Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

INVITATION TO TENDER

RETURN BIDS TO:

Bid Receiving / Agriculture and Agri-Food Canada

Agriculture and Agri-Food Canada (AAFC)
Central Experimental Farm (CEF)
K.W. Neatby Building #20 (Main Entrance)
960 Carling Avenue, Ottawa, ON K1A 0C6
Attn: Daniel Lafreniere
Solocitation #20-1096

TENDER TO:

Agriculture and Agri-Food 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 construction listed herein and on any attached sheets at the price(s) set out therefor.

Comments

ISSUING OFFICE

Agriculture and Agri-Food Canada
Integrated Services
Ottawa, Ontario
K1A 0C6

Title: Exterior Wall Insulation and Window Upgrades, Building 143, CEF , Ottawa.				
Solicitation No.: 20-1096			Date: 2020-08-26	
Client Reference No.: A851				
File No.: 20-1096				
Solicitation Closes:				
Day of Week: Thursday	Month: September	Day: 10	Year: 2020	Time: 02:00
Time of Day: ○ AM ◉ PM			Time Zone: EDT	
F.O.B: ○ Plant ◉ Destination ○ Other				
Address Enquiries to: Daniel Lafreniere				
Title: Senior Contracts Officer				
Email: daniel.lafreniere@canada.ca				
Telephone Number: 613 759-6876	Ext.	Fax Number		
Destination: Agriculture and Agri-Food Canada Central Experimental Farm 960 Carling Ave. Ottawa ON K1A 0C6				

Instructions: See Herein

Delivery Required	Delivery Offered
Vendor / Firm Name and Address	
Telephone Number Ext.	Fax Number

Canada

Name and title of person authorized to sign on behalf of Vendor / Firm
(type or print)

Signature

Date

Canada

TABLE OF CONTENTS

SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01 BID DOCUMENTS

1) The following are the bid documents:

   (a) INVITATION TO TENDER - Page 1 form AAFC / AAC5323-E;
   (b) SPECIAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5301-E;
   (c) GENERAL INSTRUCTIONS TO BIDDERS form AAFC / AAC5313-E;
   (d) Clauses and Conditions identified in “CONTRACT DOCUMENTS”;
   (e) Drawings and Specifications;
   (f) BID AND ACCEPTANCE form AAFC / AAC5320-E and any Appendices attached thereto; and,
   (g) Any amendment issued prior to solicitation closing.

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

SI02 ENQUIRIES DURING THE SOLICITATION PERIOD

1) Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the INVITATION TO TENDER - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in GI13 of the GENERAL INSTRUCTIONS TO BIDDERS, enquiries should be received no later than five (5) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.

2) To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.

3) All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the INVITATION TO TENDER - Page 1. Non-compliance with this requirement during the solicitation period can, for that reason alone, result in disqualification of a bid.

SI03 NON-MANDATORY SITE VISIT

1) There will be a site visit on Wednesday, September, 2 , 2020 from 08:00 AM to 04:00 PM EDT.

The work site is a publicly accessible area (exterior only), therefore, AAFC encourages the bidders to visit the site on their own, on the date and between the hours specified. Interested bidders are to proceed to:
building 143, CEF Ottawa.

SI04 REVISION OF BID

1) A bid may be revised by letter in accordance with GI09 of the GENERAL INSTRUCTIONS TO BIDDERS.

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SI05 BID RESULTS

1) Following bid closing, bid results may be obtained from the bid receiving office by email at daniel.lafreniere@canada.ca .

SI06 INSUFFICIENT FUNDING

1) In the event that the lowest compliant bid exceeds the amount of funding allocated for the Work, Canada in its sole discretion may:
   (a) cancel the solicitation; or
   (b) obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
   (c) negotiate a reduction in the bid price and/or scope of work of not more than 15% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Canada not be reached, Canada shall exercise option (a) or (b).

SI07 BID VALIDITY PERIOD

1) Canada reserves the right to seek an extension to the bid validity period prescribed in Clause 4 of the BID AND ACCEPTANCE Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.

2) If the extension referred to in paragraph 1) of SI07 is accepted, in writing, by all those who submitted bids, then Canada shall continue immediately with the evaluation of the bids and its approvals processes.

3) If the extension referred to in paragraph 1) of SI07 is not accepted in writing by all those who submitted bids then Canada shall, at its sole discretion, either:
   (a) continue to evaluate the bids of those who have accepted the proposed extension and seek the necessary approvals; or
   (b) cancel the invitation to bid.

4) The provisions expressed herein do not in any manner limit Canada's rights in law or under GI10 of the GENERAL INSTRUCTIONS TO BIDDERS.

SI08 CONSTRUCTION DOCUMENTS

1) The successful contractor will be provided with one paper copy of the sealed and signed plans, the specifications and the amendments upon acceptance of the offer. Additional copies, up to a maximum of one (1), will be provided free of charge upon request by the Contractor. Obtaining more copies shall be the responsibility of the Contractor including costs.

SI09 WEB SITES

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

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

Canadian economic sanctions
http://www.international.gc.ca/sanctions/index.aspx?lang=eng

SI10 PERSONNEL SECURITY REQUIREMENTS

1) The successful Bidder's personnel, as well as any subcontractor and its personnel, who are required to perform any part of the work pursuant to the subsequent contract, must meet the following contract security requirements:

- Personnel who are required to perform any part of the work must EACH hold a valid personnel security screening at the level of RELIABILITY STATUS, granted or approved by Agriculture and Agri-Food Canada. Until the security screening of the personnel has been completed satisfactorily by Agriculture and Agri-Food Canada, the Contractor/Subcontractor personnel MAY NOT perform contract work. Each of the proposed staff must complete "Security Clearance Form" (TBS 330-23E) upon request from Canada.

GENERAL INSTRUCTIONS TO BIDDERS

GI01 COMPLETION OF BID

1) The bid shall be:

   (a) submitted on the BID AND ACCEPTANCE FORM provided by AAFC with the bid package or on a clear and legible reproduced copy of such BID AND ACCEPTANCE FORM that must be identical in content and format to the BID AND ACCEPTANCE FORM provided by AAFC;

   (b) based on the Bid Documents listed in the Special Instructions to Bidders;

   (c) correctly completed in all respects;

   (d) signed, with an original signature, by a duly authorized representative of the Bidder; and

   (e) accompanied by

      (i) bid security as specified in GI07; and
      (ii) any other document or documents specified elsewhere in the solicitation where it is stipulated that said documents are to accompany the bid.

2) Subject to paragraph 6) of GI10, any alteration to the pre-printed or pre-typed sections of the Bid and Acceptance Form, or any condition or qualification placed upon the bid shall be cause for disqualification. Alterations, corrections, changes or erasures made to statements or figures entered on the Bid and Acceptance Form by the Bidder shall be initialed by the person or persons signing the bid. Alterations, corrections, changes or erasures that are not initialed shall be deemed void and without effect.

3) Unless otherwise noted elsewhere in the Bid Documents, facsimile copies of bids are not acceptable.

GI02 IDENTITY OR LEGAL CAPACITY OF THE BIDDER

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

   (a) such signing authority; and

   (b) the legal capacity under which it carries on business;

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

GI03 APPLICABLE TAXES

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

GI04 CAPITAL DEVELOPMENT AND REDEVELOPMENT CHARGES

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

GI05 REGISTRY AND PRE-QUALIFICATION OF FLOATING PLANT

1) Dredges or other floating plant to be used in the performance of the Work must be of Canadian registry. For dredges or other floating plant that are not of Canadian make or manufacture, the Bidder must obtain a certificate of qualification from Industry Canada and this certificate must accompany the bid. Plant so qualified by Industry Canada may be accepted on this project.

GI06 LISTING OF SUBCONTRACTORS AND SUPPLIERS

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

GI07 BID SECURITY REQUIREMENTS

1) The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is $2,000,000.00.

2) A bid bond shall be in an approved form http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494#appS, properly completed, with original signature(s) and issued by an approved company whose bonds are acceptable to Canada either at the time of solicitation closing or as identified in Treasury Board Appendix L: Acceptable Bonding Companies.

3) A security deposit shall be an original, properly completed, signed where required and be either:

   (a) a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or

   (b) bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada;

4) For the purposes of subparagraph 3) (a) of GI07

   (a) a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;

   (b) if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4.c. of GI07, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and

   (c) An approved financial institution is:
      (i) a corporation or institution that is a member of the Canadian Payments Association as defined in the Canadian Payments Act;
      (ii) a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";
      (iii) a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;
      (iv) a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the Income Tax Act; or
      (v) Canada Post Corporation.

5) Bonds referred to in subparagraph 3)(b) of GI07 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be:

   (a) payable to bearer;

   (b) accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or

   (c) registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.

6) As an alternative to a security deposit an irrevocable standby letter of credit is acceptable to Canada and the amount shall be determined in the same manner as a security deposit referred to above.

7) An irrevocable standby letter of credit referred to in paragraph 6) of GI07 shall

   (a) be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant) or on its own behalf,
      (i) is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;
      (ii) is to accept and pay bills of exchange drawn by the Receiver General for Canada;
      (iii) authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or
      (iv) authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;

   (b) state the face amount which may be drawn against it;

   (c) state its expiry date;

   (d) provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;

   (e) provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;

   (f) provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600; pursuant to the ICC UCP; a credit is irrevocable even if there is no indication to that effect; and

   (g) be issued or confirmed, in either official language, by a financial institution which is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

8) Bid security shall lapse or be returned as soon as practical following:

   (a) the solicitation closing date, for those Bidders submitting non-compliant bids; and

   (b) the administrative bid review, for those Bidders submitting compliant bids ranked fourth to last on the schedule of bids; and

   (c) the award of contract, for those Bidders submitting the second and third ranked bids; and

   (d) the receipt of contract security, for the successful Bidder; or

   (e) the cancellation of the solicitation, for all Bidders.

9) Notwithstanding the provisions of paragraph 8) of GI07 and provided more than three compliant bids have been received, if one or more of the bids ranked third to first is withdrawn or rejected for whatever reason then Canada reserves the right to hold the security of the next highest ranked compliant bid in order to retain the bid security of at least three valid and compliant bids.

GI08 SUBMISSION OF BID

1) The Bid and Acceptance Form, duly completed, and the bid security shall be enclosed and sealed in an envelope provided by the Bidder, and shall be addressed and submitted to the office designated on the INVITATION TO TENDER Form for the receipt of bids. The bid must be received on or before the date and time set for solicitation closing.

2) Unless otherwise specified in the Special Instructions to Bidders

   (a) the bid shall be in Canadian currency;

   (b) exchange rate fluctuation protection is not offered; and

   (c) any request for exchange rate fluctuation protection shall not be considered.

3) Prior to submitting the bid, the Bidder shall ensure that the following information is clearly printed or typed on the face of the bid envelope:

   (a) Solicitation Number;

   (b) Name of Bidder;

   (c) Return address; and

   (d) Closing Date and Time.

4) Timely and correct delivery of bids is the sole responsibility of the Bidder.

GI09 REVISION OF BID

1) A bid submitted in accordance with these instructions may be revised by letter or facsimile provided the revision is received at the office designated for the receipt of bids, on or before the date and time set for the closing of the solicitation. The letter or facsimile shall be on the Bidder's letterhead or bear a signature that identifies the Bidder;

2) A revision to a bid that includes unit prices must clearly identify the changes(s) in the unit price(s) and the specific item(s) to which each change applies.

3) A letter or facsimile submitted to confirm an earlier revision shall be clearly identified as a confirmation.

4) Failure to comply with any of the above provisions shall result in the rejection of the non-compliant revision(s) only. The bid shall be evaluated based on the original bid submitted and all other compliant revision(s).

GI10 REJECTION OF BID

1) Canada may accept any bid, whether it is the lowest or not, or may reject any or all bids.

2) Without limiting the generality of paragraph 1) of GI10, Canada may reject a bid if any of the following circumstances is present:

   (a) the Bidder, or any employee or subcontractor included as part of the bid, has been

convicted under Section 121 ("Frauds on the government" & "Contractor subscribing to election fund"), 124 "Selling or purchasing office"), 380 ("Fraud committed against Her Majesty") or 418 ("Selling defective stores to Her Majesty") of the Criminal Code of Canada, or under paragraph 80(1)(d) ("False entry, certificate or return"), subsection 80(2) ("Fraud against Her Majesty") or Section 154.01 ("Fraud against Her Majesty") of the *Financial Administration Act*;

(b) the Bidder's bidding privileges are suspended or are in the process of being suspended;

(c) the bidding privileges of any employee or subcontractor included as part of the bid are suspended or are in the process of being suspended, which suspension or pending suspension would render that employee or subcontractor ineligible to bid on the Work, or the portion of the Work the employee or subcontractor is to perform;

(d) the Bidder is bankrupt, or where for whatever reason, its activities are rendered inoperable for an extended period;

(e) evidence, satisfactory to Canada, of fraud, bribery, fraudulent misrepresentation or failure to comply with any law protecting individuals against any manner of discrimination, has been received with respect to the Bidder, any of its employees or any subcontractor included as part of its bid;

(f) evidence satisfactory to Canada that based on past conduct or behavior, the Bidder, a sub-contractor or a person who is to perform the Work is unsuitable or has conducted himself/herself improperly;

(g) with respect to current or prior transactions with Canada
  (i) Canada has exercised, or intends to exercise, the contractual remedy of taking the work out of the contractor's hands with respect to a contract with the Bidder, any of its employees or any subcontractor included as part of its bid; or
  (ii) Canada determines that the Bidder's performance on other contracts is sufficiently poor to jeopardize the successful completion of the requirement being bid on.

3) In assessing the Bidder’s performance on other contracts pursuant to subparagraph 2)(g)(ii)of GI10, Canada may consider, but not be limited to, such matters as:

(a) the quality of workmanship in performing the Work;

(b) the timeliness of completion of the Work;

(c) the overall management of the Work and its effect on the level of effort demanded of the department and its representative; and

(d) the completeness and effectiveness of the Contractor’s safety program during the performance of the Work.

4) Without limiting the generality of paragraphs 1), 2) and 3) of GI10, Canada may reject any bid based on an unfavourable assessment of the:

(a) adequacy of the bid price to permit the work to be carried out and, in the case of a bid providing prices per unit or a combination of lump sum and prices per unit, whether each such price reasonably reflects the cost of performing the part of the work to which that

price applies;

(b) Bidder's ability to provide the necessary management structure, skilled personnel, experience and equipment to perform competently the work under the Contract; and

(c) Bidder's performance on other contracts.

5) Where Canada intends to reject a bid pursuant to a provision of paragraphs 1), 2), 3) or 4) of GI10, other than subparagraph 2)(g)of IT10, the contracting authority will inform the Bidder and provide the Bidder ten (10) days within which to make representations, before making a final decision on the bid rejection.

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

GI11 BID COSTS

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

GI12 COMPLIANCE WITH APPLICABLE LAWS

1) By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.

2) For the purpose of validating the certification in paragraph 1) of GI12, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the said request.

3) Failure to comply with the requirements of paragraph 2) of GI12 shall result in disqualification of the bid.

GI13 APPROVAL OF ALTERNATIVE MATERIALS

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

GI14 CONFLICT OF INTEREST - UNFAIR ADVANTAGE

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

(a) if the Bidder, any of its subcontractors, any of their respective employees or former

employees was involved in any manner in the preparation of the bid solicitation or in any situation of conflict of interest or appearance of conflict of interest;

(b) if the Bidder, any of its subcontractors, any of their respective employees or former employees had access to information related to the bid solicitation that was not available to other bidders and that would, in Canada's opinion, give or appear to give the Bidder an unfair advantage.

2) The experience acquired by a bidder who is providing or has provided the goods and services described in the bid solicitation (or similar goods or services) will not, in itself, be considered by Canada as conferring an unfair advantage or creating a conflict of interest. This bidder remains however subject to the criteria established above.

3) Where Canada intends to reject a bid under this section, the Contracting Authority will inform the Bidder and provide the Bidder an opportunity to make representations before making a final decision. Bidders who are in doubt about a particular situation should contact the Contracting Authority before bid closing. By submitting a bid, the Bidder represents that it does not consider itself to be in conflict of interest nor to have an unfair advantage. The Bidder acknowledges that it is within Canada's sole discretion to determine whether a conflict of interest, unfair advantage or an appearance of conflict of interest or unfair advantage exists.

GI15 INTEGRITY PROVISIONS - BID

1) Ineligibility and Suspension Policy (the “Policy”), and all related Directives, are incorporated by reference into, and form a binding part of the procurement process. The Supplier must comply with the Policy and Directives, which can be found at *Ineligibility and Suspension Policy*.

2) Under the Policy, charges and convictions of certain offences against a Supplier, its affiliates or first tier subcontractors, and other circumstances, will or may result in a determination by Public Works and Government Services Canada (PWGSC) that the Supplier is ineligible to enter, or is suspended from entering into a contract with Canada. The list of ineligible and suspended Suppliers is contained in PWGSC’s Integrity Database. The Policy describes how enquiries can be made regarding the ineligibility or suspension of Suppliers.

3) In addition to all other information required in the procurement process, the Supplier must provide the following:

a. by the time stated in the Policy, all information required by the Policy described under the heading “Information to be Provided when Bidding, Contracting or Entering into a Real Property Agreement”; and

b. with its bid / quote / proposal, a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy. The list of foreign criminal charges and convictions must be submitted using an Integrity Declaration Form, which can be found at Declaration form for procurement.

4) Subject to subsection 5, by submitting a bid / quote / proposal in response a request by AAFC, the Supplier certifies that:

a. it has read and understands the *Ineligibility and Suspension Policy*;

b. it understands that certain domestic and foreign criminal charges and convictions, and

other circumstances, as described in the Policy, will or may result in a determination of ineligibility or suspension under the Policy;

c. it is aware that Canada may request additional information, certifications, and validations from the Supplier or a third party for purposes of making a determination of ineligibility or suspension;

d. it has provided with its bid / quote / proposal a complete list of all foreign criminal charges and convictions pertaining to itself, its affiliates and its proposed first tier subcontractors that, to the best of its knowledge and belief, may be similar to one of the listed offences in the Policy;

e. none of the domestic criminal offences, and other circumstances, described in the Policy that will or may result in a determination of ineligibility or suspension, apply to it, its affiliates and its proposed first tier subcontractors; and

f. it is not aware of a determination of ineligibility or suspension issued by PWGSC that applies to it.

5) Where a Supplier is unable to provide any of the certifications required by subsection 4, it must submit with its bid/ quote / proposal a completed Integrity Declaration Form, which can be found at Declaration form for procurement.

6) Canada will declare non-responsive any bid / quote / proposal in respect of which the information requested is incomplete or inaccurate, or in respect of which the information contained in a certification or declaration is found by Canada to be false or misleading in any respect. If Canada establishes after award of the Contract that the Supplier provided a false or misleading certification or declaration, Canada may terminate the Contract for default. Pursuant to the Policy, Canada may also determine the Supplier to be ineligible for award of a contract for providing a false or misleading certification or declaration.

Ineligibility and Suspension Policy - http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html

Declaration form for procurement - http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html

GI16 CODE OF CONDUCT FOR PROCUREMENT - BID

1) The Code of Conduct for Procurement provides that Bidders must respond to bid solicitations in an honest, fair and comprehensive manner, accurately reflect their capacity to satisfy the requirements set out in the bid solicitation and resulting contract, submit bids and enter into contracts only if they will fulfill all obligations of the Contract. By submitting a bid, the Bidder is certifying that it is complying with the Code of Conduct for Procurement. Failure to comply with the Code of Conduct for Procurement may render the bid non-responsive.

MAJOR WORKS - CONTRACT DOCUMENTS

SC01 CONTRACT DOCUMENTS

1) The following are the contract documents:

   (a) Contract page when signed by Canada;

   (b) Duly completed Bid and Acceptance Form and any Appendices attached thereto;

   (c) Drawings and Specifications;

   (d) AAFC General Conditions form AAFC / AAC5321-E:

(i)	GC1	General Provisions
(ii)	GC2	Administration of the Contract
(iii)	GC3	Execution and Control of the Work
(iv)	GC4	Protective Measures
(v)	GC5	Terms of Payment
(vi)	GC6	Delays and Changes in the Work
(vii)	GC7	Default, Suspension or Termination of Contract
(viii)	GC8	Dispute Resolution
(ix)	GC9	Contract Security
(x)	GC10	Insurance

   (e) Supplementary Conditions, if any;

   (f) Insurance Terms form AAFC / AAC5315-E;

   (g) Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;

   (h) Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and

   (i) Any amendment or variation of the contract documents that is made in accordance with the General Conditions.

2) The language of the contract documents shall be the language of the Bid and Acceptance Form submitted.

SC02 ACCEPTANCE AND CONTRACT

1) Upon acceptance of the Contractor's offer by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents referred to in SC01 CONTRACT DOCUMENTS.

MAJOR WORKS GENERAL CONDITIONS FORM AAFC 5321:

GC1 GENERAL PROVISIONS

GC1.1 (2016-05-01) INTERPRETATION

GC1.1.1 Headings and References

1) The headings in the contract documents, other than those in the drawings and specifications, form no part of the Contract but are inserted for convenience of reference only.

2) A reference made to a part of the Contract by means of numbers preceded by letters is a reference to the particular part of the Contract that is identified by that combination of letters and numbers and to any other part of the Contract referred to therein.

3) A reference to a paragraph or subparagraph followed by an identifying number, letter or combination thereof is, unless specifically stated otherwise, a reference to the paragraph or subparagraph that forms part of the clause within which the reference is made.

GC1.1.2 Terminology

In the Contract, unless the context otherwise requires:

"Administrative Agreement"

is a negotiated agreement with the Minister of AAFC as provided for in the Ineligibility and Suspension Policy.

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

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

"Applicable Taxes"
means the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), and any provincial tax, by law, payable by Canada such as, the Quebec Sales Tax (QST) as of April 1, 2013;
"Canada", "Crown", "Her Majesty"
means Her Majesty the Queen in right of Canada;

"Contract"
means the contract documents referred to as such therein and every other document specified or referred to in any of them as forming part of the Contract, all as amended by agreement of the parties;

"Contract Amount"
means the amount set out in the Contract to be payable to the Contractor for the Work, subject to the terms and conditions of the Contract, exclusive of Applicable Taxes;

"Contract Security"
means any security given by the Contractor to Canada in accordance with the Contract;

"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.

"Certificate of Completion"
means a certificate issued by Canada when the Work reaches Completion;
"Certificate of Measurement"
means a certificate issued by Canada certifying the correctness of the final quantities, prices per unit and values of labour, Plant and Material performed, used and supplied by the Contractor for the construction of the part of the Work to which a Unit Price Arrangement applies;

"Certificate of Substantial Performance"
means a certificate issued by Canada when the Work reaches Substantial Performance;

“Control”
means:

a) direct control, such as where:
    (i) a person controls a body corporate if securities of the body corporate to which are attached more than 50 percent of the votes that may be cast to elect directors of the body corporate are beneficially owned by the person and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the body corporate;

(ii) a person controls a corporation that is organized on a cooperative basis if the person and all of the entities controlled by the person have the right to exercise more than 50 percent of the votes that may be cast at an annual meeting or to elect the majority of the directors of the corporation;

(iii) a person controls an unincorporated entity, other than a limited partnership, if more than 50 percent of the ownership interests, however designated, into which the entity is divided are beneficially owned by that person and the person is able to direct the business and affairs of the entity;

(iv) the general partner of a limited partnership controls the limited partnership; and

(v) a person controls an entity if the person has any direct or indirect influence that, if exercised, would result in control in fact of the entity.

b) deemed control, such as where:
a person who controls an entity is deemed to control any entity that is controlled, or deemed to be controlled, by the entity

c) indirect control, such as where:
a person is deemed to control, within the meaning of paragraph (a) or (b), an entity where the aggregate of:
(i) any securities of the entity that are beneficially owned by that person, and

(ii) any securities of the entity that are beneficially owned by any entity controlled by that person

is such that, if that person and all of the entities referred to in paragraph (c)(ii) that beneficially own securities of the entity were one person, that person would control the entity.

"Departmental Representative"
means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor;

"herein", "hereby", "hereof", "hereunder"
and similar expressions refer to the Contract as a whole and not to any particular section or part thereof;

“Ineligibility”
means a person not eligible to contract with Canada;
"Lump Sum Arrangement"
means that part of the Contract that prescribes a lump sum as payment for performance of the Work to which it relates;

"Material"
includes all commodities, articles, machinery, equipment, fixtures and things required to be furnished in accordance with the Contract for incorporation into the Work;

"person"

also includes, unless there is an express stipulation in the Contract to the contrary, any partnership, proprietorship, firm, joint venture, consortium or corporation;

"Plant"
includes all tools, implements, machinery, vehicles, structures, equipment, articles and things that are necessary for the performance of the Contract, other than Material and those tools customarily provided by a tradesperson in practicing a trade;

"Subcontractor"
means a person having a direct contract with the Contractor, subject to GC3.6

"Subcontracting", to perform a part or parts of the Work, or to supply Material customized for the Work;

"Superintendent"
means the employee or representative of the Contractor designated by the Contractor to act pursuant to GC2.6, "Superintendent";

"Supplementary Conditions"
means the part of the Contract that amends or supplements the General Conditions;

"Supplier"
means a person having a direct contract with the Contractor to supply Plant or Material not customized for the Work;

“Suspension”
means a determination of temporary ineligibility by the Minister of AAFC;

“Total Estimated Cost”, “Revised Estimated Cost”, “Increase (Decrease)”
on Page 1 of the Contract or Contract Amendment means an amount used for internal administrative purposes only that comprises the Contract Amount, or the revised Contract Amount, or the amount that would increase or decrease the Contract Amount and the Applicable Taxes as evaluated by the Contracting Authority, and does not constitute tax advice on the part of Canada;

"Unit Price Arrangement"
means that part of the Contract that prescribes the product of a price per unit of measurement multiplied by a number of units of measurement for performance of the Work to which it relates;

"Unit Price Table"
means the table of prices per unit set out in the Contract;

"Work"
means, subject only to any express stipulation in the Contract to the contrary, everything that is necessary to be done, furnished or delivered by the Contractor to perform the Contract in accordance with the contract documents; and

"Working Day"
means a day other than a Saturday, Sunday, or a statutory holiday that is observed by the construction industry in the area of the place of the Work.

GC1.1.3 Application of Certain Provisions

1) Any provisions of the Contract that are expressly stipulated to be applicable only to a Unit Price Arrangement are not applicable to any part of the Work to which a Lump Sum Arrangement applies.

2) Any provisions of the Contract that are expressly stipulated to be applicable only to a Lump Sum Arrangement are not applicable to any part of the Work to which a Unit Price Arrangement applies.

GC1.1.4 Substantial Performance

1) The Work shall be considered to have reached Substantial Performance when
   a) the Work or a substantial part thereof has passed inspection and testing and is, in the opinion of Canada, ready for use by Canada or is being used for the intended purposes; and

   b) the Work is, in the opinion of Canada, capable of completion or correction at a cost of not more than

      (i) 3 percent of the first $500,000;
      (ii) 2 percent of the next $500,000; and
      (iii) 1 percent of the balance

      of the Contract Amount at the time this cost is calculated.

2) Where the Work or a substantial part thereof is ready for use or is being used for the purposes intended and
   a. the remainder of the Work or a part thereof cannot be completed by the time specified in the Contract, or as amended in accordance with GC6.5, "Delays and Extension of Time", for reasons beyond the control of the Contractor; or

   b. Canada and the Contractor agree not to complete a part of the Work within the specified time;

the cost of that part of the Work that was either beyond the control of the Contractor to complete or Canada and the Contractor have agreed not to complete by the time specified, shall be deducted from the value of the Contract referred to in subparagraph 1)(b) of GC1.1.4 and the said cost shall not form part of the cost of the Work remaining to be done in determining Substantial Performance.

GC1.1.5 Completion

The Work shall be deemed to have reached Completion when all labour, Plant and Material required have been performed, used or supplied, and the Contractor has complied with the Contract and all orders and directions made pursuant thereto, all to the satisfaction of Canada.

GC1.2 (2016-05-01) CONTRACT DOCUMENTS

The following discusses contract documents

GC1.2.1 General

1) The contract documents are complementary, and what is required by any one shall be as binding as if required by all.

2) References in the contract documents to the singular shall be considered to include the plural as the context requires.

3) Nothing contained in the contract documents shall create a contractual relationship between Canada and any Subcontractor or Supplier, their subcontractors or suppliers, or their agents or employees.

GC1.2.2 Order of Precedence

1) 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:

    a) any amendment or variation of the contract documents that is made in accordance with the General Conditions;

    b) any amendment issued prior to tender closing;

    c) Supplementary Conditions;

    d) General Conditions;

    e) the duly completed Bid and Acceptance Form when accepted;

    f) drawings and specifications.

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

2) In the event of any discrepancy or conflict in the information contained in the drawings and specifications, the following rules shall apply:

    a) specifications shall govern over drawings;

    b) dimensions shown in figures on a drawings shall govern where they differ from dimensions scaled from the same drawings; and

    c) drawings of larger scale govern over those of smaller scale.

GC1.2.3 Security and Protection of Documents and Work

1) The Contractor shall guard and protect contract documents, drawings, information, models and copies thereof, whether supplied by Canada or the Contractor, against loss or damage from any cause.

2) The Contractor shall keep confidential all information provided to the Contractor by or on behalf of Canada in connection with the Work, and all information developed by the Contractor as part of the Work, and shall not disclose any such information to any person without the written permission of Canada, except that the Contractor may disclose to a subcontractor, authorized in accordance with the Contract, information necessary to the performance of a subcontract. This section does not apply to any information that

    a) is publicly available from a source other than the Contractor; or

b) is or becomes known to the Contractor from a source other than Canada, except any source that is known to the Contractor to be under an obligation to Canada not to disclose the **information.**

3) When the Contract, the Work, or any information referred to in paragraph 2) is identified as top secret, secret, confidential, or protected by Canada, the Contractor shall, at all times, take all measures reasonably necessary for the safeguarding of the material so identified, including such measures as may be further specified elsewhere in the Contract or provided, in writing, from time to time by Canada.

4) Without limiting the generality of paragraphs 2) and 3) of GC1.2.3, when the Contract, the Work, or any information referred to in paragraph 2) is identified as top secret, secret, confidential, or protected by Canada, Canada shall be entitled to inspect the Contractor's premises and the premises of its subcontractors or suppliers and any other person at any tier, for security purposes at any time during the term of the Contract, and the Contractor shall comply with, and ensure that any such subcontractors or suppliers comply with all written instructions issued by Canada dealing with the material so identified, including any requirement that employees of the Contractor and its subcontractors and suppliers and any other person at any tier execute and deliver declarations relating to reliability screenings, security clearances and other procedures.

5) The Contractor shall safeguard the Work and the Contract, the specifications, drawings and any other information provided by Canada to the Contractor, and shall be liable to Canada for any loss or damage from any causes.

GC1.3 STATUS OF THE CONTRACTOR

1) The Contractor is engaged under the Contract as an independent contractor.

2) The Contractor, its subcontractors and suppliers and any other person at any tier and their employees are not engaged by the Contract as employees, servants or agents of Canada.

3) For the purposes of the contract the Contractor shall be solely responsible for any and all payments and deductions required to be made by law including those required for Canada or Quebec Pension Plans, Employment Insurance, Worker's Compensation, provincial health or insurance plans, and Income Tax.

GC1.4 (2016-05-01) RIGHTS AND REMEDIES

1) Except as expressly provided in the Contract, the duties and obligations imposed by the Contract and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.

GC1.5 (2016-05-01) TIME OF THE ESSENCE

1) Time is of the essence of the Contract.

GC1.6 INDEMNIFICATION BY THE CONTRACTOR

1) The Contractor shall pay all royalties and patent fees required for the performance of the Contract and, at the Contractor's expense, shall defend all claims, actions or proceedings

against Canada charging or claiming that the Work or any part thereof provided or furnished by the Contractor to Canada infringes any patent, industrial design, copyright trademark, trade secret or other proprietary right enforceable in Canada.

2) The Contractor shall indemnify and save Canada harmless from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings by any third party, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by, or attributable to the activities of the Contractor, its subcontractors and suppliers and any other person at any tier, in performing the Work.

3) For the purposes of paragraph 2) of GC1.6, "activities" means any act improperly carried out, any omission to carry out an act and any delay in carrying out an act.

GC1.7 (2016-05-01) INDEMNIFICATION BY CANADA

1) Subject to the **Crown Liability and Proceedings Act, the Patent Act**, and any other law that affects Canada's rights, powers, privileges or obligations, Canada shall indemnify and save the Contractor harmless from and against all claims, demands, losses, costs, damage, actions, suits or proceedings arising out of the Contractor's activities under the Contract that are directly attributable to

   a) a lack of or a defect in Canada's title to the Work site if owned by Canada, whether real or alleged; or

   b) an infringement or an alleged infringement by the Contractor of any patent of invention or any other kind of intellectual property occurring while the Contractor was performing any act for the purposes of the Contract employing a model, plan or design or any other thing related to the Work that was supplied by Canada to the Contractor.

GC1.8 (2016-05-01) LAWS, PERMITS AND TAXES

1) The Contractor shall comply with all federal, provincial and municipal laws and regulations applicable to the performance of the Work or any part thereof including, without limitation, all laws concerning health and the protection of the environment, and shall require compliance therewith by all of its subcontractors and suppliers at any tier as if the Work were being performed for an owner other than Canada. The Contractor shall furnish evidence of compliance with such laws and regulations to Canada at such times as Canada may reasonably request.

2) Unless stipulated otherwise in the Contract, the Contractor shall obtain and maintain all permits, certificates, licences, registrations and authorizations required for the lawful performance of the Work.

3) Prior to the commencement of the Work at the site, the Contractor shall tender to a municipal authority an amount equal to all fees and charges that would be lawfully payable to that municipal authority in respect of building permits as if the Work were being performed for an owner other than Canada.

4) Within 10 days of making a tender pursuant to paragraph 3) of GC1.8, the Contractor shall notify Canada of the amount properly tendered and whether or not the municipal authority has accepted that amount.

5) If the municipal authority has not accepted the amount tendered, the Contractor shall pay that amount to Canada within 6 days after the time stipulated in paragraph 4) of GC1.8.

6) For the purposes of this clause, "municipal authority" means any authority that would have jurisdiction respecting permission to perform the Work if the owner were not Canada.

7) Notwithstanding the residency of the Contractor, the Contractor shall pay any applicable tax arising from or related to the performance of the Work under the Contract.

8) In accordance with the Statutory Declaration referred to in paragraph 4) of GC5.5, "Substantial Performance of the Work", a Contractor who has neither residence nor place of business in the province or territory in which work under the Contract is being performed shall provide Canada with proof of registration with the provincial sales tax authorities in the said province.

9) For the purpose of the payment of any Applicable Taxes or the furnishing of security for the payment of any Applicable Taxes arising from or related to the performance of the Work, and notwithstanding the provision that all Material, Plant and interest of the Contractor in all real property, licences, powers and privileges, become the property of Canada after the time of purchase in accordance with GC3.10, "Material Plant and Real Property Become Property of Canada", the Contractor shall be liable, as a user or consumer, for the payment or for the furnishing of security for the payment of any Applicable Taxes payable, at the time of the use or consumption of that Material, Plant or interest of the Contractor in accordance with the relevant legislation.

10) Federal government departments and agencies are required to pay Applicable Taxes.

11) Applicable Taxes will be paid by Canada as provided in the request for payment. It is the sole responsibility of the Contractor to charge Applicable Taxes at the correct rate in accordance with applicable legislation. The Contractor agrees to remit to appropriate tax authorities any amounts of Applicable Taxes paid or due.

12) The Contractor is not entitled to use Canada's exemptions from any tax, such as provincial sales taxes, unless otherwise specified by law. The Contractor must pay applicable provincial sales tax, ancillary taxes, and any commodity tax, on taxable goods or services used or consumed in the performance of the Contract (in accordance with applicable legislation), including for material incorporated into real property.

13) In those cases where Applicable Taxes, customs duties, and excise taxes are included in the Contract Amount, the Contract Amount will be adjusted to reflect any increase, or decrease, of Applicable Taxes, customs duties, and excise taxes that will have occurred between bid submission and contract award. However, there will be no adjustment for any change to increase the Contract Amount if public notice of the change was given before bid submission date in sufficient detail to have permitted the Contractor to calculate the effect of the change.

14) Tax Withholding of 15 Percent – Canada Revenue Agency
Pursuant to the *Income Tax Act*, 1985, c. 1 (5th Supp.) and the *Income Tax Regulations*, Canada must withhold 15 percent of the amount to be paid to the Contractor in respect of services provided in Canada if the Contractor is not a resident of Canada, unless the Contractor obtains a valid waiver from the Canada Revenue Agency. The amount withheld will be held on account for the Contractor in respect to any tax liability which may be owed to Canada.

GC1.9 WORKERS' COMPENSATION

1) Prior to commencement of Work, at the time of Substantial Performance of the Work, and prior to issuance of the Certificate of Completion, the Contractor shall provide evidence of compliance with workers' compensation legislation applicable to the place of the Work, including payments due thereunder.

2) At any time during the term of the Contract, when requested by Canada, the Contractor shall provide such evidence of compliance by the Contractor, its subcontractors and any other person at any tier and any other person performing part of the Work who is required to comply with such legislation.

GC1.10 NATIONAL SECURITY

1) If Canada determines that the Work is of a class or kind that involves national security, Canada may order the Contractor to

   (a) provide Canada with any information concerning persons employed or to be employed by the Contractor for purposes of the Contract; and

   (b) remove any person from the site of the Work if, in the opinion of Canada, that person may be a risk to the national security;

   and the Contractor shall comply with the order.

2) In all contracts with persons who are to be employed in the performance of the Contract, the Contractor shall make provision for the performance of any obligation that may be imposed upon the Contractor under paragraph 1) of GC1.10.

GC1.11 (2016-05-01) UNSUITABLE WORKERS

1) Canada shall instruct the Contractor to remove from the site of the Work any person employed by the Contractor for purposes of the Contract who, in the opinion of Canada, is incompetent or is guilty of improper conduct, and the Contractor shall not permit a person who has been removed to return to the site of the Work.

GC1.12 PUBLIC CEREMONIES AND SIGNS

1) The Contractor shall not permit any public ceremony in connection with the Work without the prior consent of Canada.

2) The Contractor shall not erect nor permit the erection of any sign or advertising on the Work or its site without the prior consent of Canada.

GC1.13 (2016-05-01) CONFLICT OF INTEREST

1) It is a term of the Contract that no individual, for whom the post-employment provisions of the Conflict of Interest and Post-Employment Code for Public Office Holders or the Values and Ethics Code for the Public Service apply, shall derive a direct benefit from the Contract unless that individual is in compliance with the applicable post-employment provisions.

GC1.14 AGREEMENTS AND AMENDMENTS

1) The Contract constitutes the entire and sole agreement between the parties with respect to the subject matter of the Contract and supersedes all previous negotiations, communications and other agreements, whether written or oral, relating to it, unless they are incorporated by reference in the Contract. There are no terms, covenants, representations, statements or conditions binding on the parties other than those contained in the Contract.

2) The failure of either party at any time to require performance by the other party of any provision hereof shall not affect the right thereafter to enforce such provision. Nor shall the waiver by either party of any breach of any covenant, term or condition hereof be taken to be held to be a waiver of any further breach of the same covenant, term or condition.

3) The Contract may be amended only as provided for in the Contract.

GC1.15 (2016-05-01) SUCCESSION

1) The Contract shall inure to the benefit of and be binding upon the parties hereto and their lawful heirs, executors, administrators, successors and, subject to GC1.16, "Assignment", permitted assigns.

GC1.16 (2016-05-01) ASSIGNMENT

1) The Contractor shall not make any assignment of the Contract, either in whole or in part, without the written consent of Canada.

GC1.17 (2016-05-01) NO BRIBE

1) The Contractor represents and covenants that no bribe, gift, benefit, nor other inducement has been nor shall be paid, given, promised or offered directly or indirectly to any official or employee of Canada or to a member of the family of such a person, with a view to influencing the entry into the Contract or the administration of the Contract.

GC1.18 CERTIFICATION - CONTINGENCY FEES

1) In this clause

   (a) "contingency fee" means any payment or other compensation that is contingent upon or is calculated upon the basis of a degree of success in soliciting or obtaining a Government contract or negotiating the whole or any part of its terms;

   (b) "employee" means a person with whom the Contractor has an employer/employee relationship; and

   (c) "person" includes an individual or a group of individuals, a corporation, a partnership, an organization and an association and, without restricting the generality of the foregoing, includes any individual who is required to file a return with the registrar pursuant to section 5 of the **Lobbying Act** R.S.C. 1985 c.44 (4th Supplement) as the same may be amended from time to time.

2) The Contractor certifies that it has not directly or indirectly paid nor agreed to pay and covenants that it shall not directly or indirectly pay nor agree to pay a contingency fee for the solicitation, negotiation or obtaining of the Contract to any person other than an employee acting in the normal course of the employee's duties.

3) All accounts and records pertaining to payments of fees or other compensation for the solicitation, obtaining or negotiation of the Contract shall be subject to the accounts and audit provisions of the Contract.

4) If the Contractor certifies falsely under this section or is in default of the obligations contained therein, Canada may either take the Work out of the Contractor's hands in accordance with the provisions of the Contract or recover from the Contractor by way of reduction to the Contract Amount or otherwise, the full amount of the contingency fee.

GC1.19 INTERNATIONAL SANCTIONS

1) Persons and companies in Canada, and Canadians outside of Canada are bound by economic sanctions imposed by Canada. As a result, the Government of Canada cannot accept delivery of goods or services that originate, either directly or indirectly, from the countries or persons subject to **economic sanctions** (http://www.international.gc.ca/sanctions/index.aspx?lang=eng)

2) It is a condition of the Contract that the Contractor not supply to the Government of Canada any goods or services which are subject to economic sanctions.

3) By law, the Contractor must comply with changes to the regulations imposed during the life of the Contract. During the performance of the Contract should the imposition of sanctions against a country or person or the addition of a good or service to the list of sanctioned goods or services cause an impossibility of performance for the Contractor, the Contractor may request that the Contract be terminated in accordance with GC7.3 TERMINATION OF CONTRACT.

GC1.20 (2016-05-01) INTEGRITY PROVISIONS – CONTRACT

1) The Ineligibility and Suspension Policy (the "Policy") and all related Directives are incorporated into, and form a binding part of the Contract. The Contractor must comply with the provisions of the Policy and Directives, which can be found on Public Works and Government Services Canada's website at Ineligibility and Suspension Policy. (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html).

GC1.21 (2016-05-01) CODE OF CONDUCT FOR PROCUREMENT - CONTRACT

1) The Contractor agrees to comply with the Code of Conduct (http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html) for Procurement and to be bound by its terms for the period of the Contract.

GC2 ADMINISTRATION OF THE CONTRACT

GC2.1 (2016-05-01) DEPARTMENTAL REPRESENTATIVE'S AUTHORITY

"Technical **Authority" shall be recognized as the Departmental representative and designated at time of award of contract and shall perform the following:**

a) is responsible **for all matters concerning the technical content of the work under the contract;**

b) authorized to issue notices, instructions, and changes within the scope of the Work, relevant to the contract.

c) accept on behalf of Canada any notice, order or other communication from the contractor relating to the Work

d) within a reasonable time, review and respond to submissions made by the Contractor in accordance with the requirements of the Contract

The technical authority has no authority to authorize changes to the Contract terms and conditions of the Contract.

"Contracting Authority" shall be recognized as the authority delegated by the Minister of AAFC 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 contracting authority is responsible for the management of the Contract and any changes to the Contract terms **and conditions must be authorized in writing by the Contracting Authority.**

GC2.2 INTERPRETATION OF CONTRACT

1) If, at any time before Canada has issued a Certificate of Completion, any question arises between the parties about whether anything has been done as required by the Contract or about what the Contractor is required by the Contract to do, and in particular but without limiting the generality of the foregoing, about

   (a) the meaning of anything in the drawings and specifications;

   (b) the meaning to be given to the drawings and specifications in case of any error therein, omission therefrom, or obscurity or discrepancy in their wording or intention;

(c) whether or not the quality or quantity of any Material or workmanship supplied or proposed to be supplied by the Contractor meets the requirements of the Contract;

(d) whether or not the labour, Plant or Material performed, used and supplied by the Contractor for performing the Work and carrying out the Contract are adequate to ensure that the Work shall be performed in accordance with the Contract and that the Contract shall be carried out in accordance with its terms;

(e) what quantity of any of the Work has been completed by the Contractor; or

(f) the timing and scheduling of the various phases of the performance of the Work as specified in the Contract;

the question shall be decided, subject to the provisions of GC8 DISPUTE RESOLUTION, by Canada.

2) The Contractor shall perform the Work in accordance with any decisions of Canada that are made under paragraph 1) of GC2.2 and in accordance with any consequential directions given by Canada.

3) If the Contractor fails to comply with any instruction or direction issued by Canada pursuant to the Contract, Canada may employ such methods as Canada deems advisable to do what the Contractor failed to do, and the Contractor shall, on demand, pay Canada an amount that is equal to the aggregate of all costs, expenses and damages incurred or sustained by Canada by reason of the Contractor's failure to comply with such instruction or direction, including the cost of any methods employed by Canada in doing what the Contractor failed to do.

GC2.3 NOTICES

1) Subject to paragraph 3) of GC2.3, any notice, order or other communication may be given in any manner, and if required to be in writing, shall be addressed to the party to whom it is intended at the address in the Contract or at the last address of which the sender has received written notice in accordance with this section.

2) Any notice, order or other communication given in writing in accordance with paragraph 1) of GC2.3 shall be deemed to have been received by either party

(a) if delivered personally, on the day that it was delivered;

(b) if forwarded by mail, on the earlier of the day it was received or the sixth day after it was mailed; and

(c) if forwarded by facsimile or electronic mail, 24 hours after it was transmitted.

3) A notice given under GC7.1 TAKING THE WORK OUT OF THE CONTRACTOR’S HANDS, GC7.2 SUSPENSION OF WORK, and GC7.3 TERMINATION OF CONTRACT shall be given in writing and, if delivered personally, shall be delivered, if the Contractor is a sole proprietor, to the Contractor or, if the Contractor is a partnership or corporation, to an officer thereof.

GC2.4 (2016-05-01) SITE MEETINGS

1) In consultation with Canada, the Contractor shall arrange site meetings at regular intervals, with all involved parties who are to attend, in order to ensure, among other things, the proper co-ordination of the Work.

GC2.5 REVIEW AND INSPECTION OF WORK

1) Canada shall review the Work to determine if it is proceeding in conformity with the Contract and to record the necessary data to make an assessment of the value of Work completed. Canada shall measure and record the quantities of labour, Plant and Material performed, used or supplied by the Contractor in performing the Work or any part thereof that is subject to a Unit Price Arrangement and, on request, shall inform the Contractor of those measurements, and permit the Contractor to inspect any records pertaining thereto.

2) Canada shall reject Work or Material which in Canada's opinion does not conform to the requirements of the Contract, and shall require inspection or testing of Work, whether or not such Work is fabricated, installed, or completed. If such Work is not in accordance with the requirements of the Contract, the Contractor shall correct the Work and shall pay Canada, on demand, all reasonable costs and expenses that were incurred by Canada in having the examination performed.

3) The Contractor shall provide Canada with access to the Work and its site at all times, and at all times shall provide sufficient, safe, and proper facilities for the review and inspection of the Work by persons authorized by Canada and any representatives of those authorities having jurisdiction. If parts of the Work are in preparation at locations other than the site of the Work, Canada shall be given access to such Work whenever it is in progress.

4) The Contractor shall furnish Canada with such information respecting the performance of the Contract as Canada may require, and render every possible assistance to enable Canada to verify that the Work is performed in accordance with the Contract, carry out any other duties and exercise any powers in accordance with the Contract.

5) If Work is designated for tests, inspections, or approvals in the Contract or by Canada's instructions, or by laws or ordinances of the place of the Work, the Contractor shall give Canada reasonable notice of when such Work shall be ready for review and inspection. The Contractor shall arrange for and shall give Canada reasonable notice of the date and time of inspections, tests or approvals.

6) If the Contractor covers, or permits to be covered, Work that has been designated for tests, inspections or approvals before such tests, inspections or approvals are made, completed or given, the Contractor shall, if so directed by Canada, uncover such Work, have the inspections, tests or approvals satisfactorily made, completed or given and make good the covering of the Work at the Contractor's expense.

GC2.6 SUPERINTENDENT

1) Prior to commencing the Work, the Contractor shall designate a Superintendent and shall notify Canada of the name, address and telephone number of the Superintendent. The Contractor shall keep the Superintendent at the Work site during working hours until the Work has reached completion.

2) The Superintendent shall be in full charge of the operations of the Contractor during the performance of the Work and shall be authorized to accept on behalf of the Contractor any notice, order or other communication given to the Superintendent or the Contractor relating to the Work.

3) Upon request of Canada, the Contractor shall remove any Superintendent who, in the opinion of Canada, is incompetent or has been guilty of improper conduct, and shall forthwith designate another Superintendent who is acceptable to Canada.

4) The Contractor shall not substitute a Superintendent without the written consent of Canada. If a Superintendent is substituted without such consent, Canada shall be entitled to refuse to issue any documentation or certification relating to progress payments, Substantial Performance or Completion of the Work until the Superintendent has returned to the Work site or another Superintendent who is acceptable to Canada has been substituted.

GC2.7 (2016-05-01) NON-DISCRIMINATION IN HIRING AND EMPLOYMENT OF LABOUR

1) For the purposes of this clause, "persons" include the Contractor, its subcontractors and suppliers at any tier and their respective employees, agents, licensees or invitees and any other individual involved in the performance of the Work or granted access to the Work site. A "person" includes any partnership, proprietorship, firm, joint venture, consortium and corporation.

2) Without restricting the provisions of paragraph 3) of GC2.6, "Superintendent", the Contractor shall not refuse to employ and shall not discriminate in any manner against any person because

   a) of that person's race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status;

   b) of the race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status of any person having a relationship or association with that person, or

   c) a complaint has been made or information has been given in respect of that person relating to an alleged failure by the Contractor to comply with subparagraph (a) or (b).

3) Within two working days immediately following receipt of a written complaint pursuant to paragraph 2) of GC2.7, the Contractor shall

   a) cause to have issued a written direction to the person or persons named by the complainant to cease all actions that form the basis of the complaint;

   b) forward a copy of the complaint to Canada by registered mail or courier service.

4) Within 24 hours immediately following receipt of a direction from Canada to do so, the Contractor shall cause to have removed from the site of the Work and from the performance of Work under the Contract, any person or persons whom Canada believes to be in breach of the provisions of paragraph 2) of GC2.7.

5) No later than 30 days after receipt of the direction referred to in paragraph 4) of GC2.7, the Contractor shall cause the necessary action to be commenced to remedy the breach described in the direction.

6) If a direction is issued pursuant to paragraph 4) of GC2.7, Canada may withhold from monies that are due and payable to the Contractor or setoff pursuant to GC5.9, "Right of Setoff", whichever is applicable, an amount representing the sum of the costs and payment referred to in paragraph 8) of GC2.7.

7) If the Contractor fails to proceed in accordance with paragraph 5) of GC2.7, Canada shall take the necessary action to have the breach remedied, and shall determine all supplementary costs incurred by Canada as a result.

8) Canada may make a payment directly to the complainant from monies that are due and payable to the Contractor upon receipt from the complainant of

   a) a written award issued pursuant to the federal **Commercial Arbitration Act**, R.S. 1985, c. 17 (2nd Supp.);
   b) a written award issued pursuant to the **Canadian Human Rights Act**, R.S. 1985, c. H-6;
   c) a written award issued pursuant to provincial or territorial human rights legislation; or
   d) a judgement issued by a court of competent jurisdiction.

9) If Canada is of the opinion that the Contractor has breached any of the provisions of this clause, Canada may take the Work out of the Contractor's hands pursuant to GC7.1, "Taking the Work out of the Contractor's Hands".

10) Subject to paragraph 7) of GC3.6, "Subcontracting", the Contractor shall ensure that the provisions of this clause are included in all agreements and contracts entered into as a consequence of the Work.

GC2.8 (2016-05-01) ACCOUNTS AND AUDITS

1) The Contractor shall, in addition to the requirements expressed in paragraph 6) of GC3.4, "Execution of the Work", maintain full records of the Contractor's estimated and actual cost of the Work together with all tender calls, quotations, contracts, correspondence, invoices, receipts and vouchers relating thereto, and shall make them available on request to audit and inspection by Canada and the Deputy Receiver General for Canada or by persons designated to act on behalf of either or both of them.

2) The Contractor shall allow any of the persons referred to in paragraph 1) of GC2.8 to make copies of and take extracts from any of the records and material, and shall furnish such persons or entities with any information those persons or entities may require from time to time in connection with such records and material.

3) The Contractor shall maintain and keep the records intact until the expiration of six (6) years after the date that a Certificate of Completion has been issued or until the expiration of such other period of time as Canada may direct.

4) The Contractor shall cause all subcontractors at any tier and all other persons directly or indirectly controlled by or affiliated with the Contractor and all persons directly or indirectly having control of the Contractor to comply with the requirements of this clause as if they were the Contractor.

GC3 EXECUTION AND CONTROL OF THE WORK

GC3.1 (2016-05-01) PROGRESS SCHEDULE

The Contractor shall

a) prepare and submit to Canada, prior to the submission of the Contractor's first progress claim, a progress schedule in accordance with the requirements set out in the Contract;

b) monitor the progress of the Work relative to the schedule and update the schedule as stipulated by the contract documents;

c) advise Canada of any revisions to the schedule required as the result of any extension of time for completion of the Contract that was approved by Canada; and

d) prepare and submit to Canada, at the time of issuance of a Certificate of Substantial Performance, an update of any schedule clearly showing a detailed timetable that is acceptable to Canada for the completion of any unfinished Work and the correction of all listed defects.

GC3.2 (2016-05-01) ERRORS AND OMISSIONS

1) The Contractor shall report promptly to Canada any errors, discrepancies, or omissions the Contractor may discover when reviewing the contract documents. In making a review, the Contractor does not assume any responsibility to Canada for the accuracy of the review. The Contractor shall not be liable for damage or costs resulting from such errors, discrepancies, or omissions in the contract documents prepared by or on behalf of Canada that the Contractor did not discover.

GC3.3 CONSTRUCTION SAFETY

1) Subject to GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS, the Contractor shall be solely responsible for construction safety at the place of the Work and for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work. In any emergency, the Contractor shall either stop the Work,

make changes or order extra work to ensure the safety of life and the protection of the Work and neighbouring property.

2) Prior to commencing the Work, the Contractor shall notify the authorities having jurisdiction for construction safety at the site of the Work with respect to the intended commencement of the Work, and shall provide such authority with whatever additional information may be required by that authority.

GC3.4 EXECUTION OF THE WORK

1) The Contractor shall perform, use or supply and pay for, all labour, Plant, Material, tools, construction machinery and equipment, water, heat, light, power, transportation and other facilities and services necessary for the performance of the Work in accordance with the Contract.

2) The Contractor shall, at all times, perform the Work in a proper, diligent and expeditious manner as is consistent with construction industry standards and in accordance with the progress schedule prepared pursuant to GC3.1 PROGRESS SCHEDULE and shall provide sufficient personnel to fulfil the Contractor's obligations in accordance with that schedule.

3) Subject to paragraph 4) of GC3.4, the Contractor shall have complete care, custody and control of the Work and shall direct and supervise the Work so as to ensure compliance with the Contract. The Contractor shall be responsible for construction means, methods, techniques, sequences and procedures and for co-ordinating the various parts of the Work.

4) When requested in writing by Canada, the Contractor shall make appropriate alterations in the method, Plant or workforce at any time Canada considers the Contractor's actions to be unsafe or damaging to either the Work, existing facilities, persons at the site of the Work or the environment.

5) The Contractor shall have sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and for the construction methods used in their erection, operation, maintenance and removal. The Contractor shall engage and pay for registered professional engineering personnel, skilled in the appropriate discipline to perform these functions if required by law or by the Contract, and in all cases when such temporary facilities and their methods of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

6) The Contractor shall keep at least one copy of current contract documents, submittals, reports, and records of meetings at the site of the Work, in good order and available to Canada.

7) Except for any part of the Work that is necessarily performed away from or off the site of the Work, the Contractor shall confine Plant, storage of Material, and operations of employees to limits indicated by laws, ordinances, permits or the contract documents.

GC3.5 MATERIAL

1) Unless otherwise specified in the Contract, all Material incorporated in the Work shall be new.

2) Subject to paragraph 3) of GC3.5, if a specified reused, refurbished, or recycled item of Material is not available, the Contractor shall apply to Canada to substitute a similar item for the one specified.

3) If Canada agrees that the Contractor's application for substitution of a reused, refurbished or recycled item is warranted, and that the substitute item is of acceptable quality and value to that specified and is suitable for the intended purpose, Canada may approve the substitution, subject to the following:

   (a) the request for substitution shall be made in writing to Canada and shall be substantiated by information in the form of the manufacturer's literature, samples and other data that may be required by Canada;

   (b) the Contractor shall make the request for substitution in a manner that shall not negatively affect the progress schedule of the Contract and well in advance of the time the item of Material must be ordered;

   (c) substitution of Material shall be permitted only with the prior written approval of Canada, and any substituted items that are supplied or installed without such approval shall be removed from the site of the Work at the expense of the Contractor, and specified items installed at no additional cost to Canada; and

   (d) the Contractor shall be responsible for all additional expenses incurred by Canada, the Contractor, its subcontractors and suppliers at any tier due to the Contractor's use of the substitute.

GC3.6 SUBCONTRACTING

1) Subject to the provisions of this clause, the Contractor may subcontract any part of the Work but not the whole of the Work.

2) The Contractor shall notify Canada in writing of the Contractor's intention to subcontract.

3) A notification referred to in paragraph 2) of GC3.6 shall identify the part of the Work and the Subcontractor with whom the Contractor intends to subcontract.

4) Canada may for reasonable cause, object to the intended subcontracting by notifying the Contractor in writing within six (6) days of receipt by Canada of a notification referred to in paragraph 2) of GC3.6.

5) If Canada objects to a subcontracting, the Contractor shall not enter into the intended subcontract.

6) The Contractor shall not change, nor permit to be changed, a Subcontractor engaged by the Contractor, in accordance with this clause, without the written consent of Canada.

7) The Contractor shall ensure that all the terms and conditions of the Contract that are of general application shall be incorporated in every other contract issued as a consequence of the Contract, at whatever tier, except those contracts issued solely to suppliers at any tier for the supply of Plant or Material.

8) Neither a subcontracting nor Canada's consent to a subcontracting shall be construed to relieve the Contractor from any obligation under the Contract or to impose any liability upon Canada.

GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS

1) Canada reserves the right to send other contractors or workers, with or without Plant and Material, onto the site of the Work.

2) When other contractors or workers are sent on to the site of the Work, Canada shall

   (a) enter into separate contracts, to the extent it is possible, with the other contractors under conditions of contract that are compatible with the conditions of the Contract;

   (b) ensure that the insurance coverage provided by the other contractors is co-ordinated with the insurance coverage of the Contractor as it affects the Work; and

   (c) take all reasonable precautions to avoid labour disputes or other disputes arising from the work of the other contractors or workers.

3) When other contractors or workers are sent on to the site of the Work, the Contractor shall

   (a) co-operate with them in the carrying out of their duties and obligations;

   (b) co-ordinate and schedule the Work with the work of the other contractors and workers;

   (c) participate with other contractors and workers in reviewing their construction schedules when directed to do so;

   (d) where part of the Work is affected by or depends upon the work of other contractors or workers for its proper execution, promptly report to Canada in writing and prior to proceeding with that part of the Work, any apparent deficiencies in such work. Failure by the Contractor to so report shall invalidate any claims against Canada by reason of the deficiencies in the work of other contractors or workers except those deficiencies that are not then reasonably discoverable; and

   (e) when designated as being responsible for construction safety at the place of work in accordance with the applicable provincial or territorial laws, carry out its duties in that role and in accordance with those laws.

4) If, when entering into the Contract, the Contractor could not have reasonably foreseen nor anticipated the sending of other contractors or workers on to the site of the Work and provided the Contractor

   (a) incurs extra expense in complying with the requirements of paragraph 3) of GC3.7; and

   (b) gives Canada written notice of a claim for that extra expense within thirty (30) days of the date that the other contractors or workers were sent onto the Work or its site;

   Canada shall pay the Contractor the cost of the extra labour, Plant and Material that was necessarily incurred, calculated in accordance with GC6.4 DETERMINATION OF PRICE.

GC3.8 LABOUR

1) To the extent to which they are available, consistent with proper economy and the expeditious carrying out of the Work, the Contractor shall, in the performance of the Work, employ a reasonable number of persons who have been on active service with the Armed Forces of Canada and have been honourably discharged therefrom.

2) The Contractor shall maintain good order and discipline among the Contractor's employees and workers engaged in the Work and shall not employ on the site of the Work anyone not skilled in the tasks assigned.

GC3.9 TRUCK HAULAGE RATES

CANCELLED

GC3.10 MATERIAL, PLANT AND REAL PROPERTY BECOME PROPERTY OF CANADA

1) Subject to paragraph 9) of GC1.8 LAWS PERMITS AND TAXES, all Material and Plant and the interest of the Contractor in all real property, licences, powers and privileges purchased, used or consumed by the Contractor for the Work shall, immediately after the time of their purchase, use or consumption be the property of Canada for the purposes of the Work and they shall continue to be the property of Canada

   (a) in the case of Material, until Canada indicates that the Materials shall not be required for the Work; and

   (b) in the case of Plant, real property, licences, powers and privileges, until Canada indicates that the interest vested in Canada therein is no longer required for the purposes of the Work.

2) Material or Plant, that is the property of Canada by virtue of paragraph 1) of GC3.10, shall not be taken away from the site of the Work nor used nor disposed of except for the purposes of the Work without the written consent of Canada.

3) Canada is not liable for loss of nor damage from any cause to the Material or Plant referred to in paragraph 1) of GC3.10, and the Contractor is liable for such loss or damage notwithstanding that the Material or Plant is the property of Canada.

GC3.11 DEFECTIVE WORK

1) The Contractor shall promptly remove from the site of the Work and replace or re-execute defective Work whether or not the defective Work has been incorporated in the Work and whether or not the defect is the result of poor workmanship, use of defective Material, or damage through carelessness or other act or omission of the Contractor.

2) The Contractor, at the Contractor's expense, shall promptly make good other work destroyed or damaged by such removals or replacements.

3) If, in the opinion of Canada, it is not expedient to correct defective Work or Work not performed as provided for in the Contract documents, Canada may deduct from the amount otherwise due to the Contractor the difference in value between the Work as performed and that called for by the contract documents.

4) The failure of Canada to reject any defective Work or Material shall not constitute acceptance of the defective Work or Material.

GC3.12 CLEANUP OF SITE

1) The Contractor shall maintain the Work and its site in a tidy condition and free from an accumulation of waste material and debris.

2) Before the issue of a Certificate of Substantial Performance, the Contractor shall remove waste material and debris, and all Plant and Material not required for the performance of the remaining Work and, unless otherwise stipulated in the Contract Documents, shall cause the Work and its site to be clean and suitable for occupancy by Canada.

3) Before the issue of a Certificate of Completion, the Contractor shall remove all surplus Plant and Materials and any waste products and debris from the site of the Work.

4) The Contractor's obligations described in paragraphs 1) to 3) of GC3.12 do not extend to waste products and other debris caused by Canada's servants, or by other contractors and workers referred to in GC3.7 CONSTRUCTION BY OTHER CONTRACTORS OR WORKERS.

GC3.13 WARRANTY AND RECTIFICATION OF DEFECTS IN WORK

1) Without restricting any warranty or guarantee implied or imposed by law or contained in the Contract, the Contractor shall, at the Contractor's expense

   (a) rectify and make good any defect or fault that appears in the Work or comes to the attention of Canada with respect to those parts of the Work accepted in connection with the Certificate of Substantial Performance within 12 months from the date of Substantial Performance; and

   (b) rectify and make good any defect or fault that appears in or comes to the attention of Canada in connection with those parts of the Work described in the Certificate of Substantial Performance within 12 months from the date of the Certificate of Completion.

   (c) transfer and assign, to Canada, any subcontractor, manufacturer or supplier extended warranties or guarantees implied or imposed by law or contained in the Contract covering periods beyond the 12 months stipulated above. Extended warranties or guarantees referred to herein shall not extend the 12-month period whereby the Contractor, except as may be provided elsewhere in the Contract, must rectify and make good any defect or fault that appears in the Work or comes to the attention of Canada.

   (d) provide, to Canada prior to the issuance of the Certificate of Completion, a list of all extended warranties and guarantees referred to in paragraph (c) above.

2) Canada may direct the Contractor to rectify and make good any defect or fault referred to in paragraph 1) of GC3.13 or covered by any other expressed or implied warranty or guarantee and the Contractor shall rectify and make good such defect within the time stipulated in the direction.

3) A direction referred to in paragraph 2) GC3.13 shall be in writing and shall be given to the Contractor in accordance with GC2.3 NOTICES.

GC4 PROTECTIVE MEASURES

GC4.1 PROTECTION OF WORK AND PROPERTY

1) The Contractor shall protect the Work and its site against loss or damage from any cause and shall similarly protect all Material, Plant and real property under the Contractor's care, custody and control whether or not such Material, Plant and real property are supplied by Canada to the Contractor.

2) The Contractor shall provide all facilities necessary for the purpose of maintaining security, and shall assist any person authorized by Canada to inspect or to take security measures in respect of the Work and its site.

3) Canada may direct the Contractor to do such things and to perform such work as Canada considers reasonable and necessary to ensure compliance with or to remedy a breach of paragraphs 1) or 2) of GC4.1, and the Contractor, shall comply with such direction.

GC4.2 PRECAUTIONS AGAINST DAMAGE, INFRINGEMENT OF RIGHTS, FIRE AND OTHER HAZARDS

1) The Contractor shall do whatever is necessary to ensure that

   (a) no person, property, right, easement nor privilege is injured, damaged or infringed upon by reasons of the Contractor's activities in performing the Work;

   (b) pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted nor endangered by the performance or existence of the Work, Material or Plant;

   (c) fire hazards in or about the site of the Work are eliminated and any fire is promptly extinguished;

   (d) the health and safety of all persons employed in the performance of the Work is not endangered by the methods nor means of their performance;

   (e) adequate medical services are available to all persons employed on the Work or its site at all times during the performance of the Work;

   (f) adequate sanitation measures are taken in respect of the Work and its site; and

   (g) all stakes, buoys and marks placed on the Work or its site by Canada are protected and are not removed, defaced, altered nor destroyed.

2) Canada may direct the Contractor to do such things and to perform such work as Canada considers reasonable and necessary to ensure compliance with or to remedy a breach of paragraph 1) of GC4.2, and the Contractor shall comply with the direction of Canada.

GC4.3 MATERIAL, PLANT AND REAL PROPERTY SUPPLIED BY CANADA

1) Subject to paragraph 2) of GC4.3, the Contractor is liable to Canada for any loss of or damage to Material, Plant or real property that is supplied or placed in the care, custody and control of the Contractor by Canada for use in connection with the Contract, whether or not that loss or damage is attributable to causes beyond the Contractor's control.

2) The Contractor is not liable to Canada for any loss or damage to Material, Plant or real property referred to in paragraph 1) of GC4.3 if that loss or damage results from and is directly attributable to reasonable wear and tear.

3) The Contractor shall not use any Material, Plant or real property supplied by Canada except for the purpose of performing the Contract.

4) When the Contractor fails to make good any loss or damage for which the Contractor is liable under paragraph 1) within a reasonable time, Canada may cause the loss or damage to be made good at the Contractor's expense, and the Contractor shall thereupon be liable to Canada for the cost thereof and shall, on demand, pay to Canada an amount equal to that cost.

5) The Contractor shall keep records of all Material, Plant and real property supplied by Canada as Canada requires and shall satisfy Canada, when requested, that such Material, Plant and real property are at the place and in the condition in which they ought to be.

GC4.4 CONTAMINATED SITE CONDITIONS

1) For the purposes of GC4.4, a contaminated site condition exists when a solid, liquid, gaseous, thermal or radioactive irritant or contaminant, or other hazardous or toxic substance or material, including moulds and other forms of fungi, is present at the site of the Work to an extent that constitutes a hazard, or potential hazard, to the environment, property, or the health or safety of any person.

2) If the Contractor encounters a contaminated site condition of which the Contractor is not aware or about which the Contractor has not been advised, or if the Contractor has reasonable grounds to believe that such a site condition exists at the site of the Work, the Contractor shall

   (a) take all reasonable steps, including stopping the Work, to ensure that no person suffers injury, sickness or death, and that neither property nor the environment is injured or destroyed as a result of the contaminated site condition;

   (b) immediately notify Canada of the circumstances in writing; and

   (c) take all reasonable steps to minimize additional costs that may accrue as a result of any work stoppage.

3) Upon receipt of a notification from the Contractor, Canada shall promptly determine whether a contaminated site condition exists, and shall notify the Contractor in writing of any action to be taken, or work to be performed, by the Contractor as a result of Canada's determination.

4) If the Contractor's services are required by Canada, the Contractor shall follow the direction of Canada with regard to any excavation, treatment, removal and disposal of any polluting substance or material.

5) Canada, at Canada's sole discretion, may enlist the services of experts and specialty contractors to assist in determining the existence of, and the extent and treatment of contaminated site conditions, and the Contractor shall allow them access and co-operate with them in the carrying out of their duties and obligations.

6) Except as may be otherwise provided for in the Contract, the provisions of GC6.4 DETERMINATION OF PRICE shall apply to any additional work made necessary because of a contaminated site condition.

GC5 TERMS OF PAYMENT

GC5.1 INTERPRETATION

In these Terms of Payment

1) The "payment period" means a period of 30 consecutive days or such other longer period as may be agreed between the Contractor and Canada.

2) An amount is "due and payable" when it is due and payable by Canada to the Contractor according to GC5.4 PROGRESS PAYMENT, GC5.5 SUBSTANTIAL PERFORMANCE OF THE WORK or GC5.6 FINAL COMPLETION.

3) An amount is “overdue” when it remains unpaid on the first day following the day upon which it is due and payable.

4) The "date of payment" means the date of the negotiable instrument of an amount due and payable by the Receiver General for Canada.

5) The "Bank Rate" means the rate of interest established by the Bank of Canada as the minimum rate at which it makes short term advances to members of the Canadian Payments Association.

6) The "Average Bank Rate" means the simple arithmetic mean of the Bank Rate in effect at 4:00 p.m. Eastern Time each day during the calendar month which immediately precedes the calendar month in which payment is made.

GC5.2 AMOUNT PAYABLE

1) Subject to any other provisions of the Contract, Canada shall pay the Contractor, at the times and in the manner hereinafter set out, the amount by which the amounts payable by Canada to the Contractor in accordance with the Contract exceed the amounts payable by the Contractor to Canada, and the Contractor shall accept that amount as payment in full satisfaction for everything furnished and done by the Contractor in respect of the Work to which the payment relates.

2) When making any payment to the Contractor, the failure of Canada to deduct an amount payable to Canada by the Contractor shall not constitute a waiver of the right to do so, or an admission of lack of entitlement to do so in any subsequent payment to the Contractor.

3) Should any payment be made by Canada in excess of what is owed to the Contractor for the actual work performed, the Contractor will reimburse Canada the excess immediately, with or without demand, and any amounts outstanding shall bear simple interest at the Average Bank rate plus 3 percent per annum from the date of overpayment until the day prior to the date of repayment by the Contractor.

4) No payment other than a payment that is expressly stipulated in the Contract shall be made by Canada to the Contractor for any extra expense or any loss or damage incurred or sustained by the Contractor.

GC5.3 (2016-05-01) INCREASED OR DECREASED COSTS

1. The Contract Amount shall not be increased nor decreased by reason of any increase or decrease in the cost of the Work that is brought about by an increase or decrease in the cost of labour, Plant, Material or any wage adjustment.

2. Notwithstanding paragraph 1) of GC5.3, if any change, including a new imposition or repeal, of any tax, customs or other duty, charge, or any similar imposition that is imposed under sales, customs or excise tax legislation of the Government of Canada or any Provincial or Territorial legislation, affects the cost of the Work to the Contractor, and occurs

   a) after the date of submission by the Contractor of its bid; or

   b) after the date of submission of the last revision, if the Contractor's bid was revised;

   c) the Contract Amount shall be adjusted in the manner provided in paragraph 3) of GC5.3.

3. If a change referred to in paragraph 2) of GC5.3 occurs, the Contract Amount shall be increased or decreased by an amount established by an examination by Canada of the relevant records of the Contractor referred to in GC2.8, "Accounts and Audits", to be the increase or decrease in the cost incurred by the Contractor that is directly attributable to that change.

4. For the purpose of paragraph 2) of GC5.3, if a tax is changed after the tender closing, but public notice of the change has been given by the Minister of Finance or the corresponding Provincial or Territorial authority before that closing, the change shall be deemed to have occurred before the solicitation closing.

5. Notwithstanding paragraphs 2) to 4) of GC5.3, no adjustment to the Contract Amount in respect of the Work or a part thereof shall be made for a change in any imposition referred to in this section that occurs after the date required by the Contract for completion of the Work or that part of the Work.

GC5.4 (2016-05-01) PROGRESS PAYMENT

1) On the expiration of a payment period, the Contractor shall deliver to Canada

   a) a written progress claim in a form acceptable to Canada that fully describes any part of the Work that has been completed, and any Material that was delivered to the Work site but not incorporated into the Work, during that payment period, and

b) a completed and signed statutory declaration containing a declaration that, up to the date of the progress claim, the Contractor has complied with all lawful obligations and that, in respect of the Work, all lawful obligations of the Contractor to its Subcontractors and Suppliers, referred to collectively in the declaration as " subcontractors and suppliers", have been fully discharged.

2) Within 10 days of receipt of a progress claim and statutory declaration from the Contractor, Canada shall inspect, or cause to have inspected, the part of the Work and the Material described in the progress claim, and shall issue a progress report to the Contractor, that indicates the value of the part of the Work and the Material described in the progress claim that, in the opinion of Canada

a) is in accordance with the Contract; and

b) was not included in any other progress report relating to the Contract.

3) Subject to GC5.2, "Amount Payable", and paragraph 5) of GC5.4, Canada shall pay the Contractor an amount that is equal to

a) 95 percent of the value that is indicated in Canada's progress report if a labour and material payment bond has been furnished by the Contractor; or

b) 90 percent of the value that is indicated in Canada's progress report if a labour and material payment bond has not been furnished by the Contractor.

4) Canada shall pay the amount referred to in paragraph 3) of GC5.4 not later than

a) 30 days after receipt by Canada of both a progress claim and a statutory declaration referred to in paragraph 1) of GC5.4; or

b) 15 days after receipt by Canada of the Contractor's progress schedule or updated progress schedule, in accordance with GC3.1, "Progress Schedule",

whichever is later.

5) In the case of the Contractor's first progress claim, it is a condition precedent to Canada's obligation under paragraph 3) of GC5.4 that the Contractor has provided all necessary documentation required by the Contract for the first progress claim.

GC5.5 (2016-05-01) SUBSTANTIAL PERFORMANCE OF THE WORK

1. If, at any time before the issuance of a Certificate of Completion, Canada determines that the Work has reached Substantial Performance as described in subparagraph 1) (b) of GC1.1.4, "Substantial Performance", Canada shall issue a Certificate of Substantial Performance to the Contractor. The Certificate of Substantial Performance shall state or describe

a) the date of Substantial Performance;

b) the parts of the Work not completed to the satisfaction of Canada; and

c) all things that must be done by the Contractor before a Certificate of Completion is issued and before the 12-month warranty period referred to in GC3.13, "Warranty and Rectification of Defects in Work", commences for the said parts and all the said things.

2. The issuance of a Certificate of Substantial Performance does not relieve the Contractor from the Contractor's obligations under GC3.11, "Defective Work".

3. Subject to GC5.2, "Amount Payable", and paragraph 4) of GC5.5, Canada shall pay the Contractor the amount referred to in paragraph 1) of GC5.2, "Amount Payable", less the aggregate of

   a) the sum of all payments that were made pursuant to GC5.4, "Progress Payment";

   b) an amount that is equal to Canada's estimate of the cost to Canada of rectifying defects described in the Certificate of Substantial Performance; and

   c) an amount that is equal to Canada's estimate of the cost to Canada of completing the parts of the Work described in the Certificate of Substantial Performance other than defects listed therein.

4. Canada shall pay the amount referred to in paragraph 3) of GC5.5 not later than

   a) 30 days after the date of issue of a Certificate of Substantial Performance, or

   b) 15 days after the Contractor has delivered to Canada

      I. a statutory declaration containing a declaration by the Contractor that up to the date of the Certificate of Substantial Performance, the Contractor has complied with all lawful obligations, discharged all its lawful obligations to its Subcontractors and Suppliers in respect of the work under the Contract, and discharged its lawful obligations referred to in GC1.8, "Laws, Permits and Taxes";

      II. evidence of compliance with workers' compensation legislation in accordance with GC1.9, "Workers' Compensation"; and

      III. an update of the progress schedule in accordance with the requirements of GC3.1, "Progress Schedule"; whichever is later.

GC5.6 FINAL COMPLETION

1) When Canada is of the opinion that the Contractor has complied with the Contract and all orders and directions made pursuant thereto, and that the Work has been completed as described in GC1.1.5 COMPLETION, Canada shall issue a Certificate of Completion to the Contractor and, if the Work or a portion of the Work is subject to a Unit Price Arrangement, Canada shall issue a Certificate of Measurement that shall, subject to GC8, be binding upon and conclusive between Canada and the Contractor as to the quantities referred to therein.

2) Subject to GC5.2 AMOUNT PAYABLE and paragraph 3) of GC5.6, Canada shall pay the Contractor the amount referred to in GC5.2 AMOUNT PAYABLE, less the aggregate of the sum of all payments that were made pursuant to GC5.4 PROGRESS PAYMENT and GC5.5 SUBSTANTIAL PERFORMANCE OF WORK.

3) Canada shall pay the amount referred to in paragraph 2) of GC5.6 not later than

   (a) 60 days after the date of issue of a Certificate of Completion; or

   (b) 15 days after the Contractor has delivered to Canada

(i) a statutory declaration which contains a declaration by the Contractor that all of the Contractor's lawful obligations and any lawful claims against the Contractor that arose out of the performance of the Contract have been discharged and satisfied; and

(ii) evidence of compliance with workers' compensation legislation in accordance with GC1.9 WORKERS' COMPENSATION;

whichever is later.

GC5.7 (2016-05-01) PAYMENT NOT BINDING ON CANADA

1) Neither acceptance of a progress claim or progress report, nor any payment made by Canada under the Contract, nor partial or entire use or occupancy of the Work by Canada shall constitute an acceptance by Canada of any portion of the Work or Material that is not in accordance with the requirements of the Contract.

GC5.8 CLAIMS AND OBLIGATIONS

1) The Contractor shall discharge all the Contractor's lawful obligations and shall satisfy all lawful claims against the Contractor arising out of the performance of the Work at least as often as the Contract requires Canada to pay the Contractor.

2) Whenever requested to do so by Canada, the Contractor shall make a statutory declaration declaring to the existence and condition of any obligations and claims against the Contractor arising out of the performance of the Work.

3) In order to discharge lawful obligations of and satisfy lawful claims against the Contractor or its Subcontractors arising out of the performance of the Contract, Canada may pay an amount that is due and payable to the Contractor directly to the claimant. Such payment is, to the extent of the payment, a discharge of Canada’s liability to the Contractor under the Contract and may be deducted from any amount payable to the Contractor under the Contract.

4) For the purposes of paragraph 3) of GC5.8, and subject to paragraph 6) of GC5.8, a claim or obligation shall be considered lawful when it is so determined by

(a) a court of legal jurisdiction;

(b) an arbitrator duly appointed to arbitrate the claim; or

(c) the written consent of the Contractor authorizing payment of the claim or obligation.

5) If a claim or obligation would have been subject to the provisions of Provincial or Territorial lien legislation or, in the Province of Quebec, the law relating to legal hypothecs had the Contractor been performing the Work for an entity other than Canada

(a) such amount as may be paid by Canada pursuant to paragraphs 3) and 4) of GC5.8 shall not exceed the amount that the Contractor would have been obliged to pay had the provisions of such legislation or law been applicable to the Work;

(b) a claimant need not comply with the provisions of such legislation, setting out the steps by way of notice, registration or otherwise as might have been necessary to preserve or perfect any claim for lien or privilege which the claimant might have had; and

(c) for the purposes of determining the entitlement of a claimant, the notice required by paragraph 8) of GC5.8 shall be deemed to replace the registration or provision of notice after the performance of work as required by any applicable legislation and no claim shall be deemed to have expired, become void or unenforceable by reason of the claimant not commencing any action within the time prescribed by such legislation.

6) The Contractor shall, at the request of any claimant, submit to binding arbitration those questions that need to be answered to establish the entitlement of the claimant to payment. The arbitration shall have as parties to it any Subcontractor or Supplier to whom the claimant supplied Material, performed work or rented equipment should such Subcontractor or Supplier wish to be adjoined, and Canada shall not be a party to such arbitration. Subject to any agreement between the Contractor and the claimant, the arbitration shall be conducted in accordance with the governing Provincial or Territorial legislation applicable to the site of the Work.

7) Paragraph 3) of GC5.8 shall apply only to claims and obligations

(a) the notification of which has set forth the amount claimed to be owing and the person who by contract is primarily liable and has been received by Canada in writing before final payment is made to the Contractor pursuant to GC5.6 FINAL COMPLETION, and within 120 days of the date on which the claimant

(i) should have been paid in full under the claimant's contract with the Contractor, its Subcontractor or Supplier if the claim is for money that was lawfully required to be held back from the claimant; or

(ii) performed the last of the services, work or labour, or furnished the last of the Material pursuant to the claimant's contract with the Contractor or its Subcontractor or Supplier where the claim is for money not lawfully required to be held back from the claimant; and

(b) the proceedings to determine the right to payment of which, pursuant to paragraph 5) of GC5.8, shall have commenced within one year from the date that the notification required by subparagraph 7)(a) of GC5.8 was received by Canada.

8) Upon receipt of a notice of claim, Canada may withhold, from any amount that is due and payable to the Contractor pursuant to the Contract, the full amount of the claim or any portion thereof.

9) Canada shall notify the Contractor in writing in a timely manner of receipt of any claim and of the intention of Canada to withhold funds. At any time thereafter and until payment is made to the claimant, the Contractor may be entitled to post, with Canada, security in a form acceptable to Canada in an amount equal to the value of the claim, and upon receipt of such security Canada shall release to the Contractor any funds that would be otherwise payable to the Contractor, that were withheld pursuant to the provisions of this clause in respect of the claim of any claimant for whom the security stands.

GC5.9 RIGHT OF SETOFF

1) Without limiting any right of setoff or deduction given or implied by law or elsewhere in the Contract, Canada may set off any amount payable to Canada by the Contractor under the Contract, or under any current contract, against any amount payable to the Contractor under the Contract.

2) For the purposes of paragraph 1) of GC5.9, "current contract" means a contract between Canada and the Contractor

   (a) under which the Contractor has an undischarged obligation to perform or supply work, labour or material; or

   (b) in respect of which Canada has, since the date of the Contract, exercised any right to take the work that is the subject of that contract out of the Contractor's hands.

GC5.10 ASSESSMENTS AND DAMAGES FOR LATE COMPLETION

1) For the purposes of this clause

   (a) the Work shall be deemed to be completed on the date of the Certificate of Completion; and

   (b) the "period of delay" means the number of days commencing on the day fixed for completion of the Work and ending on the day immediately preceding the day on which the Work is completed but does not include any day within a period of extension granted pursuant to GC6.5 DELAYS AND EXTENSION OF TIME and any other day on which, in the opinion of Canada, completion of the Work was delayed for reasons beyond the control of the Contractor.

2) If the Contractor does not complete the Work by the day fixed for its completion but completes it thereafter, the Contractor shall pay Canada an amount equal to the aggregate of

   (a) all salaries, wages and travelling expenses incurred by Canada in respect of persons overseeing the performance of the Work during the period of delay;

   (b) the cost incurred by Canada as a result of the inability to use the completed Work for the period of delay; and

   (c) all other expenses and damages incurred or sustained by Canada during the period of delay as a result of the Work not being completed by the day fixed for its completion.

3) Canada may waive the right of Canada to the whole or any part of the amount payable by the Contractor pursuant to paragraph 2) of GC5.10 if, in the opinion of Canada, it is in the public interest to do so.

GC5.11 DELAY IN MAKING PAYMENT

1) Notwithstanding GC1.5 TIME OF THE ESSENCE, any delay by Canada in making any payment when it is due pursuant to GC5 TERMS OF PAYMENT, shall not be a breach of the Contract by Canada.

2) Subject to paragraph 3) of GC5.11, Canada shall pay to the Contractor simple interest at the Average Bank Rate plus 3 percent per annum on any amount that is overdue pursuant to paragraph 3) of GC5.1 INTERPRETATION, and the interest shall apply from and include the day such amount became overdue until the day prior to the date of payment.

3) Interest shall be paid without demand by the Contractor except that

(a) in respect of amounts that are less than 15 days overdue, no interest shall be paid in respect of payment made within such 15 days unless the Contractor so demands after such amounts have become due and payable; and

(b) interest shall not be payable or paid on overdue advance payments, if any.

GC5.12 INTEREST ON SETTLED CLAIMS

1) For the purposes of this clause, a claim means a disputed amount subject to negotiation between Canada and the Contractor under the Contract.

2) A claim is deemed to have been settled when an agreement in writing is signed by Canada and the Contractor setting out the amount of the claim to be paid by Canada and the items of work for which the said amount is to be paid.

3) A settled claim is deemed to be outstanding from the day immediately following the date the said claim would have been due and payable under the Contract had it not been disputed.

4) Canada shall pay to the Contractor simple interest on the amount of a settled claim at the Average Bank Rate plus 3 percent per annum from the date the settled claim was deemed to be outstanding until the day prior to the date of payment.

GC5.13 RETURN OF SECURITY DEPOSIT

1) After a Certificate of Substantial Performance has been issued, and if the Contractor is not in breach of nor in default under the Contract, Canada shall return to the Contractor all or any part of a Security Deposit that, in the opinion of Canada, is not required for the purposes of the Contract.

2) After a Certificate of Completion has been issued, Canada shall return to the Contractor the remainder of any security deposit unless the Contract stipulates otherwise.

3) If the security deposit was paid into the Consolidated Revenue Fund of Canada, Canada shall pay interest thereon to the Contractor at a rate established pursuant to section 21(2) of the *Financial Administration Act (FAA)*.

GC6 DELAYS AND CHANGES IN THE WORK

GC6.1 CHANGES IN THE WORK

1) At any time before issuance of a Certificate of Completion, Canada may issue orders for additions, deletions or other changes to the Work, or changes in the location or position of the whole or any part of the Work, if the addition, deletion, change or other revision is deemed by Canada to be consistent with the general intent of the Contract.

2) An order referred to in paragraph 1) of GC6.1 shall be in writing and given to the Contractor in accordance with GC2.3 NOTICES.

3) Upon receipt of an order, the Contractor shall promptly perform the work in accordance with the order as if the order had appeared in and been part of the original Contract.

4) If anything done or omitted by the Contractor pursuant to an order increases or decreases the cost of the Work to the Contractor, payment for the work shall be made in accordance with GC6.4 DETERMINATION OF PRICE.

GC6.2 CHANGES IN SUBSURFACE CONDITIONS

1) If, during the performance of the Work, the Contractor encounters subsurface conditions that are substantially different from the subsurface conditions described in the tender documents supplied to the Contractor, or a reasonable assumption of fact based thereon, the Contractor shall give notice to Canada immediately upon becoming aware of the situation.

2) If the Contractor is of the opinion that the Contractor may incur or sustain any extra expense or any loss or damage that is directly attributable to the changed subsurface conditions, the Contractor shall within 10 days of the date the changed subsurface conditions were encountered, give Canada written notice of intention to claim for that extra expense, loss or damage.

3) If the Contractor has given a notice referred to in paragraph 2) of GC6.2, the Contractor shall give Canada a written claim for extra expense, loss or damage no later than 30 days after the date that a Certificate of Substantial Performance is issued.

4) A written claim referred to in paragraph 3) of GC6.2 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable Canada to determine whether or not the claim is justified, and the Contractor shall supply such further and other information for that purpose as Canada requires.

5) If Canada determines that a claim referred to in paragraph 3) of GC6.2 is justified, Canada shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC6.4 DETERMINATION OF PRICE.

6) If, in the opinion of Canada, the Contractor effects a saving of expenditure that is directly attributable to a substantial difference between the information relating to subsurface conditions at the site of the Work that is contained in the tender documents, or a reasonable assumption of fact based thereon, and the actual subsurface conditions encountered by the Contractor, the Contract Amount shall be reduced by the amount of the saving of expenditure determined in accordance with GC6.4 DETERMINATION OF PRICE.

7) If the Contractor fails to give a notice referred to in paragraph 2) of GC6.2 and a claim referred to in paragraph 3) of GC6.2 within the times stipulated, an extra payment shall not be made to the Contractor in respect of the occurrence.

8) Canada does not warrant the content expressed in any subsurface report available for the perusal of the Contractor that does not form part of the tender and contract documents.

GC6.3 HUMAN REMAINS, ARCHAEOLOGICAL REMAINS AND ITEMS OF HISTORICAL OR SCIENTIFIC INTEREST

1) For the purposes of this clause

   (a) "human remains" means the whole or any part of a deceased human being, irrespective of the time of death;

   (b) "archaeological remains" are items, artefacts or things made, modified or used by human beings in antiquity and may include, but not be limited to, stone, wood or iron structures or monuments, dump deposits, bone artefacts, weapons, tools, coins, and pottery; and

   (c) "items of historical or scientific interest" are naturally occurring or manufactured objects or things of any age that are not archaeological remains but may be of interest to society because of their historical or scientific significance, value, rarity, natural beauty, or other quality.

2) If, during the course of the Work, the Contractor encounters any object, item or thing which is described in paragraph 1) of GC6.3 or which resembles any object, item or thing described in paragraph 1) of GC6.3, the Contractor shall

   (a) take all reasonable steps, including stopping work in the affected area, to protect and preserve the object, item or thing;

   (b) immediately notify Canada of the circumstances in writing; and

   (c) take all reasonable steps to minimize additional costs that may accrue as a result of any work stoppage.

3) Upon receipt of a notification in accordance with subparagraph 2)(b) of GC6.3, Canada shall promptly determine whether the object, item or thing is one described in, or contemplated by paragraph 1) of GC6.3, and shall notify the Contractor in writing of any action to be performed, or work to be carried out, by the Contractor as a result of Canada's determination.

4) Canada may, at any time, enlist the services of experts to assist in the investigation, examination, taking of measurements or other such recordings, placing of permanent protection around or removing of the object, item or thing encountered by the Contractor, and the Contractor shall, to the satisfaction of Canada, allow them access and co-operate with them in the carrying out of their duties and obligations.

5) Human remains, archaeological remains and items of historical or scientific interest encountered at the site of the Work shall be deemed to be the property of Canada.

6) Except as may be otherwise provided for in the Contract, the provisions of GC6.4 DETERMINATION OF PRICE and GC6.5 DELAYS AND EXTENSION OF TIME shall apply.

GC6.4 DETERMINATION OF PRICE

GC6.4.1 Price Determination Prior to Undertaking Changes

1) If a Lump Sum Arrangement applies to the Contract or a part thereof, the price of any change shall be the aggregate estimated cost of labour, Plant and Material that is required for the change as agreed upon in writing by the Contractor and Canada plus a negotiated allowance for supervision, co-ordination, administration, overhead, margin and the risk of undertaking the work within the stipulated amount.

2) 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.

3) A price per unit referred to in paragraph 2) of GC6.4.1 shall be determined on the basis of the aggregate estimated cost of labour, Plant and Material that is required for the additional item as agreed upon by the Contractor and Canada, plus a negotiated allowance.

4) To facilitate approval of the price of the change or the additional price per unit as applicable, the Contractor shall submit a cost estimate breakdown identifying, as a minimum, the estimated cost of labour, Plant, Material, each subcontract amount, and the amount of the negotiated allowance.

5) If no agreement is reached as contemplated in paragraph 1) of GC6.4.1, the price shall be determined in accordance with GC6.4.2.

6) If no agreement is reached, as contemplated in paragraphs 2) and 3) of GC6.4.1, Canada shall determine the class and the unit of measurement of the item of labour, Plant or Material and the price per unit shall be determined in accordance with GC6.4.2.

GC6.4.2 Price Determination Following Completion of Changes

1) If it is not possible to predetermine, or if there is failure to agree upon the price of a change in the Work, the price of the change shall be equal to the aggregate of

   (a) all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the labour, Plant and Material that fall within one of the classes of expenditure described in paragraph 2) of GC6.4.2, 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 equal to 10 percent of the sum of the expenses referred to in subparagraph 1)(a) of GC6.4.2; and

   (c) interest on the amounts determined under subparagraphs 1)(a) and 1)(b) of GC6.4.2 calculated in accordance with GC5.12 INTEREST ON SETTLED CLAIMS;

2) The cost of labour, Plant and Material referred to in subparagraph 1)(a) of GC6.4.2 shall 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.

GC6.4.3 Price Determination - Variations in Tendered Quantities

1) Except as provided in paragraphs 2), 3), 4) and 5) of GC6.4.3, if it appears that the final quantity of labour, Plant and Material under a price per unit item shall exceed or be less than the estimated tendered quantity, the Contractor shall perform the Work or supply the Plant and Material required to complete the item and payment shall be made for the actual Work performed or Plant and Material supplied at the price per unit set out in the Contract.

2) 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 shall, on request, provide Canada with

   (a) 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

(b) 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.

3) If agreement is not reached as contemplated in paragraph 2) of GC6.4.3, the price per unit shall be determined in accordance with GC6.4.2.

4) If it appears that the final quantity of labour, Plant and Material under a price per unit item shall 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

(a) 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

(b) the difference in unit cost is due solely to the decrease in quantity and not to any other cause.

5) For the purposes of the negotiation referred to in paragraph 4) of GC6.4.3

(a) the onus of establishing, justifying and quantifying a proposed change lies with the party making the request for negotiation; and

(b) in no event shall the total price for an item that has been amended as a result of a reduction in quantity pursuant to paragraph 4) of GC6.4.3 exceed the amount that would have been payable to the Contractor had 85 percent of the tendered quantity actually been performed or supplied.

GC6.5 DELAYS AND EXTENSION OF TIME

1) Upon application of the Contractor made before the date first fixed for completion of the Work or before any other date previously fixed under this clause, Canada may extend the time for completion of the Work by fixing a new date if Canada determines that causes beyond the control of the Contractor have delayed its completion.

2) The Contractor's application shall be accompanied by the written consent of the bonding company whose bond forms part of the Contract Security.

3) Subject to paragraph 4) of GC6.5, no payment, other than a payment that is expressly stipulated in the Contract, shall be made by Canada to the Contractor for any extra expense, loss or damage incurred or sustained by the Contractor due to delay, whether or not the delay is caused by circumstances beyond the control of the Contractor.

4) If the Contractor incurs or sustains any extra expense or any loss or damage that is directly attributable to any neglect or delay that occurs after the date of the Contract on the part of Canada in providing any information or in doing any act that the Contract either expressly requires Canada to do or that would ordinarily be done by an owner in accordance with the practice of the trade, the Contractor shall give Canada written notice of intention to claim for that extra expense or loss or damage within ten working days of the date the neglect or delay first occurred.

5) When the Contractor has given a notice referred to in paragraph 4) of GC6.5, the Contractor shall give Canada a written claim for the extra expense, loss or damage no later than 30 days after the date that a Certificate of Completion is issued and not afterwards.

6) A written claim referred to in paragraph 5) of GC6.5 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable Canada to determine whether or not the claim is justified and the Contractor shall supply such further and other information for that purpose as Canada may require.

7) If Canada determines that a claim referred to in paragraph 5) of GC6.5 is justified, Canada shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC6.4 DETERMINATION OF PRICE.

8) If the Contractor fails to give a notice referred to in paragraph 4) and a claim referred to in paragraph 5) of GC6.5 within the times stipulated, an extra payment shall not be made to the Contractor in respect of the occurrence.

GC7 DEFAULT, SUSPENSION OR TERMINATION OF CONTRACT

GC7.1 TAKING THE WORK OUT OF THE CONTRACTOR'S HANDS

1) By giving notice in writing to the Contractor in accordance with GC2.3 NOTICES, Canada, without any other authorization, may take all or any part of the Work out of the Contractor's hands, and may employ such means as Canada sees fit to have the Work completed if the Contractor:

   (a) fails to remedy any delay in the commencement or default in the diligent performance of the Work to the satisfaction of Canada within six days of Canada giving notice to the Contractor in writing in accordance with GC2.3 NOTICES;

   (b) defaults in the completion of any part of the Work within the time fixed for its completion by the Contract;

   (c) becomes insolvent, or has committed an act of bankruptcy, and has neither made a proposal to its creditors nor filed a notice of intention to make such a proposal, pursuant to the *Bankruptcy and Insolvency Act*;

   (d) abandons the work;

   (e) makes an assignment of the Contract without the consent required by GC1.16 ASSIGNMENT; or

   (f) otherwise fails to observe or perform any of the provisions of the Contract.

2) If the whole or any part of the Work is taken out of the Contractor's hands, the Contractor's right to any further payment that is due or accruing due under the Contract is, subject only to paragraph 3) of GC7.1, extinguished, and the Contractor is liable to pay Canada, upon demand, an amount that is equal to the amount of all loss and damage incurred or sustained by Canada in respect of the Contractor's failure to complete the Work.

3) If the whole or any part of the Work that is taken out of the Contractor's hands is completed by Canada, Canada may pay the Contractor the amount, if any, of the holdback or a progress claim as determined by Canada that had accrued and was due prior to the date on which the Work was taken out of the Contractor's hands and that is not required for the purposes of having the Work performed or of compensating Canada for any other loss or damage incurred or sustained by reason of the Contractor's default.

4) The taking of the Work or any part thereof out of the Contractor's hands does not relieve the Contractor from any obligation under the Contract or imposed by law except the obligation to complete the performance of that part of the Work that was taken out of the Contractor's hands.

5) If the Work or any part thereof is taken out of the Contractor's hands, all Plant and Material and the interest of the Contractor, or its suppliers or subcontractors at any tier, in all real property, licences, powers and privileges acquired, used or provided by the Contractor, or its suppliers or subcontractors at any tier, under the Contract shall continue to be the property of Canada without compensation.

6) When Canada certifies that any Plant, Material, or any interest of the Contractor is no longer required for the purposes of the Work, or that it is not in the interests of Canada to retain that Plant, Material, or interest, it shall revert to the Contractor.

7) If the Contractor has become insolvent or has committed an act of bankruptcy, and has either made a proposal to its creditors or filed a notice of intention to make such a proposal, pursuant to the *Bankruptcy and Insolvency Act*, the Contractor shall immediately forward a copy of the proposal or the notice of intention to Canada.

GC7.2 SUSPENSION OF WORK

1) When, in Canada's opinion, it is in the public interest to do so, Canada may require the Contractor to suspend performance of the Work either for a specified or an unspecified period, by giving a notice of suspension in writing to the Contractor in accordance with GC2.3 NOTICES.

2) When a notice of suspension is received by the Contractor, the Contractor shall suspend all operations in respect of the Work except those that Canada determines are necessary for the care and preservation of the Work, Plant and Material.

3) During a period of suspension, the Contractor shall not remove any part of the Work, Plant or Material from its site without the consent of Canada.

4) If a period of suspension is 60 days or less, the Contractor shall resume the performance of the Work on the expiration of that period, and the Contractor is entitled to be paid the extra costs necessarily incurred by the Contractor as a result of the suspension, determined in accordance with GC6.4 DETERMINATION OF PRICE.

5) If a period of suspension is more than 60 days, Canada and the Contractor may agree that the performance of the Work shall be continued by the Contractor, and the Contractor shall resume performance of the Work subject to any terms and conditions agreed upon by Canada and the Contractor. If Canada and the Contractor do not agree that performance of the Work shall be continued by the Contractor, or upon the terms and conditions under which the Contractor shall continue the Work, the notice of suspension shall be deemed to be a notice of termination pursuant to GC7.3 TERMINATION OF CONTRACT.

GC7.3 TERMINATION OF CONTRACT

1) Canada may terminate the Contract at any time by giving a notice of termination in writing to the Contractor in accordance with GC2.3 NOTICES.

2) If the Contractor receives a notice of termination, the Contractor shall forthwith cease all operations in performance of the Contract, subject to any conditions stipulated in the notice.

3) Subject to paragraph 4) of GC7.3, if the Contract is terminated, Canada shall pay the Contractor an amount determined to be due to the Contractor pursuant to GC6.4 DETERMINATION OF PRICE less the aggregate of all amounts that were paid to the Contractor by Canada and all amounts that are due to Canada from the Contractor pursuant to the Contract.

4) In no event shall the total amount payable by Canada to the Contractor exceed the amount, calculated in accordance with GC5 TERMS OF PAYMENT, that would have been payable to the Contractor had the Contractor completed the Work.

5) Payment to the Contractor, if any, shall be made as soon as practicable under the circumstances.

GC7.4 SECURITY DEPOSIT - FORFEITURE OR RETURN

1) If the Work is taken out of the Contractor's hands, or the Contractor is in breach of, or in default under, the Contract, Canada may convert a security deposit to Canada's own use.

2) If Canada converts a security deposit, the amount realized shall be deemed to be an amount due from Canada to the Contractor under the Contract.

3) Any balance of the amount realized that remains after payment of all losses, damage and claims of Canada and others shall be paid by Canada to the Contractor if, in the opinion of Canada, it is not required for the purposes of the Contract.

GC8 DISPUTE RESOLUTION

GC8.1 INTERPRETATION

1) "dispute" means any disagreement regarding any issue identified by the Contractor in the notice submitted to Canada in accordance with paragraph 2 of GC8.3 NOTICE OF DISPUTE, and includes any claim by the Contractor arising from such disagreement and any counterclaim by Canada, but does not include any claim by either party for punitive or exemplary damages, injury to persons, death, or any claim based on an allegation of libel or slander.

2) The alternative dispute resolution procedures set out in GC8, do not apply to any claim by Canada against the Contractor except any counterclaim in a dispute as defined in paragraph 1 of GC8.1, including, but not limited to, any claim of setoff regarding any amount due to Canada under GC5.10 ASSESSMENT AND DAMAGES FOR LATE COMPLETION.

GC8.2 CONSULTATION AND CO-OPERATION

1) The parties agree to maintain open and honest communication throughout the performance of the Contract.

2) The parties agree to consult and co-operate with each other in the furtherance of the Work and the resolution of problems or differences that may arise.

GC8.3 NOTICE OF DISPUTE

1) Any difference between the parties to the Contract of any nature arising out of or in connection with the Contract which could result in a claim by the Contractor against Canada, and which is not settled by consultation and co-operation as envisaged in GC8.2

CONSULTATION AND CO-OPERATION, shall be resolved in the first instance by Canada, whose written decision or direction shall be final and binding subject only to the provisions of GC8. Such written decision or direction includes, but is not limited to, any written decision or direction by Canada under any provision of the General Conditions.

2) The Contractor shall be deemed to have accepted the decision or direction of Canada referred to in paragraph 1) of GC8.3 and to have expressly waived and released Canada from any claim in respect of the particular matter dealt with in that decision or direction unless, within 15 working days after receipt of the decision or direction, the Contractor submits to Canada a written notice of dispute requesting formal negotiation under GC8.4 NEGOTIATION. Such notice shall refer specifically to GC8.4 NEGOTIATION, and shall specify the issues in contention and the relevant provisions of the Contract.

3) The giving of a written notice in accordance with paragraph 2) of GC8.3 shall not relieve the Contractor from complying with the decision or direction that is the subject of the dispute. Such compliance, however, shall not be construed as an admission by the Contractor of the correctness of such decision or direction.

4) If a dispute is not resolved promptly, Canada shall give such instructions as, in Canada's opinion, are necessary for the proper performance of the Work and to prevent delays pending a resolution of the matter. Unless Canada terminates the Contract, orders the Contractor to suspend the Work, or takes the Work out of the hands of the Contractor, the Contractor shall continue to perform the Work in accordance with the provisions and requirements of the Contract and the instructions of Canada. Such performance shall not prejudice any claim that the Contractor may have.

5) Nothing in GC8 relieves the Contractor from its obligation to provide any other notice required by the Contract within the time specified in the Contract, including but not limited to, any notice required under GC6.2 CHANGES IN SUBSURFACE CONDITIONS.

GC8.4 NEGOTIATION

1) Within 10 working days after receipt by Canada of a notice referred to in paragraph 2) of GC8.3 NOTICE OF DISPUTE, or within such other period of time as may be mutually agreed to, the parties shall commence formal negotiations in order to resolve the dispute. Negotiations shall occur initially between representatives of the Contractor and Canada who play a direct supervisory role in the performance, administration or management of the Contract.

2) If the representatives referred to in paragraph 1) of GC8.4 are unable to resolve some or all of the issues which are the subject of the negotiations within 10 working days, the parties shall refer the remaining issues which are in dispute to a second level of negotiation between a principal or principals of the Contractor and a senior level manager or senior level managers representing Canada.

3) If negotiations fail to resolve the dispute within 30 working days from the date of delivery of the notice referred to in paragraph 2) of GC8.3 NOTICE OF DISPUTE, or within such longer period as may have been agreed to by the parties, the Contractor may, by giving written notice to Canada, in accordance with GC2.3 NOTICES, within 10 working days from the end of such period, request that mediation be undertaken to assist the parties to reach agreement on the outstanding issues.

3) If the Contractor does not request mediation within the period permitted by paragraph 3) of GC8.4, the Contractor shall be deemed to have accepted the decision or direction of Canada under paragraph 1) of GC8.3 NOTICE OF DIPUTE and to have expressly waived and

released Canada from any claim in respect of the particular matter dealt with in that decision or direction.

GC8.5 MEDIATION

1) If the Contractor has requested mediation in accordance with paragraph 3) of GC8.4 NEGOTIATION, mediation shall be conducted in accordance with GC8.8 RULES FOR MEDIATION OF DISPUTES.

2) If a Project Mediator has not previously been appointed for the purposes of the Contract, a Project Mediator shall be appointed in accordance with GC8.8 RULES FOR MEDIATION OF DISPUTES forthwith after delivery of a notice in accordance with paragraph 3) of GC8.4 NEGOTIATION, requesting mediation.

3) If the dispute has not been resolved within

   (a) Ten (10) working days following the appointment of a Project Mediator in accordance with paragraph 2) of GC8.5, if a Project Mediator was not previously appointed;

   (b) Ten (10) working days following receipt by Canada of a written notice in accordance with paragraph 3) of GC8.4 NEGOTIATION, if a Project Mediator was previously appointed; or

   (c) such other longer period as may have been agreed to by the parties;

   the Project Mediator shall terminate the mediation by giving written notice to the parties stating the effective date of termination.

GC8.6 BINDING ARBITRATION

1) If mediation of the dispute is terminated pursuant to the provisions of GC8.5, "Mediation", and

   a) the termination of mediation occurs prior to the applicable date set out in paragraph 4) of GC8.6; and

   b) the disputed issues involve issues of fact or issues of arbitral questions of law or issues of mixed fact and arbitral questions of law;

   either party, by giving notice in writing to the other party in accordance with GC2.3, "Notices", may require that the dispute be resolved by binding arbitration pursuant to GC8.6.

2) A notice referred to in paragraph 1) of GC8.6 shall be given within 10 working days of the date of termination of mediation under GC8.5 Mediation and shall be in accordance with GC2.3, "Notices".

3) If no notice is given within the period set out in paragraph 2) of GC8.6, or if the conditions set out in subparagraphs 1)(a) and 1)(b) of GC8.6 are not met, the arbitration provisions set out in GC8.6 do not apply to the dispute.

4) Unless otherwise agreed, the arbitration of the dispute shall be held in abeyance until the earlier of

   a) the date of issuance of a Certificate of Substantial Performance under GC5.5, "Substantial Performance of the Work";

b) the date the Work is taken out of the Contractor's hands; and

c) the date of termination of the Contract;

and consolidated with all other such disputes into a single arbitration.

5) Arbitral proceedings under this GC8.6 shall be governed by and conducted in accordance with the **Commercial Arbitration Act**, R.S. 1985, c. 17 (2nd Supp.) and the provisions of GC8.11, "Rules for Arbitration of Disputes".

6) For the purposes of calculating time under the Rules for Arbitration referred to in paragraph 5) of GC8.6, arbitration proceedings shall commence on the applicable date set out in paragraph 4) of GC8.6.

7) Notwithstanding anything else contained in GC8.6, the arbitration provisions in GC8.6 do not apply if the aggregate amount of all claims by the Contractor required to be arbitrated on the applicable date set out in paragraph 4) of GC8.6 is less than $25,000.

GC8.7 DISPUTES NOT SUBJECT TO ARBITRATION

1) Where the arbitration provisions in GC8.6, "Binding Arbitration", do not apply to a dispute as a result of paragraphs 3) or 7) of GC8.6, "Binding Arbitration", either party may take such court action or proceedings as it considers appropriate, including, without limiting the foregoing, all suits that would otherwise have been immediately available to it but for the provisions of these Dispute Resolution Conditions. Subject to the provisions of paragraph 2) of GC8.7, the Contractor shall initiate any such action or proceeding no later than three calendar months after the date that a Certificate of Completion is issued under GC5.6, "Final Completion", and not afterwards, except where it is otherwise provided by law.

2) Any action or proceeding resulting from a direction under GC3.13, "Warranty and Rectification of Defects in Work", shall be initiated by the Contractor no later than three calendar months after the expiry of the warranty or guarantee period and not afterwards, except where it is otherwise provided by law.

GC8.8 (2016-05-01) CONFIDENTIALITY

All information exchanged during alternative dispute resolution procedures, by whatever means, shall be without prejudice and shall be treated as confidential by the parties and their representatives, unless otherwise required by law. However, evidence that is independently admissible or discoverable shall not be rendered inadmissible or non-discoverable by virtue of its use during an alternative dispute resolution process.

GC8.9 (2016-05-01) SETTLEMENT

Any agreement to settle all or any part of a dispute, by whatever means, shall be in writing and be signed by the parties or their authorized representatives.

GC8.10 (2016-05-01) RULES FOR MEDIATION OF DISPUTES

GC8.10.1 Interpretation

In these Rules

1) "Coordinator" means the person designated by Canada to act as the Dispute Resolution Coordinator.

GC8.10.2 Application

1) By mutual agreement, the parties may change or make additions to the Rules.

GC8.10.3 Communication

1) Written communications pursuant to these Rules shall be given in accordance with GC2.3 NOTICES.

GC8.10.4 Appointment of Project Mediator

1) The parties to the Contract may, by mutual consent, at any time after entry into the Contract, appoint a mediator (the "Project Mediator") to conduct mediation proceedings in accordance with these Rules for Mediation of Disputes, in regard to any dispute that may arise with regard to the interpretation, application or administration of the Contract. In this case, they shall jointly enter into a contract with the appointed Project Mediator, which contract shall be in a form drafted by the Coordinator and agreed to by the parties.

2) If the parties do not appoint a Project Mediator pursuant to paragraph 1) of GC8.8.4, the parties shall appoint a Project Mediator within 17 working days following receipt of a written notice from the Contractor, in accordance with GC2.3 NOTICES, requesting that mediated negotiations be undertaken in accordance with these Rules to assist the parties to reach agreement on any outstanding issues that may be in dispute. Any contract entered into with the appointed Project Mediator shall meet the requirements as set out for the contract described in paragraph 1) of GC8.8.4.

3) When mediation is requested by the Contractor pursuant to paragraph 3) of GC8.4 NEGOTIATION, if the parties have previously entered into a contract with a Project Mediator, the parties shall within 2 days send to both the Project Mediator and the Coordinator

   (a) a copy of the notice requesting negotiation under paragraph 2) of GC8.3 NOTICE OF DISPUTE;

   (b) a copy of Canada's written position in relation to the notice, the issues in contention and the relevant provisions of the contract; and

   (c) a copy of the Contractor's written request for mediation required under paragraph 3) of GC8.4 NEGOTIATION.

4) If the parties have not agreed on a Project Mediator, the parties shall forthwith provide the Coordinator with the written materials referred to in subparagraphs 3)(a), 3)(b) and 3)(c) of GC8.8.4 together with a request that the Coordinator assist in the appointment of a mutually acceptable Project Mediator in accordance with these Rules.

5) Within 5 working days following receipt of the request and materials referred to in paragraph 4) of GC8.8.4, the Coordinator shall provide the parties with a list of qualified private sector mediators obtained from an independent and impartial entity, together with instructions to

each party to individually and confidentially select and rank their preferred and fully acceptable choices of mediator in descending order. Each mediator listed shall be impartial and independent of the parties, and shall be an experienced and skilled commercial mediator, preferably with knowledge of the subject matter of the dispute.

6) Within 10 working days of receipt of the list referred to in paragraph 5) of GC8.8.4 each party shall comply with the instructions accompanying the list(s) and shall deliver the completed listing to the Coordinator.

7) Within 2 working days following receipt of the completed listings, the Coordinator shall select the highest common ranked mediator to act as Project Mediator for the purposes of the contract.

8) In the event of a tie, the Coordinator shall consult both parties to re-evaluate their rankings in order to assist the Coordinator in selecting a Project Mediator acceptable to both parties. If the parties cannot agree upon a Project Mediator, the Coordinator shall forthwith provide the parties with a second list of mediators and the procedure shall be repeated.

9) If the parties have not previously entered into a contract with a mutually acceptable Project Mediator, the Coordinator shall use reasonable efforts to negotiate a contract with a mutually acceptable Project Mediator on behalf of the parties, which contract shall incorporate or otherwise comply with the provisions of these Rules. If negotiations are unsuccessful, or if for other reason the individual is unwilling or unable to enter into a contract to act as Project Mediator, the Coordinator shall repeat the process with the second-highest common ranked mediator.

10) The parties agree that, upon successful completion of the negotiations referred to in paragraph 9) of GC8.8.4, they shall jointly enter into a contract with the selected Project Mediator, which contract shall be in a form drafted by the Coordinator and agreed to by the parties.

11) Upon execution of the contract with the Project Mediator referred to in paragraph 10) of GC8.8.4 the Coordinator shall provide the Project Mediator with copies of the documents referred to in paragraph 3) of GC8.8.4.

GC8.10.5 Confidentiality

1) Subject to paragraph 2) of GC8.8.5, and unless otherwise agreed in writing by the parties, the Project Mediator, the parties and their counsel or representatives shall keep confidential all matters and documents disclosed during mediation proceedings except where the disclosure is necessary for any implementation of any agreement reached or is required by law.

2) Evidence that is independently admissible or discoverable in any arbitral or judicial proceeding shall not be rendered inadmissible or non-discoverable by virtue of its use in mediation proceedings.

3) Neither party shall make transcripts, minutes or other records of a mediation conference.

4) The personal notes and written opinions of the Project Mediator made in relation to mediation are in the Project Mediator's sole possession and control, are confidential, and may not be used in any subsequent proceeding between the parties or where they are opposed in interest without the express written permission of the parties.

5) All information exchanged during mediation procedures, by whatever means, shall be without prejudice and shall be treated as confidential by the parties and their representatives, unless otherwise required by law.

GC8.10.6 Time and Place of Mediation

1) The Project Mediator, in consultation with the parties shall set the date, time and place of any mediation conference as soon as possible, bearing in mind that, subject to agreement to the contrary between the parties, only 10 working days are available within which to attempt to settle the dispute.

GC8.10.7 Representation

1) Representatives of the parties may be accompanied at the mediation conference by legal counsel or any other person.

2) If the Project Mediator is a lawyer, the Project Mediator shall not provide legal advice to a party during the course of the mediation conference, but may recommend that a party obtain independent legal advice before finalizing a settlement agreement.

GC8.10.8 Procedure

1) The parties agree to an exchange of all facts, information and documents upon which they intend to rely in any oral or written presentation during the mediation. This exchange shall be completed no later than 2 working days prior to the date set for a mediation conference.

2) The Project Mediator shall be free to meet with the parties individually during a mediation conference if the Project Mediator is of the opinion that this may improve the chances of a mediated settlement, and either party may request such an individual meeting at any time.

3) The parties may agree to extend the 10 working days available for settlement of the dispute through mediation, and the Project Mediator shall record that agreement in writing.

GC8.10.9 Settlement Agreement

1) The parties shall record in writing any settlement agreement reached, with sufficient detail to ensure a clear understanding of

   (a) the issues resolved;

   (b) any obligations assumed by each party including criteria to determine if and when these obligations have been met; and

   (c) the consequences of failure to comply with the agreement reached.

2) The parties agree to carry out the terms of a settlement agreement as soon as possible and, in any event, within any time periods specified in the agreement.

GC8.10.10 Termination of Mediation

1) Either party may withdraw from mediation at any time without reason and, in that event, the Project Mediator shall give each party a written notice terminating the mediation and establishing the effective date of termination.

2) If, in the opinion of the Project Mediator, either party fails to mediate in good faith or fails to comply with the terms of these Rules, or if the Project Mediator, at any time during mediation, is of the opinion that further negotiations will fail to resolve the issues outstanding, the Project Mediator may terminate the negotiations by providing the parties with a written notice of termination, stating therein the Project Mediator's reasons for the termination, and the effective date of termination.
3) If a dispute has not been resolved within 10 working days or such other longer period as may have been agreed to by the parties, the Project Mediator shall terminate the mediation by giving written notice to the parties stating the effective date of termination.

GC8.10.11 Costs

1) The parties agree that they will each be responsible for the costs of their own representatives and advisors and associated travel and living expenses. Fees and expenses of the Project Mediator and all administrative costs of mediation, such as the cost of the meeting room(s), if any, shall be borne equally by the parties.

GC8.10.12 Subsequent Proceedings

1) The parties shall not rely on or introduce as evidence in any arbitral or judicial proceeding, whether or not such proceeding relates to the subject matter of mediation,

   (a) any documents of other parties that are not otherwise producible in those proceedings;

   (b) any views expressed or suggestions made by any party in respect of a possible settlement of issues;

   (c) any admission made by any party in the course of mediation unless otherwise stipulated by the admitting party; and

   (d) the fact that any party has indicated a willingness to make or accept a proposal or recommendation for settlement.

2) The Project Mediator shall neither represent nor testify on behalf of either of the parties in any subsequent investigation, action or proceeding relating to the issues in mediation proceedings.

3) The Project Mediator shall not be subpoenaed to give evidence relating to

   (a) the Project Mediator's role in mediation; or

   (b) the matters or issues in mediation;

   in any subsequent investigation, action or proceeding and the parties agree to vigorously oppose any effort to have the Mediator so subpoenaed.

GC9 CONTRACT SECURITY

GC9.1 OBLIGATION TO PROVIDE CONTRACT SECURITY

1) The Contractor shall, at the Contractor's expense and within 14 days after the date that the Contractor receives notice that the Contractor's bid was accepted by Canada, obtain and deliver Contract Security to Canada in one of the forms prescribed in GC9.2 TYPES AND AMOUNTS OF CONTRACT SECURITY.

2) If the whole or a part of the Contract Security provided is in the form of a security deposit, it shall be held and disposed of in accordance with GC5.13 RETURN OF SECURITY DEPOSIT and GC7.4 SECURITY DEPOSIT - FORFEITURE OR RETURN.

3) If a part of the Contract Security provided is in the form of a labour and material payment bond, the Contractor shall post a copy of that bond at the site of the Work.

4) It is a condition precedent to the release of the first progress payment that the Contractor has provided the Contract Security as specified herein.

GC9.2 (2016-05-01) TYPES AND AMOUNTS OF CONTRACT SECURITY

1) The Contractor shall deliver to Canada either (a) or (b).

   a) A performance bond and a labour and material payment bond each in an amount that is equal to not less than 50 percent of the Contract Amount (excluding applicable tax(es)).

   b) A security deposit or an irrevocable standby letter of credit in an amount that is equal to not less than 20 percent of the Contract Amount (excluding applicable tax(es)).

2) A performance bond and a labour and material payment bond referred to in paragraph 1) of GC9.2 shall be in a form and be issued by a bonding or surety company that is approved by Canada.

   (a) The approved form for the performance bond is displayed at the following Website: http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appS

   (b) The approved form for the labour and material payment bond is displayed at the following website: http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appS ; and

   (c) The list of approved bonding or surety companies is displayed at the following Website: http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL

3) A security deposit referred to in subparagraph 1)(b) of GC9.2 shall be in the form of

   a. a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or

b. bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada.

4) For the purposes of subparagraph 3)(a) of GC9.2

a) a bill of exchange is an unconditional order in writing signed by the Contractor and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;

b) if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4)(c) of GC9.2, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and

c) An approved financial institution is

I. a corporation or institution that is a member of the Canadian Payments Association as defined in the Canadian Payments Act;

II. a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";

III. a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;

IV. a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the Income Tax Act; or

V. Canada Post Corporation.

5) Bonds referred to in subparagraph 3)(b) of GC9.2 shall be provided on the basis of their market value current at the date of the Contract, and shall be

a) made payable to bearer; or

b) accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or

c) registered as to principal, or as to principal and interest, in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.

6) An irrevocable standby letter of credit referred to in subparagraph 1)(b) of GC9.2 shall

a) be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,

I. is to make a payment to, or to the order of, Canada as the beneficiary;

II. is to accept and pay bills of exchange drawn by Canada;

III. authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or

IV. authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;

b) state the face amount that may be drawn against it;

c) state its expiry date;

d) provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by Canada;

e) provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;

f) provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600. Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and

g) be issued or confirmed, in either official language in a format left to the discretion of the issuer or confirmer, by an approved financial institution on its letterhead.

GC10 INSURANCE

GC10.1 INSURANCE CONTRACTS

1) The contractor shall, at the contractor's expense, obtain and maintain insurance contracts in respect of the work and shall provide evidence thereof to Canada in accordance with the requirements of the INSURANCE TERMS.

2) The insurance contracts referred to in paragraph 1) of GC10.1 shall

   (a) be in a form, of the nature, in the amounts, for the periods and containing the terms and conditions specified in INSURANCE TERMS; and

   (b) provide for the payment of claims under such insurance contracts in accordance with GC10.2 INSURANCE PROCEEDS.

GC10.2 INSURANCE PROCEEDS

1) In the case of a claim payable under a Builders Risk/Installation (All Risks) insurance contract maintained by the contractor pursuant to GC10.1 INSURANCE CONTRACTS, the proceeds of the claim shall be paid directly to Canada, and

   (a) the monies so paid shall be held by Canada for the purposes of the contract, or

   (b) if Canada elects, shall be retained by Canada, in which event they vest in Canada absolutely.

2) In the case of a claim payable under a General Liability insurance contract maintained by the contractor pursuant to GC10.1 INSURANCE CONTRACTS, the proceeds of the claim shall be paid by the insurer directly to the claimant.

3) If an election is made pursuant to paragraph 1) of GC10.2, Canada may cause an audit to be made of the accounts of the contractor and of Canada in respect of the part of the work that was lost, damaged or destroyed for the purpose of establishing the difference, if any, between

   (a) the aggregate of the amount of the loss or damage suffered or sustained by Canada, including any costs incurred in respect of the clearing and cleaning of the work and its site and any other amount that is payable by the contractor to Canada under the contract, minus any monies retained pursuant to subparagraph 1)(b) of GC10.2; and

   (b) the aggregate of the amounts payable by Canada to the contractor pursuant to the contract up to the date of the loss or damage.

4) A difference that is established pursuant to paragraph 3) of GC10.2 shall be paid forthwith by the party who is determined by the audit to be the debtor to the party who is determined by the audit to be the creditor.

5) When payment of a deficiency has been made pursuant to paragraph 4) of GC10.2, all rights and obligations of Canada and the contractor under the contract shall, with respect only to the part of the work that was the subject of the audit referred to in paragraph 3) of GC10.2, be deemed to have been expended and discharged.

6) If an election is not made pursuant to subparagraph 1)(b) of GC10.2, the contractor shall, subject to paragraph 7) of GC10.2, clear and clean the work and its site and restore and replace the part of the work that was lost, damaged or destroyed at the contractor's expense as if that part of the work had not yet been performed.

7) When the contractor clears and cleans the work and its site and restores and replaces the work referred to in paragraph 6) of GC10.2, Canada shall pay the contractor out of the monies referred to in paragraph 1) of GC10.2 so far as they will thereunto extend.

8) Subject to paragraph 7) of GC10.2, payment by Canada pursuant to paragraph 7) of GC10.2 shall be made in accordance with the contract but the amount of each payment shall be 100 percent of the amount claimed notwithstanding subparagraphs 3)(a) and 3)(b) of GC5.4 PROGRESS PAYMENT.

INSURANCE TERMS

IN1 GENERAL

IN1.1 Worker's Compensation

1) The Contractor shall provide and maintain Worker's Compensation Insurance in accordance with the legal requirements of the Province or Territory where the work is being carried out.

IN1.2 Indemnification

1) The insurance required by the provisions of these Insurance Terms shall in no way limit the Contractor's responsibility under the Indemnification clause of the General Conditions of the contract. Any additional coverage the Contractor may deem necessary to fulfill his obligations under the aforesaid clause shall be at his own discretion and expense.

IN1.3 Proof of Insurance

1) Before commencement of the Work, and within thirty (30) days after acceptance of its bid, the Contactor shall deposit with Canada a CERTIFICATE OF INSURANCE (form AAFC / AAC5314) available upon request.

2) In the event that the Contractor already possesses an insurance certificate clearly demonstrating that their insurance coverage meets IN2.1 Scope of Policy provisions, then the Contractor may deposit an original copy of this insurance certificate.

3) Upon request by Canada, the Contractor shall provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the provisions contained herein.

IN1.4 Insured

1) Each policy shall insure the Contractor and shall include Her Majesty the Queen in right of Canada, represented by the Minister of Agriculture & Agri-Food Canada as an additional Insured, with respect to liability arising out of the operations of the contractor with regard to the work.

IN1.5 Payment of Deductible

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

IN2 COMMERCIAL GENERAL LIABILITY

IN2.1 Scope of Policy

1) The insurance coverage provided shall not be less than that provided by IBC Form 2100, as amended from time to time, and shall have:

   (a) an Each Occurrence Limit of not less than $5,000,000.00 ;

   (b) a Products/Completed Operations Aggregate Limit of not less than $5,000,000.00 ; and

   (c) a General Aggregate Limit of not less than $10,000,000.00 per policy year, if the policy is subject to such a limit.

2) The policy shall 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.

   (e) Asbestos.

   (f) Non-owed Automobile Policy.

IN2.2 Period of Insurance

1) Unless otherwise directed in writing by Canada, or, otherwise stipulated elsewhere herein, the policy required herein shall 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 Liability shall, in any event, be maintained for a period of at least six (6) years beyond the date of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

IN3 AUTOMOBILE INSURANCE

IN3.1 Scope of Policy

1) Automobile Liability Insurance in respect of licensed vehicles shall have limits of not less than one million dollars inclusive per occurrence for bodily injury, death, and damage to property.

IN4 BUILDER'S RISK / INSTALLATION FLOATER

IN4.1 Scope of Policy

1) The insurance coverage provided by a Builder's Risk policy or an Installation Floater policy shall not be less than that provided by IBC Forms 4042 and 4047, as amended from time to time.

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

3) The policy may exclude or be endorsed to exclude coverage for loss or damage caused by any of the following:

   (a) Asbestos.

   (b) Fungi or spores.

   (c) Cyber.

   (d) Terrorism.

IN4.2 Amount of Insurance

1) The amount of insurance shall not be 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 shall be changed to reflect the revised contract value.

IN4.3 Period of Insurance

1) Unless otherwise directed in writing by Canada, or, stipulated elsewhere herein, the policy required herein shall be in force and be maintained from prior to the commencement of work until the day of issue of the CERTIFICATE OF SUBSTANTIAL PERFORMANCE.

IN4.4 Insurance Proceeds

1) The policy shall provide that the proceeds thereof are payable to Her Majesty or as Canada may direct in accordance with GC 10.2 Insurance Proceeds.

2) The Contractor shall, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

BID AND ACCEPTANCE FORM

CONSTRUCTION CONTRACT - MAJOR WORKS

BA01 IDENTIFICATION

Description of the Work
Exterior Wall Insulation and Window Upgrades, Building 143, CEF , Ottawa.

Solicitation Number	File / Project Number
20-1096	A851

BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name

Address

Unit/Suite/Apt.	Street number	Number suffix	Street name	Street type	Street direction

PO Box or Route Number	Municipality (City, Town, etc.)	Province	Postal code

Phone number	Fax number	Email address

BA03 THE OFFER

1) The Bidder offers to Canada as represented by the Minister of Agriculture and Agri-food Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the Total Bid Amount of:

$ _____ excluding Applicable Taxes (GST/HST/QST).

(to be expressed in numbers only)

which consists of:

(a) the Lump Sum of $ _____ for the Work that is not designated in the Unit Price Table and therefore subject to a Lump Sum Arrangement; and,

(b) the Total Estimated Amount of $ _____ for the portion of the Work that is subject to a Unit Price Arrangement. (Amount transferred from Appendix 1 - Unit Price Table).

2) Any errors in the extension of the Price per Unit and in the addition of the Estimated Total Prices in the Unit Price Table shall be corrected by Canada in order to obtain the Total Estimated amount.

3) Any errors in the addition of the amounts in subparagraph 1)(a) and 1)(b) of BA03 shall be corrected by Canada to obtain the Total Bid Amount.

BA04 BID VALIDITY PERIOD

1) The bid shall not be withdrawn for a period of 60 days following the date of solicitation closing.

BA05 APPENDICES

1) The following appendices are included in this Bid and Acceptance Form:

- ☐ No appendices
- ☐ Appendix 1
- ☐ Appendix 2

BA06 ACCEPTANCE AND CONTRACT

1) Upon acceptance of the Bidder's offer by Canada, a binding Contract shall be formed between Canada and the resulting Contractor. The documents forming the Contract shall be the contract documents referred to in SC01 CONTRACT DOCUMENTS.

BA07 CONSTRUCTION TIME

1) The Contractor shall perform and complete the Work within 14 weeks from the date of notification of acceptance of the offer.

BA08 BID SECURITY

1) The Bidder shall enclose bid security with its bid in accordance with GI07 BID SECURITY REQUIREMENTS.

2) If a security deposit is furnished as bid security, it shall be forfeited in the event that the bid is accepted by Canada and the Contractor fails to provide Contract Security in accordance with GC9 CONTRACT SECURITY, provided that Canada may, if it is in the public interest, waive the right of Canada to forfeiture any or all of the security deposit.

BA09 SIGNATURE

Name and title of person authorized to sign on behalf of Bidder (type or print)	Name
	Title
	Signature _____ Date _____
	Name
	Title
	Signature _____ Date _____

BA10 INTEGRITY PROVISIONS - LIST OF NAMES

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.

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

SPECIFICATIONS & DAWINGS

#20-1096

FOR

EXTERIOR WALL INSULATION

and WINDOW UPGRADES

BUILDING # 143

CENTRAL EXPERIMENTAL FARM (CEF)
Agriculture and Agri-Food Canada (AAFC)
960 Carling Ave.
Ottawa, ON K1A 0C6

Canada

SPECIFICATIONS

CENTRAL EXPERIMENTAL FARM – Exterior Wall Insulation and Window Upgrades, Building 143

960 Carling Avenue, Ottawa, Ontario

Stewart + Tsai Architects Inc.
Aug 24, 2020

Project No.: CEF 18-0023

SPECIFICATIONS

END OF SECTION

DRAWINGS

The following is a list of drawings which accompany these specifications and which form part of the Contract Documents for the Work.

ARCHITECTURAL

A-001	COVER SHEET
A-101	DEMOLITION PLAN
A-102	PROPOSED PLAN
A-103	EXTERIOR ELEVATIONS (EXISTING)
A-104	EXTERIOR ELEVATION (PROPOSED)
A-105	SECTIONS AND DETAILS
A-106	SECTIONS AND DETAILS

END OF SECTION

1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises renovation of building 143, located at Central Experimental Farm, Ottawa, ON.

1.02 CONTRACT METHOD

.1 Construct Work under stipulated price contract.

1.03 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.04 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 Maintain fire access/control.

1.05 CONTRACTOR USE OF PREMISES

.1 Unrestricted use of site.

.2 Co-ordinate use of premises under direction of Departmental Representative.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.

.6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.06 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Owner usage.

1.07 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.08 EXISTING SERVICES

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

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to operations.

.3 Provide alternative routes for pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services to maintain critical building and tenant systems.

.7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.10 Record locations of maintained, re-routed and abandoned service lines.

.11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.09 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.

.7 Other Modifications to Contract.
.8 Field Test Reports.
.9 Copy of Approved Work Schedule.
.10 Health and Safety Plan and Other Safety Related Documents.
.11 Other documents as specified.

END OF SECTION

1 GENERAL

1.01 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.02 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit to Departmental Representative within 10 working days of Award of Contract.

.3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.04 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.05 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.01 Award.
.02 Shop Drawings, Samples.
.03 Mobilization.
.04 Excavation.
.05 Backfill.
.06 Insulation
.07 Siding.
.08 Windows and Doors
.09 Plumbing.
.10 Lighting.
.11 Electrical.
.12 Piping.
.13 Controls.
.14 Heating, Ventilating, and Air Conditioning.
.15 Concrete
.16 Fire Systems.
.17 Testing and Commissioning.

1.06 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.07 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

END OF SECTION

1 GENERAL

1.01 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's or Consultant's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative or Consultant review.

.10 Keep one reviewed copy of each submission on site.

1.02 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 7 days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended

to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Certificates must have a date after contract award and indicate the name of the project.

.13 Submit copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
- .2 Certificates must be dated after award of project contract complete with project name.

.14 Submit copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.17 Submit copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.18 Delete information not applicable to project.

.19 Supplement standard information to provide details applicable to project.

.20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.03 SAMPLES

.1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's business address.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material

against which installed Work will be verified.

1.04 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copy of colour digital photography in jpg format, standard resolution as directed by Departmental Representative.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Frequency of photographic documentation: as directed by Departmental Representative.

.1 Upon completion of: excavation, foundation, framing and services before concealment, of Work, and as directed by Departmental Representative.

1.05 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Province of Ontario
- .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended - Updated 2005.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
- .1 Results of site specific safety hazard assessment.
- .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .3 Contractor's Health and Safety Policy.

.3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and authority having jurisdiction, weekly.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS MSDS - Material Safety Data Sheets.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 7 days after receipt of comments from Departmental Representative.

.8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.03 FILING OF NOTICE

.1 File Notice of Project with authorities prior to beginning of Work.

1.04 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.05 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.06 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.07 PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:
- .1 Lead.
- .2 Mercury.
- .3 Silica.
- .4 Vinyl Chloride.

1.08 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.09 RESPONSIBILITY

.1 Be responsible for 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 they may be affected by conduct of Work.

.2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.

1.10 COMPLIANCE REQUIREMENTS

.1 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.11 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and Safety Officer and follow procedures in accordance with Acts and Regulations of Ontario having jurisdiction and advise Departmental Representative verbally and in writing.

1.12 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
- .1 Have site-related working experience.
- .2 Have working knowledge of occupational safety and health regulations.
- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work and report directly to and be under direction of Registered Occupational Hygienist.

1.13 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Ontario having jurisdiction, and in consultation with Departmental Representative.

1.14 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.15 BLASTING

.1 Blasting or other use of explosives is not permitted.

1.16 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.17 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

END OF SECTION

1 GENERAL

1.01 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:
- .1 Contract documents.
- .2 Specified standards, codes and referenced documents.

1.02 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.03 BUILDING SMOKING ENVIRONMENT

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

.2 No smoking within within any AAFC facilities.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Section 07 21 13 Board Insulation

.2 Section 07 46 13 Preformed Metal Siding

1.02 INSPECTION

.1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative's instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.03 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.04 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.05 PROCEDURES

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.06 REPORTS

.1 Submit two (2) copies of inspection and test reports to Departmental Representative.

.2 Provide copies to subcontractor of work being inspected or tested.

1.07 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.08 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Departmental Representative.

.3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative

1.09 EQUIPMENT AND SYSTEMS

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

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.02 HOARDING

.1 Erect temporary site enclosures using temporary 1800mm high metal fencing system.

.2 Temporary metal fencing system to be comprised of galvanized steel fencing panels maximum 2400mm wide with outer frame of 25mm x 25mm minimum square steel tubes, high strength square posts of minimum 25mm x 25mm.

.3 Steel fencing panels to consist of welded wire mesh infill with 50mm x 100 mm aperture and minimum wire diameter of 3mm.

.4 Fence feet minimum 863mm x 89mm x 8mm

.5 Fence panels to be coupled together. Fix panels to steel posts with top pins.

.6 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.

.7 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.03 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations.

.2 Provide as required by governing authorities.

1.04 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure.

1.05 DUST TIGHT SCREENS

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.06 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.07 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.08 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

1.09 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management And Disposal.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.03 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.04 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Departmental Representative at commencement of Work and

should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.05 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.06 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

.2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.07 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.

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

1.08 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.09 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.11 REMEDIAL WORK

.1 Refer to Section 01 73 00 - Execution.

.2 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.3 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Departmental Representative of conflicting installation. Install as directed.

1.13 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected

specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.14 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15 PROTECTION OF WORK IN PROGRESS

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

1.16 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

END OF SECTION

1 GENERAL

1.01 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.02 MATERIALS

.1 Materials, products and equipment shall all be new, except as specifically noted otherwise.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.03 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work with Departmental Representative.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.04 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing.

.6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.10 Restore work with new products in accordance with requirements of Contract Documents.

.11 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

END OF SECTION

1 GENERAL

1.01 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.

.3 Clear snow and ice from all work areas and access to building.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling.

.7 Dispose of waste materials and debris off site.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.02 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris other than that caused by other Contractors engaged by Departmental Representative.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed

by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Clean and polish glass and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.8 Clean lighting reflectors, lenses, and other lighting surfaces.

.9 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.10 Broom clean and wash exterior walks, steps and surfaces.

.11 Remove dirt and other disfiguration from exterior surfaces.

.12 Clean and sweep roofs, gutters, areaways, and sunken wells.

.13 Sweep and wash clean paved areas.

.14 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.15 Clean roofs, downspouts, and drainage systems.

.16 Remove snow and ice from access to building.

END OF SECTION

1 GENERAL

1.01 SUMMARY

.1 This Section includes requirements for management of construction waste and disposal, which forms the Contractor ’s commitment to reduce and divert waste materials from landfill and includes the following:

- .1 Preparation of a Draft Construction Waste Management Plan that will be used to track the success of the Construction Waste Management Plan against actual waste diversion from landfill.
- .2 Preparation of a Construction Waste Management Plan that provides guidance on a logical progression of tasks and procedures to be followed in a pollution prevention program to reduce or eliminate the generation of waste, the loss of natural resources, and process emissions through source reduction, reuse, recycling, and reclamation.
- .3 Preparation of monthly progress reports indicating cumulative totals representing progress towards achieving diversion and reduction goals of waste materials away from landfill and identifying any special programs, landfill options or alternatives to landfill used during construction.
- .4 Preparation of a Construction Waste Management Report containing detailed information indicating total waste produced by the project, types of waste material and quantity of each material, and total waste diverted and diversion rates indicated as a percentage of the total waste produced.

.2 Owner has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors be employed by the Contractor .

.3 Waste management goal: to divert 90% of total non-hazardous project waste from landfill sites.

1.02 REFERENCE STANDARDS

.1 American Society for Testing and Materials (ASTM):

- .1 ASTM E1609 01, Standard Guide for Development and Implementation of a Pollution Prevention Program

.2 Recycling Certification Institute (RCI):

- .1 RCI Certification Construction and Demolition Materials Recycling.

1.03 DEFINITIONS

.1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.

.2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, repair and demolition

operations.

.3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.

.4 Non hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.

.5 Non toxic: Not poisonous to humans either immediately or after a long period of exposure.

.6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

.7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

.8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.

.9 Return: To give back reusable items or unused products to vendors for credit.

.10 Reuse: To reuse a construction waste material in some manner on the project site.

.11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

.12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.

.13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

.14 Toxic: Poisonous to humans either immediately or after a long period of exposure.

.15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

.16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:

.1 Solvents in paints and other coatings;

.2 Wood preservatives; strippers and household cleaners;

.3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.

.4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

.17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material

.18 Construction Waste Management Plan: A project related plan for the collection, transportation, and disposal of the waste generated at the construction site; the purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.04 ADMINISTRATIVE REQUIREMENTS

.1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project, and ensure that requirements of the Construction Waste Management Plan are followed.

.2 Preconstruction Meeting: Arrange a pre-construction meeting before starting any Work of the Contract attended by the Contractor , affected Subcontractor ’s and Departmental Representative to discuss the Contractor’s Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.05 SUBMITTALS

.1 Provide required information in accordance with Section 01 33 00 – Submittal Procedures..

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Draft Construction Waste Management Plan (Draft CWM Plan): Submit to Departmental Representative a preliminary analysis of anticipated site generated waste by listing a minimum of five (5) construction or demolition waste streams that have potential to generate the most volume of material indicating methods that will be used to divert construction waste from landfill and source reduction strategies; Departmental Representative will provide commentary before development of Contractor ’s Construction Waste Management Plan.

.2 Construction Waste Management Plan (CWM Plan) : Submit a CWM Plan for this project prior to any waste removal from site and that includes the following information:

.1 Material Streams: Analysis of the proposed jobsite waste being generated, including material types and quantities forming a part of identified material streams in the Draft CWM Plan ; materials removed from site destined for alternative daily cover at landfill sites and land clearing debris cannot be considered as contributing to waste diversion and will be included as a component of the total waste generated for the site.

.2 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.

.3 Alternative Waste Disposal: Prepare a listing of each material proposed to be salvaged, reused, recycled or composted during the course of the project, and the proposed local market for each material.

.4 Landfill Materials: Identify materials that cannot be recycled, reused or composted and provide explanation or justification; energy will be considered as a viable alternative diversion strategy for these materials where facilities exist.

.5 Landfill Options: The name of the landfill where trash will be disposed of; landfill materials will form a part of the total waste generated by the project.

.6 Materials Handling Procedures: A description of the means by which any recycled waste materials will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

.7 Transportation: A description of the means of transportation of the recyclable materials, whether materials will be site separated and self hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site, and destination of materials.

1.06 PROJECT CLOSEOUT SUBMISSIONS

.1 Record Documentation: Submit as constructed information in accordance with Section 01 78 00– Closeout Submittals as follows:

.1 Construction Waste Management Report (CWM Report): Submit a CWM Report for this project in a format acceptable to submittal requirements and that includes the following information:

.1 Accounting: Submit information indicating total waste produced by the project.

.2 Composition: Submit information indicating types of waste material and quantity of each material.

.3 Diversion Rate: Submit information indicating total waste diverted from landfill as a percentage of the total waste produced by the project.

.4 Transportation Documentation: Submit copies of transportation documents or shipping manifests indicating weights of materials, and other evidence of disposal indicating final location of waste diverted from landfill and waste sent to landfill.

.5 Alternative Daily Cover (ADC): Submit quantities of material that were used as ADC at landfill sites, and that form a part of the total waste generated by the project.

.6 Multiple Waste Hauling: Compile all information into a single CWM Report where multiple waste hauling and diversion strategies were used for the project.

.7 Photographs: Submit photographs of waste diversion facilities documenting location and signage describing usage of waste separation containers.

1.07 QUALITY ASSURANCE

.1 Resources for Development of Construction Waste Management Report (CWM Report): The following sources may be useful in developing the Draft Construction Waste Management Plan:

.1 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.

.2 Waste-to-Energy Systems: Investigate local waste-to-energy incentives where systems for diverting materials from landfill for reuse or recycling are not available.

.2 Certifications: Provide proof of the following during the course of the Work:

.1 Compliance Certification: Provide proof that recycling center is third party verified and is listed as a Certified Facility through the registration and certification requirements of the Recycling Certification Institute.

1.08 DELIVERY, STORAGE AND HANDLING

.1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.

.2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:
.1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
.2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.

.3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 (CWM PLAN) IMPLEMENTATION

.1 Manager: Contractor is responsible for designating an on site party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.

.2 Distribution: Distribute copies of the CWM Plan to the job site foreman, each Subcontractor, the Departmental Representative and other site personnel as required to maintain CWM Plan .

.3 Instruction: Provide on site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the project to Subcontractors at appropriate stages of the project.

.4 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting and return:

.1 Recycling and waste bin areas are to be kept neat and clean and clearly marked

in order to avoid contamination of materials.

.2 Hazardous wastes shall be separated, stored, and disposed of in accordance with local regulations.

.5 Progressive Documentation: Submit a monthly summary of waste generated by the project to ensure that waste diversion goals are on track with project requirements:

.1 Submission of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Contractor and Departmental Representative.

.2 Monthly waste summary shall contain the following information:

.1 The amount in tonnes or $m^3$and location of material landfilled,

.2 The amount in tonnes or $m^3$and location of materials diverted from landfill, and

.3 Indication of progress based on total waste generated by the project with materials diverted from landfill as a percentage.

3.02 SUBCONTRACTOR'S RESPONSIBILITY

.1 Subcontractors shall cooperate fully with the Contractor to implement the CWM Plan.

.2 Failure to cooperate may result in the Departmental Representative not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractors.

3.03 SAMPLE CONSTRUCTION WASTE MANAGEMENT FORMS

.1 Waste Planning Tracking and Reporting Template below to be used by the Contractor for recording management of construction waste.

.2 Waste Planning Tracking and Reporting Template:

CONSTRUCTION, RENOVATION AND DEMOLITION WASTE DIVERSION - TRACKING AND REPORTING TEMPLATE

Project Manager to forward questions, comments and completed form to Waste Aspect Lead (insert Lead's email address).

Project Manager may request monthly updates from the contractor to ensure proper waste management.

Provide copies of transportation documents or shipping manifests to corroborate the details provided in the report.

Project Name (as in AIPS):

Name of who completed the form (Contractor or AAFC Project Manager):

EMAIL:

Load #	Date (dd/mm/yy)	Material(s) Type	Quantity Landfilled[1]	kg or m^3	Quantity Diverted[2]	kg or m^3	Destination Facility	Specify for reuse, recycling, energy, other.	Notes.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

EXPLANATORY NOTES:

1 - Quantity LANDFILLED: enter actual quantity of each CR&D material that was landfilled during the project period. (No final use - i.e. landfill or landfill cover). When possible, provide information in kg.

2 - Quantity DIVERTED: enter actual quantity of each CR&D material that was diverted/recycled/reused/composts/for fuel during the project period. When possible, provide information in kg.

Name of AAFC Project Manager (PRINT):	
Signature of AAFC Project Manager:	
Date (mm/dd/yy)	

END OF SECTION

1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:
- .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
  - .2 Request Departmental Representative inspection.
- .2 Departmental Representative Inspection:
  - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
  - .2 Contractor to correct Work as directed.
- .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
  - .1 Work: completed and inspected for compliance with Contract Documents.
  - .2 Defects: corrected and deficiencies completed.
  - .3 Equipment and systems: tested, adjusted and balanced and fully operational.
  - .4 Certificates required by Fire Commissioner, Utility companies: submitted.
  - .5 Operation of systems: demonstrated to Departmental Representative's personnel.
  - .6 Commissioning of mechanical systems: completed and copies of final Commissioning Report submitted to Departmental Representative.
  - .7 Work: complete and ready for final inspection.
- .4 Final Inspection:
  - .1 When completion tasks are done, request final inspection of Work by Departmental Representative.
  - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

1.02 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.
- .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

END OF SECTION

1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:
- .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative to:
  - .1 Verify Project requirements.
  - .2 Review manufacturer's installation instructions and warranty requirements.
- .2 Departmental Representative to establish communication procedures for:
  - .1 Notifying construction warranty defects.
  - .2 Determine priorities for type of defects.
  - .3 Determine reasonable response time.
- .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.03 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings.
- .1 Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.
.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in .dwg format on CD.

1.04 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;
.1 Date of submission; names.
.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:
.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.
.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.05 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, at site for Departmental Representative one record copy of:
.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Change Orders and other modifications to Contract.
.5 Reviewed shop drawings, product data, and samples.
.6 Field test records.
.7 Inspection certificates.
.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.
.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.
.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.06 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.
- .1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
- .1 Measured depths of elements of foundation in relation to finish first floor datum.
- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.07 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.
- .1 Give function, normal operation characteristics and limiting conditions.
- .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
- .1 Include regulation, control, stopping, shut-down, and emergency instructions.
- .2 Include summer, winter, and any special operating instructions.

.3 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.4 Include manufacturer's printed operation and maintenance instructions.

.5 Include sequence of operation by controls manufacturer.

.6 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.7 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

.8 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.9 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.10 Include test and balancing reports.

.11 Additional requirements: as specified in individual specification sections.

1.08 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .1 Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.09 MAINTENANCE MATERIALS

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

.2 Extra Stock Materials:
- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.11 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Conduct joint 4 month and 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.

.9 Include information contained in warranty management plan as follows:
- .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
- .2 Listing and status of delivery of Certificates of Warranty for extended warranty

items, to include lightning protection systems.

.3 Provide list for each warranted equipment, item, feature of construction or system indicating:
- .1 Name of item.
- .2 Model and serial numbers.
- .3 Location where installed.
- .4 Name and phone numbers of manufacturers or suppliers.
- .5 Names, addresses and telephone numbers of sources of spare parts.
- .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
- .7 Cross-reference to warranty certificates as applicable.
- .8 Starting point and duration of warranty period.
- .9 Summary of maintenance procedures required to continue warranty in force.
- .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
- .11 Organization, names and phone numbers of persons to call for warranty service.
- .12 Typical response time and repair time expected for various warranted equipment.

.4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.

.5 Procedure and status of tagging of equipment covered by extended warranties.

.6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.10 Respond in timely manner to oral or written notification of required construction warranty repair work.

.11 Written verification to follow oral instructions.
- .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.12 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:
- .1 Type of product/material.
- .2 Model number.
- .3 Serial number.
- .4 Contract number.
- .5 Warranty period.
- .6 Inspector's signature.
- .7 Construction Contractor.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 U.S. Environmental Protection Agency (EPA)/Office of Water
  .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures and 01 74 19 - Waste Management Disposal.

.2 Sustainable Design Submittals:
  .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

1.03 SITE CONDITIONS

.1 Review Designated Substance Reports and take precautions to protect environment.

.2 If material resembling spray or trowel-applied asbestos or other designated substance be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  .1 Proceed only after receipt of written instructions have been received from Departmental Representative.

.3 Notify Departmental Representative before disrupting building access or services. A minimum of 72 hours of notice required.

2 PRODUCTS

2.01 NOT USED

3 EXECUTION

3.01 EXAMINATION

.1 Inspect with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record

drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.02 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.

.2 Protection of In-Place Conditions:

.1 Prevent movement, settlement, or damage to adjacent structures, utilities, landscaping features and parts of building to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.3 Demolition/Removal:

.1 Remove items as indicated.

.2 Removal of Pavements, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

.3 Remove parts of existing building to permit new construction.

.4 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

3.03 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.01 SUMMARY

.1 Comply with requirements of this Section when performing following Work:
- .1 Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap on walls.
- .2 Removal of lead-containing coatings or materials using a power tool with an effective dust collection system equipped with a HEPA filter on walls.
- .3 Removal of lead-containing coatings or materials with non-powered hand tool, other than manual scraping and sanding on walls.

1.02 REFERENCES

.1 Department of Justice Canada
- .1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Health Canada
- .1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.3 Human Resources and Social Development Canada (HRSDC)
- .1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.4 Transport Canada (TC)
- .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 U.S. Environmental Protection Agency (EPA)
- .1 EPA 747-R-95-007, Sampling House Dust for Lead.

.6 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
- .1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

.7 U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances
- .1 Lead in Construction Regulation - 29 CFR 1926.62.

.8 Underwriters' Laboratories of Canada (ULC)

1.03 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Authorized Visitors: Departmental Representative or designated representatives.

.3 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects over cuts and tears, and elsewhere as required to

provide protection and isolation. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.

.4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.5 Action level: employee exposure, without regard to use of respirators, to airborne concentration of lead of 50 micrograms per cubic meter of air (50 ug/m^3) calculated as 8-hour time-weighted average (TWA). Minimum precautions for lead abatement are based on airborne lead concentrations less than 0.05 milligrams per cubic meter of air for removal of lead based paint by methods noted in paragraph 1.1.

.6 Competent person: Departmental Representative capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.

.7 Lead dust: wipe sampling on vertical surfaces and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead based paint waste in accordance with requirements of authority having jurisdiction.

.3 Provide proof of Contractor's General Insurance.

.4 Quality Control:
- .1 Provide Departmental Representative necessary permits for transportation and disposal of lead based paint waste and proof that lead based paint waste has been received and properly disposed.
- .2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

1.05 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead paint, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:
- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Safety Requirements: worker and visitor protection.
  - .1 Protective equipment and clothing to be worn by workers and visitors in work Area include:
    - .1 Respirator NIOSH approved and equipped with replaceable HEPA filter cartridges with an assigned protection factor of 10, acceptable to Authority having jurisdiction. Suitable for type of

lead and level of lead dust exposure. Provide sufficient amount of filters.

.2 Half mask respirator: half-mask particulate respirator with N-series filter, and 100% efficiency could be provided.

.2 Eating, drinking, chewing, and smoking are not permitted in work area.

.3 Ensure workers wash hands and face when leaving work area.

.4 Visitor Protection:

.1 Provide approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

1.06 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed double thickness 6 ml bags or leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.07 EXISTING CONDITIONS

.1 Reports and information pertaining to lead based paint to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification.

.2 Notify Departmental Representative of lead based paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.08 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify following in writing:

.1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.

.2 Provincial Ministry of Labour.

.3 Disposal Authority.

.2 Inform sub trades of presence of lead-containing materials identified in Existing Conditions.

.3 Provide Departmental Representative copy of notifications prior to start of Work.

.4 Hours of Work: perform work within of normal working hours.

1.09 PERSONNEL TRAINING

.1 Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures, and in use, cleaning, and disposal of respirators.

.2 Instruction and training related to respirators includes, at minimum:
- .1 Proper fitting of equipment.
- .2 Inspection and maintenance of equipment.
- .3 Disinfecting of equipment.
- .4 Limitations of equipment.

.3 Instruction and training must be provided by competent, qualified person.

.4 Supervisory personnel to complete required training.

2 PRODUCTS

2.01 MATERIALS

.1 Polyethylene 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.3 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead paint residue.

.4 Lead waste containers: metal type acceptable to dump operator with tightly fitting covers and 0.15 mm thickness sealable polyethylene liners.
- .1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

3 EXECUTION

3.01 SUPERVISION

.1 One Supervisor for every ten workers is required.

.2 Supervisor must remain within work area during disturbance, removal, or handling of lead based paints.

3.02 PREPARATION

.1 Remove and store items to be salvaged or reused.
- .1 Protect and wrap items and transport and store in area specified by Departmental Representative.

.2 Work Area:
- .1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.

.2 Pre-clean fixed casework and equipment within work area, using HEPA vacuum and cover and seal with polyethylene sheeting and tape.
.3 Clean work area using HEPA vacuum. If not practicable, use wet cleaning method. Do not raise dust.
.4 Seal off openings with polyethylene sheeting and seal with tape.
.5 Protect floor surfaces covered from wall to wall with polyethylene sheets.
.6 Maintain emergency fire exits or establish alternatives satisfactory to Authority having jurisdiction.
.7 Where water application is required for wetting lead containing materials, provide temporary water supply appropriately sized for application of water as required.
.8 Provide electrical power and shut off [for operation of powered tools and equipment] . Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical cables and equipment.

.3 Do not start work until:
.1 Arrangements have been made for disposal of waste.
.2 Tools, equipment, and materials waste containers are on site.
.3 Arrangements have been made for building security.
.4 Notifications have been completed and preparatory steps have been taken.

3.03 LEAD ABATEMENT

.1 Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap; or removal equipped with HEPA filters; or removal with using power tools non-powered hand tool, other than manual scraping and sanding.

.2 Remove lead based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.

.5 After wire brushing and wet sponging to remove visible lead based paint, and after encapsulating lead containing material impossible to remove, wet clean entire work area, and equipment used in process. After inspection by Departmental Representative apply continuous coat of slow drying sealer to surfaces of work area. Do not disturb work area for 8 hours no entry, activity, ventilation, or disturbance during this period.

3.04 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to Owner.

.2 Departmental Representative will inspect work for:

.1 Adherence to specific procedures and materials.
.2 Final cleanliness and completion.
.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.05 LEAD SURFACE SAMPLING - WORK AREAS

.1 Final lead surface sampling to be conducted as follows:
  .1 After work area has passed a visual inspection for cleanliness approved and accepted by Departmental Representative. Apply coat of lock-down agent to surfaces within enclosure, and appropriate setting period of 8 hours has passed, Departmental Representative will perform lead wipe sampling.
    .1 Final lead wipe sampling results from horizontal and vertical surfaces must show lead levels of less than 40 micrograms of lead in dust per square foot. Samples collected and analyzed in accordance with EPA 747-R-95-007.
    .2 If wipe sampling results show levels of lead in excess of 40 micrograms per square foot, re-clean work area at contractor's expense and apply another acceptable coat of lock-down agent to surfaces.
    .3 Repeat as necessary until fibre levels are less than 40 micrograms per square foot.

3.06 FINAL CLEANUP

.1 Following cleaning and when lead wipe surfaces sampling are below acceptable concentrations, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.

.3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

3.07 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 Repair or replace objects damaged in course of work to their original state or better, as directed by Departmental Representative.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
  .1 ASTM C 928/C 928M - Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs.

1.02 SUBMITTALS

.1 Submit under provisions of Section 01 30 00 - Administrative Requirements.

.2 Product Data: Manufacturer's data sheets on each product to be used, including:
  .1 Preparation instructions and recommendations.
  .2 Storage and handling requirements and recommendations.
  .3 Installation methods.

.3 Verification Samples: For each finish product specified, two samples, minimum size 150 mm square representing actual product, color, and patterns.

1.03 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.

.2 Installer Qualifications: Minimum 2 year experience installing similar products.

.3 Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

1.04 DELIVERY, STORAGE AND HANDLING

.1 Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

.2 Handling: Handle materials to avoid damage.

1.05 PROJECT CONDITIONS

1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.06 SEQUENCING

1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.07 MEASUREMENT FOR PAYMENT

.1 The work for this section will be paid based on the actual quantities measured on site and the unit prices stated in the Bid and Acceptance Form.

2 PRODUCTS

2.01 RAPID-SETTING VERTICAL AND OVERHEAD CONCRETE REPAIR PRODUCTS

.1 Fiber-Reinforced, Shrinkage-Compensated, Rapid-Strengthening, Cementitious Vertical and Overhead Repair Mortar: Packaged, dry mix for repair of concrete. Basis of Design: Planitop X of MAPEI.

.2 Product shall comply with ASTM C 928/C 928MR2.

.3 Compressive Strength: Not less than 7 MPa within three hours when tested according to ASTM C 109/C 109M.

2.02 MISCELLANEOUS MATERIALS

.1 Portland Cement: ASTM C 150/C 150M, Type I, II, or III unless otherwise indicated.

.2 Water: Potable.

2.03 MIXES

.1 General: Mix products, in clean containers, according to manufacturer's written instructions.
- .1 Do not add water, thinners, or additives unless recommended by manufacturer.
- .2 When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
- .3 Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.

.2 Concrete: Comply with Section 03 30 00.01 - Cast-in-Place Concrete Short Form.

3 EXECUTION

3.01 PREPARATION

.1 Do not begin installation until substrates have been properly prepared.

.2 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

.1 Clean surfaces thoroughly prior to installation.

.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

.1 Install in accordance with manufacturer's instructions and in proper relationship with

adjacent construction.

3.04 PROTECTION

.1 Protect installed products until completion of project.

.2 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
- .1 ASTM A641 / A641M, Standard Specification for Zinc–Coated (Galvanized) Carbon Steel Wire
- .2 ASTM A 775/A 775M, Standard Specification for Epoxy-Coated Reinforcing Steel Bars
- .3 ASTM A 884/A 884M Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
- .4 ASTM A1064 / A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- .5 ASTM C 920 Standard Specification for Elastomeric Joint Sealants
- .6 ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).

.2 CSA International
- .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .3 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings:
- .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
- .2 Submit drawings showing formwork and falsework design to: CSA A23.1/A23.2.
- .3 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 At least 4 weeks prior to beginning Work, submit to Departmental Representative samples of following materials proposed for use: curing compound, joint filler, waterstops.

.4 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching.

1.03 QUALITY ASSURANCE

.1 Provide to Departmental Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
- .1 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements.

1.04 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements:
  .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
    .1 Do not modify maximum time limit without receipt of prior written agreement from Departmental Representative and concrete producer as described in CSA A23.1/A23.2.
    .2 Deviations to be submitted for review by the Departmental Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

.3 Packaging Waste Management: remove for reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

2 PRODUCTS

2.01 DESIGN CRITERIA

.1 Alternative 1 - Performance: to CSA A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

2.02 PERFORMANCE CRITERIA

.1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Departmental Representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

2.03 MATERIALS

.1 Cement: to CSA A3001, Type GU.

.2 Water: to CSA A23.1/A23.2.

.3 Premoulded joint filler:
  .1 Bituminous impregnated fibreboard: to ASTM D 1751.

.4 Joint sealer/filler: grey to ASTM C 920, type M, category NS.

.5 Sealer: polysiloxane resin blend

.6 Other concrete materials: to CSA A23.1/A23.2.

2.04 MIXES

.1 Alternative 1 - Performance Method for specifying concrete: to meet Departmental Representative performance criteria to CSA A23.1/A23.2.
  .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.

.2 Provide concrete mix to meet following plastic state requirements:
  .1 Water / cementing ratio: Maximum 0.45 w/cm.
  .2 Air content: 5-8% to CSA A23.1 Table 4.
  .3 Workability: free of surface blemishes, loss of mortar, colour variations, segregation.

.3 Provide concrete mix to meet following hard state requirements:
  .1 Durability and class of exposure: C-2.
  .2 Compressive strength at 28 days: 32 MPa minimum.
  .3 Intended application: Sidewalks, curbs and gutters.
  .4 Aggregate size: 20 mm maximum.

.4 Concrete supplier's certification.

.5 Provide quality management plan to ensure verification of concrete quality to specified performance.

3 EXECUTION

3.01 PREPARATION

.1 Provide Departmental Representative 24 hours notice before each concrete pour.

.2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.

.3 During concreting operations:
  .1 Development of cold joints not allowed.
  .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.

.4 Protect previous Work from staining.

.5 Clean and remove stains prior to application of concrete finishes.

3.02 INSTALLATION/ APPLICATION

.1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.

.2 Sleeves and inserts:
  .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in.
  .2 Sleeves and openings greater than 100 mm x 100 mm not indicated, must be reviewed by Departmental Representative.

3.03 FINISHES

.1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.

.2 Pavements, walks, curbs and exposed site concrete:
  .1 Screed to plane surfaces and use floats.
  .2 Provide round edges and joint spacings using standard tools.
  .3 Trowel smooth to provide lightly brushed non-slip finish.

3.04 CONTROL JOINTS

.1 Cut control joints in slabs on grade at locations indicated, to CSA A23.1/A23.2 and install specified joint sealer/filler.

3.05 EXPANSION AND ISOLATION JOINTS

.1 Install premoulded joint filler in expansion and isolation joints full depth of slab flush with finished surface to CSA A23.1/A23.2.

3.06 CURING

.1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

3.07 SEALING APPLICATION

.1 After curing is complete, apply one coat of polysiloxane at 4 m^2 /L.

.1 Concrete floor slab finishing tolerance to CSA A23.1/A23.2.

3.08 FIELD QUALITY CONTROL

.1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory designated and paid for by Departmental Representative. Accelerated test methods will apply.

3.09 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Use trigger operated spray nozzles for water hoses.

.3 Designate cleaning area for tools to limit water use and runoff.

.4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

- .1 Prepare Construction Waste Management plan in accordance with Section 01 74 19 - Waste Management and Disposal.
- .2 Use excess concrete for: additional paving.
- .3 Divert unused concrete materials from landfill to local facility after receipt of written approval from Departmental Representative.
- .4 Provide appropriate area on job site where concrete trucks and be safely washed.
- .5 Divert admixtures and additive materials from landfill to approved locale recycling facility after receipt of written approval from Departmental Representative.
- .6 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
- .1 ASTM C 208, Standard Specification for Cellulosic Fiber Insulating Board.
- .2 ASTM C 591, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
- .3 ASTM C 612, Standard Specification for Mineral Fibre Block and Board Thermal Insulation.
- .4 ASTM C 726, Standard Specification for Mineral Fiber Roof Insulation Board.
- .5 ASTM C 728, Standard Specification for Perlite Thermal Insulation Board.
- .6 ASTM C 1126, Standard Specification for Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation.
- .7 ASTM C 1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .8 ASTM E 96/E 96M, Standard Test Methods for Water Vapour Transmission of Materials.
- .9 ASTM C165, Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
- .10 ASTM C3030, Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
- .11 ASTM C518, Standard Test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
- .12 ASTM C612, Standard Specification for Mineral Fibre Block and Board Thermal Insulation
- .13 ASTM C665, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .14 ASTM C795, Standard Specification for Thermal Insulation in Use in Contact with Austenitic Stainless Steel.
- .15 ASTM C1104/C1104M, Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
- .16 ASTM C1338, Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- .17 ASTM E96/E96M, Standard Test Methods for Water Vapor Transmission of Materials

.2 Canadian General Standards Board (CGSB)
- .1 CGSB 71-GP-24M-AMENDED, Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.

.3 CSA Group
- .1 CSA B149 PACKAGE, Consists of B149.1, Natural Gas and Propane Installation Code and B149.2, Propane Storage and Handling Code.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.5 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S604, Standard for Factory-Built Type A Chimneys.

.2 CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
.3 CAN/ULC-S702, Standard for Mineral Fibre Insulation for Buildings.
.4 CAN/ULC-S704, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.
.5 CAN/ULC S102, Standard Method Test for Surface Burning Characteristics of Building Materials and Assemblies.
.6 CAN/ULC S114, Standard Method of Test for Determination of Non-Combustibility in Building Materials.

1.02 ADMINISTRATIVE REQUIREMENTS

.1 Co-ordination: Co-ordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.2 Pre-Installation Meeting: Convene pre-installation meeting after Award of Contract and before starting work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and review manufacturer's written installation instructions.

.1 Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as a minimum:

1. Departmental Representative
2. Consultant
3. Board Insulation Installation Subcontractor
4. Manufacturer's Technical Representative.

.2 Ensure meeting agenda includes review of methods and procedures related to insulation installation including co-ordination with related work.

.3 Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for board insulation and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
.1 Submit 300 x 300 mm x 50 mm sample of board insulation.

.4 Certificates:
.1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.5 Test Reports:
.1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.

.6 Field Reports: Submit Manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

.7 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

.8 Sustainable Design Submittals:

.1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.04 QUALITY ASSURANCE

.1 Provide mock-up for review by Departmental Representative per Section 01 45 00 Quality Control. Mock-up to represent typical outside corner conditions at foundation and soffit locations.

1.05 CLOSEOUT SUBMITTALS

.1 Record Documentation: In accordance with Section 01 78 00 – Closeout Submittals.

.1 List materials used in insulation work.

.2 Warranty: Submit warranty documents specified.

1.06 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect from nicks, scratches, and blemishes.
.3 Replace defective, wet or damaged materials with new.

1.07 WARRANTY

.1 Project Warranty: Refer to Contract Conditions for project warranty provisions.

.2 Manufacturer's warranty: Submit for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is not intended to limit other rights Owner may have under Contract Conditions.

.3 Warranty period: 1 year commencing on Date of Substantial Performance of Work.

2 PRODUCTS

2.01 INSULATION

.1 TYPE 1:

Non-Combustible, lightweight, water repellent, rigid insulation board with rigid upper surface to ASTM C612 Type IVB. Board insulation for exterior cavity wall: to ASTM C612 Type IVB.

.1 Fire performance:

.1 Non-combustibility: to CAN/ULC S114.

.2 Surface Burning Characteristics: to CAN/ULC S102.

.1 Flame Spread: 0

.2 Smoke Developed: 0

.2 Thermal resistance:

.1 RSI value/ 25.4mm at 24° C : 0.76 m^2K/W to ASTM C518.

.3 Water vapour permeance: 1555 ng/Pa.s.m^2.

.4 Moisture sorption: 1% maximum to ASTM C1104/C1104M.

.5 Fungi resistance: Zero mould growth to ASTM C1338.

.6 Corrosive resistance:

.1 Steel to ASTM C665: Pass.

.2 Stainless steel to ASTM C795: Pass.

.7 Acoustical performance sound absorption co-efficients to ASTM C423.

.8 Size: 610 x 1219mm

.9 Thickness: Type 1a: 50mm, Type 1b: 102mm

.10 Thickness below 50mm Density:

.1 70 kg/m^3 to ASTM C303.

.11 Thickness to 65mm and above Density:

.2 Outer layer: 100kg/m^3 to ASTM C303.

.3 Inner layer: 60 kg/m^3 to ASTM C303.

.12 Basis of Design/Acceptable Material: Roxul CavityRock.

.2 Extruded polystyrene (XPS): to CAN/ULC-S701.
- .1 Type: 4.
- .2 Thickness: 50 mm.
- .4 Size: as indicated.
- .5 Edges: square.

2.02 ADHESIVE

.1 Adhesive (for polystyrene): to CGSB 71-GP-24M.

2.03 ACCESSORIES

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Mechanical fasteners in accordance with insulation manufacturer's written recommendations.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for board insulation application in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

.2 Start of insulation installation indicates installer's acceptance of substrate installation conditions.

3.02 INSTALLATION

.1 Install insulation after building substrate materials are dry.

.2 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.

.4 Keep insulation minimum 76 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 type A chimneys and CSA B149.1 and CSA B149.2 type B and L vents.

.5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.

.6 Offset both vertical and horizontal joints in multiple layer applications.

.7 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

3.03 RIGID INSULATION INSTALLATION

.1 Apply adhesive to polystyrene insulation board in accordance with manufacturer's recommendations.

3.04 PERIMETER FOUNDATION INSULATION

.1 Refer to Section 07 50 10 Concrete Faced Insulation Wall Panels.

3.05 CAVITY WALL INSTALLATION

.1 Install insulation board in accordance with insulation manufacturer's written recommendations.

.2 Seal joints with acoustical joint sealant in accordance with Section 07 92 00 – Joint Sealants.

.3 Install insulation boards on outer surface of inner wythe of wall cavity.

3.06 FIELD QUALITY CONTROL

.1 Field Inspection: Coordinate field inspections.

.2 Manufacturer's Services:
- .1 Co-ordinate manufacturer's services.
  - .1 Arrange for payment for manufacturer's services.
  - .2 Have manufacturer review work involved in handling, installation, protection, and cleaning of insulation accessories, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
- .2 Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
  - .1 Report any inconsistencies from manufacturer's recommendations immediately to Departmental Representative.

.3 Schedule site visits to review work at stages listed:
- .1 After delivery and storage of drainage sheet and accessories, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
- .2 Twice during progress of work at 25% and 60% complete.
- .3 Upon completion of Work, after cleaning is carried out.

.4 Obtain reports within three days of review and submit immediately to Departmental Representative.

3.07 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 Canadian Urethane Foam Contractors Association Inc. (CUFCA)

.2 Underwriters Laboratories of Canada (ULC)
- .1 CAN/ULC-S101, Standard Methods of Fire Tests of Building Construction and Materials.
- .2 CAN/ULC-S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .3 CAN/ULC-S705.1, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification. Includes Amendment 1.2.
- .4 CAN/ULC-S705.2, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for polyurethane foam sprayed insulation and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Manufacturer's Instructions:
- .1 Submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

.4 Sustainable Design Submittals:
- .1 Construction Waste Management:
  - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.03 QUALITY ASSURANCE

.1 Applicators to conform to CUFCA Quality Assurance Program.

.2 Qualifications:
- .1 Installer: person specializing in sprayed insulation installations with documented experience.
- .2 Manufacturer: company with experience in producing of material used for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.

.3 Health and Safety Requirements: worker protection:

.1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
.2 Workers must wear protective clothing when applying foam insulation.
.3 Workers must not eat, drink or smoke while applying foam insulation.

1.04 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.
.4 Develop Construction Waste Management Plan related to Work of this Section.
.5 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.05 SITE CONDITIONS

.1 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hour after application to maintain non-toxic, unpolluted, safe working conditions.

.2 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.

.3 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

.4 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

2 PRODUCTS

2.01 MATERIALS

.1 Insulation: spray polyurethane to CAN/ULC-S705.1.

.2 Primers: in accordance with manufacturer's recommendations for surface conditions.
.1 Maximum VOC limit 100 g/L

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under

other Sections or Contracts are acceptable for sprayed insulation application accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 APPLICATION

.1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.

.2 Use primer where recommended by manufacturer.

3.03 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.1 Remove insulation material spilled during installation and leave work area ready for application of wall board.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 -Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM D 4541, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
- .2 ASTM E 330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls, by Uniform Static Air Pressure Difference.
- .3 ASTM E 783, Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
- .4 ASTM E 1186, Standard Practices for Air Leakage Site Detection in Building Envelope and Air Retarder Systems.

1.02 PERFORMANCE REQUIREMENTS

.1 Select and install wall and roof components and assemblies to resist air leakage caused by static air pressure across exterior wall , soffits and roof assemblies, including windows, glass, doors, roof hatches and other interruptions to integrity of wall and roof systems; to maximum air leakage rate of 0.02 L/s.m^2 (0.004 cfm/sq ft) when subjected to pressure differential of 75 Pa (1.57 lb/sq ft) as measured in accordance with ASTM E 783.

.2 Select and install wall and roof components and assemblies to resist air leakage caused by dynamic air pressure across exterior wall , soffits and roof assemblies, including windows, glass, doors, roof hatches and other interruptions to integrity of wall and roof systems; to maximum air leakage rate of 0.02 L/s.m^2 (0.004 cfm/sq ft) when subjected to hourly wind design loads in accordance with NBC, using 1 in 10 year probability, as measured in accordance with ASTM E 783.

.3 If ongoing testing is required throughout air/vapour barrier system installation, perform qualitative testing methods in accordance with ASTM E 1186.

.4 Provide continuity of air/vapour barrier materials and assemblies in conjunction with materials described in Section 07 21 13 - Board Insulation, 07 92 00 - Joint Sealants.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit WHMIS MSDS - Material Safety Data Sheets.

.3 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .1 Provide drawings of special joint conditions.

.4 Quality Assurance Submittals: submit following:

.1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

1.04 MOCK-UP

.1 Construct mock-up.

.2 Construct typical panel, incorporating openings with frame and sill installed, insulation, building corner condition, and junction with roof system; illustrating materials interface and seals.

.3 Locate where directed by Departmental Representative.

.4 Mock-up may remain as part of Work.

.5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with air/vapour barrier work.

1.05 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.3 Avoid spillage, immediately notify Departmental Representative if spillage occurs and start clean up procedures.

.4 Clean spills and leave area as it was prior to spill.

1.06 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.07 SEQUENCING

.1 Sequence work in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Charts.

.2 Sequence work to permit installation of materials in conjunction with related materials and seals.

2 PRODUCTS

2.01 MATERIALS

.1 Materials: as required to achieve specified performance criteria; functionally compatible with adjacent materials and components.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 GENERAL

.1 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

.2 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.3 Perform Work in accordance with Canadian Urethane Foam Contractor's Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

3.03 PREPARATION

.1 Prepare substrate surfaces in accordance with air/vapour barrier material manufacturer's instructions.

3.04 INSTALLATION

.1 Install air/vapour barrier materials in accordance with manufacturer's instructions.

.2 Install sealant materials in accordance with manufacturer's instructions.

.3 Apply sealants within recommended application temperature ranges.

3.05 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.06 PROTECTION OF FINISHED WORK

.1 Protect finished work in accordance with Section 01 61 00 - Common Product Requirements.

.2 Do not permit adjacent work to damage work of this section.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 American Society of Mechanical Engineers (ASME)
- .1 ASME B18.6.3, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).

.2 ASTM International
- .1 ASTM D 2369, Test Method for Volatile Content of Coatings.
- .2 ASTM D 2832, Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
- .3 ASTM D 5116, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .4 ASTM A653/A653M-09a- Standard Specification for Sheet Steel Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
- .5 ASTM A792/A792-09M-98a- Standard Specification for Sheet Steel, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process.

.3 CSA International
- .1 CSA B111, Wire Nails, Spikes and Staples.

.4 Underwriters Laboratories (UL)
- .1 UL 2761, Sealants and Caulking Compounds

.5 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S706, Standard for Wood Fibre Insulating Boards for Buildings.
- .2 CAN/ULS-S741-08, Standard for Air Barrier Materials- Specification.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for metal siding and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
  - .1 Indicate VOC's for caulking materials during application and curing.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .2 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, metal furring, and related work.

.4 Samples:
- .1 Submit two (2) samples of siding material 152 x 152 mm, of colour and profile specified.

.2 Colour Match.
.1 Orders for large projects which could involve more than one production order should be discussed with the supplier on the basis of one lot.
.2 Attempt to ensure that each building is clad with materials from the same production lot.

.5 Sustainable Design Submittals:
.1 Construction Waste Management:
.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.03 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.3 Provide mock-up for review by Departmental Representative per Section 01 45 00 Quality Control. Mock-up to represent typical outside corner conditions at foundation and soffit locations.

1.04 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect metal siding from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

1.05 WARRANTY

.1 Manufacturer's Warranty: Submit to the Departmental Representative, for approval, the manufacturer's standard warranty document, signed by an authorized representative of the company. The manufacturer's warranty is in addition to the warranty provided for in the contract and does not in any way limit the rights of the Owner provided for in the terms of the contract.

2 PRODUCTS

2.01 ALUMINUM CLADDING COMPONENTS

.1 Exterior cladding: Factory pre-formed painted steel, 0.66mm minimum thickness.

.1 Basis of Design: Ideal Roofing, Commercial Rib, Medium Green 9329.

.2 Colour: from manufacturer's standard colour options.

.1 Exterior cladding: Ideal Roofing Medium Green 9329 or equal.

.2 Trim: Ideal Roofing Forest Green 8307 or equal.

.3 Trim (outside corners): Ideal Roofing Charcoal Fusain 8306 or equal.

.3 Acceptable profile: Commercial Rib

4. Trims and accessories to be the same material as the steel cladding.

2.02 FASTENERS

.1 Nails: CSA B111. Screws: ASME B18.6.3. Purpose made.

2.03 CAULKING

.1 Sealants: in accordance with Section 07 92 00- Joint Sealants.
.1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.

2.04 ACCESSORIES

.1 Exposed trim: inside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour and gloss as cladding, with fastener holes pre-punched.

.2 Exposed trim: outside corners of same material and gloss as cladding, with fastener holes pre-punched. Colour from manufacturer's standard colour range.
.1 Basis of Design: Ideal Roofing Charcoal Fusain 8306 or equal

.3 Sub-framing Thermal Spacer: 100 % Pultruded glass fibre and thermoset polyester resin insulation clip.

.1 Thermal Spacer thickness for top, base and web: 4.8 mm nominal.

.2 Thermal spacer depth: 51mm and 102 mm nominal as indicated.
1. Depth tolerance: ± 0.127 mm.
.3 Basis of Design: Cascadia Windows Inc., Cascadia Clip.

.4 Spacer Fasteners: High hex head washer head with sharp twin lead threaded design of heat treated corrosion resistant coated steel.

1. Fastener for wood framing: 1/4 - 10 x 127mm and 152 mm long with hex head.
1. Acceptable material: Leland Industries Inc., Master Gripper™ with DT2000 coating.

2. Fastener for cast-in-place concrete and concrete masonry units: 1/4 - 15 x 96 and 143mm long concrete screw with hex head.
   1. Acceptable material: Leland Industries Inc., Concrete Screw with DT2000 coating.
   2. Embedment depth: 38 mm, except when into hollow concrete masonry unit, not less than 25 mm.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable in accordance with manufacturer's written instructions.
   .1 Visually inspect substrate in presence of Departmental Representative.
   .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
   .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.03 INSTALLATION

.1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions.

.2 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.

.3 Install outside corners, fillers and closure strips with carefully formed and profiled work.

.4 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.

.5 Attach components in manner not restricting thermal movement.

.6 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

.7 Accessories (Sub-Framing Thermal Spacers):

   .1 Pre-drill concrete or concrete masonry unit substrate to 13 mm deeper than anticipated embedment depth of fastener into substrate.
      1. Use drill diameter approximately 1.6 mm less than screw diameter in accordance with fastener manufacturer’s written recommendations.

   .2 Sub-framing: Ensure thermal spacer type is selected to accommodate orientation of vertical and horizontal sub-framing.
   .3 Sub-framing Thermal Spacer Installation: Install thermal spacers in accordance with spacer manufacturer’s written recommendations.

1. Thermal Spacer Installation: Clip thermal spacer to Z-girt and fasten girt directly to substrate at 660 mm maximum on centre vertically and 400 mm maximum on center horizontally.
2. Installation sequence for spacers, sub-framing, and insulation:
    1. Pre-punch or pre-drill holes in Z-girts and tracks to accommodate fasteners.
    2. Position Z-girts directly over thermal spacer before installation of fasteners.
    3. Completely install spacers, screws and sub-framing, prior to installing insulation.
    4. Friction fit insulation in place as follows:
        1. For semi-rigid insulation batts or boards, score or cut insulation down its centreline to 50 % maximum of its depth to enable fitting insulation in correct position.
        2. Fold edges of insulation board back to enable friction fitting in correct position. Position edges of partially folded board into space between girts and thermal spacers, and flatten partially folded board against substrate.
        3. Ensure insulation is tightly fitted with sides of insulation slightly compressed at each insulation spacer.
    5. Install corrosion resistant stick pins or other mechanical insulation retention devices 400 mm maximum on centre along centreline of insulation batts or boards and in accordance with insulation manufacturer's written recommendations.
        1. Use sufficient number of stick pins or retention devices to ensure insulation remains flat and in correct position.
        2. Use 3 minimum stick pins or retention devices for each 1.2 m long batt or board.
    6. Ensure insulation pieces are in contact with no linear gaps between spacers.

3.04 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.05 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by preformed metal siding installation.

END OF SECTION

1 GENERAL

SECTION INCLUDES

Latex modified concrete facing, bonded to rigid polystyrene foam insulation backing, for exterior application to low rise, and perimeter foundation walls, with related flashings and accessory components.

Above and below grade locations: Suitable air/vapour barriers site specific, as required over structural walls.

1.01 REFERENCES

.1 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S701, Standard for Thermal Insulations, Polystyrene, Boards and Pipe Covering.

.2 CAN/ULC-S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.2 American Society for Testing and Materials International(ASTM)

.1 ASTM A123/A123M, Zinc (Hot Dip Galvanized) Coatings on Iron or Steel Products.

.2 ASTM C518, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.3 ASTM D1621, Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.

.4 ASTM D2842, Standard Test Method for Water Absorption of Rigid Cellular Plastics.

.5 ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials.

.6 ASTM D696, Standard Test Method for Determining Coefficient of Linear Thermal Expansion of Plastics between -30C and +30C.

.7 ASTM C203,Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.

.8 ASTM D2126, Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.

.3 Canadian Standards Association

.1 CSA S478-95 (R2007) – Guideline on Durability in Buildings

1.02 SYSTEM DESCRIPTION

.1 Assembly of components includes purpose supplied, preformed panel mounting clips capable of securing factory bonded concrete faced insulated wall panels to structural supporting wall framing.

.2 Comply with requirements for continuity of building air barriers, vapour retarders plus wind and suction loads as identified in the National Building Code and applicable local requirements.

1.03 PERFORMANCE REQUIREMENTS

.1 Wall assembly: Design components to withstand flexing and physical distortion due to dead and live loads caused by positive and negative wind pressure acting normal to plane of wall cladding surfaces.

.2 Maximum Allowable Deflection of Wall Assembly: Determined by supporting structure and imposed weather loads.

.3 Movement: Accommodate thermal and wind loads within wall assembly without damage to components or deterioration of seals, movement within assembly and between components, when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.

.4 Maximum Allowable Deflection of Wall Assembly: 1/280 of span.

.5 Drainage: Provide positive drainage to water and condensate collectors within wall assembly.

.6 Products: Provide continuity of thermal barrier at building enclosure elements in conjunction with other thermal insulating materials.

.7 Air Seal: Provide continuity of air barrier seal at building enclosure elements in conjunction with air seal materials specified in Section 07 27 00.

1.04 ADMINISTRATIVE REQUIREMENTS

.1 Coordination

.1 Coordinate with other work having a direct bearing on work of this section.

.2 Coordinate the Work for installation of vapour retarder and air barrier seals.

.3 Coordinate the Work with installation of windows, louvres, and components or materials.

1.05 SUBMITTALS FOR REVIEW

.1 Submission procedures as specified in Section 01 33 00 Submittal Procedures.

.1 Shop Drawings: Indicate dimensions, layout, construction and expansion joints, construction details, methods of anchorage.

.2 Samples: Submit two (2) samples of full size wall siding, 200 x 200 mm (8 x 8 inch) in size illustrating manner of fitment devices with adjacent panels, with specified finishes and surface texture.

.3 Sustainable Design Submittals:

.1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.06 SUBMITTALS FOR INFORMATION

.1 Submission procedures as specified in Section 01 33 00 Submittal Procedures.

.2 Installation Data: Manufacturer's special installation requirements.

1.07 QUALITY ASSURANCE

.1 Installer Qualifications: Company specializing in performing the work of this section with training and experience.

.2 Product Identification: Each pallet of insulated roof panels shall be labelled with product name; manufacturers name or trademark; insulation conforming to ULC S701 Type 4; number of panels per pallet; insulation thickness, and thermal resistance per unit of thickness.

.3 Basis of Design: Insulation, to CCMC – Evaluation Listing #04888-L, for NBC compliance.

1.08 MOCK-UP

.1 Provide mock-up, which includes structural supports for siding [and soffit] components, panels, attachments to building frame, associated vapour retarder and air seal materials, weep drainage system, sealants and seals, and related insulation.

.2 Locate where directed by Departmental Representative.

.3 Approved mock-up may remain as part of the Work.

1.09 DELIVERY, STORAGE, AND PROTECTION

.1 Transport, handle, store, and protect delivered products as specified in Section 01 61 00.

.2 Store concrete faced insulated wall panels under cover, and in original packaging until ready to install. Store opened packages under cover until installed. Schedule installation to minimize open package time

.3 Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation.

.4 Prevent contact with materials which may cause electrolysis, discolouration or staining.

1.10 WARRANTY

.1 Provide warranties as specified in Section 01 77 00: Closeout Procedures.

.2 Provide manufacturers five (5) year limited warranty to include panel replacement for delamination of concrete facing.

2 PRODUCTS

2.01 MANUFACTURERS

.1 Acceptable Product (Basis of Design): Tech-Crete Processors Ltd., CFI®Wall Panel, in modular sections.

2.02 WALL PANEL ATTACHMENT

.1 Galvanized Steel: ASTM A123/A123M-08 - Zinc-Coated (Galvanized), Z275 to G90 coating designation, preformed as supplied by manufacturer, complete with corrosion proof masonry fasteners.

2.03 INSULATION

.1 Extruded polystyrene, conforming to code requirements, in accordance with CAN/ULC S701 type 4.

1. Acceptable Product (Basis of Design): STYROFOAM™ Tech-Crete Blanks by DOW Chemical

.2 Thermal resistance: RSI 0.87/25mm to ASTM C518.

.3 Foam Compressive Strength: 240 kPa in accordance with ASTM D1621.

.4 Water Absorption: ASTM D2842: <0.7 % by volume.

.5 Water Vapour Permeance: 0.8 perms in accordance with ASTM E96.

.6 Insulation Thickness: 51mm.

2.04 CONCRETE FACED INSULATED WALL PANELS

.1 Concrete: Latex modified concrete mix, 8 mm thick, with control joint score at mid-length.

.2 Edge Treatment: Tongue and groove along longitudinal foam edges, butt joints on lateral edges.

.3 Surface Finish: Textured Broom finish; Grey colour, may be coated.

2.05 ACCESSORIES

.1 Gaskets to Adjacent Substrates: Standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant; colour to match adjacent colour.

.2 Sealants to Adjacent Substrates: Standard type suitable for use with installation of system; non-staining, non-skinning, non-shrinking and non-sagging; ultraviolet and ozone resistant; colour as selected.

.3 Clips and Fasteners: Manufacturer's standard type to suit application; as supplied.

.4 Field Repair and Touch-up: As recommended by panel manufacturer.

.5 Wall panel coloured coating (if required): Exterior grade, latex based, concrete or masonry paint or stain.

.6 Building Paper Over Surface of Supporting Wall Structure: building paper, water repellent breather type.

.7 Perimeter Insulation Flashings 24 gauge minimum: Coordinate supply of end closures and flashings for perimeter insulation system with Section 07 62 00 Sheet Metal Flashing and Trim.

2.06 COMPONENTS

.1 Exterior concrete faced insulated wall panel sizes:

.1 Width: 610 mm.

.2 Length: 1220 mm.

.3 Thickness: 51mm

.2 Internal and External Corners:

.1 Per manufacturers installation guidelines for corner details. Diagrams as provided in each fastener package.

.2 Metal profiles to suit assembly, brake formed to required profiles

.3 Trim, Closure Pieces, Caps, Flashings, Facias, Soffits and Infills: Brake formed to required profiles.

2.07 FABRICATION

.1 Form sections true to shape, accurate in size, square, and free from distortion or defects.

.2 Form custom pieces in longest practicable lengths.

.3 Fabricate corners in one continuous piece.

3 EXECUTION

3.01 EXAMINATION

.1 Verify existing conditions and substrates before starting work.

.2 Verify that building framing members are ready to receive panel assembly.

.3 Remove substrate surface irregularities before installing wall panels. Sweep and clear debris clear of surfaces to receive panels.

.4 Ensure existing damp proofing, water proofing below grade is cured and dry.

.5 If the lowest substrate surface is not level to receive panels, create a level surface with a galvanized steel ledger angle, and secure level.

3.02 INSTALLATION

.1 Install one (1) layer of damproofing horizontally on walls to receive concrete faced insulated wall panels.

.2 Weather lap barriers, stagger vertical joints of each course. Repair incidental tears.

.3 Seal securely to achieve air and moisture tightness.

.4 Ensure snug fit between panel tongue and grooves, and lateral butt joints.

.5 Fasten concrete faced insulated panels to structural supports; aligned level and plumb.

.6 Install panels with vertical joints and panel control joints in alignment.

.7 Use manufacturer’s fasteners. Maintain neat appearance.

.8 Cover exposed insulation at corners and top of perimeter insulation with prefinished flashing as specified in Section 07 62 00 - Sheet Metal Flashing and Trim.

.9 Where concrete flatwork or asphalt is to be laid adjacent to CFI Wall Panels, an isolation joint should be provided to protect the CFI mortar surface from differential movement.

3.03 CLEANING

.1 Clean installed work as specified in Section 01 74 11 - Cleaning.

.2 Remove and collect site cuttings, foam bits and packaging for re-cycling.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 The Aluminum Association Inc. (AAI)
- .1 The Aluminum Association Inc. (AAI)
- . 1 AA Aluminum Design Manual Part VIII Guidelines for Aluminum Sheet Metal Work in Building Construction
- .2 AAI DAF45, Designation System for Aluminum Finishes.

.2 American Society for Testing and Materials International (ASTM)
- .1 ASTM A240/A240M, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- .2 ASTM A606/A606M, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance
- .3 ASTM A 653/A 653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- .4 ASTM A755/A755M Standard Specification for Steel Sheet, Metallic coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
- .5 ASTM A 792/A 792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
- .6 ASTM B32, Standard Specification for Solder Metal
- .7 ASTM B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- .8 ASTM B 370, Standard Specification for Copper Sheet and Strip for Building Construction
- .9 ASTM D 523, Standard Test Method for Specular Gloss
- .10 ASTM D1970/D1970M, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- .11 ASTM D4587, Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings
- .12 ASTM F1667, Standard Specification for Driven Fasteners: Nails, Spikes and Staples

.3 American Architectural Manufacturers Association (AAMA)
- .1 AAMA 611, Voluntary Specifications for Anodized Architectural Aluminum
- .2 AAMA 621, Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Substrates
- .3 AAMA 2603, Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
- .4 AAMA 2604, Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
- .5 AAMA 2605, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions

and Panels

.4 Canadian Roofing Contractors Association (CRCA)

.1 Roofing Specifications Manual.

.5 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
.2 CAN/CGSB-93.1, Sheet Aluminum Alloy, Prefinished, Residential.

.6 Canadian Standards Association (CSA International)
.1 CSA A123.3, Asphalt Saturated Organic Roofing Felt.
.2 AAMA/WDMA/CSA 101/I.S.2/A440, Standard/Specification for Windows, Doors, and Unit Skylights.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Shop Drawings:
.1 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.4 Samples:
.1 Submit two (2) samples 50 x 50mm (2” x 2”) of each type of sheet metal material, finishes and colours.

1.03 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.2 Prepare Construction Waste Management plan in accordance with Section 01 74 19 - Waste Management and Disposal.

2 PRODUCTS

2.01 SHEET METAL MATERIALS

.1 Aluminum-zinc alloy coated steel sheet: to ASTM A 792/A 792M, commercial quality, grade 33 with AZ150 coating, regular spangle surface, 0.54 mm base metal thickness.

2.02 PREFINISHED STEEL SHEET

.1 Prefinished steel with factory applied polyvinylidene fluoride.
- .1 Class F1S.
- .2 Colour selected by Departmental Representative from manufacturer's standard range.
- .3 Specular gloss: 30 units +/- in accordance with ASTM D 523.
- .4 Coating thickness: not less than 22 micrometres.
- .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D 4587 as follows:
  - .1 Outdoor exposure period 2500 hours.
  - .2 General purpose metal coating: no. 4

2.03 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB 37.5.

.3 Sealants: Section 07 92 00 Joint Sealants.

.4 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.5 Nails: flat head and roofing nail made of a material identical to that of sheet metal, the length and diameter of which are suitable for installing metal flashing.

.6 Screw: head made of the same material as the sheet, suitable for the support and the material to be fixed.

.7 Solder: according to ASTM B32.

.8 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.

.9 Touch-up paint: as recommended by prefinished material manufacturer.

2.04 FABRICATION

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.

.2 Fabricate aluminum flashings and other sheet aluminum work in accordance with AAI-Aluminum Sheet Metal Work in Building Construction.

.3 Form pieces in 2400 mm maximum lengths.
- .1 Make allowance for expansion at joints.

.4 Hem exposed edges on underside 12 mm.
- .1 Mitre and seal corners with sealant.

.5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

.6 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.05 METAL FLASHINGS

.1 Form flashings, copings and fascias to profiles indicated of 0.54 mm thick prefinished steel.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 INSTALLATION

.1 Install sheet metal work in accordance with CRCA FL series details.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal.
.1 Secure in place and lap joints 100 mm.

.4 Lock end joints and caulk with sealant.

.5 Install surface mounted reglets true and level, and caulk top of reglet with sealant.

.6 Insert metal flashing into reglets to form weather tight junction.

.7 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.

.8 Caulk flashing at reglet with sealant.

3.03 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
- .1 ASTM C 919, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Manufacturer's product to describe:
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .3 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Samples:
- .1 Submit 2 samples of each type of material and colour.
- .2 Cured samples of exposed sealants for each colour where required to match adjacent material.

.4 Manufacturer's Instructions:
- .1 Submit instructions to include installation instructions for each product used.

.5 Sustainable Design Submittals:
- .1 Construction Waste Management:
  - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.03 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for

incorporation into manual.

1.04 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect joint sealants from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.05 SITE CONDITIONS

.1 Ambient Conditions:
- .1 Proceed with installation of joint sealants only when:
  - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
  - .2 Joint substrates are dry.
  - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.2 Joint-Width Conditions:
- .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:
- .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

1.06 ENVIRONMENTAL REQUIREMENTS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.

.2 Departmental Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants.

2 PRODUCTS

2.01 SEALANT MATERIALS

.1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.

.3 Where sealants are qualified with primers use only these primers.

2.02 SEALANT MATERIAL DESIGNATIONS

.1 (Type 1): Urethane (Polyurethane) one part: Non-Sag to Can/CGSB-19.13, colour to be selected by Departmental Representative from full colour range.
  .1 Acceptable product: Dymonic 100 by Tremco

.2 (Type) 2: Urethane (Polyurethane) one part: Non-Sag to Can/CGSB-19.13, colour to be selected by Departmental Representative from full colour range.
  .1 Acceptable product: Vulkem 45SSL by Tremco

.3 Preformed compressible and non-compressible back-up materials:
  .1 Polyethylene, urethane, neoprene or vinyl foam:
    .1 Extruded closed cell foam backer rod.
    .2 Size: oversize 30 to 50 %.
  .2 Neoprene or butyl rubber:
    .1 Round solid rod, Shore A hardness 70.
  .3 High density foam:
    .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m^3 density, or neoprene foam backer, size as recommended by manufacturer.
  .4 Bond breaker tape:
    .1 Polyethylene bond breaker tape which will not bond to sealant.

2.03 SEALANT SELECTION

.1 Type 1:

  .1 Coping joints and coping-to facade joints

  .2 Perimeters of interior frames

  .3 Seal interior perimeters of exterior openings

  .4 Perimeters of exterior openings where frames meet exterior facade of building (i.e. brick, block, precast masonry).

  .5 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls).

  .6 Control and expansion joints in exterior surfaces of unit masonry walls.

.7 Expansion and control joints in exterior surfaces of poured-in-place concrete walls.

.2 Type 2:

.1 Exterior joints in horizontal wearing surfaces.

2.04 JOINT CLEANER

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.

.2 Primer: in accordance with sealant manufacturer's written recommendations.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 SURFACE PREPARATION

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.

.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

.4 Ensure joint surfaces are dry and frost free.

.5 Prepare surfaces in accordance with manufacturer's directions.

3.03 PRIMING

.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.04 BACKUP MATERIAL

.1 Apply bond breaker tape where required to manufacturer's instructions.

.2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.05 MIXING

.1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.06 APPLICATION

.1 Sealant:
- .1 Apply sealant in accordance with manufacturer's written instructions.
- .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
- .3 Apply sealant in continuous beads.
- .4 Apply sealant using gun with proper size nozzle.
- .5 Use sufficient pressure to fill voids and joints solid.
- .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
- .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
- .8 Remove excess compound promptly as work progresses and upon completion.

.2 Curing:
- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealants until proper curing has taken place.

3.07 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Clean adjacent surfaces immediately.
- .3 Remove excess and droppings, using recommended cleaners as work progresses.
- .4 Remove masking tape after initial set of sealant.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.08 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by joint sealants installation.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 Aluminum Association (AA)
- .1 AA DAF 45, Designation System for Aluminum Finishes.

.2 ASTM International
- .1 ASTM A 123/A 123M, Standard Specification for Zinc (Hot-Dip galvanized) Coatings on Iron and Steel Products.
- .2 ASTM E 1748, Standard Test Method for Evaluating the Engagement Between Windows and Insect Screens as an Integral System.

.3 CSA Group
- .1 AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
- .2 CSA A440S1, Canadian Supplement to AAMA/WDMA/CSA 101/1.S.2/A440, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
- .3 CAN/CSA-A440.4, Window, Door, and Skylight Installation
- .4 CAN/CSA-A440.2/A440.3, Fenestration energy performance/User guide to CSA A440.2, Fenestration energy performance.
- .5 CAN/CSA-Z91, Health and Safety Code for Suspended Equipment Operations.
- .6 CAN/CSA-Z809, Sustainable Forest Management.

.4 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship.

.5 Master Painters Institute (MPI)
- .1 Architectural Painting Specification Manual - [current edition].
  - .1 MPI #79, Primer, Alkyd, Anti-Corrosive for Metal.

.6 Sustainable Forestry Initiative (SFI)
- .1 SFI Standard.

.7 Screen Manufacturers Association (SMA)
- .1 SMA 1201R-2012 Specification for Insect Screens for Windows, Sliding Doors and Swinging Doors.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for windows and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .2 Indicate materials and details in full size scale for head, jamb and sill, profiles of

components, interior and exterior trim, junction between combination units elevations of unit, anchorage details, description of related components and exposed finishes, fasteners, and caulking. Indicate location of manufacturer's nameplates.

.4 Test and Evaluation Reports:
- .1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications.
- .2 All test reports that reference the NAFS must include, on the first page, a summary of the results including, at minimum:
  - .1 The product manufacturer.
  - .2 The type of product.
  - .3 The model number/series number.
  - .4 The primary product designation.
  - .5 The secondary product designation.
    - .1 Positive design pressure.
    - .2 Negative design pressure.
    - .3 Water penetration resistance test pressure.
    - .4 Canadian air infiltration and exfiltration levels.
  - .6 The test completion date.
- .3 The report will also contain the following information:
  - .1 Test dates.
  - .2 Report preparation dates.
  - .3 Test information retention period.
  - .4 Location of testing facilities.
  - .5 Full description of test samples, including:
    - .1 Finish.
    - .2 Condensation resistance.
    - .3 Safety drop - vertical sliding windows only.
    - .4 Block operation - sliding windows only.
    - .5 Sash strength and stiffness - operable casement, projecting.
    - .6 Forced entry resistance.
    - .7 Mullion deflection - combination and composite windows.
  - .6 Complete description of amendments, as applicable.
  - .7 Conclusion.
  - .8 Drawings signed by the testing laboratory, if provided.
- .4 Sustainable Design Submittals:
  - .1 Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
    - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.03 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for windows for incorporation into manual.

1.04 QUALITY ASSURANCE

.1 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.05 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect windows from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.06 WARRANTY

.1 Manufacturer's Warranty: Submit to the Departmental Representative, for approval, the manufacturer's standard warranty document, signed by an authorized representative of the company. The manufacturer's warranty is in addition to the warranty provided for in the contract and does not in any way limit the rights of the Owner provided for in the terms of the contract.

2 PRODUCTS

2.01 MATERIALS

.1 Materials: to AAMA/WDMA/CSA 101/I.S.2/A440 supplemented as follows:

.2 All windows by same manufacturer.

.3 Sash: clad wood.

.4 Main frame: clad wood.

.5 Wood species: for paint finish.
- .1 CAN/CSA-Z809 or FSC or SFI certified.

.6 Glass: Insulating Glass Units, in accordance with Section 08 80 50 - Glazing.

.7 Screens: to ASTM E 1748 on the ventilating portion of the windows.
- .1 Insect screening mesh: count 18 x 14.
- .2 Screen frames: aluminum colour to match window frames.

.3 Mount screen frames for interior replacement.

.8 Exterior metal sills: extruded or brake formed aluminum sheet metal of type and size to suit job conditions; minimum 3 mm thick, complete with joint covers, jamb drip deflectors, chairs, anchors.

.9 Isolation coating: alkali resistant bituminous paint.

2.02 WINDOW TYPE AND CLASSIFICATION

.1 Product types:
- .1 AW - Awning windows.
- .2 C - Casement window.
- .3 FW- Fixed window.

.2 Classification rating: to AAMA/WDMA/CSA 101/I.S.2/A440.
- .1 Primary designation:
  - .1 Performance classes: R.
  - .2 Performance categories: 25.
- .2 Secondary designation:
  - .1 Positive design pressure: 1200 Pa.
  - .2 Negative design pressure: -1200 Pa.
  - .3 Water penetration resistance test pressure: 180 Pa.
  - .4 Canadian air infiltration and exfiltration levels: A2.
- .3 Surface condensation control: compliant with standard CAN/CSA-A440.2/A440.3.
- .4 Forced Entry: F1.
- .5 Ancillary properties (Energy rating).
  - .1 Overall coefficient of heat transfer (U-factor) 2.22 W/(m^2.K) maximum.
  - .2 Energy rating (ER) 29.

2.03 FABRICATION

.1 Fabricate in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 supplemented as follows:

.2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

.3 Face dimensions detailed are maximum permissible sizes.

.4 Brace frames to maintain squareness and rigidity during shipment and installation.

.5 Finish steel clips and reinforcement with 380 g/m^2 zinc coating to ASTM A 123/A 123M.

2.04 ALUMINUM FINISHES

.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.
- .1 Electrolytically deposited colour anodic finish: colour to match Departmental Representative's sample.

2.05 ISOLATION COATING

.1 Coatings: in accordance with manufacturer's recommendations for surface conditions.

.2 Isolate aluminum from following components, by means of isolation coating:
- .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
- .2 Concrete, mortar and masonry.
- .3 Wood.

2.06 GLAZING

.1 Glaze windows in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

2.07 HARDWARE

.1 Hardware: stainless steel or white bronze sash locks and aluminum handles to provide security and permit easy operation of units.

.2 Locks: provide operating sash with spring loading locking device, to provide automatic locking in closed position.

.3 Include special keyed opening device for windows normally locked.

.4 Where windows latching devices are located in excess of 1900 mm above floor level:
- .1 Equip projected units with roto operators with locking handle.

.5 Tie back and life line anchors: to CAN/CSA-Z91.

2.08 AIR BARRIER AND VAPOUR RETARDER

.1 Equip window frames with site installed air barrier material for sealing to building as follows:
- .1 Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.
- .2 Material width: adequate to provide required air tightness and vapour diffusion control to building from interior.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 INSTALLATION

.1 Window installation:
- .1 Install in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
- .2 Arrange components to prevent abrupt variation in colour.

.2 Sill installation:
- .1 Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces. Use one piece lengths at each location.
- .2 Cut sills to fit window opening.
- .3 Secure sills in place with anchoring devices located at ends and evenly spaced 600 mm on centre in between.
- .4 Fasten with self tapping stainless steel screws.
- .5 Maintain 6 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

.3 Caulking:
- .1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.
- .2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within window units except where exposed use is permitted by Departmental Representative.

3.03 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.04 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by window installation.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
- .1 ASTM C542-, Standard Specification for Lock-Strip Gaskets.
- .2 ASTM D790, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- .3 ASTM D1003, Standard Test Method for Haze and Luminous Transmittance of Plastics.
- .4 ASTM D1929-, Standard Test Method for Determining Ignition Temperature of Plastics.
- .5 ASTM D2240, Standard Test Method for Rubber Property - Durometer Hardness.
- .6 ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .7 ASTM E330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .8 ASTM F1233, Standard Test Method for Security Glazing Materials and Systems.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-12.8, Insulating Glass Units.
- .2 CAN/CGSB-12.8 (Amendment), Insulating Glass Units.

.3 Environmental Choice Program (ECP)
- .1 CCD-045, Sealants and Caulking Compounds.

.4 Glass Association of North American (GANA)
- .1 GANA Glazing Manual .
- .2 GANA Laminated Glazing Reference Manual .

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.4 Sustainable Design Submittals:

- .1 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

1.03 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

1.04 QUALITY ASSURANCE

.1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.05 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
- .3 Protect prefinished aluminum surfaces with wrapping.
- .4 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.06 AMBIENT CONDITIONS

.1 Ambient Requirements:
- .1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
- .2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

2 PRODUCTS

2.01 MATERIALS

.1 Design Criteria:
- .1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
  - .1 Utilize inner light of multiple light sealed units for continuity of air and

vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads to ASTM E330.

.3 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.

.2 Insulating Glass Units:

.1 Insulating glass units: to CAN/CGSB-12.8, triple unit, 35 mm overall thickness.

.1 Glass thickness: 3 mm each light.

.2 Inter-cavity space thickness: 13 mm with low conductivity spacers.

.3 Glass coating: low "E".

.4 Inert gas fill: argon.

2.02 ACCESSORIES

.1 Setting blocks: 80-90 Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: 50-60 Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Lock-strip gaskets: to ASTM C 542.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.02 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.03 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.1 Remove traces of primer, caulking.

.2 Remove glazing materials from finish surfaces.

.3 Remove labels.

.4 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.04 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 After installation, mark each light with an "X" by using removable plastic tape or paste.
.1 Do not mark heat absorbing or reflective glass units.

.3 Repair damage to adjacent materials caused by glazing installation.

3.05 SCHEDULE

.1 Refer to Architectural Drawings.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

.1 Institute of Electrical and Electronics Engineers, Inc. (IEEE)
  .1 IEEE 837, Standard for Qualifying Permanent Connections Used in Substation Grounding.

.2 CSA Group (CSA)
  .1 CAN/CSA-B72, Installation Code for Lightning Protection Systems.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.
.2 Shop Drawings:
  .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
  .2 Indicate materials and methods of attachment of conductors to electrodes.

1.03 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00- Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

  .1 Store materials in dry location, indoors, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

  .2 Store and protect lighting protection from nicks, scratches, and blemishes.

  .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

.5 Packaging Waste Management: remove for reuse as specified in Waste Reduction Workplan in accordance with Section 01 74 19- Waste Management and Disposal .

2 PRODUCTS

2.01 MATERIALS

.1 Lightning Rods: copper.

.2 Conductor: copper

.3 Fastenings and attachment straps: copper

.4 Ground electrodes: copper

.5 Mast structure inter-connected with cable. With down runs and cable clamps as indicated to form a complete sky-cone system.

.6 Use copper conductors, terminals, connectors and fastenings for buildings sheathed in other than aluminum.

.7 Connections: copper.

2.02 DESCRIPTION

.1 System to consist of metallic air terminals, lightning conductors connecting air terminals to ground and interconnected ground electrodes, and/or ground cables.

.2 Sky wire cone, where sky line elevated at height to protected structure beneath, but having no direct connection to sky line which is connected to system of ground electrodes.

2.02 REGULATORY REQUIREMENTS

.1 System subject to: approval by authority having jurisdiction.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for lightning protection installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative .
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 INSTALLATION

.1 Install lightning protection to CAN/CSA-B72.

.2 Bond discharge conductors to service mast or other non-current-carrying electrical parts.

.3 Submit certificate of installation to Departmental Representative.

3.03 INSPECTION

.1 Obtain inspection certificate from Departmental Representative for discharge conductor passing through any fire supporting membrane.

3.04 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19- Waste Management and Disposal.

.4 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.05 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by lightning protection installation.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
  .1 ASTM D 698-07e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3) (600kN-m/m^3).

.2 Ontario Provincial Standard Specifications (OPSS)/Ontario Ministry of Transportation
  .1 OPSS 1004-05, Material Specification for Aggregates - Miscellaneous.
  .2 OPSS 1010-04, Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material.

1.02 ADMINISTRATIVE REQUIREMENTS

.1 Co-ordination: arrange with authority having jurisdiction for relocation of buried services that interfere with execution of work.
  .1 Pay costs of relocating services.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Samples: submit to designated testing agency, 23 kg sample of backfill for material proposed for use, no later than 1 week before backfilling or filling work.

.3 Submit testing and inspection results and report, in conformance with Part 3 Field Quality Control.

.4 Sustainable Design Submittals:

  .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

  .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

2 PRODUCTS

2.01 MATERIALS

.1 Granular A to OPSS 1010, Sand to OPSS 1004.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions:
- .1 Before commencing work establish locations of buried services on and adjacent to site.

3.02 PREPARATION

.1 Temporary erosion and sedimentation control:
- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

.2 Protection of in-place conditions:
- .1 Protect excavations from freezing.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.
- .4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .5 Protect buried services that are required to remain undisturbed.

.3 Removal:
- .1 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders and debris within areas designated on drawings.
- .2 Remove stumps and tree roots below footings, slabs, and paving, and to 600 mm below finished grade elsewhere.
- .3 Remove obsolete buried services within 2 m of foundations: cap cut-offs.

3.03 EXCAVATION

.1 Shore and brace excavations, protect slopes and banks and perform work in accordance with Provincial and Municipal regulations whichever is more stringent.

.2 Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil.
- .1 Stockpile topsoil on site for later use.

.3 Excavate as required to carry out work.
- .1 Do not disturb soil or rock below bearing surfaces.
- .2 Notify Departmental Representative when excavations are complete.

.3 If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.

.4 Excavation taken below depths shown without Departmental Representative's written authorization to be filled with concrete of same strength as for footings at Contractor's expense.

.4 Excavate for slabs and paving to subgrade levels.

.1 In addition, remove all topsoil, organic matter, debris and other loose and harmful matter encountered at subgrade level.

3.04 FIELD QUALITY CONTROL

.1 Testing of materials and compaction of backfill and fill will be carried out by testing laboratory designated by Departmental Representative.

.2 Not later than 1 week minimum before backfilling or filling, submit to designated testing agency, samples of backfill as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.3 Do not begin backfilling or filling operations until material has been approved for use by Departmental Representative.

.4 Not later than 48 hours before backfilling or filling with approved material, notify Departmental Representative to allow compaction tests to be carried out by designated testing agency.

3.05 BACKFILLING

.1 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.

.2 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.

.3 Compaction of subgrade: compact existing subgrade under walks, paving, and slabs on grade, to same compaction as fill.

.1 Fill excavated areas with selected subgrade material compacted as specified for fill.

.4 Placing:

.1 Place backfill, fill and base course material in 150 mm lifts: add water as required

.5 Compaction: compact each layer of material to following densities for material to ASTM D 698:

.1 To underside of base courses: 95%.

.2 Base courses: 100%.

.3 Elsewhere: 90%.

.6 Under slabs and paving:

.1 Use native soil up to bottom of granular base courses, unless noted otherwise on drawings.

.2 Use Granular A for base courses, unless noted otherwise on drawings. .

.7 Under seeded and sodded areas: use site excavated material to bottom of topsoil except

in trenches and within 600 mm of foundations.

.8 Blown rock material, not capable of fine grading, is not acceptable, imported material must be placed on this type of material

.9 Against foundations (except as applicable to trenches and under slabs and paving): excavated material or imported material with no stones larger than 200 mm diameter within 600 mm of structures.

3.06 GRADING

.1 Grade so that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by Departmental Representative.

3.07 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Dispose of cleared and grubbed material off site daily.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 ASTM International
  .1 ASTM D 698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m^3).

.2 Underwriters' Laboratories of Canada (ULC)

1.02 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Construction Waste Management:

  .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

2 PRODUCTS

2.01 MATERIALS

.1 Fill material: Type Granular A in accordance with of Section 31 00 00.01 – Earthwork-Short Form.

.2 Excavated or graded material existing on site suitable to use as fill for grading work if approved by Departmental Representative.

3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for rough grading installation in accordance with manufacturer's written instructions.
  .1 Visually inspect substrate in presence of Departmental Representative.
  .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.02 STRIPPING OF TOPSOIL

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Departmental Representative.

.2 Commence topsoil stripping of areas after area has been cleared of brush, weeds and grasses and removed from site.

.3 Strip topsoil to depths as indicated. Rototill and retain as topsoil on site. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as directed by Departmental Representative. Stockpile height not to exceed 2 m.

.5 Dispose of unused topsoil as directed by Departmental Representative.

3.03 GRADING

.1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

.2 Rough grade to following depths below finish grades:
.1 250 mm for concrete walks.

.3 Slope rough grade away from building 1:50 minimum for a distance of 914mm minimum.

.4 Grade ditches to depth required for maximum run-off.

.5 Prior to placing fill over existing ground, scarify surface to depth of 150 mm minimum before placing fill over existing ground. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.6 Compact filled and disturbed areas to maximum dry density to ASTM D 698, as follows:
.1 85% under landscaped areas.
.2 95% under paved and walk areas.

.7 Do not disturb soil within branch spread of trees or shrubs to remain.

3.04 TESTING

.1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by ULC. Costs of tests will be paid Departmental Representative.

.2 Submit testing procedure, frequency of tests, testing laboratory as designated by ULC or certified testing personnel to Departmental Representative for approval.

3.05 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.06 PROTECTION

.1 Protect existing landscaping, buildings, pavement, surface or underground utility lines which are to remain as directed by Departmental Representative. If damaged, restore to original or better condition unless directed otherwise.

.2 Maintain access roads to prevent accumulation of construction related debris on roads.

END OF SECTION

1 GENERAL

1.01 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C117, Standard Test Method for Materials Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136/C136M , Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM C 309, Liquid Membrane Forming Compounds for Curing Concrete
- .4 ASTM D1751, Standard Specification For Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
- .5 ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3) (600 kN-m/m^3).

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-3.3, Kerosene, Amend. No. 1, National Standard of Canada.
- .2 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.

.3 Canadian Standards Association (CSA International)
- .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA B65, Accessible Design for the Built Environment.

1.02 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 47 19 - Waste Management and Disposal.

2 PRODUCTS

2.01 MATERIALS

.1 Concrete mixes and materials: in accordance with Section 03 30 00.01 - Cast-in-Place Concrete Short Form.

.2 Joint filler, Curing Compound: in accordance with Section 03 30 00.01 - Cast-in-Place Concrete Short Form.

.3 Granular base: material to Section 31 00 00.01 – Earthwork- Short Form and following requirements:
- .1 Type 1 fill.
- .2 Crushed stone or gravel.
- .3 Gradations: within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1.

.4 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water-soluble soap.

.5 Fill material: to Section 31 00 00.01 – Earthwork- Short Form and following requirements:
- .1 Type 1 fill.
- .2 Crushed stone or gravel.
- .3 Gradations: within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1.

.6 Curing Product: to ASTM C 309, type 1.

.7 Expansion joint: pre-moulded bituminous fibreboard in accordance with ASTM D1751.

3 EXECUTION

3.01 GRADE PREPARATION

.1 Do grade preparation work in accordance with Section 31 00 00.01 – Earthwork- Short Form.

.2 Construct embankments using excavated material free from organic matter or other objectionable materials.
- .1 Dispose of surplus and unsuitable excavated material.

.3 When constructing embankment provide for minimum 1 m shoulders, where applicable, outside of neat lines of concrete.

.4 Place fill in maximum 150 mm layers and compact to at least 95% of maximum dry density to ASTM D 698.

3.02 GRANULAR BASE

.1 Obtain Departmental Representative's approval of subgrade before placing granular base.

.2 Place granular base material to lines, widths, and depths as indicated.

.3 Compact granular base in maximum 150 mm layers to at least 95% of maximum density to ASTM D 698.

3.03 CONCRETE

.1 Obtain Departmental Representative's approval of granular base prior to placing concrete.

.2 Do concrete work in accordance with Section 03 30 00.01 - Cast-in-Place Concrete Short Form.

.3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to centre line.

.4 Provide edging as indicated with 10 mm radius edging tool.

.5 Slip-form pavers equipped with string line system for line and grade control may be used

if quality of work acceptable to Departmental Representative can be demonstrated. Hand finish surfaces when directed by Departmental Representative.

3.04 TOLERANCES

.1 Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

3.05 EXPANSION AND CONTRACTION JOINTS

.1 Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at intervals of 1.2 m.

.2 Install expansion joints at intervals of 6 m.

.3 When sidewalk is adjacent to curb, make joints of curb, gutters and sidewalk coincide.

3.06 ISOLATION JOINTS

.1 Install isolation joints around manholes and catch basins and along length adjacent to concrete curbs, catch basins, buildings, or permanent structure.

.2 Install joint filler in isolation joints in accordance with Section 03 30 00.01 - Cast-in-Place Concrete Short Form.

.3 Seal isolation joints with sealant approved by Departmental Representative.

3.07 CURING

.1 Cure concrete by adding moisture continuously in accordance with CSA-A23.1/A23.2 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound as directed by Departmental Representative.

.2 Where burlap is used for moist curing, place two prewetted layers on concrete surface and keep continuously wet during curing period.

.3 Apply curing compound evenly to form continuous film, in accordance with manufacturer's requirements.

3.08 BACKFILL

.1 Allow concrete to cure for 7 days prior to backfilling.

.2 Backfill to designated elevations with material as directed by Departmental Representative.

.1 Compact and shape to required contours as directed by Departmental Representative.

3.09 LINSEED OIL TREATMENT

.1 Apply two coats of linseed oil mixture uniformly to surfaces of curbs, walks and gutters, after concrete has cured for specified curing time and when surface of concrete is clean and dry.

.2 Linseed oil mixture to consist of 50% boiled linseed oil and 50% mineral spirits by volume.

.3 Apply treatment when air temperature above 10 degrees C.

.4 Apply first coat at 135 mL/m^2.

.5 Apply second coat at 90 mL/m^2 when first coat has dried.

3.10 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

APPENDIX A

Agriculture and Agri-Food Canada

PROJECT SPECIFIC DESIGNATED SUBSTANCE SURVEY
BUILDING 143
960 CARLING AVENUE, OTTAWA, ONTARIO

ATTENTION:
DAVID CARNEGIE
FACILITY OFFICER

Revision 1

GEC PROJECT No. 31862
August 6, 2020

Greenough Environmental Consulting Inc.
29 Capital Drive, Ottawa, ON K2G 0E7
Tel: (613) 792-4125 | Fax: (613) 792-1077
www.greenough.ca

TABLE OF CONTENTS

TABLES

1.0 INTRODUCTION

Greenough Environmental Consulting Inc. (GEC) was commissioned by Agriculture and Agri-Food Canada (AAFC) under the direction of Mr. David Carnegie (Facility Officer), to conduct a *project-specific* designated substance survey and report (DSR) for the Building 143 Insulation Upgrades Project (20-1023) located in the Central Experimental Farm, 960 Carling Avenue in Ottawa, Ontario.

The purpose of the investigation was to identify the quantity, location, and condition of designated substances within specified areas which may be impacted as part of the aforementioned project.

2.0 SCOPE OF WORK

The scope of work followed during the assessment was completed in accordance with the scope of work agreed upon by GEC and AAFC (the Client). The survey areas were defined by the AAFC Scope of Work as well as project drawings submitted by AAFC entitled *"Central Experimental Farm Building 143, Ottawa, ON"* and labelled *"Issued for Review Comments Only, June 25, 2020"*. The survey was non-destructive and included the areas immediately inside and outside of the North, West and South walls of the building. The survey specifically included identification and sampling (where appropriate) of the eleven designated substances in Ontario as follows:

- Acrylonitrile
- Arsenic
- Asbestos
- Benzene
- Coke oven Emissions
- Ethylene Oxide
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride

For the purpose of the DSR, GEC referenced the following reports:

- Project Specific Designated Substance Survey, Building 143 960 Carling Avenue, Ottawa Ontario" – Prepared by Greenough Environmental Consulting Inc. September 2018. Project No.30757.

All work will be completed in accordance with provincial regulations (O. Reg 490/09 and 278/05), the PSPC Asbestos Management Standard and the Canada Labour Code.

Additional details regarding the methodology and scope of work can be found in **Appendix D**.

3.0 FINDINGS

A summary of the designated substance survey results is presented in **Table 1**.

TABLE 1 – SUMMARY OF FINDINGS AND RECOMMENDATIONS
BUILDING 143, CENTRAL EXPERIMENTAL FARM, OTTAWA

SITE SURVEYOR: ANDREW COONEY **DATE OF ASSESSMENT: JULY 9, 2020**
PROJECT SCOPE: BUILDING 143 INSULATION UPGRADES PROJECT

Item of Concern	Comments	Conclusions & Recommendations	Photos Appendix C
Asbestos	Based on the 2020 on-site assessment and laboratory results, the following **asbestos-containing materials (ACMs) were identified** in the following materials: • Non-friable Black Tar/Lagging on exterior ductwork (AS-04A-C), **8.39 % chrysotile in good condition.** **NOTE**: Based on the understood scope of work, asbestos-containing materials are **NOT** anticipated to be disturbed within the current project areas. Based on the 2018 and 2020 on-site assessments and laboratory results, **no asbestos-containing materials (ACMs) were identified** in the following materials anticipated to be disturbed within the project areas: 2020 Assessment • Concrete Block Mortar (AS-01A-C), • White Window Caulking (AS-02A-C), • Brown Joint Caulking (AS-03A-C), • Light Grey Duct Mastic (AS-05A-C), and • Grey Foundation Parging (AS-06A-C). 2018 Assessment • Exterior Window Caulking (SA-01A/B/C), A summary of sample results, descriptions, locations and results can be found in **Appendix A**	Based on the established scope of work identified on drawings provided by the Client, no asbestos-containing materials were identified within the project area. However, asbestos containing materials have been identified at the building outside of the project area and if the scope of work changes or work is conducted in other areas of the building asbestos-containing materials may be impacted. Disturbance and/or removal of identified ACMs must be performed in accordance with the procedures outlined in Ontario Regulations 278/05 and the PSPC Asbestos Management Standard. Suspect materials, identified herein and/or identified during future projects not discussed in this report, should be treated as ACMs unless proven otherwise through material specific sampling and analysis in accordance with the requirements of Ontario Regulation 278/05, PSPC Asbestos Management Standard and the Canada Labour Code. The roles and responsibility of "the owner" as stipulated in Section 8 of Ontario Regulation 278/05 must be recognized and adhered to including, but not limited to, notification to occupiers and workers as well as training. General recommendations for asbestos can be found in Section 2.1 of **Appendix D**.	**Figure 1:** Non-friable Tar/lagging collected from east side of the building was confirmed to contain 8.39% Chrysotile asbestos (AS-04 A-C). **Figure 2:** View of Lead containing Exterior Grey Trim Paint located on Building 143, around windows and doors.

TABLE 1 – SUMMARY OF FINDINGS AND RECOMMENDATIONS
BUILDING 143, CENTRAL EXPERIMENTAL FARM, OTTAWA

SITE SURVEYOR: ANDREW COONEY **DATE OF ASSESSMENT: JULY 9, 2020**
PROJECT SCOPE: BUILDING 143 INSULATION UPGRADES PROJECT

Item of Concern	Comments	Conclusions & Recommendations	Photos Appendix C
Lead	Based on the 2018 and 2020 on-site assessment and laboratory results, the following paints are considered **lead-based** and anticipated to be disturbed within the project area: 2020 Assessment • Beige Exterior paint (31862, LP-03, 6,520 µg/g) 2018 Assessment • Grey Exterior trim paint (31862, LS-01, 1,080 µg/g) A paint finish is considered to be lead-containing, with a concentration of lead more than 1,000 ppm (µg/g) based on the Environmental Abatement Council of Ontario (EACO) Guidelines, October 2014. Based on the age of the building and historical applications, lead is assumed to also be present in **emergency light batteries and solder on joints of copper piping** (where observed within the project areas). **Note:** Some paints could not be sampled as they were in good condition and sampling without matrix interference (i.e. removing the paint without the substrate material) would have proved difficult. Other paints shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise. A summary of sample results, descriptions, locations and results can be found in **Appendix B**	If the lead-based paint(s) identified and the surfaces to which they are applied are disturbed, work procedures must be used in accordance with the Classification of Work Operations (Sections 7 & 8, EACO, 2014) and the Classification of Work (Sections 5.0 & 6.0, MoL 2011). In the event of a conflict between these documents, the most stringent shall apply. If the non-lead-based paint(s) identified (and the surfaces to which they are applied) are disturbed in a non-aggressive manner and performed using normal dust control procedures then lead abatement precautionary measures are not required (EACO, 2014). The Ontario Ministry of Labour Guideline - Lead on Construction Projects dated April 2011 does not require removal of lead paint or lead-containing materials unless work on these materials is likely to produce lead fumes or dust, for example, during welding, torch cutting, grinding, sanding, or sand blasting. In the event that any work is conducted that has the potential to create airborne lead, every employer shall take all necessary measures and procedures by means of engineering controls, work practices and hygiene practices and facilities to ensure that the time-weighted average exposure of a worker to airborne lead, except tetraethyl lead, shall not exceed 0.05 milligrams lead per cubic metre of air, and in the case of exposure to tetraethyl lead 0.10 milligrams lead per cubic metre of air. O. Reg. 490/09, as amended. General recommendations for lead can be found in Section 2.2 of **Appendix D**.	

TABLE 1 – SUMMARY OF FINDINGS AND RECOMMENDATIONS
BUILDING 143, CENTRAL EXPERIMENTAL FARM, OTTAWA

SITE SURVEYOR: ANDREW COONEY **DATE OF ASSESSMENT: JULY 9, 2020**
PROJECT SCOPE: BUILDING 143 INSULATION UPGRADES PROJECT

Item of Concern	Comments	Conclusions & Recommendations	Photos Appendix C
Mercury	Mercury vapour is assumed to be present in fluorescent light tubes identified throughout the specified project areas. Mercury is also assumed to be present in stable forms, in painted finishes.	Mercury vapour within fluorescent light tubes and other equipment poses no risk to occupants provided the mercury containers remain intact. If removal of the tubes is to be completed, it should be conducted in accordance with the most stringent requirements of the MOL document: *The Safe Handling of Mercury: A Guide for the Construction Industry* and the MOECC document *Code of Practice: Environmentally Sound Management of End-of-Life Lamps Containing Mercury*. General recommendations for mercury can be found in Section 2.3 of **Appendix D**.	
Silica	Silica is assumed to be present in concrete components and mortar within the project area.	Silica dust can be generated by drilling, coring, blasting, grinding, crushing and sandblasting silica-containing materials. Should the above noted manipulation of the potential silica-containing materials be completed, ensure that all necessary measures and procedures by means of engineering controls, work practices and hygiene practices and facilities are implemented to ensure that the TWAEV of a worker to silica is reduced to the lowest practical level and , in any event, shall not exceed 0.05 milligrams per cubic metre of air by volume for cristobalite and tridymite, and 0.10 milligrams silica per cubic metre of air by volume for quartz and tripoli. General recommendations for silica can be found in Section 2.4 of **Appendix D**.	
Other Designated Substances	The following Designated Substances were not identified in quantities or forms which are anticipated to be impacted as part of the current project scope of work: Acrylonitrile Arsenic Benzene Coke Oven Emissions Ethylene Oxides Isocyanates Vinyl Chloride	No recommendations warranted.	

4.0 SURVEY LIMITATIONS

This report reflects the observations of accessed areas only, as they relate to the current scope of work. It is possible that additional designated substances and hazardous materials exist outside the survey area, but they are beyond the scope of this survey.

GEC cannot warrant against the discovery of additional ACMs concealed in wall cavities, closed bulkheads and closed ceilings etc. due to the non-destructive nature of this survey.

Various building materials that may contain asbestos were not sampled during the survey due to accessibility (i.e., require dismantling or demolishing). These include, but are not limited to; underground mechanical piping, high voltage wiring, various adhesives, bell fittings, components and wiring within motors and lights, mechanical gaskets.

No access was obtained into the following areas of the building:

- Concealed ceiling and wall cavities
- Concealed areas within the building eaves.

The survey included the areas immediately on the interior and exterior of the North, West and South walls of the building. GEC cannot warrant against the discovery of additional designated substances and hazardous materials in inaccessible wall cavities, pipe penetrations, closed bulkheads and ceilings due to the non-intrusive nature of this assessment. If suspect materials are discovered in areas not accessed during the survey (i.e., within fire doors, beneath carpets, etc.), they should be treated as asbestos-containing materials until proven otherwise through sampling and subsequent laboratory analysis.

5.0 CLOSURE

This report has been prepared for the sole benefit of the Client and their intended use. The report may not be relied upon by any other person or entity without the written consent of Greenough Environmental Consulting Inc. (GEC), and the Client.

GEC accepts no responsibility for any use that an outside party makes of this report and any reliance on decisions made based on it, are the responsibility of such parties.

This report was not intended to provide direction or procedures for the handling of designated substances and hazardous materials. Only persons with documented, current training in the safe handling of the designated substances and hazardous materials should handle them. Persons handling any of the designated substances and/or hazardous materials identified in this survey, or conducting

work in the vicinity of these materials are advised to consult this survey and individuals with appropriate experience and training, prior to doing so.

The conclusions presented represent the best judgment of the assessor based on current environmental standards. Due to the nature of the investigation and the limited data available, the assessor cannot warrant against undiscovered environmental liabilities.

We trust that the report meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

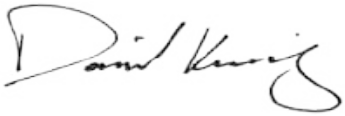
Yours truly,

GREENOUGH ENVIRONMENTAL CONSULTING INC.

Reported By:

Andrew Cooney, B.A., WRT, AMRT
Project Manager

Reviewed By:



David Koning, P. Eng.
Senior Project Manager

APPENDIX A

SUMMARY OF RESULTS & CERTIFICATES OF LABORATORY ANALYSIS:

ASBESTOS

Summary of Results & Certificates of Laboratory Analysis: Asbestos

The sampling completed for the purpose of this project-specific DSR is outlined in **Table 2** below.

TABLE 2 – RESULTS OF ASBESTOS ANALYSIS Building 143, Central Experimental Farm, Ottawa, Ontario				
Sample Reference	**Building Material and Description**	**Application of Material**	**Location of Sample**	**Result & Type**
2020 Assessment				
AS-01A	Concrete Block Mortar	Walls/Ceilings	Room 4	ND
AS-01B			Room 4	ND
AS-01C			Lunch Room	ND
AS-02A	White Window Caulking	Around windows on interior	Room 4	ND
AS-02B			Room 4	ND
AS-02C			Room 24	ND
AS-03A	Brown Joint Caulking	At Exterior Wall and A/C Unit	West A/C Unit	ND
AS-03B				ND
AS-03C				ND
AS-04A	**Black Tar/Lagging**	**On Exterior Breaching DC-EF-5 Fan**	**DC-EF-5 Fan**	**8.39% CH**
AS-04B			**DC-EF-2 Fan**	**PS**
AS-04C			**DC-EF-3 Fan**	**PS**
AS-05A	Light Grey Duct Mastic	Exterior Ductwork DC-EF-2 Fan	DC-EF-2 Fan	ND
AS-05B			DC-EF-2 Fan	ND
AS-05C			DC-EF-3 Fan	ND
AS-06A	Grey Parging	Exterior foundation	East Wall	ND
AS-06B			East Wall	ND
AS-06C			West Wall	ND

TABLE 2 – RESULTS OF ASBESTOS ANALYSIS Building 143, Central Experimental Farm, Ottawa, Ontario				
2018 Assessment				
SA-01A	Grey Caulking	Exterior Windows	Throughout Project Area	ND
SA-01B				ND
SA-01C				ND

Notes:
ND = None Detected
CH = Chrysotile asbestos
PS = Positive Stop: Not Analysed - Asbestos Detected In A Previous Sample Within The Series
* Definition of an "Asbestos-containing material" as defined by the Ontario Ministry of Labour Regulation 278/05 is any material found to contain 0.5% or greater asbestos by dry weight.

Based on the laboratory analysis, the following **asbestos-containing materials** were identified during the survey:

- Non-friable black lagging/tar (AS-04A-C) was confirmed to contain **8.39% Chrysotile asbestos**. Approximately twenty (20) linear metres of the lagging/tar was observed in good condition.

Based on the laboratory analysis, the following **non-asbestos-containing materials** were identified during the survey:

2020 Assessment

- Concrete Block Mortar (AS-01A-C),
- White Window Caulking (AS-02A-C),
- Brown Joint Caulking (AS-03A-C),
- Light Grey Duct Mastic (AS-05A-C), and
- Grey Foundation Parging (AS-06A-C).

2018 Assessment

- Concrete Block Mortar (AS-01A-C),

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Certificate of Analysis

Greenough Environmental Consulting Inc.

29 Capital Drive
Ottawa, ON K2C 0E7
Attn: Andrew Cooney

Client PO: Experimental Farm - Building 143
Project: 31862
Custody:

Report Date: 14-Jul-2020
Order Date: 9-Jul-2020

Order #: 2028416

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2028416-01	AS-01 A
2028416-02	AS-01 B
2028416-03	AS-01 C
2028416-04	AS-02 A
2028416-05	AS-02 B
2028416-06	AS-02 C
2028416-07	AS-03 A
2028416-08	AS-03 B
2028416-09	AS-03 C
2028416-10	AS-04 A
2028416-11	AS-04 B
2028416-12	AS-04 C
2028416-13	AS-05 A
2028416-14	AS-05 B
2028416-15	AS-05 C
2028416-16	AS-06 A
2028416-17	AS-06 B
2028416-18	AS-06 C

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

Certificate of Analysis

Report Date: 14-Jul-2020

Client: Greenough Environmental Consulting Inc.

Order Date: 9-Jul-2020

Client PO: Experimental Farm - Building 143

Project Description: 31862

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel ID	Sample Date	Colour	Description	Asbestos Detected	Material Identification	% Content
2028416-01	09-Jul-20	Grey	CB Mortar	No	**Client ID: AS-01 A**	
					Non-Fibers	100
2028416-02	09-Jul-20	Grey	CB Mortar	No	**Client ID: AS-01 B**	
					Non-Fibers	100
2028416-03	09-Jul-20	Grey	CB Mortar	No	**Client ID: AS-01 C**	
					Non-Fibers	100
2028416-04	09-Jul-20	White	Caulking	No	**Client ID: AS-02 A**	
					Non-Fibers	100
2028416-05	09-Jul-20	White	Caulking	No	**Client ID: AS-02 B**	
					Non-Fibers	100
2028416-06	09-Jul-20	White	Caulking	No	**Client ID: AS-02 C**	
					Non-Fibers	100
2028416-07	09-Jul-20	Brown	Caulking	No	**Client ID: AS-03 A**	
					Non-Fibers	100
2028416-08	09-Jul-20	Brown	Caulking	No	**Client ID: AS-03 B**	
					Non-Fibers	100
2028416-09	09-Jul-20	Brown	Caulking	No	**Client ID: AS-03 C**	
					Non-Fibers	100
2028416-10	09-Jul-20	Black	Tar Lagging	**Yes**	**Client ID: AS-04 A**	[AS-PRE]
					Chrysotile	8.39
					MMVF	4.2
					Non-Fibers	87.41
2028416-11	09-Jul-20				**Client ID: AS-04 B**	
					not analyzed	

PARACEL LABORATORIES LTD.

Order #: 2028416

Certificate of Analysis

Report Date: 14-Jul-2020

Client: Greenough Environmental Consulting Inc.

Order Date: 9-Jul-2020

Client PO: Experimental Farm - Building 143

Project Description: 31862

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel ID	Sample Date	Colour	Description	Asbestos Detected	Material Identification	% Content
2028416-12	09-Jul-20				**Client ID: AS-04 C**	
					not analyzed	
2028416-13	09-Jul-20	Light Grey	Duct Mastic	No	**Client ID: AS-05 A**	
					Non-Fibers	100
2028416-14	09-Jul-20	Light Grey	Duct Mastic	No	**Client ID: AS-05 B**	
					Non-Fibers	100
2028416-15	09-Jul-20	Light Grey	Duct Mastic	No	**Client ID: AS-05 C**	
					Non-Fibers	100
2028416-16	09-Jul-20	Grey	Parging	No	**Client ID: AS-06 A**	
					Non-Fibers	100
2028416-17	09-Jul-20	Grey	Parging	No	**Client ID: AS-06 B**	
					Non-Fibers	100
2028416-18	09-Jul-20	Grey	Parging	No	**Client ID: AS-06 C**	
					Non-Fibers	100

* MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool

**** Analytes in bold indicate asbestos mineral content.**

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	Lab Accreditation *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	2 - Ottawa West	NVLAP 200812-0	14-Jul-20

* Reference to the NVLAP term does not permit the user of this report to claim product certification , approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Ottawa West Lab: 25 Northside Rd, Unit C Nepean, Ontario K2H 8S1

Certificate of Analysis

Report Date: 14-Jul-2020

Client: Greenough Environmental Consulting Inc.

Order Date: 9-Jul-2020

Client PO: Experimental Farm - Building 143

Project Description: 31862

Qualifier Notes

Sample Qualifiers :

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

Work Order Revisions | Comments

None

PARACEL LABORATORIES LTD.

Paracel ID: 2028416

d Office
2319 St. Laurent Blvd.
wa, Ontario K1G 4J8
-800-749-1947
aracel@paracellabs.com

Chain of Custody
(Lab Use Only)

Client Name: Greenough Environmental	Project Reference: [illegible] - Experimental Farm- Building 143
Contact Name: Andrew Cooney	Quote #:
Address: 29 Capital Drive, Ottawa, ON	PO #:
Telephone: 613-792-4125	Email Address: acooney99@gmail.com acooney@greenough.ca dkoning@greenough.ca

Turnaround Time:

- ☐ Immediate
- ☐ 4 Hour
- ☐ 8 Hour
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Regular

Date Required: _____

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☒ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:** ☒ ON ☐ QC ☐ AB ☐ SK ☐ Other:

Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM Asbestos ☒ PLM Asbestos ☐ Chatfield Asbestos ☐ TEM Asbestos

	Paracel Order Number: 2028416 Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Identify Distinct Building Materials to Be Analyzed (if not specified, all materials identified will be analyzed) *	Positive Stop?
1	AS-01A-C	07/09/20		PLM	CB Mortar	☒
2	AS-02A-C	07/09/20		PLM	Interior Window caulking	☒
3	AS-03A-C	07/09/20		PLM	Brown Joint Caulking	☒
4	AS-04A-C	07/09/20		PLM	Tar Lagging	☒
5	AS-05A-C	07/09/20		PLM	Light Grey Duct Mastic	☒
6	AS-06A-C	07/09/20		PLM	Foundation Parging	☒
7						☐
8						☐
9						☐
10						☐
11						☐
12						☐

*** If left blank, all distinct materials identified in the samples will be analyzed and reported separately as per EPA 600/R-93/116. Additional charges will apply.**

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Andrew Cooney			
Date/Time: 07/09/2020	Date/Time: 09/07/20 11:01 AM	Date/Time: July 9/20 1341	Date/Time: July 9/20 1501

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Certificate of Analysis

Greenough Environmental Consulting Inc.

29 Capital Drive
Ottawa, ON K2C0E7
Attn: Amy Dean

Client PO:
Project: 30757
Custody:

Report Date: 17-Aug-2018
Order Date: 13-Aug-2018

Order #: 1833047

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1833047-01	SA-01A
1833047-02	SA-01B
1833047-03	SA-01c

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Order #: 1833047

Certificate of Analysis

Client: Greenough Environmental Consulting Inc.

Client PO:

Report Date: 17-Aug-2018

Order Date: 13-Aug-2018

Project Description: 30757

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1833047-01	02-Aug-18	sample homogenized	Grey	Caulking	No	Client ID: SA-01A	
						MMVF	2
						Non-Fibers	98
1833047-02	02-Aug-18	sample homogenized	Grey	Caulking	No	Client ID: SA-01B	
						MMVF	2
						Non-Fibers	98
1833047-03	02-Aug-18	sample homogenized	Grey	Caulking	No	Client ID: SA-01c	
						MMVF	2
						Non-Fibers	98

** MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool*

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	1 - Mississauga	200863-0	17-Aug-18

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Work Order Revisions / Comments

None

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Chain of Custody
(Lab Use Only)

Page 1 of 1

Client Name: GEC	Project Reference: 30757
Contact Name: Amy Dean	Quote #: 17-390
Address: 29 Capital Drive	PO #:
Telephone:	Email Address: adean@greenough.ca

Turnaround Time:

- ☐ Immediate
- ☐ 4 Hour
- ☐ 8 Hour
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Regular

Date Required:

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air ☒ Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:** ☒ ON ☐ QC ☐ AB ☐ SK ☐ Other:

Analysis: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM ☐ PCM Asbestos ☒ PLM Asbestos ☐ Chatfield Asbestos ☐ TEM Asbestos

Paracel Order Number: 1833047

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Identify Distinct Building Materials to Be Analyzed * see below	Asbestos - Bulk: Combine Identified Materials? **see below	Asbestos - Bulk: Positive Stop?
1	SA-01(A/B/C)	Aug 2	N/A	PLM	Exterior Caulking	☐	☒
2						☐	☐
3						☐	☐
4						☐	☐
5						☐	☐
6						☐	☐
7						☐	☐
8						☐	☐
9						☐	☐
10						☐	☐
11						☐	☐
12						☐	☐

* If left blank, Paracel will analyze all materials identified during analysis ** If left blank, Paracel will analyze all materials as individual samples **(at additional cost)** per EPA 600/R -93/116

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Amy Dean			
Date/Time: Aug 13 8:30 AM	Date/Time: 13/08/18 10:00 AM	Date/Time: Aug 13/18 10:20	Date/Time: Aug 13/18 11:19

APPENDIX B

SUMMARY OF RESULTS & CERTIFICATES OF LABORATORY ANALYSIS:

LEAD

Summary of Results & Certificates of Laboratory Analysis: Lead

Table 3 provides a summary of the lead analytical results collected for the purpose of this survey. The analytical results follow this table.

TABLE 3 – SUMMARY OF LEAD ANALYTICAL RESULTS Building 143 Central Experimental Farm, Ottawa, Ontario			
Sample Reference	**Item/Location**	**Surface Colour**	**Results (µg/g Lead)**
2020 Assessment			
LP-01	Window Frame Paint	White	88
LP-02	Window Frame Paint	Beige	<20
LP-03	**Exhaust Fan, Labelled DC-EF-3**	**Beige**	**6520**
2018 Assessment			
LS-01	**Exterior Window & Door Trim**	**Grey**	**1,080**
LS-02	Exterior Walls	Green	<20

Based on laboratory analysis identified in **Table 3** and previous reports, the beige exterior paint sampled (31862, LP-03) and the grey Exterior trim paint (30757, LS-01) are ***considered to be lead-containing***, according to ECAO guidelines, with a concentration of lead greater than 1,000 ppm (µg/g). If these materials (and the surfaces to which they are applied) are disturbed work procedures must be used in accordance with the Classification of Work Operations (Sections 7 & 8, EACO, 2014) and the Classification of Work (Sections 5.0 & 6.0, MoL 2011). In the event of a conflict between these documents, the most stringent shall apply.

If the non-lead-based paint(s) identified (and the surfaces to which they are applied) are disturbed in a non-aggressive manner and performed using normal dust control procedures then lead abatement precautionary measures are not required (EACO, 2014).

Note: Some paints could not be sampled as they were in good condition and sampling without matrix interference (i.e. removing the paint without the substrate material) would have proved difficult. Other paints shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise.

Based on the age of the building and historical applications, lead is assumed to be present in **emergency light batteries and solder on the joints of copper piping** (where observed within the project areas).

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Certificate of Analysis

Greenough Environmental Consulting Inc.

29 Capital Drive
Ottawa, ON K2C 0E7
Attn: Andrew Cooney

Client PO: Experimental Farm Building 143
Project: 31862
Custody:

Report Date: 15-Jul-2020
Order Date: 9-Jul-2020

Order #: 2028401

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2028401-01	LS-01
2028401-02	LS-02
2028401-03	LS-03

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 15-Jul-2020

Client: Greenough Environmental Consulting Inc.

Order Date: 9-Jul-2020

Client PO: Experimental Farm Building 143

Project Description: 31862

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	14-Jul-20	14-Jul-20

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Certificate of Analysis

Report Date: 15-Jul-2020

Client: Greenough Environmental Consulting Inc.

Order Date: 9-Jul-2020

Client PO: Experimental Farm Building 143

Project Description: 31862

Sample Results

Lead

Matrix: Paint

Sample Date: 09-Jul-20

Paracel ID	Client ID	Units	MDL	Result
2028401-01	LS-01	ug/g	20	88
2028401-02	LS-02	ug/g	20	<20
2028401-03	LS-03	ug/g	20	6520

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**944**	**20**	**ug/g**	**924**			**2.09**	**30**	
Matrix Spike									
Lead	777	20.00	ug/g	462	126	70-130			

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TRI
RE:
RE:

Paracel ID: 2028401

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2028401	

Client Name: Greenough Environmental	Project Ref: ~~2200~~ 3/862-Experimental Farm Building 143	Page 1 of 1
Contact Name: Andrew Cooney	Quote #:	**Turnaround Time**
Address: 29 Capital Drive, Ottawa, ON	PO #:	☐ 1 day ☐ 3 day
	E-mail: acooney99@gmail.com acooney@greenough.ca dkoning@greenough.ca	☐ 2 day ☑ ~~Regular~~
Telephone: 613-792-4425		Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	LEAD
1	LS-01	P		1	07/09/20	9:00								X
2	LS-02	P		1	↓	↓								X
3	LS-03	P		1	↓	↓								X
4														
5														
6														
7														
8														
9														
10														

Required Analysis

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received By Driver/Depot: T. Steine	Received at Lab: Sam	Verified By: Sam
Relinquished By (Print): Andrew Cooney	Date/Time: 09/07/20 11:01	Date/Time: July 09/20 11:50	Date/Time: July 09/20 13:29
Date/Time: 07/09/20	Temperature: °C AM	Temperature: °C	pH Verified: ☐ By:

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Certificate of Analysis

Greenough Environmental Consulting Inc.

29 Capital Drive
Ottawa, ON K2C0E7
Attn: Amy Dean

Client PO:
Project: 30757
Custody:

Report Date: 16-Aug-2018
Order Date: 13-Aug-2018

Order #: 1833060

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1833060-01	LS-01 Grey
1833060-02	LS-02 Green

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: Greenough Environmental Consulting Inc.
Client PO:

Report Date: 16-Aug-2018
Order Date: 13-Aug-2018
Project Description: 30757

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	15-Aug-18	15-Aug-18

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Certificate of Analysis
Client: Greenough Environmental Consulting Inc.
Client PO:

Report Date: 16-Aug-2018
Order Date: 13-Aug-2018
Project Description: 30757

Sample Results

Lead

Matrix: Paint
Sample Date: 02-Aug-18

Paracel ID	Client ID	Units	MDL	Result
1833060-01	LS-01 Grey	ug/g	20	1080
1833060-02	LS-02 Green	ug/g	20	<20

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	**ND**	**20**	**ug/g**						
Matrix Duplicate									
Lead	**ND**	**20**	**ug/g**	**ND**			**0.0**	**30**	
Matrix Spike									
Lead	223		ug/L	ND	89.1	70-130			

Paracel ID: 1833060

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t: 1-800-749-1547
e: paracel@paracellabs.com

Chain of Custody (Lab Use Only)

Page 1 of 1

Client Name: GEC	Project Reference: 30757
Contact Name: Amy Dean	Quote #: 17-390
Address: 29 Capital Drive	PO #:
Telephone:	Email Address: adean@greenoughs.ca

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required: _____

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1833060

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Lead						
1	GS-01 grey	P	N/A	1	Aug 2		☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐	☐	☐
2	GS-02 green	P	N/A	1	Aug 2		☐	☐	☐	☐	☐	☐	☐	X	☐	☐	☐	☐	☐	☐
3							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Required Analyses

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received by Driver/Depot: M. Teale	Received at Lab: COURIER DOCUMENT	Verified By:
Relinquished By (Print): Amy Dean	Date/Time: 13/08/18 10:00 AM	Date/Time: AUG 13, 2018 18:15	Date/Time: 08/13/18 18:41
Date/Time: Aug 13, 2018	Temperature: _____ °C	Temperature: _____ °C	pH Verified [ ] By:

APPENDIX C

REPRESENTATIVE PHOTOGRAPHS

Representative Photographs

Figure 1: Non-friable Tar/lagging collected from east side of the building was confirmed to contain 8.39% Chrysotile asbestos (AS-04 A-C).

Figure 2: View of Lead containing Exterior Grey Trim Paint located on Building 143, around windows and doors.

APPENDIX D

BACKGROUND DOCUMENTATION:

METHODOLOGY & GENERAL RECOMMENDATIONS

Background Documentation: Methodology & General Recommendations

1.0 Background Documentation

1.1 Methodology

Analytical results reflect the sampled materials at the specific sample locations. Visually similar materials were referenced to specific analysed samples (where applicable).

Materials suspected to contain designated substances, were visually identified based on the surveyor's knowledge as well as historical application of building components. Where permitted, visual identification of materials suspected to contain asbestos was supported by the collection and analysis of representative samples. Asbestos sampling was performed by GEC in order to meet the current minimum sampling requirements of Ontario Regulation 278/05 - Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05), as amended.

In Ontario, a material is defined as an ACM if the material has a minimum asbestos content of 0.5% by dry weight. ACMs are divided into two categories: friable and non-friable materials. A friable ACM is a material that can be crumbled, powdered, pulverized or reduced to dust by hand or moderate pressure. Friable materials can readily release fibres when disturbed. Common applications of friable ACMs are sprayed or trowelled surfacing materials (e.g. sprayed fireproofing and textured coatings) as well as mechanical and thermal insulations. Non-friable materials will generally release fibres only when cut, broken or have deteriorated to the point where the binding agents of the material begin to fail. Common non-friable ACMs include drywall joint compound, plaster, textile products (gaskets etc.) and asbestos cement (transite). It must be noted that some materials, although non-friable intact, become friable upon manipulation (i.e. plaster, drywall joint compound, ceiling tiles etc.).

Paracel is a fully accredited laboratory and is certified (#200812-0) under National Voluntary Laboratory Accreditation Program (NVLAP) to perform asbestos analysis of bulk samples. Paracel has received its Certificate of Laboratory Proficiency from the Canadian Association of Environmental Analytical Laboratories (CAEAL) and has achieved accreditation from the Standard Council of Canada.

Analysis of paint chip samples is performed using MOE E3470 (which utilizes EPA Method 6020) which describes the multi-elemental determination of analyses by ICP-OES in environmental samples. The method measures ions produced by a radio-frequency inductively coupled plasma. Analyte species originating in a liquid are nebulized and the resulting aerosol is transported by argon gas into the plasma torch. The ions produced by high temperatures are entrained in the plasma gas and introduced, by means of an interface, into a mass spectrometer. The ions produced in the plasma are sorted according to their mass-to-charge ratios and quantified with a channel electron multiplier. Interferences must be assessed and valid corrections applied, or the data flagged to indicate problems. Interference correction must include compensation for background ions contributed by the plasma gas, reagents, and

constituents of the sample matrix. Prior to analysis, samples which require total values must be acid digested using appropriate sample preparation methods.

Inductively coupled plasma-optical emission spectrometry (ICP/OES) is applicable to the determination of sub-ug/L concentrations of a large number of elements in water samples and in waste extracts or digests. When dissolved constituents are required, samples must be filtered and acid-preserved prior to analysis. No digestion is required prior to analysis for dissolved elements in water samples. Acid digestion prior to filtration and analysis is required for groundwater, aqueous samples, industrial wastes, soils, sludges, sediments, and other solid wastes for which total (acid-leachable) elements are required.

2.0 General Recommendations

2.1 Asbestos

The following recommendations are made respecting Ontario Regulation 278/05:

- Suspect materials identified during renovation and/or demolition activities not discussed in this report herein should be treated as ACMs unless proven otherwise through material specific sampling and analysis in accordance with the requirements of Ontario Regulation 278/05 and the PSPC Asbestos Management Standard.
- Client should update their existing ACM inventory upon completion of the project.
- That the roles and responsibility of “the owner” as stipulated in Section 8 of Ontario Regulation 278/05 be recognized and adhered to including, but not limited to, notification to occupiers and workers as well as training.
- Ontario Regulation 490/09, as amended to O. Reg. 148/12 - Designated Substance - made under the Occupational Health and Safety Act states that airborne levels of asbestos fibres should not exceed 0.1 f/cc.

2.2 Lead

The Lead Regulation on Construction Projects (enforced by the Ministry of Labour) does not require removal of lead-containing materials unless work on these materials is likely to produce lead fumes or dust; for example, during welding, torch cutting, grinding, sanding or sandblasting.

In the event that such work is conducted at this facility, every employer shall take all necessary measures and procedures by means of engineering controls, work and hygiene practices to ensure that the time-weighted average exposure of a worker to airborne lead, except tetraethyl lead, shall not exceed 0.05 milligrams lead per cubic metre of air, and in the case of exposure to tetraethyl lead 0.10 milligrams lead per cubic metre of air, Ontario regulation 490/09.

The Occupational Health and Safety Branch of the Ontario Ministry of Labour have published *Guideline: Lead on Construction Projects*. This document classifies all lead disturbances as Type 1, Type 2a, Type 2b or Type 3 work, and assigns alternate levels of respiratory protection and work procedures for each type of task being performed.

If piping is removed during renovation activities, copper and/or drainage piping can be cut a small distance (e.g., 5cm) from the joints to avoid disturbance of the solder and joint caulking suspected to contain lead.

The work procedures outlined in the MOL document entitled *Guideline: Lead on Construction Projects* must be followed when disturbing the above noted lead-containing materials.

The OEL for airborne lead is prescribed by Ontario Regulation 490/09 *Designated Substances*, as amended. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed this Occupational Exposure Limit.

The disposal of construction waste containing lead is governed by O. Reg. 347- General – Waste Management, as amended. The transport of the waste to the disposal site is controlled by the federal Transportation of Dangerous Goods Act (TDGA), 1992.

2.3 Mercury

Mercury or mercury vapour within fluorescent light tubes poses no risk to occupants, provided the mercury containers remain intact.

It is unlikely that the presence of mercury in equipment will lead to unintended ingestion, inhalation or absorption of mercury, provided equipment remains in good working condition.

If broken mercury-containing equipment can be repaired to good working condition, ensure that all repair work is conducted in a fume hood to ensure that equipment maintenance staffs' mercury exposure does not exceed the maximum allowable TWAEV of 0.01 mg/m^3 of air as outlined in O. Reg. 490/09. If broken mercury-containing equipment cannot be repaired to good working condition, the equipment should be disposed of in a timely fashion.

In federal facilities The *Code of Practice: Environmentally Sound Management of End-of-Life Lamps Containing Mercury* should be followed when removing and/or disposing mercury containing light tubes. This document provides guidance on environmentally sound management of spent lamps, ensuring that they are collected separately from the general waste stream, and stored, handled, transported and processed in a manner that prevents releases of the mercury to the environment. Furthermore, the disposal of construction waste containing mercury under O. Reg. 347/90.

2.4 Silica

Silica dust can be generated by drilling, coring, blasting, grinding, crushing and sandblasting silica-containing materials.

Work on silica-containing materials can be performed by any construction personnel. GEC recommends that all personnel involved with, or working in the area of, destructive activities on block, concrete, and other silica-containing building materials take the following precautions:

- Segregate the work area from the rest of the building to reduce the risk of exposing building occupants to silica dust. Workers leaving the work area should pass through a designated clean room where excess dust can be brushed off clothes and facilities are available to wash dust off skin.
- The work surface should be wetted regularly to limit dust released during striking and abrasion.
- Everyone in the work area should be provided with a half-face respirator equipped with HEPA filters.
- Ensure that all necessary measures and procedures by means of engineering control, work and hygiene practices are implemented to ensure that the TWAEV of a worker to silica is reduced to the lowest practical level and, in any event, shall not exceed 0.05 mg/m^3 of air for cristobalite and tridymite, and 0.10 mg/ m^3 of air for quartz and tripoli.

APPENDIX E

REPRESENTATIVE PHOTOGRAPHS
and SITE MAP

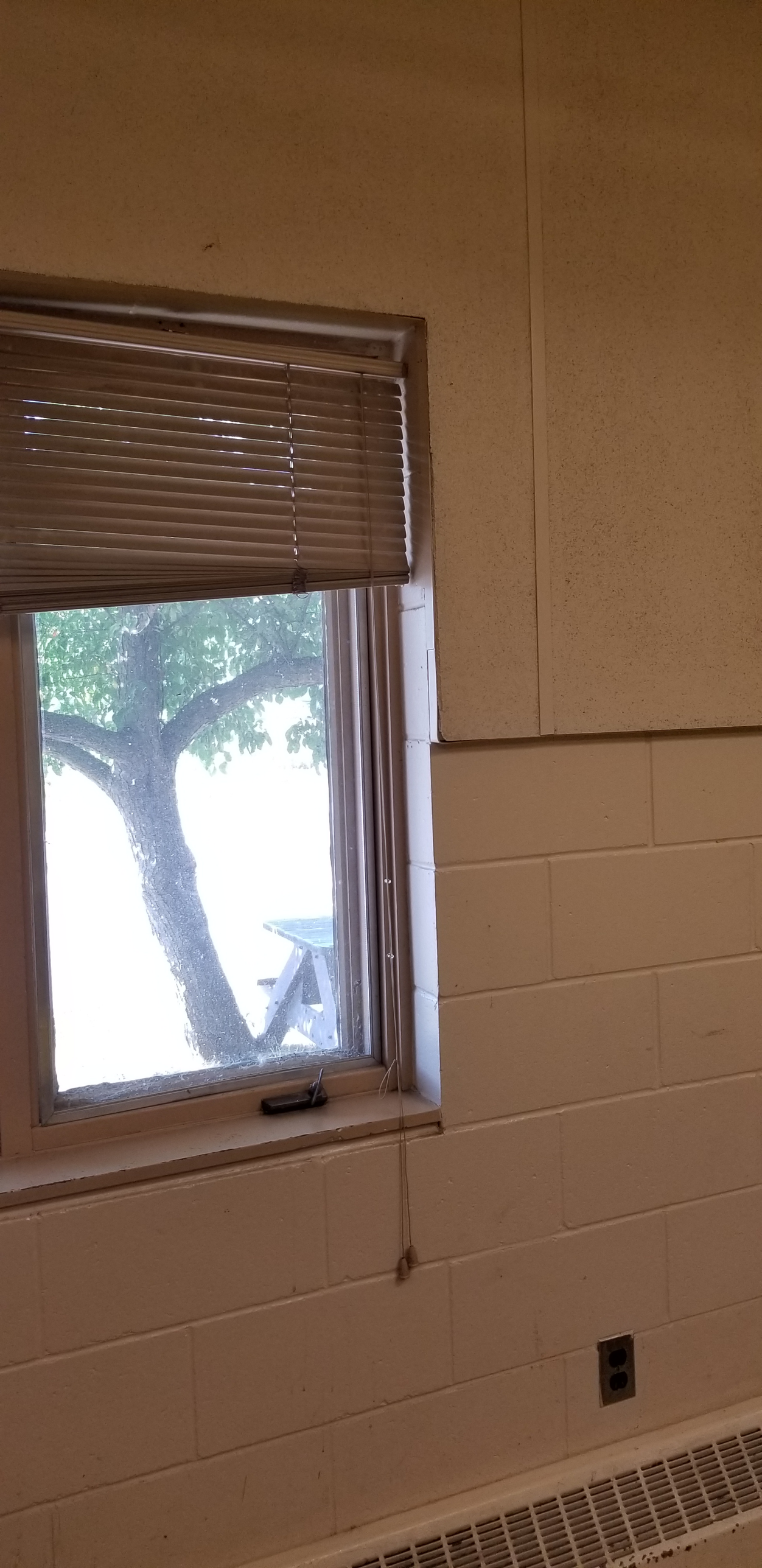

Turn
ignition off
Engine idling not
permitted
Fermez
le contact
Interdiction de laisser
tourner le moteur au ralenti
UNDERGROUND SERVICE ENTRANCE
ENTRÉE DE TISSON SOUTERRAIN


143
Canada
79

Agriculture
Canada

Immeuble

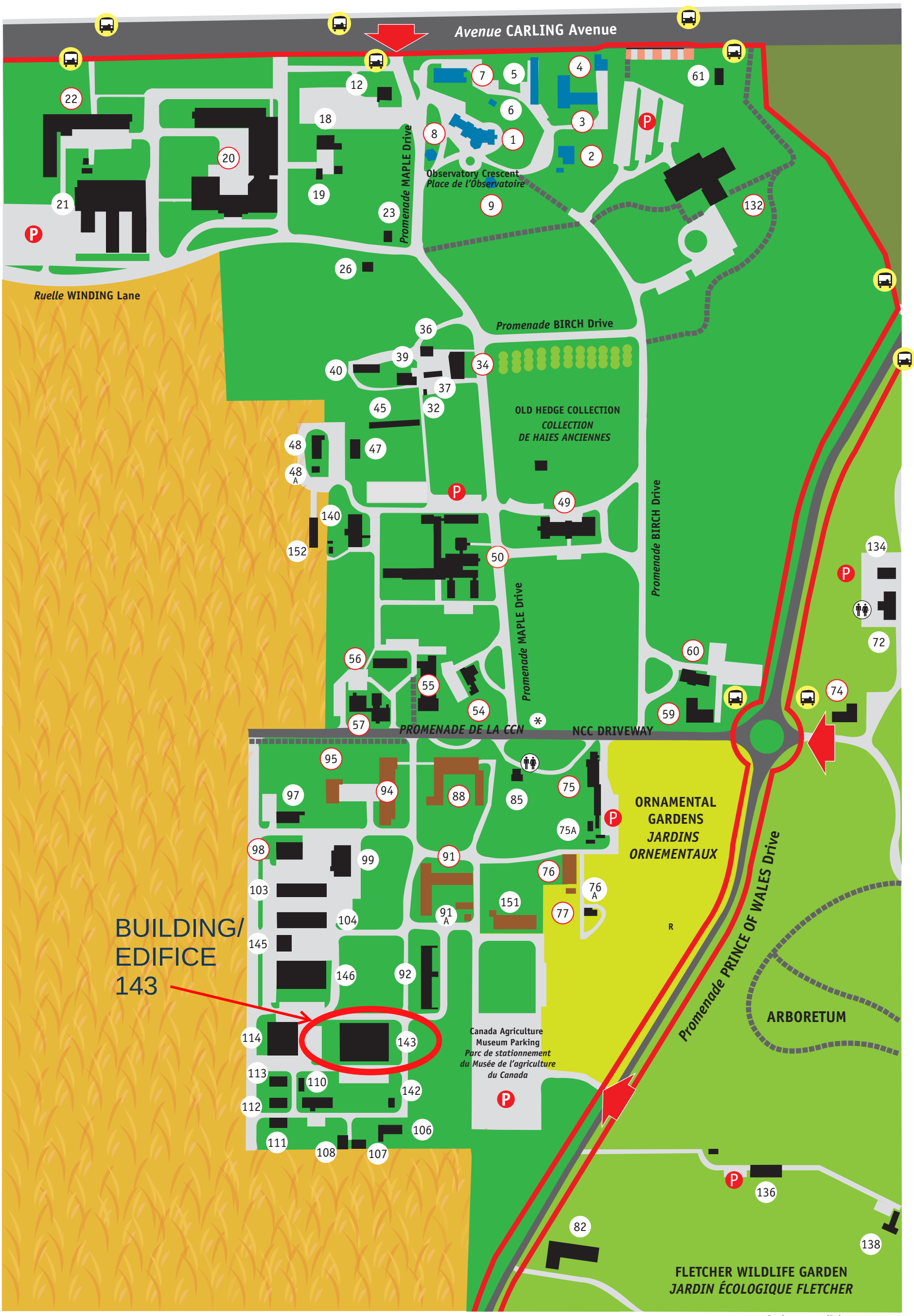
43



Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Canada

CENTRAL EXPERIMENTAL FARM
FERME EXPÉRIMENTALE CENTRALE



AAFC No. xxxxx

Spring 2010/Printemps 2010

PROJECT CENTRAL EXPERIMENTAL FARM

EXTERIOR WALL INSULATION AND WINDOW UPGRADES

Building 143

OTTAWA, ON

DRAWING LIST

ARCHITECTURAL

ABBREVIATIONS

ALUM	ALUMINUM	FIN	FINISH	T.O.	TOP OF
CJ	CONTRACTION JOINT	MTL	MATERIAL	TYP	TYPICAL
CLR	CLEAR	N/A	NOT APPLICABLE	T&G	TONGUE AND GROOVE
CL	CENTRELINE	NIC	NOT IN CONTRACT	U/S	UNDERSIDE
C/W	COMES WITH	O.C.	ON CENTRE	UNO	UNLESS NOTED OTHERWISE
DIM	DIMENSION	SIM	SIMILAR	VB	VAPOUR BARRIER
EQ	EQUAL	TBD	TO BE DETERMINED	V.I.F	VERIFY IN FIELD
EXIST	EXISTING			WD	WOOD

SYMBOLS

- 01 — KEYNOTE
- 1 / A-101 — SECTION MARKER
- 1 / A-101 — ELEVATION MARKER
- 1 / A-101 — DETAIL MARKER
- W1 — WALL/PARTITION, FLOOR OR ROOF TYPE
- D-01 — DOOR MARKER
- W-01 — WINDOW MARKER
- A-1 — APPLIANCE/EQUIPMENT MARKER
- ELEVATIONAL HEIGHT MARKER
- 1000 — DIMENSION TO FACE OF STUD OR MASONRY WALL UNLESS NOTED OTHERWISE
- 1 / TYP. — REVISION MARKER
- DUPLEX RECEPTACLE
- 240V — 240V RECEPTACLE

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURE AND FOR ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE PROJECT. NEITHER THE OWNER NOR THE ARCHITECT IS RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO FOLLOW PROPER SAFETY PROCEDURES.

2. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN WITH THE BEST PRESENT KNOWLEDGE. ANY DISCREPANCIES BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS SHALL BE REFERRED TO THE DEPARTMENTAL REPRESENTATIVE IN WRITING PRIOR TO PROCEEDING.

3. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ENSURE THAT ALL WORK IS BUILDABLE AS SHOWN. CONDITIONS THAT ARE NOT REFLECTIVE OF THAT WHICH IS SHOWN SHALL BE REFERRED TO THE DEPARTMENTAL REPRESENTATIVE IN WRITING PRIOR TO COMMENCING CONSTRUCTION.

4. CONTRACTOR SHALL AT ALL TIMES PROVIDE PROTECTION TO MAINTAIN ALL WORK, MATERIALS, AND EQUIPMENT FREE FROM DAMAGE.

5. CONTRACTOR SHALL DEMOLISH/REMOVE FROM SITE ALL EXISTING CONSTRUCTION AND IMPROVEMENTS AS NECESSARY FOR COMPLETION OF WORK.

6. CONTRACTOR MUST FOLLOW THE ABATEMENT PROCEDURES FOR DESIGNATED SUBSTANCES AS SET OUT BY THE ENVIRONMENTAL CONSULTANT.

7. PROVIDE CONSTRUCTION WASTE BIN AND RECYCLING BINS AS REQUIRED IN LOCATION APPROVED BY DEPARTMENTAL REPRESENTATIVE. RECYCLE ALL MATERIALS WHERE FACILITIES EXIST. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE COST OF WASTE DISPOSAL.

8. MATERIALS, PRODUCTS AND EQUIPMENT SHALL ALL BE NEW, EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

9. CONTRACTOR TO PRECISELY LOCATE ALL UTILITIES PRIOR TO ANY CONSTRUCTION AND/OR EXCAVATION. CONTRACTOR TO NOTIFY UTILITY PROVIDERS AND DEPARTMENTAL REPRESENTATIVE PRIOR TO DISCONNECTION AND REINSTALLATION OF UTIILITIES. INCLUDE COSTS FOR DISCONNECTION AND REINSTALLATION IN BID PRICE.

10. PATCH/REPAIR AND MAKE GOOD ALL SURFACES AFFECTED BY CONSTRUCTION. PROVIDE ADEQUATE BLOCKING AND/OR BRACING AT WALL HUNG OR WALL BRACED ITEMS. CUT AND PATCH FLOORS AS REQUIRED; SUPPLY AND INSTALL HIGH EARLY STRENGTH CONCRETE (24 HOURS MAX TO MEET REQUIRED STRENGTH) FOR ALL PATCHES/REPAIRS.

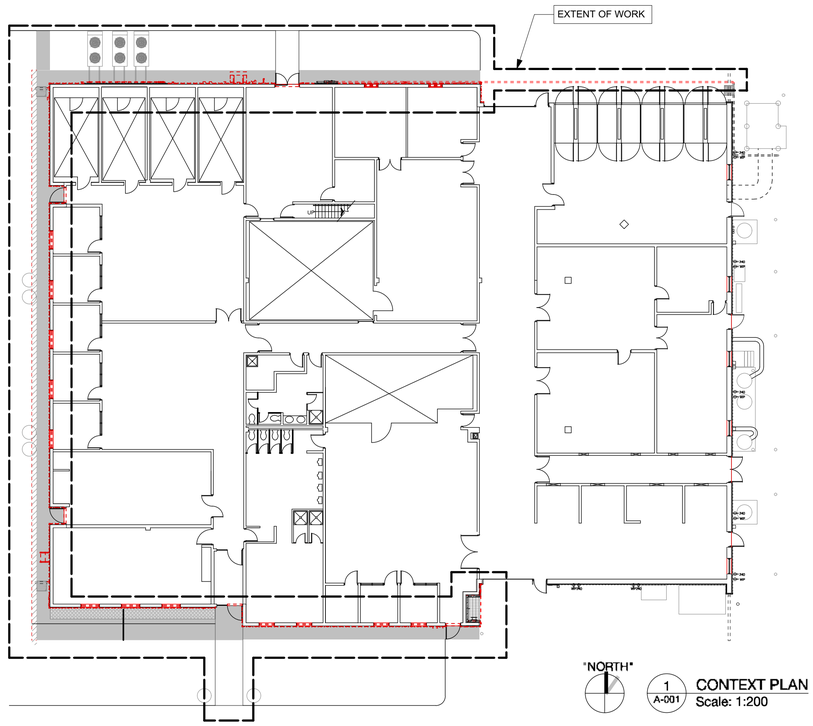
11. DO NOT SCALE DRAWINGS. ALL DIMENSIONS MARKED "CLEAR" SHALL BE MAINTAINED AND SHALL ALLOW FOR THICKNESS OF ALL FINISHES.

12. "TYPICAL" OR "TYP." SHALL MEAN THAT THE CONDITION IS REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED (U.O.N.). "ALIGN" SHALL MEAN TO ACCURATELY LOCATE FINISH FACES IN THE SAME PLANE. "SIMILAR OR "SIM." MEANS COMPARABLE CHARACTERISTICS FOR THE CONDITIONS NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLANS AND ELEVATIONS.

13. OBTAIN AND PAY FOR PERMITS REQUIRED BY ELECTRICAL SAFETY AUTHORITY (ESA) AND LOCAL INSPECTION AUTHORITIES FOR THIS WORK. PRESENT FINAL CERTIFICATES TO DEPARTMENTAL REPRESENTATIVE.

14. CARRY OUT ALL WORK IN ACCORDANCE WITH CANADIAN ELECTRICAL CODE (CEC) REGULATIONS AND ELECTRICAL SAFETY AUTHORITY (ESA) REQUIREMENTS.

15. ELECTRICAL WORK TO BE PERFORMED BY LICENCED ELECTRICIAN LICENCED TO PRACTICE IN THE PROVINCE OF ONTARIO.

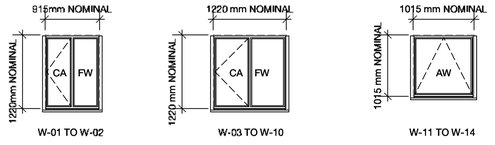


1 / A-001 CONTEXT PLAN
Scale: 1:200

WINDOW SCHEDULE / TABLEAUX DES FENÊTRES

ITEM / ARTICLE	NOMINAL DIMENSIONS (w x h)	COMMENTS
W-01	915 X 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-02	915 X 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-03	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-04	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-05	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-06	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-07	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-08	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-09	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-10	1220 x 1220mm MASONRY OPENING	CASEMENT + FIXED WINDOW
W-11	1015 x 1015mm MASONRY OPENING	AWNING WINDOW
W-12	1015 x 1015mm MASONRY OPENING	AWNING WINDOW
W-13	1015 x 1015mm MASONRY OPENING	AWNING WINDOW
W-14	1015 x 1015mm MASONRY OPENING	AWNING WINDOW

NOTE: VERIFY ALL WINDOW SIZES.



WINDOW ELEVATIONS (AS VIEWED FROM EXTERIOR)

WALL TYPES

W1 EXISTING CONCRETE FOUNDATION
EXISTING DAMPPROOFING
51mm CONCRETE-FACED INSULATION WALL PANEL

W2 EXISTING CONCRETE MASONRY UNIT
AIR BARRIER
51mm SUB-FRAMING THERMAL SPACERS
50mm BOARD INSULATION (TYPE 1a)
25mm HORIZONTAL STEEL Z-GIRTS (18 GAUGE)
VERTICAL PRE-FORMED METAL SIDING

W3 EXISTING CONCRETE MASONRY UNIT
AIR BARRIER
102mm SUB-FRAMING THERMAL SPACERS
102mm BOARD INSULATION (Type 1b)
25mm HORIZONTAL STEEL Z-GIRTS (18 GAUGE)
VERTICAL PRE-FORMED METAL SIDING

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KEY PLAN

#	ISSUE	DATE
01	ISSUE FOR TENDER	8/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

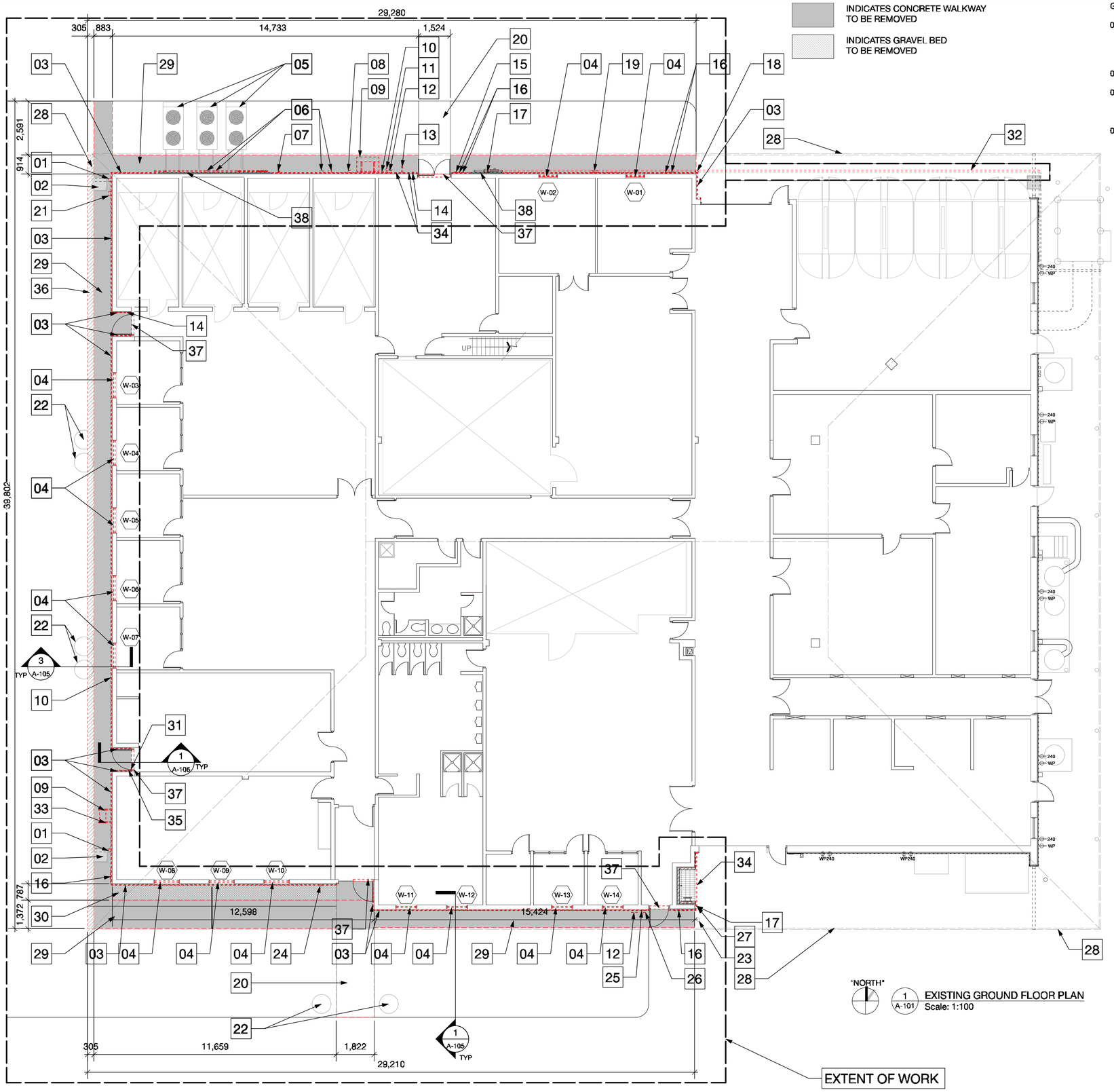
SHEET TITLE

COVER SHEET

PROJECT #: 18-024
DRAWN BY KT
CHECKED BY KT

SHEET

A-001



1 A-101 EXISTING GROUND FLOOR PLAN
Scale: 1:100

GENERAL NOTES:

01) **CONTRACTOR TO EXTEND AND/OR MODIFY ALL SERVICES (INCLUDING BUT NOT LIMITED TO PLUMBING, WIRING, PIPING, CONDUIT, CABLING, BRACKETS, SUPPORTS) INDICATED AS "ADJUST" OR "RE-INSTATE" TO SUIT INCREASED DEPTH OF BUILDING ENVELOPE WITHIN THE AREAS INDICATED AS THE EXTENT OF WORK (TYP).**
02) REPAIR ALL EXISTING CONCRETE FOUNDATION WALLS WITHIN EXTENT OF WORK, PRIOR TO INSTALLATION OF NEW MATERIAL.
03) ALL EXISTING LIGHTNING PROTECTION SYSTEMS AND GROUNDING RODS IMPACTED BY THE WORK TO BE RE-INSTATED BY A LICENSED LIGHTNING SYSTEMS CONTRACTOR. SUBMIT CERTIFICATE OF COMPLIANCE BY LICENSED LIGHTNING SYSTEMS CONTRACTOR.
04) ADJUST ALL EXISTING SOFFITS IMPACTED BY NEW CLADDING, TO SUIT NEW EXTERIOR CLADDING DEPTH.

KEYNOTES

1. ADJUST EXISTING RAINWATER LEADER W/ HEAT TRACING TO SUIT NEW EXTERIOR CLADDING. PROVIDE ALLOWANCE FOR REPLACEMENT OF UP TO FOUR (4) DOWNSPOUTS AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. COLOUR TO BE DETERMINED.
2. EXISTING STORM DRAIN TO REMAIN.
3. EXISTING EXTERIOR WOOD CLADDING, INSULATION AND AIR BARRIER TO BE REMOVED.
4. EXISTING WINDOW TO BE REMOVED.
5. EXISTING A/C UNIT TO REMAIN. ADJUST EXISTING WIRING / PIPING TO SUIT NEW EXTERIOR CLADDING. SUPPORT WIRING ON UNISTRUT, PROUD OF SIDING.
6. ADJUST EXISTING VENT CAP AND DUCTING TO SUIT NEW EXTERIOR CLADDING.
7. EXISTING WOOD POST TO BE REMOVED.
8. ADJUST EXISTING CONTROL BOX TO SUIT NEW EXTERIOR CLADDING.
9. ADJUST EXISTING WALL-MOUNTED A/C UNIT TO SUIT NEW EXTERIOR CLADDING.
10. ADJUST EXISTING HOSE BIBB OR DRAIN SPIGOT TO SUIT NEW EXTERIOR CLADDING.
11. ADJUST EXISTING SIAMESE CONNECTION TO SUIT NEW EXTERIOR CLADDING.
12. ADJUST EXISTING BELL TO SUIT NEW EXTERIOR CLADDING.
13. ADJUST EXISTING CONDENSATE DRAIN PIPE TO SUIT NEW EXTERIOR CLADDING.
14. RELOCATE EXISTING CARD READER TO SUIT NEW EXTERIOR CLADDING.
15. ADJUST UNDERGROUND SERVICE ENTRY TO SUIT NEW EXTERIOR CLADDING.
16. RELOCATE EXISTING SIGNAGE TO SUIT NEW EXTERIOR CLADDING.
17. ADJUST JUNCTION BOX TO SUIT NEW EXTERIOR CLADDING.
18. REMOVE EXISTING ENGENIUS WIRELESS BRIDGE AND RETURN TO DEPARTMENTAL REPRESENTATIVE.
19. RELOCATE ALARM BELL TO SUIT NEW EXTERIOR CLADDING.
20. EXISTING CONCRETE ENTRY WALKWAY TO REMAIN. SAW CUT AS REQUIRED BETWEEN PORTION TO REMAIN AND PORTION TO BE REMOVED.
21. ADJUST EXISTING SERVICES, CONDUIT AND BOX TO SUIT NEW EXTERIOR CLADDING.
22. EXISTING PLANTER TO REMAIN. RELOCATE AND REPLACE AS REQUIRED TO PERFORM THE WORK.
23. REMOVE AND REPLACE EXISTING BOLLARD AS REQUIRED TO PERFORM THE WORK.
24. RELOCATE EXISTING LOCK BOX TO SUIT NEW EXTERIOR CLADDING.
25. ADJUST EXISTING SPRINKLER SYSTEM DRAIN TO SUIT NEW EXTERIOR CLADDING.
26. EXISTING RAINWATER LEADER TO BE REMOVED.
27. RELOCATE EXISTING SECURITY CHECK POINT (FOBB) TO SUIT NEW EXTERIOR CLADDING.
28. LINE OF EXISTING ROOF ABOVE.
29. REMOVE EXISTING CONCRETE WALKWAY / APRON (SHOWN SHADED).
30. REMOVE GRAVEL BED (SHOWN HATCHED).
31. ADJUST EXISTING AIR COMPRESSOR LINE TO SUIT NEW EXTERIOR CLADDING.
32. ADJUST GAS PIPING FROM METER TO SUIT NEW EXTERIOR CLADDING.
33. ADJUST EXISTING CONDENSATE DRAIN LINE. RELOCATE DRAIN LINE TO DRAIN TO GRADE IN LIEU OF ADJACENT DOWNSPOUT.
34. ADJUST EXISTING CONDUIT ALONG SOFFIT TO SUIT NEW EXTERIOR CLADDING.
35. ADJUST EXISTING DOOR BELL BUTTON TO SUIT NEW EXTERIOR CLADDING.
36. REMOVE ADDITIONAL GROUND COVER (SHOWN HATCHED) 305mm BEYOND EXISTING CONCRETE PAVERS IN PREPARATION FOR NEW GRAVEL BED.
37. REMOVE EXISTING DOOR THRESHOLD.
38. PORTION OF EXISTING EXTERIOR CLADDING TO REMAIN. REFER TO EXTERIOR ELEVATIONS.

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CONSULTANTS

KEY PLAN

#	ISSUE	DATE
01	ISSUE FOR TENDER	8/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

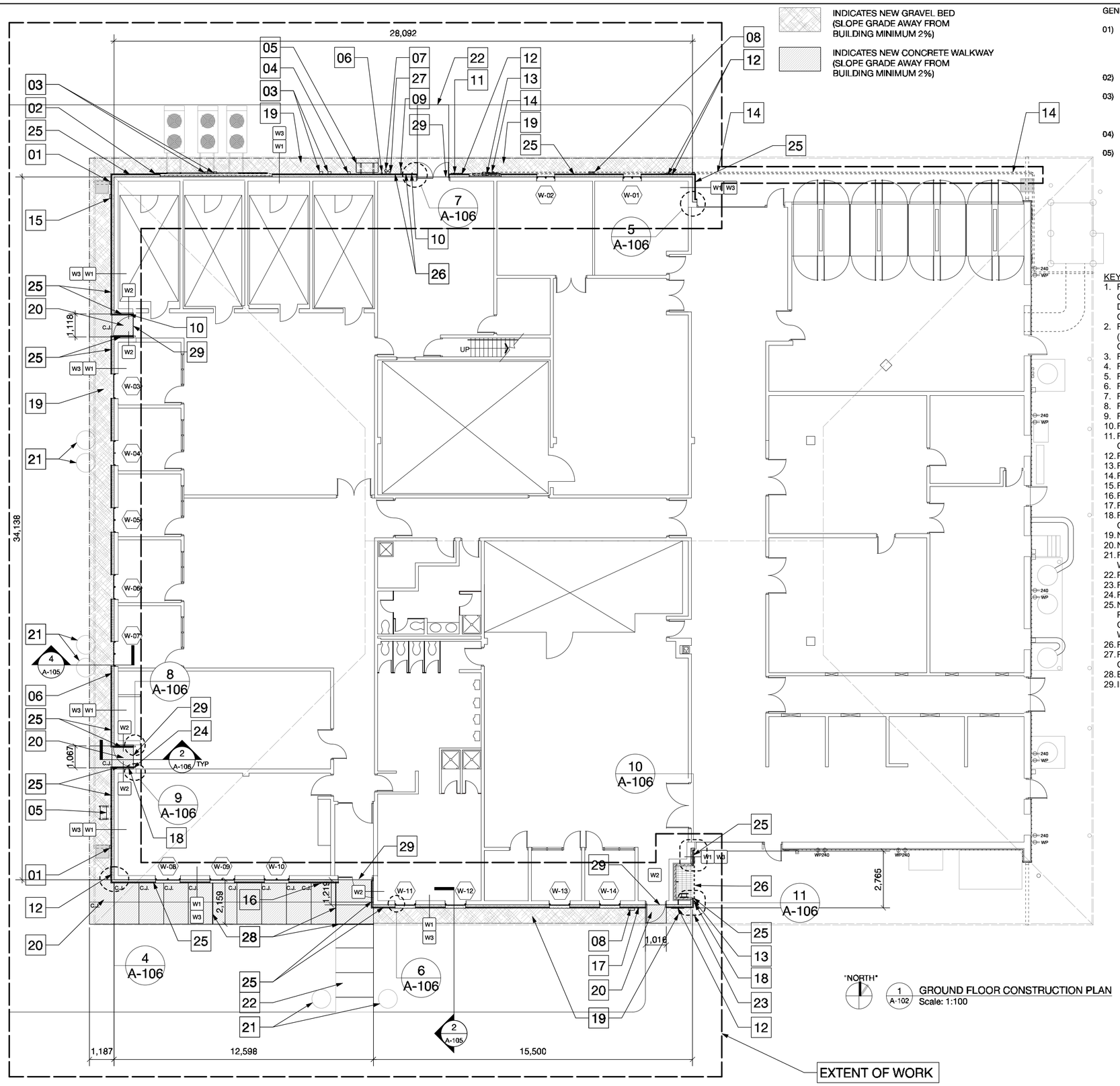
SHEET TITLE

DEMOLITION PLAN

PROJECT #: 18-024
DRAWN BY: KT
CHECKED BY: KT

SHEET

A-101



1 A-102 GROUND FLOOR CONSTRUCTION PLAN
Scale: 1:100

GENERAL NOTES:

01) **CONTRACTOR TO EXTEND AND/OR MODIFY ALL SERVICES (INCLUDING BUT NOT LIMITED TO PLUMBING, WIRING, PIPING, CONDUIT, CABLING, BRACKETS, SUPPORTS) INDICATED AS "ADJUST" OR "RE-INSTATE" TO SUIT INCREASED DEPTH OF BUILDING ENVELOPE WITHIN THE AREAS INDICATED AS THE EXTENT OF WORK (TYP).**
02) REPAIR ALL EXISTING CONCRETE FOUNDATION WALLS WITHIN EXTENT OF WORK, PRIOR TO INSTALLATION OF NEW MATERIAL.
03) ALL EXISTING LIGHTNING PROTECTION SYSTEMS AND GROUNDING RODS IMPACTED BY THE WORK TO BE RE-INSTATED BY A LICENSED LIGHTNING SYSTEMS CONTRACTOR. SUBMIT CERTIFICATE OF COMPLIANCE BY LICENSED LIGHTNING SYSTEMS CONTRACTOR.
04) ADJUST ALL EXISTING SOFFITS IMPACTED BY NEW CLADDING, TO SUIT NEW EXTERIOR CLADDING DEPTH.
05) CAULK ALL PENETRATIONS THROUGH NEW EXTERIOR CLADDING WITH COLOUR MATCHED POLYURETHANE CAULKING.

KEYNOTES

1. RE-INSTATE RAINWATER LEADER W/ HEAT TRACING TO SUIT NEW EXTERIOR CLADDING. PROVIDE ALLOWANCE FOR REPLACEMENT OF UP TO FOUR (4) DOWNSPOUTS AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. COLOUR TO BE DETERMINED.
2. RE-INSTATE A/C WIRING AND PIPING TO SUIT NEW EXTERIOR CLADDING (TYP). SUPPORT WIRING ON UNISTRUT, PROUD OF NEW EXTERIOR CLADDING.
3. RE-INSTATE VENT CAP TO SUIT NEW EXTERIOR CLADDING.
4. RE-INSTATE CONTROL BOX TO SUIT NEW EXTERIOR CLADDING.
5. RE-INSTATE WALL-MOUNTED A/C UNIT TO SUIT NEW EXTERIOR CLADDING.
6. RE-INSTATE DRAIN SPIGOT TO SUIT NEW EXTERIOR CLADDING.
7. RE-INSTATE EXISTING SIAMESE CONNECTION .
8. RE-INSTATE EXISTING BELL TO SUIT NEW EXTERIOR CLADDING.
9. RE-INSTATE CONDENSATE DRAIN PIPE TO SUIT NEW EXTERIOR CLADDING.
10. RE-INSTATE CARD READER TO SUIT NEW EXTERIOR CLADDING.
11. RE-INSTATE UNDERGROUND SERVICE ENTRY TO SUIT NEW EXTERIOR CLADDING.
12. RE-INSTATE SIGNAGE TO SUIT NEW EXTERIOR CLADDING.
13. RE-INSTATE JUNCTION BOX TO SUIT NEW EXTERIOR CLADDING.
14. RE-INSTATE GAS PIPING TO SUIT NEW EXTERIOR CLADDING.
15. RE-INSTATE EXISTING SERVICE ENTRY.
16. RE-INSTATE LOCK BOX TO SUIT NEW EXTERIOR CLADDING.
17. RE-INSTATE SPRINKLER SYSTEM DRAIN TO SUIT NEW EXTERIOR CLADDING.
18. RE-INSTATE SECURITY CHECKPOINT (FOBB) TO SUIT NEW EXTERIOR CLADDING.
19. NEW GRAVEL BED - 50mm RIVER ROCK ON FILTER CLOTH.
20. NEW CAST-IN-PLACE CONCRETE WALK (150mm THICK).
21. REPLACE EXISTING CONCRETE PLANTERS AS REQUIRED TO PERFORM THE WORK (TYP).
22. PORTION OF EXISTING CONCRETE WALKWAY TO REMAIN.
23. REPLACE EXISTING BOLLARD AS REQUIRED TO PERFORM THE WORK.
24. RE-INSTATE AIR COMPRESSOR LINE TO SUIT NEW EXTERIOR CLADDING.
25. NEW EXTERIOR CLADDING (INCLUDING CONCRETE FACED INSULATION PANELS AT FOUNDATION, PREFORMED METAL SIDING, THERMAL SPACER CLIPS, INSULATION, AIR BARRIER AND METAL FLASHINGS- TYP). REFER TO WALL TYPES.
26. RE-INSTATE CONDUIT AT SOFFIT TO SUIT NEW EXTERIOR CLADDING.
27. RE-INSTATE SPRINKLER ACTIVATED ALARM BELL TO SUIT NEW EXTERIOR CLADDING.
28. EXPANSION JOINT
29. INSTALL NEW DOOR THRESHOLD TO SUIT NEW EXTERIOR CLADDING.

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KEY PLAN

#	ISSUE	DATE
01	ISSUE FOR TENDER	8/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

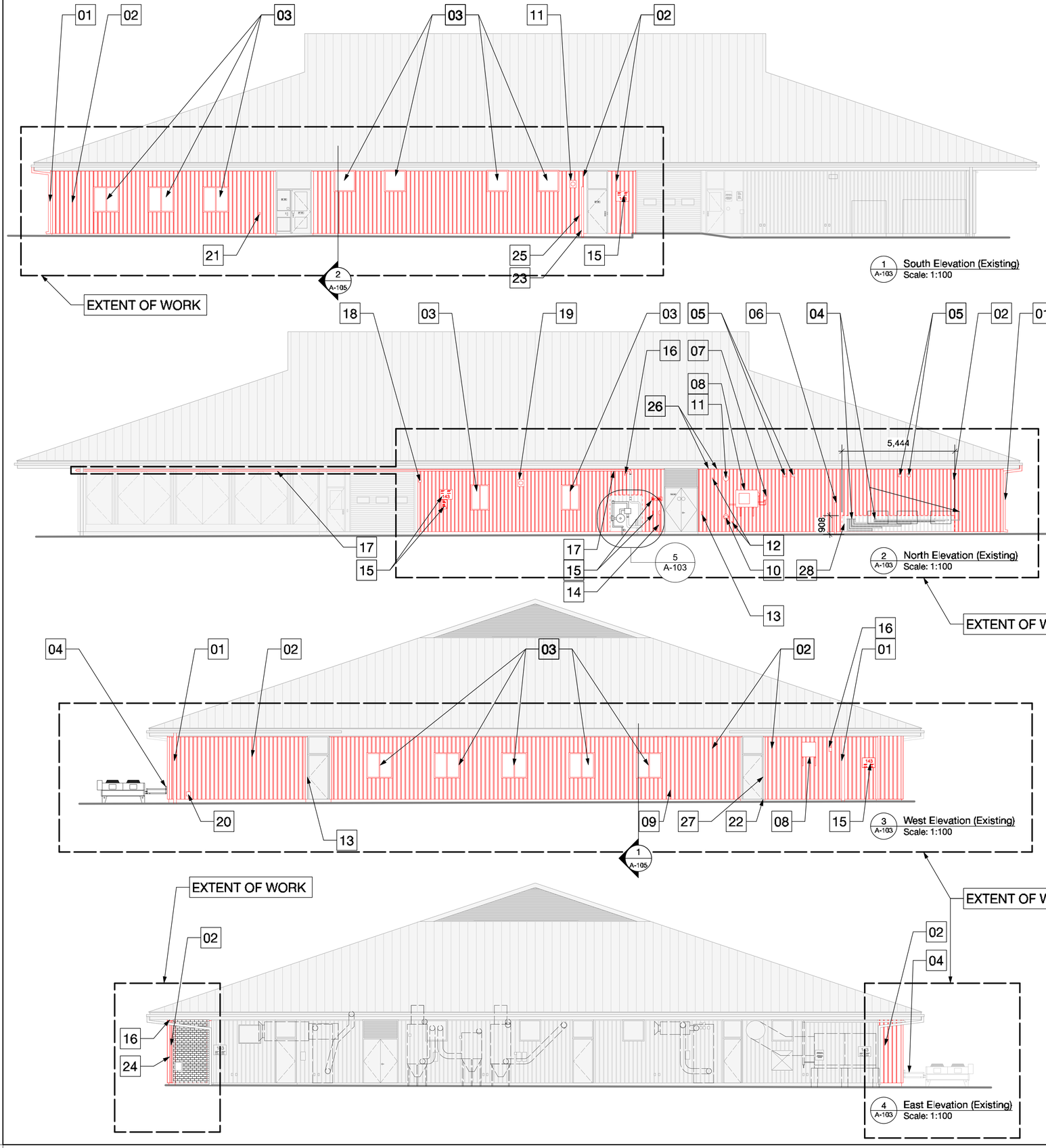
SHEET TITLE

CONSTRUCTION PLAN

PROJECT #: 18-024
DRAWN BY: KT
CHECKED BY: KT

SHEET

A-102



GENERAL NOTES:

01) **CONTRACTOR TO EXTEND AND/OR MODIFY ALL SERVICES (INCLUDING BUT NOT LIMITED TO PLUMBING, WIRING, PIPING, CONDUIT, CABLING, BRACKETS, SUPPORTS) INDICATED AS "ADJUST" OR "RE-INSTATE" TO SUIT INCREASED DEPTH OF BUILDING ENVELOPE WITHIN THE AREAS INDICATED AS THE EXTENT OF WORK (TYP).**

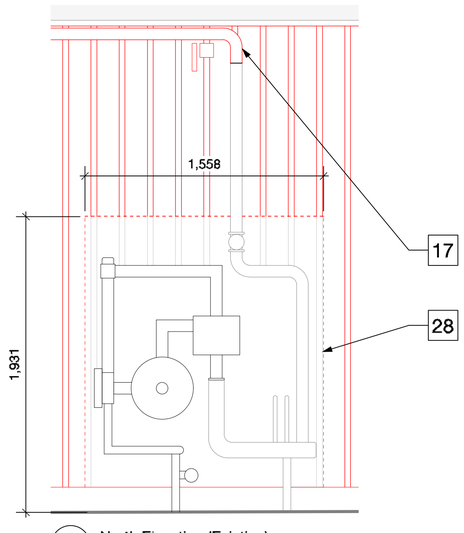
02) REPAIR ALL EXISTING CONCRETE FOUNDATION WALLS WITHIN EXTENT OF WORK, PRIOR TO INSTALLATION OF NEW MATERIAL.

03) ALL EXISTING LIGHTNING PROTECTION SYSTEMS AND GROUNDING RODS IMPACTED BY THE WORK TO BE RE-INSTATED BY A LICENSED LIGHTNING SYSTEMS CONTRACTOR. SUBMIT CERTIFICATE OF COMPLIANCE BY LICENSED LIGHTNING SYSTEMS CONTRACTOR.

04) ADJUST ALL EXISTING SOFFITS IMPACTED BY NEW CLADDING, TO SUIT NEW EXTERIOR CLADDING DEPTH.

KEYNOTES

1. ADJUST EXISTING RAINWATER LEADER W/ HEAT TRACING TO SUIT NEW EXTERIOR CLADDING. PROVIDE ALLOWANCE FOR REPLACEMENT OF UP TO FOUR (4) DOWNSPOUTS AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. COLOUR TO BE DETERMINED.
2. EXTERIOR CLADDING AND INSULATION TO BE REMOVED.
3. EXISTING WINDOW TO BE REMOVED.
4. EXISTING A/C UNIT AND PIPING TO REMAIN. ADJUST EXISTING WIRING/ PIPING TO SUIT NEW EXTERIOR CLADDING.
5. ADJUST EXISTING VENT CAP AND DUCTING TO SUIT NEW EXTERIOR CLADDING.
6. EXISTING WOOD POST TO BE REMOVED.
7. ADJUST EXISTING CONTROL BOX TO SUIT NEW EXTERIOR CLADDING.
8. ADJUST EXISTING WALL MOUNTED A/C UNIT TO SUIT NEW EXTERIOR CLADDING.
9. ADJUST EXISTING HOSE BIBB OR DRAIN SPIGOT TO SUIT NEW EXTERIOR CLADDING.
10. ADJUST EXISTING SIAMESE CONNECTION TO SUIT NEW EXTERIOR CLADDING.
11. ADJUST EXISTING BELL TO SUIT NEW EXTERIOR CLADDING.
12. ADJUST EXISTING CONDENSATE DRAING PIPE TO SUIT NEW EXTERIOR CLADDING.
13. RELOCATE EXISTING CARD READER TO SUIT NEW EXTERIOR CLADDING.
14. ADJUST UNDERGROUND SERVICE ENTRY TO SUIT NEW EXTERIOR CLADDING.
15. RELOCATE EXISTING SIGNAGE TO SUIT NEW EXTERIOR CLADDING.
16. ADJUST JUNCTION BOX AND CONDUIT TO SUIT NEW EXTERIOR CLADDING.
17. ADJUST PIPING AT GAS METER TO SUIT NEW EXTERIOR CLADDING.
18. REMOVE ENGENIUS WIRELESS BRIDGE AND FORWARD TO DEPARTMENTAL REPRESENTATIVE.
19. RELOCATE ALARM BELL TO SUIT NEW EXTERIOR CLADDING.
20. ADJUST EXISTING SERVICE, CONDUIT AND BOX TO SUIT NEW EXTERIOR CLADDING.
21. RELOCATE EXISTING LOCK BOX TO SUIT NEW EXTERIOR CLADDING.
22. ADJUST EXISTING AIR COMPRESSOR LINE TO SUIT NEW EXTERIOR CLADDING.
23. EXISTING RAINWATER LEADER TO BE REMOVED.
24. RELOCATE EXISTING SECURITY CHECKPOINT (FOBB) TO SUIT NEW EXTERIOR CLADDING.
25. ADJUST EXISTING SPRINKLER SYSTEM DRAIN TO SUIT NEW EXTERIOR CLADDING.
26. ADJUST EXISTING CONDUIT ALONG SOFFIT TO SUIT NEW EXTERIOR CLADDING.
27. RELOCATE EXISTING DOOR BUZZER TO SUIT NEW EXTERIOR CLADDING.
28. EXISTING SIDING TO REMAIN (AREA SHOWN DIMENSIONED)



5 A-103 North Elevation (Existing)
Scale: 1:20

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KEY PLAN

#	ISSUE	DATE
01	ISSUE FOR TENDER	9/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

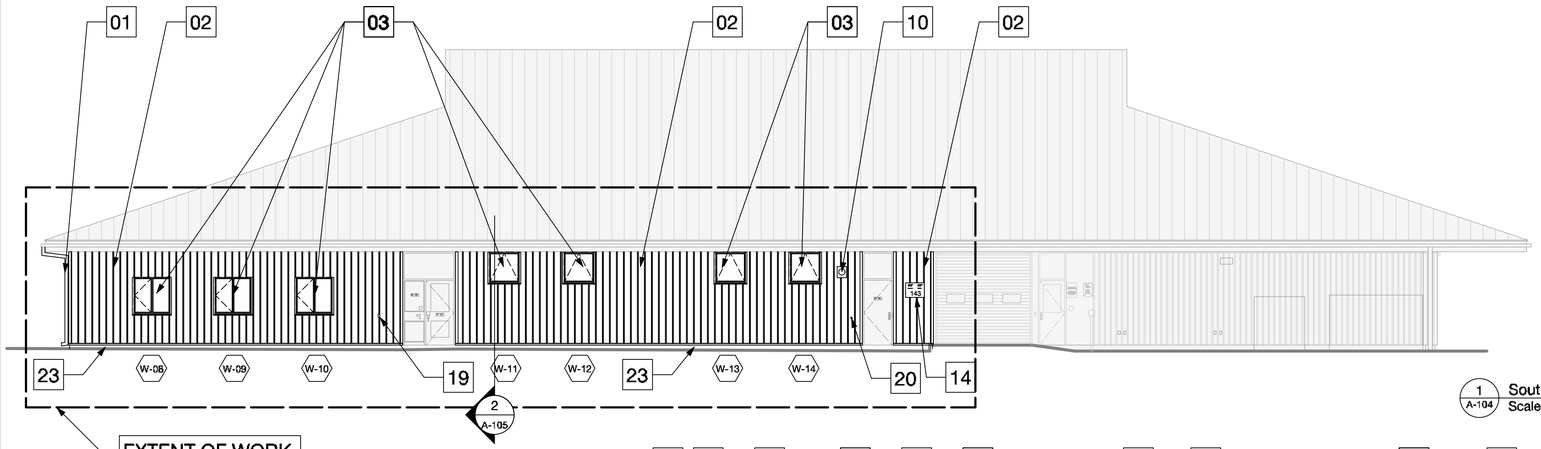
SHEET TITLE

EXTERIOR ELEVATIONS (EXISTING)

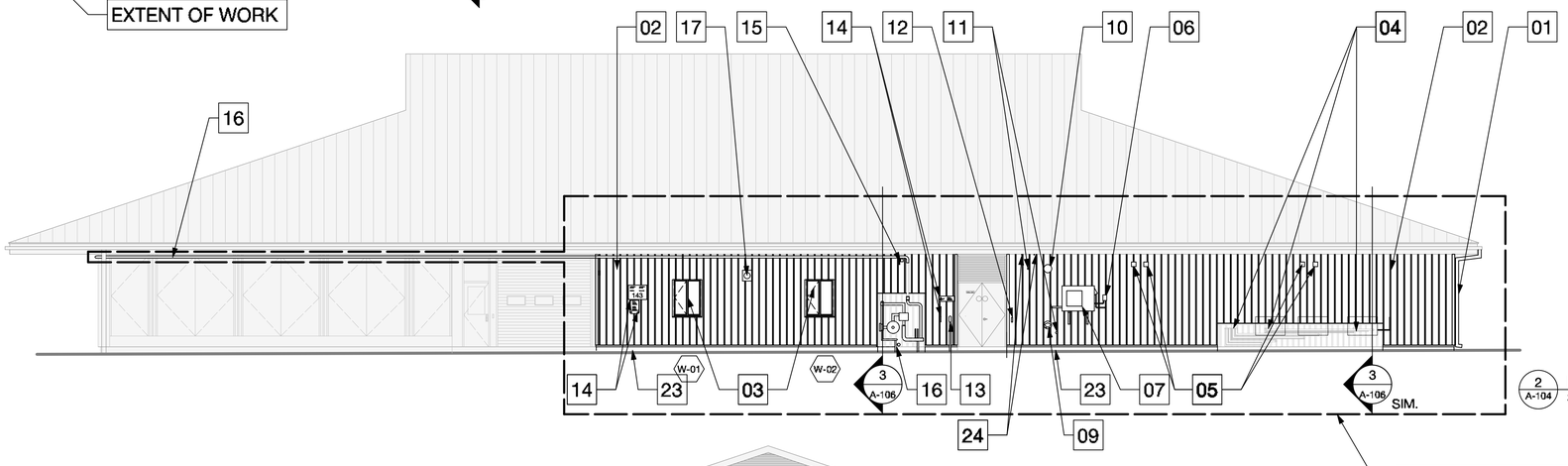
PROJECT #: 18-024
DRAWN BY: KT
CHECKED BY: KT

SHEET

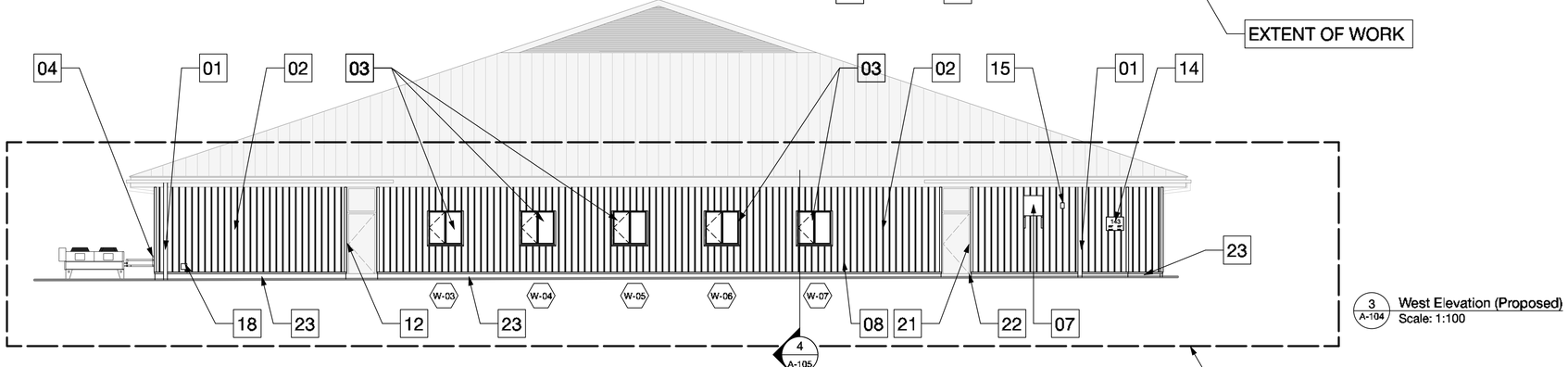
A-103



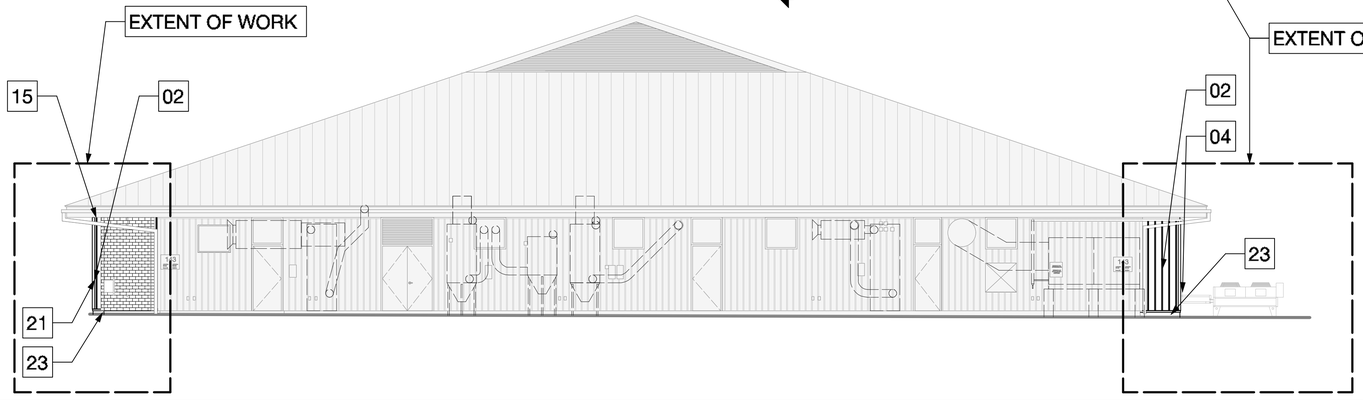
1 A-104 South Elevation (Proposed)
Scale: 1:100



2 A-104 North Elevation (Proposed)
Scale: 1:100



3 A-104 West Elevation (Proposed)
Scale: 1:100



4 A-104 East Elevation (Proposed)
Scale: 1:100

GENERAL NOTES:

01) **CONTRACTOR TO EXTEND AND/OR MODIFY ALL SERVICES (INCLUDING BUT NOT LIMITED TO PLUMBING, WIRING, PIPING, CONDUIT, CABLING, BRACKETS, SUPPORTS) INDICATED AS "ADJUST" OR "RE-INSTATE" TO SUIT INCREASED DEPTH OF BUILDING ENVELOPE WITHIN THE AREAS INDICATED AS THE EXTENT OF WORK (TYP).**

02) REPAIR ALL EXISTING CONCRETE FOUNDATION WALLS WITHIN EXTENT OF WORK, PER SPECIFICATION SECTION 03 01 30 [MAINTENANCE OF CAST-IN-PLACE CONCRETE].

03) ALL EXISTING LIGHTNING PROTECTION SYSTEMS AND GROUNDING RODS IMPACTED BY THE WORK TO BE RE-INSTATED BY A LICENSED LIGHTNING SYSTEMS CONTRACTOR. SUBMIT CERTIFICATE OF COMPLIANCE BY LICENSED LIGHTNING SYSTEMS CONTRACTOR.

04) ADJUST ALL EXISTING SOFFITS IMPACTED BY NEW CLADDING, TO SUIT NEW EXTERIOR CLADDING DEPTH.

05) CAULK ALL PENETRATIONS THROUGH NEW EXTERIOR CLADDING WITH COLOUR MATCHED POLYURETHANE CAULKING.

KEYNOTES

1. RE-INSTATE RAINWATER LEADER W/ HEAT TRACING TO SUIT NEW EXTERIOR CLADDING. PROVIDE ALLOWANCE FOR REPLACEMENT OF UP TO FOUR (4) DOWNSPOUTS AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. COLOUR TO BE DETERMINED.
2. NEW CLADDING.
3. NEW WINDOW.
4. RE-INSTATED AND ADJUSTED A/C UNIT WIRING AND PIPING.
5. RE-INSTATED AND ADJUSTED VENT CAP.
6. RE-INSTATED AND ADJUSTED CONTROL BOX.
7. RE-INSTATED AND ADJUSTED WALL-MOUNTED A/C UNIT.
8. RE-INSTATED AND ADJUSTED HOSE BIBB / DRAIN SPIGOT.
9. RE-INSTATED AND ADJUSTED SIAMESE CONNECTION.
10. RE-INSTATED AND ADJUSTED BELL.
11. RE-INSTATED AND ADJUSTED CONDENSATE DRAIN PIPE.
12. RELOCATED CARD READER.
13. RE-INSTATED AND ADJUSTED UNDERGROUND SERVICE ENTRY.
14. RELOCATED SIGNAGE.
15. RE-INSTATED AND ADJUSTED JUNCTION BOX AND CONDUIT.
16. RE-INSTATED AND ADJUSTED GAS PIPING.
17. RE-INSTATED AND ADJUSTED ALARM BELL.
18. RE-INSTATED AND ADJUSTED SERVICE ENTRY.
19. RE-INSTATED AND ADJUSTED LOCK BOX.
20. RE-INSTATED AND ADJUSTED SPRINKLER SYSTEM DRAIN PIPING.
21. RELOCATED SECURITY CHECKPOINT (FOBB).
22. RE-INSTATED AND ADJUSTED AIR COMPRESSOR LINE.
23. NEW CONCRETE FACED INSULATION WALL PANEL (TYP)
24. RE-INSTATE CONDUIT AT SOFFIT TO SUIT NEW EXTERIOR CLADDING.

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KEY PLAN

#	ISSUE	DATE
01	ISSUE FOR TENDER	9/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

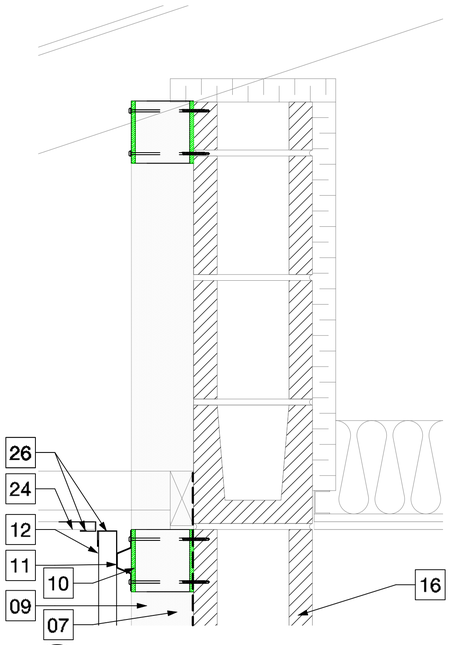
SHEET TITLE

EXTERIOR ELEVATIONS (PROPOSED)

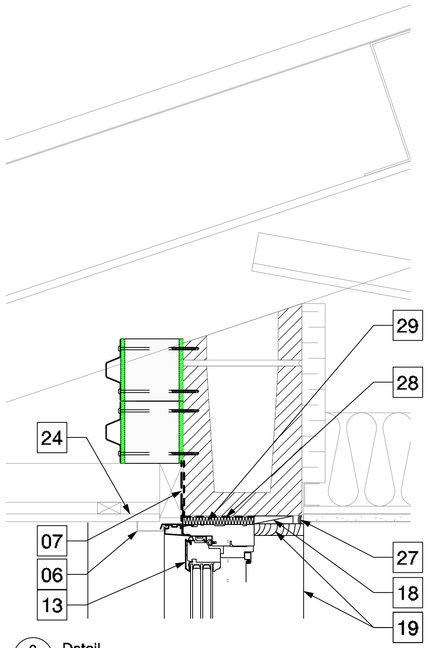
PROJECT #: 18-024
DRAWN BY KT
CHECKED BY KT

SHEET

A-104



8 A-105 Detail
Scale: 1:5



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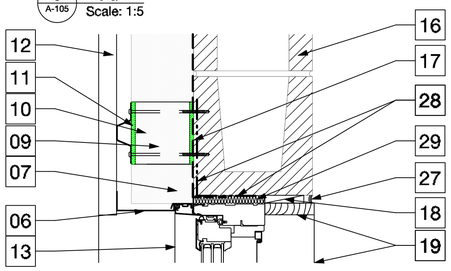

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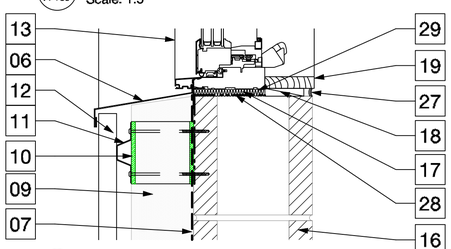

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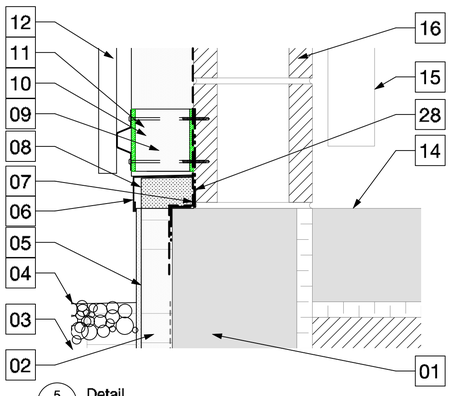

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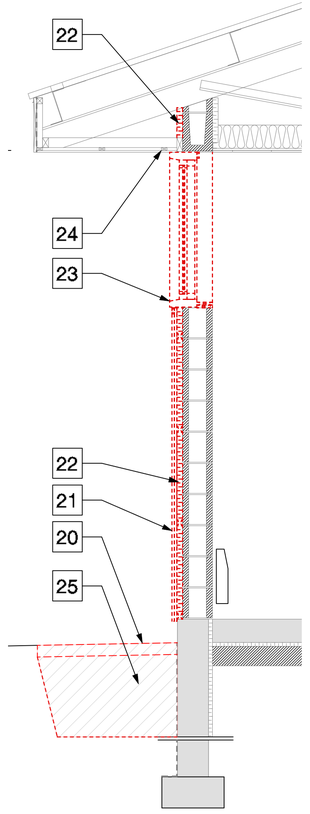
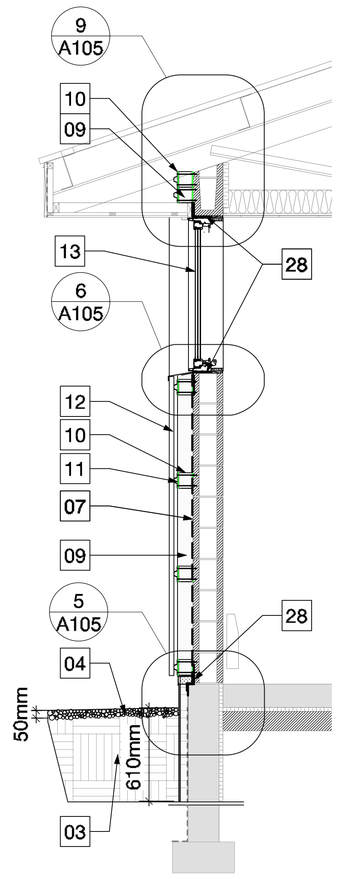
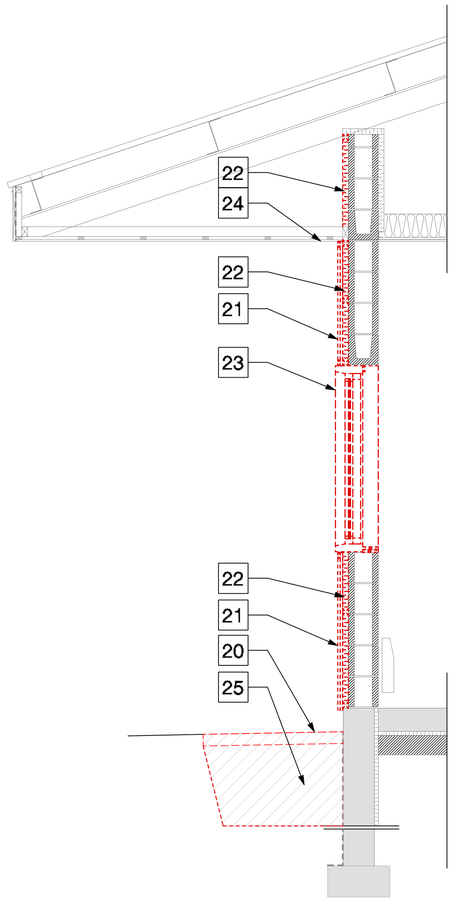


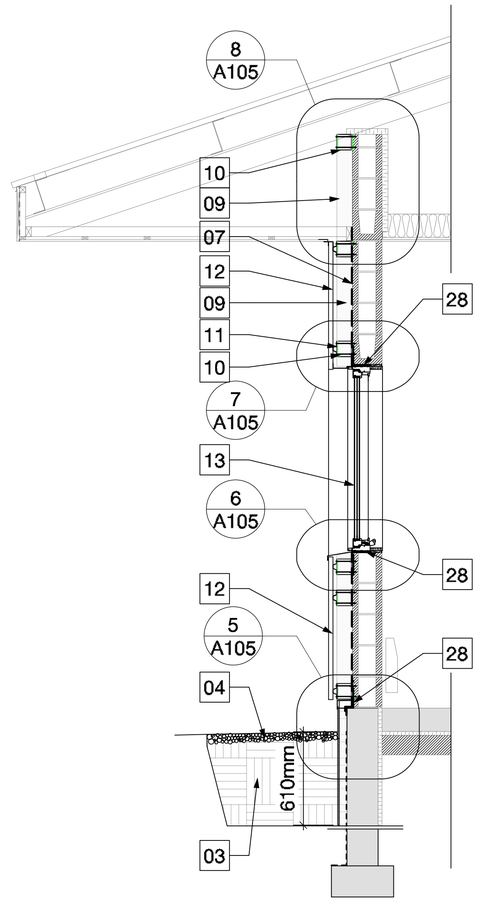
1 A-105 Existing Wall Section
Scale: 1:20



2 A-105 Proposed Wall Section
Scale: 1:20



3 A-105 Existing Wall Section
Scale: 1:20



4 A-105 Proposed Wall Section
Scale: 1:20

Agriculture and Agri-food Canada
Canada Agriculture et Agroalimentaire Canada

SEAL

CONSULTANTS

KEY PLAN

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01	ISSUE FOR TENDER	9/24/2020

PROJECT NAME

CENTRAL EXPERIMENTAL FARM
Building 143
OTTAWA, ON

SHEET TITLE

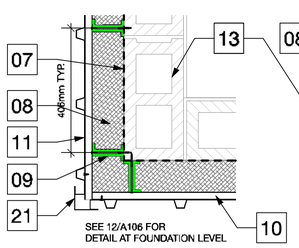
SECTIONS AND DETAILS

PROJECT #: 18-024
DRAWN BY KT
CHECKED BY KT

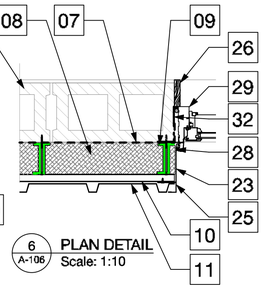
SHEET

A-105

KEYNOTES
1. EXISTING CONCRETE FOUNDATION WALL.
2. EXISTING DAMPPROOFING.
3. NEW BACKFILL - NATIVE SOIL
4. NEW GRAVEL BED - 50mm RIVER ROCK ON FILTER CLOTH.
5. NEW CONCRETE-FACED INSULATION WALL PANEL 50mm.
6. NEW SHEET METAL FLASHING.
7. NEW AIR BARRIER.
8. NEW TAPERED EXTRUDED POLYSTYRENE INSULATION.
9. NEW BOARD INSULATION (TYPE 1b TYP, U.N.O.- REFER TO PLANS).
10. NEW SUBFRAMING THERMAL SPACER (100mm TYP., U.N.O. REFER TO PLANS).
11. NEW 25mm HORIZONTAL STEEL FURRING CHANNEL (18 GAUGE).
12. NEW VERTICAL PRE-FORMED METAL SIDING. TYPICAL PROFILE AS PER DETAIL 14/A-106.
13. NEW ALUMINUM CLAD WOOD WINDOW.
14. EXISTING CONCRETE SLAB.
15. EXISTING RADIATOR.
16. EXISTING CONCRETE MASONRY UNIT.
17. SHIM SPACE.
18. NEW WOOD SETTING BLOCK (PAINTED).
19. NEW 19mm x 89mm WOOD TRIM (PAINTED). CUT TO SUIT.
20. REMOVE CONCRETE WALKWAY.
21. REMOVE EXISTING BOARD AND BATTEN SIDING.
22. REMOVE EXISTING 38mm EXPANDED POLYSTYRENE RIGID INSULATION (EPS).
23. REMOVE EXISTING WINDOWS AND TRIM.
24. EXISTING SOFFIT TO REMAIN. MODIFY TO SUIT NEW CLADDING THICKNESS. TYP.
25. EXCAVATE 610mm BELOW GRADE
26. NEW J-TRIM
27. CAULKED JOINT
28. PROVIDE NEW SELF-ADHESIVE BITUMINOUS MEMBRANE FLASHING AROUND ALL NEW WINDOW OPENINGS AND BASE OF WALL (TYP).
29. INSTALL SPRAY FOAM INSULATION



4 A-106 PLAN DETAIL
Scale: 1:10



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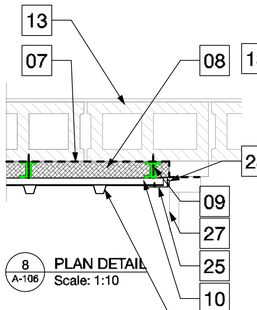

8 A-106 PLAN DETAIL
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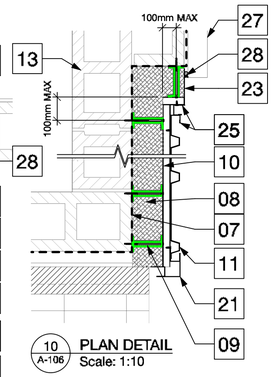

10 A-106 PLAN DETAIL
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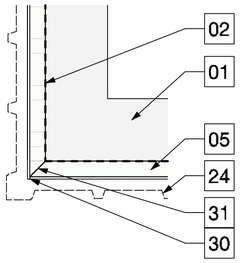
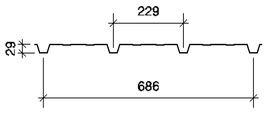
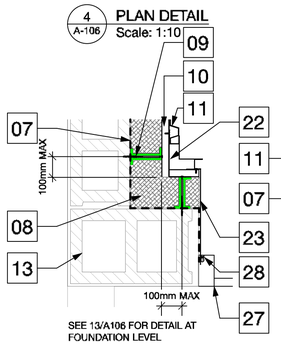


12 A-106 PLAN DETAIL- OUTSIDE CORNER
Scale: 1:10



14 A-106 PLAN DETAIL - TYP. SIDING PROFILE
Scale: 1:10



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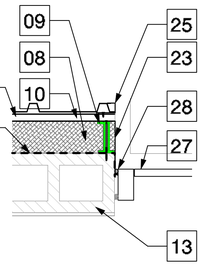
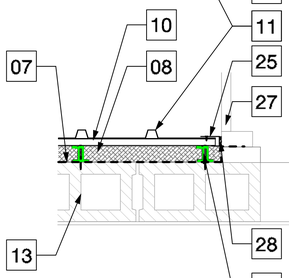


7 A-106 PLAN DETAIL
Scale: 1:10



9 A-106 PLAN DETAIL
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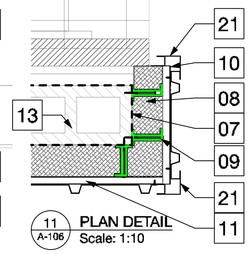

11 A-106 PLAN DETAIL
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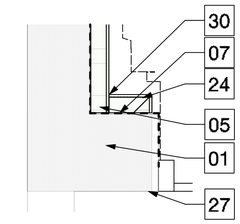
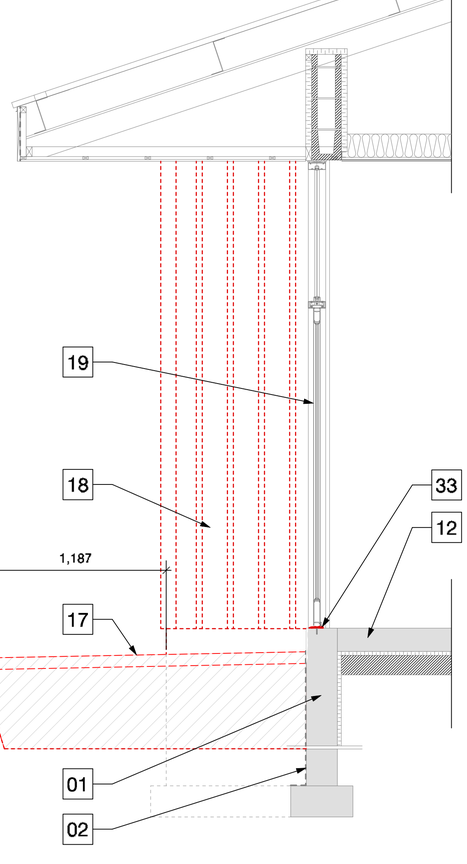


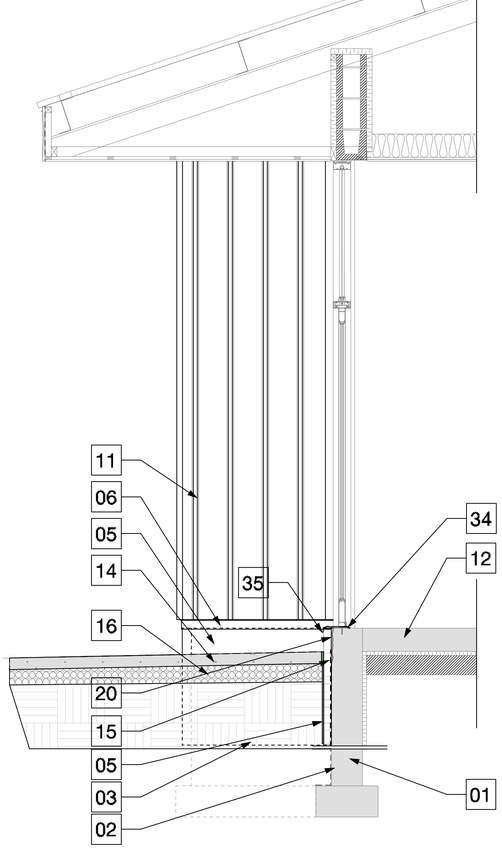
13 A-106 PLAN DETAIL - INSIDE CORNER (TYP)
Scale: 1:10

KEYNOTES

1. EXISTING CONCRETE FOUNDATION WALL.
2. EXISTING DAMPPROOFING.
3. NEW BACKFILL- NATIVE SOIL.
4. NEW GRAVEL BED - 50mm RIVER ROCK ON FILTER CLOTH.
5. NEW CONCRETE-FACED INSULATION WALL PANEL (51mm)
6. NEW SHEET METAL FLASHING.
7. NEW AIR BARRIER.
8. NEW BOARD INSULATION (TYPE 1b TYP, UNO REFER TO PLANS)
9. NEW SUBFRAMING THERMAL SPACER (100mm TYP, U.N.O. REFER TO PLANS).
10. NEW 25mm HORIZONTAL STEEL FURRING CHANNEL (18 GAUGE).
11. NEW VERTICAL PRE-FORMED METAL SIDING. TYPICAL PROFILE AS PER DETAIL 14/A-106.
12. EXISTING CONCRETE SLAB.
13. EXISTING CONCRETE MASONRY UNIT.
14. NEW CAST-IN-PLACE CONCRETE WALK (150mm THICK).
15. NEW 13mm BITUMINOUS FIBREBOARD (ISOLATION JOINT FILLER) BETWEEN EXISTING FOUNDATION AND NEW CONCRETE (TYP).
16. NEW 150mm COMPACTED GRAVEL (GRANULAR A BASE)
17. REMOVE EXISTING CONCRETE WALKWAY.
18. REMOVE EXISTING BOARD AND BATTEN SIDING.
19. EXISTING DOOR AND TRANSOM TO REMAIN.
20. REPAIR EXISTING CONCRETE FOUNDATION (TYP).
21. PROVIDE OUTSIDE CORNER TRIM (TYP).
22. PROVIDE INSIDE CORNER TRIMS (TYP).
23. PROVIDE CUSTOM TRIM TO RETURN TO EXISTING DOOR/WINDOW FRAMES. MATCH METAL SIDING (TYP).
24. LINE OF NEW CLADDING ABOVE.
25. PROVIDE NEW J-TRIM TO MATCH METAL SIDING.
26. NEW WOOD TRIM
27. EXISTING DOOR (SHOWN IN CLOSED POSITION)
28. NEW BACKER ROD AND CAULKING (TYP).
29. NEW WINDOW.
30. JOINT SEALANT
31. REMOVE PORTION OF INSULATION TO FORM CORNER.
32. PROVIDE NEW SELF-ADHESIVE BITUMINOUS MEMBRANE FLASHING AROUND ALL NEW WINDOW OPENINGS AND BASE OF WALL (TYP).
33. REMOVE EXISTING THRESHOLD
34. INSTALL NEW FLASHING TO SUIT NEW ADDITIONAL DEPTH AT FOUNDATION WALL.
35. INSTALL FLASHING BELOW NEW THRESHOLD AND CAULK .
36. EXISTING PORTION OF BOARD AND BATTEN TO REMAIN.
37. PORTION OF EXISTING INSULATION TO REMAIN.
38. PROVIDE NEW PRESSURE TREATED WOOD BLOCKING AS REQUIRED.
39. EXISTING PIPING / WIRING TO REMAIN.



1 A-106 Existing Wall Section
Scale: 1:20



2 A-106 Proposed Wall Section
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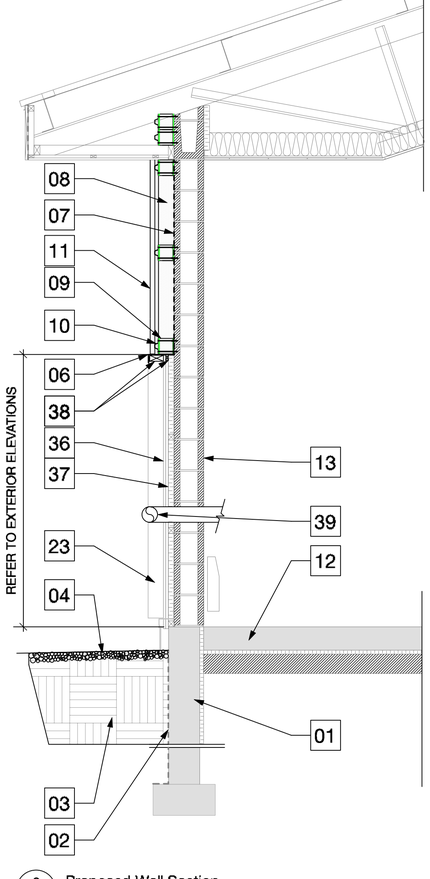

3 A-106 Proposed Wall Section
Scale: 1:20

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