

ONTARIO NORTHLAND

TRANSPORTATION COMMISSION

Request for Proposals No. RFP 2024 005

For

Design-Build of New Heated Storage Building

REPLY BY DATE: 2:00:00 p.m. Friday, April 19, 2024

Primary Contact:

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Table of Contents

PART	1 REQUEST FOR PROPOSALS	1
SECT	TION 1 - INTRODUCTION	2
1.1	General	2
1.2	Ontario Northland Transportation Commission	3
SECT	TION 2 - THE RFP DOCUMENTS	4
2.1	Request for Proposals Documents	4
2.2	Priority of Documents	5
2.3	Distribution of Documents – Electronic Distribution	5
2.4	Information Provided by ONTC	5
SECT	TION 3 – THE RFP PROCESS	6
3.1	RFP Process	6
3.2	Questions and Communications Related to the RFP Documents	6
3.3	Addenda/Changes to the RFP Documents	7
3.4	Respondents' Meeting	7
3.5	Prohibited Contacts	8
3.6	Media Releases, Public Disclosures, Public Announcements and Copyright	9
3.7	Confidentiality and Disclosure Issues – Respondent Information	9
3.8	Confidential Information	
3.9	Governing Laws and Attornment	11
3.10	Licenses and Permits	12
3.11	Respondents' Costs	
3.12	Delay and Costs of Delay	
3.13	Clarification and Verification of Respondent's Proposal	
3.14	Two-Envelope Process	
SECT	TION 4 - PROPOSAL CONTENT AND FORMAT	
4.1	Format and Content of Proposal	14
4.2	Proposal Submission Form	15
4.3	Bid Performance Security	15
4.4	References and Past Performance Issues	17
4.5	Conflict of Interest	17
SECT	TION 5 - PROPOSAL SUBMISSION, WITHDRAWAL, MODIFICATION	18
5.1	Submission of Proposals and Late Proposals	18
5.2	Late Proposals	20
5.3	Withdrawal of Proposals	20
5.4	Amendment of Proposals	20
5.5	Proposal Irrevocability	20

5.6	One Proposal per Person or Entity	.20
SECTI	ON 6 - PROPOSAL EVALUATION	.21
6.1	Evaluation Team	.21
6.2	Evaluation of Proposals	.21
6.3	Short-Listing	.22
6.4	Interviews, Site Visits, Demonstrations and Presentations	22
SECTI	ON 7 - GENERAL EVALUATION AND DISQUALIFICATION PROVISIONS	.22
7.1	ONTC's Discretion	.22
7.2	Disqualification	.23
	General Rights of ONTCON 8 – AGREEMENT, FINALIZATION AND DEBRIEFING AND SUCCESSF ONDENT	UL
8.1	Finalization of the Agreement	.25
8.2	Notification If Successful or Not	.26
8.3	Debriefing	.26
SECTI	ON 9 - LEGAL MATTERS AND RIGHTS OF ONTC	.27
9.1	Limit on Liability	.27
9.2	Power of Legislative Assembly	.27
9.3	RFP Not a "Bidding Contract" or a Tender	.28
SECTI	ON 10 – VENDOR PERFORMANCE	.28
10.1	General	.28
10.2	Vendor Performance Evaluation	.28
10.3	Vendor Ratings for Proposal Evaluation Purposes	.28
SECTI	ON 11 – TRANSPARENCY AND FAIRNESS	.28
11.1	General	.28
SECTI	ON 12 – INTERPRETATION	.29
12.1	General	.29
PART	2 REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS	1
	DULE 2-A RFP DATA SHEET	
	DULE 2-B PARTICIPATION REGISTRATION FORM	
	3 REQUEST FOR PROPOSALS SPECIFICATIONS	
	DULE 3-A SCOPE OF WORK	
_	DULE 3-A-1 TECHNICAL SPECIFICATIONS	_
	DULE 3-A-2 REFERENCE DOCUMENTS1 4 REQUEST FOR PROPOSALS FORM OF PROPOSAL	
	4 REQUEST FOR PROPOSALS FORM OF PROPOSAL	
	J NEWUEST FUR FRUFUSALS DRAFT AGREEMENT	1



PART 1 REQUEST FOR PROPOSALS

SECTION 1 - INTRODUCTION

1.1 General

(1) Ontario Northland Transportation Commission ("ONTC") is issuing this Request for Proposals ("RFP") to obtain proposals from a vendor/service provider(s) for the provision of the goods and/or services described in the RFP Specifications (the "Goods and/or Services").

(2) In this RFP:

"Applicable Laws" means the statutes, regulations, orders, by-laws and other laws of Ontario, Quebec, Manitoba, Canada and any municipal government relevant to the RFP and the subject matter of the RFP;

"Addendum" means the written supplementary information provided to potential Respondents prior to the Submission Deadline, which information becomes part of the RFP Documents;

"Business Day" means any day except Saturday, Sunday or a statutory holiday;

"Final Agreement" means the agreement for the supply of the Goods and/or Services entered into by ONTC and the Successful Respondent;

"Material" means a document or information that must be included in the Proposal including without limitation the information requested in the RFP Data Sheet, and is essential to allow ONTC to evaluate a Proposal and that if not included will result in the disqualification of the Proposal;

"Non-compliant" means the Proposal or the Respondent does not meet a requirement of the RFP Documents;

"Proposal" means the response to the RFP submitted by a Respondent to ONTC;

"Respondent(s)" means the entity submitting a Proposal and includes prospective respondents, whether or not that entity submits a Proposal. If the context requires it, "Respondent" includes any of the Respondent's respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, or representatives;

"RFP Data Sheet" means the information and requirements contained in Schedule 2-A of Part 2:

"RFP Documents" means the documents listed in RFP Section 2.1 (1) and any additional documents issued through Addenda;

"Short-listed Respondent" means a Respondent selected to proceed to the next step in the evaluation process pursuant to section 6.2 (2) of the RFP; "Substantially Compliant" means Proposal does not meet the requirements of the RFP Documents; however, the Proposal includes all of the Material items, as identified in the RFP Data Sheet;

"Successful Respondent" means the Respondent selected by ONTC to enter into the Final Agreement.

- (3) The process to select the Short-listed Respondents for the supply of the Goods and/or Services (the "RFP Process") will commence with the issuance of these RFP Documents and will terminate at the earlier of:
 - (a) when ONTC and the Successful Respondent execute the Final Agreement; or,
 - (b) upon the termination of the RFP Process in accordance with the terms and conditions of this RFP.

1.2 Ontario Northland Transportation Commission

The Ontario Northland Transportation Commission (ONTC) is an agency of the Province of Ontario that provides reliable and efficient transportation services to northern and rural communities. For over 120 years, the company has provided integrated and impactful transportation services including rail freight, passenger rail, motor coach transportation, rail repair, and remanufacturing services.

ONTC's rail services are vital in maintaining a reliable supply chain in Northern Ontario by connecting freight customers to global economies. The forestry industry, mining operations, farming communities, and manufacturers count on ONTC's services to deliver large volumes across vast distances. The company's 675 miles of mainline track span throughout northeastern Ontario and northwestern Quebec.

ONTC motor coaches connect rural Ontario to major centres providing access to education, medical appointments, shopping, and seamless connections to other transportation providers. The Polar Bear Express passenger train connects Moosonee and Cochrane, Ontario, providing an all-season land link for Indigenous communities on the James Bay Coast.

Improving and repairing transportation equipment is also a large part of ONTC's service offering. We remanufacture and repair locomotives, passenger rail cars, freight cars, and more. ONTC's unique mechanical skillset attracts new business and secures skilled trades jobs in Northern Ontario.

ONTC makes provincial dollars reach further by creating innovative solutions that help drive economic growth sustainably, responsibly, and with future generations top of mind. Throughout the agency, modernization is underway with many exciting projects that will improve how we operate. ONTC employs over 900 people including Locomotive Engineers, Motor Coach Operators, skilled tradespeople, and business professionals. Employees work together to improve and deliver services that provide value to the regions served.

SECTION 2 - THE RFP DOCUMENTS

2.1 Request for Proposals Documents

(1) The Request for Proposals documents consist of:

Part 1 – Request for Proposals

Part 2 – Requests for Proposals Summary of Requirements

- (a) Schedule 2-A RFP Data Sheet
- (b) Schedule 2-B Participation Registration Form

Part 3 – RFP Specifications

- (a) Schedule 3-A Scope of Work
- (b) Schedule 3-A-1 Technical Specifications
- (c) Schedule 3-A-2 Reference Documents

Part 4 – Form of Proposal

- (a) Proposal Form 1 Proposal Submission Form
- (b) Proposal Form 2 Respondent's General Information
- (c) Proposal Form 3 Acknowledgment to Comply with Part 3 Request for Proposals Specifications
- (d) Proposal Form 4 References
- (e) Proposal Form 5 Compliance with Contract Documents
- (f) Proposal Form 6 Respondents' Meeting Registration Form
- (g) Proposal Form 7 Health, Safety and Environment
- (h) Proposal Form 8 Schedule of Materials
- (i) Proposal Form 9 List of Equipment
- (j) Proposal Form 10 Schedule and Proposed Approach
- (k) Proposal Form 11 Schedule of Progress Payments
- (I) Proposal Form 12 List of Personnel
- (m) Proposal Form 13 Current Labour Agreements
- (n) Proposal Form 14 Contractor's Qualification Statement
- (o) Proposal Form 15 Claims

Part 5 – Draft Agreement [The draft agreement will be issued by way of Addendum in accordance with these RFP Documents.]

- (2) The RFP Documents shall be read as a whole. The Schedules and Addenda, if any, constitute an integral part of this RFP and are incorporated by reference.
- (3) Each Respondent shall verify the RFP Documents for completeness upon receipt and shall inform the Contact Person (identified in RFP Section 3.2(7)), immediately:
 - (a) should any documents be missing or incomplete; or,
 - (b) upon finding any discrepancies or omissions.

- (4) Complete sets of the RFP Documents are available at our company website at www.ontarionorthland.ca and MERX.
- (5) The RFP Documents are made available only for the purpose of Respondents submitting Proposals. Availability and/or use of the RFP Documents do not confer a license or grant for any other purpose.

2.2 Priority of Documents

- (1) If there are any inconsistencies between the terms, conditions or other provisions of the RFP Documents, the order of priority of RFP Documents, from highest to lowest, shall be:
 - (a) Any Addenda modifying the RFP Documents issued during the RFP Process;
 - (b) The RFP Data Sheet;
 - (c) Part 1 Request for Proposals;
 - (d) Part 3 Specifications; and,
 - (e) Any other RFP Documents.

2.3 Distribution of Documents – Electronic Distribution

- (1) ONTC will use an online electronic distribution system to distribute all RFP Documents.
- (2) Each Respondent is solely responsible for making appropriate arrangements to receive and access the RFP Documents through that electronic distribution system.

2.4 Information Provided by ONTC

- (1) Each Respondent is solely responsible for conducting its own independent research, due diligence, and any other work or investigations and seeking any other independent advice necessary for the preparation of its Proposal, negotiation or finalization of the Final Agreement and the subsequent delivery of all the Goods and/or Services to be provided by the Successful Respondent. Nothing in the RFP Documents is intended to relieve the Respondents from forming their own opinions and conclusions with respect to the matters addressed in this RFP.
- (2) No guarantee, representation or warranty, express or implied, is made and no responsibility of any kind is accepted by ONTC or its representatives for the completeness or accuracy of any information presented in the RFP Documents, if any, during the RFP Process or during the term of the Final Agreement. By submitting a Proposal, each Respondent agrees that ONTC and its representatives shall not be liable to any person or entity as a result of the use of any information contained in the RFP Documents or otherwise provided by ONTC or its representatives during the RFP Process or during the term of the Final Agreement.

SECTION 3 – THE RFP PROCESS

3.1 RFP Process

- (1) The deadline for the submission of Proposals (the "Submission Deadline") is set out in the RFP Data Sheet.
- ONTC may amend, extend or shorten any of the dates and/or times prescribed in this RFP, at any time, at its sole discretion, including without limitation the Submission Deadline. If ONTC extends the Submission Deadline, all requirements applicable to Respondents will thereafter be subject to the new, extended Submission Deadline.

3.2 Questions and Communications Related to the RFP Documents

- (1) Respondents shall submit all questions, requests for clarifications, and other communications regarding the RFP Documents and the RFP Process by email to the Contact Person set out in section 3.2(7) no later than (four) 4 full Business Days before the Submission Deadline.
- (2) ONTC will endeavor to provide the Respondents with written responses to questions that are submitted in accordance with this RFP Section 3.2, by no later than (two) 2 full Business Days before the Submission Deadline. Responses to any questions or requests for clarifications, will be collected and distributed with answers to be delivered to all Respondents who have submitted the Participation Registration Form by way of emailed addenda from ONTC in accordance with the timeline set out in this Section 3.2(2).
- (3) The responses to questions form part of the RFP Documents.
- (4) ONTC may, in its sole discretion:
 - (a) answer questions that ONTC deems to be similar from various Respondents only once;
 - (b) edit any question(s) for the purpose of clarity;
 - (c) respond to questions submitted after the deadline for submission of questions if ONTC believes that such responses would be of assistance to the Respondents generally; and,
 - (d) exclude any questions that, in the sole opinion of ONTC, are ambiguous, incomprehensible, or are deemed by ONTC to be immaterial to the RFP Process, the RFP Documents, or the Goods and/or Services.
- (5) If Respondents find discrepancies, omissions, errors, departures from laws, by-laws, codes or good practice, or information considered to be ambiguous or conflicting, they shall bring them to the attention of the Contact Person in writing, and not less than (four)

4 full Business Days before the Submission Deadline, so that ONTC may, if ONTC deems it necessary, issue instructions, clarifications or amendments by addendum to all Respondents prior to the Submission Deadline. ONTC will endeavor to, but is not required to, issue such Addenda at least two (2) full Business Days prior to the Submission Deadline. It is each Respondent's responsibility to seek clarification from ONTC of any matter it considers to be unclear in the RFP Documents or the description of the Goods and/or Services and the Respondent may seek clarification in accordance with this Section 3.2. Neither ONTC nor the Government of Ontario shall be responsible for any misunderstanding by a Respondent of the RFP Documents, the RFP Process or the Goods and/or Services.

- (6) If ONTC gives oral answers to questions at any meeting (Section 3.4), these answers will not be considered final, and may not be relied upon by any of the Respondents, unless and until such answers are provided by way of an addendum in accordance with this Section 3.2.
- (7) The Contact Person designated by ONTC for this RFP is *Brinda Ranpura*, *Procurement Contracts Specialist*, *555 Oak Street East*, *North Bay*, *Ontario P1B 8L3* (705) 472-4500 ext. 548, brinda.ranpura@ontarionorthland.ca (the "Contact Person"). The above Contact Person is the sole contact for this RFP. A Respondent may be disqualified where contact is made with any person other than the Contact Person.
- (8) ONTC will not be responsible for statements, instructions, clarifications, notices or amendments communicated orally by ONTC to one or more of the Respondents. Statements, instructions, clarifications, notices or amendments by ONTC, which affect the RFP Documents, may only be made by addendum.

3.3 Addenda/Changes to the RFP Documents

- (1) ONTC may, in its sole discretion, amend, supplement, or change the RFP Documents prior to the Submission Deadline. ONTC shall issue amendments, supplements, or changes to the RFP Documents by Addendum only. No other statement or response(s) to questions, whether oral or written, made by ONTC or any ONTC advisors, employees or representatives, including, for clarity, the Contact Person, or any other person, shall amend, supplement or change the RFP Documents. Addenda will be distributed in the same manner as the RFP and shall become part of the RFP Documents.
- (2) Each Respondent is solely responsible for ensuring that it has received all Addenda issued by ONTC. Respondents may, in writing by email to the Contact Person, seek confirmation of the number of Addenda, issued under this RFP.

3.4 Respondents' Meeting

(1) To assist Respondents in understanding the RFP Documents, and the RFP Process, ONTC may conduct an information meeting (the "Respondents' Meeting") for all Respondents. Whether or not ONTC will conduct a Respondents' Meeting is set out in the RFP Data Sheet. If ONTC is conducting a Respondents' Meeting, the meeting will be held on the date and at the time and location set out in the RFP Data Sheet.

- (2) Attendance by Respondents at a Respondents' Meeting may not be mandatory but, if one is held, Respondents are strongly encouraged to attend. Whether or not the Respondents' Meeting is mandatory will be identified on the RFP Data Sheet. When a Respondents' meeting is mandatory, all attending persons or entities will be required to sign the "Site Meeting Log" to confirm their attendance and provide a valid email address for purpose of receiving information.
- (3) If ONTC gives oral answers to questions at the Respondents' Meeting, these answers will not be considered final, and may not be relied upon by any of the Respondents, unless and until such answers are provided by way of an Addendum in accordance with Section 3.2.
- (4) <u>If pre-registration for the Respondents' Meeting is necessary, the deadline for registration will be set out in the RFP Data Sheet and details regarding the registration process will be set out in the RFP Data Sheet.</u>

3.5 Prohibited Contacts

- (1) Respondents and their respective advisors, employees and representatives are prohibited from engaging in any form of political or other lobbying, of any kind whatsoever, to influence the outcome of the RFP Process.
- (2) Without limiting the generality of Section 3.5(1) above, neither Respondents nor any of their respective advisors, employees or representatives shall contact or attempt to contact, either directly or indirectly, at any time during the RFP Process, any of the following persons or organizations on matters related to the RFP Process, the RFP Documents, or their Proposals:
 - (a) any member of the Evaluation Team (as defined in Section 6.1), except the Contact Person;
 - (b) any advisor to ONTC or the Evaluation Team, except the Contact Person; or,
 - (c) any directors, officers, employees, agents, representatives or consultants of:
 - (i) ONTC, except the Contact Person;
 - (ii) Ontario Ministry of Transportation;
 - (iii) The Premier of Ontario's office or the Ontario Cabinet office;
 - (iv) A Member of Provincial Parliament (including the Premier); or,
 - (v) Any other person or entity listed in the RFP Data Sheet.
- (3) If a Respondent or any of their respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent; in the

opinion of ONTC, contravenes RFP Section 3.5(1) or 3.5(2), ONTC may, but is not obliged to, in its sole discretion:

- (a) take any action in accordance with RFP Section 7.2; or,
- (b) impose conditions on the Respondent's continued participation in the RFP Process that ONTC considers, in its sole discretion, to be appropriate.

3.6 Media Releases, Public Disclosures, Public Announcements and Copyright

- (1) A Respondent shall not, and shall ensure that its shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent do not, issue or disseminate any media release, social media or Internet post, public announcement or public disclosure (whether for publication in the press, on the radio, television, internet or any other medium) that relates to the RFP Process, the RFP Documents or the Goods and/or Services or any matters related thereto, without the prior written consent of ONTC.
- (2) Neither the Respondents or any of their respective shareholders, owners, officers, agents, consultants, partners, contractors, subcontractors, advisors, employees, representatives, or other third parties acting on behalf or with the knowledge of the Respondent shall make any public comment, respond to questions in a public forum, or carry out any activities to either criticize another Respondent or Proposal or to publicly promote or advertise their own qualifications, interest in or participation in the RFP Process without ONTC's prior written consent, which consent may be withheld, conditioned or delayed in ONTC's sole discretion. Respondents, and their respective advisors, employees and representatives are permitted to state publicly that they are participating in the RFP Process but shall not publicly identify other Respondents without the prior written consent of ONTC.
- (3) Respondents shall not use the name of ONTC or any of ONTC's logos, designs, colours or registered trademarks and names used, owned or registered by ONTC, during the RFP Process, if selected as the Successful Respondent, or at any time prior to, during, or following the supply of the Goods and/or Services, except with the prior written consent of ONTC.

3.7 Confidentiality and Disclosure Issues – Respondent Information

(1) Respondents are advised that ONTC may be required to disclose the RFP Documents, any other documentation related to the RFP Process and a part or parts of any Proposal pursuant to the *Freedom of Information and Protection of Privacy Act* (Ontario) ("FIPPA"). Respondents are also advised that FIPPA does provide protection for confidential and proprietary business information. Respondents are strongly advised to consult their own legal advisors as to the appropriate way in which confidential or proprietary business information should be marked as such in their Proposals. Subject to the provisions of FIPPA, ONTC will use reasonable commercial efforts to safeguard the confidentiality of

any information identified by the Respondent as confidential but shall not be liable in any way whatsoever to any Respondent if such information is disclosed based on an order or decision of the Information and Privacy Commissioner or otherwise as required under the Applicable Laws.

- (2) The Respondent agrees that ONTC may disclose Proposals, and all information submitted in or related to the Proposals, to the Government of Ontario.
- (3) ONTC may provide the Proposals to any person involved in the review and/or evaluation of the Proposals on behalf of ONTC and ONTC may:
 - (a) make copies of the Proposal; and/or,
 - (b) retain the Proposal.
- (4) ONTC may disclose any information with respect to the Respondents, the Proposals and the RFP Process as required by the Applicable Laws.
- (5) The Respondent shall not require ONTC or any of its representatives to sign a non-disclosure agreement in respect of any step taken or information provided as part of this RFP Process, provided that if the nature of the subject matter of the RFP is such that, in the opinion of ONTC, it would be appropriate to enter into a non-disclosure agreement with a Respondent or Respondents, ONTC and/or the Respondent shall enter into such agreement in a form and with the content satisfactory to ONTC.

3.8 Confidential Information

- (1) In this RFP, "RFP Information" shall mean all material, data, information or any item in any form, whether oral or written, including in electronic or hard-copy format, supplied by, obtained from or otherwise procured in any way, whether before or after the RFP Process, from ONTC or any Ministry or Agency of the Government of Ontario, in connection with the RFP Documents or the Goods and/or Services excluding any item which:
 - is or becomes generally available to the public other than as a result of a disclosure resulting from a breach of this RFP Section 3.8;
 - (b) becomes available to the Respondent on a non-confidential basis from a source other than ONTC, so long as that source is not bound by a non-disclosure agreement with respect to the information or otherwise prohibited from transmitting the information to the Respondent by a contractual, legal or fiduciary obligation; or,
 - (c) The Respondent is able to demonstrate was known to it on a non-confidential basis before it was disclosed to the Respondent by ONTC.
- (2) RFP Information:

- (a) shall remain the sole property of ONTC or the Government of Ontario, as applicable, and the Respondent shall maintain the confidentiality of such information except as required by law;
- (b) shall not be used by the Respondent for any other purpose other than submitting a Proposal or performing obligations under any subsequent agreement with ONTC relating to the Goods and/or Services;
- (c) shall not be disclosed by the Respondent to any person who is not involved in the Respondent's preparation of its Proposal or in the performance of any subsequent agreement relating to ONTC, or the Government of Ontario, as applicable, without prior written authorization from ONTC;
- (d) shall not be used in any way detrimental to ONTC or the Government of Ontario; and,
- (e) if requested by ONTC, shall be returned to the Contact Person or destroyed by the Respondent no later than ten (10) calendar days after such request is received in writing by the Respondent.
- (3) Each Respondent shall be responsible for any breach of the provisions of this RFP Section 3.8 by any person to whom it discloses the RFP Information.
- (4) Each Respondent or Short-listed Respondent acknowledges and agrees that a breach of the provisions of this RFP Section 3.8 would cause ONTC, the Government of Ontario and/or their related entities to suffer loss which could not be adequately compensated by damages, and that ONTC, the Government of Ontario and/or any related entity may, in addition to any other remedy or relief, enforce any of the provisions of this RFP Section 3.8 upon application to a court of competent jurisdiction without proof of actual damage to ONTC, the Government of Ontario or any related entity.
- (5) Notwithstanding RFP Section 9.3, the provisions of this RFP Section 3.8 shall be binding and shall survive any cancellation or termination of this RFP and the conclusion of the RFP Process.
- (6) ONTC may, in its sole discretion, require that Respondents execute a legally binding nondisclosure agreement in a form and substance satisfactory to ONTC prior to receiving the RFP Information.

3.9 Governing Laws and Attornment

(1) This RFP Process and the Final Agreement entered into pursuant to this RFP Process shall be governed and construed in accordance with the laws of Ontario, the laws of Quebec, the laws of Manitoba, if relevant to the subject matter of this RFP, and the applicable laws of Canada, excluding any conflict of laws principles.

(2) Each Respondent agrees that the courts of the Province of Ontario shall have exclusive jurisdiction to entertain any action or proceeding based on, relating to or arising from this RFP process.

3.10 Licenses and Permits

(1) If a Respondent is required by the Applicable Laws to hold or obtain a license, permit, consent or authorization to carry on an activity contemplated in its Proposal, neither acceptance of the Proposal nor execution of the Final Agreement shall be considered to be approval by ONTC of carrying on such activity without the requisite license, permit, consent or authorization.

3.11 Respondents' Costs

- (1) The Respondent shall bear all costs and expenses incurred by the Respondent relating to any aspect of its participation in this RFP Process, including, without limitation, all costs and expenses related to the Respondent's involvement in:
 - (a) the preparation, presentation and submission of its Proposal;
 - (b) due diligence and information gathering processes;
 - (c) attendance at any Respondents' Meeting(s) or presentations;
 - (d) preparation of responses to questions or requests for clarification from ONTC;
 - (e) preparation of the Respondent's own questions during the clarification process;
 - (f) preparation of prototypes, proof of concept and/or demonstrations; and,
 - (g) any discussions or negotiations with ONTC regarding the Final Agreement.
- (2) Without limiting the generality of Section 9.1(2) of this RFP, in no event shall ONTC or the Government of Ontario be liable to pay any costs or expenses or to reimburse or compensate a Respondent under any circumstances for the costs or expenses set out in Section 3.11(1), regardless of the conduct or outcome of the RFP Process.

3.12 Delay and Costs of Delay

(1) By submitting a Proposal, the Respondent waives all claims against ONTC and the Government of Ontario including any claims arising from any error or omission in any part of the RFP Documents or RFP Information or any delay, or costs associated with delays, in the RFP Process.

3.13 Clarification and Verification of Respondent's Proposal

- (1) Following submission of a Proposal, ONTC may:
 - (a) request a Respondent to clarify or verify the contents of its Proposal, including by submitting supplementary documents; and/or;
 - (b) request a Respondent to confirm an ONTC interpretation of the Respondent's Proposal.
- (2) Any information received by ONTC from a Respondent pursuant to a request for clarification or verification from ONTC as part of the RFP Process may, in ONTC's discretion, be considered as an integral part of the Proposal even if such information should have been submitted as part of the Respondent's Proposal and may, in ONTC's discretion, be considered in the evaluation of the Respondent's Proposal.
- ONTC may, in its sole discretion, verify or clarify any statement or claim contained in any Proposal or made subsequently in any interview, presentation, or discussion. That verification or clarification may be made by whatever means that ONTC deems appropriate which may include contacting the persons identified in the contact information provided by the Respondent and contacting persons or entities other than those identified by any Respondent.
- (4) By submitting a Proposal, the Respondent is deemed to consent to ONTC verifying or clarifying any information and requesting additional information from third parties regarding the Respondent) and its directors, officers, shareholders or owners and any other person associated with the Respondent as ONTC may determine is appropriate.
- (5) ONTC is not obliged to seek clarification or verification of any aspect of a Proposal, or any statement or claim made by a Respondent.
- (6) Requests for clarifications shall not be construed as acceptance by ONTC of a Proposal.

3.14 Two-Envelope Process

- (1) ONTC may elect to complete a Two-Envelope Process. Whether Respondents will be required to submit their Proposals using a Two-Envelope Process will be identified on the RFP Data Sheet.
- (2) If ONTC elects to complete a Two-Envelope Process, the Proposal shall be broken down into two components; a technical submission and a financial submission.
- (3) If ONTC elects to complete a Two-Envelope Process, ONTC will identify a minimum score that must be attained on the technical submission on the RFP Data Sheet. Proposals that do not meet the minimum score for the technical submission following evaluation of the technical submission, will not proceed further in the evaluation process, provided that ONTC may, in its sole discretion, based on the overall scores of all the technical

submissions, revise the minimum score required to proceed further in the evaluation process. Financial submissions will only be opened and evaluated for the Proposals that meet the minimum score for the technical submission.

SECTION 4 - PROPOSAL CONTENT AND FORMAT

4.1 Format and Content of Proposal

- (1) Respondents shall submit their Proposal in one envelope or, if submitting electronically, one electronic folder. Where required by the RFP Data Sheet to follow the two-envelope process, Respondents shall submit the technical submission and the financial submission in two separate envelopes or, if submitting electronically, two separate electronic folders.
- (2) Unless otherwise specified in the RFP Data Sheet, Respondents shall not submit preprinted literature with their Proposals. Any unsolicited pre-printed literature submitted as part of a Proposal will not be reviewed by the Evaluation Team.
- (3) Each Respondent will:
 - in a clear, concise and legible manner, complete and submit all documentation and information required by Part 2, Part 3, and Part 4 to the RFP;
 - (b) for a hard copy submission, complete any handwritten portions of the proposal forms in ink;
 - (c) provide all information requested and ensure that an authorized person or persons sign all forms where indicated. Failure to provide all requested information on the proposal forms and failure to fill in all blank spaces may result in a Proposal being determined to be non-compliant; and,
 - (d) use only the proposal forms issued as part of the RFP documents unless otherwise indicated.
- (4) Information provided by Respondents on hard copy proposal forms may be amended prior to the Proposal submission, provided the amendments are initialed by an authorized representative of the Respondent. Un-initialed pre-submission amendments may result in the Proposal being declared non-compliant.
- (5) Proposals that are not originals (if hard copy), are unsigned, improperly signed, incomplete, conditional or illegible, may be declared non-compliant.
- (6) The Harmonized Sales Tax (HST) shall not be included in the price. Any taxes or increases to taxes announced prior to the date of the issuance of the RFP Documents and scheduled to come into effect subsequent to it shall be taken into consideration at time of invoicing.

(7) Price:

- (a) Price shall be an all-inclusive lump sum price (excluding HST), unless otherwise indicated in the RFP Documents; and,
- (b) Where the RFP requires the Respondent to provide a breakdown of the price in Proposal Form 1-A, the price as stated in Proposal Form 1 shall govern in the case of conflict or ambiguity between the price and the sum of the breakdown of the price.

(8) Listing of Subcontractors

Each Respondent shall complete the "Subcontractors" section of Proposal Form 2 – Respondent's General Information, naming the Subcontractors which the Respondent will employ to perform an item of the work called for by the RFP Documents. Failure of the Respondent to list Subcontractors where required, may result in the Proposal being declared non-compliant.

4.2 Proposal Submission Form

- (1) Each Respondent will complete and submit the forms included in Part 4 Form of Proposal. Failure of the Respondent to complete and submit one or more of the forms included in Part 4 Form of Proposal, may result in the Proposal being declared non-compliant.
- (2) Respondents shall execute the Proposal Submission Form as follows:
 - in the case of a sole proprietorship, the sole proprietor will sign the Proposal Submission Form and have the signature witnessed;
 - (b) in the case of a corporation, an authorized signing officer will sign the Proposal Submission Form; or,
 - (c) in the case of a partnership, a partner or partners authorized to bind the partnership will sign the Proposal Submission Form and have their signatures witnessed.

4.3 Bid Performance Security

- (1) The Respondent shall provide with its Proposal, Bid Performance Security in one of the following forms:
 - (a) Irrevocable stand-by Letter of Credit ("LOC"); or,
 - (b) Bid bond

(the "Bid Performance Security").

The Bid Performance Security shall be:

- (a) in the Respondent's own name;
- (b) if a bid bond, issued by a surety licensed to conduct surety and insurance business in Ontario;
- (c) in a form satisfactory to ONTC;
- (d) for a term of at least ninety (90) calendar days after the Submission Deadline; and,
- (e) in the amount of ten percent of the total bid price excluding HST.

The Bid Performance Security is for the benefit of ONTC and will be retained by ONTC to compensate ONTC for the damages it will suffer if the Successful Respondent fails to provide the Contract Securities (defined in Section 4.3(2), below) and evidence of insurance and other documents required by this RFP or by the Final Agreement, or fails to execute the Final Agreement within the time required by the RFP Documents.

The Bid Performance Security of the Successful Respondent will be returned after the Successful Respondent delivers to ONTC compliant Contract Securities and evidence of insurance and other documents required by this RFP or by the Final Agreement and the Successful Respondent has executed the Final Agreement, all within the time required by the RFP Documents.

The Bid Performance Security of all other Respondents shall be returned to the Respondents upon the occurrence of the earlier of:

- (a) execution by both parties of the Final Agreement between ONTC and the Successful Respondent;
- (b) the expiry of the 90-day period following the Submission Deadline;
- (c) the cancelation of the RFP process without an award of the contract; or,
- (d) the disqualification of all Proposals.

(2) Agreement to Bond

The Respondent shall provide with its Proposal an agreement to bond issued by a surety company undertaking to provide a fifty percent (50%) Performance Bond and a fifty percent (50%) Labour and Material Bond (the "Contract Securities") in the form prescribed by the *Construction Act*, both to be provided to ONTC by the Successful Respondent following award of the contract.

- (3) Proposals not accompanied by the required Bid Performance Security and the required agreement to bond will be declared non-compliant.
- (4) The Respondent shall include the actual cost of all bonds, with no mark-up, in the Proposal price.

4.4 References and Past Performance Issues

- (1) If specified in the RFP Data Sheet, Respondents shall provide reference information. Unless otherwise set out in the RFP Data Sheet, all references shall be, where possible, with respect to similar goods and/or services, as applicable, during the five (5) years immediately prior to the Submission Deadline. Unless otherwise set out in the RFP Data Sheet, the Respondent shall provide a minimum of three (3) references.
- (2) ONTC may, in its sole discretion, confirm the Respondent's experience and ability to provide the Goods and/or Services by contacting the Respondent's references. However, ONTC is under no obligation to contact references submitted by any Respondent. References and information received from references, if contacted, will be taken into account in the evaluation process as identified in the RFP Data Sheet.
- (3) ONTC may take into account in the evaluation process reliable information received from the Government of Ontario or its Agencies regarding past performance of a Respondent, provided information evidencing past poor performance by a Respondent is provided to the Respondent (subject to any restrictions on disclosure imposed by applicable law) and the Respondent is afforded an opportunity to respond to the information.
- (4) If ONTC receives information from referees of a Respondent's past poor performance, ONTC shall advise the Respondent (subject to any restrictions on disclosure imposed by applicable law) and afford the Respondent an opportunity to respond to the information prior to considering this information as part of the evaluation process.

4.5 Conflict of Interest

- (1) For the purposes of this Section 4.5, the term "Conflict of Interest" includes, but is not limited to, any situation or circumstance where the interests, conduct, other commitments or relationships of a Respondent, a Respondent's family member or an officer, director or employee of the Respondent could or could be perceived to, directly or indirectly, compromise, impair or be in conflict with the integrity of the RFP Process, the subject matter of the RFP or ONTC.
- (2) Each Respondent shall promptly disclose any potential, perceived or actual Conflict of Interest of the Respondent to the Contact Person in writing. If ONTC discovers a Respondent's failure to disclose a Conflict of Interest, ONTC may, in its sole and absolute discretion disqualify the Respondent or terminate the Final Agreement if such Respondent is the Successful Respondent.
- (3) ONTC may, in its sole discretion, and in addition to any other remedy available at law or in equity:
 - (a) waive any Conflict of Interest;

- (b) impose conditions on a Respondent that require the management, mitigation and/or minimization of the Conflict of Interest; or,
- (c) disqualify the Respondent from the RFP Process if, in the sole and absolute opinion of ONTC, the Conflict of Interest cannot be managed, mitigated or minimized.

SECTION 5 - PROPOSAL SUBMISSION, WITHDRAWAL, MODIFICATION

5.1 Submission of Proposals and Late Proposals

(1) Each Respondent shall submit their proposal in the format prescribed in the RFP Data Sheet. ONTC will not accept any proposal submission that is not submitted in the format prescribed in the RFP Data Sheet.

ONTC may elect to accept Electronic Bid Submissions, Physical Bid Submissions or a combination of both.

(a) If ONTC elects to use Electronic Bid Submissions, submissions shall be submitted on, and in accordance with, forms supplied by ONTC. All responses are to be submitted to ONTC through the use of MERX Electronic Bid Submission (EBS). Respondents shall be solely responsible for the delivery of their Proposals in the manner and time prescribed in the RFP Data Sheet.

Questions concerning submitting through MERX should be addressed to:

MERX Customer Support
 Phone 1-800-964-6379
 Email merx@merx.com

Any Proposal from a Respondent whose name does not appear on the official MERX document request list (i.e., who has not downloaded the documents themselves) will be declared invalid, and the Proposal will not be considered.

MERX EBS does not allow submissions to be uploaded after the bid submission deadline; therefore, the Respondent should ensure they allow plenty of time to upload the documents.

Where required by the RFP Data Sheet to use a two-envelope process, Respondents shall include two separate and clearly identifiable attachments: 1) Technical and, 2) Financial. The file names for the technical and financial attachments should be sufficiently distinguishable such that ONTC does not need to open the attachments to differentiate between them.

(b) If ONTC elects to use Physical Bid Submissions, Respondents shall submit one original and the number of copies of its Proposal (in hard copy) specified in the RFP Data Sheet and the number of electronic copies of its Proposal (on a properly labelled CD or USB key in PDF format) specified in the RFP Data Sheet, at the correct location for submission and on or before the Submission Deadline. If there is any difference whatsoever between the electronic copy of the Proposal and the original hard copy, the original hard copy of the Proposal, as submitted, will govern. The electronic copy of the Proposal is solely for the convenience of ONTC.

Respondents shall submit their Proposals to the attention of the Senior Manager of Strategic Procurement by prepaid courier or personal delivery at the following address:

Jason Baker Senior Manager, Strategic Procurement Ontario Northland Transportation Commission 555 Oak Street East North Bay, Ontario P1B 8E3

The Respondent shall place their Proposal Submission in a sealed envelope or package with the Respondent's full legal name and return address, the RFP Number, the Submission Deadline and the label "Proposal Submission" clearly displayed on the outside of the envelope.

Where required by the RFP Data Sheet to use a two-envelope process, Respondents shall have one sealed envelope as prescribed above that contains two individual sealed envelopes inside that are clearly marked "Technical Submission" and "Financial Submission".

- (c) For the convenience of the Respondents, and only when identified in the RFP Data Sheet, ONTC may allow either an Electronic Bid Submission through MERX or a Physical Bid Submission. The Respondent shall only use one method and follow the same procedure prescribed above.
- (2) Proposals must be received before the time noted in the RFP Data Sheet.
- (3) Proposals will be date and time stamped at the place receiving the Proposals. Late Proposals will be returned unopened.
- (4) Proposals which are submitted by facsimile transmission, email, or by electronic means other than MERX will NOT be considered.
- (5) Respondents are solely responsible for the method and timing of delivery of their Proposals.
- (6) ONTC reserves the right to make copies of the Respondent's Proposals as it may be required for the purpose of conducting a full evaluation of the Proposal submitted.
- (7) The Respondent should identify and mark any trade secret or proprietary intellectual property in its Proposal.

5.2 Late Proposals

(1) ONTC will reject Proposals that are received after the Submission Deadline.

5.3 Withdrawal of Proposals

- (1) When submitting a Physical Bid Submission, a Respondent may withdraw its Proposal at any time before the Submission Deadline by notifying the Contact Person in writing. ONTC shall return, unopened, a Proposal that has been withdrawn.
- (2) When submitting an Electronic Bid Submission, MERX will allow withdrawal of Proposals up to the Submission Deadline.

5.4 Amendment of Proposals

- (1) When submitting a Physical Bid Submission, Respondents may amend their Proposals after submission but only if the original Proposal is withdrawn and the amended Proposal is submitted before the Submission Deadline.
- (2) Electronic Bid Submissions through MERX will allow amendments up to the closing date and time; however, Respondents are responsible for ensuring they allow sufficient time to upload the amended documents.
- (3) If more than one Proposal is received from the same Respondent before the Submission Deadline, only the last Proposal received before the Submission Deadline will be considered.

5.5 Proposal Irrevocability

(1) Subject to the Respondent's right to withdraw or amend the Proposal before the Submission Deadline, the Respondent's Proposal is irrevocable and shall remain in effect and open for acceptance for ninety (90) days after the Submission Deadline.

5.6 One Proposal per Person or Entity

- (1) Except as set out in the RFP Data Sheet or with ONTC's approval:
 - (a) a person or entity shall submit or participate in only one Proposal either individually or as a Respondent team member; and,
 - (b) a person or entity shall not be a subcontractor of a Respondent and also submit a Proposal individually or as a Respondent team member in the same RFP Process.

(2) If a person or entity submits or participates in more than one Proposal in contravention of RFP Section 5.6(1), ONTC may, in its sole discretion, disqualify any or all of the Proposals submitted by that person or entity or in which that person or entity is a participant.

SECTION 6 - PROPOSAL EVALUATION

6.1 Evaluation Team

- (1) ONTC will establish an evaluation team for the purpose of evaluating Proposals (the "Evaluation Team").
- (2) The Evaluation Team may, in its sole discretion, delegate certain administrative functions related to the evaluation of Proposals to a separate team of individuals who are not members of the Evaluation Team, who will be supervised by the Evaluation Team. Without limiting the generality of the foregoing, but for greater particularity, the Evaluation Team may seek the advice and assistance of third-party consultants and the Government of Ontario. Each Respondent acknowledges that the RFP documents may have been prepared with the assistance of a third-party consultant and that the consultant may participate in the evaluation of the Proposals.

6.2 Evaluation of Proposals

- (1) The Respondents' Proposals will be reviewed and evaluated by the Evaluation Team on the basis of the evaluation criteria set out in the RFP Data Sheet (the "Evaluation Criteria").
- (2) After selection of the Short-listed Respondent(s), ONTC may, in its sole discretion, negotiate changes, amendments or modifications to the Short-listed Respondent's Proposal or the Final Agreement.
- (3) If ONTC is of the opinion that any of the following apply, then ONTC may, in ONTC's sole discretion, decline to select that Respondent to be a Short-listed Respondent:
 - (a) a Respondent has submitted a price that is clearly insufficient to perform the supply of Goods and/or Services;
 - (b) a Respondent has previously provided poor performance to ONTC or a subsidiary of ONTC;
 - (c) a Respondent is disqualified from participating in the RFP Process per RFP Section 7.2 (1)(i);
 - (d) ONTC cannot, to ONTC's satisfaction, prior to the conclusion of the RFP Process, verify independently or through a third party or parties any and/or all information, statements, representations and/or warranties contained in the Proposal;

- (e) a Respondent or any subcontractor of the Respondent is not financially sound, or ONTC is unable to obtain from the Respondent or third-party sources reasonable assurances of the financial position of the Respondent or any of its subcontractors;
- (f) the overall cost to ONTC would be significantly increased with that Respondent;
- (g) the Respondent failed to meet the mandatory requirements specified in the RFP Data Sheet; or,
- (h) the Respondent failed to attain the minimum score required for the Technical Submission, where the RFP Data Sheet called for a two-envelope process.

6.3 Short-Listing

- (1) The Evaluation Team will establish the list of Short-listed Respondents based on the Evaluation Criteria.
- (2) The number of Respondents short-listed is in the sole discretion of ONTC.

6.4 Interviews, Site Visits, Demonstrations and Presentations

- (1) ONTC may, in its sole discretion, conduct interviews, demonstrations, site visits or presentations as part of the evaluation process if set out in the RFP Data Sheet.
- (2) The evaluation of any interviews, demonstrations, site visits or presentations will be conducted in accordance with the process set out in the RFP Data Sheet.
- (3) ONTC may conduct interviews, demonstrations, site visits or presentations with some or all Respondents, or may restrict participation to only the Short-listed Respondent(s).

SECTION 7 - GENERAL EVALUATION AND DISQUALIFICATION PROVISIONS

7.1 ONTC's Discretion

- (1) ONTC may determine, in its sole discretion:
 - (a) the membership of the Evaluation Team;
 - (b) if a Proposal is compliant with the RFP Documents;
 - (c) if a failure to comply is material;
 - (d) if a Proposal or a Respondent is disqualified;
 - (e) the evaluation results and ranking for each Respondent; and,

(f) which Respondent, if any, and how many Respondents, based on the evaluation process, will be Short-listed Respondents.

7.2 Disqualification

- (1) ONTC may, in its sole discretion, disqualify a Respondent or a Respondent's Proposal or cancel its decision to identify a Respondent as a Short-listed Respondent or a Successful Respondent, at any time prior to the execution of the Final Agreement by ONTC, if:
 - (a) The Respondent fails to cooperate in any attempt by ONTC to clarify or verify any information provided by the Respondent in its Proposal;
 - (b) The Respondent contravenes RFP Section 3.5, RFP Section 3.6 or RFP Section 5.6(2);
 - (c) The Respondent fails to comply with the Applicable Laws;
 - (d) The Proposal contains false or misleading information, or the Respondent provides false or misleading information in any part of the RFP Process;
 - (e) The Proposal, in the sole discretion of ONTC, reveals a Conflict of Interest that cannot be managed, mitigated or minimized;
 - (f) There is evidence that the Respondent colluded with one or more other Respondents in the preparation or submission of Proposals;
 - (g) The Respondent has previously breached or been in default of compliance with any term of any agreement with ONTC and such breach or default has not been waived by ONTC or the Respondent has not cured the default;
 - (h) The Respondent has been convicted of an offence in connection with any services rendered by the Respondent to ONTC, or to any Ministry, Agency, Board or Commission of the Government of Ontario or the Government of Canada;
 - (i) The Respondent, at the time of issuance of this RFP or any time during the RFP Process, has an outstanding claim or is engaged in an ongoing legal dispute with ONTC, other than an adjudication under the Construction Act;
 - (j) The Proposal is not Substantially Compliant;
 - (k) The Respondent has failed to notify ONTC of, or ONTC has not approved, a postsubmission change in the control of the Respondent or in the circumstances of the Respondent that may materially negatively impact the Respondent's ability to perform its obligations if selected as the Successful Respondent; or,

- (I) The Respondent has received a Vendor Performance Evaluation as part of ONTC's Vendor Performance Policy, and received a total rating on the Final Performance Form that disqualifies the Respondent from participating in the RFP Process.
- (2) Notwithstanding Section 7.2(1), ONTC shall retain the right to select as the Successful Respondent, any Respondent(s) which, in ONTC's sole and absolute discretion, has submitted a substantially compliant Proposal(s).

7.3 General Rights of ONTC

- (1) ONTC may, in its sole discretion and at any time during the RFP process:
 - (a) reject any or all of the Proposals;
 - (b) accept any Proposal or any portions of any Proposals for any reason whatsoever;
 - (c) reject any Proposals or any portions of Proposals for any reason whatsoever,
 - (d) if only one Proposal is received, elect to either accept it, reject it, or enter into negotiations with the applicable Respondent;
 - (e) elect not to proceed with, cancel, or terminate the RFP;
 - (f) alter the Submission Deadline or any other deadlines associated with the RFP Process;
 - (g) change the RFP Process or any other aspect of the RFP Documents; or,
 - (h) cancel this RFP Process and subsequently conduct another competitive process for the same Goods and/or Services that are the subject matter of this RFP or subsequently enter into negotiations with any person or persons with respect to the Goods and/or Services that are the subject matter of this RFP.
- (2) If ONTC, in its sole discretion, is of the opinion that all of Proposals submitted are not substantially compliant, ONTC may:
 - (a) take any action in accordance with Section 7.3. (1);
 - (b) carry out a process whereby all Respondents are directed to correct the deficiencies in their Proposals for re-submission; or,
 - (c) negotiate an agreement for the whole or any part of the Goods and/or Services with a Respondent which has submitted a Non-compliant Proposal.

SECTION 8 – AGREEMENT, FINALIZATION AND DEBRIEFING AND SUCCESSFUL RESPONDENT

8.1 Finalization of the Agreement

- (1) ONTC may, in its sole discretion, retain more than one Respondent to provide the Goods and/or Services.
- (2) ONTC reserves the right in its sole discretion to sub-divide and/or bundle the Goods and/or Services which are the subject of this RFP and award one or any number of separate contracts for the Goods and/or Services.
- (3) ONTC may, in its sole discretion, enter into negotiations with one or more Respondent(s) for the purpose of selecting a Successful Respondent(s) and finalizing an agreement.
- (4) Either ONTC or a Respondent may withdraw from negotiations at any time prior to the Successful Respondent(s) being identified.
- (5) The Successful Respondent is expected to enter into the relevant CCDC form of agreement which shall include the Supplementary Conditions in Part 5. Proposal Form 5 Compliance with Contract Documents allows a Respondent to submit suggested changes to the Supplementary Conditions. ONTC does not have any obligation to accept any proposed changes to the Supplementary Conditions and will do so in its sole discretion. ONTC may, in ONTC's sole discretion; (i) consider only a minimal number of changes to the Supplementary Conditions; (ii) consider significant material proposed changes to negatively impact the evaluation of the Respondent's proposal; or (ii) disqualify any Respondent where the changes or the number of changes made by the Respondent to the Supplementary Conditions would be, in ONTC's sole discretion, too onerous to successfully negotiate within the timeframe set out in Section 8.1 (6) below or are unacceptable to ONTC. In any event, ONTC will not accept any material changes to the clauses in the Supplementary Conditions relating to Confidentiality, Personal Information, Intellectual Property ownership and infringement, Indemnification, Limitation of Liability or rights of ONTC on termination. ONTC, as an Ontario Crown corporation, is unable to provide indemnities pursuant to s.28 of the Financial Administration Act (Ontario).

If a Respondent does not submit any proposed amendments in Proposal Form 5, it will be deemed to have accepted and will be required to execute the Final Agreement in the form attached to this RFP. If a Respondent has submitted proposed amendments to the Final Agreement, negotiations respecting those amendments shall be conducted within the timeframe set out in Section 8.1(6).

(6) If a Successful Respondent fails or refuses to enter into and execute the Final Agreement within ten (10) Business Days of being notified they are the Successful Respondent (ONTC may extend such period of time in ONTC's sole discretion), or a Successful Respondent fails or refuses to provide the documentation in accordance with Section 8.1(7), ONTC may, in its sole discretion, take any one of the following actions:

- (a) terminate all negotiations and cancel its identification of that Respondent as a Successful Respondent;
- (b) select another Respondent or Short-Listed Respondent as the Successful Respondent;
- (c) retain the bid security described in Section 4.3 to compensate for any damages suffered by ONTC as a result of the Successful Respondent's failure or refusal to enter into the Final Agreement;
- (d) take any other action in accordance with Section 7.3; or,
- (e) pursue any other remedy available to ONTC at law.
- (7) Prior to supplying any Goods and/or Services pursuant to the Contract, the Successful Respondent shall deliver to ONTC:
 - (a) the performance bond and the labour and material bond described in the RFP Documents. The form of such bonds shall comply with the requirements prescribed in the *Construction Act*. Refer to the link below for the appropriate forms (Form 31 and 32).

http://ontariocourtforms.on.ca/en/construction-lien-act-forms/

- (b) certificates of insurance as specified in the draft Agreement;
- (c) executed Contractors Health and Safety Responsibility Agreement;
- (d) Respondent's Health and Safety, and Environmental Policies; and,
- (e) a current Clearance Certificate issued by the Workplace Safety and Insurance Board, if applicable.

8.2 Notification If Successful or Not

(1) The Successful Respondent and unsuccessful Respondents will be notified by ONTC in writing regarding their success or failure in the RFP Process.

8.3 Debriefing

(1) Respondents may request a debriefing after receipt of a notification pursuant to RFP Section 8.2. All Respondent requests should be in writing to the Contact Person no later than 60 calendar days after receipt of the notification. ONTC will conduct debriefings in the format prescribed by the OPS Procurement Directive.

SECTION 9 - LEGAL MATTERS AND RIGHTS OF ONTC

9.1 Limit on Liability

(1) The total liability of the Respondent to ONTC for loss and damage arising from the Respondent who is selected as the Successful Respondent but then fails to deliver the Contract Security, evidence of insurance or other documents required under Section 8.1(7) within the time period specified in Section 8.1 or fails to execute the Final Agreement shall be limited to the value of the Bid Performance Security provided by the Respondent pursuant to Section 4.3. The liability of the Respondents for any other loss or damage suffered by ONTC as part of this RFP Process shall be without limit.

(2) By submitting a Proposal,

- (a) each Respondent acknowledges ONTC's rights as stated herein and absolutely waives any right of action against ONTC for ONTC's failure to accept the Respondent's Proposal whether such right of action arises in contract, negligence, bad faith, or any other cause of action;
- (b) each Respondent covenants and agrees that, under no circumstances, shall ONTC, or any of its employees, officers, representatives, agents or advisors, be liable to any Respondent, whether in contract, tort, restitution, or pursuant to any other legal theory, for any claim, action, loss, damage, cost, expense or liability whatsoever and howsoever arising from this RFP Process, a Respondent's Proposal in response to this RFP Process, or due to the acceptance or non-acceptance of any Proposal, or as a result of any act or omission by ONTC and/or its employees, officers, representatives, agents or advisors, including any information or advice or any errors or omissions that may be contained in the RFP Documents, or any other documents or information provided to a Respondent, or arising with respect to the rejection or evaluation of any or all of the Proposals, any negotiations with any of the Respondents, or the selection of any Respondent as a Short-listed Respondent or the Successful Respondent; and,
- (c) each Respondent shall indemnify and hold harmless ONTC, its employees, officers, representatives, agents and advisors, from and against any and all claims, demands, actions or proceedings brought by third parties, including but not limited to the Respondent's subcontractors or suppliers, in relation to this RFP Process.

9.2 Power of Legislative Assembly

(1) No provision of the RFP Documents (including a provision stating the intention of ONTC) is intended to operate, nor shall any such provision have the effect of operating, in any way, that would interfere with or otherwise fetter the discretion of the Legislative Assembly of Ontario in the exercise of its legislative powers.

9.3 RFP Not a "Bidding Contract" or a Tender

(1) Notwithstanding any other provision of this RFP, this RFP is not a tender call, ONTC does not intend to create any contractual relations or obligations with any of the Respondents by virtue of issuing this RFP, and this RFP is not an offer to enter into a contract (often referred to as "Contract A"). Except as provided in RFP Section 3.8, 4.3 and 9.1, neither this RFP nor the submission of a Proposal by a Respondent shall create any legal or contractual rights or obligations whatsoever on any of the Respondent, ONTC, the Government of Ontario or any Ministry of the Government of Ontario.

SECTION 10 – VENDOR PERFORMANCE

10.1 General

- (1) ONTC has established a Vendor Performance Policy, which provides a framework for ONTC to maximize the value for money of its Vendors by:
 - (a) proactively managing the performance of Vendors in accordance with ONTC's Purchasing Policy; and
 - (b) creating a record of past performance for use by ONTC when selecting Vendors for the supply of goods and services.

10.2 Vendor Performance Evaluation

(1) Successful Respondents who enter into a Final Agreement with ONTC may be required to participate in the Vendor Performance Evaluation process.

10.3 Vendor Ratings for Proposal Evaluation Purposes

(1) ONTC may access a Respondent's Vendor Performance Evaluations for previous contracts as part of the Evaluation Process. The manner in which the Respondent's ratings will be used will be identified in the Evaluation Criteria of the RFP Data Sheet.

SECTION 11 - TRANSPARENCY AND FAIRNESS

11.1 General

- (1) ONTC is committed to procuring goods and services through a process that is conducted in a fair and transparent manner, providing equal opportunity to vendors.
- (2) ONTC endeavors to provide specifications that meet the requirements of the procurement without naming specific brands. However, there may be instances where a third-party consultant prepares a specification on behalf of ONTC, and a specific brand is named. In these instances, alternate materials or products may be used if ONTC determines the proposed materials or products are equivalent to the materials or products in the specifications. Respondents shall submit proposed alternate materials or products with their Proposal submission to be considered.

SECTION 12 - INTERPRETATION

12.1 General

- (1) In this RFP, the singular shall include the plural and the plural shall include the singular, except where the context otherwise requires.
- (2) All references in this RFP to "discretion" or "sole discretion" means in the sole and absolute discretion of the party exercising the discretion.
- (3) For clarity, where the expression "Government of Ontario" is used in this RFP, it includes all Ministries and Agencies of the Government of Ontario.



PART 2 REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS

PART 2 – REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS SCHEDULE 2-A RFP DATA SHEET

RFP 2024 005 Design-Build of New Heated Storage Building					
Contact Details					
Contact Person	Brinda Ranpura, Procurement Contracts Specialist				
Contact Information	555 Oak Street East North Bay, Ontario, P1B 8L3 brinda.ranpura@ontarionorthland.ca (705) 472-4500 ext. 548				
Proposal Detail					
Respondents' Meeting	A mandatory virtual Respondents' Meeting carried out by a Teams conference call will take place on Wednesday April 3, 2024 at 1:00 p.m. Respondents must complete the Respondents' Meeting Registration Form and return it via email by Tuesday, April 2, 2024 at 4:00 pm to Brinda Ranpura at Brinda.ranpura@ontarionorthland.ca. Registered Respondents will receive an invitation to the Teams call.				
Validity of Proposals	90 days following the Submission Deadline				
Format of Submission	Respondents shall submit their Proposal through MERX Electronic Bid Submissions (EBS). Refer to Part 1, Request for Proposals, Section 5.1 (1) (a). MERX EBS does not allow Proposals to be uploaded after the Submission Deadline; therefore, Respondents shall ensure they allow sufficient time to upload the documents.				
	Proposals which are submitted by facsimile transmission, by email or by electronic means other than MERX <u>will NOT</u> be considered.				
Two-Envelope Process	This procurement will <u>not be a</u> two-envelope process.				
Distribution Method	The RFP Documents will be posted on the ONTC website and MERX. Any addenda to the RFP will be shared with those Respondents who attended the				

Mandatory Respondents' Meeting.

PART 2 – REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS SCHEDULE 2-A RFP DATA SHEET continued

RFP 2024 005 Design-Build of New Heated Storage Building

Proposal Detail continued - Note the requirements below are new to ONTC

Respondents are required to submit <u>all</u> of the documents listed below as part of their Proposal. Respondents shall confirm they have included the documents listed below with their Proposal by placing a checkmark in the column "Included in Proposal". If the Respondent fails to include a document listed below as being "Material", the respondent may be disqualified in accordance with section 6.2 (3) of the RFP.

	be disqualified in accordance with section 6.2 (b) of the 14.1.			
	Item	Included in Proposal (indicate with ✓)	Item is classified as Material	
	This checklist		Material	
	Proposal Form 1 - Proposal Submission Form		Material	
	Proposal Form 2 - Respondent's General Information		Material	
Submission Requirements	Proposal Form 3 Acknowledgment to Comply with Part 3 – Request for Proposals Specifications		Material	
	Proposal Form 4 - References		Material	
	Proposal Form 5 - Compliance with Contract Documents			
	Proposal Form 7 Health, Safety and Environment		Material	
	Proposal Form 8 - Schedule of Materials			
	Proposal Form 9 - List of Equipment			
	Proposal Form 10 Schedule and Proposed Approach		Material	
	Include Construction Schedule in Gantt chart format and Written Narrative Proposed Approach			
	Proposal Form 11 - Schedule of Progress Payments			
	Proposal Form 12 - List of Personnel and Resumes		Material	
	Proposal Form 13 - Current Labour Agreements			
	Proposal Form 14 Contractor's Qualification Statement		Material	
	Include Company Profile and 3 Project Descriptions Include Subcontractor Profiles, if applicable			
	Proposal Form 15 - Claims			
	Bid Performance Security as prescribed in Part 1, Request for Proposals, Section 4.3.		Material	

PART 2 - REQUEST FOR PROPOSALS

SUMMARY OF REQUIREMENTS SCHEDULE 2-A continued RFP DATA SHEET

RFP 2024 005 Design-Build of New Heated Storage Building

Important Dates				
Publication Date	Tuesday, March 19, 2024			
Participation Registration Form	Complete and submit to the Contact Person as soon as possible			
Deadline for Additional Information Request	Four (4) full Business Days prior to the Submission Deadline			
Submission Deadline Date and Time	Friday, April 19, 2024, at 2:00:00 p.m. local time (North Bay, ON)			
Target Start Date	Spring 2024			
Target Completion Date	February 15, 2025			

Draft Agreement

Liquidated Damages

The per diem rate is \$2,000 for each calendar day of delay beyond the prescribed date for Substantial Performance of the Work until Substantial Performance of the Work is achieved and certified, pursuant to the terms of the Contract.

Procedure of Selection

Respondents must first satisfy that all of the Mandatory Requirements listed below have been met. Respondents will receive a pass/fail for each Mandatory Requirement. Respondents who fail any of the Mandatory Requirements will be disqualified from the RFP Process.

Mandatory Requirements

Mandatory Requirement	Pass	Fail
Respondent has participated in the Mandatory Respondents' Meeting		
Respondent has submitted all of the documents as specified in the Submission Requirements listed in Part 2, Request for Proposals, Summary of Requirements, RFP Data Sheet		
Respondent has provided sufficient evidence to pass the Contractor Safety Pre-Qualification (Part 4 – Form of Proposal, Proposal Form 7, Health, Safety and Environment)		
Respondent has achieved a minimum score of 9 under Experience and Qualifications		
Bid Bond and Agreement to Bond included in Proposal Submission (scanned copy acceptable)		

PART 2 – REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS SCHEDULE 2-A continued RFP DATA SHEET

RFP 2024 005 Design-Build of New Heated Storage Building

Procedure of Select	tion continued		
Evaluation General Procedure	ONTC will proceed with an evaluation of the Proposals. The evaluation will be based on the following criteria:		
Evaluation Criteria	Description	Weight	
	Price ONTC will use the following to calculate the initial score for price: Lowest price of all Proposals / price of Respondent x 50 = Score ONTC reserves the right in its sole discretion to consider the best overall value when evaluating price and adjust the score accordingly. If ONTC, in its sole discretion, is the opinion that the Respondent has submitted a price that is too low to adequately complete the scope of work, then ONTC reserves the right not to use that price as the "Lowers price of all Proposals".	50	
	Experience and Qualifications ONTC will assess Respondents' experience and qualifications using the information supplied as part of Part 4 of this RFP. The following sub-weights will apply: Company Profile & Resumes of Key Personnel – 5 points Project Profiles 1, 2 & 3 – 10 points (ONTC may or may not contact references as part of the evaluation and may use this information as part of this score)	15	
	Schedule and Proposed Approach ONTC will assess the Respondent's Schedule and Proposed Approach based on the following: Is the Schedule in the format requested and are the milestone dates in conjunction with the ONTC deadline? 5 points Is the schedule and proposed approach logical and does it have sufficient detail with durations for each task? Has the critical path been identified? 5 points (Note: ONTC reserves the right, in its sole discretion, to disqualify a proposal that cannot be completed prior to the end of the ONTC fiscal year (March 31, 2024).	10	
	Local Knowledge and Benefit Describe your experience with climatic and environmental requirements in Northern Ontario – 5 points What is the value of the budget to be allocated to local subcontractors and how and when will the vendor use the local workforce, local vendors, local manufacturers, etc. – 10 points	15	

PART 2 – REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS SCHEDULE 2-A continued RFP DATA SHEET

RFP 2024 005 Design-Build of New Heated Storage Building Procedure of Selection continued Environmental and Sustainability Provide your organization's written environmental policy and provide evidence of compliance to Ontario's environmental requirements (e.g., recycling, waste management) 10

PART 2 – REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS SCHEDULE 2-B PARTICIPATION REGISTRATION FORM

Required in order to register and receive any communications in relation to the requirement referenced below.

Date:			
Reference Number: RFP 2024 00		5	
Description of Requirement:	Design-Build of New Heated Storage Building		
	•	ate in the above referenced requirement and will be in relation to this process and project until further	
Company Name:			
Address:			
Name of person registering to company referenced above (p Email Address: Phone Number: (Main Office Cell Number:	olease print):		
Signature of Primary Contact	:		
Return form to the Contact Pe	erson as refere	nced below via email as an attachment:	

Brinda Ranpura Procurement Contracts Specialist

Ontario Northland Transportation Commission Phone: 1-800-363-7512 or 705-472-4500 Ext. 548

Fax: 1-705-475-5003

Email: <u>brinda.ranpura@ontarionorthland.ca</u>

Website: www.ontarionorthland.ca



PART 3 REQUEST FOR PROPOSALS SPECIFICATIONS

PART 3 – RFP SPECIFICATIONS SCHEDULE 3-A SCOPE OF WORK

1. Introduction

Ontario Northland Transportation Commission (ONTC) is seeking proposals for Design-Build project delivery services to complete the design and construction of a new heated storage building. This facility will provide proper on-site storage solution to accommodate ONTC's needs for storage space. The facility's minimum square footage shall be at least 30,000 square feet.

The anticipated completion date for the project is February 15, 2025.

The new building will be constructed in the vicinity of ONTC's New Maintenance of Way Shop located at 908 Worthington Street East North Bay, Ontario.

ONTC is seeking "turnkey" proposals from Respondents who can complete the entire project from start to finish within project constraints (budget, time, quality). ONTC will not entertain the sale of building packages, kits, or proposals that require ONTC to hire additional resources or subcontractors to complete the project.

2. Background

The project site has been used previously by ONTC as a laydown area and for stockpiling rail ties. Soil contaminants may be present. The site is located behind the ONTC New Maintenance of Way building, accessible through a small gravel road. There are currently no utilities at the site (electrical, water, sanitary, communication).

Project Site: The new building will be located as shown in the map below.

GPS Coordinates: 46.300093126613035, -79.44899315307933

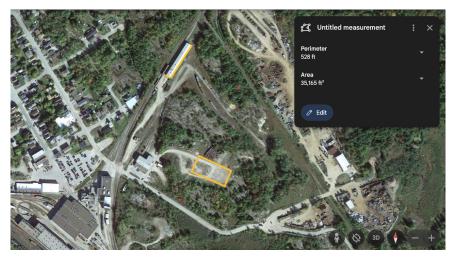


Figure 1 Site Map

3. Summary of Project Requirements

3.1 General Responsibilities and Project Intent:

- The intent of this project is to construct a storage building in a very cost-effective way.
 The design shall allow for easy future expansion and provide the best use of the site, providing access to and around the building.
- 2. The building will be used strictly for storage with very limited occupancy to offload or retrieve parts.
- 3. Stored goods in the new building will not be flammable or explosive and are mainly parts used for locomotive rebuilds or railway passenger cars. Parts are typically packaged on 4'x3' pallets.
- 4. The Contractor, i.e. Design-Builder, is expected to provide design and construction turnkey activities for this project, resulting in a finished, fully functional, usable facility that satisfies all project requirements and contract terms.
- 5. Building and zoning permits are not required. Any other required permits will be the Contractor's responsibility.
- 6. Coordination with utility providers, Municipalities, Authorities Having Jurisdiction (AHJ) and Fire Department is the contractor's responsibility.
- 7. The building will be divided into two sections, one section (20,000 sq ft) mainly used for inventory storage with forklift access only. The other section (10,000 sq ft) will have a 20-ton crane used to offload transport trucks and will be used for storing large parts. The intent is to separate the two section using the racking systems. Median columns can be located at the boundary separating the two sections.
- 8. Building layout is as per attached sketches, section 7. Dimensions shall be used as a guideline. Contractor shall inform ONTC of any field variation during the design phase.

3.2 New Storage Building Requirements

3.2.1 Steel Building System:

- 1. The work shall include but is not limited to the following:
 - Structural design of steel building system primary and secondary framing.
 - Design of anchor bolts.
 - Design of metal cladding and roofing.
 - Preparation of shop drawings.
 - Supply of steel building system primary and secondary framing.

- Reinforcement and framing required by mechanical penetrations, projections, and doors.
- Drawings for the steel building system shall bear the seal of a professional engineer registered in the province of Ontario.
- 2. Steel Building System design fabrication and erection shall comply with the Canadian Sheet Steel Building Institute standard CSSBI 30M-2017 or the last revision.
- 3. Design loads of the building as per applicable building codes.
- 4. Construction material: steel construction.
- 5. Type of Building:
 - Rigid Frame.
 - Beam and column.
 - Truss Frame.
 - Self-supporting (self-framing) steel building or,
 - Conventional steel building.
- 6. Dimensions:
 - Square footage: min 30,000 sq ft.
 - Height: min 24 ft.
 - Minimum clear internal height is 19.5 ft.
- 7. Roof: curved roof, sloped or flat.
- 8. All building elements shall be coated

3.2.2 Floor Construction:

- 1. Min 6" inch concrete slab on grade to suit heavy storage applications.
- 2. Provide smooth float finish.
- 3. Apply densifier, hardener and sealer.
- 4. Provide a smooth transition at each garage door.
- 5. Dewatering: Dewater site for foundation construction as required by soil conditions and local subsurface waters and surface water, including rainfall.
- Foundation and Below Grade Insulation: The proposed structure shall be insulated to prevent frost penetration below its foundation. Insulation shall be sufficient thickness and thermal resistance value around perimeter edges of foundation and horizontally out

and as required to meet applicable building code.

3.2.3 Exterior doors:

- 1. Building shall have at minimum two overhead doors. Final locations to be decided during the design phase.
- 2. Overhead door size shall be 16'x16' min.
- 3. Overhead door is to be provided with an electric door opener with a remote control.
- 4. Mandoor to be 36 inches wide, commercial heavy-duty hollow metal door, preassembled, painted, insulated with small screen window complete with all hinges, panic bar, thumb leaver, self-closing hardware, weather stripping and a threshold.
- 5. A man-door shall be provided adjacent to each overhead door.
- 6. Any other man-doors are to be provided and located to satisfy code requirements.
- 7. Two bollards shall be provided for each overhead door.
- 8. Provide a canopy at each mandoor. Canopy to be made of a heavy gauge steel plate and painted to suit building color.
- 9. Provide illuminated exit signs with emergency backup power at each exit.

3.2.4 Walls:

- 1. Provide a knee wall around the entire building perimeter, a minimum height of 2 ft.
- 2. Walls to be designed and construed as per applicable codes and standards.
- 3. Building shall be weather-tight. Thermal insulation, airtightness, moisture protection, and thermal bridging to meet or exceed building code requirements.
- 4. Provide for positive drainage to exterior of condensation occurring within wall construction and water entering at joints.

3.2.5 Windows:

1. Windows are not required.

3.2.6 IAQ:

- 1. Building temperature to be maintained at around 10 Celsius in the cold season.
- 2. A ventilation system by means of exhaust fans and surface wall-mounted louvres and temperature air quality monitoring device shall be provided to keep the indoor temperature at acceptable levels in the summer season (below 38 Celsius) and to dilute any gases emitted by stored material and forklift traffic. System to be compliant with applicable codes and standards.

3.2.7 HVAC:

- 1. As per Indoor Air Quality (IAQ) section 3.2.6
- 2. Provide an adequate heating system using one or a combination of energy-efficient heating systems: heat pumps, gas, propane or electrical heaters.

3.2.8 Fire Protection:

- 1. Provide an automatic fire protection system only if required by code.
- 2. Select, design and provide the most cost-effective system to satisfy code requirements.
- 3. Provide an adequate quantity of portable extinguishers to satisfy code requirements.

3.2.9 Smoke and Fire Alarm:

- 1. Provide only if required by code.
- 2. Select, design and provide the most cost-effective system to satisfy code requirements.

3.2.10 Plumbing Services:

- 1. Water, sanitary, and plumbing fixtures are not required.
- 2. Bathrooms, showers, or janitorial closets are not required.

3.2.11 Electrical Services:

- 1. Coordinate with North Bay Hydro to obtain a new service.
- 2. If it is not possible to obtain a new hydro service, the new building shall be fed from the nearest ONTC building.

- 3. The Contractor to carry cash allowance in the amount of \$50K CDN to design, coordinate and provide Electrical service to the new building.
- 4. Provide at exterior walls a weatherproof, Qty 1 20Amp receptacle beside each mandoor
- 5. Contractor to provide provision for new 600V forklift charging station to suit Striker Power Systems Enerpower Three-Phase Wa 36V 140A or equivalent charging system.

3.2.12 Lighting:

- 1. Provide adequate energy-efficient, low-maintenance indoor and exterior lighting.
- 2. Indoor lighting to be equipped with motion sensors.
- Suitable exterior lighting shall be provided at each mandoor and overhead door and around the building in a manner to eliminate any dark areas on the immediate building perimeter.
- 4. Exterior lighting to be automated using photocells or other means and to be turned on at low lighting levels only.

3.2.13 Storm water and grading:

- 1. Provide positive grading around the entire building to shed water away from the building. The grading within 3 meters of the building shall be maintained at 2%.
- 2. Roof leaders which discharge to the surface should extend 2 meters away from the building.

3.2.14 Exterior and interior Signage:

- 1. Carry a \$5000 CDN cash allowance to provide and install external and internal signage.
- 2. Signage design and requirements to be confirmed with ONTC during the design phase.

3.2.15 Security:

1. Security systems are not part of the scope.

3.2.16 Special Requirements:

- 1. A 20-ton crane may be required. See attached sketch, section 7.
- 2. Racking: Contractor to carry cash allowance in the amount of \$250K CDN to design and provide a new racking system. The racking plan (design, specifications) shall be finalized by the Contractor during the Design phase of the project. Contractor shall consult with ONTC and ONTC Warehouse Consultant during the design phase to optimize the design of the racking system. Fabrication or ordering material for the racking system shall only start once the design has been accepted by ONTC. All costs related to the racking system shall be paid from the cash allowance.
- 3. Contractor shall provide design and construction services of a new driveway that will allow the safe and easy access of Transportation trucks to the new building. See Section 7.

4. Design Services:

4.1 Design Scope and Requirements:

- 1. The Contractor shall provide all architecture, engineering, and design services for the construction of the new building, including but not limited to:
 - Architecture
 - Geotechnical engineering,
 - Structural Engineering,
 - Mechanical Engineering,
 - Electrical Engineering,
 - Civil Engineering.
- 2. Design to conform to the National Building Code of Canada and applicable Provincial and local Codes.
- 3. Design structural steel to CAN/CSA-S16-14 or latest version.
- 4. Design cold formed steel sections to CAN/CSA-S136-16 or latest version.
- 5. Design building walls and roof to allow for thermal movement of component materials caused by ambient temperature without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

4.2 Design Deliverables:

- 1. Design deliverables shall include but not be limited to:
 - Architectural drawings, including layout plan, plan view, four (04) elevations and wall sections (sealed);
 - (Sealed) Foundation drawings;
 - (Sealed) Fire-protection drawings;

- (Sealed) Mechanical & Electrical drawings.
- Civil drawings.
- 2. The Contractor shall prepare and submit design development and construction documents to ONTC for review at the following stages of completeness. A review meeting shall be held to present and discuss each submission.
 - Design Drawings, design calculations and Specifications (50% complete)
 - Design Drawings, design calculations and Specifications (95% complete)
 - Construction documents (drawing, specifications, and shop drawings) (95% complete)
- 3. Review will include providing samples and/or mockups and colour selection.
- 4. The Contractor shall notify and communicate to ONTC any and all variances between the documents submitted for review, the Contractor's original proposal and the requirements of the RFP.
- 5. Submit the following documents in accordance with CSSBI 30M, para 13:
 - Erection drawings showing foundation loads,
 - anchor bolt setting details part numbers,
 - connections and assembly details.
- 6. Provide and indicate plans and grid lines, structural members and connection details, bearing and anchorage details, roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, loads and reaction forces, fasteners and field welds, sealant locations and details.

4.3 Drawings Revision:

The Contractor shall carry a design contingency cash allowance in the amount of \$25K
CDN to cover all design costs incurred by major modifications requested by the ONTC
after the drawings are completed as per specifications and preliminary drawings that
were submitted by the Contractor at the RFP stage. A major change is a modification
that would require revision of design calculations and/or the correction or redrawing of
the plans.

5. Qualifications and Quality Requirements:

- 1. Architects and Engineers working on this project shall each have a minimum of 8 years of experience and be registered to practice in the province of Ontario.
- 2. Fabricators shall be certified by the Canadian Welding Bureau to the requirements of CSA Standard W47.1-09 (R2014) or latest version, Division 1 or 2.1.
- 3. Companies performing field welding shall be certified by the Canadian Welding Bureau to the requirements of CSA Standard W47.1-09 (R2014) or latest version.

- 4. Erect to the CISC Code of Standard Practice.
- 5. Building manufacturer shall be certified to CAN/CSA-A660-10 (R2014) or latest version.
- 6. Submit CSA-A660 Certificate of Design and Manufacturing Conformance with OBC, stating design criteria used and loads assumed in design. Certificate shall be signed and sealed by a professional engineer registered in the province of Ontario.
- 7. ONTC may employ an independent Inspection and testing agency to complete the inspection of materials and workmanship.
- 8. Contractor shall have in place a Quality Control Plan that details the procedures, instructions and reports to be used to assure compliance with the Contract Documents.
- 9. The Plan should describe in detail proposed quality control practices that identify times of Work which will be subject to controls, and list particular checks and tests that are to be performed for each item of work, indicate frequency of checks or tests, milestones at which they are to be carried out, and provide for reports on results of these activities, with reports submitted to The ONTC.
- 10. The Contractor shall appoint and pay for services of Testing Agents & Laboratories.
- 11. Materials and assemblies installed in the work shall be inspected and found to be in compliance with industry standards and the Design specifications prior to acceptance of the work. Items found not to be in compliance shall be removed or corrective measures taken, to assure compliance with standards.

6. General Requirements:

6.1 Fabrication:

- 1. Fabricate structural members in accordance with shop drawings and to CAN/CSA-S16. Tolerance not to exceed those specified in CAN/CSA-S16.
- 2. Reinforce openings to maintain design strength.
- 3. All structural steel shall be new un-used steel free of loose mill scale, rust, dirt, oil, and other deleterious matter.
- 4. All framing members shall be shop fabricated for bolted field assembly. Cutting, drilling, or welding in the field shall be minimized, and when required shall be clearly noted on the shop drawings.

5. All members and sections shall be closely fitted and finished true to line.

6.2 Storage and Protection:

- 1. Protect prefinished steel sheet during fabrication, transportation, site storage and installation in accordance with CSSBI Fact Sheet #3.
- 2. Handle and protect metallic-coated materials from damage to metallic coating.
- 3. During storage, space surfaces of metallic coated materials to permit free circulation of air
- 4. Provide protection from weather to all primary and secondary steel components if stored on site by means of properly secured tarps. Components should be prevented from prolonged contact with the ground by means of adequately spaced blocking.

6.3 Execution:

- 1. Construction activities shall not adversely affect the structural integrity of any structure located on adjoining areas. Contractor will be responsible for any remediation work required to the satisfaction of the ONTC at no additional cost to the ONTC.
- 2. The Contractor will be required to complete the work in accordance with all applicable federal, provincial, and municipal laws.
- 3. The Contractor will be required to obtain and pay for all necessary permits, fees, inspections, and ministry notifications required for the project including, but not limited to, the following:
 - Filing notice of project with the Ontario Ministry of Labour.
 - Obtaining all necessary permits and inspections.
- 4. Contractor to provide all locates required to complete work. Locates are required before breaking any ground or floor.
- 5. The Contractor will be required to secure their work area (create construction islands) for the duration of the project. The Contractor will be responsible for all activities inside this construction island, including health and safety. The Contractor shall coordinate their work with ONTC supervision to ensure that disruption to work being done by ONTC employees in the areas outside of the construction island is not interrupted. Access by the Contractor will be restricted to the work area (Construction Island) only.
- 6. The Contractor will be required to perform all remediation work for designated

substances which is required to complete the work for the Project, including the removal and disposal of any designated substances in accordance with all applicable laws. The cost of this remediation and disposal shall be included in the Contractor's price submission.

- 7. The Contractor shall remove all construction debris and excess material from ONTC property and pay for all disposal fees, with the exception of excavated material. Any excavated material (soil, gravel, sand, etc.,)
- 8. The Contractor will have access to the construction island, 24 hours per day, seven days per week. The Contractor will be required to coordinate their hours of work with ONTC supervision. Note that every employee of the Contractor, their subcontractors, and their suppliers, will be required to sign in and sign out using the book located at the Contractor Construction trailer, every time the employee enters or leaves the property. This is a requirement to comply with our emergency evacuation policy.

9. The Contractor shall:

- Supply their own on-site facilities, including construction trailer, eating area, and washrooms.
- Plan and organize the work prior to and during construction.
- Prepare all required documentation submittals in compliance with the contract documents.
- Provide a preliminary construction schedule with their Proposal.
- Supply all personal protective equipment (PPE) and consumable supplies as required. Note that safety glasses with side shields, safety boots, hard hats, and high visibility clothing must be always worn on ONTC property. Any employees not wearing the required PPE will be immediately escorted off ONTC property.
- Designate a site supervisor who will be responsible for managing the project and be responsible for on-site safety, including all sub-contractors and suppliers. This site supervisor will be the single point of contact for the duration of the project. This site supervisor will be required to communicate with ONTC supervision to ensure the work is completed safely with minimal impact on the operation of the facility.
- Coordinate required site inspections with independent inspection and testing firms.
- Purchase and deliver to the site all Contractor supplied materials, equipment, facilities, and manpower necessary to accomplish the work within the schedule.
- Establish a site-use plan acceptable to ONTC providing an organized, safe, and efficient means of personnel transport, material handling, storage/laydown areas, construction trailer locations, access points and methods of access, and limits of construction within the premises.
- Receive, unload, store, protect, secure, and transport within the jobsite all Contractor and ONTC furnished equipment and materials.
- Provide on-site and off-site quality control services as required in specifications,

- drawings and documents.
- Maintain complete records including daily construction site diary/logbook, shop drawings, and pertinent photographs.
- Provide qualified personnel to perform the work.
- Ensure that the project is started and completed on schedule.
- Make every reasonable effort to contain any dust or fumes so that adjacent work areas are not contaminated during the project.
- Clean up and demobilize areas upon completion of the work.
- Supply all necessary tools, machinery, and equipment to perform the work including, but not limited to, forklifts, mobile cranes, hoisting equipment, scaffolding, ladders, man lifts, temporary lighting, heating, welding machines, ventilation, consumables, and any other material or equipment required to complete the work. The Contractor shall provide all necessary vehicles and qualified personnel to transport people and materials.

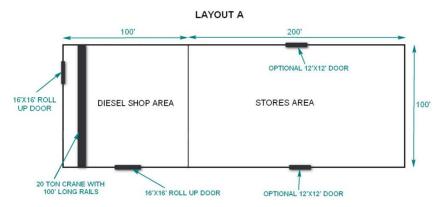
7. Concept Design

7.1 Building Layouts:

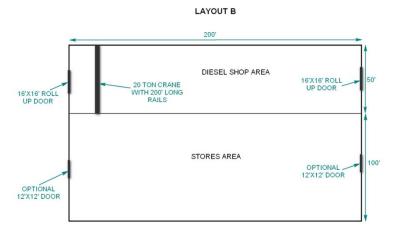


7.2 Crane Layouts

7.2.1 Layout A:



7.2.2 Layout B:



7.3 Driveway:



PART 3 – RFP SPECIFICATIONS SCHEDULE 3-A-1 TECHNICAL SPECIFICATIONS

SECTION	TITLE
00 31 00	Available Project Information
01 11 00	Summary of Work
01 14 00	Work Restrictions
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 32 16.19	Construction Progress Schedule
01 32 33	Photographic Documentation
01 33 00	Submittal Procedures
01 35 29.06	Health and Safety Requirements
01 35 35	Fire Safety Requirements
01 35 43	Environmental Procedures
01 41 00	Regulatory Requirements
01 43 00	Quality Assurance
01 45 00	Quality Control
01 51 00	Temporary Utilities
01 52 00	Construction Facilities
01 56 00	Temporary Barriers and Enclosures
01 61 00	Common Product Requirements
01 71 00	Examination and Preparation
01 73 00	Execution
01 74 00	Cleaning
01 74 19	Waste Management and Disposal
01 77 00	Closeout Procedures
01 78 00	Closeout Submittals
01 79 00	Demonstration and Training
01 91 13	General Commissioning Requirements
01 91 13.13	Commissioning Plan
01 91 13.16	Commissioning Form
13 34 19	Metal Building Systems

1 GENERAL

1.01 DEFINITIONS

.1 Available Project Information: information identified in this Section, of any type, and in any form, and identified as Available Project Information. Available Project Information, or any part thereof, does not form part of the Contract Documents unless specifically incorporated into Contract Documents by means of copying, transcribing, or referencing or is listed in the Agreement as a Contract Document.

1.02 USE AND RELIANCE UPON AVAILABLE PROJECT INFORMATION

- .1 Available Project Information is made available to Respondents for the purpose of disclosing information that is available to the ONTC.
- .2 Per CCDC, Available Project information is made available to Respondents to fulfill the Owner's duty to disclose all relevant Project information to Respondents.
- .3 Do not consider the Available Project Information as a representation or warranty that the information is necessarily accurate, complete, or appropriate.
- .4 Respondents are responsible for interpreting and forming their own conclusions about the Available Project Information, including consideration of the time the document was created. Respondents are encouraged to obtain specialist advice if necessary. ONTC assumes no responsibility for interpretations or conclusions made.
- .5 In the event there is a conflict between the Contract Documents and the information contained in the Available Project Information, the Contract Documents shall govern.

1.03 AVAILABLE PROJECT INFORMATION

- .1 The following Available Project Information is not incorporated into the Contract Documents, but is made available to Respondent:
 - .1 ONTC Site Survey.
 - .2 ONTC Topographic Survey draft by Tulloch.
 - .3 Geotechnical Report by EXP.

1.04 RELATED INSTRUCTIONS

.1 Report any irregularities or changed surface conditions at the actual project site, if any, to ONTC Representative a minimum of 10 business days before RFP close.

2023-10-30 ONTC MASTER CONSTRUCTION SPECIFICATION SECTION 00 31 00 Available Project Information PAGE 2

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Refer to Specification Index for Sections applicable to this work.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the following:
 - .1 Design, Construction and delivery of a fully functional, usable new storage facility as per RFP requirements.

1.03 CONTRACT METHOD

- .1 Construct Work under single stipulated price contract.
- .2 Relations and responsibilities between Contractor and subcontractors and suppliers, subcontractors assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:
 - .1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Owner.
 - .2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Owner.

1.04 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures
- .2 Submit Project construction progress schedule in accordance with contract documents.
- .3 Submit site-specific and Work Plan Health and Safety Plan in accordance with Section 01 35 29.06 Health and Safety Requirements.
- .4 Submit a Project Management Plan, including communication and risk plans.
- .5 Submit Quality Management Plan.

1.05 WORK BY OTHERS

- .1 The work under this contract will performed by the Contractor.
- .2 Contractor shall co-operate with other Contractors, if any, in carrying out their respective works and carry out instructions from ONTC Representative.
- .3 Contractor shall co-ordinate work with 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 ONTC Representative, in writing, any defects which may interfere with proper execution of Work.

1.06 PERIOD OF WORK

.1 Work shall commence as soon as possible after award and be completed no later than March 15, 2025.

1.07 CONTRACTOR USE OF PREMISES

- .1 Contractor will have full access and use of the construction island until Substantial Performance.
- .2 In some circumstances, Contractor shall coordinate and limit his access to allow:
 - .1 Owner occupancy.
 - .2 Partial owner occupancy.
 - .3 Work by other contractors or Utilities providers.
 - .4 Owner usage.
- .3 Co-ordinate use of premises under direction of ONTC Representative.
- .4 Refer to Section 01 51 00 Temporary Utilities , Section 01 52 00 Construction Facilities and Section 01 56 00 Temporary Barriers and Enclosures , for temporary facilities, access roads and parking areas, traffic regulations, and utilities.

1.09 OWNER OCCUPANCY

- .1 Owner will occupy the adjacent premises during the entire construction period for execution of normal operations. Owner access to the laydown areas and parking lot beside the New Maintenance of Way shop shall not disturbed.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.13 OWNER FURNISHED ITEMS

.1 ONTC will not furnish any items for this contract.

1.14 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.15 EXISTING SERVICES

- .1 Notify, ONTC 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 ONTC Representative at least 5 days notice for

necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and ONTC operations.

- .3 Provide alternative routes for personnel, pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify ONTC Representative of findings.
- .5 Submit schedule for approval by ONTC 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 when directed by ONTC Representative to maintain critical building services.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise ONTC 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, as required, in accordance with Section [01 56 00 Temporary Barriers and Enclosures].
- .12 Locate and trace existing underground services before any excavation. Any damage to existing services will be the responsibility of the Contractor.

1.16 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy of each document as follows:
 - .1 Contract.
 - .2 Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings, product data and samples.
 - .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 As-built red marked drawings.
- .12 Other documents as specified.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 ONTC Blue Signals/Flags Procedure, Procedure No. HSP-007

1.02 ACCESS AND EGRESS

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

1.03 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with ONTC Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Contractor is responsible for sanitary facilities.
- .5 Use only elevators existing in building for moving workers and material.
 - .1 Protect walls of passenger elevators, to approval of ONTC Representative prior to use.
 - .2 Accept liability for damage, safety of equipment and overloading of existing equipment.
- .6 Closures: protect work temporarily until permanent enclosures are completed.
- .7 Carry out Work Monday to Friday during hours of 7:00 am to 5:00 pm. Work outside of these hours, including on weekends, shall be preapproved by ONTC Representative. Provide a minimum (05) business days' notice to work outside of these windows.

1.04 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises.

Arrange with ONTC Representative to facilitate execution of work.

1.05 EXISTING SERVICES

- .1 Notify, ONTC 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 ONTC Representative 48 hours of notice for necessary

interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

- .3 Provide for personnel, pedestrian and vehicular traffic.
- .4 Construct barriers in accordance with Section 01 56 00 Temporary Barriers and Enclosures.

1.06 SPECIAL REQUIREMENTS

- .1 Carry out noise generating Work Monday to Friday from 7:00am to 5:00pm hours.
- .2 Protect rail infrastructure and obtain approval before working near live tracks. Coordinate with ONTC representative. Follow ONTC Blue Signals/flag procedure.
- .3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .4 Keep within limits of work and avenues of ingress and egress.

1.07 SECURITY

.1 Contractor is responsible to provide temporary security to the site for the duration of the Work.

1.08 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking and vaping restrictions. Smoking and vaping is not permitted.

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 Not Used.

1.02 ADMINISTRATIVE

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

1.03 PRECONSTRUCTION MEETING

- .1 Within (10) days after award of Contract and before Mobilization, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities. ONTC Representative will chair the meeting.
- .2 ONTC Representative, Contractor, major Subcontractors, field inspectors and supervisors and other parties, as applicable and at their discretion, will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 05 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include, but not limited to:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Lines of Communication, use of Social Media and distribution List.
 - .2 Schedule of Work and Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with

- Section 01 33 00 Submittal Procedures.
- .4 Requirements for temporary facilities, site signage, offices, storage sheds, utilities, site set-up/Utility connections, laydown areas, fences in accordance with Section 01 52 00 Construction Facilities.
- .5 Delivery schedule of specified equipment in accordance with Section 01 11 00 Summary of Work.
- .6 Site security in accordance with Section 01 56 00 Temporary Barriers and Enclosures.
- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
- .8 Owner provided products, existing conditions and owner site use/operations.
- .9 Record drawings in accordance with Section 01 33 00 Submittal Procedures.
- .10 Maintenance manuals in accordance with Section 1 78 00 Closeout Submittals.
- .11 Take-over procedures, acceptance, and warranties in accordance with Section 01 78 00 Closeout Submittals.
- .12 Monthly progress claims, administrative procedures, photographs, holdbacks, commissioning, and training.
- .13 Appointment of inspection and testing agencies or firms.
- .14 Insurances, transcript of policies.
- .15 Site Safety and Fire protection in accordance with section 01 35 29.06 Health And Safety Requirements.
- .16 Cleaning and Waste Management
- .17 Invoicing and payment procedures.

1.04 PROGRESS MEETINGS

- .1 During course of Work and up to completion date, schedule regular progress meetings Bi-weekly.
- .2 Contractor, major Subcontractors involved in Work and ONTC Representative are to be in attendance.
- .3 Notify parties minimum three days prior to meetings and provide Agenda.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within two days after meeting.
- .5 Agenda to include, but not limited to, the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.

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

1.04 COMMISSIONING MEETINGS

- .1 Arrange pre-commissioning meetings for the commissioning of equipment and systems. ONTC Representative and commissioning team shall be in attendance.
- 2. Notify parties minimum five days prior to meetings and provide Agenda.
- 3. Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance, and ONTC Representative.

1.04 SUBSTANTIAL COMPLETION MEETINGS:

- .1 Arrange pre-substantial completion meetings. ONTC Representative shall be in attendance.
- 2. Notify parties minimum five days prior to meetings and provide Agenda.
- 3. Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance, and ONTC Representative.

1.04 OTHER MEETINGS:

- .1 Arrange meetings to coordinate large deliveries and in advance of complex installation. ONTC Representative shall be in attendance.
- .1 Arrange meetings, as required, for urgent safety concerns and

conflict resolution. ONTC Representative and affected parties shall be in attendance. $\$

- 2 PRODUCTS
- 2.01 NOT USED
 - .1 Not Used.
- 3 EXECUTION
- 3.01 NOT USED
 - .1 Not Used.

END OF SECTION

1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 77 00 Closeout Procedures.

1.2 SCHEDULES REQUIRED

- .1 Submit schedules as follows:
 - .1 Construction Progress Schedule.
 - .2 Submittal Schedule for Shop Drawings and Product Data.
 - .3 Submittal Schedule for Samples.
 - .4 Product Delivery Schedule.
 - .5 Cash Allowance Schedule for purchasing Products, if applicable.
 - .6 Shutdown or closure activity.

1.3 FORMAT

- .1 Prepare schedule in form of a horizontal bar chart.
- .2 Provide a separate bar for each major item of work, trade or operation.
- .3 Split horizontally for projected and actual performance.
- .4 Provide horizontal time scale identifying first work day of each week.
- .5 Format for listings: chronological order of start of each item of work
- .6 Identification of listings: By Systems description.

1.4 SUBMISSION

- .1 Submit initial format of schedules after award of Contract ten (10) days before mobilization.
- .2 Submit schedules in electronic format, PDF or Excel files.
- .3 Submit one opaque reproduction, plus 2 copies to be retained by Owner.
- .4 Owner will review schedule and return review copy within ten (10) working days after receipt.
- .5 Resubmit finalized schedule within seven (7) working days after return of review copy.

- .6 Submit revised progress schedule with each application for payment.
- .7 Distribute copies of revised schedule to:
 - .1 Job site office.
 - .2 Subcontractors.
 - .3 Other concerned parties.
- .8 Instruct recipients to report to Contractor within ten (10) working days, any problems anticipated by timetable shown in schedule.

1.5 CRITICAL PATH SCHEDULING

- .1 Include complete sequence of construction activities.
- .2 Include dates for commencement and completion of each major element of construction as follows.
 - .1 Site clearing.
 - .2 Site utilities.
 - .3 Foundation Work.
 - .4 Structural framing.
 - .5 Special Subcontractor Work.
 - .6 Equipment Installations.
 - .7 Finishes.
- .3 Show projected percentage of completion of each item as of first day of month.
- .4 Indicate progress of each activity to date of submission schedule.
- .5 Show changes occurring since previous submission of schedule:
 - .1 Major changes in scope.
 - .2 Activities modified since previous submission.
 - .3 Revised projections of progress and completion.
 - .4 Other identifiable changes.
- .6 Provide a narrative report to define:
 - .1 Problem areas, anticipated delays, and impact on schedule.

- .2 Corrective action recommended and its effect.
- .3 Effect of changes on schedules of other prime contractors.

1.6 SUBMITTALS SCHEDULE

- .1 Include schedule for submitting shop drawings, product data, and samples.
- .2 Indicate dates for submitting, review time, resubmission time, last date for meeting fabrication schedule.

2 PRODUCTS:

2.1 DAILY CONSTRUCTION REPORTS:

- .1 Prepare a daily construction report recording the following information concerning events at Project Site:
 - .1 List of subcontractors at Project Site.
 - .2 Approximate count of personnel at Project Site.
 - .3 Equipment at Project Site.
 - .4 Material Deliveries.
 - .5 Accidents.
 - .6 Meetings and Significant Decisions.
 - .7 Unusual Events.
 - .8 Stoppages, Delays, Shortages, and Losses.
 - .9 Emergency Procedures.
 - .10 Orders and Requests of Authorities Having Jurisdiction.
 - .11 Change Orders received and implemented.
 - .12 Construction Work Change Directives received and implemented.
 - .13 Services Connected and Disconnected.
 - .14 Equipment or System Tests and Startups.
 - .15 Partial Completions and Occupancies.
 - .16 Substantial Completions Authorized.
- .2 Submit daily report at the end of each shift to ONTC Representative.

2.2 MATERIAL LOCATION REPORTS:

At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

Indicate the following categories for stored materials:

- .1 Material stored prior to previous report and remaining in storage.
- .2 Material stored prior to previous report and since removed from storage and installed.
- .3 Material stored following previous report and remaining in storage.

2.3 SITE CONDITION REPORTS:

.1 Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

3 EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- 1. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule five (5) days before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.
- .2 Distribution: Distribute copies of approved schedule to ONTC Representative, Subcontractors, testing and inspecting agencies,

and other parties identified by Contractor with a need-to-know schedule responsibility.

- 1. Post copies in Project meeting rooms and temporary field offices.
- 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

1 GENERAL

1.01 DEFINITIONS

.1 Construction Work Week: Monday to Friday, 7 AM - 5 PM, inclusive.

1.02 RELATED REQUIREMENTS

- .1 Section 01 31 19-Project Meetings.
- .2 section 01 33 00 Submittal Procedures

1.03 REQUIREMENTS

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

1.04 ACTION AND INFORMATIONAL SUBMITTALS

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

1.05 PROJECT MILESTONES

- .1 Project milestones form provisional targets for Project Schedule.
 - .1 Excavation completed within 60 working days of Award of Contract date.
 - .2 Substructure completed within 120 working days of Award of Contract date.
 - .3 Superstructure completed within 160 working days of Award of Contract date.
 - .4 Building closed-in and weatherproofed within 200 working days of Award of Contract date.
 - .5 Interior finishing and fitting, mechanical, and electrical work completed within 250 working days of Award of Contract date.
 - .6 Substantial Completion within 270 working days of Award of Contract date.

1.06 PROJECT SCHEDULE

- .1 Develop and provide a detailed Project Schedule and ensure it includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Excavation.

- .6 Backfill.
- .7 Building footings.
- .8 Slab on grade.
- .9 Structural Steel.
- .10 Siding and Roofing.
- .11 Interior Architecture (Walls, Floors and Ceiling).
- .12 Plumbing.
- .13 Lighting.
- .14 Electrical.
- .15 Piping.
- .16 Controls.
- .17 Heating, Ventilating, and Air Conditioning.
- .18 Millwork.
- .19 Fire Systems.
- .20 Testing and Commissioning.
- .21 Equipment long delivery items.
- .22 Training to Owner
- .23 Close Out documents

1.08 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on bi-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.

1.09 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.

1.01 MEASUREMENT AND PAYMENT

.1 Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule of the Bid Form, or incidental to the Work.

1.02 STAGES OF CONSTRUCTION

- .1 The Contractor shall take photographs at all construction milestones and at each of the following stages of construction:
 - .1 Before commencement of clearing and demolition;
 - .2 Upon completion of clearing and demolition;
 - .3 Monthly during performance of the Work; and
 - .4 Upon completion of the Work.
 - .5 Anytime a problem arises that may result in a Notice of Potential Claim and the problem can be illustrated by photographs.
- .2 Furnish at least three different views or vantage points of each milestone and stage of construction. Furnish an average of 20 photographs each month until completion of the Work. Location of views shall be as approved by ONTC Representative.

1.03 QUALITY AND QUANTITY OF PHOTOGRAPHS

.1 All photographs shall be digital photographs in pdf, jpg or png format with the following requirements:

- .1 Minimum resolution: 1024 x 768 pixels.
- .2 Colors: 24 Bits per Pixel.
- .3 Maximum File size of 3MB.
- .2 Digital photographs provided shall use the following file naming convention:

PYYMMDDLOCATIONSEQ.EXT

P = Photograph

YYMMDD = Date in Year, Month, Day format

LOCATION = (8 Characters maximum) Location taken, either by BART 3- character alpha numeric + 5, or Milepost by line designation. (e.g. M90, C40-

west, A1MP32-1, etc.)

SEQ = Sequential number from 001 to 999.

EXT = File extension (e.g. pdf, jpg, or png).

.3 Flash drive used to store photos shall be labeled to include the Contract number and the date the photographs were taken.

1.04 IDENTIFICATION OF PHOTOGRAPHS

- .1 The following information shall be furnished for each digital photograph in a manner approved by ONTC Representative.
 - .1 Title of Contract and Contract Number;
 - .2 Identification of subject shown;
 - .3 Station point of camera and direction of view;
 - .4 Time and date taken.

1.05 VIDEO RECORDINGS

- .1 The Contractor shall provide video recordings to supplement contract photographs of certain construction milestones and events as indicated herein:
 - .1 Start of construction including clearing and demolition operations, as applicable;

- .2 Highlights of all formal inspections; and
- .3 Highlights of the final inspection and acceptance by the District.
- .4 Video recordings shall be at minimum standard definition (480p).
- .2 Video recordings shall include an unobtrusive time and date indicator on the film, accurately depicting the time and date when the photography was performed.
- .3 The Flash drive shall be labelled with the same identifying information specified above for photographs.
- .4 Individual digital video files shall use the file naming convention indicated above, paragraph 1.03.2, however the filename shall be modified such that the first character shall be "V" for video instead of "P".

2 PRODUCTS

.1 Not Used

3 EXECUTION

.1 Not Used

2023-10-24 ONTC MASTER CONSTRUCTION SPECIFICATION SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION
PAGE 4

1.01 REFERENCE STANDARDS Not Used

1.02 RELATED REQUIREMENTS Not Used

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Submit to ONTC 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 before submission to ONTC Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify ONTC Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify site measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by ONTC Representative review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by ONTC Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.04 SHOP DRAWINGS AND PRODUCT DATA

- .1 Refer to CCDC 2 GC 3.8 Shop Drawings and Supplementary General Conditions.
- .2 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.

- .3 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to Contract drawings and specifications.
- .5 Allow 10 days for ONTC Representative review of each submission.
- .6 Adjustments made on shop drawings by ONTC Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to ONTC Representative before to proceeding with Work.
- .7 Make changes in shop drawings as ONTC Representative may require, consistent with Contract Documents. When resubmitting, notify ONTC Representative in writing of revisions other than those requested.
- .8 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.
- .9 Submissions to 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 site measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified site 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 Material being supplied, all connections, attachments, anchorages and locations of exposed fastenings as applicable.
- .11 Typical and special installation conditions, including setting or erection details.
- .12 Relationship to adjacent work.
- .13 Copy of associated project warranty.
- .10 After ONTC Representative review, distribute copies.
- .11 Submit one electronic copy of shop drawings for each requirement requested in specification Sections and as ONTC Representative may reasonably request.
- .12 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by ONTC Representative where shop drawings will not be prepared due to standardized manufacture of product.
 - .1 Product data: manufacturers' catalogue sheets, MSDS sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products or any other specified information.
 - .2 Delete information not applicable to project.
 - .3 Supplement standard information to provide details applicable to project.
 - .4 Cross-reference product data information to applicable portions of Contract documents.
- .13 Submit electronic] copies of test reports for requirements requested in specification Sections and as requested by ONTC 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 Testing must have been within 3 years of date of Contract award for project.
- .14 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by ONTC 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 Contract complete with project name.
- .15 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by ONTC Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit electronic copies of Manufacturer's Site Reports for requirements requested in specification Sections and as requested by ONTC Representative.
 - .1 Material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .18 Submit 03 hard copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by ONTC Representative, after a review of an electronic copy has been completed and approved.
- .19 Delete information not applicable to project.
- .20 Supplement standard information to provide details applicable to project.
- .21 If upon review by ONTC Representative ,no errors or omissions are discovered or if only minor corrections are made, electronic 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.

1.05 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to ONTC Representative.
- .3 Notify ONTC 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 ONTC Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to ONTC Representative before proceeding with Work.
- .6 Make changes in samples which ONTC 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.

1.06 MOCK-UPS

.1 Erect mock-ups in accordance with section 01 43 00 - Quality Assurance.

1.07 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic colour digital photography in jpg format, in resolution, monthly with progress statement and as directed by ONTC Representative
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints.
 - .1 Viewpoints and their location as determined by ONTC Representative.
- .4 Frequency of photographic documentation: weekly as directed by ONTC Representative.
 - .1 Upon completion of: excavation, foundation, framing and services before concealment of Work, major milestones and as directed by ONTC Representative.
- .5 ONTC Representative Progress Observation Reports and Field Reviews: Contractor is responsible for providing photographs in jpg format to demonstrate how deficient items identified within the reports have been corrected.

1.08 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1.01 REFERENCE STANDARDS

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
 - .1 R.S.C., 1985, c. L-2
- .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 August 8, 2023
- .3 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .4 The Canadian Electric Code (as amended)
- .5 Canadian Standards Association (CSA) as amended:
 - .1 CSA Z797-2009 Code of Practice for Access Scaffold
 - .2 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures
 - .3 CSA Z462- Workplace Electrical Safety Standard
- .6 National Fire Code of Canada 2015 (as amended)
 - .1 Part 5 Hazardous Processes and Operations and Division B as applicable and required.
- .6 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations Safety Requirements for Powder-Actuated Fastening Systems.

1.02 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 51 00 Temporary Utilities
- .3 Section 01 56 00 Temporary Barriers and Enclosures
- .4 ONTC Contractor Subcontractor Policy.
- .5 ONTC HOT WORK Program.
- .6 ONTC Electrical Safety Policy.

1.03 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 found in work plan.
- .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to ONTC 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 Safety Data Sheets (SDS) and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .7 Emergency Procedures.
- .7 ONTC Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to ONTC Representative 3 days after receipt of comments from ONTC Representative.
- .8 ONTC 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 ONTC Representative.

1.04 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Provide copies of all notices to the ONTC Representative.
- .3 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.05 SAFETY ASSESSMENT

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.

- .3 Definition of responsibilities for project safety/organization chart for project.
- .4 General safety rules for project.
- .5 Job-specific safe work procedures.
- .6 Inspection policy and procedures.
- .7 Incident reporting and investigation policy and procedures.
- .8 Occupational Health and Safety Committee/Representative procedures.
- .9 Occupational Health and Safety meetings.
- .10 Occupational Health and Safety communications and record keeping procedures.
- .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
- .3 List hazardous materials to be brought on site as required by work.
- .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
- .5 Identify personal protective equipment (PPE) to be used by workers.
- .6 Identify personnel and alternates responsible for site safety and health.
- .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .4 Revise and update Health and Safety Plan as required, and re-submit to the ONTC Representative.
- .5 ONTC Representative's review: the review of Site Specific Health and Safety Plan shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

1.06 MEETINGS

- .1 Schedule and administer Health and Safety meeting with ONTC Representative prior to commencement of Work.
- .2 Attend all subsequent Health and Safety meetings called by the ONTC Representative.

1.07 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.08 PROJECT/SITE CONDITIONS

- .1 Work at site may involve contact with:
 - .1 Public.
 - .2 ONTC employees.
 - .3 Other contractors.
- .2 The Contractor is solely responsible for all utility detection and clearances prior to starting the work.
- .3 The Contractor will not rely solely upon the Reference Drawings or other information provided for utility locations.
- .4 Carry out any activities involving asbestos in accordance with applicable Provincial / Federal Regulations.
- .5 Removal and handling of asbestos will be in accordance with applicable Provincial / Federal Regulations.

1.09 GENERAL REQUIREMENTS

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.

1.10 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 of Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.11 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.

1.12 UNFORSEEN HAZARDS

.1 Should any unforeseen or peculiar safety-related factor, hazard or

condition become evident during performance of the work, immediately stop work and advise ONTC Representative verbally and in writing.

1.13 HEALTH AND SAFETY CO-ORDINATOR

- .1 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel that do not successfully complete required training are not permitted to enter site to perform Work.
- .2 Be responsible for implementing, revising, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .3 Visit site regularly to ensure work is being completed in compliance with contractor's Health and Safety programs and all applicable laws and regulations.

1.14 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 ONTC Representative.
- .2 Post legible versions of the following documents on site:
 - .1 Site Specific Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .1 Site drawing showing project layout, locations of the first-aid station, marshalling stations, and emergency transportation provisions.
 - .4 Notice of Project.
 - .5 Site plans.
 - .6 Notice as to where a copy of the Workers' Compensation Act and Regulations is available on the work site for review by employees and workers.
 - .7 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .8 WHIMS Safety Data Sheets (SDS).
 - .9 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.

1.15 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by ONTC Representative.
- .2 Provide ONTC Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 ONTC Representative may stop Work if non-compliance of health and

safety regulations is not corrected. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

1.16 BLASTING

.1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by ONTC Representative.

1.17 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from ONTC Representative

1.18 ELECTRICAL SAFETY REQUIREMENTS

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
- .1 Before undertaking any work, coordinate required energizing and deenergizing of new and existing circuits with ONTCde Representative.
- .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

1.19 ELECTRICAL LOCKOUT

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the ONTC Representative.
- .3 Keep the documents and lockout tags at the site and list in a logbook for the full duration of the Contract. Upon request, make such data available for viewing by ONTC Representative or by any authorized safety representative.

1.20 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.

2 PRODUCTS

2.01 NOT USED

.1 Not used.

- 3 EXECUTION
- 3.01 NOT USED

.1 Not used.

1.01 REFERENCE STANDARDS

- .1 National Research Council of Canada (NRC):
 - .1 National Building Code of Canada (NBC), [2015]
 - .2 National Fire Code of Canada (NFC), [2015]
- .2 National Fire Protection Association (NFPA):
 - .1 NFPA 51B-[19], Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.
- .3 Ontario Fire Code.
- .4 Ontario Occupational Health and Safety Act R.S.O 1990
- .5 O.Reg 213/91 Construction Projects
- .6 Canada Labour Code R.S.C., 1985 c L-2
- .7 Canada Occupational Health and Safety Regulations SOR/86-304

1.02 CONSTRUCTION FIRE SAFETY

.1 Contractor is responsible for construction fire safety in accordance with national and provincial codes, laws and regulations.

1.03 FIRE DEPARTMENT BRIEFING

.1 NOT USED

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit fire safety plan before construction commences.

1.05 REPORTING FIRES

- .1 Be aware at all times of nearest fire alarm pull station location, nearest telephone, and emergency phone number.
- .2 Report fire incidents to Fire Department immediately in the following sequence:
 - .1 Activate nearest fire alarm pull station.
 - .2 Telephone the Fire Department
 - .1 Telephone:911
 - .2 Contact ONTC Rep.
- .3 Person activating fire alarm pull station to remain at main site entrance and direct Fire Department personnel to location of fire.
- .4 When reporting a fire by telephone, give location of fire, building name or number, and be prepared to give basic directions (e.g., northeast corner of base compound, visual reference points).
- .5 Promptly inform ONTC Representative of fire incidents at Work site,

regardless of size.

1.06 FIRE SAFETY PLAN

- .1 Prepare a fire safety plan in cooperation with the local fire department and other applicable regulatory authorities for the Work site before beginning Work on site.
- .2 Submit fire safety plan to ONTC representative who will submit to local fire department for their review. Implement recommendations from local fire department into fire safety plan.
- .3 Limit scope of fire safety plan to Work site area only. Existing fire safety plans covering other existing buildings are not the responsibility of this construction contract.
- .4 Prepare fire safety plan in conformance with NFC. Include:
 - .1 Emergency procedures in case of fire, including:
 - .1 sounding fire alarm
 - .2 notifying fire department
 - .3 instructing occupants on procedures to follow when fire alarm sounds
 - .4 evacuating occupants, including special provisions for persons requiring assistance
 - .5 confining, controlling, and extinguishing the fire
 - .2 Appointment and organization of designated supervisory staff to carry out fire safety duties
 - .3 Training of supervisory staff and other occupants in their responsibilities for fire safety
 - .4 Documents, including diagrams, showing type, location and operation of building fire emergency systems.
 - .5 Holding of fire drills
 - .6 Control of fire hazards in the building
 - .7 Inspection and maintenance of building facilities provided for the safety of occupants
- .5 Post fire safety plan at each entrance to Work site or near each Work site's health and safety board.
- .6 Review fire safety plan a maximum of every 12 months to ensure it takes into account changes in the use and other characteristics of the building. Revise fire safety plan when it can be improved.

1.07 FIRE WARNING SYSTEM

- .1 Provide a fire warning system for entire Work site, capable of notifying construction personnel of a fire emergency in construction area.
- .2 Provide a fire warning system with sufficient coverage so that

alarms are capable of being heard throughout building and everywhere on site.

1.08 FIRE PROTECTION SYSTEM IMPAIRMENT

- .1 Maintain existing fire protection systems in an operational state at all times during construction.
- .2 Use of fire hydrants, standpipes, or hose systems for purposes other than firefighting is prohibited.
- .3 Existing fire protection and alarm systems will not be obstructed, shut off, disabled, or left inactive at end of each Working Day or shift without written authorization from ONTC Representative.
- .4 Submit written notification to ONTC Representative 48 hours in advance of planned interruption of services. Submit written notification for operation including shutting down active fire protection system, including water supply, fire suppression, fire detection, and life safety systems.
- .5 Where an existing fire protection system that provides fire alarm monitoring becomes impaired in an existing building, provide a fire watch as directed by Senior Firefighter.
- .6 Where systems are affected or impaired during the Work, conduct work on fire protection system in accordance with NFC.

1.09 TEMPORARY PORTABLE FIRE EXTINGUISHERS

- .1 Provide portable extinguishers, or as otherwise directed by Fire Department.
- .2 Provide supplemental portable extinguishers to the following areas or as otherwise directed by Fire Department:
 - .1 Adjacent to hot works
 - .2 Areas where combustibles materials are stored
 - .3 Adjacent to areas where flammable liquids or gases are stored or handled
 - .4 Near or on internal combustion engines
 - .5 Adjacent to temporary oil fired or gas fired equipment
 - .6 Adjacent to bitumen heating equipment
 - .7 Adjacent to each roof installation or repair work area
- .3 Provide portable extinguishers classified and rated as 10-A:80B:C, minimum 20 pounds unless otherwise directed by Senior Firefighter.
- .4 Provide dry chemical type extinguishers unless otherwise required by hazard being protected.
- .5 Provide a sufficient number of portable extinguishers based on a maximum travel distance between fire extinguishers of 22.9 m.
- .6 Inspect and maintain extinguishers in accordance with NFC.

1.10 ACCESS FOR FIRE FIGHTING

- .1 Provide and maintain access for firefighting operations in accordance with NFC.
- .2 Submit written notification to ONTC Representative a minimum of five Working Days before operation of activities that may cause problems that might impede fire department equipment access and personnel response including
 - .1 violation of minimum horizontal and overhead clearances
 - .2 erecting of barricades and digging of trenches.

Note: Access routes are intended for the movement of fire department vehicles around buildings. Access aisles and access paths are intended for the movement of fire department personnel inside a building.

- .3 Maintain a minimum 6.0-m clear horizontal width for access routes, or as otherwise directed by ONTC Representative.
- .4 Maintain a minimum 5.0-m vertical clearance for access routes, or as otherwise directed by ONTC Representative.

1.12 SMOKING RESTRICTIONS

- .1 Smoking is prohibited in buildings, including buildings under construction.
- .2 Obey posted signs and restrict smoking to only existing designated smoking areas. Obey posted smoking restrictions near existing buildings.
- .3 Provide a temporary approved non-combustible receptacle at each designated smoking area in accordance with the Fire Safety Plan.

1.13 WASTE MANAGEMENT

- .1 Manage waste in accordance with Section 01 74 19 Waste Management and Disposal, and as follows:
 - .1 Minimize waste materials.
 - .2 Do not burn waste materials.
 - .3 Remove waste from Work site at end of each Working Day or shift, or more frequently when directed by Senior Firefighter.
 - .4 Storage:
 - .1 Store oily waste in approved receptacles to ensure maximum cleanliness and safety.
 - .2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles. Remove at end of each Working Day.

.5 Provide temporary waste bins no closer than 3.0 m to buildings.

1.14 FLAMMABLE AND COMBUSTIBLE LIQUIDS

- .1 Handle, store, and use flammable and combustible liquids in accordance with NFC or as otherwise directed by the Senior Firefighter.
- .2 Store flammable and combustible liquids such as gasoline, kerosene, and naphtha in quantities not exceeding 45 litres. Store in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual approved certification mark. Obtain written authorization from Senior Firefighter for storage of quantities of flammable and combustible liquids exceeding 45 litres.
- .3 Transfer of flammable or combustible liquids within buildings or on jetties is prohibited.
- .4 Transfer of flammable or combustible liquids in vicinity of open flames or any type of heat-producing device is prohibited.
- .5 Use of flammable liquids having a flash point below 38 degrees C such as naphtha or gasoline as solvents or cleaning agents is prohibited.
- .6 Storing flammable and combustible waste liquids on site is prohibited. Remove daily or more frequently as directed by Senior Fire fighter.

1.15 HOT WORKS

- .1 Implement a Hot Works program in accordance with NFC, FMD 4004, and NFPA 51B. Apply Hot Works program to processes involving welding, cutting, roofing, and other hot works when directed by Senior Firefighter.
- .2 Obtain a Hot Works permit 48 hours in advance from ONTC Representative for hot works in work area. Frequency of renewal for hot works permits is at discretion of the ONTC Representative use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of the ONTC Representative.
- .4 Provide fire watch service as required. Provide fire watchers trained in use of fire extinguishing equipment.
- .5 Carry out hot works processes in areas free of combustible and flammable content.
- .6 Where hot works must be carried out in areas where combustibles are present:
 - .1 Protect flammable and combustible materials within 15.0 m of hot works in accordance with NFC.
 - .2 Provide a fire watch during hot works and for a minimum of 60 minutes after work is complete, unless otherwise directed by ONTC Representative.

- .3 Conduct a final inspection of area not less than 4 hours after completion of hot works, unless otherwise directed by Senior Firefighter.
- .7 Where there is a possibility of sparks leaking onto combustible materials in areas adjacent to areas where the hot works is carried out:
 - .1 Cover or close openings in walls, floors, or ceilings to prevent passage of sparks to such adjacent areas.
 - .2 Provide a fire watch during hot works, and a minimum 60 minutes after hot works is complete.
 - .3 Conduct a final fire watch inspection not less than 4 hours after hot works is complete, unless otherwise directed by ONTC Representative.
- .8 Protection of flammable or combustible materials:
 - .1 Remove flammable and combustible materials including combustible or flammable dust or residue from area where hot works is carried out.
 - .2 When removal is not possible, protect materials with a non-combustible covering.
- .9 Provide a temporary fire extinguisher within 3.0 m of hot works, minimum size of 20 lbs Type ABC extinguisher, unless otherwise directed by ONTC Representative.

1.16 HAZARDOUS SUBSTANCES

- .1 Perform Work involving the use of toxic or hazardous materials, chemicals or explosives, or otherwise creating hazard to life, safety or health, in accordance NFC.
- .2 Provide temporary mechanical ventilation where flammable liquids, such as lacquers or urethanes are used. Eliminate sources of ignition. Provide written notification to the ONTC Representative Ca minimum five days before starting Work and immediately at completion of Work.

1.17 PARTIAL OCCUPANCY PROCEDURES

- .1 Implement partial occupancy procedures as required. Partial occupancy is defined as a Work site adjacent to an area occupied by ONTC. This includes:
 - .1 Phased new construction
 - .2 Early or partial occupancy of new construction
 - .3 New construction being added onto an existing building
 - .4 Renovation or recapitalization of an existing building
 - .5 Phased renovation or recapitalization of an existing building
- .2 Where partial occupancy occurs, implement requirements as indicated in Plans (drawings) and Specifications. This may include temporary

- construction of a rated fire separation between occupied and construction areas as required by NFC.
- .3 If Work occurs in an occupied building, perform fire watch at least every hour, throughout entire site during period of demolition.
- .4 If Work occurs in an occupied building and where building does not have a Fire Alarm system or similar automatic monitoring or protection equipment, perform inspections every hour for entire period of construction.

1.18 QUESTIONS OR CLARIFICATION

- .1 Direct questions and requests for clarification on Fire Safety to ONTC Representative.
- .2 ONTC Representative will obtain clarifications from Fire Department Do not contact Fire Department directly for notification, authorization, or any requests unless situation constitutes an immediate emergency.

1.19 FIRE INSPECTION

- .1 Coordinate site inspections by Fire Department through ONTC Representative.
- .2 Allow Fire Fighter unrestricted access to work site.
- .3 Cooperate with Fire Department during routine fire safety inspection of Work site.
- .4 Immediately remedy unsafe fire situations observed by Fire Department.

2 PRODUCTS

2.01 NOT USED

.1 NOT USED

3 EXECUTION

3.01 ATTACHMENTS

.1 ONTC HOT WORK PROGRAM

1.01 REFERENCE STANDARDS

.1 Not used.

1.02 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.03 RELATED REQUIREMENTS

.1 Not used.

1.04 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 all products and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS Safety Data Sheets (SDS).
- .3 Sustainable Design Submittals:
 - .1 Not used.
- .4 Submit Environmental Protection Plan (EPP) for review and approval by ONTC Representative before delivering materials to site or commencing construction activities.
- .5 EPP shall include comprehensive overview of known or potential environmental issues to be addressed on site during construction.
- .6 Address topics at level of detail commensurate with environmental issue and required construction task [s] .
- .7 Include in Environmental Protection Plan (EPP):
 - .1 Name [s] of person [s] responsible for ensuring adherence to EPP.
 - .2 Name [s] and qualifications of person [s] responsible for manifesting hazardous waste to be removed from site.
 - .3 Name [s] and qualifications of person [s] responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training

program.

- .5 Submit a site-specific Stormwater Pollution Prevention Plan (SPPP) in accordance with EPA-833-R-06-004. Include the site-specific Erosion and Sediment Control Plan (ESCP) identifying the type and location of erosion and sediment control measures to be provided on site. Include monitoring and reporting requirements to ensure that ESC control measures are in compliance with erosion and sediment control plan, Federal and Provincial regulations, and Municipal by-laws.
- .6 Submit drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .7 Submit a site-specific Traffic Control Plan (TCP) including measures to reduce erosion of temporary and existing roadbeds by construction traffic, especially during wet weather.
 - .1 TCP to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.
- .8 Submit a Site Work Plan (SWP) showing work areas for proposed activities in each portion of area and identifying areas of limited use or non-use.
 - .1 SWP to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .9 Submit a Spill Control Plan (SCP) including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Submit a Solid Waste Disposal Plan (SWDP) for non-hazardous solid wastes identifying methods and locations for solid waste disposal including clearing debris.
- .11 Submit an Air Pollution Control Plan (APCP) detailing provisions to ensure that dust, debris, materials, and trash, are contained within the project site.
- .12 Submit a site-specific Contaminant Prevention Plan (CPP) identifying the proper procedures and actions to be implemented to prevent potentially or expected hazardous substances due to the presence of any hazardous substances within the project site. The intent of the CPP is to:
 - .1 Prevent introduction of designated substances (DS) into air, water, or ground;
 - .2 Detail provisions for storage and handling of these materials in compliance with Federal, Provincial, and Municipal laws.
- .13 Submit a Wastewater Management Plan (WMP) identifying methods and procedures for management and or discharge of waste waters

- which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 When applicable, Submit an Identification and Protection Plan (IPP) that defines procedures for identifying and protecting historical, archaeological, cultural and biological resources and wetlands.
- .15 When applicable, submit a Pesticide Treatment Plan (PTP) identifying the presence of any pesticides within the site. PTP to be updated as required.

1.05 FIRES

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

1.06 DRAINAGE

- .1 Ensure that the ESCP measures are provided and that its recommendations are followed on site, in accordance with the site-specific SPPP, at all times during construction.
- .2 Provide temporary drainage and pumping as required to keep excavations on site free of standing water.
 - .1 Obtain ONTC Representative approval before pumping standing water, which is free of suspended materials, into waterways, sewer or drainage systems.
 - .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with the site-specific SPPP in compliance with the requirements of authorities having jurisdiction.
 - .3 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

1.07 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties.
- .2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of two (2) m minimum. Ensure that control measures used for protection are in compliance with Municipal laws and regulations.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
 - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by ONTC Representative. Obtain permits before trees removal in accordance

with the requirements of the authorities having jurisdiction.

1.08 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
- .3 Keep waterways free of excavated fill, waste material and debris.
- .4 Design and construct temporary crossings to minimize waterways erosion.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.
- .7 Do not blast underwater or within 100 m of indicated spawning beds.

1.09 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract in accordance with site-specific SPPP.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements. Check with local authorities for any environmental compliance requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
 - .1 Provide temporary enclosures where as directed by ONTC Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.10 HISTORICAL/ARCHAEOLOGICAL CONTROL

- .1 Refer to the site-specific IPP for procedures in identifying and protecting historical and archaeological resources previously known to be on project site or discovered during construction.
 - .1 Plan to include methods to ensure protection of known or discovered resources and identify lines of communication between Contractor personnel and ONTC Representative.

1.11 NOTIFICATION

- .1 ONTC Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial environmental laws and regulations or Municipal environmental bylaws, permits, and other elements of site-specific plans, such as [EPP] , [SPPP] , [TCP] , [SCP] , [SWDP] , [APCP] , [CPP] , [WMP] , [PTP] and [IPP] as applicable.
- .2 Contractor after receipt of such notice, shall inform ONTC Representative of proposed corrective action and take such action to obtain the their approval within 5 days.

- .1 Take action only after receipt of written approval by ONTC Representative.
- .3 ONTC Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 CLEANING

- .1 Leave Work area clean at end of each day.
- .2 Burying rubbish and waste materials on site is not permitted.
- .3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .4 Proceed with final cleaning upon completion and removal of surplus materials, rubbish, tools and equipment.
- .5 Waste Management: separate waste materials for recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

1.01 SUMMARY

.1 This Section references laws, bylaws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction (AHJ), and other legally enforceable requirements applicable to the Work and that are or become enforced during performance of the Work.

1.02 DEFINITIONS

.1 Reference Standards: Means consensus standards, trade association standards, guides, and other publications expressly referenced in the Contract Documents.

1.03 RELATED REQUIREMENTS

.1 Not used.

1.04 REFERENCE STANDARDS AND REFERENCE DOCUMENTS

- .1 If specified referenced standards do not indicate an edition or version, the latest edition or revision issued by the publisher at the time of bid closing shall apply, except as follows:
 - .1 If a particular edition or revision date of a specified standard is referenced in an applicable code or other regulatory requirement, the edition or version in the regulatory reference shall apply.
- .2 The specified reference standards establish minimum requirements. If Contract Documents indicate requirements that conflict with a reference standard, the more stringent requirements shall apply.
- .3 If multiple reference standards are specified and the standards establish different requirements, the most stringent requirement shall apply.
- .4 In case of discrepancy or uncertainties, refer to ONTC Representative for interpretation or clarification.

1.05 CODES

- .1 Building Code: Perform Work in accordance with the Ontario Building Code including amendments up to the time of bid closing and other codes of provincial or local application.
- .2 Fire Code: Perform Work in accordance with the Ontario Fire Code 2020 including amendments up to the time of bid closing and other codes of provincial or local application.
- .3 Energy Code: Perform Work in accordance with the National Energy Code of Canada for Buildings (NECB) 2020 and Part 12 of OBC Resource Conservation and Environmental Integrity and Supplementary Standard SB-10 whichever is more stringent, including amendments up to the

- time of bid closing and other codes of provincial or local application.
- .4 Plumbing Code: Perform Work in accordance with Ontario Plumbing Code Part 7 of OBC. including amendments up to the time of bid closing and other codes of provincial or local application.
- .5 If there is a conflict or discrepancy between codes, the most stringent requirements shall apply.
- .7 Specific design and performance requirements listed in Specifications and indicated on Drawings may exceed minimum requirements established by referenced Codes; these requirements will govern over the minimum requirements listed in the referenced Codes.

1.06 FEES

- .1 Except as otherwise specified, Contractor shall apply for, obtain, and pay fees associated with permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract and the following:
 - .1 Regulatory requirements and fees in force at the time of bid closing, and
 - .2 A change in regulatory requirements or fees scheduled to become effective after the time of bid closing and of which public notice has been given before the time of bid closing.

2 PRODUCTS

2.01 EASEMENTS AND NOTICES

- .1 Owner will obtain permanent easements and rights of servitude that may be required for performance of the Work.
- .2 Contractor shall give notices required by regulatory requirements.

2.02 PERMIT REQUIREMENTS

- .1 Building Permit:
 - .1 Building permit is not required.
 - <u>.2</u> Obtain and pay for <u>Building Permit</u>, Certificates, Licenses and other permits required by regulatory municipal, provincial or federal authorities to complete the work.
 - .32 Contractor will require that specific Subcontractor[s] obtain and pay for permits required by authorities having jurisdiction (AHJ), where their work is affected by work requiring permits.
 - .43 Contractor shall display building permit and other permits in a conspicuous location at the Place of the Work.
- .3 Occupancy Permits:

- .1 Contractor shall apply for occupancy permits, including partial occupancy permits where required by AHJ.
- .2 Contractor shall correct deficiencies in accordance with ONTC Representative's instructions. If a deficiency is not corrected, the Owner reserves the right to make correction and charge Contractor for costs incurred.
- .3 Contractor shall turn occupancy permits over to ONTC.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1.01 REFERENCE STANDARDS

- .1 ASTM International (ASTM):
 - .1 ASTM E329-[20]Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- .2 International Organization for Standardization (ISO):
 - .1 ISO 9001: [2015], Quality Management Systems Requirements

1.02 DEFINITIONS

- .1 Mock-up: A full-size physical example that demonstrates materials, finishes, interrelationship of materials and assemblies, aesthetic effects, and execution. A mock-up may demonstrate coordination of multiple Subcontractors' work. A mock-up establishes a standard by which the Work will be judged. Mock-ups are not samples.
- .2 Quality Assurance: Procedures for preventing defects and deficiencies before and during execution of the Work.
- .3 Quality Audit: Systematic and independent examination to determine whether quality requirements have been fulfilled as planned. A quality audit will examine processes, products and services to determine if they have been implemented effectively to achieve their specified objective.

1.03 SECTION INCLUDES

.1 This Section describes administrative and procedural requirements for proactive Contractor activities to assure the quality of construction before and during execution of the Work.

1.04 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures.
- .2 Section 01 45 00 Quality Control.

1.05 ADMINISTRATIVE REQUIREMENTS

- .1 Contractor is responsible for self-performed testing and inspections and submittal of test reports to ONTC Representative.
- .2 ONTC will employ and pay for quality audit services performed through third-party observation and testing to validate the Contractor's performance of the Work and perform whole building testing at completion of project.
- .3 Contractor to provide a Quality Management System that establishes a standardized approach to managing quality of materials and workmanship during the execution of Work in accordance with ISO 9001. Quality Management System will describe Contractor's contributions for testing and inspection programs as necessary for a successful Work.

1.06 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit a detailed testing and inspections schedule to ONTC Representative in accordance with the Contractor's Quality Management System.
- .3 Submit certificates for products, process and system for approval by ONTC Representative.
- .4 Submit formal testing and inspections reports per ASTM E329 as indicated in technical specification Sections to ONTC Representative in accordance with contractual agreement.
- .5 Submit one digital copy of each quality assurance inspection and test report to ONTC Representative, except where a technical specification Section indicates otherwise.
- .6 Submit mill test certificates as required in technical specification Sections and as indicated on Drawings.

1.07 QUALIFICATIONS

- .1 Manufacturers' Qualifications:
 - .1 specializes in manufacturing the products specified in the technical Section of the Project's construction specification.
 - .2 minimum 3 years documented experience with a record of successful performance
- .2 Suppliers' Qualifications:
 - .1 authorized to distribute manufacturer's products
 - .2 has capacity to supply required products without delaying the Project
- .3 Fabricators' Oualifications:
 - .1 experienced in producing products required for this Project
 - .2 successful record of in-service performance
 - .3 sufficient production capacity to fabricate required products without delaying the Project
- .4 Installer Qualifications:
 - .1 firm or individual experienced in design and installation, application, and erection of materials to the extent required for this Project
 - .2 successful record of in-service performance
- .5 Testing and Inspecting Agency Qualifications:
 - .1 accredited organizations by the Standards Council of Canada for testing and inspection
 - .2 capable of reliably performing testing of building products and inspections of construction activities in accordance with ISO 9001 and ASTM E329.

- .6 Licensed Professionals Qualifications:
 - individual registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the province, state or jurisdiction in which the project is to be constructed.

1.08 CERTIFICATIONS

.1 Ensure that certification of products, processes, and systems includes physical and examination testing as specified in ASTM E329 SO 9001 to confirm compliance with Specifications requirements.

1.09 COORDINATION

- .1 Coordinate and schedule tests and inspections with accredited testing, inspection agencies as indicated in Contract Documents and in accordance with ASTM E329 requirements.
- .2 [Coordinate Contractor's Quality Management System with ONTC Representative for reporting, scheduling access and incidental labor required by Quality Auditor's reports if required.
- .3 Obtain ONTC Representative approval before proceeding with tests and inspections, and additional tests and inspections as may be reasonably requested by ONTC Representative.
- .4 Coordinate testing and inspections schedule with SubContractor, testing agencies, and other affected parties.

1.10 SITE SAMPLES

- .1 Obtain ONTC Representative acceptance to proceed with the sampling process.
 - .1 Testing agency is responsible for obtaining representative samples of those materials required to be tested and evaluated as directed by ONTC Representative in accordance with the Contractual Documents.
- .2 Ensure testing agency performs sampling in accordance with ASTM E329.
 - .1 When sampling collection is required by testing agency, ensure proper protection, handling and storing of samples.
- .3 Testing agency to document procedures and appropriate techniques to select samples.
- .4 Record details of environmental conditions present during the sampling, such as rain or freezing weather that may affect testing of sample or interpretation of test results.

1.11 Mock-ups

.1 Mock-ups can be used as a reference for assessing quality of workmanship and site-applied finishes as requested in the project's Contract Documents.

- .2 Obtain ONTC Representative acceptance of mock-ups installation before beginning to install those portions of the Work represented by the mock-up.
- .3 Assemble mock-ups at the Place of the Work in locations acceptable to ONTC Representative, or where location is indicated in the technical specification Section.
- .4 Schedule mock-ups ready for ONTC Representative review and in orderly sequence, to avoid delays in Work.
 - .1 Failure to prepare mock-ups in ample time is not considered sufficient reason to request an extension of Contract Time. Claims for extension of Contract Time by reason of such default will not be considered.
- .5 If requested, ONTC Representative will assist in scheduling dates for construction of mock-ups.
- .6 Construct mock-ups using materials, finishes, colours, and methods proposed for the completed Work. Mock-ups to demonstrate proposed workmanship and range of aesthetic appearance.
- .7 Where a mock-up represents or affects multiple specification Sections, coordinate activities of these Subcontractors to ensure mock-ups are complete.
- .8 Modify or replace mock-ups when unacceptable to ONTC Representative.
- .9 Maintain acceptable mock-ups in an undisturbed condition as a standard for judging the completed Work.
- .10 Demolish and remove mock-ups at conclusion of the Work or when acceptable to ONTC Representative ${}^{\circ}$

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1.01 SUMMARY

- .1 This Section describes administrative and procedural requirements for reactive activities to verify that completed Work conforms to Contract Documents requirements.
- .2 Having inspection and testing agencies by Contractor or ONTC does not relieve the Contractor of their responsibility to perform Work in accordance with Contract Documents.

1.02 RELATED REQUIREMENTS

.1 Not Used.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Cash Allowances for independent inspection and testing services to be retained and paid for by the Contractor. This Cash Allowance(s) excludes any inspection and testing that is for the Contractor's own quality control, and excludes inspection and testing required by authority having jurisdiction.
- .2 Allow and coordinate access to Work on site, manufacturing off site, and fabrication off site with inspection and testing agencies.
- .3 Retain and pay for inspection and testing that are designated for Contractor's own quality control plan, and when testing and inspection are required by AHJ. .
- .4 Give advanced notice to ONTC Representative and to each inspection/testing agency for inspection and testing required by Contract Documents or by AHJ.
- .5 In advance of each test, notify appropriate agency and ONTC Representative in the order that attendance arrangements can be made.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit schedule of testing and inspection activities to ONTC Representative, applicable Subcontractors, testing agencies, and other affected parties. Include the following:
 - .1 List each testing and inspection agency
 - .2 Identify types of tests and inspections for each agency, and cross reference to applicable specification Section number-title in Contract Documents
 - .3 Description of test and inspection
 - .4 Identify applicable reference standard
 - .5 Identify test and inspection method

- .6 Indicate number of each test and inspection required
- .3 Submit one digital copy of each quality assurance inspection and test report to ONTC Representative, except where a technical specification Section indicates otherwise.
- .4 Submit reports for inspection and testing required by Contract Documents or by AHJ and performed by Contractor-retained inspection and testing agencies within [ten] days after inspection or test is completed, except where a technical specification Section indicates a different time period.
- .5 Submit one digital copy of each quality control inspection and test report to ONTC Representative, except where a technical specification Section indicates otherwise.
- .6 Deliver copies of quality control reports to Subcontractor of work being inspected or tested.

1.05 SOURCE QUALITY CONTROL PROCEDURES

.1 [____]

1.06 SITE QUALITY CONTROL PROCEDURES

- .1 Provide labor, Construction Equipment Plant, and temporary facilities to obtain and handle test samples and materials on site.

 Arrange for sufficient space to store and cure test samples.
- .2 Deliver samples and materials required for testing, as requested in technical specification Sections. Submit with reasonable promptness and in an orderly sequence to avoid delays in Work.
- .3 Before project start, photograph project site and existing conditions in accordance with Section 01 33 00 Submittal Procedures.

1.07 TESTING AND INSPECTION SERVICES

- .1 ONTC may retain and pay for independent inspection and testing agencies to inspect, test, or perform other quality control reviews of parts of the work, in addition to those carried in an allowance and except where indicated otherwise.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Correct defects and deficiencies when they are revealed during inspection or testing as advised by ONTC Representative at no change to Contract Price or Contract Time. Pay costs for retesting and re-inspection. Appointed agency will request additional inspections or tests to ensure full degree of defects or deficiencies are revealed and corrected.
- .4 Quality control testing and inspection reports to include the following:
 - .1 Project name and number
 - .2 Testing/Inspection agency's name, address, telephone number,

and website

- .3 Date of issuing report
- .4 Dates and locations of tests, inspections, or samples
- .5 Description of the Work and test and inspection method
- .6 Numbers and titles of associated specification Sections
- .7 Test and inspection data and interpretation of test results (e.g., pass or fail)
- .8 Ambient conditions at time of test, inspection, or sampling
- .9 Recommendations on re-testing and re-inspecting, if applicable

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1.01 REFERENCE STANDARDS

.1 Not Used.

1.02 RELATED REQUIREMENTS

.1 Not Used.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

1.04 TEMPORARY ELECTRICITY

- .1 When Electrical power is not available at site, make all necessary arrangements and pay for all costs for a temporary electrical service of sufficient capacity to supply temporary lighting, operation of power tools, cranes and equipment for all construction, implementation, and inspection and testing purposes. Supply and install necessary temporary cables and other electrical equipment and make all temporary connections as required.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance, and removal.
- .3 When Electrical power supply is available at site, it will be provided for construction use at no cost. Connect to existing power supply in accordance with Canadian Electrical Code.
- .5 Electrical power systems installed under this Contract may be used for construction requirements only with prior approval from ONTC Representative if warranties are not affected. Repair damage to electrical system caused by use under this Contract.
- .6 Temporary power distribution wiring shall comply with Ontario Electrical Safety Code. Obtain inspection certificates for temporary electrical work.

1.05 TEMPORARY FIRE PROTECTION

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

1.06 TEMPORARY HEATING COOLING AND VENTILATING

- .1 Provide temporary heating as required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be of the flameless (vent free) type. Solid fuel salamanders are

not permitted.

- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and Products against dampness and cold.
 - .3 Prevent moisture and condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation, and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain minimum temperatures of [10] °C in areas where construction is in progress.

.5 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours, or gases in occupied areas during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in a manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operating ventilation and exhaust system after cessation of work process until complete removal of harmful contaminants is ensured.
- .6 Permanent heating, ventilating, and air conditioning system of building, may not be used.

1.07 TEMPORARY LIGHTING

- .1 Provide and maintain temporary lighting throughout Project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .2 Electrical lighting systems installed under this Contract may be used for construction requirements only with prior approval of ONTC Representative if warranties are not affected.
 - .1 Repair damage to lighting systems caused by use under this Contract.
 - .2 Replace lamps that have been used for more than [3] months.

1.08 TEMPORARY Sanitary Facilities

.1 Provide sanitary facilities in accordance with Occupational health and Safety requirements in the place of work. Use of Owner's

existing sanitary facilities or new sanitary facilities is not allowed.

1.9 TEMPORARY TELECOMMUNICATIONS

.1 Provide and pay for temporary telephone, data hook up equipment necessary for own use and use of ONTC Representative.

1.10 TEMPORARY WATER

- .1 Owner will provide continuous supply of potable water for construction use.
- .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance, and removal.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities to execute Work expeditiously.
- .2 Remove all such temporary utilities from site after use.
- .3 Be responsible for the careful and reasonable use of Owner-supplied water and power.

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 Canada Green Building Council (CaGBC)
 - .1 Not used.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
- .4 CSA Group (CSA)
 - .1 CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-[M1978(R2003)], Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-[M1987(R2003)], Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-[96(R2001)], Signs and Symbols for the Occupational Environment.
- .5 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.02 RELATED REQUIREMENTS

.1 Not used.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

1.04 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use. Reinstate area to same state before start of project.

1.05 SCAFFOLDING

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

1.06 HOISTING

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

1.07 ELEVATORS

- .1 Permanent elevators not to be used by construction personnel or transporting of materials. Co-ordinate use with ONTC Representative if use is permitted.
- .2 Provide protective coverings for finish surfaces of cars and entrances.

1.08 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work. Be solely responsible and liable for damages resulting from violation of this requirement.
- .3 Products shall be stored only in areas designated or approved by ONTC Representative and shall not be left on the ground or in undesignated areas.
- .4 Site storage and loading requirements to be in accordance with Ontario Occupational Health and Safety Act and Regulations for Construction Projects.

1.09 CONSTRUCTION PARKING

- .1 Parking may be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.10 SECURITY

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.11 OFFICES

- .1 Provide office heated to [22] degrees C, lighted [750] lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily

- available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

1.12 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13 SANITARY FACILITIES

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

1.14 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in English Graphic symbols to CAN/CSAZ321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of offsite on completion of project or earlier if directed by ONTC Representative.

1.15 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by ONTC Representative
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Access roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by ONTC Representative
- .12 Lighting: to assure full and clear visibility for full width of access road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, access roads designated by ONTC Representative.

1.16 CLEAN-UP

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

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 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, sediment and erosion control drawings, sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .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.

2023-10-30 ONTC MASTER CONSTRUCTION SPECIFICATION SECTION 01 52 00 CONSTRUCTION FACILITIES PAGE 5

1.01 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.
- .2 CSA Group (CSA)
 - .1 CSA-0121-[M1978(R2003)], Douglas Fir Plywood.

1.02 RELATED REQUIREMENTS

.1 Section [].

1.03 INSTALLATION AND REMOVAL

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

1.04 HOARDING

- .1 Erect temporary site enclosures using self-supporting 1.8m high metal fence. Provide lockable truck gate(s). Maintain fence in good repair.
- .2 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.05 GUARD RAILS AND BARRICADES

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

1.06 WEATHER ENCLOSURES

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

1.07 DUST TIGHT SCREENS

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

1.08 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.09 PUBLIC TRAFFIC FLOW

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

1.10 FIRE ROUTES

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

1.11 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.

1.12 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 ONTC Representative locations and installation schedule [3] days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.13 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Sections 01 74 00 - Cleaning and 01 74 19 - Cleaning and Waste Management and Disposal.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1.01 REFERENCE STANDARDS

- .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.

1.02 RELATED REQUIREMENTS

.1 Section [____].

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 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.
- .3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .4 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 Review product delivery requirements and identify in RFP proposal of foreseeable supply delays for items. If delays in supply of products are foreseeable, identify in RFP proposal such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- 2. Review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify ONTC Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .3 In event of failure to notify ONTC Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, ONTC 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, etc. 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 ONTC Representative
- .9 Touch-up damaged factory finished surfaces at own expense and to ONTC Representative 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 ONTC. 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 ONTC Representative in writing, of conflicts between specifications and manufacturer's instructions, so that ONTC Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes ONTC 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 ONTC 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. ONTC 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 ONTC 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.
- .3 Co-ordinate with ONTC delivery times. Ensure to provide sufficient notices for large deliveries that may impact traffic or block roads.

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 ONTC Representative if there is interference. Install as directed by ONTC Representative

1.11 REMEDIAL WORK

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

1.12 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform ONTC 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 ONTC Representative.

1.16 EXISTING UTILITIES

- .1 Where Work involves breaking into or connecting to existing services, provide ONTC Representative a minimum of 48 hours notice for necessary interruption of mechanical, electrical or other services throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by ONTC Representative with minimum disturbance to site operations.
- .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.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

2023-10-30 ONTC MASTER CONSTRUCTION SPECIFICATION SECTION 01 61 00 COMMON PRODUCT REQUIREMENTS PAGE 5

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures.
- .2 Section 01 45 00 Quality Requirements.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit name, address, and registration information of land surveyor to ONTC Representative.
- .2 Submit documentation that verifies accuracy of site engineering work when requested by ONTC Representative.
- .3 Submit certificate signed by surveyor indicating elevations and locations of completed Work that conform to Contract Documents and those that do not conform.

1.03 QUALIFICATIONS

.1 Surveyor: Qualified, registered land surveyor, licensed to practice at the Place of the Work, and acceptable to ONTC Representative.

1.04 SETTING OUT OF WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work.
- .3 Review existing conditions with contract documents and identify in writing to ONTC Representative of any discrepancies.

1.05 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as Work progresses.
- .2 On completion of foundations and major site improvements, prepare and submit a certified survey showing dimensions, locations, angles, and elevations of Work.
- .3 Record locations of maintained, re-routed, and abandoned service lines.
- .4 Provide a final survey of building location , surrounding grades as affected by the work and buried utilities.

1.08 SUBSURFACE CONDITIONS

- .1 Promptly notify ONTC Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should ONTC Representative determine that conditions do differ materially, instructions will be issued

for changes in Work as provided in Changes and Change Orders.

1.09 LOCATION OF EQUIPMENT AND FIXTURES

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

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 EXAMINATION REQUIREMENTS

- .1 Verification of Conditions:
 - .1 Verify that substrate conditions are acceptable for installation of materials, assemblies, and systems in accordance with manufacturer's instructions and recommendations.
 - .2 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - .3 After uncovering, inspect conditions affecting performance of Work.
 - .4 Proceed with installation only after unacceptable conditions are remedied.
 - .5 Proceeding with cutting, patching, or installation means acceptance of existing conditions.
 - .6 Existing Services:
 - .1 Confirm locations and extent of service lines in area of Work before beginning work on site. Notify ONTC Representative of findings.
 - .2 Remove abandoned service lines within [2] m of structures. Cap or seal lines at cut-off points as indicated on Drawings.
- .2 Pre-Installation Testing:
 - .1 Perform manufacturer-recommended pre-installation site test of

substrate and submit report of test results indicating whether test results meet the manufacturer's minimum requirements and recommendations.

.3 Evaluation and Assessment:

- .1 Verify that pre-existing substrate conditions are acceptable for installation of materials, assemblies, and systems in accordance with manufacturer's instructions and recommendations.
- .2 Proceed with installation only after unacceptable conditions are remedied.

3.02 PREPARATION

- .1 Protection of In-Place Conditions:
 - .1 Provide supports to ensure structural integrity of surroundings. Provide devices and methods to protect other portions of Project from damage.
 - .2 Provide protection from weather and other potentially damaging conditions at areas which will be exposed when uncovering work.

 Maintain excavations free of water.
- .2 Perform Surface Preparation in compliance with contract Documents.
- .3 Survey Reference Points:
 - .1 Locate and confirm reference points before starting site work.

 Protect permanent reference points during construction.
 - .2 Changes or relocations should not be made without prior written notice to ONTC Representative.
 - .3 Notify ONTC Representative if a reference point is lost or destroyed.
 - .1 Surveyor to replace reference points in accordance with original land survey.
 - .4 Notify ONTC Representative if a reference point requires relocation because of necessary changes in grades or locations.
 - .1 Surveyor to register new reference points with land titles department.

.4 Survey Requirements:

- .1 Establish min two permanent benchmarks on site, referenced to established benchmarks by survey reference points. Record locations with horizontal and vertical data in Project record documents.
- .2 Establish lines and levels, location and layout, by instrumentation.
- .3 Stake for grading, fill and topsoil placement and landscaping features.
- .4 Stake slopes and berms.

- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.
- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.
- .5 If Contractor is found to be in error, all costs incurred to correct condition shall be assumed by the Contractor.

1.01 SECTION INCLUDES

.1 Common requirements for installing, applying, and erecting products. Includes procedures and submittals for cutting and patching to existing conditions and required repairs arising from tests and destructive inspections.

1.02 RELATED REQUIREMENTS

.1 Not used.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit proof of anchor and fastener load carrying capacity for a work result, when requested.
- .3 Submit written request before cutting or altering to existing conditions which may affect the following:
 - 1 structural integrity of existing elements: Submit structural details and calculations performed by a professional structural engineer registered or licensed in Province of Ontario, Canada. Include evidence of unsatisfactory structural integrity of the elements according to ONTC Representative.
 - .2 integrity of weather-exposed and moisture-resistant elements
 - .3 efficiency, maintenance, safety, or accessibility of operational elements
 - .4 visual qualities of sight-exposed elements.
 - .5 Work of Owner or other contractor(s).
- .4 Submit a request for cutting or altering, which includes:
 - .1 identification of the Project; and
 - .2 location and description of affected existing conditions including changes to structural elements, function of elements, and visual appearance of existing elements; and the location and identification of utilities that will be temporarily out of service during cutting and patching activities.
- .5 Submit site plan drawings indicating relative location of various services and equipment upon the request of ONTC Representative
- .6 Submit a work plan including:
 - .1 a statement why cutting or altering is unavoidable and describe alternatives to cutting and patching if available;
 - .2 a description of proposed work and proposed Products;
 - .3 the effect of cutting or altering on work by Owner or other contractors;

- .4 written acknowledgement by other contractors affected by cutting or altering , if applicable; and
- .5 proposed date(s) [and time(s)] work will be executed.

1.04 QUALIFICATIONS

.1 Engage a structural engineer licensed at the Place of the Work, to submit details and calculations when altering existing structural elements.

2 PRODUCTS

2.01 MATERIALS

- .1 Patching Materials: If possible, use the same materials found in the existing conditions, except in fire-resistance rated materials and assemblies.
- .2 Materials Visible from the Floor Area: Use materials that visually match existing adjacent surfaces, and match existing functional performance.
- .3 Change in materials: submit request for substitution in accordance with contract documents.

3 EXECUTION

3.01 COMMON INSTALLATION/APPLICATION/ERECTION REQUIREMENTS

- .1 Fit several parts together, to integrate with other Work.
- .2 Remove and replace defective and non-conforming Work.
- .3 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.
- .4 Notify ONTC Representative in writing, of conflicts between specifications and manufacturer's instructions, so that ONTC Representative will establish course of action.
- .5 Improper installation or erection of products, due to failure in complying with these requirements, authorizes ONTC Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- .6 Provide openings in non-structural elements for penetrations of mechanical and electrical work.
- .7 Conceal pipes, ducts and wiring in floor, wall, partition, and ceiling assemblies in finished areas, except as indicated otherwise.
- .8 In addition to the manufacturer's recommendations for safety, access, accessibility, and maintenance, locate equipment, fixtures, and distribution systems where it shall provide minimal interference

and shall maximize on usable space.

- .1 Location of equipment, fixtures, and outlets indicated on Drawings and specifications are approximate.
- .2 Notify ONTC Representative of impending installation and obtain approval for actual locations.

3.02 BRACING AND ANCHORING

- .1 Anchors and Fasteners: Unless otherwise indicated elsewhere:
 - .1 Provide any necessary anchors and fasteners to fasten each component securely for its intended purpose. Allow for building movement, including from thermal expansion and contraction of materials and assemblies;
 - .2 prevent electrolytic reaction between dissimilar metals and materials;
 - .3 Provide [hot-dip galvanized] [stainless] steel anchors and fasteners for securing exterior work;
 - .4 locate anchors and fasteners within individual load limit or shear capacity. Ensure anchors and fasteners are permanently secured;
 - .5 Where exposed to view, evenly distribute anchors and fasteners in a single area; and
 - .6 Where exposed to view, provide metal anchors, fasteners, and related accessories with the same texture, colour, and finish as adjacent materials.
- .2 Non-Conforming Work: Anchors and fasteners installed which cause substrate cracks or spalling is not acceptable.

3.03 CUTTING AND PATCHING

- .1 Proceed with cutting and patching after the review and acceptance by the ONTC Representative of all submittals listed in Article 1.03, Actions and Informational Submittals.
- .2 Perform cutting, fitting, and patching including excavation and fill, to complete Work in accordance with related technical specification Sections.
- .3 Use special techniques to avoid damaging existing conditions that will remain, and which will result in proper surfaces to receive patching and finishing.
- .4 Employ original installer to perform cutting and patching for weather-exposed elements, moisture-resistant elements, and surfaces exposed to view.
- .5 Cut rigid materials using masonry saw, core drill, or other tool recommended by the product manufacturer or applicable industry association. Pneumatic or impact tools are not allowed on masonry work without the approval of ONTC Representative.
- .6 Fit Work airtight to pipes, sleeves, ducts, conduit, and other

- penetrations through surfaces.
- .7 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection (e.g., edges of partition). Refinish assemblies by refinishing entire unit. Provide entire surface with uniform finish, colour, and texture.

3.04 ADJUSTING

.1 Remove and replace patching that is visually unsatisfactory to ${\tt ONTC}$ Representative.

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.

1.02 RELATED REQUIREMENTS

.1 Not used.

1.03 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 ONTC Representative. Do not burn waste materials on site, unless approved by ONTC Representative.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only, or remove from site, as agreed upon at outset of contract.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site steel containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 1 74 19 Waste Management and Disposal.
- .7 Dispose of waste materials and debris at designated dumping areas 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.

1.04 FINAL CLEANING

.2 When Work is Substantially Performed remove surplus products, tools,

- construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris including that caused by Owner or other Contractors.
- .6 Remove waste materials from site at regularly scheduled times or dispose of as directed by ONTC Representative. Do not burn waste materials on site, unless approved by ONTC Representative.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors and ceilings, and at exterior of building.
- .10 Clean lighting reflectors, lenses, and other lighting surfaces.
- .11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .16 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .17 Sweep and wash clean paved areas.
- .18 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .19 Clean roofs, downspouts, and drainage systems.
- .20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .21 Remove snow and ice from access to building.

1.05 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

- 2 PRODUCTS
- 2.01 NOT USED
 - .1 Not Used.
- 3 EXECUTION
- 3.01 NOT USED

.1 Not Used.

1.01 SUMMARY

.1 The Project shall generate the least amount of waste possible. Contractor shall implement processes to 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.

1.02 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM E1609 01, Standard Guide for Development and Implementation of a Pollution Prevention Program

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, re-modeling, 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.

1.04 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 51 00 Temporary Utilities
- .3 Section 01 74 00 Cleaning.

1.05 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 in accordance with Section 01 31 19 Project Meetings before starting any Work of the Contract attended by the Owner, Contractor, affected Subcontractor's and ONTC Representative to discuss the Contractors Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.06 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit 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 ONTC 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; ONTC Representative will provide commentary before development of Contractor's Construction Waste Management Plan.

- .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: materials that cannot be recycled, reused or composted.
- .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.

1.07 PROJECT CLOSEOUT SUBMITTALS

- .1 Diversion Documentation: Submit as constructed information in accordance with Section 01 78 00 Closeout Submittals as follows:
 - .1 Construction Waste Management Report (CWM Report) : Submit 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 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 Photographs: Submit photographs of waste diversion facilities documenting location and signage describing usage of waste separation containers.

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.
 - .1 Provide separate containers for reusable and/or recyclable materials such as:
 - .1 Metals.
 - .2 Wood.
 - .3 Plastics
- .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 Owner, the ONTC 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 Submittal of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Owner, ONTC 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 Subcontractor's shall cooperate fully with the Prime Contractor to implement the CWM Plan.
- .2 Failure to cooperate may result in the Owner not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractor's.

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.02 RELATED REQUIREMENTS

.1 Not used.

1.03 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 ONTC Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request ONTC Representative inspection.
 - .2 ONTC Representative Inspection:
 - .1 ONTC Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates in English 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 Authority Having Jurisdiction submitted and approved.
 - .5 Operation of systems: demonstrated to Owner's personnel.
 - .6 Commissioning of equipment and systems: completed in accordance with 01 91 13 GENERAL COMMISSIONING REQUIREMENTS and copies of final Commissioning Report submitted to ONTC Representative.
 - .7 Work: complete and ready for final inspection.
 - .4 Final Inspection:

- .1 When completion tasks are done, request final inspection of Work by ONTC Representative.
- .2 When Work is incomplete according to ONTC Representative, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when ONTC Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When ONTC Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 Refer to Contract documents: when Work deemed incomplete by ONTC Representative, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.04 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 Waste Management and Disposal.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act (CEPA):
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations

1.02 RELATED REQUIREMENTS

.1 Not used.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week before Contract completion with ONTC Representative, in accordance with Section 01 31 19 Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 ONTC 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.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 Submittal Procedures.
- .2 Two weeks before Substantial Performance of the Work, submit to the ONTC 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.

1.05 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 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 [dxf] [dwg] format on [CD].

1.06 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 ONTC Representative 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 specified in Section 01 45 00 Quality Control.
- .6 Training: Refer to Section 01 79 00 Demonstration and Training.

1.07 AS-BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for ONTC 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 Site test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples in site 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 ONTC Representative.

1.08 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line and in copy of Project Manual, provided by ONTC 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 Site changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 Referenced Standards 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, site test records, required by individual specifications Sections.
- .7 Provide digital photos, if requested, for site records.

1.09 FINAL SURVEY

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

1.10 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 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.

- .11 Provide [Contractor's] [Design-Builder's] coordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00
 Quality Control and Section 01 91 13 General Commissioning
 Requirements.
- .15 Additional requirements: As specified in individual specification Sections.

1.11 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.

1.12 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 site; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to ONTC Representative.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit before 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 site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to ONTC Representative.
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit before to final payment.

.3 Special Tools:

- .1 Provide special tools, in quantities specified in individual specification Section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to ONTC Representative.
 - .2 Include approved listings in Maintenance Manual.

1.13 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 ONTC Representative.

1.14 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, [30] days before planned prewarranty conference, to ONTC Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that ONTC 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 ONTC Representative for approval before 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 ONTC 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 Roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems, 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 ONTC Representative to proceed with action against Contractor.

1.15 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil- and water-resistant tag approved by ONTC 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 the 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.

2023-10-30 ONTC MASTER CONSTRUCTION SPECIFICATION SECTION 01 78 00 CLOSEOUT SUBMITTALS PAGE 9

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

.1 Not used.

1.02 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to ONTC's personnel before date of substantial performance.
- .2 ONTC will provide list of personnel to receive instructions, and coordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into operation in accordance with specified equipment Section.
 - .4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 General Commissioning Requirements, and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.
- .5 Ensure a sufficient amount of time is provided for instruction of each item of equipment or system.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks before designated dates, for ONTC Representative approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons

present.

.5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.04 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Owner's personnel.
 - .2 Submit written report that demonstration and instructions have been completed.

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 SUMMARY

.1 This Section includes general requirements relating to commissioning (Cx) of project components and systems, specifying general requirements for performance verification (PV) of components, equipment, sub-systems, systems, and integrated systems.

1.02 ABBREVIATIONS

- .1 AFD: Alternate Forms of Delivery, service provider
- .2 BMM: Building Management Manual
- .3 Cx: Commissioning
- .4 EMCS: Energy Monitoring and Control Systems
- .5 O&M: Operation and Maintenance
- .6 PI: Product Information
- .7 PV: Performance Verification
- .8 TAB: Testing, Adjusting and Balancing

1.03 RELATED REQUIREMENTS

- .1 Section 01 45 00 Quality Control.
- .2 Section 01 77 00 Closeout Procedures.
- .3 Section 01 78 00 Closeout Submittals.
- .4 Section 01 79 00 Demonstration and Training.
- .5 Section 01 91 13.13 Commissioning Plan.

1.04 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination:
 - .1 ONTC Representative will observe some or all commissioning activities at their discretion.
 - .2 Owner's Performance Testing: Performance testing of equipment or systems by ONTC Representative will not relieve Contractor from compliance with specified start-up and testing procedures.
 - .3 Cooperate fully with ONTC Representative during stages of acceptance and occupancy of facility.
 - .4 Coordination with Authorities Having Jurisdiction (AHJ):
 - .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of AHJ, arrange for authority to witness procedures to avoid duplication of tests and to facilitate an earlier acceptance of facility.
 - .2 Obtain certificates of approval, acceptance, and compliance

with rules and regulations of AHJ.

.3 Submit copies to ONTC Representative within [5] days of test and with Cx report for review.

.2 Commissioning Meetings:

- .1 Arrange Cx meeting(s) as per this section, and provide agenda minimum three (3) days before meeting(s).
- .2 Use Cx meetings to resolve issues, monitor progress, and identify defects and deficiencies relating to Cx.
- .3 Continue Cx meetings on a regular basis, including during equipment start-up period, and functional testing period until commissioning deliverables have been addressed.
- .4 At [60]% construction completion stage: ONTC Representative will request a separate Cx scope meeting to review progress, discuss schedule of equipment start-up activities and prepare for Cx. Agenda topics include the following:
 - .1 Review duties and responsibilities of Contractor and Subcontractors, addressing delays and potential problems.
 - .2 Determine the degree of involvement of Subcontractors and manufacturer's representatives in the Cx process.
- .5 Meeting will be chaired by ONTC Representative, who will record and distribute minutes.
- .6 Ensure Subcontractors and relevant manufacturer representatives are present at [60]% construction completion stage, at subsequent Cx meetings, and when otherwise required.

.3 Observation of Starting and Testing:

- .1 Give [14] days notice before beginning commissioning.
- .2 ONTC Representative if required, will observe start-up and testing.
- .3 ONTC Representative to be present at tests performed and documented by Subcontractors, suppliers, and equipment manufacturers.

.4 Conflicts:

- .1 Report conflicts between requirements of this Section and other Sections to ONTC Representative and obtain interpretation or clarification before starting commissioning work.
- .2 Failure to report conflicts and obtain interpretation or clarification will result in application of the more stringent requirement.

.5 Excess Administration:

- .1 Contractor shall pay the costs related to ONTC Representative excess contract administration if third and subsequent verifications occur where:
 - .1 Verification of reported results fail to receive ONTC

Representative's acceptance.

- .2 Repetition of second verification again fails to receive acceptance.
- .3 ONTC Representative deems Contractor's request for second verification was premature.
- .2 The cost of the ONTC Representative's excess contract administration will be based on a rate of \$250 per hour.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
 - .1 Submit no later than [4] weeks after award of Contract:
 - .1 draft Cx documentation, and
 - .2 preliminary Cx schedule.
 - .2 Request changes to submittals in writing to ONTC Representative and obtain written acceptance or rejection at least [8] weeks before start of Cx.
 - .3 Where Cx procedures are not specified, submit proposed ones to ONTC Representative and obtain written acceptance or rejection at least [8] weeks before start of Cx.
 - .4 Submit additional documentation relating to Cx process as required by ONTC Representative.
 - .5 If instruments installed in Contract will be used for Cx of TAB and PV, then submit TAB and PV instrument calibration certificates for review and acceptance.
 - .6 Submit EMCS sensor calibration certificates.
- .2 Commissioning Schedule:
 - .1 Create and submit detailed Cx schedule as part of construction schedule.
 - .2 Allow in the schedule adequate time for Cx activities prescribed in technical specification Sections and commissioning Sections including:
 - .1 acceptance of Cx reports
 - .2 verification of reported results
 - .3 repairs, retesting, re-commissioning, and re-verification
 - .4 training
- .3 Start-Up Documentation:
 - .1 Assemble start-up documentation and submit to ONTC Representative for review and acceptance before beginning commissioning.
 - .2 Start-up documentation to include:
 - .1 Factory and on-site test certificates for specified equipment.

- .2 Pre-start-up inspection reports.
- .3 Signed installation/start-up checklists.
- .4 Start-up reports.
- .5 Step-by-step description of complete start-up procedures so ONTC Representative can repeat start-up at any time.
- .4 Submit for review and acceptance:
 - .1 Complete list of proposed instruments and equipment to perform commissioning.
 - .2 List data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.
- .5 Commissioning Documentation:
 - .1 Submit completed Cx documentation to ONTC Representative for review and acceptance.

1.06 MAINTENANCE MATERIALS SUBMITTALS

.1 Supply and document maintenance materials, spare parts, and special tools as specified in other specification Sections.

1.07 SITE CONDITIONS

.1 Where Cx of weather-dependent, occupancy-dependent, or seasonally-dependent equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions if acceptable to ONTC Representative with manufacturer's assistance in accordance with equipment manufacturer's instructions, data, and approved formulae.

2 PRODUCTS

2.01 NOT USED

.1 Not used.

3 EXECUTION

3.01 GENERAL

- .1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Perform Cx after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Complete Cx in the most effective and timely manner available.
 - .1 Objectives: Verify that installed equipment, systems and integrated systems operate in accordance with Contract Documents and design criteria and intent.

- .2 Contractor shall assist in Cx process, operating equipment and systems, troubleshooting, and making adjustments as required.
 - .1 Operate systems at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems should interact with each other as intended in accordance with Contract Documents and design criteria.
 - .2 Make adjustments as needed, during these checks, to enhance performance and meet environmental or user requirements.
- .3 Design Criteria: In accordance with Owner's requirements or as determined by ONTC Representative. To meet Project functional and operational requirements.

3.02 COMMISSIONING OVERVIEW

- .1 Include Cx as a line item in Contractor's cost breakdown.
- .2 Cx activities supplement the site quality control and testing procedures described in relevant technical specification Sections.
- .3 Conduct Cx at the same time as other activities during the construction stage.
- .4 Cx identifies issues in the Design stages, which are addressed during Construction and Cx stages. This step ensures the built facility meets functional and operational requirements while operating as intended under weather, environmental and occupancy conditions. Cx activities include the transfer of critical knowledge to the Owner's facility operations personnel.
- .5 ONTC Representative will issue Interim Acceptance Certificate only after:
 - .1 Cx documentation has been received, reviewed for suitability, and reviewed and accepted by ONTC Representative.
 - .2 equipment, components and systems have been commissioned, and
 - .3 O&M training has been completed.

3.03 PRE-COMMISSIONING REVIEW

- .1 Before Construction:
 - .1 Review Contract Documents and confirm in writing to ONTC Representative the following:
 - .1 Adequacy of provisions for Cx.
 - .2 Aspects of design and installation pertinent to success of Cx.
- .2 During Construction:
 - .1 Coordinate provision, location, and installation of provisions for Cx .
- .3 Before Beginning Cx:
 - .1 Verify Cx Plan and schedules are up-to-date.

- .2 Verify installation of related components, equipment, systems, and sub-systems are complete.
- .3 Review Cx requirements and procedures.
- .4 Verify documentation used for the Cx process is shelf-ready (bound, organized, indexed, etc.).
- .5 Review design criteria and intent, and special features to ensure full understanding.
- .6 Submit complete start-up documentation to ONTC Representative.
- .7 Verify systems have been cleaned thoroughly.
- .8 Complete TAB procedures on systems and submit TAB reports to ONTC Representative for review and acceptance.
- .9 Verify "As-Built" system schematics are available.
- .4 Inform ONTC Representative in writing of defects and deficiencies in installed Work.

3.04 STARTING AND TESTING

- .1 Contractor to bear all costs associated with Cx activities, including, but not limited to, costs of the following:
 - .1 inspections, including disassembly and re-assembly after approval, and for starting, testing, adjusting, and;
 - .2 temporary testing equipment.
 - .3 required personnel and test equipment.

3.05 PERFORMANCE VERIFICATION TOLERANCES

- .1 Application Tolerances:
 - .1 A specified range of acceptable deviations of measured values from specified values or specified design criteria except for special areas that shall be within +/- [10]% of specified values.
- .2 Instrument Accuracy Tolerances:
 - .1 To be of higher order of magnitude than equipment or system being tested.
- .3 Measurement Tolerances During Verification:
 - .1 Unless otherwise specified, actual values shall be within +/- [2]% of recorded values.

3.06 MANUFACTURER SERVICES

- .1 During factory testing, manufacturer to:
 - .1 Coordinate time and location of testing.
 - .2 Arrange for ONTC Representative to observe testing.
 - .3 Submit testing documentation for review and acceptance by ONTC Representative.

- .4 Obtain written acceptance of test results and documentation from ONTC Representative before delivery to site.
- .2 Obtain manufacturer's installation, start-up and operations instructions before start-up of components, equipment and systems, and review with ONTC Representative.
 - .1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.
 - .2 Modify procedures that may be detrimental to equipment performance and review with manufacturer before start-up.
- .3 Integrity of warranties:
 - .1 Use manufacturer's trained start-up personnel where specified in other divisions or where required to maintain integrity of warranty.
 - .2 Verify with manufacturer that testing as specified will not void warranties.
- .4 Qualifications of manufacturer's personnel:
 - .1 Experienced in design, installation and operation of equipment and systems.
 - .2 Ability to interpret test results accurately.
 - .3 Report results in clear, concise, logical manner.

3.07 COMMISSIONING PROCEDURES

- .1 Verify that equipment and systems are complete, clean, and operating in a normal and safe manner before conducting start-up, testing and Cx.
- .2 Conduct start-up and testing in the following distinct phases:
 - .1 Included in delivery and installation:
 - .1 Verification of conformity to specification, reviewed and accepted shop drawings and completion of PI report forms.
 - .2 Visual inspection of quality of installation.
 - .2 Start-up: Follow accepted start-up procedures.
 - .3 Operational testing: Document equipment performance.
 - .4 System PV: Include repetition of tests after correcting deficiencies.
 - .5 Post-Substantial Performance Verification: To include fine-tuning.
- .3 Correct deficiencies and obtain acceptance from ONTC Representative after distinct phases have been completed and before beginning the next phase.
- .4 Document required tests on approved PV forms.
- .5 Failure to follow accepted start-up procedures will result in reevaluation of equipment by an independent testing agency selected by ONTC Representative. If evaluation report indicates that

equipment start-up procedure was deficient and resulted in equipment damage, perform the following:

- .1 Minor equipment/systems: Perform corrective measures acceptable to ONTC Representative.
- .2 Major equipment/systems: If evaluation report indicates that equipment damage is minor, perform corrective measures acceptable to ONTC Representative.
- .3 If evaluation report indicates that major equipment damage has occurred, ONTC Representative will reject equipment.
 - .1 Remove rejected equipment from site and replace with new equipment.
 - .2 Perform specified start-up procedures on new equipment/systems.

3.08 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

- .1 After start-up, operate and maintain equipment and systems as directed or recommended by equipment/system manufacturer.
- .2 With manufacturer's assistance, develop written maintenance program and submit to ONTC Representative for review and acceptance before implementation.
- .3 Operate and maintain systems for length of time required for commissioning to be completed.
- .4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

3.09 TEST RESULTS

- .1 If start-up, testing, or PV produce unacceptable results, repair, replace or repeat specified starting or PV procedures until acceptable results are achieved.
- .2 Provide labor and materials, and assume costs for re-commissioning.

3.10 START OF COMMISSIONING

- .1 Notify ONTC Representative at least [21] days before start of Cx.
- .2 Start Cx after elements of building affecting start-up and performance verification of systems have been completed.

3.11 TEMPORARY INSTRUMENTS AND EQUIPMENT

.1 Provide all required instruments and equipment required to complete commissioning.

3.12 COMMISSIONING PERFORMANCE VERIFICATION

- .1 Carry out Cx:
 - .1 under actual and accepted simulated operating conditions, over entire operating range, and in all modes, and

- .2 on independent systems and interacting systems.
- .2 Cx procedures to be repeatable and reported results are to be verifiable.
- .3 Follow equipment manufacturer's operating instructions.
- .4 Make EMCS trending information available as supporting documentation for performance verification.

3.13 EXTENT OF VERIFICATION

- .1 Laboratory areas:
 - .1 Provide labour and instrumentation to verify up to [100]% of reported results.
- .2 Elsewhere:
 - .1 Provide labour and instrumentation to verify up to [30]% of reported results, unless otherwise specified in other specification Sections.
- .3 Number and location to be at discretion of ONTC Representative.
- .4 Conduct tests repeated during verification under same conditions as original tests, using same test equipment, and instrumentation.
- .5 Review and repeat commissioning of systems if inconsistencies found in more than [20]% of reported results.
- .6 Perform additional commissioning until results are acceptable to ONTC Representative.

3.14 INSTALLED INSTRUMENTATION

- .1 Use instruments installed under Contract for TAB and PV if:
 - .1 Accuracy complies with this specification Section.
 - .2 Calibration certificates have been submitted to ONTC Representative.
- .2 Calibrated EMCS sensors may be used to obtain performance data if sensor calibration has been completed and accepted.

3.15 PROCEDURES FOR DEFICIENCIES DISCOVERED DURING COMMISSIONING

- .1 Correct defects and deficiencies found during the Cx process. Reverify equipment and components within the defective or deficient system to verify proper performance, including related systems if requested by ONTC Representative.
- .2 Costs associated with re-commissioning defective and deficient work is the responsibility of Contractor. Above costs to be in the form of progress payment reductions or hold-back assessments.

3.16 COMMISSIONING CONSTRAINTS

.1 Not used.

3.17 MISCELLANEOUS CHECKS AND ADJUSTING

- .1 Make adjustments and changes which become apparent as Cx proceeds.
- .2 Perform static and operational checks as applicable and as required.

3.18 DEFICIENCIES AND DEFECTS

- .1 Correct deficiencies and defects found during start-up and Cx to satisfaction of ONTC Representative.
- .2 Report concerns, deficiencies, and defects affecting Cx to ONTC Representative in writing. Stop Cx until problems are rectified. Proceed with written acceptance from ONTC Representative.

3.19 CLOSEOUT ACTIVITIES

- .1 Completion of Commissioning:
 - .1 Upon completion of Cx, leave systems in normal operating mode.
 - .2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx before issuance of Interim Certificate of Completion.
 - .3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by ONTC Representative.
- .2 Activities Upon Completion of Commissioning:
 - .1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.
- .3 Training:
 - .1 In accordance with Section 01 79 00- Demonstration and Training.

END OF SECTION

1 GENERAL

1.01 SUMMARY

- .1 Section Includes:
 - .1 Description of overall structure of Plan and roles and responsibilities of commissioning team.

1.02 REFERENCE STANDARDS

- .1 Section 01 45 00 Quality Control.
- .2 Section 01 77 00 Closeout Procedures.
- .3 Section 01 78 00 Closeout Submittals.
- .4 Section 01 79 00 Demonstration and Training.

1.03 GENERAL

- .1 Provide fully functional facilities and or systems:
 - .1 Systems, equipment and components meet user's functional requirements before date of acceptance, and operate consistently at peak efficiencies and within specified energy budgets under normal loads.
 - .2 Facility user and O&M personnel have been fully trained in aspects of installed systems.
 - .3 Optimized life cycle costs.
 - .4 Complete documentation relating to installed equipment and systems.
- .2 Term "Cx" in this section means "Commissioning".
- .3 Use this Cx Plan as master planning document for Cx:
 - 1 Outlines organization, scheduling, allocation of resources, documentation, pertaining to implementation of Cx.
 - .2 Communicates responsibilities of team members involved in Cx Scheduling, documentation requirements, and verification procedures.
 - .3 Sets out deliverables relating to O&M, process and administration of Cx.
 - .4 Describes process of verification of how built works meet Owner requirements.
 - .5 Produces a complete functional system prior to issuance of Certificate of Occupancy.
 - .6 Management tool that sets out scope, standards, roles and responsibilities, expectations, deliverables, and provides:
 - .1 Overview of Cx.
 - .2 General description of elements that make up Cx Plan.

- .3 Process and methodology for successful Cx.
- .4 Acronyms:
 - .1 Cx Commissioning.
 - .2 BMM Building Management Manual.
 - .3 EMCS Energy Monitoring and Control Systems.
 - .4 WHMIS Safety Data Sheets (SDS).
 - .5 PI Product Information.
 - .6 PV Performance Verification.
 - .7 TAB Testing, Adjusting and Balancing.
 - .8 WHMIS Workplace Hazardous Materials Information System.
- .5 Commissioning terms used in this Section:
 - .1 Bumping: short term start-up to prove ability to start and prove correct rotation.
 - .2 Deferred Cx Cx activities delayed for reasons beyond Contractor's control due to lack of occupancy, weather conditions, need for heating/cooling loads.

1.04 DEVELOPMENT OF 100% CX PLAN

- .1 Cx Plan shall be 100% completed within [08] weeks of award of contract and [06] weeks before CX start and shall take into account:
 - .1 Approved shop drawings and product data.
 - .2 Approved changes to contract.
 - .3 Contractor's project schedule.
 - .4 Cx schedule.
 - .5 Contractor's, sub-contractor's, suppliers' requirements.
 - .6 Project construction team's and Cx team's requirements.
- .2 Submit completed Cx Plan to ONTC Representative and obtain written approval.

1.05 REFINEMENT OF CX PLAN

- .1 During construction phase, revise, refine and update Cx Plan to include:
 - .1 Changes resulting from Owner program modifications.
 - .2 Approved design and construction changes.
- .2 Revise, refine and update every [6] [weeks] during construction phase. At each revision, indicate revision number and date.
- .3 Submit each revised Cx Plan to ONTC Representative for review and obtain written approval.
- .4 Include testing parameters at full range of operating conditions and check responses of equipment and systems.

1.06 COMPOSITION, ROLES AND RESPONSIBILITIES OF CX TEAM

- .1 Prime Contractor to maintain overall responsibility for project and is sole point of contact between members of commissioning team.
- .2 Prime Contractor's Project Manager will select Cx Team consisting of following members:
 - .1 Design Quality Review Team: during construction, will conduct periodic site reviews to observe general progress.
 - .2 Quality Assurance Commissioning Manager: ensures Cx activities are carried out to ensure delivery of a fully operational project including:
 - .1 Review of Cx documentation from operational perspective.
 - .2 Review for performance, reliability, durability of operation, accessibility, maintainability, operational efficiency under conditions of operation.
 - .3 Protection of health, safety and comfort of occupants and O&M personnel.
 - .4 Monitoring of Cx activities, training, development of Cx documentation.
 - .5 Work closely with members of Cx Team.
 - .3 ONTC Representative is responsible for:
 - .1 Organizing Cx.
 - .2 Monitoring operations Cx activities.
 - .3 Witnessing, certifying accuracy of reported results.
 - .4 Witnessing and certifying TAB and other tests.
 - .5 Validating BMM.
 - .6 Ensuring implementation of final Cx Plan.
 - .7 Performing verification of performance of installed systems and equipment.
 - .8 Coordination of Training Plan.
 - .4 Construction Team: contractor, subcontractors, suppliers and support disciplines, are responsible for construction/installation in accordance with Contract Documents, including:
 - .1 Testing.
 - .2 TAB.
 - .3 Performance of Cx activities.
 - .4 Delivery of training and Cx documentation.
 - .5 Assigning one person as point of contact with ONTC Representative and Cx Manager for administrative and coordination purposes.
 - .5 Contractor's Cx agent implements specified Cx activities including:

- .1 Demonstrations.
- .2 Training.
- .3 Testing.
- .4 Preparation, submission of test reports.
- .6 Owner: represents lead role in Operation Phase and onwards and is responsible for:
 - .1 Receiving facility.
 - .2 Day-To-Day operation and maintenance of facility.

1.07 CX PARTICIPANTS

- .1 Employ the following Cx participants to verify performance of equipment and systems:
 - .1 Installation contractor/subcontractor:
 - .1 Equipment and systems except as noted.
- .2 Equipment manufacturer: equipment specified to be installed and started by manufacturer.
 - .1 To include performance verification.
- .3 Specialist subcontractor: equipment and systems supplied and installed by specialist subcontractor.
- .4 Specialist Cx agency:
 - .1 Possessing specialist qualifications and installations providing environments essential to client's program but are outside scope or expertise of Cx specialists on this project.
- .5 Owner:
 - .1 Responsible for intrusion and access security systems.
 - .2 Coordinates Owner's staff participation in Cx activities.
- .6 Ensure that Cx participant:
 - .1 Could complete work within scheduled time frame.
 - .2 Available for emergency and troubleshooting service during first year of occupancy by user for adjustments and modifications outside responsibility of O&M personnel, including:
 - .1 Modify ventilation rates to meet changes in off-gassing.
 - .2 Changes to heating or cooling loads beyond scope of EMCS.
 - .3 Changes to EMCS control strategies beyond level of training provided to O&M personnel.
 - .4 Redistribution of electrical services.
 - .5 Modifications of fire alarm systems.
 - .6 Modifications to voice communications systems.
- .7 Provide names of participants to ONTC Representative and details of instruments and procedures to be followed for Cx [8] weeks prior to

starting date of Cx for review and approval.

1.08 EXTENT OF CX

- .1 The CX plan should include all new systems/equipment installed as part of the contract, including (when exist) but not limited to, the systems listed below:
- .1 Architectural Systems:
 - .1 Architectural and structural:
 - .1 Exterior systems:
 - .1 Exterior walls.
 - .2 Raised floor systems.
 - .3 Accessibility and operational safety:
 - .1 Automatic door operators.
 - .4 Equipment.
 - .5 Doors, windows, related hardware:
 - .1 door and window hardware.
- .2 Commission mechanical systems and associated equipment:
 - .1 HVAC and exhaust systems:
 - .1 HVAC systems.
 - .2 Exhaust systems and related systems.
 - .3 Heat recovery systems.
 - .4 Smoke control systems.
 - .2 Fire and life safety systems.
 - .3 Noise and vibration control systems for mechanical systems.
 - .4 IAQ environmental control systems.
 - .5 EMCS.
 - .6 Energy metering systems.
- .3 Commission of all electrical systems and equipment, including but not limited to:
 - .1 High voltage.
 - .2 Low voltage.
 - .3 Emergency power generation systems.
 - .4 Lighting systems:
 - .1 Lighting equipment.
 - .2 Distribution systems.
 - .3 Emergency lighting systems, including battery packs.
 - .4 Fire exit emergency signage.
 - .5 Fire alarm systems and equipment:

- .1 Annunciators.
- .2 Control panels.
- .3 Fire alarm battery banks.
- .6 Other systems and equipment:
 - .1 Intrusion and access security and safety systems, if any.

1.10 DELIVERABLES RELATING TO O&M PERSPECTIVES

- .1 General requirements:
 - .1 Compile English documentation.
 - .2 Documentation to be computer-compatible format ready for inputting for data management.
- .2 Provide deliverables:
 - .1 Warranties.
 - .2 Project record documentation.
 - .3 Inventory of spare parts, special tools and maintenance materials.
 - .4 Maintenance Management System (MMS) identification system used.
 - .5 WHMIS information.
 - .6 WHMIS Safety Data Sheets (SDS).
 - .7 Electrical Panel inventory containing detailed inventory of electrical circuitry for each panel board. Duplicate of inventory inside each panel.

1.11 DELIVERABLES RELATING TO THE CX PROCESS

- .1 General:
 - .1 Start-up, testing and Cx requirements, conditions for acceptance and specifications form part of relevant technical sections of these specifications.
- .2 Definitions:
 - .1 Cx as used in this section includes:
 - .1 Cx of components, equipment, systems, subsystems, and integrated systems.
 - .2 Factory inspections and performance verification tests.
- .3 Deliverables: provide:
 - .1 Cx Specifications.
 - .2 Startup, pre-Cx activities and documentation for systems, and equipment.
 - .3 Completed installation checklists (ICL).
 - .4 Completed product information (PI) report forms.
 - .5 Completed performance verification (PV) report forms.

- .6 Results of Performance Verification Tests and Inspections.
- .7 Description of Cx activities and documentation.
- .8 Description of Cx of integrated systems and documentation.
- .9 Tests Reports.
- .10 Training Plans.
- .11 Cx Reports.
- .12 Prescribed activities during warranty period.
- .4 ONTC Representative to witness and certify tests and reports of results provided to ONTC.

1.12 PRE-CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Items listed in this Cx Plan include the following:
 - .1 Pre-Start-Up inspections.
 - .2 ONTC Representative will monitor all of these pre-start-up inspections.
 - .3 Include completed documentation with Cx report.
 - .4 Conduct pre-start-up tests: conduct pressure, static, flushing, cleaning, and "bumping" during construction as specified in technical sections. To be witnessed and certified by ONTC Representative and does not form part of Cx specifications.
 - .5 Include completed documentation in Cx report.
- .2 Pre-Cx activities ARCHITECTURAL AND STRUCTURAL:
 - .1 Exterior walls: conduct thermographic surveys to ensure appropriate level of tightness after exterior envelope has been completed. Permanent HVAC systems are able to provide appropriate negative or positive pressure, a temperature of at 20 degrees C can be maintained between inside and outside and wind speed is less than 10 kph.
 - .2 Equipment:
- .3 Pre-Cx activities MECHANICAL:
 - .1 HVAC equipment and systems:
 - .1 "Bump" each item of equipment in its "stand-alone" mode.
 - .2 At this time, complete pre-start-up checks and complete relevant documentation.
 - .3 After equipment has been started, test related systems in conjunction with control systems on a system-by-system
 - .4 Perform TAB on systems.
 - .2 EMCS:
 - .1 EMCS trending to be available as supporting documentation for performance verification.
 - .2 Perform point-by-point testing in parallel with start-up.

- .3 Carry out point-by-point verification.
- .4 Demonstrate performance of systems, to be witnessed by ONTC Representative prior to start of Final Acceptance Test period.
- .5 Perform final Cx and operational tests during demonstration period and test period.
- .6 Only additional testing after foregoing have been successfully completed to be "Off-Season Tests".
- .4 Pre-Cx activities LIFE SAFETY SYSTEMS
 - .1 Include all equipment and systems.
 - .2 Reports of test results to be witnessed and certified by ONTC Representative before verification.
- .5 Pre-Cx activities ELECTRICAL:
 - .1 High voltage distribution systems over 750 V.
 - .2 Low voltage distribution systems under 750 V.
 - .1 Requires independent testing agency to perform preenergization and post-energization tests.
 - .3 Emergency power generation systems
 - .1 Transfer switches: test by simulating loss of power. Verify availability of power at equipment requiring same.
 - .2 Uninterruptible power systems: test under full and partial load conditions.
 - .4 Lighting systems:
 - .1 Emergency lighting systems:
 - .1 Tests to include verification of lighting levels and coverage, initially by disrupting normal power.
 - .5 Fire alarm systems: test after other safety and security systems are completed. Testing to include a complete verification in accordance with ULC requirements. ONTC Representative has witnessed and certified report, demonstrate devices and zones to ONTC Representative.
 - .6 Low voltage systems: these include:
 - .1 Clock, communications, low voltage lighting control systems and data communications systems.
 - .7 Security, surveillance and intrusion alarm systems: to include verification by ONTC Representative.

1.13 START-UP

- .1 Start up components, equipment and systems.
- .2 ONTC Representative to monitor all of these start-up activities.
 - .1 Rectify start-up deficiencies to satisfaction of ONTC Representative.

- .4 Performance Verification (PV):
 - .1 Approved Cx Agent to perform.
 - .1 Repeat when necessary until results are acceptable to ONTC Representative.
 - .2 Use procedures modified generic procedures to suit project requirements.
 - .3 ONTC Representative to witness and certify reported results using approved PI and PV forms.
 - .4 ONTC Representative to approve completed PV reports and provide to ONTC Representative.
 - .5 ONTC Representative reserves right to verify up to [30]% of reported results at random.
 - .6 Failure of randomly selected item shall result in rejection of PV report or report of system startup and testing.

1.14 CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Perform Cx by specified Cx agency using procedures developed by Cx agency and approved by ONTC Representative.
- .2 ONTC Representative to monitor Cx activities.
- .3 Upon satisfactory completion, Cx agency performing tests to prepare Cx Report using approved PV forms.
- .4 ONTC Representative reserves right to verify a percentage of reported results at no cost to contract.

1.15 CX OF INTEGRATED SYSTEMS AND RELATED DOCUMENTATION

- .1 Cx to be performed by specified Cx specialist, using procedures approved by ONTC Representative.
- .2 Tests to be witnessed by ONTC Representative and documented on approved report forms.
- .3 Upon satisfactory completion, Cx specialist to prepare Cx Report, to be submitted to ONTC Representative for review.
- .4 ONTC Representative reserves right to verify percentage of reported results.
- .5 Integrated systems to include:
 - .1 HVAC and associated systems forming part of integrated HVAC systems.
 - .2 Smoke control systems.
 - .4 Indoor air quality.
 - .5 Environmental space conditions.
 - .6 Fire alarm systems.
 - .8 Voice communications systems.
 - .9 Emergency power generator.

- .10 Transfer switch and controllers.
- .11 Emergency lighting systems.

1.16 CX SCHEDULES

- .1 Prepare detailed critical path Cx Schedule and submit to ONTC Representative for review and approval same time as project Construction Schedule. Include:
 - .1 Milestones, testing, documentation, training and Cx activities of components, equipment, subsystems, systems and integrated systems, including:
 - .1 Design criteria, design intents.
 - .2 Pre-TAB review: [28]days after contract award, and before construction starts.
 - .3 Cx agents' credentials: [30] days before start of Cx.
 - .4 Cx procedures: [28]days after award of contract.
 - .5 Cx Report format: [28]days after contract award.
 - .6 Discussion of heating/cooling loads for Cx: [28]days before start-up.
 - .7 Submission of list of instrumentation with relevant certificates: [28] days before start of Cx.
 - .8 Notification of intention to start TAB: [21] days before start of TAB.
 - .9 TAB: after successful start-up, correction of deficiencies and verification of normal and safe operation.
 - .10 Notification of intention to start Cx: [14] days before start of Cx.
 - .11 Notification of intention to start Cx of integrated systems: after Cx of related systems is completed [14] days before start of integrated system Cx.
 - .12 Identification of deferred Cx.
 - .13 Implementation of training plans.
 - .14 Cx of smoke management/control systems: after Cx of related systems is completed and [7] days before proposed date of Cx these systems.
 - .15 Cx stair shaft pressurization systems, if applicable: before issuance of occupancy certificate and at same time as emergency evacuation exercises.
 - .16 Cx reports: immediately upon successful completion of Cx.
 - .17 Emergency evacuation exercises: after [80]% occupancy and at same time as Cx of stair shaft pressurization systems, if applicable.
 - .2 Detailed training schedule to demonstrate no conflicts with testing, completion of project and hand-over to ONTC.

- .3 Cx schedule for verification of performance in all seasons and wear conditions.
- .2 After approval, incorporate Cx Schedule into Construction Schedule.
- .3 Contractor, Contractor's Cx agent, and ONTC Representative will monitor progress of Cx against this schedule.

1.17 CX REPORTS

- .1 Submit reports of tests witnessed and certified by ONTC Representative.
- .2 Include completed and certified PV reports in properly formatted Cx Reports.
- .3 Before reports are accepted, reported results to be subject to verification by ONTC Representative.

1.18 ACTIVITIES DURING WARRANTY PERIOD

- .1 Cx activities must be completed before issuance of Interim Certificate, it is anticipated that certain Cx activities may be necessary during Warranty Period, including:
 - .1 Fine tuning of HVAC systems.
 - .2 Adjustment of ventilation rates to promote good indoor air quality and reduce deleterious effects of VOCs generated by off-gassing from construction materials and furnishings.

1.19 TESTS TO BE PERFORMED BY OWNER/USER

.1 Full-scale emergency evacuation exercises.

1.20 TRAINING PLANS

.1 Refer to Section 01 79 00 - Demonstration and Training.

1.21 FINAL SETTINGS

.1 Upon completion of Cx to satisfaction of ONTC Representative, lock control devices in their final positions, indelibly mark settings marked and include in Cx Reports.

1.22 PAYMENTS FOR CX

.1 Contractor to include \$6,000.00 CDN as a cash allowance for Cx.

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 SUMMARY

- .1 Section Includes:
 - .1 Commissioning forms to be completed for equipment, system and integrated system.
- .2 Related Requirements
 - .1 Section 019113 -General Commissioning Requirements.

1.02 INSTALLATION/START-UP CHECK LISTS

- .1 Include the following data:
 - .1 Product manufacturer's installation instructions and recommended checks.
 - .2 Special procedures as specified in relevant technical sections.
 - .3 Items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.
- .2 Equipment manufacturer's installation/start-up check lists are acceptable for use. As deemed necessary by ONTC Representative supplemental additional data lists will be required for specific project conditions.
- .3 Use check lists for equipment installation. Document check list verifying checks have been made, indicate deficiencies and corrective action taken.
- .4 Installer to sign check lists upon completion, certifying stated checks and inspections have been performed. Return completed check lists to ONTC Representative. Check lists will be required during Commissioning and will be included in Building Maintenance Manual (BMM) at completion of project.
- .5 Use of check lists will not be considered part of commissioning process but will be stringently used for equipment pre-start and start-up procedures.

1.03 PRODUCT INFORMATION (PI) REPORT FORMS

- .1 Product Information (PI) forms compiles gathered data on items of equipment produced by equipment manufacturer, includes nameplate information, parts list, operating instructions, maintenance guidelines and pertinent technical data and recommended checks that is necessary to prepare for start-up and functional testing and used during operation and maintenance of equipment. This documentation is included in the BMM at completion of work.
- .2 Prior to Performance Verification (PV) of systems complete items on PI forms related to systems and obtain ONTC Representative's

approval.

1.04 PERFORMANCE VERIFICATION (PV) FORMS

- .1 PV forms to be used for checks, running dynamic tests and adjustments carried out on equipment and systems to ensure correct operation, efficiently and function independently and interactively with other systems as intended with project requirements.
- .2 PV report forms include those developed by Contractor records measured data and readings taken during functional testing and Performance Verification procedures.
- .3 Prior to PV of integrated system, complete PV forms of related systems and obtain ONTC Representative's approval.

1.05 CHANGES AND DEVELOPMENT OF NEW REPORT FORMS

- .1 Develop appropriate verification forms and submit to ONTC Representative for approval prior to use.
 - .1 Additional commissioning forms to be in same format.

1.06 COMMISSIONING FORMS

- .1 Use Commissioning forms to verify installation and record performance when starting equipment and systems.
- .2 Strategy for Use:
 - .1 Contractor's Commissioning Agent to prepare and use projectspecific Commissioning forms, approved by ONTC Representative.
 - .2 Contractor will provide required shop drawings information and verify correct installation and operation of items indicated on these forms.
 - .3 Confirm operation as per design criteria and intent.
 - .4 Identify variances between design and operation and reasons for variances.
 - .5 Verify operation in specified normal and emergency modes and under specified load conditions.
 - .6 Record analytical and substantiating data.
 - .7 Verify reported results.
 - .8 Form to bear signatures of recording technician and reviewed and signed off ONTC Representative.
 - .9 Submit immediately after tests are performed.
 - .10 Reported results in true measured SI unit values.
 - .11 Provide ONTC Representative with originals of completed forms.
 - .12 Maintain copy on site during start-up, testing and commissioning period.
 - .13 Forms to be both hard copy and electronic format with typed written results in Building Management Manual.

1.07 LANGUAGE

- .1 To suit the language profile of the awarded contract.
- 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 REFERENCE STANDARDS

- .1 ASTM International (ASTM):
 - .1 ASTM A153/A153M-[16a], Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware
 - .2 ASTM A307-[21], Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
 - ASTM A490M-[12], Standard Specification for High Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints [Metric]
 - .4 ASTM A653/A653M-[18], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - .5 ASTM A792/A792M-[21a], Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
 - .6 ASTM D523-[14], Standard Test Method for Specular Gloss
 - .7 ASTM D822-[13], Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
 - .8 ASTM F3125/F3125M-[22], Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength
- .2 CSA Group (CSA):
 - .1 CSA G40.20/G40.21-[13], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel
 - .2 CSA S16:[19], Design of Steel Structures
 - .3 CSA W59-[18], Welded Steel Construction (Metal Arc Welding)
- .3 Canadian Sheet Steel Building Institute (CSSBI):
 - .1 CSSBI 30M-[17], Standard for Steel Building Systems
 - .2 CSSBI Bulletin B15-[17A], Snow, Wind and Earthquake Load Design Criteria for Steel Building Systems
 - .3 CSSBI Sheet Steel Fact Sheet #3-[17], Care and Maintenance of Prefinished Sheet Steel Building Products
 - .4 CSSBI S8-[18]: Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products
- .4 Green Seal Environmental Standards (GS):
 - .1 GS-36-[13], Green Seal Standard for Adhesives for Commercial Use
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS):
 - .1 Safety Data Sheets (SDS)
- .6 The Master Painters Institute (MPI):
 - .1 Architectural Painting Specification Manual, current edition:

- .1 MPI #23, Oil Alkyd Primer
- .2 MPI #79, Alkyd. Anti-Corrosive for Metal
- .7 Sheet Metal and Air Conditioning Contractor's National Association (SMACNA):
 - .1 SMACNA 008-[2007], IAQ Guideline for Occupied Buildings under Construction
- .8 ULC Standards (ULC):
 - .1 CAN/ULC-S107:[2019], Standard Methods of Fire Tests of Roof Coverings

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, product literature and data sheets for metal building materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS SDS. Indicate VOC's:
 - .1 For sealant materials during application and curing.
 - .2 For adhesives.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
 - .2 Indicate on drawings related provisions required for mechanical, electrical and other work.
 - .3 Submit complete calculated thermal design analysis based on ASHRAE zone method or tests certified by independent analysis signed and sealed by professional engineer registered or licensed in Ontario, Canada.
 - .4 Submit erection drawings in accordance with CSSBI 30M as follows:
 - .1 Erection drawings showing foundation loads, anchor bolt setting details [part numbers, connections and assembly details].
 - .2 Submit description of methods and sequence of erection and type of equipment proposed for use in erecting structural frame.
 - .5 Indicate details including cuts, copes, connections, holes, threaded fasteners, rivets and welds. Indicate welds by CSA welding symbols.

.4 Certificates:

- .1 Submit certification that building is in accordance with Contract requirements.
- .2 Submit structural analysis certification of building system.
- .3 Submit certification stating design criteria used and loads

assumed in design, which places sole responsibility for design of building components with steel building systems manufacturer.

.5 Manufacturer's Site Reports: Submit manufacturer's written report to ONTC Representative within three (03) days of his review, verifying compliance of work.

.6 WARRANTY:

- .1 Provide a written guarantee, signed and issued in the name of the Owner, stating that the metal roofing systems will stay in place and remain watertight for a period of ten (10) years from the date of Substantial Completion of the work. The warranty will be ten (10) years covering the total costs of repairing any defective materials and workmanship and associated damages.
- .2 Tubular Frame: 20-year rust through warranty.
- .3 Sheeting and Trim: 10-year warranty.
- .4 Paint: 10-year warranty.

1.03 QUALITY ASSURANCE

- .1 Provide certification from steel building systems manufacturer that erector is qualified to erect system.
- .2 Site Meetings: as part of Manufacturer's Services, schedule site visits, to review work, at stages listed.
 - .1 After delivery and storage of products, and when preparatory work is complete but before installation begins.
 - .2 Twice during progress of Work at [25]% and [60]% complete.
 - .3 Upon completion of Work and after cleaning is carried out.

1.04 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 Common Product Requirements.
- .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 Protect prefinished steel sheet during fabrication, transportation, site storage and installation in accordance with CSSBI Sheet Steel Fact Sheet #3.
 - .2 Handle and protect galvanized materials from damage to zinc coating.
 - .1 During storage space surfaces of galvanized materials to permit free circulation of air.
 - .3 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .4 Store and protect metal building materials from nicks, scratches, and blemishes.

.4 Packaging Waste Management: Remove pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

2 PRODUCTS

2.01 DESIGN CRITERIA

- .1 Design steel building system to withstand dead loads and live loads including ceilings, mechanical and electrical systems, cranes if any, material handling systems, impact loads.
- .2 Calculate snow and ice loads for building area in accordance with National Building Code of Canada.
- .3 Ensure building is weathertight. Unprotected gaps be less than 3.0 mm, and all joints be sealed, overlapped with backing, or butt-jointed.
- .4 Provide for positive drainage to exterior of condensation occurring within wall construction and water entering at joints.
- .5 Design building enclosure elements to accommodate, by means of expansion joints, any movement in element itself and between element and building structure caused by structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, or water penetration.
- .6 Building elements to resist corrosion and water penetration.

2.03 MATERIALS

- .1 Structural Steel: To CSA G40.20/G40.21, coated to ASTM A153/A153M.
- .2 Welding materials: To CSA W59.
- .4 Shop Primer Paint: To MPI #23, or MPI #79.
- .5 Steel Sheet, Zinc-coated or Aluminum-zinc coated: To ASTM A653/A653M or ASTM A792/A792M, commercial quality.
- .7 Screws: Corrosion resistant purpose made, head colour to match attached sheet.
- .8 Plastic sealants and adhesives as recommended by plastics manufacturers.
- .9 Insulation Adhesive: Purposely made for insulation type and steel liner sheet, incombustible after initial set.
- .10 Vapour Barrier and Sealing Tape: As recommended by steel building systems manufacturer.
- .11 Sealants: as recommended by sealant manufacturer.

2.04 COMPONENTS

- .1 Wall System:
 - .1 Exterior sheet-wall: Factory preformed steel sheet, from manufacturer's standard profiles. Include closures, gaskets,

sealants, flashing and fasteners to effect weathertight installation.

- .1 Cut ends of sheets square and clean.
- .2 Exterior corners-wall: of material to match finish of adjacent cladding material, shop cut and brake formed to correct angle.
- .3 Accessories to exterior wall cladding, brake or bend to shape, of material and finish to match wall cladding, comprising cap flashings, drip flashings, internal corner flashings, copings and closures for head, jamb and sill corners.
- .4 Interior liner sheet-wall: factory preformed steel sheet, of manufacturer's standard profile, with interlocking side lap.
 - .1 Cut ends of sheets square and clean.
- .5 Sub-girts and clips: Factory preformed steel sheet.

.2 Roof System:

- .1 Exterior sheet-roof: To CSSBI S8, factory preformed steel sheet from manufacturer's standard profiles. Include closures, gaskets, sealants, flashing and fasteners to effect weathertight installation.
 - .1 Cut ends of sheets square and clean.
- .2 Accessories to roof cladding: brake or bend to shape, of material and finish to match roof cladding or wall cladding where applicable, comprising cap flashings, drip flashings, coping and closures for corners .
- .3 Sub-purlins and clips: factory preformed steel sheet.
- .4 If self framing truss type roof: Interior sheet-ceiling: Factory preformed steel sheet, of manufacturer's standard profile, with interlocking side lap.
 - .1 Install sealant material in interlocking lap.
 - .2 Cut ends of sheets square and clean.
- .5 Diagonal web members: Factory preformed steel sheet, shop cut and formed to profile [indicated] from manufacturer's standard.
- Gussets, lateral spacers: Factory preformed steel sheet, shop cut and formed to profile from manufacturer's standard.

2.05 FABRICATION

- .1 Fabricate structural members in accordance with approved shop drawings and to CSA S16.
 - .1 Tolerance to CSSBI 30M
- .2 Provide holes for attachment of other work, as indicated.
- .3 Reinforce openings to maintain design strength.

2.06 FINISHES

.1 Clean, prepare surfaces and shop prime structural steel to CSA S16,

except where members are zinc coated or zinc-aluminum alloy coated or are to be encased in concrete.

- .2 Colour to be confirmed by ONTC Representative, from manufacturer's standard range.
- .3 Coating thickness: not less than 22 micrometres.
- .4 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822.
- .5 Surface coatings and touch up coatings manufactured or formulated without aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium and their compounds will be acceptable for use on this project.
- .6 Touch-up paint: as recommended by manufacturer.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for metal building installation in accordance with manufacturer's written instructions.
 - .1 Inform ONTC Representative of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Manufacturer Engineer and ONTC Representative.

3.02 ERECTION

- .1 Do work in accordance with CSSBI 30M except where specified otherwise.
- .2 Erect structural frame in accordance with approved shop drawings and to CSA S16.
 - .1 Erection tolerances not to exceed those specified in CSSBI 30M.
- .3 Prepare galvanized structural steel surfaces for site welding by removing zinc before welding.
 - .1 After welding, chip away flux and prime to match.
- .4 Obtain written permission from the Designer and ONTC Representative before site cutting or altering of structural members.
- .5 Touch-up with shop primer bolts, rivets, welds and burned or scratched surfaces where exposed at completion of erection.
- .6 Indicate on drawings that the exterior wall cladding extends from the top of the foundation to the exterior wall top plate (track), the bottom chord of the roof truss, the intersection of the exterior wall and the soffit, or the bottom of a built-up roof deck.
- .6 Install wall cladding assemblies ensuring completed installation.

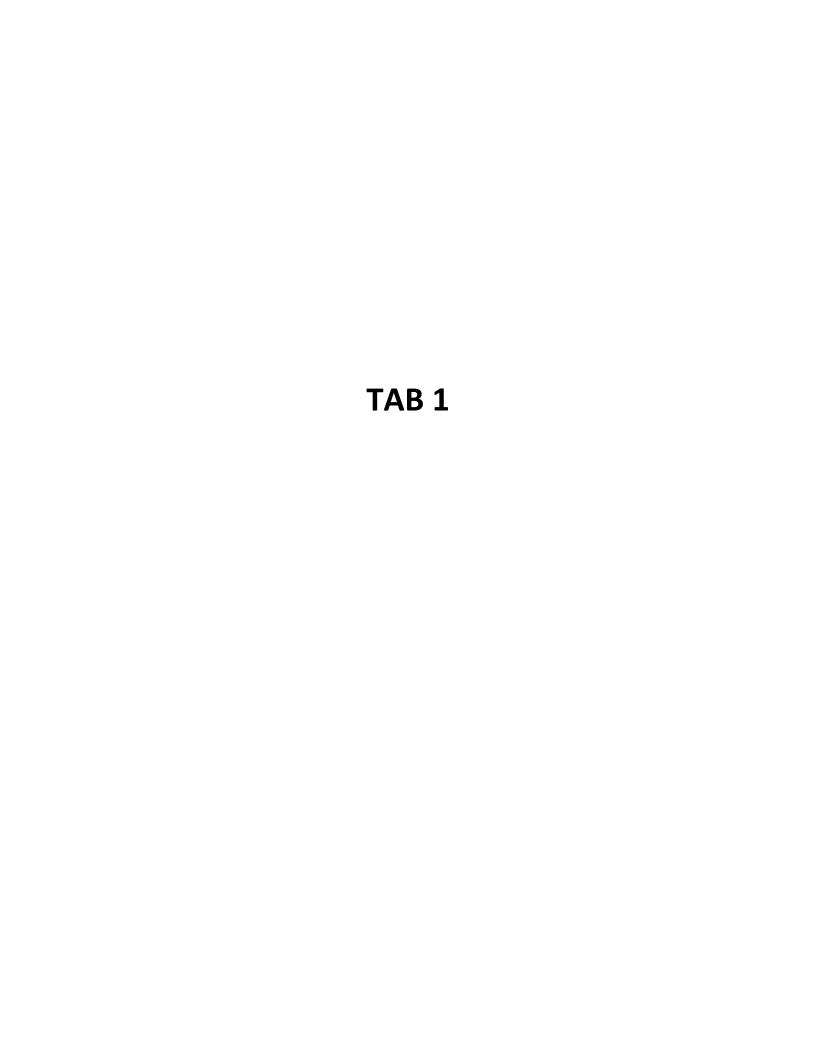
- .7 Secure sub-girts to structural wall supports.
- .8 Secure roof cladding sheets to structural purlins or beams.
 - .1 Terminate sheet ends over structural supports.
- .9 Secure side laps.
- .10 Cover, seal, overlap, back, or butt-joint all joints in the exterior wall cladding or related wall components with no unprotected gaps greater than 3.0 mm. Seal all openings and penetrations in the exterior wall cladding or related wall components with no gaps greater than 3.0 mm.
- .11 Continuously seal end and side laps.
- .12 Install roof assemblies, ensuring completed installation.
- .13 If self-framing truss type roof: Install interior ceiling and wall liner panels to ensure continuous vapour, air barrier.
- .14 Non-combustible flashings including drip edges, and non-combustible roof penetrating objects. Extend drip edges at least 75 mm upslope from edge of the roof. Seal gaps larger than 3.0 mm on the roof with a non-combustible material.
- .15 Install necessary closures, gaskets, sealants and flashings.
- .16 Install insulation and vapour retarder to maintain continuity of thermal and moisture protection to building elements and spaces.
- .17 Fit insulation closely around and behind electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .18 Keep insulation away from hot surfaces chimneys and gas vents.
- .19 Do not compress insulation to fit into spaces.
- .20 If self-framing truss type roof system: apply insulation in ceiling to form continuous thermal barrier in conjunction with vapour barrier formed by ceiling panels.
- .21 For roof system, ensure continuous vapour, air barrier seal by pre-caulking joints of ceiling panel.

3.03 SITE QUALITY CONTROL

- .1 Manufacturer's Services:
 - .1 Obtain written report from manufacturer verifying compliance of work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Site Reports as described in SUBMITTALS section.
 - .2 Provide manufacturer's site services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Schedule site visits, to review work, as per QUALITY ASSURANCE section.

PART 3 – RFP SPECIFICATIONS SCHEDULE 3-A-2 REFERENCE DOCUMENTS

TAB	1	-	Sketch Showing Topographic Information for the ONTC North Bay Shop Complex and Underground Drainage – Tulloch Geomatics Inc. – 2023
TAB	2	-	Geotechnical Investigation and Design Report – EXP – January 17, 2024
TAB	3	-	North Bay Yard Ownership
TAB	4	-	North Bay Main Stores Forklift Charging Station



SKETCH SHOWING TOPOGRAPHIC INFORMATION FOR THE ONTO NORTH BAY SHOP COMPLEX AND UNDERGROUND DRAINAGE TULLOCH GEOMATICS INC. 2023 THE INTENDED PLOT SIZE OF THIS PLAN IS 2159mm IN WIDTH BY 2159mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:1000. THE REPRODUCTION, ALTERATION, OR USE OF THIS SKETCH IN WHOLE OR IN PART WITHOUT THE EXPRESS PERMISSION OF TULLOCH GEOMATICS INC. O.L.S. IS STRICTLY PROHIBITED. TOPOGRAPHIC INFORMATION COLLECTED BETWEEN JULY 24 AND NOVEMBER 16, DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048. COORDINATE SYSTEM: UTM ZONE 17, NAD83 (CSRS) (2010.0) ELEVATION NOTE: ELEVATIONS SHOWN HEREON ARE GEODETIC, ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928 (CGVD28) AND ARE DERIVED FROM REAL TIME NETWORK (RTN) OBSERVATIONS CONTOURS SHOWN ON THIS PLAN ARE DERIVED FROM AIRBORNE LIDAR FLOWN ON AUGUST 4th, 2023. CONTOUR INTERVAL = 0.25m DRAINAGE INVERT NOTE: PLAN TO BE ACCOMPANIED BY PROJECT INVERT CALCULATION SHEET.
PLEASE SEE FILE 232577 ONTC INVERT COMPUTATION SHEET FOR INVERT GEOGRAPHIC LOCATION NOTE: PART OF THE GEOGRAPHIC TOWNSHIP OF WIDDIFIELD AND PART OF THE GEOGRAPHIC TOWNSHIP OF WEST FERRIS IN THE CITY OF NORTH BAY RW DENOTES RETAINING WALL
BLO DENOTES BUILDING
TF DENOTES TRAFFIC LIGHT
CLF DENOTES CHAINLINK FENCE PWF DENOTES POST AND WIRE FENCE BF DENOTES BOARD FENCE HP DENOTES HYDRO POLE

MW DENOTES MONITORING WELL

AN DENOTES POLE ANCHOR

HP DENOTES HYDRO POLE

BP DENOTES BELL POLE

LS DENOTES LIGHT STANDARD

RW DENOTES RETAINING WALL

CSP DENOTES CORRUGATED STEEL PIPE

CP DENOTES CONCRETE PIPE

PP DENOTES PLASTIC PIPE

HDPE DENOTES REINFORCED OPEN CONCRETE CULVERT

BOL DENOTES BOLLARD

SI DENOTES BOLLARD

SI DENOTES SIGN

RKO DENOTES STOCK PILE

FH DENOTES FIRE HYDRANT

WV DENOTES WATER VALVE

RWD DENOTES RAILWAY DERAILER

RSS DENOTES RAILWAY SIGN/SIGNAL

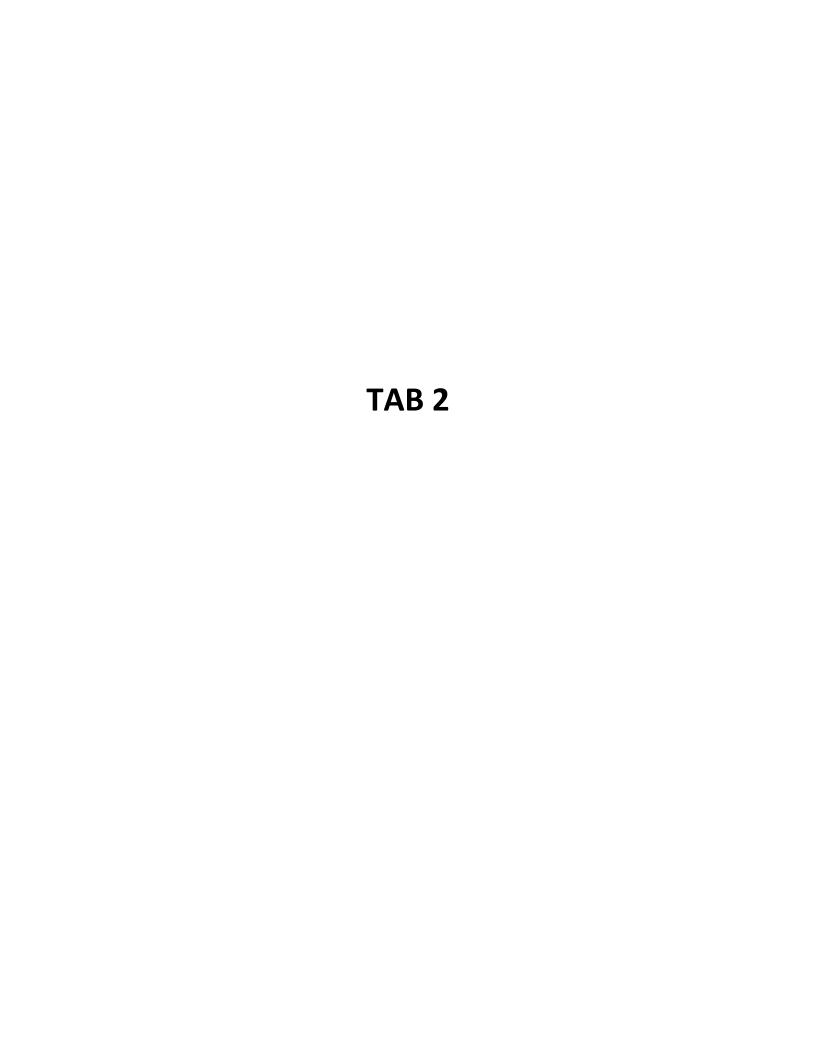
TP DENOTES TELEGRAPH POLE

SBGR DENOTES STEEL BEAM GUARD RAIL HP DENOTES HYDRO POLE SBGR DENOTES STEEL BEAM GUARD RAIL DI DENOTES DITCH INLET MH DENOTES MAINTENANCE HOLE CB DENOTES CATCH BASIN DENOTES TREE DENOTES RAILWAY TOP OF RAIL

DENOTES TREE LINE

X

DENOTES FENCE LINE <u>CAUTION</u>:
This is not a plan of survey and shall not be used except for the purpose indicated in the title block. THE PROPERTY BOUNDARIES ON THIS SKETCH HAVE BEEN COMPILED FROM FIELD SURVEY EFFORTS AND LAND REGISTRY PLANS AND HAVE NOT BEEN CONFIRMED. THIS SKETCH REPRESENTS THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION. THIS SKETCH WAS PREPARED FOR DISCUSSION PURPOSE ONLY AND ASSUMES NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND CONDUITS, PIPES OR OTHER FACILITIES WHETHER SHOWN OR OMITTED FROM THIS SKETCH. ALL UNDERGROUND FACILITIES SHOULD BE LOCATED BY THE RESPECTIVE AUTHORITIES PRIOR TO CONSTRUCTION.





Geotechnical Investigation and Design Report

Ontario Northland Transportation Commission

Type of Document:

Report

Project Name:

Proposed ONTC Butler Building Replacement 908 Worthington Street East North Bay, Ontario

Project Number:

SUD-23012250-B0

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Date Submitted:

2024-01-17

Table of Contents

1.	Introdu	ction	3
2.	Field In	vestigation	3
3.	Laborat	tory Testing	4
4.	Subsurf	face Conditions	4
	4.1	Site 1	4
	4.1.1	Fill Materials	4
	4.1.2	Cohesionless Soils	4
	4.1.3	Dynamic Cone Penetration Tests (DCPT)	5
	4.1.4	Refusal Depths	5
	4.1.5	Groundwater	5
	4.2	Site 2	6
	4.2.1	Fill Materials	6
	4.2.2	Cohesionless Soils	6
	4.2.3	Refusal Depths	6
	4.2.4	Groundwater	7
5.	Chemic	al Characterization of On-Site Soils	7
6.	Founda	tion Recommendations	8
	6.1	Discussion	8
	6.1.1	Site 1	8
	6.1.2	Site 2	8
	6.2	Strip or Spread Footings on Native Soils or Engineered Fill Overlying Native Soils	8
	6.3	Conventional Strip or Spread Footings on Bedrock	10
	6.3.1	Rock Dowels and Anchors	10
	6.4	Conventional Strip or Spread Footings on Engineered Fill Overlying Bedrock	11
	6.5	Floor Slab-on-Grade	11
	6.6	Backfill Recommendations	12
	6.7	Frost Considerations	12
	6.8	Lateral Earth Pressure	13
	6.9	Drainage	13



	6.10	Site Classification for Seismic Response	14
7.	Parking	Area/Access Road Recommendations	.14
8.	Buried S	Service Recommendations	.16
	8.1	Frost Protection	16
	8.2	Pipe Embedment and Bedding	16
	8.3	Excavated Soil and Trench Backfill	16
9.	Excavat	ions	.17
10	. Dewa	tering	.18
11	. Const	ruction Constraints Under Cold Weather Conditions	.18
12	. Const	ruction Quality Control	.19
13	. Desig	n Review	.19
14	. Limita	itions	19
15	. Closu	re	.20
Αp	pendix /	A - Drawing	.21
Αp	pendix I	3 – Borehole Logs	.22
Αp	pendix (C – Laboratory Testing	.23
Αp	pendix I	D – Certificates of Analysis	.24



Further to our Proposal Nos. 23/164/GP dated October 30, 2023, and 23/164/GPA dated November 27, 2023, and your subsequent authorization to proceed, EXP Services Inc. (EXP) has completed the field investigation and geotechnical engineering evaluation for the proposed Butler Building Replacement. Our comments and recommendations, based on the results of the field investigation and our understanding of the project scope, are provided in this report.

1. Introduction

It is understood by EXP that Ontario Northland Transportation Commission (ONTC) is proposing to replace an existing Old Maintenance and Water Building (Butler Building) and construct a new warehouse structure at their facility at 908 Worthington Street East in North Bay, Ontario

The proposed building will be a heated structure with a footprint of 30.5 x 91.4 m (100 x 300 ft) and no basement.

Two locations within the site are being considered for the proposed building. The first location, Site 1, is located at the existing Butler Building, which would be demolished to allow for construction of the new building. The second location, Site 2, is located at an existing laydown/storage area. Both site locations are shown on Dwg. No. A-1, included in Appendix A.

To assist with the design and construction of the proposed works, EXP has completed a geotechnical investigation at both proposed sites, with the results of the investigation and associated recommendations for each site included within this report.

2. Field Investigation

The field investigation for this project consisted of the advancement of five (5) sampled boreholes at accessible locations within the approximate building footprint at each proposed site, for a total of ten (10) boreholes. The borehole locations were determined in the field by EXP's geotechnical representative based on locations provided within the RFP. The borehole locations are shown on Dwg. No. A-1, included in Appendix A.

The sampled boreholes were advanced on December 13 and 14, 2023 using a power auger drill rig equipped with 200 mm diameter Hollow Stem Augers (HSA) to depths shown on the attached borehole logs, Figures B-2 to B-11, in Appendix B. Soil samples were obtained using a 51 mm (2 inch) outside diameter split spoon sampler in conjunction with Standard Penetration Tests (ASTM D1586), at depths noted on the attached borehole logs in Appendix B. The Standard Penetration Test (SPT) "N" values were recorded and used to provide an assessment of the in-situ compactness condition of the encountered soils. Dynamic Cone Penetration Test (DCPT) were also utilized to provide further assessment of the in-situ compactness conditions.

Groundwater levels were measured within the open boreholes upon completion. The boreholes were backfilled with auger cuttings and sealed with bentonite.

The retained soil samples were logged in the field and then carefully packaged and transported to our laboratory for detailed examination and testing.

The locations of the boreholes were determined in the field using a hand-held GPS unit. Elevations were surveyed to local, non-geodetic, temporary benchmarks (TBM). At Site 1, the TBM was established on the top of floor elevation at the bay door of the existing Butler building. At Site 2, the TBM was established at the top of an existing concrete pillar. The TBM locations are shown on Dwg. No. A-1, in Appendix A. Both TBMs were given a local, non-geodetic elevation of 100.0 m. The locations and elevations should be considered accurate only to the degree implied by the methods used for reference purposes of this report. They should not be used for detailed design purposes.



3. Laboratory Testing

A routine geotechnical laboratory testing program was performed on representative soil samples and consisted of moisture content determinations and grain/particle size analyses. The geotechnical laboratory test results are summarized on the attached borehole logs in Appendix B, with detailed results included in Appendix C.

In addition to the geotechnical laboratory testing, various samples were submitted to a CALA Certified Laboratory for general chemical characterization of the soils encountered at site as follows:

- Two (2) representative samples from each site were submitted for various testing including Bulk Metal and Inorganics, BTEX F1-F4, PAHs, and VOCs.
- One (1) worst-case sample for each site, determined by visual/olfactory observations, was submitted for TCLP (Metals and Inorganics) Analysis to determine soil re-use/disposal requirements.

The Certificates of Analysis for the additional testing are included in Appendix D.

4. Subsurface Conditions

Details of the soils encountered during the field investigation are summarized on the attached logs in Appendix B. The logs include textural descriptions of the subsoil and indicate the soil boundaries inferred from non-continuous sampling and observations during the field investigation. These boundaries reflect approximate transition zones for the purpose of geotechnical design and should not be interpreted as exact planes of geological change. When reading this report, the explanatory notes and definitions provided in Figures B-1A and B-1B in Appendix B should be referenced.

4.1 Site 1

Boreholes BH-1 to BH-5 were advanced at Site 1 at the locations shown on Dwg. No. A-1, included in Appendix A. The associated borehole logs are included on Figs. B-2 to B-6, in Appendix B.

In general, the boreholes encountered fill materials and native cohesionless soils.

4.1.1 Fill Materials

Fill materials were encountered at the surface of Boreholes BH-1 to BH-4. At BH-1 to BH-3, the fill materials extended to approximately 0.7 to 2.3 m depth. At BH-4, the fill materials extended to auger refusal on suspected bedrock at 0.9 m depth. The fill materials consisted of sands and gravels that were brown in colour and damp to wet. Uncorrected SPT "N" values within the fill materials ranged from 18 to 96 blows per 300 mm, classifying the fill as compact to very dense in compactness condition. Measured moisture contents within the fill materials ranged from 6 to 18%.

4.1.2 Cohesionless Soils

Native cohesionless sand and silt was encountered below the fill materials at Boreholes BH-1 to BH-3, and below a thin 25 mm thick topsoil layer at BH-5. At BH-1, the sand and silt extended to auger refusal at approximately 3.1 m depth. At BH-2, BH-3, and BH-5, the sand and silt layer ranged from 0.7 to 2.1 m in thickness. The sand and silt was brown to grey in colour, moist to wet, and contained trace gravel. Trace organics were encountered within the sand and silt just below the topsoil at BH-5. Uncorrected SPT "N" values within the sand and silt ranged from 24 to 53 blows per 300 mm, classifying the soil as compact to very dense in compactness condition. Measured moisture contents within the sand and silt ranged from 11 to 15%.



Underlying the sand and silt at Boreholes BH-2, BH-3, and BH-5 was native sand and gravel till that extended to auger refusal depths ranging from 3.0 to 3.5 m. The till was brown to grey in colour, wet, and contained some silt. Uncorrected SPT "N" values within the till ranged from 24 to 80 blows per 300 mm, classifying the till as compact to very dense in compactness condition. Measured moisture contents within the till ranged from 11 to 13%.

4.1.3 Dynamic Cone Penetration Tests (DCPT)

Dynamic Cone Penetration Tests (DCPT) were advanced from the auger refusal depth of 3.7 m at Borehole BH-3 and from surface at BH-5. At BH-3, the DCPT values ranged from 25 to 43 blows per 300 mm, suggesting the compact to dense soils extend beyond the auger refusal depth. The DPCT at BH-3 encountered refusal on suspected bedrock or very dense soils at 6.3 m depth. At BH-5, the DCPT values ranged from 20 to 68 blows per 300 mm and were generally consistent with the SPT "N" values within the borehole. The DPCT at BH-5 encountered refusal on suspected bedrock or very dense soils at 3.0 m depth.

4.1.4 Refusal Depths

Auger and/or DCPT refusal was encountered at Boreholes BH-1 to BH-5 as summarized on Table 4-1 below. Note that coring procedures did not form part of the scope of work and as such, the presence of bedrock could not be confirmed. Refusal notes are based on observations during drilling/DCPT advancement.

Table 4-1: Refusal Depths – Site 1

Borehole No.	Local Surface Elevation (m)	Depth to Refusal (m)	Local Refusal Elevation (m)	Notes
BH-1	99.57	3.4	96.1	DCPT refusal on suspected bedrock
BH-2	99.60	3.5	96.2	Auger refusal on suspected bedrock
ВН-3	98.93	6.3	92.6	DCPT refusal on suspected bedrock or very dense soils
BH-4	98.97	0.9	98.1	Auger refusal on suspected bedrock
BH-5	99.54	3.0	96.5	Auger and DCPT refusal on suspected bedrock or very dense soils

4.1.5 Groundwater

Borehole BH-4 was dry upon completion, however, shallow refusal at 0.9 m depth was encountered at this borehole. Groundwater was encountered within the remaining boreholes upon completion at depths ranging from 0.9 to 1.5 m. Seasonal variations in the water table should be anticipated, with higher levels occurring during wet weather conditions (spring thaw and late fall) and lower levels occurring during dry weather conditions.



4.2 Site 2

Boreholes BH-6 to BH-10 were advanced at Site 2 at the locations shown on Dwg. No. A-1, included in Appendix A. The associated borehole logs are included on Figs. B-7 to B-11, in Appendix B.

In general, the boreholes encountered fill materials and native cohesionless soils.

4.2.1 Fill Materials

Fill materials were encountered at the surface of Boreholes BH-6 and BH-8 to BH-10. The fill extended to auger refusal on suspected bedrock at BH-8 and BH-9 at 1.6 m and 2.4 m depth, respectively. The fill extended to 3.8 m and 2.3 m depth at BH-6 and BH-10, respectively. The fill materials consisted of brown gravelly sand with trace silt. Trace organics and concrete were encountered within the fill at Borehole BH-6 below 0.8 m depth. At BH-10, occasional cobbles and boulders were encountered within the fill below 1.5 m depth. The fill materials were generally damp, becoming moist to wet with depth. Uncorrected SPT "N" values within the fill generally ranged from 2 to 22 blows per 300 mm, classifying the fill as very loose to compact in compactness condition. A higher blow count of 51 blows per 300 mm was encountered at BH-10, however, the higher blow count was likely due to encountered boulders and cobbles. Measured moisture contents within the fill ranged from 8 to 33%.

4.2.2 Cohesionless Soils

Native cohesionless gravelly sand to sand and gravel was encountered below the fill materials at BH-6 and BH-10, and below a thin 50 mm thick layer of topsoil at BH-7. At BH-7, the gravelly sand is considered possible fill, however, could not be confirmed based on observations of the soils. The cohesionless soils extended to auger refusal on suspected bedrock or very dense soils at 2.1 to 4.4 m depth. The soils were brown and black in colour, damp to wet, and contained some silt. Trace organics were encountered within the cohesionless soils at BH-6 and BH-10. Uncorrected SPT "N" values within the cohesionless soils ranged from 5 to 50 blows per 300 mm, classifying the soil as loose to very dense in compactness condition. Measured moisture contents within the soil ranged from 8 to 31%.

4.2.3 Refusal Depths

Auger refusal was encountered at Boreholes BH-6 to BH-10 as summarized on Table 4-2 below. Note that coring procedures did not form part of the scope of work and as such, the presence of bedrock could not be confirmed. Refusal notes are based on observations during drilling.

Table 4-2: Refusal Depths - Site 2

Borehole No.	Local Surface Elevation (m)	Depth to Refusal (m)	Local Refusal Elevation (m)	Notes		
вн-6	100.38	4.4	96.0	Auger refusal on suspected bedrock or very dense soils		
BH-7	100.59	2.1	98.5	Auger refusal on suspected bedrock		
BH-8	99.64	1.6	98.0	Auger refusal on suspected bedrock		
BH-9	100.94	2.4	98.6	Auger refusal on suspected bedrock		
BH-10	100.36	3.4	97.0	Auger refusal on suspected bedrock		



4.2.4 Groundwater

Groundwater was encountered at Borehole BH-6 upon completion at 3.1 m depth. The remaining boreholes were dry upon completion. Seasonal variations in the water table should be anticipated, with higher levels occurring during wet weather conditions (spring thaw and late fall) and lower levels occurring during dry weather conditions.

5. Chemical Characterization of On-Site Soils

As quantities of excavated materials are unknown at this stage for either site, detailed Excess Soils Analyses cannot be completed at this stage. However, chemical analyses were completed for general chemical characterization of the soils to provide <u>preliminary</u> comments related to reuse and/or disposal of excavated materials.

The results of the chemical analyses completed at the site are included in Appendix D, with comments and recommendations noted below. The comments recommendations outlined below are based on the results of the limited sampling and testing completed by EXP only and are considered preliminary.

Two samples from each site were submitted for O.Reg. 153(511) analysis including Bulk Metal and Inorganics, BTEX F1-F4, PAHs, and VOCs. The results of the analyses are attached in Appendix D. The results of the analysis were compared to Table 3 Full Depth Generic Site Condition Standards in a non-potable groundwater condition, for an Industrial/Commercial use property, from Part XV.1 of the Environmental Protection Act. This was deemed to be the appropriate Table applicable to the site. The results from Site 1 were below the standards of Table 3 and as such, excavated materials can be re-used on site. The results from Site 2 indicate exceedances above the standards of Table 3 for Arsenic, Cadmium, Copper, Lead, and Zinc. As such, excavated soils from Site 2 cannot be reused on site.

A toxicity characteristic leaching procedure (TCLP) analysis was completed for various metals and inorganics parameters in accordance with O.Reg. 406. The test was performed on one worst-case sample for each site, determined by visual/olfactory observations. The results of the analyses are attached in Appendix D. At Site 1, the results of the leachate analysis for metals and inorganics do not exceed the limits specified on the various tables in O.Reg. 406 Appendix 2 for industrial/commercial sites. For Site 2, the results of the leachate analysis for metals and inorganics indicate exceedances for various parameters depending on the applicable table from O.Reg. 406, particularly Copper. As such, excavated soils from Site 2 will need to be disposed of at a registered facility capable of accepting this material.

It should be noted that receiving sites may require additional testing prior to acceptance of any materials.



6. Foundation Recommendations

Please note that the proposed foundation design and loading conditions and final site grades have not been provided to EXP at the time of this report. EXP should be retained to review the final design and specifications to confirm that they are in general agreement with the assumptions on which our recommendations are based. If not accorded the privilege of making this review, EXP will assume no responsibility for interpretation of the recommendations in this report.

6.1 Discussion

A summary of the soil conditions encountered within the boreholes for each site is as follows:

6.1.1 Site 1

- The soil conditions generally consisted of fill materials extending to refusal on suspected bedrock or overlying compact to very dense native cohesionless soils.
- Shallow refusal was encountered at each borehole at depths ranging from 1.6 to 4.4 m.
- Groundwater was encountered at 3.1 m depth at Borehole BH-6, however, was not encountered within the remaining boreholes. Samples, however, were generally wet at depth.

Based on the encountered soils conditions, shallow foundations bearing on native soils, or engineered fill overlying native soils, should be possible at this site. All in-situ fill materials will need to be removed down to native soils prior to placing engineered fill or constructing foundations. Based on encountered groundwater depths within the boreholes, dewatering should be anticipated during excavations at this site. Suspected bedrock depths appear to be highly variable, encountered as shallow as 0.9 m depth, which may affect the design and construction of the foundation. Some foundation may need to bear on bedrock or engineered fill overlying bedrock or bedrock removal may be required. As noted previously, coring procedures did not form part of the scope of work and as such, the presence of bedrock could not be confirmed.

6.1.2 Site 2

- The soil conditions generally consisted of fill materials overlying compact to dense native cohesionless soils.
- Refusal depths were variable, ranging from 0.9 to 6.3 m depth.
- Groundwater was fairly shallow at depths ranging from 0.9 to 1.5 m.

Based on the encountered soils conditions, shallow foundations bearing on bedrock, native soils, or engineered fill overlying native soils, should be possible at this site. All in-situ fill materials will need to be removed down to native soils prior to placing engineered fill or constructing foundations. Based on encountered groundwater depth BH-6, dewatering should be anticipated during excavation near this location to remove the in-situ fill materials. As noted previously, coring procedures did not form part of the scope of work and as such, the presence of bedrock could not be confirmed.

6.2 Strip or Spread Footings on Native Soils or Engineered Fill Overlying Native Soils

Conventional strip or spread foundations bearing on undisturbed compact to dense native cohesionless soils, or engineered fill overlying native soils, can be designed with a factored geotechnical resistance at Ultimate Limit States (ULS) of 150 kPa, calculated using a geotechnical resistance factor of 0.5. A bearing pressure at Serviceability Limit States (SLS) of 100 kPa may be used. Footings designed with the recommendations contained herein are expected to settle less than 25 mm total and 20 mm differential.



Prior to placing any engineered upfill or concrete, all in-situ fill, organics, or other deleterious materials must be removed down to native soils or bedrock. Exposed subgrades must be proof rolled to identify any soft or unstable areas. The exposed subgrade and proof rolling are to be inspected by a representative from EXP prior to placing fill materials or concrete. Any soft or loose areas encountered below the foundation locations or any areas that are subject to softening/loosening when exposed to water and construction activities should be excavated down to a firm subgrade and replaced with Granular "A" or Granular "B" Type II in accordance with Ontario Provincial Standards and Specifications (OPSS) 1010. If wet soil conditions are present during construction, a non-woven geotextile separator (Terrafix 270R or equivalent) is to be used between the subgrade soils and any engineered fill.

Where engineered fill is to be placed below the foundations, it is to extend horizontally a minimum of 300 mm beyond the edges of the foundation and slope down to the native soils (or bedrock) at 1H:1V to ensure the foundation loads are properly transferred to the underlying subgrade. All engineered fill is to consist Granular "B" Type I or Type II in accordance with OPSS 1010. A final 150 mm thick layer of Granular "A" (OPSS 1010) should be placed directly below the foundations. All engineered fill must be placed in maximum 150 mm thick lifts and be compacted to 100% Standard Proctor Maximum Dry Density (SPMDD) within 1.5% of optimum moisture content. Engineered fill placement and compaction below foundations is to be continuously monitored on a full-time basis by a qualified geotechnical representative from EXP.

The location of any foundation on an engineered soil pad is critical and certification by a qualified surveyor that the foundations are within the stipulated boundaries is mandatory. Since layout stakes are often damaged or removed during fill placement, offset stakes must be installed and maintained by the surveyors during the course of fill placement so that the contractor and engineering staff are continually aware of where the engineered fill limits lie.

Foundations which are to be placed at different elevations in soils or near service trenches should be located such that the footings are set below a line drawn up at 10 horizontal to 7 vertical from the near edge of a lower foundation or bottom of a service trench, as indicated on Figure 6-1 below.

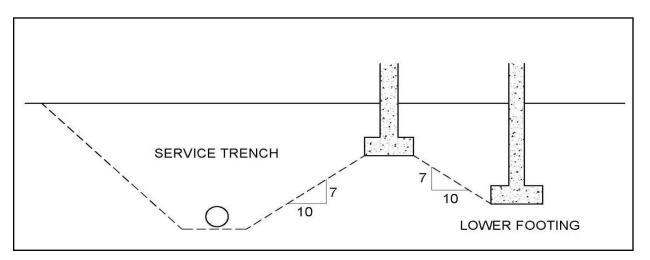


Figure 6-1: Footings near Service Trenches or at Different Elevations

These foundation recommendations do not account for loadings from heavy machinery or vibrations. Strip and spread footing widths must comply with minimum Code requirements.



6.3 Conventional Strip or Spread Footings on Bedrock

Shallow foundations bearing on bedrock can be designed with a factored geotechnical resistance at Ultimate Limit States (ULS) of 1.0 MPa. A geotechnical resistance factor of 0.5 has been applied to determine this value. Serviceability Limit States (SLS) design does not apply for footings bearing directly on bedrock as failure of the concrete would occur before unacceptable settlement of the foundation. For footings bearing directly on bedrock, settlements will be negligible.

The recommended geotechnical resistance above assumes that all foundation concrete is established on sound unweathered rock, which has been cleaned of all loose debris and rock shatter using air hose or water jetting procedures. Footings should be placed on fairly level bedrock (i.e. sloping less than 10° from the horizontal). In some instances, lightly loaded spread footings may be placed on bedrock sloping up to 25° to 30° from the horizontal as long as rock dowels are incorporated into the design to ensure sufficient resistance against sliding. As an alternative to levelling the bedrock surface by mechanical or blasting techniques, where the bedrock is irregular with erratic changes in profile, ledges, crevices, etc., the footing beds may be levelled by benching over these areas with mass concrete (min. 20 MPa compressive strength), anchored into the bedrock where the overall slope of the bedrock across the base of the foundation exceeds 10°. Typically, this decision is made on-site, depending on site specific bedrock conditions.

All bedrock surfaces must be reviewed by EXP prior to pouring foundation concrete. This is necessary to verify the assumed foundation bearing conditions and review the foundation construction procedures, bedrock slope, etc.

Strip and spread footing widths must comply with the Ontario Building Code minimum requirements.

6.3.1 Rock Dowels and Anchors

If rock anchors or dowels are required, the structural engineer normally designs the length and diameter of the steel anchors/dowels for footings, based on the type of bedrock and its strength parameters. Rock anchors can also be used to support the utility poles (guy anchors).

For bedrock in the North Bay area, failure typically occurs between the dowel and the grout, or between the grout and the rock, and not from a quasi-conical rock mass failure, provided sufficient dowel bond lengths have been designed. Empirical methods of analysis, such as pull-out tests have shown that the bond developed between the grout and the dowel are typically twice that of the bond developed between the grout and the bedrock. Therefore, the design analysis should be based on failure occurring between the grout and the bedrock interface. For straight-shafted dowels, the anchor force, which can be developed, is dependent on the ultimate bond stress of the bedrock or the grout material.

The ultimate bond stress is typically taken as 10% of the unconfined compressive strength of the bedrock or the compressive strength of the grout material, whichever is less, but not more than 3.0 MPa. As unconfined compressive strengths are generally quite high for bedrock in the area, 3.0 MPa should be used for the ultimate bond stress assuming a minimum 30 MPa grout is used. The allowable bond stress, " τ_b " taken between the rock and the grout is normally 50% or less of the ultimate bond stress, (i.e. Safety Factor of 2.0 for competent rock in the Creighton area).

The required bond length (L, in metres) for the anchor is a function of the core hole diameter (d), and can be calculated as follows:

 $L = P / (\pi \times d \times \tau_b)$

where

P = working capacity of anchor (kN)

 τ_b = working bond stress

d = core hole diameter (m)



The upper 300 mm of the bedrock is not normally considered part of the bond length, since this area is usually weathered/fractured, and as a result does not usually develop the ultimate bond stress assumed in the above calculations.

During construction, pullout tests equal to the design loads must be performed by a qualified geotechnical engineer to confirm the strength of the anchors. This work can be performed on a representative number of anchors by EXP.

6.4 Conventional Strip or Spread Footings on Engineered Fill Overlying Bedrock

Conventional strip or spread footings, or thickened edge slab-on-grade foundations, bearing on engineered fill overlying bedrock may be designed for a factored geotechnical resistance at Ultimate Limit States (ULS) of 300 kPa and a geotechnical reaction at Serviceability Limit States (SLS) of 200 kPa, subject to inspection during construction. A geotechnical resistance factor of 0.5 was utilized for the ULS values. With a geotechnical reaction at SLS of 200 kPa, anticipated settlements would be less than the typically acceptable level of 25 mm total.

Prior to engineered fill placement, all in-situ fill, overburden soils, and any other deleterious materials are to be removed down to bedrock. All required up fill beneath the foundations is to consist of a Granular "B" Type II in accordance with Ontario Provincial Standards Specifications (OPSS) 1010. A final 300 mm thick layer of Granular "A" (OPSS 1010) should be placed directly below the foundation. All fill material should be placed in maximum 150 mm thick lifts and be compacted to 100% of the Standard Proctor Maximum Dry Density (SPMDD) within 1.5% of the optimum moisture content. The minimum required thickness of the engineered fill pad is 300 mm.

The engineered fill pad is to extend laterally a minimum of 300 mm beyond all edges of the foundations and then slope down at a slope of one horizontal to one vertical (1H:1V) to the bedrock surface. Engineered fill placement is to be completed under the full-time supervision of EXP to ensure that the recommendations contained herein are met.

All bedrock surfaces must be reviewed EXP prior to placing engineered fill. This is necessary to verify the assumed foundation bearing conditions and review the foundation construction procedures, bedrock slope, etc. Upon exposing the bedrock, if large slopes are observed along the edges of the engineered fill pad or under the proposed structures, it may be required to bench the sloping bedrock to ensure the stability of the fill.

Foundations which are to be placed at different elevations on engineered fill or near service trenches should be located such that the footings are set below a line drawn up at 10 horizontal to 7 vertical from the near edge of a lower foundation or bottom of a service trench, as indicated on Figure 6-1.

Strip and spread footing widths must comply with the Ontario Building Code minimum requirements.

6.5 Floor Slab-on-Grade

Floor slab-on-grade construction will be possible at this provided that all fill materials, organics, and any other deleterious materials are removed down to competent native soils or bedrock.

Subgrade soils should be proof-roll compacted in the presence of EXP prior to placing any engineered fill. Any soft areas encountered during proof-rolling should be excavated and replaced with Granular "A" or "B" Type II (OPSS 1010) material. Once the subgrade is prepared, all required up-fill material is to consist of Granular "B" Type I or II (OPSS 1010). If wet soil conditions are present during construction, a non-woven geotextile separator (Terrafix 270R or equivalent) should be placed between the subgrade soils and any upfill material to stabilize the native soils.



Exposed bedrock surfaces are to be reviewed by EXP and should be cleaned of all loose debris and rock shatter using air hose or water jetting procedures. There should be a minimum 300 mm clearance between any bedrock surface and the underside of the floor slab. Once the subgrade is prepared, all required up-fill material is to consist of Granular "B" Type I or II (OPSS 1010).

A final 300 mm thick layer of 19 mm minus clearstone (OPSS 1004) or Granular "A" (OPSS 1010) should be placed directly below the floor slab-on-grade combined with an appropriate moisture barrier such as a polyethylene membrane. All fill material below the floor slab-on-grade should be placed in maximum 150 mm thick lifts and be compacted to 100% of the SPMDD within 1.5% of the optimum moisture content.

6.6 Backfill Recommendations

All imported backfill material used to backfill foundation walls should consist of Granular "B" Type I or Granular "B" Type II (OPSS 1010) material, with a maximum aggregate size not exceeding 120 mm. The Granular "B" material must be placed in lifts no greater than 150 mm in thickness and must be compacted to 98% of the SPMDD. Care must be taken to ensure damage to the foundation walls does not occur.

6.7 Frost Considerations

The freezing index in the North Bay area is approximately 1,175 C degree-days. There is potential for up to 2.0 m of frost penetration to occur over the winter months in unprotected, unheated areas and 1.6 m for heated structures. For a structure to be considered heated, a minimum interior temperature of 18° C must be maintained throughout the year.

Foundations for unheated structures should be provided with a minimum of 2.0 m of earth cover frost protection and heated structures should be provided with 1.6 m of earth cover frost protection. Where sufficient earth cover frost protection is not provided for the foundations, insulation would be required. Insulation should consist of rigid extruded polystyrene, have a minimum compressive strength of 275 kPa, and an R-Value of 5 for every 25.4 mm of thickness, (i.e. Styrofoam HIGHLOAD 40). Any exposed insulation is to be protected against sunlight and physical damage. A rough estimate for cost evaluation purposes can be made by assuming that 25.4 mm of rigid insulation designed for below grade installation is equivalent to 300 mm of soil cover. Note that insulation for heated structures should be placed both horizontally and vertically along the outside edge of the foundation. Insulation for unheated structures must extend below the entire foundation. Higher compressive strength insulation (i.e. Styrofoam HIGHLOAD 60 or 100, etc.) may be required if insulation extends below foundations, depending on foundation loading conditions.

Detailed insulation recommendations can be provided by EXP, if necessary, once the final foundation designs have been determined.



Project Number: SUD-23012250-B0

Date: January 17, 2024

6.8 Lateral Earth Pressure

Any foundations or retaining structures should be designed to resist lateral earth pressure. The expression for calculating lateral earth pressure "p" at any depth "h" is given by the following:

	р	=	$K(\gamma h + q) + \gamma_w h_w$
where	р	=	Lateral earth pressure (kPa)
	K	=	Coefficient of earth pressure
	γ	=	Unit weight of backfill (kN/m³)
	γ_{w}	=	Unit weight of water (kN/m³)
	h	=	Depth to point of interest (m)
	h_w	=	Depth of water above point of interest (m)
	q	=	Surcharge load acting adjacent to the wall at the ground surface (kPa)

Table 6-1, below, list various earth pressure properties for given materials.

Table 6-1: Earth Pressure Properties

Material	Friction Angle ø' (unfactored)	Coefficient of Active Earth Pressure (k _a)	Coefficient of Passive Earth Pressure (k _p)	Coefficient of Earth Pressure at Rest (k _o)	Unit Weight γ (kN/m³)
Granular "A"	38°	0.24	4.2	0.38	22
Granular "B" Type I	35°	0.27	3.7	0.43	21
Granular "B" Type II	38°	0.24	4.2	0.38	21

Note: Values given for horizontal earth pressures are for horizontal backfill. For sloping backfill, the design requirements outlined in the Canadian Foundation Engineering Manual should be used.

The mobilization of full active or passive resistance requires a measurable and perhaps significant wall movement or rotation. Therefore, unless the structural element can tolerate these deflections, the at-rest earth pressure should be used in design.

The effects of compaction surcharge should be taken into account in the calculations of active and at rest earth pressures. The lateral pressure due to compaction should be taken as at least 12 kPa at the surface, and its magnitude should be assumed to diminish linearly with depth to zero at the depth where the active (or at rest) pressure is equal to 12 kPa. This pressure distribution should be added to the calculated active (or at rest) pressure. Notwithstanding, lighter compaction equipment and smaller lifts should be used adjacent to walls to prevent overstressing.

6.9 Drainage

Undated: 2024-01-17

The exterior grade around buildings should be sloped away from the walls to prevent surface runoff from entering the building. Permanent perimeter weeping tile should be installed where any floor is less than 150 mm above final grade and is required to be dry. The drainage tile should have a minimum diameter of 100 mm and be surrounded by well-draining filter material (i.e. 20 mm clearstone gravel). The filter material should be surrounded with a non-woven geotextile. The perforated drainage tile should drain to a suitable drainage area or interior sump. Any subsurface walls should be adequately damp-proofed above the water table and waterproofed below the water table. The roof drains should discharge away from the building to appropriate drainage areas.



6.10 Site Classification for Seismic Response

The Site Classification for Seismic Response has been estimated based on the boreholes advanced at the site. As the Site Classification for Seismic Response is based on soil conditions in the upper 30 m, assumptions were made by EXP for the soil conditions below the borehole termination depths.

Based on EXP's assumptions, the site is classified as Site Class D as per the OBC clause 4.1.8.4, Site Properties and Table 4.1.8.4 A, Site Classification for Seismic Response for footings on native soils or engineered fill. For footings directly on bedrock, a Site Class C is available.

These earthquake/seismic design parameters should be reviewed in detail by the structural engineer and incorporated into the design as required. As this site class is based on an assumption of the soil conditions, the site class may not be sufficient, and it may result in an overdesign of the structure.

If a precise Site Classification is required based on shear wave velocity testing, EXP can provide a quote to perform the necessary testing. Shear wave velocity testing by means of Multi-channel Analysis of Surface Waves (MASW) utilizing surface geophones over an area of 30 m (100 ft) in diameter would suffice to provide a precise Site Classification.

7. Parking Area/Access Road Recommendations

The recommended roadway designs for both light traffic and heavy traffic areas are provided on Tables 7-1 (granular surface) and 7-2 (asphalt surface) below. The recommended pavement structures outlined below assume adequate provision for drainage.

Table 7-1: Recommended Roadway Structure

Layer	Light Traffic or Parking Areas	Heavy Traffic or Loading Areas
Base	200 mm Granular "A"	200 mm Granular "A"
	450 mm Granular "B" Type II	600 mm Granular "B" Type II
Subbase	Or	Or
	600 mm Granular "B" Type I	750 mm Granular "B" Type I



Table 7-2: Recommended Asphalt Pavement Structure

Layer	Light Traffic or Parking Areas	Heavy Traffic or Loading Areas			
Asphalt	50 mm HL4 or SP 12.5 Surface Course	40 mm HL4 or SP 12.5 Surface Course 50 mm HL8 or SP 19.0 Binder Course 90 mm Total Thickness			
Base	150 mm Granular "A"	150 mm Granular "A"			
Subbase	450 mm Granular "B" Type II Or 600 mm Granular "B" Type I	600 mm Granular "B" Type II Or 750 mm Granular "B" Type I			

A conventional asphalt pavement structure will typically have a functional service life of 12 years. This represents the number of years to the first rehabilitation (via overlay or resurfacing), assuming that regular maintenance and crack sealing is completed. Subsequent resurfacing is typically expected to last at least 10 years.

The roadway granular base and sub-base materials must be in accordance with OPSS 1010 and must be placed in maximum 150 mm lifts and compacted to 100% of the Standard Proctor Maximum Dry Density (SPMDD) at a moisture content within 2.0% of the optimum moisture content.

The long-term performance of pavement structures is highly dependent upon the sub-grade support conditions. Stringent construction control procedures should be maintained to ensure that uniform sub-grade moisture and density conditions are achieved. In addition, the need for adequate drainage cannot be overemphasized. The finished surface and underlying sub-grade must be sloped to provide effective drainage to catchbasins, ditching, and/or subdrains etc.

Surface water should not be allowed to pond along the outside edges of paved areas. Sub-drains should be installed to intercept excess subsurface moisture and prevent sub-grade softening.

Additional comments on the construction of the pavement structures are as follows:

- Any subgrade soils should be proof-roll compacted prior to placing any engineered fill. Any soft areas encountered during proof-rolling should be excavated and replaced with a Granular "A" or Granular "B" Type II (OPSS 1010) material.
- If ditches are utilized, they should have inverts of at least 600 mm below the bottom of the sub-base.
- The most severe loading conditions on a soil pavement structure sub-grade usually occur during construction.
 Consequently, special provisions such as additional granular sub-base, may be required, especially if construction is completed during unfavorable weather conditions over native soils. Typically, the first lift of engineered fill is placed with a thickness of 300 mm prior to vibratory compaction to mitigate disturbance of the sub-grade soils.
- If wet soil conditions are present during construction, a non-woven geotextile separator (Terrafix 270R or equivalent) should be placed between the subgrade soils and any upfill/pavement structure material to stabilize the native soils.



8. Buried Service Recommendations

Recommendations for any proposed buried services are included in the following sections.

8.1 Frost Protection

Protection against freezing is an integral part of a sewer and water system design. The standard solution calls for burying the top of the utility lines in the ground below the anticipated frost penetration depth (2.0 m in the North Bay Area). Where this cannot be achieved, an alternate solution involves incorporating rigid polystyrene insulation (i.e. Styrofoam HIGHLOAD-40), which can be used to reduce the depth of trench required. The two design configurations frequently used are horizontal placement, and the inverted "U". Both of these methods require suitable design, as well as correct construction procedures. Installing insulation does not alter conventional utility line construction practice to an appreciable extent. However, in some cases, a wider trench may be required to accommodate the horizontal layer of insulation. Another option is to use pre-insulated pipe.

A rough estimate for cost evaluation can be made by assuming that 25 mm of rigid insulation designed for below grade installation is equivalent to 300 mm of soil cover. This and any other design values should, however, be confirmed with the insulation manufacturer.

Maintaining compatibility with adjacent subgrade conditions should minimize annual differential frost heaving. This is usually accomplished by backfilling the service trenches with materials matching the surrounding soils. Another approach to minimizing the annual differential heaving of subgrade soil is to construct frost tapers in conformance with Ontario Provincial Standards Drawing (OPSD) 803.030 and/or 803.031. The same amount of heaving will occur whether a frost taper is installed, or the trench is backfilled with excavated material. However, the heaving of a frost taper is spread across the length of the taper causing the differential heaving to be less abrupt.

8.2 Pipe Embedment and Bedding

All fill materials, organics, and deleterious material are to be removed down to competent native soils prior to placement of the bedding material. Pipe bedding requirements as outlined in the OPSD 802.010 or 802.013 for flexible pipes and OPSD 802.031, 802.032, and 802.033 for rigid pipes will be sufficient for sanitary, storm and watermain pipes. The pipe bedding should consist of a Clear Stone gravel (OPSS 1004) or Granular "A" material (OPSS.MUNI 1010) with a minimum thickness of 150 mm beneath the pipe and raised to the pipe springline. The granular bedding should be placed in lifts not exceeding 150 mm and compacted to 98% of the material's SPMDD. Particular care should be taken when compacting beneath the pipe haunches. The cover material should consist of a compacted sand material with no sizes greater than 25 mm or a Granular "A" material.

Bedding thicknesses may be increased in areas where the native soil base supporting the bedding is wet, or subject to disturbance. Where soft or loose base conditions are encountered below the water table, base stabilization may be required. This may include the placement of crushed stone sub-bedding, wrapped in a non-woven geotextile, to prevent base disturbance and to allow the removal of water through standard filtered sump and pump methods.

If construction proceeds during the winter months, the base and sides of the trench, as well as all fill materials, should not be allowed to freeze.

8.3 Excavated Soil and Trench Backfill

It is typical practice in Northern Ontario to re-use a portion of the in-situ excavated native material as fill within exterior (outside) trench utility services, especially where these trenches interrupt traveled sections of a roadway. This is to ensure compatibility with adjacent subgrade soils to minimize annual differential frost heaving.



Non-organic material from the service trench excavation may be re-used as random fill above the top of the pipe cover material to the underside of the pavement structure subbase materials. All re-used materials must be placed in lifts not exceeding 150 mm and be compacted to 98% of the SPMDD within 2% of the optimum moisture content. EXP cautions that any native material below the groundwater level may not meet the above compaction requirements without significant reworking and drying prior to placement. If stockpiling of trench excavated material for re-use is required, it is recommended that it be covered to prevent exposure to rain and it cannot be allowed to freeze. All unsuitable materials from the trench excavation not reused must be disposed of off-site.

Any excavated material contaminated with organics must not be re-used as backfill material. This material may be re-used for general landscaping purposes, provided it is environmentally safe to do so.

9. Excavations

The in-situ native soils may be classified as Type 3 soils for excavations terminating above the groundwater level and Type 4 soils for excavations terminating below the groundwater level in conformance with the Ontario Occupational Health and Safety Act (OHSA). Excavation side slopes in Type 3 soils should remain stable at a slope of 1H:1V. Excavation side slopes in Type 4 soils should remain stable at a slope of 3H:1V. The need to excavate flatter side slopes if excessively wet or soft/loose materials, or concentrated seepage zone are encountered, should not be overlooked.

Water (i.e. surface water runoff) should not be permitted to enter and/or pond within the construction area.

Where rock excavation is anticipated, the method selected for excavation will depend on the local block size and degree of weathering of the rock. If the bedrock is highly weathered, it may be possible to excavate using mechanical equipment. In areas where weathering is not present, explosives will likely be required to break or to loosen the rock for any excavation. Bedrock slopes will range from 1H:1V in weathered areas to near vertical where sound competent bedrock is encountered. The unweathered bedrock has strength properties that far exceed Type 1 soil material characteristics as described in the OHSA soil classifications. The bedrock face of the excavation should be scaled of any loose rock pieces and overhang and cut back to approximately 1H:10V. For any steep bedrock faces in excess of 2.0 m in height, the full height of the bedrock face should be covered with a geosynthetic geogrid mesh type material to retain any loose material that may become dislodged from the face. The geogrid mesh should be pegged at the top and bottom of the bedrock slope.

All excavations must be completed in accordance with the most recent regulations in the Ontario Occupational Health and Safety Act. The contractor should be aware that slope height, slope inclination, or excavation depths, should in no case, exceed those specified in local, provincial or federal safety regulations. Such regulations are strictly enforced and, if not followed, the owner, the contractor or earthwork or utility subcontractor could be liable for substantial penalties.

It is important to note that soils encountered in the construction excavations may vary significantly across the site. Our preliminary soil classifications are based solely on the materials encountered in widely spaced explorations. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, we recommend that EXP be contacted immediately to evaluate the conditions encountered.



10. Dewatering

As noted previously, at Site 1, Borehole BH-4 was dry upon completion, however, shallow refusal at 0.9 m depth was encountered at this borehole. Groundwater was encountered within the remaining boreholes upon completion at depths ranging from 0.9 to 1.5 m. Based on encountered groundwater depths within the boreholes, dewatering should be anticipated during excavations at Site 1.

At Site 2, groundwater was encountered at Borehole BH-6 upon completion at 3.1 m depth. The remaining boreholes were dry upon completion. Dewatering should be anticipated during excavation near BH-6.

The hydraulic conductivity (K) of the in-situ fill and cohesionless soils has been estimated at 10⁻¹ to 10⁻³ cm/sec based on empirical information.

Seasonal variations in the water table should be anticipated, with higher levels occurring during wet weather conditions (spring thaw and late fall) and lower levels occurring during dry weather conditions.

Dewatering requirements will be governed by the time of the year the construction is performed. It is the responsibility of the Contractor to propose a suitable dewatering system based on the time of construction and groundwater levels. The method used should not undermine any adjacent structures or buried services. The dewatering method is the responsibility of the Contractor and the Contractor should submit his proposal to the Prime Consultant for review and approval prior to construction.

11. Construction Constraints Under Cold Weather Conditions

For all construction activities at this site, the following applies:

- During excavations, all subgrade soils must be maintained at a minimum temperature of 5° C.
- No granular material may be placed under frozen conditions, with all fill material maintained at a minimum temperature of 5° C prior to and during installation. If granular fill is to be placed in freezing conditions, the granular fill must be restricted to Granular "B" Type II material. Since Granular "B" Type II has a larger aggregate size, care should be taken to prevent point loading on the underside of the concrete.
- Soils and granular fill material that are in direct contact with fresh concrete must be at a minimum temperature of 5° C prior to pouring the concrete and must be free of snow and ice fragments.
- All granular fill, prior to placement of concrete, must be reviewed by this office to ensure that it is free of frost, buried ice and snow.
- All reinforcing steel in the concrete forms must be free of ice and snow, and must be maintained at a minimum temperature of 5° C.
- During the placement of concrete in cold weather conditions, a field cured cylinder should be placed beside the heated form for a period of 6 days. The field cured cylinder should be returned to a designated laboratory on the sixth day for 7day compressive strength testing.
- All heated and tarped areas should be monitored for temperature using a max/min thermometer.
- All concrete is to have a minimum of 6% to 8% air entrainment to prevent cracking and shall be maintained at a minimum temperature of 10° C for a period of 4 to 7 days.

The 6% to 8% air entrained concrete during cold weather placement is to prevent significant strength loss of concrete as a result of freezing and thawing. The air entrainment will provide the capacity to absorb stresses during freeze/thaw action.



12. Construction Quality Control

Construction quality control of the "earthworks" should be provided throughout the project by a representative of EXP to verify all design assumptions, recommendations, and confirmation of the subsurface soil conditions. This includes inspection of the excavation and subgrade prior to the placement of any structural fill and foundations, to ensure that any and all deleterious materials have been removed and to ensure that the actual conditions are not markedly different than those on which the recommendations made herein are based. Compaction control of structural fill is also recommended as standard practice, as is sampling and testing of aggregates and concrete.

13. Design Review

The recommendations made in this report are considered preliminary and in accordance with our present understanding of the project and are provided solely for the design team responsible for the project. If there are any changes, such as relocation of any structures or other features which may affect our analysis, the information obtained during this investigation may be inadequate and additional field work and reporting may be required.

EXP Services Inc. should be retained to review the final design and specifications to confirm that we are in general agreement with the assumptions on which our recommendations are based. If not accorded the privilege of making this review, EXP will assume no responsibility for interpretation of the recommendations in this report.

14. Limitations

A subsurface investigation is a limited sampling of a site. Should any conditions at the site be encountered that differ from those reported at the test locations, we require that we be notified immediately in order to allow reassessment of our recommendations.

Whereas this investigation has estimated the groundwater level at the time of the fieldwork, and commented on general construction problems, the presence of conditions, which would be difficult to establish from our test holes, may affect the type and nature of dewatering procedures which should be used in practice. These conditions include local and seasonal fluctuations in the groundwater table, erratic changes in the soil profile between the tests, and thin layers of soil with large or small permeabilities compared with the general soil mass, etc.

The comments given in this report are intended only for the guidance of the design team responsible for the project. The number of test holes required to determine the localized underground conditions between test holes affecting construction costs, techniques, sequencing, equipment, scheduling, etc. could be greater than has been carried out for preliminary design purposes. Contractors bidding on or undertaking the works should, in this light, decide on their own investigations, as well as their own interpretations of the factual test hole results, so that they may draw their own conclusions as to how the subsurface conditions may affect them.

The investigation and comments are necessarily ongoing as new information of underground conditions becomes available. For example, more specific information is available with respect to in-situ subsurface conditions between test locations once construction is underway. Subsurface soil interpretation between test holes, as well as the recommendations of this report, should be verified through field inspections provided by EXP to validate the current information for use during the construction stage.

Virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above or below ground. For example, conditions elsewhere on the property may differ from those encountered, and conditions may change with time. Therefore, no warranty is provided that the entire site condition is represented by those identified at specific borehole locations.



15. Closure

We trust that these comments provide you with sufficient information to proceed with design. Should you have any questions, please do not hesitate to contact this office.

L.B. MACMILLAN E

100157509

Yours truly,

EXP Services Inc.

Jan MacMillan, P.Eng.
Project Manager, Earth & Environment Office

Northeastern Ontario

Yves Beauparlant, P.Eng.

Manager, Earth & Environmental Services

Northeastern Ontario



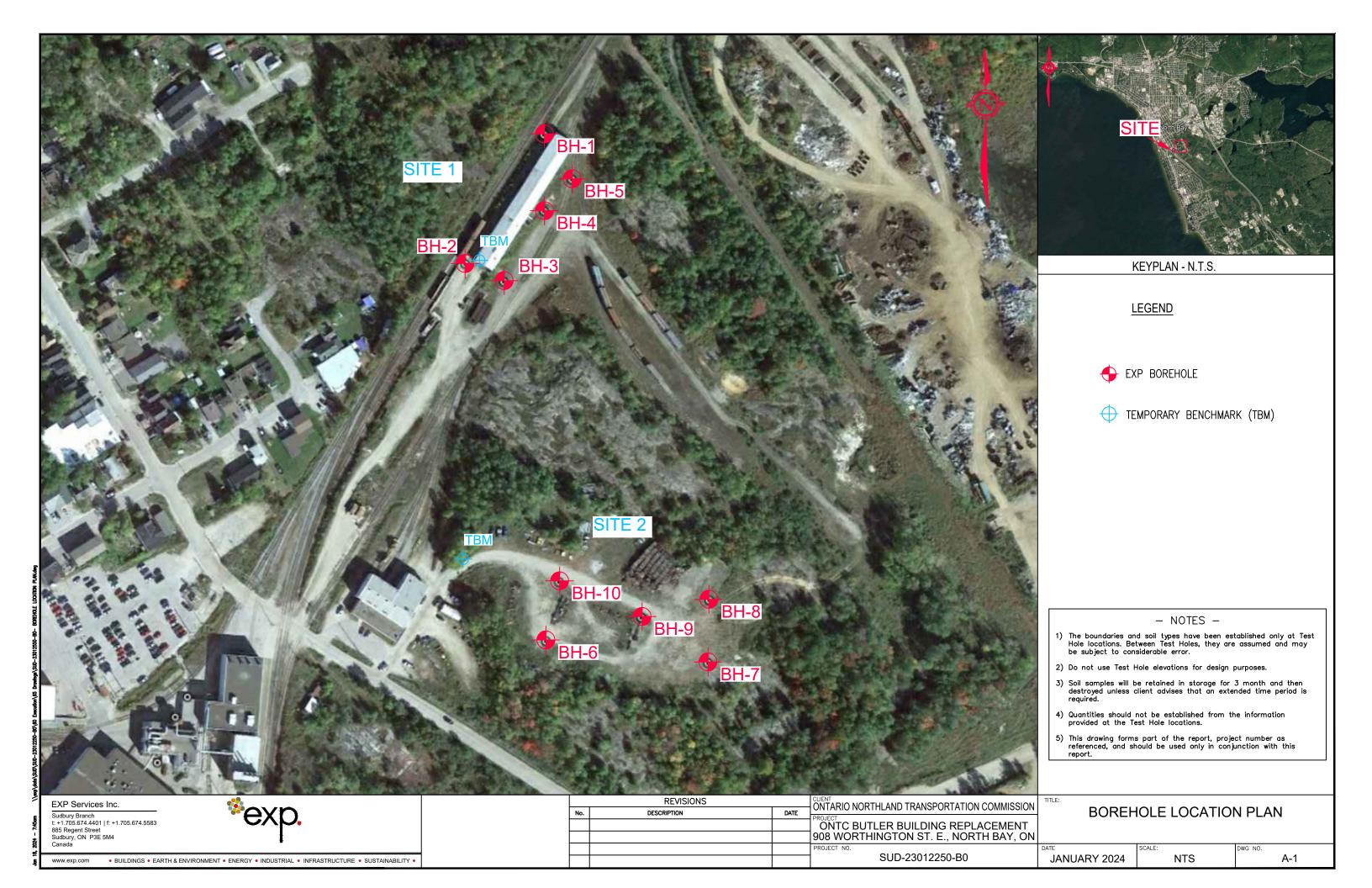
Project Number: SUD-23012250-B0

Date: January 17, 2024



Updated: 2024-01-17





Project Number: SUD-23012250-B0

Date: January 17, 2024

Appendix B – Borehole Logs



Notes on Sample Descriptions

1. All sample descriptions included in this report follow the International Society for Soil Mechanics and Foundation Engineering (ISSMFE), as outlined in the Canadian Foundation Engineering Manual. Note, however, that behavioral properties (i.e. plasticity, permeability) take precedence over particle gradation when classifying soil. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

ISSMFE SOIL CLASSIFICATION											
CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		

- 2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.
- 3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (75 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

Notes On Soil Descriptions

4. The following table gives a description of the soil based on particle sizes. With the exception of those samples where grain size analyses have been performed, all samples are classified visually. The accuracy of visual examination is not sufficient to differentiate between this classification system or exact grain size.

Soil Classification		Terminology	Proportion
Clay and Silt	<0.060 mm	"trace" (e.g. Trace sand)	1% to 10%
Sand	0.060 to 2.0 mm	"some" (e.g. Some sand)	10% to 20%
Gravel	2.0 to 75 mm	adjective (e.g. sandy, silty)	20% to 35%
Cobbles	75 to 200 mm	"and" (e.g. and sand)	35% to 50%
Boulders	>200 mm		

The compactness of Cohesionless soils and the consistency of the cohesive soils are defined by the following:

Cohesionless Soil		Cohesive Soil		
Compactness	Standard Penetration Resistance "N" Blows / 0.3 m	Consistency	Undrained Shear Strength (kPa)	Standard Penetration Resistance "N" Blows / 0.3 m
Very Loose	0 to 4	Very soft	<12	<2
Loose	4 to 10	Soft	12 to 25	2 to 4
Compact	10 to 30	Firm	25 to 50	4 to 8
Dense	30 to 50	Stiff	50 to 100	8 to 15
Very Dense	Over 50	Very Stiff	100 to 200	15 to 30
		Hard	>200	>30

5. ROCK CORING

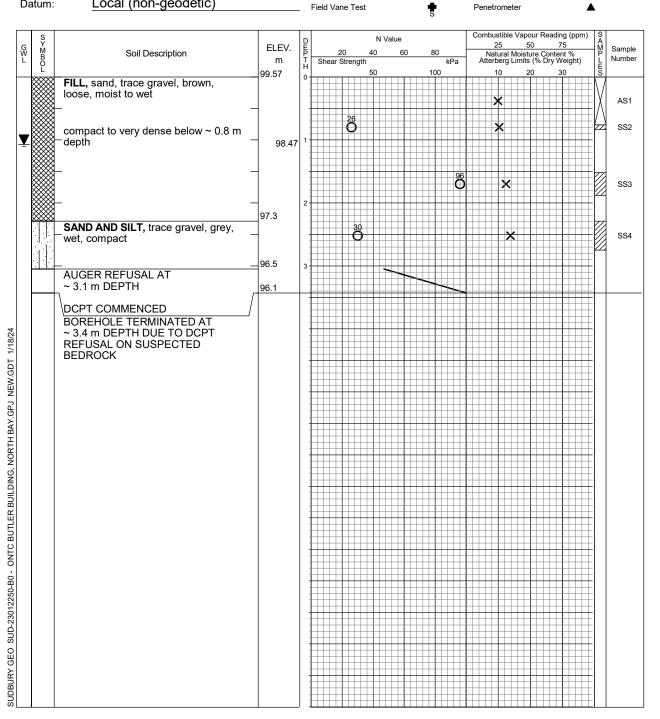
Where rock drilling was carried out, the term RQD (Rock Quality Designation) is used. The RQD is an indirect measure of the number of fractures and soundless of the rock mass. It is obtained from the rock cores by summing the length of the core covered, counting only those pieces of sound core that are 100 mm or more length. The RQD value is expressed as a percentage and is the ratio of the summed core lengths to the total length of core run. The classification based on the RQD value is given below.

RQD Classification	RQD (%)
Very Poor Quality	<25
Poor Quality	25 to 50
Fair Quality	50 to 75
Good Quality	75 to 90
Excellent Quality	90 to 100

Recovery Designation % Recovery = Length of Core Per Run

Total Length of Run

SUD-23012250-B0 Project No. Figure No. B-2 Proposed ONTC Butler Building Replacement _1_ of _1_ Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619393.41E; 5128843.36N Combustible Vapour Reading \boxtimes Auger Sample December 13, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum:



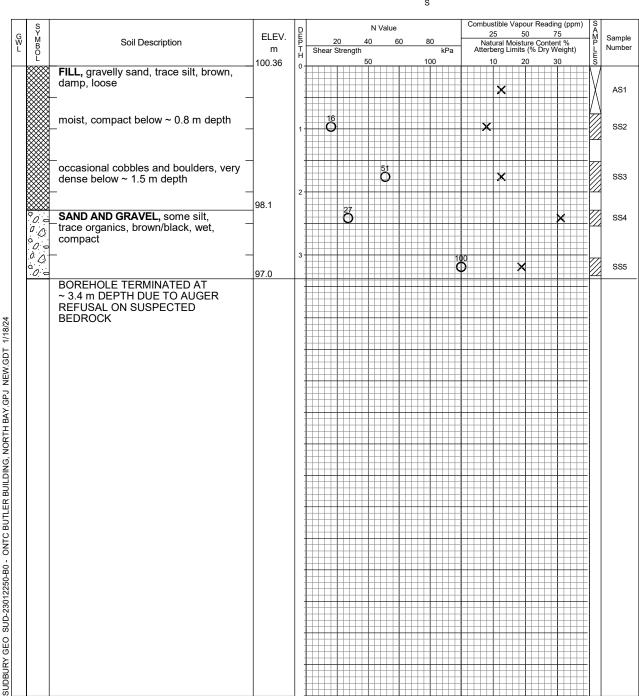


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.1	1.2

SUD-23012250-B0 Project No. B-11 Figure No. Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619407.19E; 5128580.20N Combustible Vapour Reading \boxtimes Auger Sample December 14, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



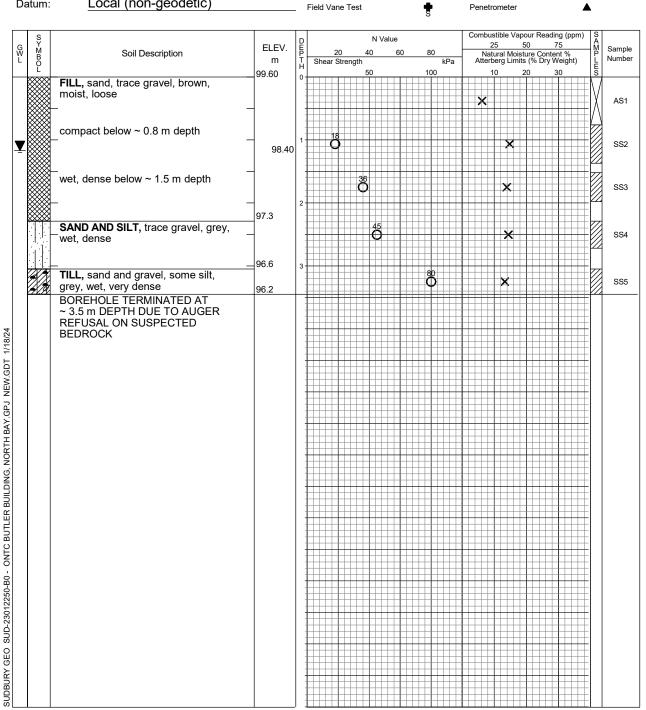


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	Drý	2.1

SUD-23012250-B0 Project No. Figure No. B-3 Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619348.92E; 5128766.69N Combustible Vapour Reading \boxtimes Auger Sample December 13, 2023 × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0**CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum:



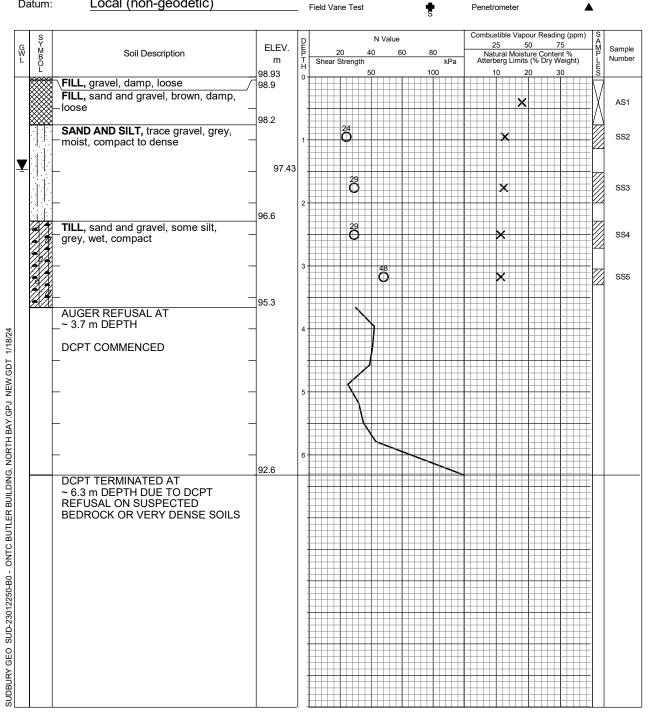


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.2	2.1

SUD-23012250-B0 Project No. Figure No. B-4 Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619371.62E; 5128756.13N Combustible Vapour Reading \boxtimes Auger Sample December 13, 2023 × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0**CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum:



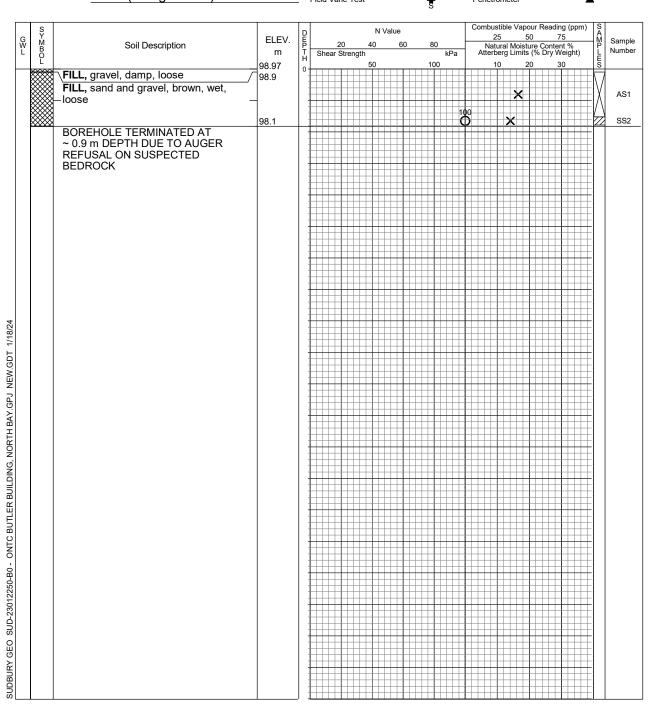


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.5	1.7

SUD-23012250-B0 Project No. Figure No. B-5 Proposed ONTC Butler Building Replacement _1_ of _1_ Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619394.99E; 5128798.04N Combustible Vapour Reading \boxtimes Auger Sample December 13, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



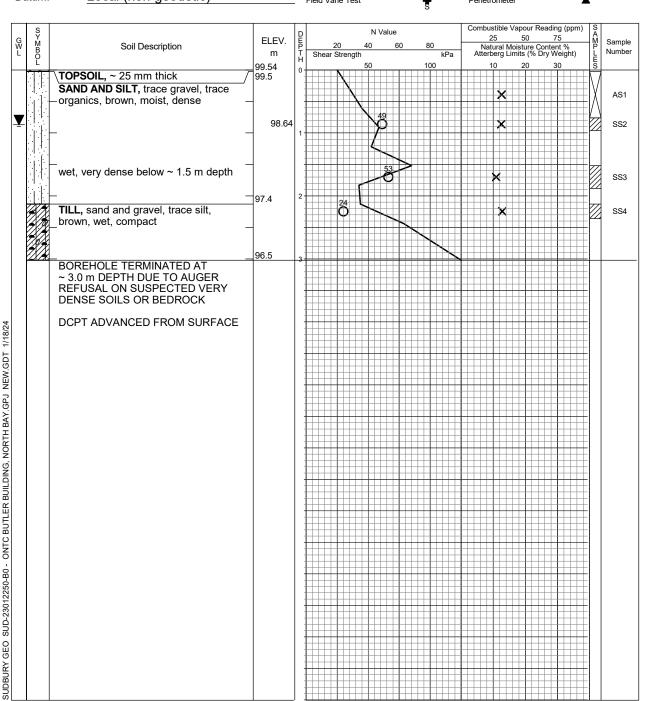


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	Drý	0.6

SUD-23012250-B0 Project No. Figure No. B-6 Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619410.79E; 5128817.36N Combustible Vapour Reading \boxtimes Auger Sample December 13, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



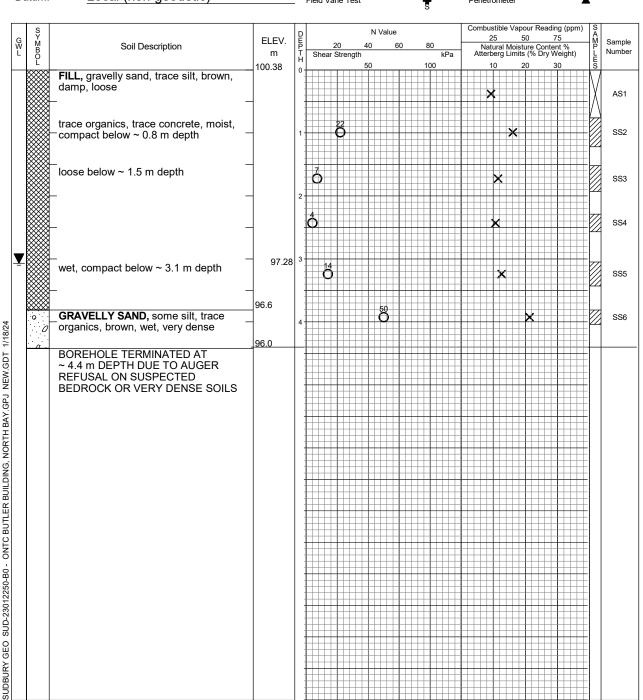


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	0.9	0.9

SUD-23012250-B0 Project No. Figure No. B-7 Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619400.87E; 5128545.17N Combustible Vapour Reading П \boxtimes Auger Sample December 14, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0**CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



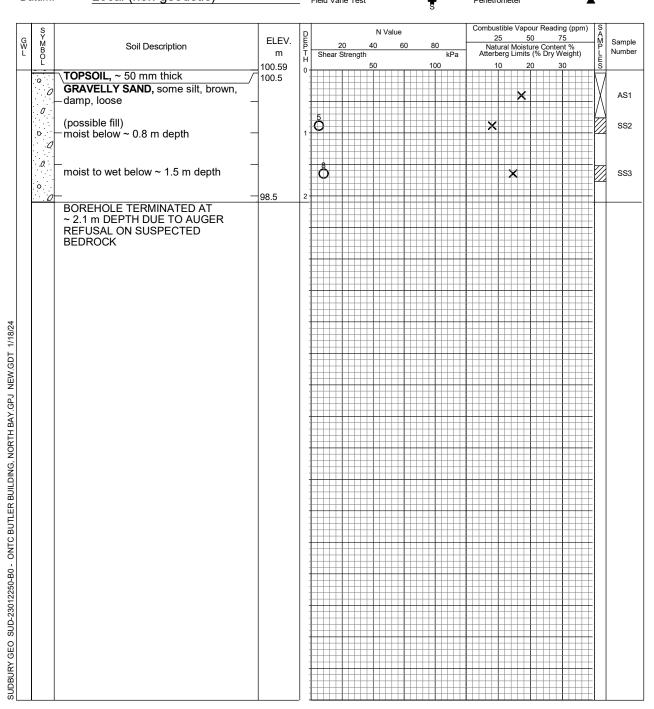


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.1	3.4

SUD-23012250-B0 Project No. Figure No. B-8 Proposed ONTC Butler Building Replacement _1_ of _1_ Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619496.06E; 5128534.81N Combustible Vapour Reading \boxtimes Auger Sample December 14, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



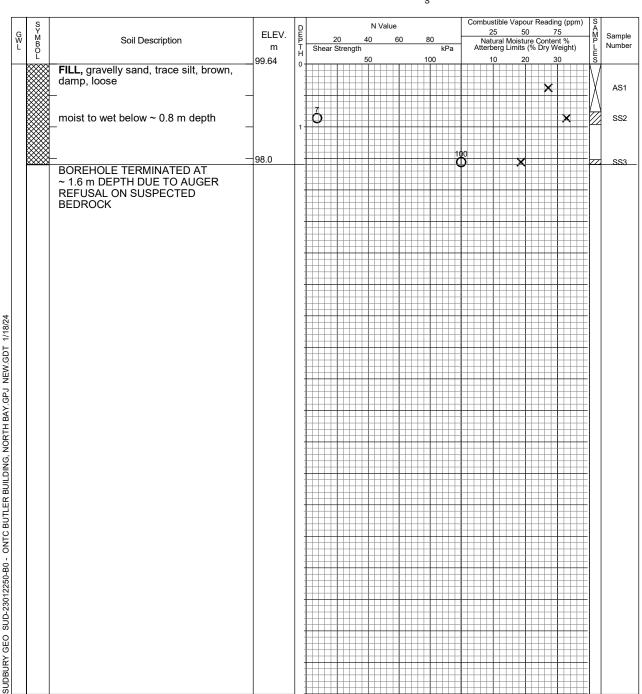


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	Drý	1.4

SUD-23012250-B0 B-9 Project No. Figure No. Proposed ONTC Butler Building Replacement _1_ of _1_ Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619496.42E; 5128571.50N Combustible Vapour Reading \boxtimes Auger Sample December 14, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test



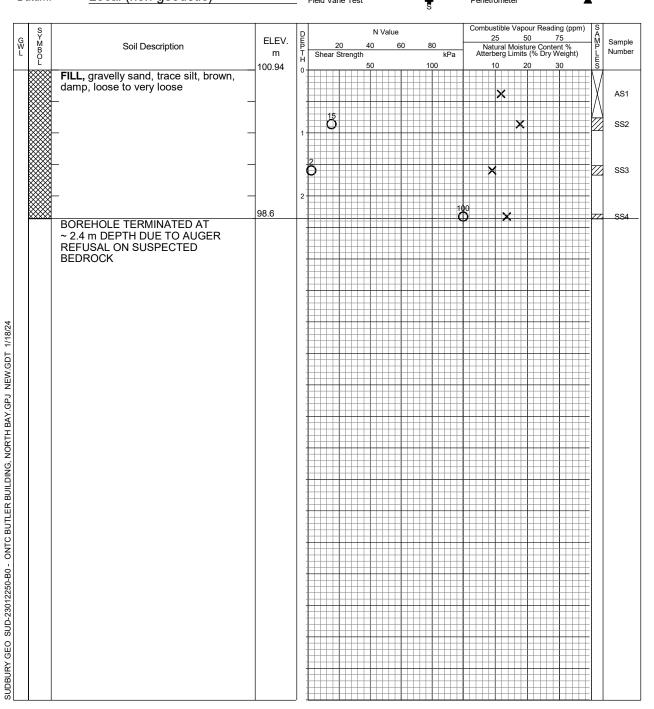


EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1 705 674 9681

t: +1.705.674.9681 f: +1.705.674.5583 Borehole data requires interpretation assistance from EXP before use by others.

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	Ďrý	1.4

SUD-23012250-B0 Project No. Figure No. B-10 Proposed ONTC Butler Building Replacement 1 of 1 Project: Sheet No. 908 Worthington Street East, North Bay, ON Location: 619456.58E; 5128560.16N Combustible Vapour Reading \boxtimes Auger Sample December 14, 2023 Natural Moisture × Date Drilled: 0 🛭 SPT (N) Value Plastic and Liquid Limit -0 **CME55 TRUCK MOUNT** Dynamic Cone Test Drill Type: Undrained Triaxial at \oplus Shelby Tube % Strain at Failure Local (non-geodetic) Datum: Field Vane Test





EXP Services Inc. 885 Regent Street Sudbury, ON P3E 5M4 CANADA t: +1.705.674.9681

f: +1.705.674.5583

Borehole data requires interpretation assistance from EXP before use by others.

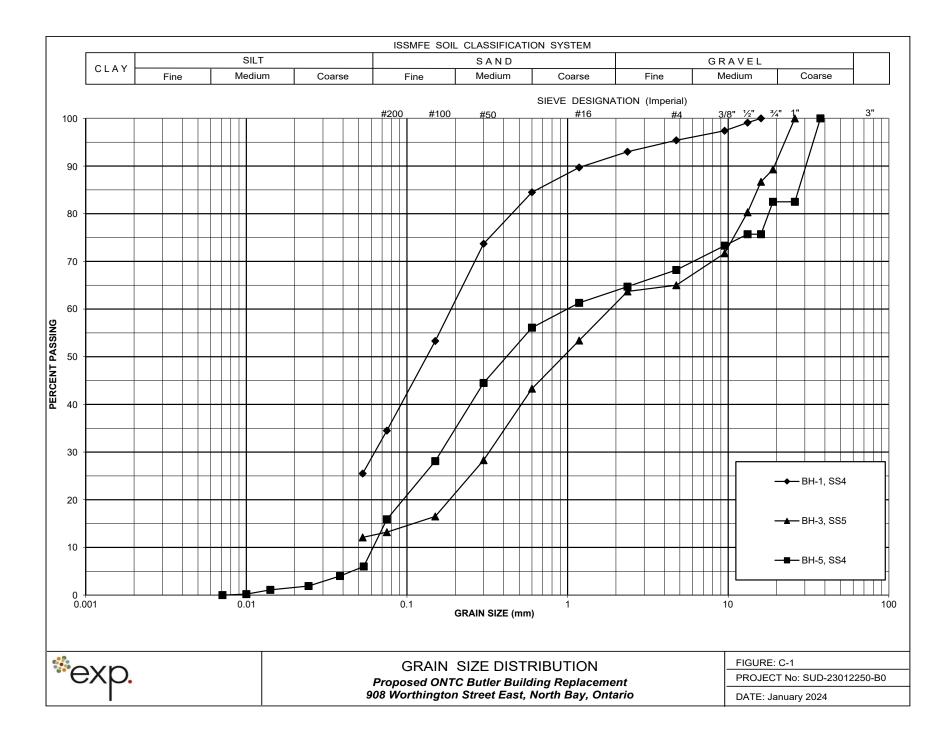
Time	Water Level (m)	Depth to Cave (m)
Upon Completion	Drý	1.8

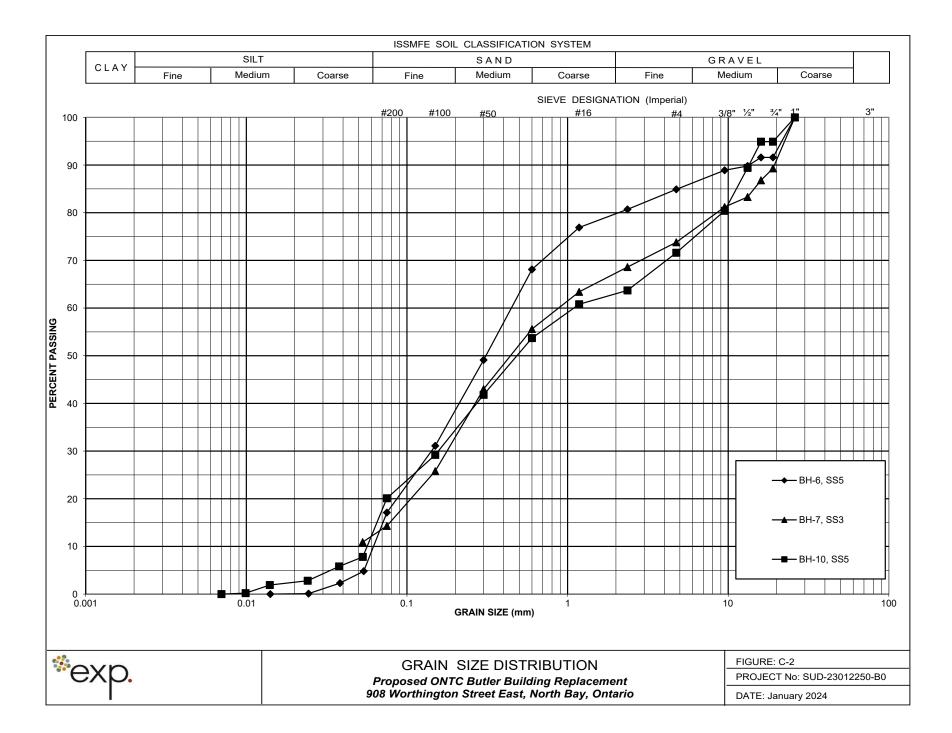
Project Number: SUD-23012250-B0

Date: January 17, 2024









Project Number: SUD-23012250-B0

Date: January 17, 2024











CA15755-DEC23 R

SUD 23012250-B0

Prepared for

EXP Services Inc.



First Page

CLIENT DETAIL	_S	LABORATORY DETAIL	LS
Client	EXP Services Inc.	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	885 Reagent Street	Address	185 Concession St., Lakefield ON, K0L 2H0
	Sudbury, Ontario		
	P3E 5M4. Canada		
Contact	lan MacMillan	Telephone	2165
Telephone	705-674-9681	Facsimile	705-652-6365
Facsimile	705-674-5583	Email	jill.campbell@sgs.com
Email	ian.macmillan@exp.com	SGS Reference	CA15755-DEC23
Project	SUD 23012250-B0	Received	12/19/2023
Order Number		Approved	01/02/2024
Samples	Soil (4)	Report Number	CA15755-DEC23 R
		Date Reported	01/02/2024

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 4 degrees C

Cooling Agent Present:Yes

Custody Seal Present:Yes

Chain of Custody Number: N/A

CR6 dup within Reporting Limit of Original sample, therefore QC accepted

F2-4(C10-C50) - QCBATCH WSHDEC248 - Duplicate RPD is outside of acceptance for F3(C16-C34) and F4(C34-C50) due to sample matrix. Matrix Spike is outside of acceptance due to sample matrix.

SIGNATORIES

Jill Campbell, B.Sc., GISAS

Jill Cumpbell

t 2165

QC Batch - GCM292 - DEC23 - Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene Matrix Spike; Recovery is outside of control limits. The overall quality control has been assessed and determined to be acceptable.



TABLE OF CONTENTS

First Page	1-3
Index	4
Results	5-10
Exceedance Summary	11
QC Summary	12-20
Legend	21
Annexes	22



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

MATRIX: SOIL			Sample Number	29	30	31	32
			Sample Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5
1 = REG153 / SOIL / COARSE - TABLE 1 - Residential/Par	rkland/Industrial - UNDEFINE	D	Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023
Parameter	Units	RL	L1	Result	Result	Result	Result
BTEX							
Benzene	μg/g	0.02	0.02		< 0.02		< 0.02
Ethylbenzene	μg/g	0.05	0.05		< 0.05		< 0.05
Toluene	μg/g	0.05	0.2		< 0.05		< 0.05
Xylene (total)	μg/g	0.05	0.05		< 0.05		< 0.05
m/p-xylene	μg/g	0.05			< 0.05		< 0.05
o-xylene	μg/g	0.05			< 0.05		< 0.05
lydrides							
Antimony	hā/ā	0.8	1.3	< 0.8		2.3	
Arsenic	μg/g	0.5	18	0.8		19	
Selenium	μg/g	0.1	1.5	0.2		2.9	
Metals and Inorganics							
Moisture Content	%	no		11.0	11.4	7.3	15.6
Barium	ha/a	0.1	220	35		170	
Beryllium	μg/g	0.02	2.5	0.16		0.42	
Boron	ha/a	1	36	< 1		3	
Cadmium	ha/a	0.05	1.2	< 0.05		8.0	
Chromium	μg/g	0.5	70	6.0		29	
Cobalt	μg/g	0.01	21	1.6		9.0	
Copper	ha/a	0.1	92	3.7		1500	
Lead	hā\ā	0.1	120	1.3		360	
Molybdenum	hā\ā	0.1	2	< 0.1		3.2	



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

MATRIX: SOIL			Sa	ample Number	29	30	31	32
			;	Sample Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5
= REG153 / SOIL / COARSE - TABLE 1 - Residential/Parkla	land/Industrial - UNDEFINE	ED		Sample Matrix	Soil	Soil	Soil	Soil
				Sample Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023
Parameter	Units	RL	L1		Result	Result	Result	Result
letals and Inorganics (continued)								
Nickel	μg/g	0.5	82		2.5		36	
Silver	μg/g	0.05	0.5		< 0.05		2.9	
Thallium	μg/g	0.02	1		0.03		0.38	
Uranium	μg/g	0.002	2.5		0.35		0.61	
Vanadium	μg/g	3	86		7		17	
Zinc	μg/g	0.7	290		7.4		810	
Water Soluble Boron	μg/g	0.5			< 0.5		< 0.5	
ther (ORP)								
Mercury	ug/g	0.05	0.27		< 0.05		0.08	
Sodium Adsorption Ratio	No unit	0.2	2.4		0.3		0.6	
SAR Calcium	mg/L	0.2			1.6		1.7	
SAR Magnesium	mg/L	0.3			< 0.3		< 0.3	
SAR Sodium	mg/L	0.1			1.7		3.1	
Conductivity	mS/cm	0.002	0.57		0.03		0.04	
рН	pH Units	0.05			5.78	7.38	5.38	7.86
Chromium VI	μg/g	0.2	0.66		< 0.2		< 0.2	
Free Cyanide	μg/g	0.05	0.051		< 0.05		< 0.05	



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

MATRIX: SOIL			Sample Number	29	30	31	32	
			Sample Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5	
= REG153 / SOIL / COARSE - TABLE 1 - Residential/Parkland/	/Industrial - UNDEFINE	D	Sample Matrix	Soil	Soil	Soil	Soil	
			Sample Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023	
Parameter	Units	RL	L1	Result	Result	Result	Result	
AHs								
Acenaphthene	μg/g	0.05	0.072		< 0.05		< 0.05	
Acenaphthylene	μg/g	0.05	0.093		< 0.05		< 0.05	
Anthracene	μg/g	0.05	0.16		< 0.05		< 0.05	
Benzo(a)anthracene	μg/g	0.05	0.36		< 0.05		0.10	
Benzo(a)pyrene	μg/g	0.05	0.3		< 0.05		0.10	
Benzo(b+j)fluoranthene	μg/g	0.05	0.47		< 0.05		0.14	
Benzo(ghi)perylene	μg/g	0.1	0.68		< 0.1		< 0.1	
Benzo(k)fluoranthene	μg/g	0.05	0.48		< 0.05		0.05	
Chrysene	μg/g	0.05	2.8		< 0.05		0.11	
Dibenzo(a,h)anthracene	μg/g	0.06	0.1		< 0.06		< 0.06	
Fluoranthene	μg/g	0.05	0.56		< 0.05		0.23	
Fluorene	μg/g	0.05	0.12		< 0.05		< 0.05	
Indeno(1,2,3-cd)pyrene	μg/g	0.1	0.23		< 0.1		< 0.1	
1-Methylnaphthalene	μg/g	0.05			< 0.05		< 0.05	
2-Methylnaphthalene	μg/g	0.05			< 0.05		< 0.05	
Methylnaphthalene, 2-(1-)	μg/g	0.05	0.59		< 0.05		0.06	
Naphthalene	μg/g	0.05	0.09		< 0.05		< 0.05	
Phenanthrene	μg/g	0.05	0.69		< 0.05		0.15	
Pyrene	μg/g	0.05	1		< 0.05		0.20	



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

MATRIX: SOIL			Sample	Number	29	30	31	32
			Samp	ole Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5
I = REG153 / SOIL / COARSE - TABLE 1 - Residential/Parkland	d/Industrial - UNDEFINE	ED.	Samp	ole Matrix	Soil	Soil	Soil	Soil
			Sam	nple Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023
Parameter	Units	RL	L1		Result	Result	Result	Result
HCs								
F1 (C6-C10)	μg/g	10	25			< 10		< 10
F1-BTEX (C6-C10)	μg/g	10	25			< 10		< 10
F2 (C10-C16)	μg/g	10	10			< 10		< 10
F3 (C16-C34)	μg/g	50	240			< 50		< 50
F4 (C34-C50)	μg/g	50	120			< 50		< 50
Chromatogram returned to baseline at nC50	Yes / No	no				YES		YES
VOC Surrogates								
Surr 2-Fluorobiphenyl	Surr Rec %	no				94		96
Surr 4-Terphenyl-d14	Surr Rec %	no				96		89
Surr 2-Methylnaphthalene-D10	Surr Rec %	no				89		90
Surr Fluoranthene-D10	Surr Rec %	no				86		86
HMs (VOC)								
Bromodichloromethane	μg/g	0.05	0.05			< 0.05		< 0.05
Bromoform	μg/g	0.05	0.05			< 0.05		< 0.05
Dibromochloromethane	μg/g	0.05	0.05			< 0.05		< 0.05



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

IATRIX: SOIL			Sample Number	29	30	31	32
			Sample Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5
= REG153 / SOIL / COARSE - TABLE 1 - Residential/Park	kland/Industrial - UNDEFINE	ED	Sample Matrix		Soil	Soil	Soil
			Sample Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023
Parameter	Units	RL	L1	Result	Result	Result	Result
OC Surrogates							
Surr 1,2-Dichloroethane-d4	Surr Rec %	no			107		107
Surr 4-Bromofluorobenzene	Surr Rec %	no			96		96
Surr 2-Bromo-1-Chloropropane	Surr Rec %	no			94		94
OCs							
Acetone	μg/g	0.5	0.5		< 0.5		< 0.5
Bromomethane	μg/g	0.05	0.05		< 0.05		< 0.05
Carbon tetrachloride	ha/a	0.05	0.05		< 0.05		< 0.05
Chlorobenzene	ha/a	0.05	0.05		< 0.05		< 0.05
Chloroform	hā/ā	0.05	0.05		< 0.05		< 0.05
1,2-Dichlorobenzene	μg/g	0.05	0.05		< 0.05		< 0.05
1,3-Dichlorobenzene	μg/g	0.05	0.05		< 0.05		< 0.05
1,4-Dichlorobenzene	μg/g	0.05	0.05		< 0.05		< 0.05
Dichlorodifluoromethane	μg/g	0.05	0.05		< 0.05		< 0.05
1,1-Dichloroethane	μg/g	0.05	0.05		< 0.05		< 0.05
1,2-Dichloroethane	μg/g	0.05	0.05		< 0.05		< 0.05
1,1-Dichloroethylene	μg/g	0.05	0.05		< 0.05		< 0.05
trans-1,2-Dichloroethylene	μg/g	0.05	0.05		< 0.05		< 0.05
cis-1,2-Dichloroethylene	μg/g	0.05	0.05		< 0.05		< 0.05
1,2-Dichloropropane	μg/g	0.05	0.05		< 0.05		< 0.05
cis-1,3-dichloropropene	µg/g	0.03			< 0.03		< 0.03
trans-1,3-dichloropropene	μg/g	0.03			< 0.03		< 0.03
1,3-dichloropropene (total)	μg/g	0.05	0.05		< 0.05		< 0.05



CA15755-DEC23 R

Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

IATRIX: SOIL			Sample Number	29	30	31	32
			Sample Name	BH3-SS1	BH3-SS4	BH6-AS1	BH6-SS5
= REG153 / SOIL / COARSE - TABLE 1 - Residential/Parkland/Inde	lustrial - UNDEFINE	ED	Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	13/12/2023	13/12/2023	14/12/2023	14/12/2023
Parameter	Units	RL	L1	Result	Result	Result	Result
OCs (continued)							
Ethylenedibromide	μg/g	0.05	0.05		< 0.05		< 0.05
n-Hexane	μg/g	0.05	0.05		< 0.05		< 0.05
Methyl ethyl ketone	µg/g	0.5	0.5		< 0.5		< 0.5
Methyl isobutyl ketone	μg/g	0.5	0.5		< 0.5		< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.05		< 0.05		< 0.05
Methylene Chloride	µg/g	0.05	0.05		< 0.05		< 0.05
Styrene	µg/g	0.05	0.05		< 0.05		< 0.05
Tetrachloroethylene	μg/g	0.05	0.05		< 0.05		< 0.05
1,1,1,2-Tetrachloroethane	μg/g	0.05	0.05		< 0.05		< 0.05
1,1,2,2-Tetrachloroethane	μg/g	0.05	0.05		< 0.05		< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.05		< 0.05		< 0.05
1,1,2-Trichloroethane	μg/g	0.05	0.05		< 0.05		< 0.05
Trichloroethylene	µg/g	0.05	0.05		< 0.05		< 0.05
Trichlorofluoromethane	µg/g	0.05	0.25		< 0.05		< 0.05
Vinyl Chloride	μg/g	0.02	0.02		< 0.02		< 0.02



EXCEEDANCE SUMMARY

REG153 / SOIL /

COARSE - TABLE

1 -

Residential/Parklan

d/Industrial -UNDEFINED

Method Units Result L1

BH6-AS1

Parameter

Antimony	EPA 3050/EPA 200.8	μg/g	2.3	1.3
Arsenic	EPA 3050/EPA 200.8	μg/g	19	18
Cadmium	EPA 3050/EPA 200.8	μg/g	8.0	1.2
Copper	EPA 3050/EPA 200.8	μg/g	1500	92
Lead	EPA 3050/EPA 200.8	μg/g	360	120
Molybdenum	EPA 3050/EPA 200.8	μg/g	3.2	2
Selenium	EPA 3050/EPA 200.8	μg/g	2.9	1.5
Silver	EPA 3050/EPA 200.8	μg/g	2.9	0.5
Zinc	EPA 3050/EPA 200.8	μg/g	810	290

20240102 11 / 22



QC SUMMARY

Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	LCS/Spike Blank		М	Matrix Spike / Ref.	
	Reference			Blank	RPD	AC	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery	Recovery Limits (%)	
						(%)		Low	High	(%)	Low	High
Conductivity	EWL0447-DEC23	mS/cm	0.002	<0.002	1	10	98	90	110	NA		

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		м	atrix Spike / Ref	i.
	Reference			Blank	RPD	RPD AC (%)	Spike		ry Limits %)	Spike Recovery	Recove	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Free Cyanide	SKA5057-DEC23	μg/g	0.05	< 0.05	ND	20	105	80	120	103	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		M	latrix Spike / Ref	
	Reference			Blank	k RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Chromium VI	SKA5058-DEC23	ug/g	0.2	<0.2	30	20	90	80	120	89	75	125

20240102 12 / 22



QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		M	latrix Spike / Ref	
	Reference			Blank	RPD AC (%)	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits %)	
						(%)	Recovery (%)	Low	High	(%)	Low	High
Mercury	EMS0184-DEC23	ug/g	0.05	<0.05	ND	20	93	80	120	83	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		М	atrix Spike / Ref	
	Reference	Reference		Blank	RPD	AC	Spike	Recove	•	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
SAR Calcium	ESG0042-DEC23	mg/L	0.2	<0.2	1	20	91	80	120	108	70	130
SAR Magnesium	ESG0042-DEC23	mg/L	0.3	<0.3	2	20	91	80	120	108	70	130
SAR Sodium	ESG0042-DEC23	mg/L	0.1	<0.1	1	20	99	80	120	113	70	130

20240102 13 / 22



QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	licate	LCS	S/Spike Blank		Ma	atrix Spike / Re	i.
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recover	•	Spike Recovery		ry Limits %)
						(%)	(%)	Low	High	(%)	Low	High
Silver	EMS0184-DEC23	ug/g	0.05	<0.05	9	20	110	70	130	115	70	130
Arsenic	EMS0184-DEC23	μg/g	0.5	<0.5	2	20	99	70	130	104	70	130
Barium	EMS0184-DEC23	ug/g	0.1	<0.1	1	20	104	70	130	103	70	130
Beryllium	EMS0184-DEC23	μg/g	0.02	<0.02	6	20	102	70	130	113	70	130
Boron	EMS0184-DEC23	μg/g	1	<1	1	20	96	70	130	95	70	130
Cadmium	EMS0184-DEC23	ug/g	0.05	<0.05	8	20	102	70	130	117	70	130
Cobalt	EMS0184-DEC23	μg/g	0.01	<0.01	1	20	98	70	130	106	70	130
Chromium	EMS0184-DEC23	μg/g	0.5	<0.5	1	20	97	70	130	107	70	130
Copper	EMS0184-DEC23	μg/g	0.1	<0.1	4	20	97	70	130	105	70	130
Molybdenum	EMS0184-DEC23	μg/g	0.1	<0.1	8	20	93	70	130	109	70	130
Nickel	EMS0184-DEC23	ug/g	0.5	<0.5	0	20	99	70	130	108	70	130
Lead	EMS0184-DEC23	ug/g	0.1	<0.1	1	20	99	70	130	114	70	130
Antimony	EMS0184-DEC23	μg/g	0.8	<0.8	ND	20	98	70	130	98	70	130
Selenium	EMS0184-DEC23	ug/g	0.1	<0.1	4	20	102	70	130	101	70	130
Thallium	EMS0184-DEC23	μg/g	0.02	<0.02	10	20	NV	70	130	115	70	130
Uranium	EMS0184-DEC23	μg/g	0.002	<0.002	1	20	93	70	130	NV	70	130
Vanadium	EMS0184-DEC23	μg/g	3	<3	0	20	93	70	130	101	70	130
Zinc	EMS0184-DEC23	μg/g	0.7	<0.7	11	20	98	70	130	102	70	130

20240102 14 / 22



QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENVIGC-LAK-AN-010

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	S/Spike Blank		M	atrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits %)
					(%)	Recovery (%)	Low	High	(%)	Low	High	
F1 (C6-C10)	GCM0250-DEC23	μg/g	10	<10	ND	30	104	80	120	90	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		М	atrix Spike / Ref	
	Reference	Blank F	RPD	AC	Spike	Recove	•	Spike Recovery	Recove	ry Limits 6)		
						(%)	Recovery (%)	Low	High	(%)	Low	High
F2 (C10-C16)	GCM0248-DEC23	μg/g	10	<10	ND	30	86	80	120	211	60	140
F3 (C16-C34)	GCM0248-DEC23	μg/g	50	<50	87	30	86	80	120	211	60	140
F4 (C34-C50)	GCM0248-DEC23	μg/g	50	<50	83	30	86	80	120	211	60	140

20240102 15 / 22





QC SUMMARY

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Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-001

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		М	atrix Spike / Ref	•
	Reference			Blank	RPD	AC	Spike	Recover	•	Spike Recovery	Recover	-
						(%)	Recovery (%)	Low	High	(%)	Low	High
рН	ARD0104-DEC23	pH Units	0.05		0	20	100	80	120			
pH	ARD0132-DEC23	pH Units	0.05		0	20	100	80	120			

20240102 16 / 22



QC SUMMARY

Semi-Volatile Organics

Method: EPA 3541/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Ма	atrix Spike / Ref	<i>[.</i>
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recove	-	Spike Recovery		ry Limits %)
						(76)	(%)	Low	High	(%)	Low	High
1-Methylnaphthalene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	91	50	140	53	50	140
2-Methylnaphthalene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	93	50	140	54	50	140
Acenaphthene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	97	50	140	56	50	140
Acenaphthylene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	88	50	140	50	50	140
Anthracene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	91	50	140	52	50	140
Benzo(a)anthracene	GCM0292-DEC23	μg/g	0.05	< 0.05	10	40	93	50	140	43	50	140
Benzo(a)pyrene	GCM0292-DEC23	μg/g	0.05	< 0.05	7	40	85	50	140	39	50	140
Benzo(b+j)fluoranthene	GCM0292-DEC23	μg/g	0.05	< 0.05	8	40	97	50	140	29	50	140
Benzo(ghi)perylene	GCM0292-DEC23	μg/g	0.1	< 0.1	ND	40	99	50	140	50	50	140
Benzo(k)fluoranthene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	92	50	140	47	50	140
Chrysene	GCM0292-DEC23	μg/g	0.05	< 0.05	10	40	94	50	140	40	50	140
Dibenzo(a,h)anthracene	GCM0292-DEC23	μg/g	0.06	< 0.06	ND	40	88	50	140	49	50	140
Fluoranthene	GCM0292-DEC23	μg/g	0.05	< 0.05	11	40	89	50	140	27	50	140
Fluorene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	93	50	140	54	50	140
Indeno(1,2,3-cd)pyrene	GCM0292-DEC23	μg/g	0.1	< 0.1	ND	40	93	50	140	51	50	140
Naphthalene	GCM0292-DEC23	μg/g	0.05	< 0.05	ND	40	96	50	140	54	50	140
Phenanthrene	GCM0292-DEC23	μg/g	0.05	< 0.05	17	40	93	50	140	42	50	140
Pyrene	GCM0292-DEC23	μg/g	0.05	< 0.05	10	40	99	50	140	32	50	140

20240102 17 / 22



QC SUMMARY

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Ma	atrix Spike / Ref	i.
	Reference			Blank	RPD	AC (%)	Spike Recovery		ry Limits %)	Spike Recovery		ory Limits %)
						(70)	(%)	Low	High	(%)	Low	High
1,1,1,2-Tetrachloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	98	50	140
1,1,1-Trichloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	100	60	130	96	50	140
1,1,2,2-Tetrachloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	85	50	140
1,1,2-Trichloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	102	50	140
1,1-Dichloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	100	60	130	96	50	140
1,1-Dichloroethylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	97	60	130	91	50	140
1,2-Dichlorobenzene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	102	50	140
1,2-Dichloroethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	104	60	130	100	50	140
1,2-Dichloropropane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	102	60	130	98	50	140
1,3-Dichlorobenzene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	102	60	130	101	50	140
1,4-Dichlorobenzene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	107	60	130	102	50	140
Acetone	GCM0249-DEC23	μg/g	0.5	< 0.5	ND	50	94	50	140	105	50	140
Benzene	GCM0249-DEC23	μg/g	0.02	< 0.02	ND	50	102	60	130	99	50	140
Bromodichloromethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	96	50	140
Bromoform	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	102	60	130	97	50	140
Bromomethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	96	50	140	88	50	140
Carbon tetrachloride	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	100	60	130	94	50	140
Chlorobenzene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	99	60	130	98	50	140
Chloroform	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	97	50	140
cis-1,2-Dichloroethylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	98	50	140

20240102 18 / 22



QC SUMMARY

Volatile Organics (continued)

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Ma	atrix Spike / Ref	i.
	Reference			Blank	RPD	AC (%)	Spike Recovery		ry Limits %)	Spike Recovery		ry Limits %)
						(70)	(%)	Low	High	(%)	Low	High
cis-1,3-dichloropropene	GCM0249-DEC23	μg/g	0.03	< 0.03	ND	50	103	60	130	95	50	140
Dibromochloromethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	100	60	130	97	50	140
Dichlorodifluoromethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	82	50	140	66	50	140
Ethylbenzene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	107	50	140
Ethylenedibromide	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	104	50	140
n-Hexane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	92	60	130	81	50	140
m/p-xylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	115	50	140
Methyl ethyl ketone	GCM0249-DEC23	μg/g	0.5	< 0.5	ND	50	99	50	140	100	50	140
Methyl isobutyl ketone	GCM0249-DEC23	μg/g	0.5	< 0.5	ND	50	104	50	140	109	50	140
Methyl-t-butyl Ether	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	106	60	130	97	50	140
Methylene Chloride	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	100	60	130	95	50	140
o-xylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	104	60	130	115	50	140
Styrene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	99	50	140
Tetrachloroethylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	99	60	130	97	50	140
Toluene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	101	60	130	98	50	140
trans-1,2-Dichloroethylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	98	60	130	92	50	140
trans-1,3-dichloropropene	GCM0249-DEC23	μg/g	0.03	< 0.03	ND	50	102	60	130	95	50	140
Trichloroethylene	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	103	60	130	110	50	140
Trichlorofluoromethane	GCM0249-DEC23	μg/g	0.05	< 0.05	ND	50	96	50	140	92	50	140
Vinyl Chloride	GCM0249-DEC23	μg/g	0.02	< 0.02	ND	50	94	50	140	86	50	140

20240102 19 / 22

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 15 3/04 | Internal ref.: ME-CA-[ENV] SPE-LAK-AN-003

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		М	latrix Spike / Ref	f.
	Reference	Reference	Blank	RPD	AC (%)	Spike		ery Limits %)	Spike Recovery	Recove	ry Limits %)	
						(%)	Recovery (%)	Low	High	(%)	Low	High
Water Soluble Boron	ESG0039-DEC23	μg/g	0.5	<0.5	ND	20	102	80	120	107	70	130

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL. **Matrix Spike Qualifier**: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

20 / 22



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

- † Reporting limit raised.
- ↓ Reporting limit lowered.
- NA The sample was not analysed for this analyte
- ND Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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This report supersedes all previous versions

-- End of Analytical Report --

20240102 21 / 22

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Email:ian.macmillan@exp.com phillip.laframboise@	exp.com				Spec	ify Due	Date:						*N	OTE: [DRINK	ING (PC							NSUMPTIC CUSTODY	ON MUST BE SUBMITTED
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			_			oil)	_	2			Aroclor						H			ate S		n P	L tests	
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					ed (Metals & Inorganics on Inc. CAN. CN., CN., BR. (B(HWS), EC, SAR. CI, Na-water)	-ull Metals Suite	only r,Co,Cu,		CPs	Total	ВТЕХ				specifi		als		Appendix 2: 406/19 Leachate Screening		Water Characterization Pkg General Extended	□B(a)	
SAMPLE IDENTIFICATION	DATE	TIME	# OF	MATRIX	Field Filtered	∞ ₽_	tals	ICP Metals on Sb.As.Ba;Be,B,Cd,Cr,C	only	VOCS incl PAHS, ABNS, 0	90	+ B	Į.		only	Pesticides Organochlorine or s		Metals		× 2:	able Jse:	har		
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3 Site 1 - TCLP	V	V	ĭ	1														4						
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Sampled By (NAME): Phillip Laframboise			Signature:	18041	-b	2000									Date:	1:	2 /	18		2023		(mm/dd	J/vv)	Pink Copy - Client
Relinquished by (NAME): Phillip Laframboise			Signature:	12/4	A.	And									Date:				/ 20:			(mm/dd		Yellow & White Copy - SGS
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		://www.sgs.com/te																						







CA15757-DEC23 R

SUD 23012250-B0

Prepared for

EXP Services Inc.





First Page

CLIENT DETAIL	S	LABORATORY DETAIL	LS
Client	EXP Services Inc.	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	885 Reagent Street	Address	185 Concession St., Lakefield ON, K0L 2H0
	Sudbury, Ontario		
	P3E 5M4. Canada		
Contact	lan MacMillan	Telephone	705-652-2000
Telephone	705-674-9681	Facsimile	705-652-6365
Facsimile	705-674-5583	Email	Maarit.Wolfe@sgs.com
Email	ian.macmillan@exp.com	SGS Reference	CA15757-DEC23
Project	SUD 23012250-B0	Received	12/19/2023
Order Number		Approved	12/28/2023
Samples	Leachate (2)	Report Number	CA15757-DEC23 R
		Date Reported	12/28/2023

COMMENTS

Temperature of Sample upon Receipt: 4 degrees C

Cooling Agent Present: Yes Custody Seal Present: Yes

Chain of Custody Number: n/a

SIGNATORIES

Maarit Wolfe, Hon.B.Sc Llwoye

t 705-652-2000 f 705-652-6365

www.sgs.com



TABLE OF CONTENTS

First Page	1
Index	2
Results	3-4
Exceedance Summary	5
QC Summary	6-7
Legend	8
Annexes	9



Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

Samplers: Phillip Laframboise

MATRIX: LEACHATE			Sample Number	31	32
IVIATRIA. LEAURATE			Sample Name	Site 1-TCLP	Site 2-TCLP
L1 = REG406 / LEACHATE / Appendix 2 Table 1 -			Sample Matrix	Leachate	Leachate
Residential/Parkland/Institutional/Industrial/Commercial/C	Community - UNDEFINED				
			Sample Date	13/12/2023	14/12/2023
Parameter	Units	RL	L1	Result	Result
Acid rock Drainage					
Final pH	no unit	0.01		8.63	8.45
Hydrides					
Antimony	μg/L	0.9		< 0.9	1.6
Arsenic	μg/L	0.2		2.2	4.0
Selenium	μg/L	0.04		0.16	0.89
Metals and Inorganics					
Sample weight	g	0.001		100	100
Ext Fluid	#1 or #2	0.01		2	2
^ Ext Volume	mL	0.01		2000	2000
Barium	μg/L	0.08		12.8	25.3
Beryllium	μg/L	0.007		1.23	9.47
Boron	μg/L	2		27	36
Cadmium	μg/L	0.003		0.030	0.180
Chromium	μg/L	0.08		6.93	112
Cobalt	μg/L	0.004		0.270	2.08
Copper	μg/L	0.2		2.5	42.3
Lead	μg/L	0.09		0.65	8.81
Molybdenum	μg/L	0.04	23	0.99	4.70
Nickel	μg/L	0.1		2.1	49.6
Silver	μg/L	0.05	0.3	< 0.05	0.130
Thallium	μg/L	0.005	2	0.090	0.160



CA15757-DEC23 R

Client: EXP Services Inc.

Project: SUD 23012250-B0

Project Manager: Ian MacMillan

Samplers: Phillip Laframboise

MATRIX: LEACHATE			Samp	le Number	31	32
			Sam	nple Name	Site 1-TCLP	Site 2-TCLP
L1 = REG406 / LEACHATE / Appendix 2 Table 1 -			Sam	nple Matrix	Leachate	Leachate
Residential/Parkland/Institutional/Industrial/Commercial	//Community - UNDEFINED					
			Sa	mple Date	13/12/2023	14/12/2023
Parameter	Units	RL	L1		Result	Result
Parameter Metals and Inorganics (continued)	Units	RL	L1		Result	Result
	Units μg/L	RL 0.002	L1		Result	Result 8.98
Metals and Inorganics (continued)			L1			



EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

20231228 5 / 9



QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Matrix Spike / Ref.			
	Reference			Blank	RPD	AC (%)	Spike Recovery		ry Limits 6)	Spike Recovery	Recovery Limits		
						(%)	(%)	Low	High	(%)	Low	High	
Silver	EMS0213-DEC23	ug/L	0.05	<0.05	ND	20	99	90	110	81	70	130	
Arsenic	EMS0213-DEC23	ug/L	0.2	<0.2	8	20	106	90	110	105	70	130	
Barium	EMS0213-DEC23	ug/L	0.08	<0.08	2	20	105	90	110	102	70	130	
Beryllium	EMS0213-DEC23	ug/L	0.007	<0.007	12	20	94	90	110	89	70	130	
Boron	EMS0213-DEC23	ug/L	2	<2	1	20	98	90	110	99	70	130	
Cadmium	EMS0213-DEC23	ug/L	0.003	<0.003	16	20	103	90	110	99	70	130	
Cobalt	EMS0213-DEC23	ug/L	0.004	<0.004	3	20	102	90	110	98	70	130	
Chromium	EMS0213-DEC23	ug/L	0.08	<0.08	0	20	108	90	110	107	70	130	
Copper	EMS0213-DEC23	ug/L	0.2	<0.2	3	20	104	90	110	96	70	130	
Molybdenum	EMS0213-DEC23	ug/L	0.04	<0.04	9	20	97	90	110	98	70	130	
Nickel	EMS0213-DEC23	ug/L	0.1	<0.1	1	20	103	90	110	102	70	130	
Lead	EMS0213-DEC23	ug/L	0.09	<0.09	1	20	101	90	110	99	70	130	
Antimony	EMS0213-DEC23	ug/L	0.9	<0.9	6	20	100	90	110	107	70	130	
Selenium	EMS0213-DEC23	ug/L	0.04	<0.04	18	20	103	90	110	112	70	130	
Thallium	EMS0213-DEC23	ug/L	0.005	<0.005	17	20	102	90	110	95	70	130	
Uranium	EMS0213-DEC23	ug/L	0.002	0.002	1	20	102	90	110	105	70	130	
Vanadium	EMS0213-DEC23	ug/L	0.01	<0.01	5	20	102	90	110	104	70	130	
Zinc	EMS0213-DEC23	ug/L	2	<2	1	20	102	90	110	104	70	130	

20231228 6 / 9



QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL. **Matrix Spike Qualifier**: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

20231228



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

- RL Reporting Limit.
- † Reporting limit raised.
- ↓ Reporting limit lowered.
- NA The sample was not analysed for this analyte
- ND Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

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This report supersedes all previous versions.

-- End of Analytical Report --

20231228 8 / 9

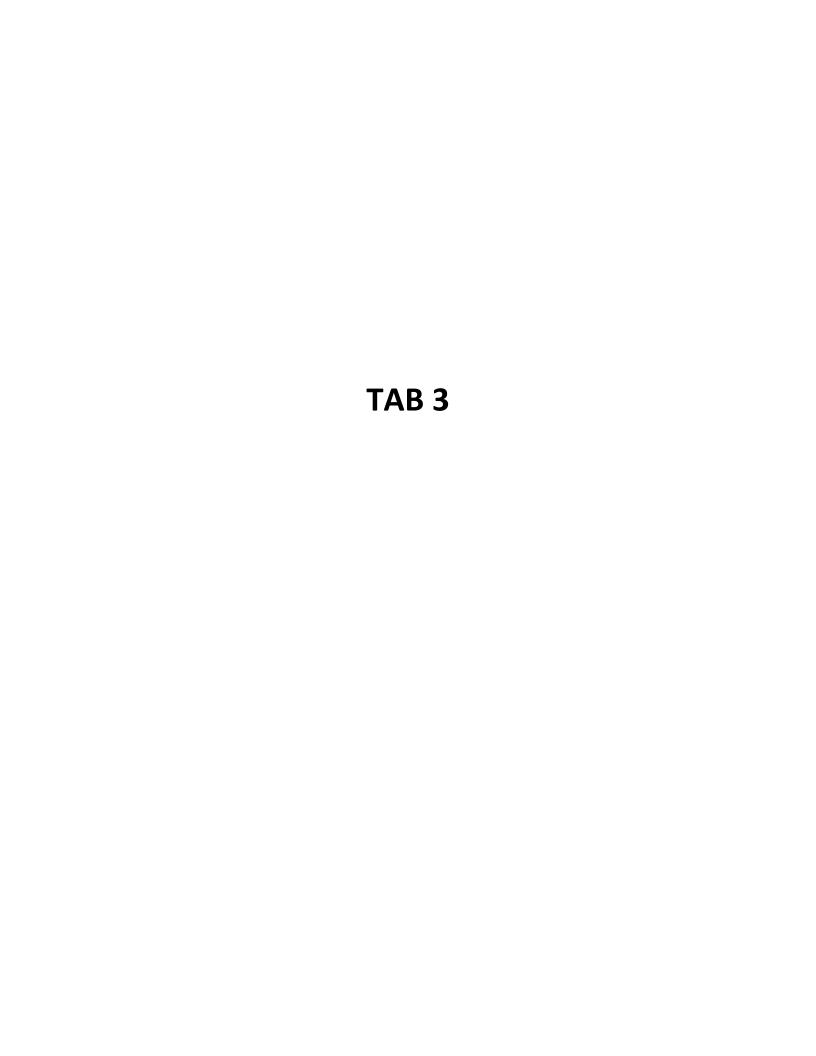
Request for Laboratory Services and CHAIN OF CUSTODY

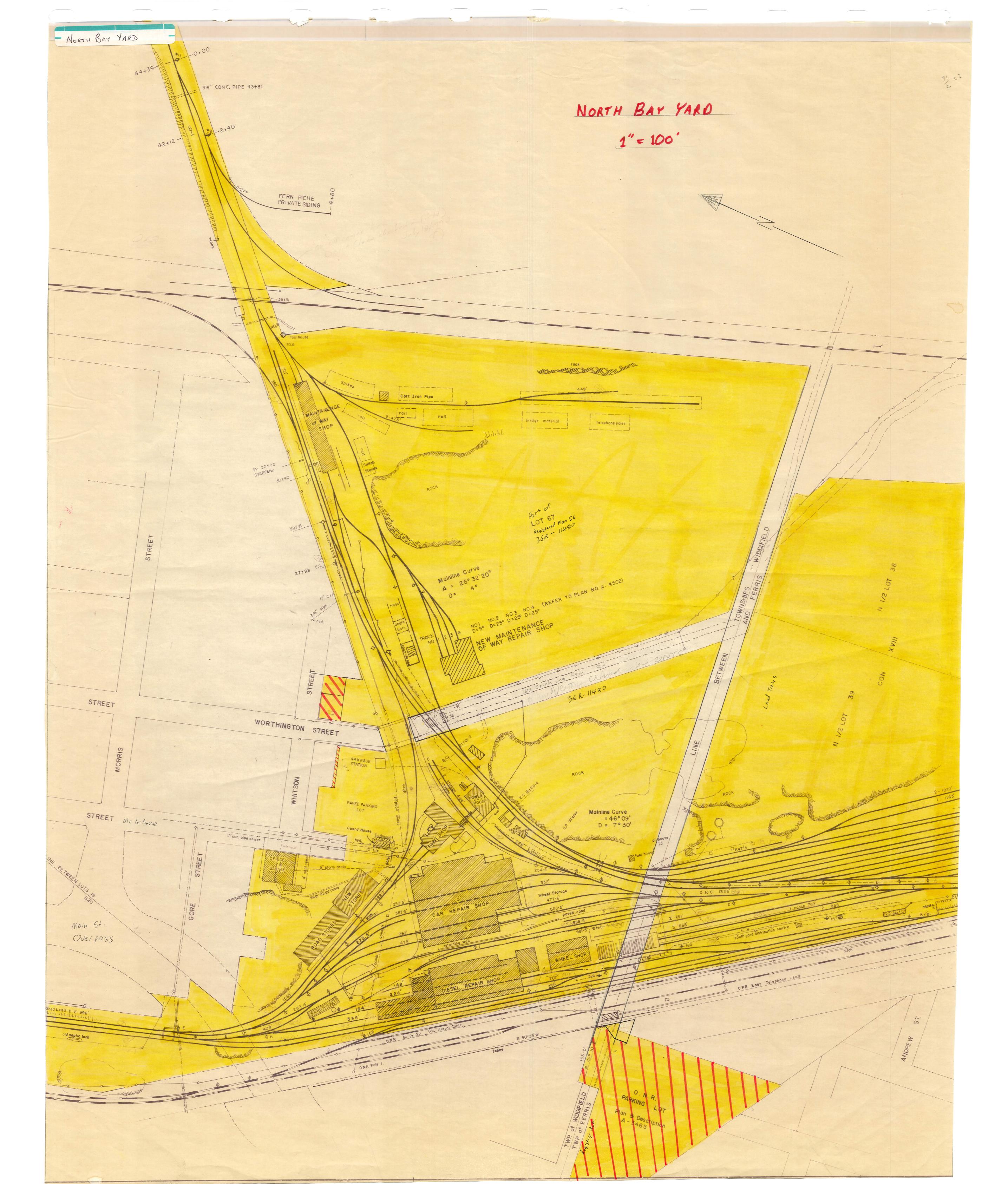
nvironment, Health & Safety - Lakefield: 185 Concession St., Lakefield, - London: 657 Consortium Court, London,

ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment	
ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361	Page

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1 BH3 -551	Dec 13/23	AM	-	Soil		X		- o		5,8				- 8							O	> 0		
2 BH 3 - 554	1	1	3	1					4			X		X			X							
3 Site 1 - TCLP	V	V	Ĭ	V														4						
4 BHG- ASI	Dec 14/23	AM	1	Soil		X																		75
5 BH6 - 555	1	1	-	1				144	×			×		×			X							
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Observations/Comments/Special Instructions									ingecorate)	Rapportis.		CORE STORY	SECURITY OF											
Sampled By (NAME): Phillip Laframboise			Signature:	Fright	mbo	80L			-			-			Date:	1	2 /	18	/20	23		(mm/dd	/vv)	Pink Copy - Client
Relinquished by (NAME): Phillip Laframboise			Signature:	Pink	Buth	-			g Just						Date:		12_/_	18	/_2023			(mm/dd	/yy)	Yellow & White Copy - SGS
Revision #: 1.4 Note: Submission of samples to SGS Date of Issue: 22 May. 2020 contract, or in an alternati	ve format (e.g. shipping	documents). (3)	Results may	tion on sample col	lection/h	andling ar nited num	ber of a	ddresses	for no a	dditiona	cost. F	ax is av	ailable	upon rec	quest.	his doc	ıment is	issued l	by the Comp	any unde	r its Ger			



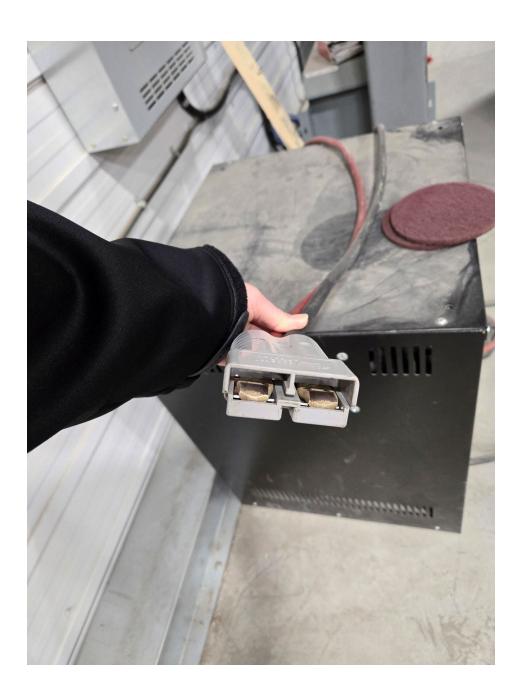




North Bay Main Stores Forklift Charging Station





















PART 4 REQUEST FOR PROPOSALS FORM OF PROPOSAL

Note: Respondent is required to complete Part 4 in its entirety in order to be considered as having submitted a complete Proposal. Part 4 will be provided in Word format to Respondents who return Schedule 2-B – Participation Registration Form.

RFP Number: RFP 2024 005		
Description: Design-Build of New Hea	ated Storage Building	
Submitted To: ONTARIO NORTHLAN	D TRANSPORTATION COMMISSION	
We,(Name of Respondent)		
(Name of Respondent)		
Section 2 – The RFP Documents, and a in the mandatory respondents' meeting	, and completed the Request For Propo Addendum No to No i and familiarized ourselves thoroughly w the Design-Build of New Heated Sto	nclusive, and having participated ith local conditions, hereby agree
\$	(\$) excluding HST

which price includes any specified allowance and all taxes (excluding HST) except as may be otherwise provided in the RFP Documents, and to furnish all materials, labour, equipment and transportation to perform the entire Work described in the RFP Documents, in the manner prescribed therein, and in accordance with the specifications.

PRICING FOR CHANGE ORDERS / CHANGE DIRECTIVES:

Please quote overhead and profit percentage based on the following project cost ranges:

Project Costs	Overhead %	Profit %
\$0 up to \$9,999		
\$10,000 up to \$49,999		
\$50,000 up to \$99,999		
\$100,000 up to 149,999		
\$150,000 up to \$200,000		
\$200,000 and higher		

<u>Please note that ONTC reserves the right to not accept the percentage values provided in the table above and any future change order markups will be reviewed and agreed upon by ONTC and contractor.</u>

Please provide the hourly rate of pay for the following (add an additional page for any Positions not listed below):

Position	Hourly Rate
Project Manager	
Estimator	
Scheduler	
Civil Engineering	
Site Supervisor	
Carpenter	
Plumber	
Electrician	
Mechanical Engineer	
Mechanical HVAC technician	
Masonry/Concrete Labour	
Roofer	
General Labour	

SEPRATELY PRICED ITEMS:

Please provide separate cost for the following items:

Items	Add	Remove
Cold Storage Building, comes with lighting, ventilation and all items required by code as per layout B 150'x200'x24'		
Option 1 - layout A 100'x300'x24'		
Knee wall - 2ft H		
Wall and roof insulation		
Interior liner panels - walls		
Interior liner panels - ceiling		
	T	
Overhead roll-up doors QTY 2, 16'x 16'		
change rollup with garage door		
Overhead doors QTY 2, 12'x 12'		
change rollup with garage door		
Heating system		
Option 1 electric		
Option 2 propane		
Option 3 heat pump		
Option 4 Natural Gas		
		,
Electrical:		
Provide at exterior walls a weatherproof, Qty 1 - 20Amp receptacle beside each mandoor		
Provision for Indoor forklift charging battery station.		
Crane		
Option 1 - 100' bridge with 100' long rails		
Option 1.1 - 50' bridge with 100' long rails		
Option 2 – 50' bridge with 200' long rails		
Option 2.1 – 50' bridge with 100' long rails		

Items	Add	Remove
Outdoor pad		
Concrete pad along the outside wall of building 4'x100' suitable for outdoor racking and storage		
Driveway		
Option 1		
Option 2		

Respondent to complete the below cost breakdown for the building:

Items	Cost
A. EXTERIORS	
A.1 SUBSTRUCTURE	
A.1.1 Foundation	
A.1.2 Excavation	
A.2 STRUCTURE	
A.2.1 Floor Constr.	
A.2.3 Roof Construction	
A.3 EXTERIOR ENCLOSURE	
A.3.1 Walls Below Grade	
A.3.2 Walls Above Grade	
A.3.3 Windows & Entrance	
A.3.4 Roof Covering	
A.3.5 Projections	
B. INTERIORS	
B.1 PARTITIONS & DOORS	
B.1.1 Partitions	
B.1.2 Doors	
B.2 FINISHES	
B.2.1 Floor Finishes	
B.2.2 Ceiling Finishes	
B.2.3 Wall Finishes	
B.3 Roof Openings	
B.3 FITTING & EQUIPMENT	
B.3.1 Fitting & Fixtures	
B.3.2 Equipment	

Items	Cost
C. SERVICES	
C.1 MECHANICAL	
C.1.1 Plumbing & Drainage	
C.1.2 Fire Protection	
C.1.3 HVAC	
C.1.4 Controls	
C.2 ELECTRICAL	
C.2.1 Services & Distribution	
C.2.2 Lighting, Devices, Heating	
C.2.3 Systems & Ancillaries	
D. SITE & ANCILLARY WORK	
D.1 SITE WORK	
D.1.1 Site Development	
D.1.2 Mechanical Site Services	
D.1.3 Electrical Site Services	
D.2 ANCILLARY WORK	
D.2.1 Demolition	
D.2.2 Alterations	
Z. GENERAL REQUIREMENTS & ALLOWANCES	
Z.1 GENERAL REQUIREMENTS	
Z.1.1 General Requirements	
Z.1.2 Fee	
Z.1.3 Permits & Insurance	
Z.2 ALLOWANCES	
Z.2.1 Design Allowance	\$25,000.00
Z.2.2 Racking System	\$250,000.00
Z.2.3 Signage Allowance	\$5,000.00
Z.2.4 Commissioning Allowance	\$6,000.00
Total Construction Costs	

Purchase is subject to budgetary approval of expenditures.

Proposal Forms:

The information contained in the Proposal Forms, as listed in the Request for Proposals and attached hereto, forms an integral part of this Proposal.

Declarations:

We hereby declare that:

- (a) We will execute the Agreement within ten (10) Working Days of receipt of the Final Agreement;
- (b) We agree to perform and fully complete the Work on or before the agreed upon schedule;
- (c) The Work is to start no later than the agreed upon start date in the schedule;
- (d) Work is deemed to be complete when Work is substantially complete as defined in the Construction Act and the Contractor is demobilized from the site;
- (e) The statutory holdback pursuant to the Construction Act will be 10%;
- (f) We will provide the required evidence of insurance, as specified in the Ontario Northland draft Agreement, with our execution of the Final Agreement;
- (g) For the General Liability Insurance, Ontario Northland Transportation Commission is to be included as an additional insured;
- (h) Coverages and limits of insurances will be provided and maintained by all Subcontractors in accordance with subsection (f) above;
- (i) No person, corporation or other legal entity other than the undersigned has any interest in this Proposal or in the proposed Contract for which this Proposal is made;
- (j) This Proposal is irrevocable for a period of ninety (90) days from the Submission Deadline;
- (k) It is understood and agreed that if this Proposal is accepted, we will not commence the Work until we have executed the Final Agreement and delivered it to ONTC and/or we are advised in writing by ONTC to proceed with the Work:
- (I) All copies of plans and specifications and other said RFP Documents furnished to us for the purpose of this Proposal are the property of ONTC and shall be kept confidential and not divulged in any manner by us. They will not be used on other work by us and will be returned to the issuing office when requested or promptly when not bidding; and
- (m) We have no right to reimbursement by ONTC for expenses, both direct and indirect, which may have been incurred by us in preparing this Proposal or otherwise participating in the RFP Process.

Signed and submitt	ed for and on behalf of:
Contractor:	
	(Company Name)
	(Street Address or Postal Box Number)
	(City, Province and Postal Code)
Signature:	
	I have authority to bind the corporation.
Name and Title:	
Email:	
Date at	this day of, 2024

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 2 RESPONDENT'S GENERAL INFORMATION

The Respondent must complete this document and submit it as part of his Proposal.

Name Please indicate the complete legal name of the firm	е
Tax Registration # (HST)	
Tax Registration # (GST)	
Tax Registration # (QST)	
Address	
Telephone Number	
Fax Number	
Web Address	
Please indicate any other name(s) under whic the firm operates (if applicable)	h
Owner Partnership Corpo	pration
Parent Company	
Subsidiaries	
Affiliates	
	cturer that has headquarters or a main office in Ontario, and that
	nanufactured goods, intangible goods, or services) on a permanent and is accessible during normal business hours.
Canadian Business Yes No	
"Canadian Business": A commercial enterprihas ongoing business activities in Canada.	rise that is incorporated pursuant to the laws of Canada and which
Main Contact Person (for the purposes of this	Proposal)
Name	
Title	
Telephone #	Fax #
E-mail address	

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 2 cont'd RESPONDENT'S GENERAL INFORMATION

Indicate below your company/business' invoice terms:				
YES NO If yes, please provide the r	ess have the capability to handle le	part of your submissio		
If available, please provide	your Dunn & Bradstreet Reference	ce Number:		
How many years of experience does your company have in the provision of goods or services proposed herein? Subcontractors The Respondent must indicate where they will use subcontractors for specific services.				
Description of Services	Subcontractor's Name	% Contract Value	Telephone Number	

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 3 ACKNOWLEDGMENT TO COMPLY WITH PART 3 - REQUEST FOR PROPOSALS SPECIFICATIONS

Ontario Northland Transportation Commission (ONTC) is committed to procuring goods and services through a process that is conducted in a fair and transparent manner, providing equal opportunity to vendors.

ONTC endeavors to provide specifications that meet the requirements of the procurement without naming specific brands. However, there may be instances where a third-party consultant prepares a specification on behalf of ONTC, and a specific brand is named. In these instances, alternates may be used if deemed equal by ONTC and/or the third-party consultant. Respondents shall submit proposed deemed equals as a clarification item to be considered while the procurement remains open per the requirements of Part 1, Section 3, item 3.2 Questions and Communications Related to the RFP Documents.

Respondent acknowledges that they can fully comply with Part 3 – Request for Proposals Specifications
(Check one) YES; NO
If the Respondent indicates "NO", they shall provide details as an attachment to this Proposal Form 3

If the Respondent indicates "NO", they shall provide details as an attachment to this Proposal Form 3, indicating how they will deviate from the requirements identified in Part 3 – Requests for Proposals – Specifications.

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 4 REFERENCES

The Respondent must supply here the reference information of three (3) customers for which they have provided services within the last 5 years. ONTC is **NOT** to be listed as a Reference.

Reference #1

Company name		
Location		
Description of services provided		
Start and end dates		
Value of the contract		
Contact person name and title		
Phone	Fax	E-mail

Reference #2

Company name		
Location		
Description of services provided		
Start and end dates		
Value of the contract		
Contact person name and title		
Phone	Fax	E-mail

Reference #3

Company name		
Location		
Description of services provided		
Start and end dates		
Value of the contract		
Contact person name and title		
Phone	Fax	E-mail

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 5 COMPLIANCE WITH CONTRACT DOCUMENTS

The Respondent may suggest changes to the Agreement included in Part 5 of this RFP using the table below. ONTC does not have any obligation to accept any proposed changes to the Agreement and will do so in its sole discretion. Significant material proposed changes to the Agreement may impact the evaluation of the Respondent's proposal. ONTC will not accept any material changes to the clauses in the Agreement relating to Confidentiality, Personal Information, Intellectual Property ownership and infringement, Indemnification, Limitation of Liability or rights of ONTC on termination. ONTC, as an Ontario Crown corporation, is unable to provide indemnities pursuant to s.28 of the Financial Administration Act (Ontario).

Exception	Contract, Schedule, Article, or Sub-Clause	Existing Wording	Respondent's Proposed Wording	Reason for Proposed Change
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 6 RESPONDENTS' MEETING REGISTRATION FORM

Reference Number: RFP 2024 005

Title: Design-Build of New Heated Storage Building

Date of Meeting: Wednesday, April 3, 2024

Submitted To: ONTARIO NORTHLAND TRANSPORTATION COMMISSION

Please confirm that you plan to attend the Respondents' Meeting by emailing a completed copy of this Registration Form, together with the Release of Liability to Brinda.ranpura@ontarionorthland.ca, prior to Tuesday, April 2, 2024 at 4:00 p.m.

Failure to submit this form <u>by the time required</u> may result in ONTC not being able to accommodate your attendance. PROPOSALS SUBMITTED BY RESPONDENTS THAT FAILED TO ATTEND THE RESPONDENTS' MEETING WILL BE DECLARED NON-COMPLIANT AND WILL BE REJECTED.

Time of Meeting: 1:00 p.m.

Location: Teams Conference Call

COMPANY NAME:

CONTACT NAME:

ADDRESS:

TELEPHONE:

EMAIL:

NUMBER OF PERSONS ATTENDING:

<u>ACCOMMODATION:</u> ONTARIO NORTHLAND IS AN EQUAL OPPORTUNITY ORGANIZATION. ACCOMMODATION IS AVAILABLE FOR RESPONDENT'S WITH DISABILITIES THROUGHOUT THE PROCUREMENT PROCESS. IF ACCOMMODATION IS REQUIRED, PLEASE CONTACT <u>brinda.ranpura@ontarionorthland.ca</u>.

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 7 HEALTH, SAFETY AND ENVIRONMENT

Respondents shall review the attached Health and Safety Policy Statement and include the following with their Proposal:

- 1. Submit a copy of the most recent version of your Health, Safety, and Environmental Protection Policy. Provide evidence of compliance to Ontario's Environmental Requirements (e.g., recycling, waste management).
- 2. Submit the attached Contractor Health and Safety Responsibility Agreement.
- 3. Submit the attached Contractor Safety Pre-Qualification Form and associated supporting documents.

Respondents must pass the Contractor Safety Pre-Qualification. Failure to pass will result in disqualification from the procurement process.



DATE FORMALIZED April 2016	
REVISED February 2023	Health and Safety Policy

POLICY STATEMENT

In keeping with our value of *Safety. Full Stop*. Ontario Northland Transportation Commission (ONTC) / Nipissing Central Railway (NCR) is committed to providing a safe and healthy work environment. Safety is core to everything we do. We don't settle for less, for our people or our customers, even when operating pressures make it difficult to do so.

As part of developing a safety culture, we will collectively strive to prevent accidents and incidents through a risk-based approach with the goal to continuously improve. Employees are required to report safety concerns immediately and can do so without fear of reprisal, while management ensures all employees receive quick follow-up.

We will adopt the latest in systems to improve the reporting, investigation, and implementation of corrective actions, close-out, and trend analysis of accidents and incidents. We will communicate safety and encourage engagement at all levels of the organization, such as during tailgates, briefings, and meetings.

The success of ONTC/NCR safety programs will be ensured through the collective and cooperative efforts of all, including management, employees, unions, and Workplace Health and Safety Committees. All ONTC/NCR members will jointly participate in safety, health and loss prevention initiatives to ensure a safe and healthy workplace for all employees.

Chad Evans

President and CEO

Ind light

CONTRACTOR HEALTH AND SAFETY RESPONSIBILITY AGREEMENT

	In su	n submitting this Proposal, I/We, on behalf of,							
					(legal name of company)				
certify the following:									
	(a)	I/We have a health and safety policy and will maintain a program to implement such policy required by clause 25(2) (j) of the <i>Occupational Health and Safety Act</i> , R.S.O. 1990, c.O. amended, (the "OHSA").							
		The re	equirements in	(a) do not apply to emp	ployers with five (5) or less employees.				
	(b)		•	Services being offered	ed in this Proposal, I/We and our proposed sub- o, and shall:				
		(i)		of the obligations under the OHSA and ensure that all work is carried out in nce with the OHSA and its regulations.					
		(ii)		adequate and compete tect the health and safe	ent supervision is provided as required under the ty of workers; and				
		(iii)		rent in the work and ur	o all employees to ensure they are informed of the nderstand the procedures for minimizing the risk of				
	(c)			precautions reasonable required under the OH	e in the circumstances for the protection of worker ISA.				
	Dated	d at		this day	of, 202				
			ed Signing Offic	cer					
(Key Contact)			-7	(Title)					
				(Telephone Number)					
				(Firm's Name)					
				(Firm's Address)					



Contractor Safety Pre-Qualification Form

1. (Company Identifica	tion:		-	ONTC Use			
Com	pany Name:		Telep	phone:				
Maili	ng Address:		Fax:	Fax:				
			E-ma	il:				
2. F	Form of Business: Sole Proprietor	☐ Partnership	o:	Corporation				
	Officers: ident / CEO President			Years with the Company				
	Treasurer Who is the manager most responsible for health and safety?							
Nam			Title:					
How many years has your business operated under its current 4. name?								
5.	Under Current Ma	anagement Since (Da	ate)					
6.	Parent Company	Information						
Pare	nt Name:							
City:		Province / State:		Postal / Zip Code:				
Subs	sidiaries:							
7.	Insurance Contac Title:	ct Information Telephone:		Fax:				
8.	Insurance Carriers:	Type of Coverage:		Telephone				
								
9.	Organization:							
J.	Organization.							
Desc	cribe the nature of t	he work your compar	ny specialized in:					

111	Ontorio	Northland	
	Untario	Northiano	
	O I I COI I O	I TOI CIII CIII CI	

Contractor Safety Pre-Qualification Form

10.	Heal	th and Safety Performance			
a)	Are othe	any of the above services that you perform normally subcontracted to ers?	☐ Yes	□ No	
b)	Can	you provide a Workplace Safety & Insurance Clearance Certificate?	☐ Yes	□ No	
c)	•	our company experience rated (CAD-7, NEER)? If yes attach CAD-7 reports he last 3 years and go to item e). If no, complete item d).	☐ Yes	□ No	
d)	defir the I	an employee of your company suffered a fatal accident or "critical injury" as ned by the <u>Ontario Occupational Health & Safety Act</u> ? Please provide for last 3 years: i) total number of lost time accidents by rate group, ii) total ober medical aid accidents, iii) total number of hours worked by each rate up	□ Yes	□ No	
e)		your company ever been subjected to a Workwell Audit? If yes, what was final score?	☐ Yes	□ No	
f)		there judgements, claims or suits pending or outstanding against your pany?	□ Yes	□ No	
g)	in th	e you received any regulatory (MOL, MOE, etc.) orders and/or prosecutions e last 3 years? If yes, provide details of all prosecution and fines for the 3 years on a separate sheet.	☐ Yes	□ No	
h)	Infra	you have involvement in provincial safety associations such as the astructure Health & Safety Association (IHSA) and/or Workplace Safety & yention Services (WSPS)? If yes, please name:	□ Yes	□ No	
			-		
			-		
11.		th and Safety Program and Procedures:			
		Do you have a written health and safety policy? If yes, include a copy.	☐ Yes	□ No	
		Do you have a written health and safety program? If yes, include a copy.	☐ Yes	□ No	
	-	If so, are the following elements addressed?	☐ Yes	□ No	
		i. Participation by all levels in the organization	☐ Yes	□ No	
		ii. Accountabilities & responsibilities for managers, supervisors and employees	☐ Yes	□ No	
		iii. Adequate resourcing for meeting health and safety requirements	☐ Yes	□ No	
		iv. Hazard identification and control	☐ Yes	□ No	
	,	v. Health and safety performance measurement and evaluation	☐ Yes	□ No	
	,	vi. Corrective actions implementation	☐ Yes	□ No	
12.		h and Safety Program: Does the health and safety program include procedures practice documents such as:			
	a)	Hazardous Energy Control, Lock-out – Tag-out	☐ Yes	□ No	
	b)	Confined Space Entry	☐ Yes	□ No	
	c)	Working at Heights, Fall Protection	☐ Yes	□ No	
	d)	Personal Protective Equipment (PPE)	☐ Yes	□ No	
	e)	Portable / Electric Power Tools	☐ Yes	□ No	
	f)	Vehicle Safety	☐ Yes	□ No	
	g)	Compressed Gas Cylinders	☐ Yes	□ No	
	h)	Electrical Equipment Grounding Assurance	☐ Yes	□ No	

***	Ontario	Northland

20. Are employees trained in PPE care, use and maintenance?

21. Do you have a corrective actions process for addressing individual health and safety performance deficiencies

***	0	ntario Northland Contractor Sa	afetv Pre-Qua	alification F	orm
	i)	Powered Industrial Vehicles (forklifts, cranes, etc.)	□ Ye:		
	j)	Heavy Construction Equipment (excavators, backhoes, bulldozers, etc.)	□ Ye:	s □ No	
	k)	Excavation and Trenching	□ Ye:	s □ No	
	l)	Housekeeping	☐ Yes	s □ No	
	m)	Accident / Incident Reporting and Investigation	□ Ye:	s □ No	
	n)	Hazard / Unsafe Condition Identification, Reporting and Communication	☐ Yes	s □ No	
	o)	Workplace Hazardous Materials information System (WHMIS)	□ Ye:	s □ No	
	p)	Emergency Action Plan / Evacuation Plan	□ Ye:	s □ No	
	q)	Spill Response / Reporting	□ Ye:		
	r)	Respiratory Protection	□ Ye:	s □ No	
	s)	Designated Substances Management	□ Ye:	s □ No	
	t)	Waste Staging / Disposal	□ Ye:	s □ No	
	u)	Traffic Control	□ Ye:	s □ No	
	v)	Hearing Conservation	□ Ye:	s □ No	
C	lo no	ou have a policy/procedure for terminating contracts of subcontractor comply with the requirements of the Occupational Health & Safety ciated regulations and / or company safety rules?		s 🗆 No	
C	an s	our employees read, write and understand English to the degree that safely perform their tasks without the aid of an interpreter? (If no, propretation of your plan to assure that they can safety perform their tasks	vide a	s 🗆 No	
У	•	ou have personnel certified in Emergency First Aid and CPR on site? provide copies of certificates of training for site personnel proposed fect?		s 🗆 No	
16 Г)o v	ou have First Aid kits available to your staff?	□ Ye	s □ No	
10. 1	, o	ou have the trial title available to your stain.	_ 16	3 L 110	
		s your company use a formalized Health and Safety Plan for conduct projects?	ing □ Ye	s 🗆 No	
18. [oes	s the company conduct pre-placement medical examinations?	□ Ye	s □ No	
		, , , , , , , , , , , , , , , , , , , ,	•		
19. I	s tas	sk-adequate PPE provided to workers?	□ Ye	s □ No	

☐ Yes

☐ Yes

 \square No

 \square No



Contractor Safety Pre-Qualification Form

22. Equi	pment and Manuals:					
a.	Do you conduct inspections on operating equipment (e.g. excavators, cranes, forklifts, vehicles, etc.) as per regulatory requirements?	☐ Yes	□ No			
b.	Do you maintain operating equipment in compliance with regulatory requirements?	☐ Yes	□ No			
C.	Do you maintain applicable pre-use inspection and maintenance certification records for operating equipment?	☐ Yes	□ No			
d.	Are records available upon request	☐ Yes	\square No			
23. Sub	contractors					
a.	Do you use health and safety performance criteria in the selection of contractors?	☐ Yes	□ No			
b.	Do you require your subcontractor to have a written health and safety program?	☐ Yes	□ No			
C.	Are your subcontractors included in:					
	health and safety orientation	☐ Yes	☐ No			
	health and safety meetings	☐ Yes	\square No			
	workplace inspections	☐ Yes	☐ No			
	health and safety audits	☐ Yes	☐ No			
d.	Does the company have a policy for the termination of contracts of subcontractors who do not comply with the Occupation Health and Safety Act, regulations under the Act, contractor rules, programs, protocols	☐ Yes	□ No			
e.	policies or procedures? Does the company have a progressive discipline policy for employees and subcontractors?	☐ Yes	□ No			
24. Heal	th and Safety Training					
a.	Are you aware for the regulatory training requirements for your employees?	☐ Yes	□ No			
b.	Have your employees received the required health and safety training?	☐ Yes	□ No			
C.	Do you have specific health and safety training for supervisors?	☐ Yes	□ No			
d.	Do you keep records of health and safety training for employees?	☐ Yes	□ No			
e.	Are records of health and safety training available on request?	☐ Yes	\square No			
25. Job	Skills					
a.	Have employees been trained in appropriate job skills?	☐ Yes	\square No			
b.	Are employee job skills certified where required by regulation or industry standard?	☐ Yes	□ No			
C.	Are certificates available upon request?	☐ Yes	\square No			
26. Heal	th and Safety Supervision					
a.	Does the company have a health & safety coordinator?	☐ Yes	\square No			
b.	Who is the highest ranking safety professional in the company?					
	t the above information is true and correct to the best of my knowledge. I also agree to follow all terms					
Program at	all times while performing work for ONTC. I understand that supporting documentation may be reque-	sted for due dili	igence verifica	tion purposes.		
Name: (Please print) Title:						

Name: (Please print)	l itle:	
Signature:	Date:	

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 8 SCHEDULE OF MATERIALS

SCHEDULE OF MATERIALS - VARIATIONS (AND SOURCES)
VARIATIONS:

MATERIALS SOURCES: (ADD WHERE REQUIRED)

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 9 LIST OF EQUIPMENT

List all Equipment, owned or controlled by the Respondent for use on the Work. Such list shall show for each Unit the description of the Unit, capacity, condition, age, present location, the owner's name and all-inclusive hourly rental rates. Such equipment shall be subject to inspection by ONTC to verify the stated information.

QUANTITY DESCRIPTION CAPACITY CONDITION AGE LOCATION OWNER RENTAL RATE

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 10 SCHEDULE AND PROPOSED APPROACH

CONSTRUCTION SCHEDULE

Respondents shall include a construction schedule with their Proposal. The construction schedule shall be in Gantt chart format, showing all activities of the Work and the critical path. The construction schedule shall reflect the milestone dates listed below.

Mandatory Respondents' Meeting	April 3, 2024
Request for Proposal Close	April 19, 2024
Mobilization to site	July 15, 2024
Completion of the Work	February 15, 2025

Do you agree to complete the Work by February 15, 2025?

Respondent confirms that they will complete the Work by February 15, 2025.
(Check one) YES; NO
If the Respondent answered "No" above, please advise of the completion date:
Completion Date:
Respondents shall provide the firm date and not a range or estimate of weeks. If a range or estimate is provided, ONTC will utilize the last date provided.

(ONTC reserves the right, in its sole discretion, to disqualify a quotation that does not meet the specified requirements or cannot be completed prior to the end of the ONTC fiscal year (March 31, 2025).

PROPOSED APPROACH

The Respondent shall provide a written narrative plan on their proposed approach for the project, demonstrating their ability to complete the project on budget and on schedule within the timelines identified. Evidence of a thorough review of the RFP Documents <u>and consideration for scheduling above grade work prior to the winter season</u> should be apparent in the Respondent's Schedule and Proposed Approach.

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 11 SCHEDULE OF PROGRESS PAYMENTS

Indicate below,	the estimate	of the monthl	y progress	billings	(gross	before	holdback)	for the	duration of	of
the Agreement										

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 12 LIST OF PERSONNEL

List the names of the Principal Personnel who will be assigned to the Work and <u>include their resumes</u>. This information shall be for the use of ONTC in assessing the Proposal. <u>In the event of a Subcontractor(s) being listed as Principal Personnel, the Respondent shall also include their resume(s).</u>

Name Position Ex	xperience
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PART 4 – FORM OF PROPOSAL PROPOSAL FORM 13 CURRENT LABOUR AGREEMENTS

List the current labour agreements the Respondent or each partner in a joint venture has in force covering this type of work in the Province in which the Work is to be performed.

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 14 CONTRACTOR'S QUALIFICATION STATEMENT

1. The Respondent shall include a company profile.

In the event that the Respondent is using a subcontractor(s) for a portion(s) of the scope of work associated with this RFP, they shall also include with this Proposal Form 14, a company profile for each subcontractor.

- 2. The Respondent shall supply a minimum of three (3) project descriptions for projects of a similar nature and scope. The project descriptions shall include:
 - a) Company/Client
 - b) Name of contact and contact details
 - c) Project Name
 - d) The scheduled project start and end date
 - e) The actual start and end date
 - f) The project value of the Respondent's scope of work for the project at the beginning of the project
 - g) The project value of the Respondent's scope of work for the project at the end of the project
 - h) Detailed description of the Respondent's scope of work for the project. The description should detail if subcontractors were used to complete part of the scope.
 - i) Outcomes of the project (i.e., completed on schedule and on budget etc.)

ONTC may, in its sole discretion, confirm the Respondent's experience in the projects identified by contacting the named contacts above, in addition to the references provided as part of Proposal Form 4.

- 3. The Respondent shall describe their experience with the climatic and environmental requirements in Northern Ontario.
- 4. The Respondent shall describe how and when you will use local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services.

ONTC will consider all information submitted in the Respondent's Proposal when evaluating the Respondent's experience.

PART 4 – FORM OF PROPOSAL PROPOSAL FORM 15 CLAIMS

Submit an up to date list of outstanding,	pending or	anticipated	claims,	proceedings,	liens	or other	legal
claims, actions or proceedings.							



PART 5 REQUEST FOR PROPOSALS DRAFT AGREEMENT

Note: The draft agreement will be issued by way of Addendum in accordance with these RFP Documents.