



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St. / 11 rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**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

THIS DOCUMENT CONTAINS A SECURITY
REQUIREMENT / DOCUMENT CONTIENT DES
EXIGENCES RELATIVES À LA SÉCURITÉ

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

Consultant Services Division/Division des services
d'experts-conseils
L'Esplanade Laurier
4th floor, East Tower
140 O'Connor Street
Ottawa
Ontario
K1A 0S5

| | |
|---|--|
| Title - Sujet Construction Management Services | |
| Solicitation No. - N° de l'invitation EP751-202923/A | Date 2020-04-14 |
| Client Reference No. - N° de référence du client 20202923 | |
| GETS Reference No. - N° de référence de SEAG PW-\$\$FE-178-78653 | |
| File No. - N° de dossier fe178.EP751-202923 | CCC No./N° CCC - FMS No./N° VME |
| Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-05-26 | Time Zone Fuseau horaire Eastern Daylight Saving Time EDT |
| F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/> | |
| Address Enquiries to: - Adresser toutes questions à: Matende, Robinah | Buyer Id - Id de l'acheteur fe178 |
| Telephone No. - N° de téléphone (873) 353-8472 () | FAX No. - N° de FAX () - |
| Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes | |

Instructions: See Herein

Instructions: Voir aux présentes

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

BID SOLICITATION

CONSTRUCTION MANAGEMENT SERVICES

WESTERN PROJECTS

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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into six parts plus forms and annexes as follows:

Part 1 General Information: provides a general description of the requirement;

Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;

Part 3 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;

Part 4 Certifications and Additional Information: includes the certifications and information to be provided;

Part 5 Security: includes specific security requirements that must be addressed by Bidders;

Part 6 Resulting Contract Documents: includes clauses and conditions that will apply to any resulting contract.

1.2 Summary

Public Works and Government Services Canada (PWGSC), commonly known as Public Services and Procurement Canada (PSPC), will retain the services of a construction management entity, the Construction Manager (CM), to modernize laboratory facilities as part of its Laboratories Canada (LC) program of work. The CM's base Contract is the Sidney Centre for Plant Health laboratory and greenhouse facility for the Canadian Food Inspection Agency (CFIA) in Sidney. PWGSC may add incremental CM Work and Construction Services to the Contract through Contract option(s).

Science Facility laboratories in Sidney, British Columbia and Winnipeg, Manitoba may form part of the overall Contract as determined by the priorities of PWGSC's LC program.

PWGSC will retain one design firm, led by a prime consultant, who will provide Architectural and Engineering Services and prepare design solutions for the Work of this Contract. The Design Team will work collaboratively with the CM and PWGSC's Departmental Representative (DR). The CM is required to support the Design Team's development and analysis of implementation options of the initial Sidney mandate and the sub-Project, managing the Work sequencing, Cost, and construction of approved design solutions.

Fundamentally, this is a service Contract. The CM is not to behave like a general contractor. Rather, acting as the Constructor at the Place of the Work, the CM is required to provide the comprehensive services described in the TOR on an ongoing basis and respect PWGSC's high quality standards throughout all aspects of Cost and time planning, estimating, scheduling, Monitoring and control. Moreover, the CM is required to provide comprehensive design management services to ensure ongoing and timely identification and prioritization of the Design Team's design package production to optimize overall delivery of Project Work.

1.3 Important Notices to Bidders

(a) Prompt Payment Principles: PWGSC advocates that construction-related payments should follow these three principles:

- **Promptness:** The department will review and process invoices promptly. If disputes

arise, PWGSC will pay for items not in dispute, while working to resolve the disputed amount quickly and fairly

- **Transparency:** The department will make construction payment information such as payment dates, company names, contract and project numbers, publicly available; likewise, contractors are expected to share this information with their lower tiers
- **Shared responsibility:** Payers and payees are responsible for fulfilling their contract terms including their obligations to make and receive payment, and to adhere to industry best practices

For more information: <http://www.tpsgc-pwgsc.gc.ca/biens-property/divulgarion-disclosure/psdic-ppci-eng.html>

- (b) **There are industrial security requirements associated with this requirement.** For additional information, consult Part 5 Security, Part 6 Resulting Contract Clauses and Annex D- Security Requirements Check List. For more information on personnel and organization security screening or security clauses, Bidders should refer to the [Industrial Security Program \(ISP\)](http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html) of Public Works and Government Services Canada (<http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>) website.
- (c) **Two- Envelope Bid:** This bid should be submitted following a “two-envelope” procedure. Refer to Part 2: Bidder Instructions.
- (d) **Integrity Provisions- Bid:** Changes have been made to the Integrity Provisions - Bid as of 2016-04-04. See GI01, Integrity Provision-Bid of R2710T of the General Instructions for more information - <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2710T/21#integrity-provisions-bid>
- (e) **Insurance Terms:** Insurance terms included in this tender are modified. Refer to Part 6 and Annex E- Certificate of Insurance.
- (f) **PWGSC Update on Asbestos Use:** Effective April 1, 2016, all Public Works and Government Services Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit the use of asbestos-containing materials. Further information can be found at <http://www.tpsgc-pwgsc.gc.ca/comm/vedette-features/2016-04-19-00-eng.html>.
- (g) **Phased Bid Compliance Process:** The Phased Bid Compliance Process applies to this requirement.
- (h) **Accessibility:** In order to ensure proposals can be read by evaluators with sight impairments, please ensure your proposals follow the guidelines contained in section 2.14 Envelope 1 – Technical Bid, b).
- (i) **TRADE AGREEMENTS:** This procurement is set aside from the Canadian Free Trade Agreement and the International Trade Agreements under the provision each has for measures with respect to Aboriginal peoples or for set-asides for small and minority businesses.

In accordance with NAFTA, WTO-AGP, and CETA

- NAFTA subsection 1 (d) Annex 1001.2b
- WTO-AGP Annex 7 Article 1
- CETA Annex 19.7 2(a)
- Canadian Free Trade Agreement (CFTA), Article 800.1

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

- (a) All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.
- (b) Under the Department of Public Works and Government Services Act (S.C. 1996, c.16), the instructions, clauses and conditions identified in the bid solicitation and resulting contract by number, date, and title are incorporated by reference into and form part of the bid solicitation and resulting contract as though expressly set out in the bid solicitation and resulting contract.
- (c) The R2710T (2019-05-30) General Instructions - Construction Services - Bid Security Requirements are incorporated by reference into and form part of the bid solicitation. If there is a conflict between the provisions of R2710T and this document, this document prevails.
- (d) R2710- General Instructions - Construction Services - Bid Security Requirements, delete:

GI09 Submission of Bids and GI02 Completion of Bids in their entirety and replace with
2.13 Submission and Completion of Bids herein.

2.2 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, services or both. It does not include the parent, subsidiaries or other affiliates of the Bidder, or its subcontractors.

2.3 Bid Documents

The following are the bid documents:

- (a) Request for Proposal (RFP);
- (b) Annex A- Basis of Payment;
- (c) Annex B- Pricing Tables;
- (d) Annex C- Terms of Reference (TOR);
- (e) Annex D- Security Requirements Check List (SRCL) ;
- (f) Annex E- Certificate of Insurance;
- (g) Annex F – Voluntary Report for Apprentices Employed During the Contract;
- (h) Annex G – Escalation Calculation;
- (i) Annex H – Indigenous Benefits Plan and Certification;
- (j) Form 1- Bid Submission Form;
- (k) Form 2-Client Reference Form;
- (l) Form 3- Integrity Provisions- List of Names Form;
- (m) Form 4 – Voluntary Certification to support the use of Apprentices;
- (n) Form 5 – Quarterly Contractor Achievement Reporting and Certification; and
- (o) Any amendment issued before solicitation closing.

2.4 Enquiries - Bid Solicitation

- (a) Enquiries regarding this bid must be submitted in writing to the Contracting Authority named on the

Request for Proposal (RFP) - Page 1 as early as possible within the solicitation period. Enquiries should be received no later than eight (8) working days before 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.

- (b) To ensure consistency and quality of the information provided to Bidders, the Contracting Authority will examine the content of the enquiry and will decide whether or not to issue an amendment.
- (c) All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed only to the Contracting Authority named on the Request for Proposal - Page1. Failure to comply with this requirement may result in the bid being declared non-compliant.

2.5 Site Visit

There will be no site visit.

2.6 Bid Validity Period

- (a) The Bid must not be withdrawn for a period of 160 days following the date of solicitation closing.
- (b) Canada reserves the right to seek an extension to the bid validity period prescribed in paragraph (a) above. On notification in writing from Canada, Bidders will have the option to either accept or reject the proposed extension.
- (c) If the extension is accepted, in writing, by all those who submitted bids, then Canada will continue immediately with the evaluation of the bids and its approvals processes.
- (d) If the extension is not accepted in writing by all those who submitted bids then Canada will, at its sole discretion, either continue to evaluate the bids of those who have accepted the proposed extension; or
- (e) Cancel the request for proposal.

The provisions expressed herein do not in any manner limit Canada's rights in law or under GI11-Rejection of Bid (R2710T)

2.7 Rights of Canada

- (a) Canada reserves the right to:
 - i. Reject any or all bids received in response to the bid solicitation;
 - ii. Enter into negotiations with Bidders on any or all aspects of their bids;
 - iii. Accept any bid in whole or in part without negotiations;
 - iv. Cancel the bid solicitation at any time;
 - v. Reissue the bid solicitation;
 - vi. If no compliant bids are received and the requirement is not substantially modified, reissue the bid solicitation by inviting only the Bidders who bid to resubmit bids within a period designated by Canada; and
 - vii. Negotiate with the sole compliant Bidder to ensure best value to Canada.

2.8 Communications Notification

The Government of Canada requires the successful Bidder to notify the Contracting Authority 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.

2.9 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

2.10 Entire Requirement

The bid solicitation documents contain all the requirements relating to the bid solicitation issued on the Government of Canada Electronic Tendering System (GETS), buyandsell.gc.ca. Any other information or documentation provided to or obtained by a Bidder from any source are not relevant. Bidders should not assume that practices used under previous contracts will continue, unless they are described in the bid solicitation. Bidders should also not assume that their existing capabilities meet the requirements of the bid solicitation simply because they have met previous requirements.

2.11 Joint Venture

- (a) A joint venture is an association of two or more parties who combine their money, property, knowledge, expertise or other resources in a single joint business enterprise, sometimes referred to as a consortium, in order to submit together a response to the Request for Proposal. Bidders who submit a response to the Request for Proposal as a joint venture must indicate clearly that it is a joint venture and provide the following information:
- i. the name of each member of the joint venture;
 - ii. the name of the representative of the joint venture, i.e. the member chosen by the other members to act on their behalf, if applicable;
 - iii. the name of the joint venture, if applicable.
- (b) If the information is not clearly provided in the bid, the Bidder must provide the information on request from the Contracting Authority.
- (c) The bid must be signed by all the members of the joint venture unless one member has been appointed to act on behalf of all members of the joint venture. The Contracting Authority may, at any time, require each member of the joint venture to confirm that the representative has been appointed with full authority to act as its representative for the purposes of the bid solicitation and any resulting contract.
- (d) All of the members of the joint venture are jointly and severally responsible for the obligations entered into by the Bidder in accordance with the Contract Documents.

2.12 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§ion=text#appl>
- Buy and Sell <https://www.achatsetventes-buyandsell.gc.ca>
- 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 PWGSC-TPSGC 506) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf>
- Standard Acquisition Clauses and Conditions (SACC) Manual <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>
- 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/contexte-context-eng.html>
- Construction and Consultant Services Contract Administration Forms Real Property Contracting <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>
- Declaration Form <http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html>
- Contract Cost Principles <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/3/1031-2/6>

2.13 Submission and Completion of Bids

- (a) Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.
- (b) Facsimile copies of bids will not be accepted.
- (c) The bid should be submitted following a "two-envelope" procedure in which the Bidder provides Envelope 1- Technical and Socio-economic Bid; and Envelope 2- Financial Bid.
- (d) Both the Technical/Socio-economic and Financial Bid envelopes should be enclosed and sealed together in a third envelope, the bid envelope. All envelopes should be provided by the Bidder.
- (e) The bid must be in Canadian currency. The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-compliant.
- (f) The bid must be received on or before the date and time set for solicitation closing. Before submitting the bid, the Bidder should ensure that the following information is clearly printed or typed on the face of the bid envelope:
 - i. Solicitation Number;
 - ii. Name of Bidder;
 - iii. Return address; and
 - iv. Closing Date and Time.
- (g) The Bidder must:

- i. Submit a bid, duly completed and signed by an authorized representative of the Bidder, in the format requested, on or before the closing date and time set;
 - ii. Obtain clarification of the requirements contained in the RFP, if necessary, before submitting a proposal;
 - iii. Provide a comprehensive and sufficiently detailed bid that will permit a complete evaluation in accordance with the criteria set out in this RFP.
- (h) Canada will make available Notices of Proposed Procurement (NPP), bid solicitations and related documents for download through the GETS. Canada is not responsible and will not assume any liabilities whatsoever for the information found on websites of third parties. In the event an NPP, bid solicitation or related documentation would be amended, Canada will not be sending notifications. Canada will post all amendments, including significant enquiries received and their replies, using GETS. It is the sole responsibility of the Bidder to regularly consult GETS for the most up-to-date information. Canada will not be liable for any oversight on the Bidder's part nor for notification services offered by a third party.
- (i) Timely and correct delivery of bids is the sole responsibility of the Bidder. PWGSC will not assume or have transferred to it those responsibilities. All risks and consequences of incorrect delivery of bids are the responsibility of the Bidder.
- (j) Canada's Policy on Green Procurement: In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process. To assist Canada in reaching its objectives, Bidders should:
 - (a) use paper containing fibre certified as originating from a sustainably-managed forest and/or containing a minimum of 30% recycled content; and
 - (b) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, and using staples or clips instead of cerlox, duo-tangs or binders.

2.14 Envelope 1- Technical Bid:

- (a) The Technical Bid should be enclosed and sealed in an envelope with the following information clearly printed or typed on the face of the envelope:
 - i. ENVELOPE 1 – Technical Bid;
 - ii. Solicitation Number; and
 - iii. Name of Bidder.
- (b) The following bid format information should be implemented when preparing the Technical Bid:
 - Paper size should be: 216mm x 279mm (8.5" x 11");
 - Smallest font size should be 11 point Times or equal;
 - The use of shading should be minimized;
 - Black text on white background is preferred;
 - Margins should be 12 mm left, right, top, and bottom;
 - Double-sided submissions are preferred;
 - One (1) 'page' means one side of a 216mm x 279mm (8.5" x 11") sheet of paper; 279mm x 432 mm (11" x 17") fold-out sheets for spreadsheets, organization charts etc. will be counted as two pages.

(c) The order of the technical bid should follow the order established in articles 3.4 Technical Evaluation-Point-Rated Criteria of this RFP. The maximum number of pages (including text and graphics) to be submitted is indicated for each criterion in Part 3 and the overall maximum is 62 pages. The following are not part of this page limitation:

- Covering Letter;
- Front Page of the Proposal;
- Table of contents for the Technical bid (optional)
- Financial Bid, including:
 - o Completed Pricing Tables- Annex B; and
 - o Bid Security as per GI08- Bid Security Requirements of R2710T);
- Bid Submission Form 1;
- A completed Declaration Form as per the Integrity Provisions- Declaration of Convicted Offences, if applicable;
- Client Reference Forms;
- Integrity Provisions- List of Names;
- Copies of certifications, diplomas and degrees (Article 2.14 (g.iii.c).

The consequence of exceeding the page limitation is that all pages that extend beyond the limitation will be removed from the technical bid and will not be evaluated.

(d) The Bidder must submit:

- i. One (1) signed original, six (6) copies, and one electronic copy of the Technical Bid;
- ii. A completed Declaration Form as per the Integrity Provisions- Declaration of Convicted Offences, if applicable;

(e) In their Technical bid, Bidders must demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders must demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

(f) In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

(g) The Technical bid consists of the following:

- i. **Bid Submission Form:** Bidders should include the Bid Submission Form – Form 1 with their bids. It provides a common form on which Bidders can provide information required for evaluation and contract award, such as a contact name and the Bidder's Procurement Business Number, etc. Using the form to provide this information is not mandatory, but it is recommended. Canada may waive informalities and minor irregularities in the Bid Submission Form received if Canada determines that the variation of the information provided from the exact requirements set out in the Bid Submission Form can be corrected or waived without being prejudicial to other Bidders.
- ii. **Substantiation of Technical Compliance:** The Technical bid must substantiate the compliance of the Bidder with the specific requirements identified in articles 3.2 - 3.5. The substantiation must not simply be a repetition of the requirement(s), but must explain and demonstrate how the Bidder will meet the requirements and carry out the required Work. Simply stating that the Bidder complies is not sufficient. Where Canada determines that the substantiation is not complete, the Bidder will be

declared non-responsive.

- iii. **Proposed Resources:** The same individual must not be proposed for more than one resource category. The Technical bid should demonstrate that each proposed individual meets the qualification requirements described (including any educational requirements, work experience requirements, and professional designation or membership requirements). With respect to résumés and resources:
- A. Proposed resources may be employees of the Bidder or employees of a subcontractor, or these individuals may be independent contractors to whom the Bidder would subcontract a portion of the Work
- B. For educational requirements for a particular degree, designation or certificate, PWGSC will only consider educational programs that were successfully completed by the resource by the time of bid closing.
- C. For requirements relating to professional designation or membership, the resource must have the required designation or membership by the time of bid closing and must continue, where applicable, to be a member in good standing of the profession or membership throughout the evaluation period and Contract Period. Where the designation or membership is to be demonstrated by providing a copy of the certification, diploma or degree, such document must be current, valid and issued by the entity specified in this solicitation. If a Bidder claims to have a certain professional designation or membership but does not provide a copy of the designation or membership as evidence, Canada may provide a timeframe by which it is to be provided. Failure to provide the requested information within the requested time frame will result in no evaluation of the proposed personnel and be disregarded. If the entity is not specified, the issuer is to have been an accredited or otherwise recognized body, institution or entity at the time the document was issued.
- D. For work experience, PWGSC will not consider experience gained as part of an educational program, except for experience gained through a formal co-operative program at a post-secondary institution or apprenticeship.
- E. For any requirements that specify a particular time period (e.g., 2 years) of work experience, PWGSC will disregard any information about experience if the Technical bid does not include the relevant dates for the experience claimed (i.e., the start date and end date). PWGSC will evaluate only the duration that the resource actually worked on a project or projects (from his or her start date to end date), instead of the overall start and end date of a project or a combination of projects in which a resource has participated.
- F. For work experience to be considered by PWGSC, the Technical bid should not simply indicate the title of the individual's position, but should demonstrate that the resource has the required work experience by explaining the responsibilities and work performed by the individual while in that position. In situations in which a proposed resource worked at the same time on more than one project, the duration of any overlapping time period will be counted only once toward any requirements that relate to the individual's length of experience.
- iv. **Client Reference Contact Information:** The Bidder is required to obtain client references in accordance with the mandatory technical criteria and point-rated criteria identified at Article 3.4. The client references are to confirm the facts identified in the Bidder's bid, as required by the Client Reference Form. If any of the information requested is not provided in the Bidder's submitted Client Reference Form, Canada

will provide a timeframe by which it is to be provided. Failure to provide the requested information within the requested time frame will render the Bidder non-compliant. Wherever information provided by a reference differs from the information supplied by a Bidder, the information supplied by the reference will be evaluated.

2.15 Envelope 2- Socio-economic Bid and Financial Bid:

- (a) The Socio-economic Bid and the Financial Bid should be enclosed and sealed in an envelope with the following information clearly printed or typed on the face of the envelope:
- i. ENVELOPE 2 – Socio-economic Bid and Financial Bid;
 - ii. Solicitation Number; and
 - iii. Name of Bidder.
- (b) The Bidder must submit:
- i. One (1) completed original of the Pricing Tables- Annex B
 - ii. One (1) completed original of the Indigenous Benefits Plan and Certification – Annex H
 - iii. Bid Security as per GI08- Bid Security Requirements of R2710T General Instructions - Construction Services - Bid Security Requirements; and
 - iv. Any required associated documents as applicable.
- (c) Bidders must complete the Pricing Tables- Annex B, as per the following:
- i. Bidders must provide all of the pricing information requested in Tables 2, 3, 4, 5 and 7 inclusively.
 - ii. Bidders must provide pricing in the un-shaded areas of the tables. Bidders must not make changes to the shaded areas of the tables.
 - iii. Failure to provide all of the required pricing information will result in the Bidder's Proposal being declared non-responsive.
 - iv. The Bidder must not make any assumptions which have not been validated by the Contracting Authority prior to the Bid Closing Date.
 - v. The financial evaluation will be conducted using the last row of each table Tables 2, 3, 4, 5 and 7.
 - vi. Canada may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.
- (d) Prices should only appear in the Socio-economic Bid or the Financial Bid. Prices in any other section of the bid will not be considered.

2.16 Ineligible Persons

- (a) As a result of their involvement in the Project, the persons named below, the "Ineligible Persons", their employees, and any of their subcontractors, advisors, consultants or representatives engaged in respect of this Project and any person controlled by, that controls or that is under common control with the Ineligible Person (each an Ineligible Person's Affiliate) are subject to the provisions of GI17 Conflict of Interest – Unfair Advantage of the general Instructions R2710T and are not eligible to participate as a Bidder's Team Member or Advisor to the Bidder. The following are Ineligible Persons for this RFP Process:
- Tiree Facility Solutions Inc.
 - S.I. Systems
 - KPMG
 - Deloitte
 - Stantec Architecture Ltd.

- Stantec Consulting
- Merrick & Company
- Merrick Canada ULC
- Dialog Ontario Inc.
- Dialog Alberta Architecture Engineering Interior Design Planning Inc.

- (b) PWGSC may amend the Ineligible Persons list from time to time during the RFP Process.
- (c) An Ineligible Person's Affiliate may be eligible to participate as a Bidder's Team Member or Advisor to the Bidder, only after it has obtained a written consent from PWGSC permitting it to participate as a Bidder's Team Member or Advisor to the Bidder. To obtain consent for an Ineligible Person's Affiliate to participate as a Bidder's Team Member or Advisor to the Bidder, the Bidder must submit a request for consent to the Contracting Authority that includes the following information:
- (i) The full legal name of the Ineligible Person's Affiliate that the Bidder wishes to include on its team or as a Bidder's Team Member or Advisor to the Bidder;
 - (ii) Information regarding the Ineligible Person's Affiliate's relationship to the Ineligible Person; and
 - (iii) A description of the policies and procedures that will be put in place to manage, mitigate or minimize the impact of any potential Conflict of Interest.
- (d) Upon the Contracting Authority's receipt of a Bidder's properly completed request for consent, PWGSC shall, in its sole discretion, make a determination as to whether it considers there to be a real, perceived or potential Conflict of Interest and whether the impact of such real, perceived or potential Conflict of Interest can be appropriately managed, mitigated or minimized. The Bidder shall be notified of PWGSC's decision by means of a consent letter setting out the nature of the consent and the management, mitigation or minimization measures required as a condition of consent. If the Ineligible Person's Affiliate is considered to have a Conflict of Interest the impact of which cannot be properly managed, mitigated or minimized, the Ineligible Person's Affiliate shall be added, by PWGSC, to the Ineligible Persons list by Addendum.

2.17 Breakdown of the Contract

| Location | Comments | Construction Cost Estimate* |
|---|----------------------|-----------------------------|
| Sidney | Base Contract | \$44,108,000** |
| Winnipeg | Optional sub-Project | \$34,257,324 |
| Potential Construction Cost Estimate (option included) | | \$78,365,324 |

*Includes: design contingency, construction contingency, escalation contingency, and disbursements.
Excludes: consultant fees and risk.

** Should expanded scope be approved, the construction cost estimate would increase by approximately **\$20,000,000**. The % fee proposed for the Sidney project would apply to the new scope and would not be adjusted.

PART 3 - EVALUATION PROCEDURES AND BASIS OF SELECTION

3.1 Opening of Bids and Overview of Evaluation Procedures

- (a) There will be no public opening at bid closing time.
- (b) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria. There are several steps in the evaluation process, which are described below. Even though the evaluation and selection will be conducted in steps, the fact that Canada has proceeded to a later step does not mean that Canada has conclusively determined that the Bidder has successfully passed all the previous steps. Canada may conduct steps of the evaluation in parallel.
- (c) An evaluation team composed of representatives of Canada will evaluate the bids. Not all members of the evaluation team will necessarily participate in all aspects of the evaluation.
- (d) Canada has engaged a Fairness Monitor to monitor this solicitation process.
- (e) Canada will use the Phased Bid Compliance Process described below.

3.2 Phased Bid Compliance Process

3.2.1 General

- (a) Canada is conducting the PBCP described below for this requirement.
- (b) Notwithstanding any review by Canada at Phase I or II of the PBCP, Bidders are and will remain solely responsible for the accuracy, consistency and completeness of their Bids and Canada does not undertake, by reason of this review, any obligations or responsibility for identifying any or all errors or omissions in Bids or in responses by a Bidder to any communication from Canada.

THE BIDDER ACKNOWLEDGES THAT THE REVIEWS IN PHASE I AND II OF THIS PBCP ARE PRELIMINARY AND DO NOT PRECLUDE A FINDING IN PHASE III THAT THE BID IS NON- RESPONSIVE, EVEN FOR MANDATORY REQUIREMENTS WHICH WERE SUBJECT TO REVIEW IN PHASE I OR II AND NOTWITHSTANDING THAT THE BID HAD BEEN FOUND RESPONSIVE IN SUCH EARLIER PHASE. CANADA MAY DEEM A BID TO BE NON- RESPONSIVE TO A MANDATORY REQUIREMENT AT ANY PHASE.

THE BIDDER ALSO ACKNOWLEDGES THAT ITS RESPONSE TO A NOTICE OR A COMPLIANCE ASSESSMENT REPORT (CAR) (EACH DEFINED BELOW) IN PHASE I OR II MAY NOT BE SUCCESSFUL IN RENDERING ITS BID RESPONSIVE TO THE MANDATORY REQUIREMENTS THAT ARE THE SUBJECT OF THE NOTICE OR CAR, AND MAY RENDER ITS BID NON- RESPONSIVE TO OTHER MANDATORY REQUIREMENTS.

- (c) Canada may, in its discretion, request and accept at any time from a Bidder and consider as part of the Bid, any information to correct errors or deficiencies in the Bid that are clerical or administrative, such as, without limitation, failure to sign the Bid or any part or to checkmark a box in a form, or other failure of format or form or failure to acknowledge; failure to provide a procurement business number or contact information such as names, addresses and telephone numbers; inadvertent errors in numbers or calculations that do not change the amount the Bidder has specified as the price or of any component thereof that is subject to evaluation. This shall not limit Canada's right to request or accept any information after the bid solicitation closing in circumstances where the bid solicitation expressly provides for this right. The Bidder will have the

time period specified in writing by Canada to provide the necessary documentation. Failure to meet this deadline will result in the Bid being declared non-responsive.

(d) The PBCP does not limit Canada's rights under Standard Acquisition Clauses and Conditions (SACC) 2003 (2018-05-22) Standard Instructions – Goods or Services – Competitive Requirements nor Canada's right to request or accept any information during the solicitation period or after bid solicitation closing in circumstances where the bid solicitation expressly provides for this right, or in the circumstances described in subsection (c).

(e) Canada will send any Notice or CAR by any method Canada chooses, in its absolute discretion. The Bidder must submit its response by the method stipulated in the Notice or CAR. Responses are deemed to be received by Canada at the date and time they are delivered to Canada by the method and at the address specified in the Notice or CAR. An email response permitted by the Notice or CAR is deemed received by Canada on the date and time it is received in Canada's email inbox at Canada's email address specified in the Notice or CAR. A Notice or CAR sent by Canada to the Bidder at any address provided by the Bidder in or pursuant to the Bid is deemed received by the Bidder on the date it is sent by Canada. Canada is not responsible for late receipt by Canada of a response, however caused.

3.2.2 Phase I: Socio-economic and Financial Bid

(a) After the closing date and time of this bid solicitation, Canada will examine the Bid to determine whether it includes a Socio-economic and Financial Bid and whether any Socio-economic and Financial Bid includes all information required by the solicitation. Canada's review in Phase I will be limited to identifying whether any information that is required under the bid solicitation to be included in the Socio-economic and Financial Bid is missing from the Socio-economic / Financial Bid. This review will not assess whether the Socio-economic and Financial Bid meets any standard or is responsive to all solicitation requirements.

(b) Canada's review in Phase I will be performed by officials of the Department of Public Works and Government Services.

(c) If Canada determines, in its absolute discretion that there is no Socio-economic Bid or Financial Bid or that the Socio-economic or Financial Bid is missing all of the information required by the bid solicitation to be included in the Socio-economic Bid or Financial Bid, then the Bid will be considered non-responsive and will be given no further consideration.

(d) For Bids other than those described in c), Canada will send a written notice to the Bidder ("Notice") identifying where the socio-economic Bid or the Financial Bid is missing information. A Bidder, whose Socio-economic Bid or Financial Bid has been found responsive to the requirements that are reviewed at Phase I, will not receive a Notice. Such Bidders shall not be entitled to submit any additional information in respect of their Socio-economic or Financial Bid.

(e) The Bidders who have been sent a Notice shall have the time period specified in the Notice (the "Remedy Period") to remedy the matters identified in the Notice by providing to Canada, in writing, additional information or clarification in response to the Notice. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the Notice.

(f) In its response to the Notice, the Bidder will be entitled to remedy only that part of its Socio-economic or Financial Bid which is identified in the Notice. For instance, where the Notice states that a required line item has been left blank, only the missing information may be added to the Socio-economic or Financial Bid, except that, in those instances where the addition of such information will necessarily result in a change to other calculations previously submitted in its Socio-economic or Financial Bid, (for example, the calculation to determine a total price), such

necessary adjustments shall be identified by the Bidder and only these adjustments shall be made. All submitted information must comply with the requirements of this solicitation.

(g) Any other changes to the Socio-economic or Financial Bid submitted by the Bidder will be considered to be new information and will be disregarded. There will be no change permitted to any other Section of the Bidder's Bid. Information submitted in accordance with the requirements of this solicitation in response to the Notice will replace, in full, **only** that part of the original Socio-economic or Financial Bid as is permitted above, and will be used for the remainder of the bid evaluation process.

(h) Canada will determine whether the Socio-economic or Financial Bid is responsive to the requirements reviewed at Phase I, considering such additional information or clarification as may have been provided by the Bidder in accordance with this Section. If the socio-economic or Financial Bid is not found responsive for the requirements reviewed at Phase I to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.

(i) Only Bids found responsive to the requirements reviewed in Phase I to the satisfaction of Canada, will receive a Phase II review.

3.2.3 Phase II: Technical Bid

(a) Canada's review at Phase II will be limited to a review of the Technical Bid to identify any instances where the Bidder has failed to meet any Eligible Mandatory Criterion. This review will not assess whether the Technical Bid meets any standard or is responsive to all solicitation requirements. Eligible Mandatory Criteria are all mandatory technical criteria that are identified in this solicitation as being subject to the PBCP. Mandatory technical criteria that are not identified in the solicitation as being subject to the PBCP, will not be evaluated until Phase III.

(b) Canada will send a written notice to the Bidder (Compliance Assessment Report or "CAR") identifying any Eligible Mandatory Criteria that the Bid has failed to meet. A Bidder whose Bid has been found responsive to the requirements that are reviewed at Phase II will receive a CAR that states that its Bid has been found responsive to the requirements reviewed at Phase II. Such Bidder shall not be entitled to submit any response to the CAR.

(c) A Bidder shall have the period specified in the CAR (the "Remedy Period") to remedy the failure to meet any Eligible Mandatory Criterion identified in the CAR by providing to Canada in writing additional or different information or clarification in response to the CAR. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the CAR.

(d) The Bidder's response must address only the Eligible Mandatory Criteria listed in the CAR as not having been achieved, and must include only such information as is necessary to achieve such compliance. Any additional information provided by the Bidder which is not necessary to achieve such compliance will not be considered by Canada, except that, in those instances where such a response to the Eligible Mandatory Criteria specified in the CAR will necessarily result in a consequential change to other parts of the Bid, the Bidder shall identify such additional changes, provided that its response must not include any change to the Financial Bid.

(e) The Bidder's response to the CAR should identify in each case the Eligible Mandatory Criterion in the CAR to which it is responding, including identifying in the corresponding section of the original Bid, the wording of the proposed change to that section, and the wording and location in the Bid of any other consequential changes that necessarily result from such change. In respect of any such consequential change, the Bidder must include a rationale explaining why such consequential change is a necessary result of the change proposed to meet the Eligible

Mandatory Criterion. It is not up to Canada to revise the Bidder's Bid, and failure of the Bidder to do so in accordance with this subparagraph is at the Bidder's own risk. All submitted information must comply with the requirements of this solicitation.

(f) Any changes to the Bid submitted by the Bidder other than as permitted in this solicitation, will be considered to be new information and will be disregarded. Information submitted in accordance with the requirements of this solicitation in response to the CAR will replace, in full, **only** that part of the original Bid as is permitted in this Section.

(g) Additional or different information submitted during Phase II permitted by this section will be considered as included in the Bid, but will be considered by Canada in the evaluation of the Bid at Phase II only for the purpose of determining whether the Bid meets the Eligible Mandatory Criteria. It will not be used at any Phase of the evaluation to increase or decrease any score that the original Bid would achieve without the benefit of such additional or different information. For instance, an Eligible Mandatory Criterion that requires a mandatory minimum number of points to achieve compliance will be assessed at Phase II to determine whether such mandatory minimum score would be achieved with such additional or different information submitted by the Bidder in response to the CAR. If so, the Bid will be considered responsive in respect of such Eligible Mandatory Criterion, and the additional or different information submitted by the Bidder shall bind the Bidder as part of its Bid, but the Bidder's original score, which was less than the mandatory minimum for such Eligible Mandatory Criterion, will not change, and it will be that original score that is used to calculate any score for the Bid

(h) Canada will determine whether the Bid is responsive for the requirements reviewed at Phase II, considering such additional or different information or clarification as may have been provided by the Bidder in accordance with this Section. If the Bid is not found responsive for the requirements reviewed at Phase II to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.

(i) Only Bids found responsive to the requirements reviewed in Phase II to the satisfaction of Canada, will receive a Phase III evaluation.

3.2.4 Phase III: Final Evaluation of the Bid

(a) In Phase III, Canada will complete the evaluation of all Bids found responsive to the requirements reviewed at Phase II. Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) A Bid is non-responsive and will receive no further consideration if it does not meet all Mandatory Technical criteria

3.3 Evaluation- Mandatory Criteria

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

| | | |
|-----------------------------|---|-------------------------------|
| Technical Rating x 45% | = | Technical Score (Points) |
| Socio-economic Rating x 10% | = | Socio-economic Score (Points) |
| Price Rating x 45% | = | Price Score (Points) |
| Total Score | = | Max. 100 Points |

Each bid will be reviewed for compliance with the mandatory requirements of the bid solicitation. Any element of the bid solicitation that is identified specifically with the words "must" or "mandatory" is a mandatory requirement. Bids that do not comply with each and every mandatory requirement will be declared non- responsive and be disqualified.

The Phased Bid Compliance Process will apply to mandatory criteria M1, M2 and M3 below.

The Mandatory criteria are as follows:

M1 Representative Projects

To be valid, the representative projects presented in response to R1 must meet the characteristics for each category as outlined in R1, 2a) and b). Failure to do so will result in the project(s) not being evaluated.

At least one of the three representative projects must have been designed using Building Information Modelling (BIM).

M2 Indigenous Benefits Plan

For a bid to be responsive and be assigned points, **the bidder must provide completed tables in Annex H** demonstrating how they will meet the objective of each criterion in 3.5 Indigenous Benefits Plan.

M3 Minimum Score

The Proponent must achieve the minimum number of points required as indicated in the 3.4 Technical Evaluation – Point-Rated Technical Criteria section.

3.4 Technical Evaluation- Point-Rated Criteria

Each bid will be rated by assigning a score to the rated requirements. Bidders who fail to submit complete bids with all the information requested by this bid solicitation will be rated accordingly.

A summary of the Point-Rated Technical Criteria is in the following table. To be considered further, Proponents are required to achieve the minimum number of points as indicated below.

Summary of Point-Rated Technical Criteria

| Rated Technical Criterion | Evaluation Scale | Available Points |
|----------------------------------|--|-------------------------|
| 1 | Experience and Achievements of the Proponent | 240 |
| 2 | Experience and Expertise of Key Individuals | 400 |
| 3 | Capacity of the Proponent | 340 |
| 4 | Internal Structure of the Proponent | 160 |
| 5 | Process and Methodology of the Proponent | 455 |
| TOTAL TECHNICAL RATING | | 1,595 |
| MINIMUM REQUIRED SCORE | | 957 |
| Indigenous Benefits Plan | | 60 |

The point-rated technical criteria are as follows:

R1 Experience and Achievements of the Proponent

1. The Proponent should submit a maximum of **two distinct laboratory projects and one distinct complex project** (total of three distinct projects), as identified in paragraphs R1 2 a) and b), to substantiate their experience and achievements. The proponent is to provide the information as it pertains to each criterion listed below on a maximum of **five** pages per project, and complete and include the Form 2 – CLIENT REFERENCE FORM in accordance with paragraph R1 6. At least one of the three representative projects must have been designed using Building Information Modelling (BIM).
2. PWGSC will evaluate the R1 criteria, described in paragraphs R1 3 a) to f), for each of the three distinct representative projects. If more than two representative laboratory projects are submitted, only the first two will be evaluated. If more than one representative complex project is submitted, only the first will be evaluated. If the same representative project is submitted in each category, only the representative project in the first category will be evaluated. To be valid, the representative projects are to have the following characteristics for each category.
 - a. **Science laboratory** projects for an existing or new infrastructure with the following characteristics:
 - i. included individual lab workstations, versatile laboratory casework (storage, benches, seating, etc.), fume hoods, and hazard containment or hazardous materials storage; and
 - ii. had a final or has a current construction cost of at least \$20M (in 2019 Canadian currency); and
 - iii. has completed at least 50% of its construction (construction invoicing) or was completed after December 31, 2009;
 - b. **Complex projects** with the following characteristics:
 - i. was implemented as a construction management, design-build, or public-private- partnership project delivery model; and
 - ii. had a final or has a current construction cost of at least \$30M for individual project (in 2019 Canadian currency); and
 - iii. has completed at least 50% of its construction (construction invoicing) or was completed after December 31, 2009; and
 - iv. includes a minimum of three of the following complexity characteristics:
 1. Control of chemical or biological process(es) (e.g. chemical distillation or reaction, disinfection, material containment, radiation, industrial process, etc.);
 2. Constrained spatial environment (e.g. metropolitan area, limited land mass area, etc.);
 3. High security requirement of an entire facility (e.g. hospital, laboratory, prison, industrial facility, courthouse, etc.);
 4. Layers of circulation or technical programming (e.g. research workspaces, process control, hazardous materials storage, local and centralized safety systems, multiple user groups, etc.); or
 5. Process – government, crown corporations or public context (e.g.

numerous approval bodies, ministerial or equivalent approval, etc.).

3. The following criteria will be evaluated for projects that meet the minimum characteristics of a science laboratory or complex project.

Criteria evaluated in relation to R1 are:

a. Substantiation of:

- i. How each representative project is related to the program of work as described in Annex C – Terms of Reference;
- ii. Experience (i.e. services provided) in the following specific roles and responsibilities;
 1. Project or program management;
 2. Site and construction operations management;
 3. Design management;
 4. Time management;
 5. Cost management;
 6. Risk management;
 7. Procurement management; and
 8. Quality management;
- iii. Extent of involvement (i.e. none, partial, full) for the following stage(s) of the project, in the context of CM services as described in sections 7 through 12 of Annex C – Terms of Reference:
 1. Schematic or concept design;
 2. Design development;
 3. Construction documents;
 4. Tender and award;
 5. Construction and commissioning; and
 6. Post-construction and warranty period; and
- iv. Identification of the entity that provided the services listed above;

b. Scale of the project;

- c. The initial construction estimate and the final construction cost, with a detailed explanation of any variances (under or over budget), any mitigation strategies employed, with a narrative on the level of success of the mitigation strategies. If there is no variance then explain what services or efforts were undertaken to ensure the project was delivered on budget. In the case of project underway, initial construction estimate, current expenditures to date, and forecast at completion as detailed during the last reporting period, any mitigation strategies employed, with a narrative on the level of success of the mitigation strategies.
- d. The original project schedule and original date of completion, and the actual completion date, with a detailed explanation of any variances (ahead or behind schedule), any mitigation strategies employed, with a narrative on the level of success of the mitigation strategies. If there is no variance then explain what services or efforts were undertaken to ensure the project was delivered on time. In the case of a project underway, provide the original project schedule, the current-status and forecasted completion date as

detailed during the last reporting period and an explanation of any variances, any mitigation strategies employed, with a narrative on the level of success of the mitigation strategies;

- e. Per representative project, explain your services or efforts taken to mitigate/resolve disagreements, disputes or claims. If there were no disagreements, disputes or claims, provide the mitigation/resolution process(es) you would have applied had they occurred;
 - f. For the following aspects of the project, the Building Information Modelling (BIM) process(es) and methodology(ies) undertaken by the Proponent:
 - i. During the design stage, for design and constructability review(s);
 - ii. During the design and/or construction stage(s), for cost estimating and work planning /sequencing;
 - iii. During the construction stage, for health and safety planning /monitoring;
 - iv. The commissioning and close out stages, incorporation of as-commissioned information into the record (as-built) model. If project is ongoing, provide approach to be taken for commissioning and close out procedures; and
 - v. Change management, ongoing use of the updated BIM model to determine subcontract and workflow changes.
4. For the purposes of the evaluation of the Proponent's experience and achievements:
- i. If the Proponent is composed of multiple entities, the Proponent is requested to clearly identify who in the teaming arrangement has the requested experience;
 - ii. If the entity is not directly involved in the delivery of the services under the representative project, the representative project will not be evaluated; and
 - iii. Experience claimed by a parent company, a subsidiary, an affiliate or a subcontractor will be evaluated as experience by a member of the Proponent Team but not as experience of the Proponent. For a Joint Venture, experience by any member of the Joint Venture will be evaluated as experience of the Proponent.
5. In the context of this criterion, 'client' means the project owner, or its representative, of the funding department or organization who was directly involved in contracting the construction activities of the representative project. Proponents are requested to provide construction costs in Canadian currency for the year completed. PWGSC will escalate the construction cost to 2018 Canadian currency as identified in Annex G – Escalation Calculation. If the Proponent's 'client' will not release the actual construction cost, the client's confirmation of cost above the minimum threshold will suffice. Construction cost in currencies other than Canadian currency will be converted by PWGSC based on the rate of exchange published by the Bank of Canada for the completion date of the representative project.
6. Client References
- a. Canada may, but will not have the obligation to contact client reference representatives to validate the information provided as part of Form 2 – Client Reference Form. In the event of any discrepancy between the information provided by the Proponent and the information validated by the client reference(s), the Proponent will be given the opportunity to clarify any such discrepancy(ies).

- b. Any portion of the information requested as part of the Form 2 – Client Reference Form that is not validated by a client reference, or any proposed representative project for which no signed client reference was provided or for which the Proponent was unable to establish contact with its client reference representatives within ten days of such a request by Canada, will not be evaluated. For example, if representative project cost or schedule information is not validated then the cost or schedule information will not be evaluated. However, if the client reference does not confirm the reference project meets the minimum criteria for the reference project (as applicable: scope, completion date, minimum cost, delivery method, etc.) then the reference project, in its entirety, will not be evaluated.

The R1 criteria will be evaluated in accordance with Scale 1 below.

| Scale 1 | 0% | 20% | 40% | 60% | 80% | 100% | Available Points |
|----------------|--|--|---|--|---|---|---|
| R1 3 a) i | Sample project is not related to this requirement | Sample project(s) is/are generally not related to the program of work as described in Annex C – Terms of Reference | Sample project(s) is/are marginally related to the program of work as described in Annex C – Terms of Reference | Sample project(s) is/are generally related to the program of work as described in Annex C – Terms of Reference | Sample project(s) is/are directly related to the program of work as described in Annex C – Terms of Reference | Sample project(s) exceed(s) the complexity of the program of work as described in Annex C – Terms of Reference (e.g. high pathogen protection level laboratory, chemical plant laboratory, etc.). | 10 points per project; Total: 30 points |
| R1 3 a) ii | Relevant services provided in less than three specific roles | Relevant services provided in three specific roles | Relevant services provided in three or four specific roles | Relevant services provided in five specific roles | Relevant services provided in six specific roles | Relevant services provided in seven or more specific roles | 10 points per project; Total: 30 points |
| R1 3 a) iii | Extent of involvement is at least 'partial' in less than two stages of the project | Extent of CM services is at least 'partial' in two stages of the project | Extent of CM services is at least 'partial' in three stages of the project | Extent of CM services is 'full' in two or three stages of the project | Extent of CM services is 'full' in four or five stages of the project | Extent of CM services is 'full' in all stages of the project | 10 points per project; Total: 30 points |

| | | | | | | | |
|------------|--|---|--|---|--|--|---|
| R1 3 b) | Construction cost is < \$30M for complex projects or < \$20M for science laboratory projects | Construction cost is > \$30M but ≤ \$40M for complex projects or > \$20M but ≤ \$30M for science laboratory projects | Construction cost is > \$40M but ≤ \$50M for complex projects or > \$30M but ≤ \$40M for science laboratory projects | Construction cost is > \$50M but ≤ \$70M for complex projects or > \$40M but ≤ \$60M for science laboratory projects | Construction cost is > \$70M but ≤ \$100M for complex projects or > \$60M but ≤ \$90M for science laboratory projects | Construction cost is > \$100M for complex projects or > \$90M for science laboratory projects | 10 points per project; Total: 30 points |
| R1 3 c) | Explanation of variances, mitigation strategy and its success between initial and final / current construction cost is missing | Very poor explanation of variances, mitigation strategy and its success between initial and final / current construction cost | Weak explanation of variances, mitigation strategy and its success between initial and final / current construction cost | Adequate explanation of variances, mitigation strategy and its success between initial and final / current construction cost is adequate | Good explanation of variances, mitigation strategy and its success between initial and final / current construction cost is good | Very good explanation of variances, mitigation strategy and its success between initial and final / current construction cost. | 10 points per project; Total: 30 points |
| R1 3 d) | Explanation of variances, mitigation strategy and its success between original and actual dates of completion is missing | Extremely poor explanation of variances, mitigation strategy and its success between original and actual dates of completion | Weak explanation of variances, mitigation strategy and its success between original and actual dates of completion | Adequate explanation of variances, mitigation strategy and its success between original and actual dates of completion | Good explanation of variances, mitigation strategy and its success between original and actual dates of completion | Very good explanation of variances, mitigation strategy and its success between original and actual dates of completion | 10 points per project; Total: 30 points |
| R1 3 e) | No explanation of claim/dispute management services provided, no mitigation strategies, evaluation rationale and conclusions | Poor claim/dispute management services provided, poor or no mitigation strategies, evaluation rationale and conclusions, limited capability to meet performance requirement | Weak claim/dispute management services provided, limited mitigation strategies, evaluation rationale and conclusions, limited capability to meet performance requirement | Acceptable claim/dispute management services provided, some mitigation strategies, evaluation rationale and conclusions, should ensure adequate results | Good claim/dispute management services provided, good mitigation strategies, evaluation rationale and conclusions, should ensure effective results | Very good claim/dispute management services provided, excellent or proactive mitigation strategies, evaluation rationale and conclusions, should ensure very effective results | 10 points per project; Total: 30 points |
| R1 3 f) | Process and methodology not provided | Process and methodology details (narrative) for only one of the five aspects with some detail of processes | Process and methodology details (narrative) for two of the five aspects with details of processes per aspect | Process and methodology details (narrative) for three of the five aspects with details of processes per aspect | Process and methodology details (narrative) for four of the five aspects with details of processes per aspect | Process and methodology details (narrative) for all five aspects with details of processes per aspect | 10 points per project; Total: 30 points |

R2 Experience and Expertise of Key Individuals (see Bidder Instructions, 2.14 Envelope 1 – Technical Bid, paragraph (g), iii Proposed Resources)

1. The Proponent should submit summary résumés no longer than **3 pages** each for the Key Individuals identified by the Proponent, by name and title, and include information as it pertains to each criterion listed in this section.

2. The Proponent should substantiate the experience and expertise of each Key Individual listed below and to be assigned to perform the services in the resulting contract:
 - a. Construction Manager:

The single individual identified as having overall control and accountability for all construction management services for the LC program of work and for each sub-project. The individual has a thorough understanding of federal or provincial government real property project planning and delivery. Beyond the responsibilities typically assumed by a senior manager or executive, the Construction Manager shall personally spearhead on a hands-on basis, the active management of the entire construction management team;
 - b. Senior Superintendent:

The single individual responsible for the overall planning and definition, sequencing and prioritization, management, and overall control of the construction operations of each project;
 - c. Design Manager:

The single individual responsible for providing overall, coordinated, cross discipline input from a contractor's perspective, to prioritize, orient and influence the proposed design solutions from a constructability and execution standpoint, within the cost, schedule, quality, and risk parameters approved for each project;
 - d. Time Manager:

The single individual responsible to analyze and integrate all activities related to time planning and scheduling into comprehensive network diagrams and bar charts, and for the ongoing time management monitoring and reporting of the entire construction program including those aspects that influence the design, and the ongoing coordination with the construction management cost and risk management services;
 - e. Cost Manager:

The single individual responsible to analyze and manage all activities related to cost planning, estimating, monitoring and control for the entire construction program of work including those aspects that influence the design, and the ongoing coordination with the construction management time and risk management services; and
 - f. BIM Manager:

The single individual having responsibility and control over all aspects of the Contractor's and Subcontractor's BIM Model(s), in full coordination with the Architectural and Engineering Services (design) team, within the approved parameters of the project.
3. Criteria evaluated in relation to R2 are:
 - a. For all Key Individuals, five or more years' experience in the role for which they have been proposed and the expertise and experience relevant to a complex project that includes a minimum of three of the following complexity characteristics:
 - i. Control of chemical or biological process(es) (e.g. chemical distillation or reaction, disinfection, material containment, radiation, industrial process, etc.);
 - ii. Constrained spatial environment (e.g. metropolitan area, limited land mass area, etc.);
 - iii. High security requirement of an entire facility (e.g. hospital, laboratory, prison, industrial facility, courthouse, etc.);
 - iv. Layers of circulation or technical programming (e.g. research workspaces, process control, hazardous materials storage, local and centralized safety systems, multiple

user groups, etc.): or

- v. Process – government, crown corporations or public context (e.g. numerous approval bodies, ministerial or equivalent approval, etc.).
 - b. Experience of the Key Individual in the proposed role.
4. Each Key Individual will be evaluated separately. No person may be proposed for more than one Key Individual role.

The R2 criteria will be evaluated in accordance with Scale 2 below.

| Scale 2 | 0 % | 20 % | 40 % | 60 % | 80 % | 100 % | Available Points |
|------------|---|---|---|--|--|--|--|
| R2 3 a) | Key Individual has demonstrated less than 5 years of experience OR Key Individual's project sample does not include a minimum of three complexity characteristics. | Key Individual has demonstrated 5 or more years of experience AND Key Individual's project sample includes a minimum of three complexity characteristics for at least one project. | Key Individual has demonstrated more than 8 years of experience AND Key Individual's project sample includes a minimum of three complexity characteristics for at least one project. | Key Individual has demonstrated more than 10 years of experience AND Key Individual's project sample includes a minimum of three complexity characteristics for at least one project. | Key Individual has demonstrated more than 12 years of experience AND Key Individual's project sample includes four or more complexity characteristics for at least one project. | Key Individual has demonstrated more than 15 years of experience AND Key Individual's project sample includes four or more complexity characteristics for at least one project. | Construction Manager and Senior Superintendent (70 points each); Design Manager: 50 points; Cost, Time and BIM Managers: (30 points each). |
| R2 3 b) | Key Individual has performed in the proposed role for less than 2 of the last 10 years. | Key Individual has performed in the proposed role for at least 2 of the last 10 years. | Key Individual has performed in the proposed role for at least 4 of the last 10 years. | Key Individual has performed in the proposed role for at least 6 of the last 10 years. | Key Individual has performed in the proposed role for at least 8 of the last 10 years. | Key Individual has performed in the proposed role for the last 10 years. | 20 points per Key Individual, total 120 points. |

R3 Capacity of the Proponent

1. The Proponent is required to explain, in a maximum of **seven pages**, how they intend to provide and maintain the necessary capacity to provide CM services as described in Annex C – Terms of Reference, over the course of the resulting contract and contract option while managing other business ventures, by providing the information as it pertains to each criterion listed below.
2. Criteria evaluated in relation to R3 are:
 - a. Capacity to assemble, direct and support a large multi-disciplinary construction management workforce;
 - b. Capability to provide a project management team to support the LC program of work;
 - c. Capability to manage the:

- i. design management of multiple concurrent projects and the prioritization of design production;
- ii. Building Information Modelling (BIM); and
- iii. Understanding the importance of coordination of scope elements within a complicated program of work to advance construction on diverse project sites.
- d. Capability to provide a time, cost and risk management team to the LC program while maintaining ongoing operations;
- e. Capability to publicly procure materials, services, and work from a variety of sources (i.e.: regional, national, and international) in an auditable, open, fair, and transparent manner; and
- f. Capability to process and maintain security clearance requirements for a construction work force anticipated to be greater than 150 during peak construction periods.

The R3 criteria will be evaluated in accordance with Scale 3 below.

| Scale 3 | 0 % | 20 % | 40 % | 60 % | 80 % | 100 % | Available Points |
|----------------|---|--|--|---|--|---|------------------|
| R3 2 a) | Did not submit information which could be evaluated | Capacity to dedicate a CM workforce of 50 to 64 to the LC program of work while managing other business ventures | Capacity to dedicate a CM workforce of 65 to 84 to the LC program of work while managing other business ventures | Capacity to dedicate a CM workforce of 85 to 104 to the LC program of work while managing other business ventures | Capacity to dedicate a CM workforce of 105 to 124 to the LC program of work while managing other business ventures | Capacity to dedicate a CM workforce greater than 124 to the LC program of work while managing other business ventures | 50 points |
| R3 2 b) | Did not submit information which could be evaluated | Extremely poor or insufficient capability to provide project management team for the entire program of work | Limited capability to provide project management team for the entire program of work | Acceptable capability to provide project management team for the entire program of work | Good capability to provide project management team for the entire program of work | Very good capability to provide project management team for the entire program of work | 50 points |
| 2 c) i) | Did not submit information which could be evaluated | Extremely poor, insufficient capability in design management and prioritizing design production | Limited capability in design management and prioritizing design production | Adequate capability in design management and prioritizing design production | Good capability in design management and prioritizing design production with proactive approach | Very good capability in design management and prioritizing design production with proactive approach by design stage | 30 points |
| R3 2 c) ii) | Did not submit information which could be evaluated | No or poor internal BIM capability | Limited internal BIM capability | Adequate internal BIM capability | Good internal BIM capability | Very good internal BIM capability | 25 points |

| Scale 3 | 0 % | 20 % | 40 % | 60 % | 80 % | 100 % | Available Points |
|-----------------|---|---|--|---|--|---|------------------|
| R3 2 c) iii) | Did not submit information which could be evaluated | Poor or no capability for the coordination of scope to advance construction on diverse project sites, | Limited capability for the coordination of scope to advance construction on diverse project sites, | Average capability for the coordination of scope to advance construction on diverse project sites, | Good capability for the coordination of scope to advance construction on diverse project sites, | Very good capability for the coordination of scope to advance construction on diverse project sites, | 25 points |
| R3 2 d) | Did not submit information which could be evaluated | Extremely poor, insufficient capability to provide a time, cost and risk management team to LC program while managing other business ventures | Limited capability to provide a time, cost and risk management team to LC program while managing other business ventures | Adequate capability to provide a time, cost and risk management team to LC program while managing other business ventures | Good capability to provide a time, cost and risk management team to LC program while managing other business ventures | Very good capability to provide a full-time time, cost and risk management team to LC program while managing other business ventures | 60 points |
| R3 2 e) | Did not submit information which could be evaluated | Poor capability for auditable procurement of commodities and sub-trades from regional, national and international sources | Average capability but no track record for auditable procurement of commodities and sub-trades from regional, national and international sources | Good capability but no track record for auditable procurement of commodities and sub-trades from regional, national and international sources | Good capability and proven / documented track record for auditable procurement of commodities and sub-trades from regional, national and international sources | Very good capability and proven / documented track record for auditable procurement of commodities and sub-trades from regional, national and international sources | 50 points |
| R3 2 f) | Did not submit information which could be evaluated | Extremely poor, insufficient capability to process and monitor internal and sub-trade government security clearances | Limited capability to process and monitor internal and sub-trade government security clearances | Adequate capability to process and monitor internal and sub-trade government security clearances | Good capability to process and monitor internal and sub-trade government security clearances with dedicated resource(s) | Very good capability to process and monitor internal and sub-trade government security clearances with dedicated resource(s) | 50 points |

R4 Internal Structure of the Proponent

1. The Proponent should present, in a maximum of **five pages**, their business strategy for the ongoing management and delivery of a contract resulting from this solicitation by providing the information as it pertains to each criterion listed below.
2. Criteria evaluated in relation to R4 are:
 - a. An internal team structure, program-specific organization chart with personnel titles, their responsibilities, reporting relationships and percentage of time / availability to this project, back-up resources;
 - b. Internal decision-making process, including but not limited to:
 - i. Description of process;
 - ii. Efficiencies associated with the described process; and
 - iii. Group/Individual responsible for taking a final decision on behalf of the Proponent.

- c. A resolution process associated with decision-making or issues that may arise within the Proponent Team.

The R4 criteria will be evaluated in accordance with Scale 4 below:

| Scale 4 | 0% | 20% | 40% | 60% | 80% | 100% | Available Points |
|-------------------|---|--|--|--|--|--|---|
| R4 2 a | Did not submit information which could be evaluated | Extremely poor internal team structure; lack complete or almost complete understanding of the requirements | Poor internal team structure; has some understanding of the requirements but lacks adequate understandings in some areas of the requirements | Adequate internal team structure; demonstrates a good understanding of the requirements | Good internal team structure; demonstrates a very good understanding of the requirements | Very good internal team structure; demonstrates an excellent understanding of the requirements | 80 points total |
| R4 2 b) and c) | Did not submit information which could be evaluated | Extremely poor, insufficient decision and resolution processes; lack of understanding of the requirements | Poor decision and resolution processes; has some understanding of the requirements but lacks adequate understandings in some areas of the requirements | Adequate decision and resolution processes; demonstrate a good understanding of the requirements | Good decision and resolution processes; demonstrate a good understanding of the requirements | Very good decision and resolution processes; demonstrate a very good understanding of the requirements | 2b) 40 points, 2c) 40 points, 80 points total |

R5 Process and Methodology of the Proponent

- The Proponent should provide information as it pertains to each criterion listed below, in a maximum of **12 pages**. Describe the process(es) and methodology(ies) the Proponent would apply to foster an integrated and seamless implementation strategy for the LC program of work, delivered in a construction management delivery model where the design is prioritized and construction occur simultaneously, on multiple concurrent projects.
- Criteria evaluated in relation to R5 are:
 - Integration of team and with other stakeholders, including advocate design team, SSC, etc.;
 - BIM and design management from the award of a resulting contract to close-out;
 - Time management, including float and subcontractor productivity management during construction;
 - Cost management, including subcontractor estimate and quotation assessment during construction;
 - Quality management, including subcontractor construction compliance with the design, deficiency correction and commissioning;
 - Risk management, including opportunities and risk that arise during design and construction; and
 - Information management and transfer over the course of the project to new team members.

The R5 criteria will be evaluated in accordance with Scale 5 below:

| Scale 5 | 0% | 20% | 40% | 60% | 80% | 100% | Available Points |
|---------------------|---|--|---|--|--|---|----------------------------------|
| R5 2 a) | Did not submit information which could be evaluated | Extremely poor process and methodology (assigning roles/responsibilities, service delivery, integration stakeholders); lacks understanding of the requirements | Poor process and methodology (assigning roles/responsibilities, service delivery, integration stakeholders); has some understanding of the requirements but lacks adequate understandings in some areas of the requirements | Adequate process and methodology (assigning roles/responsibilities, service delivery, integration stakeholders); demonstrate an adequate understanding of the requirements | Good process and methodology (reassigning roles/responsibilities, service delivery, integration stakeholders); demonstrate a good understanding of the requirements | Very good process and methodology (assigning roles/responsibilities, service delivery, integration stakeholders); demonstrate a very good understanding of the requirements | 80 points |
| R5 2 b) | Did not submit information which could be evaluated | Extremely poor process and methodology for BIM and design prioritization, constructability analysis; lacks complete or almost complete understanding of the requirements | Poor process and methodology for BIM and design prioritization, constructability analysis; has some understanding of the requirements but lacks adequate understandings in some areas of the requirements | Adequate process and methodology for BIM and design prioritization, constructability analysis; demonstrate an adequate understanding of the requirements | Good process and methodology for BIM and design prioritization, constructability analysis; demonstrate a good understanding of the requirements | Very good process and methodology for BIM and design prioritization, constructability analysis; demonstrate a very good understanding of the requirements | 140 points |
| 2 c), d), e) and f) | Did not submit information which could be evaluated | Extremely poor process and methodology for Proponent's team responsibilities with other stakeholders regarding time, cost, quality, and risk management; lacks understanding of the requirements | Poor process and methodology for Proponent's team responsibilities with other stakeholders regarding time, cost, quality, and risk management; has some understanding of the requirements but lacks adequate understandings in some areas of the requirements | Adequate process and methodology for Proponent's team responsibilities with other stakeholders regarding time, cost, quality, and risk management; demonstrate an adequate understanding of the requirements | Good process and methodology for Proponent's team responsibilities with other stakeholders regarding time, cost, quality, and risk management; demonstrate a very good understanding of the requirements | Very good process and methodology for Proponent's team responsibilities with other stakeholders regarding time, cost, quality, and risk management; demonstrate a very good understanding of the requirements | 40 points each, 160 points total |
| 2 g) | Did not submit information which could be evaluated | Extremely poor process and methodology for information management and transfer to new team members over the course of the project | Limited process and methodology for information management and transfer to new team members over the course of the project | Adequate process and methodology for information management and transfer to new team members over the course of the project | Good process and methodology for information management and transfer to new team members over the course of the project | Very good process and methodology for information management and transfer to new team members over the course of the project | 75 points total |

R6 Socio-Economic Bid - Indigenous Benefits Plan

Preamble

To meet the Government of Canada's objectives of encouraging Indigenous socio-economic development through federally funded opportunities, bidders must submit an Indigenous Benefits Plan (IBP), as described below, as part of their RFP response. Over the term of the contract, the IBP is intended to develop long-term capacity and sustainable and meaningful socio-economic benefits for Indigenous persons and businesses of the First Nations. Should the option for the Winnipeg project be exercised, an IBP specific to that project will be negotiated with the Construction Manager. A similar level of benefits will be expected for the Winnipeg project as the Sidney project.

The IBP will be point rated and is to cover direct and non-direct benefits. For this RFP, direct benefits refers to Indigenous employment including opportunities as the Construction Management firm, one of its sub-trades, or employees and/or personnel within the Proponents team members. Non-direct benefits refer to measures where there is a lack of Indigenous business capacity which can be developed through specialized training, internships and/or apprenticeships among others.

Indigenous Business Capacity

To identify Indigenous business capacity, bidders are encouraged to contact members of the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations, using the following contact information:

Chief Rebecca Harris
Pauquachin First Nation
9010 West Saanich Road
North Saanich, BC, V8L 5W4
[Phone:](#)

Chief Tanya Jimmy
Tseycum First Nation
1210 Totem Lane
North Saanich, BC, V8L 5S4
[Phone:](#)

Chief Don Tom
Tsartlip First Nation
1 Boat Ramp Rd
Brentwood Bay, BC, V8M 1R3
[Phone:](#)

Chief Harvey Underwood
Tsawout First Nation
P.O. Box 121, 7728 Tetayut Rd
Saanichton, BC, V8M 2E4
[Phone:](#)

Chief Caroline Harry
Malahat Nation
110 Thunder Road
Mill Bay, BC, V0R 2P4
[Phone:](#)

Scoring of IBPs

For a bid to be responsive and be assigned points, **THE BIDDER MUST PROVIDE COMPLETED TABLES IN APPENDIX 4** demonstrating how they will meet the objective of each criterion.

Bidders must provide details of the Indigenous Benefit for Training, Labour, and Goods and Services by Indigenous Firms (including Subcontracting) in each respective Table in Annex H – Indigenous Benefits Plan and Certification. In addition to the Tables a maximum of **5 pages** is permitted to supplement the IBP bid submission if the bidder requires.

Bidders must ensure their IBP documentation demonstrates sufficient evidence to assess the compliance of their bid against the criteria listed herein. Only material and/or documents submitted as part of the bid proposal will be considered. The Bidder's proposal is to include a clear description of the minimum amount of Indigenous Benefits committed to (training, labour, and procurement) during Construction Period of the project and describe how the Bidder will address the contractual requirements of this procurement for the inclusion of the sub-contracting of Indigenous Firms associated with Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations.

Canada reserves the right to verify any information provided in the IBP and that unverified statements may result in 0 points for the IBP being awarded to the bidder.

The Bidder's proposal is to include a clear description of the minimum amount of Indigenous Benefits committed to (training, labour, and procurement) during Construction Period of the project and describe how the Bidder will address the contractual requirements of this procurement for the inclusion of the sub-contracting of Indigenous Firms associated with Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations.

The successful Contractor must submit the Final Indigenous Benefits Plan for Canada's approval within 45 calendar days of the Contract Award. Sufficient detail must be included in the Indigenous Benefits Plan to allow Canada to assess the value and quality of the proposed Indigenous Benefits, as well as, the probability of the Bidder meeting the outlined benefits in terms of training, direct employment (labour), and procurement with Indigenous Firms (including subcontracting) with the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations. Every effort should be made to ensure the Indigenous Benefits Plan provides maximum benefits related to capacity of the local Indigenous Nations.

Indigenous Benefits Plan Criteria

| ITEM | | Available Points | | | | | | | | | | | | |
|--|---|---|--|----------|----------|--|-----|-----|-----|-----------------------|---|---|--|-----|
| 3.5.1 | <p>TRAINING: Bidders will be evaluated on their undertaking of a commitment with respect to delivery of on-the-job training programs for Indigenous People belonging to the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations at no additional cost under this Contract.</p> <p>To establish the training score, each responsive bid will be prorated against the bidder proposing the highest number of total Indigenous training hours, with the proposal committing to the highest number of training hours receiving full points.</p> <p>EXAMPLE:</p> <table><tr><th></th><th>Bidder 1</th><th>Bidder 2</th><th>Bidder 3</th></tr><tr><td>Total number of Indigenous training hours proposed</td><td>700</td><td>350</td><td>600</td></tr><tr><td>Calculation of points</td><td>700/700 = 100% of total points available = 15</td><td>350/700 = 50% of total points available = 7.5</td><td>600/700 = 86% of total points available = 12.9</td></tr></table> | | Bidder 1 | Bidder 2 | Bidder 3 | Total number of Indigenous training hours proposed | 700 | 350 | 600 | Calculation of points | 700/700 = 100% of total points available = 15 | 350/700 = 50% of total points available = 7.5 | 600/700 = 86% of total points available = 12.9 | /15 |
| | Bidder 1 | Bidder 2 | Bidder 3 | | | | | | | | | | | |
| Total number of Indigenous training hours proposed | 700 | 350 | 600 | | | | | | | | | | | |
| Calculation of points | 700/700 = 100% of total points available = 15 | 350/700 = 50% of total points available = 7.5 | 600/700 = 86% of total points available = 12.9 | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|--|--|--|---|----------|----------|--|--------|-------|--------|-----------------------|---|--|---|-----|
| 3.5.2 | <p>LABOUR: The direct employment of Indigenous People by the Prime Contractor (only) in carrying out the work of the contract.</p> <p>Bidder will be evaluated on their commitment to use Indigenous People belonging to the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations. The percentages identified below relate specifically to total labour hours of Indigenous People directly employed by the Prime Contractor.</p> <p>Number of hours should be supported by a list of specific positions that may or will be staffed by members of the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations. Examples can include but are not limited to: administrative roles, trades, archaeological services, security, traffic control, etc.</p> <p>Indigenous labour must meet the following criteria:</p> <ul style="list-style-type: none">• An Indigenous Person belonging to the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations who is performing services related to the project.• Qualifying personnel will be verified by Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations <p>Indigenous employment will be confirmed during project based on supporting documentation provided by the Contractor.</p> <p>To establish the Labour score, each responsive bid will be prorated against the bidder proposing the highest number of total Indigenous labour hours, with the proposal committing to the highest number of labour hours receiving full points.</p> <table><tr><td></td><td>Bidder 1</td><td>Bidder 2</td><td>Bidder 3</td></tr><tr><td>Total number of Indigenous labour hours proposed</td><td>14,000</td><td>2,400</td><td>15,000</td></tr><tr><td>Calculation of points</td><td>14,000/15,000 = 93% of total points available = 13.95</td><td>2,400/15,000 = 15% of total points available = 2.4</td><td>15,000/15,000 = 100% of total points available = 15</td></tr></table> <p>NOTE: Bidder must demonstrate how they will meet their Labour hours. Simply indicating a commitment of hours is not sufficient to achieve points. Your score may be adjusted in accordance with your backup documentation.</p> | | Bidder 1 | Bidder 2 | Bidder 3 | Total number of Indigenous labour hours proposed | 14,000 | 2,400 | 15,000 | Calculation of points | 14,000/15,000 = 93% of total points available = 13.95 | 2,400/15,000 = 15% of total points available = 2.4 | 15,000/15,000 = 100% of total points available = 15 | /15 |
| | Bidder 1 | Bidder 2 | Bidder 3 | | | | | | | | | | | |
| Total number of Indigenous labour hours proposed | 14,000 | 2,400 | 15,000 | | | | | | | | | | | |
| Calculation of points | 14,000/15,000 = 93% of total points available = 13.95 | 2,400/15,000 = 15% of total points available = 2.4 | 15,000/15,000 = 100% of total points available = 15 | | | | | | | | | | | |
| 3.5.3 | <p>GOODS AND SERVICES PROVIDED BY INDIGENOUS FIRMS (including subcontracting): Bidders will be evaluated on their commitment to offer goods and/or services from Indigenous Firms as defined below.</p> <p>For the purposes of this requirement, an Indigenous Firm is defined as a sole proprietorship, limited company, co-operative, partnership, or not-for-profit organization. To be considered an Indigenous Firm the following criteria must be met:</p> <ul style="list-style-type: none">• at least 51 per cent of the firm is owned and controlled by the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations, and | /15 | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|--|--|--|---|-------------|-------------|--|-----|----|-----|-----------------------|--|--|---|-----|
| | <ul style="list-style-type: none">• at least one third of the firm's employees, if it has six or more full-time staff, must be from the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations. <p>If a firm is starting a joint venture, at least 51 per cent of the joint venture must be controlled and owned by an Indigenous Firm, as defined above.</p> <p>The Bidder represents and warrants that:</p> <p>No less than _____ percent of the Total Bid Price will benefit the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations</p> <p>Percentages should be supported by a list of specific Indigenous Firms that can be confirmed by the designated representatives of the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations, respectively.</p> <p>To establish the score for Good and Services, each responsive bid will be prorated against the bidder proposing the highest percent of indigenous content, with the proposal committing to the highest percent of indigenous content receiving full points.</p> <table><tr><td></td><td>Bidder 1</td><td>Bidder 2</td><td>Bidder 3</td></tr><tr><td>Percentage of Total Bid Price to Indigenous Firms</td><td>12%</td><td>8%</td><td>21%</td></tr><tr><td>Calculation of points</td><td>12/21 = 57% of total points available = 8.55</td><td>8/21 = 38% of total points available = 5.7</td><td>21/21 = 100% of total points available = 15</td></tr></table> | | Bidder 1 | Bidder 2 | Bidder 3 | Percentage of Total Bid Price to Indigenous Firms | 12% | 8% | 21% | Calculation of points | 12/21 = 57% of total points available = 8.55 | 8/21 = 38% of total points available = 5.7 | 21/21 = 100% of total points available = 15 | |
| | Bidder 1 | Bidder 2 | Bidder 3 | | | | | | | | | | | |
| Percentage of Total Bid Price to Indigenous Firms | 12% | 8% | 21% | | | | | | | | | | | |
| Calculation of points | 12/21 = 57% of total points available = 8.55 | 8/21 = 38% of total points available = 5.7 | 21/21 = 100% of total points available = 15 | | | | | | | | | | | |
| 3.5.4 | <p>Other Benefits</p> <p>Proponents will be evaluated on their commitment to offer other benefits such as internships, bursaries, scholarships, etc. to Indigenous People belonging to the Pauquachin, Tseycum, Tsartlip, Tsawout, and Malahat First Nations at no additional cost under this Contract.</p> <p>To establish the score for Other Benefits, each responsive bid will be prorated against the Proponent proposing the highest percent of indigenous content, with the proposal committing to the highest percent of indigenous content receiving full points.</p> <table><tr><td></td><td>Proponent 1</td><td>Proponent 2</td><td>Proponent 3</td></tr><tr><td>Percentage of Total Bid Price to Indigenous Firms in the form of other benefits.</td><td>12%</td><td>8%</td><td>21%</td></tr><tr><td>Calculation of points</td><td>12/21 = 57% of total points available = 8.55</td><td>8/21 = 38% of total points available = 5.7</td><td>21/21 = 100% of total points available = 15</td></tr></table> | | Proponent 1 | Proponent 2 | Proponent 3 | Percentage of Total Bid Price to Indigenous Firms in the form of other benefits. | 12% | 8% | 21% | Calculation of points | 12/21 = 57% of total points available = 8.55 | 8/21 = 38% of total points available = 5.7 | 21/21 = 100% of total points available = 15 | /15 |
| | Proponent 1 | Proponent 2 | Proponent 3 | | | | | | | | | | | |
| Percentage of Total Bid Price to Indigenous Firms in the form of other benefits. | 12% | 8% | 21% | | | | | | | | | | | |
| Calculation of points | 12/21 = 57% of total points available = 8.55 | 8/21 = 38% of total points available = 5.7 | 21/21 = 100% of total points available = 15 | | | | | | | | | | | |

Total IBP Score Calculation Example:

Total IBP Score (maximum 60) = Section 3.5.1 Score + Section 3.5.2 Score + Section 3.5.3 Score + Section 3.5.4 Score

IBP Rating (maximum 10) = Total IBP Score/60 *10

| | Bidder 1 | Bidder 2 | Bidder 3 |
|-------------------------------|--------------|-------------|-------------|
| 3.5.1 Training | 15 | 7.5 | 12.9 |
| 3.5.2 Labour | 13.95 | 2.4 | 15 |
| 3.5.3 Goods and Services | 8.55 | 5.7 | 15 |
| 3.5.4 Other | 8.55 | 5.7 | 15 |
| <i>Total IBP Score (/60)</i> | <i>46.05</i> | <i>21.3</i> | <i>57.9</i> |
| IBP Rating (%) | 7.68 | 3.55 | 9.65 |

3.5 Financial Evaluation

- (a) The Total Bid Amount and Bid Security in accordance with GI08 Bid Security Requirements of R2710T should be submitted in a second sealed envelope (separate from the Technical Bid.)
- (b) As per the Pricing Tables- Annex B, the Total Bid Amount identified in Table 7 will be used to establish the Bidder's Bid Price.
- (c) Each financial bid will be reviewed to determine whether it meets the mandatory requirements of the bid solicitation. Any element of the bid solicitation identified with the words "must" or "mandatory" is a mandatory requirement. Financial Bids that do not comply with each and every mandatory requirement will be declared non-responsive, in accordance with the Phased Bid Evaluation process.

3.6 Basis of Selection

- (a) To be declared responsive, a bid must:
 - i. Comply with all the requirements of the bid solicitation; and
 - ii. Include duly completed Pricing Tables and the required bid security.
- (b) Bids not meeting (i), and (ii) above will be declared non-responsive, in accordance with the Phased Bid Compliance Process.
- (c) The selection will be based on the highest responsive combined rating of technical merit, socio-economic and price. The ratio will be 45% for technical merit, 10% for Socio-economic, and 45% for price.
- (d) The technical merit score for each responsive bid will be determined as follows:

The sum total of the Bidder's point-rated technical criterion scores for R1 – R5, divided by the 1595 available technical criterion points, multiplied by 45.

Technical Merit Score = Total Points / 1595 X 45

- (e) The socio-economic score for each responsive bid will be determined as follows:

The sum total of the Bidder's point-rated socio-economic criterion scores for 3.5 – Indigenous Benefits Plan, divided by the 60 available socio-economic criterion points, multiplied by 10.

Socio-economic Score = Total Points / 60 X 10

- (f) To establish the price score, the responsive bid with the lowest Bid Price is given a pricing score of 45, while other responsive bids receive a prorated pricing score based on the ratio of the lowest responsive Bid Price to their Bid Price multiplied by 45.

$$\text{Price Score} = \text{Lowest Bid Price} / \text{Bid Price} \times 45$$

- (g) For each responsive bid, the technical merit score, the socio-economic score and the price score will be added to determine its combined rating of technical merit, socio-economic, and price, as follows:

$$\text{Combined Rating} = \text{Technical Merit Score} + \text{Socio Economic} + \text{Price Score}$$

- (h) Neither the responsive bid that receives the highest number of points nor the one that proposes the lowest price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for contract award. In the case of a tie, the proponent submitting the higher technical rating will be selected.

3.7 Conduct of Evaluation

- (a) In conducting its evaluation of the bids, Canada may, but will have no obligation, to do the following:
- i. seek clarification or verification from Bidders regarding any or all information provided by them with respect to the RFP;
 - ii. contact any or all references supplied by Bidders to verify and validate any information submitted by them;
 - iii. request, before award of any contract, specific information with respect to Bidders' legal status;
 - iv. 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 RFP;
 - v. correct any error in the total bid amount by using unit pricing and any error in quantities in bids to reflect the quantities stated in the bid solicitation; in case of error in the extension of prices, the unit price will govern;
 - vi. verify any information provided by Bidders through independent research, use of any government sources or by contacting third parties; and
 - vii. interview, at the sole costs of Bidders, any Bidder and/or any or all of the resources proposed by Bidders to fulfill the requirement of the RFP.
- (b) 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.

PART 4 - CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the following required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

4.1 Certifications/Information Required with the Technical Bid

a) Bidders must submit the following as a part of their Technical Bid:

i. Integrity Provisions- Declaration of Convicted Offences

As applicable, under R2710T, 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.

Note: A copy of the Declaration form can be obtained by going to R2710T online and clicking on the 'Declaration Form' hyperlink found under GI01.

ii. Bid Submission Form- Form 1

iii. Client Reference Form for Representative Project- Form 2

4.2 Certifications/Information Required with the Socio-economic Bid

a) Bidders must submit the following as a part of their Socio-economic Bid:

i. Annex H – Indigenous Benefits Plan and Certification

4.3 Certifications/Information Required with the Financial Bid

(a) Bidders must submit the following as part of their Financial Bid:

i. Pricing Tables- Annex B

Solicitation No. - N° de l'invitation
EP751-202923/A

Amd. No. - N° de la modif.
000

Buyer ID - Id de l'acheteur
Fe178

Client Ref. No. - N° de réf. du client
20202923

File No. - N° du dossier
FE178.EP751-202923

Project No. - N° du projet

-
- ii. Bid Security as per GI08- Bid Security Requirements of R2710T

4.4 Additional Certifications Precedent to Contract Award

(a) Bidders must submit the following before award of a contract:

- i. Complete List of each Individual currently Directors of the Bidder- Form 3
 - 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.
 - B. Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).
 - C. Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

4.5 Certifications required after Contract Award

The Contractor must submit the following after Contract award:

- i. Certificate of Insurance- Annex E
- ii. Contract Security as per General Condition (GC) 9 - Contract Security of R2890D
- iii. Form 6 – Quarterly Contractor Achievement Reporting and Certification

PART 5 - SECURITY

5.1 Industrial Security Requirement

- i. **At bid closing**, the Bidder must hold a valid Security Clearance as indicated in Part 6- Resulting Contract Documents. Failure to comply with this requirement will render the Bid non- responsive and no further consideration will be given to the Bid.
- ii. The successful Bidder's personnel, as well as any subcontractor and its personnel, who are required to perform any part of the work under the subsequent Contract must meet the mandatory security requirement as indicated in Part 6- Resulting Contract Clauses. Individuals who do not have the required level of security will not be allowed on site. It is the responsibility of the successful Bidder to ensure that the security requirements are met throughout the performance of the Contract. Canada will not be held liable or accountable for any delays or additional costs associated with the successful Bidder's non-responsiveness with the mandatory security requirement.
- iii. For additional information on security requirements, Bidders should consult the "Security Requirements for PWGSC Bid Solicitations on the Industrial Security Program Web site: <http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Requirement

- (a) The Contractor agrees to provide the Construction Management Services described in the Contract, including the Terms of Reference, in accordance with and at the prices set out in the Contract.

6.2 Construction Time

- (a) **Construction Management Services Time:** Base Contract (Sidney): The Contractor must perform the services and achieve Substantial Performance of the Work within 42 months following contract award.
- (b) **Options:** Additional time will be granted based on the construction durations for each optional project and when they are exercised. Projects are to be constructed concurrently and additional time will only be granted if the construction duration for the option to be exercised extends past the construction time already granted under the contract.

6.3 Contract Documents

- (a) The following are the contract documents:

- i. Contract Page when signed by Canada;
- ii. Duly completed Pricing Tables and any Appendices attached thereto;
- iii. Request for Proposal, all Annexes, Appendices and Amendments thereto;
- iv. Terms of Reference;
- v. Basis of Payment;
- vi. General Conditions and clauses
 - GC1 General Provisions – Construction Services R2810D (2017-11-28);
 - GC2 Administration of the Contract- Construction Services R2820D (2016-01-28);
 - GC3 Execution and Control of the Work R2830D (2019-11-28);
 - GC4 Protective Measures R2840D (2008-05-12);
 - GC5 Terms of Payment R2850D (2019-11-28);
 - GC6 Delays and Changes in the Work R2860D (2019-05-30);
 - GC7 Default, Suspension or Termination of Contract R2870D (2018-06-21);
 - GC8 Dispute Resolution R2882D (2019-11-28);
 - GC9 Contract Security R2890D (2018-06-21);
 - GC10 Insurance R2900D (2008-05-12);
- vii. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
- viii. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
- ix. Any amendment or variation of the contract documents that is made in accordance with the General Conditions; and
- x. The Contractor's bid, not including any terms and conditions that may be included in the bid or terms and conditions included by way of reference in the bid.

- (b) 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>

(c) The language of the contract documents is the language of the bid submitted.

6.4 Changes to General Conditions

(a) R2810D - General Condition (GC) 1 - General Provisions – Construction Services:

i. In GC1.1.2 - Terminology:

1. Delete:

"Contractor"

means the person contracting with Canada to provide or furnish all labour, Material and Plant for the execution of the Work under the Contract, and includes the Contractor's superintendent as designated in writing to Canada.

2. Add:

"Contractor" and "Construction Manager"

means the person contracting with Canada to provide or furnish all labour, Material and Plant and construction management services for the execution of the Work under the Contract, and includes the Contractor's superintendent as designated in writing to Canada.

ii. Delete GC 1.2.2 - Order of Precedence in its entirety and refer to Article 6.5 - Order of Precedence.

(b) R2820D - General Condition (GC) 2 - Administration of the Contract - Construction Services:

i. GC 2.8 - Accounts and Audit is deleted in its entirety and replaced

with the following:

GC2.8 Accounts and Audit

1. The Contractor must keep proper accounts and records of the cost of performing the Work and of all expenditures or commitments made by the Contractor in connection with the Work, including all invoices, receipts and vouchers. The Contractor must retain records, including bills of lading and other evidence of transportation or delivery, for all deliveries made under the Contract.

2. If the Contract includes payment for time spent by the Contractor, its employees, representatives, agents or subcontractors performing the Work, the Contractor must keep a record of the actual time spent each day by each individual performing any part of the Work.

3. Unless Canada has consented in writing to its disposal, the Contractor must retain all the information described in this section for six (6) years after it receives the final payment under the Contract, or until the settlement of all outstanding claims and disputes,

whichever is later. During this time, the Contractor must make this information available for audit, inspection and examination by the representatives of Canada, to make copies and take extracts. The Contractor must provide all reasonably required facilities for any audit and inspection and must furnish all the information as the representatives of Canada may from time to time require to perform a complete audit of the Contract.

4. The amount claimed under the Contract, calculated in accordance with the Basis of Payment provision in the Contract, is subject to government audit both before and after payment is made. If an audit is performed after payment, the Contractor agrees to repay any overpayment immediately on demand by Canada. Canada may hold back, deduct and set off any credits owing and unpaid under this section from any money that Canada owes to the Contractor at any time (including under other contracts). If Canada does not choose to exercise this right at any given time, Canada does not lose this right.

(c) R2830D- General Condition (GC) 3 – Execution and control of the work

- i. Delete GC3.7 - Construction by Other Contractors or Workers in its entirety and replace with the following:

GC3.7 - Separate Contracts with other Contractors

1. Canada reserves the right to award separate contracts for work. Where in the opinion of Canada, it is necessary for Canada to award separate contracts to other contractors, the Contractor must:
 - a. coordinate and cooperate with the work of other contractors;
 - b. coordinate and schedule the Work with the work of other contractors and connect as specified or shown in the Contract Documents;
 - c. participate with other contractors and the DR in reviewing their construction schedules when directed to do so;
 - d. coordinate and perform the Work with care and diligence so as to ensure that Canada and other contractors will be in a position to proceed according to schedule with the delivery, installation and testing of their work; and
 - e. allow other contractors or workers, together with their plant, equipment and Material, access to the Site and the opportunity to use their plant and equipment.
2. When separate contracts are awarded for other parts of the project, Canada will:
 - a. Ensure that insurance coverage is provided to the same requirements as are called for to the greatest extent applicable. Such insurance will be coordinated with the insurance coverage of the Contractor as it affects the Work; and
 - b. take all precautions reasonably possible to avoid labour or other disputes.
 - c. Ensure the separate contractors are required to adhere to the Contractor's Health & Safety policies and procedures when performing work at the location of the project under the Contractor's control as Constructor on the project.
3. The Contractor must give the Departmental Representative (DR) prompt written notice of any defect in, or any conflict occasioned by, the work of other contractors and before proceeding with any Work that is affected by or depends on for its proper

execution such work of other contractors. In the absence of such written report, the Contractor will have no claim against Canada by reason of the conflict or defective work of the other contractors.

4. Despite the foregoing, it is understood and agreed that the Contractor will be the "Constructor" for the Project within the meaning of the applicable Health and Safety legislation, and must perform or have performed, in addition to any other obligations it may have under the application of legislation, all of the obligations of a "constructor" set out in the legislation for the Work. It is further understood and agreed that Canada appoints and the Contractor agrees to be appointed as the "constructor" to fully control, coordinate, oversee and be responsible for all other contractors.
5. If the Contractor has caused damage, delay, impact, or interference to the work of other contractors, the Contractor agrees on due notice to settle with the other contractors in accordance with GC5.8 (6). If one or more of the other contractors makes a claim against Canada on account of damage, delay, impact, or interference alleged to have been so sustained, Canada will notify the Contractor and may require the Contractor to defend the action at the Contractor's expense and not as a Cost of the Work and without an adjustment in the Contract Fee. The Contractor must satisfy a final order or judgment against Canada and pay the costs incurred by Canada arising from such action and not as a Cost of the Work and without an adjustment in the Contract Fee.

(d) R2850D - General Condition (GC) 5 - Terms of Payment >100K - Construction Services:

i. The following paragraphs are added to GC5.4 - Progress Payment:

(6) The portion of the Work done under the Fixed Monthly Fee must be separately invoiced or documented as a separate line item from the progress draw, in fixed monthly installments over the duration of the Contract.

(7) Additional Resource Categories

(a) Should additional resource categories be required during the execution of the Contract beyond what is included in Annex B- Table 4 the Contractor must provide a bid for the additional hourly rate which must include:

- i. A full justification with documented evidence substantiating any and all applicable elements listed in Article 6.10.c.ii Hourly Labour Rates;
- ii. A full justification with documented evidence substantiating any other element of cost used to calculate the proposed hourly rate;
- iii. A detailed calculation of the appointment of the aforementioned elements to the hourly rate being proposed.

(b) Additional Resource Categories are subject to the approval of Canada.

ii. The following paragraph is added to GC5.5 Substantial Performance of the Work:

- (5) If, at any time before the issuance of a Certificate of Completion, Canada determines that a Work Package has reached Substantial Performance as described in subparagraph 1) (b) of GC 1.1.4, "Substantial Performance", paragraphs 1) through 4) of GC 5.5 may be

applied with respect to the specific Work Package.

(e) R2860D - General Condition (GC) 6 - Delays and Changes in the Work – Construction Services General:

GC6.4 is replaced in its entirety with the following:

GC6.4 Determination of Price

1. Any adjustment to the estimated construction costs resulting from a change in the Work pursuant to GC6.1 will represent all reasonable and proper costs including any costs associated with any 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 cost of the Construction Work, excluding the Contractor' fees, is not within 75 and 125 percent of the total estimated construction cost either party to the Contract may request to negotiate a change in the Contractor' 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;
3. For the purposes of the negotiation referred to in paragraph 2.
 - a. The onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation.
 - b. If the actual Construction Cost is less than 75 percent of the estimated construction, in no event will the total amount paid as the Contractor' Percentage Fee, amended as a result of a reduction in the cost 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.
4. The amount of the Contract will be the final sum of the Fixed Monthly Fees, the actual Construction Cost, the Percentage Fee, the actual amount for Disbursements, and any adjustments that are made in accordance with the Contract.

6.5 Order of Precedence

- (a) In the event of any discrepancy or conflict in the contents of the following documents, such documents shall take precedence and govern in the following order:
- i. Any amendment or variation of the Resulting Contract Documents that is made in accordance with the General Conditions;
 - ii. Any amendment issued prior to tender closing;
 - iii. These resulting contract clauses;
 - iv. Changes to the General Conditions;
 - v. General Conditions;
 - vi. Annex A-Basis of Payment;
 - vii. Annex B- Pricing Tables;
 - viii. Annex D- Security Requirements Check List (SRCL)

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EP751-202923/A

Amd. No. - N° de la modif.
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Buyer ID - Id de l'acheteur
Fe178

Client Ref. No. - N° de réf. du client
20202923

File No. - N° du dossier
FE178.EP751-202923

Project No. - N° du projet

-
- ix. Annex E-Certificate of Insurance;
 - x. Annex C- Terms of Reference;
 - xi. The Contractor's bid, not including any additional terms and conditions that may be included in the bid or by reference.

Later dates shall govern within each of the above categories of documents.

6.6 Authorities

(a) PWGSC Contracting Authority

The Contracting Authority for the Contract is:

Name: Robinah Matende

Title: Supply Team Leader

Public Works and Government Services Canada

Telephone: 613-296-7948

E-mail address: Robinah.matende@tpsgc-pwgsc.gc.ca

(b) Client Technical Authority

The Client Technical Authority for the Contract is:

[to be completed before contract award]

Name:

Title:

Organization:

Address:

Telephone:

E-mail address:

(c) Contractor's Representative

The Contractor's Representative is:

[to be completed before contract award]

Name:

Title:

Telephone:

E-mail address:

6.7 Industrial Security Requirements

The following security requirement (SRCL and related clauses) applies and form part of the Contract:

SECURITY REQUIREMENT FOR CANADIAN SUPPLIER:

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS) with approved Document Safeguarding at the level of PROTECTED B, issued by the Contract Security Program (CSP), Public Works and Government Services Canada (PWGSC).
2. The Contractor/Offeror personnel requiring access to PROTECTED information, assets or site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by the CSP, PWGSC.

3. The Contractor MUST NOT utilize its Information Technology systems to electronically process, produce or store PROTECTED information until the CSP, PWGSC has issued written approval. After approval has been granted or approved, these tasks may be performed at the level of PROTECTED B.
4. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP, PWGSC.
5. The Contractor/Offeror must comply with the provisions of the:
 - (a) Security Requirements Check List and security guide (if applicable), attached at Annex D;
 - (b) Industrial Security Manual (Latest Edition)

SECURITY REQUIREMENTS FOR FOREIGN SUPPLIERS

The Canadian Designated Security Authority (Canadian DSA) for industrial security matters in Canada is the Industrial Security Sector (ISS), Public Works and Government Services Canada (PWGSC), administered by International Industrial Security Directorate (IISD), PWGSC. The Canadian DSA is the authority for confirming Contractor compliance with the security requirements for foreign suppliers. The following security requirements apply to the foreign recipient Contractor incorporated or authorized to do business in a jurisdiction other than Canada and delivering outside of Canada the services listed and described in the subsequent contract.

1. The Foreign recipient Contractor must, at all times during the performance of the contract, hold an equivalence to a valid Designated Organization Screening (DOS), issued by the Canadian DSA as follows:
 - i. The Foreign recipient Contractor must provide proof that they are incorporated or authorized to do business in their jurisdiction.
 - ii. The Foreign recipient Contractor must not begin the work, services or performance until the Canadian Designated Security Authority (DSA) is satisfied that all contract security requirement conditions have been met. Canadian DSA confirmation must be provided, in writing, to the foreign recipient Contractor in an Attestation Form, to provide confirmation of compliance and authorization for services to be performed.
 - iii. The Foreign recipient Contractor must identify an authorized Contract Security Officer (CSO) and an Alternate Contract Security Officer (ACSO) (if applicable) to be responsible for the overseeing of the security requirements, as defined in this contract. This individual will be appointed by the proponent foreign recipient Contractor's Chief Executive officer or Designated Key Senior Official, defined as an owner, officer, director, executive, and or partner who occupy a position which would enable them to adversely affect the organization's policies or practices in the performance of the contract.
 - iv. The Foreign recipient Contractor must not grant access to CANADA PROTECTED A and/or B information/assets, except to its personnel subject to the following conditions:
 - a. Personnel have a need-to-know for the performance of the contract;
 - b. Personnel have been subject to a Criminal Record Check, with favourable results, from a recognized governmental agency or private sector organization in their country as well as a Background Verification, validated by the Canadian DSA;
 - c. The Foreign recipient Contractor must ensure that personnel provide consent to share results of the Criminal Record and Background Checks with the Canadian DSA and other Canadian Government Officials, if requested; and

-
- d. The Government of Canada reserves the right to deny access to CANADA PROTECTED information/assets to a foreign recipient Contractor for cause.
2. CANADA PROTECTED information/assets provided or generated pursuant to this contract must not be further provided to a third party Foreign recipient Subcontractor unless:
- a. written assurance is obtained from the Canadian DSA to the effect that the third-party Foreign recipient Subcontractor has been approved for access to CANADA PROTECTED information/assets by the Canadian DSA; and
 - b. written consent is obtained from the Canadian DSA, if the third-party Foreign recipient Subcontractor is located in a third country.
3. The Foreign recipient Contractor MUST NOT remove CANADA PROTECTED information/assets from the identified work site(s), and the foreign recipient Contractor must ensure that its personnel are made aware of and comply with this restriction.
4. The Foreign recipient Contractor must not use the CANADA PROTECTED information/assets for any purpose other than for the performance of the contract without the prior written approval of the Government of Canada. This approval must be obtained from the Canadian DSA.
5. The Foreign recipient Contractor must, at all times during the performance of the contract hold an equivalence to an approved Document Safeguarding Capability (DSC) {insert the following if checked on SRCL "and Production Capabilities"} at the level of CANADA PROTECTED A and/or B.
- All CANADA PROTECTED information/assets, furnished to the foreign recipient Contractor or produced by the foreign recipient Contractor, must also be safeguarded as follows:
6. The Foreign recipient Contractor must immediately report to the Canadian DSA all cases in which it is known or there is reason to suspect that CANADA PROTECTED information/assets pursuant to this contract has been compromised.
7. The Foreign recipient Contractor must immediately report to the Canadian DSA all cases in which it is known or there is reason to suspect that CANADA PROTECTED information/assets accessed by the foreign recipient Contractor, pursuant to this contract, have been lost or disclosed to unauthorized persons.
8. The Foreign recipient Contractor must not disclose CANADA PROTECTED information/assets to a third party government, person, firm or representative thereof, without the prior written consent of the Government of Canada. Such consent must be sought through the Canadian DSA.
9. The Foreign recipient Contractor must provide the CANADA PROTECTED information/assets a degree of safeguarding no less stringent than that provided by the Government of Canada in accordance with the National Policies, National Security legislation and regulations and as prescribed by the Canadian DSA.
10. The Foreign recipient Contractor must, at all times during the performance of this contract, ensure the transfer of CANADA PROTECTED information/assets be facilitated through the Canadian DSA.
11. Upon completion of the Work, the foreign recipient Contractor must return to the Government of Canada, all CANADA PROTECTED information/assets furnished or produced pursuant to this contract, including all CANADA PROTECTED information/assets released to and/or produced by its subcontractors.
12. The foreign recipient Contractor requiring access to CANADA PROTECTED A and/or B information/ assets, under this contract, must submit a Request for Site Access to the Chief Security Officer of Name of Department/Organization of Canada.

13. The Foreign recipient Contractor MUST NOT utilize its Information Technology (IT) systems to electronically process, produce, or store on a computer system {insert the following if checked on SRCL "and transfer via an IT link"} any CANADA PROTECTED A or B information/assets until authorization to do so has been confirmed by the Canadian DSA.
14. The Foreign recipient Contractor must ensure that all the databases, including backup databases used by organizations to provide the services described in the SOW containing any CANADA PROTECTED information, related to the Work, are located within Canada.
15. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the Canadian DSA.
16. The Foreign recipient Contractor must comply with the provisions of the Security Requirements Check List attached at Annex D.
17. Canada has the right to reject any request to electronically access, process, produce, transmit or store CANADA PROTECTED information/assets related to the Work in any other country if there is any reason to be concerned about the security, privacy, or integrity of the information.

6.8 Insurance Terms

In addition to the Insurance terms indicated below, see Annex E.

(a) Insurance Contracts

- i. 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.
- ii. 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.

(b) Period of Insurance

- i. 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.
- ii. 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.

(c) Proof of Insurance

- i. Before start 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.
- ii. On request by Canada, the Contractor must provide originals or certified true copies of all contracts of insurance maintained by the Contractor under the Certificate of Insurance.
- iii. The insurance policies must be endorsed to provide Canada and any additional insured

with not less than thirty (30) days' notice in writing in advance of a cancellation of insurance or any reduction in coverage.

(d) 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.

(e) Deductible

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

6.9 Determination of Construction Cost

- (a) The Construction Cost, as defined in Annex A- Basis of Payment initially will be determined based on the estimated Construction Cost specified in the Request for Proposal. The estimated Construction Cost will be adjusted periodically throughout the term of the contract to reflect the actual Construction Cost.
- (b) Any adjustment to the amount of a subcontract will require Canada's approval in writing. The Contractor will not be entitled to any additional fees other than the Percentage Fee.
- (c) Any request for adjusting the amount of a subcontract must be substantiated with a cost estimate breakdown itemizing all labour, Material, and Plant costs, and the amount of any allowance for the subcontractor's overhead, administration and profit. The Contractor must ensure that all prices included in the breakdown are fair and reasonable and in conformance with the following:
 - i. Labour rates must be established in accordance with applicable trade union agreements. Non- union labour rates must be established in accordance with local industry standards. All labour rates will require approval by Canada in writing.
 - ii. The costs of all Material and Plant must represent the actual amount paid to suppliers and said costs are to include all applicable discounts.
 - iii. Allowances for the subcontractor's overhead, administration and profit must be negotiated by the Contractor for each change, and must represent a reasonable amount for the nature and complexity of each change. However, in no circumstance will the subcontractor's allowance exceed 15%.
- (d) The price of any portion of the Work that is not subcontracted or paid for as a Fixed Fee will be equal to the actual cost of that portion of the Work plus the applicable Contractor's Percentage Fee.

6.10 Determination of Price for Subcontract Changes

- (a) This clause applies to the determination of price for any changes to subcontracts only.
- (b) Price Determination Before Undertaking Changes
 - i. If a Lump Sum Arrangement applies to the Contract or a part thereof, the price of any change will be the aggregate estimated cost of labour, Plant and Material that is required for the change as agreed on in writing by the Contractor and Canada plus an allowance for supervision, co-ordination, administration, overhead, margin and the risk of

undertaking the work within the stipulated amount, which allowance must be in accordance with 6.9(c.iii).

- ii. If a Unit Price Arrangement applies to the Contract or a part thereof, the Contractor and Canada may, by agreement in writing, add items, units of measurement, estimated quantities and prices per unit to the Unit Price Table.
- iii. A price per unit referred to in paragraph (ii) will be determined on the basis of the aggregate estimated cost of labour, Plant and Material that is required for the additional item as agreed on by the Contractor and Canada, plus an allowance determined in accordance with 6.9(c.iii).
- iv. To facilitate approval of the price of the change or the additional price per unit as applicable, the Contractor must submit a cost estimate breakdown identifying, as a minimum, the estimated cost of labour, Plant, Material, each subcontract amount, and the amount of the allowance.
- v. If no agreement is reached as contemplated in paragraph (i) the price must be determined in accordance with (c) Price Determination Following Completion of Changes. .

(c) Allowable Costs under (a) Price Determination Prior to Undertaking Changes

- i. General
 - A. The Contractor must submit a cost estimate breakdown for each contemplated change, in accordance with (b) Price Determination Prior to Undertaking Changes. The breakdown must itemize all labour, Material, Plant and equipment costs estimated by the Contractor and subcontractors, and the amount of each allowance;
 - B. It is the responsibility of the Contractor to ensure that all prices included in the Contractor's breakdown to Canada, including those of subcontractors, are fair and reasonable in view of the terms expressed herein;
 - C. The labour hours required for the contemplated change must be based on the estimated number of hours to perform the work;
 - D. Time spent by a working foreman may be included in the number of labour hours, at a rate agreed to in writing by the Contractor and Canada;
 - E. Time attributable to material handling, productivity factors and approved rest periods is to be included in the number of hours required by the contemplated change and will not be paid as a separate item under hourly rates;
 - F. Allowances referred to in paragraph (iv)- *Allowance to the Subcontractor* below are not to be included in the hourly labour rates;
 - G. Credit for work deleted will only be for the work directly associated with the change;
 - H. When a change deletes work which has not yet been performed, Canada is entitled to an adjustment in the Contract Amount equal to the cost the Contractor would have incurred had the work not been deleted;

-
- I. Allowances referred to in paragraph (iv)- Allowance to the Subcontractor below must not be applied to any credit amounts for deleted work;
 - J. In those cases where the change involves additions and deletions to the work, the allowances referred to in paragraph (iv) - Allowance to the Subcontractor below must apply only when the cost of the additions minus the cost of the deletions would result in an increase in the Contract Amount. The percentage allowance must only be applied to that portion of the costs of the additions that is in excess of the cost of the deletions;
 - K. If the contemplated change in the work necessitates a change in the contract completion date, or has an impact on the work, the Contractor must identify and include the resulting cost in the breakdown.
- ii. Hourly Labour Rates
 - A. The hourly labour rates listed in the Contractor's breakdown must be determined in accordance with the collective agreements that are applicable at the site of the work and must include:
 - a. the base rate of pay;
 - b. vacation pay;
 - c. benefits which includes:
 - i. Welfare contributions;
 - ii. Pension contributions;
 - iii. Union dues;
 - iv. Training and industry funds contributions; and
 - v. Other applicable benefits, if any that can be substantiated by the Contractor.
 - d. statutory and legislated requirements, assessed and payable under statutory authority, which includes:
 - i. Employment Insurance contributions;
 - ii. Canada Pension Plan or Quebec Pension Plan contributions;
 - iii. Workers' Compensation Board or "Commission de la santé et de la sécurité du travail" premiums;
 - iv. Public Liability and Property Damage insurance premiums; and
 - v. Health tax premiums.
 - B. In the case of non-union labour, all rates claimed must be in accordance with the terms of the Labour Conditions forming part of this contract and the Contractor must provide satisfactory proof of the rates actually paid.
- iii. Material, Plant and Equipment Costs
 - A. The costs of all purchases and rentals must be based on the actual amount paid to the suppliers by the Contractor or subcontractor and said costs are to include all applicable Discounts.
 - iv. Allowance to the Subcontractor
 - B. The allowances provided will be considered as full compensation for:

- a. supervision, coordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount; and
- b. miscellaneous additional costs related to
 - i. The purchase or rental of material, plant and equipment;
 - ii. The purchase of small tools and supplies;
 - iii. Safety and protection measures; and
 - iv. Permits, bonds, insurance, engineering, as built drawings, commissioning, and site office.

(c) Price Determination Following Completion of Changes

- A. If it is not possible to predetermine, or if there is failure to agree on the price of a change in the Work, the price of the change must be equal to the aggregate of:
 - a. all reasonable and proper amounts actually expended or legally payable by the Contractor in for labour, Plant and Material that fall within one of the classes of expenditure described in paragraph B that are directly attributable to the performance of the Contract;
 - b. an allowance for profit and all other expenditures or costs, including overhead, general administration costs, financing and interest charges, in an amount that is determined in accordance with 6.9(c.iii);and
 - c. interest on the amounts determined under subparagraphs (A.a) and (A.b) of paragraph (c) calculated in accordance with GC6.12, "Interest on Settled Claims";
- B. The cost of labour, Plant and Material referred to in subparagraph (A.a) and (A.b) of paragraph (c) must be limited to the following categories of expenditure:
 - a. payments to Subcontractors and suppliers;
 - b. wages, salaries bonuses and, if applicable, travel and lodging expenses of employees of the Contractor located at the site of the Work and that portion of wages, salaries, bonuses and, if applicable, travel and lodging expenses of personnel of the Contractor generally employed at the head office or at a general office 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 Applicable Taxes 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.

(d) Price Determination - Variations in Tendered Quantities

- A. Except as provided in paragraphs (B), (C), (D) and (E) if it appears that the final quantity of labour, Plant and Material under a price per unit item will exceed or be less than the estimated tendered quantity, the Contractor must perform the Work or supply the Plant and Material required to complete the item and payment must be made for the actual Work performed or Plant and Material supplied at the price per unit set out in the Contract.
- B. If the final quantity of the price per unit item exceeds the estimated tendered quantity by more than 15 percent, either party to the Contract may make a written request to the other party to negotiate an amended price per unit for that portion of the item which exceeds 115 percent of the estimated tendered quantity, and to facilitate approval of any amended price per unit, the Contractor must, on request, provide Canada with:
 - i. detailed records of the actual cost to the Contractor of performing or supplying the tendered quantity for the price per unit item up to the time the negotiation was requested; and
 - ii. the estimated unit cost of labour, Plant and Material required for the portion of the item that is in excess of 115 percent of the tendered quantity.
- C. If agreement is not reached as contemplated in subparagraph (B), the price per unit must be determined in accordance with paragraph (c) Price Determination Following Completion of Changes.
- D. If it appears that the final quantity of labour, Plant and Material under a price per unit item must be less than 85 percent of the estimated tendered quantity, either party to the Contract may make a written request to the other party to negotiate a change to the price per unit for the item if:
 - i. there is a demonstrable difference between the unit cost to the Contractor of performing or supplying the estimated tendered quantity and the unit cost to the Contractor for performing or supplying the final quantity; and
 - ii. the difference in unit cost is due solely to the decrease in quantity and not to any other cause.
- E. For the purposes of the negotiation referred to in subparagraph (D):
 - i. the onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation; and
 - ii. in no event will the total price for an item that has been amended as a result of a reduction in quantity under paragraph (D) exceed the amount that would have been payable to the Contractor had 85 percent of the tendered quantity actually been performed or supplied.

6.11 Replacement of Specific Individuals

- (a) If specific individuals are identified in the Contract to perform the Work, the Contractor must provide the services of those individuals unless the Contractor is unable to do so for reasons beyond its control.
- (b) If the Contractor is unable to provide the services of any specific individual identified in the Contract, it must provide a replacement with the same level of qualifications and experience as the individual who is being replaced. The replacement must meet the criteria used in the selection of the Contractor and be acceptable to Canada. The Contractor must, as soon as possible, give notice to the Contracting Authority of the reason for replacing the individual and provide:
- i. the name, qualifications and experience of the proposed replacement; and
 - ii. proof that the proposed replacement has the required security clearance granted by Canada, if applicable.
- (c) The Contractor must not, in any event, allow performance of the Work by unauthorized replacement persons. The Departmental Representative (DR) may order that a replacement stop performing the Work. In such a case, the Contractor must immediately comply with the order and secure a further replacement in accordance with subsection 2. The fact that the DR does not order that a replacement stop performing the Work does not relieve the Contractor from its responsibility to meet the requirements of the Contract.

6.12 Price Escalation Based on Consumer Price Index (CPI)

- (a) The firm hourly rates identified in Annex B- Pricing Tables (inclusive of overhead and profit) will be adjusted annually on the start date of each new Contract year (starting with Contract year 2) based on the annual average percentage increase (decrease) in the monthly index of the Consumer Price Index for Canada, All-Items (Not Seasonally Adjusted), published in Statistics Canada Catalogue no.62-001-X, Table 5, for the 12-month period ending 3 months prior to the new Contract year start date.

For clarity, if the contract start date was April 10, 2019 then at the start of Contract year 2 (i.e. April 10, 2020), the Contract year 1 rates would be increased by 1.3% based on the following assumptions:

| | % Change in Monthly CPI |
|----------------------|----------------------------|
| February 2019 | 1.1% |
| March 2019 | 1.2% |
| April 2019 | 0.9% |
| May 2019 | 0.9% |
| June 2019 | 1.1% |
| July 2019 | 1.0% |
| August 2019 | 1.4% |
| September 2019 | 1.6% |
| October 2019 | 1.6% |
| November 2019 | 1.7% |
| December 2019 | 1.5% |
| January 2020 | 1.7% |
| $15.7\% / 12 = .3\%$ | |

Moreover, to determine the Contract year 3 rates, the Contract year 2 rates calculated above would be adjusted using the same Statistics Canada data and formula for the February 2020 - January 2021 twelve month period.

- (b) To gain access to the CPI adjustment, the Contractor is required to submit a request in writing to the Contracting Authority, no later than 1 month prior to the anniversary date of the contract in each calendar year. Authorization of the rate adjustments is subject to the approval of the Contracting Authority. If the contractor fails to request a CPI adjustment by the anniversary date of the contract, it should be noted that any adjustment requested at a later date is not retroactive.

6.13 Optional Services

- a) The Contractor grants to Canada the irrevocable option to acquire additional Construction Management services in accordance with the Terms of Reference clause 1.3. Exercise of any of the optional services by Canada is contingent upon receipt of the necessary Government of Canada project and financial approvals. The Contractor agrees to carry out this work under the same conditions and fees specified in the Contract.
- b) The Contractor grants to Canada the irrevocable option to request a proposal related to Indigenous Benefits in relation to the Winnipeg project. The Contractor will be required to submit a proposal which includes an Indigenous Benefits Plan specific for this location.
- c) An IBP is intended to develop capacity, sustainable and meaningful socio-economic benefits for Indigenous professionals and businesses for various specialized professions covered under this project. Should the Contractor decline or be unable to provide a proposal for services in this location, with an Indigenous Benefits Plan, which meets Canada's requirement; Canada has the right not to exercise this option and to solicit open tendering for this requirement.
- d) The exercise of the option(s) is at Canada's sole discretion and the inclusion of the option(s) in no way obligates Canada to contract for these services with or through the Contractor. Options may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through contract amendments.
- e) The Contracting Authority may exercise one or more of the options at any time before the expiry of the Contract by sending a written notice to the Contractor.

6.14 Public Works and Government Services Canada Apprentice Procurement Initiative

- a) 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.
- (b) 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.
- (c) 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. Employers are also encouraged to find out what additional information and supports are available from their respective provincial or territorial jurisdiction.

(d) Signed certifications (Form 9) 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.

(e) 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 Form 4.

If you accept fill out and sign Form 4.

** The journeyperson-apprentice ratio is defined as the number of qualified/certified journeypersons that in 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.*

6.15 Increase in Contract Security

1) The Contractor shall, within 14 days after the date that Canada issues a contract amendment, pursuant to 6.13 Optional Services, obtain and deliver to Canada revised Contract Security to include the increase in contract costs of these optional services. The additional contract security shall be in one of the forms prescribed in GC9.2, "Types and Amounts of Contract Security".

2) It is a condition precedent to the release of the first progress payment for the additional Work that the Contractor has provided the increased Contract Security as specified herein.

6.16 Periodic Indigenous Benefits Plan Reports

1. The Consultant must compile and maintain records on its progress related to their Indigenous Benefits Plan.
2. The Consultant must provide this data in accordance with the reporting requirements detailed below. If some data is not available, the reason must be indicated.
3. The data must be submitted on a quarterly basis to the Contracting Authority.

The quarterly periods are defined as follows:

1st quarter: April 1 to June 30

2nd quarter: July 1 to September 30

3rd quarter: October 1 to December 31

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4th quarter: January 1 to March 31

The data must be submitted to the Contracting Authority no later than fourteen (14) calendar days after the end of the reporting period.

4. Reporting Requirement- Details

Provide a detailed and current record of all activity undertaken towards achieving the commitments outlined in the Indigenous Benefits Plan. The format should follow sample format presented in the Quarterly Contractor Achievement Reporting and Certification.

ANNEX A - BASIS OF PAYMENT

The Basis of Payment of the Contract is comprised of the following:

- 1. Contractor's Fee**
 - Fixed Fee
 - Percent Construction Fee
 - Hourly Fee
 - Additional Personnel
- 2. Construction Costs**
 - Construction Cost
 - Site Labour Costs
- 3. Allowable Disbursements**
- 4. Optional Services**

1. Contractor's Fee

The Contractor's Fee will be paid monthly in arrears for the term of the contract. The Contractor's Fee is based on the aggregate of the following.

Any costs incurred by the Contractor due to failure on the part of the Contractor to exercise reasonable care and diligence in the Contractor's attention to the Work will be borne by the Contractor.

(a) Fixed Fee

The Fixed Fee will be paid monthly in arrears over the Term of the Contract. The Fixed Fee will constitute reimbursement for Services provided by the Contractor as specified in detail in the Terms of Reference. All services specified in the Terms of Reference (with the exception of any covered under Construction Cost, see section 2b below) are to be included in the Fixed Fee portion of the contract.

The Fixed Fee includes, without limitation:

- i. All overhead, administration, mark-up and profit for the Contractor's operations, including, but not limited to standard office expenses such as any photocopying, computer and software costs, Internet, all telephone and fax, cellular telephones, depreciation, rent and maintenance of office facilities, furniture, office equipment and supplies, taxi charges, parking.
- ii. The actual cost of all personnel, including field personnel, employed or contracted by the Contractor to deliver the services specified in the Terms of Reference and includes all payroll costs such as salary, statutory holidays, vacations with pay, unemployment insurance premiums and worker's compensation contributions where applicable, pension plan contributions, sick time allowance, medical/dental insurance premiums and any other benefits, including vehicle and vehicle expenses. Do not include contracted personnel of sub-trades that will perform the construction;
- iii. The salaries, benefits or other compensation for the Contractor's officers, directors,

principals and support staff;

- iv. Travel and accommodation costs related to the Work for the duration of the Contract;
- v. All other costs which may be considered disbursements unless specifically listed in Article 3 Allowable Disbursements;
- vi. Any part of the Contractor's capital expenses, including interest on the Contractor's capital, employed for the Work;

(b) Percent Construction Fee

The Percent Construction Fee includes:

- i. The Contractor's percentage mark-up for overhead, profit and general administration costs on the Construction Cost.
- ii. All costs that have not been identified for reimbursement under the Basis of Payment – (1.a) Fixed Fee, (1.c) Additional Personnel, (2) Construction Costs and (3) Allowable Disbursements.
- iii. The Percent Construction Fee will be paid in arrears for each progress claim submitted in accordance with GC5 - Terms of Payment, during the Term of the Contract. The value of the Percent Construction Fee for the payment period will be based on the construction cost of the work actually incurred during that period.

(c) Additional Personnel/Services

- i. The Contractor will include in the Fixed Fees sufficient personnel to complete the Work within the time frame stipulated at Article 6.2 of the Resulting Contract Clauses.
- ii. However, should Canada determine that, based on scope changes, additional personnel/services are required, Canada will have the right to request that the Contractor provide such additional personnel/services for the performance of the Services and/or Work or any part, or parts, thereof.
- iii. For additional personnel/services requested by Canada, the Contractor will be reimbursed in accordance with the firm hourly rates quoted in Table 4 from Annex B Pricing Tables for the identified categories of personnel or in accordance with rates which have been negotiated and mutually agreed to between Canada and the Contractor for personnel that were not pre-identified in Table 4 from Annex B Pricing Tables. Such costs will be payable monthly in arrears.
- iv. Should additional resource categories be required during the execution of the Contract beyond what is identified in Annex B- Table 4, the Contractor's costs will be established in accordance with GC5 Terms of Payment > 100K- Construction Services.

2. Construction Costs

- (a) Determination of Construction Cost will be in accordance with Part 6 – Resulting Contract Clauses, article 6.9. - Construction Costs will be reimbursed in accordance with GC5 - Terms of Payment.
- (b) Construction Cost will include, without limitation:
 - i. The actual, reasonable and direct costs of subcontracts;
 - ii. The actual, reasonable and direct costs incurred by the Contractor, as previously agreed to by Canada in performing the Work, as follows:

-
- a. Materials incorporated into the Work, including costs of transportation;
 - b. Materials, products, supplies, equipment, temporary services and facilities, including transportation and maintenance thereof, which are consumed in the performance of the Work, and cost less salvage value on such items used, but not consumed, which remain the property of the Contractor;
 - c. Tools, machinery and equipment, exclusive of hand tools, used in the performance of the Work, whether rented by the Contractor or others, including installation, minor repairs and replacements, dismantling, removal, transportation and delivery costs thereof;
 - d. Site engineering, as-built drawings, maintenance manuals and all other documents required to be provided prior to certification of Substantial Performance, as well as commissioning activities;
 - e. Independent inspection and testing services other than those described in the construction documents;
 - f. Temporary services, O & M Manuals, as-builts, engineering drawings and rental costs of site trailers;
 - g. Site washrooms other than those furnished by Canada;
 - h. Health and Safety sundries for visitors (hard hats, boots, gloves, goggles, masks, etc.);
 - i. Bilingual site signage;
 - j. Utility costs, as applicable;
 - k. The cost of safety measures and requirements;
 - l. Cleaning materials supplies;
 - m. Site photos;
 - n. Printing of construction documents;
 - o. Removal and disposal of waste products and debris.
 - p. Site security provisions including security personnel, protection of materials and equipment, the procurement of private security services and construction related security
 - q. The construction, maintenance and operation of a site field office.

(c) Division 1 Labour Costs

- i. The Contractor will not use its own forces or the forces of a non-arm's length entity to provide trade work unless the Contractor has been specifically authorized to do so by Canada. A person or entity will be considered to be not at arm's length from the Contractor if that person or entity does not fall within the meaning of arm's length pursuant to section 251 of the *Income Tax Act* (R.S.C., 1985, c. 1 (5th Supp.))
- ii. However, the Contractor will be reimbursed for the labour expended by the Contractor's carpenters and general site labourers for any physical construction work related to Division 01 which received prior written approval from the Departmental Representative. Site labour costs that have been authorized by the Departmental Representative in writing will be paid monthly in arrears.
- iii. Notwithstanding the above, Canada may require that the Contractor competitively procure any or all of the site labour work, including work that could be completed by the Contractor's own labourers.

3. Allowable Disbursements

In addition to the Contractor's Fee, Canada will reimburse at actual cost, without any administrative

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cost or mark-up for overhead or profit, the following disbursements supported by invoices/receipts:

- i. The cost of the Contractor's insurance and bonding;
- ii. Fees, levies, permits, costs and charges levied by authorities having jurisdiction at the Site;
- iii. Travel, if requested in writing by Canada, will be reimbursed in accordance with the National Joint Council Travel Directives.

ANNEX B

PRICING TABLES

Table 1 – Estimated Construction Cost for Evaluation Purposes

| Description of Requirement | Total |
|--|---------------------|
| Estimated Construction Cost – Base Contract (Sidney) | \$44,108,000 |
| Table 1 Total , excluding taxes | \$44,108,000 |
| Notes to Bidders: | |
| <i>Note 1. The Table 1 Total is for information purposes only and will not be used to calculate the Total Bid Price, but will be included in the total contract award value.</i> | |
| <i>Note 2. The base contract scope of work must be completed within 54 months from contract award.</i> | |

Table 2 – Fixed Monthly Fee

| Description of Requirement | A - Fixed Monthly Fee | B– Number of Months | Extended Total (A X B) |
|--|-----------------------|---------------------|------------------------|
| One Project Ongoing – All services to substantial completion. | \$ | 42 | \$ |
| Two Projects Ongoing - All services to substantial completion. | \$ | 24 | \$ |
| Sidney – Post Construction Services | \$ | 12 | \$ |
| Winnipeg – Post Construction Services | \$ | 12 | \$ |
| Table 2 Total, excluding taxes: | | | \$ |
| Notes to Bidders: | | | |
| <i>Note 1: Fixed Monthly Fee will be paid monthly depending on how many projects are ongoing at the time.</i> | | | |
| <i>Note 2: For the purposes of the fixed monthly fee a project is considered ongoing from contract award (or date option was exercised) until the Work has reached substantial completion.</i> | | | |
| <i>Note 3: Number of months indicated is for evaluation purposes only. Actual number of months paid will depend on actual timing of projects.</i> | | | |

Table 3 – Percent Fee

| Description of Requirement | A - Percent (%) | B – Estimated Construction Cost: Base Contract | Extended Total (A X B) |
|---|-----------------|--|------------------------|
| Percent Construction Fee | % | \$44,108,000 | \$ |
| Table 3 Total, excluding taxes: | | | \$ |
| Note to Bidders: <i>The same percentage, multiplied by the estimated construction cost for each option, will be used to calculate the percent fee when, and if, options are exercised.</i> | | | |

Table 4 – Additional Personnel/Services

| Category of Personnel | A – Firm Hourly Rate |
|--|----------------------|
| Assistant Construction Manager | \$ |
| Superintendent | \$ |
| Assistant Superintendent | \$ |
| Senior Project Manager | \$ |
| Intermediate Project Manager | \$ |
| Senior Project Coordinator (Generalist) | \$ |
| Intermediate Project Coordinator (Generalist) | \$ |
| Junior Project Coordinator (Generalist) | \$ |
| Senior Field Coordinator/Engineer | \$ |
| Intermediate Field Coordinator/Engineer | \$ |
| Junior Field Coordinator/Engineer | \$ |
| Intermediate Estimator | \$ |
| Intermediate Scheduler | \$ |
| Senior BIM Coordinator | \$ |
| Intermediate BIM Coordinator | \$ |
| Junior BIM Coordinator | \$ |
| Senior Mechanical/Electrical Coordinator | \$ |
| Intermediate Mechanical/Electrical Coordinator | \$ |
| Senior Procurement Officer | \$ |
| Intermediate Procurement Officer | \$ |
| Junior Procurement Officer | \$ |
| Senior Health and Safety Officer | \$ |
| Intermediate Health and Safety Officer | \$ |
| Administrative Assistant | \$ |
| Information Systems – Senior | \$ |
| Information Systems – Intermediate | \$ |
| Senior Surveyor | \$ |
| Intermediate Surveyor | \$ |
| Senior Accounting Services | \$ |
| Intermediate Accounting Services | \$ |
| Junior Accounting Services | \$ |
| Quality – Senior | \$ |
| Quality – Intermediate | \$ |
| Quality - Junior | \$ |

| Table 4 Total, excluding taxes: | \$ |
|--|----|
| <p>Notes to Bidders:</p> <p><i>Note 1: Hourly Rates are to include the Bidder's hourly rate for the Bidder's Personnel, (inclusive of payroll costs, overhead and profit). Payment for any additional services or personnel will be based on the hourly rate and paid on the basis of actual hours worked.</i></p> <p><i>Note 2: Canada may accept or reject any of the above hourly rates. Canada reserves the right to negotiate these hourly rates.</i></p> <p><i>Note 3: In order to ensure that fair and competitive hourly rates are received for each of the category of personnel the following requirements must be adhered to:</i></p> <ul style="list-style-type: none"> <i>a. The Bidder must provide an hourly rate for each category of personnel;;</i> <i>b. The hourly rates must reflect the level of experience for each of the listed category of personnel. For example, if an hourly rate for personnel at the intermediate level exceeds the hourly rate for personnel at the senior level in the same category both hourly rates may be deemed not to reflect the appropriate level of experience;</i> <i>c. The hourly rate for any given listed category of personnel cannot be \$0.00 or nil value.</i> <i>d. Failure to comply with a, b or c above will render the bid non-responsive.</i> <p><i>Note 4: Hourly rates are included in the Total Bid Amount but are not included in the total contract award value, they are for evaluation purposes only.</i></p> | |

Table 5 – Division 1 Labour rates

| Category of Personnel | A – Firm Hourly Rate |
|--|----------------------|
| General Labourer | \$ |
| Labour Foreman | \$ |
| General Foreman | \$ |
| Apprentice Carpenter | \$ |
| Journeyman Carpenter | \$ |
| Carpenter Foreman | \$ |
| Hoist Operator | \$ |
| Total Sum of Table 5, excluding taxes: | \$ |
| <p>Note to bidders:</p> <p><i>Division 1 Labour Rates are to include the Bidder's hourly rate for the Bidder's own forces, (inclusive of payroll costs, overhead and profit). Payment for any Division 1 Work will be based on the hourly rate and paid on the basis of actual hours worked.</i></p> | |

Table 6 – Cash Allowance for Disbursements (Permits, Bonding, and Insurance)

| | Allowance |
|-----------------------|--------------|
| Base Contract, Sidney | \$ 2,059,992 |
| Option 1 - Winnipeg | \$ 1,541,579 |

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EP751-202923/A

Amd. No. - N° de la modif.
000

Buyer ID - Id de l'acheteur
Fe178

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20202923

File No. - N° du dossier
FE178.EP751-202923

Project No. - N° du projet

| | |
|--|--------------|
| Table 6 Total, excluding taxes: | \$ 3,601,571 |
| Note to Bidders: <i>The Table 4 Total is for information purposes only and will not be used to calculate the Total Bid Price.</i> | |

Table 7 – Total Bid Amount for Evaluation Purposes

| Description | Price |
|--|-----------|
| Fixed Monthly Fee – Table 2 Total | \$ |
| Percentage Fee – Table 3 Total | \$ |
| Additional Personnel/Services – Table 4 Total | \$ |
| Division 1 Labour Rates – Table 5 Total | \$ |
| Sum Total Bid Amount (TBA) For Evaluation Purposes: | \$ |
| Note to Bidders: <i>Any errors in the addition or multiplication of the amounts in this Annex will be corrected by Canada to obtain the Total Bid Amount. In the case of error in the extension or addition of unit prices, the unit price will govern.</i> | |

Base Contract Value

The base contract value will be calculated in the following manner:

Base Contract Value = (Fixed Monthly Fee One Project Ongoing x 42 months) + (Fixed Monthly Fee Sidney Post Construction x 12 months) + (% fee x Estimated Construction Cost Sidney) + Estimated Construction Cost Sidney + Allowance for Disbursements Sidney

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ANNEX C

TERMS OF REFERENCE

(see attachments)

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1 PROJECT DESCRIPTION

1.1 Intent of Contract

Public Works and Government Services Canada (PWGSC), commonly known as Public Services and Procurement Canada (PSPC), will retain the services of a construction management entity, the Construction Manager (CM), to modernize laboratory facilities as part of its Laboratories Canada (LC) program of work.

Science Facility laboratories in Sidney, British Columbia (B.C.) and Winnipeg, Manitoba may form part of the overall Contract as determined by the priorities of PWGSC's LC program. The CM's base Contract is the Sidney Centre for Plant Health laboratory and greenhouse facility for the Canadian Food Inspection Agency (CFIA) in Sidney, BC.

PWGSC will add incremental CM Work and Construction Services to the Contract through Contract option(s) as its Science Partner clients determine their location-specific scope of laboratory modernization.

PWGSC will retain one design firm, led by a prime consultant, who will provide Architectural and Engineering Services and prepare design solutions through a Building Information Model (Model) for the Work of this Contract. In the Contract, the consultant, sub-consultant(s), and specialist consultant(s) collectively are referred to as the Design Team. Altogether, the scope of the Design Team's services includes detailed investigation and analysis of Project and sub-Project requirements, validation of design and implementation options, detailed Schematic Design (SD) options and support to obtain necessary approvals, detailed Design Development (DD), numerous Design Packages (DPs) for competitive tender, and Site services - administration and Site supervision of the CM's Construction Services and Work.

The Design Team will work collaboratively with the CM and PWGSC's Departmental Representative (DR). The CM is required to support the Design Team's development and analysis of implementation options, managing the Work sequencing, Cost, and construction of approved design solutions.

Fundamentally, this is a services Contract. The CM is NOT to behave like a general contractor. Rather, acting as the Constructor at the Place of the Work, the CM is required to provide the comprehensive services described in these ToR on an ongoing basis and respect PWGSC's high quality standards throughout all aspects of Cost and time planning, estimating, scheduling, Monitoring and control. Moreover, the CM is required to provide comprehensive design management services to ensuring ongoing and timely identification and prioritization of the Design Team's DP production to optimize overall delivery of Project Work.

1.2 Terms, Acronyms and Abbreviations

Specifically, defined terms, acronyms and abbreviations used in these Terms of Reference (ToR) are capitalised and defined in the Contract or ToR Appendices B - TERMS and C - ACRONYMS. Words that are not uppercase or italicised have standard definitions as defined in the Oxford English Dictionary.

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1.3 Project Information

1.3.1 Abstract

The 2018 federal budget announced significant new investments to support the renewal of federal science in Canada by launching the first phase of an ambitious plan to rebuild federal laboratories. The 2018 budget allocated significant funding to PWGSC over five years, starting in 2018–19 for the development of federal science projects in locations across Canada. In November 2018, Cabinet approved the government’s vision, funding and science priorities through Laboratories Canada, a program of work sponsored by the new Science and Parliamentary Infrastructure Branch within PWGSC.

PWGSC established a LC Science Infrastructure Program Management Office (LC Office), located in the National Capital Area, with overall responsibility for leadership, management, and delivery of the LC program of work.

The LC programme will address infrastructure deficiencies and enable collaboration and cutting-edge science by:

- Building new multi-department, multi-purpose, “green” federal laboratories;
- Upgrading science and technology Information Management / Information Technology (IM/IT) systems to facilitate data-sharing and high-capacity computing while ensuring security of government systems;
- Optimizing the impact of investments through shared major scientific equipment; and
- Reducing policy barriers that inhibit scientific collaboration.

The Laboratories Canada Initiative seeks to renew:

- Federal science laboratories for science and technology departments and agencies (Science Partners);
- Scientific equipment; and
- Science-specific IM/IT tools and services.

The vision of LC is for a world-class national network of modern and multipurpose federal science and technology laboratories that support collaboration, multidisciplinary research and innovation, and evidence-based decision-making.

Achieving this vision will help ensure that federal scientists have the facilities and tools they need to complete leading-edge research. LC will enable governmental and non-governmental partners to work together effectively, and to keep pace with transformative changes shaping the science landscape.

The major elements of the LC include:

- a) Laboratory Design Standards: Retaining an architectural and engineering services advocate consultant team to work with Science Partners and develop standardized laboratory design guidelines, requirements, and topologies, ensuring a common and repeatable approach for laboratory design. The advocate team will support PWGSC and the in the delivery of large clusters of Science Partners and smaller regional nodes, a hub and spoke network of laboratory facilities;

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- b) Science Clusters: An amalgamation of Science Partners in whose operations are consolidated into large clusters. Five large Science Clusters were identified and approved in the federal budget, plus specific purpose science and technology facilities.

The Sidney laboratory is part of the Regulatory and Security Science Cluster which aims to mitigate and respond to food, animal and plant threats; strengthen border security; enhance international trade; and increase regulatory-innovation cohesion.

The Winnipeg laboratory is part of the Terra Canada Cluster which addresses sustainable land and resource development, a low carbon economy and health and safety.

1.3.2 Cost

PWGSC's Total Estimated Cost for this Contract and its potential options are summarized below. The Contract Cost Principles will determine all Contract direct and indirect Costs. The final Contract Amount will depend on the LC program priorities and requirements.

| Location | Comments | Total Estimated Cost* |
|--|----------------------|-----------------------|
| Sidney | Base Contract | \$44,108,000** |
| Winnipeg | Optional sub-Project | \$34,257,324 |
| Potential Total Estimated Cost (all options included) | | \$78,365,324 |

*Includes design contingency, construction contingency, escalation contingency and disbursements. Excludes CM fees and risk.

** Should expanded scope be approved, the construction cost estimate would increase by approximately **\$20,000,000**. The % fee proposed for the Sidney project would apply to the new scope and would not be adjusted.

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1.3.3 Milestones

1.3.3.1 Sidney Sub-Project

Milestones for the Sidney sub-Project and key intermediate activities are listed below.

The actual sequence of design and construction and timing of key intermediate activities will change to optimize the schedule but the Contract milestones remain as indicated.

| Contract Milestone | Key Intermediate Activity | Date |
|----------------------------------|--|--------------------------------|
| Consultant/CM appointment | | July 2020 |
| | Verify Functional Program and Schematic Design | +3 months from Contract award |
| | 100% Design Development approval | +10 months from Contract award |
| | Final IT/MM and casework installation | Spring / Summer 2023 |
| Substantial Performance | | +42 months from Contract award |
| | Occupancy by Science Partners | 2024 |
| Final Completion | | +54 months from Contract award |

1.3.3.2 Other Sub-Projects

Subject to LC approval and the authorization to proceed through a Contract amendment issued by the Contracting Authority, the following tables outline the planned milestones and key intermediate activities for the Winnipeg sub-Project. The actual sequence of design and construction and timing of key intermediate activities will change to optimize the schedule but the Contract option milestones remain as indicated.

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| Winnipeg Sub-Projects | | |
|----------------------------------|---------------------------------------|--|
| Contract Option Milestone | Key Intermediate Activity | Date |
| Contract Option Approved | | To Be Determined |
| | 100% Schematic Design approval | +8 months from Contract Option Approval |
| | 100% Design Development approval | +13 months from Contract Option Approval |
| | Final IT/MM and casework installation | Starting approximately 5-6 months before Substantial Performance |
| Substantial Performance | | +42 months from Contract Option Approval |
| | Occupancy by Science Partners | +2-4 months after Substantial Performance |
| Final Completion | | +54 months from Contract Option Approval |

1.3.3.3 Potential Sub-Project Start/Concurrency

LC is working with Science Partners to finalize Science Facility requirements. The graphic below indicates the potential Sub-Project start time and concurrency of implementation.



Figure 1: Potential Sub-Project start and concurrency.

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1.4 Project Implementation

1.4.1 Overview

The Project implementation strategy will optimize critical decision making in order to prioritize the design and interim approvals of sub-Projects, allowing construction of sub-Projects to start early and in a streamlined sequence.

To meet these priorities, the CM, Design Team, DR, along with all Science Partners are expected to work continually in an interactive manner, progressively resolving issues. Building Information Modelling (BIM) will be central to the design and construction process, as will digital and physical mock-ups of key laboratory or building features, to ensure concurrence that the appropriate design and materials are selected for the facility.

The CM's overall mandate comprises a number of sub-Projects in different locations, each requiring support to the Design Team for targeted and specialized investigation work and materials testing to inform the structural and seismic design, sustainability strategies, and scope for each design discipline.

The Consultant, as the design authority, is required to understand Science Partners' functional, operational and security requirements and incorporate these into comprehensive design solutions. Further, the Consultant is required to define component and system performance requirements then confirm and document their actual performance once built by the CM. To ensure an ongoing focus to comprehensive commissioning of sub-Projects, the Consultant's services will include those of an independent expert who is specialized in laboratory commissioning. The Consultant's independent commissioning expert is required to, on an ongoing basis, coordinate Design Team disciplines and assemble progressively more detailed commissioning process' documentation, including but not limited to detailed operations and maintenance and energy budgets, 40-year life-cycle analyses, training requirements and actual Design Team led training of building and Science Partner's employees, etc. to ensure they understand the operational and design intent.

On an ongoing basis, the CM is required to support the Design Team's budgeting, life-cycle analysis and provide CM led operations and maintenance training of building and Science Partner's employees or suppliers.

1.4.2 Delivery Methodology

PWGSC intends to use a construction management delivery method to concurrently deliver all sub-Projects. The concurrent delivery of sub-Projects requires the CM to provide active, assertive, and ongoing project management of its team and constant coordination with the sub-Project Design Team.

The Project will combine Project Team integration and lean design and construction principles, promoting Project first thinking. A joint Project management team comprised of the CM, DR, and Design Team will align and prioritize Project interests and objectives. There will be one Project management team who collectively will manage the scope of the Work on a consensus basis.

The CM is required to establish a prioritized design approach using multiple, simultaneous Design Packages (DPs) prepared by the Design Team and tendered by the CM. The CM is required to participate in meetings and workshops, provide bid-ability and constructability advice, define construction phasing, define the scope and sequencing DPs to the DR and Design Team, and establish and manage, to the approval of the DR, each sub-Project construction schedule and construction budget.

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The CM is required to provide an on-Site team for the duration of each sub-Project, whose services will be co-located with those of the Design Team, the DR, and when required the Science Partners. The CM and the Design Team's Site team are to have the authority, ability and capacity to immediately respond to evolving situations, daily, coordinating and integrating ongoing construction operations with the design production.

1.4.2.1 Delegated Design and Design Assist

To ensure clarity in the roles and responsibilities of the design process, with the participation and agreement of the CM and DR and as described in ToR section 10.2 – Design Management General, the Consultant will develop and update a delegated design Specification and design responsibility matrix.

The Specification and matrix are to define the Design Team professional responsible for the design, review, acceptance, and workflow of certain components of scope that will be assigned to a design entity other than the Design Team, where the specialist design expertise resides with the manufacturer (Subcontractor) or Supplier, such as designated mechanical, electrical, and architectural systems and components or structural analysis of load bearing components and connections, etc.

The CM is required to provide design assist services if and when requested by the DR.

1.4.3 Building Information Modelling

The BIM computing requirements necessary for this Contract are significant!

The CM and Design Team will need to understand the information technology and multi-media equipment, and the specialized software required for BIM for this Contract, obtain said equipment and software, and plan and execute their collective and coordinated services as detailed in the ToR.

BIM is an object-based digital representation of the physical and functional configuration, characteristics and attributes of a project. BIM supports an integrated process built around coordinated, reliable digital information about a project from design through construction and into operations. The output of this process is referred to as the Model or Models.

BIM requires the cooperation and collaboration of all stakeholders to be fully utilized and effective. To establish essential parameters and interoperability requirements, the Project Team must recognize that BIM is not simply a design method, a software package, or a 3D Model. Rather, BIM is a comprehensive methodology that integrates established, new, and emerging digital technologies to support the coordinated exchange of information from inception through to construction, commissioning, and operations of each sub-Project.

The Design Team is required to use the Model to capture all sub-Project scope facilitated by a common data environment for visualization, analysis and communication of sub-Project information for and between all stakeholders, including the Science Partners, the Design Team, the CM, the DR, and the property management operations team following Substantial Performance of each sub-Project.

The use of high-resolution scanning and photogrammetry, combined, will create a shared co-ordinate system to provide the metric information necessary to build the Model. The Model represents a shared data resource that will assist in Project decision-making and approval processes, as well as augment productivity, efficiency and quality of the end product delivery.

Where available, the Design Team will be provided and is required to use and update the existing conditions Model. However, for most sub-Projects, the Design Team is required to develop a sub-

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Project-specific Model based on existing PWGSC or Science Partner information (CADD files, etc.), or on-Site surveys, or both. The CM is required to support this effort.

The Design Team will update the Model as new investigations of the building and surrounding Site during the design and construction stages reveal greater detailed information about the base building construction.

Early in the design process, the Design Team is to confirm with the DR and Science Partners the interoperability and level of information required for Model Elements in the final, as-built Model. To facilitate the development of the as-built Model, the Design Team is required to incorporate submittals (i.e. shop drawings, etc.) provided by the CM or the CM's Subcontractors and Suppliers into the Model as they are approved. Likewise, as construction progresses, before and after concealment of each building assembly and Site element, the Design Team is required to complete laser scanning, photogrammetry, and incorporate the point-cloud data and photogrammetry to complete the as-built Model, as it is built.

1.4.3.1 Copyright

The author of a Model Element retains copyright to the Model Element unless otherwise stated.

The author of a Model Element must grant a non-exclusive license to the Project Team to use the Model Element and associated content within the scope established by the authorized uses and Model Elements table as defined in a sub-Project-specific BIM Execution Plan (BXP), co-developed by the Design Team, CM and DR, for the design and construction of the Project and for Canada's operations following the issuance of the certificate of Substantial Performance.

1.4.3.2 Model Ownership

Notwithstanding the copyright of Model Elements, PWGSC has, without exception, the ownership of and the right to use all Models, CAD files, and facility/operations and maintenance data developed for sub-Projects. Further, PWGSC will have access to these assets at any time throughout the Contract.

1.4.4 Design Coordination

Successful integration of laboratory design requirements, security, and IT infrastructure with the base building and versatile laboratory casework is one of the overarching requirements of the Project and its sub-Projects. The Consultant has the ongoing role of managing all members of the Design Team to integrate and coordinate the design of each sub-Project to ensure a high-level of systems and design integration. The CM has an ongoing role to support the Design Team through design review and Cost, time and risk analysis.

The Design Team will use a sub-Project-specific Model for visualization of concepts, analysis and integration of design, and the creation of a repository of building data. The Design Team will use the Model to:

- a) Capture lighting, air flow, acoustics and seismic resistance studies among other disciplines;
- b) Support analysis of building performance especially against sustainability and energy criteria;
- c) Coordinate Modeled content across disciplines, specialties and other stakeholder input, identifying design and constructability issues proactively;

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- d) Identify changes between current and previous versions in order that iterative reviews may be focused on the changes;
- e) Document the design of the sub-Project and develop Model-based, coordinated DPs for the CM's tendering;
- f) Facilitate design reviews and approvals, including validation that functional and technical program requirements have been achieved;
- g) Capture building data that serves a direct sub-Project or life-cycle purpose; and
- h) Allow the CM to undertake constructability and work sequencing analysis.

1.4.5 Investigations

Immediately following Contract award, the CM along with the DR and Design Team are required to, for each sub-Project, establish a detailed strategy and program of investigations, whether the subject facility is occupied or not.

The Design Team will prepare a preliminary investigation plan in coordination with the DR and the CM to initiate preliminary Site inspections. The purpose of investigations is to gather all information required by the Design Team to advance the design, including:

- a) Confirming existing building (if applicable) and Site conditions, including building envelope condition;
- b) If applicable, analyzing existing building structure and materials for seismic reinforcement requirements;
- c) Test and determine the content, type, location and approximate quantity of designated substances located on the Site, validating existing designated substances surveys, if any;
- d) As applicable to the sub-Project, confirming the geology of the Site to provide information in the development of seismic and excavation requirements, including soil and groundwater contamination;
- e) Completing legal, topographic Site surveys and if applicable, building (floor plate, elevations, structure, etc.); and
- f) Other investigations the Consultant recommends as necessary to prepare and advance a coordinated design such as but not limited to carbon emissions, and climate resiliency study.

The resulting analysis and report from these investigations will provide information to the Project Team for the development and preparation of design options and DPs.

As part of the investigation program and to support ongoing materials testing and inspections over the life of the sub-Project, the Design Team will support the CM's development and ongoing update of a material testing and inspection responsibilities matrix, described in paragraph k) of ToR section 10.2 – Design Management General, which is to identify the component or system requiring testing or inspection, and indicate if material testing or inspection is a joint activity involving the Design Team and CM, or if a third party is necessary, and when said activities are to occur (i.e. conditions, if any).

The Design Team will supervise the implementation of investigation Work as defined in the materials testing and inspections responsibilities matrix.

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To facilitate the investigations in an expedient manner the CM is required to procure the services of sub-trades and suppliers to complete destructive testing and materials analysis (e.g. bore holes, steel and concrete testing, hazardous materials analysis, etc.) once the CM's procurement strategy and process plan is approved by the DR, as per ToR section 10.10.1 – Procurement Strategy and Process Plan.

To ensure design accountability and overall responsibility, the Consultant will conduct comprehensive legal surveys in the building and Site during investigations. Information gathered will be incorporated by the Design Team into the Model at the pre-design analysis stage.

1.4.6 Functional Program

1.4.6.1 Sidney Sub-Project

The functional program was completed and is being reviewed by PWGSC's advocate team, who may provide additional recommendations/requirements to ensure consistency with the remainder of the overall LC program. The Design Team and in particular the Laboratory Design Specialist Sub-Consultant will work with Science Partners and PWGSC's advocate team to verify all functional program requirements. The CM is required to understand the functional program and its updates/changes to validate the Total Estimated Cost.

1.4.6.2 Winnipeg Sub-Project

The Design Team and in particular the Laboratory Design specialist sub-consultant will work with Science Partners to define their functional, operational, and security requirements for the Winnipeg sub-Project. In some cases, outline requirements of the Science Partners may be available. As time progresses, standardized laboratory design guidelines, requirements, and topologies will be available from PWGSC's advocate consultant team; however, the Design Team should expect limited, if any, information will be available at the time of Contract award.

The Design Team is to prepare a functional program for the Winnipeg sub-Project based on requirements gathered from the Science Partners and PWGSC's advocate consultant throughout the Schematic Design and Design Development stages.

Approximately 8-12 consultative functional programming workshops with Science Partner user groups are required. Where appropriate, consolidate common requirements together. Develop a comprehensive functional programming report. The Design Team, in close collaboration with the DR and CM, is to identify and track key programmatic decisions necessary to advance the design.

The final functional program and Schematic Design (SD) are interrelated processes, each complementing and updating each other, but most importantly reflecting spatial relationship and requirements for versatile laboratory use, defining new or modified building components and systems. The final functional program is required at the 100% SD for formal approval by the Science Partners.

Minor adjustments to the final functional program will occur throughout the Design Development (DD) stage and during construction. The Design Team is required to track these changes, to record programmatic alterations, to ensure the proper commissioning of the building and to assess

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performance requirements accurately. Accordingly, the Design Team is required to update the functional program on an on-going basis up to Project Completion.

The CM has an ongoing requirement to assess the functional program modifications and their impact to the Total Estimated Cost and Project schedule.

After 100% SD approval, significant programmatic changes, if any, will require the approval by LC's senior management, and possibly the Contracting Authority, prior to proceeding with any change.

1.4.7 Schematic Design

1.4.7.1 Sidney Sub-Project

The Schematic Design (SD) was completed and is being reviewed by PWGSC's advocate team, who may provide additional recommendations/requirements to ensure consistency with the remainder of the overall LC program. The Design Team and in particular the Laboratory Design Specialist Sub-Consultant will work with Science Partners and PWGSC's advocate team to verify all SD requirements. The CM is required to understand the functional program and its updates/changes to validate the Total Estimated Cost.

1.4.7.2 Winnipeg Sub-Project

SD development requires a significant level of coordinated effort that involves both the entire Design Team and the CM. The data collected through investigative Work and the functional program will inform design options for each sub-Project.

To ensure design accountability and overall responsibility, the Consultant is required to conduct comprehensive legal surveys in the building and on Site as the demolition, abatement and Site construction proceeds. Information gathered is to be incorporated by the Design Team into the Model and the SD.

1.4.7.3 50% Schematic Design (Winnipeg)

The 50% SD approval is to encompass the preferred integrated option: finalized core laboratory program, interior circulation, and structural/seismic decisions. To assess potential changes to the overall building massing or configuration, including architectural impacts, the structural/seismic design options are to be 90% SD at the time of overall 50% SD submission.

Site and building design including exterior lighting, security and circulation, universal design for accessibility, sustainability and "green" requirements are integral elements of all design options. The comparison of one option versus another is to consider the potential building massing, dismantling, or building reconfiguration. The implications of these scope elements will have a significant impact on the CM's Total Estimated Cost and Project schedule.

Value engineering (VE) processes, including monthly Project control workshops, will be undertaken by the CM, the Design Team and the DR to determine the Cost-benefit of each option. Numerous workshops focused on individual subjects will provide the Design Team and the CM essential information to refine and integrate system design concepts, Work estimates, and Work activity

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durations. The expected outcome of the VE process is to maximize sub-Project value by optimizing the design to remove unnecessary scope, while improving functionality, quality, and sustainability.

The Consultant will give formal presentations of their 50% SD submission in a three-step process to the LC Office, the Science Partners, and the LC Program Board, making recommendations for structural design options and key programmatic decisions necessary to advance design options.

1.4.7.4 100% Schematic Design

Direction received after the 50% SD submission and the results of subject matter workshops will provide final direction for the 100% SD submission. Information from on-going investigations is to be incorporated by the Design Team into the Model and the SD development. Ongoing analysis and feedback from the CM are essential to ensure feasibility of design options.

The Consultant will give formal presentations of their 100% SD submission in a three-step process to the LC Office, the Science Partners, and the LC Program Board, making recommendations for overall design options.

1.4.8 Design Development

The DD of the approved SD allows the design advancement of base building and Site systems while more intricate aspects of the laboratory design and office fit-up are developed, all being presented for approval in a three-step process, similar to the two-step SD approval processes.

To ensure design accountability and overall responsibility, the Consultant will conduct comprehensive legal surveys, as applicable, in the building and on Site as the demolition, abatement and Site construction proceeds. Information gathered is to be incorporated by the Design Team into the Model and the DD development.

1.4.8.1 50% Design Development

The overall sub-Project design is to be sufficiently advanced by the Design Team at the 50% DD stage to start designing critical base building DPs. Building windows, elevators, mechanical and electrical systems and, as needed other base building DPs, as prioritized by the CM, is to commence immediately after the 50% DD submission and related subject matter workshops.

Per sub-Project, the Design Team will give formal presentations of their 50% DD submission in a three-step process to the LC Office, the Science Partners, and the LC Program Board, making recommendations for advancement of the design.

Base building DPs prioritized by the CM are to incorporate comments or direction from the 50% DD submission processes.

1.4.8.2 100% Design Development

The Design Team is required to detail the sub-Project design to fully reflect all aspects of the approved functional program, adjusted as required to reflect building limitations or required minor function

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program changes. Base building DPs prioritized by the CM are to incorporate comments or direction from the 100% DD approval processes, which are the same as the 100% SD approval processes.

1.4.9 Casework and Equipment Integration and Occupancy

Laboratory casework schematic and design development (interior design) activities will follow the progression of the building program definition and design and approvals to ensure full design coordination.

The Design Team will fully coordinate and integrate into the Model all architectural and building systems and information technology (IT) with laboratory casework and furniture, fixtures and equipment (FF&E) throughout the design stages of the Contract. The CM is required to provide ongoing review and analysis of the proposed design solutions, making recommendations for alternative products, materials, construction methods, and construction sequencing.

The Design Team will actively monitor construction advancement. Design Team feedback about the laboratory casework and IT connectivity integration into the built work is necessary to identify necessary design and /or construction adjustments prior to the actual construction of the Work. The Design Team, and to a lesser extent the CM, are to take a leading role to facilitate the timing of on-Site reviews and the feedback process. Timely integration of minor design changes, before advancing construction to the point where it must be rebuilt, is essential.

Significant schedule reduction opportunities are possible by sequencing IT connectivity activities in sections of buildings where fit-up has progressed sufficiently to meet connectivity installation requirements (criteria). Successfully capitalizing on schedule opportunities requires a clear understanding of connectivity infrastructure fit up and installation requirements, temporary partitions or requirements for dust isolation and control, and incorporation of these interdependencies into the CM's construction schedule. The Design Team is required to proactively work with the CM to ensure the CM's understanding of connectivity installation criteria to minimize overall schedule duration.

All laboratory casework, office related FF&E, and IT equipment deliveries are to be carefully planned and delivered in a sequence that fully integrates with ongoing construction operations. The Design Team, with the input of the CM, is to define delivery requirements and timing within DPs for laboratory casework, office related FF&E, and IT connectivity and equipment.

The Design Team is required to coordinate with the DR, Science Partners and the CM, to schedule suitable dates and times for the delivery of scientific equipment provided by Science Partners to their laboratories.

The CM is required to schedule, coordinate, and supervise the delivery and installation of laboratory casework and FF&E items. The Design Team will validate and confirm the installation of items.

1.4.10 Design Packages and Tendering Strategy

The CM is required to take the lead role to identify all DP submissions and their timing in order for the Design Team to prioritize their design effort. Prior to commencing Design Package production, the CM

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in consultation with the Design Team and DR, is required to define the level (extent) of completion of each DP deliverable which the Design Team is required to design.

PWGSC understands the impact of scope changes on the Design Team's ability to finalize complete and coordinated DPs. Accordingly, if the DR approves scope change after the initial 50% DP submission the Design Team will inform the DR and CM of the impact of said change on DP production. The CM is required to inform the DR and Design Team of the impact of said change on the Total Estimated Cost and the Project schedule. With the agreement of the DR, the Design Team will incorporate the approved scope change into DP addenda where possible or address the change as a change order after DP award.

Notwithstanding the basic strategy of acceleration and concurrent investigation, design, approval and construction per sub-Project outlined in the proceeding sections, the CM is required to mobilize at the Site(s) in advance of fully completed DPs.

The CM will prequalify a pool of trades to implement the trade-specific work required for each sub-Project. The Design Team, in consultation with the DR and the CM, will support the CM to define pre-qualification criteria for sub-trades and suppliers.

Tendering to construction trades or suppliers is to normally start after delivery of 100% complete DPs. In some cases, to advance starting Critical Path activities, the CM may tender 90% DPs and obtain competitive unit rates to complete the DP work.

At minimum, each sub-Project could require up to 20 DPs, excluding laboratory casework and FF&E DPs. The actual number of DPs are the CM's responsibility to determine, in consultation with the Consultant and DR. Laboratory casework and FF&E DPs are to reflect the Science Partners' requirements and, to the extent possible, consolidate similar goods into larger solicitations of similar content. The list below is a preliminary summary of DPs, which could be expanded or condensed by the CM:

- a) Site preparation;
- b) Interior protection, demolition and abatement;
- c) Excavation and backfill;
- d) Exterior site work/infrastructure and landscaping;
- e) Exterior walls and foundations;
- f) Structural including concrete/structural steel/rebar and wire mesh;
- g) Roofing;
- h) Windows;
- i) Conveying systems;
- j) Mechanical, including mechanical controls and sub-metering;
- k) Electrical, including electrical controls and sub-metering;
- l) Pre-purchase of mechanical and electrical equipment;
- m) Architectural and specialized laboratory lighting;
- n) Frames and doors;
- o) Door hardware;

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- p) Interior finishes;
- q) Millwork;
- r) Furniture, fixtures and equipment;
- s) Laboratory casework; and
- t) Food services.

To optimize the overall Project Schedule, the CM may subdivide DPs into individual tender packages, or tender and award DPs to multiple Subcontractors of the same trade.

1.4.11 Work Restrictions Plan

The CM is required to, in collaboration with the Design Team and the DR, develop a Work-restrictions plan specific to each sub-Project. The purpose of this plan is to identify the restrictions, constraints and requirements that will be imposed on the construction in order that stakeholder approval is received before start of construction. Once stakeholder approval is received, the CM and the Design Team are to work together to incorporate the approved requirements into the DPs. The CM is required to inform its Subcontractors and Suppliers of the constraints and requirements, including those that impose a Cost and schedule impact.

The constraints and requirements within the CM's approved Work restrictions plan will include, but are not limited to:

- a) Environmental control;
- b) Commissioning and seasonal commissioning;
- c) Scheduling restrictions;
- d) Sequence of work;
- e) Construction safety;
- f) Hours of work;
- g) Delivery of equipment/materials;
- h) Waste disposal;
- i) Air monitoring;
- j) Scaffolding;
- k) Temporary services;
- l) Noise;
- m) Welding;
- n) Security clearances, security of information and physical security of personnel, equipment and the work;
- o) Shutdown of services;
- p) Storage;
- q) Parking;

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- r) Access restrictions to site and building(s) during pre-construction, during construction, and post-construction;
- s) Fire watch;
- t) Site plan showing limits of work and staging areas;
- u) Washrooms and lunchrooms;
- v) Vibration;
- w) Smells; and
- x) Any other element related to the implementation of the work, etc.

The approved Work restrictions plan has a direct bearing on the development of the CM's front-end tender package and the Design Team's Division 1 specification. The CM, DR and the Design Team are to discuss and agree on the exact delineation of the Design Team's Division 1 specification versus the CM's front-end tender package at the start of the design process.

1.4.12 Local Office

While not essential, the CM is encouraged to have an office in the National Capital Region (NCR) to provide all administrative, planning and management services required in this Contract. Refer to ToR section 8.1 – Meetings and Workshops for details concerning requirements for meetings and workshops.

Further, the CM is required to have an on-Site office for each sub-Project.

Regardless of office location, the CM is required to provide their own cell phones, all video-conferencing and computing equipment and hardware and software, including hardware and software upgrades for their equipment, telecommunications data and bandwidth to support cell phones, computers, Model development, and information transfer, throughout the duration of the Contract, to support daily operations within their office, to/from the NCA and to/from the sub-Project Site.

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2 BACKGROUND

The LC vision involves renewing federal science infrastructure as Cost-effectively as possible, and maximizing its overall effectiveness, sustainability and utility for Canadian federal scientists and their collaboration partners. Modern, effective facilities are required to support federal scientists in fulfilling their mandates and objectives.

PWGSC is working closely with federal Science Partners, technology champions, and Shared Services Canada (SSC), to develop state-of-the-art science infrastructure solutions that meet today's science program needs and can be quickly adapted and expanded to support future programs and priorities.

Currently, the federal government operates over two million square meters of laboratory and science-related assets in approximately 1,450 facilities at 175 sites across Canada. There are more than 125 science and technology labs in the National Capital Area, with facilities at multiple sites in both urban and isolated locations.

Within this context, LC emerged as a joint initiative led by the Minister of Science and the Minister of PWGSC, together with leaders from federal science-based departments and agencies, to meet evolving science infrastructure needs on an enterprise-wide basis.

LC proposes the consolidation and modernization of federal science facilities over a 25-year period, through a series of incremental plans that will serve to increase science collaboration, provide flexible and extensible building envelopes, and internal workspaces that reduce overall operating Costs and improve operating efficiency.

LC Office was established to facilitate the implementation of LC. Its responsibilities include planning for the delivery, operations and integration of LC-related infrastructure and science programming.

The role of LC Office in real property operations is to:

- Undertake portfolio-level planning (including routine investment cycle planning) as future investments are considered;
- Develop and oversee real property service performance standards in partnership with science programs;
- Develop and oversee standardized frameworks for all LC Science Facilities to address, for example, financial and revenue models, occupancy agreements, and life cycle management approaches; and
- Capture and disseminate lessons learned from early experiences of LC Science Facilities and collaborative laboratories in another jurisdiction to:
 - Inform future investment decisions for other LC Science Facilities and infrastructure investments; and
 - Create service performance standards and additional operating guidelines and policy, where needed, to support the portfolio of LC Science Facilities.

2.1 Science Facilities - General

LC aims to remove barriers to collaboration and shift from purpose-built facilities for single science programs to flexible, multi-departmental, multi-program facilities that integrate science capabilities.

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Science Facility is the comprehensive term used to describe the real property and infrastructure delivered under LC in its entirety, inclusive of base building, fit-up and surrounding property. LC Science Facilities will enable collaboration through, for example:

- Flexible, modular facility design that includes collaboration space;
- Strategic approaches to operations, maintenance and lifecycle building stewardship; and
- A governance framework that includes active engagement of Science Partners.

Science Facilities will be specialized, state-of-the-art science infrastructure assets with complex operational environments. As such, a number of existing regulatory requirements and standard operating procedures will apply to Science Partners. Science Partners, their science programs and their employees will be occupying LC Science Facilities. A group of science programs that share the same Science Facility are called a Science Cluster.

The development of modular, flexible laboratory infrastructure for multiple occupancies requires a need for allocating operating expenses for each Science Facility. Methods for attributing operating Costs will make use of technology and automation. Measuring devices in building systems will be required and are to be considered during the design phase of each Science Facility. It is envisioned that each room or space in a Science Facility would be equipped with sub-metering to ensure the transparent and accurate measurement of occupant use. This functionality would make Science Facilities the most adaptable and flexible to changing uses of space. The way space is used by Science Partners today may be different from how they are used in the future; therefore, building services and utilities must be attributed to how space is used by occupants.

2.1.1 Guiding Principles

LC investments are to reflect the following guiding principles:

- a) Scientific Innovation - science infrastructure will be designed to enhance the delivery of scientific programs, and promote economic growth and public good;
- b) Collaboration - facility designs will include collaborative spaces and IT-enabled connectivity to maximize program effectiveness;
- c) Functionality and Modernization - facilities will be world-class and designed to comply with leading edge, functional, flexible, collaborative and IM/IT-enabled standards;
- d) Environmental Sustainability - facilities will incorporate innovative technology to meet environmental sustainability goals; and
- e) Universal Design for Accessibility - science infrastructure, including sites, buildings, and relevant facilities and amenities will be designed so that they can be approached, entered, and used by all people, including those with physical, sensory or cognitive disabilities. Further, the Accessible Canada Act, commits Canada to promoting and protecting the rights of persons with disabilities and enabling their full participation in society. Ratification of the United Nations Convention on the Rights of Persons with Disabilities in 2006 underscores the Government of Canada's strong commitment to this goal. The May 2017 report Accessible Canada: Creating new federal accessibility legislation, highlights the fundamental principle of "an inclusive society where all Canadians have an equal opportunity to succeed, and are equal participants.";

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- f) Optimization of Economic and Enterprise Value - facilities will be designed and managed to generate overall economic and public benefits, including both facilities and IM/IT capabilities, serving as an effective platform for evidence-based policy decision-making and science.

2.1.2 Operational Principles

The operational principles set out in for the LC are based upon the assumption that:

- a) Each Science Facility will be designed to meet the science needs of the occupants of that facility while building-in flexibility to adjust over time to changing requirements or occupants. As a principle, the use of space and concept of operations will influence design;
- b) Each Science Facility will be sustainably managed throughout its lifecycle and will be fully funded for operations, maintenance and recapitalization solely through cost recovery from the occupants of each facility;
- c) Each Science Facility will be funded, managed, monitored and reported on as a discrete entity, within a consistent LC framework and overarching portfolio perspective; and
- d) The LC Office, the project management office for the LC initiative, will establish various provisions to help ensure commonality and consistency across LC Science Facilities, where appropriate. This could include, for example, common approaches to financial management, performance measurement and reporting, and achieving operational objectives (e.g., service performance standards, maximizing space utilization in accordance with established and agreed to standards, sustainable and lifecycle approaches to operations and maintenance, and streamlined delivery).

2.1.3 Equipment Management Principles

Equipment management will be an opportunity for achieving LC's mandate to foster collaboration. The draft principles that guide equipment management for Science Facilities include:

- a) There will be one custodian for each piece of equipment in a Science Facility;
- b) LC will use a consistent framework for determining the delineation between base building and equipment;
- c) In the spirit of collaboration, data generated by the use of equipment should be accessible to other occupants through multiple networks to ensure the appropriate privacy and protection of information;
- d) Equipment in Science Facilities should be significantly integrated with IM/IT infrastructure;
- e) Custodians of equipment that has the following features is required to consult with the custodian of the Science Facility and PWGSC during the design phase of each Science Facility, to ensure that equipment does not negatively affect the base building such that:
 - i. It requires changes to the building design and/or integrity for its installation; or
 - ii. Is not removable without significant impacts to the base building (e.g., cold rooms); or
 - iii. Forms part of the base building function (e.g., fume hoods perform an HVAC function); and
- f) Shared equipment will be monitored by the custodian of the equipment. The operation and maintenance of standard equipment will be provided by the custodian and will be subject to

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common asset management standards and practices. However, the operations and maintenance of complex equipment may be provided by the custodian, a Science Partner, or third party.

2.1.4 Security Principles

The principles that will guide security for Science Facilities include:

- a) Security will be managed in accordance with the requirements of the Treasury Board *Policy on Government Security*, including clearly allocating roles and responsibilities among the custodian and occupants;
- b) Security will be assessed, implemented and managed in a coordinated, integrated approach to ensure all requirements are met, while streamlining administration and aiming for common access and openness to the appropriate degree;
- c) Base building security will be assessed, implemented and managed by the custodian according to a threat and risk assessment;
- d) Personnel, IM/IT and other security required by occupants will be assessed in an integrated threat and risk assessment; and
- e) Each Science Facility will have a security office that will:
 - i. maintain security status of all personnel in the facility (e.g., federal security clearance, training). However, Science Partners will continue to be responsible for employees' documentation, identification and updating information;
 - ii. manage program facility zones badges, fingerprint and code access corresponding to the security status of individuals; and
 - iii. have the ability to control an active directory of personnel in the facility in the event of an emergency or the need to change the security access of any site occupant.

2.1.5 Science Facility Exclusions

The following items are excluded from the scope and cost of a Science Facility:

- a) Science Partners' business continuity operations;
- b) Moveable and benchtop equipment and calibration; and
- c) Computers, additional moving and furniture costs above a pre-determined allowance.

2.2 Sidney Centre for Plant Health

The Sidney Centre for Plant Health (SCPH) is to be a world-class research facility which will provide federal scientists and partners with state-of-the-art space and equipment to collaborate on research opportunities, and to protect Canada's plant resources, while supporting the agriculture and agri-food sector.

Owned and funded by the Canadian Food Inspection Agency (CFIA), this Science Facility will serve as a model of good implementation practice for Laboratories Canada. The SCPH Science Facility will focus on preventing the introduction and spread of plant virus diseases and acts as an important and strategic mechanism for the safe introduction of foreign plant material into Canada. This Science Facility will be a

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Plant Pest Containment (PPC) laboratory and greenhouse, intended to consolidate existing buildings at the Sidney Site and to provide future growth and expansion.

The two-storey building is to be located on a sloped Site, enabling the lab, header house and greenhouse functions to be connected at the same level, with each area having the opportunity for a walkout basement. The building is intended to be approximately 7,700m² gross floor area, including 25% future expansion space.

Science Partner spaces are to be within the administrative, laboratory, and greenhouse wings of the building. The program includes a dedicated greenhouse compartment or laboratory, greenhouse basement to support additional controlled environment growth cabinets and growth rooms. Accommodation of yet to be defined requirements are planned for the basement of the laboratory / administration wing.

The SCPH Science Facility is to incorporate Laboratories Canada IM/IT overarching requirements such as collaboration, connectivity, data management and storage, data analysis, security and business continuity. The sub-Project will enable connectivity to the Government of Canada Science Network (GCSN), a secure, high bandwidth network to enable scientists to securely share data with internal and external Plant Health partners. The GCSN connection will provide the SCPH Science Facility with access to High Performance Computing (HPC) capacity, cloud services, as well as the CANARIE network to connect at high speed to external partners.

The SCPH Science Facility will be founded on effective partnerships with academia, industry, other levels of government, international organizations, and the participation of experts in a diversity of disciplines. A number of steps have been taken to fulfill this vision of collaborative and intersectional science including:

- Establishing a commitment for co-location with Agriculture and Agri-Food Canada (AAFC) science teams, and
- Signing formal Memoranda of Understanding with the University of Victoria, the University of British Columbia, and Brock University.

The sub-Project was completed up to the Schematic Design phase in 2018 and was targeted for LEED® BD+C Gold standard.

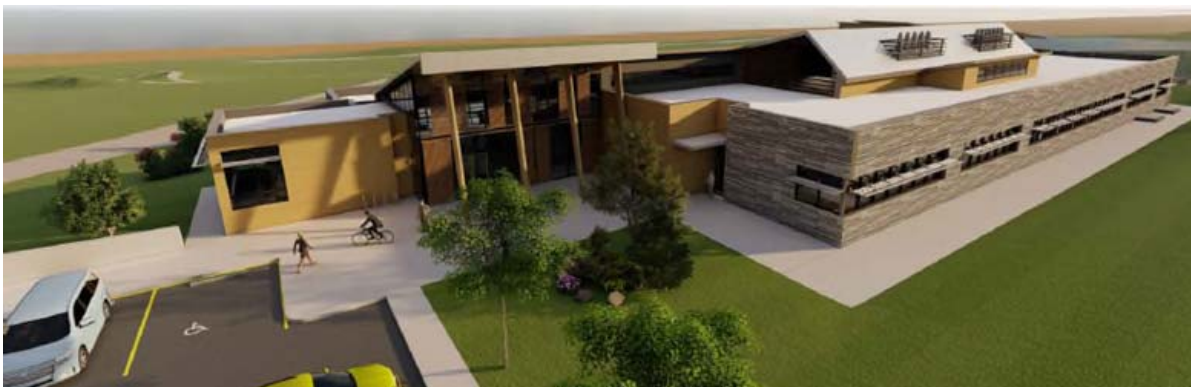


Figure 1: Proposed design concept for CFIA Sidney Centre for Plant Health

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2.3 Winnipeg Science Facility

This sub-Project, located in Winnipeg, Manitoba, is part of the TerraCanada Science Cluster for Innovation for a Low Carbon Economy. A 3,925 m² program for approximately 20 employees is proposed for a new Additive Manufacturing Program, which is part of the National Research Council's (NRC) research and development program. The Winnipeg Science Facility will support long-term research and technology de-risking as a means of developing national capacity and a competitive advantage in Canada's aerospace, automotive and other manufacturing sectors, helping Canadian businesses prosper from innovation. One of the focuses of the Additive Manufacturing Program will be how advanced manufacturing can improve food processing and food safety, applying smart packaging and bio-packaging to reduce the use of traditional plastic.

The Winnipeg Science Facility will likely be built as a new building but could be co-located with the existing Advanced Materials Manufacturing Program.



Figure 2: Possible design concept for NCR's Winnipeg Science Facility

3 OBJECTIVES

3.1 Collaborative Project Delivery

- a) Develop a common vision for the Project through a collaborative delivery approach;
- b) Deliver the Project with integrated design and construction solutions to a high standard of design; and
- c) Provide balanced solutions to all Project elements and challenges.

3.2 Flexible and Adaptable Design

- a) Deliver flexible and adaptable, state-of-the-art laboratory design solutions to accommodate evolution of research and functional needs and technologies involved in scientific procedures over the life of the facility, with minimal disruption to ongoing programs;

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- b) Design solutions are to promote modularity of space use, flexibility of laboratory furnishings, easily reconfigurable utility systems, and ensure future expandability as part of the Site's master plan; and
- c) Design and build Science Facilities based on a 40-year life-cycle.

3.3 Sustainable Development

- a) Deliver the Project using integrated design principles addressing concepts of sustainable development supporting the targeting of carbon-neutral buildings during design stages; and
- b) Include comprehensive consideration of sustainability attributes with environmental factors such as reduction of energy, water, and waste; affordability over the complete facility lifecycle.

3.4 Universal Design for Accessibility

- a) Deliver Science Facilities, including their Sites and amenities, so they can be approached, entered, and used by all people, including those with physical, sensory or cognitive disabilities.

3.5 Project Control

- a) Deliver the Project within the limits of its authorized funding;
- b) Organize, prioritize and deliver the Project within the established time limits, permitting the full use and function as intended, proactively prioritizing Work and managing resources to achieve the prescribed milestones; and
- c) Maximize opportunities and minimize risk while substantiating the viability and Cost and time benefits of design and construction choices.

3.6 Quality

- a) Design and deliver sub-Projects with appealing world-class designs to attract global talent, collaboration with academia, industry, etc.; and
- b) Ensure the technical performance of all components and systems are tested against the intended design performance and the design life-cycle requirements.

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4 SCOPE

4.1 General

Working in collaboration with the DR and Design Team, the CM is required to support the scope definition of sub-Projects using value for money principles, to the approval of the DR, balancing the need for capital investment while maintaining asset life cycle, always considering the perspective of Canadians at large.

The design and Work of each sub-Project is required to conform to the more stringent of the federal and provincial or Local building codes. Although the federal government is not subject to jurisdictions at other levels of government, voluntary compliance with the requirements of provincial and municipal authorities is a requirement of the Contract, unless otherwise directed by the DR. In areas of conflict between authorities the federal authority prevails. In areas of conflict between codes, standards and regulations apply the most stringent requirement.

In planning and implementing the Work, the CM is required to consider common project scope elements, which include investigation Work, temporary Work, accessibility requirements and security requirements.

4.2 Investigation Work

The CM, along with the Design Team and CM will establish a building-specific strategy and program of necessary investigations required for the Project. The purpose of investigation work is to gather all information required by the Design Team to advance the design, reduce Project risk, and to:

- a) Confirm existing building information, its structure, materials, mechanical, electrical and control systems, and surrounding Site conditions;
- b) Test and determine the content, type, location, and approximate quantity of designated substances located in the building's interior, exterior and subsurface, validating the existing designated substances survey;
- c) Confirm Site and building access requirements and protocols, and use restrictions and constraints;
- d) For new buildings, confirm the geologic and environmental conditions of the Site to provide information in the development of Project and excavation requirements;
- e) Complete legal and topographic surveys; and
- f) Undertake other investigations as necessary, including but not limited to Species-at-Risk studies.

Investigation work will typically be ongoing concurrent with the development of the design and Design Packages. The Design Team will prepare an inspection plan in coordination with the DR and CM. The CM is required to carry out investigations under the supervision of the Design Team discipline requiring the investigation.

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4.3 Abatement, Demolition, and Protection Work

As applicable to the sub-Project and supported by the CM, comprehensive Site investigation by the Design Team will validate the content, type, location and quantity of designated substances located at the Site.

The resulting gap analysis and report from these investigations, along with the seismic, structural, physical security and functional programming requirements will dictate the degree and scope of environmental remediation.

The Design Team will design protection, monitoring and temporary systems for building elements that will remain in situ during construction.

4.4 Temporary Work

The Design Team will define temporary work requirements in DP documentation. These requirements include interim measures (activities) to modify the temporary work in the transitional periods between DPs or as necessary to ensure the safety and security of the work and the Project Site(s). Elements of temporary work include, but are not limited to:

- a) Temporary protection installation, Monitoring, adjustments and removals as they apply to each building component and system;
- b) Heat, ventilation and humidity with controls;
- c) Protection measures and structural bracing in phased sequence that prioritizes activities to meet the sequence of the work as determined by the CM;
- d) Fire protection to support construction operations;
- e) Maintaining operational capacity for required civil/municipal, mechanical, electrical and life safety systems; including lighting, security, emergency power for heating, lighting, ventilation, fire protection, lightning protection, life safety systems, and exterior services; and
- f) Architectural separation (physical and dust) and structural bracing, underpinning, and supports, including implementation sequence instructions.

The CM will design, install, and maintain all scaffolding necessary for the Project according to building structure and envelope load limits established by the Design Team.

4.5 Universal Design for Accessibility Work

The accessibility scope of sub-Project includes an integrated approach of asset stewardship and public use. PWGSC is committed to making its facilities accessible to persons with disabilities. The principal governing regulations, policies and standards are: the Accessibility Canada Act, the Canada Occupational Health and Safety Regulations (COHS), Treasury Board's Policy on the Management of Real Property, Treasury Board's Accessibility Standard for Real Property, the Accessible Design for the Built Environment (Canadian Standards Association (CAN/CSA B651-18 and its supplements)) and the National Building Code of Canada (NBCC)).

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If it is not possible to integrate accessibility standards in the design the Design Team is to consult with the DR and CM in advance of making such decisions, ensuring the proposed intervention meets the intent of the regulations or provides an alternate solution acceptable to the DR.

4.6 Security Work

Security will supplement each Science Facility's functionality, without impeding its operations or impacting the LC guiding or operational principles. Security will be considered holistic for each Science Facility and applied through a layered approach.

In conjunction with the physical security provisions designed and delivered as part of the Project, design solutions are to support physical security processes and procedures and promote a secure environment. The design will consider the principles of crime prevention through environmental design and support the secure isolation/protection of laboratory systems and processes. The Design Team's design for the security system, physical security elements and other related security features for the base building, laboratory and office fit-up and exterior landscape is to reflect Science Partner requirements for physical, employee and information management protection.

4.7 Operating Requirements

The CM is required to support the Design Team to identify and determine the operating requirements and life-cycle Costing for each Science Facility, which the Design Team will submit as a separate report accompanying Schematic Design and Design Development submissions. With the input of the CM, operating requirements and life-cycle Costs are to be defined by each design discipline and summarized into a comprehensive property management framework including, but not limited to:

- a) Annualized Costs for each utility;
- b) All maintenance contract requirements and projected annual Costs for:
 - i. All interior and exterior mechanical and electrical components and systems, and all control systems;
 - ii. Landscape maintenance by season;
 - iii. Interior and exterior building envelope maintenance (windows, roofing, doors, etc.);
 - iv. Daily housekeeping and janitorial;
 - v. Specialized laboratory cleaning;
 - vi. Loading dock equipment;
 - vii. Waste management and removal;
 - viii. Food services;
 - ix. Security system, security staffing, and as applicable remote supervision; and
 - x. For each identified maintenance contract, maintenance frequency and standards for reliable facility operations;
- c) Science Partner staff requirements (number, type, budget Cost, etc.);
- d) With the input of the DR and municipal officials, annual property taxes.

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The Design Team, with the input and Cost analysis of the CM, is required to undertake and complete life-cycle Cost analysis using criteria, information and software acceptable to the DR. Integrate operating requirements and their annualized Costs with projected life-cycle Cost of systems replacement (HVAC, fume hoods, roofing, etc.) to inform Science Partners of their overall Science Facility operating requirements and Costs.

4.8 Coordination of Contractors Hired Directly by PWGSC or Science Partners

PWGSC may require that activities or sub-Projects be undertaken by PWGSC's own staff or by contractors engaged by PWGSC or Science Partners within the construction Site. These activities will be subject to the coordination and safety overview of the Construction Manager, as the Constructor. The Construction Manager will grant free access to these workers and ensure that all safety and security protocols are followed.

Considering the CM's overall coordination and control of the Work Site, the CM is required to identify damage to the partially completed or completed Work of this Contract and attribute responsibly for said damage as described in ToR section 11.5 – Superficial Damage.

4.9 Science Facility Work

4.9.1 Sidney Centre for Plant Health

This Science Facility is to include state-of-the-art, PPC level 2/2A, diagnostic and research laboratories and greenhouse. Additional functional, security or program requirements may be provided by PWGSC's advocate team. Approximately 6 employees from Agriculture and Agri-Food Canada will co-locate at the SCPH Science Facility and will require new work spaces or spaces earmarked for future expansion.

The basic scope principles of versatile laboratory and office design and fit-up, sustainable design, make carbon neutral ready for building operations, and metering and sub-metering and track energy use per laboratory space and the overall building apply to this sub-Project.

4.9.2 Sidney Centre for Plant Health (Expanded Scope Option)

The scope of work of the Sidney Centre for Plant Health project may be further increased by enhancing design excellence, collaboration, flexibility, functional suitability, expandability, sustainability, universal accessibility and Smart IT environments, than what was described in section 4.9.1 and the accompanying schematic design.

4.9.3 Winnipeg

The Winnipeg Science Facility requirements and location are still in development and will be clarified once Science Partners and the LC executive have approved the program scope.

The basic scope principles of versatile laboratory and office design and fit-up, sustainable climate resilient design, make carbon neutral for building operations, and metering and sub-metering and track energy use per laboratory space and the overall building apply to this Project.

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5 CHALLENGES

The CM is to consider and proactively work with Project Team members to resolve Project management and implementation challenges. Other challenges will inevitably arise throughout the Contract. Project challenges require the active and ongoing management by the CM and those implicated in the Project Team.

5.1 Project Management Challenges

The CM is to consider that:

- a) Aggressive Schedule: Implementation of the Project will require an aggressive design and construction schedule, with concurrent design streams and construction;
- b) Design Decisions: Key design decisions based on life-cycle Cost analysis are required to allow construction to proceed in order to meet the schedule;
- c) Level of Effort: Ongoing project management of all the CM's resources, Sub Contractors, and Suppliers is required to deliver, potentially, multiple Science Facilities concurrently;
- d) Collaboration: Constant communication between the DR, Science Partners, Design Team and CM are essential to realize efficiencies, minimize disruption, and overcome resistance to change.
- e) Understanding: Science Partners have varying levels of experience with real property design and construction and their requirement to provide design decisions for their programmatic requirements.

5.2 Implementation Challenges

The CM is to consider that:

- a) Access to existing, occupied facilities to perform investigation Work to advance the design requires detailed planning and advance notification. Destructive testing, if required, is to be constantly supervised and undertaken in a manner to maintain the existing operating environment;
- b) Interior and exterior construction operations in and around occupied buildings is to be preplanned, well documented, and approved by the DR, Science Partners and, as applicable, adjacent building owners;
- c) Municipal, provincial, or federal priorities change over time, which could impact the CM's and Design Team's level of effort and approvals;
- d) The identity and reputation of PWGSC is paramount as the Project will be scrutinized by the public and media. The management and implementation of the Project has the potential to undermine the reputation of PWGSC. Specific risks the CM and Design Team need to consider in Project planning, development, delivery and ongoing coordination by the DR are:
 - i. How the natural environment is managed and cared for;
 - ii. How persons accessing and entering a Site are cared for as per health, safety, security and accessibility;

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- iii. How Cost efficiencies are integrated over the short-term and long-term for the better operation and management of each Science Facility; and
- iv. How employee and public access to and use of Science Facilities will be controlled.

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6 PROJECT TEAM ORGANIZATION

The Project Team is to manage and implement the Project in a collaborative manner. All members of the Project Team are required to work cooperatively at every phase of the design and construction process to ensure a successful result.

All team members are responsible for establishing and maintaining a professional and cordial relationship.

6.1 Science Partners and PWGSC

6.1.1 Science Partners

Each Science Partner will assign a senior resource responsible for the coordination of occupancy planning, functional programming (laboratory, office, IM/IT, etc.), design review, construction review, FF&E and laboratory equipment requirements, and move management.

This person is the single point of contact responsible for all internal management and communication for the Project within the Science Partner's organization.

6.1.2 PWGSC Senior Management

The LC Office Director General (DG) for implementation is accountable for the expenditure of public funds and the delivery of the LC program of work for this Project. The LC Office reports to the LC Program Board, a body of Assistant Deputy Ministers from Science Partners and PWGSC.

6.1.3 Departmental Representative

The LC Office Senior Project Manager is the Departmental Representative for the CM's Contract and the Consultant's contract. The Senior Project Manager is accountable to the LC Office Director General for the management of the Project and its implementation.

6.1.4 PWGSC Design Manager

The PWGSC Design Manager leads a team of internal technical resources which includes a broad range of professional disciplines.

The design management team provides expert advice on coordination and quality assurance for architectural, engineering and interior design disciplines, including design reviews, to ensure technical requirements are suitably defined and incorporated through all phases of the Project.

6.2 Shared Services Canada

Shared Services Canada (SSC), through the LC Office, will provide supplemental IM/IT design requirements and information for each sub-Project.

The supply and installation of IM/IT Infrastructure for Science Facilities will be determined by the LC Office to meet the business requirements of the facility.

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6.3 Project Management Support Services

PWGSC will engage an external project management support services (PMSS) firm to provide Project management and administration support for PWGSC. PMSS personnel report to the DR and will assist in the day-to-day management of the Project. PMSS personnel will operate on the Project as an extension of and part of the DR's responsibilities.

6.4 Cost Consultant

PWGSC may engage a cost management firm to provide support to PWGSC, reporting to the DR. The firm's personnel will operate on the Project as an extension of and part of PWGSC's responsibilities, including as an independent assessment of the CM's and Consultant's cost and risk management services.

This firm will define information formatting and provide review of cost and time information prepared by the CM and the Consultant.

6.5 Consultant

The Consultant formally reports to the DR and will, among other things:

- a) Provide the required Architectural and Engineering Services for the Project, develop and complete the Project design, and coordinate and direct the services of its sub-consultants and specialists related to design;
- b) Provide input to the CM on prequalification criteria for Subcontractors, as required;
- c) Work with the CM to define the format, scope and timing of each Design Package;
- d) Prepare and assemble the Design Packages for tendering by the CM;
- e) Input to CM's Cost plan and Cost estimates of the Work;
- f) Active Cost, time and quality management of the Design Team;
- g) Develop and update a risk register for the Project from their perspective;
- h) Provide Site construction administration services to monitor the progression of the Work, validate Work quality control, respond to Site conditions, prepare of construction contract changes, verify the CM's Work progress and completeness of progress payments applications, and recommend to the DR of acceptance of the Work;
- i) Cooperate with the DR, CM, and the Science Partners;
- j) Verify operating manuals, and ensure that record drawings are accurate;
- k) Provide design-related training for Science Partners and their operations staff;
- l) Participate in design and construction meetings and Project workshops;
- m) Provide post construction services; and
- n) Complete and coordinate the sustainability strategy throughout the Project, confirm for the DR's approval, the strategies chosen, related deliverables and submissions, changes implemented, follow-up required, and final performance achieved. The Design Team will be

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responsible for all related activities including confirmation of supporting sustainability documentation required for verification and sign-off.

6.6 Construction Manager

The CM is required to:

- a) Discuss technical matters with the DR and the Consultant; and
- b) Provide technical support and Construction Services to PWGSC as prescribed in this Terms of Reference and in accordance with the Contract.

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7 REQUIRED SERVICES

7.1 General Requirements

The CM must consider the Project description, background, objectives, scope, constraints and challenges, and Project Team organization as described in the previous Terms of Reference sections 1 – PROJECT DESCRIPTION through 6 – PROJECT TEAM ORGANIZATION, inclusive.

The CM must, for the duration of the Contract, provide professional construction management services and Construction Services to deliver the Work referred to in this ToR section 7 and the following ToR sections 8 – ADMINISTRATION SERVICES through 12 – POST-CONSTRUCTION SERVICES and the ToR APPENDICES A through F, inclusive, and as prescribed in the Contract documents.

The CM, as an expert in matters of construction planning and implementation, must:

- a) Provide comprehensive and continuous construction planning, analysis, management of the Contract, and implementation services and Work;
- b) Perform the duties of the Constructor at the Place of the Work;
- c) With the perspective of preventing and mitigating claims, provide ongoing coordination and control Subcontractors and Suppliers, including other suppliers PWGSC or Science Partners may require to perform services or work on the Site;
- d) Actively participate with the Design Team and DR to create and maintain a cohesive Project Team with a positive and collaborative working relationship;
- e) Immediately notify the DR and Design Team in writing of any potential increases or decreases in the scope of Work that could affect the ability to meet Project objectives or exceed approved Project authorities; and
- f) Provide CM services and Work which include any warranty related call-backs and repairs until the expiry of the warranty period.

The CM monthly fees, additional resource and Site labour fees, Plant, Material and equipment expenses, and Subcontract expenses will not be due and payable until the CM submits the completed monthly plans/updates to the DR. If there is no change to the plans, the CM must notify the DR in writing accordingly and does not need to resubmit the plan.

7.2 Standard of Care

In performing any and all Construction Services, Facility Maintenance Services, and Work obligations that the CM has agreed to perform in accordance with the terms of the Contract, the CM must exercise the standard of care, skill and diligence that would normally be provided by an experienced and prudent Construction Manager for the location where the Work is performed.

The CM must to mitigate any losses throughout the term of this Contract and following termination for any reason.

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8 ADMINISTRATION SERVICES

8.1 Meetings and Workshops

Meetings, workshops and presentations all require advance preparation and follow-up actions by the CM. In summary:

- a) For the Sidney sub-Project, project and design meetings will alternate each time between the NCR and Vancouver, either at the LC Office at 140 O'Connor Street Ottawa, Ontario or at PWGSC's regional office located at 800 Burrard Street , Vancouver British Columbia;
- b) For the Winnipeg sub-Project, Project and design meetings will take place at the LC Office in Ottawa, Ontario
- c) Construction and commissioning meetings will occur at the Place of the Work of each sub-Project; and
- d) All presentations and all workshops for all sub-Projects will take place at the LC Office in Ottawa, Ontario

Meetings and workshops per sub-Project will occur as per ToR section 8.1.6 – Frequency of Meetings and Workshops.

8.1.1 Project Meetings

The Consultant will co-chair Project meetings with the DR to review and discuss the overall Project and the activities of the Project Team.

The Consultant will prepare and deliver the agenda, notice to invitees and minutes. The Consultant will issue final meeting minutes within 2 Working Days of meeting. The Consultant will create and maintain a database containing meeting action items and issues. The five risks from this database will accompany the final minutes of each meeting.

Attendance at these meetings will vary in accordance with the stage of the Project and includes the CM, Consultant, DR and other Project Team, Design Team or CM Team members as required and according to the Work/issues in question.

PWGSC's Advocate Team may attend some meetings to provide the Consultant information developed regarding laboratory design guidelines, requirements, and topologies, or to gather this information from the Consultant to use for the broader LC program.

The purpose of these meetings is to:

- a) Monitor the overall Project progress against Project objectives;
- b) Monitor sub-Project progress against the approved scope, Total Estimated Cost, cash flow and prioritized construction schedule;
- c) Assess design and construction productivity against agreed on performance requirements;
- d) Ensure clear communication between all participants; and
- e) Identify opportunities or issues, assigning responsible individuals and dates for resolution.

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8.1.2 Design Meetings

The Consultant will co-chair sub-Project design meetings with the DR to review and discuss the activities of the Design Team.

The Consultant will prepare and deliver the agenda, notice to invitees and minutes. The Consultant will issue final meeting minutes within 2 Working Days of meeting. The Consultant will create and maintain a database containing meeting action items and issues. The top five risks from this database will accompany the final minutes of each meeting.

Attendance at these meetings will vary in accordance with the stage of the Project design and usually include the Consultant, DR, CM, Science Partners, PWGSC's Design Manager or subject matter experts, or any entity or person contracted or employed by the Consultant for the specific services as identified by the Consultant and according to the matter in question. The CM must prepare in advance of each meeting to discuss in an open manner all Project-related matters that affect the CM's ability to support the Project development or complete the Project as approved.

The purpose of these meetings is to:

- a) Monitor design progress against the approved scope and Total Estimated Cost, and construction schedule;
- b) Ensure clear and efficient communication between all participants;
- c) Ensure effective design and DP prioritization and coordination;
- d) Identify opportunities or problem issues, assigning responsible individuals and dates for resolution; and
- e) Ensure effective quality management, including integration of approval body requirements.

8.1.3 Construction and Commissioning Meetings

The CM must chair Project construction and commissioning meetings during the construction stage of sub-Projects.

The CM must prepare and deliver the agenda, notice to invitees and minutes. The CM must issue the final meeting minutes within 2 Working Days.

The CM must create and maintain a database of action items and issues. This database forms part of the CM's risk management services. The top five risks from this database must accompany the final minutes of each meeting.

Attendance at these meetings will vary in accordance with the stage of Project construction and usually include the Consultant, DR, CM, Science Partners, other Project Team members if required, or any entity or person contracted or employed by the Consultant or CM for the specific matter in question.

The purpose of these meetings is to:

- a) Monitor the progress and administration of the prioritized construction against the approved Project scope, Total Estimated Cost, and construction schedule;
- b) Ensure efficient communication between all participants;
- c) Ensure effective construction coordination with Site and building operations;

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- d) Ensure effective and efficient Site coordination of all design disciplines and Subcontractors and Suppliers;
- e) Identify opportunities or problem issues, assigning responsible individuals and dates for resolution; and
- f) Ensure effective quality management.

8.1.4 Submission Meetings/Presentations

The following is for information and context only. The CM is not required to attend submission meetings and presentations.

For each 50% and 100% SD and DD submission, as applicable, and as required during Project implementation, the Consultant will co-chair submission meetings with the DR and make a formal presentation to the LC Office, the Science Partners, and the LC Program Board. The intent of these meetings / presentations is to prepare the Consultant for the specific audience. The Consultant will conduct dry-run presentations to the LC Office to gather feedback and fine-tune the presentation. The Consultant will then present its presentation formally to Science Partners, and then the LC Program Board. Submission meetings/presentations usually occur in PWGSC's Ottawa office and include the Consultant and disciplines relevant to the presentation, the DR and other Project Team members.

8.1.5 Workshops

Various workshops will occur throughout the Contract, tailored to the stage of Project development. Project control workshops will occur routinely throughout the Contract. The CM must attend these workshops with the DR and be able to discuss in an open manner Project matters that affect DPs and delivery of the Project. Workshops include, but are not limited to:

- a) Subject Matter Workshops: These workshops are for technical design matters and Project challenges. These workshops are required at 50% SD, 90% SD, 50% DD, 90% DD, and at other stages of the Project, as required by the DR. Following a general SD and DD submission overview workshop by the Consultant, individual subject matter specific workshops will occur. The Consultant will issue final workshop minutes within 2 Working Days of workshop, update the database containing action items and issues, and append the top five risks identified at the workshop to the final workshop minutes. Individual subject matter workshops may include:
 - i. Landscape architecture (if required);
 - ii. Mechanical systems;
 - iii. Electrical systems;
 - iv. Physical security;
 - v. IT and multi-media;
 - vi. Acoustics;
 - vii. Lighting;
 - viii. Laboratory accommodations and flexibility;
 - ix. Greenhouse design and containment certification(Sidney sub-Project);
 - x. Sustainability requirements; and

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xi. Model quality and design coordination;

- b) Functional Program Workshops: These workshops are to address the functional, operational, and security requirements for Project during their early planning, or validation of existing information. The CM does not need to attend these workshops but must be aware of the status of this activity through minutes of the workshops and discussions with the Design Team.

The CM must continuously review and understand the evolution of the functional program and SD and adjust the Total Estimated Cost and schedule of the Project to reflect the functional program scope.

- c) Laboratory Casework and FF&E Workshops: These workshops are for Science Partners to work through their detailed laboratory space requirements and flexible use with the Consultant and the Consultant's laboratory design and equipment Specialist Consultant(s). These workshops will be held during the SD, DD, and DP phases of the Project. The Consultant will chair these workshops and issue workshop minutes within 2 Working Days of each workshop. During these workshops, the Consultant may choose to address several of the following topics:

- i. Laboratory casework;
- ii. Commercially available FF&E;
- iii. Other laboratory requirements;
- iv. IT and multi-media connectivity integration;
- v. Procurement and installation requirements; and
- vi. Mock-ups;

The CM does not need to attend these workshops but must be aware of the status of this activity through minutes of the workshops and discussions with the Design Team. The CM must continuously review and understand the evolution of the laboratory casework and FF&E requirements and design and adjust the Total Estimated Cost and schedule of the Project to reflect the laboratory casework and FF&E scope.

- d) Constructability Workshops: These workshops are for construction related matters as they relate to the design progress or Site conditions. The Design Team disciplines relevant to the discussion topics must attend these workshops. Workshop discussion points could include materials selection, work sequencing, temporary roadways, design prioritization, design completion status, design coordination, tender-ability, tender sequencing, or other matters that could influence the ability to build the work.

The CM must chair and take a leading role in conducting these workshops, which forms part of the CM's design management services. The CM must prepare and deliver the workshop agenda, notice to invitees and minutes. The CM must issue final workshop minutes within 2 Working Days of workshop, update the database containing action items and issues, and append the top five risks identified at the workshop to the final workshop minutes.

- e) Project Control Workshops: These workshops are to address Project control matters (Cost, schedule, risk and implementation). The primary workshop objectives are to:
- i. Promote open discussion of Project control issues between the Design Team and the CM;

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- ii. Ensure the Design Team and CM have the same basis of understanding for Project Cost elements (inclusions, exclusions, assumptions, and basis of Costing), schedule activities (design and construction), activity durations, and Float use and allocation;
- iii. Determine and update responsibilities, scope, related matrices, and workflow for delegated design and materials testing and inspections; and
- iv. Re-review and openly discuss the time, Cost, risk and design management services of the CM and the Design Team with the DR.

The Design Team will attend these meetings. The CM must chair and take a leading role in conducting these workshops, which forms part of the CM's design, cost and time management services. The CM must prepare and deliver the workshop agenda, notice to invitees and minutes. The CM must issue final workshop minutes within 2 Working Days of workshop, update the database containing action items and issues, and append the top five risks identified at the workshop to the final workshop minutes;

- f) Risk Management and Lessons Learned Workshops: These workshops are to address program and Project related risks and provide a forum for ongoing learning and improvement of PWGSC's project delivery processes. The DR will chair and organize these workshops, prepare and deliver the workshop agenda, notice to invitees and minutes. The Design Team and CM must actively participate at these workshops. Workshops will typically be a half-day and may be combined with other meetings or workshops. Workshop discussion topics may include topics such as short, mid and long-term opportunities and risks, the cumulative effect of opportunities and risk, lessons learned at different Project stages, and ways to reduce or eliminate workflow processes; and
- g) Value Engineering Workshops: These workshops are to address complex matters related to excessive Project Cost or time. The goal of these workshops is to find alternative ways or means of obtaining value for money, while respecting the general intent of the Project scope. The DR will chair and organize these workshops, prepare and deliver the workshop agenda, notice to invitees and minutes. The Design Team and CM must actively participate at these workshops. The length of these workshops will be determined on a case-by-case basis but are usually one working day per workshop.
- h) Partnering Workshops: These workshops are to occur at the start of the Project to provide a form for meeting all Project Team stakeholders, understanding their Project hopes and concerns, and establishing agreed Project Team values. The DR will chair and organize these workshops, prepare and deliver the workshop agenda, notice to invitees and minutes. The Design Team and CM must actively participate at these workshops. Workshops will typically be a half-day.

8.1.6 Frequency of Meetings and Workshops

For the Sidney sub-Project only:

- a) Pre-design stage project and design meetings are anticipated for 3 months only;
- b) No SD stage activities are required; and
- c) All other meeting and workshops are required as indicated in the table below.

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| | Pre-design stage | SD stage | DD stage | DP stage | Construction and commissioning stages |
|-------------------------------------|------------------|------------------|----------------|--|---------------------------------------|
| Meetings: | | | | | |
| Project | Monthly | | | | |
| Design | Weekly | | | | Until all DPs are awarded |
| Construction and Commissioning | None | | | Every two weeks until sub-Project completion | |
| Submission | None | 6 | 6 | As required | |
| Workshops: | | | | | |
| Subject Matter Specific | None | Per submission | Per submission | To be determined | |
| Functional Program | 8-12 | | As required | None | |
| Casework and FF&E | As required | | | Every Casework and FF&E DP | As required |
| Constructability | Monthly | | | Every Base-Building DP | As required |
| Project Control | Monthly | | | | |
| Risk Management and Lessons Learned | Every 4 months | | | | |
| Value Engineering | None | To be determined | | None | |
| Partnering | 1 | None | | | |

8.2 Response Time

The CM must be available to attend meetings or respond to inquiries within one-half Working Day, or within a timeframe agreeable to the DR.

8.3 Media

The CM and any entity or person contracted or employed by the CM will not respond to any requests for Project or LC program-related information, requests for interview, or questions directly or indirectly from the media or a third-party pertaining to any aspect of the Project unless specifically requested to do so by the DR. Such inquiries must be directed to the DR without providing a response to the inquiry.

8.4 Security of Information

Except as they relate to the direct provisions of services and Work under this Contract, the CM and any entity or person contracted by or employed by the CM are forbidden to discuss issues pertaining to the Project, or the overall LC program, including, but not limited to, the Project's layout, design, content and security provisions.

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The CM must take all necessary steps to ensure that documents and records, or any information, are not copied, provided to, discussed, or disclosed in any manner whatsoever, to any person or entity, other than PWGSC and LC personnel possessing the appropriate security level and authorization, unless expressly authorized by the DR.

8.5 Official Languages

The Project requires Services in English. These Services include, but are not limited to meetings, Site activities, etc.

8.6 Submittals and Requests for Information

The CM must understand and implement the submittal and request for information (RFI) processes and requirements listed within ToR Appendix D – PROCESS MAPS. Submittals include shop Drawings, samples, mock-ups, test reports, and demonstrations for all submittals requiring the Design Team's review and approval.

The CM must.

- a) Ensure all Subcontracts mandate Subcontractors and Suppliers to provide the type and quality of submittal information required for the CM's review and certification, before submitting to the Design Team;
- b) Prioritize the preparation and submission of submittals and RFIs to ensure Critical Path of the Project schedule is maintained by:
 - i. Establishing a submittal and RFI submission, review, approval and response framework based on submittal or RFI importance, to the acceptance of the Design Team and DR, including:
 - 1. Review, approval and response generally within 5 Working Days, but never longer than 15 Working Days; and
 - 2. A mechanism to reclassify importance when required;
 - ii. Confirming the degree of importance of each submittal or RFI on receipt from the Subcontractor or Supplier;
 - iii. Prioritizing responses so that schedule critical responses by the Design Team are provided by the critical date established by the CM;
 - iv. Validating that the Model Element data file information is provided with each submittal, as applicable, and said file matches the actual submittal being reviewed;
- c) Receive submittals and RFIs from Subcontractors and Suppliers, establish and maintain tracking logs to verify:
 - i. Submittals for compliance, stamp them as such and, when non-compliant, require re-submission of said submittal; and
 - ii. RFIs for relevance and completeness, assessing the RFI subject matter for impacts on other Project activities or processes, and advising the Design Team and DR of said impacts when forwarding the RFI for their handling;

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- d) Submit CM verified and stamped submittals to the Design Team and the DR for their review;
- e) Verify that submittals and RFIs include the Project number and are recorded in sequence;
- f) Review, discuss, and record submittal and RFI information problems as identified by the DR or Design Team, resolve the problem with the Subcontractor or Supplier, and resubmit submittal or obtain additional RFI information/clarification as required;
- g) Monitor and record the progress of submittals and RFI review. Notify the DR, Consultant, and Design Team discipline designated for action and follow up when review/response duration has expired. Continue to track late response submittals and RFIs and advise DR, Consultant, and Design Team discipline of consequences on the Project Critical Path weekly. Record and comment on late submittal and RFI responses consequences on the Project Critical Path in the CM's monthly report;
- h) Ensure Subcontractors and Suppliers do not commence manufacture or order Materials before the Design Team reviews and approves submittals; and
- i) On Substantial Performance of the Project, forward indexed, bound and reviewed/as-commissioned submittals to the DR, as a separate volume to traditional operations and maintenance manuals.

8.7 Monthly Reporting and Site Documents

8.7.1 Monthly Report

The CM must prepare and submit for review by the DR a sample of the CM's report structure following the requirements described in ToR section 8.17 – Contract Deliverables. If required, the CM must revise the reporting structure as required by the DR within 5 Working Days of receipt of the DR's comments. The CM must use the reporting structure approved by the DR for monthly reporting to the DR. As the Project progresses, the CM must revise the reporting structure if requested by and to the approval of the DR.

The CM must compile and submit the reports monthly at fixed submission dates as agreed between the CM and the DR. Sub-elements of the CM's monthly report can be staggered in time, as mutually agreed between the CM and DR. Monthly reports must align with the approved reporting structure and provide progress over the review period and challenges foreseen in the upcoming reporting period. The CM's monthly reports must include:

- a) A monthly invoicing summary which includes:
 - i. A detailed breakdown of the billing section by solicitation package and itemized by Subcontractor and Supplier; and
 - ii. A comparison of all expenditures to date by solicitation package, including all Change Orders, to the original submission for each Subcontractor or Supplier. Indicate the estimated Cost to complete each solicitation, including contingencies, escalation, and other allowances/disbursements;
- b) A certified true copy (paper or electronic version) of the Superintendent's daily logbook that documents all Work performed and includes associated photographs, and a record of the following:

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- i. Weather conditions, particularly unusual weather relative to Work in progress;
- ii. Records of major materials and equipment deliveries;
- iii. Summary of progress of the Work;
- iv. Summary of major inspection and testing performed;
- v. Unusual Site conditions experienced;
- vi. Incidents of damage or loss; and
- vii. Subcontractor(s) and Supplier(s) and their manpower on the Site;
- c) A current copy of the ToR section 8.7.2 – Decision Log;
- d) A section or sections for deliverables as per ToR section 9.7 - Planning Services' Deliverables; and
- e) A section or sections for deliverables as per ToR section 10 – IMPLEMENTATION SERVICES, subsections 10.1 through 10.12, inclusive.

The delivery of a compliant monthly report is a pre-requisite for the CM monthly fees, Labour Costs, Plant, Material and equipment Costs, disbursement Costs, and Subcontract Costs to be due and payable as per the progress payment section of the Contract.

8.7.2 Decision Log

The CM must maintain a separate decision log for the Project, recording participants, date and place of all decisions affecting Baseline parameters: scope, schedule, Cost, and quality. The CM must include the decision log with the CM's monthly report.

8.8 Site Documents

The CM must always keep at the Project Site records of all Subcontracts, samples, purchases, Materials, equipment, Drawings, Specifications, maintenance and operating manuals and instructions, and other Work-related documents, including revisions. The CM must make Site documents available to the DR at any time.

8.9 Record Drawings and Specifications

The Design Team will indicate the requirement for record drawings and specifications within DPs. The CM must, when applicable:

- a) Ensure that Subcontractors and Suppliers are compliant in preparing accurate record drawings and specifications;
- b) Collect and hand over to the DR at the end of each completed DP a marked-up set of drawings and specifications; and
- c) Participate in the review process with the DR and Design Team to optimize lessons learned feedback and suggest revisions to this process.

8.10 Security Clearances

Proper planning and active management are essential for all security screening processes.

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The DR will assign a Security Officer (SO) who will be the central point of contact for the CM's personnel and the CM's Subcontractor and Supplier personnel for security clearances. All personnel employed on this Project will be subject to a security check and must conform to the security requirements stipulated in the Contract. Only personnel with a valid security clearance will be permitted to provide Services for this Project.

The CM must have a Corporate Security Officer (CSO) in charge of screening all CM personnel including any Subcontractors or Suppliers. This person must keep track of all applications, the status/availability of each person, and follow up as required with the SO.

If an applicant has a current valid clearance with PWGSC, the CSO will provide the SO with the applicant's complete name and date of birth.

If an applicant does not already have a valid security clearance, the applicant must complete, sign, and submit the following forms to the SO:

- a) TBS/SCT 330-23 Personal Security Screening Form (<http://www.tbs-sct.gc.ca/tbsf-fsct/330-23-eng.asp>); and
- b) TBS/SCT 330-60 Security Clearance Form (<http://www.tbs-sct.gc.ca/tbsf-fsct/330-60-eng.asp>).

Forms are to be filled out in advance and sent to SO in original format. Only after preliminary verification of the forms submitted and retained by the SO, will the SO request security screening of the individual be submitted to Personnel Security Screening Division (PSSD) of the Canadian Industrial Security Directorate (CISD) for processing. If forms are not complete, signed and original (copies, PDFs, or faxes are not permitted) the SO will notify the CM's CSO in writing.

The CM must ensure that it provides sufficient information to permit government authorities to conduct a background inquiry.

8.10.1 Fingerprinting

New security clearance applications require individuals to provide their fingerprints. The SO can take individual's fingerprints at a PWGSC Security Office as directed by the DR.

Applications for security clearance renewals may or may not require fingerprinting; however, if required would be on a random basis as determined by the SO, CISD, or the RCMP.

8.10.2 Processing Time

The processing time to obtain a security clearance for reliability or site access is estimated at eight weeks from the time the application (complete with no errors and/or omissions) is received by the SO. For those who will be required to hold a Secret level clearance, this may take approximately three to six months. These timeframes are for applicants who are domestically based and who have not travelled outside of Canada for an extended period. Timeframes for clearances could be considerably longer for non-domestic applicants.

The Consultant must be aware that processing time for applicants with criminal convictions may take longer and could extend to six months or longer depending on the nature of the conviction. An interview with such applicants may be required as part of the security clearance process.

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Replacement or substitute personnel must undergo the process identified above.

8.11 Construction Site Access

The CM must:

- a) Issue a building security card for those who will access the Site with instructions to always wear this security card in plain view;
- b) Ensure that only those who have a CM security card can access the Site;
- c) Check all personnel daily to ensure personnel are always wear the photo ID passes; and
- d) Conduct security clearance spot checks, record the results of spot checks (when, how many people checked, degree of non-compliance, if any), take corrective action with any person on the Site found in breach of security, and provide written reports to the DR of each spot check. The frequency of spot-checking must occur at least monthly, at irregular intervals, or more frequently if directed by the DR. An employer of an entity found in breach of these Contract security requirements may have their facility security clearance revoked. The CM must remove personnel without a security clearance from the project Site.

8.12 Construction Site Security

The CM must provide security for the Site(s) until the Work is ready for its intended use.

The CM must develop and submit to the DR for review and approval a Site security plan(s). The CM must update the plan to meet new and changing Site or security requirements as Work progresses. The CM's Site security plan must include:

- a) A description of the processes for coordination of the Work and PWGSC or Science Partner operations;
- b) A description of the procedures for access to the Site including sign-in procedures and security clearance verification;
- c) A description of daytime, evening, and weekend security procedures for security personnel to lockup, conduct surveillance, provide fire watches, and emergency procedures and responses;
- d) A description of all safety issues related to the Work or its Site as required by federal, provincial or municipal regulations;
- e) A description of the process for safeguarding of Protected/Classified components for reuse, recycling, or disposal;
- f) A description of the process for protection of Plant, Materials, equipment, workmanship and, throughout the implementation of the Project, any PWGSC or Science Partner items installed before the asset is ready for use; and
- g) A description of the Site protocol the CM must develop and enforce, including provisions for but not limited to:
 - i. No carrying of audio players, radios or audio and video recording machines;
 - ii. Noise control;

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- iii. No parking on Site, as and when directed by the DR; and
- iv. Due regard for the public's expectations with respect to conduct, language, and dress in public places (consider all spaces exterior of the Site to be public).

8.13 Coordination of Contractors Hired Directly by PWGSC or Science Partners

PWGSC or Science Partners may undertake from time to time activities and projects by the PWGSC's or Science Partner's own forces or contractors. These PWGSC or Science Partner activities and projects, within the CM's Site, may include the fit-up and installation new works or on-going maintenance and repair of systems in or around PWGSC or Science Partner assets

These PWGSC or Science Partner activities and projects are subject to the coordination and safety overview of the CM, as the Constructor. The CM must grant free access to PWGSC or Science Partner employees or their contractors and ensure they understand all safety and security protocols prescribed by the CM. The CM must rigorously enforce its safety and security protocols.

8.14 Anticipated and Unanticipated Site Shutdowns

In addition to the usual statutory holidays at the Place of the Work, the CM must allow 5 Working Days per year of shut down of the Project Site for unanticipated special events to take place in an unencumbered manner.

8.15 Noise, Vibration, Odours, Dust and Deliveries

The CM must plan and schedule all noise generating Work, all deliveries and waste removal to minimize the impact to ongoing operations. The CM must take steps to minimize noise, vibration, odours, and dust to neighbouring and adjacent occupancies including buildings and roadways and comply with the Work restrictions plan approved by the DR. The DR's decision will be final on whether the Work is causing excessive noise, vibration, dust, or odours.

8.16 Project Approvals

8.16.1 Authorities Having Jurisdiction - Federal

A list of authorities and their federal jurisdiction is included below.

| Authority | Federal Government Jurisdiction |
|---|--|
| Environment and Climate Change Canada (ECCC) including the Impact Assessment Agency of Canada | <i>Species at Risk Act</i> (2002); <i>Impact Assessment Act</i> (2019); <i>Canadian Environmental Protection Act</i> (1999) <i>Migratory Birds Convention Act</i> (1994) and The Federal Policy on Wetland Conservation (1991). |

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8.16.2 Authorities Having Jurisdiction - Other

A list of other authorities and their jurisdiction is included below. The CM must observe codes, regulations, by-laws, and decisions of all authorities having jurisdiction. In the case of overlap, the CM must apply the most stringent requirement, as instructed by the Design Team and DR. All Work must comply with the applicable provincial construction health and safety Acts and Regulations, in addition to the related Canada Occupational Safety and Health Regulations.

| BC Provincial Authority | Jurisdiction |
|-----------------------------------|--|
| Ministry of Labour (MOL) | Employment Standards; Construction Safety; Designated Substance Management; WorksafeBC; Workers Compensation Act and <i>Occupational Health and Safety Regulation (OSHR)</i> |
| Ministry of the Environment (MOE) | <i>Environmental Management Act</i> ; Building discharges into the air, water and ground; and Disposal of designated substances, including asbestos, lead, etc. |
| Technical Safety BC | Construction hoists, elevators, escalators, dumbwaiters, pressure vessels, etc. Electrical equipment & distribution |

| Manitoba Provincial Authority | Jurisdiction |
|--------------------------------------|--|
| Labour & Regulatory Services | Employment Standards; Designated Substance Management; Workers Compensation; and Manitoba Workplace Safety and Health Act and Regulations |
| Sustainable Development (Ministry) | <i>Environmental Act</i> |
| The Office of the Fire Commissioner | Construction hoists, elevators, escalators, dumbwaiters, pressure vessels |
| The Office of the Fire Commissioner | Electrical equipment & distribution |

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| Local Municipalities | Jurisdiction |
|--|---|
| Sidney, British Columbia Winnipeg, Manitoba | Planning and design submissions; Building, demolition and plumbing permits and inspections (Provincial Building Code);; Fire safety, equipment, and access for fire-fighting equipment; and Occupancy Permits. |

8.16.3 Federal and Provincial Authorities

As defined in the *Impact Assessment Act* 2012, PWGSC and Science Partners are each a Federal Authority. PWGSC and Science Partners will fulfill their obligations as a Federal Authority to safeguard the environment through dutiful public consultation and responsive real property designs, construction, and operations.

In support of the DR, and to meet PWGSC’s and Science Partners’ Federal Authority obligations, the:

- a) Design Team will facilitate and participate in any discussion or negotiation required to obtain Project approvals with federal and provincial authorities and ensure that the technical and legal compliance of Project designs follow the said approvals and conditions; and
- b) The CM must ensure that all Work and construction operations comply with said approvals and conditions.

All communication with federal and provincial authorities will be through the DR. The DR will deal with federal and provincial approval fees on a case-by-case basis and may request the CM to pay such fees as a disbursement to the Contract.

8.16.4 Municipal Authorities

On behalf of PWGSC, the Design Team will prepare and provide to the CM all documentation for building and other permits necessary for approval by municipal authorities. The CM must manage the building permit application process itself. All communication with the municipal authority related to permits and permit payment will be through the CM. The CM must engage the Design Team and together participate in any discussion or negotiation necessary to obtain permits and assist in resolving issues before the tender of each DP. Submissions by the CM will begin with preliminary design (SD and DD) when Site plan approval is required or well-advanced DPs for building permits, with subsequent filings as required by the municipal authority and for design revisions in response to reviews.

The CM must apply for interim and final occupancy permits and resolve all outstanding issues relating to permit approval. The CM must provide municipal authorities access to the Site as and when they require access and obtain reports of their findings, which are to be given to the DR for review and handling as necessary. The Design Team will address and respond to all issues by municipal officers through the CM including:

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-
- a) Purpose of review and approval: to obtain Site plan and building code compliance (permits);
 - b) Submission format: Drawings, Specifications, oral presentations for Site plan applications, SD, DD and advanced DP design submissions;
 - c) Submission schedule: SD and DD for Site plan approval; advanced DPs for building permit approval; and
 - d) Expected turnaround time: from four weeks to three months.

8.17 Contract Deliverables

Where submissions include summaries, reports, Drawings, Specifications, presentations and schedules, the CM must provide four hard copies along with an electronic copy in editable native format and Portable Document Format (PDF), unless otherwise specified.

8.17.1 Acceptable Native Format

Native format means:

| Deliverable | Acceptable Native Format |
|--------------------------------------|---|
| Written reports and studies | MS Word |
| Spreadsheets and budgets | MS Excel |
| Presentations | MS PowerPoint and/or MS Visio |
| Drawings | DWG (such as Autodesk Auto CAD 2015) |
| Schedules | Primavera P6 or newer |
| Change management and daily logs | MS Word |
| Organizational Charts | Adobe Illustrator or MS Visio |
| National Master Specifications (NMS) | MS Word |
| Building Information Model | Software selected by Consultant to perform their services to the requirements of Industry Foundation Classification – IFC4 – ISO 16739:2013 |

8.17.2 Writing Style

The CM must use a writing style that presents information in a logical, objective, clear and concise manner. CM must write reports so that the reviewer can easily locate references and respond to related information contained in the report. Reports must include the following sections:

- a) A cover page indicating the project title, nature of the report, CM's Contract number and author name, PWGSC Contract name and reference number, and a date in a non-ambiguous format, i.e. October 9, 2019 or 2019-10-09;
- b) A cover page indicating the project title, nature of the report, CM's Contract number and author name, PWGSC Contract name and reference number, and a date in a non-ambiguous format, i.e. October 9, 2019 or 2019-10-09;

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- c) A table of contents;
- d) An executive summary;
- e) An introduction;
- f) A methodology section explaining the methods and tools used, such as weightings, comparative analysis;
- g) A conclusion or synopsis; and
- h) Appendices containing supporting material referenced in the report, supplementary and supporting information.

8.17.3 Report Content

The CM must:

- a) Ensure that the executive summary is an accurate and complete summary of the report following an identical structure, including only key points, results and recommendations;
- b) Use an organizing system, such as MS Word Document Map, for ease of reference and cross-referencing;
- c) Use correct grammar including complete sentences to avoid ambiguity and facilitate translation when required. The use of technical terms, industry jargon and cryptic phrasing must be avoided;
- d) Write efficiently, with only essential information included in the body of the report and supporting information in an appendix, if required; and
- e) Analyze and ensure all relevant correspondence against accepted goals, objectives and the requirements identified in these ToR.

8.18 Administration Services' Deliverables

The CM must:

- a) As indicated, prepare and issue meeting and workshop minutes with 2 Working Days of said meeting or workshop;
- b) Develop and update as required a submittal and RFI submission, review, approval and response framework based on submittal or RFI importance within 20 Working Days of Contract award;
- c) Track and log submittals and RFI submissions and provide said submittals, RFIs and corresponding logs to the Design Team and DR;
- d) Develop and update as required a monthly report structure within 20 Working Days of Contract award;
- e) Submit monthly reports with the approved report structure;
- f) Provide accurate record drawings and specifications at the completion of each DP;
- g) Submit security clearance for the CM's personnel and track security clearance submissions by the CM's Subcontractor and Supplier personnel;

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- h) Develop and maintain a construction Site access system;
- i) Develop and submit a construction Site security plan(s) within 30 Working Days of Contract award and update the plan(s) as required;
- j) Obtain and provide Site Plan approval, building and occupancy permits; and
- k) Develop and submit Contract deliverables in the format, content, and writing style indicated.

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9 PLANNING SERVICES

9.1 Design Management

The CM must develop, implement, and maintain a design management plan specific to this Contract to document the CM's processes of ensuring that all aspects of the Project designs produced by the Design Team are analyzed, prioritized and thoroughly understood by the CM.

The CM's design management plan must include, but is not limited to:

- a) A description of how the construction Work will be defined, developed, verified and controlled, including the roles, responsibilities and workflow for delegated design, material testing, and inspection (e.g. Design Team, or CM, or both, or a third party);
- b) A description of the approach and methodology of how design information from the Design Team will be obtained, analyzed, and disseminated through the CM's team, as well as the CM's internal control processes;
- c) A description of how the CM will use BIM, the BIM Execution Plan (BXP) co-developed by the CM, Design Team and DR, and the Model in developing and delivering the Work, including the process to use high-resolution scanning and photogrammetry, combined, to create a shared co-ordinate system and provide the metric information necessary to build the Model;
- d) A description of the approach and methodology for identifying, prioritizing, and sequencing individual design elements or groups of design elements of the Design Team's production into DPs, balancing the Design Team's design effort versus splitting DPs for tendering as smaller Work packages, and creating a logical construction Work breakdown structure for the Project Team to understand;
- e) A description of the approach and methodology for analyzing Design Team's design submissions, design and Model information, including the assessment of design completeness and the ability to construct the proposed design;
- f) A description of the approach and methodology for analyzing the coordination of each discipline of the Design Team as it relates to the scope the CM has prioritized for each DP, the overall constructability of design, proper scope cross-referencing and ability to competitively source. Indicate:
 - i. How the CM will use digital coordination tools and software to identify and track problems with constructability including clash detection; and
 - ii. The process for weekly Model review for architectural, structural, mechanical, electrical, plumbing and fire protection components and systems to identify to the Design Team items not seen as interferences, or clashes. These are items such as, but not limited to compromised fire ratings from multiple penetrations, pipes out of walls, height access issues causing undue safety hazards, access clearances and access panels, potential clashes with content that is not in the Model;
- g) A description of the approach and methodology for determining how individual elements (end devices, Material quantities, etc.) within DPs, while not completely reflective of the final design requirement, will be properly identified and quantified to ensure value for money when competitively sourcing, limiting post-solicitation changes to the Work;

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- h) A description of the approach and methodology for how to engage Subcontractors and Suppliers if the DR requests design assist services and:
 - i. Establish which Subcontractors provide the CM with a Model and Model Elements representing their scope of Work;
 - ii. Which Subcontractors will assign an individual to the role of BIM coordinator to coordinate their Work with the CM's BIM manager; and
 - iii. How the CM will review for accuracy and co-ordinate the information provided by the Subcontractors prior to submitting the Design Team;
- i) A description of the approach and methodology of how alternative building Materials, or construction methods will be considered and how life-cycling analysis will factor into the analysis of the Design Team's submissions.

9.2 Quality Management

The CM must develop, revise when required, and implement a quality management plan specific to the Contract and consistent with the provisions of ISO 9001.

The CM must continuously adhere to the Contract-specific quality management processes for the duration of the Contract and:

- a) Ensure that quality problems with the CM's services or construction are eliminated and to respond and correct, in a timely and effective manner, all issues as they occur;
- b) Ensure the quality of the processes used to manage and create the deliverables;
- c) Validate and complete the Work deliverables with an acceptable level of quality.
- d) Include:
 - i. A strategy to manage all CM deliverables and processes subject to quality review;
 - ii. A description of the approach and methodology for the day-to-day execution of the quality management plan, describing who, how many resources, the scope of their mandate and responsibilities, and where these services will occur (e.g. on the Site, in the CM's office, etc.);
 - iii. A description of the approach and methodology for developing and maintaining documentation standards, benchmarks, and timeframes (both submission and review by the CM) for analyzing, validating, commenting on, approving or rejecting submittals of any type, notices, or any other document from the DR, Design Team or the CM's Subcontractors and Suppliers;
 - iv. A description of the approach and methodology for developing, managing, and maintaining a searchable database for all quality management matters, referencing the Work breakdown structure of the CM's cost and time services;
 - v. A description of the approach and methodology for preparing and issuing quality management documentation and reports;
 - vi. A description of the approach and methodology for quality management awareness training of the CM's personnel;

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- vii. A description of the approach and methodology for commissioning the Work and seasonal commissioning; and
- viii. A description of the approach and methodology for facilitating quality inspections by the Design Team, technical authorities, and others as authorized by the DR.

9.3 Cost Management

The CM must develop, implement, and maintain a construction Cost management plan and Cost control system specific to this Contract.

The CM's construction Cost management plan must include, but is not limited to:

- a) A description of the approach and methodology for the identification and management of Work Costs, include the role of the Design Team and DR;
- b) A description of the approach and methodology for contingency identification and quantification, conditions and authorization for usage, and documentation and notification processes;
- c) A description of the approach and methodology for analyzing positive and negative activity durations and their impact on Work Costs;
- d) A description of the approach and methodology for the CM's assessment and validation of Cost estimates for competitive sourcing, contemplated change notices, and change orders, submitted by potential or actual Subcontractors and Suppliers;
- e) A description of the approach and methodology for the CM's assessment and validation of Cost impacts of potential or actual claims submitted by the Subcontractors and Suppliers; and
- f) A description of the CM's involvement and its approach and methodology to value engineering.

9.4 Time Management

The CM must develop, implement, and maintain a time management plan and time control system specific to this Contract. The CM's time management plan must include, but is not limited to:

- a) A description of the approach and methodology for the identification and management of construction and commissioning schedules, including the role of the Design Team and DR;
- b) A description of the approach and methodology for establishing durations per activity;
- c) A description of the approach for quantification and management of Float per activity, including how, when and who will authorize the reallocation of Float within the overall construction schedule;
- d) A description of the approach and methodology for analyzing the Design Team's production and impacts to competitively sourcing and construction operations;
- e) A description of the approach and methodology for establishing, Monitoring, and controlling Subcontractor and Supplier Work productivity requirements; and
- f) A description of the approach and methodology for the CM's assessment and validation of time impacts of potential or actual claims submitted by the Subcontractors and Suppliers.

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9.5 Risk Management

The CM must develop and implement a risk management plan for Work that is specific to this Contract. The purpose of the risk management plan is to identify the processes and methodologies for opportunity and risk identification, qualification and management within the CM's risk registry.

The CM's risk management plan must include, but is not limited to:

- a) A description of the approach and methodology for developing a risk registry including when, how and by who data will be integrated into the registry;
- b) A description of the approach and methodology for the quantification of opportunities and risks;
- c) A description of the approach and methodology for determining, applying, and reassessing the probability of occurrence per risk registry element;
- d) A description of the approach and methodology for determining how, when and by who opportunities and risks are relevant, including how the opportunities and risks will be included, tracked, and archived in the risk registry;
- e) A description of the approach and methodology for establishing, implementing, and managing a claims avoidance program; and
- f) A description of the approach and methodology for how, when and to who lessons learned are disseminated, including the timing and frequency of follow-ups to validate the lessons learned are being applied in the application of the Work and the CM's services.

9.6 Human Resource Management

The CM must develop a human-resource management plan for the deployment of named and additional resources specific to this Contract. The CM's human resource plan must indicate the approach and methodology for resource allocation and management by sub-Project, to meet the requirements of the Project throughout the Contract including:

- a) The roles and responsibilities of the CM's resources, including expected resourcing levels by sub-Project, to meet the requirements of the Project throughout the Contract;
- b) CM team organization charts and how positions interact/relate to other members of Project teams;
- c) A staffing plan to include:
 - i. How and when resources/skills will be deployed;
 - ii. Timeline for resources/skill sets;
 - iii. Transition period required for succession of all positions;
 - iv. A forward-looking work plan reflective of all CM services required over the next three-month, six-month, 12-month periods; and
 - v. How project information will be transferred to new personnel; and
- d) Any other human resource relevant information about the provision of the CM's services for the Contract.

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The DR and Contracting Authority (CA) approved human resource plan will form the Baseline for performance assessment of the CM's Work.

9.7 Planning Services' Deliverables

The CM must submit to the DR for approval within 30 Working Days of Contract award:

- a) Design management plan;
- b) Quality management plan;
- c) Cost management plan;
- d) Time management plan;
- e) Risk management plan; and
- f) Human resources management plan;
- g) Update and resubmit the said plans within 5 Working Days of receipt of DR comments;
- h) Revise and resubmit the said plans over the progression of the Project as indicated, warranted, or as required by the DR.

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10 IMPLEMENTATION SERVICES

10.1 Scope Management

When a change to the Project is identified, the Design Team will prepare and issue a supplementary instruction (SI), which may or may not attract Cost, or a contemplated change notice (CCN). The CM must:

- a) Prepare, or cause to prepare, a substantive Cost estimate breakdown that itemizes all labour Costs, Plant, Material and equipment Costs, and Subcontract Costs and submit to the DR and the Design Team for review and approval, as described in ToR Appendix D – PROCESS MAPS;
- b) Validate and document that all prices included in the Cost estimate breakdown, including the Costs, mark-ups and profit of Subcontractors and Suppliers, are correctly calculated, fair, and reasonable; and
- c) If an SI or CCN necessitates a change in the Contract completion date, or has an impact on the Work in whole or part, then prior to submitting the quotation to the DR and the Design Team, identify, estimate, and include the resulting impact Cost, or potential cumulative impact Cost, as a separate Cost summary from the Subcontractor's or Supplier's Cost breakdown;

The Design Team will review the indicative Cost estimate prepared by the CM and provide the DR with a recommendation of its reasonableness, before the DR authorizes the change.

10.1.1 Deliverables

The CM must:

- a) Thoroughly examine and submit Subcontractor and Supplier quotations for scope and pricing accuracy before forwarding to the DR and Design Team; and
- b) Submit to the Design Team and DR an impact Cost analysis, or potential cumulative impact Cost analysis, as a separate Cost summary from the Subcontractor's or Supplier's Cost breakdown.

10.2 Design Management General

The CM must provide design management services to manage the overall design process of the Project, but not coordinate the Design Team's work product nor ensure that the work product (design) is technically compliant, which remains the role and responsibility of the Design Team unless responsibility is delegated to the CM or the CM's Subcontractor or Supplier. As part of these design management services, the CM must review and participate in the scope definition and deliverables for the Project.

The CM must:

- a) Implement the approved design management plan on an ongoing basis;
- b) Understand all PWGSC reference documentation provided by the DR and their potential implications from a constructability, Cost and time perspective. Review with the DR and Design Team items of concern or potential gaps of information on an ongoing basis;

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- c) Review and influence the overall Project scope (i.e. recommendations concerning materials selection, quality, etc.) and prioritization of Work in order to complete the maximum Work possible as early as possible, while respecting approved funding and cash flow;
- d) Analyze changes in PWGSC priorities as and when they occur. Provide recommendations to the DR to ensure optimal flow of Work. Obtain the DR's approval to implement changes to the Work;
- e) Review and influence the Project design (i.e. recommendations concerning materials selection, quality, etc.) to eliminate competitive sourcing issues and constructability issues;
- f) Use the Model for constructability review, 4D scheduling, 5D Cost estimating, digital and digitally assisted fabrication;
- g) Provide Cost and scheduling input and supporting Project design concepts throughout the entire design process, including life-cycle Cost analysis per building system and for the overall facility;
- h) Define the Design Team's Project DP submission format, number of DPs, and the prioritization as to when the DPs are required to achieve the shortest overall construction period and maximum Cost control;
- i) Provide input to the Design Team on what aspects of Project scope must be included in each DP. Inform all members of the Project Team of what and when parts of the overall scope are being competitively sourced and what parts of the scope remain un-designed, and where in the overall construction estimates the parts are allocated;
- j) With the participation and agreement of the CM and DR, support the Consultant's development of a delegated design Specification and design responsibility matrix, which will define the Design Team professional responsible for the design, review, acceptance, and workflow of certain components of scope to be assigned to a design entity other than the Design Team. Include:
 - i. In the Specification:
 - 1. References to applicable associations, regulating bodies, standards, etc. at the Place of the Work;
 - 2. Intent of design delegation and applicable scope elements, which may include:
 - a. Design of structural analysis of load bearing components and connections;
 - b. Design of fire safety, life and health safety, and associated compliance during demolition and construction;
 - c. Design of designated mechanical, electrical, and architectural systems and components where the specialist design expertise resides with the manufacturer or supplier; and
 - d. Design of other structural, architectural, electrical, mechanical, civil, and other scope;
 - 3. Scope elements excluded from delegated design which the CM must undertake;
 - 4. Definition of Design Team professional(s);
 - 5. Definition of the delegated design professional (e.g. architect, engineer, etc.) and their required expertise, certification, or accreditation;

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6. Submittal technical requirements, review and acceptance process/workflow, and associated timelines;
 7. Products and manufacturing requirements and workflow; and
 8. Execution, field review and certification (performance verification) requirements and work flow;
- ii. In the design responsibility matrix, identify scope elements usually carried out by the CM's Subcontractor or Supplier and scope elements the Design Team will complete. Include:
1. Design Team design responsibility(ies);
 2. Scope element description (e.g. crane base design/building loading, attachment of construction structures, wall/floor loading capacity; pipe rack weight, bends, and reaction forces; stairs and ladders; cutting/coring openings; stud gauge/size; steel to steel connections; shoring; miscellaneous metals: stepovers, walkways, etc., piles, micropiles, etc.);
 3. Review responsibility (Design Team, CM Subcontractor or Supplier, or CM retained design professional); and
 4. Related information, notes or comments;
- k) With the participation and agreement of the Design Team and DR, develop and update on an ongoing basis a material testing and inspection responsibilities matrix, which is to:
- i. Identify component or system to requiring testing, inspection, or both testing and inspection (e.g. structural steel, rebar, concrete, roofing, firestopping, acoustics, building envelope, drainage, compaction, waterproofing, insulation, sustainability-related, elevators, elements and sequencing related to temporary work, etc.);
 - ii. Indicate:
 1. If material testing or inspection is a joint activity involving the CM and Design Team, and when said activities are to occur (i.e. conditions, if any), and workflow between those involved in the process(es);
 2. If the CM is to undertake materials testing or inspection itself or retain a third party; and
 3. How said inspection or testing relates to performance requirements in Design Team prepared Specifications and the contractual mandate of the Design Team as the Design Authority;
- l) Maintain Project design process control without limiting creativity, but at the same time challenging design assumptions and scope;
- m) Understand the requirements, implications, and construction issues related to proposed sustainability requirements. Participate in the development process to identify opportunities to achieve sustainability objectives and continue to support Design Team (scope, Cost, time, risk analysis);
- n) Clearly define and make known well in advance to the Design Team and DR the intermediate and final dates for DP submissions;

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- o) Understand the technical requirements of the scope and ensure that technical reviews, presentations, and submissions take place at key intervention points within the design process;
- p) Provide integrated services, which includes:
 - i. Value engineering and analysis of options;
 - ii. Building maintenance and life-cycle Cost input/feedback to the Design Team and DR;
 - iii. Design coordination analysis;
 - iv. Supplemental design-assist services when requested by the DR;
 - v. Constructability analysis;
 - vi. Development of options to reduce Cost and construction duration;
 - vii. Scope of Work development, Work and commissioning procedures and detailed specifications for all DP's;
 - viii. DP development and competitive sourcing;
 - ix. Input to Cost estimates;
 - x. Input to construction sequencing and construction durations;
 - xi. Identify resources and recruitment; and
 - xii. Input to procurement scope and processes;
- q) Participate in the resolution of the design, planning and coordination issues; and
- r) Comply with the processes described in ToR Appendix D – PROCESS MAPS.

10.2.1 Review of Design Submissions and Design Packages

The CM must:

- a) Participate in meetings, presentations, and workshops as per ToR section 8.1 – Meetings and Workshops. Verify and report on the accuracy of meeting minutes;
- b) Provide advice to the Design Team and the DR on design scheduling, Cost control, construction phasing, Site security and Site safety. Recommend alternative solutions whenever design details adversely affect construction feasibility or schedules;
- c) Provide suggestions and/or alternatives for Cost reductions or acceleration of the Project schedule;
- d) Review all SD, DD and DPs submissions, the Model, and report/advise on:
 - i. Coordination, completeness, and ability to construct the proposed design;
 - ii. Verify mechanical and electrical Drawings accurately reflect the laboratory casework, furniture and equipment plans including:
 - 1. Final Lighting Plans;
 - 2. Final location of light switches and controls;
 - 3. Final location of HVAC controls;

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4. Final location and elevation of IT, multi-media, and security system devices;
 5. Plumbing components and rise locations and space requirements; and
 6. Supplemental or laboratory-specific cooling and exhaust location and space requirements;
- iii. Fittings and backing requirements for mounting laboratory casework and FF&E components;
 - iv. Proper cross-referencing of the scope and ability to competitively source. Pay particular attention to the requirements of ToR Appendix A – GUIDE TO PREPARATION OF CONSTRUCTION DOCUMENTS;
 - v. Scope elements (end devices, etc.) not finalized in the design (i.e. partial compete DPs) are adequately summarized in unit price tables within DPs to ensure competitive sourcing;
 - vi. Temporary building and municipal components and systems, temporary protection, shoring, bracing, underpinning, construction Monitoring (structural, geotechnical, heritage, environmental, and other services) are properly detailed, including the need to adjust, move, maintain and remove as the construction advances or is completed;
 - vii. Commissioning, training, and detailed performance verification requirements are reflective of the approved commissioning plan and are completely and correctly detailed;
 - viii. Delivery instructions for facilitation of Site access, health and safety, and security;
 - ix. Specific installation plans showing Site delivery, path of travel, and final installation locations for laboratory casework and FF&E. Identify issues of Site access, paths of travel, times/periods of delivery, and potential overlaps of Work in select areas, which must be accounted for within the installation requirements and coordinated with the construction schedule;
 - x. If construction access restrictions apply, protection or Site requirements must be included; and
 - xi. All other requirements to implement the construction are properly included;
- e) Refer all questions about interpretation of the documents prepared by the Design Team back to the Consultant and the Design Team discipline;
 - f) In the event of continuing interpretation difficulties, refer the issue with all required background material to the DR for resolution and the DR's interpretation will be final; and
 - g) Participate in Project control and value engineering workshops. Provide advice and recommendations for the proposed designs as to their ease of installation, Cost, availability, suitability, robustness, constructability, etc. and make suggestions for potential alternatives based on life cycle and sustainability objectives.

10.2.2 Deliverables

The CM must:

- a) Provide the DR written and verbal feedback concerning the status and coordination of the overall design;

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- b) Provide the DR and Design Team written and verbal feedback on the requirements for and appropriateness of the delegated design Specification, design responsibility matrix, and requirement for revisions to these documents as each sub-Project progresses;
- c) Provide the DR and Design Team the material testing and inspection responsibilities matrix per sub-Project. Update the responsibilities matrix on an ongoing basis to the approval of the DR; and
- d) Provide the DR and Design Team written comments regarding meetings and workshops, and design and DP submissions.

10.3 Quality Management

The CM must:

- a) Implement the approved quality management plan on an ongoing basis;
- b) Arrange for testing services as required, which may include concrete testing, compaction testing, vibration, acoustics, air monitoring, etc.;
- c) Carry out all parts of the Work using only qualified licensed workers in accordance with the requirements prescribed in provincial regulations, as applicable to the Place of the Work, respecting worker's vocational training and qualification;
- d) Permit employees registered in provincial apprenticeship programs to perform specific tasks only if under direct supervision of qualified licensed workers; and
- e) Determine permitted activities by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

10.3.1 Deliverables

The CM must:

- a) Revise the Quality Management Plan if required by the DR; and
- b) Provide the DR and Design Team with testing results within 5 Working Days of each test, or as agreed with DR, in accordance with the protocol/requirements of the approved inspection and testing matrix.

10.4 Cost Estimating, Monitoring, and Control

10.4.1 Overview

- a) PWGSC will:
 - i. Provide the overall master Cost plan and continual direction to the Design Team and the CM on all scope matters to ensure the Project is maintained within the approved budget; and
 - ii. Review all aspects of the CM's estimates, or partial estimates, on a continuing basis;
- b) The CM must:

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- i. Implement the approved Cost management plan on an ongoing basis;
 - ii. Plan, estimate, monitor and control the Costs of the Work of each project and the overall program;
 - iii. Build to the approved estimate of the Work established or revised by the DR;
 - iv. Control ongoing Project Costs under the CM's control;
 - v. Attend all meetings and workshops with the DR and Design Team
 - vi. Analyze and report to the DR on the Design Team's design ideas and design submissions, as well as the construction itself; and
 - vii. Prepare and provide the DR a monthly status report and summary of opportunities to reduce Cost and design pressures and risks that may raise the Project Work budget. Cost opportunities and risks must be accompanied with a management plan to describe how maximum savings are realized and risks are mitigated;
- c) The Design Team will:
- i. Design to the approved Work budget, established or revised by the DR;
 - ii. Consider the recommendations of the CM with respect to overall Cost management;
 - iii. Provide risk analysis from their perspective;
 - iv. Provide input to and comment on the CM's overall Work Cost plan and estimates, life cycle Costing (LCC) analysis and VE throughout the Project; and
 - v. Attend meetings and workshops with the CM and DR.

Cost control workshops will occur monthly with the DR, CM and the Design Team to seek the input and comment from the CM and Design Team on all aspects of Project Cost. The CM's proposed construction methodology and implementation are essential discussion topics for each workshop and at all Project meetings. The Design Team will play an active challenge role to test the validity of the CM's construction estimate assumptions, inclusions and exclusions, ensuring the construction estimate reflects the progression of the design at the time of the workshop and future scope pressures as they become evident through Project meetings, workshops and discussions.

10.4.2 Details

The CM must plan, develop, update, and maintain Work Cost estimates for the duration of the Contract. Estimates must be holistic and broken down into major sub-elements and numerous sub-elements, by Project. The Total Estimated Cost per Project must form the preliminary Work Cost Baseline.

The CM must take the estimate format developed by PWGSC and adapt the format as the basis to present the CM's Cost planning, estimating and control information. The Cost estimate must include the revision and presentation of Cost data with differing degrees of information. For example, a high-level format is required for annual reporting or presentation to executives. A detailed format with extensive support documentation is required for auditors and monthly reporting.

The CM must:

- a) Plan, estimate and submit to the DR a detailed request for expenditure authority (EA) for preliminary general expenses (Division 1) immediately after obtaining Work approval. These

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expenses are essential to advance and manage the overall planning and analysis and initial mobilization of the CM of approved Work;

- b) Prepare preliminary Work estimates for the various Projects within the CM's mandate, and the overall program of Work. Provide elemental estimates in accordance with UniFormat as issued by Construction Specifications Canada and the Construction Specifications Institute and:
 - i. Detail all major components per project and provide a detailed breakdown of the necessary general expenses to administer the construction, breaking the presentation of these expenses down into short, medium, and longer projections;
 - ii. Include separate design and construction contingencies. Once a sub-total for construction is established, include a construction escalation contingency. Include a detailed listing of all estimate inclusions, exclusions, and assumptions. Provide a detailed basis of Cost narrative on the methodology employed in developing the estimate;
 - iii. As a separate volume from the preliminary estimate, provide a detailed summary of the various components of the CM's fees. Delineate the various parts of the fee structure, additional personnel, and Site personnel. Sub-total the fee elements and indicate escalation as a separate element, before presenting the total fee breakdown; and
 - iv. Submit to the DR within 60 Working Days of Contract award;
- c) Following the format established with the preliminary construction estimate but with a progressive increased level of detail, prepare formal and detailed whole Work estimate submissions, per project, at indicative (+/- 20% class D, or +/- 15% class C) and substantive (+/- 10% class B, or +/- 5% class A) levels based on the status of the design elements, as outlined below, and:
 - i. Prepare and submit complete and formal estimates of all the Work per project to the DR within four weeks, sooner if possible, of receiving SD (indicative estimate) DD (substantive estimate) design submissions. The 100% SD estimate will be the first Baseline estimate for the Work per Project, which all future Cost analysis and measurement must be compared against. The 100% DD estimate will be the updated Baseline estimate for the Work the Project; and
 - ii. As a separate volume from the construction estimate, provide a detailed summary of the various components of the CM's fees;
- d) For each DP, develop and submit to the DR within three weeks of receipt of the DP, or sooner if possible, comprehensive construction estimates:
 - i. Include separate design and construction contingencies reducing in scale as the design progresses. Once a sub-total for Work is established, include an escalation contingency and a detailed listing of all estimate inclusions, exclusions, and assumptions. Provide a detailed Cost narrative on the methodology employed in developing the estimate;
 - ii. As a separate volume from the Work estimate, provide with the 90% and 100% estimates a detailed summary of the various components of the CM's fees clearly delineate the various parts of the fee structure, additional personnel and Site personnel that are proposed to change because of DP implementation. Sub-total the fee elements then indicate escalation as a separate element, before presenting the total fee breakdown; and
 - iii. Update the overall Work estimate for per Project with the detailed estimate for each

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successive DP. Ensure the overall design, construction and escalation contingencies are reallocated to reflect their revised values;

- e) On an ongoing basis and throughout the design and construction of the Project Work, analyze all elements of the design and the potential impact of changes discussed at meetings, contained in approval submissions, that arise from design omissions or development, Site conditions, Supplier problems, or any other source of information related to scope development or Project implementation. Assess for potential Cost pressures and opportunities for Cost reduction. Assess life-cycle Costs per building system, per design option, and for the overall facility. In support of this analysis:
- i. The DR will hold Project control workshops with the CM and Design Team. On completion of each workshop, the CM must further analyze and assimilate all information discussed and update the Work Cost estimate and all inclusions, exclusions, and assumptions. The CM must provide the Design Team and DR the updated Work Cost estimate, or relevant parts, within 5 Working Days of the Project control workshop, or as agreed to by the DR; and
 - ii. CM must provide the DR a preliminary impact analysis within 5 Working Days of receipt of notice for any change (i.e. contemplated change order, supplemental instruction, or site instruction that may attract Cost or time extension with a potential Cost impact);
 1. With the preliminary impact analysis, the DR will confirm to the CM and Consultant if the proposed change will or will not proceed; and
 2. If the proposed change is to proceed the CM must provide a detailed impact analysis to the DR within 10 Working Days, or within a period agreed to by the DR, that considers all potential Cost elements including the Cost of time to implement the change and potential Cost and time impacts to other Subcontractors and Suppliers;
- f) Prepare and maintain accurate Work cash flow projections per Project and the overall Work program inclusive of all equipment, Materials and Subcontractor and Supplier personnel and submit to the DR monthly, and:
- i. Assess design progress and construction productivity on an ongoing basis;
 - ii. Understand in detail the sequencing and durations of all design and construction and commissioning activities and their degree of completion, as well as their impact to achieving approved project Milestones; and
 - iii. Update Work Costs as the design and construction progresses;
 - iv. Analyze actual Work expenditures against expected performance to a level of detail acceptable to the DR;
 - v. Forecast Work and, as a separate volume CM fees:
 1. In detail to the end of the PWGSC's fiscal year (March 31), with a forecast accuracy of +/- 5 % by November 30th of each year; and
 2. Annually to completion of the Contract; and
 - vi. Provide a detailed narrative explaining the expenditures to date and those forecasted for the upcoming month, quarter, and each remaining year to Work completion, including all

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assumptions and analysis considered;

- g) Incorporate into Cost estimating process and Cost estimates a broad range of techniques, including:
 - i. Allowances: Include and identify separate design, construction, escalation, and currency exchange risk allowances that are reasonable considering the estimate accuracy;
 - ii. Risk Analysis: Develop a risk register and allowances relating specifically to residual value of identified risks;
 - iii. LCC: Prepare and submit analysis of different life cycle Cost options as appropriate for building components and systems. Use all available information in the market place to ensure that the estimated Work Cost (on which design and construction decisions must be made) is respected. In advance of performing LCC, seek input of the Design Team and obtain the approval of the DR for the LCC methodology/calculation format, including the type of life cycle Cost information for use, and alternative materials, building components and building systems for consideration; and
 - iv. VE: Provide information on alternative products, construction methods or sequencing and assess these against the proposed design. Assist the Design Team to refine the design, incorporate alternative products and/or construction methods to achieve the best design solution that remains within the Total Estimated Cost;
- h) Notify the DR if the lowest compliant submission for any DP differs significantly from the CM's class A estimate.

10.4.3 Deliverables

The CM must:

- a) Report Cost information in accordance with UniFormat on a monthly, quarterly, semi-annual and annual basis, including detailed quantitative and qualitative analysis against the first and updated Baseline Work Cost estimates. Include variances reflective of the actual Work progress to date and projected to completion. Reports must range in detail from high level Cost information intended for executives to highly detailed reporting for auditors. Monthly reports must contain as a minimum:
 - i. An outline description of overall estimate and status;
 - ii. A narrative including inclusions, exclusions, and assumptions. Differentiate between local, regional, national and international sources;
 - iii. A description of information obtained and used in the preparing the estimate;
 - iv. A description for the basis for contingency and escalation calculations. Identify Cost elements not applicable to escalation;
 - v. An estimate summary in the agreed format;
 - vi. An estimate back-up including details;
 - vii. A commitment summary identifying committed and uncommitted funding;
 - viii. A detailed expenditure analysis and summary;

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- ix. A scope change summary including the nature, reason, and total Cost impact of all identified and potential changes affecting the estimated construction Cost;
 - x. An identification of Cost overruns and under runs including the nature, the reason, and the total Cost impact of all identified and potential Cost variations;
 - xi. A Work Cost plan, trend analysis with discussion of impacts influencing future forecasts;
 - xii. A risk analysis of both direct and indirect Costs (i.e. escalation, rework, schedule compression, etc.);
 - xiii. An options analysis identifying the nature and potential Cost effects of strategies to ensure the Work remains within the approved Total Estimated Cost;
 - xiv. Complete indicative or substantive Work estimates reflective of the level of design progress for each SD, DD, and DP submission, incorporating estimate information into the overall Work estimates;
 - xv. Accurate cash flow projections for Project Work and the overall program of Work;
 - xvi. A summary of change notices and change orders for each Subcontract; and
 - xvii. Any other relevant information; and
- b) Respond to comments from the DR within 2 Working Days of request, sooner if the request is urgent.

10.5 Time Scheduling, Monitoring, and Control

10.5.1 General

The CM must:

- a) With the input of the Design Team, plan, schedule, Monitor and control the Work required to complete the Project as approved by the DR;
- b) Implement the approved time management plan on an ongoing basis;
- c) Methodically plan, schedule, Monitor and control Project design submissions, as well as solicitation durations and addendum periods. The CM must consider the review periods for design submissions as outlined in ToR Appendix D – PROCESS MAPS.

10.5.2 Overview

- a) PWGSC will:
Provide the overall program of Work master schedule and continual direction to the Design Team and the CM on all matters of time management to ensure the overall program of Work and individual Projects are maintained within the approved timelines;
- b) The CM must:
 - i. Plan, schedule, Monitor and control the Work of each project and the overall program;
 - ii. Plan, schedule and monitor the dates for each of the Design Team's design submissions, which will ensure the optimal sequence of Work to achieve the shortest overall

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- construction period and maximum design and construction Cost control;
 - iii. Include ongoing planning and scheduling analysis of the Design Team's design ideas and design submissions as well as the Work itself;
 - iv. Analyze and report on the Design Team's design progression;
 - v. Plan, schedule, Monitor and control Subcontractor and Supplier pre-qualification solicitations, which must be closed, bids analyzed and short-listed firms ready for competitive sourcing before the completion of each DP;
 - vi. Prepare and provide to the DR a monthly status report and a summary of opportunities to reduce Work sequence durations or reorganize tasks with the objective of managing project risks. The CM must track and report on opportunities and risks within the Work schedule; and
 - vii. Integrate the Design Team's design schedules into the overall Work schedule, allowing the CM to comprehensively understand schedule, Monitor and control impacts of early or later finishes of design or Work activities;
- c) The Design Team will:
- i. Develop a detailed design schedule for the activities associated with the Design Team's services, based on the Work priorities and scope sequence provided by the CM; and
 - ii. Develop a monthly report and a summary of opportunities to reduce design durations or reorganize design activities with the objective of managing Project risks.

10.5.3 Planning and Scheduling

The CM must:

- a) Analyze in detail the initial Project and program of Work schedule prepared by the DR and confirm in writing to the DR the CM's understanding of specific activity relationships, durations, interdependencies, and sequencing for:
 - i. Investigation Work, if any;
 - ii. DP submission and review processes for each design submission;
 - iii. Dependencies on investigation Work or other linkages with the start of construction; and
 - iv. Construction that maintains existing operations and public use/access, as applicable;
- b) Prepare a comprehensive Baseline network diagram of the Work of each sub-Project, including its relationship and dependencies with the design, schematically displaying the detailed and logical relationships of all activities that must be accomplished to satisfy the objectives of each sub-Project;
- c) Discuss activity durations, Float assumptions, and Float requirements with the DR and Design Team. Include reasonable durations and Float to reflect the:
 - i. Degree of Work complexity per sub-Project and interrelationship(s) of the overall program of Work of this Contract;
 - ii. Sequencing and status of the design and its production;

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- iii. Design reviews, approvals, and authorizations from the DR to proceed;
 - iv. Prequalification of Subcontractors and Suppliers and tendering of Subcontracts;
 - v. Site labour, Plant, Material, and equipment requirements and their sequencing; and
 - vi. Lost Work days per month based on a 10-year statistical average of historical weather conditions at the Place of the Work;
- d) Ensure critical activities are no greater than 10 Working Days in duration. A critical activity is one that has less than 5 Working Days of Float. Clearly identify all predecessor, successor, and dependent activities. Indicate Float per activity. Do not use relationship lags, but instead, use activities to mark the delay between the completion of one activity and its successor (e.g. indicate curing of concrete as an activity and not as a lag to another activity);
- e) Prepare detailed, summary and master schedules (network logic diagrams and bar charts) for all Work and its design elements for the overall program. Indicate the Critical Path for the sub-Project Work and overall program of Work. Advise the DR of Work dependencies or constraints and suggest methods to optimize the delivery of the Work each year and over multiple years, as appropriate;
- f) Establish a productivity/performance measurement and reporting methodology for the approval of the DR, including:
- i. The status of the design and the design progress;
 - ii. The complete status of the Work in all parts of the Site and, if applicable, remote Sites;
 - iii. A productivity/performance measurement framework and ensure Subcontractor and Supplier include performance measurement requirements and processes/consequences for non-performance or poor productivity;
 - iv. The management and summary of Subcontractor and Supplier productivity/ performance;
 - v. The Monitoring and documentation of positive and negative productivity/ performance and quality of the design and Project Work. Take immediate action to resolve poor productivity/performance or quality and:
 - 1. Inform the DR and the Design Team in writing immediately of any productivity/ performance issue that places the completion of a Subcontract, or parts of a Subcontract, at risk and where a successor or dependent relationship to other Subcontracts, or parts of Subcontracts, is at risk;
 - 2. Recommend to the DR and Design Team actions to mitigate the performance/productivity issue to ensure the Work remains within the estimated Work Cost and duration;
 - 3. Implement the mitigation measures and follow-up to validate and document the mitigation measures have corrected the performance/ productivity issue;
 - 4. If the mitigations measures do not correct the performance/ productivity issue, immediately advise the DR and Design Team, recommending alternate mitigation measures;
 - 5. Implement the alternate mitigation measures and follow-up to validate and document the mitigation measures have corrected the performance/ productivity

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- issue;
6. If the alternate mitigations measures do not correct the performance/ productivity issue, immediately advise the DR and Design Team; and
 7. Explore options to remove the Work from the Subcontractor or, Supplier. Document all actions and decisions. Advise the DR and Design Team in a Subcontractor productivity report on the progress to obtain a competent substitute Subcontractor or Supplier. Ensure the Project schedule is not compromised;
- g) Structure Subcontractor and Supplier Subcontracts to gather the required human resource, Material, equipment and schedule information for ongoing analysis and compilation by the CM. Work closely with Subcontractors and Suppliers to ensure their resource commitments meet the specific sequencing and related schedule requirements of the Project.
 - h) In consultation with the DR and the Design Team, incorporate the sequence and timing of the required key functional program and decisions into the detailed Project schedule. Include the design durations, interim and final design submissions with their related review and comment processes, pre-qualification processes, bid calls, bid evaluations, Subcontract awards, construction activities, commissioning, etc. in all schedules and;
 - i. Inform the Design Team and DR of possible constraints to Work operations and discuss potential alternate Work flows;
 - ii. Revise the sequence of activities to ensure viable Work flows; and
 - iii. Ensure Work sequencing is properly reflected in all solicitation packages;
 - i) Monitor, update and maintain the overall Project and program of Work schedule. Reassess activity duration and analyze activity sequencing weekly or more frequently as design options are being evaluated. Evaluate the interdependencies of the various Work and design elements and the impact these elements may have on others. Recommend to the DR and Design Team areas of optimization to achieve the shortest overall Work duration per sub-Project;
 - j) On and ongoing basis, Monitor the submission, approval, and reply of submittals and RFIs to ensure the planned flow of Work does not compromise the Critical Path in the Project schedule. If required, reassess and revise the submittal and RFI submission, review, approval, and response framework for submittal or RFI importance, with the input and agreement of the Consultant and DR;
 - k) Provide the DR a preliminary schedule impact analysis within 5 Working Days of receipt of notice for any change (i.e. contemplated change order, supplemental instruction, or site instruction that may attract Cost or extension of time that has a potential Cost impact):
 - i. With the preliminary impact analysis, the DR will confirm to the CM and Design Team if the proposed change will or will not be accepted from a technical basis; and
 - ii. If the proposed change is to proceed, the CM must provide the DR a detailed schedule impact analysis within 10 Working Days, or within a timeframe agreed to by the DR. The CM's impact analysis must consider all potential Cost elements, including the Cost of time to implement the change and potential Cost and time impacts to other Subcontractors and Suppliers;
 - l) Provide comprehensive schedule analysis as a part of each VE workshop;

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- m) Identify items or processes where long lead times are required that could jeopardize the construction delivery. Recommend items to pre-purchase (Material, machinery, equipment, supplies) and implement procurement methodologies to ensure timely delivery to meet the schedule; and
- n) Assess all risks to the schedule including early or late delivery of DPs, Material, equipment, and the Design Team's and CM's services per Project and provide the DR options to mitigate or optimize the schedule.

10.5.4 Deliverables

The CM must:

- a) Provide detailed, summary and master schedules of the overall program and for planned and approved projects to the DR within 40 Working Days of Contract award. The CM must revise and resubmit as required for the approval of the DR. The CM must resubmit monthly updates to the DR with each monthly report in a format acceptable to the DR and include:
 - i. Monthly schedule update, a separate three-week and two-month look-ahead schedules for:
 - 1. Major or important Work and design activities including Work;
 - 2. Design or other activities that are anticipated to start or be completed, requiring design decisions or approval, elements that require specific Design Team involvement or required design progress;
 - 3. Upcoming pre-qualification and competitive sourcing activities;
 - 4. Submittals and RFIs; and
 - 5. All other relevant activities that are anticipated or required to occur;
 - ii. Detailed schedules and roll ups for each Project element;
 - iii. Roll up master schedule for all elements and the overall program of Work;
 - iv. Identification of Critical Path and near Critical Paths and interdependencies between Project elements and program Projects, including submittals, RFIs, and required decisions or approvals;
 - v. Variance report to summarize slippages and or improvements in schedules against Baselines and previous monthly reports, including the reasons for the changes;
 - vi. Assessment of progress and assessment of risk of delivery for the Critical Path activities;
 - vii. Written summary of design production progress and design issues. Include impact analysis on competitive sourcing of the Work;
 - viii. List of issues and risks of items that may have future impact on the schedules and what actions are being taken to reduce/eliminate the impact; and
 - ix. List of the top five issues that must be resolved in order not to jeopardize the schedule of projects and the overall program;

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- b) Provide Subcontractor productivity reports monthly or more frequently when required on the productivity/performance management framework and actual productivity/performance of Subcontractors and Suppliers, including trends in the overall Work and design;
- c) Provide the DR time impact of early or late delivery of DPs, Materials, equipment, and the Design Team's and CM's services;
- d) Provide the DR time impact analysis of all proposed changes through the implementation of the Work and design, in coordination with the Cost impact analysis of the said proposed change; and
- e) Respond to comments from the DR within 2 Working Days of request, sooner if the request is urgent.

10.6 Risk Management

The DR will maintain a risk management plan and risk registry for the overall program and for each Project.

The CM must:

- a) Implement, daily, the approved risk management plan;
- b) Develop and maintain for the duration of the Contract a risk registry for the Work of each Project and the overall program of Work which identifies all implementation opportunities and risks, including those that relate to the Design Team's design;
- c) Continually analyze the impacts of these opportunities and risks, developing opportunity optimization and risk mitigation measures for each as they arise;
- d) Adjust the Work and CM's services implementation strategy processes as required to maximize opportunities and mitigate risks;
- e) With the input of the DR and Design Team, develop a lessons-learned database, continually update and refine the database, and ensure that learnings are incorporated in future design iterations, new designs and the Work;
- f) Align information generated from the CM's Cost, time services into a 5 x 5 risk matrix per risk registry entry;
- g) Provide detailed qualitative and quantitative analysis per risk registry entry that takes into account short-term, mid-term and long-term opportunities and risks, as well as the cumulative effect of opportunities and risk on each project and the overall program;
- h) Clearly document the rationale for actions taken;
- i) Closeout and archive risk registry entries when appropriate;
- j) Participate in risk workshops throughout the duration of the Contract;
- k) Develop and continually implement a claims avoidance program that fully integrates Work Cost, time, and productivity requirements prescribed throughout these ToR; and
- l) Thoroughly assess and document in detail all Subcontractor and Supplier, and any other parties claim or intent to file a claim.

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10.6.1 Deliverables

The CM must:

- a) Submit a draft risk registry to the DR within 60 Working Days of Contract award and incorporate agreed changes or modifications provided by the DR in a final draft within 20 Working Days of receipt the comments, for approval by the DR;
- b) Submit updates to the risk registry considering the quantitative and qualitative data from information sources as well as cumulative effects;
- c) Submit a monthly summary of key opportunities, risks, and CM's advice, options, and recommendations;
- d) Submit monthly, as a separate volume, all new or updated matters related to the CM's claims avoidance program, all claims or intent to claim;
- e) Distribute the updated lessons learned database to the DR and Design Team quarterly, or more often if appropriate; and
- f) Provide written comments on the DR's overall Project and program risk management plans and risk registries.

10.7 Human Resource Management

The CM must:

- a) Implement the approved human-resource management plan;
- b) Obtain written DR and CA approval for CM resourcing prior to deploying/changing resource strength.

10.7.1 Deliverables

The CM must:

- a) Submit a Contract-specific roles and responsibility matrix, organization chart(s), and forward-looking staffing plan to the DR within 60 Working Days of Contract. Revise these documents as requested by the DR; and
- b) Update and resubmit to the DR these documents every three months, or more often if requested by the DR.

10.8 Health and Safety Management

The CM must continuously have care, custody, and control of the Work during all phases of the Work, including the Site activities of all contractors retained by PWGSC or the Science Partners, or others, and take on the role of Constructor. The CM must comply with all the requirements of provincial health and safety acts and regulations.

The CM must also comply with:

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- a) The Canada Labour Code part II and relevant regulations under the Code including the NBCC for fire safety in construction and the most current National Fire Code of Canada for fire prevention, firefighting, and life safety in building in use;
- b) The ToR Appendix E - Fire Protection Requirements for Construction, Alteration, and Demolition Operations; and
- c) The Workplace Hazardous Materials Information System (WHMIS) for use, handling, storage and disposal of hazardous materials, as well as the labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to the Labour Program, under the Employment, Workforce Development and Labour Act.

For Work in occupied buildings, the CM must give the DR 48 hours' notice for Work involving designated substances, hazardous substances, and before painting, caulking, installing carpet or using adhesives.

The CM must develop and implement a Project-specific health and safety plan(s) applicable to all Work Sites during construction. The Project-specific health and safety plan(s) must apply to every individual entering the defined Work Sites and will be administered and enforced by the CM. The plan(s) must describe how the CM will provide safety awareness training, certifications for Subcontractors and Suppliers and their personnel who access each Work Site, Site safety inspections, reporting and tracking Site health and safety incidences, statistical analysis and comparison to industry indices.

The CM's health and safety plan(s) must consider any ongoing construction or public use at adjacent locations.

The CM must base the health and safety plan(s) on a preliminary and ongoing hazard assessment of each Work Site. The CM must update the Project-specific health and safety plan(s) as Site conditions or hazards change and inform all persons on the Site of the change of condition(s) or hazard(s). The CM must resubmit the updated plan to the DR immediately.

The CM must provide emergency response coordination for responses to Site problems during working and non-working hours. In consultation with the DR, the CM must establish a list of contacts for responses and communication. In case of an emergency where the safety of individuals or property is concerned, or Work is endangered by the actions of the Subcontractors, Suppliers or other persons, the CM must take immediate action to secure the individuals, property or Work including stopping Work, if required. In all situations, the CM must notify the DR and give immediate written notice to the Subcontractor, Supplier or other person(s) of the hazard.

10.8.1 CM's Responsibilities

The CM must:

- a) Before cutting and welding operations commence, issue hot Work permits and then continuously monitor all welding, soldering, grinding, and/or cutting Work. The CM must store flammable liquids in approved containers. No open flame must be used unless permitted and authorized by the CM;
- b) Within an occupied building, provide at least 48 hours' notice to the DR before commencing cutting, welding or soldering procedure, and include the following:

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- i. Notice of intent, indicating devices affected, time and duration of isolation or bypass;
 - ii. Advise of completed welding permit as defined in the ToR Appendix E - Fire Protection Requirements for Construction, Alteration, and Demolition Operations; and
 - iii. Ensure the return of the welding permit to Site Superintendent immediately on completion of procedures for which permit was issued;
- c) Assign a firewatcher as described in the ToR Appendix E - Fire Protection Requirements for Construction, Alteration, and Demolition Operations when welding or cutting operations are carried out in areas where combustible materials within 10 meters may be ignited by conduction or radiation;
- d) Where Work requires interruption of fire alarms, fire suppression, extinguishing or protection systems:
 - i. Provide watchman service, as described in the ToR Appendix E - Fire Protection Requirements for Construction, Alteration, and Demolition Operations, who is conversant with fire emergency procedures and who will perform a fire picket duty within unprotected and unoccupied (no workers) areas once per hour; and
 - ii. Retain the services of the manufacturer(s) or existing maintenance contractors for fire protection systems on daily basis to isolate and protect all devices relating to:
 - 1. Modification of fire alarms, fire suppression, extinguishing or protection systems; and/or
 - 2. Cutting, welding, soldering or other construction activities, which might activate fire protection systems;
- e) Immediately on completion of cutting, welding, soldering, or other Work, restore fire protection systems to normal operation and verify that all devices are fully operational;
- f) Inform fire alarm system monitoring agency and the municipal fire department immediately before isolation and immediately on restoration of normal operation;
- g) Provide full health and safety protection stipulated under the *Canada Labour Code* to all visitors to the Site, workers, staff, and Subcontractors;
- h) Provide full-time, competent health and safety officers, analyze and document Site conditions daily;
- i) Provide Site-specific health and safety orientation sessions to all workers and visitors;
- j) Give precedence to safety and health of public and Site personnel and protection of environment over Cost and schedule considerations;
- k) Perform ongoing Site-specific safety hazard assessments;
- l) Implement a Site contingency and emergency response process that includes standard operating procedures for implementation during emergency situations;
- m) Ensure the health and safety of persons on-Site, safety of property on-Site, and for protection of persons adjacent to Site and environment to extent that the conduct of Work or installations may affect them;

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- n) Define safety requirements in Design Packages or solicitation packages and enforce compliance of Subcontractors and Suppliers;
- o) Respond to any unforeseen or peculiar safety-related factor, hazard, or condition that becomes evident during performance of the Work, follow procedures in place for employee's right to refuse Work in accordance with provincial acts and regulations and advise DR verbally and in writing of any such situation;
- p) In consultation with the DR, post applicable items, articles, notices, and orders in conspicuous location on-Site in accordance with applicable acts and regulations;
- q) Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by the DR. Provide the DR with a written report of action(s) taken to correct non-compliance of health and safety issues identified;
- r) Use powder actuated devices, explosives or blasting procedures only after receipt of written permission and instruction from the DR;
- s) Keep Material Safety Data Sheets on the Site for viewing by the DR;
- t) Retain all fire safety documents and standards on-Site;
- u) In each Subcontract the CM issues under this Contract, incorporate the DR approved construction health and safety plan and include provisions to ensure full compliance with said plan; and
- v) Maintain on-Site sufficient personal protective equipment to equip a minimum of five visitors per Site.

10.8.2 Deliverables

The CM must submit to the DR the following documents:

- a) A draft construction health and safety plan for review within 30 Working Days of Contract award;
- b) A final Project-specific construction health and safety plan for approval by the DR before the implementation of any Work;
- c) Copies of on-Site contingency and emergency response plans within three months after Contract award and updates as necessary;
- d) For Work in occupied buildings:
 - i. Forty-eight hours' notices for Work involving designated substances, hazardous substances, and before painting, caulking, installing carpet or using adhesives; and
 - ii. Notices of intent to start cutting, welding or soldering procedures as required;
- e) Written requests to use powder actuated devices, explosives or blasting procedures, as required;
- f) Copies of incident and accident reports within 5 Working Days of each incident and accident, or within one Working Day if there is a fatality; and

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- g) A copy of the Notice of Project, per Project, filed with the provincial authority within 5 Working Days of commencing Project-specific Work.

10.9 Work Restrictions Plan

10.9.1 Scope

The CM must develop an overall Work restrictions plan in collaboration with the Design team and DR, and then adapt the plan as needed to project-specific requirements. The purpose of these plans is to identify the restrictions, constraints and requirements that must be imposed on the construction in order that stakeholder approval is received before start of construction of any project. Once stakeholder approval is received, the CM and the Design-Team must work together to incorporate the approved requirements into the DPs, mainly in Division 01 (as per the NMS) Specifications. The CM must inform its Subcontractors and Suppliers of the constraints and requirements, including those that impose a Cost and schedule impact.

The constraints and requirements within the CM's approved Work restrictions plan must include, but are not limited to:

- a) Environmental control;
- b) Commissioning and seasonal commissioning;
- c) Scheduling restrictions;
- d) Sequence of Work;
- e) Construction safety;
- f) Hours of Work;
- g) Delivery of equipment/materials;
- h) Waste disposal;
- i) Air monitoring;
- j) Scaffolding;
- k) Temporary services;
- l) Noise;
- m) Welding;
- n) Security clearances, security of information and physical security of personnel, equipment and the Work;
- o) Shutdown of services;
- p) Storage;
- q) Parking;
- r) Access to Site and buildings, include pre and post construction and during construction;
- s) Fire watch;
- t) Site plan showing limits of Work and staging areas;

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- u) Washrooms and lunchrooms; and
- v) Any other element related to the implementation of the Work, etc.

The approved Work restrictions plan has a direct bearing on the development of the CM's front-end tender package and the Division 1 Specification prepared and submitted by the Design Team. The CM, DR and the Design Team must discuss and agree on the exact delineation of the Design Team's Division 1 Specification versus the CM's front-end tender packages in the design process.

The CM must implement the Project-specific Work restrictions plan.

10.9.2 Deliverables

The CM must:

- a) Submit the Work restrictions plan, per Project, to the DR within 60 Working Days of Contract award, but no less than 20 Working Days prior to Site mobilization activities, and update the plan to meet Project-specific requirements as the Project evolves.
- b) Prepare and submit to the DR and Design Team an itemized list of plan elements that belong in the CM's front-end and the Design Team's Division 1 Specification.

10.10 Procurement

10.10.1 Procurement Strategy and Process Plan

The CM must develop a procurement strategy and process plan that is honest and enhances access, competition, and fairness for awarding all DPs approved by the DR.

The CM must, unless approved otherwise by the DR, prequalify Subcontractors and Suppliers to implement all Project Work, including investigation Work, and to provide design-assist services.

No Affiliate of the CM can bid on Subcontracts. However, in very unique circumstances (i.e. emergency situations, etc.) and only with the written preapproval of the DR and PWGSC Contracting Authority (CA), the CM itself undertake Project Work.

Design-assist is a process that obtains expertise from the construction industry relating to certain portions of the Work during SD, DD or DP stages. The DR, in consultation with the Design Team and CM, will identify scopes of Work for which industry expertise could be of benefit. The provision of this expertise in no way takes away from the Design Team's obligation to provide complete DPs which include Drawings, Specifications derived from the Model. Expertise provided through the design-assist process includes, but is not limited to:

- Technical advice with respect to feasibility of options
- Value Engineering advice
- Budgeting
- Research

Prior to obtaining advice for any scope of Work the DR, in consultation with the Design Team and CM, must decide on a mandate for the industry expertise.

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Subcontractors and Suppliers prequalification may contain requirements to use BIM and 3D printing (computerized numerical control tools (CNC milling, lathes, electrical discharge machining (EDM), plasma cutting, etc.)) for implementing the Work.

PWGSC will audit the CM's procurement process or may require changes to the CM's procurement plan at any time, at the sole discretion of PWGSC. The CM must, as part of its fixed monthly fee, participate in procurement audits and ensure procurement information and related Contract information is provided to the DR.

The CM's procurement strategy and process plan must include as a minimum:

- a) A list of recommended solicitation packages to maximize Work implementation effectiveness;
- b) A description of the fair, open, honest solicitation selection process that the CM will use to address:
 - i. Competitive public solicitations; and
 - ii. Single source solicitations;
- c) A description of the process to competitively pre-qualify Subcontractors, Suppliers, and design assist services, with the input of the Design Team and DR;
- d) A description of supply arrangements or standing offer arrangements contemplated for Project Work, investigations, and design-assist services;
- e) A copy of the generic solicitation documents the CM will use, which may be standard industry forms (Canadian Construction Documents Committee - CCDC) or custom forms appropriate for the Work required including:
 - i. Instructions to solicitors;
 - ii. Solicitation form;
 - iii. General conditions;
 - iv. Supplementary conditions,
 - v. Terms of payment; and
 - vi. Standard form of Subcontract;
- f) A description of minimal and standard solicitation periods and submission delivery address;
- g) A description of the process for solicitation job showings;
- h) A description of the procedures for response to written solicitation inquiries, issuance of solicitation amendments, and cut-off dates for solicitation inquiries before the close of bidding/tendering;
- i) A description of the process to establish solicitation bonding or surety, and insurance requirements and thresholds for Subcontracts;
- j) A description of solicitation receipt and opening procedures including physical or electronic time and date stamping of submissions on receipt and the opening of submissions;
- k) A description of Subcontractor mark-up allowances for changes in the Work, in accordance with the Supplemental Conditions of the Contract;

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- l) A description of acceptable labour rates, which must be in accordance with applicable trade union agreements and as indicated in the BASIS OF PAYMENT of the Contract;
- m) A description of the planning, scheduling, and reporting requirements to gather workforce, Material, equipment information/usage after Subcontract award;
- n) The requirements for Model Element data files for submittals requiring approval;
- o) A list of scheduled shutdowns and allowances for Work stoppage;
- p) A description of solicitation evaluation and recommendation process, including how bids/tenders will be analyzed and summarized; and
- q) A description of the process to address cases where solicitation does not produce an acceptable offer.

10.10.2 Solicitations

The CM must competitively solicit the Work. Solicitations must be issued in English and French, unless Subcontractors or Suppliers are unilingual, or as agreed by the DR. Subcontracts estimated at less than \$25,000, including harmonized sales tax, may be single-sourced to qualified Supplier only on the written approval of the DR. The CM must not split Subcontracts or Subcontract amendments to avoid the obligation for competitive solicitation of the Work.

For Subcontracts estimated at \$25,000 or more but less than \$100,000, including harmonized sales tax, the CM must invite a minimum of three qualified Suppliers to submit bids. The CM must notify in writing Subcontractors who are unsuccessful.

On the written agreement of the DR, the CM may set aside the requirement to solicit a minimum of three bids if it has demonstrated that less than three firms can perform the Work. The DR will not agree to set aside the requirement to solicit a minimum of three bids simply because the CM is unaware of three or more contractors or Suppliers capable of performing the Work/services.

For Subcontracts estimated at \$100,000 or more, including harmonized sales tax, the CM must advertise publicly through MERX™ Private, in accordance with the following open bidding procedures:

- a) The public advertisement must include, at a minimum, a description of the nature of the Work to perform, information about any technical requirements, financial guarantees or other documentation to provide with the submission, the completion date for the Work, the address of the submission closing location and the final date and time for receiving submissions, the identification of a contact point for obtaining solicitation documents and from which further information may be obtained, the date, time and place of the opening of the submissions;
- b) For Subcontracts evaluated at over \$8,000,000, the period for receipt of submissions must be no less than 40 calendar days from date of publication of the notice;
- c) Solicitation documentation must include all the public advertisement information, as well as identification of the submission validity period, the criteria for awarding the Subcontract including any factors other than price for consideration in the evaluation of submissions, the terms of payment, the requirement for bid bonds, contract surety and insurance in accordance with the procurement strategy and process plan, and any other terms or conditions;
- d) During the solicitation, the CM must reply promptly to any request for solicitation documents or any reasonable request for relevant information made by a Supplier participating in the

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solicitation. Information provided in response to questions during the solicitation period must be published on MERX™ Private for all solicitors; and

- e) Supply arrangements and standing offers are an acceptable procurement strategy, which should be described in the CM's procurement strategy and process plan. The use of Subcontract options is acceptable.

10.10.3 Disagreements, Disputes or Claims

Notwithstanding the provisions of paragraph 1) and paragraph 2) of General Condition (GC) 8.1, "Interpretation", in the Contract, the CM must, with respect to any disagreement, dispute or claim regarding any issue identified by a Subcontractor or Supplier identified in a CM subcontract related to this Contract, and to the best of the CM's abilities:

- a) Promptly assemble and analyze in detail all information relating to the said disagreement, dispute or claim in the CM's possession and all information brought forth by a Subcontractor or Supplier;
- b) Make recommendations, supported by the CM's written analysis, for the timely resolution of the said disagreement, dispute or claim within the terms of the CM's Contract;
- c) Retain one or more third party expert, if and when authorized by the DR, to comprehensively analyze and report on all CM, Subcontractor or Supplier information pertaining the said disagreement, dispute or claim, or other Contract and CM subcontract related documentation deemed necessary by the third-party expert, to support and document recommendation(s) the prudent resolution of the said disagreement, dispute or claim within the terms of the Contract; and
- d) As a last resort and only if the requirements stipulated in subparagraphs 10.10.3 (a),(b), and (c) of these ToR have not successfully resolved the Subcontractors or Suppliers said disagreement, dispute or claim, will the CM or any of the CM's Subcontractors or Suppliers, at any tier of the Contract, be eligible to pursue the Contract provisions described in GC 8, "Dispute Resolution", specifically: GC8.2, "Consultation and Co-operation"; GC8.3, "Notice of Dispute"; GC8.4, "Negotiation"; GC8.5, "Mediation"; GC8.6, "Confidentiality"; GC8.7, "Settlement"; and GC8.8, "Rules for Mediation of Disputes".

10.10.4 Deliverables

The CM must:

- a) Submit to the DR and CA a draft procurement strategy and process plan within 20 Working Days of Contract award and incorporate agreed changes or modifications provided by the DR and CA in a final draft within 15 Working Days of receipt comments;
- b) Have a procurement strategy and process plan approved by the DR and CA before soliciting any Work;
- c) Implement the approved procurement strategy and process plan for all solicitations;
- d) As and when requested, revise the approved procurement process and resubmit to the DR and CA for revised approval;
- e) Make available and, if requested, provide solicitation records to the DR and CA for review and audit.

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- f) Within 10 Working Days of being notified of a disagreement, dispute, or claim set forth by a Subcontractor or Supplier, provide the DR all related disagreement, dispute, or claim information and the CM's written recommendations and analysis; and
- g) When approved by the DR, provide the DR and CA detailed report(s) prepared by third-party expert(s) related to a disagreement, dispute, or claim set forth by a Subcontractor or Supplier

10.10.5 Deliverables

The CM must:

- h) Submit to the DR and CA a draft procurement strategy and process plan within 20 Working Days of Contract award and incorporate agreed changes or modifications provided by the DR and CA in a final draft within 15 Working Days of receipt comments;
- i) Have a procurement strategy and process plan approved by the DR and CA before soliciting any Work;
- j) Implement the approved procurement strategy and process plan for all solicitations;
- k) As and when requested, revise the approved procurement process and resubmit to the DR and CA for revised approval;
- l) Make available and, if requested, provide solicitation records to the DR and CA for review and audit.

10.11 Waste Management

The CM must prepare a waste reduction plan in accordance with the requirements prepared by the Design Team and submit the plan to the DR and Design Team for review and for the approval of the DR. The CM's waste reduction plan must include:

- a) A description of the process to ensure compliance with PWGSC requirements for 90% waste diversion and the requirements of local authorities having jurisdiction;
- b) A description of the strategy and methodology the CM will use to optimize solid waste diversion from landfill and dispose of toxic or hazardous materials in the most appropriate manner;
- c) All related schedules outlining expected inventory targets and results required when waste audits are conducted;
- d) A description of a non-hazardous solid waste reduction program for eliminating waste through reduction, reuse and recycling including:
 - i. Requirements for sorting construction waste on-Site by types; and
 - ii. A description of the most practical manner for recycling each individual material;
- e) Specific procedures for conducting waste management audits on-Site, including audit objectives, frequency and format.

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10.11.1 Deliverables

The CM must provide monthly audit reports of the waste management to the DR, which include:

- a) Subcontractors' disposal practices for paints, solvents and pressure treated wood scraps and other similar products or materials; and
- b) A waste management audit indicating the degree to which recycling requirements are being achieved and recommendations for improvements, if objectives are not being met.

10.12 Sustainability and Environmental Management

The Design Team will incorporate sustainability requirements into each DP. The CM must prepare documentation for the Design Team to meet applicable Green Globes or LEED evaluation requirements. The CM must identify and record Site management issues at the start of construction and ensure Subcontractors and Suppliers provide sustainability documentation as their Work progresses. The CM must compile and logically organize all sustainability and environmental information, give the information to the Design Team as the information becomes available for the Design Team's verification of conformance to sustainability requirements.

The CM must:

- a) Provide advice on the source and availability of regional materials and materials with recycled content;
- b) Develop and implement a comprehensive waste management program for the Work;
- c) Conduct on-Site verifications related to the use of acceptable materials, compile and verify MSDS sheets and WHMIS information;
- d) Review preliminary, revised and final sustainability assessment for the design and provide to the Design Team information as to necessary changes to the post construction Green Globes or LEED questionnaire; and
- e) Sign the final questionnaire and provide all final documentation.

10.12.1 Deliverables

The CM must:

- a) Provide the DR with receipts, bills-of-lading or transfer for all waste removed from the Site, indicating the destination of the waste product;
- b) Make available at any time all MSDS sheets and WHMIS information applicable to the Work at the Site; and
- c) Provide a signed copy of the final Green Globes or LEED questionnaire and provide all sustainability documentation.

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11 CONSTRUCTION SERVICES

11.1 General

The CM must maintain competent, full-time supervisory, quality management and field engineering staff on-Site during implementation of the Work. The CM must identify unacceptable Work daily and validate it is properly corrected to avoid delays and schedule impacts to other segments of the Work. The CM must ensure that its workforce follows the quality management processes identified in the CM's quality management plan. The CM must ensure that adequate back-up personnel is available for all the CM's services.

The CM must:

- a) Monitor progress on-Site and ensure coordination of Subcontractors and Suppliers;
- b) Establish Site organization and lines of authority to carry out the overall plans of the CM, DR and the Design Team;
- c) Schedule and conduct progress meetings at which Subcontractors, Suppliers, DR, Design Team and CM can discuss jointly such matters as procedures, progress, problems, risks, Costs, and scheduling;
- d) Provide ongoing Monitoring of the schedule as the Work proceeds; assess against performance measurement criteria, itemize Work ahead and behind schedule and take corrective action as required to ensure schedule impact is eliminated;
- e) Provide an on-Site, full-service, interactive electronic platform, such as Multivista, to:
 - i. Disseminate and see design information (Drawings, Specification, site instructions, minutes, etc.) within the Site to the Site workforce;
 - ii. Integrate webcams for Work Monitoring, remote Monitoring, and time-lapse coverage;
 - iii. Photograph Work, including aerial views of the Site;
 - iv. Provide immersive 3D photography and walkthroughs to remotely view critical systems;
- f) Complete the Work according to the DPs, schedule, and estimated Cost of the Work;
- g) Provide ongoing inspection of all aspects of the Work, documenting matters for action or follow-up by Subcontractors and Suppliers, or referral to the Design Team. Ensure the Work is completed as specified using photographs and narratives to document issues and their correction and establish a timeline for corrective Work;
- h) Monitor and document progress of all Subcontractors and Suppliers, including all delivers, to ensure their actions on the Site do not compromise the Work.
- i) Backcharge appropriate Subcontractor(s) or Supplier(s) for damages. Refer to ToR section 11.5 – Superficial Damage for additional CM obligations;
- j) Review the adequacy of personnel and equipment and availability of Material and supplies of Subcontractors and Suppliers, including those making deliveries or installing laboratory casework or FF&E to meet the schedule. Implement remedial action when requirements of a schedule are not being met;
- k) Monitor and document on an ongoing basis all health and safety matters; and

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- l) Review and analyze the accuracy and validity of claims or disputes of Subcontractors and Suppliers. Advise the DR of the most prudent means and methods of resolving said claims or disputes, mitigating further time and Cost impact to the delivery of the Work. If required and requested by the DR, retain the services of a third-party advisor.

11.2 Project Office

As part of the Division 1 expenditures, the CM must:

- a) Provide the DR details, layout, and estimated Cost of a Site office that is appropriate for the type, scale and duration of the Project. Where possible, place said office within the facility, limiting the use of trailers and other leased facilities. Obtain DR approval to provide said office;
- b) Fit up and maintain the Site office at the Place of the Work; and
- c) Provide and administer a common information-sharing platform for the entire Project Team as selected by the Project Team.

11.3 Construction Work

The CM must:

- a) Manage all Work and all of the CM's services for the smooth and safe operation and co-ordination of the Site, including Site organization, safety, and control as "prime contractor" and "constructor" duties defined in provincial health and safety acts and regulations;
- b) Provide temporary services and Site facilities, Site security, traffic management, management of the waste and management program for the Site; protection, hoarding and screening, fencing, cranes and lifts; building and temporary services, system, and equipment maintenance, and other miscellaneous Work related to managing a construction Site adjacent to other buildings or public areas;
- c) Provide design management and design assist services;
- d) Coordinate, schedule, implement, protect, and commission the Work as prescribed and approved by the DR.
- e) Procure, coordinate, administer and manage all Work; and
- f) Prepare and execute Subcontracts with the successful Subcontractors and Suppliers, as well as:
 - i. Coordinate and manage these Subcontracts in an integrated manner to avoid any conflicts between the Work of any of the CM's Subcontractors and Suppliers, the CM's own forces, and the PWGSC's or Science Partners' own forces;
 - ii. Coordinate, manage and ensure completion of all the Work in strict adherence to the accepted Drawings and Specifications of each solicitation package, including all addenda and authorized change orders;
 - iii. In consultation with the Design Team, develop and implement a procedure for review, certification, processing and payment of Subcontractors and Suppliers for the approval of the DR; and
 - iv. Provide timely response to correct issues, as they occur.

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11.4 Laboratory Casework and FF&E Installation

The CM must:

- a) In consultation with the DR, identify a clean and secure on-Site space or spaces to stage and pre-assemble equipment to be able to address requirements for warehousing and/or a requirement to build, test and install the equipment;
- b) Protect building and laboratory casework and FF&E finishes during Work performed after Substantial Performance.
- c) Assess the completeness and sequencing of requirements for dust control, suppression, and removal for temporary installations or as provided in each DP before competitive sourcing and advise the Design Team if changes are required;
- d) Verify routinely temporary protection system effectiveness, adjusting protection and procedures as required;
- e) Ensure the Site is maintained clean during and after installation of electronic components due to the sensitive nature of electronic equipment;
- f) Control dust migration from zone to zone;
- g) Schedule and control laboratory casework and FF&E deliveries;
- h) Provide delivery inspection with the support of the Design Team for all laboratory casework and FF&E delivered to the Site;
- i) Receive or reject incoming laboratory casework and FF&E items by unpacking, performing visual inspections, taking photographs, and completing inspection forms and notify the DR for items rejected and provide rationale (evidence) for rejection;
- j) Retain delivery packing slips for items received and rejected. Compile packing slips and provide DR monthly, or more often if requested;
- k) Provide the necessary labour, coordination, Monitoring and documentation to ensure all items are moved and installed in the correct laboratories, rooms or areas. Employ CM, Subcontractor or Supplier labour as required to properly install items;
- l) Move and orient items according to the design provided for its final building location;
- m) Dispose of all packing material and complete general housekeeping activities at item's final location;
- n) Test items by connecting all input services the item requires to function. Mount and orient the item as per the design provided and the manufacturer's installation instructions. Start-up and commission item to ensure proper functioning. Testing and connection of items excludes IT network and IT equipment programming and configuring, unless otherwise directed by the DR;
- o) Report testing issues to the DR and Design Team. Rectify any deficiencies as directed by the Design Team.

11.5 Superficial Damage

Where superficial damage to partially completed or completed Work occurs, the CM must fully investigate and report to the DR on the nature of the damage and recommended follow-up action,

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including application of insurance and attributing responsibility for said damage, if this can be determined. Where a responsible party can be determined, the CM must allocate the Cost of the damage or, as applicable, insurance deductible to the Party who caused the damage. If, using reasonable efforts, the CM demonstrates that damage has not been caused by the CM or the CM's Subcontractors or Suppliers but rather by a third-party, the Cost for the repairs to the Work or insurance deductible, as applicable, must be reviewed by the DR, and if deemed fair and reasonable, authorized for payment with the next progress payment. For the purposes of this ToR subsection, "superficial damage" means minor damage to the surface of the Work Site.

11.6 Commissioning

The DR, the CM, the Subcontractors, Suppliers, the Design Team, and the Science Partners' Property Manager will form the commissioning team and will provide input to the commissioning plan(s) prepared by the Design Team.

The CM must administer and continually manage the implementation of the commissioning plan(s) prepared by the Design Team including the seasonal commissioning activities for all Work.

The CM must:

- a) Review and provide input on all commissioning documentation provided by the Design Team, including the commissioning plan(s);
- b) Organize weekly commissioning meetings as part of the construction meetings, prepare and distribute agenda, chair meetings, prepare and distribute meeting minutes within 2 Working Days of the meeting to the attendees;
- c) Present an updated commissioning schedule at all commissioning meetings and identify any variances and issues for address at those commissioning meetings;
- d) Confirm that the Work of Subcontractors and Suppliers is sufficiently complete to warrant inspection and testing by the Design Team and schedule the required inspections and tests;
- e) Develop and implement a Site quality management program to:
 - i. Minimize delays because of poor workmanship or Subcontractor or Supplier error;
 - ii. Reduce deficiencies and call-backs during warranty periods; and
 - iii. Reduce long-term risk to PWGSC and Science Partners arising from poor workmanship;
- f) Gather, review, and verify that the information is correct and relay all information dealing with product information on labelling protocols, maintenance data requirements and protocols to the Subcontractors and Suppliers for their supply and installation;
- g) Administer and manage independent quality control testing as may be required by the DR, the Design Team or the CM to confirm the adequacy of the Work or performance verification report;
- h) Participate in the start-up and performance verification process ensuring all Work is implemented as described in DPs;
- i) Witness with the Design Team all testing, before Substantial Performance, including but not limited to, a complete verification of the controls sequence of all systems in a dynamic operating state;
- j) Ensure that all test results, documents, and manuals are provided by Subcontractors and

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Suppliers, Monitor the Design Team review process, and report to the DR on the progress of the commissioning effort;

- k) Direct Subcontractors and Suppliers to complete, repair, adjust or rebuild portions of the Work that do not meet the verification standards. Ensure deficiencies are corrected;
- l) Complete and sign-off of all verification reports and compile the reports into a comprehensive commissioning manual as the Work progresses, including commissioning manual updates to include seasonal commissioning activities;
- m) Coordinate the training of Science Partners' operational or end-user staff and the equipment handovers;
- n) Coordinate the federal, provincial, and municipal inspections required for occupancy;
- o) Detail seasonal commissioning activities within the Work schedule and complete these activities on time with the proper documentation and or follow-up action;
- p) With the Design Team, Monitor and inspect the Project Work during its warranty period and during seasonal commissioning activities to ensure defects are corrected as defined in the commissioning plan(s);
- q) Undertake all actions required to close-out Subcontracts including final warranty reviews and Subcontract close-outs; and
- r) Review standard operating procedures (SOPs) prepared by the Design Team for each building system, advise the DR, and Design Team of accuracy and review, and advise again during seasonal commissioning. As required, post or mount SOPs near or adjacent to equipment, or as instructed by the DR.

11.7 Cleaning

The CM must:

- a) Provide cleaning services throughout the life of the Contract;
- b) Carry out construction cleaning to ensure a safe work environment and to protect Site and building systems from excessive construction dust and debris;
- c) Complete a construction cleaning of the entire area before Substantial Performance;
- d) Perform a final cleaning of the entire area before handover to PWGSC and Science Partners, including all interior and exterior surfaces, fixtures and equipment to eliminate all dust and debris;
- e) Employ qualified personnel for all laboratory cleaning to the satisfaction of the DR; and
- f) Advise the DR in writing and obtain the DR's authorization before the cleaning of the entire area before substantial performance and the final cleaning of the entire area before the handover to PWGSC and the Science Partners, and obtain acceptance of cleaning in writing from DR when completed.

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11.8 Deliverables

The CM must:

- a) Provide ongoing safe and control construction operations as prescribed in the Contract documents for the duration of the Contract;
- b) Provide shutdown and restart procedures and timelines and, when appropriate Work sequencing, to the DR for review. Revise as required to obtain acceptance. ;
- c) Provide detailed documentation to support recommendations to the DR for Subcontractor and Supplier disagreements, disputes or claims;
- d) Provide the DR FF&E delivery and installation photos and reports;
- e) Provide the DR recommendations to resolve superficial damage to the Work;
- f) Provide the DR all commissioning documentation; and
- g) Provide written notice to the DR of the intent to start initial and final cleaning operations.

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12 POST-CONSTRUCTION SERVICES

The CM must:

- a) Coordinate with Subcontractors and Suppliers to provide final record documents (operations and maintenance manuals, as-built Drawings and Specifications) as prescribed for each Subcontract;
- b) Assemble record documents and provide to the DR, in whole Project packages or as directed by the DR;
- c) Review the draft and final commissioning reports, seasonal commissioning reports, SOPs, other manuals and comment on their accuracy and completeness and provide the reports to the DR;
- d) Review and complete the Green Globes or LEED post-construction self-assessment questionnaire, providing additional supporting documentation relating to the Work and provide the completed questionnaire to the DR;
- e) Arrange for inspections of the Work as outlined in the commissioning plan(s) to determine all deficiencies for correction:
 - i. Prepare a deficiency list for review and acceptance by the DR and Design Team;
 - ii. Provide a schedule for the approval of the DR indicating when correction of all deficiencies covered by warranty will be corrected and submit to the DR and Design Team; and
 - iii. Arrange for and correct all identified deficiencies in accordance with the schedule and advise the DR and Design Team when all deficiencies have been properly corrected;
- f) Attend all warranty meetings on or off the Site as required by the DR;
- g) Attend lessons learned workshop organized by the DR at substantial performance, 3 months after Substantial Performance. Provide updated lessons learned logs to the DR; and
- h) Provide the DR a draft post-construction evaluation and Cost analysis report within 4 months following Substantial Performance of the Project. Include lessons learned, outstanding issues and any Work of the Project not completed or deferred to subsequent projects.

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TOR APPENDICES

APPENDIX A – GUIDE TO PREPARATION OF CONSTRUCTION DOCUMENTS

1. Purpose

This document provides direction for the Design Team in the preparation of DPs (i.e. Specifications, Drawings, and addenda) for PWGSC projects. It is included for the CM's information and reference in performing its design management services.

Drawings, Specifications, and addenda are to be complete and clear, so that a contractor can prepare a bid without guesswork. Standard practice for the preparation of DPs includes:

- a) Drawings, which are the graphic means of showing Work to be done, as they depict shape, dimension, location, quantity of Materials and relationship between building components; and
- b) Specifications, which are written descriptions of materials and construction processes in relation to quality, colour, pattern, performance and characteristics of materials, installation and quality of Work requirements.

2. Principles of DPs for the Contract

Base DPs on common public procurement principles: open, fair and transparent solicitations.

3. Quality Assurance

The Design Team is required to undertake their own quality control process and will review, correct and coordinate (between disciplines) their documents before sending them to the CM. The CM must review and validate the scope content and coordination and provide feedback in writing to the DR and Design Team.

4. Specifications

4.1 National Master Specification

The NMS is a bilingual system of master construction specification sections, which is divided into 48 Divisions and used for a wide range of construction and/or renovation projects. In preparing project Specifications, the Design Team will use the current edition of the NMS in accordance with the NMS User's Guide and format requirements stipulated.

The Design Team retains overriding responsibility for content and is required to edit, amend and supplement the NMS as deemed necessary to produce an appropriate Project Specification free from conflict and ambiguity.

4.2 Specification Organization

Narrow scope sections describing single units of Work are preferred for more complex Work; however, broad scope sections may be more suitable for less complex Work. Either the NMS 1/3 - 2/3-page format or the Construction Specifications Canada full-page format can be utilized.

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Start each section on a new page and show Project number, section title, six-digit section number and page number on each page. Specification date and Design Team consultant's name are not to be indicated.

4.3 Terminology

Use the term CM instead of Engineer, PWGSC, Owner, Consultant or Architect. CM means the entity designated in the Project construction contract, and/or Subcontract, or by written notice to the contractor and/or Subcontractor, to act as the representative for the purposes of the Project construction contract, and includes a person, designated and authorized in writing by the representative to the Contractor.

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

4.4 Dimensions

Dimensions must be in metric only. Dual dimensioning is forbidden.

4.5 Standards

As references in the NMS may not be the most current, it is the responsibility of the Design Team to ensure that Project Specifications use the latest applicable edition. The following is a list of Internet websites, which provides the most current publications of standards for reference in the construction Specification document:

- a) CSA standards: <http://www.csa.ca>;
- b) CGSB standards: <http://www.pwgsc.gc.ca/cgsb>;
- c) ANSI standards: <http://www.ansi.org>;
- d) ASTM standards: <http://www.astm.org>;
- e) ULC standards: <http://www.ulc.ca>; and
- f) General reference of standards: <http://www.techstreet.com> ;

For the website addresses of other standards organizations and manufacturers associations, refer to the [Canadian National Master Construction Specification \(NMS\)](http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/nms_index.html) (http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/nms_index.html).

4.6 Specifying Materials

The practice of specifying actual brand names, model numbers, etc., is against PWGSC policy except for special circumstances. The method of specifying Materials must be by using recognized standards such as those produced by Canadian Gas Association (CGA), Canadian General Standards Board (CGSB), CSA, and Underwriters' Laboratories of Canada (ULC), or by trade associations such as Canadian Roofing

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Contractors' Association (CRCA) and Terrazzo, Tile, Marble Association of Canada (TTMAC). Canadian standards must be used wherever possible.

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

If no standards exist and when a suitable non-restrictive, non-trade name prescription or performance-type Specification cannot be developed, specify by trade name. Include all known Materials acceptable for the purpose intended, and in the case of equipment, identify by type and model number.

Acceptable Materials: set up the paragraph format as follows:

Acceptable Materials:

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

The Design Team is responsible to review and evaluate all requests for approval of alternative Materials.

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

Sole Sourcing: Sole sourcing for Materials and Work can be used for proprietary systems (i.e. fire alarm systems, EMCS systems).

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

“Designated Contractor

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

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

“Designated Contractor

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

And in Part 2 as “Materials

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

Wording for the sole source of Materials (i.e. fire alarm systems) should be in Part 2 as:

“Acceptable materials

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

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Prior to including sole source Materials and/or Work, the Design Team and CM are required to contact the DR to obtain the approval in writing for the sole sourcing.

4.7 Unit Prices

Unit prices are used only for unknown Work (i.e. rock removal) and the approval of the DR and the CM will be sought in advance of their use.

Use the following wording:

[The work for this section] or [defines the specific work if required, e.g. rock excavation] will be paid based on the actual quantities measured on-Site and the unit prices stated in the CM's Bid and Acceptance Form, or equivalent document.

Replace paragraph title "Measurement for Payment" with "Unit Prices".

Sample of Unit Price Table:

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

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

| Item | Specification Reference | Class of Labour, Plant, or Material | Unit of Measurement | Estimated Quantity | Price per Unit HST extra | Estimated Total Price HST extra |
|---|-------------------------|-------------------------------------|---------------------|--------------------|--------------------------|---------------------------------|
| | | | | | | |
| | | | | | | |
| TOTAL ESTIMATED AMOUNT <i>(Transfer amount to CM's bid and accept form)</i> | | | | | | |

4.8 Cash Allowances

DPs will be complete and contain all the requirements for the contractual Work. Cash allowances are to be used only under exceptional circumstances (i.e. utility companies; municipalities), where no other method of specifying is appropriate. The DR's approval must be obtained in advance to incorporate cash allowances and the section of the NMS will be used to specify the criteria.

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4.9 Warranties

This Project will require a minimum 12-month warranty period. When necessary to extend beyond the 12-month warranty period provided for in the General Conditions of the Contract, use the following wording in Part 1 of the applicable technical sections, under the heading "Extended Warranty":

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

Delete all references to manufacturer's guarantees.

4.10 Scope of Work

Paragraphs must not include statements such as "Scope of Work".

4.11 Summary and Section Includes in Part - 1 of Section

Delete paragraphs identified as "Summary" and/or "Section Includes".

4.12 Related Sections

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

4.13 Index

List all the Drawings and Specification sections with correct number of pages and correct Drawing titles and section names. The format is to be that presented in ToR Appendix A, Attachment B - Sample Index for Drawings and Specifications.

4.14 Division 1 Specifications

The scope and content of the Division 1 Specifications must be assessed by and agreed to between the Design Team and the CM, to the approval of the DR. Common sections that apply to the entire Specification will be prepared by the Design Team, such as environmental, sustainability, and commissioning Specifications. Other sections such as health and safety, Work restrictions, etc. will be prepared by the CM.

The CM will combine the Design Team's and CM's Specifications to create a common 'front-end' document for the CM's tendering of the Work.

4.15 Health and Safety

All Project Specifications are to include "Section 01 35 29.06 - Health and Safety Requirements." The CM must confirm with the Design Team and DR if there are specific instructions to meet Project requirements (e.g. requirements of the Work restriction plan, Site-specific hazards, etc.).

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4.16 Designated Substances Report

Include Section 01 14 25 - Designated Substances Report

4.17 Subsurface Investigation Reports

If required, subsurface investigation report(s) shall be included after Section 31, and the following paragraph added to Section 31:

Subsurface Investigation Report(s)

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

If the Departmental Representative determines that it is not practical to include the subsurface investigation report(s), alternate instructions will be provided. Where tender documents are to be issued in both official languages, the subsurface investigation report(s) must be issued in both languages. In addition to providing the subsurface investigation report(s), the foundation information required by the current *National Building Code of Canada* (Division C, Part 2, 2.2.4.6) must be included on foundation drawings.

4.18 Experience and Qualifications

Remove experience and qualification requirements from Specification sections.

4.19 Prequalification

Do not include in the Specification any mandatory Supplier and/or Subcontractor prequalification requirements that could become a Subcontract award condition. A prequalification process is required prior to tender of all specialty and major tenders.

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

4.20 Contracting Issues

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

Remove all references to the following:

- a) General instructions to bidders;
- b) General conditions;
- c) CCDC documents;
- d) Priority of documents;
- e) Security clauses;
- f) Terms of payment or holdback;

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- g) Tendering process;
- h) Bonding requirements;
- i) Insurance requirements;
- j) Alternative and separate pricing;
- k) Site visit (mandatory or optional); and
- l) Release of lien and deficiency holdbacks.

4.21 Quality Issues

Ensure that there are no Specification clauses with square brackets “[]” or lines “_____” indicating that the Specification is incomplete or missing information.

5. Drawings

5.1 Title Blocks

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

5.2 Dimensions

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

5.3 Trade Names

Trade names on Drawings are not acceptable.

5.4 Specification Notes

No Specification-type notes are to appear on any Drawing.

5.5 Terminology

Use the term CM instead of Engineer, PWGSC, Owner, Consultant, or Architect. CM means the entity designated in the Project construction contract, and/or Subcontract, or by written notice to the contractor and/or Subcontractor, to act as the representative for the purposes of the Project construction contract, and includes a person, designated, and authorized in writing by the representative to the Contractor.

Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by the CM", are not be indicated on the Drawings as this promotes inaccurate and inflated bids. Drawings must permit bidders to calculate all quantities and bid accurately.

5.6 North Arrow

Include a north arrow on all plans. Orient all plans in the same direction for easy cross-referencing. Wherever possible, lay out plans so that the north point is at the top of the sheet.

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5.7 Information to be included

Drawings are to show the quantity and configuration of the Project Work, the dimensions and details of how it is constructed. There must be no references to future Work nor information that will be changed by a future addendum. The scope of Work should be clearly detailed and elements not in the scope of the DP must be eliminated or kept to an absolute minimum.

6. Addenda

6.1 Format

Refer to ToR Appendix A, Attachment C - Sample Addendum Format for addenda format. No signature-type information is to appear.

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

No Design Team design discipline information (name, address, phone #, consultant project # etc...) must appear in the addendum or its attachments (except on sketches).

6.2 Content

Each item must refer to an existing paragraph of the Specification or note/detail on the Drawings. The clarification-style of note is not acceptable.

7. Documentation

7.1 Translation

When required, all documentation included in the DP must be in both official languages. Obtain clarification of translation requirements from the Departmental Representative at the beginning of DP production.

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

The Design Team must provide:

- a) Per DP submission, a completed and signed ToR Appendix A, Attachment A - Checklist for the submission of Construction Documents;
- b) Specification: provide originals printed one side on 216 mm x 280 mm white bond paper, or in an acceptable format for mass printing;
- c) Index: as per ToR Appendix A, Attachment B - Sample Index for Drawings and Specifications;
- d) Addenda (if required): as per ToR Appendix A, Attachment C - Sample Addendum Format, for issue by the CM;
- e) Drawings: reproducible originals, sealed and signed by the Design Team' design authority; and
- f) Tender information:

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- i. Provide a description of all units and estimated quantities to be included in unit price table(s); and
- ii. Design Team to provide an electronic true copy of the final documents (Specifications and Drawings) on one or multiple CD-ROM in PDF without password protection and printing restrictions, or as agreed by the CM and DR. The electronic copy of Drawings and Specifications is for bidding purposes only and do not require to be signed and sealed.

The CM must provide:

- a) General and special instructions to bidders;
- b) Bid and acceptance form, or equivalent; and
- c) Construction documents.

8. ToR Appendix A - Attachments

ToR Appendix A, Attachment A - Checklist for the submission of Construction Documents;

ToR Appendix A, Attachment B - Sample Index for Drawings and Specifications; and

ToR Appendix A, Attachment C - Sample Addendum Format.

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ToR Appendix A: Attachment A:

Checklist for the Submission of Construction Documents

| | |
|--|-------------------------------------|
| Date: | |
| Project Title: | Project Location: |
| Project Number: | Departmental Representative: |
| Design Team consultant's Name: | CM Representative: |
| Design Package Review Stage: <div style="text-align: center; margin-top: 5px;"> 50% 90% 100% </div> | |

| Item | Verified by: | Comments |
|---|--------------|----------|
| Specifications: | | |
| 1 Current edition of the NMS has been used. | | |
| 2a Either the NMS 1/3 - 2/3-page format or the Construction Specifications Canada full-page format is used. | | |
| 2b Each section starts on a new page and the project number, section title, section number and page number show on each page. | | |
| 2c Specification date and consultant's name are not indicated. | | |
| 3a Term CM is used instead of Engineer, PWGSC, Owner, Consultant or Architect. | | |
| 3b Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to", "equivalent to" and "to be determined on site by" are not used. | | |
| 4 Dimensions are provided in metric only. | | |
| 5 The latest edition of all references quoted is used. | | |
| 6a Method of specifying materials uses recognized standards. Actual brand names and model numbers are not specified. | | |
| 6b Identify if non-restrictive, non-trade name "prescription" or "performance" Specifications are used. | | |
| 6c Indicate if a list of acceptable Materials have been used. | | |

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| | | |
|--|--|--|
| 6d Term “Acceptable Manufacturers” is not used. | | |
| 6e Indicate if sole sourcing has been used. | | |
| 7 Unit prices are used only for unknown Work. | | |
| 8 Indicate if cash allowances have been used. | | |
| 9a Indicate if warranties extend more than 24 months. If so, indicate the extended duration. | | |
| 9b Manufacturers guarantees are not indicated. | | |
| 10 No paragraphs noted as “Scope of Work” are included. | | |
| 11 In part 1 of section, paragraphs “Summary” and “Section Includes” are not used. | | |
| 12 List of related sections and appendices are coordinated. | | |
| 13 The index shows a complete list of Drawings and Specification sections with the correct number of pages and correct Drawing titles and section names. | | |
| 14 Section 01 00 10 - General Instructions is included, if agreed by the CM. | | |
| 15 Section 01 35 29.06 - Health and Safety Requirements is included. | | |
| 16 Section 01 14 25 - Designated Substances Report is included, if agreed by the CM. | | |
| 17 Subsurface reports are included in Division 31. | | |
| 18 Experience and qualification requirements do not appear in the Specification sections | | |
| 19 There are no mandatory contractor and/or Subcontractor pre-qualification requirements or references to certificates, transcripts or license numbers of a trade or Subcontractor being included in the bid. | | |
| 20a Contracting issues do not appear in the Specifications. | | |
| 20b Division 00 of the NMS is not used. | | |
| 21 There are no Specification clauses with square brackets “[]” or lines “__” indicating that the document is incomplete or missing information. | | |
| Specification Quality Management Verification All previous submission review comments approved/provided by the DR are appropriately incorporated in the Specifications and responses to all comments send to the DR. | | |

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| Item | Verified by: | Comments |
|---|--------------|----------|
| Drawings: | | |
| 1 PWGSC title block is used. | | |
| 2 Dimensions are provided in metric only. | | |
| 3 Trade names are not used. | | |
| 4 There is no Specification-type notes. | | |
| 5 Term CM is used instead of Engineer, PWGSC, Owner, Consultant or Architect. | | |
| 6 Notations such as; “verify on site”, “as instructed”, “to match existing”, “example”, “equal to”, “equivalent to” and “to be determined on site by” are not used. | | |
| 7 Project quantity and configuration, dimensions and construction details are included. | | |
| 8 References to future work and elements not in contract do not appear or are kept to an absolute minimum and clearly marked. | | |
| Drawings Quality Management Verification All previous submission review comments approved/provided by the DR are appropriately incorporated in the Specifications and responses to all comments send to the DR. | | |

I confirm that the Drawings and Specifications have been thoroughly reviewed and that the items listed above have been addressed or incorporated. I acknowledge and accept that by signing, I am certifying that all items noted above have been addressed.

CM’s Representative:

Firm name:

Signature:

Date:

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ToR Appendix A: Attachment B:

Sample Index for Drawings and Specifications

Project No: _____

Index

Page 1 of ____

DRAWINGS AND SPECIFICATIONS

DRAWINGS:

SPEC NOTE: List all Drawings by number and title.

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

SPECIFICATIONS:

SPEC NOTE: List all divisions, sections (by number and title) and number of pages.

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

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ToR Appendix A: Attachment C:

Sample Addendum Format

ADDENDUM No. _____

Project Number: _____

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

DRAWINGS

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

- 1 A1 Architectural

SPECIFICATIONS

SPEC NOTE: indicate section number and title.

- 1 Section 01 00 10 - General Requirements

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

- .1 Delete article (xx) entirely.
- .2 Refer to paragraph (xx.x) and change ...

- 2 Section 23 05 00 - Common Work Results - Mechanical

- .1 Add new article (x) as follows:

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APPENDIX B - TERMS

The following terms and abbreviations are used in this document:

| | |
|---|---|
| Baseline | The original plan and/or schedule approved by the DR (for Project, DP, or activity), plus or minus approved scope changes. |
| Building Information Modelling (or Modeling) | The process and technology used to create Models. |
| Building Information Modelling (or Modeling) Execution Plan (BXP) | A document developed collaboratively by the Project Team to establish standardized procedures, conventions and guidelines with agreed targets for responsibility, timely delivery, exchange, and reuse of the Model. |
| Construction Documents | Includes Project specific specifications and Drawings and includes Models or Model Elements. |
| Construction Manager, or Contractor | Means the person(s) or entity(ies) identified and authorized by the PWGSC to perform the construction management services and Construction Services for work under this Contract. |
| Contracting Authority | Means the individual delegated by the Minister of PWGSC to enter into contracts, amend the contracts and is responsible for all matters concerning and interpretation of the terms and conditions of the Contract. The delegated individual is responsible for the management of the Contract. Any changes to the Contract terms and conditions must be authorized in writing by the Contracting Authority. |
| Cost, or Contract Cost Principles | The principles used to determine reasonable direct and indirect costs related to the Contract, as defined at the following website: https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/3/1031-2/6 |
| Cost Consultant | The entity in contract with PWGSC engaged to provide independent cost planning, estimating, control and quality assurance services directly to PWGSC. |
| Critical Activity | Any task/activity on a Critical Path. |
| Critical Path | A series of tasks/activities that determines the longest duration of the Project. |
| Critical Path Method | A network analysis technique used to predict Project duration by analyzing which sequence of activities (which path) has least amount of scheduling flexibility (least amount of Float). |
| Design Package | The part of the overall work for the Project that is specific to a limited number of trades or even one trade and is prepared by the Consultant to acquire or construct one or more building element and/or to acquire and construct install one or more laboratory casework or FF&E element. |
| Design Team | The combined forces of the Consultant, Sub-Consultant(s), and Specialist Consultant(s). |
| Drawings | The 2D Drawings generated from the Model and traditional 2D Drawings not generated from the Model. |

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| | |
|--|---|
| Float | The amount of time that an activity may be delayed from its early start without delaying the Project finish date. Float is a mathematical calculation and can change as the Project progresses. |
| Model | A digital representation of the physical and functional configuration, characteristics or attributes of the Project or a portion of the Project. |
| Model Element | Means a part of the Model representing a portion of the Project or a system or assembly within the Project or the Project site as well as data sets. |
| Monitoring | The capture, analysis, and reporting of Project performance, usually as compared to plan. |
| National Master Specification | The standard framework used for writing construction project specifications for this Contract. |
| Network (Logic) Diagram | A schematic display of logical relationships of Project activities and is always drawn from left to right to reflect Project chronology. |
| Project | All the CM's services and Work required to fulfill the CM's services described in the Contract, including additional or incremental sub-Projects. |
| Project Management Support Services consultant | The entity contracted by PWGSC for project management support services for this Project directly to PWGSC. |
| Project Team | The combined private sector and government sector teams responsible for delivering the Project including the Design Team, the Project Management Support Services consultant, the Cost Consultant, the Construction Manager, the Departmental Representative, and the Clients'/Users' representatives. |
| Science Cluster | A group of science programs within a LC Science Facility, designed and built to meet the specific needs of the Science Partners for that facility. |
| Science Facility | Real property and infrastructure in its entirety, inclusive of base building, fit-up and surrounding property. |
| Science Partners | As applicable to each Science Cluster, the Place of the Work, a combination of federal science-based department(s) and agency(ies), including but not limited to: Natural Resources Canada; National Research Council; Canadian Conservation Institute; Parks Canada Agency; Canadian Food Inspection Agency; Health Canada; and the Royal Canadian Mounted Police. |
| Site, or Place of the Work | Means the designated site or location of the work identified in the Contract documents or by the Departmental Representative. |
| Specifications | Are that portion of the Construction Documents consisting the written technical requirements and standards for the Work of the Contract as prepared by the Consultant or Construction Manager, as applicable. |
| | |

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APPENDIX C - ACRONYMS

| | |
|---------|---|
| ACPDR | Advisory Committee on Planning, Design and Realty |
| ASHRAE | American Society of Heating, Refrigeration and Air-conditioning Engineers |
| AVA | Authorization for Vehicular Access |
| BAS | Building Automation System |
| BXP | BIM Execution Plan |
| CADD | Computer-aided Design and Drafting |
| CATV | Cable Television |
| CBRN | Chemical, Biological, Radiation and Nuclear |
| CC | Cost Consultant |
| CCI | Canadian Conservation Institute |
| CCTV | Closed-circuit Television |
| CFIA | Canadian Food Inspection Agency |
| CGA | Canadian Gas Association |
| CGSB | Canadian General Standards Board |
| CIQS | Canadian Institute of Quantity Surveyors |
| CM | Construction Manager |
| COHS | Canada Occupational Health and Safety Regulations |
| CPM | Critical Path Method |
| CRCA | Canadian Roofing Contractors Association |
| CSA | Canadian Standards Association |
| CSO | Corporate Security Officer |
| DD | Design Development |
| DMP | Design Management Plan |
| DP | Design Package |
| DR | Departmental Representative |
| ECCC | Environment and Climate Change Canada |
| ECMP | Environnemental Compliance Management Program |
| EMCS | Electronic Monitoring and Control System |
| FC | Field Clarification |
| FCSI | Food Consultants Society International |
| FHBRO | Federal Heritage Buildings Review Office |
| FLUDA | Federal Land Use and Design Approval |
| GDM | Geotechnical Design Memorandum |
| GDR | Geotechnical Design Report |
| HC | Health Canada |
| HVAC | Heating, Ventilation and Air Conditioning system |
| IFC | Industry Foundation Class |
| IM / IT | Information Management / Information Technology |
| KPI | Key Performance Indicators |
| LC | Laboratories Canada |
| LCC | Life Cycle Costing |

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| | |
|-------|--|
| MM | Multimedia |
| NBCC | National Building Code of Canada 2015 |
| NCC | National Capital Commission |
| NCR | National Capital Region |
| NRC | National Research Council |
| NRCan | Natural Resources Canada |
| NMS | National Master Specification |
| OFC | Operational and Functional Component |
| OWS | Operator Work Station |
| PCA | Parks Canada Agency |
| P&TS | Professional and Technical Services |
| PCM | Phase Contrast Microscopy |
| PDF | Portable Document Format |
| PLM | Polarized Light Microscopy |
| PMSS | Project Management Support Services consultant |
| PMT | Project Management Team |
| PPC | Plant Pest Containment |
| PWGSC | Public Works and Government Services Canada |
| RCMP | Royal Canadian Mounted Police |
| RFI | Request for Information |
| RS | Required Services |
| SD | Schematic Design |
| SLS | Serviceability Limit State |
| SOP | Standard Operating Procedures |
| SPC | Speech Privacy Class |
| SSC | Shared Services Canada |
| STC | Speech Transmission Class |
| TEM | Transmission Electron Microscopy |
| TMM | Technical Maintenance Manual |
| ToR | Terms of Reference |
| TRA | Threat and Risk Assessment |
| TSSA | Technical Standards and Safety Authority |
| TTMAC | Terrazzo, Tile, Marble Association of Canada |
| ULC | Underwriters Laboratories of Canada |
| ULS | Ultimate Limit State |
| UPS | Uninterrupted Power Supply |
| VE | Value Engineering |
| WHMIS | Workplace Hazardous Materials Information System |
| ZNE | Zero Net Energy (buildings) |

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APPENDIX D – PROCESS MAPS

The following process maps depict the general workflow and Project Team members involved with subject in question. Time periods indicated show activity duration.

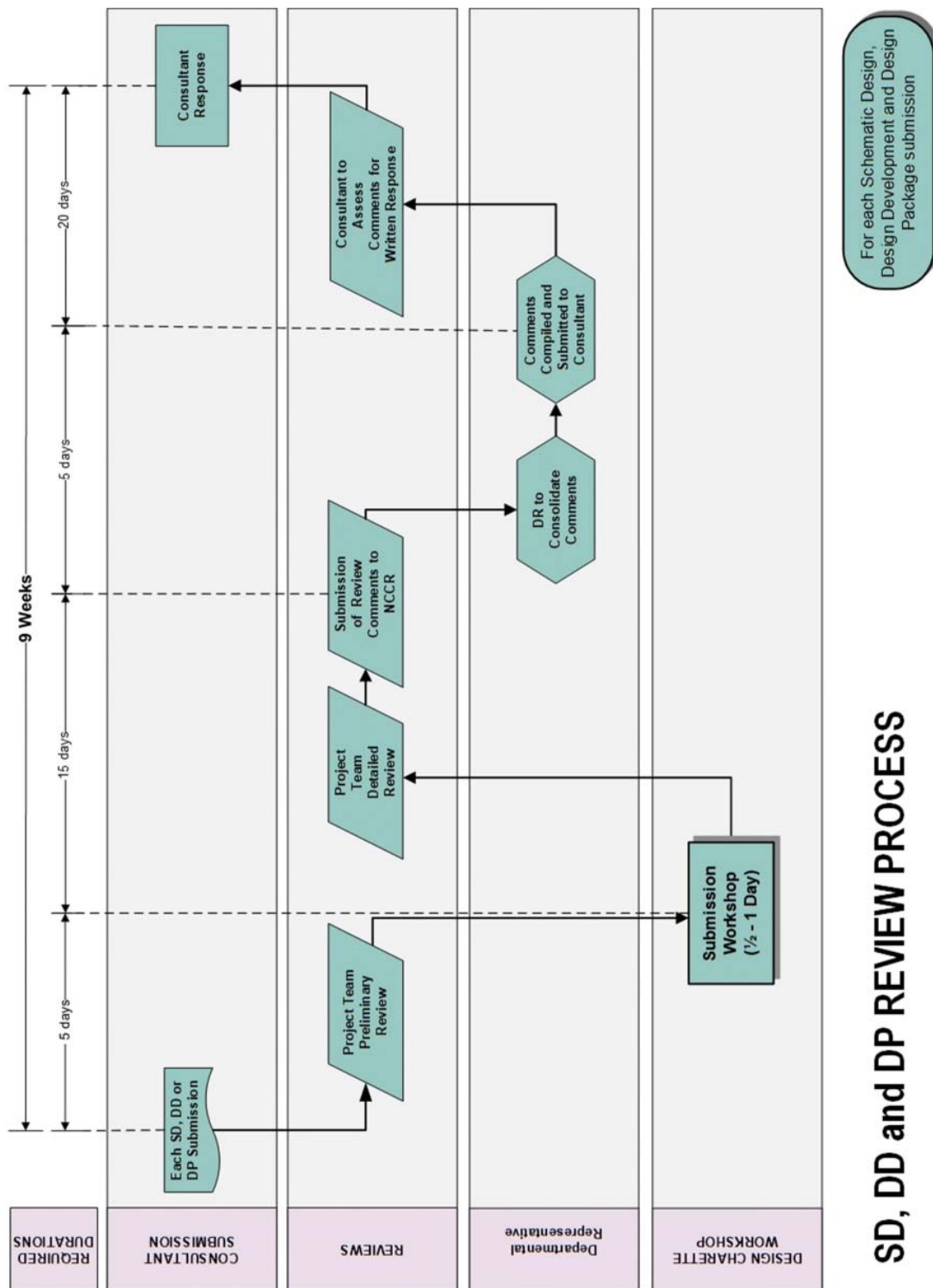
Process maps applicable to the Contract include:

- SD, DD, DP Submissions;
- Construction Submittals.
- Request for Information (RFI), Field Clarification (FC) and Supplementary Instruction; and
- Expenditure Authority (EA) for CM Subcontract Changes;

Refer to the DR for clarification or refinement of any individual workflow process.

The DR may redefine existing and add new workflow processes.

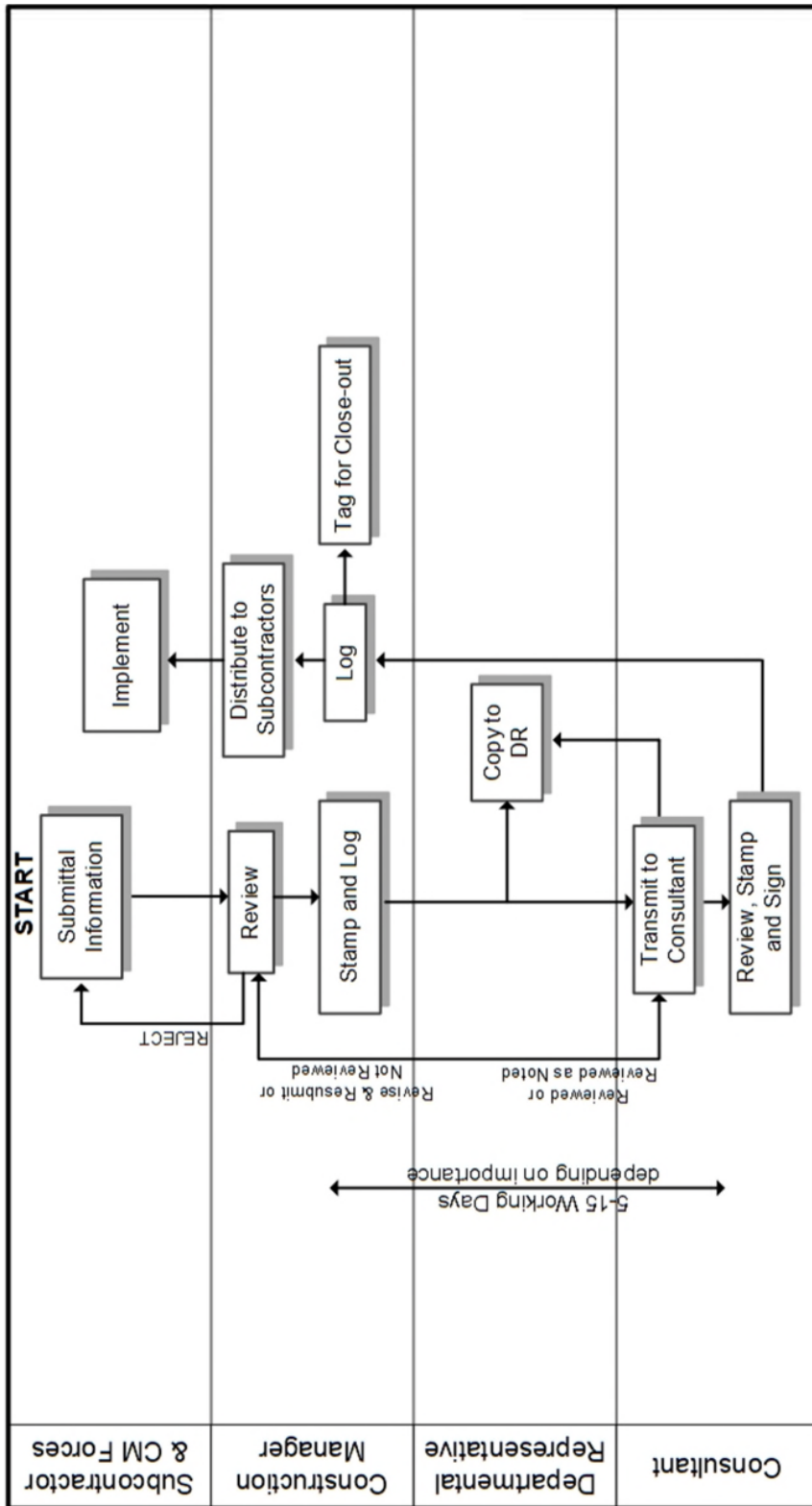
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SD, DD and DP REVIEW PROCESS

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CONSTRUCTION SUBMITTALS FLOWCHART



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APPENDIX E - Fire Protection Requirements for Construction, Alteration, and Demolition Operations

Note: Page numbering in this Appendix E Table of Contents reflects the technical content of Appendix E only. The Table of Contents numbering does not align with the actual page numbering of the overall Terms of Reference document.

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This document describes the fire protection and life safety guidelines that apply for the construction, alteration, or demolition of buildings or structures. Contractors must consider and follow these guidelines in planning and delivery of PWGSC projects.

These guidelines consolidate prescribed requirements of the National Building Code, National Fire Code of Canada and include relevant parts of the archived Fire Commissioner of Canada Standards.

Code references include:

- a) Part 8 of the 2010 National Building Code of Canada (NBCC); and
- b) Sections 4 and 5.6 of the 2010 National Fire Code of Canada (NFCC).

In this document the term Contractor has the same meaning as General Contractor, Construction Manager, or Prime Contractor.

1. Work Site Requirements

1.1 Dust Control

- a) Provide dust tight screens or partitions to localize dust-generating activities, and for protection of workers, finished areas of work and public;
- b) Maintain and relocate protection until such Work is complete;
- c) Protect all furnishings within work area with 0.102 mm thick polyethylene film during construction. Remove film during non-construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function; and
- d) Design, construct and maintain temporary access to and egress from work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 Dust Screens

- a) Provide dust tight screens or partitions to confine dust-generating activities, and for protection of workers, finished areas of work and public;
- b) Maintain and relocate dust protection until such work is complete, including the areas above ceilings;
- c) A polypropylene barrier is required to be caulked and sealed along perimeter and around all penetrations;
- d) Negative air pressure is required when sanding, painting, using solvents, glues, or volatile compounds, or passing throughout stairwells; and
- e) No particulate matter is permitted to contaminate the building and shall be vented to the exterior.

1.3 Site Protection

- a) Protect work against damage until take-over;

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- b) Protect adjacent work against the spread of dust and dirt beyond the work areas;
- c) Protect operatives and other users of site from all hazards; and
- d) Install proper site separation and identification in order to maintain 'time and space' at all times throughout the life of the project. When PWGSC Operations staff require access to equipment in order to operate the building, schedule and coordination safe access and egress.

1.4 Access to Site and Work Area

- a) Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to work;
- b) Access to site and work area should be restricted; and
- c) Coordinate all area closures with Departmental Representative. Provide a schedule for closures and a plan of alternate means of access/egress to/from barricaded areas.

1.5 Emergency Routes

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

1.6 Protection for Off-Site and Public Property

- a) Protect surrounding private and public property from damage during performance of Work; and
- b) Be responsible for damage incurred.

1.7 Protection of Building Finishes

- a) Provide protection for finished and partially finished building finishes and equipment during performance of work;
- b) Provide necessary screens, covers, and palisades;
- c) Confirm with Departmental Representative locations and installation schedule 3 working days prior to installation; and
- d) Be responsible for damage incurred due to lack of or improper protection.

1.8 Palisades

- a) Erect temporary site enclosures using 1.8 meters high snow fence attached with metal wire to steel T-profile posts, or equivalent, disposed at 2.4 meters center to center. Each span shall be covered with non-weaved geotextile on full height and length. Provide a lockable access gate for trucks; and
- b) Provide fences around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

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1.9 Guard Rails and Barricades

Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

1.10 Shelters, Enclosures and Weather Enclosures

- a) Provide temporary barriers and enclosures around the areas of work;
- b) Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs;
- c) Close off floor areas where walls are not finished and seal off other openings. Enclose work for temporary heat as required;
- d) Calculate, design, and install enclosures to withstand wind pressure and snow loading; and
- e) Coordinate all area closures with Departmental Representative. Provide a schedule for closures and a plan of alternate means of access/egress to/from barricaded areas.

1.11 Hoarding

- a) Design, erect and maintain temporary site enclosure and covered pedestrian walkways and provide protection, complete with signs and electrical lighting;
- b) Provide one lockable truck entrance gate and one pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys. Paint public side of site enclosure in colour selected by Departmental Representative; and
- c) Protect work temporarily until enclosures are complete.

2. Protection of Public Way

2.1 Fencing and Barricades

2.1.1 Covered Way Exceptions

Where the construction may constitute a hazard to the public, work shall not commence on the construction, alteration or repair of a building until a covered way has been provided to protect the public, except where:

- a) the work is done within a solid enclosure;
- b) the building is at a distance of 2 m or more from a public way used by pedestrians; or
- c) site conditions warrant a distance greater than provided in subparagraph b) of 2.1.1.

2.1.2 Covered Way Construction

A covered way shall:

- a) have a clear height of not less than 2.5 m;

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- b) have a clear width of not less than 1.5 m or the width of the public way, whichever is the lesser;
- c) be designed and constructed to support safely all loads that may be reasonably expected to be applied to it, but in no case less than 2.4 kPa on the roof;
- d) have a weathertight roof sloped towards the site or, if flat, be equipped with a splash board not less than 300 mm high on the street side;
- e) be totally enclosed on the site side with a structure having a reasonably smooth surface facing the public way;
- f) have a railing 1 070 mm high on the street side where the covered way is supported by posts on the street side; and
- g) be adequately lighted when the public way is lighted.

2.1.3 Fencing, Boarding or Barricades

- a) When a construction or demolition activity may constitute a hazard to the public and is located 2 m or more from a public way, a strongly constructed fence, boarding or barricade not less than 1.8 m high shall be erected between the site and the public way or open sides of a construction site;
- b) Barricades shall have a reasonably smooth surface facing the public way and shall be without openings, except those required for access; and
- c) Access openings through barricades shall be equipped with gates that shall be:
 - i. kept closed and locked when the site is unattended; and
 - ii. maintained in place until completion of the construction or demolition activity.

2.1.4 Special Hazards

Where any special hazard exists from which it is not possible to protect the public by other means, persons shall be employed to prevent the public from entering the danger zone at any time of the day or night.

2.1.5 Work Shutdown

When work on a construction site is suspended or ceases so that it will not be occupied during normal working hours, the hazardous part of the construction site shall be protected by:

- a) covering all windows, doors and other openings located within 3 m of the ground which may give access to the building with a securely fastened barricade, or
- b) a fence or barricade constructed according to the requirements of the NBCC, Article 8.2.1.3.

2.1.6 Excavation

- a) Excavations shall be kept reasonably clear of water; and

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- b) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent;
 - i. damage to, or movement of, any part of the adjoining building; and
 - ii. the creation of a hazard to the public.

2.2 Use of Streets or Public Property

2.2.1 Safe Passage Past Site

- a) Provisions shall be made at all times for the safe passage of pedestrian and vehicular traffic past the site;
- b) Material or equipment shall not be placed on any street or other public property except as authorized;
- c) Except as provided in subparagraph d) of 2.2.1, where a sidewalk exists adjacent to the site it shall be kept clear of obstructions at all times; and
- d) Where construction operations necessitate the obstruction of a sidewalk, a temporary sidewalk shall be provided and it shall be kept clear of obstruction at all times.

2.2.2 Overhead Activities

Operations such as the hoisting of major components onto a tall building or other overhead activities that constitute a hazard to pedestrians below from which the public cannot be protected by barricades, covered ways or similar means shall not be carried out until the street or other public way is closed.

2.2.3 Barricades

Excavations in streets or public property shall:

- a) be adequately barricaded, and
- b) have warning signs or lights installed on each section of the barricades referred to in subparagraph a) of 2.2.3.

2.2.4 Restoration and Repair

- a) All sidewalks, streets or other public property that have been damaged shall be restored to a safe condition; and
- b) All obstructions on sidewalks, streets or other public property shall be removed when the need for such obstructions is ended.

2.2.5 Warning Lights

Warning lights shall be placed and shall be in operation during the hours of darkness at all obstructions on streets or other public ways.

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2.3 Direction of Vehicular Traffic

2.3.1 Hazards to Vehicular Traffic

- a) Where a hazard to vehicular traffic on a public way is created by work on a construction site, the following shall be provided to direct the traffic:
 - i. one or more workers;
 - ii. warning signs;
 - iii. barriers;
 - iv. lane control devices; or
 - v. flashing lights or flares located at a suitable distance from the hazard.
- b) A flag used to direct traffic shall be:
 - i. Red;
 - ii. not less than 450 mm by 500 mm;
 - iii. mounted on a staff not less than 1 m long, with the long side of the flag attached securely to the staff along its entire length; and
 - iv. maintained in a clean and untorn condition when being used.
- c) A sign used to direct traffic shall be:
 - i. diamond-shaped and of material not less rigid than 6 mm thick plywood;
 - ii. not less than 450 mm by 450 mm in size and mounted at one corner on a substantial pole not less than 1.2 meters long;
 - iii. red on one side with black corner areas so that the red area is a regular 8-sided figure, and with the word “STOP” or “ARRÊT” in clearly distinguishable white letters not less than 150 mm high located centrally on the sign;
 - iv. yellow on the other side with the word “SLOW” or “LENTEMENT” in clearly distinguishable black letters not less than 150 mm high located centrally on the sign, or symbols recognized by the International Traffic Code; and
 - v. maintained in a clean condition when being used.
- d) A worker who is directing traffic shall:
 - i. wear the following clothing which shall be fluorescent and coloured either blaze orange or red:
 - 1. a vest; or
 - 2. sleeves that extend from above the elbow to the wrist;
 - ii. be instructed in the signals to be used in controlling traffic;

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- iii. be provided with a copy of written instructions on the correct methods for traffic direction; and
- iv. direct traffic by using either a flag or sign.

3. Scaffolding and Temporary Enclosures

3.1 Scaffolding and Forms

- a) Scaffolding shall be drawn and stamped by a registered professional engineer;
- b) The Canada Labour Code states that the footings and supports of every scaffold shall be capable of carrying, without dangerous settling, all loads that are likely to be imposed on them. Furthermore, every scaffold shall be capable of supporting at least four times the load that is likely to be imposed on it; and
- c) Combustible scaffolding and forms, including combustible debris incidental to their installation or removal shall be removed from the building or structure as soon as possible. Unnecessary accumulation of these materials shall be avoided and any such accumulation shall be stored in an orderly fashion.

3.2 Temporary Enclosures

- a) Temporary enclosures shall consist of flame retardant treated tarpaulins or other material of equivalent fire-retardant quality;
- b) The materials, such as fabrics and films, shall be fastened securely or guarded by construction so that they cannot be blown against heating units or flame producing devices; and
- c) Temporary enclosures shall be taken down and removed from the construction site as soon as they are no longer required.

4. Separation Distances

4.1 Construction Buildings

- a) Temporary buildings used as offices or for storage and of combustible construction shall be located at least 10 meters from the building or structure under construction or alteration; and
- b) Separation distances between buildings under construction and construction related structures such as: temporary offices, trailers, sheds, other facilities for the storage of tools, and materials having combustible construction or contents, in accordance with the NFPA 241 table below.

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Table 4.2.1 Separation Distances

NFPA 241

| Temporary Structure Exposing Wall Length | | Minimum Separation Distance | |
|---|-----|--------------------------------|----|
| m | ft | m | ft |
| 6 | 20 | 9 | 30 |
| 9 | 30 | 11 | 35 |
| 12 | 40 | 12 | 40 |
| 15 | 50 | 14 | 45 |
| 18 | 60 | 15 | 50 |
| >18 | >60 | 18 | 60 |

4.2 Equipment Clearances

- a) Internal combustion engines and associated equipment, such as air compressors, hoists, derricks, pumps, and similar devices, shall be located so that the exhausts discharge well away from combustible materials;
- b) Where the exhausts are piped outside the structure under construction, alteration, or demolition, a clearance of at least 230 mm (9 in.) shall be maintained between such piping and combustible material;
- c) Internal combustion engines and associated equipment shall be shut down and allowed to cool sufficiently prior to refueling;
- d) Service areas for equipment shall not be located within structures under construction, alteration, or demolition; and
- e) Fuel for internal combustion engines shall not be stored within structures under construction, alteration, or demolition.

4.3 Clearance to Piping for Heating and Cooling Systems

- a) Clearances between combustible material and bare pipes carrying steam or hot water shall conform to:

| Steam or Water Temperature (°C) | Minimum Clearance (mm) |
|---------------------------------|------------------------|
| Up to 95 | No clearance |
| > 95 up to 120 | 15 |
| > 120 | 25 |

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- b) The exposed surface temperature of a steam or hot water radiator shall not exceed 70°C unless precautions are taken to prevent human contact;
- c) Where a pipe carrying steam or hot water at a temperature above 120°C passes through a combustible floor, ceiling or wall, the construction shall be protected by a sleeve of metal or other non-combustible material not less than 50 mm larger in diameter than the pipe; and
- d) Internal combustion engines are required to be located such that their exhaust discharges not less than 500 mm from any combustible materials. Where the exhaust is piped to the outdoors, the exhaust pipe shall be located not less than 150 mm from any combustible materials.

4.4 Protection of Adjacent Properties

- a) The integrity of adjacent structures is required to be maintained and periodic inspection of adjacent properties is required so that damage or unsafe conditions can be reported and rectified immediately;
- b) The buildings and structures located adjacent to the work shall be protected;
- c) The integrity of adjacent structures is required to be maintained and periodic inspection of adjacent properties is required so that damage or unsafe conditions can be reported and rectified immediately; and
- d) The inspection of adjacent properties, and the frequency of inspection, will be the responsibility of the general contractor.

4.5 Fire Separations in Partly Occupied Buildings

Where part of a building continues to be occupied, the occupied part shall be separated from the part being demolished or constructed by a fire separation having a fire-resistance rating of not less than one hour.

5. Temporary Building Services

5.1 Temporary Heating

- a) Temporary heating shall be provided by means of approved construction heaters;
- b) Electric heaters shall be designed and installed in accordance with the requirements of CSA Standard C22.1, "Canadian Electrical Code";
- c) Liquid fuel fired heating appliances shall be installed in accordance with the requirements of CSA Standard B139, "Oil Burning Equipment". Heating appliances using gasoline or naphtha type fuels shall not be used;
- d) Gas fired heating appliances shall be installed in accordance with the requirements of CGA Standard CAN1-B149.1 "Installation Code for Natural Gas Burning Appliances and Equipment" and CGA Standard CAN1-B149.2 "Installation Code for Propane Burning Appliances and Equipment";
- e) Solid fuel burning heating appliances shall not be permitted;

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- f) Hot air or exhaust ducts shall be constructed of non-combustible material and be securely supported;
- g) Hot air supply ducts shall have a clearance from combustible construction or material equal to that required for the furnace plenum and this clearance shall be maintained for a distance of 1800 mm from the furnace plenum after which it may be reduced to 150 mm;
- h) Steam lines shall have a clearance from combustible construction or material of at least 150 mm if the steam lines are not insulated and 75 mm if the steam lines are insulated; and
- i) Steam lines shall be securely and rigidly supported. Steam lines within easy reach of workmen shall be equipped with guards or pipe covering.

5.2 Temporary Electric Wiring and Lighting

- a) All electrical wiring and equipment shall conform to Section 76 of CSA Standard C22.1, "Canadian Electrical Code", and to the requirements of the local provincial electrical authority;
- b) The main service switch shall be securely mounted on a substantial support, shall be readily accessible and shall be provided with a suitable locking device. No obstruction of any kind shall be placed within 1 meter of this switch;
- c) Electrical control panels shall be securely mounted on substantial supports and readily accessible. No obstructions shall be placed within 1 meter in front of such panels;
- d) All cables and wires for electrical distribution shall be suspended overhead with adequate clearance for traffic. Such cables and wires shall be suitably protected against damage;
- e) Extension cords in fixed position shall be carried overhead and adequately secured in place. Such cords shall be disconnected when not in use;
- f) Adequate lighting shall be provided throughout the building under construction or alteration in all work areas and means of egress. Electrical lamps for temporary lighting shall be protected by wire guards against breakage;
- g) When work is carried out at night, emergency lighting shall be provided in locations designated by the Departmental Representative to provide access to a safe location from working areas;
- h) Electrical control panels and equipment shall be inspected at frequent intervals and maintained in safe condition;
- i) High tension lines shall be marked so as to be clearly visible to the operators of construction equipment; and
- j) Temporary heating units, including flues, shall be located in conformance with Part 6 of the NBCC or with the minimum clearances indicated on certified equipment.

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6. Building Services Shutoff

6.1 Utilities

- a) The electric service shall be either shutdown or reduced to a minimum consistent with operations and identified so as to allow no uncertainty as to which circuits are energized; and
- b) The gas service shall be shut off at a point outside the building or structure and identified as required by the utility company providing the service.

6.2 Shutdown of Fire Protection System

- a) Extinguishers shall be recharged immediately after use and returned to their designated positions;
- b) Fire separations shall be retained intact until demolition operations necessitate their removal;
- c) Water supplies including hydrants shall remain in service during demolition operations;
- d) Standpipe and hose systems, sprinkler systems and fire alarm systems shall be retained in service as long as the conditions requiring such systems exist;
- e) A sufficient number of suitable fire extinguishers shall be available on the site during demolition operations;
- f) Water supplies, hydrants, sprinkler systems, standpipe and hose systems, fire alarm systems or any other installed fire protection system shall not be shut down, shut-off, disconnected, blocked or otherwise impaired without authority in writing from the Departmental Representative, except as required in subparagraph c) of 6.2;
- g) When the period of impairment of a fire protection system as stipulated in subparagraph b) of 6.2 is anticipated to be in excess of 24 hours, alternative fire protection measures shall be implemented as required by and to the approval of the Departmental Representative;
- h) Closed valves and inoperative manual fire alarm stations shall be tagged or identified in a manner acceptable to the Departmental Representative; and
- i) When construction work requires the temporary shutting down of an installed fire protection system, the work shall be programmed to limit the outage to the absolute minimum and to assure that all practical precautions are taken in the form of substitute protection and rescheduling of hazardous work until the protection is restored.

6.3 Building Service Shut-off at Demolition Sites

- a) Except for water supplies for firefighting and temporary electrical installations, building services shall be shut off; and
- b) All gas and fuel lines shall be capped during demolition operations.

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6.4 Excavation

- a) Before excavation begins, all existing gas, electrical, water, steam and other services shall be shut off, capped and labelled so as to permit them to be easily identified outside the limits of the excavation;
- b) The service company whose service connections will be affected shall be notified before any action mentioned in subparagraph a) of 6.4 is taken and, if it is necessary to maintain any service, it shall be:
 - i. relocated as necessary, and
 - ii. protected from damage so as to keep the public safe.

6.5 Maintaining Existing Services

Existing gas, electrical, water, steam and other services are permitted to be left within the area of the excavation provided that:

- a) before work begins, the service company concerned has approved the proposed method of operation;
- b) the location of the services is determined before excavation commences;
- c) a suitable method of excavation is adopted that will ensure that the services are not damaged; and
- d) the services are provided with suitable temporary supports.

7. Hazardous Operations

Where the hazardous operations or materials, as listed below, are required as part of the construction, the requirements for fire protection and life safety will be determined based on the specifics of the operations required.

7.1 Flammable and Combustible Liquids

- a) The storage, handling, use, and processing of flammable liquids and combustible liquids in buildings, structures, and open areas should be in accordance with Part 4 of the NFCC;
- b) When the quantities of flammable liquids and combustible liquids are such as to require storage in tanks, they shall be stored in accordance with Part 4 of the NFCC;
- c) When the quantities of flammable liquids and combustible liquids are such as to per storage and handling in containers other than tanks, they shall be stored and handled in accordance with Part 4 of the NFCC;
- d) When operations are being carried out on a 24-hour basis, the quantity of flammable liquids and combustible liquids permitted at the work site shall be limited to that consistent with such operations;
- e) Used or empty containers shall not be permitted to remain inside any structure other than a storage shed;

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- f) Adequate ventilation shall be provided for paint spraying operations and such operations shall be conducted remote from any potential source of ignition;
- g) Equipment or appliances using gasoline or similar flammable liquids as fuels shall be refueled outside the building;
- h) Cleaning rags shall be kept in closed metal containers and removed from the premises at the end of each working day; and
- i) Any spill of a flammable liquid or combustible liquid shall be cleaned up immediately upon discovery.

7.2 Liquified Petroleum Gases

- a) Liquified petroleum gas cylinders shall be installed in accordance with the requirements of CGA Standard B149.2, "Propane Burning Appliances and Equipment";
- b) The aggregate capacity of cylinders connected to one portable manifold shall not exceed 135 kg and not more than one such manifold with cylinders shall be located in the same room unless separated by at least 15 meters. When not in use, such cylinders and equipment shall be removed from the building or structure. When used in buildings that are occupied by people, such equipment and cylinders shall not be left unattended at any time;
- c) Cylinders that are empty and that have been in service shall be stored outside the building. If stored inside they shall be considered as full cylinders for the purpose of determining the maximum quantity of gas permitted within the building; and
- d) Vehicles using propane as a fuel shall be refueled in accordance with prescribed regulations.

7.3 Asphalt and Tar Kettles

- a) Asphalt and tar kettles shall be located on the ground a minimum distance of 10 meters from the building under construction or on a non-combustible roof at a spot designated by the Departmental Representative where there is no danger of ignition of any combustible materials below;
- b) Asphalt and tar kettles, including fuel supplies, shall be installed in accordance with the appropriate installation codes;
- c) Asphalt and tar kettles shall be provided with metal covers;
- d) Asphalt and tar kettles shall be equipped with a thermometer or other suitable gauge located in full view of the operator. They shall not be operated at temperatures in excess of 220 °C, or 14 °C below the flash point of the material being used, whichever is the least;
- e) Asphalt and tar kettles shall be under continuous supervision when such equipment is in operation;
- f) Brooms used for tarring operations shall be stored outside the building or structure and segregated from combustible materials; and

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- g) A suitable fire extinguisher shall be located at an accessible location not more than 10 meters from asphalt and tar kettles.

7.4 Cutting and Welding

Cutting and welding operations shall be carried out in accordance with section 14 – "Hot-Work - Welding and Cutting Operations".

7.5 Blow Torches

- a) Where blow torches are being used in the vicinity of combustible construction or combustible material, such construction or material shall be shielded by means of non-combustible material from direct contact with the flame;
- b) Fuels, other than those contained in the blow torch, shall not be permitted on the work site. Blow torches shall be refueled outdoors; and
- c) Blow torches shall not be allowed to operate unattended.

7.6 Explosives

- a) The storage and handling of explosives shall be in accordance with the [Explosives Act \(https://laws-lois.justice.gc.ca/eng/acts/E-17/page-1.html\)](https://laws-lois.justice.gc.ca/eng/acts/E-17/page-1.html) and the its related regulations; and
- b) Flammable and combustible liquids, open flames and smoking shall be prohibited in the vicinity of any explosive's storage and handling facility.

7.7 Fuel Supply Installation

Fuel supplies for temporary heating equipment and internal combustion engines are required to conform to:

- a) CAN/CSA – B139 "Installation Code for Oil-Burning Equipment"; or
- b) CAN/CSA – B149.1 "Natural Gas and Propane Installation Code".

7.8 Tank, Piping and Machinery Reservoir Safety at Demolition Sites

- a) Tanks, piping and machinery reservoirs at a demolition site that contain combustible liquids or flammable liquids or that are likely to contain flammable vapours shall be drained and removed prior to the demolition of the building;
- b) Where it is impracticable to remove tanks, piping or machinery reservoirs from the building prior to demolition, such equipment shall be conspicuously identified and removed as soon as conditions permit; and
- c) Tanks, piping and machinery reservoirs that once contained combustible liquids, flammable liquids or flammable gases shall be purged with inert materials prior to demolition to prevent an explosion.

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8. Storage

8.1 Combustible Liquid and Flammable Liquid Storage

- a) Combustible liquids and flammable liquids shall be stored and used in conformance with the NFCC, Part 4;
- b) Bitumen heating equipment at a construction site shall be provided with metal covers;
- c) Bitumen heating equipment at a construction site shall be under constant supervision when in operation; and
- d) Mops that have been used for spreading bitumen shall be kept outside the building in a safe location when not in use.

9. Housekeeping/Smoking/ Miscellaneous

9.1 Smoking

- a) Smoking should not be permitted in areas where conditions are such as to make smoking a fire or explosion hazard;
- b) Where smoking is permitted, an adequate number of ash trays shall be provided;
- c) Smoking should not be located near the means of egress; and
- d) An area where smoking is not permitted shall be identified by signs, which have black lettering not less than 50 mm high with a 12 mm stroke on a yellow background, except that symbols of not less than 150 mm by 150 mm are permitted to be used in lieu of lettering.

9.2 Waste Material and Rubbish

- a) Scrap lumber, paper cement bags, cardboard packing cases and other waste materials shall be cleaned up daily and removed from any structure or its immediate vicinity. Where portable dumpsters are provided they shall be located away from any structure;
- b) Combustible material shall not be disposed of by burning on the premises or immediate vicinity without permission from the municipal Fire Department;
- c) Dry material or rubbish shall be wet down, when necessary, to lay dust or prevent it being blown about;
- d) Dried vegetation shall be kept clear of the building under construction by at least 10 meters; and
- e) Combustible refuse in sufficient quantities to constitute a fire hazard shall be moved to a safe location.

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9.3 Control of Waste Material

- a) Waste material or other material shall not be permitted to fall freely from one storey to another;
- b) Waste material shall be removed as quickly as possible by means of:
 - i. appropriate containers;
 - ii. an enclosed shaft or chute; or
 - iii. a hoisting apparatus if large pieces or objects are involved;
- c) Waste material cleared as shall be deposited in an enclosure:
 - i. arranged as to prevent waste material from being projected beyond the confines of the enclosure; and
 - ii. not accessible to the public; and
- d) The chute shall be closed if it is inclined more than 45° to the horizontal.

10. Means of Egress / Exit

10.1 Means of Egress

- a) Means of egress to the outside or other safe location by means of stairways, passageways, runways or scaffolds shall be provided at all times from the uppermost floor level of the building or structure under construction or alteration;
- b) Handrails shall be provided for all stairways, passageways, runways or scaffolds forming the means of egress;
- c) During demolition and construction and in areas of a building where construction operations are taking place, at least one exit shall be accessible, usable and maintained clear at all times;
- d) Safe and unobstructed access to egress from the building shall be maintained;
- e) All points of the building shall have access to the stairs;
- f) If the number of stairs being maintained is reduced, access to the remaining stairs shall be provided from all parts of the floor area;
- g) As many stairs as possible should be maintained for exiting throughout the demolition and construction phases of a project;
- h) Maintaining proper exiting from the building throughout demolition and construction operations is, as applicable to the project, is the responsibility of the Contractor;
- i) Where construction operations obstruct the discharge from a required exit from an adjacent building, an alternative temporary exit shall be provided with a minimum width equal to that of the obstructed exit in conformance with the exiting and egress requirements of the NBCC; and

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- j) Alternatively, if obstruction of exits is only required for specific operations, the applicable operations could be performed outside of normal working hours during, when time exits would not be required from the adjacent buildings. The affected exits shall be restored to operating capacity prior to the start of normal operational hours for the building.

11. Fire Emergency Procedures

- a) Prior to the commencement of construction or demolition operations, a fire safety plan shall be prepared for the site;
- b) Written instructions shall be prominently posted throughout outlining the procedure to be followed in the event of a fire, gas leak or other fire related emergency. Instructions shall include details for:
 - i. Sounding the fire alarm;
 - ii. Notifying the municipal Fire Department;
 - iii. Instructing site personnel on the procedures to be followed when the alarm sounds; and
 - iv. Firefighting procedures, which include:
 - 1. Measures for controlling fire hazards on site; and
 - 2. Maintenance procedures for firefighting facilities and equipment.
- c) Provision shall be made to notify the municipal Fire Department in case of fire by means of a manual fire alarm station near the property, a telephone, or other method satisfactory to the Departmental Representative.

12. Fire Protection

12.1 Water Supplies

- a) When underground water mains supply hydrants, standpipes or sprinkler systems, they shall be installed, completed, and made available for permanent use as soon as possible but not later than the time at which 30 percent of the construction program has been completed; and
- b) Water supplies, including underground mains and hydrants, shall be suitably protected against freezing.

12.2 Fire Extinguishers

- a) Portable fire extinguishers shall be provided throughout the construction site with:
 - i. Temporary enclosures equipped with a minimum of one fire extinguisher suitable for all classes of fires that are expected inside the enclosure; and

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- ii. Fire extinguishers located so that travel distance to a fire extinguisher does not exceed 15 meters (50 ft);
- b) In addition to the fire extinguisher requirements above, portable extinguishers are required to be provided as follows:
 - i. A 9-litre water type extinguisher shall be provided in all workshops, storage rooms, and construction buildings;
 - ii. At least one 9-litre water type extinguisher shall be provided on each storey of the building or structure under construction and adjacent to working stairways;
 - iii. In locations subject to freezing, provide 5 kg multi-purpose fire extinguisher in lieu of 9-liter water type extinguisher;
 - iv. At least one dry chemical extinguisher of minimum size 5 kg or equivalent shall be provided in all areas in which flammable liquids or combustible liquids are stored or handled, including paint shops, areas where cutting or welding operations are being carried out, where oil or gas fired heating equipment is installed and where tar and asphalt kettles are in use;
 - v. All extinguishers shall be suitable for use in below freezing temperatures unless they are installed in permanently heated premises;
 - vi. Extinguishers shall be inspected at least monthly and the date of the last inspection recorded on the extinguisher tag; and
 - vii. Extinguishers shall be installed in accordance with the requirements of NFPA 10;
- c) When the water supply for a standpipe and hose system is installed as building construction progresses, provide hose and nozzles in lieu of water type extinguishers. Such hose shall have a minimum internal diameter of 20 mm and the nozzle shall be of the adjustable spray type.
 - i. Portable fire extinguishers required to be installed on construction motor vehicles shall:
 - 1. Include one 2.5 kg or equivalent capacity extinguisher in all construction and maintenance equipment;
 - 2. Be secured by an approved specially designed mounting bracket; and
 - 3. Be located so that it is accessible to the operator of the vehicle.
- d) Portable extinguishers shall be provided:
 - i. Adjacent to cutting and welding operations;
 - ii. In areas where combustibles are stored;
 - iii. Near or on any internal combustion engine;
 - iv. Adjacent to areas where flammable liquids or gases are stored or handled;

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- v. Adjacent to temporary oil-fired or gas-fired equipment; and
- vi. Adjacent to bitumen heating equipment.
- e) Portable extinguishers shall have minimum ratings of:
 - i. 2-A:10-B:C on all moveable equipment; and
 - ii. 4-A:40-B:C at all other locations.

12.3 Standpipe and Hose System

- a) In all buildings in which standpipe and hose systems are to be provided, they shall be installed as the construction progresses complete with hose and valves in such a manner that they are always ready for the municipal Fire Department use to the topmost storey that has been erected. Such standpipes shall be provided with a Fire Department connection on the outside of the building at the street level and with one outlet at each storey. All outlets, connections and fittings shall be designed to fit the Fire Department equipment;
- b) Where a standpipe system is to be installed in a building under construction, the system shall be installed progressively in conformance with subsection 3.2.5. of Division B of the NBCC, and NFPA 14;
- c) Where a building being demolished storey by storey is equipped with a standpipe system, the system, together with Fire Department connections and valves, shall be maintained in operable condition on all storeys below the one being demolished, except for the storey immediately below it;
- d) When the existing system will be partially or fully disabled, alternative measures shall be taken to mitigate any potential hazards caused by the loss of protection;
- e) The building shall be equipped with a temporary standpipe system such that the existing system can be removed from service while maintaining the current level of protection for the building; and
- f) Temporary standpipe risers shall be located near every existing exit stair. The temporary system shall be protected from potential damage (mechanical and fire) and shall serve the building until the permanent standpipe system certified for use by the authority having jurisdiction.

12.4 Sprinkler Systems

- a) In all buildings where a sprinkler system is to be provided, the installation shall follow the construction and be placed in service as soon as possible following completion of each floor and before it is occupied;
- b) Sprinkler systems shall be installed in accordance with the requirements of NFPA 13;
- c) Where possible, existing sprinkler system in the building should be maintained in working condition until the demolition progresses to a point where the systems removal is necessary;

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- d) It is recommended that shutdown and removal be conducted on a floor by floor basis as necessary;
- e) Steps shall be taken to mitigate the potential risk of fire in areas where the sprinkler system has been removed including, for example, additional fire extinguishers, a fire watch, or additional detection devices.

12.5 Fire Alarm Systems

- a) During the period prior to the installation of a fire alarm, as stipulated in subparagraph b) of 12.5, arrangements shall be made to provide temporary fire alarm service to alert persons throughout the construction period in the event of a fire or other emergency by means of mechanical or electrical gongs, horns, sirens or other means;
- b) In all buildings in which a fire alarm system is to be provided, the installation shall follow the construction so as to be in service as soon as possible after completion of each floor and before it is to be occupied;
- c) Fire alarm systems shall be installed in accordance with the requirements of CAN/ULC S-524;
- d) Existing detectors are required to be maintained until operations necessitate their removal;
- e) Where detectors could be affected temporarily by demolition or construction operations, causing false alarms or damage to the detector, the detectors should be capped/covered until the operations are completed;
- f) The building should be provided with a temporary fire alarm system during the demolition phase;
- g) The annunciator panel for the temporary system should be located near the primary response location of the municipal Fire Department; and
- h) It is intended that the temporary fire alarm system serve as the required fire warning system.

12.6 Access for Fire Fighting

- a) Access to all fire-fighting equipment including fire hose, extinguishers, sprinkler valves and hydrants shall be provided and maintained at all times;
- b) An alternate access for municipal Fire Department vehicles shall be provided where temporary trenching or other obstruction may block the normal route. The Fire Department shall be immediately notified of such action;
- c) Where a construction or demolition site is fenced so as to prevent general entry, provision shall be made for access by Fire Department equipment and personnel;
- d) Access for fire-fighting to the building, and all adjacent buildings shall be maintained throughout the demolition and construction operations;

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- e) The primary response point for the building shall be maintained throughout the demolition and construction operations;
- f) Any alterations to the response point shall be discussed and approved by the municipal Fire Department; and
- g) Access to the annunciator panel will also be maintained.

13. Fire Warning System and Watchman Service

13.1 Fire Warning System

- a) A system shall be provided to alert site personnel of a fire;
- b) The system shall be capable of being heard throughout the building; and
- c) During demolition operations, the building should be served by a temporary fire alarm system or a fire warning system that can be heard throughout the demolition site.

13.2 Watchman Service

- a) Major projects shall be patrolled at all times when construction operations are not in progress by a watchman or watchmen making regular rounds;
- b) Watchmen's rounds shall be recorded by means of approved time recording devices and sufficient stations shall be provided to ensure that all parts of the property are covered. Watchmen shall be required to report to a central control point at the conclusion of each round;
- c) Watchmen shall be conversant with the Fire Emergency Procedure applicable to the construction site;
- d) Members of the fire watch are required to be trained with the following elements of the Fire Emergency Procedure:
 - i. Site fire safety plan;
 - ii. Fire Department notification procedures;
 - iii. Personnel emergency procedures (e.g. fire alarm, gas leak, fire, etc.);
 - iv. Alert procedures for other site personnel; and
 - v. Firefighting procedures.
- e) A watch, with tours at intervals of not more than one hour, shall be provided throughout demolition sites when there are occupants in the portion of the building not being demolished;
- f) Except where a building is provided with a fire alarm system or similar equipment, a watch, with tours at intervals of not more than one hour, shall be provided when a portion of the building is occupied while construction operations are taking place;
- g) Facilities shall be provided to enable the watcher to communicate with the municipal Fire Department.

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- h) If a building is unoccupied during the demolition phase of the project then a fire watch is not required; however, since fire protection services in the building will likely be partially completely disabled during the demolition phase, it is recommended that a fire watch be provided at all times;
- i) Fire watch is considered an alternative fire protection measure to mitigate the increased hazard created when building fire protection systems are shut down; and
- j) If a temporary fire alarm system is installed and kept operational throughout all construction operations, this temporary system may be utilized in lieu of a fire watch.

14. Hot-Work – Welding and Cutting Operations

14.1 Operators

Welding and cutting equipment shall only be used by operators qualified either according to appropriate provincial legislation or in the absence of such legislation to the provisions of CSA Standard W47.1, "Certification of Companies for Fusion Welding of Steel Structures".

14.2 Permits

14.2.1 General

- a) Welding or cutting operations shall not be undertaken without prior authorization in the form of a written permit from the Administrative Official, who is either the Departmental Representative or the Contractor, whichever is applicable to the project;
- b) The permit, as described in Appendix A, shall contain the following information:
 - i. Date of issue;
 - ii. PWGSC Office or Section;
 - iii. Name of building and address;
 - iv. Nature of job or project;
 - v. Special precautions to be observed;
 - vi. Fire extinguishers required;
 - vii. Expiry date;
 - viii. Name(s) of Operator(s) involved;
 - ix. Licence or certificate number of Operator(s); and
 - x. Name and title of Administrative Official;
- c) The permit shall be completed in full, one portion being retained by the Administrative Official and the other by the permit Operator. The permit shall be signed by the Administrative Official before work can be started and by the permit Operator when the work has been completed; and

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- d) Prior to the issuance of a permit, the Administrative Official, or his or her authorized representative, shall inspect the work site to ensure that the fire protection requirements have been carried out, or will be carried out, before welding and cutting operations are started.

14.2.2 Types of Permits

- a) A separate permit shall be required for each welding and cutting operation, except as permitted in subparagraph b) of 14.2.2;
- b) A general welding and cutting permit may be issued subject to the approval of the Administrative Official defined in subparagraph a) of 14.2.1:
 - i. in the case of major construction projects; or
 - ii. when welding and cutting operations are carried out as part of routine maintenance operations and in a specific area, such as a welding shop, machine shop or similar location.

14.3 Equipment

14.3.1 Blowpipes and Torches

Blowpipes and torches shall be of an approved type.

14.3.2 Regulators and Gauges

- a) Regulators or automatic reducing valves shall be used only for the gas for which they are intended, and within the pressure range for which they are designed;
- b) Regulators and gauges shall be returned to an authorized agent for repairs, calibrations or adjustments;
- c) Low pressure gauges attached to regulators shall be periodically tested to ensure their accuracy. Oxygen gauges shall not be tested with oil;
- d) Union nuts and connections on regulators shall be inspected by the operator before use to detect faulty seats which may cause leakage of gas when the regulators are attached to the cylinder valves. Damaged nuts or connections shall be replaced; and
- e) Only wrenches or keys specifically designed for use with the regulator shall be used to make connections to regulators. Ordinary wrenches shall not be used.

14.3.3 Hose and Hose Connections

- a) Hose for oxygen and fuel gas service shall conform to the requirements of CGAI and RAC, "Specification for Rubber Welding Hose";
- b) The accepted colours shall be red for acetylene and other fuel gas hose, green for oxygen hose and black for inert-gas or air hose;
- c) When parallel lengths of oxygen and fuel gas hose are taped together for convenience and to prevent tangling, not more than 100 mm out of each 200 mm shall be covered with tape;

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- d) Metal-clad or armoured hose shall not be permitted unless as part of a machine or appliance where conditions of use make metal reinforcing advantageous. In such cases the metal reinforcing shall be internal and not exposed on either the inside or outside of the hose;
- e) Hose connections shall conform to the requirements of CGAI, Standard Hose Connection Specifications;
- f) Hose connections shall be clamped or otherwise securely fastened in a manner that will withstand, without leaking, twice the pressure to which they would normally be subjected but not less than 2000 kPa;
- g) Hose shall be inspected frequently for leaks, burns, worn places, loose connections or other defects which may render the hose unsafe for service. When hose shows excessive wear or is defective, it shall be replaced; and
- h) Should a flashback occur and burn the hose on the inside, it shall be replaced.

14.4 Tanks and Cylinders

14.4.1 Design and Construction

- a) Tanks shall be designed and fabricated in accordance with the requirements of CSA Standard B51, "Code for the Construction and Inspection of Boilers and Pressure Vessels" and to the approval of the appropriate provincial pressure vessel authority; and
- b) Cylinders shall be designed and fabricated and maintained in accordance with appropriate specifications of the Canadian Transportation Commission or the U.S. Department of Transportation.

14.4.2 Location

- a) Cylinders shall be so located as not to be exposed to temperature in excess of 50 °C, physical damage, or tampering by unauthorized persons;
- b) Fuel gas cylinders stored inside the building, other than those connected and ready for use, shall not exceed a total of two cylinders of 9 kg (8.5 m³) individual capacity of acetylene or two cylinders of 9 kg (5 m³) individual capacity of propane. Such cylinders shall be stored in a machine shop or similar location as designated by the Departmental Representative unless stored in a separate room as designated in subparagraph c) of 14.4.2;
- c) Fuel gas cylinders having capacity in excess of that stipulated in subparagraph b) of 14.4.2 shall be stored either outside the building, in a separate detached building of non-combustible construction, or in a separate room as stipulated in subparagraph e) of 14.4.2. The total capacity of cylinders stored in the separate room shall not exceed 90 kg (85 m³) of acetylene or 135 kg (75 m³) of propane;
- d) Oxygen cylinders in storage shall be separated from fuel gas cylinders and other combustible material by a minimum distance of 6 meters or by a non-combustible barrier at least 2 meters high having a fire-resistance rating of at least 30 minutes;

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- e) The aggregate capacity of fuel gas cylinders and oxygen cylinders connected to a portable equipment for use in construction, alteration or repair of buildings or structures, shall not exceed a total capacity of 90 kg (85 m³) of acetylene, 135 kg (75 m³) of propane, and 105 kg (85 m³) of oxygen respectively. Not more than one such portable equipment and connected cylinders shall be located in the same area unless separated by at least 15 meters. When not in actual use, such cylinders and equipment shall be removed to a safe location. When used in buildings that are occupied by people, such equipment and cylinders shall not be left unattended at any time;
- f) Storage rooms for fuel gas cylinders shall be designed and constructed as follows:
 - i. walls, ceilings and floor shall be of non-combustible construction having a fire-resistance rating of not less than 2 hours. At least one wall shall be an exterior wall;
 - ii. walls, ceilings and floors shall be bonded to provide a substantially vapour-tight barrier;
 - iii. natural ventilation on the basis of at least 0.1 square meters of free inlet area and 0.1 square meters of free outlet area for every 50 square meters of floor area or forced ventilation on the basis of at least 18 cubic meters per hour for every square meter of floor area shall be provided; and
 - iv. explosion venting on the basis of at least 0.2 square meters of venting area for every cubic metre of room volume shall be provided.

14.4.3 Operating Procedures

- a) Empty cylinders shall have their valves closed while in storage and during shipment;
- b) When cylinders are provided with caps for valve protection, such caps shall be in place, except when the cylinders are in service or connected ready for service;
- c) Cylinders shall not be lifted with magnets;
- d) Cylinders shall be securely supported in an upright position by chains or other approved means. Welding and cutting work shall not be supported by cylinders;
- e) Gas shall not be transferred from one cylinder to another or mixed with another gas in a cylinder;
- f) Cylinders shall be located at a minimum distance of 2 meters from the welding position so that they will not be exposed to sparks, slag or misdirection of the torch flame or overheating from hot material or processes;
- g) Cylinders not having fixed handwheels shall have keys or handles attached to the valve stems while they are in service. In multiple cylinder installations, only one key or handle is required for each manifold. Hand wrenches shall not be used;
- h) Pressure reducing screws on regulators shall be fully released before the regulator is attached to a cylinder and the cylinder valve opened. Valves on cylinders shall be

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opened slowly. Before a regulator is removed from a cylinder valve, the cylinder valve shall be closed and the gas released from the regulator;

- i) Fuel gas shall not be used from cylinders or other devices equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder or manifold;
- j) Cylinders having leaking valves or fittings which cannot be stopped by closing the valve shall be taken outdoors away from sources of ignition and slowly emptied. Suitable warning signs shall be posted;
- k) Cylinders shall be inspected upon receipt and, if defective, shall be tagged and placed in a safe location, and the supplier shall be notified;
- l) Oxygen cylinders, valves, regulators and fittings shall be kept free of oil or grease and shall not be handled with oily hands, oily gloves or other greasy equipment;
- m) Welding hose shall not be crimped, kinked, bent or otherwise deformed to control the pressure. The flow of gas shall be controlled by means of the torch, the regulator or the cylinder valve; and
- n) After connecting welding or cutting apparatus to oxygen and fuel gas cylinders, or when starting to re-use the apparatus after an interval of 30 minutes or more, each gas shall be allowed to flow through its respective hose separately for a few seconds to purge the hose of any mixture of gases. This operation shall not be carried out in a confined space.

14.5 Operating Procedures

14.5.1 Location of Operations

- a) Whenever possible, welding and cutting operations shall be carried out in a designated area, such as a machine shop or similar location;
- b) Welding and cutting areas shall be separated from adjacent areas of the building by construction having a fire-resistance rating of not less than one hour; and
- c) Welding and cutting areas shall be of non-combustible construction or combustible construction sheathed with approved non-combustible materials.

14.5.2 Operation Procedures

- a) All combustible construction within 10 meters of the work site shall be protected by sheet metal approved flame-retardant treated coverings or other approved non-combustible material so arranged that sparks cannot get under them or pass through openings between them. Where it is not practicable to protect floors of combustible construction in this manner, they shall be kept wet or covered with damp sand;
- b) All combustible materials shall be kept at least 10 meters from the work site whenever possible. When such materials cannot be moved, they shall be protected as required in subparagraph a) of 14.5.2;
- c) The floor shall be kept clear of all combustible materials such as paper clippings, wood shavings and loose textile fibers within 10 meters of the work site;

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- d) Wall or floor openings within 10 meters of the work site shall be tightly sealed off to prevent the passage of sparks to adjacent areas;
- e) Ducts or conveyor systems which might carry sparks to distant combustibles shall be suitably protected and shut-down during welding or cutting operations;
- f) If welding is to be carried out on a metal wall, partition, ceiling or roof, combustibles on the opposite side shall be relocated to prevent their ignition either by conduction or radiation. Where such combustibles cannot be relocated, fire watchers shall be provided;
- g) Welding on metal partitions, walls, ceilings or roofs having a combustible covering or on walls or partitions of combustible sandwich-type panel construction, shall be prohibited;
- h) Welding or cutting of pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs, shall be prohibited if the work is close enough to cause ignition by conduction;
- i) Welding or cutting operations shall be prohibited in the presence of explosive atmospheres (mixtures of flammable gases, vapours, liquids or dusts with air);
- j) When welding or cutting operations are to be carried out near piping containing a flammable gas, the section of piping located within one meter of the equipment shall be protected by asbestos having a thickness of at least 6 mm or approved equivalent protection; and
- k) When welding or cutting operations are to be carried out near sprinklers, heat detectors or smoke detectors such devices shall be protected or shielded so that there is no danger of their being actuated by the heat or smoke produced.

14.5.3 Fire Watchers

- a) A fire watcher shall be assigned when welding or cutting operations are carried out in areas where there is combustible construction or materials either below or within 10 meters horizontally of the work site, or where there are combustible materials adjacent to the opposite side of metal walls, partitions, ceilings or roofs which may be ignited by conduction or radiation;
- b) Fire watchers shall have the fire protection equipment readily available and be trained in its use;
- c) Fire watchers shall be familiar with the facilities to sound a fire alarm in the event of a fire;
- d) Fire watchers shall remain on duty for at least one hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires; and
- e) When a severe hazard exists, the municipal Fire Department shall be requested to stand by.

14.5.4 Fire Protection Equipment

- a) A 2.5 kg or equivalent multi-purpose dry chemical extinguisher shall be provided with each welding and cutting unit, and located so as to be readily accessible to the operator;

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- b) At least one 9-liter water pump type extinguisher shall be provided where welding or cutting operations are carried out in the vicinity of combustible construction or materials. Such extinguishers shall be located so as to be readily accessible to the operator or the fire watcher;
- c) Fire extinguishers shall be installed in accordance with NFPA 10; and
- d) Under conditions of extreme hazard, when provided, hand hose lines shall be run out from the nearest standpipe and hose station ready for possible use.

14.5.5 Blow Torches

- a) Where blow torches are being used in the vicinity of combustible construction or combustible material, such construction or material shall be shielded by means of non-combustible material from direct contact with the flame;
- b) Fuels, other than those contained in the blow torch, shall not be permitted on the work site. Blow torches shall be refueled outdoors; and
- c) Blow torches shall not be allowed to operate unattended.

14.6 Welding and Cutting of Tanks and Piping for Flammable and Combustible Liquids and Gases

Section 14.6 describes the special requirements for welding and cutting of metal tanks and piping which have been used for flammable or combustible liquids and gases. These requirements are in addition to all other requirements of stipulated in this document.

14.6.1 Welding and Cutting of Tanks

- a) Before welding or cutting work is to be done on a tank that has contained a flammable or combustible liquid or gas, the following precautions shall be taken, except as permitted in subparagraph b) of 14.6.1:
 - i. all liquids in the container, including connected piping, shall be either pumped or drained off through the lowest pipe connection. In the case of a liquid immiscible with water, water shall be added to float away any residual liquid;
 - ii. in the case of tanks, all connecting pipe lines shall be either disconnected or blanked-off to prevent the entrance of liquids or vapours from any such lines;
 - iii. any residue, sludge or scale capable of producing flammable or toxic vapours, shall be removed by scraping, water treatment, chemical solution, steam, or other approved method;
 - iv. the tank shall be freed of flammable gas or vapour by means of natural or mechanical ventilation, steam purging, inert gas or other approved method;
 - v. the gas or vapour content shall be measured by an approved gas indicator to ensure that there is no trace of gas or vapour present;

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- vi. where possible, the tank shall be partly filled with water to reduce the internal volume available for the retention of flammable vapours; and
 - vii. where tanks have two or more compartments, all compartments shall be treated in the same manner.
- b) In the case of tanks for combustible liquids, the requirements of subparagraph a) of 14.6.1 need not apply if the tank is partially filled with water or the liquid product and the welding is to be done on the outside of the tank at least 0.3 m below the liquid level and conditions are such that there is no chance of burning through the tank wall.

14.6.2 Welding and Cutting of Piping

- a) Piping which is to be welded or cut shall be drained of product, thoroughly cleaned and freed of content, as stipulated for tanks in paragraph 7.1, "Flammable and Combustible Liquids";
- b) The section of piping to be welded shall be disconnected from or blanked-off from the remainder of the piping system. A closed valve is not considered to meet this requirement;
- c) Where practicable, a slight internal pressure shall be maintained in the pipe by means of steam, carbon dioxide, or other inert gas which would be noticeable at a vent. An open end shall be provided to prevent an excessive build-up in pressure; and
- d) Connections to pressurized piping systems shall be made in conformance with good practice such as described in:
 - i. American Petroleum Institute (API) RP 1107 - "Recommended Pipeline Maintenance Welding Practices",
 - ii. API Petroleum Safety Data No. 2200 - "Repairs to Crude Oil, Liquefied Petroleum Gas and Products Pipelines", or
 - iii. API Publication No. 2201 - "Welding or Hot Tapping on Equipment Containing Flammables".

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15. APPENDIX E: ANNEX A: Welding and Cutting Permit

| | |
|--|--|
| (frontside of permit) | |
| Date | |
| PWGSC Office / Project | |
| Name of building and address | |
| Nature of job | |
| Special precautions | |
| Fire extinguishers: Quality and Type | |
| Operator • License or certificate number | |
| Contractor | |
| Administrative Official | |
| Permit expires Date and Time | |
| Administrative Official's signature | |
| Work started Date and Time | |
| Work completed Date and Time | |
| <p>Work area and adjacent areas to which sparks and heat might have spread (including floors above and below and on opposite sides of walls) were inspected for at least 1 hour after work was completed and found to be fire safe.</p> <p>Operator's signature: _____</p> <p>This portion of the permit shall be attached to equipment and returned to Administrative Official when work is completed.</p> | |
| Date | |
| PWGSC Office /Project | |
| Name of building and address | |
| Nature of job | |
| Permit expires Date and Time | |
| This portion to be retained by Administrative Official. | |

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| (backside of permit) | |
|--|-----|
| | Y/N |
| Attention: <ul style="list-style-type: none"> Before approving any cutting and welding permit, the supervisor or his appointee shall inspect the work area and confirm that precautions have been taken to prevent fire | |
| Precautions: <ul style="list-style-type: none"> Sprinklers in service cutting and welding equipment in good repair Within 10 meters of work <ul style="list-style-type: none"> Floors swept clean of combustibles; Combustible floors wet down, covered with damp sand, metal or other shields; No combustible material or flammable liquids; Combustibles and flammable liquids protected with covers, guards or metal shields; All wall and floor openings covered; and Covers suspended beneath work to collect sparks. | |
| Work on walls or ceilings: <ul style="list-style-type: none"> Construction non-combustible and without combustible covering; Combustibles moved away from opposite side of wall; Work on enclosed equipment (tanks, containers, ducts, dust collectors, etc.); Equipment cleaned of all combustibles; and Containers purged of flammable vapours. | |
| Fire watch: <ul style="list-style-type: none"> To be provided during and 1 hour after operation; Supplied with extinguisher and small hose Trained in use of equipment and in sounding fire alarm; and Final check to be made 1 hour after completion of any operation unless fire watch is provided. | |
| Operator's signature: _____ | |

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APPENDIX F – DELIVERABLES SUMMARY

The following table summarizes the CM's deliverables. In case of conflict or future amendment to the Contract, the requirements of each ToR section and sub-section will prevail over the following summary.

| | Deliverables | Timeline | Project Brief Reference |
|--------------------------------|--|--|--------------------------------|
| ADMINISTRATION SERVICES | Construction and Commissioning Meetings; agenda, notice to invitees, minutes, database | Bi-weekly, within 2 Working Days of meeting | Section 8.1.3 |
| | Constructability Workshops; agenda, notice to invitees, minutes, database | Per DP, within 2 Working Days of workshop | Section 8.1.5 |
| | Project Control Workshops; agenda, notice to invitees, minutes, database | Monthly, within 2 Working Days of workshop | Section 8.1.5 |
| | Submittal and Requests for Information (RFI) review approval and response framework | Within 20 Working Days of Contract award | Section 8.6 |
| | Individual submittal and RFIs | Review, approval and response generally within 5 Working Days, but never longer than 15 Working Days | Section 8.6 |
| | Indexed, bound and reviewed/as-commissioned submittals | Substantial Performance of the Project | Section 8.6 |
| | Monthly Report structure | Within 20 Working Days of Contract award | Section 8.7.1 and 8.18 |
| | Monthly Report | Monthly, timing as agreed with DR | Section 8.7.1 |
| | Decision Log | Monthly, timing as agreed with DR | Section 8.7.2 |
| | Record Drawings and Specifications | Per DP, timing as agreed with DR | Section 8.9 |
| | Construction Site security plan(s) | Within 30 Working Days of Contract award and update the plan(s) as required | Section 8.12 |
| | Permits, municipal or otherwise | Per DP, timing as agreed with DR | Section 8.16 |

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| | Deliverables | Timeline | Project Brief Reference |
|-------------------------|---|--|-------------------------|
| PLANNING SERVICES | Design Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.1 |
| | Quality Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.2 |
| | Cost Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.3 |
| | Time Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.4 |
| | Risk Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.5 |
| | Human Resources Management Plan | Within 30 Working Days of Contract award; update and resubmit within 5 Working Days of DR comments | Section 9.6 |
| IMPLEMENTATION SERVICES | Supplementary Instructions and Contemplated Change Notices | Per document, As described in ToR Appendix D – PROCESS MAPS | Section 10.1 |
| | Examine and submit Subcontractor and Supplier quotations | Per document, As described in ToR Appendix D – PROCESS MAPS | Section 10.1.1 |
| | Submit impact Cost analysis, potential cumulative impact Cost analysis | Per document, As described in ToR Appendix D – PROCESS MAPS | Section 10.1.1 |
| | Provide written and verbal feedback concerning the status and coordination of the overall design | Ongoing, per sub-Project | Section 10.2.2 |
| | Provide written and verbal feedback on the delegated design Specification, design responsibility matrix, and requirement for revisions to these documents | Timing as agreed by DR and Design Team | Section 10.2.2 |
| | Provide material testing and inspection responsibilities matrix per sub-Project | Timing as agreed by DR and Design Team | Section 10.2.2 |

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| | Deliverables | Timeline | Project Brief Reference |
|--|--|--|--------------------------------|
| | Provide written comments regarding meetings and workshops, and design and DP submissions | Ongoing, per sub-Project | Section 10.2.2 |
| | Provide testing results | Within 5 working days of each test | Section 10.3.1 |
| | Submit a detailed request for expenditure authority (EA) for preliminary general expenses (Division 1) | Immediately after obtaining Work approval | Section 10.4.2 |
| | Prepare preliminary Work estimates for the various Projects within the CM's mandate, and the overall program of Work | Within 60 Working Days of Contract award | Section 10.4.2 |
| | Prepare and submit complete and formal estimates of all the Work per project | Within four weeks of receiving SD (indicative estimate) DD (substantive estimate) design submissions | Section 10.4.2 |
| | Submit comprehensive construction estimates | Within three weeks of receipt of the DP | Section 10.4.2 |
| | Updated Work Cost estimate | Within 5 Working Days of the Project control workshop | Section 10.4.2 |
| | Preliminary impact analysis | Within 5 Working Days of receipt of notice for any change | Section 10.4.2 |
| | Detailed impact analysis | Within 10 Working Days of DR's approval to proceed | Section 10.4.2 |
| | Prepare Work cash flow projections per Project | Monthly | Section 10.4.2 |
| | Report Cost information | Monthly, quarterly, semi-annual and annual basis | Section 10.4.3 |
| | Various Cost Management reports | Monthly, timing as agreed by DR | Section 10.4.3 |
| | Provide detailed, summary and master schedules of the overall program and for planned and approved projects | Within 40 Working Days of Contract award and subsequent monthly updates | Section 10.5.4 |
| | Monthly schedule update, a separate three-week and two-month look-ahead schedules | Monthly, timing as agreed by DR | Section 10.5.4 |
| | Various Time Management reports | Monthly, timing as agreed by DR | Section 10.5.4 |

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| | Deliverables | Timeline | Project Brief Reference |
|--|---|--|--------------------------------|
| | Draft risk registry | Within 60 Working Days of Contract award and incorporate agreed changes or modifications provided by the DR in a final draft within 20 Working Days of receipt the comments and subsequent monthly updates | Section 10.6.1 |
| | Submit a Contract-specific roles and responsibility matrix, organization chart(s), and forward-looking staffing plan | Within 60 Working Days of Contract Award, update and resubmit every three months | Section 10.7.1 |
| | Draft construction health and safety plan | Within 30 working days | Section 10.8.2 |
| | Final Project-specific construction health and safety plan | before the implementation of any Work | Section 10.8.2 |
| | Copies of on-Site contingency and emergency response plans | within three months after Contract award and updates as necessary | Section 10.8.2 |
| | Notices for Work involving designated substances, hazardous substances, and before painting, caulking, installing carpet or using adhesives; and Notices of intent to start cutting, welding or soldering procedures as required; | Within 48 hours in advance of planned activity | Section 10.8.2 |
| | Written requests to use powder actuated devices, explosives or blasting procedures, as required | In advance of planned activity | Section 10.8.2 |
| | Copies of incident and accident reports | Within 5 Working Days of each incident and accident, or within one Working Day if there is a fatality | Section 10.8.2 |
| | A copy of the Notice of Project, per Project, filed with the provincial authority | Within 5 Working Days of commencing Project-specific Work | Section 10.8.2 |

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| | Deliverables | Timeline | Project Brief Reference |
|-----------------------|--|--|-------------------------|
| | Submit the Work restrictions plan, per Project | Within 60 Working Days of Contract award, but no less than 20 Working Days prior to Site mobilization activities, and update the plan to meet Project-specific requirements as the Project evolves | Section 10.9.2 |
| | Submit an itemized list of plan elements that belong in the CM's front-end and the Design Team's Division 1 Specification | Timing as agreed with Design Team and DR | Section 10.9.2 |
| | Submit a draft procurement strategy and process plan | Within 20 Working Days of Contract award and incorporate agreed changes or modifications provided by the DR and CA in a final draft within 15 Working Days of receipt comments | Section 10.10.3 |
| | Solicitation records | As required by the DR and CA for review and audit | Section 10.10.3 |
| | Provide audit reports of the waste management | Monthly | Section 10.11.1 |
| | Provide receipts, bills-of-lading or transfer for all waste removed from the Site, indicating the destination of the waste product | Monthly | Section 10.12.1 |
| | Make available all MSDS sheets and WHMIS information applicable to the Work at the Site | Ongoing | Section 10.12.1 |
| | Provide a signed copy of the final Green Globes or LEED questionnaire and provide all sustainability documentation | Timing as agreed with Design Team and DR | Section 10.12.1 |
| Construction Services | Procedure for review, certification, processing and payment of Subcontractors and Suppliers | Timing as agreed with Design Team and DR | Section 11.3 |
| | Commissioning meetings as part of the construction meetings, prepare and distribute agenda, chair meetings, prepare and distribute meeting minutes | Meetings to occur weekly and minutes distributed within 2 Working Days of the meeting | Section 11.5 |

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| | Deliverables | Timeline | Project Brief Reference |
|----------------------------|--|--|--------------------------------|
| | Site quality management program | Timing as agreed with Design Team and DR | Section 11.5 |
| | Complete and sign-off of all verification reports and compile the reports into a comprehensive commissioning manual | Ongoing | Section 11.5 |
| | Review standard operating procedures (SOPs) prepared by the Design Team for each building system | Timing as agreed by Design Team and DR | Section 11.5 |
| | Perform a final cleaning of the entire area before handover to PWGSC and Science Partners | Timing as agreed by Design Team and DR | Section 11.6 |
| Post-Construction Services | Assemble record documents and provide to the DR | Per DP, Timing as agreed by DR and Design Team | Section 12 |
| | Review the draft and final commissioning reports, seasonal commissioning reports, SOPs, other manuals and comment on their accuracy and completeness | Timing as agreed by DR and Design Team | Section 12 |
| | Review and complete the Green Globes or LEED post-construction self-assessment questionnaire, providing additional supporting documentation relating to the Work and completed questionnaire | Timing as agreed by DR and Design Team | Section 12 |
| | Prepare a deficiency list for review and acceptance | Timing as agreed by DR and Design Team | Section 12 |
| | Provide a schedule for the approval of the DR indicating when correction of all deficiencies covered by warranty will be corrected | Timing as agreed by DR and Design Team | Section 12 |
| | Attend lessons learned workshop organized by the DR at substantial performance, 3 months after Substantial Performance. Provide updated lessons learned logs to the DR | Timing as agreed by DR | Section 12 |

ANNEX C – Terms of Reference
Laboratories Canada (LC) Western Regional Projects

| | Deliverables | Timeline | Project Brief Reference |
|--|---|------------------------|--------------------------------|
| | Draft post-construction evaluation and Cost analysis report within 4 months following Substantial Performance of the Project. Include lessons learned, outstanding issues and any Work of the Project not completed or deferred | Timing as agreed by DR | Section 12 |

END OF TERMS OF REFERENCE

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ANNEX D

SECURITY REQUIREMENT CHECKLIST (SRCL)

(see below)



SECURITY REQUIREMENTS CHECK LIST (SRCL)

LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

| PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE | | | |
|---|--|---|--|
| 1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine | | Public Works and Government Services Canada | |
| 2. Branch or Directorate / Direction générale ou Direction | | Laboratories Canada, SPIB | |
| 3. a) Subcontract Number / Numéro du contrat de sous-traitance | | 3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant | |
| 4. Brief Description of Work / Brève description du travail Construction Management (CM) Services for Western Region (Sidney). | | | |
| 5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées? | | <input checked="" type="checkbox"/> No Non <input type="checkbox"/> Yes Oui | |
| 5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques? | | <input checked="" type="checkbox"/> No Non <input type="checkbox"/> Yes Oui | |
| 6. Indicate the type of access required / Indiquer le type d'accès requis | | | |
| 6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c) | | <input type="checkbox"/> No Non <input checked="" type="checkbox"/> Yes Oui | |
| 6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé. | | <input checked="" type="checkbox"/> No Non <input type="checkbox"/> Yes Oui | |
| 6. c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit? | | <input checked="" type="checkbox"/> No Non <input type="checkbox"/> Yes Oui | |
| 7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès | | | |
| Canada <input checked="" type="checkbox"/> | | NATO / OTAN <input type="checkbox"/> | |
| Foreign / Étranger <input type="checkbox"/> | | | |
| 7. b) Release restrictions / Restrictions relatives à la diffusion | | | |
| No release restrictions Aucune restriction relative à la diffusion <input checked="" type="checkbox"/> | | All NATO countries Tous les pays de l'OTAN <input type="checkbox"/> | |
| Not releasable À ne pas diffuser <input type="checkbox"/> | | | |
| Restricted to: / Limité à: <input type="checkbox"/> | | Restricted to: / Limité à: <input type="checkbox"/> | |
| Specify country(ies): / Préciser le(s) pays: | | Specify country(ies): / Préciser le(s) pays: | |
| 7. c) Level of information / Niveau d'information | | | |
| PROTECTED A PROTÉGÉ A <input type="checkbox"/> | | NATO UNCLASSIFIED <input type="checkbox"/> | |
| PROTECTED B PROTÉGÉ B <input checked="" type="checkbox"/> | | NATO NON CLASSIFIÉ <input type="checkbox"/> | |
| PROTECTED C PROTÉGÉ C <input type="checkbox"/> | | NATO RESTRICTED NATO DIFFUSION RESTREINTE <input type="checkbox"/> | |
| CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/> | | NATO CONFIDENTIAL NATO CONFIDENTIEL <input type="checkbox"/> | |
| SECRET SECRET <input type="checkbox"/> | | NATO SECRET NATO SECRET <input type="checkbox"/> | |
| TOP SECRET TRÈS SECRET <input type="checkbox"/> | | COSMIC TOP SECRET COSMIC TRÈS SECRET <input type="checkbox"/> | |
| TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/> | | | |
| | | PROTECTED A PROTÉGÉ A <input type="checkbox"/> | |
| | | PROTECTED B PROTÉGÉ B <input type="checkbox"/> | |
| | | PROTECTED C PROTÉGÉ C <input type="checkbox"/> | |
| | | CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/> | |
| | | SECRET SECRET <input type="checkbox"/> | |
| | | TOP SECRET TRÈS SECRET <input type="checkbox"/> | |
| | | TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/> | |



PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets? ☒ No ☐ Yes
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? ☒ Non ☐ Oui

If Yes, indicate the level of sensitivity:

Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets? ☒ No ☐ Yes
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate? ☒ Non ☐ Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :

Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> RELIABILITY STATUS COTE DE FIABILITÉ | <input type="checkbox"/> CONFIDENTIAL CONFIDENTIEL | <input type="checkbox"/> SECRET SECRET | <input type="checkbox"/> TOP SECRET TRÈS SECRET |
| <input type="checkbox"/> TOP SECRET - SIGINT TRÈS SECRET - SIGINT | <input type="checkbox"/> NATO CONFIDENTIAL NATO CONFIDENTIEL | <input type="checkbox"/> NATO SECRET NATO SECRET | <input type="checkbox"/> COSMIC TOP SECRET COSMIC TRÈS SECRET |
| <input type="checkbox"/> SITE ACCESS ACCÈS AUX EMPLACEMENTS | | | |

Production and storage of Protected information shall be restricted to the Prime Consultant only.

Special comments:

Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.

REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work? ☒ No ☐ Yes
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail? ☒ Non ☐ Oui

If Yes, will unscreened personnel be escorted?

Dans l'affirmative, le personnel en question sera-t-il escorté?

☒ No ☐ Yes
☒ Non ☐ Oui

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises? ☐ No ☒ Yes
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS? ☐ Non ☒ Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets? ☒ No ☐ Yes
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC? ☒ Non ☐ Oui

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises? ☒ No ☐ Yes
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ? ☒ Non ☐ Oui

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data? ☐ No ☒ Yes
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS? ☐ Non ☒ Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency? ☒ No ☐ Yes
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale? ☒ Non ☐ Oui



PART C - (continued) / PARTIE C - (suite)

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.

Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.

Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

| Category Catégorie | PROTECTED PROTÉGÉ | | | CLASSIFIED CLASSIFIÉ | | | NATO | | | | COMSEC | | | | | |
|--|----------------------|---|---|----------------------------------|--------|-------------------------------|---|--|----------------|---|----------------------|---|---|--------------|--------|-------------------------------------|
| | A | B | C | CONFIDENTIAL CONFIDENTIEL | SECRET | TOP SECRET TRÈS SECRET | NATO RESTRICTED NATO DIFFUSION RESTREINTE | NATO CONFIDENTIAL NATO CONFIDENTIEL | NATO SECRET | COSMIC TOP SECRET COSMIC TRÈS SECRET | PROTECTED PROTÉGÉ | | | CONFIDENTIAL | SECRET | TOP SECRET TRÈS SECRET |
| | | | | | | | | | | | A | B | C | | | |
| Information / Assets Renseignements / Biens Production | | ✓ | | | | | | | | | | | | | | |
| IT Media / Support TI | | ✓ | | | | | | | | | | | | | | |
| IT Link / Lien électronique | | | | | | | | | | | | | | | | |

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?

La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?

☒ No ☐ Yes
Non Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".

Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?

La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?

☒ No ☐ Yes
Non Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).

Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).

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ANNEX E
CERTIFICATE OF INSURANCE (Page 1 of 3)

| | |
|---|------------------------------|
| Description and Location of Work LC - Construction Management Services Western Projects | Contract No. EP751-202923 |
| | 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 | | |
|---|-----------------------------------|--------------------------------|--------------------------|--|--------------------------------|--------------------------------------|
| Commercial General Liability Umbrella/Excess Liability | | | | Per Occurrence | Annual General Aggregate | Completed Operations Aggregate |
| | | | | \$ | \$ | \$ |
| | | | | \$ | \$ | \$ |
| Builder's Risk / Installation Floater | | | | \$ | | |
| Wrap-Up General Liability/Excess | | | | \$ ○ Per Incident ○ Per Occurrence | | Aggregate \$ |

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

CERTIFICATE OF INSURANCE (Page 2 of 3)

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 Policy shall be endorsed to provide the Owner with not less than 30 days' notice in writing in advance of any cancellation or change or amendment restricting 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>).

CERTIFICATE OF INSURANCE (Page 3 of 3)

Wrap-up General Liability

Scope of Policy

1. The insurance coverage provided must be primary to all other insurance policies and must not be substantially less than that provided by IBC Form 2100, as amended from time to time, except for liability arising from damage to the Work during construction, which must be limited to the completed operations period.
2. The policy must include an extension for a standard provincial and territorial form of non- owned automobile liability policy.
3. 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 building or land whether such support be natural or otherwise if the work is performed by the insured contractor.

Amount of Insurance

1. The policy must have:
 - (a) an Each Occurrence Limit of not less than **\$25,000,000**; and
 - (b) a Completed Operations Aggregate Limit of not less than **\$25,000,000**.
2. Umbrella or excess liability insurance may be used to achieve the required limits.

Insured

1. The policy must insure the Contractor and must include, as additional insured:
 - (a) Canada, represented by Public Works and Government Services Canada;
 - (b) All consultant; and
 - (c) Any Subcontractor at any tier performing any part of the Work.
2. The Insurer must provide a waiver of subrogation against any named or additional insured.

Period of Insurance

Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein must be in force and be maintained from the date of contract award until the day of issue of the Certificate of Completion except that the coverage for completed operations hazards must, in any event, be maintained for a period of at least two (2) years beyond the date of the Certificate of Substantial Performance.

ANNEX F
VOLUNTARY REPORT FOR APPRENTICES EMPLOYED DURING THE CONTRACT
(SAMPLE)

(This report is not required at bid closing)

The Contractor should compile and maintain records on the number of apprentices and their trade that were hired to work on the contract.

The Contractor should provide this data in accordance with the format below. If no apprentices were hired during the contract period, the Contractor should still provide a "nil" report.

The data should be submitted six months after the Contract award or at the end of the Contract, whichever comes first to the Contracting Authority.

| Number of apprentices hired | Trade |
|-----------------------------|-------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

ANNEX G

SAMPLE ESCALATION CALCULATION

| Escalation Calculation - 2018 Value of Construction Costs after 2007 | | | | | | |
|--|------|----------------------------|------------------------------|-------------------|-----------------------------|------------------------|
| Year Count | Year | Example* Construction Cost | StatsCan Escalation Values % | Annual Escalation | Cummulative Escalated Value | Cummulative Escalation |
| 1 | 2002 | | 3.2 | | | |
| 2 | 2003 | | 3.1 | | | |
| 3 | 2004 | | 7.1 | | | |
| 4 | 2005 | | 3.8 | | | |
| 5 | 2006 | | 6.4 | | | |
| 6 | 2007 | | 5.6 | | | |
| 7 | 2008 | \$ 16,499,687 | 8.7 | | | |
| 8 | 2009 | | -1.6 | -\$ 263,994.99 | \$ 16,235,692 | -1.6% |
| 9 | 2010 | | 4.7 | \$ 763,078 | \$ 16,998,770 | 3.0% |
| 10 | 2011 | | 5.4 | \$ 917,934 | \$ 17,916,703 | 8.6% |
| 11 | 2012 | | 1.4 | \$ 250,834 | \$ 18,167,537 | 10.1% |
| 12 | 2013 | | -0.5 | -\$ 90,838 | \$ 18,076,699 | 9.6% |
| 13 | 2014 | | 1.7 | \$ 307,304 | \$ 18,384,003 | 11.4% |
| 14 | 2015 | | 1.6 | \$ 294,144 | \$ 18,678,147 | 13.2% |
| 15 | 2016 | | 1.1 | \$ 205,460 | \$ 18,883,607 | 14.4% |
| 16 | 2017 | | 3.1 | \$ 585,392 | \$ 19,468,999 | 18.0% |
| 17 | 2018 | | 7.0 | \$ 1,321,852 | \$ 20,000,000 | 21.2% |

| Year Count | Year | Example* Construction Cost | StatsCan Escalation Values % | Annual Escalation | Cummulative Escalated Value | Cummulative Escalation |
|------------|------|----------------------------|------------------------------|-------------------|-----------------------------|------------------------|
| 1 | 2002 | | 3.2 | | | |
| 2 | 2003 | | 3.1 | | | |
| 3 | 2004 | | 7.1 | | | |
| 4 | 2005 | | 3.8 | | | |
| 5 | 2006 | | 6.4 | | | |
| 6 | 2007 | | 5.6 | | | |
| 7 | 2008 | \$ 24,749,531 | 8.7 | | | |
| 8 | 2009 | | -1.6 | -\$ 395,992.50 | \$ 24,353,539 | -1.6% |
| 9 | 2010 | | 4.7 | \$ 1,144,616 | \$ 25,498,155 | 3.0% |
| 10 | 2011 | | 5.4 | \$ 1,376,900 | \$ 26,875,055 | 8.6% |
| 11 | 2012 | | 1.4 | \$ 376,251 | \$ 27,251,306 | 10.1% |
| 12 | 2013 | | -0.5 | -\$ 136,257 | \$ 27,115,049 | 9.6% |
| 13 | 2014 | | 1.7 | \$ 460,956 | \$ 27,576,005 | 11.4% |
| 14 | 2015 | | 1.6 | \$ 441,216 | \$ 28,017,221 | 13.2% |
| 15 | 2016 | | 1.1 | \$ 308,189 | \$ 28,325,411 | 14.4% |
| 16 | 2017 | | 3.1 | \$ 878,088 | \$ 29,203,499 | 18.0% |
| 17 | 2018 | | 7.0 | \$ 1,982,779 | \$ 30,000,000 | 21.2% |

| | | | | | | |
|---|--|--|--|--|--|--|
| Non-Residential Building Construction Price Index escalation for Ottawa | | | | | | |
| http://www5.statcan.gc.ca/cansim/ | | | | | | |
| * Example: Assumes project completion after December 2007 | | | | | | |
| | | | | | | |
| | | | | | | |

Annex H

Indigenous Benefits Plan and Certification

1. At the time of bid submission, the bidders **must** provide the following information - The tables below may be used as a guide by bidders to submit their proposals.
2. Information provided may be subject to verification.

Table 1 – Training

| Training | Total Hours |
|---|-------------|
| Include total hours of training proposed. | |
| Describe proposed training: | |

Table 2 – Labour

| Labour | Total Hours |
|--------------------------------------|-------------|
| Include total labour hours proposed. | |

Provide a breakdown of proposed labour hours:

Table 3 – Goods and Services (including subcontracting):

| Good and Services | % of total bid price |
|--|----------------------|
| % of bid price to be subcontracted to Indigenous firms | |
| Provide a breakdown of proposed goods and services to be provided: | |
| | |

Table 4 – Other Benefits:

| Other Benefits | % of total bid price |
|----------------------------------|----------------------|
| % of bid price in other benefits | |

Provide a breakdown of proposed other benefits to be provided:

Bidder Certification

The Bidder must submit the following certification if an IBP is being provided, at time of bid submission.

INDIGENOUS BENEFITS PLAN CERTIFICATION:

PRINT NAME

SIGNATURE

DATE

The bidder authorized signatory certifies its IBP for contracting submitted with its bid is accurate and complete and acknowledges there is no conflict of interest with its subcontractors as indicated in SI11 – Limitation of Submissions and GI17 – Conflict of Interest – Unfair Advantage.

FORM 1

| BID SUBMISSION FORM | | |
|---|---|--|
| Bidder's full legal name <i>[Note to Bidders: Bidders who are part of a corporate group should take care to identify the correct corporation(s) as the Bidder.]</i> | | |
| Bidder's Operating Name (if any): | | |
| Authorized Representative of Bidder for evaluation purposes (e.g., clarifications) | Name: | |
| | Title: | |
| | Address: | |
| | Telephone #: | |
| | Cell #: | |
| | Email: | |
| Bidder's Procurement Business Number (PBN) <i>[Note to Bidders: Please ensure that the PBN you provide matches the legal name under which you have submitted your bid. If it does not, the Bidder will be required to submit a PBN that matches the legal name.]</i> | | |
| Security Clearance Level of Bidder [include both the level and the date it was granted] <i>[Note to Bidders: Please ensure that the security clearance matches the legal name of the Bidder. If it does not, the security clearance is not valid for the Bidder.]</i> <i>[Note to Bidders: In the case of a joint venture, all members must meet the security requirements.]</i> | | |
| In the case of a joint venture, the following must also be completed: | Name of each member of the joint venture: | |
| | Name of the representative of the joint venture, i.e. the member chosen by the other members to act on their behalf, if applicable: | |
| | Name of the joint venture, if applicable: | |
| Signature of Authorized Representative of Bidder | <div style="border-top: 1px solid black; width: 100%;"></div> | |

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FORM 2 CLIENT REFERENCE FORM

Note to Bidder: The information in the table below should be provided for each of the four projects and submitted by the Bidder.

| Provide the following information for each project that is presented by the Proponent: <i>(Please expand space provided to accommodate extent of information requested)</i> | |
|---|--|
| Project name / description | |
| Describe the work performed by the Bidder on the project | |
| Describe the contracting delivery model used for the project | |
| Describe the overall "scope" of the project | |
| Project location | |
| Project size (m ² or ft ²) | |
| Initial construction cost (excluding taxes) | |
| Final/current construction cost (excluding taxes) | |
| If applicable, explain any discrepancy between initial and final construction cost | |
| Describe any significant "scope" changes during the project | |
| Original completion date | |
| Actual or approved completion date | |
| If applicable, explain any discrepancy between original and actual/approved completion date | |
| Contact Information and Testimonial | |
| Client reference's company name | |
| Client reference representative's title | |

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| | |
|--|---|
| Client reference representative's telephone number | Area Code (____), Number ____ - ____ |
| Client reference representative's email address | |
| Name of entity/firm claiming the experience | |
| Client Reference Representative's Testimonial | <p>To the best of my knowledge, the information cited above is true and factual.</p> <p>_____ <i>Signature</i></p> <p>_____ <i>Date</i></p> |

FORM 3 INTEGRITY PROVISIONS- LIST OF NAMES

Complete list of individuals who are Directors and/or Owners of the Bidder.

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.

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.

| Board of Directors (Use format - first name last name) | | |
|--|-----------|--------------------------|
| First Name | Last Name | Position (if applicable) |
| | | |
| | | |
| | | |
| | | |
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| | | |

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FORM 4

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 F.

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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FORM 5

QUARTERLY CONTRACTOR ACHIEVEMENT REPORTING AND CERTIFICATION

1. The successful Contractor must provide a summary of activities undertaken to meet the commitments made as part of the IBP portion of their bid. The following table must be completed quarterly.

Canada reserves the right to audit the content of the report at any time. The Contractor must provide upon request detailed information such as invoices, work logs, payroll receipts, etc.

2. The Contractor must indicate if any objectives were not met, identify why they were not, explain how the situation will be remedied and within what timeframe.

3. Information provided may be subject to verification.

4. The IBP Contract Achievement Reporting and Certification must be submitted quarterly.

Return Reports to:

Contracting Authority Name: Robinah Matende
Email: Robinah.matende@tpsgc-pwgsc.gc.ca

Report for the period ending: _____

TABLE 1 –Achievement of Training Hours

| Type of Training | Total Number of Hours |
|---|-----------------------|
| Include type of training and hours of training completed. Insert additional rows as required. | |
| Comments: | |

Table 2 – Achievement of Labour Hours

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| Position Title (where possible) | Total Number of Hours |
|---|-----------------------|
| Include the # of hours per position proposed. Insert additional rows as required. | |
| Comments: | |

Table 3 – Good and Services (Subcontracting)

| Indigenous Benefit value this quarter | Value \$ |
|--|----------|
| Detailed Subcontracting. Insert additional rows as required. | |
| | |
| | |
| | |
| Comments: | |

INDIGENOUS BENEFITS PLAN ACHIEVEMENT CERTIFICATION: PRIME CONTRACTOR

PRINT

SIGNATURE

DATE

The Contractor authorized signatory certifies the information contained in the ACHIEVEMENT TABLES is accurate and complete.