c) assessments payable under any statutory authority relating to workers' compensation, employment insurance, pension plan or holidays with pay, provincial health or insurance plans, environmental reviews, and GST/HST collection costs;
  - (d) rent that is paid for Plant, or an amount equivalent to the said rent if the Plant is owned by the Contractor, that is necessary for and used in the performance of the Work, if the rent or the equivalent amount is reasonable and use of that Plant has been approved by Canada;
  - (e) payments for maintaining and operating Plant necessary for and used in the performance of the Work, and payments for effecting repairs thereto that, in the opinion of Canada, are necessary for the proper performance of the Contract, other than payments for any repairs to the Plant arising out of defects existing before its allocation to the Work;
  - (f) payments for Material that is necessary for and incorporated in the Work, or that is necessary for and consumed in the performance of the Contract;
  - (g) payments for preparation, delivery, handling, erection, installation, inspection, protection and removal of the Plant and Material necessary for and used in the performance of the Contract; and
  - (h) any other payments made by the Contractor with the approval Canada that are necessary for the performance of the Contract in accordance with the Contract Documents.

#### **BA05 PROPOSAL VALIDITY PERIOD**

- 1) The proposal shall not be withdrawn for a period of one hundred twenty (120) days following the date of solicitation closing.

#### **BA06 CONTRACT DOCUMENTS**

1. The following are the contract documents:
  - a. Contract Page when signed by Canada;
  - b. Duly completed Bid and Acceptance Form and any Appendices attached thereto;
  - c. Drawings and Specifications;
  - d. General Conditions and clauses

GC1 General Provisions – Construction Services	R2810D	(2015-07-09);
GC2 Administration of the Contract	R2820D	(2015-02-25);
GC3 Execution and Control of the Work	R2830D	(2015-02-25);
GC4 Protective Measures	R2840D	(2008-05-12);
GC5 Terms of Payment	R2850D	(2015-02-25);
GC6 Delays and Changes in the Work	R2860D	(2013-04-25);
GC7 Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8 Dispute Resolution	R2882D	(2015-02-25);
GC9 Contract Security	R2890D	(2014-06-26);
GC10 Insurance	R2900D	(2008-05-12);
Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2015-02-25);

Supplementary Conditions
  - e. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
  - f. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
  - g. Any amendment or variation of the contract documents that is made in accordance with the General Conditions.
2. The documents identified by title, number and date above are incorporated by reference and 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. The language of the contract documents is the language of the Bid and Acceptance Form submitted.

#### **BA07 ACCEPTANCE AND CONTRACT**

- 1) Upon acceptance of the Contractor's proposal by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents referred to in BA06 CONTRACT DOCUMENTS.

#### **BA08 CONSTRUCTION TIME**

- 1) All work / construction is to be completed by March 31, 2017.

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**BA09 BID SECURITY**

- 1) The Bidder shall enclose bid security with its proposal in accordance with GI09 BID SECURITY REQUIREMENTS.
- 2) If the security furnished does not comply fully with the requirements referred to in paragraph 1) herein, the proposal shall be disqualified.
- 3) If a security deposit is furnished as bid security, it shall be forfeited in the event that the proposal is accepted by Canada and the Contractor fails to provide Contract Security in accordance with GC9 CONTRACT SECURITY.

**BA10 SIGNATURE**

Name and title of person authorized to sign on behalf of Bidder (Type or print)

\_\_\_\_\_

Name

\_\_\_\_\_

Title

\_\_\_\_\_

Signature

\_\_\_\_\_

Date

## **APPENDIX 2**

### **DIVISION 01 GENERAL REQUIREMENTS**

The attached list of General Requirements specifications is intended as a guide for preparation of individual tender package specific General Requirements specifications. The specification listing is based on National Master Specification numbering.

The design content of individual tender packages will be different for each assignment, and not all of the listed General Requirements may be relevant or required. The Construction Manager and Consultant are to prepare a draft Division 01 General Requirements specification listing for each tender package in the project, for review by PWGSC Departmental Representative. Content within each specification section may also be customized to suit the unique requirements of the tender package and project.

#### **Section Title**

01 11 00 Summary of Work  
01 14 00 Work Restrictions  
01 21 00 Allowances  
01 29 00 Payment Procedures  
01 29 83 Payment Procedures for Testing Laboratory Services  
01 31 19 Project Meetings  
01 32 17 Construction Progress Schedule – Critical Path Method (CPM)  
01 33 00 Submittal Procedures  
01 35 14 Special Procedures for Traffic Control  
01 35 15 Special Project Procedures for Contaminated Sites  
01 35 30 Health and Safety Requirements  
01 35 31 Health and Safety Requirements for Contaminated Sites  
01 35 43 Environmental Procedures  
01 35 73 Procedures for Deconstruction of Structures  
01 41 00 Regulatory Requirements  
01 42 00 References  
01 45 00 Quality Control  
01 47 17 Sustainable Requirements: Contractor's Verification  
01 51 00 Temporary Facilities  
01 52 00 Construction Facilities  
01 56 00 Temporary Barriers and Enclosures  
01 61 00 Common Product Requirements  
01 71 00 Examination and Preparation  
01 73 03 Execution Requirements  
01 74 11 Cleaning  
01 74 19 Construction/Demolition Waste Management and Disposal  
01 77 00 Closeout Procedures  
01 78 00 Closeout Submittals  
01 79 00 Demonstration and Testing  
01 91 13 General Commissioning (CX) Requirements  
01 91 31 Commissioning (CX) Plan  
01 91 33 Commissioning Forms  
01 91 41 Commissioning: Training



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## **APPENDIX 4 – DEPARTMENTAL REPRESENTATIVE AUTHORITY**

### **TO BE PROVIDED AT CONTRACT AWARD.**

#### Contracting Authority is :

Name : \_\_\_\_\_

Title : \_\_\_\_\_

Department : \_\_\_\_\_

Division : \_\_\_\_\_

Telephone : \_\_\_\_ - \_\_\_\_ - \_\_\_\_\_

e-mail : \_\_\_\_\_

#### Technical Authority is :

Name : \_\_\_\_\_

Title : \_\_\_\_\_

Department : \_\_\_\_\_

Division : \_\_\_\_\_

Telephone : \_\_\_\_ - \_\_\_\_ - \_\_\_\_\_

e-mail : \_\_\_\_\_

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**APPENDIX 5 - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES**

*Note; The contractor will be asked to fill out a report every six months or at project completion as per sample "Voluntary Reports for Apprentices Employed during the Contract" provided at Annex E*

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Legal Name: \_\_\_\_\_

Solicitation Number: \_\_\_\_\_

Number of company employees: \_\_\_\_\_

Number of apprentices planned to be working on this contract: \_\_\_\_\_

Trades of those apprentices:

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## **APPENDIX 6 – HEALTH AND SAFETY REQUIREMENTS MANDATORY HEALTH AND SAFETY** *- for Work in the Province of Alberta*

### **1.) SPECIAL INSTRUCTIONS TO BIDDERS (SI):**

#### **WCB AND SAFETY PROGRAM**

- 1) The recommended Bidder shall provide to the Contracting Authority, prior to Contract award:
  - 1.1 a Workers Compensation Board Premium Rate Statement - Alberta, or equivalent documentation from another jurisdiction;
  - 1.2 a Workers Compensation Board letter of good standing, also listing covered Directors, Principals, Proprietor(s) or Partners who will be or who are anticipated to be present on the work site(s), or equivalent documentation from another jurisdiction; and
  - 1.3 a Certificate of Recognition (COR) or Registered Safety Plan (RSP). A health and safety policy and program, as required by other provincial/territorial Occupational Health and Safety Acts, will be acceptable in lieu of a COR or RSP.
- 2) The recommended Bidder shall deliver all of the above documents to the Contracting Authority on or before the date stated (usually 3-5 days after notification) by the Contracting Authority. Failure to comply with the request may result in the bid being declared non-compliant.

### **2.) SUPPLEMENTARY CONDITIONS (SC):**

#### **Workplace Safety and Health**

##### **1. EMPLOYER/PRIME CONTRACTOR**

- 1.1 The Contractor shall, for the purposes of the Occupational Health and Safety Act, Alberta, and for the duration of the Work:
  - 1.1.1 act as the Employer, where there is only one employer on the work site, in accordance with the Authority Having Jurisdiction;
  - 1.1.2 accept the role of Prime Contractor, where there are two or more employers involved in work at the same time and space at the work site, in accordance with the Authority Having Jurisdiction; and
  - 1.1.3 agree, in the event of two or more Contractors working at the same time and space at the work site, without limiting the General Conditions, to Canada's order \* to:
    - 1.1.3.1 accept, as the Prime Contractor, the responsibility for Canada's other Contractor(s);  
or
    - 1.1.3.2 accept that Canada's other Contractor is Prime Contractor and conform to that Contractor's Site Specific Health and Safety Plan.

*\* "order" definition: after contract award, Contractor is ordered by a Change Order*

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##### **2. SUBMITTALS**

- 2.1 The Contractor shall provide to Canada:

- 
- 2.1.1 prior to the pre-construction meeting, a transmittal and copy of a completed Notice of Project form PWGSC - TPSGC 458 (form will be provided to the proposed contractor prior to award), as sent to the Authority Having Jurisdiction (AHJ); and
  - 2.1.2 prior to commencement of work and without limiting the terms of the General Conditions:
    - 2.1.2.1 copies of all other necessary permits, notifications and related documents as called for in the scope of work/specifications and/or by the AHJ; and
    - 2.1.2.2 a site specific Health and Safety Plan as requested.

*NOTE: Please do not include any forms that include personal 3rd party information such as the names of the contractor's employees and their related claims information.*

### 3. LABOUR AUTHORITY CONTACT:

*The contact below represents the Labour Authority in the jurisdiction (AHJ). They are not representatives of the Workers Compensation.*

Do not contact the people referenced below for issues pertaining to WCB or WCB Clearances. Those queries must be directed specifically to the WCB, and where the WCB has both a Labour and Compensation component, WCB issues must be directed to the Compensation/Employer Services sections.

#### **ALBERTA North**

Alberta Human Resources and Employment  
Workplace Health and Safety  
10th Floor, 7th Street Plaza  
10030-107 Street  
Edmonton, Alberta, T5J 3E4

Telephone: 1(866) 415-8690  
Email: All submissions are to be scanned and  
emailed to  
[whs@gov.ab.ca](mailto:whs@gov.ab.ca)

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**APPENDIX 7 – Construction Estimate**  
**See attached**



Serving  
**GOVERNMENT,**  
Serving  
**CANADIANS.**

# Construction Management Services **TERMS OF REFERENCE**

## Deferred Maintenance Program

For  
Natural Resources Canada  
(NRCan)  
Northern Forestry Centre  
Edmonton, Alberta

July 27 2015



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# 1. PROJECT DESCRIPTION

## 1.1 GENERAL

### 1.1.1 PURPOSE

- .1 These Terms of Reference (TOR) have been developed to engage the services of a Construction Manager (CM) to provide advisory and general contractor and support services for the Deferred Maintenance Program at the Northern Forestry Centre and to ensure that the CM has a clear understanding of the project scope, procedures and performance requirements.
- .2 The TOR describes project specific requirements, services and deliverables for the construction management of the Deferred Maintenance Program at the Northern Forestry Centre.

### 1.1.2 THE PWGSC GENERAL PROCEDURES AND STANDARDS DOCUMENT (GP&S) FOR CM SERVICES

- .1 The TOR document must be used in conjunction with the GP&S, as the two documents are complementary.
- .2 The TOR describes project-specific requirements, services and deliverables while the GP&S document outlines minimum standards and procedures common to all projects.
- .3 In the case of a conflict between the two documents, the requirements of the TOR override the GP&S Document.

### 1.1.3 PROJECT INFORMATION

Project Information	
Project Title:	Deferred Maintenance Program – Northern Forestry Centre
Project Location:	Northern Forestry Centre 5320 – 122 <sup>nd</sup> Street Edmonton, Alberta
PWGSC Project Number:	R.077101
User Department:	Natural Resources Canada (NRCan)
PWGSC Contracting Officer	
User Department Representatives:	
PWGSC Project Manager	

## 1.2 BACKGROUND INFORMATION

### 1.2.1 PROJECT GOAL AND MANDATE

- .1 There have been various upgrades to the building and its mechanical and electrical systems over the 40 year life of the building. However, due to the age of the building and previous project deferrals there is a need to upgrade and update various building systems and components. The goal of this program is to advance the upgrade of the building components that have been identified as priorities.



- .2 The design will be for new construction, renovations to existing buildings and demolition through various design packages.

### 1.2.2 THE SITE

#### .1 General

- .1 Northern Forestry Centre, is located at 5320 – 122<sup>nd</sup> Street, in Edmonton, Alberta. The main building was constructed in 1969 and is a 3-storey concrete framed structure, with basement and penthouse, clad primarily with pre-cast concrete panels, double-glazed aluminum framed windows and built-up tar and gravel roofing.

#### .2 Heritage

- .1 The Northern Forestry Building is currently being reviewed by the Federal Heritage Building Review Office (FHBRO). Should the building be designated as classified or recognized, implement the project following a conservation approach based on accepted principles and practices described in the Standards and Guidelines for the Conservation of Historic Places in Canada. Implement solutions using a minimum intervention approach causing the least harm to the heritage character of the building.

#### .3 Hazardous Materials and Environmental Restrictions

- .1 The following hazardous materials have been identified at this site through various audits of this building:
  - .1 Asbestos.
  - .2 Refer to Asbestos-Containing Building Materials Survey developed by Tetra Tech.
  - .3 Provide all Hazardous Abatement Professional consulting and carry out remedial work results associated with abatement work.
    - .1 Approximately half of the work items are anticipated to require abatement work.
  - .4 The Architectural and Engineering Consultant Team is responsible for identifying the area(s) of design that may require abatement.

### 1.2.3 PROJECT CONSTRAINTS AND CHALLENGES

- .1 The construction on the project site will be performed during the full operation of the facilities. Project phasing must be planned to ensure that disruption to the daily operation of the facilities is kept to a minimum.
- .2 Environmental conditions must be kept under control during all phases of the work.
  - .1 One of the tenants on the 3rd floor regularly tests legal samples that need to be temperature and humidity controlled and cannot be tampered with. The Construction Manager must work with this tenant to ensure the samples are secure and safe for the duration of construction.
- .3 The work items must be constructed and be substantially as noted in the Project Milestone List.
- .4 Explore options for best value for dollar considering life cycle costs and NRCan's desire to improve sustainability, but work to the identified budget and make every attempt to improve the schedule.
- .5 Provide for financial accounting of each of the identified work items separately to PWGSC.



- .6 Budget for a total construction value of shown in article 1.9, by adjusting the scope of the individual work items accordingly and as agreed with the Departmental Representative.
- .7 The Design team and the Construction Manager are tasked to accelerate the implementation of the program to the extent possible and if possible exceed the indicated schedules.
- .8 The work will typically be carried out during normal working hours, when the Institution is fully occupied and operational. Some after hours work is expected.
  - .1 The electrical system upgrade will require a system shutdown during the construction. The CM shall take all the necessary measures to ensure the power interruption is within acceptable time frame.
  - .2 The building will have 24 hour access if necessary.

### 1.3 PROJECT DELIVERY APPROACH

#### 1.3.1 PROJECT DELIVERY OBJECTIVES AND REQUISITE

- .1 Under this project delivery approach, responsibility of the CM shall include advisory, support services and General Contractor (GC) work.
- .2 The CM shall provide;
  - .1 Construction management services throughout the project phases and demonstrate leadership,
  - .2 Delivery of the project according to the Project Milestones and within the approved budget and on scope,
  - .3 A continuous risk management program to address the risks associated with designing and renovating facilities,
  - .4 A quality management plan that includes quality reviews on a construction management project delivery approach, and
  - .5 Contingency plans to mitigate potential delays arising from logistic and weather related challenges.
  - .6 Ensure co-ordination of services with other consultants/contractors hired by PWGSC.
    - .1 Installation of a new sprinkler system in the building will be underway. The Construction Manager will assume the role of Prime Contractor and be responsible for the coordination and safety of the construction space.
    - .2 A third party commissioning agent will be retained by the design consultant. The agent will lead commissioning activities. CM to provide support as required.

#### 1.3.2 DESIGN PHASE

- .1 For the design phase of this Project, an Architectural and Engineering firm (referred to herein as the Consultant) is being engaged to complete the design and will direct and co-ordinate all phases of the design work for this Project.
- .2 During design phase,
  - .1 Architectural and Engineering services including all cross discipline coordination work will be provided by the Consultant Team.



- .2 The CM shall provide advisory and support services to the design team and provide quality reviews on the constructability of proposed designs and tender packages.
- .3 Hazardous material abatement:
  - .1 Engage a Hazardous Abatement Professional consultant to develop tender documents for the hazardous material abatement and make ready the site for the new Work.
    - .1 Utilize industry standard client (CM)-consultant (Hazardous Abatement) agreement providing full services.
    - .2 Hazardous Abatement Professional consultant is to provide advisory services to the project delivery team.
      - .1 Develop the abatement scope of work,
      - .2 Evaluate the impact of hazardous material abatement against the merits of design options developed by the Consultant Team.
  - .4 The Consultant Team will work closely with the CM to develop the design and ensure that all information is made available to the CM. The CM shall provide advice on:
    - .1 Construction costs;
    - .2 Material delivery & construction schedules;
    - .3 Constructability;
    - .4 Suitability and availability of materials and components; and
    - .5 Sustainable design, construction, and operation principles and practices.
    - .6 Commissioning activities.

### 1.3.3 CONSTRUCTION PHASE

- .1 The CM shall provide services as the General Contractor during the construction phase of the project.
  - .1 The CM shall provide the Crown with flexibility to implement and coordinate multiple tender packages, and phases and shall expedite the schedule of completion of the Work.
  - .2 The CM shall oversee all construction tender packages on the building site and provide coordination, quality assurance and efficiency.
  - .3 The CM, in consultation with the Consultant Team and Departmental Representative, will help determine the number of tender packages required for the project. This is to enable the Consultant Team to prepare the tender packages in a timely manner and ensure full co-ordination of the work of all disciplines.

### 1.3.4 WORK PACKAGES

- .1 There are 19 work items that will be delivered using multiple tender packages. These work items will be grouped into tender packages as determined by the Departmental Representative, Construction Manager and Design Consultant. It is anticipated that up to 15 separate tender packages will be required for this project in addition to 8 separate tender packages related to hazardous material abatement.
- .2 See Appendix 1 for details.

## 1.4 SUMMARY OF PERSONNEL AND QUALIFICATIONS



### 1.4.1 GENERAL

- .1 The CM shall provide a Construction Management team with the following specialists/ subject matter experts:
  - .1 Risk Management Specialist;
  - .2 Schedule Management Specialist;
  - .3 Budgeting Specialist;
  - .4 Waste Management Specialist;
  - .5 Quantity Surveying Specialist;
  - .6 Commissioning Process Manager;
  - .7 Hazardous Abatement Consultant;
  - .8 Construction Project Manager;
  - .9 Construction Site Superintendent;
  - .10 Construction Quality Management Specialist.
- .2 The CM shall report directly to the PWGSC Departmental Representative.

## 1.5 PROJECT SCHEDULE

### 1.5.1 GENERAL

- .1 Time is of the essence. Project is required to be substantially complete, commissioned and ready for occupancy in accordance with the Project Milestone List identified below.
- .2 Completion dates shown are relative to an assumed start date of August, 2015 for the CM scope of work.
- .3 Prepare a Project Schedule, in accordance with the milestone list.

### 1.5.2 PROJECT MILESTONE LIST

Project Phase	Milestone Completion Date
CM Contract Award	August , 2015
Pre-Design	2 weeks
Schematic Design	On-going as needed per package
Design Development	On-going as needed per package
Construction Documents	On-going as needed per package
Final Construction Documents	On-going as needed per package
Construction Start	On-going as needed per package
Substantial Completion of Construction	February 28, 2017
Commissioning , Final Inspection and Acceptance	March 31, 2017
Post Construction Warranty Evaluation	January 31, 2018

## 1.6 PROJECT BUDGET

### 1.6.1 ESTIMATED CONSTRUCTION COSTS



- .1 The total construction cost estimate for the project is **\$7,000,000**.
  - .1 It is estimated that construction cost estimate for the Hazardous Material Abatement is **\$800,000**.
  - .2 The construction cost estimates do not include Administration costs; Project Management fees; Design Consultant or CM fees; Risk Allowance or GST.
  - .3 The construction cost estimate is in 'Budget-Year (Current)' dollars and it includes General Contractor Services and an allowance for escalation and contingencies.
- .2 The Crown will not accept scope creep or cost escalation of selected Proponent's proposal, except in the limited situations as stipulated in the terms of the contract.

### 1.6.2 CASH FLOW

- .1 It is anticipated that the cash flow expenditures will be:
  - .1 Maximize expenditure for 2015/2016 and the balance in following fiscal year.

## 1.7 EXISTING DOCUMENTATION

### 1.7.1 DISCLAIMER

- .1 Reference information will be available in the language in which it is written.
- .1 The documentation may be unreliable and is offered, "as is" for the information of the Consultant.

### 1.7.2 DOCUMENTS AVAILABLE TO THE SUCCESSFUL PROPONENT IN ENGLISH ONLY;

- .1 Copies of all pertinent documentation will be made available to the CM.
- .2 Limited as-built drawings and Operation & Maintenance Manuals will be available on the project site and the CM will be responsible for verifying the accuracy of the information incorporated into the design.
- .3 AutoCAD scaled base plans of the existing building are available.
- .4 Digitized reproductions of microfiche copies of the original building construction drawings are available.

## 1.8 CODES, ACTS, STANDARDS, GUIDELINES AND REGULATIONS

### 1.8.1 GENERAL

- .1 A listing of Codes, Acts, Standards and Guidelines applicable to this project are referenced in the Consultant's TOR document.
- .2 The Authorities Having Jurisdiction (AHJ) on this project are:
  - .1 The local AHJs;
  - .2 Treasury Board of Canada.
- .3 The CM must identify, analyze and manage the construction of the project in accordance with the requirements of all AHJs and all applicable Codes, Acts, Standards and Guidelines and Legislation.
  - .1 The applicability of various Codes, Acts, Standards and Guidelines listed in the Consultant's TOR document arise out of direct and indirect references in documents which apply to Federal buildings, such as the Canada Labour Code.



## 2. REQUIRED SERVICES

### 2.1 GENERAL REQUIREMENTS

#### 2.1.1 GENERAL

- .1 The CM, in consultation the Departmental Representative shall:
  - .1 Perform the role of CM for the Project respecting the approved scope, quality, budget and schedule; and
  - .2 Develop partnership and communication between all members of the project delivery team and stakeholders throughout all phases of the project life.
- .2 All Services and duties listed and allocated to the CM throughout the Required Services section are:
  - .1 The full responsibility of the CM; and
  - .2 Are not exhaustive and do not preclude alternative or supplementary approaches as may be suggested by the CM for consideration by the Departmental Representative and vice versa.

#### 2.1.2 SECURITY CLEARANCES

- .1 Personnel employed on this project may be subject to security check.
  - .1 Depending on the time of work and access required, personnel working on site may be escorted to provide the required access.

#### 2.1.3 SUMMARY OF SERVICES

- .1 Level of effort associated with the Required Services will vary as per the project delivery life cycle (simplified) diagram below.



- .2
- .3 Services required for this project as follows:
  - .1 Provided as required in Advisory Support Services or Construction Support Services;
    - .1 Scope Management Services,
    - .2 Cost Management Services,
    - .3 Schedule Management Services,
    - .4 Risk Management Services,
    - .5 Quality Management Services,
    - .6 Hazardous Abatement Services,
    - .7 Cost Control Services,
    - .8 Schedule Control Services,
    - .9 Risk Control Services,
    - .10 Quality Control Services,
    - .11 Commissioning Services,
    - .12 CM Tendering Services,



- .13 CM General Contractor Services, and
- .14 CM General Construction and Contract Administration Services.

## 2.2 ADVISORY SUPPORT SERVICES

### 2.2.1 GENERAL

- .1 The CM, as expert in matters of construction, counsels PWGSC and the Consultant Team by providing advisory and support services throughout the design and construction phases of the project.
- .2 Consider mitigating potential risk to the project schedule by advance tendering Hazardous Material Abatement prior to delivering on new work results.

### 2.2.2 SCOPE AND ACTIVITIES

- .1 The CM shall:
  - .1 Analyze and become familiar with all the Project background documents and reports;
  - .2 Review site conditions, with respect to technical and implementation issues affecting this project;
  - .3 Review the program for all potential tender packages included in the project;
  - .4 Prepare a construction schedule;
  - .5 Develop a list of recommended construction trades and tender packages;
  - .6 Prepare estimates for each tender package;
  - .7 Prepare a detailed construction budget;
  - .8 Participate in all integrated design sessions and provide advice on:
    - .1 Constructability of the design and details contained in the contract documents,
    - .2 Scheduling of the Work, and
    - .3 Costing, pricing and bid suitability.
  - .9 Assist in providing liaison and coordination with Government Authorities for various reviews and approvals;
  - .10 Develop and maintain the Project Procedures Manual (PPM) and all documents triggered by the PPM;
  - .11 Advise on construction related matters for the Departmental Representative, the User Department, the Consultant Team and members of the CM's Project Delivery Team;
  - .12 Coordinate participation of Hazardous Material Abatement consultant in IDP workshops.
  - .13 Prepare and submit a report on the impact of Hazardous Material Abatement on new work items.
  - .14 Undertake tendering of Sub-Trade packages related to Hazardous Material Abatement in accordance with the CM Tendering Services section of this TOR.
  - .15 Submit to the Departmental Representative for review any Tender packages related to Hazardous Material Abatement.
  - .16 Effective control measures and management of:
    - .1 Project costs and expenditures,
    - .2 Project schedule and progress,
    - .3 Scope & quality of the Work,



- .4 Change management and change order control, and
- .5 Risk management and claims avoidance.
- .17 Mitigate potential conflict and overlap, with respect to;
  - .1 The design services performed by the Consultant Team, and
  - .2 The work to be performed by the various Sub-Trades.
- .18 Provide quality control methodologies with respect to;
  - .1 Availability and cost comparisons of construction materials,
  - .2 Methods of construction and constructability,
  - .3 Scope and quality of construction materials and systems,
  - .4 Alternative approaches to completing the Work,
  - .5 Risk Management,
  - .6 Life Cycle Cost analysis,
  - .7 Sustainability, and
  - .8 Value Engineering.
- .19 Develop procurement strategies and construction implementation phasing;
- .20 Determine appropriate construction tender packages;
- .21 Determine the potential impact to the Project of applicable labour conditions and availability of materials;
- .22 Prepare a Commission Plan and Schedules for commissioning of all operating building components, systems and integrated systems at the appropriate phases of construction, so as to ensure coordinated, effective and efficient building operation (in conformance with the Commissioning Process);
- .23 Obtain and administer project guarantees Warrantees and manufacturer's guarantees; and
- .24 Provide advice on methods of construction as may be required from time to time by the Consultant Team.
- .2 The above listing of Services is neither complete nor exhaustive and the full scope of Advisory Services required shall include the entire content of the TOR, in concert with the terms and General Conditions of the Contract.

### 2.2.3 DOCUMENT DELIVERABLES

- .1 Project Procedures Manual
  - .1 The CM shall develop a Project Procedures Manual in consultation with the Departmental Representative for the execution of Project activities.
  - .2 The Manual will provide a description of procedures, roles, responsibilities, levels of authority and the documentation for the execution of the Project, including details of the processes and sample outlines.
  - .3 The Manual will include the process and methods to:
    - .1 Maintain Project records;
    - .2 Implement a quality assurance program;
    - .3 Prepare, update, monitor and maintain the Master Schedule;
    - .4 Update, monitor and maintain the Cost Plan, Progress Payments, Change Orders and Cash Flow;
    - .5 Manage communications as directed by the Departmental Representative between Project Delivery Team participants based upon the documented



- roles, responsibilities and authority of Team members, and maintain a listing of meetings, frequency, type, etc.;
  - .6 Manage correspondence, reports and performance records;
  - .7 Distribute correspondence electronically;
  - .8 Process Shop Drawings;
  - .9 Document the process for reviews and approvals of Tender Package Contracts and change orders; and
  - .10 Maintain a decision log during the construction of the project, recording participants, date and place of all decisions affecting schedule, budget, scope, or quality.
- .2 Project Monitoring and Reporting
- .1 Provide a system for documentation and project monitoring and reporting through each stage of project delivery, for review and acceptance by the Departmental Representative.
  - .2 Prepare and submit, at the start of the project, a sample of the report outline for all reports for review by the Departmental Representative. Sample report outline is contained in Part 6 of the GP&S document.
    - .1 Resubmit as may be required.
    - .2 The date of issue of the CM Monthly Report shall be established.
    - .3 The structure of the CM Monthly Report shall be used for all subsequent project stages.
  - .3 Prepare and submit quarterly reports to address:
    - .1 Milestone reporting on Estimating and Cost Planning;
    - .2 Updated Project Procedures Manual; and
  - .4 Prepare and submit monthly progress reports during the Design Development and Construction Document Stages, in an outline approved by the Departmental Representative.
    - .1 The purpose of the report shall be to review and monitor the progress of the Services by the CM. The report shall:
      - .1 Identify the progress of Advisory Support and Construction Support Services;
      - .2 Identify Progress Claims and Payments to date (including change orders) in a form that compares the original budgets for each Tender Package with the expected costs;
      - .3 Identify all instances where the schedule is not being met and identify impact on scheduled completion date;
        - .1 Outline remedial measures being taken or planned to be undertaken to ensure the scheduled completion date; and
      - .4 Identify any anticipated or potential problems to be addressed.
  - .5 Prepare and submit monthly reports during construction to address status and variances with respect to schedule, budget, quality, and scope:
    - .1 The actual report outline shall be acceptable to the Departmental Representative, and shall provide the following:
      - .1 An executive summary of key points,
      - .2 General progress of the Work and modifications to reflect changes in project parameters as may be identified throughout the project life,



- .3 Construction Cost Plan Report including an overview of cost issues as outlined in this TOR,
  - .4 Master Schedule Update and narrative report including an overview of schedule issues as outlined in this TOR,
    - .1 Monitor changes to the Master Schedule at least once a month and submit written reports to the Departmental Representative on any deviations or delays from the master schedule, and identify possible remediation measures required to maintain the Master Schedule Completion date.
    - .2 Monthly reports must identify not only reasons for delay but also offer suggestions, where possible, on how to bring the project back on track.
  - .5 Identification of risks and proposed strategies for mitigation, including scope creep as well as quality control outlined in this TOR,
  - .6 Waste Management Report as including an overview of Waste Management Strategies for construction,
  - .7 Health and Safety status Report, including narrative on the application or adjustment to the CM's Health and Safety Plans as well as any incidents and resulting actions, and
  - .8 Commissioning Plan progress report.
- .3 Hazardous Material Abatement:
- .1 Impact report of Hazardous Material Abatement on new work items.
  - .2 Reviewed and accepted Tender Documents related to Hazardous Material Abatement.
  - .3 Deliverables per the CM Tendering Services and CM General Construction and Contract Administration Services sections of this TOR.
  - .4 Deliverables per Divisions 01 and 02.

## 2.3 COST MANAGEMENT SERVICES

### 2.3.1 GENERAL

- .1 PWGSC manages all funding for the Project, including budgeting, expenditures and Progress Payment approvals.
  - .1 General information regarding Cost Management applicable to this project is contained in Part 2 of the GP&S document.

### 2.3.2 SCOPE AND ACTIVITIES

- .1 The CM shall:
  - .1 Provide advice and recommendations on;
    - .1 Costs related to construction feasibility, availability of materials and labour, time requirements for installation and construction,
    - .2 Budget costs of systems, assemblies, equipment, materials and specialty labour,
    - .3 Current pricing levels and trends in associated activities relating to the project,
    - .4 The selection, availability and pricing of goods and services,
    - .5 Insurance and bonding requirements.



- .2 Provide suggestions and/or alternatives for cost reductions or acceleration of the Construction Schedule if requested by the PWGSC Departmental Representative.
  - .1 Evaluate costs for alternative materials, construction techniques and installation methods,
- .3 Revise and refine the initially approved Master Cost Plan as the project progresses, incorporate approved changes as they occur and develop cash flow reports and forecasts as required by the Departmental Representative.
- .4 Advise of deviations from the Master Cost Plan and obtain written authorization from the Departmental Representative. Seek and report on authorization as per the Departmental Representatives change process.
- .5 Monitor Project costs and expenditures against the approved Construction Cost Limit and identify variances between actual and budgeted or estimated costs.
  - .1 Notify the Departmental Representative in the event that the CM considers that the Construction Cost Estimate will exceed the Construction Cost Limit.
  - .2 Provide recommendations for remedial action to maintain and keep the estimates within the Construction Cost Limit.
- .6 Track costs so that PWGSC can manage the budget.

### 2.3.3 DELIVERABLES

- .1 Prepare and submit to the Departmental Representative for review and acceptance, a Master Cost Plan within 14 calendar days of award of contract and maintain the Plan throughout the life of the Project.
  - .1 Include all CM projected costs, Construction Cost Estimates and Construction Cost Limits.
  - .2 Develop budgets for the work of each work package.
    - .1 Prepare tender package budgets as soon as major project requirements have been identified.
    - .2 Update at the milestone review stages for PWGSC acceptance.
  - .3 Address all costs in Federal Fiscal Year (FY) format (April 01 to March 31 of the following year).
  - .4 Prepare estimated costs, (including summary plus full back-up showing items of work, quantities, unit prices and amounts) at:
    - .1 The Design Development Stage (Class B); and
    - .2 The time of tendering each tender package (Class A).
- .2 Update at monthly intervals as agreed with the Departmental Representative.

## 2.4 SCHEDULE MANAGEMENT SERVICES

### 2.4.1 GENERAL

- .1 The CM shall provide Schedule Management Services for the project.

### 2.4.2 SCOPE AND ACTIVITIES

- .1 The CM must:
  - .1 Provide advice and recommendations on;
    - .1 A procurement strategy for any equipment or materials, which should be pre-ordered to meet the Master Schedule, and



- .2 Means to minimize disruption to User Department during construction.
- .2 If changes to the Schedule become necessary, indicate the impact and the reasons for such changes and submit proposed amendments to the Departmental Representative for review and acceptance.

### 2.4.3 DELIVERABLES

- .1 Prepare and submit to the Departmental Representative for review and acceptance, a draft Master Schedule (within 14 calendar days of contract award) and maintain the Plan throughout the life of the Project.
  - .1 Prepare the Schedule using Microsoft Project to develop detailed network diagrams, with work breakdown structures and Key milestones listings.
  - .2 Develop Critical Paths for all key activities, with key milestone dates and lead times for each activity.
  - .3 Identify anticipated start and completion dates for all design and construction activities, linked by interdependence on activities that must be completed prior to the start of a subsequent activity.
  - .4 Prepare separate schedules for each tender package and incorporated into the Master Schedule.
  - .5 Ensure that the schedule has the capability of tracking changes.

## 2.5 RISK MANAGEMENT SERVICES

### 2.5.1 GENERAL

- .1 PWGSC's Departmental Representative prepares the Risk Management Plan for the Project.

### 2.5.2 SCOPE AND SERVICES

- .1 The CM must:
  - .1 Review, comment and advise on the PWGSC Risk Management Plan;
  - .2 Advise on Project Risks specific to the project and recommend mitigation options to the Departmental Representative;
  - .3 Advise on issues of risk that integrate project planning with procurement planning and construction;
  - .4 Identify and implement methodologies aimed at mitigating and minimizing the impact of construction activities on occupants and user department operations during construction; and
  - .5 Implement a claims avoidance program.
  - .6 Monitor risk as outlined in the risk management plan.

### 2.5.3 DELIVERABLES

- .1 Submit a monthly report on Project Risks to the Departmental Representative.

## 2.6 QUALITY CONTROL SERVICES

### 2.6.1 GENERAL

- .1 The responsibility for construction quality control remains with the CM.
- .2 The CM's Team shall work to:
  - .1 Adopt project delivery processes such as Risk Management and advising on methods to obtain best value; and



- .2 Ensure that Health, Safety, Security and Sustainable Development requirements are adhered to.

### 2.6.2 SCOPE AND SERVICES

- .1 The CM shall apply quality assurance reviews during the design and construction phases, including participation in reviews of the systems, components, construction tools and techniques of the proposed design.
- .2 The CM shall be responsible for ensuring that the CM's Subcontractors adhere to:
  - .1 Industry standard practices following the requirements of the Construction Documents; and
  - .2 Professional conduct in all phases of the project, employing best practices for budget, schedule, quality, and scope management.
- .3 The CM shall Participate in Integrated Design Process (IDP) Workshops.
  - .1 The Consultant Team shall facilitate IDP Workshops through the design stage. The CM's Construction Project Manager shall attend 3 IDP workshops for the purpose of providing advice to the Consultant Team on Constructability of various options that the Consultant Team is considering including:
    - .1 Selection of materials, building systems and equipment;
    - .2 Constructability; and
    - .3 Coordination between all design disciplines.
  - .4 Review construction drawings and specifications for each tender package at various stages acceptable to the Departmental representative.
    - .1 Normally, reviews are conducted at 66% and 99% stages, however, some tender packages may require fewer reviews, due to the nature of the work involved.

### 2.6.3 DELIVERABLES

- .1 Submit to the Departmental representative (within 14 calendar days of award of contract) a Quality Control Plan including, but not limited to:
  - .1 Identification and definition of key activities and deliverables;
  - .2 Description of internal controls;
  - .3 Methodologies and procedures to be utilized to deliver a quality project that meets the established Standards; and
  - .4 Deliverable verification plan.
- .2 Submit a written summary of the design and construction document reviews to the Departmental Representative.

## 2.7 COMMISSIONING SERVICES

### 2.7.1 GENERAL

- .1 Refer to Part 5 of the GP&S document for Roles and Responsibilities Matrix.
- .2 The CM is expected to provide, unless noted otherwise, a total integrated building commissioning service on the basis of CSA Z320-11, Canadian Standards Association, Building Commissioning Standard and Check Sheets.
- .3 The CM shall provide a Commissioning Process Manager (CPM).



- .4 Develop and implement a Commissioning Plan and as lead of the Commissioning Team, Assist the Team throughout the project to ensure that all building systems work with one another to produce a functional and integrated facility.

### 2.7.2 SCOPE AND SERVICES

- .1 Services are categorized into four Stages;

- .1 Concept Schematic Design,
- .2 Design,
- .3 Construction, and
- .4 Occupancy and Operations.

### 2.7.3 PRE-DESIGN, CONCEPT AND SCHEMATIC STAGES

#### .1 Overview

- .1 The Owner Project Requirements (OPR) and the Basis of Design (BOD) are dynamic, continuously updated document serving as commissioning bench marks.
  - .1 In collaboration with the Owner confirm commissioning requirements and document and deliver the commissioning component of the OPR document.
    - .1 The basis of the confirmation shall be the project Functional Program requirements document already prepared for the User Department.
  - .2 Assist the Design Consultant and Owner in determining the BOD document.
- .2 In collaboration with the Departmental Representative, assemble the Commissioning Team and conduct roles and responsibilities and scoping meeting.
- .3 Participate in a commissioning focused review of schematic designs including;
  - .1 Risks associated with level of commissioning and project complexity.
- .4 Support the Cx Agent in the delivery of a preliminary Cx Plan outline.

#### .2 Reviews and Workshops

- .1 Arrange for a project start-up meeting, including the Design Consultant, to discuss the roles and responsibilities of the Commissioning Team during design and construction
- .2 Organize and facilitate a commissioning focused Owner Project Requirements (OPR). Workshop with the project Design Consultants and User Department ("Owner") representatives to:
  - .1 Review all preliminary design documents provided to the Design Consultants;
  - .2 Develop and deliver;
    - .1 Initial Cx component portion of the OPR document, and
    - .2 Initial Cx Team organization roles and responsibilities.
- .3 Participate in a Cx focused Workshop to review:
  - .1 Schematic Design documents in related Report;
  - .2 Design Consultant's Basis of Design (BOD); and
  - .3 Preliminary Commissioning Plan.

#### .3 Deliverables



- .1 Cx focused OPR identifying Owner Cx requirements.
- .2 Schematic Design commentary .
  - .1 Including review commentary of Design Consultant's updated BOD.
- .3 Commissioning Plan outline commentary, including preliminary outline to address the following:
  - .1 Cx process, procedures and documentation;
  - .2 Cx schedule and deliverables, post construction deliverables;
  - .3 Verification and tests requirements including post occupancy, seasonal and deferred activities;
  - .4 Training requirements for operations and maintenance personnel;
  - .5 Preliminary outline Cx Report; and
  - .6 Risk complexity commentary.
- .4 Cx Team Organizational Chart and Roles and Responsibilities Matrix, including lines of communication.
- .5 Construction cost estimate items associated with the Commissioning Plan.

#### 2.7.4 DESIGN STAGE

##### .1 Overview

- .1 Review and comment/evaluate throughout the design phases on the Design Consultant's BOD updates for conformance to the OPR and the original Owner's design goals.
- .2 Develop a Cx Issues and Tracking Log per plan for use by the CPM, Owner and Design Consultant.
- .3 Develop Verification Checklists for review by Owner and approval by Design Consultant.
- .4 In collaboration with the Design Consultant update Cx Plan to include list of all equipment to be commissioned, delineate roles and responsibilities, and detail scope, timelines and deliverables through the Cx Process for Owner's review.
- .5 Develop commissioning requirements specifications to be approved by the Design Consultant. Complete Sections and/or Articles to, at the minimum, support a level of detail associated with the Design Consultant's progress submission.
  - .1 Commissioning requirements to include review comments by the Cx Team on the CPM's progressive submissions regarding;
    - .1 Cx Plan,
    - .2 O&M Manual requirements,
    - .3 Owner training requirements, and
    - .4 Construction Verification Procedures and Checklists.
  - .2 To reflect the CSA Z320 minimum standards and implementation guidelines, the NMS Commissioning specifications masters require significant edits and new Sections to be developed in collaboration with the CPM and Design Consultant.
- .6 In collaboration with the Design Consultant outline O&M Manual and training requirements for Owner's review.

##### .2 Reviews and Workshops



- .1 Participate in Cx focused design and specification reviews at each stage for all disciplines led by the Cx agent;
  - .1 Schematic Design Stage,
  - .2 Design Development Stage, and
  - .3 Construction Documents stages; 66% and Pre-Tender.
- .2 Participate in regularly scheduled bi-weekly design meetings via teleconference, web conferencing or in person as required.
- .3 Participate in minimum of 3 on-site Integrated Design Workshops to be led by the Design Consultant.
  - .1 Prepare and include in Workshops the Commissioning Team's commissioning process and implementation.
- .4 Review Consultant's updated BOD.
- .5 Participate in on-site Cx focused meetings to present review commentaries associated with each of the submission phases - Schematic Stage, Design Stage, Construction Phase and Occupancy Operations and Acceptance Stage.
- .6 In co-operation with and approval of the Design Consultant, provide throughout the Design Stages, updated;
  - .1 Identification of Static Verification (field review and compliance), Start-Up and Functional Performance test types (systems and integrated system testing), testing procedures and check sheets/forms.
- .7 Review and assist in the development of the Consultant's commissioning related specifications sections.
- .8 Facilitate integrated controls meetings with the design team to ensure;
  - .1 Sequences of operations are compatible, and
  - .2 Responsibilities for associated work are specified.
- .9 Tender period.
  - .1 Participate in developing addenda as may be required.
  - .2 Update and co-ordinate with Prime Consultant Cx Plan and Specifications resulting from addenda.
- .3 **Deliverables**
  - .1 Provide updated document resulting from review of Design Development and Construction Document Development stage.
    - .1 Cx component portion of the OPR.
    - .2 Review of Design Consultant provides updated BOD.
    - .3 Cx Plan commentary, notwithstanding deliverables identified CSA Z320-11, includes but not limited to:
      - .1 Procedures, verification procedures and checklists for Field Reviews, Static Verification, Start-Up and Functional Performance Testing for each system from construction through to and including post occupancy;
      - .2 Training Plan; and
      - .3 Commissioning risk assessment.
    - .4 Cx Issues Log.
    - .5 Specification Sections.
    - .6 Estimate of Cost of Commissioning.



- .7 Supporting commissioning data for addenda.
- .8 Cx Schedule in accordance to Cx Plan.

## 2.7.5 CONSTRUCTION PHASE

### .1 Overview

- .1 Coordinate and direct the Commissioning Activities in a logical, sequential and efficient manner per the commissioning plan.
- .2 Provide on-going consultation with design and construction teams in support of their specified commissioning deliverables.
- .3 Conduct site visits and attend site construction meetings to assist in identifying discrepancies and remedies.
- .4 Review request for information and change order for impact on commissioning.
- .5 Document all reviews and submit to Departmental Representative:
  - .1 Updated Cx Issues Log.
- .6 As a lead member of the Commissioning Team assist the Team:
  - .1 On a construction phase basis, where systems and areas are required to be operational, provide assistance to the Design Consultant, in certifying that installations have been completed and function as per the Cx Plan;
  - .2 As per the Cx Plan assist Design Consultant with managing the Contactor's execution and contract closeout submissions, such as, manuals, warranties, extended warranties, and manufacturer's guarantees - dependent on the construction phase;
  - .3 Contractor's submittals,
    - .1 CPM will be copied on submittals concurrently, with the Design Consultant,
    - .2 Verify submittals such as,
      - .1 Coordination drawings, shop drawings, O&M Manuals, product samples, schedules and any other project submittals.
      - .3 Co-ordinate review comments with the Design Consultant.
    - .4 100% of the equipment must be tested and inspected. Representative sampling for equipment commissioning is not acceptable.
    - .5 Provide, as per CSA Z320-11, Interim Acceptance and Facility Turnover recommendation document.

### .2 Review and Meetings

- .1 Conduct an on-site pre-construction commissioning meeting with the Cx Team including the consultant team and appropriate contractors. Agenda to include:
  - .1 Cx Plan;
    - .1 Compare CPM's schedule with the Contractor's schedule, and
    - .2 Updated Commissioning Issues Log.
  - .2 Detailed Roles and responsibilities matrix; and
    - .1 OPR, and
    - .2 BOD.
- .2 Coincidental with construction meetings, organize and lead regularly scheduled on-site bi-weekly commissioning meetings including:
  - .1 Field reviews complete with reports verifying installation of systems and assemblies in accordance with OPR and Cx Plan;



- .2 Conduct on-site bi-weekly commissioning meetings as per the CPM's Commissioning Plan; and
  - .3 Review with the Design Consultant the Contractor's standard submittals for enhanced commissioning.
- .3 Testing and Verification**
- .1 Oversee, in collaboration with the Design Consultant, Contractor's coordination of all equipment, systems and assembly site testing and verification processes.
    - .1 Ensure activities are in accordance with the Cx Plan and the Cx Schedule.
  - .2 Provide testing and verification services such as:
    - .1 Witness all site commissioning tests for all equipment, systems and assemblies identified in the Commissioning Plan;
    - .2 Review all factory test reports and data for compliance with the Owner's Project Requirements and the Commissioning Plan;
    - .3 Review and verify all commissioning test results and reports;
    - .4 Ensure all test procedures and results are recorded and documented in compliance with the Commissioning Plan;
    - .5 In collaboration with Design Consultant, support Contractor, as may be deemed suitable, to organize and lead testing and balancing activities;
    - .6 Verify submittals from Contractor, at each construction phase;
    - .7 Provide verification of final reports upon completion of the entire project; and
    - .8 Coordinate seasonal commissioning for those systems that have been functionally tested and/or handed over in seasons where retesting and commissioning will be required during the opposite season.
- .4 Training**
- .1 In collaboration with the User Department ("Owner"), Design Consultant and Contractor co-ordinate a training plan and training schedule. Incorporate a complete system and assembly review of operational procedures, set points and maintenance requirements.
  - .2 Assist the coordination between the Design Consultant and the Contractor with their provision of draft O&M Manuals (or complete Manuals as available) for the purposes of the training sessions.
  - .3 In collaboration with the PWGSC Cx Advisor oversee and evaluate the Contractor's, training sessions between the Contractor and the Owner's facility management and operations personnel.
    - .1 Ensure attendees sign an attendance sign-in sheet.
    - .2 Verify that training is provided by the appropriate equipment manufacturer's representative.
    - .3 Verify the training requirements have been met.
  - .4 Oversee, in collaboration with the Design Consultant, the Contractor's development of a training manual (electronic & hard copy) including applicable videos and photos for existing and future personnel to use for future training seminars.
    - .1 Material to be user friendly, electronically searchable, contain indexes and provide component, system and interrelated system references including the necessary maintenance requirements.



## **.5 Substantial Completion**

- .1 In collaboration with the Cx agent, facilitate the Cx Team's Interim Acceptance Report sign off, at the minimum, on items, such as, those outlined in CSA Z320-11.
  - .1 Include control sequence documentation.
- .2 For expected number of commissioned Partial Interim Acceptances refer to Construction Options Analysis Report, Option 3. Partial Substantial Completion must coordinate with the completed and occupied Work phases.

## **.6 Facility Turnover**

- .1 In collaboration with the Cx agent, facilitate the Cx Team's Facility Turnover recommendation sign off, at the minimum, on items, such as, those outlined in CSA Z320-11.

## **.7 Substantial Cx Report**

- .1 Provide a Commissioning Report documenting all of the commissioning work, testing, and results achieved during the project construction. Commissioning Report must at a minimum contain:
  - .1 Identification of any systems or assemblies that do not perform in accordance with the OPR;
  - .2 Test procedures and results;
  - .3 Deferred tests complete with schedule;
  - .4 Static Verification/Field Review check lists for all equipment, systems and assemblies;
  - .5 Start-up check lists for all equipment, systems and assemblies;
  - .6 Functional Performance check lists for all systems, inter-related systems and assemblies;
  - .7 Factory test reports complete with CPM review comments;
  - .8 All commissioning Site Inspection review reports;
  - .9 All commissioning Issues Logs and Progress Reports;
  - .10 Training records and training material submittals;
  - .11 Substantial Completion version of the Commissioning Plan;
  - .12 Final version of the commissioning related OPR;
  - .13 Submit draft version of the Interim Acceptance Commissioning Report for review and comment; and
  - .14 Submit final version of the Interim Acceptance Commissioning Report.

## **.8 Deliverables**

- .1 Provide the following updated monthly documents resulting from changes due to addenda and construction contract amendments:
  - .1 Cx Issues Log.
- .2 Provide Cx meeting minutes.
- .3 Distribute minutes to Departmental Representative and Design Consultant for any further redistribution as may be required.
- .4 Provide construction checklists for commissioned equipment and systems.
- .5 Provide Commissioning Schedule updates.



- .6 Publish, in MS Project, regularly updated schedule of commissioning activities as part of the regular monthly report on the Cx Plan. Notwithstanding CSA Z320-11 Cx Plan definition, the Cx Schedule must include:
  - .1 Cx Team meetings;
  - .2 Start and substantial/interim completion of each construction phase;
  - .3 Systems and related assembly completion and testing;
  - .4 Training sessions;
  - .5 Deferred Cx testing;
  - .6 Warranty start date(s);
  - .7 Occupancy dates for each construction phase;
  - .8 Schedule, planned vs. actual.
- .7 Provide Interim Acceptance Cx Report.
  - .1 Outline and content as per CSA Z320-1.

#### 2.7.6 OCCUPANCY OPERATIONS AND ACCEPTANCE PHASE

##### .1 Overview

- .1 Oversee and document deferred seasonal testing by the Contractor.
- .2 In collaboration with the Design Consultant coordinate corrections and re-testing as necessary until performance is in compliance with construction documents.
- .3 Throughout the occupancy and acceptance phase consult with Owner's operational personnel at appropriate intervals to determine that commissioned systems are operating properly and evaluate if additional personnel training may be required.
- .4 Oversee the Design Consultants and Contractors post-occupancy Functional Performance Testing to evaluate and document energy and operational performance as compared to designed performance defined in the BOD and Construction Documents. Evaluations will occur at:
  - .1 Three (3) months; and
  - .2 Ten (10) months of warranty expiration.
- .5 Oversee resolution of any warranty issues on commissioned systems during the warranty period.
- .6 Prepare Final Commissioning Process Report for use by Owner and Design Team at end of warranty period. Final Commissioning Report shall incorporate review comments by Owner and Design Team on Commissioning Report, the results of all post-occupancy testing and evaluations, and document resolutions to all items on the Commissioning Issues and Tracking Log.
- .7 Collaborate with the PWGSC Cx Advisor on the development of the PWGSC Cx Evaluation Report.

##### .2 Ongoing Consultation

- .1 Provide ongoing consultation with the design and construction teams in support of their project closeout activities and submittals related to systems and assemblies commissioning specific deliverables in compliance to the Commissioning Plan, Commissioning Specifications and Owner's Project Requirements (OPR).



- .2 Attend regularly scheduled proposed bi-weekly construction closeout meetings including consultants, contractors, subcontractors and suppliers.
- .3 Finalize the Commissioning Report based on;
  - .1 Final training sessions,
  - .2 Post occupancy changes,
  - .3 Deferred commissioning, and
  - .4 Information not available or incomplete at Interim Acceptance.
- .4 Provide assistance to the Prime Consultant in certifying that all installations have been completed and function in accordance with the Cx Plan, OPR and the Prime Consultant's Basis of Design (BOD).
  - .1 Design Consultant will update BOD as required.
- .5 As per the Commissioning Plan, assist Design Consultant in ensuring that all completed operating and maintenance manuals, warranties, guarantees and other required submittals are turned over to the User Department (Owner).
- .6 Update the OPR and the Commissioning Plan to record any final changes or adjustments after occupancy, for inclusion in the final Commissioning Report.
- .7 Submit final Commissioning Manual with, at the minimum, updated contents as outlined in CSA Z320-11.
- .3 Deferred Testing**
  - .1 Coordinate deferred commissioning for those systems that have been functionally tested and/or turned over where retesting and commissioning is required.
  - .2 Witness on site deferred testing as per the Commissioning Plan.
- .4 Deferred Training**
  - .1 As per the training plan and in consultation with the User Department, coordinate post occupancy training for any systems and assemblies where there are for example seasonal differences in operating parameters and/or where deferred testing is required.
  - .2 Incorporate into the Training plan a complete system and assembly review of operational procedures, set-points and maintenance.
  - .3 Confirm training sessions are co-ordinated between the Design Consultant, Contractor and the Owner's facility managers and operations personnel.
  - .4 Ensure attendees sign an attendance sheet.
  - .5 Verify that training is provided by the appropriate equipment manufacturer's representative.
  - .6 Verify the training requirements have been met.
- .5 Lessons Learned**
  - .1 Collaborate with Design Consultant to arrange a Lessons Learned work shop.
  - .2 Develop and present Cx related material.
  - .3 Attend and assist facilitating and on-site Work Shop.
    - .1 Design Consultant remains accountable for Work Shop deliverables.
- .6 Commissioning Manual;**
  - .1 Prepare final Cx Manual with support from the Cx agent, at the minimum, those items outlined in CSA Z320-11 and in addition:
    - .1 Contractor's project "as-built" documents; and



- .2 All necessary documentation to permit a Re-commissioning of the entire facility in future and a return to all original "as-commissioned" operating parameters.

#### **.7 Deliverables**

- .1 Final Cx Manual that contains the Final Commissioning Report.
- .2 Final Commissioning Plan - updated from the Interim submission outline is to also include:
  - .1 OPR;
  - .2 Compilation of the following items
    - .1 BOD,
    - .2 TAB Reports,
    - .3 All system schematics (single line drawings),
    - .4 Control strategies and set points,
    - .5 Final post-occupancy energy and operational performance results, including variances, and
    - .6 Guidelines for energy accounting.

## **2.8 CM TENDERING SERVICES**

### **2.8.1 GENERAL**

- .1 The CM shall review the method of tendering with the Departmental Representative to select the most appropriate method to achieve value for money. This shall include an invitation to three to five bidders experienced in the work or public advertisement to the industry using provincially acceptable advertisement methods.
  - .1 Provide Departmental Representative with advance copies of CM/Subcontractors contracts.

### **2.8.2 SCOPE AND SERVICES**

- .1 The CM shall:
  - .1 Develop the list of specific Phased Tender Packages with the Departmental Representative and the Consultant Team;
  - .2 Review and provide commentary to the scope of all tender packages to avoid any gaps or conflicts between tender packages, the Work of the CM's Own Forces and between the Work all of the CM's Sub-Trades;
  - .3 Undertake tendering of Sub-Trade packages in accordance with the General Conditions of the contract, and as agreed upon by the Departmental representative;
    - .1 Tender all Sub-Trade tender contracts, using the agreed upon Construction Association Bid Depository, unless otherwise specified,
    - .2 Coordinate the preparation of Specifications Division 01 work and services for each tender package,
    - .3 Ensure that facilities and services being provided to Sub-Trades are clearly identified in the tender documents,
    - .4 Endeavour to ensure that a minimum of three bids are received for every tender package issued, and
    - .5 In the event that fewer than three bid are received on any tender package, PWGSC reserves the right to require the CM to re-tender the respective



- tender package, unless prior acceptance has been issued by the Departmental Representative.
- .4 Issue all addenda in writing (no information is to be issued orally);
    - .1 Addenda to Tender Documents are to be issued through the Bid Depository to all recipients of the Tender Documents unless otherwise specified,
    - .2 Ensure that Sub-Trade bidders receive all addenda, and
    - .3 Endeavour to issue addenda no later than seven calendar days before the tenders close.
  - .5 Receive Tenders, to be opened at the agreed upon location in the presence of the Departmental Representative;
    - .1 Analyze the bids for each tender package to determine if the work should be awarded or if changes are required to keep costs within the budget, and
    - .2 Make recommendations for alternate strategies, in the event that the low bid exceeds the budgeted amount.
  - .6 If the low bid of a Sub-Trade package exceeds the CM's Construction accepted Cost Estimate (Class 'A' level) by more than 5%;
    - .1 Re-tender the Tender package if,
      - .1 No satisfactory reduction can be negotiated with the low bidder, or
      - .2 If the desired price reduction entails significant changes in the scope of work or the character of the design.
    - .3 Requested by Departmental Representative.
  - .7 If re-tendering is required, the CM shall;
    - .1 Re-issue the package for tender.
- .2 Pre-Ordered equipment or items:
  - .1 Review all tender packages for long delivery items which may warrant pre-ordering; and
  - .2 All pre-ordered equipment or items shall be specified by the Consultant.

### 2.8.3 DELIVERABLES

- .1 Provide a tender summary for each package including:
  - .1 Names of all sub-contractors invited and participating;
  - .2 List of all tender documents including addenda; and
  - .3 Detailed breakdown of results including labour & hours, materials, overhead and profit on bids.

## 2.9 CM GENERAL CONTRACTOR SERVICES

### 2.9.1 GENERAL

- .1 The CM must:
  - .1 Perform all the duties of a Construction General Contractor, manage the Work of the CM's Own Forces and Sub-Trades and ensure that the Work is carried out in accordance with the requirements;
    - .1 of the General Conditions of the Contract,
    - .2 of Divisions 01 and 02,
    - .3 contained in the Construction Documents, and
    - .4 Included herein, in these Terms of Reference.



## 2.9.2 SCOPE AND SERVICES

- .1 For Work other than Work by Own Forces, the work shall be tendered to Sub-Trades and enter into subcontract agreements that comply with industry recommended practices and PWGSC contract administration practices (copy will be made available to the CM).
- .2 Provide and maintain full-time staff at the project site to:
  - .1 Coordinate and provide general direction of the project and progress of the Sub-Trades on the project;
  - .2 Provide quality assurance, monitoring and reporting throughout the construction stage of the project;
    - .1 Rectify issues identified by either the CM QA process or identified by the Consultant Team.
  - .3 Coordinate access as required to the existing facility to facilitate the work and assist in the coordination of access to the various parts of the facility by the contractors, working closely with Departmental Representative or designate.
  - .4 Coordinate work of this project with the Departmental Representative to ensure that daily operations of the specific site conditions are not compromised or affected. Shutdown of life safety systems, mechanical or electrical systems or road access is to be coordinated with the Client Department Facility Manager and planned for off hours, excluding from 8 am to 4 pm, Monday to Friday.
    - .1 Shut down planning and confirmation with the Client Department Facility Manager is to be done in advance of the work requiring shut down or road closure by a minimum of five (5) calendar days.
    - .2 Final confirmation prior to shut down to occur 48 hours prior to shut down.
  - .5 Establish on-site organization and lines of communications in order to carry out the work of the project as directed by the Departmental Representative.
- .3 CM's "Own Forces" work.
  - .1 The CM shall identify labour and material, which is beyond bid depository trade scopes.
  - .2 This work shall be included in the Sub-Trade tenders as "Not Withstanding Clauses" only.
  - .3 The CM shall take responsibility for:
    - .1 The completeness of these tender package descriptions; and
    - .2 Delivery of the Sub-Trade packages, the generic Division 01 attached to the RFP, and construction phase responsibilities identified within this document.
- .4 There will be no "Own Forces Work" extra to the CM's Contract.

## 2.9.3 DIVISION 01 - GENERAL REQUIREMENTS, DIVISION 02 – EXISTING CONDITIONS

- .1 In addition to adhering to the project administration requirements contained in this TOR, the CM must comply with the general requirements contained in the Divisions 01 and 02 Documents. These requirements are necessary for the smooth and safe operation and coordination of the site.

## 2.10 CM GENERAL CONSTRUCTION AND CONTRACT ADMINISTRATION SERVICES



### 2.10.1 GENERAL

- .1 Fulfill the obligations as General Contractor, responsible for all Sub-Trade Contractors, Suppliers and any maintenance or operational requirement contractors that require access to the site; and “Constructor” in accordance with the Provincial Health and Safety Act.
- .2 The CM’s own forces shall only be permitted for individual work package coordination activities less than \$25,000 value with the specific approval of the Departmental Representative where there is fair value to Canada.

### 2.10.2 SCOPE AND SERVICES

- .1 Construction Work.
  - .1 When construction Work is duly authorized and assigned to the CM’s contract agreement, the CM must:
    - .1 Provide and be responsible for the development, coordination and management of all work and services included in Division 01 in the CM Agreement;
    - .2 Provide all necessary equipment to the Project and all other resources required to perform these duties and services;
    - .3 Procure, coordinate, administer and manage all construction work and contracts in a holistic fashion;
    - .4 Prepare and execute contracts with the successful Sub-Trades;
      - .1 Coordinate and manage the respective contracts in an integrated manner to avoid any conflicts between the Work of the Sub-Trades,
      - .2 Coordinate, manage and complete all the Work of each Sub-Trade tender package in adherence to the approved drawings and specifications of each tender package, including all addenda and authorized change orders,
      - .3 Deliver the sub-projects to be ready for occupancy by the agreed upon completion dates,
      - .4 Develop and implement a procedure for review, certification, processing and payment of Sub-Trades in accordance with the terms and conditions of the CM Agreement,
      - .5 Schedule and conduct progress meetings at which Sub-Trades, PWGSC, Consultant Team and the CM can jointly discuss such matters as procedures, progress, problems and scheduling, and
      - .6 Provide timely response to correct issues as they occur,
      - .7 Prepare a deficiency list for review and acceptance by the Departmental Representative,
      - .8 Arrange for and correct all identified deficiencies in accordance with the schedule and advise when all items have been properly corrected.
    - .5 Complete the Work of the CM’s Own Forces in adherence to Division 01 and / or in accordance with the approved scope of Work.
  - .2 Cost Management.
    - .1 Provide updated cost information for monthly reports, as outlined in the “Cost Management Services” heading of this Section.
  - .3 Schedule Management.



- .1 Provide updated schedule information for monthly reports, as outlined in the “Schedule Management Services” heading of this Section.
- .4 Quality Control.
  - .1 The CM shall ensure that quality assurance measures are implemented and that impacts on existing operations are minimized.
- .5 Health and Safety.
  - .1 The CM is responsible for maintaining a Healthy and Safe site at all times and shall:
    - .1 Ensure full compliance with the applicable Occupational Health and Safety Regulations in effect in the Province of Alberta.
      - .1 The CM shall be the “constructor” as defined in the Occupational Health and Safety Act of the Province of Alberta.
    - .2 Ensure the full health and safety protection afforded under the Canada Labour Code to all visitors to the site, including workers, staff, contractors and the general public;
    - .3 Implement a safety program on site;
    - .4 Provide appropriate safeguards to ensure safe protection and security of materials and holdings on the site;
    - .5 Comply with Workplace Hazardous Materials Information System (WHMIS) and all other applicable regulations with respect to hazardous materials to ensure that;
      - .1 All designated hazardous materials are properly treated, handled and stored,
      - .2 Workers’ exposure to fumes, is within acceptable health and safety limits,
      - .3 Temporary ventilation or protection, as required for products utilized, is properly provided,
      - .4 Construction dust is controlled such that workers and occupants are not adversely impacted by dust from construction activities within the building or on the site, and
      - .5 Ensure that shop-drawing submissions include Manufacturers Standard Data (MSD) Sheets.
- .6 Shop Drawings.
  - .1 Provide a schedule of shop drawing submissions for each tender package.
  - .2 Shop drawings must be checked and certified correct for construction by the CM and reviewed by the Consultant Team before forwarding to PWGSC for review and return to the subcontractor.
    - .1 Shop drawings must be stamped “Checked and Certified Correct for Construction” by the CM and “Reviewed” by the Consultant Team.
  - .3 The CM must:
    - .1 Review, discuss, record problems and identify agreed remedial action;
    - .2 Monitor and record the progress of shop drawing review. Record parties designated for action and follow up;
    - .3 On completion of project, forward reviewed shop drawings to the Departmental representative;



- .4 Verify that shop drawings include the project number and are recorded in sequence;
- .5 Verify the number of copies of shop drawings required; and
  - .1 Provide additional copies for User Department.
- .6 Expedite the processing of Shop Drawings in a timely manner.
- .7 Information Technology (IT)
  - .1 The Consultant will produce the tender documents describing IT (cabling, voice, data).
  - .2 The CM must:
    - .1 Review the Tender Documents for IT issues (i.e. Maintaining IT service during phased moves and relocation of equipment, security aspects specific to the User, role and responsibility/capacity of the User Departments to participate in implementation);
    - .2 Have a clear understanding of the constraints of the User departments and ensure these requirements are planned for in the overall delivery;
      - .1 This will involve attendance at Integrated Design Process (IDP) meetings and close coordination with the Consultant and User Departments as required.
    - .3 Provide a detailed Report following consultation with Departmental Representative and User Departments;
    - .4 Have a clear understanding of the User Department Service Provider Agreements describing how Service Providers must be involved in the sub-project; and
    - .5 Develop a detailed schedule and Delivery Plan which will clarify roles and responsibilities, critical milestones, logistics and coordination with the overall delivery.
- .8 Sustainable Development.
  - .1 The CM must:
    - .1 Co-operate with all members of the Project team in contributing to the achievement of the sustainable construction requirements.
- .9 Permits and Approvals.
  - .1 The CM shall be responsible for coordinating, paying for and obtaining all permits and approvals from local and statutory authorities and shall:
    - .1 Liaise with local and statutory authorities with respect to hoarding, traffic restrictions, services and associated diversions and/or connections.
    - .2 Inform Departmental Representative of their requirements to inform any statutory body via applications or orders.
    - .3 Ensure that all applications are filed and executed successfully.
    - .4 Verify that all necessary approvals have been obtained.
- .10 During the Post Construction and Warranty Stage the CM must:
  - .1 Coordinate Sub-Trade activity to provide final Record Documents (Operations and Maintenance Manuals, As-built drawings and specifications) as required for each sub-trade;
    - .1 Assemble Record Documents in whole packages per sub-project or as directed by the Departmental Representative, and



- .2 Provide copies of Record Documents and updated records to PWGSC as directed by the Departmental Representative including compliance to PWGSC AutoCAD Standards.
- .2 Review and verify the accuracy of warranties and guarantees;
  - .1 Before completion of work, collect all manufacturer's guarantees, and warranties, complete with relevant contract numbers, and submit to the Departmental Representative for review and approval, and
  - .2 Ensure that warranties and guarantees are included in the Operation and Maintenance Manuals.
- .3 Within ten (10) months of the commencement of the warranty period, arrange for an inspection of the facility to determine all items to be corrected;
  - .1 Prepare a correction list for review and acceptance by the Departmental Representative,
  - .2 Provide a schedule indicating when correction of all items covered under the warranty will be corrected and submit to the Departmental Representative for review and acceptance,
  - .3 Arrange for and correct all identified items in accordance with the schedule and advise when all items have been properly corrected, and
  - .4 Ensure that all warranty items are properly corrected in a timely manner.
- .4 Provide information and advice during the post construction evaluation sessions.
- .11 Arrange for of all key CM staff and representatives from the CM's key Sub-Trades to attend a one-day Post Construction Evaluation session, at a time and place to be determined with the Departmental Representative.

### 2.10.3 DELIVERABLES

- .1 Maintain on a current basis and make available to the Departmental Representative, all construction related documents, including:
  - .1 A daily log listing, as a minimum: weather conditions, visitors, workforce, by trade and number of employees, safety issues, and any other major issues;
  - .2 Records of all project contracts and drawings;
  - .3 Copies of all project related correspondence;
  - .4 Samples, purchases, materials and equipment;
  - .5 All data from sub-trades;
  - .6 Maintenance instructions and operating manuals; and
  - .7 A current set of project record documents for the purpose of recording all approved changes that occur during construction and for completing as-built documents.
- .2 The CM must:
  - .1 Arrange with the Departmental Representative for the issuance of necessary forms respecting interim and final completion of the work;
  - .2 Prepare lists of incomplete and deficient items;
  - .3 Schedule completion of these items with the Sub-Trades and distribute all lists as appropriate; and  
Distribute interim and final completion certificates.



# Construction Management Services **GENERAL PROCEDURES & STANDARDS**

## Deferred Maintenance Program

FOR  
Natural Resources Canada (NRCan)  
Northern Forestry Centre  
Edmonton, Alberta

July 27 2015



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## 1. DEFINITIONS

### 1.1.1 DEFINITIONS

- .1 Acceptance
  - .1 A formal action taken by a person with assigned authority (contractual or otherwise) to declare that some aspect of the project is permitted to proceed.
- .2 Agreed Budget
  - .1 The Budget identified in the TOR or subsequently in writing by the Departmental Representative.
- .3 Basis of Design
  - .1 Documentation of the primary thought processes and assumptions behind design decisions that were made to meet the Owner's Project Requirements (OPR). The basis of design describes the systems, components, conditions, and methods chosen to meet the OPR. (also refer to CSA Z320 Article 3, Definitions)
- .4 Buzzsaw FTP Site
  - .1 Buzzsaw is PWGSC's file storage site, which will be used to store and access all contract documents, photographs and submittals too large for transmission by e-mail. Access rights will be assigned to key individuals in each firm, who will be able to access, copy and store information.
- .5 "Canada", "Crown", "Her Majesty" means Her Majesty the Queen in right of Canada.
- .6 Commissioning (Cx) Manual
  - .1 Refer to CSA Z320 Article 4.9.2, Commissioning manual.
- .7 Commissioning Plan
  - .1 CM project specific commissioning plan, also refer to CSA Z320 Article 4.2.3 Commissioning Plan.
- .8 Commissioning Process
  - .1 Refer to CSA Z320 Article 4, Commissioning Process.
- .9 Commissioning Process Manager
  - .1 CM Cx Process Manger, overall responsible for managing the Commissioning Activities to demonstrate that the installed components and systems and overall facility meet the requirements of the OPR and facility design.
  - .2 Manager may require a unique combination of engineering, design fundamentals and building operations knowledge including: energy systems design, installation and operation, commissioning planning and process management, hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation, and maintenance procedures and energy systems automation control knowledge.
  - .3 Also assumes the role of the "independent Commissioning Authority" and "Commissioning Authority " as addressed in LEED for New Construction and Major Renovations 2009 Rating System, as applicable.
- .10 Commissioning (Cx) Advisor (PWGSC)
  - .1 PWGSC Commissioning Advisor is responsible for the oversight of the development, implementation and evaluation of the Commissioning Process.



- .11 Constructability
  - .1 The extent to which the design of the building facilitates ease of construction, subject to the overall requirements for the completed building project .
  - .2 The effective and timely integration of construction knowledge into the conceptual planning, design, construction, and field operations of a project to achieve the overall project objectives in the best possible time and accuracy at the most cost-effective levels.
  - .3 The integration of construction knowledge in the project delivery process and balancing the various project and environmental constraints to achieve the project goals and building performance at the optimal level.
- .12 Construction manager (CM)
  - .1 Construction Manager (CM) is defined as CM providing both Advisory and Contractor functional services under one contract throughout the specified project life cycle.
    - .1 Remuneration for Construction Management services, CM as Advisor or as CM Constructor, may have one or more 'fixed price' components and one or more 'cost reimbursement' components, with some of the services covered by the fixed price(s) and others cost reimbursable.
    - .2 CM is not held responsible for technical design defects and does not assume any contractual responsibilities or duties of the Design Consultant(s).
- .13 Construction Manager as Advisor
  - .1 Construction Manager as Advisor is a form of Construction Management under which the Construction Manager acts as an advisor and support to, the Departmental Representative during Pre-Design, Design, Construction and Closeout by maintaining a working relationship with the Departmental Representative , User Department, the Designer Consultants (Architect/Engineers), construction subcontractors, and other consultants supporting the Departmental Representative.
- .14 Construction Management Percentage Fee
  - .1 Construction Management Percentage Fee includes profit, overhead and general administration costs, all charges relating to the financing of the project, general supervision, site supervision, management and coordination of all subtrades, and the Contractor's expenses and administrative costs relative to the project, as described below:
    - 1. All CM personnel, (Project Manager, Project Co-coordinator, Site Superintendent, Tenant Move Co-ordinator, Safety Officer, Commissioning Specialist and assistants as required), and Security Officer, whose duties include applying for and obtaining security screening confirmation for Security Officer position, as mandated by PWGSC security provisions, and applying for and obtaining security screening confirmation for all on-site construction personnel, exclusive of position.
    - 2. Travel costs, moving costs and living allowances for CM's staff.
    - 3. Comprehensive General Liability Insurance and Builder's Risk Insurance umbrella policy insurance.
    - 4. CM's Contract Security (not including Sub-Trade's bonding).



5. Charges for faxes, copying, telephone calls, courier and e-mail services.
  6. Legal costs arising out of the performance of the contract.
  7. Cost of computer time and usage.
  8. Management and co-ordination of shop drawings, samples and product data.
  9. Management and co-ordination of manuals, as-built drawings, maintenance schedule, training program, and related commissioning activities.
  10. Management and co-ordination of warranties,
  11. Layout of Work.
  12. Parking costs / charges.
  13. Temporary site office trailer complex, including furniture and furnishings to provide work space for all on-site CM staff, one enclosed meeting room with telephone for minimum of xx persons, and one enclosed drop-in office with telephone and internet access for PWGSC or consultant use, and
  14. Security for CM's lay-down area for material storage and office.
- .15 Construction Manager as Contractor
- .1 Construction Manager as Contractor is a form of Construction Management under which the Construction Manager enters into multiple trade contracts with the trade contractors and suppliers. The Construction Manager retains the contracting risks inherent in each of the trade contracts and assumes responsibility for the performance of the trade contracts (subcontracts), much as a general contractor would under the traditional method (design/bid/build), and is paid for the trade contract work on a cost reimbursement basis.
  - .2 CM is solely responsible for the construction means, methods, sequences and procedures used in construction of the project and for related performance.
  - .3 CM performs project management planning, cost management, time management, quality management, contract administration and safety management.
  - .4 Constant dollar estimate;
    - .1 This is an estimate expressed in terms of the dollars of a particular base fiscal year.
      - .1 It includes no provision for inflation.
    - .2 Cash flows over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.
  - .5 Current Dollar estimate:
    - .1 Budget year dollars is also be referred to as Nominal dollars or Budget Year dollars.
    - .2 This is an estimate based on costs arising in each FY of the project schedule.
    - .3 It is escalated to account for inflation and other economic factors affecting the period covered by the estimate.



- .4 The costs and benefits across all periods should initially be tabulated in budget year dollars for the following reasons;
  - .1 First; this is the form in which financial data are usually available,
  - .2 Second; adjustments, such as tax adjustments, are accurately and easily made in budget year dollars,
  - .3 Finally; working in budget-year dollar enables the analyst to construct a realistic picture over time, taking into account changes in relative prices.
- .16 CM Plan
  - .1 Refer to Project Procedures Manual/ CM Plan.
- .17 Consultant Team
  - .1 An architectural or engineering firm and their sub-consultants and professionals and advisors with whom PWGSC has contracted to provide other services on this project.
- .18 Departmental Representative
  - .1 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.
- .19 Design Development
  - .1 Subsequent to the Consultant's Schematic Design, the Design Development process provides a method to:
    - .1 Coordinate and resolve the design of all major components associated with architectural, structural, mechanical, and electrical;
    - .2 Prepare an outline project specifications including an initial Cx focused testing procedures and check sheets/forms document related to;
      - .1 Static Verification,
      - .2 Start-up,
      - .3 Functional Performance Testing.
    - .3 Perform preliminary modeling and simulations (such as energy analysis and daylight simulation); and
    - .4 Update of the construction and commissioning cost estimates.
  - .2 The Design Consultants Design Report is of sufficient detail to assist Cx Process Manager with the ongoing development of the initial Cx Plan that also updates;
    - .1 Commissioning activities based on risk and complexity,
    - .2 Construction Cx cost.
- .20 Evaluation Report
  - .1 A Cx Manual component.
  - .2 De-briefing report and including a complete assessment of the project, lessons learned, variances between the actual and planned levels of performance, listing of components and systems not commissioned and the reasons for this; recommended follow-up actions and any other related information.
- .21 Facility Turnover
  - .1 CSA Z320 Article 4.7, Facility Turnover Activities.



- .22 Integrated Project Delivery Workshops
  - .1 Mechanism that enables early and ongoing engagement of a project team to provide a better designed, constructed cost effective and timely project.
  - .2 Early engagement of the CM allows for the potential of early starts in the construction sequence, as the design is proceeding.
- .23 Interim acceptance
  - .1 Refer to CSA Z320 Article 4.6, Interim Acceptance
  - .2 Interim Acceptance will be synonymous with Substantial Completion as GC's of the Consultant Contract.
- .24 Issues Log
  - .1 Log contains description of issues at variance with OPR.
    - .1 On an ongoing basis the log maintains status of current and resolved issues.
  - .2 Issues are identified and tracked as encounter during all design phases, construction and operations of the facility.
  - .3 Issues Log is included as part of the monthly construction phase reporting on the Cx Plan.
  - .4 For information to be documented refer to ASHRAE Guideline, The Commissioning Process.
- .25 Leads
  - .1 Facilitates activity and is accountable for the resultant final documentation delivery.
- .26 Master Schedule
  - .1 Master Schedule is produced by and is the responsibility of the CM with input from the Design Consultant team and Departmental Representative.
  - .2 An authoritative project schedule to which all other schedules roll up and are coordinated.
- .27 Owner Project Requirements
  - .1 A dynamic document that provides the explanation of the ideas, concepts, and criteria considered important to the owner. The OPR are site specific measurable goals for the owner's objective to the greatest extent possible. (Also refer to CSA Z320 Article 3, Definitions.)
- .28 Own Forces
  - .1 CM work force not subject to competitive bidding conducting limited amount of construction not included in trade contract work, such as temporary facilities and services (e.g. hoarding, temporary heat, site office, power, water, security, hoisting, etc.) clean-up, miscellaneous cutting, patching, blocking, and other similar items.
- .29 Participates
  - .1 Responsible participant in the activity and/or deliverable.
- .30 Partnering Session Workshops
  - .1 Workshop led by the Departmental Representative with all project stakeholders addressing;
    - .1 Role and responsibilities,
    - .2 Rules of engagement,



- .3 Project status, goals, objectives, elements, scope, funding preliminary schedule,
- .4 Project risks and development of initial risk management plan,
- .5 Review of existing available documentation and site,
- .6 Schedule bi-weekly project and milestone meetings, and
- .7 Establish communication and document control plan.
- .2 CM as part of the design team is responsible for matters such as the Master Schedule and Commissioning Plan and provides input into matters such as, phasing, constructability, availability of material and equipment.
- .31 Permits and Fees
  - .1 CM will pay building permit fees CM to include but not limited to electrical and plumbing permit costs, landfill fees.
- .32 Project Procedures Manual/ CM Plan
  - .1 The Construction Management Plan is dynamic and establishes how the design construction and closeout process will be structured to deliver a Project on time and within budget.
  - .2 A measure against which performance is evaluated and the success of a Project judged.
  - .3 Includes items such as;
    - .1 Organization and communication charts,
    - .2 Master Schedule complete with a detailed Work Breakdown Structure,
    - .3 Quality assurance procedures and documentation plan to determine for example documentation completeness and suitability, testing, inspection and submissions requirements,
    - .4 Cost estimating, control and management techniques,
    - .5 Bid packaging description and contracting strategy,
    - .6 Division 01 work and site mobilization.,
    - .7 Commissioning Plan, and
    - .8 Record management plan (including e-mails) establishing procedure regarding collection recording, tracking, access and storage.
- .33 PWGSC Cx Advisor
  - .1 Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative.
  - .2 A Cx Team member.
  - .3 Provides due diligence overview.
  - .4 Responsible for delivering the Final Cx Evaluation Report.
- .34 Roles and Responsibility Matrix
  - .1 Establishes pre-construction, construction and project closeout roles and responsibilities.
  - .2 Communication activities, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice are planned by the appropriate responsible party and coordinated with all team members. Overlapping accomplishment and parallel paths of activity are to be planned to finish the respective development phase in accordance with the shortest possible schedule.



- .3 It is not the intent of the summarized Roles and Responsibilities be exclusive of overall contractual services to thereby alleviate CM's obligations.
- .35 Schematic Design
  - .1 Subsequent to the Consultant's BOD document, the Schematic Design process provides a method to fully investigate and fine tune the Owner's planning and technical requirements before beginning Design Development.
  - .2 Detail includes preliminary selection of assemblies, systems and load calculations.
  - .3 The Design Consultants Schematic Design Report is of sufficient detail to assist CM with the further development of the CM Plan/Project Procedures Manual.
- .36 Systems
  - .1 Refer to CSA Z320 Article, 5 Specific systems.
- .37 Webex
  - .1 PWGSC's remote meeting site accessed through e-mail invitation and computer access through dedicated internet website.
- .38 Work
  - .1 Means, subject only to any express stipulation in the Contract to the contrary, everything that is necessary to be done, furnished or delivered by the Contractor to perform the Contract in accordance with the contract documents, and includes all labour, parts and material, other than provided in Construction Manager Advisory Fee and Construction Management Fee Percentage that is directly attributable to the performance of the Contract.



## 2. PROJECT ADMINISTRATION

### 2.1 GENERAL

#### 2.1.1 GENERAL

- .1 Part 2 provides background information only.

#### 2.1.2 PROJECT MANAGEMENT

- .1 PWGSC administers the project on behalf of Canada and exercises control over the Design, Implementation and Close Out phases of Project Delivery.
- .2 This project is to be organized, managed and delivered in a collaborative manner.
- .3 The PWGSC Project Team, the Consultant, the CM and the User Department teams will be required to work together during the Design, Implementation and Close Out phases of Project Delivery.

### 2.2 LANGUAGE

- .1 Construction documents must be prepared in English.

### 2.3 MEDIA

- .1 The CM shall not respond to any media inquiry.
- .2 Direct all media requests to the Departmental Representative.

### 2.4 PROJECT MANAGEMENT

#### 2.4.1 NATIONAL PROJECT MANAGEMENT SYSTEM

- .1 PWGSC uses the National Project Management System (NPMS) for management and delivery of its real property projects to align with the Federal Government review and approvals processes.
- .2 Refer to the PWGSC NPMS web site for more details.
  - .1 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html>

#### 2.4.2 DESIGN STAGE

- .1 Pre-design Process.
  - .1 The purpose of this process is to analyze project requirements including codes, regulations, programming, sustainability, cost, time management and risk to demonstrate a full understanding of the project.
  - .2 The Pre-Design documents become guiding documents utilized throughout the project to guide the delivery.
- .2 Schematic Design Process.
  - .1 The purpose of this process is to explore different design options and to analyze them against the project requirements.
  - .2 Typically, the Schematic Design will be in sufficient detail to illustrate and communicate the project characteristics, and would provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design.



- .3 Out of this process the Schematic Design is accepted and authorization to proceed to Design Development is based on the accepted Schematic Design.
- .4 The *Departmental Representative*, in concert with others, chooses an option to be further developed.
- .5 The approved Schematic Design become guiding documents and will be utilized throughout the project to guide the delivery.

### 2.4.3 IMPLEMENTATION PHASE

- .1 Design Development Process.
  - .1 The purpose of this process is to further develop the design option selected for refinement during the Schematic Design process.
  - .2 Typically, the Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval.
  - .3 This design is used as the basis for preparation of construction documents.
  - .4 The approved Design Development documents become guiding documents and are utilized throughout the project to guide the delivery.
- .2 Commissioning Process.
  - .1 “Commissioning” is a quality assurance process, in which the functional requirements and the operational requirements of the project are tested, verified and proven to function as intended.
  - .2 Commissioning deliverables occur throughout the project as detailed in the TOR.
- .3 Construction Document Process.
  - .1 The purpose of this process is to translate design development documents into construction drawings and specifications, for use by the contractor to determine a cost for the work.
- .4 Construction Contract Procurement Process.
  - .1 The purpose of this process is to obtain and evaluate bids/proposals from qualified contractors to construct the work, as per the Construction Contract Documents and to award the construction contract according to government regulations.
- .5 Construction Contract Administration Process.
  - .1 The purpose of this process is to construct the work in compliance with the Construction Contract Documents and to direct and monitor all necessary or requested changes to the scope of work during construction, commissioning and closeout.

### 2.4.4 CLOSEOUT PHASE

- .1 Post Construction Process.
  - .1 The purpose of this process is to ensure the orderly completion and recording of project and contract required documents and deliverables and to liaise with Public Works and Government Services Canada and other agencies as appropriate to close out the project.

## 2.5 COST MANAGEMENT



## 2.5.1 GENERAL

- .1 Construction cost estimates are prepared and submitted to PWGSC by the Consultant Team Quantity Surveyor at various times during the Design and Implementation phases.
- .2 In addition to the Consultants' estimate, PWGSC may have independent estimates performed to compare with the Consultant estimate.
- .3 The CM provides cost confirmation using same format as well as by trade division breakouts.
- .4 The level of accuracy of a class D cost estimate is such that no more than a 20% design contingency allowance is required.
- .5 The level of accuracy of a class C cost estimate is be such that no more than a 15% design contingency allowance is required.
- .6 The level of accuracy of a class B cost estimate is such that no more than a 10% design contingency allowance is required.
- .7 The level of accuracy of a class A cost estimate is such that no more than a 5% design contingency allowance is required.

## 2.6 ROLES AND RESPONSIBILITIES

### 2.6.1 CONSTRUCTION MANAGER

- .1 The CM shall:
  - .1 Assign staff or engage the services of Specialist Consultants to provide the required services outlined in the TOR, Advisory and Support Services;
  - .2 Complete the Work outlined in the TOR, General Contractor Work using the CM's Own Forces and the CM's contracted Sub-Trades;
  - .3 Ensure continuity of key personnel and dedicate a working team for the life of this project;
  - .4 Submit in writing, to the Departmental Representative for review and acceptance;
    - .1 The respective names, addresses and confirmation of qualifications of individuals and/or firms engaged to provide Services for this Project, who were not identified in the CM's response to the RFP, and
    - .2 Proposed changes to the roles of persons to be employed by the CM or firms to be contracted by the CM to provide the Services and Work for the Project and shall include the names, addresses, qualifications and experience of the proposed individual(s) or firm(s).

### 2.6.2 THE CM TEAM

- .1 The CM's Key Personnel shall be located in city of the project or in the immediate surrounding area, for the period of their involvement in the Project.
- .2 The CM team shall:
  - .1 Have complete and collective understanding of the project requirements, including scope, budget and scheduling objectives; and
  - .2 Work to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members.

### 2.6.3 PWGSC



- .1 PWGSC will:
  - .1 Be responsible to deliver the project;
  - .2 Manage the internal stakeholders of PWGSC and the Used Department;
  - .3 Manage internal resources to Quality Assure the project deliverables;
  - .4 Provide authorizations to the CM and Consultant on various tasking
  - .5 Provide access to client, consultant and construction contractor to PWGSC Buzzsaw FTP site.
  - .6 Provide remote access to client, consultant and construction contractor to PWGSC Webex site for meetings held via computer.
  - .7 Ensure Integrated Design Review Sessions are organized at various stages of the project, as required;
    - .1 Smaller sub-projects may only require reviews at 66% and 100%.
  - .8 Manage the project and contracts with the Consultant and the CM.

#### 2.6.4 THE PWGSC TEAM

- .1 The PWGSC Departmental Representative:
  - .1 Is the PWGSC Project Manager or delegated Deputy Project Manager assigned to administer the Project;
  - .2 Is responsible for the day-to-day management of the project and for overseeing its progress and delivery, on behalf of PWGSC;
  - .3 Is the representative for all project contract services and, as such, will be the CM's single point of contact for all project direction;
  - .4 Is the liaison amongst and between the Construction Manager, the Consultant, Public Works and Government Services Canada and the User Departments; and
  - .5 Is responsible for conveying all requirements of the User Department to the CM and Consultant Team.
- .2 The PWGSC Architecture and Engineering Centre of Expertise (COE) Team:
  - .1 Provides expert advice and quality assurance for architectural and engineering disciplines and specialities;
  - .2 Participates in pre-design, design and reviews construction documents.
  - .3 Attends construction meetings and conduct field reviews on behalf of the Departmental Representative, as required;
  - .4 Uses PWGSC Design Manager to coordinate its services;
  - .5 Offers technical advice, risk advice, reviews CM deliverables and tracks compliance and recommends design approaches;
  - .6 The PWGSC Architecture and Engineering Centre of Expertise (COE) Team will be represented by the following disciplines;
    - .1 Architecture & Interior Design,
    - .2 Structural Engineering,
    - .3 Civil Engineering,
    - .4 Mechanical Engineering,
    - .5 Electrical Engineering,
    - .6 Cost Planning Specialist, and
    - .7 Commissioning Advisor.



- .3 The PWGSC Commissioning Advisor:
  - .1 Represents the Crown's interests in the commissioning process;
  - .2 Provides technical advice and quality assurance on the commissioning process throughout delivery;
  - .3 Reviews documentation and reported results throughout the project delivery; and
  - .4 Participates in warranty reviews.

#### **2.6.5 USER DEPARTMENT**

- .1 The User Department Project Leader:
  - .1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board;
  - .2 Reports to User Department senior executive management;
  - .3 Will play several roles in the delivery of the project, as follows:
    - .1 Coordinate the quality, timing and completeness of information and decisions related to the functional performance of the facility,
    - .2 Ensure User Department program requirements are understood by all, and
    - .3 Facilitate and provide User Department sign-offs and approvals, as required.

#### **2.6.6 THE CONSULTANT TEAM**

- .1 The consultant team includes the prime consultant, qualified professionals, sub-consultants and specialists with relevant experience, capable of providing required professional services for the Project.
- .2 The Consultant Team is responsible for:
  - .1 Completing the design for the built works and for coordinating and directing the work of sub-consultants and specialists;
  - .2 Preparing and assembling the tender documents for each identified tender package;
  - .3 Providing input into the Departmental Representative's Risk Management Plan; and
  - .4 Providing contract administration services during construction.

#### **2.6.7 PROVINCIAL AND MUNICIPAL AUTHORITIES**

- .1 The federal government generally defers to provincial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
- .2 Municipal authority review.
  - .1 Submissions will be reviewed as required by the authority.
- .3 Permits.
  - .1 The Consultant will support the Contractor in applying for permits by providing documentation.
    - .1 The Consultant will negotiate and resolve building permit related issues.
  - .2 The Consultant shall support the Contractor in its application for an occupancy permit and coordinate the resolution of all outstanding issues relating to the permit.



- .3 The Contractor shall pay for the permits on behalf of PWGSC.

## **2.7 COMMUNICATIONS AND MEETINGS**

### **2.7.1 COMMUNICATION**

- .1 Unless otherwise directed by the Departmental Representative, the CM shall conduct all project communication through the Departmental Representative only.
- .2 If any communication with the User Departments results in the need for change to the Project scope of work, quality, cost or schedule, the CM shall inform the Departmental Representative, and seek direction, before taking any action.
- .3 The Departmental Representative will arrange for the CM to obtain access to the PWGSC secure shared document management site (Buzzsaw).
- .4 Correspondence.
  - .1 All correspondence from the CM shall be distributed as directed by the Departmental Representative.
  - .2 There shall be no correspondence between occupants or users of the facility and the CM unless directed by the Departmental Representative.
  - .3 All correspondence must carry the Contract name/number, PWGSC Project title, PWGSC Project number and File number and a date (i.e. Year/Month/Day).
  - .4 Automatic date fields shall not be used except when preceded by the text "Printed on:".
- .5 The CM shall:
  - .1 Develop a communication and correspondence protocol, submit to the Departmental Representative for review and acceptance prior to undertaking the work and incorporate it into the Project Procedures Manual;
    - .1 Account for the involvement of all Stakeholders in this protocol.
  - .2 Direct communication and correspondence between members of the PWGSC Project Team, the Consultant and the User Departments on routine matters as may be required to enable the project to proceed in a timely and efficient manner;
    - .1 However, no communication shall alter the terms of the project scope, budget or schedules unless directed in writing by the Departmental Representative.

### **2.7.2 SUBMISSIONS TO PWGSC**

- .1 Where submissions to PWGSC include summaries, reports, network diagrams, drawings, plans, specifications or finish schedules, submit one (1) original to the Departmental Representative in electronic format, unless otherwise directed in writing.
- .2 Electronic format.
  - .1 The electronic deliverables shall be provided using Microsoft applications.
  - .2 Alternatively, the CM may submit all work in Adobe Acrobat \*.pdf format except for Network Diagrams which shall be submitted in their original electronic format.

### **2.7.3 PROJECT RESPONSE TIME**



- .1 It is a requirement of this project that the key personnel of the CM are personally available to attend meetings or respond to inquiries.
- .2 During the project, the CM's key personnel shall be:
  - .1 Available to attend meetings and respond to inquiries within one (1) working day notice;
  - .2 Able to respond to emergencies within one (1) hour, including those occurring during off-hours and on weekends/ holidays; and
- .3 On occasion, there may be urgent, problem-solving meetings.
  - .1 The CM shall be available to attend such meetings in location agreed upon within four (4) business hours.

#### **2.7.4 MEETINGS DURING THE PRE-DESIGN, DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTATION PROCESSES**

- .1 Meetings with PWGSC, the CM, the Consultant and User Department will be held in agreed upon location.
- .2 The Departmental Representative will arrange meetings bi-weekly with representatives from:
  - .1 PWGSC;
  - .2 Consultant team;
  - .3 Construction Management Team; and
  - .4 User Department representatives.
- .3 The Consultant Team will be responsible for:
  - .1 Preparing minutes of meetings;
  - .2 Forwarding minutes to the Departmental Representative and CM;
  - .3 These meetings are for the accurate exchange of information; and
  - .4 Requests and decisions taken shall follow the formal lines of communications.
- .4 The CM shall:
  - .1 Attend meetings, prior to construction start;
    - .1 Respond to meeting minute action items as required prior to the next meeting

#### **2.7.5 MEETINGS DURING CONSTRUCTION PERIOD**

- .1 The CM shall:
  - .1 Arrange and coordinate construction meetings on site and utilizing Webex, as required;
    - .1 Regular meetings to be held bi-weekly through the duration of the project,
    - .2 Prepare and distribute minutes within two (2) working days of the meeting, and
    - .3 Endeavour to hold meetings as Green Meetings (i.e. Electronic copies of documents where possible or double sided hard copies).
  - .2 Establish a list of standing agenda items, including (as a minimum):
    - .1 Schedule and progress;
    - .2 Cost issues and changes;
    - .3 Risk issues;
    - .4 Quality issues;



- .5 Scope of work;
- .6 Site safety;
- .7 Sustainable development; and
- .8 Commissioning

## **2.8 REGULATORY REQUIREMENTS**

### **2.8.1 FEDERAL GOVERNMENT**

- .1 The PWGSC Departmental Representative will review work in progress on a continuing basis.
- .2 The following are authorities having Federal Government jurisdiction over the project:
  - .1 Treasury Board of Canada:
    - .1 Project funding and contract approvals.
  - .2 Public Works and Government Services Canada:
    - .1 Contracting authority and project delivery.
  - .3 National Research Council Canada:
    - .1 Building Codes and Standards;
      - .1 National Building Code, and
      - .2 National Fire Code.

### **2.8.2 PROVINCIAL, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION**

- .1 Although the Federal Government is not subject to jurisdictions at other levels of government, voluntary compliance with the Departmental Policy of these other Authorities is a requirement unless otherwise directed by the Departmental Representative.
  - .1 Codes, regulations, by-laws and decisions of authorities identified herein as having jurisdiction shall be observed.
  - .2 In areas of conflict between codes, standards and regulations, the most rigid requirements shall be adhered to.
  - .3 The CM shall identify other jurisdictions appropriate to the project.
- .2 Provincial Acts, Regulations, Standards and Inspections
  - .1 Unless directed otherwise by the Departmental Representative, the CM will:
    - .1 Adhere to all applicable provincial Construction Health and Safety Acts and regulations, in addition to the related Canada Occupational Safety and Health Regulations.
    - .2 Adhere to the requirements of the Province of Alberta for:
      - .1 Employment Standards;
      - .2 Construction Safety;
      - .3 Designated Substance Management; and
      - .4 Workers Compensation
    - .3 Adhere to the requirements of the Province of Alberta Department of the Environment for:
      - .1 Building Discharges into the air, water and ground; and
      - .2 Disposal of Designated Substances including Asbestos.
    - .4 Adhere to the requirements of the Province of Alberta for:



- .1 Construction Hoists; and
- .2 Elevators, Escalators and Dumb Waiters.
- .3 Municipal By-laws, Regulations, Standards and Inspections
  - .1 Unless directed otherwise by the Departmental Representative, the CM will:
    - .1 Make preliminary municipal submissions at stages required by the AHJ;
    - .2 Provide all required supporting documentation for permit applications;
    - .3 Apply for and obtain all permits and approvals necessary for the work, including, but not limited to Building, Electrical and Plumbing Permits;
    - .4 Resolve all Building Permit related issues, with support from the Consultant as may be required;
    - .5 Provide fire safety equipment and access for fire-fighting services, as required by the city; and
    - .6 If required by the AHJ, apply for an Occupancy Permit and co-ordinate the resolution of all outstanding issues related to obtaining the permit.
  - .4 Provide Municipal authorities with access to the site as required and arrange for inspections of the construction work by the AHJ or governing utility officials.

## **2.9 ACCEPTANCE OF PROJECT DELIVERABLES**

### **2.9.1 ACCEPTANCE OF PROJECT DELIVERABLES**

- .1 While PWGSC acknowledges the CM's obligations to meet project requirements, the project delivery process entitles PWGSC to review all work.
- .2 PWGSC reserves the right to reject undesirable or unsatisfactory work.
- .3 The CM must obtain Departmental Representative acceptance of all required deliverables for the Project.
  - .1 Acceptance indicates that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and those overall project objectives appear to be satisfied.
  - .2 Acceptance does not relieve the CM of responsibility for the work and compliance with the contract.
  - .3 Acceptance does not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review.

## **3. General Requirements (Division 01)**

### **3.1 GENERAL**

#### **3.1.1 MASTERFORMAT**

- .1 Division 01 requirements are structured using Masterformat 2010 section numbering system.

### **3.2 01 11 00 – SUMMARY OF WORK**

#### **3.2.1 WORK SEQUENCE**

- .1 Construct Work in stages to accommodate Departmental Representative's continued use of the site and existing surrounding premises during construction.



- .2 Maintain fire access/control.

### **3.2.2 WORK BY OTHERS**

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

### **3.2.3 CONSTRUCTION MANAGER USE OF PREMISES**

- .1 Restricted use of site and premises as directed by Departmental Representative until Substantial Performance.
- .2 Limit use of premises for Work, and for storage.
- .3 Utilize indicated Laydown Area for all storage, all vehicle and equipment parking, and all site offices and trailers.
- .4 Maintain Laydown Area to prevent dusting and mud.
- .5 Make good Laydown Area to original condition, composition, nature and character upon completion of Work.
- .6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

### **3.2.4 DEPARTMENTAL REPRESENTATIVE FURNISHED ITEMS**

- .1 Construction Manager Responsibilities:
  - .1 Disassemble, ship and reassemble all items being relocated;
  - .2 Arrange for replacement of damaged, defective or missing items;
  - .3 Designate submittals and delivery date for each product in progress schedule;
  - .4 Review shop drawings, product data, samples, and other submittals. Submit to Departmental Representative notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents;
  - .5 Receive and unload products at site;
  - .6 Inspect deliveries jointly with Departmental Representative; record shortages, and damaged or defective items;
  - .7 Handle products at site, including uncrating and storage;
  - .8 Protect products from damage, and from exposure to elements;
  - .9 Assemble, install, connect, adjust, and finish products;
  - .10 Provide installation inspections required by public authorities; and
  - .11 Repair or replace items damaged by Construction Manager or subcontractor on site.

### **3.2.5 EXISTING SERVICES**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.



- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 7 days notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian and vehicular traffic and Departmental Representative's operations.
- .3 Provide alternative routes for personnel, pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services to maintain existing buildings' systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Provide traffic control in the event of one lane access.
- .9 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .10 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .11 Record locations of maintained, re-routed and abandoned service lines.
- .12 Construct barriers in accordance with Section 01 56 00.
- .13 Provide and maintain for purposes of the Work access road within construction area for Construction Manager's own construction vehicles, equipment and material access.

### 3.2.6 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Material and Safety Data Sheets.
  - .12 Labour conditions and Wage Schedules.
  - .13 Material and Labour Bonds.
  - .14 Manufacturers' applicable instructions.
  - .15 Municipal and Provincial Permits.



.16 Other documents as specified.

### **3.3 01 14 00 – WORK RESTRICTIONS**

#### **3.3.1 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

#### **3.3.2 SPECIAL REQUIREMENTS**

- .1 Check in at indicated Check Point at all times of entry and exit from the Work Site and Laydown areas.
- .2 Perform work during normal working hours from 07:30 to 16:00 hours Monday to Friday.
- .3 Deliver materials from 07:30 hours to 16:30 hours unless otherwise approved by Departmental Representative.
- .4 Submit schedule in accordance with Section 01 32 15.
- .5 Ensure that Construction Manager personnel employed on site become familiar with and abide by regulations including safety, fire, traffic and security regulations.
- .6 Keep within Limits of Work and ingress and egress access.
- .7 Keep within Limits of Site.

#### **3.3.3 SECURITY CLEARANCES**

- .1 Personnel employed on this project will be subject to security check.

#### **3.3.4 BUILDING SMOKING RESTRICTIONS**

- .1 Comply with smoking restrictions. Smoking is not allowed.

### **3.4 01 29 00 - PAYMENT PROCEDURES**

#### **3.4.1 APPLICATION FOR PROGRESS PAYMENT**

- .1 Submit to Department Representative, at least 14 days before first application for payment, Cost Breakdown, in detail as directed by Department Representative, for parts of Work, aggregating total amount of each Contract Amount, so as to facilitate evaluation of applications for payment. After approval by Department Representative, Cost Breakdown will be used as basis for progress payments.
- .2 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Department Representative may reasonably require to establish value and delivery of products.

### **3.5 01 29 83 – PAYMENT PROCEDURES: TESTING LABORATORY SERVICES**

#### **3.5.1 APPOINTMENT AND PAYMENT**

- .1 Obtain and pay for services of an accredited inspection/testing laboratory for:
  - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
  - .2 Inspection and testing performed exclusively for Construction Manager's convenience.



- .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
- .4 Commissioning performance testing and verification.
- .5 Mill tests and certificates of compliance.
- .6 Tests specified to be carried out by Construction Manager.
- .2 Where tests or inspections by an accredited testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.
- .3 Inspection/testing agencies engaged by Construction Manager shall be reviewed by and be acceptable to Departmental Representative.
- .4 Departmental Representative, at Departmental Representative's expense, may also engage inspection/testing agencies as may be deemed required.

### 3.5.2 CONSTRUCTION MANAGER'S RESPONSIBILITIES

- .1 Provide, for Construction Manager's and Departmental Representative's inspection/testing agencies, labour, equipment and facilities to:
  - .1 Provide access to Work to be inspected and tested.
  - .2 Facilitate inspections and tests.
  - .3 Make good Work disturbed by inspection and test.
  - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
  - .5 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
  - .6 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
  - .7 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

## 3.6 01 31 19 - PROJECT MEETINGS

### 3.6.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within 2 days after meetings and transmit to meeting participants and, affected parties not in attendance and Departmental Representative.
- .8 Representative of Construction Manager, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.



### 3.6.2 PRECONSTRUCTION MEETING

- .1 Within 7 days after each Contract award, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Construction Manager, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work: in accordance with Section 01 32 15.
  - .3 Schedule of submission of shop drawings, samples, colour chips, product data. Submit submittals in accordance with Section 01 33 00.
  - .4 Commissioning
  - .5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.
  - .6 Delivery schedule of specified equipment in accordance with respective specification Section.
  - .7 Site security in accordance with Section 01 56 00.
  - .8 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .9 Departmental Representative provided products.
  - .10 Record drawings in accordance with Section 01 33 00.
  - .11 Maintenance manuals in accordance with Section 01 78 00.
  - .12 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00.
  - .13 Monthly progress claims, administrative procedures, photographs, hold backs.
  - .14 Appointment of inspection and testing agencies or firms.
  - .15 Insurances, transcript of policies.

### 3.6.3 PROGRESS MEETINGS

- .1 During course of Work schedule separate construction and commissioning progress meetings every two weeks.
- .2 Construction Manager, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.
- .5 Agenda to include the following items such as:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.



- .5 Review of off-site fabrication delivery schedules.
- .6 Corrective measures and procedures to regain projected schedule.
- .7 Revision to construction schedule.
- .8 Progress schedule, during succeeding work period.
- .9 Review submittal schedules: expedite as required.
- .10 Commissioning.
- .11 Maintenance of quality standards.
- .12 Review proposed changes for affect on construction schedule and on completion date.
- .13 Health and Safety
- .14 Other business.

### **3.7 01 32 15 – CONSTRUCTION PROGRESS SCHEDULES**

#### **3.7.1 GENERAL**

- .1 Use a project management control system based on Critical Path Method (CPM) and Bar (GANTT) Chart techniques as may be required and agreed upon by Departmental Representative to achieve project Work demands.
- .2 Schedule reviews by Departmental Representative shall not mean approval of detail inherent in schedule, responsibility for which lies with Construction Manager.

#### **3.7.2 DEFINITIONS**

- .1 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .2 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.
- .3 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
- .4 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .5 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

#### **3.7.3 SYSTEM DESCRIPTION**

- .1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.
- .2 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.



- .3 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

#### 3.7.4 SCHEDULE REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
- .2 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract. Duration of Contract may only be changed through bilateral Agreement.
- .3 Consider Master Plan and Detail Schedule showing Work completed in less than specified Contract duration, to have float.
- .4 Calculate dates for completion milestones from Plan and Schedule.
- .5 Delays to non-critical activities, those with float may not be basis for time extension.
- .6 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.
- .7 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .8 Arrange participation on and off site of Construction Manager's Contractors, Own Forces and suppliers, as required by Departmental Representative for purpose of network planning, scheduling, updating and progress monitoring. Approvals by Departmental Representative of original networks and revisions do not relieve Construction Manager from duties and responsibilities required by Contract.
- .9 Substantial Completion Certificate and Final Certificate as defined times of completion are of essence of this contract.

#### 3.7.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00.
- .2 Submit preliminary construction progress schedule and Commissioning Schedule within 14 days of contract award to Departmental Representative for review.
- .3 Coordinate with Departmental Representative's project schedule.
- .4 After review, revise and resubmit schedule to comply with revised project schedule.
- .5 During progress of Work revise and resubmit as directed by Departmental Representative.
- .6 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.
- .7 Submit Project Control System to Departmental Representative for approval; failure to comply with each required submission, may result in progress payment being withheld in accordance with Federal Government's Terms of Payment.
- .8 Refer to article "Progress monitoring and reporting" of this specification Section for frequency of Project control system submittals.
- .9 Submit Project planning, monitoring and control system data as required by Departmental Representative in following form;



- .1 CD files specified here in original scheduling software containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.
- .2 Master Plan Bar Chart.
- .3 Construction Detail schedule Bar Chart.
- .4 Listing of project activities and tender packages including milestones and logical connectors, networks from Project start to end. Sort activities by activity identifier and accompany with descriptions. List early and late start and finish dates together with durations, codes and float time.
- .5 Criticality report listing activities and milestones with days total float.
- .6 Progress report in early start sequence, listing for each trade or tender package, activities due to start, underway, or finished within two months from monthly update date. List activity identifiers, description and duration.

### **3.7.6 QUALITY ASSURANCE**

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

### **3.7.7 PROJECT MEETING**

- .1 Meet with Departmental Representative within 5 working days of each Award of Sub-Contract or Own Forces date, to establish Work requirements and approach to project construction operations.

### **3.7.8 WORK BREAKDOWN STRUCTURE (WBS)**

- .1 Prepare construction Work Breakdown Structure (WBS) within 5 working days of Award of Sub-Contract or Own Forces date.

### **3.7.9 PROJECT MILESTONES**

- .1 Project milestones include:
  - .1 Award.
  - .2 Submissions such as shop drawings and samples.
  - .3 Mock-ups.
  - .4 Permits.
  - .5 Mobilization and demobilization.
  - .6 Demolition.
  - .7 Tender Packages/Own Forces Work.
  - .8 Excavation.
  - .9 Backfill.
  - .10 Substructure.
  - .11 Superstructure such as steel.
  - .12 Concrete Work.
  - .13 Building closed-in.
  - .14 Interior finishing including fitting and millwork.
  - .15 Fire Suppression.
  - .16 Plumbing.
  - .17 HVAC.
  - .18 Electrical.



- .19 Communications.
- .20 Electronic safety and security.
- .21 Earthwork.
- .22 Exterior improvements.
- .23 Commissioning
  - .1 Components
  - .2 Systems
  - .3 Integrated Systems
  - .4 Final Commissioning Report
- .24 Training
- .25 Partial Interim and Interim Certificate(s) of Completion.
- .26 Final Certificate Completion.

### 3.7.10 MASTER PLAN

- .1 Structure and base construction progress/ networks system on WBS coding.
- .2 Prepare comprehensive construction Master Plan and dependent Cash Flow Projection within 5 working days of finalizing agreement to proceed with construction.
  - .1 Master Plan will be used as baseline.
    - .1 Departmental Representative will review and return revised baseline within 10 working days.
- .3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.
- .4 Initial and subsequent Master Plans will include:
  - .1 CD containing schedule and cash flow information, clearly labeled with data date, specific update, and Construction Manager's person responsible for update.
  - .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
  - .3 Network diagram showing, activity sequencing (logic), total float, early/late dates, current status and durations.
  - .4 Actual/projected monthly cash flow: expressed annually and monthly and shown in both graphical and numerical form.

### 3.7.11 DETAIL SCHEDULE

- .1 Provide detailed project schedules within 5 working days of agreement to proceed with construction, showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
  - .1 Shop drawings.
  - .2 Samples.
  - .3 Approvals.
  - .4 Procurement.
  - .5 Construction.
  - .6 Installation.
  - .7 Site works.



- .8 Testing.
- .9 Commissioning and acceptance.
- .2 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.
- .3 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

#### **3.7.12 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE**

- .1 Allow 10 workdays for review by Departmental Representative of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 5 workdays.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

#### **3.7.13 COMPLIANCE WITH DETAIL SCHEDULE**

- .1 Comply with reviewed Detail Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, when agreed by Departmental Representative.
- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
  - .1 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.
- .4 In the event of a request for Contract extension, submit as per a pre-agreed upon scheduled review periods to Departmental Representative, justification, project schedule data and supporting evidence for extension to Construction Manager's Contract or Construction Manager's Contractors' completion date, or partial or interim acceptance milestone date when required. Include as part of supporting evidence:
  - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
  - .2 Prepared schedule indicating how change will be incorporated. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
  - .3 Other supporting evidence requested by Departmental Representative.

#### **3.7.14 PROGRESS MONITORING AND REPORTING**

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of Construction Manager's Own Forces, Contractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.



- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Submit to Departmental Representative copies of updated Detail Schedule.
- .5 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .6 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
  - .1 Description of progress made.
  - .2 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.
  - .3 Status of Construction Manager's Contractors' completion date and milestones.
  - .4 Risk review including current and anticipated problem areas, potential areas of delays and gains and corrective measures and opportunities with gains in time.
  - .5 Review of progress and status of critical activities.

### **3.8 01 33 00 – SUBMITTAL PROCEDURES**

#### **3.8.1 ADMINISTRATIVE**

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Construction Manager's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.



- .9 Construction Manager's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.
- .11 Unless otherwise stated, ensure 4 reviewed copies of all submissions are available to be retained by the Departmental Representative.

### 3.8.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other product data which are to be provided by Construction Manager to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional registered or licensed in Province of Alberta of project location in Canada.
  - .1 Submit in addition to specified number of hard copies in electronic pdf version.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 working days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Construction Manager's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Construction Manager.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Construction Manager's stamp, signed by Construction Manager's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:



- .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit digital copies of shop drawings for each requirement requested in respective specification Sections and as Departmental Representative may reasonably request.
- .11 Submit digital copies of product data sheets or brochures for requirements requested in respective specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit digital copies of test reports for requirements requested in respective specification Sections and as Departmental Representative may reasonably request.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .13 Submit digital copies of certificates for requirements requested in respective specification Sections and as Departmental Representative may reasonably request.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit digital copies of manufacturers' instructions for requirements requested in respective specification Sections and as Departmental Representative may reasonably request.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit digital copies of Manufacturer's Field Reports for requirements requested in respective specification Sections and as Departmental Representative may reasonably request.
- .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.



- .16 Submit digital copies of Operation and Maintenance Data for requirements requested in respective specification Sections and as Departmental Representative may reasonably request.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Construction Manager submitting same, and such review shall not relieve Construction Manager of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Construction Manager is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### 3.8.3 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's site office.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of the Construction Manager's specifications.
- .4 Where colour, pattern or texture is criterion, submit manufacturer's full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Construction Manager's drawings and specifications.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

### 3.8.4 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00.

### 3.8.5 PROGRESS PHOTOGRAPHS

- .1 Submit labeled progress photographs.
- .2 Each submission



- .1 Prints sizes from electronic format, 200 x 300 mm.
- .2 Electronic format on CD.
- .3 Print Type: semi-matt colour with binding margin at one end.
- .4 Paper: single weight, not mounted.
- .5 Number of prints required: 3 sets.
- .6 Identification, print copy and electronic format: name and project number, viewpoint and date of photograph.
- .7 Viewpoints: interior and exterior locations: viewpoints determined by Departmental Representative.
- .8 Frequency: twice monthly and with each progress statement.

### **3.9 01 35 43 – ENVIRONMENTAL PROCEDURES**

#### **3.9.1 DEFINITIONS**

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

#### **3.9.2 SUBMITTALS**

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan includes:
  - .1 Name of person responsible for ensuring adherence to Environmental Protection Plan.
  - .2 Name and qualifications of person responsible for manifesting hazardous waste to be removed from site.
  - .3 Name and qualifications of person responsible for training site personnel.
  - .4 Descriptions of environmental protection personnel training program.
  - .5 Erosion control plan which identifies type and location of erosion controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion control plan, Federal, Provincial, and Municipal laws and regulations.



- .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
- .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
- .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .15 Pesticide treatment plan: to be included and updated, as required.

### **3.9.3 FIRES**

- .1 Fires and burning of rubbish on site not permitted.

### **3.9.4 DISPOSAL OF WASTES**

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

### **3.9.5 DRAINAGE**

- .1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan: include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.



- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sedimentations control plan.
- .3 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

#### **3.9.6 SITE CLEARING AND PLANT PROTECTION**

- .1 Protect trees and plants on site and adjacent properties.
- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by Departmental Representative.

#### **3.9.7 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

#### **3.9.8 HISTORICAL/ARCHAEOLOGICAL CONTROL**

- .1 Provide historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.
- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Construction Manager and Departmental Representative.

#### **3.9.9 NOTIFICATION**

- .1 Departmental Representative will notify Construction Manager in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Construction Manager's Environmental Protection plan.



- .2 Construction Manager: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Construction Manager for such suspensions.

### **3.10 01 41 00 - REGULATORY REQUIREMENTS**

#### **3.10.1 REFERENCES AND CODES**

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.

#### **3.10.2 HAZARDOUS MATERIAL DISCOVERY**

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

#### **3.10.3 BUILDING SMOKING ENVIRONMENT**

- .1 Comply with smoking restrictions and municipal by-laws.

### **3.11 01 45 00 - QUALITY CONTROL**

#### **3.11.1 INSPECTION**

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give at minimum, 3 working days notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Construction Manager covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.



- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

### **3.11.2 INDEPENDENT INSPECTION AGENCIES**

- .1 Notwithstanding the testing responsibilities of the Construction Manager, the Departmental Representative will conduct re-testing where deemed necessary;
  - .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work.
  - .2 Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

### **3.11.3 ACCESS TO WORK**

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

### **3.11.4 PROCEDURES**

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

### **3.11.5 REJECTED WORK**

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.



### 3.11.6 REPORTS

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

### 3.11.7 TEST AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested by Departmental Representative.
- .2 Include for tests and mix designs as specified.
- .3 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

### 3.11.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications.
- .2 Construct in locations acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Mock-ups may remain as part of Work.

### 3.11.9 MILL TESTS

- .1 Submit mill test certificates as requested by Departmental Representative.

### 3.11.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment and systems.

## 3.12 01 51 00 – TEMPORARY UTILITIES

### 3.12.1 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

### 3.12.2 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

### 3.12.3 WATER SUPPLY

- .1 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

### 3.12.4 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.



- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Protect Work and products against dampness and cold.
  - .3 Prevent moisture condensation on surfaces.
  - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5 Provide adequate ventilation to meet health regulations for safe working environment.
  - .6 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .4 Ventilating:
  - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .4 Ventilate storage spaces containing hazardous or volatile materials.
  - .5 Ventilate temporary sanitary facilities.
  - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5 Permanent building heating system not to be used when available. Be responsible for damage to heating system if use is permitted.
- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

#### **3.12.5 TEMPORARY POWER AND LIGHT**

- .1 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .2 Provide temporary power for electric cranes and other equipment as required.
- .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lux.



- .4 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

### **3.12.6 TEMPORARY COMMUNICATION FACILITIES**

- .1 Provide and pay for temporary telephone, fax, data, e-mail, internet access hook up, lines, equipment necessary for own use.

### **3.12.7 FIRE PROTECTION**

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

## **3.13 01 52 00 – CONSTRUCTION FACILITIES**

### **3.13.1 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
  - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
  - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .2 Master Painters Institute (MPI)

### **3.13.2 SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00.

### **3.13.3 INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Construction Manager, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be graveled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

### **3.13.4 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, temporary stairs.

### **3.13.5 HOISTING**



- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists cranes to be operated by qualified operator.

### **3.13.6 SITE STORAGE/LOADING**

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

### **3.13.7 CONSTRUCTION PARKING**

- .1 Parking
  - .1 Parking is restricted to indicated Laydown Area.
- .2 Make good damage to roads used for project site access.
- .3 Provide and maintain adequate access to project site.
- .4 Clean site access areas/routes where used by Construction Manager's equipment.

### **3.13.8 OFFICES**

- .1 Provide a separate site office for the Departmental Representative's use, lockable, complete with keys, furnishings and equipment.
- .2 Provide site office heated to 22 degrees C, lighted 750 lux and ventilated and air conditioned,
  - .1 Site office, 24/7/365 occupancy, of sufficient size to at the minimum accommodate site meetings for 12 people, a furnished drawing laydown table and a serviced kitchenette.
  - .2 Provide at the minimum 3 serviced and operational voice/data outlets;
    - .1 One outlet in each enclosed office and,
    - .2 One outlet in the meeting area.
  - .3 Provide data line speed as best locally available.
  - .4 Provide and maintain operational a site office scanner/fax machine.
  - .5 Scanner capacity/bed to accommodate at the minimum a 279mm x 430mm page size.
- .3 Provide additional site offices as required to accommodate Construction Manager's operation
- .4 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .5 Provide in each site office facility, marked and fully stocked first-aid cases in readily available locations.
- .6 Locate all site office facilities in indicated Laydown Area.
- .7 Make site good after decommissioning facilities.

### **3.13.9 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.



- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

### **3.13.10 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force and Departmental Representative in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

### **3.13.11 CONSTRUCTION SIGNAGE**

- .1 No construction advertisement signs, other than health and safety, warning and instructional signs, are permitted on site.
- .2 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

### **3.13.12 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect traveling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Construction Manager is responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by Departmental Representative.

### **3.13.13 CLEAN-UP**



- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

### **3.14 01 56 00 – TEMPORARY BARRIERS AND ENCLOSURES**

#### **3.14.1 INSTALLATION AND REMOVAL**

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

#### **3.14.2 HOARDING FENCE**

- .1 Erect temporary site enclosures using purpose made, 1.8m high, modular, prefinished metal mesh, self supporting, interlocking fencing.
- .2 Provide lockable truck entrance gate(s) and pedestrian door(s) as required and conforming to applicable traffic restrictions on adjacent streets and sites roadways. Equip gates with locks and keys.
  - .1 Provide keys to Departmental Representative's Commissionaire for surveillance and inspection as it may relate to Institutional operations.
- .3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law and directed by Departmental Representative.
- .4 Maintain enclosure in clean condition.
- .5 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.
- .6 Ensure construction areas inside and outside Institution's fenced area are secure.
- .7 Fence and secure separately the Laydown and Work site areas.

#### **3.14.3 GUARD RAILS AND BARRICADES**

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

#### **3.14.4 WEATHER ENCLOSURES**

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

#### **3.14.5 DUST TIGHT SCREENS**

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

#### **3.14.6 ACCESS TO SITE**



- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .2 Maintain access in broom clean condition.
- .3 Maintain operable and paved roads to the Medium and Minimum Institution throughout the duration of the project, for uninterrupted full use.

#### **3.14.7 PUBLIC TRAFFIC FLOW**

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

#### **3.14.8 FIRE ROUTES**

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

#### **3.14.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

- .1 Protect surrounding private and public property including laydown, site office facilities and parking areas from damage during performance of Work.
- .2 Be responsible for damage incurred.

#### **3.14.10 PROTECTION OF BUILDING FINISHES**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Departmental Representative locations and installation schedule 3 working days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

### **3.15 01 61 00 – COMMON PRODUCT REQUIREMENTS**

#### **3.15.1 QUALITY**

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.



### 3.15.2 AVAILABILITY

- .1 Immediately upon signing Contract(s), review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

### 3.15.3 STORAGE HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

### 3.15.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Departmental Representative will pay for transportation cost of products supplied by Departmental Representative. Unload, handle and store such products.

### 3.15.5 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, to allow for Departmental Representative's review of the next course of action.



- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **3.15.6 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative whose decision is final.

#### **3.15.7 CO-ORDINATION**

- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

#### **3.15.8 CONCEALMENT**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

#### **3.15.9 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

#### **3.15.10 LOCATION OF FIXTURES**

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

#### **3.15.11 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.



- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

#### **3.15.12 FASTENINGS – EQUIPMENT**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

#### **3.15.13 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

#### **3.15.14 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

### **3.16 01 71 00 - EXAMINATION AND PREPARATION**

#### **3.16.1 QUALIFICATIONS OF SURVEYOR**

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

#### **3.16.2 SURVEY REFERENCE POINTS**

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Departmental Representative.
- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

#### **3.16.3 SURVEY REQUIREMENTS**



- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, fill, topsoil placement and landscaping features.
- .4 Stake slopes and berms.
- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.
- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.

#### **3.16.4 EXISTING SERVICES**

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

#### **3.16.5 LOCATION OF EQUIPMENT AND FIXTURES**

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

#### **3.16.6 RECORDS**

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

#### **3.16.7 SUBMITTALS**

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform and do not conform with Contract Documents.

### **3.17 01 73 03 – EXECUTION REQUIREMENTS**

#### **3.17.1 SUBMITTALS**

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Submit written request in advance of cutting or alteration which affects:
  - .1 Structural integrity of elements of project.



- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Departmental Representative or separate Construction Manager.
- .3 Include in request:
  - .1 Identification of project.
  - .2 Location and description of affected Work.
  - .3 Statement on necessity for cutting or alteration.
  - .4 Description of proposed Work, and products to be used.
  - .5 Alternatives to cutting and patching.
  - .6 Effect on Work of Owner or separate Construction Manager.
  - .7 Written permission of affected separate Construction Manager.
  - .8 Date and time work will be executed.

### 3.17.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00.

### 3.17.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

### 3.17.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.



- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.
  - .1 Remove all excess excavation and fill and all other material to off-site.

### **3.18 01 74 11 – CLEANING**

#### **3.18.1 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Construction Managers.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

#### **3.18.2 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.



- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls and floors.
- .8 Clean lighting reflectors, lenses, and other lighting surfaces.
- .9 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .10 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .11 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .12 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .13 Remove dirt and other disfiguration from exterior surfaces.
- .14 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .15 Sweep and wash clean paved areas.
- .16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .17 Clean roofs, downspouts, and drainage systems.
- .18 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .19 Remove snow and ice from access to building.
- .20 Complete cleaning prior to start-up and commissioning of systems and integrated systems.

### **3.19 01 74 21 CONSTRUCTION DEMOLITION WASTE MANAGEMENT AND DISPOSAL**

#### **3.19.1 WASTE MANAGEMENT GOALS**

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's waste management goals.
- .2 PWGSC's waste management goal 75 percent of total project waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and environment damage.

#### **3.19.2 DEFINITIONS**

- .1 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .2 Inert Fill: inert waste - exclusively asphalt and concrete.
- .3 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.



- .4 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .5 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .6 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .7 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2 Returning reusable items including pallets or unused products to vendors.
- .8 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .9 Separate Condition: refers to waste sorted into individual types.
- .10 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .11 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .12 Waste Management Coordinator (WMC): Construction Manager representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .13 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

### 3.19.3 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
  - .1 Waste Audit.
  - .2 Waste Reduction Workplan.
  - .3 Material Source Separation Plan.
  - .4 Schedules completed for project.

### 3.19.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00.
- .2 Prepare and submit following prior to project start-up:
  - .1 Submit 2 copies of completed Waste Audit (WA): Schedule A.
  - .2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
  - .3 Submit 2 copies of completed Demolition Waste Audit (DWA): Schedule C.
  - .4 Submit 2 copies of Materials Source Separation Program (MSSP) description.



- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
  - .1 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
  - .2 For each material reused, sold or recycled from project, include amount in tonnes or quantities by number, type and size of items and the destination.
  - .3 For each material land filled or incinerated from project, include amount of material and identity of landfill, incinerator or transfer station.

### 3.19.5 WASTE AUDIT (WA)

- .1 Conduct WA prior to project start-up.
- .2 Prepare WA: Schedule A.
- .3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

### 3.19.6 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not limited to:
  - .1 Destination of materials listed.
  - .2 Deconstruction/disassembly techniques and sequencing.
  - .3 Schedule for deconstruction/disassembly.
  - .4 Location.
  - .5 Security.
  - .6 Protection.
  - .7 Clear labeling of storage areas.
  - .8 Details on materials handling and removal procedures.
  - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.
- .6 Post WRW or summary where workers at site are able to review content.
- .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

### 3.19.7 DEMOLITION WASTE AUDIT (DWA)

- .1 Prepare DWA prior to project start-up.
- .2 Complete DWA: Schedule C.
- .3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.



### **3.19.8 COST REVENUE ANALYSIS WORKPLAN (CRAW)**

- .1 Prepare CRAW: Schedule D.

### **3.19.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)**

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
  - .1 Transport to approved and authorized recycling facility or to users of material for recycling.

### **3.19.10 STORAGE HANDLING AND PROTECTION**

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials for removal become Construction Manager's property.
- .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .4 Protect structural components not removed for demolition from movement or damage.
- .5 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .6 Protect surface drainage, mechanical and electrical from damage and blockage.
- .7 Separate and store materials produced during dismantling of structures in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.
  - .2 Remove co-mingled materials to off-site processing facility for separation.
  - .3 Provide waybills for separated materials.

### **3.19.11 DISPOSAL OF WASTES**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.



- .3 Total tonnage generated.
- .4 Tonnage reused or recycled.
- .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

**3.19.12 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises.

**3.19.13 SCHEDULING**

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

**3.19.14 APPLICATION**

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

**3.19.15 CLEANING**

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

**3.19.16 DIVERSION OF MATERIALS**

- .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative and consistent with applicable fire regulations.
  - .1 Mark containers or stockpile areas.
  - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged, recovered, reusable, recyclable materials is not permitted.
- .3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Acoustic Tile	50	[ ]
Acoustical Insulation	100	[ ]
Carpet	100	[ ]
De-mountable Partitions	80	[ ]
Doors and Frames	100	[ ]
Electrical Equipment	80	[ ]
Furnishings	80	[ ]
Marble Base	100	[ ]
Mechanical Equipment	100	[ ]
Metals	100	[ ]
Rubble	100	[ ]



Wood (uncontaminated)	100	[ ]
Other		

**.4 Construction Waste**

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	[ ]
Plastic Packaging	100	[ ]
Rubble	100	[ ]
Steel	100	[ ]
Wood (uncontaminated)	100	[ ]
Other		[ ]

**3.19.17 WASTE AUDIT (WA)**

**.1 Schedule A - Waste Audit (WA):**

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation on Point	(6) % Recycled	(7) % Reused
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Wood and  
Plastics  
Material  
Description  
Off-cuts  
Warped  
Pallet  
Forms  
Plastic  
Packaging  
Cardboard  
Packaging  
Other

Doors and  
Windows  
Material  
Description  
Painted  
Frames  
Glass  
Wood  
Metal  
Other

**3.19.18 WASTE REDUCTION WORKPLAN (WRW)**

**.1 Schedule B:**

(1) Material Category	(2) Person(s) Responsible	(3) Total Quantity	(4) Actual Reused Amount	(5) Actual Recycled Amount	(6) Material(s) Destination
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Description	of Waste (unit)	(units) Projected	(unit) Projected
Wood and Plastics Material			
Chutes			
Warped Pallet			
Forms			
Plastic Packaging			
Cardboard Packaging			
Other:			
Doors and Windows Material			
Painted Frames			
Glass			
Wood			
Metal			
Other			

**3.19.19 DEMOLITION WASTE AUDIT (DWA)**

.1 Schedule C - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity	(3) Unit Total	(4) Volume (cum)	(5) Weight (cum)	(6) Remarks and Assumptions
Wood					
Wood Stud					
Plywood					
Baseboard					
Wood Door					
Trim - Wood					
Cabinet					
Doors and Windows					
Panel					
Regular Slab					

**3.20 01 77 00 – CLOSEOUT PROCEDURES**

**3.20.1 INSPECTION AND DECLARATION**



- .1 Construction Manager's Inspection: Construction Manager and SubContractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Departmental Representative in writing of satisfactory completion of Construction Manager's Inspection and that corrections have been made.
  - .2 Request Departmental Representative Inspection.
- .2 Completion: submit written certificate that following have been performed:
  - .1 Work has been completed and inspected for compliance with
    - .1 Contract Documents.
    - .2 Local authorities having jurisdiction.
    - .3 Local services/utility providers.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
  - .4 Certificates required by Authorities Having Jurisdiction and by Utilities have been submitted.
  - .5 Operation of systems have been demonstrated to Departmental Representative's and Institution's personnel.
  - .6 Work is complete and ready for final inspection.
- .3 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative and Construction Manager. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

### 3.20.2 WARRANTY INSPECTION

- .1 In the case of one year warranty, conduct joint inspections ten (10) months after Interim Certificate of Completion. In the case of each extended warranty, conduct joint inspections as agreed by Departmental Representative.
- .2 Immediately prior to end of warranty period(s) Departmental Representative and Construction Manager shall make a joint final inspection of the remedial Work noted two (2) months prior to end of warranty(s) and reported within the two (2) month during remedial work.

## 3.21 01 78 00 - CLOSEOUT SUBMITTALS

### 3.21.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative;
  - .1 Four final copies plus electronic copies of operating and maintenance manuals in English.



- .2 Four copies plus electronic copies of final Commissioning Report.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

### 3.21.2 ELECTRONIC SUBMITTALS

- .1 Submit number of hard copies specified for each type and format of submittal and in also submit in electronic format as pdf files and also in MS Word, Excel, Project as may be appropriate and in AutoCAD dwg files all on CD R/W or USB.
- .2 Departmental Representative will provide one electronic set of drawings, schedules and specifications for as-built drawing and specification purposes.
  - .1 Drawings are in AutoCAD.
  - .2 Specifications are in MS Word.
  - .3 Amendments are in MS Word.
- .3 Transfer as-built information from marked up set of documents to electronic format.
  - .1 Provide plotted or printed as specified.
- .4 As-built topographical and site surveys in AutoCAD and pdf format.

### 3.21.3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by components, systems, integrated systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled CAD files in pdf and dwg format.
- .10 On project completion submit to Departmental Representative 4 electronic pdf copies on CD R/W and 4 paper copies in binders of Operations and Maintenance Manual.
  - .1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure.
  - .2 Organize files into Masterformat 2010 numbering system.



- .3 Label disk "Operational and Maintenance Data", project name, date, names of Construction Manager, subcontractors, consultants and subconsultants.
- .4 Include scanned guarantees, bonds, diagrams and drawings.
- .5 Organize contents into applicable sections of work to parallel specification break-down. Mark each section by labeled tabs (navigation buttons).
- .6 Ensure all content is legible.

#### **3.21.4 CONTENTS – EACH VOLUME**

- .1 Table of Contents:
  - .1 Provide title of project;
  - .2 Date of submission; names.
  - .3 Addresses, and telephone numbers of Department Representative and Construction Manager with name of responsible parties.
  - .4 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.
- .6 Demonstration and Training: refer to Section 01 79 00.
  - .1 Submit to Departmental Representative 4 electronic copies on DVD R/W of demonstration and training sessions.

#### **3.21.5 AS-BUILTS SPECIFICATIONS AND SAMPLES**

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.



- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.
- .6 Departmental Representative may furnish additional drawings and specifications to clarify Work.
  - .1 Such documents become part of Contract Document.
  - .2 Include such documents in As Built submission.
- .7 Turn over, at completion, with all as-built information:
  - .1 Drawings;
    - .1 1 electronic copy of drawings in AutoCad file format 2010.
    - .2 4 sets of printed as-built drawings.
    - .3 1 pdf copy.
  - .2 Specifications in Master format 2010;
    - .1 1 electronic copy of specifications in MS Word 2007.
    - .2 4 sets of printed as-built specifications.
    - .3 1 pdf copy.
- .8 Submit to Departmental Representative one copy of drawings and specifications for review prior to final submission.

### 3.21.6 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque drawings, and in copy of Specifications Documents.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, guarantees, inspection certifications, field test records, required by individual specifications sections.



### 3.21.7 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

### 3.21.8 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Construction Manager's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 and 01 91 13.
- .15 Additional requirements: as specified in individual specification sections and Terms of Reference (TOR).

### 3.21.9 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.



- .4 Additional Requirements: as specified in individual specifications sections.

#### **3.21.10 SPARE PARTS**

- .1 Provide spare parts.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

#### **3.21.11 MAINTENANCE MATERIALS**

- .1 Provide maintenance and extra materials.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

#### **3.21.12 SPECIAL TOOLS**

- .1 Provide special tools.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

#### **3.21.13 STORAGE, HANDLING AND PROTECTION**

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

#### **3.21.14 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 60 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.



- .6 Assemble approved information in binder and submit upon acceptance of work.  
Organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties, manufacturers' guarantees and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Departmental Representative permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Construction Managers, subcontractors, manufacturers or suppliers involved.
  - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems and integrated systems.
  - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
    - .1 Name of item.
    - .2 Model and serial numbers.
    - .3 Location where installed.
    - .4 Name and phone numbers of manufacturers or suppliers.
    - .5 Names, addresses and telephone numbers of sources of spare parts.
    - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
    - .7 Cross-reference to warranty certificates as applicable.
    - .8 Starting point and duration of warranty period.
    - .9 Summary of maintenance procedures required to continue warranty in force.
    - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
    - .11 Organization, names and phone numbers of persons to call for warranty service.
    - .12 Typical response time and repair time expected for various warranted equipment.
  - .4 Construction Manager's plans for attendance of the various required post-construction warranty inspections.



- .5 Procedure and status of tagging of equipment covered by extended warranties.
- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Construction Manager.

### **3.21.15 PRE-WARRANTY CONFERENCE**

- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.
- .2 Departmental Representative will establish communication procedures for:
  - .1 Notification of construction warranty defects.
  - .2 Determine priorities for type of defect.
  - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

### **3.21.16 WARRANTY TAGS**

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
  - .1 Type of product/material.
  - .2 Model number.
  - .3 Serial number.
  - .4 Contract number.
  - .5 Warranty period.
  - .6 Inspector's signature.
  - .7 Construction Manager.

## **3.22 01 91 13 – GENERAL COMMISSIONING (CX) REQUIREMENTS**

### **3.22.1 GENERAL**

- .1 Refer to the TOR for Commissioning Requirements.

## **3.23 01 91 41 – DEMONSTRATION AND TRAINING**

### **3.23.1 GENERAL**

- .1 Refer to the TOR for Demonstration and Training Requirements.

## **4. Existing Conditions (Division 02)**



## 4.1 GENERAL

### 4.1.1 MASTERFORMAT

- .1 Division 01 requirements are structured using Masterformat 2010 section numbering system.

## 4.2 02 81 01 HAZARDOUS MATERIALS

### 4.2.1 REFERENCES

- .1 Definitions:
  - .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
  - .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
  - .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .2 Reference Standards:
  - .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
    - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
  - .2 Department of Justice Canada (Jus)
    - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act), (c. 34).
    - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
  - .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
    - .1 Material Safety Data Sheets (MSDS).
  - .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
    - .1 National Fire Code of Canada-2010.
- .3 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  - .1 SCAQMD Rule 1113-A2013, Architectural Coatings.
  - .2 SCAQMD Rule 1168-A2005, Adhesive and Sealant Applications.

### 4.2.2 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
  - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.



#### 4.2.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
  - .1 When exporting hazardous waste to another country, ensure compliance with Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations.
- .4 Storage and Handling Requirements:
  - .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
  - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
  - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
  - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
    - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
    - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
  - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
  - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
  - .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
  - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
  - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
  - .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
    - .1 Store hazardous materials and wastes in closed and sealed containers.
    - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
    - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
    - .4 Segregate incompatible materials and wastes.
    - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.



- .6 Store hazardous materials and wastes in secure storage area with controlled access.
- .7 Maintain clear egress from storage area.
- .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
  - .1 Co-ordinate transportation and disposal with Departmental Representative.
  - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
  - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
  - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
  - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
  - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
  - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
  - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
  - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.
- .5 Develop Construction Waste Management Plan related to Work of this Section.
- .6 Packaging Waste Management: remove for reuse and return by manufacturer of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

#### 4.2.4 MATERIALS

- .1 Description:
  - .1 Bring on site only quantities hazardous material required to perform Work.



- .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

#### 4.2.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
    - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
    - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
    - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
    - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
    - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
    - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
    - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
    - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
      - .1 Hazardous wastes recycled in manner constituting disposal.
      - .2 Hazardous waste burned for energy recovery.
      - .3 Lead-acid battery recycling.
      - .4 Hazardous wastes with economically recoverable precious metals.



## 5. Roles and Responsibilities Matrix

### Roles and Responsibilities Matrix - CM as Advisor & Contractor

LEGEND		A - Approves L - Leads S - Supports I - Informed NR - No Role	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.	DR - Departmental Representative CT - Design Consulting Team CM - Construction Manager		
		Phase Description/Work Product		DR	CT	CM
<b>SP</b>		<b>Pre design Period; Concept &amp; Schematic</b>				
SP	1	<b>Partnering Workshop</b>		L	S	S
SP	2	Lines of Communication & Roles & Responsibilities		L	S	S
SP	3	Owner Project Requirements (OPR)		L	S	S
SP	4	Review Owner Functional & Operational Program		S	L	S
SP	5	Risk and Complexity Analysis		A	L	S
SP	6	Review As-Built, Current Design and Site Condition Review (Surveys, GeoTech Reports)		I	L	S
SP	7	Introductory CM Plan/Project Procedures Manual		A	S	L
SP	8	Introductory Master Schedule		A	L	S
SP	9	Project Team Task Analysis and Deliverables		I	L	S
SP	10	<b>Integrated Project Delivery Workshop</b>		A	L	S
SP	11	Design Kickoff Meeting		S	L	S
SP	12	Schematic Design and Report Review		A	L	S
SP	13	Basis of Design (BOD) support document		A	L	S
SP	14	CM Plan Update		A	S	L
SP	15	Prepare Construction Cost Estimate (+/-15%)		A	L	S
SP	16	Prepare & Submit Initial Construction Budget/Schedule		A	S	L
SP	17	Identify Long Lead Items, prepare orders		A/S	S	L
SP	18	Initial Cx Plan		A	L	S
SP	19	Apply for & track all Regulatory Permits Requirements		S	S	L
<b>DP</b>		<b>Design Period</b>				
DP	1	<b>Pre-Design Meeting; minutes</b>		A	L	S
DP	2	<b>Design Development &amp; Review Report</b>		A	L	S



LEGEND		A - Approves	Approval authority, sign-offs on work provided by Lead.		
		L - Leads	Responsible to direct & achieve the work and for the results.		
		S - Supports	Contributes expert resources to complete the work.		
		I - Informed	Being informed by Lead of work progress.		
		NR - No Role	No Role.		
		DR - Departmental Representative CT - Design Consulting Team CM - Construction Manager			
		Phase Description/Work Product	DR	CT	CM
DP	3	OPR & BOD Updates	A	L	S
DP	4	CM Plan Update	A	S	L
DP	5	Risk Identification and Mitigation & Management Program Update	A	S	L
DP	6	Prepare Construction Cost Estimate (+/-10%)	A	L	S
DP	7	Prepare & Submit Initial Budget/Schedule	A	S	L
DP	8	<b>Design Dwg and Outline Specs Submission(s)</b>	A	L	NR
DP	9	QA Reviews	L	S	S
DP	10	Response to QA	S	L	S
DP	11	<b>Integrated Project Delivery Workshop</b>	A	L	S
DP	12	Constructability Review Workshop & Report	S	A/S	L
DP	13	Value Engineering Workshop Review & Report	A	S	L
DP	14	Cx Plan Update	S	L	S
DP	15	Update Design Schedule	A	L	S
DP	16	Update Project Schedule	A	S	L
DP	17	<b>Construction Document &amp; Review Report (33%, 66% and 99% submissions)</b>	L	A	S
DP	18	QA Reviews	L	S	S
DP	19	Response to QA	S	L	S
DP	20	<b>Submit Design for Building Permit Review</b>	A	S	L
DP	21	<b>CM Plan Update</b>	A	S	L
DP	22	Risk Identification and mitigation & Management Program Update	A	S	L
DP	23	Prepare Respective Construction Cost Estimate (+/-5%)	A	L	S
DP	24	Prepare & Submit Updated Construction Budgets/Schedules	A	S	L
DP	25	Constructability Review & Report	A	S	L
DP	26	Obtain Code AHJ Review Approval	A	L	S
DP	27	<b>CM Construction Plan Kickoff Meeting</b>	L	S	S
DP	28	Construction Planning & Delivery Methods	A	S	L
DP	29	Prepare & Review of Sample Contracts/ Agreements/Division 01	S	S	L
DP	30	Early Tender - Order Long Lead Items, Material/Fabrication & Industry Design Assistance to Project	S	S	L
DP	31	CM Tender Process & Contracting Plan	A	S	L



LEGEND		A - Approves	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.		
		L - Leads			
LEGEND		S - Supports	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.		
		I - Informed			
LEGEND		NR - No Role	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.		
		DR - Departmental Representative			
LEGEND		CT - Design Consulting Team	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.		
		CM - Construction Manager			
		Phase Description/Work Product	DR	CT	CM
DP	32	CM Tender Sub-Contractor Work Package Plan & Respective Class A Estimates	A	S	L
DP	33	CM Tender Document Packages Compilation.	S	S	L
DP	34	CM Own Work Force Div 01 Work Plan	A	S	L
DP	35	Regulatory Approvals, Permits & Licenses Applications	I	L	S
DP	36	<b>Cx Plan Update</b>	A	S	L
DP	37	<b>Cx Verification Checklists &amp; Test Procedures and Forms</b>	S	L	S
DP	38	<b>CM Bid / Award</b>	A	S	L
DP	39	Develop Sub-Contractor Bid List, Tender Advertisement	A	S	L
DP	40	Review & approve bid documents	A	S	L
DP	41	Develop General Contractor Bid List and Tender Advertisement	A	S	L
DP	42	Distribute Bid Documents	I	I	L
DP	43	Pre-Bid Conference	I	S	L
DP	44	Prepare & Distribute Minutes	I	S	L
DP	45	Prepare Addenda	A	S	L
DP	46	Schedule & Coordinate Bid Openings	I	S	L
DP	47	Receive, Open & Record Bids	I	S	L
DP	48	Review Bids and Provide Cost Analysis	I	S	L
DP	49	Review Sub-Contractors	I	S	L
DP	50	Sub-Contractor Contract Award	A	S	L
DP	51	<b>CM Plan Update</b>	A	S	L
DP	52	Risk Identification and Mitigation & Management Program Update	A	S	L
DP	53	Construction Cost , Cash Flow and Schedule Updates	A	S	L
<b>CP</b>		<b>Construction &amp; Administration Period</b>			
CP	1	CM Plan Update	A	S	L
CP	2	Review/Approve Sub-Contractor Schedule of Values Breakdown	A	S	L
CP	3	Review/Approve CM Own-Forces Schedule of Values Breakdown	A	S/L	S
CP	4	Review Sub-Contractor's Progress Schedule	S	S	L/A
CP	5	Review/Approve Own-Forces Schedule of Values Breakdown	A	S/L	S
CP	6	Recommend Progress Claim & Payment Approval	A	L/A	S
CP	7	Pre-Construction Meeting	S	L	S
CP	8	Integrate Cx activities into Project Schedule	A	S	L



LEGEND		A - Approves L - Leads S - Supports I - Informed NR - No Role	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.	DR - Departmental Representative CT - Design Consulting Team CM - Construction Manager		
		Phase Description/Work Product			DR	CT
CP	9	OPR and BOD update	A	L	S	
CP	10	Manage RFI process	A	S	L	
CP	11	Submit Change Request	A	S	L	
CP	12	Evaluate/Negotiate/Recommend Change Request	A	L	S	
CP	13	Change Orders	A	L	S	
CP	14	Track & Distribute Documents	S	L	S	
CP	15	Review/Approve submittals	S	L	A	
CP	16	Approve Shop Drawings	S	L	A	
CP	17	Approve Test Reports	I	S	A	
CP	18	Prepare Change Request Plans & Specs	S	L	S	
CP	19	Weekly Project Progress Meetings	S	L	L	
CP	20	Meeting Minutes, Construction Cost Estimate & Status Reports	I	L	S	
CP	21	CM Construction Budget & Schedule	I	S	L	
CP	22	Sub-Contractors' Progress Schedules	I	S	L	
CP	23	Progress Payment to Date	L/A	S	S	
CP	24	Cx Plan and Issues Log Update	A	S	L	
CP	25	Field inspections re: Testing, Warranty, AHJ, Regulatory Agencies	I	S	L	
CP	26	Submit Daily Field Reports	I	S	A/L	
CP	27	Construction Photographs	I	L/S	S	
CP	28	Prepare "As-Built" Plans	I	L/A	S	
CP	29	Coordinate Partial Interim Acceptances/ Substantial Completions & Certificates	A	L	S	
CP	30	Track All Permits	I	S	L/A	
CP	31	Track All Project Documents	S	L	S	
CP	32	Review CM Invoices	L/A	L	S	
CP	33	Prepare O&M Manuals	S	A	L	
CP	34	Develop and Conduct Training	A	L	S	
CP	35	Cx Process	S	L	S	
CP	36	Cx Progress Meetings	S	L	S	
CP	37	Update Cx Plan submission	A	L	S	
CP	38	Submit Cx Forms	S	S	L	
CP	39	Witness and document Static Verification	I	A/S	L	
CP	40	Witness and Document Scheduled Start-Up	I	A/S	L	



LEGEND		A - Approves	Approval authority, sign-offs on work provided by Lead. Responsible to direct & achieve the work and for the results. Contributes expert resources to complete the work. Being informed by Lead of work progress. No Role.		
		L - Leads			
		S - Supports			
		I - Informed			
		NR - No Role			
		DR - Departmental Representative CT - Design Consulting Team CM - Construction Manager			
		Phase Description/Work Product	DR	CT	CM
CP	41	Witness and document Functional Performance Testing	I	A/S	L
CP	42	Prepare and update Cx Issues Log	S	A/S	L
CP	43	Resolve issues resulting from all tests	S	L/A	L
CP	44	Prepare Cx report submission	A	L	S
CP	45	Prepare Cx Manual submission	A	A/S	L
CP	46	Verify and review training Plan	A	L	S
CP	47	Conduct Training	A	S	L
CP	48	Assemble data for Operations and Maintenance Manuals	S	S	L
CP	49	Review O&M Manuals	S	L/A	S
CP	50	Partial Substantial Completion	A	L	S
CP	51	<b>Substantial Completion</b>	A	L	S
<b>CO</b>		<b>Close Out Period</b>			
CO	1	<b>Conduct pre-final inspection</b>	A/S	L	S
CO	2	<b>Prepare / consolidate Punch list(s)</b>	S	A/L	S
CO	3	<b>Complete Punch list Items</b>	A	S	L
CO	4	<b>Coordinate Code Inspection</b>	I	L/A	S
CO	5	<b>Plan, Schedule &amp; Control Final Inspection by All Parties Incl. Regulatory Agencies</b>	A	L	S
CO	6	<b>Provide Maintenance &amp; Operating Manuals</b>	A	L	S
CO	7	<b>Provide All Guarantees &amp; Reports</b>	A	S	L
CO	8	<b>Assemble &amp; Approve Close-Out Documents</b>	A	L	S
CO	9	<b>Evaluate As-Built Plans</b>	I	L	S
CO	10	<b>Prepare Record Set Drawings</b>	A	L	S
CO	11	<b>Sign "Certificate Of Final Completion"</b>	A	L	S
CO	12	<b>Final Contract Acceptance</b>	A	L	S
CO	13	<b>All Permit closeouts</b>	I	L	A
CO	14	<b>Occupancy certificate</b>	I	L/A	S
<b>PO</b>		<b>Post Occupancy Period</b>			
PO	1	<b>Resolve Outstanding Cx issues</b>	S	A/S	L
PO	2	Perform Seasonal/ Deferred Testing	S	A/S	L
PO	3	Resolve issues from seasonal/deferred testing	S	A/S	L
PO	4	Update Issues Log from seasonal/ deferred testing	S	A/S	L



<b>LEGEND</b>	<b>A - Approves</b>	Approval authority, sign-offs on work provided by Lead.			
	<b>L - Leads</b>	Responsible to direct & achieve the work and for the results.			
	<b>S - Supports</b>	Contributes expert resources to complete the work.			
	<b>I - Informed</b>	Being informed by Lead of work progress.			
	<b>NR - No Role</b>	No Role.			
<b>DR - Departmental Representative CT - Design Consulting Team CM - Construction Manager</b>					
<b>Phase Description/Work Product</b>			<b>DR</b>	<b>CT</b>	<b>CM</b>
PO	5	Complete final Cx report	A	L	S
PO	6	<b>Complete PWGSC Cx Evaluation Report</b>	A/L	S	S
PO	7	<b>Provide Post-Occupancy Assistance</b>	L	S	S
PO	8	<b>Correct Warranty Issues</b>	I	S	A/L
PO	9	<b>Lessons Learned</b>	L	S	S



## **6. CM Monthly Reporting Outline**

### **6.1 EXECUTIVE SUMMARY ON KEY POINTS**

- .1 General commentary on where the project is at, milestones achieved, upcoming milestones, opinion on how the project is progressing at a high level.

### **6.2 GENERAL PROGRESS OF WORK**

- .1 Description of Work Completed in the last reporting period.
- .2 Description of upcoming work that is anticipated to be completed in the next reporting period.
- .3 Issues that need to be resolved.

### **6.3 CONSTRUCTION COST PLAN REPORT**

- .1 Budgeted dollars per month.
- .2 Expenditure Cash Flow per month.
- .3 Forecasted Expenditures per month.
- .4 Actual Expenditures per month.
- .5 Value of work done to end of reporting period, per fiscal year and overall for project.

### **6.4 MASTER SCHEDULE UPDATE (UPDATED SCHEDULE SHOWING PROGRESS TO DATE TO BE ATTACHED)**

- .1 Identify Critical Path tasks completed, Critical Path tasks upcoming.
- .2 Progress on Schedule.
- .3 Deviations to Schedule to date.
- .4 Actions Required to Maintain Schedule, if required.

### **6.5 RISK MANAGEMENT**

- .1 Identify risk, state if it is a new risk or ongoing.
- .2 Identify mitigation strategy of risk.
- .3 Report on the outcome of the mitigation strategy.

### **6.6 WASTE MANAGEMENT**

- .1 Overview of the strategy employed to date related to the Waste Management Plan.
- .2 Summary of numbers i.e. weight or volume of waste diverted from landfill, recycled volume or weight, etc.

### **6.7 HEALTH & SAFETY REPORT**

- .1 Safety Incidents identified.
- .2 Confirmation that Safety Tailgate Meetings are occurring.
- .3 On site activities that warrant special safety consideration or awareness.

### **6.8 COMMISSIONING PROGRESS REPORT**

- .1 Update on Progress of Commissioning Plan.
- .2 Commentary on next steps.
- .3 Issues that need to be resolved.





# CERTIFICATE OF INSURANCE – ANNEX F

(Not required at solicitation closing)

Page 1 of 2

Description and Location of Work	Contract No.
	Project No.

Name of Insurer, Broker or Agent	Address (No., Street)	City	Province	Postal Code
Name of Insured (Contractor)	Address (No., Street)	City	Province	Postal Code

Additional Insured  
**Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services**

Type of Insurance	Insurer Name and Policy Number	Inception Date D / M / Y	Expiry Date D / M / Y	Limits of Liability		
				Per Occurrence	Annual General Aggregate	Completed Operations Aggregate
<b>Commercial General Liability Umbrella/Excess Liability</b>				\$	\$	\$
				\$	\$	\$
<b>Builder's Risk Installation Floater</b>				\$		

I certify that the above policies were issued by insurers in the course of their Insurance business in Canada, are currently in force and include the applicable insurance coverage's stated on page 2 of this Certificate of Insurance, including advance notice of cancellation / reduction in coverage.



Name of person authorized to sign on behalf of Insurer(s) (Officer, Agent, Broker)

Telephone number

Signature

Date D / M / Y

**General**

The insurance policies required on page 1 of the Certificate of Insurance must be in force and must include the insurance coverage listed under the corresponding type of insurance on this page.

The policies must insure the Contractor and must include Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services as an additional Insured.

The insurance policies must be endorsed to provide Canada with not less than thirty (30) days notice in writing in advance of a cancellation of insurance or any reduction in coverage.

Without increasing the limit of liability, the policies must protect all insured parties to the full extent of coverage provided. Further, the policies must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

**Commercial General Liability**

The insurance coverage provided must not be substantially less than that provided by the latest edition of IBC Form 2100.

The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:

- (a) Blasting.
- (b) Pile driving and caisson work.
- (c) Underpinning.
- (d) Removal or weakening of support of any structure or land whether such support be natural or otherwise if the work is performed by the insured contractor.

The policy must have the following minimum limits:

- (a) **\$5,000,000** Each Occurrence Limit;
- (b) **\$10,000,000** General Aggregate Limit per policy year if the policy contains a General Aggregate; and
- (c) **\$5,000,000** Products/Completed Operations Aggregate Limit.

Umbrella or excess liability insurance may be used to achieve the required limits.

**Builder's Risk / Installation Floater**

The insurance coverage provided must not be less than that provided by the latest edition of IBC Forms 4042 and 4047.

The policy must permit use and occupancy of any of the projects, or any part thereof, where such use and occupancy is for the purposes for which a project is intended upon completion.

The policy may exclude or be endorsed to exclude coverage for loss or damage caused by asbestos, fungi or spores, cyber and terrorism.

The policy must have a limit that is **not less than the sum of the contract value** plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy must be changed to reflect the revised contract value.

The policy must provide that the proceeds thereof are payable to Canada or as Canada may direct in accordance with GC10.2, "Insurance Proceeds" (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2900D/2>)

Event Item ID	Building Code	Component Description	Work Objectives	Work Summary	Class D Estimate	Constraints	Requires Schematic Design Options Y/N
5624	TT06	Compressed Air Systems	<ol style="list-style-type: none"> <li>1. Replace Compressors.</li> <li>2. To have new more stable air supply system for the Northern Forestry Centre, both in the pneumatic control systems and lab environment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Life expectancy of the existing Compressed Air System is over for over a decade; their reliability of the system has become questionable.</li> <li>2. Remove and replace the 3 existing air compressors, tanks, regulators and associated lines located in the mechanical room M-120 on the first floor.</li> <li>3. Compressor #1 is a Toshiba international that serves the pneumatic controls. As the building HVAC control will be upgraded to the new Direct Digital Control, DDC, the compressor #1 need to be resized based on new required pneumatic points.</li> <li>4. Compressors #2 and #3 both WestingHouse provide compressed air to the labs.</li> <li>5. New MCC power system was built in 2009 and it is in good working order. Power requirement shall be investigated.</li> </ol>	\$110,000		N
7408	TT06	H&S - Security System replacement	<ol style="list-style-type: none"> <li>1. Replace current security system as replacement parts are difficult to find.</li> <li>2. Provide robust system.</li> </ol>	<ol style="list-style-type: none"> <li>1. The existing security system was built in 2003.</li> <li>2. The failures of the system occurred often.</li> <li>3. Parts and Electronic control Panels are obsolete.</li> <li>4. The consultant is to identify all new areas to be controlled by the security system.</li> <li>5. Analyse the existing magnetic locks operation and remove them if necessary.</li> <li>6. Identify all Code requirements to be addressed.</li> <li>7. Coordinate with client the new locations for fire exists.</li> <li>8. Provide design options including wireless security as one of the options.</li> <li>9. Provide a cost estimate for each option.</li> </ol>	\$150,000		Y
5626	TT06	Water Distillation Units	<ol style="list-style-type: none"> <li>1. Replace Ultra-pure &amp; Water Distillation Systems.</li> <li>2. Upgrade reverse Osmosis as Component nearing end of Life</li> </ol>	<p>A. Electrical :</p> <ol style="list-style-type: none"> <li>1. The consultant is to provide the electrical design to support mechanical design.</li> <li>2. Provide new wiring, conduits and Controls.</li> <li>3. Provide new Power panels along with new breakers, disconnects and associated controls shall be provided.</li> <li>4. Ensure the proposed design for electrical systems provide durability, efficiency, operability and are safe for staff performing their daily duties.</li> </ol> <p>B. Mechanical:</p> <ol style="list-style-type: none"> <li>5. The reverse Osmosis system serving laboratory and greenhouse are original to the building and in poor condition. The Reverse Osmosis system needs to be upgraded as it is reaching its end of life cycle.</li> </ol>	\$300,000		N
10240	TT06	Electrical/Lighting - Greenhouse LED light conversion	<ol style="list-style-type: none"> <li>1. Provide better lighting environment for the greenhouse.</li> <li>2. Energy savings for the building.</li> <li>3. Possible test environment for LED lighting.</li> </ol>	<p>A. Electrical :</p> <ol style="list-style-type: none"> <li>1. Demonstrate sustainability through efficient components, control, and innovation.</li> <li>2. Minimize the use of the existing HPS lamps without compromising the required spectrum for plants to grow healthy.</li> <li>3. Utilize the separate switching controls for HPS and LED lamps to save energy.</li> <li>4. Supply and install new energy efficient lighting on existing adjustable brackets. Lighting to meet client specifications.</li> <li>5. LED lighting to be installed in parallel to existing lighting in greenhouses A-H.</li> <li>6. Supply and install metering for the greenhouse energy reduction plan.</li> </ol>	\$75,000		Y
5522	TT06	Renew Sealed-Epoxy Concrete Floor	<ol style="list-style-type: none"> <li>1. Renew Sealer or Epoxy Paint Finish to protect concrete flooring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-apply epoxy paint finish in mechanical penthouse flooring.</li> </ol>	\$400,000		N
5533	TT06	Suspended Acoustic Panel Ceiling	<ol style="list-style-type: none"> <li>1. Replace Ceiling Tiles.</li> <li>2. The NoFC has several broken, stained and mismatched ceiling tiles scattered throughout the building.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the existing ceiling tiles with new ones over the 2 year period of AIP2.</li> </ol>	\$450,000		N
10110	TT06	Generator Fuel Tank Replacement	<ol style="list-style-type: none"> <li>1. Provide a compliant generator and fuel tank.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove existing tank and install a new compatible tank or have a qualified engineer/Tech re-certify the existing tank.</li> </ol>	\$10,000	The new tank will need to be ordered, during work there will need to no back up power a temp service will be required.	N
10115	TT06	H&S - Plumbing Water/utility line to storage building	<ol style="list-style-type: none"> <li>1. Provide waterline to enable eyewash station to chemical storage area in storage building.</li> <li>2. Create a safer working environment for employees by installing an eyewash station in the storage building.</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide a new water line and adequate eyewash station in the storage building.</li> <li>2. The consultant to conduct a code review and consult with the local health and safety committee and provide eyewash and emergency shower in the storage area, as required.</li> </ol>	\$75,000		Y
9992	TT06	H&S - Building Code deficiency Plumbing	<ol style="list-style-type: none"> <li>1. Provide eye wash station that meets current building code (require tempered and potable water).</li> </ol>	<ol style="list-style-type: none"> <li>1. Consultant to conduct a code review and consult with the local health and safety committee.</li> <li>2. Provide a design development report and address current issues complete with remedial measures.</li> <li>3. Provide a solution to meet code requirements and site constraints.</li> </ol>	\$75,000	Core drilling and water shutdowns will be required.	Y

Event Item ID	Building Code	Component Description	Work Objectives	Work Summary	Class D Estimate	Constraints	Requires Schematic Design Options Y/N
5636	TT06	Electrical Distribution System Upgrade: 1. Electrical - Secondary Switchgear 2. Electrical - Secondary Transformers 3. Electrical - Distribution Panels	1. The work objective is to upgrade the Electrical Distribution System including but not limited to: • Electrical - Secondary Switchgear • Electrical - Secondary Transformers • Electrical - Distribution Panels 2. Retrofit Air Circuit Breakers. Component Obsolete, cannot source replacement parts, equipment failure could close lab. 3. Replace Distribution Panels. Component Obsolete, cannot source replacement parts, equipment failure could close lab. 4. Replace Secondary Transformers 600 - 120/208V. Component Obsolete, cannot source replacement parts, equipment failure could close lab.	The consultant shall provide a minimum of three options of design, along with cost estimate for each option for the Electrical Distribution System and associated components for: 1. Electrical - Secondary Switchgear. 2. Electrical - Secondary Transformers. 3. Electrical - Distribution Panels. 4. Examine the existing power capacity, grounding, including each component from the breaker up to the final connection. 5. Analyse the code deficiencies for the electrical system(s) and propose solutions. 6. Retrofit Air Circuit Breakers. 7. Distribution Panels complete with new breakers. 8. Replace Secondary Transformers 600 - 120/208V. Component Obsolete, cannot source replacement parts, equipment failure could close lab. 9. New pad mounted transformer including new grounding system. 10. Service Entrance Board Cubicles shall be floor mounted, levelled, wall supported, dead front and all sections bolted together. 11. The main distribution equipment shall be Hi-Pot tested to Manufacturer's recommendations prior to energizing. 12. Test and commission all switchboard equipment, check trip unit settings against coordination study, and arc flash study to ensure safety for maintenance personnel and protection of components. Record all settings and provide copies to department representative. Include copies in O&M Manual. 13. Provide coordination study including short circuit study and Arc flash study signed and sealed by a P.Eng confirming all components are fully coordinated. Provide complete distribution equipment Product Data, Coordination Study, Arc Flash Hazard Study and Arc Flash Labelling for entire building. 14. Lock-on devices for fire alarm exit light and night-light circuits. 15. Indicate the Panel boards that will require the integrally mounted transient voltage surge suppression where indicated. 16. VFD - To prevent and limit harmonics at the source, all VFDs should have an active filter at the line side of the VFD. 17. Provide multi-metering for electrical distribution system. Metering shall consist of electronic stand alone measuring true line/phase/ max/ min/ RMS voltages and currents, neutral currents, frequency, harmonics KW, KVAR, KVA, power factor, and complete with Ethernet communication ports, communication software and modem. 18. Ensure the proper addressing of the installation requirements of transient voltage surge suppression (TVSS) units with the proper Overcurrent protection device (OCPD). 19. Provide identification for each circuit including: Voltage, Phase, Amps, Circuit-s Fed from Panel, Destination. 20. It is recommended for enclosed offices to configure the lighting control as a vacancy sensor as opposed to an occupancy sensor. 21. Ensure the proposed design provides durability, efficiency, operability and are safe for staff performing their daily duties. 22. Demonstrate sustainability through use of energy efficient components, control, and innovation.	\$1,210,000	After hours work will be required. Limited space available in electrical room.	Y
5612	TT06	HVAC - Controls, Electrical or Pneumatic	1. Replace BMS System as current control is obsolete and parts are no longer available 2. Provide a more effective working environment that is compatible with current technology. 3. This new equipment would also be part of the Low Carbon Initiative.	1) The current hardware, Johnson Control, will at some point be obsolete and replacement parts or repairs will not be available. 2) The current system needs to be replaced with new and up to date system. 3) The consultant to review the recent HVAC control upgrade on the third floor and recommend new HVAC control system for the rest of the building.	\$220,000		N
10114	TT06	HVAC - Lab Upgrade	1. Reconfigure Fire Table Ventilation to prevent odor and potential air quality issues from leaking into the remainder of building.	1. The Lab HVAC control system will be upgraded as part of whole building HVAC control upgrade. 2. Investigate space pressurization issue within the Lab area. 3. Provide investigation report with remedial measures and associated costs.	\$60,000		Y
5608	TT06	HVAC - Terminal Units	1. Replace Terminal Units Air volume boxes in each lab as components are obsolete.	1. Replace Terminal Units Air Boxes in each lab, as part of whole Building HVAC control upgrade.	\$1,380,000		N
5595	TT06	HVAC - Computer Cooling AHU	1. Replace Computer Room AHU as it is near end of life cycle. 2. Provide redundancy.	1. The current AHU is reaching end of its life cycle and requires replacement. 2. HVAC system shall offer 100% redundancy and maintain operation at all times.	\$175,000		Y
5599	TT06	HVAC - Ventilation Fans	1. Replace Exhaust Fans as they are at the end of their lifecycle.	1. Replace exhaust fans in approximately 23 locations. 2. The consultant shall visit the site and determine which fan's associated ductworks require replacement.	\$110,000		N
5591	TT06	HVAC - Duct Systems	1. Replace 1969 Exhaust Ductwork. 2. Partially complete. 3. Opportunity to remove ducting from decommissioned hood vents and replace exhaust ductwork as required.	1. Remove old and abandoned ductwork and fume hoods. 2. Replace existing dust work as required.	\$2,200,000		N
6370	TT06	H&S - Fire Suppression System	1. Modify the fire suppression system in collections inventory areas.	1. Currently in progress.	N/A		N/A
9937	TT06	H&S - Building Fire Sprinklers	1. Construction of Fire Sprinkler system. 2. Building is deficient in fire code.	1. Currently in progress.	N/A		N/A
<b>Total</b>					<b>\$7,000,000</b>	Excludes estimate for fire sprinkler upgrade.	