

ONTARIO NORTHLAND

TRANSPORTATION COMMISSION

Request for Proposals No. RFP 2025 055

For

North Bay Station Upgrades

REPLY BY DATE:

2:00:00 p.m. Wednesday, July 30, 2025

Primary Contact:

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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

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 part of ONTC’s service offering. ONTC’s unique mechanical skillset attracts new business and secures skilled trades jobs in Northern Ontario by remanufacturing and repairing locomotives, passenger rail cars, freight cars, and more.

ONTC makes provincial dollars reach further by creating innovative solutions that help drive economic growth sustainably, responsibly, and with future generations in 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-1 – Scope of Work
- (b) Schedule 3-A-2 – Technical Specifications
- (c) Schedule 3-A-3 – Issue for Tender Drawings
- (d) Schedule 3-A-4 – Policies and Procedures

Part 4 – Form of Proposal

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

Part 5 – CCDC 2 – 2020 - Supplementary Conditions

- (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.
- (2) 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 **Ashley Commanda, Manager, Public Procurement, 555 Oak Street East, North Bay, Ontario P1B 8L3 (705) 472-4500 ext. 398, Ashley.Commanda@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 the 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) 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.

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:
 - (a) 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 it 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, it 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 non-disclosure 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.
- (3) 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 pre-printed 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:
 - (a) 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:
 - (a) 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 (10%) 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.

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 or 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 Manager, Public Procurement by prepaid courier or personal delivery at the following address:

Ashley Commanda
Manager, Public 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 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 post-submission 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,
 - (l) 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 form (Form 31 and 32).

<http://ontariocourtforms.on.ca/en/construction-lien-act-forms/>
 - (b) Certificates of insurance as specified in the Supplementary Conditions;
 - (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(6) 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 2025 055 North Bay Station Upgrades	
Contact Details	
Contact Person	Ashley Commanda, Manager, Public Procurement
Contact Information	555 Oak Street East North Bay, Ontario, P1B 8L3 Ashley.commanda@ontarionorthland.ca (705) 472-4500 ext. 398
Proposal Detail	
Site Visit	A mandatory Respondents' Meeting will be carried out on Thursday, July 10, 2025 at 10:00 a.m. at 100 Station Rd, North Bay, ON P1A 0B7. Respondents must complete the Respondents' Meeting Registration Form, together with the Release of Liability, and return it via email by Wednesday, July 9, 2025 at 4:00 p.m. to Ashley Commanda at ashley.commanda@ontarionorthland.ca .
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 <u>will</u> be a two-envelope process. Please submit Proposal Form 1 and Proposal Form 1-A in Envelope 2 - Price Proposal. The balance of the Proposal should be contained in Envelope 1 - Technical Proposal. Please do not include any pricing information in Envelope 1 - Technical Proposal.
Distribution Method	The RFP Documents will be posted on the ONTC website and MERX. Any addenda to the RFP will be shared to these locations.

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

RFP 2025 055
North Bay Station Upgrades

Proposal Detail *continued*

Submission Requirements	<p>Respondents are required to submit <u>all</u> of the material 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.</p>		
	Item	Included in Proposal (indicate with <input type="checkbox"/>)	Item is classified as Material
	This checklist		
	Proposal Form 1 - Proposal Submission Form		Material
	Proposal Form 1-A – Schedule of Prices		Material
	Proposal Form 2 - Respondent's General Information		Material
	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
	Proposal Form 11 - Schedule of Progress Payments		Material
	Proposal Form 12 - List of Key Personnel		Material
	Proposal Form 13 - Current Labour Agreements		
	Proposal Form 14 - Contractor's Qualification Statement		Material
	Proposal Form 15 – Claims		
	Bid Performance Security and Agreement to Bond (Scanned Copy Acceptable)		Material

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

RFP 2025 055 North Bay Station Upgrades			
Important Dates			
Publication Date	Friday, June 27, 2025		
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	Wednesday, July 30, 2025 at 2:00:00 p.m. (EDT)		
Ready-for-Takeover Date	December 5, 2025		
Notes Pertaining to Final Agreement			
Liquidated Damages	The per diem rate calculated in relation to Section 10.4 of the Supplementary Conditions is \$500 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			
Mandatory Requirements	Respondents must satisfy all of the Mandatory Requirements listed below. 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 Requirement	Pass	Fail
	Respondent has participated in the Mandatory Respondents' Meeting		
	Respondent must be a Canadian Business or domiciled in an international trade partner.		
	Bid Performance Security and Agreement to Bond as prescribed in Part 1, Request for Proposals, Section 4.3 (Scanned copy acceptable with Proposal)		

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

RFP 2025 055 North Bay Station Upgrades		
Procedure of Selection <i>continued</i>		
Evaluation General Procedure	Respondents must score a <u>minimum of 50%</u> in Experience and Qualifications and score a <u>minimum of 50% in</u> Schedule and Proposed Approach to qualify for shortlist consideration. Respondents who fail to score a minimum of 50% in each of these categories may be disqualified from the RFP Process.	
Evaluation Criteria	Description	Weight
	<p>Price ONTC will use the following to calculate the initial score for price:</p> <p>Lowest price of all Proposals / price of Respondent x 45 = Score</p> <p><u><i>This information shall be provided under Proposal Form 1–A Schedule of Prices</i></u></p> <p><i>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 of 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”.</i></p>	45
Evaluation Criteria	<p>Experience and Qualifications ONTC will assess Respondents’ experience and qualifications using the information supplied in Part 4 of this RFP. The following sub-weights will apply:</p> <p>Resumes of Key Personnel (Including Subcontractor(s) if any) – 4 points</p> <p><u><i>This information must be provided under Proposal Form 12 List of Key Personnel</i></u></p> <p>Company Profile (Including Subcontractor(s) if any) – 4 points Project Profile 1 to 3, inclusive – 12 points The Respondent shall describe how and when you will use Ontario’s local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services. Please list any local subcontractors or suppliers being used for the successful completion of this project. – 5 points</p> <p><u><i>This information shall be provided under Proposal Form 14 Contractor’s Qualification Statement</i></u></p> <p><i>ONTC may or may not contact references as part of the evaluation and may use this information as part of this score.</i></p>	25

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

RFP 2025 055 North Bay Station Upgrades		
Procedure of Selection <i>continued</i>		
Evaluation Criteria	Description	Weight
	<p>Schedule and Proposed Approach (<i>continued</i>) ONTC will assess the Respondent's Schedule and Proposed Approach based on the following:</p> <p>Is the Schedule in the format requested and are the milestone dates aligned with the completion dates for the Project? - 3 points</p> <p>Has the critical path been identified? - 2 points</p> <p>Is the schedule and proposed approach logical and do they have sufficient detail, including durations for each task? - 5 points</p> <p>Describe how you will provide an uninterrupted supply of the required goods and/or services to avoid any adverse impact on the project schedule. Respondents must identify any anticipated product delays and build this into the schedule. – 10 points</p> <p><u><i>This information must be provided under Proposal Form 10 – Schedule and Proposed Approach</i></u></p>	20
	<p>Health, Environment and Safety Provide evidence of compliance with Ontario's health, safety and environmental requirements by submitting copies of your Health, Safety, and Environmental Protection Policies. Including any documentation/policies for working around active rail. Provide evidence of compliance with the Occupational Health and Safety Act (OHSA), Construction Projects Regulation (O. Reg. 213/91), Environmental Protection Act (EPA), and ONTC's Technical Specifications.</p> <p><u><i>This information must be provided under Proposal Form 7 – Health, Environment and Safety</i></u></p>	10
	Total	100

**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 2025 055
Description of Requirement: North Bay Station Upgrades

I, the undersigned, am registering to participate in the above referenced requirement and will be the primary contact for any communications in relation to this process and project until further advised.

Company Name: _____
Address: _____

Name of person registering to represent
company referenced above (please
print): _____
Email Address: _____
Phone Number: (Main Office Number) _____
Cell Number: _____

Signature of Primary Contact: _____

Return form to the Contact Person as referenced below via email as an attachment:

Thank you.

Ashley Commanda
Manager, Public Procurement
Ontario Northland Transportation Commission
Phone: 705-472-4500 Ext. 398
Email: ashley.commanda@ontarionorthland.ca
Website: www.ontarionorthland.ca

PART 3
REQUEST FOR PROPOSALS
SPECIFICATIONS

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-1
SCOPE OF WORK

1. Introduction

ONTC is seeking proposals from qualified contractors to deliver the required services as indicated in the RFP document to complete the interior building upgrades at the North Bay Station Building, located at 100 Station Rd, North Bay, Ontario.

The following is a General Description of the work to be Ready-for-Takeover by December 5, 2025. The work to be completed is detailed in the drawings and attached to this RFP at Schedule 3-A-3.

2. Background

Constructed in 1990, the North Bay Station Building currently consists of offices, storage, meeting room, hallways and corridors, passenger waiting area and changing and restroom. It is a single Storey structure with a basement. The station is located east of downtown near the Trans-Canada Highway (Ontario Highways 11 & 17) and directly southeast of the Northgate Shopping Centre, where the train platform is located, and the trains are in operation.

With the Northlander passenger train service returning, ONTC is upgrading the North Bay Station buildings to comply with the accessibility requirements identified in the AODA Act and Buildings Codes.

The North Bay project site is located at the coordinates below:

GPS - [46.31396827333393, -79.43852623558236](https://www.google.com/maps/place/46.31396827333393,-79.43852623558236/@46.31396827333393,-79.43852623558236,15z)



Figure 1 Site Map: North Bay Station

3. Summary of Project Requirements:

The following list of items is to be used as a guideline only and may not include all the items to complete the work.

North Bay

- Construct a new bathroom layout (consisting of 5 unisex washrooms and one universal washroom).
- New floor, wall, and ceiling finishes.
- Installation of new interior doors.
- New Plumbing fixtures and piping.
- New Furniture for waiting room.
- New Ticket Counter and BPX counter.
- New interior light fixtures.
- New handrail.
- Installation of TVs purchased and provided by ONTC.
- Reinstallation of the existing camera(s). All existing cameras are to be reused.
- Reinstallation of existing Public Address (PA) systems. If the PA system is no longer functioning, ONTC to provide and purchase the new PA system.
- Purchase and install furniture following ONTC specs.
- ONTC plans on shutting down the lobby area during the construction phase. The contractor is responsible for providing temporary space for ONTC to run its operations (counter service desk and train ticketing desk). The space shall be heated, air-conditioned and provide a waiting area for passengers, three workstations, 4 washrooms and shall be accessible (ramp). Connection to hydro, water, gas, sewage, and IT communications shall be the contractor's responsibility. Exterior signage will be provided by ONTC.
- The power to feed the temporary trailer can be withdrawn from the ONTC Station building.
- Construction activities shall only start once the new temporary space is readily available to be used by ONTC.
- The work to be completed is detailed under Schedule 3-A-2 – Technical Specifications.

General Responsibilities:

1. The Contractor is expected to provide turnkey construction activities for this project, resulting in a finished, fully functional, usable facility that satisfies all project requirements and contract terms.
2. Building and zoning permits are not required. Any other required permits will be the Contractor's responsibility.
3. Coordination with utility providers, Municipalities, Authorities Having Jurisdiction (AHJ) and Fire Department is the contractor's responsibility.
4. Note that any deviation(s) must be first agreed to and approved by ONTC.

3.1 Qualifications and Quality Requirements:

1. The contractor to provide quality management plan. 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.
2. The Contractor shall appoint and pay for services of Testing Agents & Laboratories.
3. 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 should be removed, or corrective measures taken to ensure compliance with standards.

3.2 Schedule of services:

1. North Bay: Construction activities shall commence on August 1, 2025, and be completed by December 5, 2025.

3.3 Pricing:

1. The contractor to carry cash allowance for the signage. In the amount of CA \$5,000 for the supply and install of “**Ticket/Billet**” and “**I**” signs on top of counter desk.

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-2
TECHNICAL SPECIFICATIONS

Refer to the Technical Specifications, as outlined below, and which are attached to this Schedule 3-A-2.

SECTION	TITLE
Division 00 – Procurement and Contracting Requirements	
00 31 00	Available Project Information
Division 01 – General Requirements	
01 11 00	Summary of Work
01 14 00	Work Restrictions
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 32 16.16	Construction Progress Schedule – Critical Path Method (CPM)
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 Procedure
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 55 26	Traffic Controls
01 56 00	Temporary Barriers and Enclosures
01 57 00	Temporary Controls
01 61 00	Common Products 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 Forms
<i>Issued for Tender and Construction Specification Prepared by Piotrowski Consultants Ltd.</i>	
DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS	
00 00 01	Table of Contents
DIVISION 02 - EXISTING CONDITIONS	
02 41 19	Selective Demolition & Removals

DIVISION 05 - METALS	
05 50 00	Metal Fabrication
DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES	
06 10 00	Rough Carpentry
06 40 00	Architectural Woodwork
DIVISION 07 - THERMAL AND MOISTURE PROTECTION	
07 21 16	Acoustic Batt Insulation
07 92 00	Joint Sealers
DIVISION 08 - OPENINGS	
08 11 00	Steel Doors and Frames
08 71 00	Finishing Hardware
	Finishing Hardware Schedule
DIVISION 09 - FINISHES	
09 22 16	Non-Load Bearing Wall Framing
09 29 00	Gypsum Board
09 30 13	Porcelain and Ceramic Tile
09 65 16	Resilient Sheet Flooring
09 90 00	Painting
DIVISION 10 - SPECIALTIES	
10 28 00	Washroom Accessories
DIVISION 21 – Fire Suppression	
21 05 01	Mechanical General Requirements
21 07 19	Thermal Insulation for Piping
DIVISION 22 - Plumbing	
22 11 18	Domestic Water Supply – Copper
22 13 17	Drainage Waste and Vent Piping – Cast Iron and Copper
22 13 18	Drainage Waste and Vent Piping – Plastic
22 42 01	Plumbing Specialties and Accessories
22 42 02	Plumbing Fixtures and Trim
DIVISION 23 – Heating, Ventilating and Air-Conditioning (HVAC)	
23 05 29	Pipe Hangers and Supports
23 05 54	Identification
23 07 13	Thermal Insulation for Ducting
23 31 14	Ductwork - Low Pressure - Metallic to 500 Pa
23 33 00	Duct Accessories
23 33 15	Dampers – Operating
23 33 16	Dampers - Fire and Smoke
23 37 13	Grilles, Registers and Diffusers
DIVISION 26 - Electrical	
26 05 00	General Electrical Requirements
26 05 20	Wire and Box Connections 0 - 1000 V
26 05 21	Wires and Cables 0 - 1000 V
26 05 28	Grounding - Secondary
26 05 32	Outlet Boxes, Conduit Boxes and Fittings
26 05 34	Conduits, Conduit Fastenings and Conduit Fittings
26 27 26	Wiring Devices

26 50 00	Lighting
DIVISION 27 – Communications Systems	
27 05 00	Communication System CAT 6

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 DEFINITIONS

- .1 Available Project Information: information identified in this section, of any type, and in any form, and identified as Reference Documents. 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.
- .2 Contractor: synonymous with Respondent

1.03 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 Consultant and Owner.
- .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. The Owner and Consultant assume no responsibility for interpretations or conclusions made.
- .5 In the event there is a conflict between the Contract Documents and the recommendations contained in the Available Project Information, the Contract Documents shall govern.

1.04 AVAILABLE PROJECT INFORMATION

- .1 The following Available Project Information is incorporated into the Contract Documents:
 - .1 Attachment 1: ONTC Policies.

a. RELATED INSTRUCTIONS

- .1 Report any irregularities or changed surface conditions at the Place of the Work to the Owner a minimum of 7 days before RFP close.

2 PRODUCTS

a. NOT USED

.1 Not Used.

3 EXECUTION

a. NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

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

1.03 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract includes the following:
 - .1 Interior upgrades to ONTC Station building located in North Bay, Ontario.
- .2 The Summary of Work provided above is for reference only:
 - .1 Complete interior upgrades at North Bay Station building as prescribed in the contract documents.
- .3 The contractor shall undertake the Work during the summer of 2025, with all Work to be completed by December 5, 2025.

1.04 SUBMITTALS

- .1 Submit for review and Acceptance in accordance with Section 01 33 00 - Submittal Procedures.
- .2 In addition to Submittals identified throughout the Specifications, submit the following:
 - .1 Submit Project Construction Schedule in accordance with Section 01 32 16.16 - Construction Progress Schedule.
 - .2 Submit Construction Waste Management Plan highlighting recycling and salvage requirements in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .3 Submit site-specific Health and Safety Plan in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .4 Submit a Construction Project Management Plan, including communication, risk, and Quality Management Plans.

1.05 WORK BY OTHERS

- .1 The Work under this Contract shall be performed by the Contractor.
- .2 The contractor shall co-operate with other contractors retained by the Owner in carrying out their respective works and carrying out instructions from the Owner and the Consultant. Refer to

Contract Documents for additional requirements.

1.06 WORK SEQUENCE

- .1 Construct Work in a manner that accommodates Owner's and public continued and/or intermittent use of premises during construction. Refer to Section 01 14 00 - Work Restrictions.
- .2 Co-ordinate Construction Schedule and Owners for use of premises during construction.
- .3 Do not close off Owner or public usage of premises until use of one stage of Work will provide alternate usage.
- .4 Maintain fire access/control.
- .5 Protect workers and public safety.
- .6 Work near rail tracks shall be preapproved by the Owner and completed as per the Owner's procedures and policies.

1.07 CONTRACTOR USE OF PREMISES

- .1 The contractor shall establish a Construction Area where the Contractor assumes the role of Constructor and will be responsible for the Construction Area until Ready for Takeover. The Contractor will be required to secure the Construction Area for the duration of the Project. The Contractor will be responsible for all activities inside the Construction Area, including health and safety. The Contractor shall coordinate the Work with the Owner to ensure that work being done by the Owner in the areas outside of the Construction Area is not interrupted. Access by the Contractor shall be restricted to the Construction Area only.
- .2 In some circumstances, Contractor shall coordinate and limit its access to Construction Area to allow:
 - .1 Owner occupancy.
 - .2 Partial owner occupancy.
 - .3 Work by other contractors or utilities providers.
 - .4 Public usage.
 - .5 Third Party Property Owner occupancy and use.
- .3 Co-ordinate use of premises under the direction of the Owner.
- .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.

1.08 OWNER OCCUPANCY

- .1 Owner may occupy premises (adjacent buildings, railway tracks) during the entire construction

period for execution of normal operations.

- .2 Co-operate with the Owner in scheduling of the Work to minimize conflict and to facilitate Owner occupancy and usage of the premises.

1.09 Products Supplied by Others

.1 ONTC will supply:

- Scales to be mounted on the PBX counter service desk. On counter.
- Second counter to be mounted under the PBX counter service desk.
- Existing scale to be used for installation. (Quantity 2 in total)
- TVs. Quantity is 1.

- .2 Contractor is responsible for receiving, unloading, if required, and handling Products Supplied by Others at the project site; setting or installing the Products in place; making any required connections to the mechanical, plumbing, electrical systems, and any other systems; and disposal of shipping or packing materials. Owner and/or Consultant and Contractor shall jointly inspect the Products for damage upon delivery to the Place of the Work. If this inspection determines that the furnished Products are damaged or defective, the Owner will arrange for the necessary replacement or repairs. Contractor is responsible for protecting the Products Supplied by Others from damage during storage and handling and is responsible for damage caused to those Products during storage and handling.
- .3 Contractor to install all Products Supplied by Others in accordance with the manufacturer's installation instructions and the design of Drawings, Specifications and Contract Documents.
- .4 Contractor to review manufacturer's installation instructions and advise the Consultant of any discrepancies or issues in a timely manner to avoid any potential delays.
- .5 Contractor to obtain manufacturer and Consultant approval before making any modification to Products Supplied by Others.
- .6 Upon completion of the installation of the Products Supplied by Others, the Contractor, the Consultant and/or the Owner will inspect the Work. Manufacturers and or Suppliers may participate in the inspection as required by their contract obligations. Upon Acceptance, the Contractor will provide a workmanship warranty in accordance with the Contract Documents.

1.10 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING AND STRUCTURES

- .1 Execute Work with least possible interference or disturbance to premises, site, Owner operations, occupants, public and normal use of premises. Arrange with the Consultant and Owner to facilitate execution of Work.

1.11 EXISTING SERVICES

- .1 Notify the Owner and utility companies of intended interruption of existing services and obtain required permissions when applicable.
- .2 Where Work involves breaking into or connecting to existing services, provide the Owner with at least five (5) Working Days' notice of necessary interruptions of mechanical or electrical service during the Work. Minimize the duration of interruptions. Carry out Work at times as directed by

Authorities Having Jurisdiction and the Owner to ensure minimum disturbance to pedestrian and vehicular traffic and the Owner operations.

- .3 Provide alternative safe and protected routes for personnel, pedestrian, and vehicular traffic.
- .4 Establish location and extent of service lines in the Place of the Work before starting Work. Notify the Owner of the findings.
- .5 Submit schedule for Acceptance by the Owner ten (10) Working Days before any scheduled work for any shut-down or closure of active service or facility including power and communications services. Adhere to Accepted schedule and provide notice to affected parties. Refer to Section 01 14 00 - Work Restrictions.
- .6 Provide temporary services when directed by the Owner to maintain critical operations, building, and tenant services. Refer to Section 01 14 00 - Work Restrictions.
- .7 Where unknown services are encountered, immediately advise the Consultant and confirm findings in writing.
- .8 Protect, relocate, or maintain existing active services. When inactive services are encountered, cap off in a manner approved by Authorities Having Jurisdiction and the Consultant.
- .9 Record locations of maintained re-routed and abandoned service lines.
- .10 Construct barriers, as required, in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .11 Locate and trace existing underground services before any excavation.
- .12 Any damage to existing services during the Work will be the responsibility of the Contractor.

1.12 DOCUMENTS REQUIRED

- .1 Maintain at the Place of the Work, one copy of each document as follows:
 - .1 Contract Documents.
 - .2 Contract Drawings.
 - .3 Technical Specifications.
 - .4 Accepted Shop Drawings, Product data and samples.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Contract Amendments.
 - .8 Field Test Reports.
 - .9 Copy of Accepted Construction Schedule.
 - .10 Health and Safety Plan and Other safety related documents.
 - .11 As-Built Drawings.
 - .12 Other documents as specified.

2 EXECUTIONS

2.01 General Requirements:

- .1 Contractor will be required to complete the Work in accordance with applicable federal, provincial, and municipal laws.
- .2 The Contractor shall designate a Project Manager with overall responsibility for the Work. The Contractor will also designate a site supervisor who will be responsible for managing the Work at each site and be responsible for on-site safety, including all Sub-contractors and Suppliers. The site supervisor will be the single point of contact at each site. This site supervisor will be required to communicate with the Consultant and Owner as required to ensure the Work is completed safely with no impact on Owner operations.
- .3 The Contractor will be required to coordinate their hours of work with the Owner.
- .4 The Contractor's employees, Subcontractors, and Suppliers will be required to sign in and out every time they enter or leave the Place of the Work using a sign-in/sign-out logbook which will be held by the site supervisor in charge of that site.
- .5 Contractor shall 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.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

- .1 ONTC Contractor/Subcontractor Policy.
- .2 ONTC policies
- .3 Section 01 73 00 - Execution

1.03 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" Construction Areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with the applicable laws of Authorities Having Jurisdiction.

1.04 USE OF SITE AND FACILITIES

- .1 Execute Work with least possible interference or disturbance to normal use of premises. Make arrangements with consultant to facilitate Work as stated.
- .2 Where premises are not owned by the Owner or are leased to Third Party Property Owners, provide written notification of access and planned Work to the Consultant (10) Working Days prior to the Work commencing.
- .3 Maintain existing services to buildings and provide for safe and protected access for people and vehicles.
- .4 Where security is reduced by the Work provide temporary means to maintain security.
- .5 Closures: protect the Place of the Work temporarily until permanent enclosures are completed.
- .6 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 pre-approved. Submit a request to the Consultant for review and approval to work outside these hours a minimum of five (5) Working Days prior to the work commencing.

1.05 SPECIAL REQUIREMENTS

-
- .1 Ensure Contractor's personnel on site are familiar with and obey the policies and safety, fire, traffic and security regulations and have completed the ONTC site orientation training.
 - .2 Keep within limits of Work and avenues of ingress and egress.
 - .3 **Additional requirements:**
 - .2 Construct Work in stages and in a manner that accommodates the Owner's continued and/or intermittent use of premises during construction.
 - .3 ONTC operations shall not be interrupted. Coordinate with Consultant to facilitate the execution of the work with minimal disruption.
 - .4 Arrange and obtain Consultant approval for any temporary utility outages a minimum of seven (7) Working Days prior to the commencement date of the Work, including details about the Work to be completed and the schedule for the Work. Provide temporary power services to ensure no outages to maintain critical operations, building and tenant services.
 - .5 Limit access to the Construction Area.
 - .6 Employ just-in-time delivery methods to minimize required storage and laydown space.
 - .7 Arrange and obtain Owner approval to access ONTC building to complete Work under this Contract. Submit a request to Owner and the Consultant a minimum of seven (7) Working Days prior to the proposed commencement date for the Work, including details about the Work to be completed, the schedule for the Work and a list of Contractor employees and Subcontractors and Suppliers involved in the Work.
 - .1 Park vehicles in locations approved by Owner.
 - .8 Where the excavation, cutting and/or patching is required closely or immediately adjacent to, and/or drilling into, the existing building foundation assess impact and provide for Acceptance a site plan which demonstrates structure is not affected and specifies reinstatement prior to undertaking the Work.
 - .9 Contractor shall not access Third Party leased land without prior approval by the Owner. Submit a request to Owner and the Consultant a minimum of seven (7) Working Days prior to the proposed commencement date for the Work, including details about the Work to be completed, the schedule for the Work and a list of Contractor employees and Subcontractors and Suppliers involved in the Work.
 - .10 Park vehicles in locations approved by the Consultant and Third-Party Property Owner.
 - .11 Where the excavation, cutting and/or patching is required closely or immediately adjacent to, and/or drilling into, the existing building foundation assess impact and provide for Acceptance a site plan which demonstrates structure is not affected and specifies reinstatement prior to undertaking the Work.
 - .12 Inform Owner and the Consultant of large deliveries and arrange the delivery in a manner that will not affect ONTC operations or the safety of public.

- .13 Obey site traffic rules and speed limits.

1.06 SMOKING ENVIRONMENT

- .1 Comply with smoking and vaping restrictions. Smoking and vaping are not permitted.

1.07 VIDEO SURVEILLANCE:

- .1 Video surveillance cameras are installed on Ontario Northland-owned and leased property to ensure the safety and security of passengers, employees, visitors, assets, infrastructure and the public. In accordance with the Freedom of Information and Protection of Privacy Act (FIPPA), the use of video surveillance cameras is carried out in a manner that respects and minimizes privacy intrusion. Recorded video footage only is protected, used or disclosed for investigative purposes related to a health and safety matter, a railway occurrence or for an incident of suspected crime, property damage, motor vehicle damage or personal injury.

1.08 COMMUNICATION PROHIBITION:

- .1 Owner will lead and make any announcements relating to the Work. The Contractor shall not make any announcement of any kind, including press releases, social media posts, public declarations, or any form of publication or announcement, in relation to the Work unless prior written consent is given by Owner. If the Contractor is contacted by any media outlet or other person or entity wishing to make any form of publication or announcement or seeking any information in relation to the Work, the Contractor shall not provide any information and shall refer the person to Owner and immediately notify Owner.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures.

1.03 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the Work in accordance with the Specifications and at the call of the Owner or the Consultant.
- .2 Prepare agenda for meetings.
- .3 Unless otherwise specified in Specification sections, distribute written notice of each meeting five (05) Working Days in advance of meeting date to the Owner, the Consultant and any other meeting participants.
- .4 Provide physical space at one of the Places of Work and make arrangements for meetings.
- .5 The Consultant 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 (03) Working Days after meetings and transmit to meeting participants and, affected parties not in attendance, the Owner and the Consultant.
- .8 Representatives of the Contractor, Subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

1.04 PRECONSTRUCTION MEETING

- .1 Within (10) Working Days after award of Contract and before Contractor mobilization to the Place of the Work, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities related to the Work.
- .2 The Owner, Consultant, Contractor, major Subcontractors, field inspectors and supervisors and other parties, as applicable and at their discretion, will be in attendance.
- .3 Arrange with the Consultant the time and location of meeting and notify parties concerned minimum five (5) Working Days before meeting.
- .4 Agenda to include, but not limited to:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Construction Schedule: in accordance with Section 01 32 00 – Construction Progress Documentation.

- .3 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 Specifications.
- .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .7 Proposed changes, Change Orders, procedures, Acceptance required, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
- .8 Products Supplied by Others
- .9 Record As-Built Drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Operations and 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 Existing conditions and ONTC site use/operations.
- .17 Cleaning and Waste Management
- .18 Invoicing and payment procedures
- .19 Lines of Communication, use of Social Media and distribution List.

1.05 PROGRESS MEETINGS

- .1 During course of Work and up to the completion date, schedule regular monthly progress meetings.
- .2 Contractor, major Subcontractors involved in Work, the Owner, and the Consultant are to be in attendance. Other parties may attend subject to the agreement of the Consultant.
- .3 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 baselined Construction Schedule.
- .7 Proposed revisions to Construction Schedule.
- .8 Progress against Construction Schedule, during succeeding work period.
- .9 Review Submittal schedules: expedite as required.
- .10 Maintenance of quality standards.
- .11 Review proposed changes for effect on Construction Schedule and on completion date.
- .12 Safety concerns and issues.
- .13 Open items, Request For Information (RFI) and Supplemental Instructions (SI).
- .14 Other business.

1.06 COMMISSIONING MEETINGS

- .1 Arrange pre-commissioning meetings for the commissioning of equipment and systems in accordance with 01 91 13 – General Commissioning Requirements. The Owner, the Consultant and Contractor commissioning team shall be in attendance.
- .2 The meeting's intent is to ensure all parties are fully aware of the Commissioning expectations and requirements.
- .3 Meeting Agenda to include, but not limited to:
 - .1 Review Commissioning plan, Specification, and process.
 - .2 Review Commissioning documentation.
 - .3 Review all factory testing that will be required.
 - .4 Review training requirement/schedule.
 - .5 Discuss future Commissioning meetings.
 - .6 Issues/risks.

1.07 SUBSTANTIAL COMPLETION MEETINGS:

- .1 Arrange pre-Substantial Completion meetings. The Contractor, the Owner and the Consultant shall be in attendance.

1.08 OTHER MEETINGS:

- .1 The Contractor shall, as directed by the Consultant, attend Project coordination meetings, which may be required in addition to the specific meetings listed herein. Meetings may include topics related to site and railway safety, orientation and training, design compliance, Work progress and issues, installation of Products Supplied by Others, coordination of Subcontractors, quality, delivery and Acceptance activities, warranty, dispute resolution, and environmental issues.
- .2 Arrange meetings with the Consultant to coordinate large deliveries and in advance of complex installation.

END OF SECTION

1 GENERAL

1.01 SUMMARY

- .1 This Section specifies Contractor's responsibilities for the preparation and submission of Construction Schedule updates, progress reports and other documentation related to tracking progress of the Work.
- .2 The purpose of submitting construction progress documentation is to:
 - .1 Inform the Owner and the Consultant of actual progress versus planned progress, and;
 - .2 Provide assurance that scheduling issues are being proactively identified and addressed in a timely manner, and that planned progress is being maintained as closely as possible.

1.02 REFERENCE STANDARDS

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

1.03 RELATED SECTIONS

- .1 Section 01 31 19 - Project Meetings.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 77 00 - Closeout Procedures.
- .4 Section 01 32 00.16 - Construction Progress Schedule – Critical Path Method (CPM).

1.04 SUBMISSION

- .1 Submit, for review and Acceptance a Construction Schedule within ten (10) Working Days from Contract award. The Construction Schedule shall be based on the Contractor's initial schedule submitted at the RFP phase. Notify the Consultant of any major changes from the initial schedule.
- .2 Submit schedules in PDF and Excel files. Submit via email unless otherwise requested.
- .3 Consultant will review the Construction Schedule and return review copy within ten (10) Working Days after receipt.
- .4 If changes are required, resubmit, the Construction Schedule for Acceptance within five (5) Working Days after return of review copy.
- .5 The Accepted Construction Schedule shall be baselined and all progress updates shall be made against this version. The baselined Accepted Construction Schedule shall not be changed without the agreement of the Consultant and shall be subject to review and Acceptance prior to becoming the new baselined Construction Schedule.
- .6 Submit updated progress schedule with each monthly construction report in accordance with clause 2.2 of this section.
- .7 Distribute copies of revised schedule to:

- .1 Job site offices.
- .2 Subcontractors.
- .3 Other concerned parties.
- .8 Instruct recipients to report to Contractor within five (5) Working Days any problems anticipated by timetable shown in the schedule.

1.05 CONSTRUCTION SCHEDULE UPDATES

- .1 Show projected percentage of completion of each item as of the last date of the month.
- .2 Indicate progress of each activity to date of submission schedule.
- .3 Show changes occurring since previous submission of Construction Schedule:
 - .1 Major changes in scope.
 - .2 Activities modified since previous submission.
 - .3 Revised projections of progress and completion.
 - .4 Other identifiable changes.
- .4 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.
- .5 Schedules shall be continuous, and logic driven without using hard constraints, Lags and Leads.

2 PRODUCTS:

2.01 DAILY CONSTRUCTION REPORTS:

- .1 Prepare a daily construction report recording the following information concerning events at Project Site and include progress photos as applicable:
 - .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/Incidents/Near Misses.
 - .6 Meetings and Significant Decisions.
 - .7 Unusual and emergency Events.
 - .8 Stoppages, Delays, Shortages, and Losses.
 - .9 Orders and requests of Authorities Having Jurisdiction.
 - .10 Change Orders received and implemented.
 - .11 Construction Work Change Directives received and implemented.
 - .12 Services Connected and Disconnected.
 - .13 Equipment or System Tests and Startups.

- .14 Partial Completions and Occupancies.
- .15 Substantial Completions Authorized.
- .16 Progress made in Work that day
- .2 Submit daily reports at the end of each shift to ONTC and the Consultant.
- .3 A report shall be submitted for each Work site.

2.02 MONTHLY CONSTRUCTION REPORTS:

- .1 Monthly progress reports shall be prepared by the Contractor and submitted to the Consultant in the form of an electronic copy of the relevant Construction Schedule files to demonstrate how the Work is actually progressing and the planned and detailed sequencing of the Work at the time of the report. The cut-off date for the monthly progress report shall be the last date of the month and the report shall be submitted no later than ten (10) Working Days after the cut-off date.
- .2 Each monthly progress report shall be in a format acceptable to the Owner, and shall be arranged according to the following headings and sub-headings:
 - .1 Executive Summary.
 - 1. Activity to (date).
 - 2. Forecast activity to (date).
 - .2 Project Cost Information:
 - 1. Budget Summary.
 - 2. Cash Allowance Log.
 - 3. Change Order Log.
 - .3 Project Data:
 - 1. Project Schedule.
 - 2. Shop Drawing Log.
 - 3. Site Inspection Log.
 - 4. Site Testing Log.
 - .4 Risk and Critical Issues Log.
 - .5 Site Photos.
- .3 Each monthly progress report shall include:
 - .1 An updated schedule showing progress against the baselined Accepted Construction Schedule, comparing actual and target progress for all milestones and activities. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
 - .2 Criticality report listing activities and milestones with up to five (5) days of total float used as first sort for ready identification of near critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.

- .3 Progress report in early start sequence, listing for each trade, activities due to start, to be underway, or finished within two months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.
- .4 A schedule narrative, including:
 1. Detailed descriptions of progress, including each stage of procurement, fabrication, delivery to site, construction, installation, and testing;
 2. Discussion of the basis for any work sequencing, logic, interdependencies or original activity duration revisions incorporated into an updated progress schedule; and
 3. Comparisons of actual and planned progress, with a brief commentary on any actual or forecast delays or problems that might have an impact on the completion. date of the Work, and a discussion of the measures being (or to be) adopted to overcome these.
 4. Charts showing the status of Submittals, permits and approvals, utility relocations, purchase orders, manufacturing/fabrication and construction.
 5. For each fabricated item, the name and location of the fabricator, percentage progress, and the actual or expected dates of commencement of fabrication, Contractor's inspections, tests and delivery.
 6. Progress photographs taken, prepared, and submitted in formats specified, all in accordance with Section 01 32 33 - Photographic Documentation.
 7. Request For Information (RFI) log.
- .5 Timely submission of updates is of significant and crucial importance to the management of this project. Lack of or late receipt of updates diminishes their value to the Owner and the Consultant. Therefore, if the Contractor fails to submit any progress schedule or required revision to a progress schedule within the prescribed time period, the Owner, in its sole discretion, may hold back subsequent progress payments until the updated schedule is submitted or the revision is accepted.
- .6 The monthly progress reports and progress schedules will be used by the Owner and the Consultant to monitor the Contractor's performance against the baselined Accepted Construction Schedule.

2.03 RECORDING ACTUAL SITE CONDITIONS ON AS-BUILT DRAWINGS

- .1 Obtain from Consultant an electronic copy of the construction Drawings for the purpose of creating As-built drawings.
- .2 Record information on a set of black line opaque drawings.
- .3 Use marking pens, maintaining separate colours for each major system, for recording information.
- .4 Clearly label each As-Built Drawing as "AS-BUILT DRAWING". Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

- .5 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 pipes, ducts, conduits, outlets, fixtures, access panels, and appurtenances, referenced to visible and accessible features of construction;
 - .4 Field changes of dimension and detail;
 - .5 Changes made by Change Orders and Supplemental Instructions;
 - .6 References to Shop Drawings, where Shop Drawings show more detail.
 - .7 Referenced Standards to related Shop Drawings and modifications.
 - .8 Details not on original Contract drawings.
- .6 Do not use As-Built Drawings for construction purposes.
- .7 Following construction, Contractor shall prepare As-Built Record Drawings in accordance with Section 01 78 00 Closeout Submittals.

2.04 MATERIAL LOCATION REPORTS:

- .1 At bi-weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Place of the Work. 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.
- .2 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.

3 EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

- .1 Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities.
- .2 Distribution: Distribute copies of Accepted Construction Schedule to the Owner, Consultant, 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

2 GENERAL

2.01 REFERENCE STANDARDS

- .1 Project Management Institute (PMI Standards)
 - .1 A Guide to the Project Management Body of Knowledge (PMBOK Guide) - [Fifth Edition].
 - .2 Practice Standard for Scheduling - [2011].
- .2 AACE International Recommended Practice 37R-06 entitled, "Schedule Levels of Detail – As Applied in Engineering, Procurement and Construction".
- .3 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.

2.02 RELATED REQUIREMENTS

- .1 Section 01 32 00 – Construction Progress Documentation

2.03 DEFINITIONS

- .1 Activity: Distinct, scheduled portion of work performed during course of a project.
- .2 Activity Duration: time in calendar units between start and finish of a scheduled activity. See also Duration.
- .3 Assumption: factor in planning process that is considered true, real, or certain without proof or demonstration.
- .4 Bar Chart (Gantt Chart): graphic display of schedule-related information.
 - .1 In typical bar chart, schedule activities or work breakdown structure components are listed down left side of chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars.
- .5 Baseline: approved version of a work product that can be changed only through formal change control procedures and is used as a basis for comparison.
- .6 Budget: approved estimate for a project or work breakdown structure component or schedule activity.
- .7 Cash Flow: projection of progress payment requests based on cash loaded construction schedule.
- .8 Change Control: process whereby modifications to documents, deliverables, or baselines associated with a project are identified, documented, approved, or rejected.
- .9 Completion Milestones: they are firstly [Interim Certificate] [Substantial Completion] and

- secondly Final Certificate.
- .10 Constraint: scheduled limiting factor that effects execution of a project, program, portfolio, or process.
- .11 Contract: mutually binding agreement that obligates a seller to provide a specified product or service or result and obligates a buyer to pay for it.
- .12 Control: comparing actual performance with planned performance, analyzing variance, assessing trends, to effect process improvements, evaluating possible alternatives, and recommending appropriate corrective action as needed.
- .13 Corrective Action: intentional activity that realigns performance of project work with project management plan.
- .14 Critical Path: sequence of activities that represents longest path through a project, which determines shortest possible duration.
- .15 Critical Path Activity: activity on critical path in a project schedule.
- .16 Critical Path Method (CPM): method used to estimate minimum project duration and determine amount of scheduling flexibility on logical network of paths within schedule model.
- .17 Data Date: point in time when the status of the project is recorded.
- .18 Decomposition: technique used for dividing and subdividing project scope and project deliverables into smaller, more manageable parts.
- .19 Deliverable: unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project.
- .20 Duration: total number of work periods (not including holidays or other non-working periods) required to complete a schedule activity or work breakdown structure component.
 - .1 Usually expressed as workdays or work weeks.
- .21 Early Finish Date (EF): in Critical Path Method, earliest possible point in time when uncompleted portions of schedule activity can finish based on schedule network logic, data date, and schedule constraints.
 - .1 Early finish dates can change as Project progresses and changes are made to Project plan.
- .22 Early Start Date (ES): in Critical Path Method, earliest possible point in time when uncompleted portions of a schedule activity can start based on schedule network logic, data date, and schedule constraints.
 - .1 Early start dates can change as Project progresses and changes are made to Project Plan.
- .23 Execute: directing, managing, performing, and accomplishing project work; providing deliverables, and providing work performance information.
- .24 Finish Date: point in time associated with a schedule activity's completion.
 - .1 Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.

- .25 Float: (also known as slack) amount of time a schedule activity can be delayed without delaying early start date of a successor or violating a schedule constraint.
 - .1 This resource is available to both [PWGSC] and Contractor.
- .26 Forecast: estimate or prediction of conditions and events in project future based on information and knowledge available at time of forecast.
 - .1 Information is based on projects past performance and expected future performance, and includes information that could impact project in future, such as estimate at completion and estimate to complete.
- .27 Gantt Chart: see Bar Chart.
- .28 Impact Analysis: schedule analysis technique that adds a modeled delay to an accepted construction schedule to determined possible outcome of that delay on project completion.
- .29 Imposed Date: a fixed date imposed on a schedule activity or schedule milestone, usually in form of a “start no earlier than” and “finish no later than” date.
- .30 Lag: amount of time whereby a successor activity is required to be delayed with respect to a predecessor activity.
- .31 Late Finish Date (LF): in critical path method, latest possible point in time when uncompleted portions of a schedule activity can finish based on schedule network logic, project completion date, and schedule constraints.
- .32 Late Start Date (LS): in critical path method, latest possible point in time when uncompleted portions of a schedule activity can start based on schedule network logic, project completion date, and schedule constraints.
- .33 Lead: amount of time whereby a successor activity can be advanced with respect to a predecessor activity.
- .34 Logic Diagram: see Project network diagram.
- .35 Logical Relationship: dependency between two activities or between an activity and a milestone.
- .36 Master Schedule: summary-level schedule that identifies major deliverable; work breakdowns structure components, and key schedule milestones.
- .37 Milestone: significant point or event in a project, program, or portfolio.
- .38 Monitor: collect project performance data with respect to a plan, procedure performance measures, and report and disseminate performance.
- .39 Network: see Project Schedule Network Diagram.
- .40 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
- .41 Project Control System: fully computerized system utilizing commercially available software packages.
- .42 Project Management: application of knowledge, skills, tools, and techniques, to project activities to meet project requirements.
- .43 Project Management Plan: approved document that describes how project will be executed,

- monitored, and controlled.
- .1 Primary uses of Project Management Plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines.
 - .2 Project Management Plan may be summary or detailed.
 - .44 Project Management Planning: development and maintenance of Project Management Plan.
 - .45 Project Management Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.
 - .46 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
 - .47 Project Schedule Network Diagram: graphical representation of logical relationships among project schedule activities.
 - .1 Always drawn from left to right to reflect Project chronology.
 - .48 Project Scope: work performed to deliver a product, service, or result with specified features and functions.
 - .49 Quantified days duration: Working Days based on 5 day work week, discounting statutory holidays.
 - .50 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on one or more project objectives.
 - .51 Schedule: see Project Schedule.
 - .52 Schedule Data: collection of information for describing and controlling schedule.
 - .53 Scope: see Project Scope.
 - .54 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
 - .55 Work Breakdown Structure (WBS): hierarchical decomposition of total scope of work to be carried out by project team to accomplish project objectives and create the required deliverables.

2.04 ADMINISTRATIVE REQUIREMENTS

- .1 Scheduling:
 - .1 Ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made.
 - .2 Ensure Construction Schedule efficiencies through monitoring of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.

- .3 Monitor sufficiently often so that causes of delays can immediately be identified and mitigated.
- .2 Project monitoring and reporting:
 - .1 Keep team aware of changes to schedule, and potential consequences as Project progresses.
 - .2 Use narrative reports to provide advice on seriousness of challenges and measures to overcome them.
 - .3 Begin narrative reporting with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.
- .3 Critical Path Method (CPM) Requirements:
 - .1 Ensure Construction Schedule is practical and remains within specified Contract duration.
 - .2 Submit Construction Schedule for Acceptant. If rejected, as schedule is deemed impractical by Consultant, revise and resubmit, until Acceptance is achieved.
 - .3 Change to Contract Duration:
 - .1 .1 Acceptance of Construction Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute a change to Contract.
 - .2 .2 Duration of Contract may only be changed through bilateral Agreement.
 - .4 Consider the Construction Schedule deemed practical by the Consultant, showing Work completed in less than specified Contract duration, to have float.
 - .5 First Milestone on Construction Schedule will identify start Milestone with an Early Start, "ES", constraint date equal to Award of Contract date.
 - .6 Calculate dates for completion of milestones from plan and Schedule using specified time periods for Contract.
 - .7 Calculations on updates such that if early finish of Ready for Takeover falls later than specified Contract duration then float calculation to reflect negative float.
 - .8 Delays to non-critical activities with float may not be basis for time extension.
 - .9 Do not use float suppression techniques such as software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates other than required by Contract Documents.
 - .10 Allow for adverse weather conditions normally anticipated and show in Construction Schedule.
 - .1 Specified Contract duration has been predicated assuming normal amount of

adverse weather conditions appropriate for the location of the Work.

- .11 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration.
 - .1 Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .12 Arrange participation on and off site of Subcontractors and suppliers, as required by the Consultant, for purpose of network planning, scheduling, updating and progress monitoring.
 - .1 Acceptance by the Consultant of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract Documents.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit impact analysis of schedule for changes that result in extension of contract duration.
 - .1 Include draft Construction Schedule update and report as outlined in article "PROGRESS MONITORING AND REPORTING".

1.06 QUALITY ASSURANCE

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

1.07 WORK BREAKDOWN STRUCTURE (WBS)

- .1 Prepare construction Work Breakdown Structure (WBS) within five (5) Working Days of contract award.
 - .1 Develop WBS through at least five levels: project, stage, element, sub-element and work package.

1.08 PROJECT MILESTONES

- .1 Contractor shall include appropriate Milestones in accordance with the scope contained in the Contract Documents. At minimum, Milestones should be included, by station, for Shop Drawing start and end, construction start and end, testing and commissioning start and end, Substantial Performance of the Work and Ready for Takeover.

1.9 DETAILED CONSTRUCTION SCHEDULE

- .1 Provide detailed project Construction Schedule (CPM logic driven) within ten (10) Working Days of Contract award date showing activity sequencing, interdependencies and duration

estimates. In addition to the Milestones listed in 1.09.1, include listed activities as follows:

- .1 Sequence for Shop Drawings.
- .2 Samples.
- .3 Submittals and Consultant review period.
- .4 Procurement.
- .5 Construction.
 - .1 Site clearing.
 - .2 Site utilities.
 - .3 Foundation Work.
 - .4 Special Subcontractor Work.
 - .5 Equipment delivery and Installations.
 - .6 Finishes.
- .6 Installation.
- .7 Site works.
- .8 Testing.
- .9 Commissioning and Acceptance.
- .10 Line Closures and flagging
- .11 Any required permits
- .12 Installation of Protection of Finishings – Owner review prior to installation
- .2 Schedule should be Level 3, in form of a horizontal bar chart. “Level 3” means the level of detail required for a Project Control Schedule as set out in the AACE International Recommended Practice 37R-06 entitled, “Schedule Levels of Detail – As Applied in Engineering, Procurement and Construction”.
- .3 Detail CPM schedule to cover the activities in detail from Contract award date to Substantial Performance of the Work and Ready for Takeover.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
 - .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
 - .1 Time for Submittals, resubmittals and review.

- .2 Time for fabrication and delivery of manufactured Products for Work.
- .3 Delivery of Products Supplied by Others
- .4 Interdependence of procurement and construction activities.
- .3 Include sufficient detail to assure adequate planning and execution of Work. Activities duration should be less than ten (10) Working Days.
- .6 Provide level of detail for Project activities such that sequence and interdependency of Contract Document tasks are demonstrated and allow co-ordination and control of Project activities. Show continuous flow from left to right.
- .7 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .8 Insert Change Orders in appropriate and logical location of Construction Schedule. After analysis, clearly state and report to Consultant for review effects created by insertion of new Change Order.

1.10 REVIEW OF CONSTRUCTION DETAIL SCHEDULE

- .1 Submit Construction Schedule in accordance with 01 32 00 Construction Progress Documentation.
- .2 Submittal of Construction Schedule indicates that it meets Contract Document requirements and will be executed generally in sequence.

1.11 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with Accepted Construction Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after written receipt of Acceptance by Consultant.
- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Corrective measures may include:
 - .1 Increase of personnel with more experience/qualifications on site for effected activities or work package.
 - .2 Increase in materials and equipment.
 - .3 Overtime work and additional work shifts.
- .4 Submit to Consultant, justification, Construction Schedule data and supporting evidence for

approval of extension to Contract completion date or interim milestone date when required.
 As part of supporting evidence, include:

- .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved Construction Schedule.
- .2 Prepared schedule indicating how change will be incorporated into overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
- .3 Other supporting evidence requested by Owner and Consultant.
- .4 Do not assume approval of Contract extension prior to receipt of written Acceptance from Owner.
- .5 In event of Contract extension, display in Construction Schedule that scheduled float time available for Work involved has been used in full without jeopardizing earned float.
 - .1 Consultant will determine and advise Contractor number of allowable days for extension of Contract based on Construction Schedule updates for period in question, and other factual information.
 - .2 Construction delays affecting Construction Schedule will not constitute justification for extension of the Ready for Takeover date.

1.12 PROGRESS AND REPORTING

- .1 On an ongoing basis, the Contractor shall keep the Construction Schedule on job site to show "Progress to Date". Arrange participation on and off site of Subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Consultant and or Owner at least once monthly to establish progress on each current activity shown on applicable networks.
- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Construction Schedule update monthly with status dated (Data Date) on last date of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit to Consultant copies of updated Construction Schedule.
- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .7 As part of the monthly progress report, in accordance with 01 32 00 – Construction Progress

Documentation, include a written report based on the updated Construction Schedule, showing Work performed to date, comparing Work progress to planned, and presenting current forecasts. Report summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate potential delay. Include in report:

- .1 Description of progress made.
- .2 Pending items and status of: permits, Shop Drawings, Change Orders, possible time extensions.
- .3 Status of Contract Ready for Takeover and Milestones.
- .4 Current and anticipated problem areas, potential delays and corrective measures.
- .5 Review of progress and status of Critical Path activities.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 MEASUREMENT AND PAYMENT

- .2 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 or incidental to the Work.

1.03 FREQUENCY OF PHOTOGRAPHIC DOCUMENTATION

- .1 The Contractor shall take photographs as indicated in Specification sections, at all construction milestones as identified in the Accepted Construction Schedule, and at each of the following stages of construction:
 - .1 Before commencement of the removals;
 - .2 Upon completion of removals;
 - .3 Delivery and installation of electrical equipment
 - .4 Upon completion of the Work.
 - .5 Anytime a problem arises that may result in a 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 agreed with the Owner.
- .3 Contractor shall take photos at each shift and include photos in the daily report in accordance with section 01 32 00-Construction Progress Documentation.
- .4 Submit photos to the Consultant with the monthly progress reports in accordance with section 01 32 00-Construction Progress Documentation and other reports in accordance with Specification sections and Contract Documents.
- .5 Transfer photos to the Owner at the end of the Project.

1.04 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 If flash drives are used to store photos they shall be labeled to include the Contract number and the date the photographs were taken.

1.05 IDENTIFICATION OF PHOTOGRAPHS

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

1.06 VIDEO RECORDINGS

- .1 The Contractor shall provide video recordings to supplement Contract photographs of certain construction milestones as identified in the Accepted Construction Schedule, 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 Owner and Consultant and Authority having jurisdiction.
 - .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 If flash drives are used to store videos they shall be labeled to include the Contract number and the date the video was taken.
- .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".

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

- .1 Section 01 32 33 – Photographic Documentation
- .2 Section 01 43 00 - Quality Assurance.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Submit to the Consultant Submittals listed in Specifications for review and Acceptance. 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 and Acceptance has been provided.
- .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 the Consultant. Stamp Submittals as "Approved by Contractor" prior to submitting to the Consultant. 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 and Contractors own quality procedures. Submittals not stamped, signed, dated and identified as to specific Project will be returned without being examined and considered rejected.
- .6 Notify the Consultant, 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 Keep one Accepted copy of each Submittal on site.

1.04 SHOP DRAWINGS, PRODUCT DATA AND OTHER SUBMITTALS

- .1 Refer to CCDC 2 GC 3.8 Shop Drawings and Supplementary General Conditions.
- .2 Refer to Specifications for all other required Submittals.
- .3 Submit for review and Acceptance Shop Drawings stamped and signed by professional engineer licensed in Province of 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

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- installed. Indicate cross references to Contract Drawings and Specifications.
- .5 Allow ten (10) Working Days for Consultant review of each Submittal, unless otherwise specified.
 - .6 Adjustments requested on Shop Drawings by the Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Consultant and do not proceed with Work. Such adjustment shall be approved by a Change Directive or Change Order issued by the Owner in accordance with the Contract Documents.
 - .7 Make changes in Shop Drawings as the Consultant may require, consistent with Contract Documents. When resubmitting, notify the Consultant in writing of revisions other than those requested.
 - .8 Accompany Submittals 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 Submittals 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 the Consultant review and Acceptance, distribute copies.
- .11 Submit electronic copy of Shop Drawings for requirements requested in Specifications and as the Consultant may reasonably request. Submit electronic copies of Product data sheets or brochures for requirements requested in Specifications and as requested by the Consultant 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.
- .12 Submit electronic copies of test reports for requirements requested in Specifications and as requested by the Consultant.
 - .1 Report signed by authorized official of testing laboratory that material, Product or system identical to material, Product or system to be provided has been tested in accord with specified requirements.
- .13 Submit electronic copies of certificates for requirements requested in Specifications and as requested by the Consultant.
 - .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 the award of the Contract, complete with the Project name.
- .14 Submit electronic copies of manufacturers' instructions for requirements requested in Specifications and as requested by the Consultant.
 - .1 Pre-printed material describing installation of Product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copies of manufacturer's site reports for requirements requested in Specifications and as requested by the Consultant.
 - .1 Material describing installation of Product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in Specifications and as requested by Owner, after a review of an electronic copy has been completed and Accepted by the Consultant.
 - .1 Submit four (04) hard copies, unless otherwise specified, of reviewed and Accepted Operation and Maintenance Data.
- .18 Delete information not applicable to Project.
- .19 Supplement standard information to provide details applicable to Project.
- .20 If upon review by the Consultant, no major corrections are requested, electronic copies will be returned as Accepted or Accepted with comments (in the case of minor corrections) and fabrication and installation of Work may proceed. Requested minor corrections shall be made in a timely manner. If Shop Drawings are rejected, noted copy will be returned and resubmission of corrected Shop Drawings for review and Acceptance, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 Acceptance of the Shop Drawings does not mean confirmation that the Submittal does not include errors or omissions, defects or deficiencies.

1.05 SAMPLES

- .1 Submit for review and Acceptance samples in duplicate as requested in respective Specifications. Label samples with origin and intended use.
- .2 Deliver samples prepaid to the Consultant at the address provided during the Pre-Construction Meeting.
- .3 Notify the Consultant in writing at the time of submission of deviations in samples from the requirements of Contract Documents. Deviations may be rejected and the Contractor shall resubmit either a sample compliant with the Contract Documents or an alternative sample with written deviations.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by the Owner or the Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Consultant and do not proceed with Work. Such adjustment shall be approved by a Change Directive or Change Order issued by the Owner.
- .6 Make changes in samples which the Consultant 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 accordance with section 01 32 33 –

Photographic Documentation, Contract Documents, and as directed by the Consultant.

- .2 Provide photographs in the requested format to demonstrate progress and how deficient items identified within the Consultant review and inspection reports have been corrected.

END OF SECTION

1 GENERAL

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.
- .7 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .8 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.

1.02 RELATED REQUIREMENTS

- .1 Section 01 31 19 – Project Meetings
- .2 Section 01 33 00 - Submittal Procedures
- .3 Section 01 35 43 – Fire Safety Requirements
- .4 Section 01 35 43 - Environmental Procedures
- .5 Section 01 51 00 - Temporary Utilities

- .6 Section 01 56 00 - Temporary Barriers and Enclosures
- .7 ONTC Contractor Subcontractor Policy.
- .8 ONTC HOT WORK Program.
- .9 ONTC Electrical Safety Policy.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit for Acceptance Project-specific Health and Safety Plan within seven (7) Working Days after Contract award and fifteen (15) Working Days prior to commencement of Work on site. 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 Emergency Procedures.
- .3 The Consultant's review and Acceptance 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.
- .4 Submit electronic copies of Contractor's authorized representative's work site health and safety inspection reports to the Owner and the Consultant, and Authority Having Jurisdiction (AHJ) when required.
- .5 Submit to the Owner and the Consultant copies of reports or directions issued by health and safety inspectors of the Authority Having Jurisdiction (AHJ).
- .6 Submit to the Owner and the Consultant electronic copies of incident and accident reports.
- .7 Submit to the Consultant WHMIS Safety Data Sheets (SDS) and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements. Include and update the Health and Safety Plan as required.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit to the Consultant certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

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 Consultant.

- .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 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications and , include, but not be limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's and ONTC safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for Project safety; include an organization chart for Project with safety responsibilities clearly indicated.
 - .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 Place of Work 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 for Acceptance in accordance with 01 33 00 – Submittal Procedures
- .5 Review and Acceptance: the review and Acceptance 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 the Owner and the Consultant prior to commencement of Work. This meeting shall be included in the Pre-construction Meeting.
- .2 Attend all subsequent Health and Safety meetings called by the Owner or the Consultant.

1.07 REGULATORY REQUIREMENTS

- .1 Conduct the 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 and consultants.
 - .4 Third Party Property Owner.
- .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 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.
- .6 Refer to reports in Attachment 1 to the Specifications for further site conditions and assessment reports for any noted hazardous or contaminated materials or substances present at Place of the Work. Contractor should their own assessments prior to commencing Work.

1.09 GENERAL REQUIREMENTS

- .1 In accordance with 01 56 00 – Temporary Barriers and Enclosures, 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

- .3 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.
- .4 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.
- .5 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.
- .6 Provide first aid, hygiene, and medical facilities at the Place of the Work in accordance with requirements of provincial and local governmental occupational health, safety, and workers' compensation statutes, public health guidance publications (where warranted) and Contract Documents.

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.
- .2 Comply with all Federal and Provincial laws relating to Health and Safety including Acts and Regulations as well as Lower Tier Municipality By-Laws.
- .3 Comply with all applicable industry safety standards.
- .4 Comply with legislative requirements for work performed including, but not limited to:
 - .1 Qualifications of workers;
 - .2 Training;
 - .3 Supervision, and;
 - .4 Use of onsite equipment.
- .5 Provide any and all personal protective equipment for Contractor's own workers where prescribed by legislation.

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 Contractor's nominated Health and Safety Coordinator and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise the Consultant verbally and in writing.

1.13 CONTRACTOR HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
 - .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 Maintain a training record/log of Contractor employee including all Subcontractors, suppliers and other parties retained by the Contractor for the execution of the Work, at the jobsite and electronic copy, available for the Owner and the Consultant review at request.
 - .3 Be responsible for implementing, revising, enforcing daily and monitoring site-specific Contractor's site-specific Health and Safety Plan.
 - .4 Visit each Place of the Work regularly, at least biweekly or as required by health and safety laws and regulations, to ensure Work is being completed in compliance with Contractor's Health and Safety programs and all applicable laws and regulations.
- .2 Contractor's nominated site supervisor may complete some of daily tasks of the Health and Safety Coordinator provided the site supervisor has the proper qualifications to complete those tasks.

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 the Consultant.
- .2 Post legible versions of the following documents on site:
 - .5 Site Specific Health and Safety Plan.
 - .6 Sequence of work.
 - .7 Emergency procedures.
 - .8 Site drawing showing Project layout, locations of the first-aid station, marshalling stations, and emergency transportation provisions.
 - .9 Notice of Project.
 - .10 Site plans.

- .11 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.
- .12 Workplace Hazardous Materials Information System (WHMIS) documents.
- .13 WHMIS Safety Data Sheets (SDS).
- .14 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .15 Others as required.

1.15 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by Authority Having Jurisdiction (AHJ), the Consultant or by Owner.
- .2 Provide the Consultant with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 The Owner or the Consultant may stop Work if non-compliance of health and safety regulations is not corrected. The 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 the Owner.

1.17 POWDER ACTUATED DEVICES

- .1 Use powder-actuated devices only after receipt of written permission from Owner.

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.
- .2 Before undertaking any Work, coordinate required energizing and de-energizing of new and existing circuits with the Owner.
- .3 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 Owner or the Consultant.

- .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 the Owner, the Consultant or by any authorized safety representative.

1.20 HOT WORK:

- .1 Hot Work Permit will be required; Contractor must notify the Consultant five (5) Working Days in advance prior to any hot work activities and provide, for review, a completed Hot Work permit form including a plan to mitigate any risks identified by the Contractor in their job hazard analysis. Hot Work shall proceed only after receiving the Owner's approval.

1.21 SILICA

- .1 Preventive measures to apply to the work site:
 - .1 Source reduction methods
 - .1 Work in wet environment or use tools with inflow of water in order to reduce dustiness, if not, collect dust at the source and retain it with a high efficiency filter not to propagate dust in the environment.
 - .2 Clean surfaces and tools with water, never with compressed air.
 - .3 Sand and pickle surfaces by using an abrasive containing less than 1 % of silica.
 - .4 When required, install shields or other containment device to prevent silica dust from migrating toward other workers or the public.
 - .2 Protection: Wear respiratory protection equipment (mask) during all operations that could generate silica dust.

1.22 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 National Research Council of Canada (NRC):
 - 1. National Building Code of Canada (NBC).
 - 2. National Fire Code of Canada (NFC).
- .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
- .8 Canadian Construction Documents Committee (CCDC)
 - 1. CCDC 2-2020, Stipulated Price Contract.

1.02 RELATED REQUIREMENTS

- .1 Section 01 35 29.06 – Health and Safety Procedures
- .2 Section 01 33 00 – Submittal Procedures
- .3 Section 01 74 19 – Waste Management and Disposal
- .4 ONTC Contractor Subcontractor Policy
- .5 ONTC HOT WORK Program

1.03 CONSTRUCTION FIRE SAFETY

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

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit fire safety plan for Acceptance 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, if any.
 - .2 Telephone the Fire Department then Owner
 - .1 Telephone:911.
 - .2 Contact Owner at ONTC RTC Hotline # 1-800-558-4129.
- .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 Owner and Consultant of fire incidents at Place of Work, 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 each Place of Work before beginning Work on site.
- .2 Submit fire safety plan to the Consultant for Acceptance who may submit to local fire department for their review.
- .3 Limit scope of fire safety plan to the Place of the Work only. Existing fire safety plans covering other existing buildings are not the responsibility of the Contractor.
- .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 Place of the Work or near each Place of the Work's health and safety board.
- .6 Review fire safety plan a maximum of every three (03) months to ensure it takes into account changes in the use and other characteristics of the building or site. Revise fire safety plan when it can be improved.

1.07 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 the Owner.
- .4 Submit a written request to the Owner and the Consultant for approval ten (10) Working Days 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 the Consultant.
- .6 Where systems are affected or impaired during the Work, conduct Work on fire protection system in accordance with NFC.

1.08 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 the Fire Department.
- .4 Provide dry chemical type extinguishers unless otherwise required by hazard being protected.
- .5 Provide a sufficient number of portable extinguishers as per codes and laws requirements.
- .6 Inspect and maintain extinguishers in accordance with NFC.

1.09 ACCESS FOR FIRE FIGHTING

- .1 Provide and maintain access for firefighting operations in accordance with NFC.
- .2 Submit written request to the Owner and the Consultant for approval a minimum of ten (10) Working Days before operation of activities that may cause problems that might impede fire department equipment access and personnel response, including but not limited to:
 - .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 the Consultant.
- .4 Maintain a minimum 5.0-m vertical clearance for access routes, or as otherwise directed by the Consultant.

1.10 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.

1.11 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 Place of Work at end of each Working Day or shift, or more frequently when directed by Fire Department.
 - .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.

1.12 FLAMMABLE AND COMBUSTIBLE LIQUIDS

- .1 Handle, store, and use flammable and combustible liquids in accordance with NFC or as otherwise directed by the Fire Department.
- .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 Owner 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 Fire Department.

1.13 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 Owner or the Consultant.
- .2 In accordance with Section 01 35 29.06 - Health And Safety Requirements, obtain a Hot Works permit 72 hours in advance from Owner for Hot Works in work area. Frequency of renewal for Hot Works permits is at discretion of the Owner.
- .3 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 Owner or the Consultant.
- .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 the Consultant.
 - .3 Conduct a final inspection of area not less than 4 hours after completion of hot works, unless otherwise directed by the Consultant.
- .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 the Consultant.
- .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 the Owner or the Consultant.

1.14 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 Consultant a minimum of five (5) Working Days before starting Work and immediately at completion of Work.

1.15 QUESTIONS OR CLARIFICATION

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

1.16 FIRE INSPECTION

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

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 SUMMARY

- .1 The Work of this Section includes, but is not limited to the following:
 - .1 Hazardous Substances
 - .2 Environmental Protection
 - .3 Archaeology and Cultural Heritage
 - .4 Excess Soil Management
 - .5 Other Environmental Matters

1.03 GENERAL REQUIREMENTS

- .1 Assume responsibility for the protection of the environment and the preservation of public health, in the course of and as affected by the Work of the Contract, in accordance with specified requirements and Environmental Laws, ordinances, rules, regulations, codes and orders of the authorities that have regulatory oversight of or authority over the Work ("Authorities having Jurisdiction")
- .2 Give required notices and follow procedures set out by Authorities having Jurisdiction (AHJ) when working adjacent to or in waterways.
- .3 Give required notices and follow procedures set out by Authorities having Jurisdiction when handling or encountering hazardous, toxic, controlled substances (hereinafter referred to as hazardous substances).
- .4 The following conditions shall be regarded as a hazard to the environment, requiring appropriate action within the scope of this Section:
 - .1 Presence of friable asbestos.
 - .2 Presence of abandoned or disused equipment such as fuel tanks, PCB containing equipment and materials (including in-ground hydraulic hoists), batteries, septic tanks, grease / oil interceptors.
 - .3 Erosion, sedimentation and general disturbance of ecosystems.
 - .4 Other conditions identified by environmental jurisdictional authorities.
 - .5 Designated Substances and Hazardous Substance

1.04 DEFINITIONS

- .1 "Canadian Environmental Protection Act, 1999 (Canada)" means the Canadian Environmental Protection Act, 1999, S.C. 1999, c. 33, as amended from time to time;
- .2 "Designated Substances and Hazardous Substance" includes,
 - .1 a Hazardous Substance;
 - .2 those substances identified by Ontario Regulation 490/09 and Ontario Regulation 278/05 as amended, under the Occupational Health and Safety Act (Ontario);
 - .3 those substances identified and regulated under Part X Hazardous Substances, Can. Regulation 86-304, Canadian Occupational Health

and Safety Regulations;

- .4 substances that are identified as falling under identified categories as part of the Workplace Hazardous Materials Information System (WHMIS) or GHS for Hazardous Substances under provincial or federal occupational health and safety legislation;
 - .5 polychlorinated biphenyls as identified in Ontario Regulation 362, as amended under the Environmental Protection Act (Ontario) and the PCB Regulations (SOR/2008-273), as amended, adopted under the Canadian Environmental Protection Act, 1999 (Canada); and
 - .6 mould, acrylonitrile, arsenic, asbestos (including asbestos-containing materials), benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica, and vinyl chloride;
- .3 “Discharge” means any spill, release, discharge, emission, spraying, injection, inoculation, abandonment, deposit, leak, seep, pour, emptying, throwing, dumping, placing and exhaust to the environment of any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination thereof, either directly or indirectly from human activities that causes or may cause an adverse effect on the environment, or that has not been authorized by the applicable Environmental Approvals;
- .4 “Environmental Approvals” means any permit, certificate, registration, license, approval, ruling, variance, exemption or similar requirement relating to environmental matters or other authorization required under Environmental Laws;
- .5 “Environmental Consultant” means a reputable, qualified and experienced environmental consulting or engineering firm employing individuals that has been retained by the Contractor to provide technical expertise and guidance to the Contractor on all the Contractor environmental obligations, the Environmental Approvals and all other environmental obligations and matters, including monitoring, managing and addressing soil and groundwater impacts and occupational health and safety;
- .6 “Environmental Laws” means:
- .1 all federal laws, statutes, by-laws, rules, regulations, orders, ordinances or other requirements having the force of law relating to the protection of the environment or wildlife, natural or cultural resources, archeological and heritage sites, human health or safety, or Hazardous Substances;
 - .2 all provincial regional and municipal laws, statutes, by-laws, rules, regulations, orders, ordinances or other requirements having the force of law relating to the protection of the environment or wildlife, natural or cultural resources, archeological and heritage sites, human health or safety, or Hazardous Substances.
- .7 “Environmental Protection Act (Ontario)” means the Environmental Protection Act, R.S.O. 1990, c. E. 19, as amended from time to time;
- .8 “Hazardous Waste” means a “hazardous waste” as such term is defined pursuant to R.R.O 1990, Regulation 347;
- .9 “MECP” means the Ontario Ministry of the Environment and Conservation and Parks, and any successor ministry thereto;
- .10 “Ontario Water Resources Act (Ontario)” means the Ontario Water Resources Act, R.S.O. c. O.40, as amended from time to time;
- .11 “Qualified Person”, as defined in O. Reg. 153/04, as amended
- .12 “Spill” means, for the purposes of this Project and notwithstanding any less stringent definition under Environmental Laws, a Discharge that,

- .1 arises, either directly or indirectly, from human activities; and
- .2 causes or may cause an adverse effect on the environment.
- .13 "Soil with Environmental Contaminants" means soil or sediment that is considered to be contaminated, i.e., if the quality exceeds the applicable Ministry of the Environment, Conservation and Parks (MECP) Generic Site Condition Standards at the Site for use under Part XV.1 of the Environmental Protection Act (Ontario) (O. Reg. 153/04) or site-specific standards approved by MECP.
- .14 "Substances Posing Significant Hazard" means any biological, chemical or physical agent or combination thereof to which exposure of a worker is prohibited, regulated, restricted, limited or controlled by the occupational health and safety enforcement agency of the province/ territory where the Work is to be performed. Should no such provisions be in place in the province/territory where the Work is to be performed, the following substances shall be considered as "Substances Posing Significant Hazard": Asbestos, Silica, Mercury, Lead, Arsenic, Acrylonitrile, Benzene, and Isocyanates."

1.05 HAZARDOUS SUBSTANCES

- .1 Submit documentation to the Consultant to show that all Subcontractors have been provided with lists of the Substances Posing Significant Hazard on site. This list must include the name of the substances indicated by the Owner to be on site and any such substance to be used or produced by the Contractor or subcontractors on site during the life of the Work.
- .2 Procedures:
 - .1 Known Conditions: Follow specified requirements in Contract Documents. Review existing site conditions and identify, in writing, to the Consultant, any conditions that differ materially from those indicated in the Contract Documents.
 - .2 Unknown Conditions: Should an environmentally hazardous condition or a contaminated area be discovered, quarantine the area affected and do no Work that will disturb the hazardous material or contaminated area.

Notify the Consultant immediately of the situation verbally and in writing. Conform to Environmental Law.
- .3 Hazardous Substances Disposal:
 - .1 Dispose of hazardous substances in accordance with Environmental Laws.
 - .2 Do not under any circumstances, dispose of hazardous substances by burning or burying on site or by discharging into the soil, waterways or drainage system.

1.06 ENVIRONMENTAL PROTECTION

- .1 Erosion and Sediment Control:
 - .1 Minimize amount of bare soil exposed at one time. Stabilize disturbed soil within forty-five (45) days of disturbance to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and watercourses, and repair damage caused by soil erosion and sedimentation.
 - .2 Provide and maintain appropriate temporary measures such as silt fences, straw bales, ditches, geotextiles, drains, berms, terracing, riprap,

temporary drainage piping, sedimentation basins, vegetative cover, dikes, and other measures that may be required to prevent erosion and migration of silt, mud, sediment, and other debris.

- .3 Do not disturb existing embankments or embankment protection.
 - .4 Conduct weekly inspection of erosion and sediment control measures to detect evidence of erosion and sedimentation. Promptly take corrective measures when necessary.
 - .5 If soil and debris from site accumulate in ditches or other low areas, remove accumulation and restore area to original condition.
- .2 Site Drainage:
- .1 Maintain grades to ensure proper site drainage.
 - .2 Prevent precipitation from infiltrating or from directly running off stockpiled materials. Cover stockpiled materials with an impermeable liner during periods of work stoppage including at end of each Working Day.
 - .3 Control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas as required to prevent erosion and sedimentation.
 - .4 Control surface drainage by ensuring that gutters are kept open and water is not directed across or over pavements or sidewalks, except through pipes or properly constructed troughs. Ensure that runoff from unfinished areas is intercepted and diverted to suitable outlets.
- .3 Plant Protection and Site Clearing:
- .1 Protect all existing trees and landscaping which is to remain at the Place of Work, using methods and materials recommended by the Canadian Nursery Trades Association and as approved by the Consultant.
 - .2 If required, install tree protection zone fencing in accordance with Contract Documents and Drawings.
 - .3 Protect roots of designated trees to drip line during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
 - .4 Minimize stripping of topsoil and vegetation.
 - .5 Restrict tree removal to area indicated or designated in the Contract Documents. No vegetation removal should occur between April 1 and August 30 to protect birds protected under the *Migratory Birds and Convention Act* ("MBCA").
 - .6 If vegetation removal must be undertaken between April 1 and August 30, a nest survey must be conducted by a qualified avian biologist to identify and locate active nests of species covered by the MBCA.
 - .7 Trees free of nests must be removed within 24 hours for nest sweep.
 - .8 Trees with active nests should be monitored periodically during MBCA window and must remain in place until young birds have fledged the nest. Nest sweep should be conducted by qualified Avian Biologist prior to tree being removed.
- .4 Wildlife Habitat Protection
- .1 Allow wildlife incidentally encountered during construction to passively move out of the work area.

- .2 The Contractor shall comply with the following wildlife exclusion fencing resources:
- .1 <https://www.ontario.ca/page/reptile-and-amphibian-exclusion-fencing> (OMECF 2020)
- .5 Dewatering:
- .1 Provide temporary drainage and pumping as necessary to dewater excavations, trenches, foundations, and other parts of the Work.
- Maintain such areas free of water arising from groundwater or surface run-off, as required to keep them stable, dry, and protected from damage due to flooding.
- .2 Maintain standby equipment necessary to ensure continuous operation of dewatering system.
- .3 Do not pump water containing suspended materials or other harmful substances into waterways, sewers or surface drainage systems. Treat or dispose of such water in accordance with Environmental Law.
- .6 Pollution Control:
- .1 Take measures to prevent contamination of soil, water, and atmosphere by Spills, potentially causing environmental damage.
- .2 Be prepared, by maintaining appropriate materials, equipment, and trained personnel on site, to intercept, clean up, and dispose of Spills that may occur.
- .3 Promptly report spills and releases that may occur to Owner and Consultant.
- .4 Contact manufacturer of Environmental Contaminant, if known and applicable, to obtain safety data sheets (SDS) and ascertain hazards involved and precautions and measures required in cleanup or mitigating actions.
- .5 Take immediate action to contain and mitigate harmful effects of the Spill
- .7 Dust and Particulate Control:
- .1 Implement and maintain dust and particulate control measures in accordance with Environmental Law.
- .2 Execute Work by methods that minimize dust from construction operations and spreading of dust on site or to adjacent properties.
- .3 Provide temporary enclosures to prevent extraneous materials resulting from sandblasting or similar operations from contaminating air beyond immediate work area.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .5 Use appropriate covers on trucks hauling fine, dusty, or loose materials.

- .8 Noise and Vibration Control:
 - .1 Take measures to control noise and vibration generated by the Work.
 - .2 All construction vehicles and equipment used in the Work shall comply with the noise limits provided by NPC-115 and NPC-118.
 - .3 Comply with the requirements of Authorities Having Jurisdiction and local Noise Control By-Laws to ensure noise generated by the Work is not excessive and not disturbing to the occupants of adjacent buildings / properties.
 - .4 The contractor shall notify the Owner and Consultant of any planned nighttime or weekend construction activities a minimum of thirty (30) days prior to the start of those activities.
 - .5 Vibration levels during construction of the Work shall comply with the limits noted in Table 7-5 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018). I
 - .6 The contractor shall monitor vibration at all structures or buildings where there is a potential to exceed the vibration limits.
 - .7 The contractor shall comply with Enbridge's Third Party Requirements in the Vicinity of Natural Gas Facilities Standard (2021-09-29).
- .9 Snow Removal
 - .1 Allow no accumulation of ice and snow within the Place of the Work. There shall be no use of salt for de-icing in areas of building work.
 - .2 Remove snow from access routes to the Work to maintain uninterrupted progress of the Work.
- .10 Maintaining existing sewerage flows
 - .1 Maintain existing sanitary sewage flows, where applicable, and provide alternative interim service utilizing duplicate portable sewage pumps, tank trucks and other approved means. Prevent interruption to service throughout the construction period and until the new works are placed in service.
 - .2 Provide and install all temporary sumps, bulkheads and/or other works in existing sewers, maintenance holes and service connections and provide temporary pumps in duplicate and pipelines to dewater and control the sewage.
 - .3 Discharge sewerage flows only to those sanitary sewers remaining in service or to tank trucks for approved disposal. Under no circumstances shall contaminated water be discharged or permitted to enter any drainage or natural watercourse.
 - .4 Temporarily drain or pump any leakage to permit work to be performed in the dry. The Contractor's method shall be subject to review and Acceptance of the Consultant.
- .11 Drainage ditches and storm sewers
 - .1 All ditches, drainage channels and/or storm sewer systems which may be affected by construction shall have their flows maintained at all times

during construction. Drainage shall not be impeded, and blockages or water backups are not permitted.

- .2 Make allowance in prices for any problems that may be encountered because of ditch flows or storm sewer flows. Any damage because of water or flooding shall be the responsibility of the Contractor.

1.07 ARCHAEOLOGY AND CULTURAL HERITAGE

- .1 Archaeology
 - .1 The Contractor shall comply with the following archaeological reference documents:
 - .1 2011 *Standards and Guidelines for Consultant Archaeologists* administered by the Ministry of Citizenship and Multiculturalism (MCM); and
 - .2 Archaeological reports completed for the Project.
 - .2 Before commencing any construction activities, the Contractor shall prepare, implement, and provide for the Consultant's review and Acceptance, an Archaeological Risk Management Plan setting out protocols for the discovery of human remains or undocumented archaeological resources. This Archaeological Risk Management Plan must be produced by a Licensed Professional Archaeologist. At a minimum it will include the following:
 - .1 Actions required resulting from the recommendations of the Archaeological reports;
 - .2 A protocol to be followed if human remains are discovered which includes how the Contractor will ensure that human remains are managed in compliance with Environmental Laws and all requirements of AHJ with respect to such discovery;
 - .3 A protocol to be followed by the Contractor if previously undocumented archaeological resources are discovered which describes how the Contractor will comply with Environmental laws regarding the management of previously undocumented archaeological resources;
 - .4 A process to ensure that the Contractor complies with Environmental laws for the management of archaeological sites.
 - .5 The Contractor shall treat the Archaeological Risk Management Plan as a living document and update it when any archaeological activities occur. Each Archaeological Risk Management Plan Update shall be submitted to the Owner and Consultant for review.
 - .3 Upon discovery of human remains or previously undocumented archaeological resources, all construction activities or other work that could have a detrimental impact in the immediate vicinity shall be stopped.
 - .4 Any archaeological materials that are discovered during the course of the Works shall be the responsibility of the Contractor for safekeeping until transferred out of the Contractor's control;

- .5 Any future Stage 2, Stage 3 and/or Stage 4 archaeological assessments will adhere to the process noted above.
 - .6 All archaeological assessments will follow the MCM for Engaging Aboriginal Communities in Archaeology: A Draft Technical Bulletin for Consultant Archaeologists in Ontario.
- .2 Cultural Heritage
- .1 The Contractor shall comply with the following cultural heritage reference documents:
 - .1 ONTC Environmental Assessment and Permitting Toolkit, AECOM Canada Limited, 2021;
 - .2 Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, MCM, 2016;
 - .3 Ontario Heritage Tool Kit, MCM, 2006;
 - .4 Standards and Guidelines for Conservation of Provincial Heritage Properties, MCM, 2010;
 - .5 Standards and Guidelines for Conservation of Provincial Heritage Properties: Heritage Identification Process, MCM, 2014;
 - .6 Information Bulletin No. 2: Strategic Conservation Plans for Provincial Heritage Properties, MCM, 2017;
 - .7 Information Bulletin No. 3: Heritage Impact Assessments for Provincial Heritage Properties, MCM, 2017;
 - .8 Standards and Guidelines for the Conservation of Historic Places in Canada (Parks Canada 2010)
 - .9 Cultural Heritage Reports (including but not limited to: Cultural Heritage Evaluation Reports, Heritage Impact Assessments, and Strategic Conservation Plans).
 - .2 Before commencing any construction activities, the Contractor shall prepare, implement, and provide for Consultant's review and Acceptance a Cultural Heritage Risk Management Plan. The plan shall include, at a minimum, the following requirements for all directly and indirectly impacted properties of known heritage significance or potential heritage significance:
 - .1 The actions required of the Contractor pursuant to the recommendations set out in the Cultural Heritage Reports, Cultural Heritage Evaluation Reports, and Heritage Impact Assessments, and to ensure the protection of identified built heritage resources and cultural heritage landscapes;
 - .2 The Contractors planned approach to carrying out the actions described in the above, including an approach to document, monitor and mitigate vibration to heritage structures during construction;
 - .3 A process for updating and resubmitting the Cultural Heritage Risk Management Plan;
 - .4 A process to ensure that the Contractor complies with Environmental Laws for the management of heritage resources;
 - .5 A process to ensure that the Contractor provides to the Owner any cultural heritage evaluation reports, cultural heritage reports, cultural heritage impact assessments, conservation plans, or any

other documentation as may be required of the Contractor pursuant to Environmental Law or the Cultural Heritage Reports, in addition to those provided with the Contract Documents.

1.08 EXCESS SOIL MANAGEMENT

.1 Soil and Excavated Materials Management Plan

- .1 The Contractor shall prepare, submit for Acceptance to the Owner and Consultant and implement a soil and groundwater management strategy (a "Soil and Excavated Materials Management Plan") that describes how the Contractor will address the handling, management, treatment, reuse, storage, monitoring and disposal of soil and excavated materials (i.e., soil, fill, rock and solid Hazardous Waste and non-Hazardous Waste, including Environmental Contaminants) that is generated or encountered during the Works. The Soil and Excavated Materials Management Plan shall include, at a minimum, descriptions of:
 - .1 the general principles that the Contractor will apply for managing soil and excavated materials;
 - .2 the over-arching soil and excavated materials management strategy for the Project in terms of sustainable principles and compliance with regulatory requirements (including, but not limited to, On-site and Excess Soil Management Regulation – O. Reg. 406/19) and best practices;
 - .3 the estimated quantities of soil and excavated materials to be managed during the Works and proposed methods for minimizing these quantities;
 - .4 the strategy to reuse soil and excavated material;
 - .5 the strategy for stockpiling and monitoring the soil and excavated material at the Site, and to mitigate any exceedance of any Authorized Volume;
 - .6 a preliminary schedule indicating the affected areas to be excavated over the course of the Project, and the associated quantities for each stage of construction;
 - .7 protocols for characterizing soil and excavated materials quality and determining management, including handling, reuse, storage, transportation, documentation, treatment and disposal requirements;
 - .8 how soil and excavated materials will be temporarily staged or stored at the site or other worksites for reuse or stockpiled and monitored or transferred to disposal with regard for potential environmental effects and impacts to human health and safety;
 - .9 how soil and excavated materials quantities will be tracked and reported to the Owner during excavation, transport, treatment, disposal or stockpiling;
 - .10 how clean fill will be sourced and brought to the site;
 - .11 mitigation measures to address any impacts associated with the excavation, management, reuse, stockpiling, transport, treatment or disposal of soil and excavated materials;
 - .12 a monitoring plan in which monitoring of the contaminated and hazardous stored soil and excavated material are recorded and reported; and

- .13 how the discovery of Environmental Contaminants in areas not previously identified will be managed including a general plan of action for the remediation, storage or removal of Environmental Contaminants as detailed in the Contamination Management Plan defined below
- .2 The Contractor shall adhere to groundwater and dewatering management.
- .3 The Contractor shall submit the Soil and Excavated Materials Management Plan for Acceptance by the Owner and Consultant.

1.09 CONTAMINATION MANAGEMENT PLAN

- .1 The Contractor shall prepare the Contamination Management Plan and submit it to the Owner and the Consultant for Review and Acceptance. The Contamination Management Plan shall include:
 - .1 the date and time that the Environmental Contaminants was discovered;
 - .2 a description of the Environmental Contaminants including the location (municipal address and/or UTM coordinates) and a figure depicting the location of the Environmental Contaminants;
 - .3 a detailed description of the circumstances under which the Environmental Contaminants was discovered, including the preliminary field assessment and observations;
 - .4 a detailed description of the handling and management of the Environmental Contaminants prior to submittal of the Contamination Management Plan;
 - .5 a detailed description of the preliminary field investigation including date, time and depth of samples collected, sampling methods, number of samples collected, chemical parameters, media tested and an explanation of the delineation method for Environmental Contaminants;
 - .6 a figure depicting sampling locations, sample exceedances and estimated vertical and horizontal extent of the Environmental Contaminants in relation to the site;
 - .7 copies of borehole and test pit logs for sample locations related to the Environmental Contaminants, including soil description and classification;
 - .8 copies of laboratory certificates of analysis for the samples collected, including grain size analysis (if applicable);
 - .9 sampling and analysis requirements in accordance with O. Reg. 406/19;
 - .10 a description of management options for the Environmental Contaminants and the Contractor's preferred management option, including a description of whether containment measures are required to avoid re-contamination or migration of the Environmental Contaminants;
 - .11 an implementation plan, including a detailed description of how Environmental Contaminants will be managed and estimated quantities of soil and groundwater to be disposed off-site and reused within the Project, if applicable;

- .12 any impact to the Project Schedule caused by the discovery of Environmental Contaminants;
 - .13 additional costs, if any, associated with incremental measures required to manage the Environmental Contaminants;
 - .14 name and address of the receiver site for the soil containing Environmental Contaminants;
 - .15 additional information as requested by the Owner and/or Consultant; and
 - .16 rationale for assigning responsibility for the Environmental Contaminants, including an assessment and comparison of the discovered Environmental Contaminants characteristics against available baseline environmental information such as the Project's Soil and Groundwater Characterization Report.
- .2 The Contractor's Qualified Person shall supervise the extraction, transport, removal, disposal or discharge of contaminated media identified in the Contamination Management Plan.
- .3 In accordance with Environmental Law, the Contractor shall be responsible for the characterization, testing, and analysis of soil and groundwater that requires off-Site disposal, off-Site reuse or on-Site reuse, to the satisfaction of the receiver or disposal site and to the satisfaction of Owner and Consultant.
- .4 The Contractor shall be responsible for registration with the Resource Productivity and Recovery Authority (RPPRA) and recordkeeping for disposal of regulated Waste, as applicable.
- .5 The Contractor shall update the Contamination Management Plan with additional information following the implementation of the Contamination Management Plan (the "Updated Contamination Management Plan") and the Contractor shall submit such updated plan to the Owner and Consultant in accordance with Project submission timeframes. The Updated Contamination Management Plan shall include:
 - .1 a summary of the information presented in the Contamination Management Plan;
 - .2 a detailed description of the handling and management of the Environmental Contaminants following submittal of the Contamination Management Plan;
 - .3 a detailed description of the handling and management of the Environmental Contaminants following submittal of the Contamination Management Plan;
 - .4 a detailed description of field investigations conducted during implementation of the Contamination Management Plan including date, time and depth of samples collected, sampling methods, number of samples collected, chemical parameters, media tested and explanation of the delineation method for Environmental Contaminants;
 - .5 a figure depicting sampling locations, sample exceedances and vertical and horizontal extent of the Environmental Contaminants remediated on site;
 - .6 copies of borehole and test pit logs for sample locations related to the Environmental Contaminants, including soil description and classification;
 - .7 quantity of soil and groundwater disposed outside the Lands

- and reused within the lands;
 - .8 name and address of the receiver site for the Environmental Contaminants;
 - .9 electronic copies of waste manifests or bills of lading;
 - .10 a description of containment measures for the Environmental Contaminants employed to avoid re-contamination or migration of Environmental Contaminants;
 - .11 a description of whether the Environmental Contaminants entered lands outside of the Project site;
 - .12 a description of post-implementation monitoring or sampling needed; and
 - .13 signature of the Contractor's Qualified Person who supervised the implementation of remediation activities and preparation of the Updated Contamination Management Plan.
- .6 The Contractor is encouraged to seek opportunities for beneficial reuse (rather than remove or replace) for as much soil from the Project as possible in a manner that is consistent with Ontario Regulation 406/19, provided that the Contractor complies with its obligations under this Contract.
 - .7 The Contractor shall evaluate reuse options to consider site-specific excess soil quality criteria in cases where soil is geotechnically suitable for reuse as engineered fill, including where such soil may be subject to some reconditioning such as drying or wetting, but soil quality does not meet the applicable generic excess soil quality standard.
 - .8 The Contractor shall reuse (rather than remove or replace), as feasible, as much soil on site as possible in a manner that is consistent with Ontario Regulation 153/04, Ontario Regulation 406/19 and the MECP's Rules for Soil Management and Excess Soil Quality Standards, as amended, provided that the Contractor complies with its obligations under this Contract.
 - .9 The Contractor shall evaluate reuse options in cases where soil is geotechnically stable for reuse but soil quality does not meet the applicable generic excess soil quality standard.

1.10 MANAGEMENT, REMOVAL AND REMEDIATION OF SOIL WITH ENVIRONMENTAL CONTAMINANTS

- .1 The Contractor shall be responsible for excavating, handling, managing, stockpiling, removing, and transporting of soil and excavated material as required to complete the Project, including soil and excavated material containing Environmental Contaminants. The Contractor shall reuse or dispose of soil and excavated material that does not contain Environmental Contaminants at its own cost.
- .2 The Contractor shall be permitted to reuse any soil and excavated material containing Environmental Contaminants as part of the Works provided the Contractor's reuse of such soil complies with Environmental Laws and MECP Guidelines, Standards and Rules. The Contractor shall not be entitled to any additional compensation from the Owner where such soil or excavated material is reused.
- .3 Upon discovery of soil containing Environmental Contaminants that will require excavation to complete the Project and that the Contractor will not reuse, the Contractor shall notify the Owner and Consultant. Such notification shall clearly indicate the anticipated volume of soil containing Environmental Contaminants

that will be excavated and not reused. The Contractor shall not be permitted to provide such notification until the Contamination Management Plan has been submitted for Acceptance to the Owner and Consultant. The Owner shall, no later than fifteen (15) Working Days following Notice in Writing from the Contractor that contains all information provided in the notification, described above, and the Contamination Management Plan, direct the Contractor either to:

- .1 dispose of such soil containing Environmental Contaminants; or
 - .2 stockpile such soil containing Environmental Contaminants on the Place of the Work (or Station Location).
- .4 The Owner may specify a maximum volume that is to be disposed of or stockpiled (the "Authorized Volume"). Where the Owner has specified an Authorized Volume, the Contractor shall be required to submit a new notification for any remaining soil containing Environmental Contaminants following completion of the disposal or stockpiling of the Authorized Volume in order to receive further direction from the Owner, including a revised Authorized Volume.
- .5 If the Contractor is directed to dispose of soil containing Environmental Contaminants, then:
 - .1 the Contractor shall proceed to dispose of the soil at a licensed facility in Ontario and inform the Owner of the selected facility;
 - .2 the Contractor shall be compensated with an agreed upon pricing for each ton of excavated soil containing Environmental Contaminants that is disposed, up to any Authorized Volume and Invoicing and such compensation shall be deemed to include all handling, shipping and disposal fees and costs and all administrative and profit costs of the Contractor.
- .6 If the Contractor is directed by the Owner to stockpile such soil containing Environmental Contaminants on the Site, then the Contractor shall:
 - .1 utilize an agreed upon laydown area;
 - .2 provide geomembrane ground protection to prevent leaching of Environmental Contaminants;
 - .3 provide a full geomembrane cover over the stockpile;
 - .4 provide a permanent monitoring system;
 - .5 comply with the portions of the On-site and Excess Soil Management Regulation (O. Reg. 406/19) regarding stockpiling, the MECP Rules for Soil Management and Excess Soil Quality Standards and the MECP Management of Excess Soil - A Guide for Best Management Practices;
 - .6 develop and submit to the Owner a monitoring program for the stockpiled soils for review and Acceptance by the Consultant.

1.11 WEEKLY SOIL AND EXCAVATED MATERIALS REPORT

- .1 The Contractor shall provide a template of the Weekly Soil and Excavated Materials Report to the Consultant.
- .2 The Contractor shall submit a weekly report for soil and excavated material to the Consultant (each a "Weekly Soil and Excavated Materials Report") that includes at a minimum:

- .1 analytical results of chemical samples collected for soil, groundwater or other material in the area of the Works before and after construction;
- .2 record of quantity of excavated material, reused at the site in metric tonnes;
- .3 record of excavated material stockpiled at the site in metric tonnes;
- .4 all back-up documents of soils, groundwater or other materials removed from site, including tickets indicating soil or other material quantity, landfill or final treatment or disposal location;
- .5 Site reports complete with photos and back-up documents on all soil, groundwater or other materials remedial work activities;
- .6 documentation related to any unforeseen site issues during soil, groundwater or other materials remedial work activities;
- .7 a cost table indicating all associated costs in the removal, management, transportation, treatment and disposal of the soil, groundwater or other materials in the area of the Works;
- .8 a description of how the discovery of Environmental Contaminants in areas not previously identified will be managed including the preparation of a plan for the re-use, stockpile, remediation or removal of Environmental Contaminants; and
- .9 reporting as to how all management activities and best practices have been implemented.

1.12 HAZARDOUS SUBSTANCES BROUGHT ONTO THE SITE

- .1 Notwithstanding any Environmental Laws or any other provision, all products and materials, goods or other items which in their natural, original state, or through environmental transformation or degradation contain Hazardous Substances, that are brought onto the site by the Contractor or any person for whom Contractor is at law responsible shall be and remain the sole and exclusive property and responsibility of Contractor and shall not become the property or responsibility of the Owner, notwithstanding their incorporation into or affixation to the site as part of the Work, and notwithstanding any termination or expiration of the Project. Any resulting Environmental Contaminants at the site in respect of any Hazardous Substances so brought onto the site and the remediation and/or removal thereof and the cost of such remediation and/or removal shall be the sole responsibility of the Contractor.

1.13 SPILL PREVENTION PLAN

- .1 The Contractor shall prepare, submit, and implement a Spill Prevention Plan (a "Spill Prevention Plan"). The Spill Prevention Plan shall describe the measures the Contractor will take to prevent Spills of liquid chemicals, fuels and lubricants, and manage or otherwise mitigate the effects of any such Spills to construction personnel and the environment during the term of the Project. The Spill Prevention Plan shall consider site-specific characteristics, and include, at a minimum, the following:
 - .1 the types and nature of liquid chemicals, fuels and lubricants to

- be used during the performance of the initial Works;
 - .2 the facilities and procedures to be used for storing and handling such materials, including Spill response, containment and clean-up materials;
 - .3 monitoring and inspection procedures, including monthly inspections of Spill response and safety equipment, to ensure that management requirements are maintained and that inspections are documented;
 - .4 employee training on the storage and use of liquid chemicals, fuels and lubricants and the prevention of Spills;
 - .5 subsurface infrastructure (for example, weeping tile, infiltration galleries, etc.) that may influence the destination of any Spill material;
 - .6 the identification of municipal and natural discharge locations (for example, municipal catch basins) and drainage pathways on the Site, and a description of the direction of flow in the event of a Spill;
 - .7 Spill response procedures for each type of material that may be spilled, and the various environmental media that may be affected (for example, atmosphere, water bodies, ground surface);
 - .8 procedures for clean-up and restoration of surfaces and environmental media that may be affected by the Spill; and
 - .9 procedures for notification and reporting of Spill events to Contractor and to Authorities Having Jurisdiction, as applicable.
-
- .2 The Contractor shall submit the Spill Prevention Plan to the for review and Acceptance.
 - .3 The Contractor shall ensure that a hard copy of the latest revision of the Spill Prevention Plan is available in all site trailers and all site offices.
 - .4 After each and any occurrence of a Spill, irrespective of the quantity or characteristics of the material spilled, the Contractor shall prepare and submit a spill prevention occurrence report (a "Spill Prevention Occurrence Report") to the Consultant. The Spill Prevention Occurrence Report shall summarize how all Spill Prevention Plan activities were implemented during the remediation and management of the occurrence of the Spill and the associated outcomes.

1.14 DESIGNATED SUBSTANCES AND HAZARDOUS SUBSTANCE MANAGEMENT PLAN

- .1 The Contractor shall prepare and implement a Designated Substances and Hazardous Substance Management Plan (a "Designated Substances and Hazardous Substance Management Plan"). The Contractor shall submit the Designated Substances and Hazardous Substance Management Plan for review and Acceptance. The Designated Substances and Hazardous Substance Management Plan shall describe:
 - .1 how the Contractor will manage all Designated Substances and Hazardous Substance, including, but not limited to, abatement, handling, transportation, testing, removal, disposal and/or

- ultimate disposition of all Designated Substances and Hazardous Substance determined to be present, or generated as part of the Works;
- .2 the general principles that the Contractor will apply for managing the necessary removal of Designated Substances and Hazardous Substances;
- .3 the Contractor's over-arching Designated Substances and Hazardous Substance management strategy in terms of sustainable principles and compliance with Environmental Laws and best practice;
- .4 locations of Designated Substances and Hazardous Substances to be abated, managed or removed by Contractor during the Work. The Contractor shall carry out necessary testing for Designated Substances and Hazardous Substances under section 30 of the Occupational Health and Safety Act (Ontario), and under section 8 Regulation 278/05, and protect workers from working with or in proximity to or from being otherwise exposed to Designated Substances at the Site or the Works. The Designated Substances and Hazardous Substance Management Plan shall describe all applicable processes for same;
- .5 the Contractor's protocols for safe handling, abatement, management, and removals, including disposal requirements;
- .6 how the Contractor will ensure that no adverse impacts will result to adjacent properties during the abatement, handling, management or removal of Designated Substances and Hazardous Substances;
- .7 how the Contractor will conduct its activities in compliance with the Occupational Health and Safety Act (Ontario) and all applicable law and industry practices;
- .8 the further necessary measures the Contractor will take to ensure the safety of all personnel accessing the Site and the Works, to the standards of applicable Occupational Health and Safety Law;
 - .1 the Contractor's contingency plans to mitigate adverse impacts; and
 - .2 the Contractor's reporting procedures to document and report to the Owner how all testing, management activities, best practices and mitigation measures have been implemented.
- .3 Contractor acknowledges that section 30(5) of the Occupational Health and Safety Act (Ontario) shall not apply to the circumstances of the site and the Works of the Owner, given the obligations of the Contractor set out in Section 1.13.2.4.
- .4 The Contractor shall prepare and submit a Designated Substances and Hazardous Substance implementation report (a "Designated Substances and Hazardous Substance Implementation Report") to the Consultant for Acceptance. The Designated Substances and Hazardous Substance Implementation Report shall summarize how all Designated Substances and Hazardous Substance Management Plan activities were implemented during the Works and the associated outcomes.

1.15 OTHER ENVIRONMENTAL MATTERS

.1 Organic Materials

- .1 Organic materials from excavation operations may contain peat, topsoil and subsoil materials. Contractor shall remove these materials from the Site in accordance with Environmental Laws and best practice. The Contractor shall not allow burial or reuse of any excavated organic materials on the site.

.2 Protection/Decommissioning of Existing Monitoring Wells

- .1 The Contractor shall be responsible for temporary protection and final decommissioning of all existing or newly installed monitoring wells in accordance with Ontario Regulation 903 under the Ontario Water Resources Act (Ontario), as directed by the Owner, including with respect to:
 - .1 any and all monitoring wells installed as part of geotechnical, environmental, or hydrogeological investigations in connection with the Project; and
 - .2 all wells installed as part of the studies undertaken by the Owner and that were provided as part of the project background information.
- .2 The Contractor shall, prior to Ready-for-Takeover (unless the Owner provides an alternative timing), decommission any wells installed by the Contractor as part of its own investigation and monitoring work as necessary to complete the Works.

2 Products

2.01 NOT USED

3 Execution

3.01 NOT USED

3.02 END OF SECTION

1 GENERAL

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 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 RFP 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 the Consultant for interpretation or clarification.
- .5 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.

1.03 CODES

- .1 Building Code: Perform Work in accordance with the Ontario Building Code including amendments up to the time of RFP 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 RFP 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 RFP 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 RFP 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.

- .6 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.

1.04 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 RFP closing, and
 - .2 A change in regulatory requirements or fees scheduled to become effective after the time of RFP closing and of which public notice has been given before the time of RFP 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 Construction Related Permits:
 - .1 **Municipal building permit is not required.**
 - .2 If required, MTO Building and Land Use Permits will be obtained by the Owner.
 - .3 Obtain and pay for all other required Certificates, Licenses and other permits required by regulatory municipal, provincial or federal authorities to complete the Work.
 - .4 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.
 - .5 Contractor shall display permits in a conspicuous location at the Place of the Work.
- .2 Occupancy Permits:
 - .1 Contractor shall apply for obtain and pay for any required permits and or certificates where required by AHJ.
 - .2 Contractor shall correct deficiencies in accordance with the Consultant's instruction. If a deficiency is not corrected, the Owner reserves the right to make correction and charge Contractor for costs incurred.

.3 Contractor shall turn all permits and certificates over to Owner.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 ASTM International (ASTM):
 - .1 ASTM E329-[20]Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- .3 International Organization for Standardization (ISO):
 - .1 ISO 9001: [2015], Quality Management Systems – Requirements

1.02 SUMMARY

- .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.

1.03 RELATED REQUIREMENTS

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

1.04 ADMINISTRATIVE REQUIREMENTS

- .1 Contractor is responsible for self-performed testing and inspections and submittal of test reports to the Consultant.
- .2 The Owner may 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 Work 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. The quality management system shall consist of plans, procedures, and organization necessary to produce complete the Work in compliance with the Contract Document requirements.

1.05 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit a Quality Management Plan to the Consultant for review and Acceptance prior to Preconstruction meeting.

- .1 The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Owner will consider an interim plan for the first twenty (20) Working Days of operation. The Contractor may begin mobilization during the interim period.
- .2 The Work will be permitted to begin only after Acceptance of the Quality Management Plan or Acceptance of an interim plan applicable to the portion of the Work to be started.
- .3 The Quality Management Plan shall include, as a minimum, the following to cover all Work both at the Place of the Work, and in off-site locations (such as manufacturing facilities), including Work by Subcontractors, fabricators, suppliers, and purchasing agents:
 - .1 A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the quality control staff shall implement the three-phase control system for all aspects of the work specified. The staff shall include the person responsible for quality who shall report to the Contractor's project manager.
 - .2 The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a quality control function.
 - .3 A copy of the letter to the person responsible for quality signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of person responsible for quality, including authority to stop work that is not in compliance with the Contract Documents. The person responsible for quality shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be supplied to the Consultant.
 - .4 Procedures for scheduling, reviewing, certifying, and managing Submittals, including those of Subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with the Contract Documents.
 - .5 Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, portion of the Work to be tested, test frequency, and person responsible for each test.
 - .6 Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests, including documentation.
 - .7 Procedures for tracking defects and deficiencies from identification through Acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
 - .8 Reporting procedures, including proposed reporting formats.
 - .9 A list of the definable features of Work. A definable portion of the Work is a task which is separate and distinct from other tasks and has separate control requirements. This list will be agreed upon with the Consultant during a coordination meeting.

- .10 Acceptance of the Contractor's Quality Management Plan is required prior to the start of the Work. Acceptance is conditional and will be predicated on satisfactory performance during the Work.
- .11 The Owner reserves the right to require the Contractor to make changes in its Quality Management Plan and operations, as necessary, to obtain the quality specified.
- .12 Refer to the Contract Documents for additional requirements.
- .4 Submit a detailed testing and inspections schedule for Acceptance to the Consultant in accordance with the Contractor's Quality Management Plan.
- .5 Submit certificates for Products, process and system for Acceptance by the Consultant.
- .6 Submit formal testing and inspections reports per ASTM E329 and as indicated in Specifications to the Consultant in accordance with the Contract Documents.
- .7 Submit one digital copy of each Quality Assurance inspection and test report to the Consultant, except where Specifications indicate otherwise.
- .8 Submit mill test certificates, as required, in technical Specifications and as indicated on Drawings.

1.06 Quality Control Organization:

- .1 The requirements for the quality control organization are a person responsible for quality and sufficient number of additional qualified personnel to ensure compliance to Contract Documents.
- .2 Provide a quality control organization which shall be available at all times during progress of the Work and with complete authority to take any action necessary to ensure compliance with the Contract Documents.

1.07 QUALIFICATIONS

- .1 Manufacturers' Qualifications:
 - .1 specializes in manufacturing the Products specified in the Specifications.
 - .2 minimum three (03) 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' Qualifications:
 - .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:
 - .1 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 the Consultant for reporting, scheduling access and incidental labor required by Quality Auditor's reports if required.
- .3 When attendance is required, notify the Consultant in advance before proceeding with tests and inspections, and additional tests and inspections as may be reasonably requested by the Consultant.
- .4 Coordinate testing and inspections schedule with Subcontractor, testing agencies, and other affected parties.

1.10 SITE SAMPLES

- .1 Testing agency is responsible for obtaining representative samples of those materials required to be tested and evaluated 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 Prepare mock-ups for Work specifically requested in Specifications. Except when required in other sections, obtain the Consultant's Acceptance to construct and install mock-ups. When not required, Contractor shall indicate the use of mock-ups in their Quality Management Plan.
- .3 Assemble mock-ups at the Place of the Work in locations acceptable to the Consultant, or where location is indicated in the technical Specifications.
- .4 Schedule mock-ups ready for the Consultant review and Acceptance 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 Consult with the Consultant in scheduling dates for construction and review of mock-ups. Provide sufficient notice as directed by the Consultant.
- .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 to ensure mock-ups are complete.
- .8 Modify or replace mock-ups when unacceptable to the Consultant.
- .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 the Consultant.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 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 employed by Contractor or the Owner does not relieve the Contractor of their responsibility to perform Work in accordance with Contract Documents.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Allow and coordinate access to Work on site, manufacturing off site, and fabrication off site with inspection and testing agencies, the Consultant and the Owner.
- .2 Retain and pay for inspection and testing that are designated for Contractor's own Quality Management Plan, and when testing and inspection are required by Authorities Having Jurisdiction (AHJ).
- .3 Provide advanced notice, minimum five (05) Working Days to the Consultant and to each inspection/testing agency for inspection and testing required by Contract Documents or by (AHJ).
- .4 Where Owner cooperation, input or participation is required to fully perform inspection and test activities, particularly in relation to the correct operation of Products Supplied by Other and installed by the Contractor, provide a minimum ten (10) Working Days' notice to the Consultant.
- .5 In advance of each test, notify appropriate agency and the Consultant in the order that attendance arrangements can be made.
- .6 Employment of inspection and testing agencies does not relax or remove responsibility to perform Work in accordance with Contract Documents.

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 the Consultant, applicable Subcontractors, testing agencies, Owner, 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 the Consultant, 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 (10) Working 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 the Consultant, except where a technical Specification section indicates otherwise. Maintain copies available at Place of the Work in accordance with Section 01 78 00 - Closeout Submittals.
- .6 Deliver copies of quality control reports to Subcontractor of Work being inspected or tested.

1.05 SITE QUALITY CONTROL PROCEDURES

- .1 Provide labor, Construction Equipment, 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.

1.06 TESTING AND INSPECTION SERVICES

- .1 The Owner 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 by the Contractor.
- .2 Consultant may order any part of the Work to be reviewed or inspected if the Work is suspected to be not in accordance with Contract Documents. If, upon review such Work is found not in accordance with Contract Documents, the Contractor shall correct such Work and pay cost of additional review and correction.
- .3 Provide equipment required for executing inspection and testing by appointed agencies.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and testing to ascertain full degree of defect. Correct defect and irregularities as advised

by Consultant at no cost to Owner. Pay costs for retesting and re-inspection.

.5 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.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

1.03 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. If generators are used, they should be of the kind that minimize noise impact to surrounding areas and residents.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance, and removal.
- .3 When Electrical power supply is available at site and supply is metered to ONTC, subject to agreement of the Consultant, it may be provided for construction use at no cost. Contractor shall ensure their use shall not cause the overall use to exceed supply voltage and capacity. Connect to existing power supply in accordance with Canadian Electrical Code.
- .4 Electrical power systems installed under this Contract may be used for construction requirements only with prior approval from the Consultant if warranties are not affected. Repair damage to electrical system caused by the Contractor's use under this Contract.
- .5 Temporary power distribution wiring shall comply with Ontario Electrical Safety Code. Obtain inspection certificates for temporary electrical work.

1.04 TEMPORARY FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work in accordance with Section 01 35 35 – Fire Safety Protection.

1.05 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 recommended by applicable codes and regulations 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 must not be used.

1.06 TEMPORARY LIGHTING

- .1 Provide and maintain temporary lighting throughout Project. Ensure level of illumination on all work area is suitable and will meet or exceed the requirement of Health and Safety regulations and as per applicable codes and standards.
- .2 Electrical lighting systems installed under this Contract may be used for construction requirements only with prior approval of the Consultant 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.
- .3 Temporary lighting installed under this Contract shall not cause light nuisance and or adversely impact ONTC Operations and surrounding areas and properties. Make adjustments to the satisfaction of Owner.

1.07 TEMPORARY SANITARY FACILITIES

- .1 Provide sanitary facilities in accordance with Occupational Health and Safety requirements in the

Place of the Work. Use of Owner's existing sanitary facilities or new sanitary facilities is not allowed.

1.08 TEMPORARY TELECOMMUNICATIONS

- .1 If required, provide and pay for temporary telephone, data hook up equipment necessary for own use and use of the Consultant.

1.09 TEMPORARY WATER

- .1 When available, Owner will provide water for construction use. Otherwise, the Contractor will be responsible for the water supply and all associated costs.
- .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance, and removal as required.

2.01 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 utilities. Make good and remediate any damage caused by use under this contract.
- .4 Pay costs for installation, maintenance and removal.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 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.
- .3 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.
- .4 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 ACTION AND INFORMATIONAL SUBMITTALS

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

1.03 INSTALLATION AND REMOVAL

- .1 For each Place of the Work prepare site plan indicating proposed location and dimensions of the Construction Area to be fenced and used by Contractor, number of trailers if required, area for parking vehicles, avenues of ingress/egress to fenced area and details of fence installation. Construction Area shall be within the area indicated in the Contract Drawings. Submit site plan to Consultant for review and Acceptance.
- .2 Indicate use of supplemental or other staging areas.
- .3 Provide construction facilities in order to execute Work expeditiously.
- .4 After use remove from site all such work installed under this section 01 52 00 – Construction Facilities. Reinstate area to same or better state before start of Project.

1.04 SCAFFOLDING

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

1.05 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.

1.06 ELEVATORS

- .1 When applicable, permanent elevators are not to be used by Contractor, Subcontractor or supplier personnel or for transporting of materials unless approved by the Owner. Co-ordinate use with the Owner if use is permitted.
- .2 If use of elevators is approved by the Owner, provide protective coverings for finish surfaces of walls, floors and entrances.

1.07 SITE STORAGE/LOADING

- .1 Confine Work and operations of employees to the Construction Area. 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 the Consultant 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.

1.08 CONSTRUCTION PARKING

- .1 Parking may be permitted on site provided it does not disrupt performance of Work. Arrange with the Consultant and obtain approval before site usage. Show location of agreed parking on site plan.
- .2 Parking within the Construction Area shall be managed by the Contractor as long as it does not affect work performance or Safety.
- .3 Provide and maintain adequate access to Project sites.
- .4 Parking arrangements shall be in accordance with location specific restrictions contained in section 011400 – Work Restrictions.

1.09 TEMPORARY SECURITY

- .1 Contractor is responsible for the security of the Place of the Work and any off-site other locations used by the Contractor for the execution of the Contract such as off-site temporary storage spaces.
 - .1 Temporary Site Security:
 - 1. Site Fencing: Before beginning excavation and before construction activities begin, provide temporary site enclosure fencing with lockable gates to prevent unauthorized access.
 - 2. Extent of Fencing: To enclose entire Project site or a portion sufficient to accommodate construction activities as indicated on Drawings.

3. Distribute gate keys to authorized personnel only. Supply Consultant and Owner with one set of keys each.
- .2 Temporary Building Security:
 1. Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized access, vandalism, theft, and similar security violations.
 2. Distribute building entrance keys to authorized personnel only. Supply Owner and Consultant with one set of keys each.

1.10 OFFICES

- .1 Provide one field office for the duration of the Work. The field office can be located within the Contractor Construction trailer and shall have proper heating, lighting, and ventilation and be of sufficient size to accommodate site meetings.
- .2 Provide one workspace in field office for use by the Owner and the Consultant.
- .3 Provide marked and fully stocked first-aid case in a readily available location.
- .4 Subcontractors to provide their own offices as necessary. Arrange with the Consultant location of these offices.
- .5 Maintain offices in a clean condition.

1.11 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof storage space (seacans, sheds, etc.) for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof storage space on site in manner to cause least interference with work activities.
- .3 Ensure all equipment, tools and materials (including salvaged material) are stored clear of the rail Right of Way in a position where it they will not interfere with train operations and employee movements. Ensure all equipment, tools and materials and are secured in such a manner that they cannot fall or be placed foul of the rail line.

1.12 SANITARY FACILITIES

- .1 Provide sanitary facilities for workforce in accordance with governing regulations and ordinances and in accordance with 01 51 00 – Temporary Facilities.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13 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 the Consultant.

- .4 Provide signage in compliance O. Reg. 213/91 CONSTRUCTION PROJECTS, Canada Occupational Health and Safety Regulations SOR/86-304, Ontario Occupational Health and Safety Act, R.S.O. 1990 and applicable laws and standards.
- .5 The Owner may supply or instruct the Contractor to supply other signs. Signs shall be installed by the Contractor. Specification of signage will be provided by the Owner. Any additional cost will be valued as per Contract Documents.

1.14 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 the Consultant.
- .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 shall be responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary only after obtaining the Consultant's approval.
- .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 the Owner.
- .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 the Owner.

1.15 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 at a location approved by the Consultant.

2.01 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.

END OF SECTION

1 General

1.1 SUMMARY

- .1 This Specification covers the operational requirements and traffic control for heavy civil contracts when roadway traffic is to be accommodated during construction.
- .2 The Contractor shall complete all Work relevant to this section in accordance with Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 706 – TEMPORARY TRAFFIC CONTROL DEVICES
 - .2 Sections – Measurement for Payment and Basis of Payment are not used.

1.2 RELATED REQUIREMENTS

- .1 Section 32 11 16.01 - Granular Sub-base
- .2 Section 32 11 23 - Aggregate Base Courses
- .3 Section 32 12 16 - Asphalt Paving

1.3 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 Ministry of Transportation, Ontario (MTO) – Ontario Traffic Manual, Book 7: Temporary Conditions.

1.4 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 When working on travelled way:
 - .1 Place equipment in position to minimize interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .3 Close lanes of road only after receipt of written approval from Owner and Authority Having Jurisdiction (AHJ).
 - .1 Before re-routing traffic, erect suitable signs and devices to Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4 Keep travelled way graded, free from potholes and of sufficient width for required number of lanes of traffic.
 - .1 Provide 7 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.
 - .2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.
- .5 Provide gravelled detours or temporary roads as needed to facilitate passage of traffic around restricted construction area:

- .1 Place and compact granular sub-base in accordance with Section 32 11 16.01 - Granular Sub-base.
- .2 Place and compact granular base in accordance with Section 32 11 23 - Aggregate Base Courses.
- .3 Place and compact asphalt concrete pavement in accordance with Section 32 12 16 - Asphalt Paving.
- .6 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Owner and AHJ.

1.5 INFORMATION AND WARNING DEVICES

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices to Ontario Traffic Manual, Book 7: Temporary Conditions.
- .3 Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4 Meet with Owner and AHJ, as needed, prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Owner and AHJ.
- .5 Continually maintain traffic control devices in use:
 - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Remove or cover signs which do not apply to conditions existing from day to day.

1.6 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped to Ontario Traffic Manual, Book 7: Temporary Conditions for situations as follows:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .7 At each end of restricted sections where pilot cars are required.
 - .8 Delays to public traffic due to contractor's operators: 15 minutes maximum.

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- .2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.
 - .1 Adjust, as necessary, and regularly maintain system during period of restriction.
 - .2 Ensure signal system meets requirements of Ontario Traffic Manual, Book 7: Temporary Conditions.

1.7 OPERATIONAL REQUIREMENTS

- .1 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under contract and when measures have been taken as specified and approved by Owner and AHJ to protect and control public traffic, existing conditions for traffic to be restricted.
- .2 Maintain existing conditions for traffic crossing right-of-way.

2 Products

NOT USED

3 Execution

NOT USED

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 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.
- .3 CSA Group (CSA)
 - .1 CSA-O121-[M1978(R2003)], Douglas Fir Plywood.

1.02 RELATED REQUIREMENTS

- .1 Section 01 14 00 – Work Restrictions
- .2 Section 01 52 00 – Construction Facilities
- .3 Section 01 55 26 – Traffic Controls
- .4 Section 01 57 00 – Temporary Controls.
- .5 Section 01 74 00 – Cleaning
- .6 Section 01 74 19 – Waste Management and Disposal.

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 Unless otherwise specified, 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 as required by applicable Laws, codes and governing authorities.

1.06 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, 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.
- .2 Ensure public use of operational facilities is protected appropriately. Reference section 01 14 00 – Work Restrictions, for details of operational facilities.

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 FINISHES

- .1 Provide protection for finished and partially finished finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with the Owner locations and installation of protection of finishes five (5) Working 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 – Waste Management and Disposal.

END OF SECTION

1 GENERAL

1.01 SUMMARY

- .1 This Specification covers the requirements for temporary controls of soil erosion and sediment loss, control of pests, control of pollution entering the soil, prevention of pollution in stormwater, control of site dust, and site security.

1.02 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 The Contractor shall complete all Work relevant to this section in accordance with Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 804 – TEMPORARY EROSION CONTROL
 - .2 OPSS.PROV 805 – TEMPORARY SEDIMENT CONTROL
 - .3 Sections – Measurement for Payment and Basis of Payment are not used.

1.03 TEMPORARY PEST CONTROL

- .1 Perform pest control to minimize attraction and harboring of rodents, insects, and other pests. Perform extermination and control procedures at regular intervals.
- .2 Project shall be free of pests and their residues at Substantial Performance of the Work.
- .3 Perform pest control in accordance with integrated pest management principles with no hazardous or toxic substances released into stormwater or environment.

1.04 TEMPORARY ENVIRONMENTAL CONTROL

- .1 Use construction methods that comply with environmental regulations and minimize possible air, waterway, and subsoil contamination and pollution.
- .2 Meetings: Train persons on equipment fueling, spill prevention and response, good housekeeping protocols, material handling, and waste material handling before their first day on site.
- .3 Management:
 - .1 Monitor and repair leaks of polluting liquids on vehicles. Prevent leaks of antifreeze, brake fluid, diesel fuel, gasoline, oil, transmission fluid, and other liquids that may be harmful to the environment or storm drainage systems.
 - .2 Store petroleum products in clearly labelled sealed containers. Provide spill kits and impermeable tarps at fueling and maintenance areas.
 - .3 Supply a collection skid or similar material for waste materials.
 - .4 Tightly seal and store paint containers, sealers, and curing compounds in a protected location when not required. Prevent excess materials from discharging into storm drainage system.
 - .5 Prevent concrete trucks from discharging surplus concrete or drum wash water on site.
 - .6 Place absorbent materials to soak up excess form release agents. Replace absorbent materials when saturated.
 - .7 When applying fertilizer, minimize the discharge of pollutants into stormwater.

1.05 TEMPORARY SITE DUST CONTROL

- .1 Provide measures to prevent airborne dust to adjacent properties and walkways

according to requirements of AHJ and meeting requirements of authority having jurisdiction, including but not limited to the local municipality.

- .2 Create and implement a site-specific dust control plan.
- .3 Dust Control Windbreaks: Geotextile fabric attached to snow or temporary site fencing with fence posts and tie wires. Other measures will be considered.
- .4 If surface water taking in excess of 50,000 L/day is required for dust suppression or other activities, the contractor is to prepare an Environmental Activity and Sector Registry (EASR) as outlined in Ontario Regulation 63/16 (O. Reg.), made under the Environmental Protection Act, Registrations Under Part 11.2 of the Act – Water Taking.

1.06 TEMPORARY SECURITY

- .1 Temporary Site Security:
 - .1 Site Fencing: Before beginning excavation and before construction activities begin, provide temporary site enclosure fencing with lockable gates to prevent unauthorized access.
 - .2 Extent of Fencing: To enclose entire Project site or a portion sufficient to accommodate construction activities as indicated on Drawings.
 - .3 Distribute gate keys to authorized personnel only. Supply Owner with one set of keys.
- .2 Temporary Building Security:
 - .1 Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized access, vandalism, theft, and similar security violations.
 - .2 Distribute building entrance keys to authorized personnel only. Supply Owner with one set of keys.

1.07 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit information in accordance with Section 01 33 00 - Submittal Procedure.
- .2 Submit the following:
 - .1 Stormwater Pollution Control Plan (SWPCP): Submit SWPCP indicating methods, plans, and details of controls including:
 - .1 SWPCP coordinator information and their responsibilities
 - .2 Stormwater pollution prevention team to assist in implementation of SWPCP during construction
 - .3 Description of existing site conditions, including:
 - .1 existing land use of the site, such as wooded areas, grassed areas, pavements, buildings, and other structures,
 - .2 location of surface waters on or adjacent to Project site, such as lakes, ponds, rivers, streams, wetlands, and similar water features,
 - .3 soil types on Project site,
 - .4 water bodies that will receive site runoff, including the eventual main body of water that receives stormwater, and

- .5 drainage areas and potential stormwater contaminants.
- .4 Stormwater management controls and various Best Management Practices required to reduce erosion, sediment, and pollutants in stormwater discharge.
- .5 Proposed waste water management equipment and materials.
- .6 Facility monitoring plan and how controls will be coordinated with construction activities.
- .7 Schedule and allowances to amend the plan if required.
- .8 Sample inspection log.
- .2 Erosion and Sedimentation Control Plan:
 - .1 Submit drawings indicating location of erosion and dust control methods,
 - .2 Describe methods for maintaining, cleaning and repairing erosion and dust control methods, and
 - .3 Submit product data indicating actual materials including:
 - .1 Measures used to prevent soil loss by stormwater runoff and wind erosion.
 - .2 Methods used to protect soil stockpiles and berms.
 - .3 Methods used to prevent loss of sediment into storm sewers or adjacent waterways.
 - .4 Methods to prevent site dust and particulate matter pollution.
- 3 During the course of work, submit detailed digital photographs indicating temporary sediment and erosion control measures.
- .4 Site Quality Control Submittals: Submit logs of inspection and maintenance of control measures.

2 PRODUCTS

2.1 REGULATORY REQUIREMENTS

- .1 Protect storm sewers and roadways in accordance with local municipal requirements.
- .2 Protect waterways and ground water in accordance with AHJ.
- .3 The Contractor is notified of the presence of existing utilities within Project limits, including but not limited to Bell, North Bay Hydro, Enbridge, Hydro One, Northern Ontario Wire. Care shall be taken during construction operations to avoid damages to the existing utilities. The Contractor shall provide protection and/or support to all existing utilities as required to facilitate their construction operations. The Contractor shall familiarize themselves with utility plans prior to undertaking works in these locations.

3 EXECUTION

3.1 CLOSEOUT ACTIVITIES

- .1 Remove temporary control measures shortly before Substantial Performance of the Work or when acceptable to the Owner.

- .2 Restore landscape areas that were damaged by temporary control measures.

3.2 MAINTENANCE

- .1 Inspection and Maintenance:
 - .1 Inspect, repair, and maintain temporary control measures during construction.
 - .2 Inspect control measures weekly to prevent unwanted situations such as odours, mosquitoes, and weeds. Confirm control measures are working properly. Repair or replace when required.
 - .3 Repair silt fences and erosion control fabric when damaged.
 - .4 Perform non-routine inspection and maintenance arising from unplanned incidents such as repairs after severe weather and accidental damage.
 - .5 Record each inspection and maintenance event in a daily log. Keep a copy of logs at the Project site. Maintain permanent file of logs until final acceptance of the Work.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

- .1 Section 01 11 00 - Summary Of Work.
- .2 Section 01 45 00 - Quality Control.
- .3 Section 01 73 00 – Execution.

1.03 QUALITY

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

1.04 AVAILABILITY

- .1 Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of Products are foreseeable, notify the Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify the Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Owner 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 a 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 the Consultant.
- .9 Touch-up damaged factory finished surfaces at own expense and to the Consultant 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, unless otherwise specified.
- .2 Transportation cost of Products Supplied By Others will be paid for by the Owner. Unload, handle, store and protect 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 the Consultant in writing, of conflicts between Specifications and manufacturer's instructions, so that the Consultant will establish course of action.
- .3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Consultant 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 the Consultant if required Work is such as to make it impractical to produce required results.

- .2 Do not employ anyone unskilled in their required duties. The Owner and the Consultant reserve the 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 the Consultant, 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 the Consultant 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 the Consultant if there is interference. Install as directed by the Consultant.

1.11 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .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 the Consultant of conflicting installation and propose alternative solution for Acceptance.

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 Unless otherwise specified, use heavy hexagon heads, semi-finished. 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 or structures. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of the Consultant.

1.16 EXISTING UTILITIES

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

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 RELATED REQUIREMENTS

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

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit the following before Work begins at the Place of Work:
 - .1 Service locations: Document locations and extents of service lines in work areas.
- .3 Submit the following informational submittals as Work progresses:
 - .1 Land Survey information: Name address, and registration information.
- .4 Submit documentation that verifies accuracy of site engineering work when requested by the Consultant.
- .5 Submit certificate signed by surveyor indicating elevations and locations of completed Work that conform to Contract Documents and those that do not conform.

1.04 QUALIFICATIONS

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

1.05 SETTING OUT OF WORK

- .1 Survey existing conditions and correlate with all requirements indicated in the Specifications.
- .2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .3 Provide devices needed to lay out and construct work.
- .4 Review existing conditions and identify, in writing to the Consultant, any conditions that differ materially from those indicated in the Contract Documents.

1.06 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 a certified survey showing

dimensions, locations, angles, and elevations of Work. Keep copies available at the job site with other progress documentation. Submit to the Consultant at request.

- .3 Record locations of maintained, re-routed, and abandoned service lines.
- .4 Provide a final survey of building and structure location, surrounding grades as affected by the Work and buried utilities.

1.07 SUBSURFACE CONDITIONS

- .1 Promptly notify the Consultant 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 the Consultant determine that conditions do differ materially, instructions will be issued by the Owner for changes in Work as provided in Changes and Change Orders.

1.08 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Employ competent person to lay out Work in accordance with the Contract Documents.
- .3 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space in accordance with manufacturer's recommendations for safety, access and maintenance.
- .4 Submit Shop Drawings which indicate relative position of various services and equipment to the Consultant for review and Acceptance. Contractor is responsible for coordination of all equipment and services before installation.

2.01 NOT USED

- .1 Not Used.

3.01 EXAMINATION REQUIREMENTS

- .1 Verification of Conditions:
 - .1 Verify that substrate and other 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 Examine conditions, with installers, for defects affecting performance of the Work. Where Work of one Section depends on Work of other Sections being properly completed, verify

that Work is complete and suitable to receive the subsequent work.

- .5 Proceed with installation only after unacceptable conditions are remedied.
- .6 Proceeding with cutting, patching, or installation will be considered Contractor's acceptance of existing conditions.
- .2 Existing Services:
 - .1 Confirm locations and extent of service lines in area of Work before beginning work on site. Submit findings.
 - .2 Immediately notify the Consultant if unknown services are encountered. Confirm findings in writing.
 - .3 Remove abandoned service lines within 2 m of structures. Cap or seal lines at cut-off points as indicated on Drawings.
- .3 Pre-Installation Testing:
 - .1 Perform manufacturer-recommended pre-installation site test of substrate and submit to the Consultant a report of test results indicating whether test results meet the manufacturer's minimum requirements and recommendations.
- .4 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. The remedial work will be completed by the Contractor to the satisfaction of the Consultant. Cost of such remedial work shall be as per Contract Documents.

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 the Consultant.
 - .3 Notify the Consultant if a reference point is lost or destroyed.
 - .4 Surveyor to replace reference points in accordance with original land survey.
 - .5 Notify the Consultant if a reference point requires relocation because of necessary changes in grades or locations.

.4 Survey Requirements:

- .1 Unless otherwise indicated in Specifications, establish minimum two permanent benchmarks on site, referenced to established benchmarks by survey reference points. Record locations with horizontal and vertical data in Project As-Built Record Drawings.
 - .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, unless otherwise specified in Contract Documents.

END OF SECTION

1 GENERAL

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 REFERENCE STANDARDS

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

1.03 RELATED REQUIREMENTS

- .1 Section 01 14 00 – Work Restrictions
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 45 00 – Quality Control.

1.04 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 in advance of 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 for the Consultant review and Acceptance. Include evidence of unsatisfactory structural integrity of the elements according to the Consultant.
 - .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 for each Place of the Work indicating relative location of various services and equipment upon the request of the Consultant.
- .6 Submit a work plan for review and Acceptance 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 specific description of reinstatement activities following completion of the Work.
 - .4 the effect of cutting or altering on work by Owner or other contractors;
 - .5 written acknowledgment by other contractors affected by cutting or altering, if applicable; and
 - .6 proposed date(s) and time(s) Work will be executed.

1.05 QUALIFICATIONS

- .1 Engage a structural engineer licensed at the Place of 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 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 the Consultant in writing, of conflicts between Specifications and manufacturer's instructions, so that the Consultant can establish course of action.
- .5 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Consultant 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 in Specifications are approximate.
 - .2 Notify the Consultant of impending installation and obtain Acceptance 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 or 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 are not acceptable.

3.03 CUTTING AND PATCHING

- .1 Proceed with cutting and patching only after the review and Acceptance by the Consultant 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 the Consultant.
- .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 the Consultant.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 PROJECT CLEANLINESS

- .1 Maintain Place of the Work in tidy condition, free from accumulation of waste material and debris.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Consultant.
- .3 Do not burn waste materials on site.
- .4 Clear snow and ice from access to Place of the Work, bank/pile snow in designated areas only approved by Owner, or remove from site, as agreed upon at outset of Contract.
- .5 Make arrangements with and obtain permits from Authorities Having Jurisdiction (AHJ) for disposal of waste and debris.
- .6 Provide on-site steel containers for collection of waste materials and debris.
- .7 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.
- .8 Dispose of waste materials and debris at appropriate off-site facilities.
- .9 Clean interior areas prior to start of finishing Work and maintain areas free of dust and other contaminants during finishing operations.
- .10 Store volatile waste in covered metal containers and remove from premises at end of each Working Day, unless authorized otherwise by the Consultant.
- .11 Provide adequate ventilation during use of volatile or noxious substances. Use of existing or new ventilation systems is not permitted for this purpose.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate new or existing systems or facilities.

1.03 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus Products, tools, Construction Equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others and leave Place of the Work clean and suitable for occupancy.

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

1.04 WASTE MANAGEMENT AND DISPOSAL

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

END OF SECTION

1 GENERAL

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 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .2 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 31 19 - Project Meetings
- .2 Section 01 33 00 - Submittal Procedures
- .3 Section 01 51 00 - Temporary Utilities
- .4 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 Waste Management Plan (WMP) are followed.
- .2 Preconstruction Meeting: During the pre-construction meeting arranged in accordance with Section 01 31 19 - Project Meetings, discuss the Contractor's 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 for Acceptance before starting any Work of this section:
 - .1 WMP: Submit to the Consultant for review a draft WMP including 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. The Owner and the Consultant may provide comments within five (05) Working Days. Update as required and resubmit to the Consultant the final WMP for Acceptance within (05) Working Days.

.2 WMP shall include, but not limited to:

- .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 WMP 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 WMP.
- .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 Waste Management 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.

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.

2.01 NOT USED

- .1 Not Used.

3.01 WASTE MANAGEMENT PLAN IMPLEMENTATION

- .1 Contractor is responsible for designating an on-site party or parties responsible for instructing workers and overseeing and documenting results of the WMP for the Project.
- .2 Distribute copies of the WMP to the job site foreman, each Subcontractor, the Owner, the Consultant and other site personnel as required to maintain WMP.
- .3 Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the Project to employees and Subcontractors at appropriate stages of the Project.
- .4 Layout 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 Submit to the Consultant a monthly summary of waste generated by the Project including details of waste diverted for recycling:
 - .1 Submittal of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Owner and the Contractor.
 - .2 Monthly waste summary shall contain the following information:
 - .1 The amount in tonnes or m³ and location of material landfilled,
 - .2 The amount in tonnes or m³ 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 CONTRACTOR'S RESPONSIBILITY

- .1 Subcontractors shall cooperate fully with the Contractor to implement the WMP.
- .2 The Contractor shall be responsible for all additional costs incurred by the Owner and the Contractor arising from the failure to comply with the WMP.

END OF SECTION

1.01 GENERAL REFERENCE STANDARDS

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

1.02 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 the Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request the Owner inspection.
 - .2 The Owner Inspection:
 - .1 The Owner, the Consultant and the Contractor will inspect the 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 the Consultant.
 - .7 Apply for certification of Substantial Performance of the Work and Ready-For-Takeover in accordance with the Contract Documents.
 - .8 Submit all Close-Out Documentation described in GC 5.5.1.2. and section 01 78 00 – Closeout Submittals
 - .9 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by the Owner and the Consultant.
 - .2 When Work is incomplete according to the Owner or the Consultant, complete outstanding items and request re-inspection.

1.03 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.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 SUMMARY

- .1 Comply with the requirements of this section and other related sections. When the Project is being completed at multiple sites, the requirements shall be met at each location as applicable.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting with the Owner and the Consultant, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .3 Establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .2 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.
 - .3 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 Submit to the Consultant for review and Acceptance the operating and maintenance manual (in English). Schedule the Submittal such that Acceptance is received prior to the commencement of training of O&M personnel.
- .3 Following completion of training of operations and maintenance personnel, provide four hard (4) copies and an electronic copy in PDF format of finalized operations and maintenance manual.
- .4 Provide spare parts, maintenance materials and special tools of same quality and manufacture as Products provided in Work.
- .5 Provide evidence, if requested, for type, source and quality of Products supplied.
- .6 Provide a complete set of As-Built Record Drawings sealed by an engineer licensed in the province

of Ontario.

- .7 Provide all other required Closeout Documentation in accordance with the Contract Documents.

1.05 OPERATIONS AND MAINTENANCE MANUAL

.1 FORMAT

- .1 Organize data as an 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 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 CAD files in dwg format.

.2 CONTENTS

- .1 Table of Contents for Each Volume: provide title of Project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of Products and systems, indexed to content of volume.
- .2 Include the following contents:
 - .1 As-Built Record Drawings
 - .2 Product data, and samples.
 - .3 Site test records.
 - .4 Inspection certificates.
 - .5 Manufacturer's certificates.
 - .6 Inventory of spare parts, special tools and maintenance materials.
 - .7 Maintenance Management System (MMS) identification system used.

- .8 WHMIS information.
- .9 WHMIS Safety Data Sheets (SDS).
- .10 Electrical Panel inventory containing a detailed inventory of electrical circuitry for each panel board. Duplicate of inventory inside each panel.
- .11 Other documents as required and specified in other sections of Specifications.
- .12 Provide digital photos, if requested, for site records.
- .3 For each Product or system:
 - .1 List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- .4 Product Data: mark each sheet to identify specific Products and component parts, and data applicable to installation; delete inapplicable information.
- .5 Provide a set of As-Built Record Drawings that accurately reflect as-constructed, as-built or as-fabricated Work and that have been sealed by a professional engineer licensed in the Province of Ontario.
 - .1 Provide hard copies within the operations and maintenance manuals and electronic copies in both native CAD format and PDF.
 - .2 Label each document "AS-BUILT RECORD" in neat, large, printed letters.
- .6 Drawings: supplement Product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .7 Typewritten Text: As required to supplement Product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- .7 Label record documents and file in accordance with section number listings.
- .8 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .9 Keep record documents and samples available for inspection by the Owner and the Consultant.
- .10 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.
- .11 Training: Refer to Section 01 79 00 - Demonstration and Training.

.3 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
- .2 Give function, normal operation characteristics and limiting conditions.
- .3 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

- .4 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .5 Include installed colour coded wiring diagrams.
- .6 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.
- .7 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .8 Provide servicing and lubrication schedule, and list of lubricants required.
- .9 Include manufacturer's printed operation and maintenance instructions.
- .10 Include sequence of operation by controls manufacturer.
- .11 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .12 Provide installed control diagrams by controls manufacturer.
- .13 When applicable, provide Contractor's coordination drawings, with installed colour-coded piping diagrams.
- .14 When applicable, provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .15 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .16 Include test and balancing reports as specified in Section 01 45 00 - Quality Control and Section 01 91 13 - General Commissioning Requirements.
- .17 Additional requirements: As specified in individual Specification sections.

.4 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.
- .2 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.
- .3 Additional requirements: As specified in individual Specifications sections.

1.06 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.

1.07 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 the Consultant.
 - .2 Include approved listings in operation & 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 the Consultant.
 - .2 Include approved listings in operation & maintenance manual.
 - .5 Obtain receipt for delivered Products and submit before 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 the Consultant.
 - .2 Include approved listings in operation & maintenance manual.

1.08 DELIVERY, STORAGE, AND HANDLING

- .1 Store, at a location agreed with the Consultant, spare parts, maintenance materials, and special

tools in a 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 to the satisfaction of the Owner and the Consultant.

1.09 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to warranties and extended warranties.
- .2 Submit warranty management plan, twenty (20) Working Days before planned pre-warranty meeting, to the Consultant review and Acceptance.
- .3 Warranty management plan to include required actions and documents to assure that the Owner receives all 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 with each application for payment.
- .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 (10) 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 Early Occupancy or Ready-for-Takeover is verified.
- .8 Conduct joint 04 month and 09 month warranty inspection, measured from date determined above in clause 1.14.7.
- .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.
 - .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 04 and 09 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.

1.10 WARRANTY TAGS

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

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

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

1.02 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel before date of Substantial Performance of the Work.
- .2 The Owner will provide a 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 that designated personnel are present.
 - .3 Ensure equipment has been inspected and put into operation in accordance with specified Contract Documents.
 - .4 Ensure testing, adjusting, and balancing have 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 operations and maintenance manuals as basis of instruction.
 - .3 Review contents of operations and maintenance 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 The amount of time to be provided for instruction of each item of equipment or system shall be agreed with the Owner in advance.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit, for Acceptance, a plan including a schedule of times and dates for the demonstration of each item of equipment and each system. Ensure plan is submitted such that Acceptance is received two weeks before designated dates.
- .3 Submit reports within one week after completion of demonstration, provided that demonstration

and instructions have been satisfactorily completed.

- .4 Include in report time and date of each demonstration, with list of persons present.
- .5 Provide sufficient copies of completed operations 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 Provide demonstration and training as per this section.
 - .2 Submit written report that demonstration and instructions have been completed.

END OF SECTION

1 GENERAL

1.01 SUMMARY

1.02 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.

1.03 REFERENCE STANDARDS

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

1.04 RELATED REQUIREMENTS

- .1 Section 01 31 19 – Project Meetings
- .2 Section 01 32 16.16 Construction Progress Schedule Critical Path Method
- .3 Section 01 45 00 - Quality Control.
- .4 Section 01 77 00 - Closeout Procedures.
- .5 Section 01 78 00 - Closeout Submittals.
- .6 Section 01 79 00 - Demonstration and Training.
- .7 01 91 13.13 – Commissioning Plan
- .8 01 91 13.16 – Commissioning Forms

1.05 ABBREVIATIONS

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

1.06 ADMINISTRATIVE REQUIREMENTS

.1 Coordination:

- .1 The Consultant will observe some or all commissioning activities at their discretion.
- .2 Owner's Performance Testing: Performance testing of equipment or systems by the Owner or the Consultant will not relieve Contractor from compliance with specified start-up and testing procedures.
- .3 Cooperate fully with the Owner and the Consultant during stages of Acceptance and Ready-for-Takeover.
- .4 Coordination with Authorities Having Jurisdiction (AHJ):
 - .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of AHJ, arrange for AHJ to witness procedures to avoid duplication of tests and to facilitate an earlier acceptance of equipment or facility.
 - .2 Obtain certificates of approval, acceptance, and compliance with rules and regulations of AHJ.
 - .3 Submit copies of certificates to the Consultant within three (03) days of test.

.2 Commissioning Meetings:

- .1 Arrange Cx meeting(s) as per this section and in accordance with other Specification sections.
- .2 Provide agenda, in accordance with section 01 91 13 – Project Meetings, a minimum of five (05) Working Days before meeting(s).
- .3 Use Cx meetings to resolve issues, monitor progress, and identify defects and deficiencies relating to Cx.
- .4 Continue Cx meetings on a regular basis, including during equipment start-up period, and functional testing period until commissioning deliverables have been addressed.
- .5 At 60% construction completion stage arrange a separate Cx scope meeting to review progress, discuss schedule of equipment start-up activities and prepare for Cx. Additional 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.
- .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 Provide twenty (20) Working Days' notice before beginning commissioning.

- .2 The Owner and the Consultant will observe start-up and testing.
- .3 The Consultant and/or Owner may 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 the Consultant 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 Consultant's excess contract administration if third and subsequent verifications occur where:
 - .1 Verification of reported results fail to receive the Owner or Consultant's Acceptance.
 - .2 Repetition of second verification again fails to receive Acceptance.
 - .3 The Consultant deems Contractor's request for second verification was premature.
 - .2 The cost of the Consultant's excess contract administration will be based on a rate of \$260 per hour.

1.07 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit, for review and Acceptance, no later than six (06) weeks after award of Contract:
 - .1 draft Cx documentation and
 - .2 preliminary Cx schedule.
 - .2 Request changes to Submittals in writing to the Consultant and obtain written Acceptance or rejection at least eight (8) weeks before start of Cx.
 - .3 Where Cx procedures are not specified, submit proposed ones to the Consultant and obtain written Acceptance at least eight (8) weeks before start of Cx.
 - .4 Submit additional documentation relating to Cx process as required by the Consultant.
 - .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.
 - .6 Submit EMCS sensor calibration certificates.
- .2 Commissioning Schedule:

-
- .1 Create and submit detailed Cx schedule in accordance with section 01 32 16.16 – Construction Progress Schedule and section 01 91 13.13 – Commissioning Plan. The Contractor shall ensure the Cx schedule is incorporated into the Construction Schedule.
 - .2 Allow in the schedule adequate time for Cx activities such that activities are completed prior to the required occupancy date, including commissioning activities prescribed in the Specifications 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 the Consultant 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 the Consultant or Owner 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 Consultant for review and Acceptance.

1.08 MAINTENANCE MATERIALS SUBMITTALS

- .1 Supply and document maintenance materials, spare parts, and special tools as specified in other Specification sections.

1.09 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 the Consultant, 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 Accepted. 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 be responsible for the entire 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.

COMMISSIONING OVERVIEW

- .1 Refer to Section 01 91 13.13 - Commissioning Plan for additional Cx responsibilities.
- .2 Cx activities supplement the site quality control and testing procedures described in relevant technical Specification sections.
- .3 Conduct Cx in coordination with other activities carried out during the Project delivery stages.
- .4 Cx shall identify issues early on in the construction 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 The Owner will verify *Ready-For-Takeover* has been achieved in accordance with the requirements of GC 12.1.1 and after:

- .1 Completed Cx documentation has been received, reviewed for suitability, and reviewed and Accepted by the Consultant.
- .2 Equipment, components and systems have been commissioned, and
- .3 O&M training has been completed.

3.02 PRE-COMMISSIONING REVIEW

- .1 Before Construction:
 - .1 Review Contract Documents and confirm in writing to the Consultant 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, documentation 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 Consultant for Acceptance.
 - .7 Verify systems have been cleaned thoroughly.
 - .8 Complete TAB procedures on systems and submit TAB reports to Consultant for review and Acceptance.
 - .9 Verify "As-Built" system schematics are available.
- .4 Inform Consultant in writing of defects and deficiencies in installed Work together with plan for rectification.

3.03 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.

3.04 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.

3.05 MANUFACTURER SERVICES

- .1 During factory testing, manufacturer, through the Contractor, to:
 - .1 Coordinate time and location of testing.
 - .2 Arrange for Consultant to observe testing.
 - .3 Submit testing documentation for review and Acceptance by Consultant.
 - .4 Obtain written Acceptance of test results and documentation from the Consultant 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 Consultant.
 - .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 Specification sections 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.

3.06 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 the Consultant 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 may result in re-evaluation of equipment by an independent testing agency selected by the Owner. 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 the Consultant .
 - .2 Major equipment/systems: If evaluation report indicates that equipment damage is minor, perform corrective measures acceptable to the Consultant.
 - .3 If evaluation report indicates that major equipment damage has occurred, the Consultant will reject equipment.
 - .1 Remove rejected equipment from site and replace with new equipment.
 - .2 Perform specified start-up procedures on new equipment/systems.

3.07 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 Consultant

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 Substantial Completion.

3.08 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.

3.09 START OF COMMISSIONING

- .1 Notify Consultant at least ten (10) Working Days before start of Commissioning
- .2 Start Cx after elements affecting start-up and performance verification of systems have been completed.

3.10 TEMPORARY INSTRUMENTS AND EQUIPMENT

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

3.11 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 Where applicable, make EMCS trending information available as supporting documentation for performance verification.

3.12 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 the Consultant.
- .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 the Consultant.

3.13 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 Consultant.
- .2 Calibrated EMCS sensors may be used to obtain performance data if sensor calibration has been completed and accepted.

3.14 DEFICIENCIES DISCOVERED DURING COMMISSIONING

- .1 Correct defects and deficiencies found during the Cx process. Re-verify equipment and components within the defective or deficient system to verify proper performance, including related systems if requested by the Consultant.
- .2 Costs associated with re-commissioning defective and deficient work is the responsibility of Contractor.

3.15 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.

3.16 DEFICIENCIES AND DEFECTS

- .1 Correct deficiencies and defects found during start-up and Cx to satisfaction of Owner and the Consultant.
- .2 Report concerns, deficiencies, and defects affecting Cx to Owner and the Consultant in writing. Stop Cx until problems are rectified. Proceed only with written Acceptance from the Consultant.

3.17 CLOSEOUT ACTIVITIES

- .1 Completion of Commissioning:
 - .1 Upon completion of Cx, leave systems in normal operating mode, unless otherwise agreed with the Consultant.

- .2 Except for warranty and seasonal verification activities specified in Cx Specifications, complete Cx before issuance of Substantial Completion Certificate of Completion.
- .3 Cx to be considered complete when contract Cx deliverables have been submitted and Accepted by the Consultant.
- .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 Canadian Construction Documents Committee (CCDC)
- .2 CCDC 2-2020, Stipulated Price Contract.

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.

1.04 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 O&M - Operations and Maintenance.
 - .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.

1.05 DEVELOPMENT OF CX PLAN

- .1 Submit for Acceptance a draft Cx Plan. Cx Plan shall be 100% completed within eight (8) weeks of award of Contract. Cx Plan shall take into account:
 - .1 Shop Drawings and Product data.
 - .2 Approved changes to Contract Documents.
 - .3 Contractor's Construction Schedule.
 - .4 Cx schedule.
 - .5 Contractor's, Subcontractor's, suppliers' requirements.
 - .6 Project construction team's and Cx team's requirements.
- .2 Submit completed Cx Plan to the Consultant for Acceptance.

1.06 REFINEMENT OF CX PLAN

- .1 During construction phase, revise, refine and finalize Cx Plan to include:
 - .1 Changes resulting from Owner program modifications.
 - .2 Accepted design and construction changes.
- .2 Revise, refine and update every four (4) weeks during construction phase. At each revision, indicate revision number and date.
- .3 Submit each revised Cx Plan to Consultant for review and obtain Acceptance.
- .4 Include testing parameters at full range of operating conditions and check responses of equipment and systems.
- .5 Final Cx Plan shall be Accepted six (6) weeks prior to start of Commissioning.

1.07 COMPOSITION, ROLES AND RESPONSIBILITIES OF CX TEAM

- .1 Contractor to maintain overall responsibility for the Project and is the sole point of contact between members of commissioning team.
- .2 Contractor will select Cx Team consisting of following members:
 - .1 Quality assurance team will ensure 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.
 - .2 Construction Team: Contractor, subcontractors, suppliers and support disciplines, are responsible for construction/installation in accordance with Contract Documents, including:
 - .6 Testing.
 - .7 TAB.
 - .8 Performance of Cx activities.
 - .9 Delivery of training and Cx documentation.
 - .10 Assigning one person as point of contact with Consultant and Cx Manager for administrative and coordination purposes.
- .3 Contractor's Cx Agent implements specified Cx activities including:
 - .1 Demonstrations.
 - .2 Training.
 - .3 Testing.
 - .4 Preparation, submission of test reports.
- .4 The Consultant is responsible for:
 - .1 Verifying implementation of final Cx Plan
 - .2 Monitoring of day to day Cx activities
 - .3 witnessing any or all Cx activities
- .5 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.

1.08 CX PARTICIPANTS

- .1 Employ the following Cx participants, as required, to verify performance of equipment and systems:

- .1 Installation Contractor/Subcontractor:
 - .2 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 Coordinates Owner's staff participation in Cx activities as required.
- .6 Ensure that Cx participant:
 - .1 Could complete work within scheduled time frame.
- .7 Available for emergency and troubleshooting service during first year of occupancy by user for adjustments and modifications outside responsibility of O&M personnel as per warranties terms. Provide names of participants to the Consultant and details of instruments and procedures to be followed for Cx [8] weeks prior to starting date of Cx for review and Acceptance.

1.09 EXTENT OF CX

- .1 Commission all new systems/equipment installed as part of the Work, including but not limited to, the systems contained in section 01 11 00 – Summary of Work and detailed in the technical Specifications.

1.10 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: submit in accordance with 01 33 00 - Submittal Procedures:
 - .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 Consultant to witness tests and reports of results provided to the Owner.
- .5 Consultant may participate.

1.11 PRE-CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Items listed in the Cx Plan shall include the following:
 - .1 Pre-Start-Up inspections.
 - .2 The Consultant may monitor some or 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 verified by Consultant and does not form part of Cx specifications.
 - .5 Include completed documentation in Cx report.
- .2 Complete following Pre-Cx activities as relevant to the Work with reference to technical Specifications:
 - .1 Pre-Cx activities - ARCHITECTURAL AND STRUCTURAL:
 - .2 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 basis.
 - .4 Perform TAB on systems. TAB reports to be Accepted by Consultant.
 - .3 Pre-Cx activities 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 Consultant 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 by Consultant before verification.

.5 Pre-Cx activities - ELECTRICAL:

- .1 High voltage distribution systems over 750 V.
- .2 Low voltage distribution systems under 750 V.
- .3 Requires independent testing agency to perform pre- energization and post-energization tests.
- .4 Emergency power generation systems
- .5 Transfer switches: test by simulating loss of power. Verify availability of power at equipment requiring same.
- .6 Uninterruptible power systems: test under full and partial load conditions.
- .7 Lighting systems:
- .8 Emergency lighting systems:
- .9 Tests to include verification of lighting levels and coverage, initially by disrupting normal power.
- .10 Low voltage systems: these include:
- .11 Clock, communications, low voltage lighting control systems and data communications systems.
- .12 Security, surveillance and intrusion alarm systems: to include verification by Owner and Consultant

1.12 START-UP

- .1 Start-up components, equipment and systems.
- .2 Consultant to monitor some or all of these start-up activities.
 - .1 Rectify start-up deficiencies to satisfaction of the Consultant.
- .3 Performance Verification (PV):
 - .1 Contractor's Cx Agent to perform.
 - .2 Repeat when necessary until results are acceptable to Consultant.
 - .3 Use modified generic procedures to suit project requirements.
 - .4 Consultant to review and Accept reported results using approved PI and PV forms.
 - .5 Owner and Consultant reserve 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.

1.13 CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Perform Cx using procedures developed by Contractor and Accepted by Consultant.
- .2 Consultant to monitor Cx activities.
- .3 Upon satisfactory completion, Contractor performing tests to prepare Cx Report using Accepted PV forms.
- .4 Consultant may witness reported results of Cx activities and forward to Owner.
- .5 Owner and Consultant reserve right to verify a percentage of reported results at no cost to Contractor.

1.14 CX OF INTEGRATED SYSTEMS AND RELATED DOCUMENTATION

- .1 Cx to be performed by specified Cx specialist, using procedures Accepted by the Consultant.
- .2 Tests to be witnessed by Consultant and documented on Accepted report forms.
- .3 Upon satisfactory completion, Cx specialist to prepare Cx Report, to be submitted to Consultant for review and Acceptance.
- .4 Owner and Consultant reserve right to verify percentage of reported results.

1.15 CX SCHEDULES

- .1 Prepare detailed Cx Schedule and submit to Consultant for review and Acceptance. Integrate Cx schedule into Project Construction Schedule such that there is a complete Critical Path for the entire Work. 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
 - .3 Cx agents' credentials
 - .4 Cx procedures
 - .5 Cx Report format
 - .6 Discussion of heating/cooling loads for Cx
 - .7 Submission of list of instrumentation with relevant certificates
 - .8 Notification of intention to start 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 reports: immediately upon successful completion of Cx.
 - .2 Detailed training schedule to demonstrate no conflicts with testing, completion of Project and hand-over to Owner.
 - .3 Cx schedule for verification of performance in all seasons and wear conditions.
- .2 Consultant, Contractor and Contractor's Cx Agent will monitor progress of Cx against this schedule.

1.16 CX REPORTS

- .1 Submit reports of tests, witnessed and verified by Consultant.
- .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 Consultant or Owner.

1.17 ACTIVITIES DURING WARRANTY PERIOD

- .1 Cx activities must be completed before issuance of Substantial Performance of the Work 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.

1.18 TRAINING PLANS

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

1.19 FINAL SETTINGS

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

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 Consultant 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 Consultant. Check lists will be required during Commissioning and will be included in Operations and Maintenance Manual (O&M) 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 operations and maintenance manual at completion of Work.
- .2 Prior to Performance Verification (PV) of systems complete items on PI forms related to systems and obtain Consultant's Acceptance.

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 Consultant's Acceptance.

1.05 CHANGES AND DEVELOPMENT OF NEW REPORT FORMS

- .1 Develop appropriate verification forms and submit to the Consultant for Acceptance 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 Project-specific Commissioning forms, Accepted by Consultant.
 - .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 by Consultant.
 - .9 Submit immediately after tests are performed.
 - .10 Reported results in true measured SI unit values.
 - .11 Provide Consultant 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 Operation and Maintenance Manual.

1.07 LANGUAGE

- .1 English

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

**ONTARIO NORTHLAND – BUS AND TRAIN STATION
COUNTER, BARRIER FREE ACCESS & WASHROOM UPGRADES
100 STATION ROAD, NORTH BAY, ON
PROJECT NO. 6649B
MAY 2025**

Piotrowski Consultants Ltd.
1820 Bond Street
North Bay, ON P1B 4V6

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CRITCHLEY HILL ARCHITECTURE Inc.

Project Manual Specifications

For

ONATRIO NORTHLAND-BUS STATION AND TRAIN STATION COUNTER, BARRIER FREE ACCESS, AND WASHROOM UPGRADES

Architectural Project No. 2353

May 05,2025

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Part 1 General

1.1 GENERAL REQUIREMENTS

- .1 The General Conditions of the Contract, Supplementary Conditions, and the General Requirements of Division 1, form part of this section, and must be read in conjunction with the requirements of this section, and all related sections.
- .2 The work of this section, and related work specified in other sections shall comply with all requirements of Division 1 – General Requirements.
- .3 Ensure demolition work is supervised by a competent foreman at all times.

1.2 SECTION INCLUDES

- .1 Requirements for selective demolition of portion, or portions, of existing buildings in preparation for renovation or re-modeling. Demolition work shall include the draining and capping and/or re-routing of existing building services, protection of remaining structure and other building elements, and removal of debris.
 - .1 Alteration and renovations to existing building.
 - .2 Cutting and removing of walls, floors, ceilings, doors and frames, in the existing buildings as indicated on Drawings and as needed to execute the new work.
 - .3 Patching, making good openings and chases in walls, floors, ceilings, including the supply and installation of lintels, channels , mechanical or electrical items and finishes.
 - .4 Removal of rubbish, debris, demolished fixtures, fitments and items not scheduled to remain the Owner's property, resulting from the demolition and preparatory work.
 - .5 Remove abandoned services such as conduits, pipes, wiring, ducts, fixtures, equipment, etc. where required for the work or indicated on the drawings.
 - .6 Removal of all mechanical items including plumbing fixtures, services etc. where required for the work or indicated on drawings and or where not required to be relocated.
 - .7 Removal of existing electrical items including fixtures, etc. where required for the work or indicated on the drawings and not required to be relocated.
 - .8 Dust control during the operations of the work of this Section.
 - .9 Removal shall mean removal from site and safe disposal in a legal manner.

1.3 RELATED SECTIONS

- .1 Temporary Facilities & Enclosures, Section 01 56 00
- .2 Environmental Protection, Section 01 35 43
- .3 Health & Safety, Section 01 35 29
- .4 Site Cleaning and Waste Management, Section 01 74 19

1.4 REFERENCES

- .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

- .2 Occupation Health and Safety Act and Regulations for Construction Projects; Ontario Reg.213/91, as amended by Reg. 145/00.

1.5 EXISTING CONDITIONS

- .1 Structures to be partially demolished shall be based on their condition at time of examination during the Bid Period.
- .2 Do not close or obstruct streets, sidewalks, or driveways. Do not place or store materials in streets, alleys or passageways.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Conform to The Occupational Health and Safety Act, Ontario Regulation 213/91, Amended to O.Reg. 85/04: Construction Projects.
 - .2 Occupational Health and Safety Act Revised Regulation of Ontario, Regulation 838, Amended to O.Reg 104/04, Designated Substance - Asbestos on Construction Projects and in Building and Repair Operations.
 - .3 Conform to CSA S350-M80(R2003): Code of Practice for Safety in Demolition of Structures.
 - .4 Conform to OBC as applicable.
- .5 Conform to Fire Code, Regulation under the Fire Marshals Act.
- .2 Qualifications:
 - .1 Employ for this work demolition company having 5 years Canadian experience in this type of work. If requested, submit proof of experience and list of projects.
 - .2 Use skilled personnel having substantial experience in careful removal of materials, items and equipment listed herein to be re-used elsewhere on the project.
 - .3 Employ skilled personnel having substantial experience in removing, handling and storing heritage items.

1.7 HAZARDOUS MATERIALS

- .1 Conform to applicable code and environmental regulations for demolition of hazardous materials abatement, handling and disposal.
- .2 Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.
- .3 Remove contaminated and dangerous material from Site and dispose of in safe manner to minimize danger involved at Site or at anytime during disposal.

1.8 SEQUENCE AND SCHEDULING

- .1 Remove all hazardous or toxic materials before demolition begins.

Part 2 Products

2.1 MATERIALS

- .1 All Materials requiring removal shall become the Contractor's property and shall be removed and disposed of from the site, as the work progresses, unless indicated otherwise.

Part 3 Execution

3.1 GENERAL

- .1 Remove, handle and transport Products indicated to be salvaged and stored for future use. Transport Products to storage area(s) designated by Consultant. Perform work to prevent any damage to Products during removal and in storage. Products damaged during removal, will be inspected by Consultant. Consultant will determine extent of damage and accept or refuse Products.
- .2 Remove salvaged materials shall only be performed after the contractor has full access to the space.
- .3 Description of items to be removed and salvaged or reused are indicated on contract drawings.
- .4 Tag and log all items to be salvaged to the satisfaction of the Consultant. Ensure identification tags do not damage items to be salvaged and are non-permanent, removable and durable

3.2 PRELIMINARY SURVEY:

- .1 Before commencing demolition operations, examine Site and provide a survey to determine type of construction, condition of structure and Site conditions. Assess strength and stability of damaged or deteriorated structures.
- .2 Assess potential effect of removal of any part or parts on the remainder of structure before such part(s) are removed.
- .3 Assess effects of demolition on adjacent properties and consider need for underpinning, shoring and/or bracing.
- .4 Contact municipal authorities or utility companies for assistance in locating and marking services passing under, through, overhead or adjacent to structure to be demolished. Such services include:
 - .1 electrical power lines;
 - .2 gas mains;
 - .3 oil pipelines;
 - .4 communication cables;
 - .5 watermains;
 - .6 drainage piping (storm and sanitary)
- .5 After determining demolition methods, determine area of possible vibration. Carefully inspect beyond those adjacent areas. List potential damage areas and photograph each for record purposes before starting work.

3.3 PROTECTION

- .1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades, and other parts of existing building to remain. Provide all bracing, shoring, and/or underpinning required. Make good damage caused by demolition.
- .2 Take precautions to support affected structures and if safety of building being demolished, or adjacent structures or services appears to be endangered, cease operations and notify Consultant.
- .3 Prevent dust and debris from blocking surface drainage systems, or affecting elevators, mechanical, and/or electrical systems which must remain in operation.
- .4 Adhere strictly to requirements of Sections 01 52 00, 01 52 00.16 and 01 56 00 during demolition and removal process. Provide all temporary safety controls, as required by The Occupational Health & Safety Act, and Section 01 52 00.
- .5 Ensure that secure site hoarding and/or fencing is in place and complete, prior to commencement of demolition operations. Maintain hoarding during demolition operations. Replace or repair sections of hoarding damaged or removed, as a result of demolition operations.
- .6 Provide, erect and maintain required hoarding, sidewalk sheds, catch platforms, lights and other protection around Site before commencing work. Maintain such areas free of snow, ice, mud, water and debris. Lighting levels shall be equal to that prior to erection.
- .7 Provide flagmen where necessary or appropriate to provide effective and safe access to Site to vehicular traffic and protection to pedestrian traffic.
- .8 Ensure scaffolds, ladders, equipment and other such equipment's are not accessible to the public. Protect with adequate fencing or remove and dismantle at end of each day or when no longer required.
- .9 Protect existing adjacent work against damages which might occur from falling debris or other causes due to work of this Section.
- .10 Where necessary to seal fire exits of adjoining or adjacent buildings, provide other exits in compliance with applicable fire safety and building regulations and as per drawings.

3.4 PREPARATION

- .1 Do not disrupt active or energized utilities traversing premises, designated to remain undisturbed.
- .2 Pay particular attention to prevention of fire and elimination of fire hazards which would endanger Work or adjacent structures and premises.
- .3 Supply and install adequate protection for materials to be re-used, set on ground and prevent moisture pick-up. Cover stockpiles of materials with tarpaulins.
- .4 Close off access to areas where demolition is proceeding by barricades and post warning signs.
- .5 Dust/weather partitions:
 - .1 Prior to demolition work proceeding in existing structures, temporarily enclose Work areas, access and supply and install dustproof and weatherproof partitions.

- Design partitions to prevent dust and dirt infiltration into adjoining areas, prevent ingress of water, and to resist loads due to wind.
- .2 Prevent dust, dirt and water from demolition operations entering operational areas.
- .3 Adjust and relocate partitions as required for various operations of work.
- .4 Upon completion of work, remove and dispose of partitions from Site.
- .6 Dust protection:
 - .1 Clean water to be applied to hard and soft surfaces and on open excavation faces on Site daily to eliminate dust.
 - .2 Roadways and sidewalks to be cleaned daily or as required.
 - .3 A designated truck loading area on granular material or existing asphalt to be used to mitigate tracking of potentially contaminated soil and demolition debris off Site. Contaminated loading points to be cleaned or re-established.
 - .4 Loaded vehicles leaving Site to be cleaned of loose soil and debris with power washing or alternative method.
 - .5 Trucks loaded with indigenous soil or demolition debris to be covered by tarps or attached screens.
- .7 Blasting is not permitted.

3.5 EXISTING SERVICES

- .1 Locate and mark all enclosed or hidden services within the structure, and on the site.
- .2 Disconnect and re-route electrical and telephone service lines entering areas to be demolished, in accordance with authorities having jurisdiction. Post warning signs on electrical lines and equipment which must remain energized during period of demolition.
- .3 Disconnect and cap, designated mechanical services in accordance with authorities having jurisdiction;
 - .1 Natural gas supply lines to be removed by local gas authority where required, or by qualified tradesman in accordance with gas authority instructions.
 - .2 Disconnect, and cap remove sewer and water lines to point indicated on drawings.
 - .3 Remove and dispose of other underground services as indicated on drawings, and as directed by Consultant.
- .4 Provide and maintain temporary services required during demolition to satisfaction of authorities having jurisdiction, fire departments and utility companies.
- .5 Before commencing demolition, contact Electrical Department of local authority and tour Site with them. Disconnect and seal electrical power lines and communications cables entering buildings to be demolished. Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.
- .6 In the event of unexpected discovery of buried fuel or other tanks, do no further work and immediately report discovery, orally and in writing to Consultant. Consultant will authorize remedial work, if any, in writing. Do such remedial work, as addition to Contract.

3.6 SAFETY CODE

- .1 Unless otherwise specified, carry out demolition work in accordance with CSA S350.

3.7 DEMOLITION

- .1 Demolish parts of building to permit construction of addition and/or remedial work as indicated.
- .2 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace same as work progresses.
- .3 At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements at all times.
- .4 Demolish to minimize dusting. Keep dusty materials wetted as directed by Consultant.
- .5 Demolish masonry and concrete walls in small sections to prevent damage to existing structure or surfaces to remain.
- .6 Remove contaminated or dangerous materials, as defined by authorities having jurisdiction, from site, and dispose of in strict accordance with by-laws, regulations and/or guidelines applicable to such material.
- .7 Demolish parts of structure to permit construction of addition and remedial work as indicated.
- .8 Do not overload floor, roof or wall with accumulations of material or debris or by other loads.
- .9 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces and replace as Work progresses.
- .10 At end of day's work, leave Work in safe condition with no part in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements.
- .11 Drainage and sewer system protection:
 - .1 Ensure that no dust, debris or slurry enters drainage and sewer system on Site.
 - .2 Remove and dispose of debris and slurry promptly from Site.
- .12 Masonry:
 - .1 Demolish block or brick walls in small sections of not more than 2 m². Do not permit masonry to fall in mass from one level to another.
 - .2 Where only part(s) of a wall is to be demolished, install adequate support for adjacent part(s).
 - .3 Clean and stack blocks and bricks to be reused.
 - .4 After removal of masonry walls, grind smooth floors ready for new floor finish.
- .13 Where doors are scheduled to be removed, include:
 - .1 Removal of door hardware and frames.
- .14 Remove interior partitions, fittings, fixtures and accessories as indicated on drawings. Partitions and walls shall be removed full height to structure above.
- .15 Remove interior finishes, such as ceiling and floor finishes, where new finishes are indicated on Contract Drawings.

- .1 Removal of existing ceilings shall include complete removal including bulkheads and suspension system.
- .2 Removal of adhesive applied finishes shall include complete removal to substrate including adhesive. Take adequate care to prevent damage to substrate.
- .3 Remove existing floor finishes, include mortar bed, underlayment or other cleavage membranes, underpad, base, floor moulding and transition strips
- .16 Ensure demolition work is supervised by competent foreman at all times.
- .17 Until acceptance, maintain and preserve active utilities traversing premises.
- .18 Provide enclosed chutes for disposal of debris from heights more than one (1) storey in accordance with CSA S350-M.
- .19 Remove from site all asphalt materials, lighting and infrastructure on site.
- .20 Separate attached structures by hand demolition prior to general demolition. Separation may be carried out floor by floor in advance of demolition at each level.

3.8 METHODS:

- .1 Hand and mechanical demolition shall be acceptable methods for work of this Section. Verify with Consultant whether proposed methods of demolition are acceptable.

3.9 DISPOSAL OF WASTE MATERIALS:

- .1 Selling or burning of materials on Site is not permitted.
- .2 Conform to requirements of municipality's Works Department regarding disposal of waste materials. Materials prohibited from municipality waste management facilities shall be removed from Site and disposed of at recycling companies specializing in recyclable materials.

3.10 EXCAVATION AND BACKFILL:

- .1 Demolition excavation to be re-graded to be stable and to prevent side slope sloughing. Excavated service trenches shall be backfilled with excavated materials. Common excavation materials or borrow material if required.
- .2 Refer to Site Plan and specifications to determine backfill materials, grades and requirements For exterior surfaces (asphalt, sod, interlock, concrete etc.)

3.11 SITE CLEANING

- .1 Promptly remove and dispose of demolished materials except where noted otherwise, in accordance with authorities having jurisdiction.
- .2 Do not sell, bury or burn materials on site.
- .3 Leave interior areas in a "swept clean" condition after demolition in preparation for remedial work.
- .4 If affected by demolition, leave exterior soft areas in a "raked clean" condition, and clear of all debris. Leave paved areas in a "swept clean" condition, and clear of all dirt, debris, and other contamination.

END OF SECTION

1.1 General

1.2 RELATED SECTIONS

- .1 Section 03 30 00 - Cast-in-Place Concrete: Installation of anchors.

1.3 REFERENCES

- .1 The Ontario Building Code.
 - .1 MMAH Supplementary Standard SB-8, September 14, 2012. Design, Construction and Installation of Anchorage Systems for Fixed Access Ladders.
- .2 ASTM International, (ASTM)
 - .1 ASTM A53/A53M-12 Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless.
 - .2 ASTM A123/A123M-12 Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
 - .3 ASTM A153/A153M-09 Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
 - .4 ASTM A307-10 Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
 - .5 ASTM A325-10 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - .6 ASTM A385/A385M-11 Standard Practice for Providing High Quality Zinc Coatings (Hot Dip).
 - .7 ASTM A570, Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality.
 - .8 ASTM A1008/A1008M-12 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High Strength Low Alloy, High Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
 - .9 ASTM A1011/A1011M-12a Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
 - .10 ASTM D6386-10 Standard Practice for Preparation of Zinc (Hot Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting
- .3 Canadian Standards Association (CSA International)
 - .1 CSA G40.20-04/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel
 - .2 CSA-S16-09, Design of Steel Structures
 - .3 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .4 CSA-W47.1-09, Certification of Companies for Fusion Welding of Steel Structures.
 - .5 CSA W48-06 (R2011), Filler Metals and Allied Materials for Metal Arc Welding
 - .6 CSA W59-03 (R2008) Welded Steel Construction (Metal-Arc Welding)
- .4 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB 1.40-97, Anticorrosive Structural Steel Alkyd Primer
- .2 CAN/CGSB 1.108-M89, Bituminous Solvent Type Paint
- .3 CAN/CGSB 1.181-99, Ready Mixed, Organic Zinc Rich Coating.
- .5 Canadian Sheet Steel Building Institute (CSSBI)
- .6 Steel Structures Painting Council, Systems and Specifications Manual.
- .1 CISC/CPMA 1-73a, A Quick drying One-coat Paint for Use on Structural Steel.
- .2 CISC/CPMA 2-75, A Quick drying Primer for Use on Structural Steel.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
- .3 Drawings shall bear the stamp and signature of a professional engineer registered in the Province of Ontario.

1.5 EXAMINATION

- .1 All dimensions shall be taken from the drawings and checked against the building. Be responsible for the correctness of such measurements and report to the Consultant in writing all discrepancies between measurements at building and those shown on drawings prior to commencing work. Verify location of anchor bolts and embedded steel and ensure that work prepared by other trades is at a proper elevation, on line, level and true.

1.6 SHIPPING, HANDLING AND STORAGE

- .1 Label, tag or otherwise mark work supplied for installation by other Sections to indicate its function, location and shop drawing description.
- .2 Protect work from damage and deliver to a location at the site in order to meet the scheduling requirements.
- .3 Protect architecturally exposed materials during fabrication, delivery, handling, storage and erection to prevent marring of surfaces exposed to view, by marking, bending, cutting or coarse grinding.

Part 2 Products

2.1 MATERIALS

- .1 Stainless sheet steel: 10 gauge, type 304 alloy with #4 satin finish.
- .2 Steel pipe: to ASTM A53/A53M standard weight, galvanized finish as indicated.
- .3 Welding materials: to CSA W59.
- .4 Bolts and anchor bolts: to ASTM A307.
- .5 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.

Part 3 Execution

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- .10 Bend all edges of stainless steel around backing substate. Weld, grind, polish and buff all corners.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 60 00 - Basic Product Requirements
- .2 Section 05 41 00 – Wind Load Bearing Steel Stud System
- .3 Section 06 20 00 – Finish carpentry
- .4 Section 06 40 00 – Architectural Woodwork
- .5 Section 07 21 00 - Loose, Batt, and Blanket Insulation

1.2 REFERENCES

- .1 ANSI A208.1-1999, Particleboard, Mat Formed Wood.
- .2 CAN/CGSB-11.3-M87, Hardboard.
- .3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .4 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .5 CSA-B111-1974, Wire Nails, Spikes and Staples.
- .6 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .7 CSA O121-M1978, Douglas Fir Plywood.
- .8 CAN/CSA-O141-91, Softwood Lumber.
- .9 CSA-O151-M1978, Canadian Softwood Plywood.
- .10 CSA-O153-M1980, Poplar Plywood.
- .11 CAN/CSA-O325.0-92, Construction Sheathing.
- .12 CAN3-O437 Series-93, Standards on OSB and Waferboard.
- .13 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber1991.

1.3 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

Part 2 Products

2.1 FRAMING AND STRUCTURAL MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:

- .1 CAN/CSA-0141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 Forestry Stewardship Council (FSC) certified.
- .2 Glued end-jointed (finger-jointed) lumber NLGA Special Products Standard
 - .1 Forest Stewardship Council (FSC) certified.
- .3 Glulam in accordance with Structural Glued-Laminated Timber CSA-0122.
 - .1 Forest Stewardship Council (FSC) certified.
- .4 Wood I-joists in accordance with Prefabricated Wood I-Joists ASTM D5055.
 - .1 Forest Stewardship Council (FSC) certified
- .5 Light-frame trusses in accordance with "Truss Design and Procedures for Light Metal Connected Wood Trusses", Truss Plate Institute of Canada.
 - .1 Forest Stewardship Council (FSC) certified.
- .6 Structural Composite Lumber (SCL) in accordance with ASTM D5456.
 - .1 Forest Stewardship Council (FSC) certified.
- .7 Framing and board lumber: in accordance with NBC, except as follows:
 - .1 Forest Stewardship Council (FSC) certified.
- .8 Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing and sleepers:
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.
 - .3 Post and timbers sizes: "Standard" or better grade.
 - .4 Forest Stewardship Council (FSC) certified.

2.2 PANEL MATERIALS

- .1 Canadian softwood plywood (CSP): to CSA-0151, standard construction.
- .2 Plywood, OSB and wood based composite panels: to CAN/CSA-0325.0.

2.3 ACCESSORIES

- .1 Nails, spikes and staples: to CSA-B111.
- .2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer. Explosive activated fasteners are not approved.
- .4 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, extruded 6063-T6 aluminum alloy type approved by Engineer.

2.4 FASTENER FINISHES

- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work interior highly humid areas pressure-preservative fire-retardant treated lumber.
- .2 Stainless steel: use stainless steel 304 alloy for exposed work.

Part 3 Execution

3.1 INSTALLATION

- .1 Comply with requirements of OBC supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install sheathing in accordance with manufacturer's printed instructions.
- .5 Install furring and blocking as required to space-out and support casework, wall and ceiling finishes, facings, fascia, soffit, siding electrical equipment mounting boards, and other work as required.
- .6 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .7 Install wall sheathing in accordance with manufacturer's printed instructions.
- .8 Install furring to support siding applied vertically there is no blocking and where sheathing is not suitable for direct nailing.

3.2 ERECTION

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.
- .3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.
- .4 Nailing requirements for shear walls to be per CSA-086.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 45 00 Quality Control
- .3 Section 01 60 00 Basic Product Requirements
- .4 Section 05 50 00 Metal Fabrication
- .5 Section 06 10 00 Rough Carpentry
- .6 Section 07 90 00 Joint Sealers.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI A208.2 1994, Density 640-800kg/m³, Medium Density Fiberboard for Interior Use.
 - .2 ANSI A208.1-1993, Density 640-800kg/m³, Grade M2, Particleboard for Interior Use.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 AWMAC Quality Standards for Architectural Woodwork 1998.
- .3 Canadian Standards Association (CSA)
 - .1 CAN3 A172 M79 , High Pressure Paper Base, Decorative Laminates.
 - .2 CSA B111 1974 , Wire Nails, Spikes and Staples.
 - .3 CSA O115 M82 , Hardwood and Decorative Plywood.
 - .4 CSA O121 M1978 , Douglas Fir Plywood.
 - .5 CAN/CSA O141 91 , Softwood Lumber.
 - .6 CSA O151 M78 , Canadian Softwood Plywood.
 - .7 CSA O153 M80 , Poplar Plywood.
 - .8 CAN3 O188.1 M78 , Interior Mat Formed Wood Particleboard.
 - .9 CAN/CGSB 11.3 M87 , Hardboard.
- .4 National Hardwood Lumber Association (NHLA)
 - .1 Rules for the Measurement and Inspection of Hardwood and Cypress January 1998.
- .5 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 1991.

1.3 QUALITY CONTROL

- .1 Unless otherwise specified, carry out finish carpentry work in accordance with the requirements of "Millwork Standards" (latest issue) of Architectural Woodwork Manufacturers' Association of Canada (AWMAC), Custom Grade.

- .2 Work that does not meet standards, as specified, shall be replaced or made good to the satisfaction of the consultant. Additional work required replacing, rendering and/or refinish work not meeting the standards of these specifications shall be done at no additional cost to the owner .

- .3 All work shall comply with AWMAC Custom Grade Quality. AWMAC standard specified shall be considered a minimum standard. If greater quality of any components is specified in these documents then that of AWMAC specified quality, the architectural woodworker shall perform work to the greater of the AWMAC standard or specified standard.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 Submittal Procedures.
- .2 Indicate details of construction materials, profiles, jointing, fastening finishes and other related details.
- .3 Indicate locations of all service outlets in casework, and all connections, attachments, anchorage and location of exposed fastenings. Indicate as-built site measurements.
- .4 Provide list of all hardware items.

1.5 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit duplicate samples: sample size 300 x 300 mm.
- .3 Submit duplicate colour samples all cabinet and counter finish materials for consultant colour selection.
- .4 Submit duplicate samples of laminated plastic joints, edging, cutouts nosing's, and postformed profiles.
- .5 Submit duplicate samples of all finished wood of stain or paint colour as selected by Architect.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Protect millwork against dampness and damage during and after delivery.
- .2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

1.7 WARRANTY

- .1 Provide to the owner a two (2) year warrantee. The warrantee shall cover replacement, reworking and/or refinishing to make good defects in architectural woodwork due to faulty workmanship, which appear during a two (2) year period following the date of substantial performance.

1.8 QUALIFICATIONS

- .1 Millwork Company must be a current member of AWMAC in good standing. Refer to AWMAC membership located on AWMAC website.
- .2 Millwork company shall provide to consultant proof of membership in good standing within 15 days after award of contract.

Part 2 Products

2.1 MATERIALS

- .1 Softwood lumber: unless specified otherwise, S4S, in accordance with following standards:
 - .1 CAN/CSA 0141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 AWMAC custom grade, moisture content as specified.
- .2 Plywood: to comply with or exceed requirements of CSA 0115-1987 Type II.
- .3 Solid Acrylic: Homogenous sheet material composed of acrylic resins, fire retardant filler materials and colouring agents. Build up to thickness profiled from 12 mm material.
 - .1 Acceptable Materials: Wilsonart, Gibraltar; Corian; Formica, Solid Surfacing
 - .2 Integrated Lavatory Bowl:
 - .1 Acceptable Materials: Wilsonart, Gibraltar; Corian; Formica, Solid Surfacing.
 - .2 Proponents are permitted to include the products of either of the four specified manufacturers that meet the requirements of Section 06 40 00.
 - .3 Acceptable Materials
 - .1 Corian 5414, Wilsonart BV120 or approved equal from the other acceptable manufacturers.
 - .3 Proponents are permitted to include the products of either of the four specified manufacturers that meet the requirements of Section 06 40 00.
- .4 Fasteners and Sealants
 - .1 Nails and staples: to CSA B111.
 - .2 Wood screws: Type and size to suit application.
 - .3 Splines: wood, plastic, or metal.
 - .4 Sealant: to Section 07900 CAN 3.
 - .5 Adhesives: to CSA 0112-M as applicable.
- .5 Refer to Miscellaneous Metals for metal framing.

2.2 CABINET FABRICATION:

- .1 Case Body Construction:
 - .1 All joints shall be glued rebate, or glued and dowelled or glued and screwed with appropriate screw connectors. Plain or nailed butt joints are not acceptable.
- .2 Counters
 - .1 Solid Surface. Refer to drawing for all counter locations.
- .3 Furring, blocking, nailing strips, grounds and rough bucks and sleepers: Softwood lumber.
- .4 No exposed fasteners allowed in exposed gable ends or exposed back panels.

2.3 COUNTER FABRICATION

- .1 Solid Acrylic: Homogenous sheet material composed of acrylic resins, fire retardant filler materials and colouring agents. Build up to thickness profiled from 12 mm material.
 - .1 Acceptable Materials: Wilsonart, Gibraltar; Corian; Formica, Solid Surfacing
 - .2 Proponents are permitted to include the products of either of the four specified manufacturers that meet the requirements of Section 06 40 00.

Part 3 Execution

3.1 INSTALLATION

- .1 Do architectural woodwork to Custom Grade Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where greater standard is specified otherwise.
- .2 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
- .3 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
- .4 At junction of casework and adjacent wall finish, apply small bead of sealant.
- .5 Apply water resistant building paper or bituminous coating over wood framing members in contact with masonry or cementitious construction.
- .6 Fit hardware accurately and securely in accordance with manufacturer's directions.
- .7 Accurately fit all members to provide flush hairline joints.
- .8 Fillers: See drawings

3.2 CLEANING

- .1 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.

3.3 PROTECTION

- .1 Protect millwork and cabinet work from damage until final inspection.

END OF SECTION

Part 1 General

1.1 SUMMARY OF WORK

- .1 This Section specifies fiber batt and blanket acoustical insulation.

1.2 RELATED REQUIREMENTS

- .1 Section 07 84 00 - Firestopping.
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 06 10 00- Rough Carpentry
- .4 Section 09 22 16 – Non Loadbearing Wall Framing
- .5 Section 09 29 00 – Gypsum

1.3 REFERENCE STANDARDS

- .1 ASTM International (ASTM).
 - .1 ASTM C423 - 2009a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - .2 ASTM C553 - 2011, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
 - .3 ASTM C795 -2013, Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
 - .4 ASTM E84 - 2012b, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .5 ASTM E90 - 2009, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - .6 ASTM E136 - 2011, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
- .2 Underwriters' Laboratories (UL).
 - .1 UL 181 - 2013, Factory-Made Air Ducts and Connectors.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Submit product data including manufacturer's literature for insulation materials and accessories, indicating compliance with specified requirements and material characteristics.
 - .1 Submit list on insulation manufacturer's letterhead of materials and accessories to be incorporated into Work.
 - .2 MSDS report.
 - .3 Include product name.

- .4 Include preparation instructions and recommendations, installation methods, and storage and handling requirements.
- .5 Include contact information for manufacturer and their representative for this Project.

1.5 DELIVERY STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Deliver material in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Deliver materials and accessories in insulation manufacture's original packaging with identification labels intact and in sizes to suit project.
 - .3 Ensure insulation materials are not exposed to moisture during delivery.
 - .4 Replace wet or damaged insulation materials.
- .2 Storage and Handling Requirements: Store materials off ground in dry location and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 - .1 Store in original packaging until installed.
- .3 Packaging Waste Management:
 - .1 Separate and recycle waste packaging materials in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
 - .2 Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycling.

Part 2 Products

2.1 MANUFACTURER

- .1 Manufacturer: ROCKWOOL™, 8024 Esquesing Line, Milton, Ontario, L9T 6W3, Phone: 905-878-8474, Toll Free: 1-800-265-6878, e-mail: contactus@rockwool.com, URL: www.rockwool.com.
- .2 Equivalent products manufactured by "Owens Corning" and 'Johns Manville' are acceptable alternatives.

2.2 MATERIALS

- .1 Non-combustible, lightweight, semi-rigid stone wool batt insulation to C665, Type 1, that provides fire resistance to ASTM E136 and a sound control to ASTM E90 and ASTM E423. Install within stud cavities of all acoustical and fire rated steel stud partitions.
 - .1 Size: to suit stud spacing.
 - .2 Thickness: as indicated on drawings.
 - .3 Acceptable Material: ROCKWOOL AFB.

2.3 ACCESSORIES

- .1 Mechanical fasteners in accordance with insulation manufacturer's written recommendations.
- .2 Acoustical sealant in accordance with Section 07 92 00 - Joint Sealants.
- .3 Firestopping materials in accordance with Section 07 84 00 - Firestopping.

2.4 SOURCE QUALITY CONTROL

- .1 Ensure insulation components and accessories are supplied or approved in writing by single manufacturer.

2.5 PRODUCT SUBSTITUTIONS

- .1 Substitutions: In accordance with Section 01 33 00 - Substitution Procedures.

Part 3 Execution

3.1 INSTALLERS

- .1 Use only installers with 5 years minimum experience with work similar to work of this Section.

3.2 EXAMINATION

- .1 Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for insulation installation in accordance with manufacturer's written recommendations.
 - .1 Visually inspect substrate in presence of Consultant.
 - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.
- .2 Start of insulation installation indicates installer's acceptance of substrate installation conditions.

3.3 INSTALLATION

- .1 Install insulation in accordance with manufacturer's written recommendations.
- .2 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .3 Do not compress insulation to fit into spaces.
- .4 Co-ordinate installation of firestopping insulation with Section 07 84 00 - Firestopping.
- .5 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .6 Keep insulation minimum 3 inches from heat emitting devices such as recessed light fixtures, and minimum 2 inches from sidewalls of chimneys and vents.
- .7 Seal joints with acoustical joint sealant in accordance with Section 07 92 00 - Joint Sealants.

- .8 Do not enclose insulation until before inspection and receipt of Consultant's written approval.

3.4 FIELD QUALITY CONTROL

- .1 Field Inspection: Coordinate field inspection in accordance with Section 01 45 00 - Quality Control.

3.5 CLEANING

- .1 Progress Cleaning: Perform cleanup as work progresses in accordance with Section 01 74 19 – Cleaning and Waste Management.
 - .1 Leave work area clean at end of each day.
- .2 Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 19 – Cleaning and Waste Management.
- .3 Waste Management:
 - .1 Co-ordinate recycling of waste materials with 01 74 19 - Construction Waste Management and Disposal.
 - .2 Collect recyclable waste and dispose of or recycle field generated construction waste created during construction or final cleaning related to work of this Section.
 - .3 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

- .1 Protect installed products and accessories from damage during construction.
- .2 Repair damage to adjacent materials caused by insulation installation.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements

1.2 REFERENCES

- .1 ASTM C 1193 Standard guide for use of joint sealants.
- .2 CGSB 19-GP-5M-76, Sealing Compound, One Component, Acrylic Base, Solvent Curing.
- .3 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .4 CGSB 19-GP-14M-76, Sealing Compound, One Component, Butyl-polyisobutylene Polymer Base, Solvent Curing.
- .5 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .6 CAN/CGSB-19.18-M87, Sealing Compound, One Component, Silicone Base, Solvent Curing.
- .7 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.
- .8 CAN/CGSB-19.22-M89, Mildew Resistant, Sealing Compound for Tubs and Tiles.
- .9 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

1.3 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide consultant with samples of all coloured sealers for colour selection

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Basic Product Requirements.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .3 Ventilate area of work by use of approved portable supply and exhaust fans.

1.6 QUALITY ASSURANCE

- .1 Installation of sealants shall be performed by a firm with minimum of five (5) years experience.

1.7 WARRANTY

- .1 Submit written warranty against leaks, cohesive failure, staining of adjacent materials, in accordance with GC 12.3 but for five (5) years.

The warranty shall be issued by the Contractor and the Sealant Manufacturer.

Part 2 Products

2.1 SEALANT MATERIALS

- .1 Sealants and caulking compounds must:
 - .1 meet or exceed all applicable governmental and industrial safety and performance standards; and
 - .2 be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the fisheries Act and the Canadian Environmental Protection Act (CEPA).
 - .3 Use products of a single manufacturer for each different product and required recommended primers.
- .2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, barium or their compounds, except barium sulfate.
- .3 Sealant and caulking compounds must not contain a total of volatile organic compounds (VOCs) in excess of 5% by weight as calculated from records of the amounts of constituents used to make the product;
- .4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.
- .5 Caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant shall not be used in air handling units.
- .6 When low toxicity caulks are not possible, confine usage to areas which offgas to the exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.
- .7 Sealants acceptable for use on this project except CAN/CGSB-19.1 and CAN/CGSB-19.18 must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Polyurethane One Part.

- .1 Self-Levelling and Non Sag to CAN/CGSB-19.13, Type 1 and 2,
- .2 Acceptable material: Tremco: Dymonic
Sonneborn: NP1, SL1
Sikaflex 1A
Pourethane NS
- .2 Polyurethane Two Part.
 - .1 Self-Levelling and Non Sag to CAN/CGSB-19.24, Type 1 and 2
 - .2 Acceptable material: Tremco: Dymeric
Sonneborn: NP2
Sikaflex: 2C or 2CSL.
- .3 Acrylic Latex One Part.
 - .1 To CAN/CGSB-19.17.
 - .2 Acceptable material: Tremco: Tremflex 834
General Electric(G.E. Supply): Acryliasil AL1300 (RC520)
Sonneborn: Sonolac.
- .4 Silicone Sanitary Sealant
 - .1 To CAN/CGSB-19.22 one part mildew resistant paintable..
 - .2 Acceptable material: Tremco - Tremsil 200
General Electric (G.E. Supply): 1700
Dow Corning: 786.
- .5 Acoustical Sealant - Synthetic Rubber
 - .1 To CGSB 19.21
 - .2 Acceptable material: Tremco - Acoustical Sealant.

2.3 PREFORMED COMPRESSIBLE AND NON-COMPRESSIBLE BACK UP MATERIALS

- .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
 - .1 Extruded open closed cell foam backer rod.
 - .2 Size: oversize 30 to 50 %.
- .2 Neoprene or Butyl Rubber.
 - .1 Round solid rod, Shore A hardness 70.
- .3 High Density Foam.
 - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.
- .4 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.

2.4 JOINT CLEANER

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

Part 3 Execution

3.1 PROTECTION

- .1 Protect installed work of other trades from staining or contamination.

3.2 PREPARATION OF JOINT SURFACES

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

- .1 Sealant.
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing.

- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup.
 - .1 Clean adjacent surfaces immediately and leave work neat and clean.
 - .2 Remove excess and droppings, using recommended cleaners as work progresses.
 - .3 Remove masking tape after initial set of sealant.

3.7 SEALANT SCHEDULE

- .1 Interior Sealants - Non Elastomeric (acrylic latex)
 - .1 Perimeter of built in architectural wood work
 - .2 Junction: of casework gables and flooring.
 - .3 Perimeter of pressed steel frames and adjacent finishes, including bottom at floor.
 - .4 Interior perimeter of exterior openings.
- .2 Interior Sealants Elastomeric: Polyurethane One Part
 - .1 Interior side of expansion and control joints of concrete, masonry and precast concrete walls.
 - .2 Interior control and expansion joints in floor and deck surfaces (self levelling) sealant.
 - .3 Joints at underside of precast beams or slabs.
 - .4 Interior joints of precast concrete walls.
 - .5 Joints or tops of non load bearing masonry walls at underside of poured concrete.
 - .6 Exposed interior control joints in drywall.
 - .7 Interior perimeter of exterior openings
- .3 Interior Sealants - Silicone Sanitary
 - .1 Perimeter of bath fixtures (sinks, tubs, showers, urinals, water closets, basins, showers, vanities, stools)
 - .2 Junction of ceramic wall tile and finished flooring
- .4 Interior Sealants - Acoustical
 - .1 as indicated in section 09 29 00.
- .5 Exterior Sealants – Elastomeric: Polyurethane Two Part
 - .1 Perimeter of exterior openings where frames connect exterior facade of building (ie. brick, block, precast, masonry)
 - .2 Expansion and control joints in exterior surfaces of poured in place concrete, precast concrete, unit masonry, and architectural wall panels.
 - .3 Coping joints and coping to facade joints.
 - .4 Cornice and wash or horizontal surface joints
 - .5 Exterior control expansion and joints in concrete decks and horizontal traffic surfaces (use self levelling sealants).

- .6 Self Levelling Sealants
 - .1 Sealant Control joints in concrete decks.
 - .2 Exterior joints in horizontal traffic surfaces
 - .3 Exterior control and expansion joints in decks.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements
- .2 Section 07 90 00 - Joint Sealers
- .3 Section 08 71 00 - Door Hardware
- .4 Section 08 71 13 – Power Door Operators
- .5 Section 08 80 00 - Glazing.
- .6 Division 26: Wiring for electronic hardware.

1.2 REFERENCES

- .1 ASTM A 653M-95, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CSA A101-M1983, Thermal Insulation, Mineral Fibre, for Buildings.
- .3 CAN/CSA-G40.21-M92, Structural Quality Steels.
- .4 CSA W59-M1989, Welded Steel Construction (Metal Arc Welding).
- .5 CSDFMA, Specifications for Commercial Steel Doors and Frames, 1990.
- .6 CSDFMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.
- .7 CAN4-S104M- M80(R1985), Fire Tests of Door Assemblies.
- .8 CAN4-S105M-M85, Fire Door Frames.
- .9 ANSI/UL-1784, Air Leakage Tests of Door Assemblies and Other Protective Openings.

1.3 DESIGN REQUIREMENTS

- .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35°C to 3°C.
- .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed louvred, arrangement of hardware and fire rating and finishes.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing finishes.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .5 Submit test and engineering data, and installation instructions.

- .6 Indicate all special conditions.

1.5 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104M NFPA 252 for ratings specified or indicated.
- .2 Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled. Test products in strict conformance with CAN4-S104.

1.6 WARRANTY

- .1 Provide a written warranty for work of this section from manufacturer for failure due to defective materials and from contractor for failure due to defective installation workmanship, for one (1) year respectively.

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDFMA Table 1 - Thickness for Component Parts. (Paintable Galvanneal)
- .2 Reinforcement channel: to CAN/CSA-G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 DOOR CORE MATERIALS

- .1 Honeycomb construction:
 - .1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.
 - .2 Unless otherwise indicated all doors to be honeycomb construction
- .2 Stiffened: face sheets laminated welded, honeycomb uninsulated insulated core.
 - .1 Fibreglass: to CSA A101, semi-rigid Type 1A3 density 24 kg/m³.
 - .2 Expanded polystyrene: CAN/CGSB-51.20, density 16 to 32 kg/m³ fire retardant.
 - .3 Polyurethane: to CGSB 51-GP-21M rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m³.

2.3 ADHESIVES

- .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement or ULC approved equivalent.
- .2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMERS

- .1 Touch-up prime CAN/CGSB-1.181.

2.5 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior and interior top caps: rigid polyvinyl chloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .4 Door bottom seal.
- .5 Metallic paste filler: to manufacturer's standard.
- .6 Fire labels: metal rivetted.
- .7 Sealant: to Section 07 90 00.
- .8 Glazing: to Section 08 80 00.
- .9 Make provisions for glazing as indicated and provide necessary glazing stops.
 - .1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws dry glazing of snap-on type.
 - .2 Design exterior glazing stops to be tamper proof.

2.6 FRAMES FABRICATION GENERAL

- .1 Fabricate doors and frames in accordance with CSDFMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Interior frames: 1.6 mm welded construction.
- .4 Blank, reinforce, drill and tap frames for mortised, template hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.7 FRAME ANCHORAGE

- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

2.8 FRAMES: WELDED TYPE

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .7 Securely attach lead to inside of frame profile from return to jamb soffit inclusive on door side of frame only at lead lined door assembly

2.9 DOOR FABRICATION GENERAL

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Fabricate doors with longitudinal edges locked seamed, adhesive assisted welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .3 Blank, reinforce, drill doors and tap for mortised, template hardware and electronic hardware.
- .4 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .5 Reinforce doors where required, for surface mounted hardware. Provide flush PVC top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .7 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN4-S104, ASTM E 152 or NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.
- .8 Manufacturer's nameplates on doors are not permitted.

2.10 DOORS: HONEYCOMB CORE CONSTRUCTION

- .1 Form each face sheet for interior doors from 1.6 mm sheet steel with honeycomb - temperature rise rated core laminated under pressure to face sheets.

2.11 HOLLOW STEEL CONSTRUCTION

- .1 Form each face sheet for exterior doors from 1.6 mm sheet steel.
- .2 Form each face sheet for interior doors from 1.6 sheet steel.
- .3 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.

Part 3 Execution

3.1 INSTALLATION GENERAL

- .1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
- .2 Install doors and frames to CSDFMA Installation Guide.

3.2 FRAME INSTALLATION

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
- .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .5 Caulk perimeter of frames between frame and adjacent material.
- .6 Maintain continuity of air vapour barrier per section 07 26 00.

3.3 DOOR INSTALLATION

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 0 - Door Hardware.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
 - .1 Hinge side: 1.0 mm.
 - .2 Latch side and head: 1.5 mm.
 - .3 Finished floor, top of carpet noncombustible sill and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.

3.4 FINISH REPAIRS

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.5 GLAZING

- .1 Install glazing for doors and frames in accordance with Section 08 80 00 - Glazing.

END OF SECTION

Part 1 General

1.1 WORK INCLUDED

- .1 Supply of Finish hardware as per attached hardware list in this section.
- .2 Removal and disposal of all existing handset hardware is not included in the cash allowance and shall be included in the base bid price.
- .3 Any required work by Division 16 associated with Door Hardware replacement will be provided by the cash allowance.

1.2 RELATED SECTIONS

- .1 01 61 00 Basic Product Requirements
- .2 08 11 00 Steel Door & Frames
- .3 Division 16: Electrical wiring for magnetic locks, electric strikes, electric locks, electric releases and power supplies.

1.3 REQUIREMENTS REGULATORY AGENCIES

- .1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
- .2 Provide permanently attached labels for all hardware required to be rated as part of a fire resistant door and frame assembly.

1.4 REFERENCES

- .1 Recommended locations for Architectural Hardware for Standard Steel Doors and Frames - Door and Hardware Institute
- .2 Recommended locations for Architectural Hardware for Flush Wood Doors – Door and Hardware Institute
- .3 NFPA 80-Standard for Fire Doors and Windows
- .4 Sequence Format for Hardware Schedule – Door and Hardware Institute
- .5 Key Systems and Nomenclature - Door and Hardware Institute
- .6 Abbreviations and Symbols used in Architectural Door and Hardware Schedules and Specifications – Door and Hardware Institute.
- .7 Ontario Building Code 2012 Standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association. Including all amendments.

1.5 WARRANTY

- .1 Provide a written manufacturer's warranty for work of this Section for failure due to defective materials for ten (10) years, dated from substantial completion.
- .2 Provide a written Contractor's warranty for work of this Section for failure due to defective installation workmanship for one (1) year, dated from substantial completion.

Part 2 Products

2.1 MATERIAL

- .1 Removal of existing hardware and installation cost new associated with the hardware must be included in the tender bid.
- .2 All work associated with section 08 71 13 Power Door Operators shall be excluded from this section and shall be included in the base bid.

Part 3 Execution

3.1 EXAMINATION

- .1 Ensure that doors and frames are properly prepared and reinforced to receive finish hardware prior to installation.
- .2 Ensure that door frames and finished floor are sufficiently plumb and level to permit proper engagement and operation of hardware.
- .3 Submit in writing a list of deficiencies determined as part of inspection required in 3.1.1 and 3.12 to supervising consultant prior to installation of finished hardware.

3.2 INSTALLATION

- .1 Hardware Installers must have a minimum of five (5) years experience in installation of hardware. Provide verification of installer's qualification to Consultant for approval. All installers to attend review meetings with the hardware distributor.
- .2 Install hardware at mounting heights as specified in the manufacturers templates or specific references in approved hardware schedule or approved elevation drawings.
- .3 Where mounting height is not otherwise specified, install hardware at mounting heights as indicated in 1.5.1, 1.5.2.
- .4 Install hardware using only manufacturer supplied and approved fasteners in strict adherence with manufacturers published installation instructions.
- .5 Ensure that all locksets / latchsets / deadlocks are of the correct hand before installation to ensure that the cylinder is in the correct position. **Handing is part of installation procedure.**
- .6 Ensure that all exit devices are of the correct hand and adjust device cam for proper outside trim function prior to installation. **Handing is part of installation procedure.**
- .7 Follow all manufactures installation instructions. Adjustment is inclusive of spring power, closing speed, latching speed and back-check at the time of installation.
- .8 Install head seal prior to installation of "PA"-parallel arm mounted door closers and push side mounted door stops/holders. .10 Counter sink through bolt of door pull under push plate during installation. .11 Mount all closers, automatic operators and hold-open devices with through bolts, as indicated in the finish hardware schedule.

3.3 FIELD QUALITY CONTROL

- .1 Perform bi-monthly on-site inspections during hardware installation and provide inspection reports listing progress of work, unacceptable work and corrective measures. Repair or replace as directed by the Consultant.
- .2 Before completion of the work but after the hardware has been installed, a certificate to the architect will be submitted stating that final inspection has been made and that hardware has been checked for installation and operation by a technician from the manufacturer and hardware consultant.

3.4 ADJUSTING AND CLEANING

- .1 Check and make final adjustments to each operating item of hardware on each door to ensure proper operation and function.
- .2 All hardware to be left clean and free of disfigurements.
- .3 Instruct/demonstrate to Consultant and Owner's staff in the proper operation, adjustment, maintenance of hardware and finishes.
- .4 Check all locked doors against approved keying schedule.
- .5 Remove protective coatings prior to final inspection.
- .6 Prior to date of substantial completion, adjust hardware. Repair or replace defective hardware or installation.

3.5 PROTECTION

- .1 Protect hardware from damage during construction period by removing and reinstalling or where necessary, using temporary hardware to maintain finish in new condition and maintain manufacturers warranty.

3.6 HARDWARE GROUPS

- .1 Under separate cover, see schedule attached.

END OF SECTION

FINISHING HARDWARE SCHEDULE

PROJECT: ONTARIO NORTHLAND BUS TERMINAL
WASHROOM RENOVATIONS

LOCATION : SEYMOUR STREET
NORTH BAY ON

ARCHITECT: CRITCHLEY HILL ARCHITECTURE INC.
123 MCINTYRE STREET W.
NORTH BAY, ON
PH: (705)-995-2391

PRIME CONSULTANT : PIOTROWSKI CONSULTANTS LTD.
1820 BOND STREET
NORTH BAY, ON
PH: 9705) 472-2536

HARDWARE CONSULTANT: RICK CACCIOTTI, A.H.C.
HARDWARE COORDINATOR: ROBERT CACCIOTTI

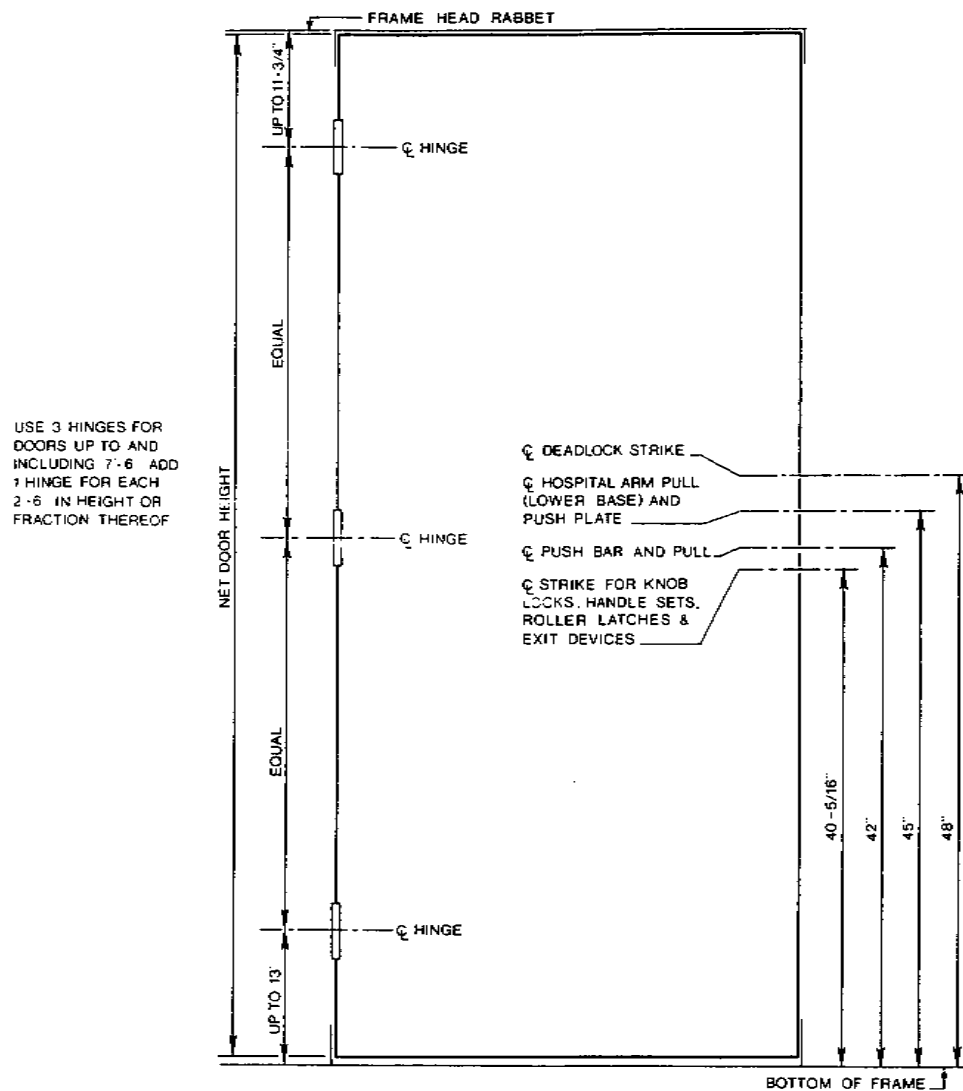


HARDWARE SUPPLIER: CANADIAN HARDWARE CONSULTANTS
(SUDBURY) LIMITED
1055 KELLY LAKE ROAD
SUDBURY, ON P3E 5P5
PH. 705-673-5300 FAX 705-673-4075

DATE: MAY 2nd, 2025

ONTARIO NORTHLAND BUS TERMINAL WASHROOM RENOVATIONS

LOCATIONS DIAGRAM



EXPLANATORY NOTES

The need for a formal recommendation concerning hardware locations arises principally from changing conditions in the building construction field. Architectural handbooks treat the subject from the standpoint of traditional practice, which

was based on wood doors and frames, job-fitted for hardware. In today's buildings, frames usually are of steel, and a large percentage of doors, whether of wood or metal, are being pre-fitted for hardware.

Manufacturer's Legend

Hinges	McKinney Hinge
Locksets, Rim Cylinders, Deadlocks	Schalge (Allegion)
Closers	Falcon (Allegion)
Overhead Stops	Glynn Johnson (Allegion)
Pulls, Stops, Kickplates, Push Plates	Canadian Builders Hardware
Weatherstripping, Thresholds, Sweeps,	
Smoke Seals	K.N. Crowder Mfg.
Switches & Controls	Camden Controls
Automatic Door Operator	Ditec (Record)

Finishing Legend

652	brushed chrome
630	stainless steel
626	brushed chrome
619	satin nickel on zinc
689	anodized aluminum
NEO	neoprene
628	anodized aluminum
600	paint grade
EN	painted grade/sprayed aluminum finish

Symbol Legend

NEF	non exposed fastenings
NRP	non removable pin
TB	thru bolt
Del Act	delayed action
BF	barrier free
TJM	top jamb mounted
Reg	regular mounting
RUO/PA	parallel arm application
Mtg 1 & 6	thru bolt mounting
Neo	neoprene

Heading # 1

Supply of:

2 - Change Keys Per Lock

Note (1) Permanent/Final Master Keying by Owners Locksmith - **Not Included**

Heading # 2

1 Single Door Dr.# 1, Washroom Corridor To Washroom 1	RH 90°
1 Single Door Dr.# 2, Washroom Corridor To Washroom 2	LH 90°
1 Single Door Dr.# 3, Washroom Corridor To Washroom 3	LH 90°
1 Single Door Dr.# 4, Washroom Corridor To Washroom 4	RH 90°
1 Single Door Dr.# 5, Washroom Corridor To Washroom 5	LH 90°

800 x 2350 - HMD Type SLAB x HMF

20	Hinges	MPB79 4 ½ x 4	652
5	Locksets (Lever)	ALX80-pd x SPA "Storeroom Function"	626
5	Electric Strikes	CX-ED1079 - 12/24V	630
5	Push to Lock Button	CM-3030G/8 12/24VDC	----
5	Advanced Logic Relay	CX-33	----
5	Power Supplies	CX-PS13V3	----
5	Transformer	CX-24V 40Va	----
5	Dome Light "LED"	CM-AF142SO - "RED"	----
5	Magnet Contact	CX-MDA-SPST	----
5	Closers	SC81 - Rw/PA + Slim Cover	689
5	Kickplates	903 - 8" x 30 ½" - NEF	630
5	Wall Stops	# 130	626
*	International Washroom Signs - Supplied by Owners		----

**Note (1) 120V AC is required at the head of the door to J/B by Electrical Division 16
24V Transformer, Power Supply, Door Controller etc. Provided for Door System**

Heading # 3

1 Single Door Dr.# 6, Washroom Corridor To Universal Washroom 6 LH 90°

915 x 2350 - HMD Type SLAB x HMF

4	Hinges (HWT)	MPB68 4 ½ x 4 ½	652
1	Lockset (Lever)	ALX80-pd x SPA <i>"Storeroom Function"</i>	626
1	Electric Strike	CX-ED1079 - 12/24V	630
1	Automatic Door Operator	HA8-SP - 120V x 39" HD - LH PULL	AL
1	Restroom Control Kit	CX-WC13X-FM <i>"Illuminated Switches"</i>	----
1	Emergency Call System Kit	CX-WEC10	----
1	Power Supply	CX-PS13-V3	----
1	Transformer	24V-40-VA	----
1	Kickplate	903 - 8" x 34" - NEF	630
1	Wall Stop	# 130	626
1	Robe Hook	# 1150	630/Wht
*	<i>International Washroom Signs - Supplied by Owners</i>		----

Note (1) 120V AC is required at the head of the door for all handicap door operators,
 15 A dedicated circuit. Wall/Frame must be reinforced for automatic operator mounting,
 all conduit and back boxes with pull cords are to be provided by the electrical contractor
(2) Refer to Electrical Drawing E-101 for Sequence of Operation & Additional Info.

Heading # 4

1 Single Door Dr.# 7, Existing Area / Entry From Storage 7 RHR 90°

900 x 2150 - HMD Type SLAB x HMF

3	Hinges	MPB79 4 ½ x 4	652
1	Lockset (Lever)	ALX80-pd x SPA <i>"Storeroom Function"</i>	626
1	Closer w/ Sto Arm	SC81 - DS + Slim Cover	689
1	Kickplate	903 - 8" x 35 ½" - NEF	630

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements
- .2 Section 07 21 16 – Acoustic Batt Insulation
- .3 Section 08 11 00 - Steel Doors & Frames
- .4 Section 09 29 00 - Gypsum Board

1.2 REFERENCES

- .1 ASTM C 645-99, Standard Specification for Nonstructural Steel Framing Members.
- .2 ASTM C 754-98a, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- .3 CAN/CGSB 7.1 Cold Formed Steel Framing Components
- .4 CAN/CGSB-19.21-M87, Sealing and Bedding Compound Acoustical.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 3300.
- .2 Indicate details, materials, bracing and connections to structure.

Part 2 Products

2.1 MATERIALS

- .1 Non-load bearing channel stud framing: to ASTM C 645, to stud size indicated, roll formed from 0.91mm thickness hot dipped galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
 - .1 B18 (Hard Board) stud, as manufacturers by Bailey Metal Products Limited is an acceptable alternative non-load bearing channel stud framing system.
- .2 Floor and ceiling tracks: to ASTM C 645, in widths to suit stud sizes, 32 mm flange height.
- .3 Metal channel stiffener: 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
- .4 Acoustical sealant: to CAN/CGSB-19.21.
- .5 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.

Part 3 Execution

3.1 ERECTION

- .1 Align partition tracks at floor and ceiling and secure at 400 mm o.c. maximum.
- .2 Install continuous sill gasket under stud shoe tracks of partitions as indicated.

- .3 Place studs vertically at 400mm oc and not more than 50 mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
- .4 Erect metal studding to tolerance of 1:1000.
- .5 Attach studs to bottom ceiling track using screws.
- .6 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .7 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
- .8 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
- .9 Install heavy gauge single jamb studs at openings.
- .10 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
- .11 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
- .12 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars, towel rails, and building signage, attached to steel stud partitions.
- .13 Install steel studs or furring channel between studs for attaching electrical and other boxes.
- .14 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50 mm leg ceiling tracks.
- .15 Install continuous insulating strips to isolate studs from uninsulated surfaces.
- .16 Install two continuous beads of acoustical sealant at head and sill of studs and tracks each side, and around perimeter of all acoustically rated partitions. See interior Partition Schedule and details.
- .17 Extend partitions to underside of structure except where noted otherwise. Use telescoping or slotted hole track to accommodate deflection. Fill with loose batt insulation in acoustically rated partitions
- .18 Fill voids between top runner and structure or other voids and penetrations through fire rated partitions with mineral fibre firestopping and/or fire stopping sealant in accordance to Section 07840 and as indicated.
- .19 Provide additional studs, or furring channels as required for attachment and support of work of other trades
- .20 Remove fireproofing from structure necessary to install and secure framing to structure. Patch and make good fire rating to ULC Design.
- .21 Where partitions occur parallel to trough of steel deck above install furring channels at 200mm o.c. spanning one or more troughs each side of partition.
- .22 Where studs extend over 3.6m in height, provide horizontal bracing at 2.4m o.c. vertically.

- .23 Refer to interior partition schedule and furring schedule for location, types and design of all wall framing.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements
- .2 Section 05 41 00 – Wind Load Bearing Steel Stud Systems
- .3 Section 09 22 16 – Non Load Bearing Wall Framing
- .4 Section 09 90 00 - Painting

1.2 REFERENCES

- .1 Designation for Aluminum Finishes-1997.
- .2 ASTM C 36-95, Specification for Gypsum Wallboard.
- .3 ASTM C 475-94, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .4 ASTM C 630-93, Specification for Water-Resistant Gypsum Backing Board.
- .5 ASTM C 840-95, Specification for Application and Finishing of Gypsum Board.
- .6 ASTM C 954-93, Specification for Steel Drill Screws for the Application of Gypsum Board.
- .7 ASTM C 1002-93, Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.
- .8 ASTM C 1047-94, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .9 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .10 CAN/ULC-S102-1988, Building Materials and Assemblies, Standard Method of Test for Surface Burning Characteristics.

1.3 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10°C, maximum 21 16C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
- .2 Apply board and joint treatment to dry, frost free surfaces.

1.4 QUALITY ASSURANCE

- .1 Qualifications
 - .1 Installers shall have a minimum of two years documented experience in the installation of steel studs, gypsum board, and other products specified herein, including taping and jointing. Submit documentation to Consultant.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver material to site promptly without undue exposure to weather.

- .2 Deliver in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade.
- .3 Store above ground in dry, ventilated space.
- .4 Protect materials from soiling, rusting, or damage.
- .5 Store board to be directly applied to masonry walls at 21°C for 24 hours prior to installation.

Part 2 Products

2.1 MATERIALS

- .1 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30 galvanized.
- .2 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .3 Resilient clips drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .4 Nails: to ASTM C 514.
- .5 Steel drill screws: to ASTM C 1002.
- .6 Laminating compound: as recommended by manufacturer, asbestos-free.
- .7 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, metal, zinc-coated by hot-dip process, zinc coated by electrolytic process, 0.5 mm base thickness, perforated flanges, one-piece length per location.
- .8 Acoustic Sealants: in accordance with Section 07 90 00 - Joint Sealers.
- .9 Acoustic Insulation Batts: in accordance with section 07 21 13 Acoustic Batt Insulation.
- .10 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .11 Joint compound: to ASTM C 475.
- .12 Joint Tape to ASTM C475. Use fibreglas in connection with use of glass mat gypsum board. Elsewhere use paper tape.
- .13 Standard Board: to ASTM C36, Type X to E119, 16mm, 1220mm wide x maximum practical length, ends square cut, edges tapered. Provide 13mm Type X where indicated.
- .14 Tile Backer Board: to compliance with requirements, provide Georgia-Pacific Gypsum; "DensShield Tile Backer" or approved equal.
 - .1 CGC' Durock Glass Mat Tilebacker Board is an approved equal Tile Backer Board. Provides type 'x' at all fire separations.
 - .2 Install behind all tile finished walls and ceilings.

Part 3 Execution

3.1 ERECTION

- .1 Do work in accordance with ASTM C 840 except where specified otherwise.

- .2 Do application of gypsum sheathing in accordance with ASTM C 1280
- .3 Install work level to tolerance of 1:1200.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150mm of each corner and at maximum 600mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, ceiling devices.
- .7 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
- .8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
- .10 Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.
- .11 Furr openings and around built-in equipment, cabinets, access panels, fitments, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.2 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- .2 Apply 12 mm diameter bead of acoustic sealant or as noted continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, and other penetrations, in partitions where perimeter sealed with acoustic sealant. See interior partition and furring schedule along with typical details.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm oc using contact adhesive for full length .
- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Splice corners and intersections together and secure to each member with 3 screws.
- .6 Install access doors to electrical and mechanical fixtures specified in respective Sections.
 - .1 Rigidly secure frames to furring or framing systems.

- .7 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .8 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .9 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .10 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- .11 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- .12 Install sand and finish bulkheads completely as indicated in drawings. Both face and soffit of bulkhead prior to installation of casework.
- .13 Install shaft liner area separation wall assembly to manufacturer's instructions to achieve required fire rating.

3.4 ACOUSTICAL INSULATION

- .1 Install as per the provisions of section 07 21 13 Loose, Batt and Blanket Insulation.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Do tile work in accordance with Installation Manual 200-1979, "Ceramic Tile", produced by Terrazzo Tile and Marble Association of Canada (TTMAC), except where specified otherwise.

1.2 MAINTENANCE MATERIAL

- .1 Provide minimum 15 floor tiles and 5 wall tiles of each type and colour of tile required for project for maintenance use. Store where directed.
- .2 Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - .1 Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - .2 Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

1.3 ENVIRONMENTAL CONDITIONS

- .1 Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
- .2 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 C for 48 h before, during, and 48 h after, installation.

1.4 WARRANTEE

- .1 Provide manufacturer's warrantee for all accessories that they will be free of defects for a period of five (5) years.

Part 2 Products

2.1 WALL TILES

- .1 Porcelain tile: to CAN2-75.1, Type 5, Class MR 34, (CT-1) 100 x 300 x 6 mm size, glazed, matt glazed, colour as selected by Consultant. Where noted on drawings use matching bullnose tile or if not noted provide trim accessory to suit application.
 - Acceptable Product: Ceragres - Bloc
Centura – Vision (Vitra)
Olympia – Maple Leaf's Colour & Dimensions SeriesColour and installation pattern to be later selected by consultant. Allow for 4 total colours in any quantity combination
- .2 Refer to drawings for location of tiles used for wall applications.

2.2 LEVELERS, UNDERLAYMENTS AND MASTIC MATERIALS

- .1 Products by MAPEI or Armstrong Flooring products shall be deemed acceptable for their intended purpose:
 - .1 For surface preparation and patching: S-184 Fast Setting Patch and Underlayment with S-195 Underlayment Additive by Armstrong Flooring or equal.
 - .2 Mastics for floors: KER 121 polymer-modified thin set mortar by MAPEI or equal.
 - .3 Mastics for ceramic wall tile: KER 907 Ultra/Mastic 1 or equal.
- .2 Water: potable and free of minerals which are detrimental to mortar and grout mixes.
- .3 Dry set mortar: to ANSI A118.1-1976.

2.3 GROUT

- .1 Grout: KER 400 series KERAPOXY grout suitable for the intended use as supplied by MAPEI or approved equal. Coloured grout shall be used where indicated in colour schedule to be later issued by consultant. The Consultant shall have the discretion to use as many of the available colours.
- .2 Grout preparation: to manufacturer's instructions.

2.4 ACCESSORIES

- .1 Divider strips: Profile to suit specific condition. Refer to drawings for all trims.
Colour to be later selected by consultant.

<u>Application</u>	<u>Model</u>	<u>Manufacturer</u>
Inside corner of Tiled walls	Dilex	Schluter

- .2 Provide all outside corner, inside corner and end trim accessories as required to suit each application. Accessories to match colour of trim.

2.5 MORTAR AND ADHESIVE MIXES

- .1 Scratch coat: 1 part Portland cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand.
- .2 Slurry bond coat: Portland cement and water mixed to creamy paste. Latex additive may be included.
- .3 Mortar bed for floors: 1 part Portland cement, 4 parts sand, 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included.
- .4 Mortar bed for walls and ceilings: 1 part Portland cement, 1/5 to 1/2 parts hydrated lime to suit job conditions, 4 parts sand and 1 part water. Adjust water volume depending on water content of sand. Latex additive may be included.
- .5 Levelling coat: 1 part Portland cement, 4 parts sand, minimum 1/10 part latex additive, 1 part water including latex additive.
- .6 Bond or setting coat: 1 part Portland cement, 1/3 part hydrated lime, 1 part water.
- .7 Measure mortar ingredients by volume.
- .8 Dry set mortar: mix to manufacturer's instructions.
- .9 Organic adhesive: pre-mixed.

2.6 FLOOR SEALER AND PROTECTIVE COATING

- .1 Apply in accordance with manufacturer's instructions.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Apply tile or backing coats to clean and sound surfaces.
- .2 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even.
- .3 Maximum surface tolerance 1:800.
- .4 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Lay tiles in pattern as detailed in drawings.
- .5 Lay out tiles so perimeter tiles are minimum 1/2 size or as per drawings.
- .6 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .7 Install divider strips at junction of tile flooring and dissimilar materials.
- .8 Allow minimum 24 h after installation of tiles, before grouting.
- .9 Clean installed tile surfaces after installation and grouting cured.
- .10 Line grout lines of base with adjacent floor tile grout lines. Apply trim to top of all tile base as detailed.

3.2 FLOOR SEALER, MEMBRANES AND PROTECTIVE COATINGS

- .1 Apply in accordance with manufacturer's instructions.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements

1.2 REFERENCES

- .1 ASTM F 1303, Specifications and ASTM 1913 for Sheet Vinyl Floor Covering
- .2 CAN/CSA A 126.5 Resilient Wall Base.

1.3 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base, nosing, feature strips, treads, edge and welding strips to consultants later selection.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01780 - Closeout Submittals.

1.5 EXTRA MATERIALS

- .1 Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01780 - Closeout Submittals.
- .2 Provide 20m² of each colour, pattern and type flooring material required for project for maintenance use.
- .3 Extra materials to be in one piece and from same production run as installed materials.
- .4 Clearly identify each roll of sheet flooring and each container of adhesive.
- .5 Deliver and store where directed by Consultant.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hours before, during and 48 hours after installation.

1.7 WARRANTY

- .1 Limited Warranty for Manufacturing Defects from the date of purchase for a period of five (5) years. Flooring manufacturer shall warrant the material it ships to be free from defects in materials and workmanship for a period of 5 year and the flooring installer warrants the installation of the flooring to be free of defects in materials and workmanship for a period of one year. The exclusive remedy under this warranty shall be replacement of defective material supplied by Manufacturer, or correction of defective installation by the flooring installer. All implied warranties of merchantability or fitness for intended use are limited to the period of this warranty. This warranty excludes consequential damages.

Part 2 Products

2.1 MATERIALS

- .1 Sheet Vinyl Flooring: to applicable CSA and ASTM standards sheet vinyl flooring and product design and colours selected by Consultant. Refer to floor finish plan.
 - .1 SHV-1, Sheet Vinyl Homogeneous: unbacked flexible homogeneous single layered 2.0mm thick
 - .2 To CSA A126.6 and ASTM F1913 66% vinyl content composed of polymer plus plasticizer plus stabilizer.
 - .3 Product to be dry buffed for the life of the product.
 - .4 Product to be chip visual made up of two (2) colours
 - .5 Acceptable Products: Johnsonite Tarkett iQ Optima
Gerflor- Mipolam Elegance 290
Armstrong Medintone
Centura's Forbo- Sphera Element
 - .6 Refer to drawings for colours and patterning.
- .2 Primers and adhesives: waterproof, of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
- .3 Sub-floor filler and leveller: CPD Topcrete SL and CPD P-6842 Primer.
- .4 Metal edge strips:
 - .1 Aluminum extruded, smooth, mill finish stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- .5 External corner protectors: type recommended by flooring manufacturer.
- .6 Edging to floor penetrations: type recommended by flooring manufacturer.
- .7 Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.
- .8 Rubber base: Per section 09 64 20
- .9 Underlayment: 1220mm x 2440mm x 6mm thick mahogany pre-dried veneer core, smooth sanded surface or underlayment as recommended by flooring manufacturer. See floor finish plan for extent.

Part 3 Execution

3.1 SITE VERIFICATION OF CONDITIONS

- .1 Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.2 PREPARATION

- .1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler. Contractor must assume that all new floor finishes require a preparation of all existing concrete slab square footage impacted by the renovation. A floor leveller product must be used as specified.

- .2 Surface must be clean and sound, free of dirt, grease, oil, paint, wax, curing compounds, tile and carpet adhesive and any other foreign matter. Concrete floors must be free of laitance or loose material. Seal any holes in the floor. Information on the appropriate cleaning method is available upon request. After cleaning, the floor should be dust free and dry. It can now be primed. CPD P-6842 Primer must be used with Topcrete SL at all times as per manufacturer's instructions.
- .3 Prime with CPD P-6842 primer. CPD P-6842 controls hydration, acts as a bonding agent and prevents air from forming voids in the liquid CPD Topcrete SL. CPD P-6842 is packaged as a liquid concentrate. Dilute with water at a ratio of 2 parts water to 1 part CPD P-6842. Very porous surfaces may require additional coats. Mix for approximately 1 minute. Pour onto the area to be primed and spread with a broom. CPD P-6842 must be allowed to become tack free (dry) before applying CPD Topcrete SL. CPD P-6842 has an open time of up to 24 hours at 25C (77F). Keep traffic off primed floor.
- .4 Hand Mixing / Hand Pour
 - .1 Tools: Plastic barrel, spreader, smoother and paddle mixer. Also needed: 13mm heavy duty drill, water source and measuring container.
 - .2 Crew: Typical application requires 2-3 people. Mix each bag of CPD Topcrete SL with 4.5L of clean cool potable water. Do not over water. Do not use softened water. Mix two bags at a time. Start by placing water into barrel. Add CPD Topcrete SL at a steady rate while mixing with paddle mixer and drill. Mix for 3 minutes min. to achieve a lump-free mix. Pour CPD Topcrete SL from mixing barrel onto area to be levelled. Spread out using spreader tool (set legs of tool to desired thickness). Repeat mixing and pouring until installation is complete. Use smoother for touch ups.

Hint: To avoid low spots between pours, pour into leading edge of previous pour and spread. Application should be continuous until pour is completed.
- .5 Aggregate
 - .1 When areas over 32mm deep are to be levelled an aggregate must be added to control shrinkage. Use clean, dry, washed 6.4-9.5mm pea gravel or dry clean #24 silica sand only. Add a maximum of 11.4 kg to a 22.7 kg bag of CPD Topcrete SL. Add aggregate after CPD Topcrete SL has been mixed with water. For extending where CPD Topcrete SL is being pumped add 11.4kg. of dry clean #24 Silica Sand per mixed bag.

Note: Adding aggregate reduces flow and leaves a rougher surface. Top with a thin layer of unmodified CPD Topcrete SL if a smoother surface is desired. If topped, the aggregate layer must be primed to assure proper bonding with finished layer.
- .6 Ensure concrete floors are leveled to manufacturers recommendations on levelness.
- .7 Install mahogany underlayment over wood flooring with 25mm 6mm crown staples every 150mm across the panel and every 50mm along the edges or as instructed by flooring manufacturer.

3.3 APPLICATION: FLOORING

- .1 Provide a high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to the outside. Do not let contaminated air re-circulate through a district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.

- .2 To minimize emissions from adhesives, use water-based, solvent-free styrene-butadiene-rubber adhesive for linoleum. Butadiene exposure may cause eye and nose irritation, headaches, dizziness, and vomiting.
- .3 Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .4 Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.
- .5 Run sheets in direction of traffic. Double cut sheet joints and continuously seal heat weld according to manufacturer's printed instructions.
- .6 Heat weld seams of sheet flooring in accordance with manufacturer's printed instructions.
- .7 As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.
- .8 Cut flooring neatly around fixed objects.
- .9 Install feature strips and floor markings where indicated. Fit joints tightly.
- .10 Install flooring in pan type floor access covers. Maintain floor pattern.
- .11 Continue flooring over areas which will be under built-in furniture.
- .12 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .13 Terminate flooring at centreline of door leaf in openings where adjacent floor finish or colour is dissimilar.
- .14 Install metal edge strips at unprotected or exposed edges where flooring terminates, level with adjacent surface.

3.4 CLEANING

- .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

3.5 PROTECTION

- .1 Protect new floors from time of final set of adhesive until final waxing.
- .2 Prohibit traffic on floor for 48 hours after installation
- .3 Use only water-based coating for linoleum.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 61 00 - Basic Product Requirements
- .2 Section 06 20 00 - Finish Carpentry

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D 3960- 93, Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.36- 97, General Purpose Interior Varnish.
 - .2 CAN/CGSB-1.38- M91, Interior Enamel Undercoater.
 - .3 CAN/CGSB-1.57- 96, Alkyd, Interior, Semigloss, Enamel.
 - .4 CAN/CGSB-1.60- 97, Interior Alkyd Gloss Enamel.
 - .5 CAN/CGSB-1.100- 95, Interior Latex Type, Flat Paint.
 - .6 CAN/CGSB-1.119- 95, Primer-Sealer, Wall, Interior Latex Type.
 - .7 CAN/CGSB-1.121- 93, Vinyl Pretreatment Coating for Metals (Vinyl Wash Primer).
 - .8 CAN/CGSB-1.145- 97, Solvent-Based Pigmented Stain.
 - .9 CAN/CGSB-1.150- M91, Clear Lacquer for Wood Furniture.
 - .10 CAN/CGSB-1.175- 97, Polyurethane Interior Coating, Oil Modified, Clear, Gloss and Satin.
 - .11 CAN/CGSB-1.188- 96, Emulsion Type Filler Masonry Block.
 - .12 CAN/CGSB-1.195- 95, Interior Semigloss Latex Paint.
 - .13 CAN/CGSB-1.198- 95 , Cementitious Primer (for Galvanized Surfaces).
 - .14 CAN/CGSB-1.209- 93, Low Sheen Latex Interior Paint.
 - .15 CGSB 85-GP-16M- 79, Painting Galvanized Steel.
 - .16 CGSB 85-GP-20M- 79, Painting copper and Copper Alloys.
 - .17 CGSB 85-GP-33M- 79, Painting Interior Plaster and Wallboard.
 - .18 CAN/CGSB-85.100- 93, Painting.
- .3 Painting Specifications Manual 1993.
- .4 National Fire Code of Canada 1995.
- .5 Steel Structures Painting Council (SSPC).
 - .1 Systems and Specifications Manual 1989.

1.3 PRODUCT DATA

- .1 Submit product data in accordance with Section 01330 - Submittal Procedures.
- .2 Submit full records of all products used. List each product in relation to finish formula and include the following:
 - .1 Finish formula designation.

- .2 Product type and use.
- .3 CGSB number.
- .4 Manufacturer's product number.
- .5 Colour number s .
- .6 Manufacturer's Material Safety Data Sheets (MSDS).
- .7 Maximum VOC classification.
- .8 Eco-Logo certification.
- .3 Submit manufacturer's installation application instructions for each product specified.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01330 - Submittal Procedures.
- .2 Submit duplicate 300 x 200 mm sample panels of each paint stain coating specified.
- .3 Submit full range of available colours where colour availability is restricted.
- .4 Use 3 mm plate steel for finishes over metal surfaces. Use 12.5 mm birch plywood for finishes over wood surfaces. Use 12.5 mm concrete board for finishes over concrete or concrete masonry surfaces. Use 12.5 mm gypsum board for finishes over gypsum board and other smooth surfaces.

1.5 QUALITY ASSURANCE

- .1 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings: No defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver and store materials in original containers, sealed, with labels intact.
- .2 Indicate on containers or wrappings:
 - .1 Manufacturer's name and address.
 - .2 Type of paint.
 - .3 Compliance with applicable standard.
 - .4 Colour number in accordance with established colour schedule.
- .3 Remove damaged, opened and rejected materials from site.
- .4 Provide and maintain dry, temperature controlled, secure storage.
- .5 Observe manufacturer's recommendations for storage and handling.
- .6 Store materials and supplies away from heat generating devices.
- .7 Store materials and equipment in a well ventilated area with temperature range 7 to 30 EC.
- .8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

- .9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Consultant. After completion of operations, return areas to clean condition to approval of Consultant.
- .10 Provide minimum one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.
- .11 Remove only in quantities required for same day use.
- .12 Fire Safety Requirements:
 - .1 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Environmental Choice Program
 - .1 Provide paint products certified to meet the requirements of the Environmental Choice Program, Department of the Environment.
 - .2 Submit CSA Certification Reports that products proposed for use are certified under the Environmental Choice Program. Water based paints to be certified to ECP-07. All other surface coatings to be certified to ECP-12.
- .2 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .3 Ventilation:
 - .1 Ventilate enclosed spaces in accordance with Section 01510 - Temporary Utilities.
- .4 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer=s recommendations.
- .5 Substrate and ambient temperature must be within limits prescribed in paint standard and by manufacturer to approval of Engineer.
- .6 Maintain minimum substrate and ambient air temperature of 5EC for Alkyd and 7EC for latex paints. Maximum relative humidity 85%. Maintain supplemental heating until paint has cured sufficiently.
- .7 Provide temporary heating where permanent facilities are not available to maintain minimum recommended temperatures.
- .8 Apply paint finish only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.
- .9 Apply paint only when surface to be painted is dry, properly cured and adequately prepared.
- .10 Provide minimum 270 lx on surfaces to be painted.

1.8 EXTRA MATERIALS

- .1 Submit maintenance materials in accordance with Section 01780 - Closeout Submittals.

- .2 Submit one - one four litre can of each type and colour of primer finish coating. Identify colour and paint type in relation to established colour schedule and finish formula.
- .3 Deliver to Owner and store where directed.

Part 2 Products

2.1 MATERIALS

- .1 Qualified products: only paint materials listed on the **Master Painters Institute Approved Products List** are acceptable for use on this project.
- .2 Qualified products: only paint materials listed to meet the requirements of the environmental choice program, Department of the Environment are acceptable for use on this project.
- .3 Paint materials for each coating formula to be products of a single manufacturer.
- .4 Low odour products: Whenever possible, select products exhibiting low odour characteristics. If two products are otherwise equivalent, select the product with the lowest odour.

2.2 COLOURS

- .1 Consultant will provide Colour Schedule. Notify Consultant 10 working days before colour schedule required.
- .2 Colour schedule will be based upon the selection of eight base colours and three accent colours. No more than three colours will be selected per room / or walls and ceilings.
- .3 Selection of colours will be from manufacturers full range of colours.
- .4 Where specific products are available in a restricted range of colours, selection will be based on the limited range.
- .5 Perform all colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials allowed only with Consultant's permission.
- .6 Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

Part 3 Execution

3.1 GENERAL

- .1
- .2 Perform all painting operations in accordance with CAN/CGSB-85.100 except where specified otherwise.
- .3 Apply all paint materials in accordance with paint manufacturer=s written application instructions.
- .4 Paint all wall surfaces in each room as per finish schedules. Wall surfaces/types may vary in each room. Paint all surfaces as required to meet painting specification for surface type to produce homogenous product.

- .5 General Contractor to finish paint all flush mounted electrical panels to match the adjoining wall colour.

3.2 PREPARATION

- .1 Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories and all other surface mounted fittings and fastenings prior to undertaking any painting operations. Store for re-installation after painting is completed.

3.3 PROTECTION

- .1 Protect existing building surfaces not to be painted from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products, fixtures, finishes and equipment.

3.4 EXISTING CONDITIONS

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Consultant all damage, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Investigate moisture content of surfaces to be painted. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
 - .1 Plaster and wallboard: 12%.
 - .2 Masonry/Concrete: 12%.
 - .3 Concrete Block/Brick: 12%.
 - .4 Wood: 15%.

3.5 CLEANING

- .1 Remove all dust, dirt, and other surface debris.
- .2 Wash surfaces with solution of T.S.P. bleach and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 To prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
- .5 Clean new metal surfaces to be painted by removing rust, loose mill scale, dirt, grease, oil, or other foreign substances.

3.6 SURFACE PREPARATION

- .1 Prepare new wood surfaces to CGSB 85-GP-1M.
- .2 Where possible, prime all surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
- .3 Prepare previously painted wood surfaces to CGSB 85-GP-2M.

- .1 Apply vinyl sealer to CAN/CGSB-1.126 over knots, pitch, sap and resinous areas.
- .2 Apply wood filler to nail holes and cracks.
- .3 Tint filler to match stains for stained woodwork.
- .4 Prepare stucco, brick, concrete masonry and concrete surfaces to CGSB 85-GP-31M.
- .5 Prepare concrete floors to CGSB 85-GP-32M. Prepare new concrete floor by acid etching. Rinse with clean water and thoroughly dry.
- .6 Prepare plaster and wallboard surfaces to CGSB 85-GP-33M.

3.7 SURFACE PREPARATION -METAL

- .1 Touch up shop primer to CGSB 85-GP-10M with primer as specified in applicable section. Touch-up to include cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas.
- .2 Prepare galvanized steel and zinc coated steel surfaces to CGSB 85-GP-16M.
- .3 Prepare copper and copper alloys surfaces to CGSB 85-GP-20M.
- .4 Prepare new steel surfaces exposed normally to dry conditions to CGSB 85-GP-14M.
- .5 Prepare previously painted steel surfaces exposed normally to dry conditions to CGSB 85-GP-15M.
- .6 Do not apply paint until prepared surfaces have been accepted by Consultant.

3.8 MIXING PAINT

- .1 Mix ingredients in container before and during use and ensure breaking up of lumps, complete dispersion of settled pigment, and uniform composition.
- .2 Thin paint for spraying according to manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Engineer.
- .3 Do not use kerosene or any such organic solvents to thin water-based paints.

3.9 APPLICATION

- .1 Apply paint to CAN/CGSB-85.100. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .3 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .4 Sand and dust between each coat to remove visible defects.
- .5 Finish tops of cupboards, cabinets and projecting ledges, both above and below sight lines as specified for surrounding surfaces.
- .6 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .7 Finish closets and alcoves as specified for adjoining rooms.
- .8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.10 MECHANICAL ELECTRICAL EQUIPMENT

- .1 In finished areas: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment. Colour and texture to match adjacent surfaces, except as noted otherwise.
- .2 In boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 In other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 Paint all fire protection piping red.
- .10 Paint all natural gas piping yellow.
- .11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.11 RESTORATION

- .1 Clean and re-install all hardware items that were removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Engineer. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

Part 4 Paint schedule

4.1 PAINT SCHEDULE INTERIOR PAINTING

- .1 Formula 1 (Latex): eggshell for gypsum board, plaster, hardboard walls.
 - .1 one coat latex primer sealer CAN/CGSB - 1.119
 - .2 two coats semi gloss enamel CAN/CGSB - 1.195
- .2 Formula 2 (Latex): low gloss for gypsum board, plaster, hardboard ceilings.

- .1 one coat latex primer sealer CAN/CGSB - 1.119
- .2 two coats low gloss enamel CAN/CGSB - 1.209
- .3 Formula 3 (Latex): Flat for acoustic tile and textured ceilings:
 - .1 two coats latex flat CAN/CGSB-1.100
- .4 Formula 4 (Latex): Semi Gloss for concrete block and concrete walls:
 - .1 one coat block filler CAN/CGSB-1.188.
 - .2 one coat primer-sealer CAN/CGSB-1.119.
 - .3 two coats semigloss enamel CAN/CGSB-1.195.
 - .4 Note: at shower walls and ceiling use Alkyd band paint
- .5 Formula 5 (Latex): Semi Gloss for hollow metal doors and frames:
 - .1 primer-sealer touch up
 - .2 two coats latex semigloss CAN/CGSB-1.195.
- .6 Formula 6 (Alkyd): Semi Gloss for primed ferrous metal:
 - .1 two coats semigloss enamel CAN/CGSB-1.57.
to conform to MPI #147
- .7 Formula 7 (Alkyd): semi gloss for galvanized and zinc coated metal:
 - .1 one coat cementitious primer CAN/CGSB-1.198.
 - .2 two coats semigloss enamel CAN/CGSB-1.57.
primer to conform to MPI #134; two coats semigloss to conform to MPI #147.
- .8 Formula 8 (Latex): flat for galvanized metal deck:
 - .1 one coat cementitious primer CAN/CGSB-1.198.
 - .2 two coats flat paint CAN/CGSB-1.100.
- .9 Formula 9 (Alkyd): for insulation covering :
 - .1 one coat latex primer-sealer CAN/CGSB-1.119.
 - .2 two coats low gloss enamel CAN/CGSB-1.57.
one coat latex primer sealer to conform to MPI #50; two coats low gloss enamel
to conform to MPI #44.
- .10 Formula 10 (Alkyd): for copper piping and fittings:
 - .1 one coat vinyl wash primer CAN/CGSB-1.121.
 - .2 two coats low gloss enamel CAN/CGSB-1.202.
primer to conform to MPI #17; two coats low gloss enamel to conform to MPI
#138.
- .11 Formula 11 (Polyurethane): for woodwork to receive stain finish :
 - .1 one coat wood filler.
 - .2 one coat solvent based stain CAN/CGSB-1.145. Type 2.
 - .3 one coat polyurethane CAN/CGSB-1.175 thinned.
 - .4 two coats polyurethane CAN/CGSB-1.175 Type 2.
- .12 Formula 12 (Latex): Interior painted wood work.

- .1 one coat primer sealer.
- .2 two coats paint.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Conform to Sections of Division 1 as applicable.

1.2 RELATED WORK

- .1 Phenolic toilet partitions: Section 10 21 13, Toilet Partitions.

1.3 REFERENCES

- .1 ASTM A167-91, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 ASTM A525M-91b, Specification for General Requirements for Steel sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process Metric.
- .3 ASTM A526M-90, Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
- .4 ASTM B456-91a, Specification for Electrodeposited Coating of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .5 CAN/CGSB-1.81-M90, Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
- .6 CAN/CGSB-1.88-92, Gloss Alkyd Enamel, Air Drying and Baking.
- .7 CAN/CGSB-12.5-M86, Mirrors, Silvered.
- .8 CGSB 31-GP-107Ma-90, Non-inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
- .9 CAN/CSA-B651-M90, Barrier-Free Design.
- .10 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Carefully wrap and package accessories to ensure protection during shipping and storage.
- .2 Store accessories inside building in location directed and in well identified package as to contents.

1.6 EXTRA MATERIALS

- .1 Provide special tools required for accessing, assembly/ disassembly or removal for toilet and bath accessories in accordance with requirement specified in Section 01 78 00 – Closeout Submittals.

1.7 WARRANTY

- .1 Submit warranty against defects in accordance with GC 12.3 but for (5) five years.

Part 2 Products

2.1 MANUFACTURED UNITS

- .1 Owner will supply and install the following washroom accessories:
 - .1 Soap dispenser
 - .2 Paper Towel dispenser
 - .3 Toilet Paper dispenser
 - .4 Refer to demolition drawings for salvaged items and turn over to Owner.
- .2 Contractor will supply and install all other washroom accessories as listed below in this section.
- .3 Acceptable manufacturers: Hadrian, Fiat, Bobrick, Bradley and Watrous or approved alternate.
 - .1 For the purposes of this specification, Bobrick model numbers have been specified. Equal products manufactured by Hadrian, Fiat, Bradley or Watrous, will be accepted as approved by consultant.
- .4 Grab bars (GB1, GB2):
 - .1 Provide the following grab bars as indicated on drawings.
 - .1 Grab Bar 1 (**GB1**) – Minimum 600mm in length, wall mounted horizontally behind water closet as indicated on drawings. Mounting height between 840mm to 920mm above finished floor and, where the water closet has a tank, be wall mounted 150mm above the tank.
 - .2 Grab Bar 2 (**GB2**) – Continuous L-shaped with 750mm long horizontal and vertical components, location as indicated on drawings. Grab bar shall be wall mounted with horizontal component 750mm above the finished floor and the vertical component 150mm in front of the water closet.
 - .2 Grab bars shall have concealed non-corrosive anchorage systems of types approved by Consultant.
 - .3 Grab bars shall be anchored to anchorage system with concealed stainless steel fasteners. Grab bar material and anchorage shall withstand a load of 300 lbs. (1.3 kN) applied vertically or horizontally.
- .4 Grab bars shall have a clearance of 50mm from the wall.
- .5 Mirrors: To CAN / CGSB-12.5 (No. 1 Quality) 5mm annealed monolithic silver glass. Provide polished edges. Provide safety film over mirror. Install with approved mastic. Refer to drawings for size and location.
- .6 Vandal-Resistant Clothes Hooks: stainless steel, safety release hook
 - .1 Size: 100mm H. x 100mm W. x 20mm D.
 - .2 Acceptable: Odd Ball Industries SP6
Bobrick B983

- .3 Install on inside of door leaf 1200mm above the floor 1 per room in the following rooms (1 total):
Universal washroom.
- .7 Corner shelf (1 total).
 - .1 Install within the Universal washroom.
Mount 1200mm above floor. Site determine exact location within room.

2.2 FABRICATION

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- .3 Brake form sheet metal work with 1.5 mm radius bends.
- .4 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .5 Back paint components where contact is made with building finishes to prevent electrolysis.
- .6 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.
- .7 Shop assemble components and package complete with anchors and fittings.
- .8 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .9 Provide steel anchor plates and components for installation on studding and building framing.

2.3 FINISHES

- .1 Chrome and nickel plating: to ASTM B456, polished finish.
- .2 Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to CAN/CGSB-1.88 and bake to hard, durable finish. Sand between final coats.
- .3 Manufacturer's or brand names on face of units not acceptable.

PART 3 Execution

3.1 INSTALLATION

- .1 Install and secure accessories rigidly in place as follows:
 - .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
 - .2 Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into cell/wall cavity.
 - .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
 - .4 Toilet/shower compartments: use male/female through bolts.
- .2 Install grab bars on built-in anchors provided by bar manufacturer. Supply templates, details and instructions for building in anchors in toilet compartments. Provide through

bolt fastening of grab bars in toilet compartments. Ensure code-compliant clearances between grab bars and walls.

- .3 Use tamper proof screws/bolts for fasteners.
- .4 Fill units with necessary supplies shortly before final acceptance of building.
- .5 Locate accessories where indicated on the drawings and/or as directed by the Consultant.
- .6 Install toilet and bath accessories in accordance with the Ontario Building Code, CSA B651-12 and manufacturer's instructions.
- .7 Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
 - .1 Verify blocking has been installed properly.
 - .2 Verify location does not interfere with door swings or use of fixtures.
 - .3 Comply with manufacturer's recommendations for backing and proper support.
 - .4 Use fasteners and anchors suitable for substrate and project conditions
 - .5 Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
 - .6 Conceal evidence of drilling, cutting, and fitting to room finish.
 - .7 Test for proper operation.

3.2 CLEANING

- .1 Proceed in accordance with Section 01740 – Cleaning.
- .2 Clean exposed surfaces of compartments, hardware, and fittings using methods acceptable to the manufacturer.
- .3 Touch-up, repair or replace damaged products until Substantial Performance.

END OF SECTION

PART 1- GENERAL

1.1. GENERAL

1. This section covers items common to all sections of Division 10, 21, 22, 23 and is supplementary to requirements of Division 1.
2. Division 1, General Requirements is part of this Section and shall apply as if repeated here.
3. Coordinate all requirements with General Contractor.

1.2. CODE OF STANDARDS

1. Do complete installation in compliance with latest editions and all amendments of the following Codes and Standards. Where conflicts in requirements occur, the higher standard shall apply:
 1. ASHRAE
 2. SMACNA
 3. CSA
 4. Ontario Building Code
 5. All governing municipal requirements
 6. ULC
 7. LEED Canada for New Construction and Major Renovations 2009.

1.3. DEFINITIONS

1. "Provide" means supply and install.
2. "Approved" means approved in writing by Consultant.
3. "Consultant" means designated qualified professional engineer acting as representative of Owner for monitoring of work.
4. "Manual" means Operations and Maintenance manual.

1.4. CARE, OPERATION, START-UP AND INSTRUCTION TO OWNERS

1. Provide certified personnel to instruct Owner of operation mechanical equipment. Provide maintenance specialist personnel to instruct on maintenance and adjustment of mechanical equipment and any changes or modification equipment must be under terms of guarantee.

2. Provide instruction during regular work hours prior to acceptance and turn over to Owner's staff for regular operation.
3. Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.
4. Use operation and maintenance data manual for instruction purposes. On completion of instruction, turn three manuals over to the Owner.
5. Operation and maintenance manual to be approved by and final copies deposited with Consultant before final inspection.
6. Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

1.5. PERMITS, CERTIFICATES, FEES AND INSPECTIONS

1. Submit to the Building Department the necessary number of drawings and specifications for examination prior to commencement of work to obtain a building/plumbing permit. Obtain and pay for all building/plumbing permits. Include all costs in the tender price.
2. Submit Notice of Project to Ministry of Labour.
3. Submit all applicable forms, registrations, documents, etc to TSSA (piping, boilers, refrigeration piping, etc) and other authorities having jurisdiction. Obtain TSSA registration and submit final certifications to consultant and include in close out documents. Cost of application fees to TSSA to be paid by Owner or cash allowance.
4. Contractor shall be responsible to pay associated fees.
5. Notify Consultant of changes required by Building Department prior to making changes.
6. Notify Consultant upon completion of work.

1.6. COORDINATION WITH EXISTING UTILITIES

1. Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in or inferable from the Contract Documents, or that are inferable from an inspection of the Place of the Work.
2. All existing utilities are to be maintained and protected for the length of construction.
3. Contractor to notify consultant if any conflicts arise and allow for minimum 48 hours for consultants review.

1.7. EQUIPMENT REQUIREMENTS AND INSTALLATION

1. Permit equipment maintenance and disassembly by use of unions or flanges to minimize

disturbance to connecting piping and duct systems and without interference from building structure or other equipment.

2. Provide accessible means for lubricating equipment including permanent lubricated "lifetime" bearings.
3. Pipe drain lines to drains.
4. Line-up equipment, rectangular cleanouts and similar items with building walls wherever possible.
5. Provide equipment commissioning and preliminary balancing and confirm the proper operation of all equipment and related systems.

1.8. RESPONSIBILITY FOR TRIAL USAGE

1. Obtain written permission to start and test permanent equipment and systems prior to acceptance by Consultant.
2. Consultant may use ventilating equipment and systems for testing.
3. Protect equipment and systems' openings from dirt, dust and other foreign materials during test usage.

1.9. ELECTRICAL

1. Division 23 shall supply and install motors, controls and control wiring, supply starters, switches, contactors and relays, for all motor driven equipment under Division 23. Starters, switches, comntactors and relays shall be handed over to Division 26 for installation and wiring.
2. Electrical equipment not supplied by Division 23 is listed on the drawings or elsewhere in the Specification for quality of material and workmanship.
3. Safety disconnect switches shall be supplied for each rotating equipment unless within viewing distance for motor control but max 6 m (20') supplied by Division 23 and installed by Division 26.
4. Wiring and controls for connections below 50 V, which are related to control systems are the responsibility of Division 23. Refer to Division 26 for quality of materials and workmanship.
 1. Control cables, type LVT, soft annealed copper conductors with thermoplastic insulation and colour coding. Installation in EMT conduit.
 2. Two conductors parallel with an overall thermoplastic jacket; three or more conductors twisted with an overall thermoplastic jacket.
 3. Cable to be installed in EMT conduit or if concealed in ceiling space to be plenum rated FT6 type.

1.10. THERMOSTATS AND SENSORS

1. All thermostats, sensors etc to be mounted at 1200mm (47") above finished floor to centre line of device. Any interference with other devices such as switches, etc to be coordinated with Consultant.

1.11. MOTORS

1. Provide motors for mechanical equipment as specified.
2. If delivery of specified motor will delay delivery of installation of any equipment, install an acceptable motor for temporary use. Final acceptance of equipment will not occur until specified motor is installed.
3. Motors under 373 W (1/2 HP) speed as indicated, continuous duty high efficiency, built in overload protection, resilient mount, single phase, 120 V unless otherwise specified or indicated.
4. Motors 373 W (1/2 HP) to 150 kW (200 HP) T frame, to or exceeding the current Ontario Hydro Motor Efficiency Levels and be listed in the current Ontario Hydro Motor Efficiency Levels Guide as tested to CSA C390M 1985 or IEEE 112B and approved under the Canadian Safety Code, speed as indicated, continuous duty, drip proof, ball bearing, maximum temperature rise 40°C (72°F), 3 phase, 208 V or 600 V unless otherwise specified or indicated.
5. Provide a suitable manual or magnetic starter for each piece of equipment supplied under this Division.
6. Provide safety disconnect switches for the above equipment.
7. Division 26 will install all starters, disconnects and line voltage control devices and perform all wiring under supervision of this Division.

1.12. PIPE HANGERS AND SUPPORTS

1. See Section 23 05 29 – Hangers and Supports.

1.13. BUILDING PERMIT

1. Prepare permit application and apply for building permit at local Building Department. Include all costs in tender price. Consultant will provide contract documents in PDF format, contractor responsible to produce hard copies.

1.14. DRAIN VALVES

1. Locate at low points and at section isolating valves unless otherwise specified.
2. Minimum NPS 3/4 unless otherwise specified: bronze, with hose end male thread and complete with cap and chain.

1.15. PENETRATIONS

1. Where pipes pass through fire rated walls, floors or partitions, maintain fire rating of assembly in compliance with OBC. Submit shop drawings and details on all products.
2. Provide pipe sleeves at penetrations where pipes pass through masonry or concrete, or where protection is required from galvanic action or physical abrasion.
 1. Coat exposed exterior surfaces of ferrous sleeves with heavy application of zinc-rich paint.
 2. Where sleeves pass through masonry or concrete: backfill space around sleeve with masonry or concrete.
 3. Where sleeves pass through walls or floors: caulk space between insulation and sleeve or between pipe and sleeve with waterproof fire retardant non-hardening mastic.
 4. In foundation walls and below grade floors: pipe sleeve to be 1.25x pipe outside diameter or minimum 50mm. Fill space between pipe and sleeve with soft foam insulation.
3. Ensure no contact between copper tube or pipe and ferrous material or sleeve.
4. Continue insulation through penetrations where pipe is required to be insulated.
5. Temporarily plug all openings during construction.

1.16. SLEEVES

1. Size:
 1. Provide 5 mm (1/4") clearance between sleeve and pipe or between sleeve and insulation.
 2. Where piping passes below footings, provide min clearance of 50 mm (2") between sleeve and pipe. Fill void with elastic, water proof material. Backfill up to underside of footing with concrete of same strength as footing.
2. Provide sleeves of minimum 1.0 mm (20 GA) galvanized sheet steel with lock seam joints or use PVC pipe in non rated walls.
3. Use cast iron or steel pipe sleeves with annular fin continuously welded at mid-point through foundation walls.

1.17. ESCUTCHEONS AND PLATES

1. Provide on pipes passing through finished walls, partitions, floors and ceilings.
2. Use split type chrome plated brass, with set screws for ceiling or wall mounting.

3. Inside diameter shall fit around finished pipe. Outside diameter shall cover opening or sleeve.
4. Where sleeve extends above finished floor, escutcheons or plates shall clear sleeve extension.
5. Secure to pipe or finished surface but not insulation.

1.18. TESTS

1. Provide the following supplementary requirements to tests specified:
 1. Give 48 h notice of date when tests will be made.
 2. Do not insulate or conceal work until tested and approved.
 3. Conduct tests in presence of Consultant.
 4. Bear costs including retesting and make good.
 5. Pipe pressure:
 1. Hydraulically test water supply systems at 1-1/2 times system operating pressure or minimum 1050 kPa (150 psig).
 2. Maintain test pressures without loss of 4 h unless otherwise specified.
 3. Record pressure test results, indicating:
 1. Portion of piping tested.
 2. Test pressure.
 3. Test duration.
 4. Results/Comments.
 5. Type of pipe.
 6. Type of system.
 7. Size of pipe.
 4. Submit results to Consultant.

1.19. PAINTING

1. Apply at least one coat of corrosion resistant primer paint to supports, and equipment fabricated from ferrous metals.
2. Restore to new condition, finishes which have been damaged too extensively to be merely

primed and touched up.

1.20. SPECIAL TOOLS

1. Provide one set of special tools required to service equipment as recommended by manufacturers.

1.21. ACCESS DOORS

1. Supply access doors to concealed mechanical equipment for operating, inspecting, adjusting and servicing.
2. Flush mounted 600 mm x 600 mm for body entry and 300 mm x 300 mm for hand entry unless otherwise noted. Doors to open 180°, have rounded safety corners, concealed hinges, screwdriver latches and anchor straps.
3. Material:
 1. Special areas such as tiled or marble surfaces: use stainless steel with brushed satin or polished finish as directed by Consultant.
 2. Remaining areas: use prime coated steel.
4. Installation:
 1. Locate so that concealed items are accessible.
 2. Locate so that hand or body entry (as applicable) is achieved.
 3. Installation is specified in applicable sections.
5. Acceptable Material: Nailor 0900 or approved equal.

1.22. DIELECTRIC COUPLINGS

1. Provide wherever pipes of dissimilar metals are joined.
2. Provide felt or rubber gaskets to prevent dissimilar metal contact.

1.23. CUTTING AND PATCHING

1. All cutting and patching shall be by Division 2, coordinated by Division 23. Coordinate with other trades. Notify Structural Engineer before cutting any structural members and obtain written permission.

1.24. EXISTING SYSTEMS

1. Before submitting tender price verify on job site location of all accessible existing systems affecting execution of this contract. Difficulties arising during construction will not be considered as grounds for additional payment.
2. Where work involves breaking into or connecting to existing systems, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian traffic.
3. Submit schedule to and obtain approval from Consultant for any shut down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
4. Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

1.25. INSTRUCTIONS TO OWNERS & TRAINING

1. Provide certified personnel to instruct Owner of operation mechanical equipment. Provide maintenance specialist personnel to instruct on maintenance and adjustment of mechanical equipment and any changes or modification equipment must be under terms of guarantee.
2. Training plans to be submitted prior to the execution of the training. At a minimum, training plans to include the list of systems and equipment which are to be trained on. Instructor's name and qualifications and allotted time for training. Training plans to be reviewed and approved by Owner and Consultant prior to commencement of training.
3. Provide instruction during regular work hours prior to acceptance and turn over to Owner's staff for regular operation.
4. Use operation and maintenance data manual for instruction purposes. On completion of instruction, turn two manuals over to the Owner.
5. Operation and maintenance manual to be approved by and final copies deposited with Consultant before final inspection.
6. Provide minimum of four 6 hour training sessions on systems.
7. Include for training in Fall to winterize system.

1.26. OPERATION & MAINTENANCE MANUALS

1. Provide one (1) paper copy and one "PDF" format on USB stick of Mechanical Operation and Maintenance Manuals complete with As-built Drawings, in accordance to the following and and Section 01 33 00 - Submittals.
2. Mechanical Operation and Maintenance Manuals to be delivered to the Engineer's office in accordance with Section 01 33 00 - Submittals.
3. Manuals to be bound in hard cover neatly labeled: "OPERATING AND MAINTENANCE INSTRUCTIONS".

4. The Operation and Maintenance Manuals shall be divided into sections with neatly labeled and tabbed dividers between each section. The sections to be included in the manual are:
 1. Section I – General
 2. Section II – Piping and Pump Systems
 3. Section III – Heating, Air Conditioning and Ventilation
 4. Section IV – Automatic Controls
 5. Section V – Sprinkler System
 6. Section VI – Air and Hydronic Balancing Report
 7. Section VII – Extended Warranties
5. The following information shall be contained within the sections:
 1. SECTION I: A list giving name, address and telephone number of the Consultant, Engineers, Construction Manager, Mechanical Trade and Controls Trade. Written guarantees for the Mechanical Systems. A copy of the Valve directory giving number, valve location, normal valve position, and purpose of valve. A framed copy of valve directory to be hung in Mechanical Room. Equipment lists and certificates shall be provided. Certificates shall be signed and sealed by the appropriate suppliers. All major equipment including but not limited to boilers, cooling towers, chillers, air handling units, isolators, silencers, pumps and humidifiers are to be inspected by the manufacturer to ensure the equipment has been installed in accordance with their recommendations.
 2. SECTION II, III and IV: A copy of all pressure tests and operational tests for pumping system. A copy of Gas Operational Tests for gas fired equipment. A list giving name, address and telephone number of all suppliers. A copy of all approved Shop Drawings. Copies of warranties.
 3. SECTION IV: Complete Control Diagrams, Wiring Diagrams and description of Control system and the functioning of the system. A copy of all shop drawings and all calibration certificates. Shop drawings shall be the updated record drawings.
 4. SECTION V: A copy of all shop drawings. Copies of all warranties. Maintenance information.
 5. SECTION VI: Provide complete air balance report including pump and fan curves, measured values and floor plans showing location of all traverse readings and grille measurements. Provide copies of all pressure tests completed on the systems.
 6. SECTION VII: Provide a list of equipment with description of extended warranties.
6. MAINTENANCE MATRIX
 1. A maintenance matrix is to be provided in the Operation and Maintenance Manuals. The matrix shall indicate each piece of equipment and the required maintenance tasks and the frequency at which they are to be carried out.

1.27. OWNER OCCUPANCY SCHEDULE

1. The existing building will remain occupied during normal occupancy hours.
2. Provide temporary protection for all finishes, appliances or equipment in the existing building.
3. Protect and maintain existing boiler room and electrical room operations during the work.

1.28. AS-BUILT DRAWINGS

1. Site records:
 1. One set to be kept on site and all changes to be recorded on daily basis. At the completion of the project, all changes shall be transferred to clean set, signed and passed to the Consultant. . Provide "PDF" format of As-Built Drawings on USB stick with Maintenance Manuals at completion of project.
 2. Make these drawings available for reference purposes and to inspection at all times.
2. Submit 2 copies of as-built marked up prints with final TAB report.
3. As-built drawings must be delivered before system acceptance.

END OF SECTION 21 05 01

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. Do thermal insulation in accordance with ACNBS, ASTM E96-66(1972) and ASTM C411-61 (1975).
2. Fire hazard rating:
 1. Meet NFPA 90A-2002, NFPA 225-2021 and CAN4-S102-M83 for all components of insulation system.
3. LEED Canada for New Construction and Major Renovations 2009.

1.3. DEFINITIONS

1. "CONCEALED" - insulated mechanical services in chases, furred spaces, pipe shafts or hung ceilings.
2. "EXPOSED" - will mean "not concealed" as defined herein.

PART 2- PRODUCTS

2.1. FORMED FIBROUS GLASS TO 200°C

1. Application: insulation system for piping, valves, heat exchangers, headers, fittings, etc. maximum temperature 200°C. On domestic hot water and recirculating piping, fittings and all hydronic heating hot water and glycol systems.
2. Materials:
 1. CGSB 51-GP-9M, rigid mineral fibre sleeving for piping, including foilcraft laminate packet with open mesh fibre scrim reinforcing.
 2. Acceptable materials: Knauff; Fibreglass Rigid-Wrap pipe insulation.
3. Thickness:
 1. Domestic hot water and recirculating lines – located in conditioned spaces:

Line Size Nominal	Thickness Nominal
Up to NPS 1 1/4"	25 mm (1")

NPS 1 1/2" and larger	40 mm (1 1/2")
Run-outs to fixtures	
For max. of 2.4 m (8')	25 mm (1")

2. Hydronic hot water and glycol heating media temperature up to 200°F/93°C:

Line Size Nominal	Thickness Nominal
Run-outs Up to	
3.7 m (12')	38 mm (1 1/2")
NPS 3/4" to 1 1/4"	38 mm (1 1/2")
NPS 1 1/2" to 8"	50 mm (2")

3. Steam and condensate piping systems:

Line Size Nominal	Thickness Nominal
Run-out up to 1"	63 mm (2 1/2")
NPS 1" to 4"	63 mm (2 1/2")
NPS 4" to 8"	76 mm (3")

2.2. FORMED FIBROUS GLASS WITH V.B. -14 TO 37°C

1. Application: insulation system for piping, valves, heat exchangers, headers, fittings, etc., for temperature range - 14 to 37°C. On domestic cold water, rain water leaders, above grade storm and condensate lines.

Media Temperature 41 to 56°F / 5 to 13°C

Line Size Nominal	Thickness Nominal
Up to NPS 1 1/4"	13 mm (1/2")
NPS 1 1/2 and over	25 mm (1")

2. Materials:

1. CGSB 51-GP-9M, rigid mineral fibre sleeving for piping, and CGBS 51-GP-52M vapour barrier jacket. Complete with factory applied foil laminate, reinforced with open mesh fibre scrim.

3. Thickness – Media temperature <41°F/<5°C:

Line Size Nominal	Thickness Nominal
Up to NPS 3/4"	13 mm (1/2")
Up to NPS 1" - 6"	25 mm (1")
NPS 8" and larger	38 mm (1 1/2")

PART 3- EXECUTION

3.1. APPLICATION

1. Apply insulation after required tests have been completed and approved by Consultant. Insulation and surfaces shall be clean and dry when installed and during application of any finish. Apply insulation materials, accessories and finishes in accordance with manufacturer's recommendations and as specified herein.
2. On piping with insulation and vapour barrier, install high density calcium silicate block under hanger shield and metal saddle. Maintain integrity of vapour barrier over full length of pipe without interruption at sleeves, fittings and supports.

3.2. INSTALLATION

1. Install in accordance with ANSI/NFPA 90A and ANSI/NFPA 90B.
2. Perform insulation work using qualified insulation applicators, in accordance with latest trade application methods and to the Consultant's approval.
3. Work to begin only when building is enclosed preventing insulation from getting wet due to elements such as rain, snow, construction, etc. All damaged or wet insulation to be replaced.
4. All piping (Section 21 07 19) and ductwork (Section 23 07 13) insulation to be continuous except at fire barriers.
5. Preformed: sectional up to NPS 12, sectional or curved segmented above NPS 12.
6. Multi-layered: staggered butt joint construction.
7. Vertical pipe over NPS 3: insulation supports welded or bolted to pipe directly above lowest pipe fitting. Thereafter, locate on 3 m, 15' centres.
8. Expansion joints in insulation: terminate single layer and each layer of multiple layers in straight cut at intervals recommended by manufacturer. Leave void of 25 mm, 1" between terminations. Pack void lightly with flexible mineral insulation.
9. Seal and finish exposed ends and other terminations with insulating cement.
10. Expansion joints in piping: provide for adequate movement of expansion joint without damage to insulation or finishes.
11. Orifice plate mounting flanges, flanges and unions at equipment, expansion joints, valves, other components requiring regular maintenance.
12. Insulation is not required for:
 1. Chrome plated piping, valves and fittings.

3.3. FASTENINGS

1. Secure pipe insulation by tape at each end and centre of each section, but not greater than 1 m (36") on centres.

END OF SECTION 21 07 19

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.
2. All brass, bronze fittings and valves shall be "Lead Free Design".

1.2. REFERENCE STANDARDS

1. Do the work in accordance with Ontario Building Code and local authority having jurisdiction except where specified otherwise.
2. LEED Canada for New Construction and Major Renovations 2009.

1.3. SHOP DRAWINGS

1. Submit product data in accordance with Section 01 33 00 - Submittals.
2. Indicate the following: valves.

PART 2- PRODUCTS

2.1. PIPING

1. Domestic hot, cold and recirculating tubing, within building.
 1. Above ground: copper tube, hard drawn, type L: to ASTM B88M-16.
 2. Buried: soft copper tube, type K soft, with silfoss soldered joints: toASTMB88M-16.

2.2. FITTINGS

1. Brass or bronze flanges and flanged fittings: to ASME B16.24-2016.
2. Brass or bronze threaded fittings: to ASME B16.15-2013.
3. Cast bronze to ASME B16.18-2012 or wrought copper and bronze to ASME B16.22-2013.
4. Roll groove full flow standard radius cast bronze fitting for sizes NPS 4 and larger to AWWA C606.

2.3. JOINTS

1. Solder, tin antimony, 95:5 to ASTM B32-08 (2014) or approved type lead free – up to NPS 2 1/2.
2. Silver brazing alloy – NPS 3 and larger.
3. Roll grooved piping to be made up with roll groove positive clamp gasketed couplings or roll groove flange adapters for copper piping to AWWA C606.

2.4. VALVES

1. Ball Valves:
 1. For Sizes 50mm (2") and under 1034KPA (150psig) 600 WOG, Brass Body to NSF/ANSI 61-G (Lead Free Brass) Full Port, PTFE Seats, Double "O" Ring or Teflon packing. TEA Plated Forged Brass C49300 Vented Solid Ball, Blowout Proof Stem, Lever handle. Provide stem extensions on all valves with greater than 1" insulation.
 1. Standard of Acceptance: Kitz 859 (Solder) Kitz 858 (NPT) or equivalent by Toyo.

PART 3– EXECUTION

3.1. INSTALLATION

1. Connect to fixtures and equipment in accordance with manufacturer's instructions unless otherwise indicated.
2. Install tubing close to building structure to minimize furring, conserve head room and space. Group exposed piping and run parallel to walls.
3. Cut square, ream and clean tubing and tube ends, clean recesses of fittings and assemble without binding.
4. Lay buried tubing in accordance with AWWA Class "B" bedding.
5. Isolate equipment, fixtures and branches with gate valves.
6. Provide necessary chemicals and equipment and disinfect system to requirements of authority having jurisdiction.
7. Pressure test piping before insulation is applied.
8. Balance supply systems and recirculation systems using DVR (double regulating valve).
9. Install shut off valves at branch take-offs, in locations shown, and to isolate piping to each piece of equipment.
10. Select valves with pressure rating as specified for piping service and location.
11. Install valves in upright position with stem above horizontal.

12. Remove internal parts of valves before soldering, welding or brazing pipe to valve body.
13. Valve hand wheels and operating levers to be accessible.
14. In equipment rooms and service spaces provide chain operators for valves mounted more than 2 m above floor or access platform. Chains to extend to 1.5 m above floor or platform and to be hooked on clips secured to building structure, clear of walking aisles.
15. Coordinate with the Building Inspector to witness tests and inspect work.

END OF SECTION 22 11 18

PART 1- GENERAL

1.1. GENRAL

- .1 Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCE STANDARDS

- .1 Do the work in accordance with Ontario Building Code and local authority having jurisdiction except where specified otherwise.
- .2 LEED Canada for New Construction and Major Renovations 2009.

PART 2– PRODUCTS

2.1. COPPER TUBE AND FITTINGS

- 1. Above ground sanitary and vent Type DWV to: ASTM B306-13 up to 2 1/2".
 - 1. Fittings.
 - 1. Cast brass: to CSA B158.1-1976.
 - 2. Wrought copper: to ANSI B16.29-2022.
 - 2. Solder: tin-lead, 50:50, to ASTM B32-08, type 50A.

2.2. CAST IRON PIPING AND FITTINGS

- 1. Above ground sanitary storm and vent: to CAN3-B70-M86 3" and larger.
 - 1. Joints.
 - 1. Mechanical joints.
 - 1. Neoprene or butyl rubber compression gaskets with stainless steel clamps.
 - 2. Cast iron couplings.
 - 1. Complete with neoprene gaskets and stainless steel bolts and nuts.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install piping parallel and close to walls and ceilings to conserve headroom and space, and to grade indicated.
2. Test piping before it is concealed.
3. Coordinate with the Building Inspector to witness tests and inspect work.

END OF SECTION 22 13 17

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCE STANDARDS

1. Do the work in accordance with Ontario Building Code and local authority having jurisdiction except where specified otherwise.
2. LEED Canada for New Construction and Major Renovations 2009.

PART 2– PRODUCTS

2.1. PIPING AND FITTINGS

1. For buried sanitary, storm and vent piping up to NPS3 and over to:
 1. CAN3-B181.2-M87 for PVC DWV with solvent weld joints.
2. For buried sanitary and storm piping NPS 4 and larger to:
 1. CAN/CSA-B182.1 and B182.2, BNQ 3624-130DR35. With Ring-Tite joints.
3. Pipe, fittings, jointing system, fire stopping to be supplied by pipe manufacturer with written installation instructions, IT support and fire stopping.
 1. Standard of Acceptance: IPEX – “System 15 DWV”.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install buried pipe on 6" bed of washed clean sand, shaped to accommodate fittings, to line and grade as indicated. Backfill with washed clean sand.
2. Place pipe referenced in this section for **below grade only**. For above grade refer to Section 22 13 17.
3. Provide ULC or Warnock Hersey listed and labelled fire seals at penetration of fire rated walls, ceilings, etc.
4. Do not install in ceiling spaces used as return air plenums.

5. Installation shall be in accordance with manufacturer's instructions and building code.
6. Coordinate with the Building Inspector to witness tests and inspect work.

END OF SECTION 22 13 18

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCE STANDARDS

1. Do the work in accordance with Ontario Building Code and local authority having jurisdiction except where specified otherwise.
2. LEED Canada for New Construction and Major Renovations 2009.

1.3. SHOP DRAWINGS

1. Submit shop drawings in accordance with Section 01 33 00 - Submittals.

1.4. PRODUCT DATA

1. Submit product data in accordance with Section 01 33 00 - Submittals.
2. Indicate dimensions, construction details and materials for the following: floor drains, backflow preventers, hose bibbs, strainers, traps, trap seal primer.

1.5. MAINTENANCE DATA

1. Provide maintenance data for incorporation into manual specified in Section 01 33 00 - Submittals.
2. Data to include:
 1. Description of plumbing specialties and accessories, giving manufacturers name, type, model, year and capacity.
 2. Details of operation, servicing and maintenance.
 3. Recommended spare parts list.

PART 2– PRODUCTS

2.1. FLOOR DRAINS

1. Floor drains and trench drains: to CAN3-B79.

2. Type I: general duty; cast iron body round, adjustable head, nickel bronze strainer, integral seepage pan, and clamping collar.
 1. Acceptable material: Zurn ZN 401B; Watts FD-100-C-A.
3. Type II: general duty where sheet vinyl flooring is used. Cast iron body round, adjustable head, nickel bronze strainer, integral seepage pan, clamping ring suitable for sheet vinyl flooring.
 1. Acceptable material: Zurn ZN-211-R6; Watts FD-200-FC.

2.2. CLEANOUTS

1. In floors:
 1. Line size for NPS 2, NPS 3 and NPS 4 and NPS 4 in larger lines
2. Consisting of:
 1. Seal and test plug
 2. Cast iron body with clamp and collar
 3. In unfinished areas:
 1. cast iron frame heavy duty scoriated cast iron round or square tractor cover and internal plug, and
 4. In finished areas:
 1. nickel bronze frame and round or square nickel bronze adjustable access cover
 2. recessed for tile infill in tiled areas
 3. recessed for carpet infill in carpeted areas
 4. deeply recessed for terrazzo infill in terrazzo finished areas, and with
 5. extended flange around frame in areas with monolithic floor finishes.
3. Standard of Acceptance: J.R. Smith 4000 series; Mifab C1100 series; Zurn Z-1400 series.
 1. In exposed areas, ceiling spaces and accessible pipe chases:
 1. Cast iron caulking ferrule with neoprene jacket and plug secured to body with cap screws.

2.3. TRAP SEAL PRIMERS

1. All brass, with integral vacuum breaker, pressure drop (3-5 psi) activated, NPS 1/2 solder ends, NPS 1/2 drip line connection, to be "lead free", NSF 61.
2. Acceptable material: PPP PR-500, MIFAB M500, J.R. Smith 2694 Series.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install in accordance with manufacturer's instructions and as specified.
2. Coordinate with the Building Inspector to witness tests and inspect work.

3.2. CLEANOUTS

1. Install at base of soil and waste stacks, and rainwater leaders and at changes in direction. .
2. Extend cleanouts flush to wall or finished floor unless serviceable from below floor.
3. Install cleanouts located in floors clear of obstructions.

3.3. TRAP SEAL PRIMERS

1. Install on cold water supply to nearest plumbing fixture, in concealed space.
2. Install soft copper tubing to floor drain.
3. Use distribution units as required.

3.4. COMMISSIONING

1. After start-up, test and adjust to suit site conditions.

END OF SECTION 22 42 01

PART 1- GENERAL

1.1. RELATED WORK

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.
2. See Section 22 42 01 - Plumbing Specialties and Accessories.

PART 2- PRODUCTS

2.1. PLUMBING FIXTURES AND TRIM

1. Plumbing fixtures shall be product of one manufacturer, and of same colour in any one washroom or location, unless listed otherwise.
2. Materials:
 1. Vitreous china to CSA B45.1-02 (R2013).
 2. Stainless steel fixtures to CSA B45.04-02 Class II, type 302 unless otherwise stated.
 3. Plumbing fittings to CSA B125-01.
 4. Exposed plumbing brass and metal work shall be heavy triple chromium plated.
 5. Acceptable manufacturers of same quality, appearance and colour as selected fixtures:

Crane, Kohler, Fiat, Kindred Industries, Bradley, Symmons, American Standard, AMI, Acudor-Acorn, Zurn, MOEN Commercial.

2.2. LAVATORIES

1. L#1: WALL HUNG BASIN – BARRIER FREE

Bradley Express Lavatory System – TLX Series, TLX-1, Wall hung with support brackets, Terreon basin decking, 300 series stainless steel strainer, Barrier free drain assembly, one drain connection, Vandal Resistance, Verge Crestt Facuet with trim plates, Hard wired touch free faucet, 0.5 GPM flow rate, Thermostatic Mixing Assembly (supply hoses and shut offs included), less soap dispenser.

2.3. WATER CLOSETS

1. WC #1: FLOOR MOUNTED TOILET - VITREOUS CHINA

American Standard 3451001.020 Toilet - MADERA™ FloWise®, Toilet, Floor mounted with floor outlet, Toilet operates in the range of 4.2 to 6.0 LPF (1.1 - 1.6 GPF), Vitreous china, White finish, EverClean® antimicrobial surface, Elongated bowl.

Centoco 500STSCFE-001 Seat - Open front Toilet seat Without cover, For elongated bowl, White Polypropylene plastic, Color-matched plastic check hinges with one solid metal hinge pin and bolt.

Sloan ROYAL 111 ESS-1.1-OR-HW Flush Valve - ROYAL® Automatic no-touch Exposed Water closet flushometer, Hardwired, constructed from Semi-red brass, Polished chrome finish, Ultra High Efficiency 4.2 LPF (1.1 GPF).

Sloan SL-EL-154 Faucet and Flush Valve Power Kit - For flush valve

2. WC #2: FLOOR MOUNTED TOILET - VITREOUS CHINA – BARRIER FREE

American Standard 3461001.020 Toilet - MADERA™ FloWise®, Toilet, Floor mounted with floor outlet, Toilet operates in the range of 4.2 to 6.0 LPF (1.1 - 1.6 GPF), Vitreous china, White finish, EverClean® antimicrobial surface, Elongated bowl.

Centoco 820STSS-001 Seat - Open front Toilet seat With cover, For elongated bowl, White Polypropylene plastic, Color-matched plastic self-sustaining check hinges with one solid metal hinge pin and bolt.

Sloan ROYAL 111 ESS-1.1-YG-OR-HW Flush Valve - ROYAL® Automatic no-touch Exposed Water closet flushometer, Hardwired, constructed from Semi-red brass, Polished chrome finish, Ultra High Efficiency 4.2 LPF (1.1 GPF).

Sloan SL-EL-154 Faucet and Flush Valve Power Kit - For flush valve

PART 3- EXECUTION

3.1. FIXTURE INSTALLATION

1. Connect fixtures complete with supplies and drains, trapped, supported level and square. Each fixture must have lockshield valves on supplies. Hot water faucet shall be on left. Mixing faucets and thermostatically controlled mixing valves to have check valves on supplies. Fixtures on outside walls to have supplies from floor; other fixtures to be served from wall.
2. Provide chrome plated rigid supplies to fixtures with screwdriver or handwheel stops, reducers and escutcheons.
3. Provide supports, required to set fixtures level and square. Mount fixtures so that 200 lb mass will not loosen or distort mounting.
4. Provide shock absorbers for each fixture or group of fixtures.

5. Mounting heights for wall hung fixtures and showers measured from finished floor:
 1. Standard: to comply with manufacturers roughing-in details and Ontario Building Code, unless otherwise indicated or specified.
 2. Physically handicapped: to comply with OBC 2024.
6. Installation to follow manufacturer installation instructions/recommendations.
7. Test all devices and equipment.

END OF SECTION 22 42 02

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. ASME B31.1-2024, (SI), Power Piping, (SI Edition).
2. MSS-SP-58-2018, Pipe Hangers and Supports - Materials, Design and Manufacture.
3. LEED Canada for New Construction and Major Renovations 2009.

1.3. SHOP DRAWINGS AND PRODUCT DATA

1. Submit shop drawings and product data in accordance with Section 01 33 00 - Submittals.
2. Indicate on manufacturer's catalogue literature the following:
 1. Upper attachment.
 2. Middle attachment.
 3. Pipe attachment.
 4. Riser clamps.
 5. Shields and saddles.
 6. Sway braces.

1.4. MAINTENANCE DATA

1. Provide maintenance data for incorporation into manual specified in Section 01 33 00 - Submittals.

PART 2– PRODUCTS

2.1. GENERAL

1. Fabricate hangers, supports and sway braces in accordance with ANSI B31.1 and MSS-SP-58.
2. Support from structural members. Where structural bearing does not exist or inserts are not

in suitable locations, provide supplementary structural steel members.

2.2. UPPER ATTACHMENTS

1. Concrete:
 1. Anchors for existing concrete roof structure, heavy duty anchors Hilti HSL.
2. Steel beam (bottom flange):
 1. Cold piping NPS 2 and under: malleable iron C clamp to MSS-SP-58, type 19. ULC listed.
 2. Cold piping NPS 2-1/2 and larger and all hot piping: malleable iron beam clamp to MSS-SP-58, type 28 or 29. ULC listed.
3. Steel beam (top):
 1. Cold piping NPS 2 and under: malleable iron "top of beam" C clamp to MSS-SP-58, type 19. ULC listed.
 2. Cold piping NPS 2-1/2 and larger and all hot piping: steel jaw, hook rod with nut, spring washer and plain washer, to MSS-SP-58, type 25. ULC listed.
4. Steel joist:
 1. Cold piping NPS 2 and under: steel washer plate with double locking nuts.
 2. Cold piping NPS 2-1/2 and larger and all hot piping: steel washer plates with double locking nut, carbon steel clevis and malleable iron socket.
5. Steel channel or angle (bottom):
 1. Cold piping NPS 2 and under; malleable iron C clamp to MSS-SP-58, type 23. ULC listed.
 2. Cold piping NPS 2-1/2 and larger and all hot piping; universal channel clamp. ULC listed.
6. Wood trusses and joists.
 1. Cold piping NPS 2 and under. Secure angle iron 32 x 32 x 3 mm (1 1/2" x 1 1/2" x 3/16") on top of joist or bottom chord trusses. Space min. 2 joints. Use rod hanger with locking nut and clevis hanger.
 2. Cold piping NPS 2 1/2 and larger. Secure angle iron 50 x 50 x 4 mm on top of joists or bottom chord of trusses. Span min. 4 members. Use rod hangers with locking nut and clevis hanger.

2.3. MIDDLE ATTACHMENT (ROD)

1. Carbon steel threaded rod black finish, galvanized in mechanical rooms.

2.4. PIPE ATTACHMENT

1. Cold piping, steel or cast iron: hot piping steel, with less than 25 mm, 1" horizontal movement; hot piping, steel, with more than 300 mm, 12" middle attachment rod length: adjustable clevis to MSS-SP-58, type 1. ULC listed.
2. Cold copper piping; hot copper piping with less than 25 mm, 1" horizontal movement; hot copper piping with more than 300 mm, 12" middle attachment rod length: adjustable clevis to MSS-SP-58, type 1. Copper plated.
3. Suspended hot piping, steel and copper, with horizontal movement in excess of 25 mm, 1"; hot steel piping with middle attachment rod 300 mm, 12" or less; pipe roller to MSS-SP-58, type 43.
4. Bottom supported hot piping, steel and copper: pipe roller stand to MSS-SP-58, type 45.

2.5. RISER CLAMPS

1. Steel or cast iron pipe: black carbon steel to MSS-SP-58, type 42. ULC listed.
2. Copper pipe: carbon steel copper finished to MSS-SP-58, type 42.

2.6. SADDLES AND SHIELDS

1. Hot and Cold piping NPS 1-1/4 and over: protection shield with high density insulation under shield with uninterrupted vapour barrier.

PART 3– EXECUTION

3.1. HANGER SPACING

1. Spacing and middle attachment rod diameter as specified in paragraphs below or as in table below, whichever is more stringent.
 1. Plumbing piping: most stringent requirements of Ontario Building Code, or authority having jurisdiction.
 2. Fire protection: to applicable fire code.
 3. Gas piping: up to NPS 1/2: every 6', 1.8 m
 4. Copper piping: up to NPS 1/2: every 5' 1.5 m
 5. Flexible joint roll groove pipe: in accordance with table below, but not less than one hanger at joints.

6. Within 12" of each horizontal elbow.

Pipe Size (Nominal)	Rod Diameter	Maximum Steel	Spacing Cooper
NPS 1/2	10 mm 3/8"	1.8m 6'	5' 1.5m
NPS 3/4, 1	10 mm 3/8"	2.1m 7'	6' 1.8m
NPS 1-1/4	10 mm 3/8"	2.1m 7'	8' 2.4m
NPS 1-1/2	10 mm 3/8"	2.7m 9'	8' 2.4m
NPS 2	10 mm 3/8"	3.0m 10'	9' 2.7m
NPS 2-1/2	10 mm 3/8"	3.0m 10'	10' 3.0m
NPS 3 to 4	10 mm 3/8"	4.6m 15'	12' 3.6m
NPS 6	19 mm 3/4"	5.1 m 17'	--

3.2. HANGER INSTALLATION

1. Offset hanger so that rod is vertical in operating position.
2. Adjust hangers to equalize load.
3. Loads suspended from steel structure to be reviewed and analyzed with structural engineer/general contractor.

END OF SECTION 23 05 29

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. CGSB 1-GP-60M, Enamel, Interior, Gloss, Alkyd Type.
2. CGSB 24-GP-3a Identification and Classification of Piping Systems.

1.3. SAMPLES

1. Submit samples in accordance with Section 01 33 00 - Submittals.
2. Submit samples and lists of proposed wording for approval before engraving.

PART 2– PRODUCTS

2.1. MANUFACTURERS NAMEPLATES

1. Provide metal nameplate on each piece of equipment, mechanically fastened complete with raised or recessed letters.
2. Indicate size, equipment model, manufacturer's name, serial number, voltage, cycle, phase and power of motors.

2.2. SYSTEM NAMEPLATES

1. Colour:
 1. Hazardous: red letters, white background.
 2. Elsewhere: black letters, white background (except where required otherwise by applicable codes).
2. Construction:
 1. 3 mm thick, laminated plastic or white anodized aluminum, matte finish, square corners, letters accurately aligned and machine engraved into core.
3. Sizes:

1. Conform to following table:

Size #	Dimensions (mm)	Dimensions (in)	No. of Lines	Letter Height (mm)	Letter Height (in)
1	10 x 50	3/8 x 2	1	3	1/8
2	13 x 75	1/2 x 3	1	5	1/4
3	13 x 75	1/2 x 3	2	3	1/8
4	20 x 100	3/4 x 4	1	8	3/8
5	20 x 200	3/4 x 8	1	8	3/8
6	20 x 100	3/4 x 4	2	5	1/4
7	25 x 125	1 x 5	1	12	1/2
8	25 x 125	1 x 5	2	8	3/8
9	35 x 200	1-1/4 x 8	1	20	3/4

2. Use average of 25 letters/numbers (maximum) per nameplate.

3. Use size #6 for terminal cabinets and control panels.

4. Use size #9 for equipment in mechanical rooms.

5. Facilities Inspection Program (FIP) identification:

1. General: use system of Main Identifier, Source Identifier, Destination Identifier.

2. Equipment and Mechanical Rooms: Main Identifier: size #9; Source and Destination Identifiers: size #5.

3. Elsewhere: Sizes as appropriate.

2.3. PIPING

1. General

1. To CGSB 24-GP-3a.

2. Identify medium by lettered legend, classification by primary and secondary colours, direction of flow by arrows.

2. Sizes:

1. Legend: block capitals to following table:

Outside Dia. of Pipe or Insulation		Size of Letters	
mm	in	mm	in
30	1-1/4	13	1/2
50	2	19	3/4
150	6	32	1-1/4
250	7	63	2-1/2
Over 250	8	88	3

2. Primary colour bands:
 1. At valves and fittings: 460 mm, 18" long.
 2. Elsewhere: 1.8 m, 42" long.
 3. Secondary colour bands: 50 mm, 2" wide, 75 mm, 3" in from one end of primary colour band.
3. Arrows:
 1. Outside diameter of pipe/insulation 75 mm and greater: 150 mm, 6" long x 50 mm, 2" high.
 2. Outside diameter of pipe/insulation less than 75 mm, 3": 100 mm, 4" long x 50 mm, 2" high.
 3. Use double headed arrows where flow is reversible.
3. Material:
 1. Paint: to CGSB 1-GP-60M.
 2. Legend markers, arrow colour bands: plastic coated cloth material with protective overcoating and waterproof contact adhesive undercoating, suitable for 100% RH and continuous operating temperature of 150°C (300°F). Apply to prepared surfaces. Wrap tape around pipe or pipe covering with ends overlapping one (1) pipe diameter.
 3. Waterproof and heat resistant plastic marker tags: for pipes and tubing 3/4" nominal and smaller.
 4. Acceptable material: Brady
4. Colours:
 1. Where not covered by table below, submit legend, primary and secondary classification colours to Consultant for approval.
5. Table:
 1. Pipe and valve identification.

<u>Pipe Marker Legend</u>	<u>Valve Tag Legend</u>	<u>Primary Colour</u>	<u>Secondary Colour</u>
Hot Water Htg Supply	H.W.H.S	Green	None
Hot Water Htg Return	H.W.H.R.	Green	None
Glycol Heating Supply	G.H.S.	Green	None

Glycol Heating			
Return	G.H.R.	Green	None
Gas Line	Gas	Green	None
Cold Water	C.W.	Green	None
Hot Water	H.W.	Green	None
Recirc. Hot			
Water	R.H.W.	Green	None

2. Legend and arrows:
 1. Black or white to contrast with primary colour.
 2. Fire protection: white on red background.
3. Fire protection system:
 1. Exposed piping identify only.
4. Natural gas:
 1. Paint entire system.
5. Low voltage control wiring installed by Division 23.

2.4. DUCTWORK

1. 2" high black stencilled letters and directional flow arrows 6" long x 2" high.

2.5. VALVES AND CONTROLLERS

1. Brass tags with 1/2" stamped code lettering and numbers filled with black paint.
2. Furnish Consultant with six identification flow diagrams of approved size for each system. Include valve tag schedule, designating number, service, function and location of each tagged item and normal operating position of valves.

2.6. CONTROLS IDENTIFICATION

1. Identify all systems, equipment, components, controls and sensors.
2. Inscription to identify function and fail-safe position.

PART 3- EXECUTION

3.1. GENERAL

1. Do identification work in accordance with CGSB 24-GP-3a except where specified otherwise.
2. Provide ULC and/or CSA registration plates, as required by respective agency.
3. Identify systems and equipment to conform to PWC, FIP.

3.2. LOCATION OF NAMEPLATES

1. In conspicuous location to facilitate easy reading from operating floor and to properly identify equipment and/or system.
2. Provide stand-offs for nameplates on hot surfaces and insulated surfaces.
3. Do not insulate or paint over plates.

3.3. PIPING

1. Locations:
 1. On long straight runs in open areas in boiler rooms, mechanical room, and tunnel so that at least one is clearly visible from any one viewpoint in operating areas or walking aisles and not at more than 15 m, 50' intervals.
 2. Adjacent to all changes in direction.
 3. At least once in each small room through which piping passes.
 4. On both sides of visual obstruction or where run is difficult to follow.
 5. On both sides of any separation such as walls, floors and partitions.
 6. Where piping is concealed in pipe chase, ceiling space, or other confined space, at entry and leaving points and adjacent to each access opening.
 7. At beginning and end points of each run and at each piece of equipment in run.
 8. At point immediately upstream of major manually operated or automatically controlled valves. Where this is not possible, place identification as close to valve as possible, preferably on upstream side.
 9. Legend to be easily and accurately readable from usual operating areas and all readily accessible points.
 10. Plane of legend to be approximately at right angles to most convenient line of sight with consideration of operating positions, lighting conditions, reduced visibility of colour or legends caused by dust and dirt and risk of physical damage.

3.4. DUCTWORK

1. Stencil over final finish only.
2. Locations of ductwork identification:
 1. On long straight runs in open areas in boiler rooms, equipment rooms, so that at least one is clearly visible from any one viewpoint in operating areas or walking isles and not at more than 15 m, 50' intervals.
 2. Adjacent to all changes in direction.
 3. At least once in each small room through which ductwork passes.
 4. On both sides of visual obstruction or where run is difficult to follow.
 5. On both sides of any separation such as walls, floors and partitions.
 6. Where ductwork is concealed in duct chase, or other confined space, at entry and leaving points and adjacent to each access opening.
 7. At beginning and end points of each run and at each piece of equipment in run.
 8. At point immediately upstream of major manually operated or automatically controlled dampers. Where this is not possible, place identification as close to damper as possible, preferably on upstream side.
 9. Legend to be easily and accurately readable from usual operating areas and all readily accessible points.
 10. Plane of legend to be approximately at right angles to most convenient line of sight with consideration of operating positions, lighting conditions, reduced visibility of colour or legends caused by dust and dirt and risk of physical damage.
 11. Beside each access door.

3.5. VALVES AND CONTROLLERS

1. Secure tags with non-ferrous chains or closed "S" hooks for valves and operating controllers except at plumbing fixtures and radiation.
2. Install one copy of flow diagram and valve schedule mounted in frame with non-glare glass where directed by Consultant. Provide one copy in each operating and maintenance instruction manual.
3. Consecutively number valves system.

END OF SECTION 23 05 54

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. ASTM C411-11, Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
2. CAN/ULC-S102-10, Surface Burning Characteristics of Building Materials and Assemblies.
3. ANSI/NFPA 90A-2012, Air Conditioning and Ventilating Systems, Installation of.
4. ANSI/NFPA 90B-2012, Warm Air Heating and Air Conditioning Systems.
5. CGSB 51-GP-10M-76, Thermal Insulation, Mineral Fibre, Block or Board, for Ducting, Machinery and Boilers.
6. CGSB 51-GP-11M-76, Thermal Insulation, Mineral Fibre, Blanket for Piping, Ducting, Machinery and Boilers.
7. CGSB 51-GP-52Ma-89, Vapour Barrier Jacket and Facing Material for Pipe, Duct and Equipment Thermal Insulation.

1.3. SHOP DRAWINGS

1. Submit shop drawings in accordance with Section 01 33 00 - Submittals.
2. Submit for approval manufacturer's catalogue literature related to installation.

1.4. DEFINITIONS

1. For purposes of this section:
 1. "CONCEALED" - insulated mechanical services and equipment in hung ceilings and non-accessible chases and furred spaces.
 2. "EXPOSED" - will mean "not concealed" as defined herein.

PART 2 - PRODUCTS

2.1. GENERAL

1. All components of insulation system to have maximum flame spread rating of 25 and maximum smoke developed rating of 50 in accordance with CAN/ULC-S102.
2. Materials to be tested in accordance with ASTM C411.

2.2. D-2 MINERAL FIBER BLANKET WITH VAPOUR BARRIER MINUS 40 TO PLUS 150°F

1. Application: on round or oval ducting, either cold or dual temperature.
 1. Supply air conditioning ducting with exception of where exposed to conditioned space.
 2. Fresh air intake from louvre to HRV, ERV and A/H units.
 3. Exhaust and relief air ducting from HRV, ERV and A/H units to exhaust louvre or hood.
 4. Exhaust air from exhaust fan, hood.
 5. Or as indicated.
2. Material:
 1. CGSB 51-GP-11M, mineral fiber blanket; CGSB 51-GP-52M for vapour barrier.
 2. Acceptable material: Fibreglass MDS 103
3. Thickness: 25 mm, 1"

2.3. D-4 MINERAL FIBER RIGID WITH VAPOUR BARRIER TO 65°C

1. Application: on cold or dual temperature rectangular ducting.
 1. Supply air conditioning ducting with exception of where exposed in conditioned space.
 2. Fresh air intakes from louvre to HRV, ERV and A/H units.
 3. Exhaust and relief air ducting from HRV, ERV and A/H units to exhaust louvre or hood.
 4. Exhaust air from exhaust fan, hood.
 5. Or as indicated.
2. Material:
 1. CGSB 51-GP-10M, rigid mineral fiber board; CGSB 51-GP-52M vapour barrier, jacket and facing material.

2. Acceptable material: Fibreglass MDS 101
3. Thickness:
 1. One 25 mm, 1" layer on: supply return and exhaust air ducts.
 2. Two-1 1/2" layers on: intake ducts, supply and return ductwork installed on roof or outside.

2.4. FASTENINGS

1. Tape: self adhesive, 100 mm, 4" wide, aluminum, ULC labelled for less than 25 flame spread and less than 50 smoke developed.
2. Contact adhesive: quick-setting.
3. Lap seal adhesive: quick-setting for joints and lap sealing of vapour barriers.
4. For Canvas:
 1. Washable adhesive for cementing canvas lagging cloth to duct insulation.
5. Pins.
 1. Weld pins 4 mm, 3/16" diameter, with 40 mm, 1 1/2" diameter head for installation through the insulation. Length to suit thickness of insulation.

2.5. JACKET

1. Canvas.
 1. Apply in exposed areas (boiler, mechanical, electrical, IT rooms, and other areas as noted on drawings): ULC listed, fire rated, plain weave, cotton fabric at 220 g/m².
 2. Acceptable material: Fatal Thermo Canvas
2. Aluminum Outer Jacket:
 1. Fabricated weather resistant coating, 24 gauge with rising seams.
 2. Apply to ductwork exposed to weather.
 3. Apply to breeching, chimney insulation.

PART 3– EXECUTION

3.1. APPLICATION

1. Apply insulation after required tests have been completed and approved by Consultant. Insulation and surfaces shall be clean and dry when installed and during application of any finish. Apply insulation materials, accessories and finishes to manufacturer's recommendations and as specified.
2. Vapour barriers and insulation to be unbroken over full length of duct or surface, without penetration for hangers, standing duct seams and without interruption at sleeves and supports.
3. Use stand-offs for all duct mounted control accessories.
4. Apply 1 mm. 20 ga galvanized sheet metal corners to all ductwork in mechanical rooms.

3.2. INSTALLATION

1. General:
 1. Install in accordance with ANSI/NFPA 90A and ANSI/NFPA 90B.
 2. Perform insulation work using qualified insulation applicators, in accordance with latest trade application methods and to the Consultant's approval.
 3. Work to begin only when building is enclosed preventing insulation from getting wet due to elements such as rain, snow, construction, etc. All damaged or wet insulation to be replaced.
 4. All piping (Section 21 07 19) and ductwork (Section 23 07 13) insulation to be continuous except at fire barriers.
 5. Adhere and seal vapour barrier using vapour seal adhesives.
 6. Stagger longitudinal and horizontal joints, on multilayered insulation.
2. Mechanical fastenings:
 1. On rectangular ducts, use 50% coverage of insulating cement and weld pins at not more than 200 mm, 8" centres, but not less than 2 rows per side and bottom.

END OF SECTION 23 07 13

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCE STANDARDS

1. Do work in accordance with:
 1. SMACNA HVAC Duct Construction Standards, Metal and Flexible, 2005.
 2. SMACNA HVAC Duct Leakage Test Manual, 2012 Edition.
 3. ASHRAE Handbook, Fundamentals, and Systems Volumes.
 4. LEED Canada for New Construction and Major Renovations 2009.

1.3. SHOP DRAWINGS AND PRODUCT DATA

1. Submit shop drawings and product data in accordance with Section 01 33 00 - Submittals.
2. Indicate following:
 1. Sealants
 2. Tape
 3. Proprietary Joints

1.4. CERTIFICATION OF RATINGS

1. Catalogue or published ratings shall be those obtained from tests carried out by manufacturer or independent testing agency signifying adherence to codes and standards.

PART 2– PRODUCTS

2.1. CLASSIFICATION

1. Ductwork classification as follows:

Maximum Pressure	SMACNA Seal
---------------------	----------------

Pa	" WG	Class
500	2	B
250	1	C
125	0.5	C

2.2. SEAL CLASSIFICATION

1. Class A: longitudinal seams, transverse joints, duct wall penetrations and connections made airtight with sealant and tape.
2. Class B: longitudinal seams, transverse joints and connections made airtight with sealant tape or combination thereof.
3. Class C: transverse joints and connections or made air tight with gaskets, sealant tape or combination thereof. Longitudinal seams unsealed.
4. Unsealed seams and joints.

2.3. SEALANT

1. Sealant: water based polymer type flame resistant duct sealant. Temperature range of minus 30°C to plus 93°C.
 1. Acceptable material: Duro-Dyne DWN/water based, 3M Fastbond 900.

2.4. TAPE

1. Tape: polyvinyl treated, open weave fiberglass tape, 50 mm (2") wide.
 1. Acceptable material: Duro-Dyne

2.5. DUCT LEAKAGE

1. In accordance with SMACNA HVAC Duct Leakage Test Manual, 2012 Edition.
2. In accordance with ASHRAE 90.1

2.6. FITTINGS

1. Fabrication: to SMACNA.
2. Radiused elbows: standard radius and or short radius with single thickness turning vanes.
3. Square elbows: to 460 mm (18") with single thickness turning vanes.
4. Square elbows: over 460 mm (18") with double thickness turning vanes.

5. Main supply duct branches with splitter damper.
6. Sub branch duct with 45° entry and balancing damper on branch or sub branch duct with square connection, volume extractor and branch duct balancing damper.
7. Transitions:
 1. Diverging: 20° maximum included angle.
 2. Converging: 30° maximum included angle.
8. Offsets: square elbows or full radiused elbows.
9. Obstruction deflectors: maintain full cross-sectional area. Maximum included angles as for transitions.

2.7. FIRESTOPPING

1. Retaining angles all around duct, on both sides of fire separation.
2. Firestopping material and installation must not distort duct.

2.8. GALVANIZED STEEL

1. Lock forming quality: to ASTM A525M-86, Z90 zinc coating.
2. Thickness: to ASHRAE and SMACNA.
3. Fabrication: to ASHRAE and SMACNA.
4. Joints: to ASHRAE and SMACNA or proprietary manufactured duct joint.
 1. Acceptable material: Duct-Mate

2.9. HANGERS AND SUPPORTS

1. Strap hangers: of same material as duct, but next sheet metal thickness heavier than duct.
2. Hanger configuration: to ASHRAE and SMACNA. Maximum size duct supported by strap hanger 20".
3. Hangers: galvanized steel angle with black steel rods to ASHRAE and SMACNA.

PART 3- EXECUTION

3.1. GENERAL

1. Install ducts in accordance with ASHRAE and SMACNA.
2. Do not break continuity of insulation vapour barrier with hangers or rods. Insulate strap hangers 100 mm (4") beyond insulated duct.
3. Support risers in accordance with ASHRAE and SMACNA.
4. Install breakaway joints in ductwork on each side of fire separation.

3.2. HANGERS

1. Strap hangers: install in accordance with SMACNA.
2. Angle hangers: complete with locking nuts and washers.
3. Hanger spacing: in accordance with ASHRAE.

3.3. LEAKAGE TESTS

1. In accordance with SMACNA HVAC Duct Leakage Test Manual, 2012 Edition.
2. Make trial leak test to demonstrate workmanship.
3. Install no additional ductwork until trial test has been passed.
4. Test section minimum of 30 m (100') long with not less than 3 branch takeoffs and 2 90° elbows.
5. Conduct leak testing in accordance with Air Balance Council (AABC) recommended procedures – See Section 23 05 93.

3.4. SEALING AND TAPING

1. Apply sealant to outside of joint to manufacturer's recommendations.
2. Bed tape in sealant and recoat with minimum of 1 coat of sealant to manufacturer's recommendations.

END OF SECTION 23 31 14

PART 1 - GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. PRODUCT DATA

1. Submit product data in accordance with Section 01 33 00 - Submittals.
2. Indicate the following:
 1. Flexible connections.
 2. Sealants and tapes.
 3. Duct access doors.
 4. Turning vanes.
 5. Instrument test ports.

1.3. CERTIFICATION OF RATINGS

1. Catalogue or published ratings shall be those obtained from tests carried out by manufacturer or independent testing agency signifying adherence to codes and standards.

PART 2– PRODUCTS

2.1. FLEXIBLE CONNECTIONS

1. Frame: galvanized sheet metal frame 16 GA, 1.6 mm, with fabric clenched by means of double locked seams.
2. Material:
 1. Fire resistant, self extinguishing, neoprene coated glass fabric, temperature rated at minus 40°F to plus 200°F, density of 0.3 lb/sq.ft.
 2. Flame resistant, 0.56 mm thick vinyl coated fabric, 12 kg/m³ fibreglass insulation for operation of 82°C continuous – connections for insulated duct system, less than 250 mm dia or less than 300 mm – negative pressure duct connection.
 1. Duro-Dyne-Insulflex

3. Silicon rubber coated woven fibreglass fabric to UL 214 for operation up to 260°C – for fume hood exhaust systems.

1. Duro-Dyne-Thermafab.

2.2. ACCESS DOORS IN DUCTS

1. Non-insulated ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame.
2. Insulated ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame and 25 mm thick rigid glass fibre insulation.
3. Gaskets: neoprene or foam rubber.
4. Hardware:
 1. Up to 250 mm x 250 mm, 12 x 12": 2 sash locks complete with safety chain.
 2. 275 to 460 mm, 13 to 18": 4 sash locks complete with safety chain.
 3. 485 mm to 910 mm, 19 to 36": piano hinge and minimum 2 sash locks.
 4. Doors over 920 mm, 37": piano hinge and 2 handles operable from both sides.
 5. Hold open devices.
 6. 250 mm x 250 mm, 12" x 12": glass viewing panels.

2.3. TURNING VANES

1. Factory or shop fabricated single thickness and double thickness with trailing edge, to recommendations of SMACNA and as indicated.

2.4. INSTRUMENT TEST PORTS

1. 1.6 mm, 16 GA steel zinc plated after manufacture.
2. Cam lock handles with neoprene expansion plug and handle chain.
3. 1" minimum inside diameter. Length to suit insulation thickness.
4. Neoprene mounting gasket.

PART 3– EXECUTION

3.1. INSTALLATION

1. Flexible connections.
 1. Install in following locations:
 1. Inlets and outlets to supply air units and fans.
 2. Inlets and outlets of exhaust and return air fans.
 3. As indicated.
 2. Length of connection: 6" (150 mm)
 3. Minimum distance between metal parts when system in operation: 3" (75 mm)
 4. Install in accordance with recommendations of SMACNA.
 5. When fan is running:
 1. Ducting on each side of flexible connection to be in alignment.
 2. Ensure slack material in flexible connection.
2. Access doors:
 1. Size: to allow inspection and servicing.
 2. Location:
 1. At fire and smoke dampers.
 2. At control dampers.
 3. At devices requiring maintenance.
 4. At locations required by code.
 5. At reheat coils.
 6. As indicated.
3. Instrument test ports.
 1. General:
 1. Install in accordance with recommendations of SMACNA and in accordance with manufacturer's instructions.
 2. Locations.

1. For traverse readings:
 1. At ducted inlets to roof and wall exhausters.
 2. At inlets and outlets of other fan systems.
 3. At main and sub-main ducts.
 4. And as indicated.
2. For temperature readings:
 1. At outside air intakes.
 2. In mixed air applications in locations as approved by Consultant.
 3. At inlet and outlet of coils.
 4. Downstream of junctions of two converging air streams of different temperatures.
 5. And as indicated.
4. Turning vanes.
 1. Install in accordance with recommendations of SMACNA and as indicated.

END OF SECTION 23 33 00

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. ASTM A525M-87, Specification for General Requirements for Steel and Extruded Aluminum frame.
2. American Society for Testing and Materials International (ASTM)
 1. ASTM A 653/A653M-04a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
3. Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 1. Material Safety Data Sheets (MSDS).
4. LEED Canada for New Construction and Major Renovations 2009.

1.3. PRODUCT DATA

1. Submit product data in accordance with Section 01 33 00 - Submittals.
2. Indicate the following:
 1. Pressure drop curve.
 2. Free area.

1.4. CERTIFICATION OF RATINGS

1. Catalogue or published ratings shall be those obtained from tests carried out by manufacturer or those ordered by him from independent testing agency.

PART 2– PRODUCTS

2.1. MULTI-LEAF DAMPERS

1. Use opposed for mixing duty, parallel for tight shut-off.

2. Extruded aluminum, interlocking blades, complete with butyl rubber, extruded vinyl seals or neoprene on blade edges and frames top and bottom and side seals.
3. Thermally broken frames and blades, frames insulated with extruded polystyrene foam with 12 2.19 or better, blades constructed from aluminum extension with internal hollows insulated with polyurethane or polystyrene foam RSI 0.88.
4. Pressure fit self-lubricated bronze bearings.
5. Linkage: plated steel tie rods, brass pivots and plated steel brackets, complete with plated steel control rod.
6. Operator: 24 V electric actuator with spring return for "fail safe" – supplied by control contractor.
7. Performance: leakage in closed position to be less than 2% of rated air flow at 1200 kPa differential across damper. Pressure drop at full open position to be less than 25 Pa differential across damper at maximum air flow.
8. Acceptable Products for insulated dampers to be Tamco 9000BF, Nailor 2020IBF, Alumavent 3960. Acceptable Products for non-insulated dampers to be Tamco 1000, Nailor 2020IB, Alumavent 3100.

2.2. BACK AND RELIEF DRAFT DAMPERS

1. Automatic gravity operated, multi-single leaf, aluminum construction with nylon bearings, centre pivotted, spring assisted.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install where indicated.
2. Install in accordance with recommendations of SMACNA and manufacturer's instructions.
3. Seal multiple damper modules with silicon sealant.
4. Upon system start-up, ensure that dampers operate properly.

END OF SECTION 23 33 15

PART 1– GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. NFPA 90A-2012, Installation of Air Conditioning and Ventilating Systems.
2. CAN/ULC-S112-10, Fire Test of Fire Damper Assemblies.
3. CAN/ULC-S112.2-07, Fire Test of Ceiling Firestop Flap Assemblies.
4. ULC-S505-1974, Fusible Links for Fire Protection Service.
5. LEED Canada for New Construction and Major Renovations 2009.

1.3. PRODUCT DATA

1. Submit product data in accordance with Section 01 33 00 - Submittals.
2. Indicate the following:
 1. Fire dampers.
 2. Smoke dampers.

1.4. MAINTENANCE DATA

1. Provide maintenance data for incorporation into manual specified in Section 01 33 00 - Submittals.
2. Provide following:
 1. 6 fusible links of each type.

1.5. CERTIFICATION OF RATINGS

1. Catalogue or published ratings shall be those obtained from tests carried out by manufacturer or those ordered by him from independent testing agency signifying adherence to codes and standards.

PART 2– PRODUCTS

2.1. FIRE DAMPERS

1. Fire dampers: listed and bear label of ULC and meet requirements of provincial fire authority and NFPA 90A - - to be dynamic type.
2. Mild steel, factory fabricated for fire rating requirement to maintain integrity of fire wall and/or fire separation.
3. Top hinged: interlocking type sized to maintain full duct cross section.
4. Fusible link actuated, weighted to close and lock in closed position when released or having negator-spring-closing operator for multi-leaf type or roll door type in horizontal position with vertical air flow.
5. 40 x 40 x 3 mm (1 1/2" x 1 1/2" x 1/8") retaining angle iron frame, on full perimeter of fire damper, on both sides of fire separation being pierced.
6. Acceptable material: Ruskin, Alumavent, Nailor.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install in accordance with NFPA 90A and in accordance with conditions of ULC listing.
2. Fire damper assemblies to be fire tested in accordance with CAN/ULC-S112.
3. Fire stop flap assemblies to be fire tested in accordance with CAN4-S112.2.
4. Maintain integrity of fire separation.
5. After completion and prior to concealment obtain approvals of complete installation from authority having jurisdiction.
6. Install access door adjacent to each damper. See Section 23 33 00 - Duct Accessories.
7. Coordinate with installer of firestopping.
8. Select interlocking curtain type blade damper frames as follows; (Width is duct dimension parallel to blades. Height is duct dimension perpendicular to blades.)
 1. Type A - folded blades completely within airstream:
 1. for rectangular ducts with both height and width greater than 300 mm, and where duct velocity is less than 7.5 m/s.
 2. Type B - folded blades out of airstream:
 1. for rectangular ducts 200 mm to 350 mm in height and width greater than

200 mm, and where duct velocity is less than 7.5 m/s.

3. Type C – folded blades and damper frame shielded with airstream impingement:
 1. for circular or flat oval ducts
 2. for rectangular duct less than 200 mm in height
 3. for rectangular duct less than 350 mm in height when width is less than 200 mm, and
 4. for rectangular ducts where duct velocity is greater than 7.5 m/s.

END OF SECTION 23 33 16

PART 1– GENERAL

1.1. SHOP DRAWINGS

1. Submit shop drawings and technical information in accordance with Section 01 33 00 - Submittals.
2. Clearly indicate the following: material, gauge, finish, ratings and accessories.

1.2. RELATED WORK

1. Low Pressure Ductwork Section 23 33 14.
2. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.3. MANUFACTURED ITEMS

1. Grilles, registers and diffusers shall be product of one manufacturer.

1.4. CERTIFICATION OF RATINGS

1. Catalogued or published ratings shall be those obtained from tests carried out by an independent testing agency signifying adherence to applicable codes and standards.

PART 2– PRODUCTS

2.1. GRILLES, REGISTERS AND DIFFUSERS GENERAL

1. Sizes indicated are nominal. Provide correct standard product nearest to nominal for capacity noise level, throat and outlet velocity.
2. Furnish factory prime coated steel frames for setting into fire protecting membrane.
3. Where penetrating fire partitions, provide approved steel sleeve attached to structure and secured in accordance with NFPA 90.
4. Frame:
 1. Steel: Prime coated, cold rolled steel with exposed joints welded and ground flush, mitred corners and completely closed.
 2. Provide full perimeter sponge rubber gaskets.

3. Provide plaster frame or gypsum board.
4. Provide concealed fasteners and operators.
5. Sizes and capacities: as indicated.
6. Standard of Acceptance: E.H. Price, Krueger, Titus, Nailor Industries, Metal Aire, Tuttle and Bailey.

2.2. SUPPLY GRILLES AND REGISTERS

1. Double deflection with horizontal face and vertical rear bars or as indicated in schedule.
2. Steel or aluminum construction.

2.3. EXHAUST GRILLES AND REGISTERS

1. Single deflection, horizontal adjustable bar type or as indicated in schedule.
2. Steel or aluminum construction.

2.4. AIR DIFFUSERS

1. Square, rectangular or linear with removable, flow straightening core and blank-off quadrants.
2. Steel or aluminum construction.

2.5. LINEAR GRILLES

1. Aluminum bar core type with margin as indicated, pattern adjustment, plaster frames, sealing strips, end caps, mitered corners and alignment key strips for multiple sections.

2.6. FINISHES

1. Primer: to CGSB 1-GP-40M, off white.
2. Enamel: to CGSB 1-GP-88E, off white.

PART 3– EXECUTION

3.1. INSTALLATION

1. Install in accordance with manufacturers instructions.
2. Fit frame with gasket to prevent leakage, and smudging.
3. Install with flat head screws in countersunk holes where fastenings are visible.
4. Diffusers to be installed with concealed fastenings.

END OF SECTION 23 37 13

PART 1 - GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.
2. This Section covers items common to Sections of Division 26. This Section supplements requirements of Division 1.
3. Coordinate all requirements with general contractor.

1.2. CODES AND STANDARDS

1. In this document, all references to Code numbers shall mean “Latest Edition”.
2. Do complete installation in accordance with Ontario Electrical Safety Code.
3. Do complete installation in accordance with CSA C22.1-12 except where specified otherwise.
4. Comply with all CSA and inspection Authority Bulletins in force at time of Tender.
5. Abbreviations for electrical terms: to CSA Z85-1983.
6. Where requirements of this specification exceed those of above-mentioned standards, this specification shall govern.

1.3. DEFINITIONS

1. “Provide” means supply and install.
2. “Approved” means approved in writing by Consultant.
3. “Inspection Authority” means Electrical Safety Authority.
4. “Consultant” means designated qualified professional engineer acting as representative of Owner for monitoring of work.
5. “Manual” means Operations and Maintenance manual.
6. “OESC” means latest edition of Ontario Electrical Safety Code

1.4. CARE, OPERATION, START-UP AND INSTRUCTION TO OWNERS

1. Provide certified personnel to instruct Owner of operation of electrical equipment. Provide maintenance specialist personnel to instruct on maintenance and adjustment of electrical equipment. Any changes or modification to equipment must be covered under terms of

guarantee.

2. Provide instruction during regular work hours prior to acceptance and turn over to Owner's staff for regular operation.
3. Provide these services for such period, and for as many visits as necessary to put equipment in operation and ensure that operating personnel are conversant with all aspects of its care and operation.
4. Use operation and maintenance data manual for instruction purposes. On completion of instruction, turn three manuals over to the Owner.
5. Operation and maintenance manual to be approved by and final copies deposited with Consultant before final inspection.

1.5. AS-BUILT DRAWINGS

1. Site records:
 1. One set to be kept on site and all changes to be recorded on daily basis. At the completion of the project, all changes shall be transferred to clean set, signed and passed to the Consultant.
 2. Make these drawings available for reference purposes and to inspection at all times.
2. As-built drawings must be delivered before system acceptance.

1.6. VOLTAGE RATINGS

1. Operating voltages: to CAN3-C235-83 (R2006).
2. Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard. Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

1.7. PERMITS, FEES AND INSPECTION

1. Submit to Inspection Authority necessary number of drawings and specifications for examination and approval prior to commencement of work.
2. Consultant will provide drawings and specifications required by Inspection Authority at no cost.
3. Submit Notice of Project to Ministry of Labour.
4. Pay associated fees and obtain all permits required for the performance of the work.
5. Notify Consultant of changes required by Inspection Authority prior to making changes.

6. Furnish Certificates of Acceptance from Inspection Authority on completion of work to Consultant.

1.8. MATERIALS AND EQUIPMENT

1. Provide materials and equipment in accordance with Division 1.
2. Equipment and material to be CSA certified. Where there is no alternative to supplying equipment which is not CSA certified, obtain special approval from Inspection Authority.
3. Factory assemble control panels and component assemblies.

1.9. ELECTRIC MOTORS, EQUIPMENT AND CONTROLS

1. Verify installation and co-ordination responsibilities related to motors, equipment and controls with other trades and as indicated.
2. Mechanical contractor shall supply and install all motors, controls and control wiring. Mechanical contractor shall supply all disconnect switches, starters, motor rated switches, contactors and relays, for all motor driven equipment under mechanical contract. All disconnect switches, starters, motor rated switches, contactors and relays shall be handed over to electrical contractor for installation and wiring. Both mechanical and electrical contractors to coordinate to ensure proper protection and equipment is provided and included in contract.
3. Control wiring and conduit to be installed in accordance with Sections 26 05 21 and 26 05 34 except for connections below 50 V which are related to control systems specified in mechanical sections and as shown on mechanical drawings.
4. Electrical equipment not supplied by mechanical contractor is listed on the drawings or elsewhere in the specifications. Electrical contractor to coordinate with mechanical contractor to ensure proper protection and equipment is provided for all equipment and is included in Contract.

1.10. WIRING IDENTIFICATION

1. Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.
2. Maintain phase sequence and colour coding throughout.
3. Colour code: to CSA C22.1.
4. Use colour coded wires in communication cables, matched throughout system.

1.11. CONDUIT AND CABLE IDENTIFICATION

1. Colour code conduits, boxes and metallic sheathed cables.

2. Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.
3. Colours: 25 mm (1") wide prime colour and 20 mm (3/4") wide auxiliary colour.

	PRIME	AUXILIARY
up to 250 V	yellow	
up to 600 V	yellow	green
up to 5 kV	yellow	blue
up to 15 kV	yellow	red
Telephone	green	
Other communication		
systems	green	blue
Fire alarm	red	
Emergency	red	blue
Voice		
Other security		
systems	red	yellow

1.12. WIRING TERMINATIONS

1. Lugs, terminals, screws used for termination of wiring to be suitable for either copper or aluminum conductors.

1.13. MANUFACTURERS AND CSA LABELS

1. Ensure that manufacturer's registration plates are properly affixed to all apparatus showing the size, name of equipment, serial number, and all information usually provided, including voltage, cycle, phase and the name and address of the manufacturer.
2. Do not paint over registration plates or approved labels. Leave openings through insulation for viewing the plates. Contractors or sub-contractors nameplate not acceptable.

1.14. WARNING SIGNS

1. As specified and to meet requirements of Inspection Authority and Consultant.

1.15. LOCATION OF OUTLETS

1. Locate outlets as shown on drawings.
2. Do not install outlets back-to-back in wall; allow minimum 150 mm (6") horizontal clearance between boxes.
3. Change location of outlets at no extra cost or credit, providing distance does not exceed 3 m (10 ft) and information is given before installation.

4. Locate light switches on latch side of doors. Locate disconnect devices in mechanical rooms on latch side of door.

1.16. MOUNTING HEIGHTS

1. Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.
2. If mounting height of equipment is not specified or indicated, verify before proceeding with installation.
3. Install electrical equipment at following heights unless indicated otherwise.
 1. Local switches: 1100 mm (43")
 2. Wall receptacles:
 1. General: 400 mm (16")
 3. Voice/Data outlets: 400 mm (16")
 4. Emergency lighting heads: 2300 mm (90")
 5. Emergency Call Button:
 1. With centre located not less than 1000 mm and not more than 1100 mm from the floor or ground.
 2. Emergency Sign to be located directly above button
 6. Barrier-free Door Operators:
 1. Provide 100 mm x 100 mm junction;
 2. With centre located not less than 1000 mm and not more than 1100 mm from the floor or ground; and
 3. Be located not less than 600 mm beyond the door swing where the door opens towards the control.

1.17. FIELD QUALITY CONTROL

1. All electrical work to be carried out by qualified, licensed electricians or apprentices as per the conditions of the Provincial Act respecting manpower vocational training and qualification. Employees registered in a provincial apprentice's program shall be permitted, under the direct supervision of a qualified licensed electrician, to perform specific tasks – the activities permitted shall be determined based on the level of training attained and the demonstration of ability to perform specific duties.
2. Conduct and pay for following tests:

1. Power distribution system including phasing, voltage, grounding.
2. Circuits originating from branch distribution panels.
3. Lighting and its control. Contractor shall provide completed Lighting Controls Commissioning Checklist. Refer to Specification 26 27 26.
4. Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
3. Furnish manufacturer's certificate or letter confirming the entire installation as it pertains to each system has been installed to manufacturer's instructions.
4. Carry out tests in presence of Consultant.
5. Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
6. Submit test results for Consultant's review.

1.18. DEMOLITION

1. Disconnect and make safe electrical equipment and services as required on site.
2. Be responsible for demolition and removal of electrical equipment and services designated on drawings for removal and as required by work unless specified otherwise under other divisions.
3. Electrical work being removed by other division shall be carried out under direction of this division. Do all disconnecting prior to authorizing removal.

1.19. FIREPROOFING

1. Where cables or conduits pass through floors and fire rated walls, pack space between wiring and sleeve full with firestopping system to CAN 4-S115.

1.20. CUTTING, PATCHING AND FINISHING

1. All cutting, patching and finishing for electrical work shall be by this Section. Obtain approval before cutting any structural members. Upon removal of all conduit, wiring, light fixtures, equipment, etc., patch all holes and match existing finishes.

1.21. EXISTING SYSTEMS

1. Before submitting tender price verify on job site location of all accessible existing electrical systems affecting execution of this contract. Difficulties arising during construction will not be considered as grounds for additional payment.
2. Where work involves breaking into or connecting to existing systems, carry out work at times

directed by governing authorities, with minimum of disturbance to pedestrian traffic.

3. Submit schedule to and obtain approval from Consultant for any shut down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
4. Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

1.22. OWNER OCCUPANCY SCHEDULE

1. The existing building will remain occupied during normal occupancy hours.
2. Provide temporary protection for all finishes, appliances or equipment in the existing building.
3. Protect and maintain existing boiler room and electrical room operations during the work.

END OF SECTION 26 05 00

PART 1 - GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. CSA C22.2 No. 65-13 Wire Connectors.
2. EEMAC 1Y-2, 1961 Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).

PART 2 - PRODUCTS

2.1. MATERIALS

1. Pressure type wire connectors: with current carrying parts of copper sized to fit copper conductors as required.
2. Fixture type splicing connectors: with current carrying parts of copper sized to fit copper conductors 10 AWG or less.
3. Bushing stud connectors: to EEMAC 1Y-2 to consist of:
 1. Connector body and stud clamp for stranded copper conductors.
 2. Clamp for stranded copper conductors
 3. Stud clamp bolts.
 4. Bolts for copper conductors
 5. Sized for conductors as indicated.
4. Clamps or connectors for armoured cable, flexible conduit, as required.

PART 3 - EXECUTION

3.1. INSTALLATION

1. Remove insulation carefully from ends of conductors and:

1. Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.
2. Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CSA C22.2 No.65.
3. Install fixture type connectors and tighten. Replace insulating cap.
4. Install bushing stud connectors in accordance with EEMAC 1Y-2.

END OF SECTION 26 05 20

PART 1- GENERAL

1.1. RELATED SECTIONS

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.
2. Section 26 05 20 – Wire and Box Connections – 0 – 1000V.

1.2. REFERENCES

1. CSA C22.2 No. 0.3-09, Test Methods for Electrical Wires and Cables.

1.3. PRODUCT DATA

1. Submit product data in accordance with Division 1.

1.4. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Division 1.
2. Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Division 1.
3. Fold up metal banding, flatten and place in designated area for recycling.

PART 2- PRODUCTS

2.1. GENERAL

1. All conductors to be copper, unless otherwise noted.

2.2. BUILDING WIRES

1. Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG for power and # 16 AWG for controls and fire alarm.
2. Copper conductors: size as indicated, with insulation of chemically cross-linked thermosetting polyethylene material type RW90, or with thermoplastic insulation and nylon jacket, type T-90 nylon.
3. 600V rating for nominal 208V system voltage;
4. Wire and conduit sizes shown are based on RW75 XLPE and are minimum sizes.

Contractor is responsible for wire and conduit sized for other approved wires.

5. Conductors shall be colour coded. Conductors size 10 AWG and smaller shall have colour impregnated into insulation at time of manufacture.

1. Colour code wiring for 120 / 208 Volt equipment as follows

1. Phase conductors: Red, Black, Blue
2. Neutral conductors: White
3. Bonding to ground: Green

2.3. ARMoured CABLES

1. Conductors insulated copper sizes as indicated, minimum wire size #12 AWG.
2. Type: AC90.
3. Armour: interlocking type fabricated from aluminum strip.
4. Connectors: to suit.
5. Fastenings:
 1. One hole steel straps to secure surface cables 25 mm and smaller. Two hole steel straps for cables larger than 25 mm.
 2. Channel type supports for two or more cables at 1500 mm centres.
 3. Threaded rods: 6 mm dia. To support suspended channels.
6. Approved compression type lugs accurately sized to allow bolted connections at each cable end.
7. All wiring shall be concealed in floor slabs, walls, ceiling and furred spaces. AC90 armoured cable may be used only for drops to fixtures, maximum length 3 m in concealed ceiling spaces, or drops to receptacles in GWB partitions, maximum length 4.5 m. Otherwise cables shall be in EMT conduit.

2.4. CONTROL CABLES

1. Type LVT: 2 soft annealed copper conductors sized as indicated with thermoplastic insulation and outer covering thermoplastic jacket.
2. Plenum rated cable (FT-6) required in ceiling space where not in conduit.

PART 3- EXECUTION

3.1. INSTALLATION OF BUILDING WIRES

1. Install wiring in conduit in accordance with Section 26 05 34, unless otherwise noted.
2. Use type RW90 where required by Ontario Electrical Safety Code, for all panelboard feeders and for all conductors sized 250 MCM and larger.
3. Use type RW90 or T-90 for branch circuit wiring unless otherwise indicated.
4. Minimum wire size shall be No. 12 AWG. For 15A, 120V branch circuit home runs which exceed 23 m length shall be minimum No. 10 AWG, and minimum No. 8 AWG for runs which exceed 36 m. For 20A, 120V branch circuit home runs which exceed 17 m in length shall be minimum No. 10 AWG, and minimum No. 8 AWG for runs which exceed 27 m. Where existing wiring is re-used, minimum wire sizes shall apply and wiring shall be replaced when it does not meet the minimum size.
5. Existing wiring may only be re-used if permitted by Engineer.

3.2. INSTALLATION OF ARMOURED CABLES

1. Use only for drops to fixtures maximum length 3 m in concealed ceiling spaces, or drops to receptacles in GWB partitions maximum length 4.5 m.
2. Terminate cables in accordance with Section 26 05 32.
3. Installation of all single conductor armoured cable shall be in such a way as to prevent the flow of sheath currents (current flow in the sheath caused by induced voltage on the sheath), as per Ontario Electrical Safety Code Rule 4-008. To prevent the flow of sheath currents, it is necessary to make sure that all paths (at terminations and supports) in which they may circulate are eliminated. Cable sheaths shall be grounded at the supply end termination only and isolated from ground and each other at the load end termination by a minimum of a 6 mm thick insulated material plate. Provide a lamacoid at the supply end of the conductors indicating "ENSURE CABLES ARE INSTALLED TO PREVENT SHEATH CURRENTS".

3.3. INSTALLATION OF CONTROL CABLES

1. Install control cables in conduit in accordance with Section 26 05 34.
2. Ground control cable shield.

END OF SECTION 26 05 21

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. OESC Section 10, Bonding and Grounding.

PART 2 - PRODUCTS

2.1. EQUIPMENT

1. Insulated grounding conductors: green, type TWH.
2. Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:
 1. Grounding and bonding bushings.
 2. Protective type clamps.
 3. Bolted type conductor connectors.
 4. Thermit welded type conductor connectors.
 5. Bonding jumpers, straps.
 6. Pressure wire connectors.

PART 3- EXECUTION

3.1. EQUIPMENT GROUNDING

1. Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, generators, elevators and escalators, distribution panels and outdoor lighting.

3.2. FIELD QUALITY CONTROL

1. Perform tests in accordance with Section 26 05 00 - COMMON WORK RESULTS - ELECTRICAL.
2. Perform ground continuity using method appropriate to site conditions and to approval of Consultant and Inspection Authority.
 1. Ground continuity: Ensure, through ground loop resistance measurement, that the grounding for the new equipment is tied in satisfactorily to the existing ground grid. Continuity measurements should be made between new equipment and system grounds of existing 600V services.
 2. Perform tests before energizing electrical system.
3. Coordinate scheduling of tests with testing agency. Provide all test results to consultant.

END OF SECTION 26 05 28

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. CSA C22.1-12 Canadian Electrical Code, Part 1.

1.3. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Division 1, and with the Waste Reduction Workplan.
2. Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Division 1.

PART 2- PRODUCTS

2.1. OUTLET AND CONDUIT BOXES - GENERAL

1. Size boxes in accordance with CSA C22.1.
2. 102 mm (4") square or larger outlet boxes as required for special devices.
3. Gang boxes where wiring devices are grouped.
4. Blank cover plates for boxes without wiring devices.
5. Combination boxes with barriers where outlets for more than one system are grouped.

2.2. SHEET STEEL OUTLET BOXES

1. Electro-galvanized steel single and multi gang flush device boxes for flush installation, minimum size 76 x 50 x 38 mm or as indicated. 102 mm (4") square outlet boxes when more than one conduit enters one side with extension and plaster rings as required.
2. Electro-galvanized steel utility boxes for outlets connected to surface-mounted EMT conduit, minimum size 102 x 54 x 48 mm

3. 102 mm (4") square or octagonal outlet boxes for lighting fixture outlets.
4. 102 mm (4") square outlet boxes with extension and plaster rings for flush mounting devices in finished tile walls.

2.3. CONDUIT BOXES

1. Cast FS or FD feraloy boxes with factory-threaded hubs and mounting feet for surface wiring of switches and receptacle.
2. Electro-galvanized utility tape for indoor surface wiring.

2.4. FITTINGS - GENERAL

1. Bushing and connectors with nylon insulated throats.
2. Knock-out fillers to prevent entry of debris.
3. Conduit outlet bodies for conduit up to 35 mm and pull boxes for larger conduits.
4. Double locknuts and insulated bushings on sheet metal boxes.

PART 3- EXECUTION

3.1. INSTALLATION

1. Support boxes independently of connecting conduits.
2. Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.
3. For flush installations mount outlets flush with finished wall using plaster rings to permit wall finish to come within 6 mm of opening.
4. Provide correct size of openings in boxes for conduit, mineral insulated and armoured cable connections. Reducing washers are not allowed.
5. Provide a suitable outlet box for each light, switch, receptacle or other outlet, approved for the particular area in which it is to be installed.
6. Offset outlet boxes, shown back to back in partitions, horizontally to minimize noise transmission between adjacent rooms.

END OF SECTION 26 05 32

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. Canadian Standards Association (CSA)
 1. CSA C22.2 No. 18-98 (R2003), Outlet Boxes, Conduit Boxes, and Fittings and Associated Hardware.
 2. CSA C22.2 No. 56-04 (R2009), Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
 3. CSA C22.2 No. 83-M1985(R2013), Electrical Metallic Tubing.

1.3. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Division 1.
2. Place materials defined as hazardous or toxic waste in designated containers.
3. Ensure emptied containers are sealed and stored safely for disposal away from children.
4. Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Division 1.

PART 2- PRODUCTS

2.1. CONDUITS

1. Electrical metallic tubing (EMT): with steel couplings, sized as indicated.
2. Flexible metal conduit and liquid-tight flexible metal conduit, sized as indicated.

2.2. CONDUIT FASTENINGS

1. One hole steel straps to secure surface conduits 50 mm (2") and smaller. Two hole steel straps for conduits larger than 50 mm (2").

2. Beam clamps to secure conduits to exposed steel work.
3. Channel type supports for two or more conduits at 3 m (9') o/c.
4. 6 mm dia threaded rods to support suspended channels.

2.3. CONDUIT FITTINGS

1. Fittings: manufactured for use with conduit specified. Coating: same as conduit.
2. Fittings to be suitable sized for conduit used.
3. Fittings used for EMT to be steel, not cast.
4. Factory "ells" where 90° bends are required for 25 mm (1") and larger conduits.

2.4. FISH CORD

1. Polypropylene.

PART 3- EXECUTION

3.1. INSTALLATION

1. Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
2. Conceal conduits except in mechanical and electrical service rooms and in unfinished areas.
3. Use electrical metallic tubing (EMT) above 2.4 m not subject to mechanical injury.
4. Use flexible metal conduit for final connection to devices in ceiling space max. length 3 m.
5. Use liquid tight flexible metal conduit for final connection to a vibrating piece of equipment.
6. Bend conduit cold. Replace conduit if kinked or flattened more than 1/10th of its original diameter.
7. Mechanically bend steel conduit over 21 mm diameter.
8. All unterminated conduit ends to be reamed and protected by insulating bushings.
9. Install fish cord in empty conduits and all conduits 53 mm and greater.
10. Where conduits become blocked, remove and replace blocked section. Do not use liquids to

clean out conduits.

11. Dry conduits out before installing wire.

3.2. SURFACE CONDUITS

1. Run parallel or perpendicular to building lines.
2. Locate conduits behind infrared or gas fired heaters with 1500 mm clearance.
3. Run conduits in flanged portion of structural steel.
4. Group conduits wherever possible on suspended channels.
5. Do not pass conduits through structural members except as indicated.
6. Do not locate conduits less than 75 mm (3") parallel to steam or hot water lines with minimum of 25 mm (1") at crossovers.
7. All exposed conduits in areas other than service spaces are to be painted to match existing finishes.

3.3. CONCEALED CONDUITS

1. Run parallel or perpendicular to building lines.

END OF SECTION 26 05 34

PART 1 - GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. SHOP DRAWINGS AND PRODUCT DATA

1. Submit shop drawings and product data in accordance with Division 1.
2. Occupancy Sensor shop drawings to be complete with a floor plan layout drawing from the manufacturer indicated proper layout requirements, as well as all wiring details and diagrams to provide lighting control as indicated on drawings.
3. Identify the sensor type on the top of the page of the shop drawing. (For Example: Type 2)

PART 2 - PRODUCTS

2.1. SWITCHES

1. 20A, 120V & 347V single pole, three-way, or four-way specification grade, as indicated.
2. Manually-operated general purpose ac switches with following features:
 1. Terminal holes approved for No. 10 AWG wire.
 2. Silver alloy contacts.
 3. Urea or melamine moulding for parts subject to carbon tracking.
 4. Suitable for back and side wiring.
 5. White toggle.
3. Toggle operated fully rated for tungsten filament and fluorescent lamps, and up to 80% of rated capacity of motor loads.
4. Provide motor rated switches, where indicated. To be complete with pilot light.
5. Switches of one manufacturer throughout project.
6. Acceptable materials: Hubbell, Bryant, Leviton, Pass & Seymour.

2.2. RECEPTACLES

1. Duplex receptacles, CSA NEMA configuration 5-15R, 125V, 15A, U ground, with following features:
 1. White urea moulded housing.
 2. Suitable for No. 10 AWG for back and side wiring.
 3. Break-off links for use as split receptacles.
 4. Eight back wired entrances, four side wiring screws.
 5. Triple wipe contacts and riveted grounding contacts.
2. Housekeeping receptacles duplex CSA NEMA configuration 5-20R, 125V, 20A, U ground with following features:
 1. White urea moulded housing.
 2. External nickel-plated brass back wire clamps with #10 brass terminal screws.
 3. Ground terminal back wire clamp.
 4. 0.04" thick nickel-plated brass, triple-wiped power contacts.
 5. Nickel-plated one-piece mounting strap with integral ground and two screw anchor strap to back body.
3. 15A Specification Grade Self-Test GFCI Duplex Receptacle CSA NEMA configuration 5-15R, 125V, 15A, U ground with following features:
 1. White urea moulded housing.
 2. External nickel-plated brass back wire clamps with #10 brass terminal screws.
 3. Ground terminal back wire clamp.
 4. 0.04" thick nickel-plated brass, triple-wiped power contacts.
 5. Nickel-plated one-piece mounting strap with integral ground and two screw anchor strap to back body.
 6. Test/Reset push buttons.
 7. Performs an automatic test every three seconds to ensure that ground fault protection is active.
 8. Indicator lights.
4. Receptacles of one manufacturer throughout project. Minimum of specification grade.
5. Acceptable materials: Hubbell, Bryant, Leviton, Legrand, Pass & Seymour.

2.3. OCCUPANCY SENSORS

1. Ceiling Mount, Low Voltage, Wireless

Type 80

Ceiling mounted, low-voltage, wireless, standard range occupancy sensor to be passive infrared detection. Detects small motion (hand movements) up to 12' radial coverage on a standard 9' ceiling height. Equal to the nLight AIR rCMS 9, c/w PS150 low voltage power supply or rPP20D **24V** power pack (if necessary) and accessories to control loads as indicated on drawings.

2. Confirm all light / switch voltages on site to ensure proper voltage rating is provided for all new devices.
3. Confirm number of circuits being controlled on site. Individual power pack to be provided for each circuit which is to be controlled by a low-voltage occupancy sensor.

2.4. SPECIAL WIRING DEVICES

1. Feed through ground fault circuit interrupters, Class A, trip level 4 to 6 milliamps.

2.5. COVER PLATES

1. Cover plates for wiring devices, complete with clear adhesive label with black lettering indicating source panel and circuit number.
2. Cover plates from one manufacturer throughout project.
3. Stainless steel, vertically brushed, 1 mm (1/16") thick cover plates for all wiring devices mounted in flush-mounted outlet box (including voice / data outlets).
4. Sheet metal cover plates for wiring devices mounted in surface-mounted FS or FD type conduit boxes, or utility boxes.

PART 3- EXECUTION

3.1. INSTALLATION

1. Switches:
 1. Install single throw switches with handle in "UP" position when switch closed.
 2. Install switches in gang type outlet box when more than one switch is required in one location.
 3. Mount toggle switches at height specified in Section 26 05 00 - Common Work

Results - Electrical or as indicated.

4. Where lighting controls are grouped, each control shall be labelled to indicate the area controlled.
2. Receptacles:
 1. Install receptacles in gang type outlet box when more than one receptacle is required in one location.
 2. Mount receptacles at height specified in Section 26 05 00 - Common Work Results - Electrical or as indicated.
 3. Where split receptacle has one portion switched, mount vertically and switch upper portion.
3. Cover plates:
 1. Protect stainless steel cover plate finish with paper or plastic film until painting and other work is finished.
 2. Install suitable common cover plates where wiring devices are grouped.
 3. Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.
4. Occupancy Sensors:
 1. Install sensors and ancillary devices at location(s) shown on drawings, following sensor manufacturer's recommended installation methods.
 2. Perform necessary field adjustments and settings of sensors as required for proper operation.
 3. Time delay for all sensors to be set at 10 minutes.
 4. Passive infrared setting to be set at minimum.
 5. Some occupancy sensors require the use of a neutral. Ensure a neutral is present for each lighting circuit being controlled by a sensor. Run additional wiring as required, coordinate all requirements on site.
 6. Where one or more occupancy sensor controls one or more switching circuits within a room, activation of any sensor within that room to turn on all lights. Provide power packs and slave packs as required. All wiring to be as per manufacturer's recommendation.
5. Occupancy Sensor Commissioning:
 1. Manufacturer's representative to provide on-site commissioning and set-up of system and provide letter confirming:
 1. Installation is as per manufacturer's recommendations.

2. Settings and time delay are as per specification.
3. Confirm devices are operating properly for installation, and provide minor field modifications as required.
4. Identify which devices were adjusted in the field.
5. Provide completed Lighting Controls Commissioning Checklist appended to this specification.
6. Grounding:
 1. Ground all wiring devices and respective outlet boxes in accordance with applicable sections of Ontario Electrical Safety Code. Ensure proper ground connections of isolated ground receptacle.

END OF SECTION 26 27 26

PART 1- GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. REFERENCES

1. Illuminating Engineering Society (IES)
 1. IES LM-79, Electrical and Photometric Measurements of Solid State Lighting Products.
 2. IES LM-80, Measuring Lumen Maintenance of LED Light Sources.
2. American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE).
 1. ANSI/IEEE C62.41-2002, Surge Voltages in Low-Voltage AC Power Circuits.
3. American Society for Testing and Materials (ASTM)
 1. ASTM F 1137-11e1, Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners.
4. United States of America, Federal Communications Commission (FCC)
 1. FCC (CFR47) EM and RF Interference Suppression.

1.3. SHOP DRAWINGS AND PRODUCT DATA

1. Submit shop drawings in accordance with Division 1.
2. Submit complete data prepared by independent testing laboratory for all luminaires, for review by Consultant.
3. Photometric data to include: total input watts, candle power summary, Polar Plot candela distribution zonal lumen summary, luminaire efficiency, CIE type, coefficient of utilization, lamp type and lumen rating in accordance with IESNA testing procedures, lens and louver type and finish.
4. Submit shop drawings for all luminaire types.

1.4. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Division 1, and with the Waste

Reduction Work Plan.

2. Place materials defined as hazardous or toxic waste in designated containers.
3. Ensure emptied containers are sealed and stored safely for disposal away from children.
4. Be responsible for the storage of all obsolete fluorescent lamps and ballasts in approved containers.
5. Include for the co-ordination and disposal with the lamp and ballast disposal company for removal of spent lamps and ballasts.
6. Identify unit costs for the destruction of PCB ballasts to be included as a separate price in tender.

PART 2 - PRODUCTS

2.1. LED Lights

1. All LED lighting fixtures to be energy star or DLC rated.

2.2. CONTROLS

1. Ensure all lighting controls are fully compatible with the specific light fixtures and lamps being controlled.

2.3. FINISHES

1. Baked enamel finish:
 1. Conditioning of metal before painting:
 1. For corrosion resistance conversion coating to ASTM F 1137.
 2. For paint base, conversion coating to ASTM F 1137.
 2. Metal surfaces of luminaire housing and reflectors finished with high gloss baked enamel to give smooth, uniform appearance, free from pinholes or defects.
 3. Reflector and other inside surfaces finished as follows:
 1. White, minimum reflection factor 85%.
 2. Colour fastness: yellowness factor not above 0.02 and after 250h exposure in Atlas fade-ometer not to exceed 0.05.
 3. Film thickness, not less than 0.03 mm average and in no areas less than 0.025 mm.

4. Gloss not less than 80 units as measured with Gardner 60° gloss meter.
 5. Flexibility: withstand bending over [12] mm mandrel without showing signs of cracking or flaking under 10 times magnification.
 6. Adhesion: 24mm square lattice made of 3mm squares cut through film to metal with sharp razor blade. Adhesive cellulose tape applied over lattice and pulled. Adhesion satisfactory if no coating removed.
2. Alzak finish:
1. Aluminium sheet fabricated from special aluminum alloys and chemically brightened, subsequently anodically treated to specifications established by Alcoa, to produce:
 1. Finish for mild commercial service, minimum density of coating 7.8 g/m², minimum reflectivity 83% for specular, 80.5% for semi-specular and 75% for diffuse.
 2. Finish for regular industrial service, minimum density of coating 14.8 g/m², minimum reflectivity 82% for specular and 73% for diffuse.
 3. Finish for heavy duty service, minimum density of coating 21.8 g/m², minimum reflectivity 85% for specular, 65% for diffuse.

2.4. LUMINAIRE SCHEDULE

See lighting schedule on electrical drawings.

PART 3- EXECUTION

3.1. INSTALLATION

1. Locate and install luminaires as indicated.
2. For all luminaires with reflective surfaces, contractor is to use clean gloves during installation and clean off all fingerprints, dirt and dust at completion of project.
3. Where new luminaires are specified, the Contractor shall include for all required assembly and mounting. Provide all wiring, connections, inter-fixture wiring harnesses, fittings, hangers, safety chains, aligners, box covers and accessories which may be required to ensure a complete, safe and fully operational system.
4. All lighting fixtures shall be independently supported to the structure by providing two chains installed at each opposite corner. Coordinate exact requirements on site.
5. Thoroughly review all ceiling types, construction details and mounting arrangements prior to placing orders for new luminaires.
6. Locate hangers on tile centres or intersections. Mount recessed pot lights, lay-in and surface

mounted luminaires in or on full tiles.

7. Standard octagonal boxes may be supplied where conduits feeding luminaires in finished areas are exposed on ceiling if hanger canopies entirely cover outlet boxes and are neatly notched for conduit. Otherwise, provide cast conduit outlet boxes with a diameter larger than canopies.
8. Do not mount luminaires above pipes, ducts or equipment. In event of unavoidably tight locations, provide hangers to clear obstruction. Luminaires in any room shall hang at one height. Obtain approval before any changes are made to layouts shown.

3.2. WIRING

1. Connect all LED luminaires to lighting circuits as indicated via centralized junction boxes.

3.3. LUMINAIRE ALIGNMENT

1. Align luminaires mounted individually parallel or perpendicular to building grid lines.

END OF SECTION 26 50 00

PART 1 – GENERAL

1.1. GENERAL

1. Division 1, General Requirements is part of this Section and shall apply as if repeated here.

1.2. SCOPE OF WORK

1. Category 6 100 OHM balanced unshielded twisted pair (UTP) plenum horizontal cable is deployed through plenum pathways from the Telecommunications Room (TR) to the wall or furniture outlets. Plenum cable is rated for air handling spaces. Horizontal UTP cable is terminated into a modular jack in the wall outlet, and is punched into a cross-connect panel in the TR. This portion of horizontal cabling, including terminations, is defined as the permanent link. Standards permit one consolidation point inter-connection in the permanent link for zone cable distribution. Several codes and standards apply to installation and termination of 100 OHM balanced UTP cable. It is the responsibility of the cable installer to follow industry standards to assure proper cable performance and long-term reliability.
2. The Telecommunications Room (TR) is Basement Electrical Room.
3. This section includes minimum requirements for the following:
 1. Category 6 100 OHM Balanced UTP Cable.

1.3. VOICE AND DATA CABLING

1. Equipment price breakdown
 1. The Contractor shall provide a complete Category 6 voice/data/VOIP cabling system including terminations, patch panels and single manufacturer certification as specified below.
 2. This specification defines the cabling infrastructure required to provide Voice and Data service.
 3. The need to amend or modify the installation specification may arise. All changes, modifications or amendments must be approved by the consultant prior to commencement of the installation.

1.4. QUALITY ASSURANCE

1. Installation of Category 6 cable shall adhere to manufacturer's guidelines.
2. Category 6 cable shall be installed according to recognized Category 6 installation

practices, and applicable codes and standards.

3. Installed Category 6 cable shall be manufactured by an ISO 9001-2000 Certified facility.
4. Installed Category 6 cable shall be free from defects in material or workmanship from the manufacturer, and shall be of the quality indicated.
5. Specified cable is based on acceptable manufacturers listed in this specification.
6. All methods of construction that are not specified in the contract documents shall be subject to control and approval by the Technical Authority.
7. Installed cable shall be lot-traceable by lot number and date of manufacture printed on the outer cable jacket.
8. All critical internal manufacturing operations for Category 6 cable shall have documented in-process inspection and testing according to ISO9001-2000.
9. Where “approved equal” is stated, any substitute product shall be equivalent to all requirements specified, and is subject to approval.
10. Materials and work specified in this document shall comply with, and are not limited to the standards, codes, and publications listed below:
 1. ANSI/TIA/EIA-568-B.1, Commercial Building Telecommunications Cabling Standard (and all published addenda), Part 1: General Requirements, 2001.
 2. ANSI/TIA/EIA-568-B.2, Commercial Building Telecommunications Cabling Standard (and all published addenda), Part 2: Balanced Twisted Pair Cabling Components, 2001.
 3. ANSI/TIA/EIA-568-B.2-1, Commercial Building Telecommunications Cabling Standard (and all published addenda), Part 2: Balanced Twisted Pair Cabling Components, Addendum 1: Transmission Performance Specifications for 4-Pair 100-Ohm Category 6 Cabling 2002.
 4. National Fire Protection Association, Inc., NFPA 70: National Electric Code(NEC), 2002.
 1. NEC Article 250: Grounding
 2. NEC Article 800: Communications Circuits
 5. ANSI J-STD-607A, Commercial Building Grounding and Bonding Requirements for Telecommunications, 2002.
 6. ISO/IEC 11801, Ed. 2:2002, Information Technology – Generic Cabling for Customer Premises, 2002.
 7. ANSI.TIA/EIA-569-B, Commercial Building Standards for Telecommunications Pathways and Spaces, 2003.

8. ANSI/TIA/EIA-606-A, Administration Standard for Commercial Telecommunications Infrastructure, 2002.
 9. IEEE 802.3af, Data Terminal Equipment (DTE) Power Over Media Dependent Interface (MDI).
 10. IEEE 802.3ab, Specification for 1000 Mb/s (Gigabit Ethernet) Operation over Category 5 or higher 4-Pair Balanced Twisted Pair Cabling.
 11. IEEE 802.3an, Specification for 10 Gb/s (10 Gigabit Ethernet) Operation over Category 6 or higher 4-Pair Balanced Twisted Pair Cabling.
 12. TIA/TSB-155, Telecommunications System Bulletin: Characterizing Existing Category 6 cabling for 10 Gb/s Ethernet Operation over 55 Meters Channel Length.
 13. Underwriter's Laboratory, Inc., UL1863: Standard for Safety – Communications Circuit Accessories, 4th Ed, 2004.
 14. Telecommunications Distribution Methods Manual, 10th Ed., Building Industry Consulting Services International (BICSI), 2003.
 15. Information Transport Systems Installation Manual, 4th Ed., Building Industry Consulting Services International (BICSI), 2004.
11. Installations shall, as minimum, comply with the latest issues of the following Building Codes: All municipal By-laws, Provincial Codes, the National Building Code, Canadian Labour Code, and the National Fire Code. In the case of conflict or discrepancy, the more stringent code shall apply.

1.5. DEFINITIONS

1. The Technical Authority, Piotrowski Consultants Ltd. is defined as the consultant.
2. The "Contractor" is defined as the supplier of the scope of work defined in this specification.

1.6. SHOP DRAWINGS

1. Shop drawings shall be submitted to the Consultant and shall include:
 1. Specification sheets on all items, including cable types and manufacturer's cabling system specification numbers.
 2. An outline drawing of the cabling system for the Communications Rooms, showing floor plan and wall layouts for termination blocks, typical connections and major components must be included. Verification that all equipment will be supplied by manufacturer authorised Canadian Distributors.

3. Verification that the installers are trained and authorised by the Cabling Application warranty approved manufacturer.

1.7. ACCEPTABLE BIDDERS AND BID PROCEDURES

1. Communications Contractor shall be system certified with minimum five (5) years experience. References to be available upon request.
2. Supplier shall have an in-place support facility within 450 kilometers of the site with technical staff, spare parts inventory and all necessary test and diagnostic equipment.

PART 2 - PRODUCTS

2.1. DESCRIPTION OF EQUIPMENT

1. Supply and install all cabling, jacks, patch panels and terminations, to provide a complete and operating Voice/Data Cabling system to support future computer network systems in the building. (Network hub equipment and accessories are NOT included in the scope of work unless otherwise noted).
2. The system shall comprise of horizontal UTP (Unshielded Twisted Pair) wiring from the patch panels to each Data outlet jack. Voice Backbone cable to be terminated at **Voice Backboard**.
3. When voice or data outlets are identified with multiple cables, provide one outlet box complete with 27 mm conduit. Refer to Legend for Wiring Details and Number of Cables per Drop.
4. The cabling system must meet or exceed Category 6 Channel performance as defined in TSB 568-B and provide a Single Manufacturer 25 year system performance certification.

2.2. HORIZONTAL CABLE

1. The Voice Cable shall be be Four Pair, Twisted 24 AWG solid copper, unshielded twisted cable meeting TIA/EIA-568-B Category 6. The maximum cable length for each run shall be limited to 90 meters. Cable to have white sheath.
2. The Data Cable shall be Four Pair, Twisted 24 AWG solid copper, unshielded twisted cable meeting TIA/EIA-568-B Category 6. The maximum cable length for each run shall be limited to 90 meters. Cable to have blue sheath.
3. The VOIP Cable be Four Pair, Twisted 24 AWG solid copper, unshielded twisted cable meeting TIA/EIA-568-B Category 6. The maximum cable length for each run shall be limited to 90 meters. Cable to have grey sheath.
4. All cables shall be permanently identified with indelible marker, or permanent labels. The label shall be located within .05 meters of both ends of the installed cable. The labelling shall conform to the requirements as defined in CAN/CSA-T528-93 Section 6 (Wiring

System Administration).

2.3. DATA JACKS

1. Data cable workstation data jacks shall be T568A Wire Map configuration, 8 pin modular jacks (RJ45) approved to TIA/EIA-568-B, Category 6 standard.
2. The jack modules must accept RJ45 computer plugs without causing any damage or degradation to the connectors.

2.4. WORK AREA WIRING

1. All cables shall be terminated in an eight position 8-MOD. T568A MDVO module at the Voice/Data outlet. This shall be wired in a T568A configuration.
2. Each workstation module shall be a separate colour to identify its function Voice or Data. Colour of jacks to be coordinated with the Technical Authority.
3. Where the Voice/Data outlet is located within a private office, the contractor will supply a minimum of one wall mounted 4-port outlet faceplate/box' unless otherwise specified by the Technical Authority.
4. Where the Voice/Data outlet is located in the modular furniture, the contractor will supply and install one 4-port Modular Furniture Adapter or a 3-port Decora Adapter.
5. Contractor shall supply one(1)7ft, and one(1)4ft Cat 6 Modular Patch Cords, for each Data circuit terminating at each Patch Panel / Voice/Data Outlet.
6. These patch cords will be used to patch network hardware to the Patch Panels in TC and Voice/Data outlet box to the customer supplied workstation equipment.
7. Contractor shall install wiring to modular workstation in such a manner to ensure the EMI/RFI separation distances are maintained.
8. Surface mounted electrical raceways and connectivity products must match where required.

2.5. COMMUNICATIONS ROOM WIRING

1. The existing communications racks will serve as the termination for all horizontal Data cables.
2. Contractor will supply and install an adequate number of 48-port patch panels, in conjunction with the scope of work, to terminate all horizontal Data designated cables from the respective Voice/Data outlets. All 48-port patch panels must have an integrated rear cable management bar and front labeling space to facilitate port identification. All patch panels must be installed with an accompanying 2U wire management channel, for all Data patch cables. All connectors shall be wired in a T568A configuration.

3. Contractor will supply and install an adequate number of termination mounts and connectors, in a cross connect configuration, to terminate all horizontal Voice designated cables from the respective Voice/Data outlets.

2.6. STANDARD OF ACCEPTANCE

1. Belden
2. Hubbell
3. Panduit

PART 3 - EXECUTION

3.1. PREPARATION

1. Horizontal pathways (conduit, cable tray, raceway, etc.) shall be fully deployed from the main telecommunication room to each voice/data outlet location according to applicable codes and standards.
2. Metallic horizontal cable pathways shall be bonded to an approved ground according to ANSI-J-STD-607.

3.2. INSTALLATION

1. Pull cable into conduits, or place into raceway or cable tray as specified. Do not exceed 25 Lb pull force per cable. Use appropriate lubricants as required to reduce pulling friction.
2. All exposed wiring shall be installed in surface raceway.
3. All wiring above ceilings or below access floors shall be installed in cable tray or open-top cable hangers. Where cable tray is not provided, J Hook supporting system is to be provided.
4. Cable slack and service loops shall be stored properly above the ceiling or under the access floor. A "figure-eight" service loop is recommended for Category 6 cabling to reduce EMI coupling.
5. Pathway fill ratio in conduit, tray, raceway, etc. shall not exceed 40% of pathway cross-sectional area.
6. Installed cable bend radius shall be greater than 4X cable diameter. Avoid kinking or twisting the cable during installation.
7. Do not over-tighten cable ties, and do not use staples or clamps to anchor cables. Velcro straps to be used for large bundles.

8. Spacing of cable supports above the ceiling shall be maximum 48".
9. Maintain the following clearances from EMI sources:
 1. Power cable: 6 in.
 2. Fluorescent lights: 12 in.
 3. Transformers and electrical service enclosures: 36 in.
10. Communications cabling that must cross power cables or conduit shall cross at a 90-degree angle, and shall not make physical contact.
11. Length of each horizontal cable run from the main telecommunication room to the wall outlet shall not exceed 90 meters.
12. Leave sufficient slack for 90 degree sweeps at all vertical drops.
13. Do not install cable in wet areas, or in proximity to hot water pipes or boilers.
14. Cable ends for termination shall be clean and free from crush marks, cuts, or kinks left from pulling operations.
15. Installed cable jackets shall have no abrasions with exposed conductor insulation or bare copper 'shiners'. The installer is responsible to replace damaged cables.
16. Horizontal cables extending from mounted jacks or panels shall maintain a minimum bend radius of at least 4 times the cable diameter.
17. Firestop all cable penetrations through fire-rated barriers per local codes.

3.3. WORK SCHEDULE

1. Prior to work commencing a schedule will be provided by Contractor to Technical Authority. Schedule will show anticipated progress stages and final completion of work. Interim reviews of work progress based on schedule will be conducted as decided by the Technical Authority. The schedule may be updated by Contractor in conjunction with and with the approval of the Technical Authority.

3.4. WORK AREA LABELLING

1. Contractor will clearly label all outlet boxes for both. The labels shall be machine printed adhesive labels. Hand labeling is not permitted.
2. The labeling will conform to CAN/CSA-T528-93, "Design Guideline for Administration of Telecommunications Infrastructure in Commercial Buildings".
3. Workstation labeling will identify unique No. (001-999), and use (V=VOIP, D=Data, P=Phone).

3.5. COMMUNICATIONS ROOM LABELLING

1. Contractor will clearly label all wiring blocks at the IT Cabinets. The labels shall be machine printed adhesive labels. Hand labeling is not permitted / only mechanical printed labels will be accepted.
2. IT cabinets labelling will identify unique No. (001-999), and use (V=VOIP, D=Data, P=Phone).
3. Supply “As Built Drawings” for completed project.

3.6. CABLE AUDIT

1. A random visual inspection by the Technical Authority, prior to the commencement of Installer with Channel Performance and Functional testing will be required. The installation will be validated for compliance with the industry standards with particular attention given to the following criteria:
 1. Cable jacket removal and connector termination
 2. Routing and pathway supports
 3. Cable bend radius and cable tie slack
 4. Neatness, clamping, and harnessing of cabling and wiring.
 5. Wire and cable identification and labelling.
 6. Nameplates, identification, plates, and markings

3.7. TESTING

1. After all terminations are complete, the Contractor shall be responsible to test each UTP cable installed. All testing shall be in accordance with the ANSI/TIA/EIA 568.2-D standards (including most recent additions and addendum), and the testing Specifications herein. The horizontal UTP cable shall be tested as described below.
2. All test equipment must meet current industry standards including most recent additions and addendums. Test equipment must meet ANSI/TIA-1152-A Level III or above for Category 6, Level IIIe for Category 6a and Level IV for Category 7. All testing shall be performed using a Level III or above tester.
3. For any given project, the Contractor must use the same test equipment manufacturer and model for all UTP cable tests. Mixing of different manufacturer's test equipment is not permitted.
4. The Contractor shall provide documentation verifying the test equipment's last calibration. (Calibration date must be within Twelve months of the date the tests are to be performed. If calibration is required, it shall be at the Contractors expense.)

5. At the time testing begins, all test equipment must be operating under the latest version of software as provided by the respective manufacturer. All costs associated with test equipment software upgrades are the responsibility of the Contractor.
6. Prior to testing, the Contractor shall perform the following test equipment setup procedures.
 1. The Contractor shall ensure that all relevant project data (e.g., Technician/Operator Name, Date of Test, Project Name, Building, Floor, TO/Jack position number, etc.,) is entered into the test equipment.
 2. The Contractor shall ensure that the appropriate cable manufacturer, manufacturer's model number and electrical parameters (e.g., NVP - Nominal Velocity of Propagation, FEXT, NEXT, etc.) are loaded into the test equipment.
 3. The Contractor shall ensure that the scanner is properly calibrated to the injector.
7. All UTP cable tests shall be performed by connecting an injector to the respective jack and the scanner to the respective Bix /110-wiring block or patch panel. The Contractor shall ensure that the appropriate TO number is loaded into the test equipment. A Permanent Link test, as described in the ANSI/TIA/EIA 568-B standards (including most recent additions and addendum) is required for all UTP testing. At a minimum, each UTP cable must be tested for the following parameters, but not limited to:
 1. Pair-to-Pair NEXT (Near End Cross Talk)
 2. Power Sum NEXT
 3. Pair-to-Pair ELFEXT (Equal Level Far End Cross Talk)
 4. Power Sum ELFEXT
 5. Attenuation (Insertion Loss)
 6. Return Loss
 7. Propagation/Delay Skew
 8. Cable length
 9. Wire map
8. As part of the test procedure, the Contractor shall verify that the TO number matches the number on the patch panel.
9. The Contractor shall test each cable installed by the Contractor under this procurement.
10. The Contractor shall troubleshoot and correct, repair or replace each cable that does not meet specification.
11. A test result marked with an “*” (or Marginal Result) will not be accepted.

12. A test summary and each individual UTP cable test shall be included as part of the Contractor's as-built documentation submittal. Only the Test Summary Sheet shall be printed, and submitted in hardcopy format. The individual UTP cable tests shall be submitted in electronic format only. The Test Summary Sheet for each Telecommunications Room shall be signed and dated by the Contractor's Project Manager. The Contractor shall submit the original signed Test Summary Sheets as part of the final as-built submittal. In addition, the Contractor shall submit all cable test results in electronic form via electronic media. The electronic test results must be submitted in the original software format of the respective test equipment manufacturer. Text files or files that have been imported into a word processor will not be accepted.

3.8. CABLING SYSTEM CHANNEL APPLICATION WARRANTY

1. All cabling products and workmanship must include coverage as follows:
 1. All Data channel cabling components in the scope of work of this document must be included in the 25 year parts & labour warranty document.
 2. Product is warranted free of defects in material or workmanship.
 3. Product is warranted to perform the intended function within design limits.

3.9. APPROVED CONTRACTORS

1. All Data
Dan Monfils
Telephone: (705) 360-1431
2. Northern Voice & Data Cabling Services Inc.
Dave Lammi
Telephone: (705) 673-6207
3. TC-Tel
Adam Chretien
Telephone: (705) 499-5529
4. Helix IT
Rob Loxton
Telephone: (705) 345-5956
5. Sunwire
Alex Levesque
Telephone: (705) 521-6777 x 7004

END OF SECTION 27 05 00

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-3
ISSUE FOR TENDER DRAWINGS

Refer to the Issue for Tender Drawings as outlined below, and which are attached to this Schedule 3-A-3.

Drawing No.	Description	Date
Issued for Tender Drawings Prepared by Critchley Hill Architecture		
A0.00	Site Plan	May 28, 2025
A1.00	Ground Floor Plan	
A1.01	Washroom Renovation, Demolition, Interior Elevations & Reflected Ceiling Plan	
A1.02	Ticket Booth Renovation, Demolition, Interior Elevations, Plan & Section Details	
A2.00	Basement Floor Plan & Exit Tunnel Floor Plan	
A3.00	New Railing/ Door Details & Hardware Schedule	
Issued for Tender Drawings Prepared by Piotrowski Consultants Ltd.		
M101	Mechanical Plumbing Washroom Floor Plan, Demolition and Proposed	May 28, 2025
M102	Mechanical Ventilation Washroom Floor Plan, Demolition and Proposed	
E101	Electrical Power and Lighting, Partial Main Floor Plan Legend, Notes & Details	
E102	Electrical Power and Lighting, Partial Main Floor Plan	

ONTARIO NORTHLAND - BUS AND TRAIN STATIONS

COUNTER, BARRIER FREE ACCESS, AND WASHROOM UPGRADES

100 Station Rd, North Bay, Ontario

DRAWING INDEX

ARCHITECTURAL

- A0.00 SITE PLAN
- A1.00 GROUND FLOOR PLAN
 - A1.01 WASHROOM RENOVATION, DEMOLITION, INTERIOR ELEVATIONS & REFLECTED CEILING PLAN
 - A1.02 TICKET BOOTH RENOVATION, DEMOLITION, INTERIOR ELEVATIONS, PLAN & SECTION DETAILS
- A2.00 BASEMENT FLOOR PLAN & EXIT TUNNEL FLOOR PLAN
- A3.00 NEW RAILING/ DOOR DETAILS & HARDWARE SCHEDULE

MECHANICAL & ELECTRICAL

- M101 MECHANICAL PLUMBING WASHROOM FLOOR PLAN, DEMOLITION AND PROPOSED
- M102 MECHANICAL VENTILATION, WASHROOM FLOOR PLAN, DEMOLITION AND PROPOSED
- E101 ELECTRICAL POWER AND LIGHTING, PARTIAL MAIN FLOOR PLAN LEGEND, NOTES & DETAILS
- E102 ELECTRICAL POWER AND LIGHTING, PARTIAL MAIN FLOOR PLAN

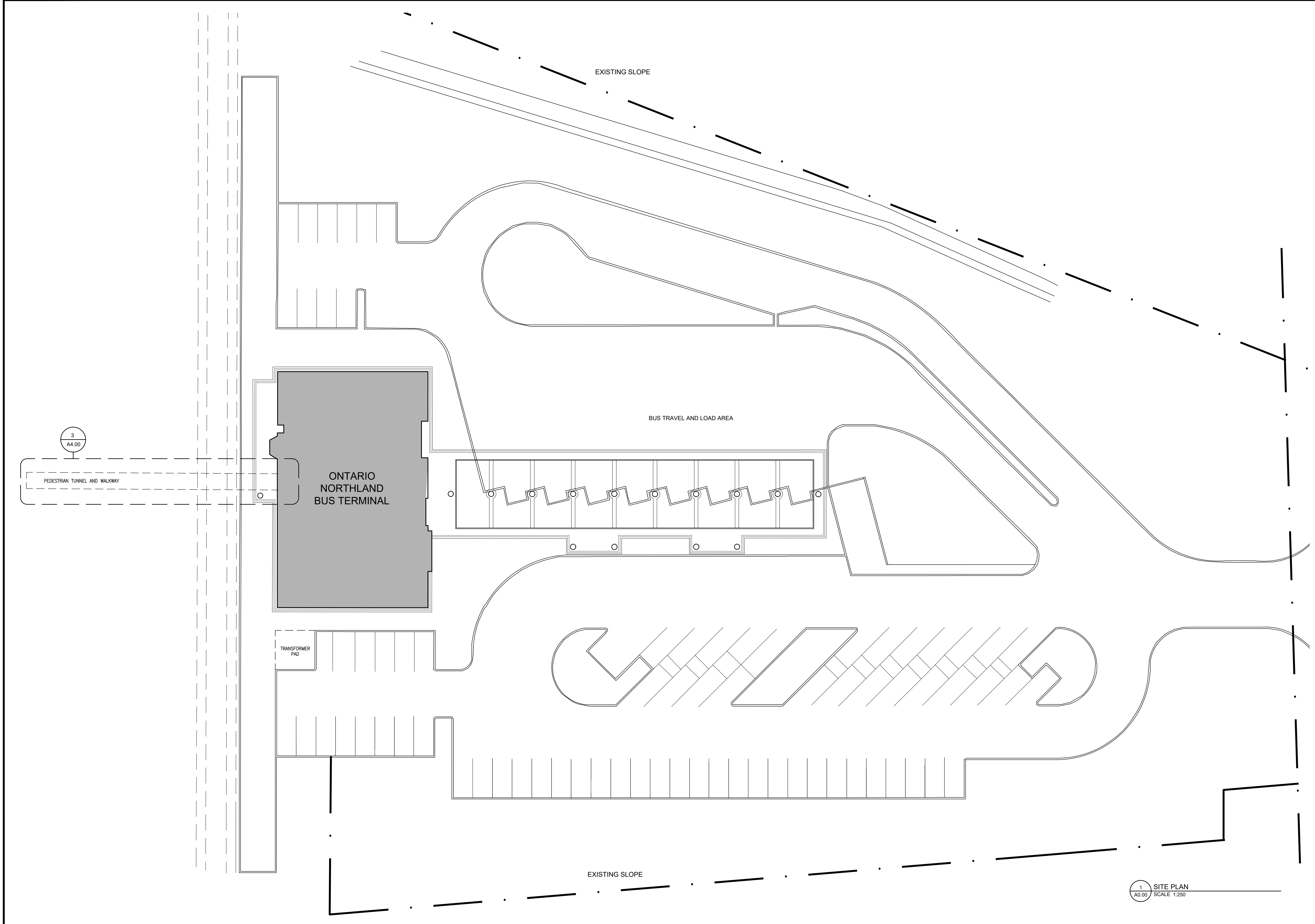
CRITCHLEY HILL
A R C H I T E C T U R E

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2353

ONTARIO NORTHLAND - BUS AND TRAIN STATION
COUNTER, BARRIER FREE ACCESS AND WASHROOM UPGRADES



Revision	Date	Issued For
05.13.2025	ISSUED FOR TENDER	

Do not scale from this drawing. The Constructor shall verify all actual on site dimensions and report any discrepancies to the Consultant prior to proceeding with the work.

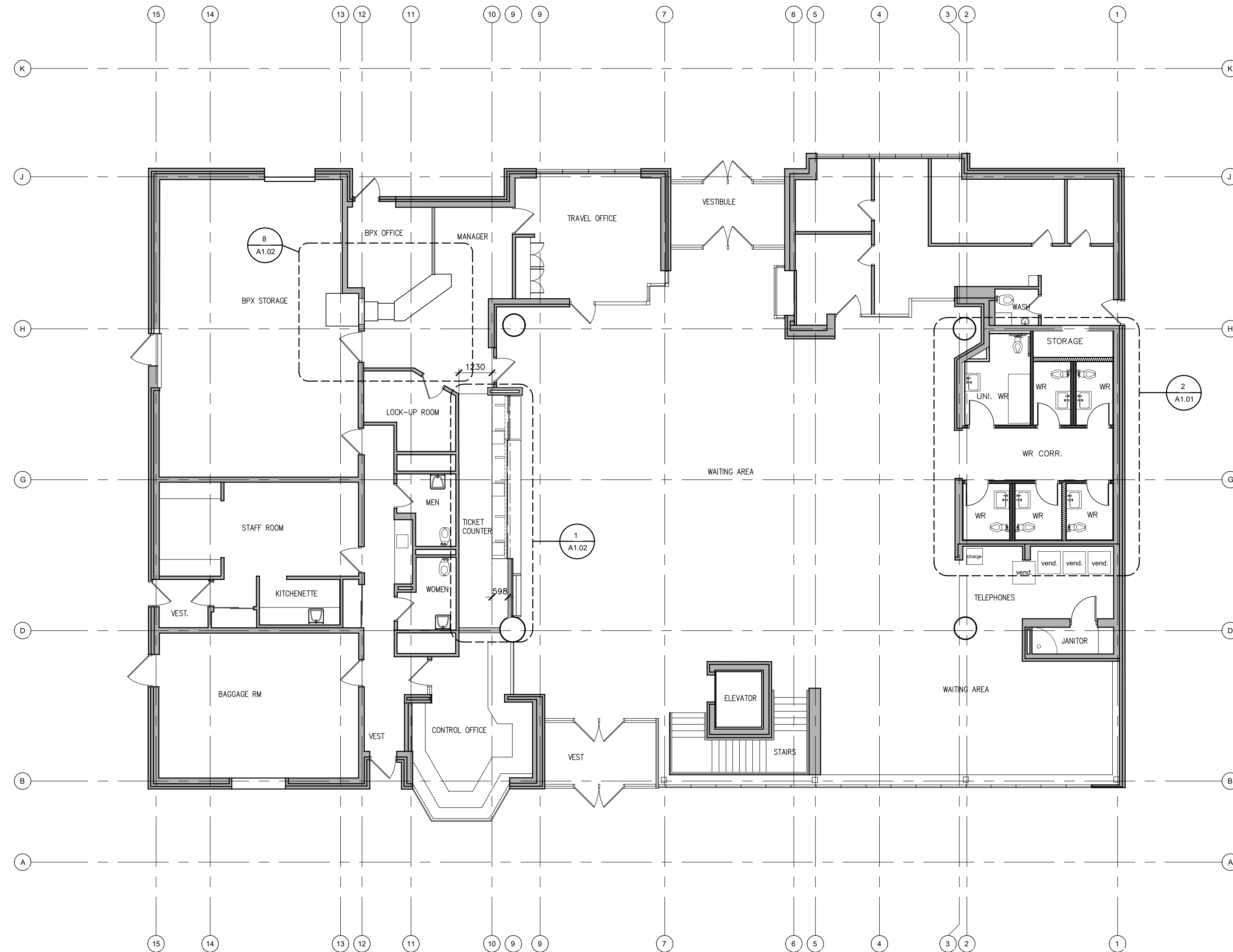
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ARCHITECTURE

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NORTH BAY ONTARIO 705.995.2391 CRITCHLEYHILL.CA

Project:
ONTARIO NORTHLAND BUS AND TRAIN STATION
COUNTER, BARRIER FREE ACCESS, & WASHROOM UPGRADES
100 STATION RD
NORTH BAY ONTARIO

Drawing Title:
SITE PLAN

Drawn By: E.S.	Checked By: AE
Scale: 1:250	Project No: 2353
Date Plotted: May 27, 2025	
Date Revised: April 15, 2024	
Drawing No: A0.00	



1 GROUND FLOOR PLAN
SCALE 1:100

GENERAL NOTES

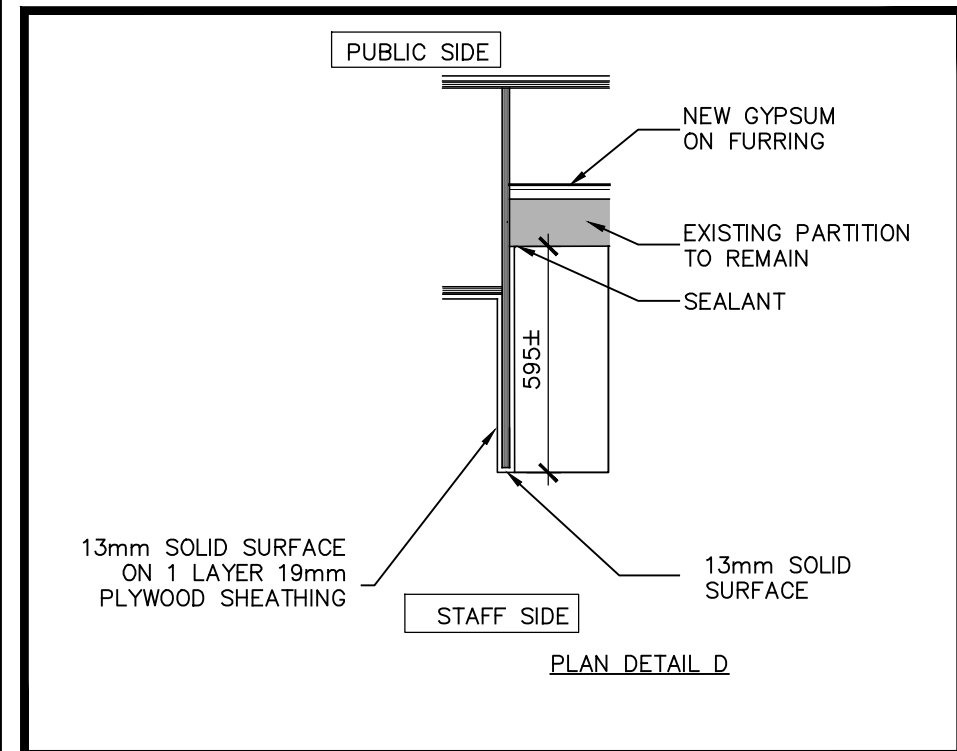
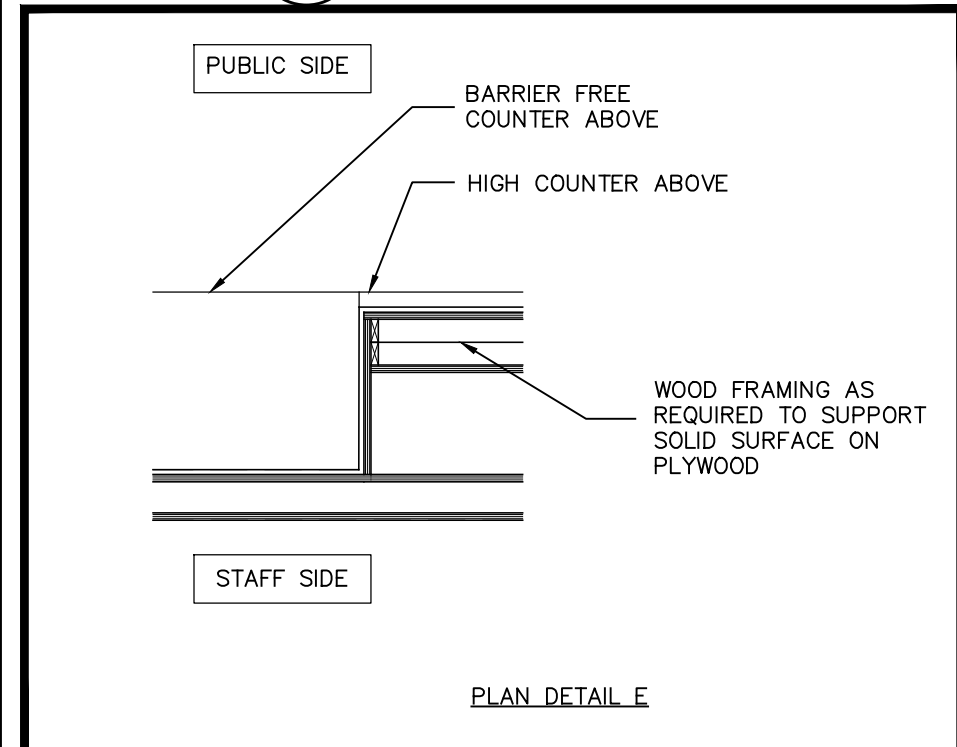
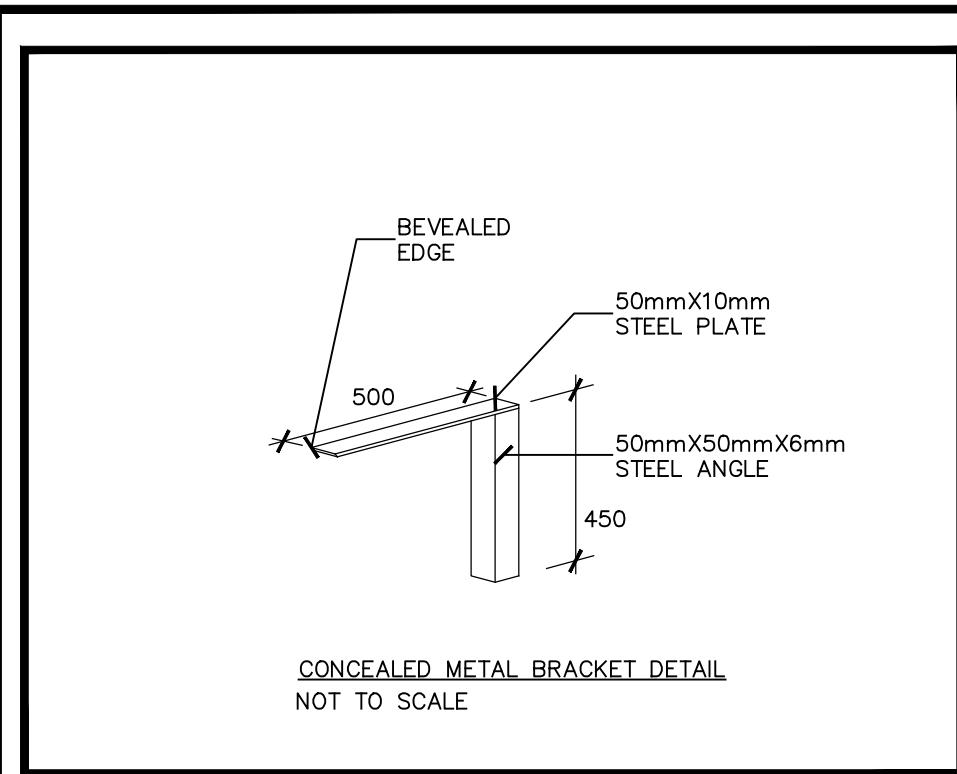
1. ALL WORK SHALL COMPLY TO THE NATIONAL BUILDING CODE AND ALL MUNICIPAL CODES AND BY LAWS HAVING JURISDICTION.
2. MAKE GOOD ALL AREAS DISTURBED BY NEW WORK TO MATCH EXISTING MATERIALS AND FINISHES.
3. REFER TO ELECTRICAL DRAWINGS FOR WORK UNDER THIS TRADE



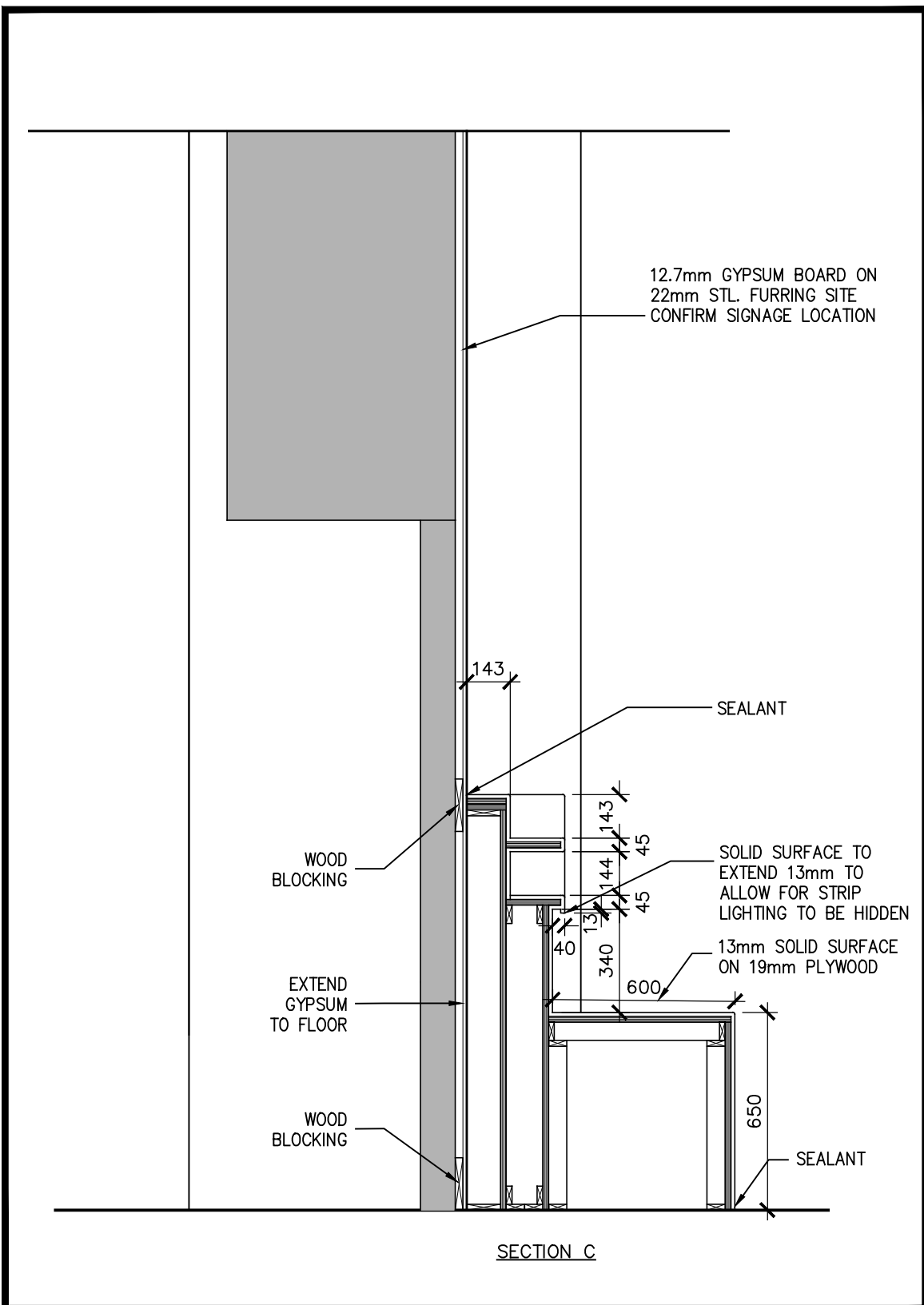
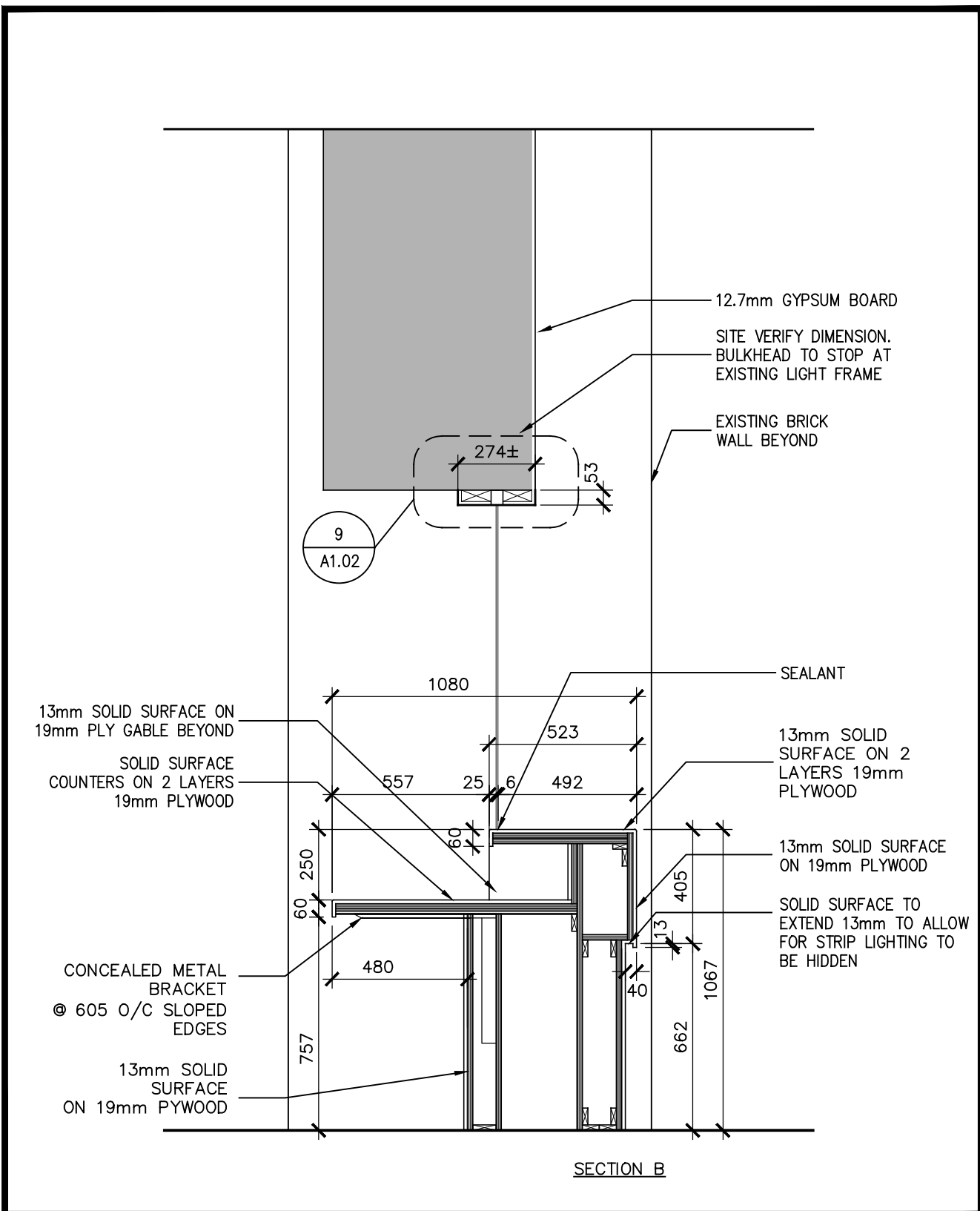
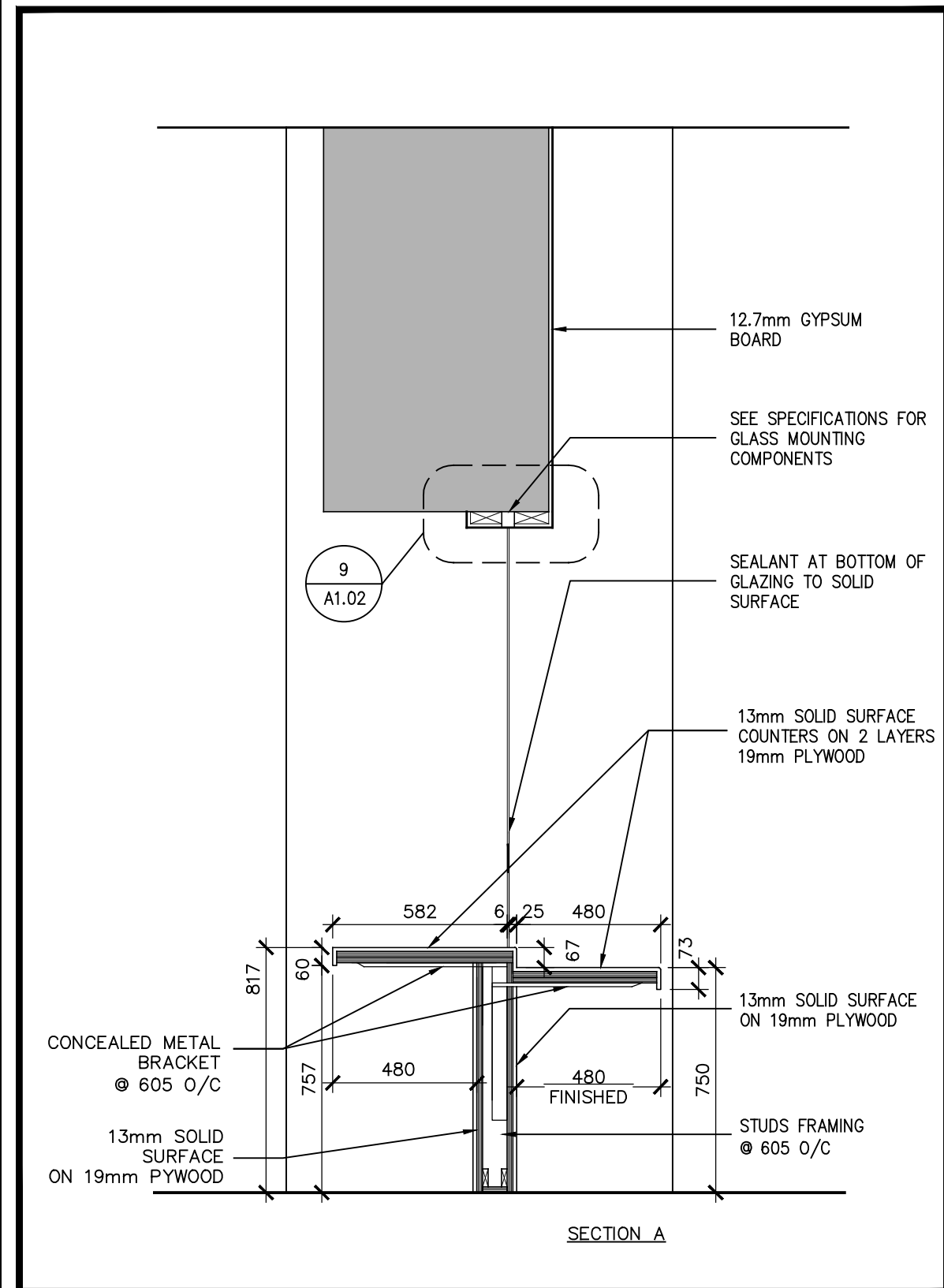
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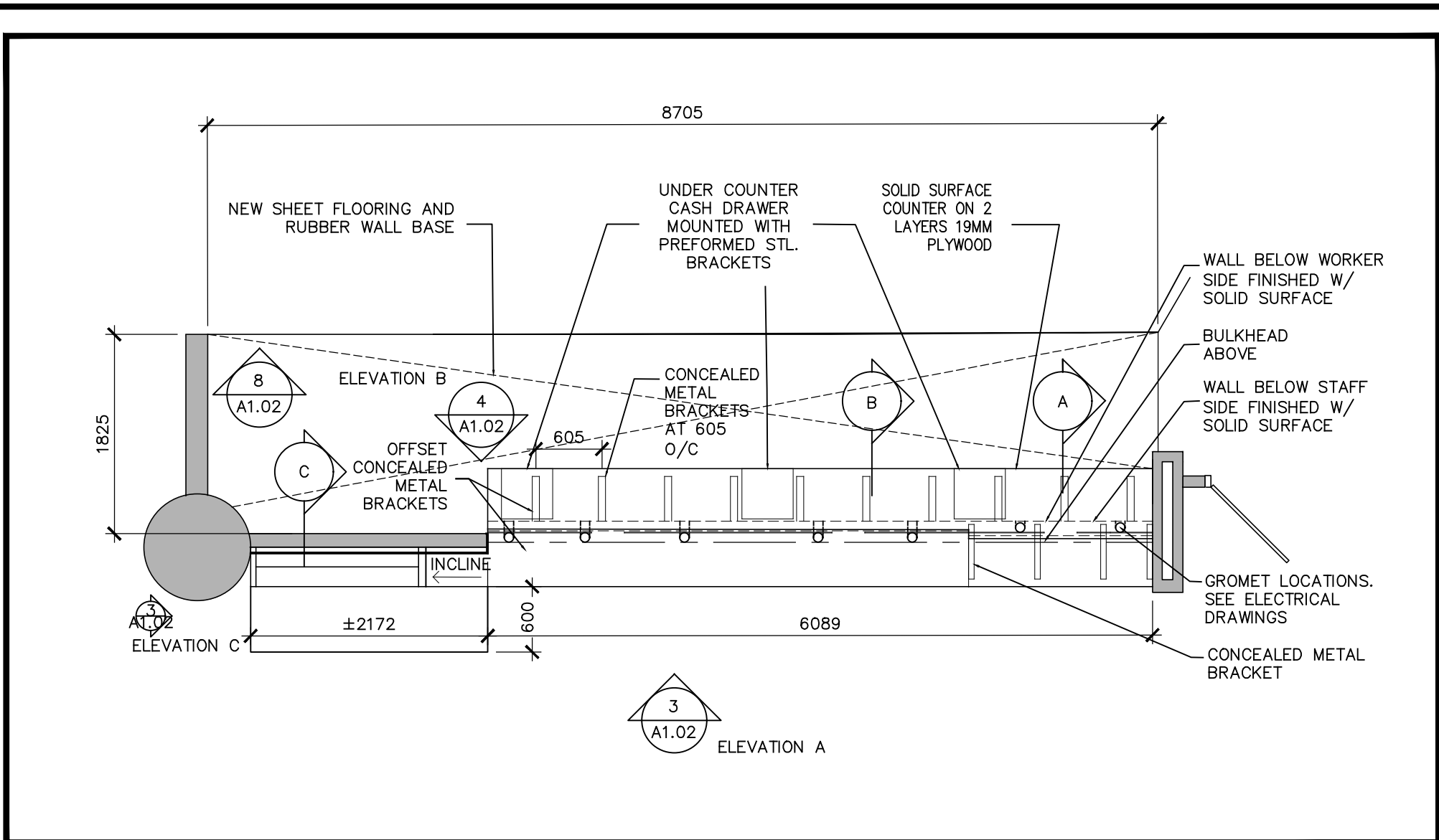
Project: ONTARIO NORTHLAND BUS AND TRAIN STATION COUNTER, BARRIER FREE ACCESS, & WASHROOM UPGRADES 100 STATION RD. NORTH BAY ONTARIO	
Drawing Title: GROUND FLOOR PLAN GENERAL NOTES	
Drawn By: E.S.	Checked By: AE
Scale: 1:100	Project No: 2353
Date Plotted: May 27, 2025	
Date Revised: April 15, 2024	
Drawing No: A1.00	



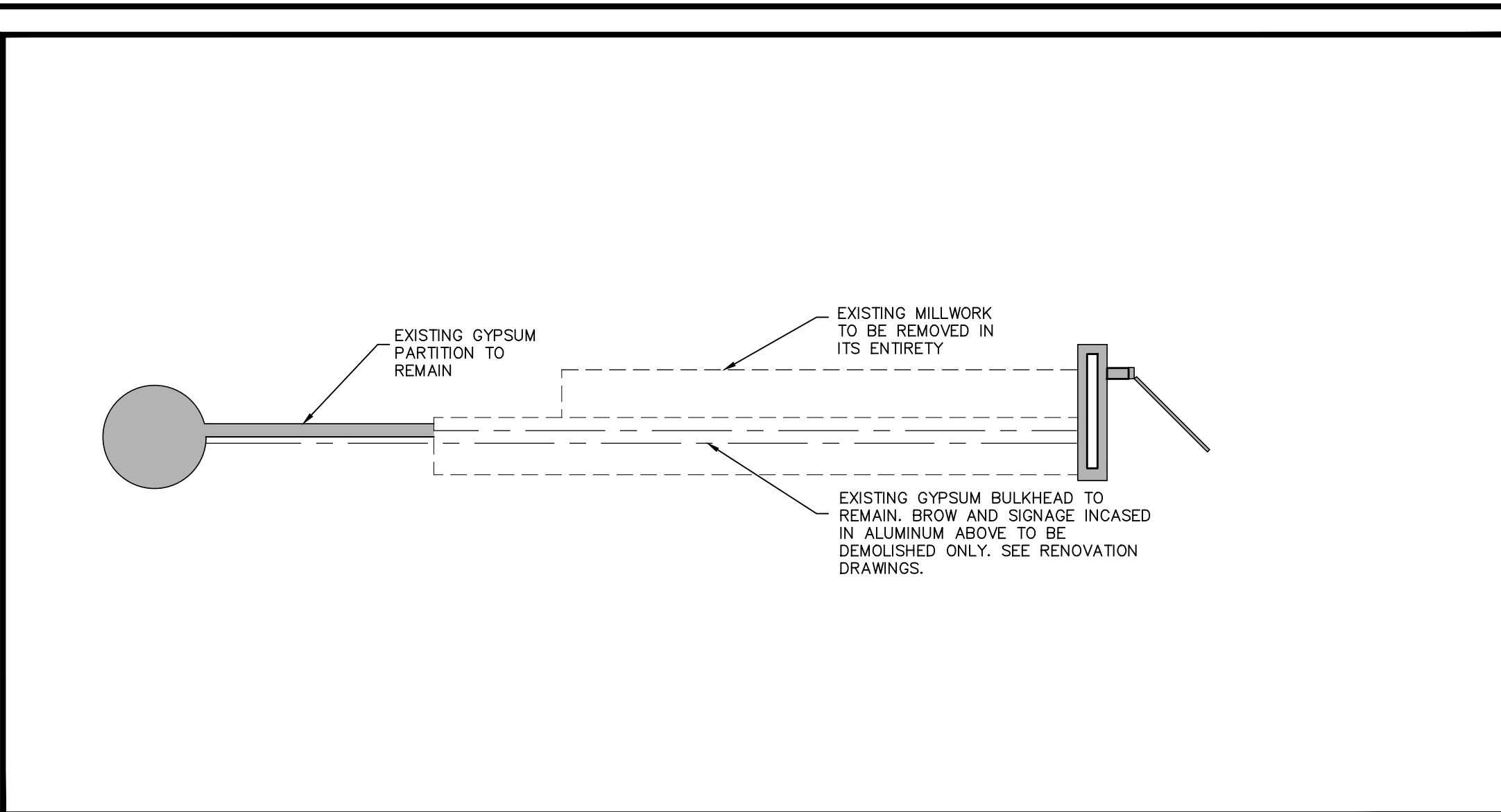
6 CASEWORK PLAN DETAILS
A1.02 SCALE 1:20



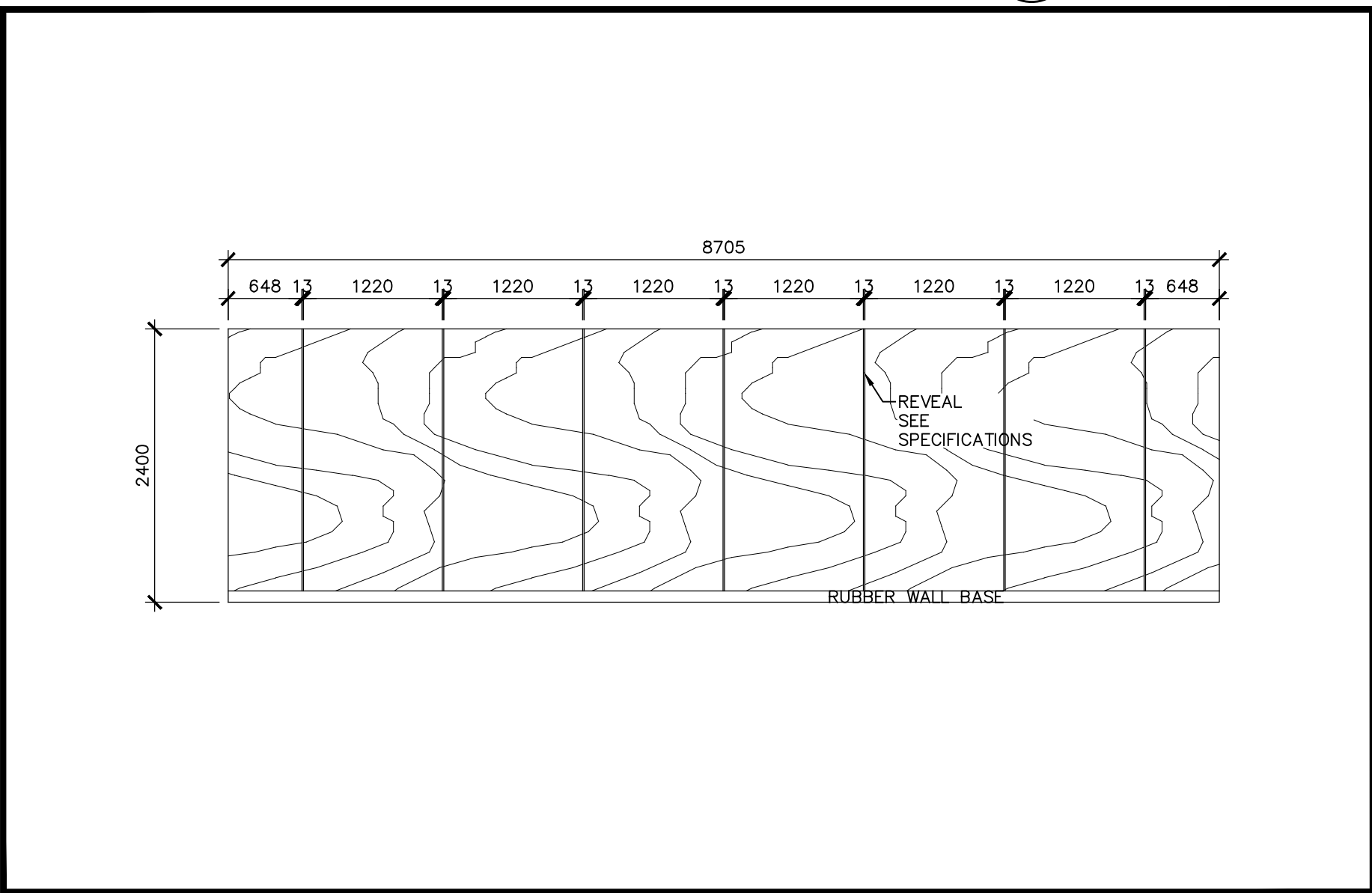
5 CASEWORK SECTION DETAILS
A1.02 SCALE 1:20



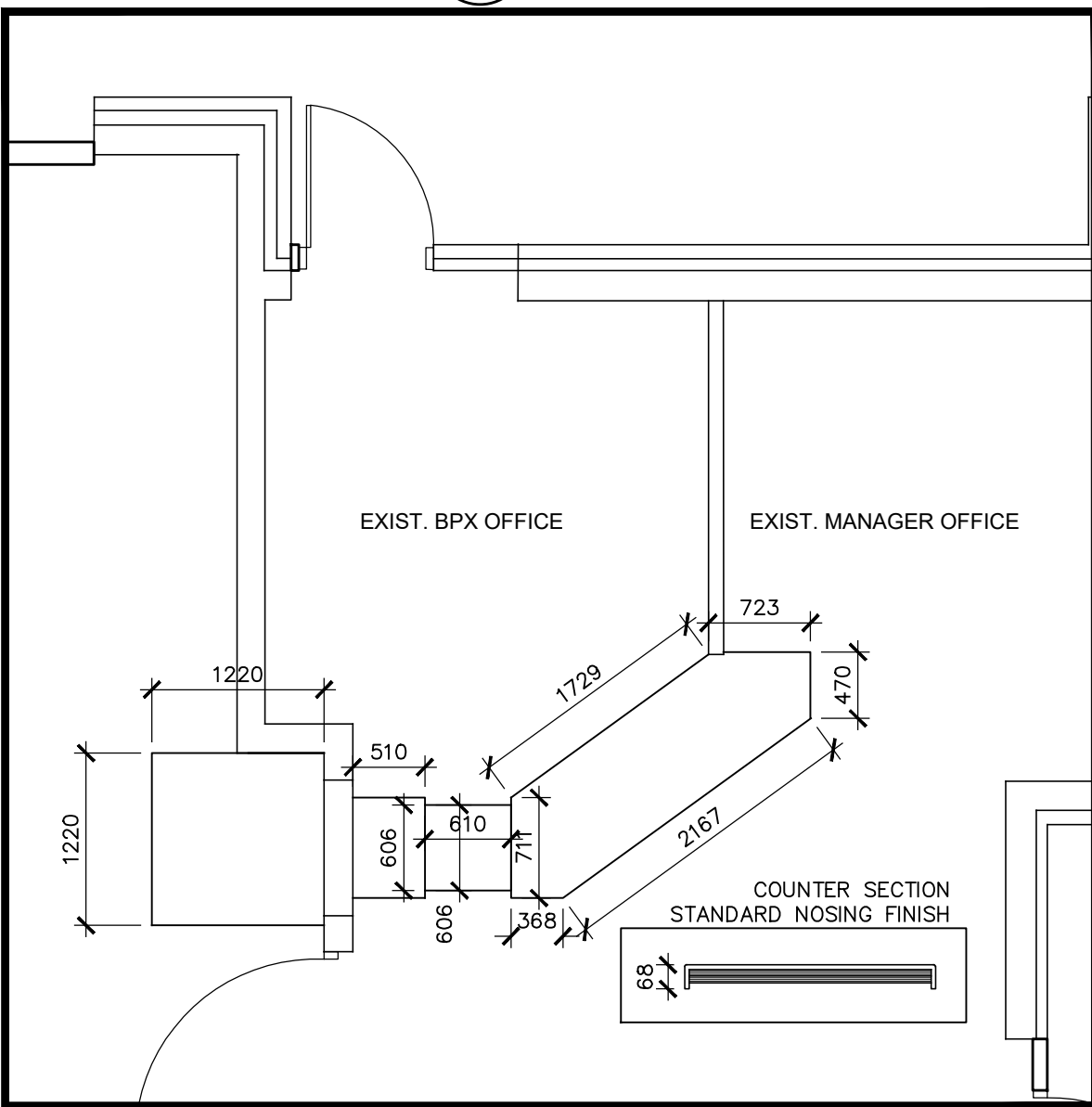
1 PLAN TICKET SALES COUNTER RENOVATION
A1.02 SCALE 1:50



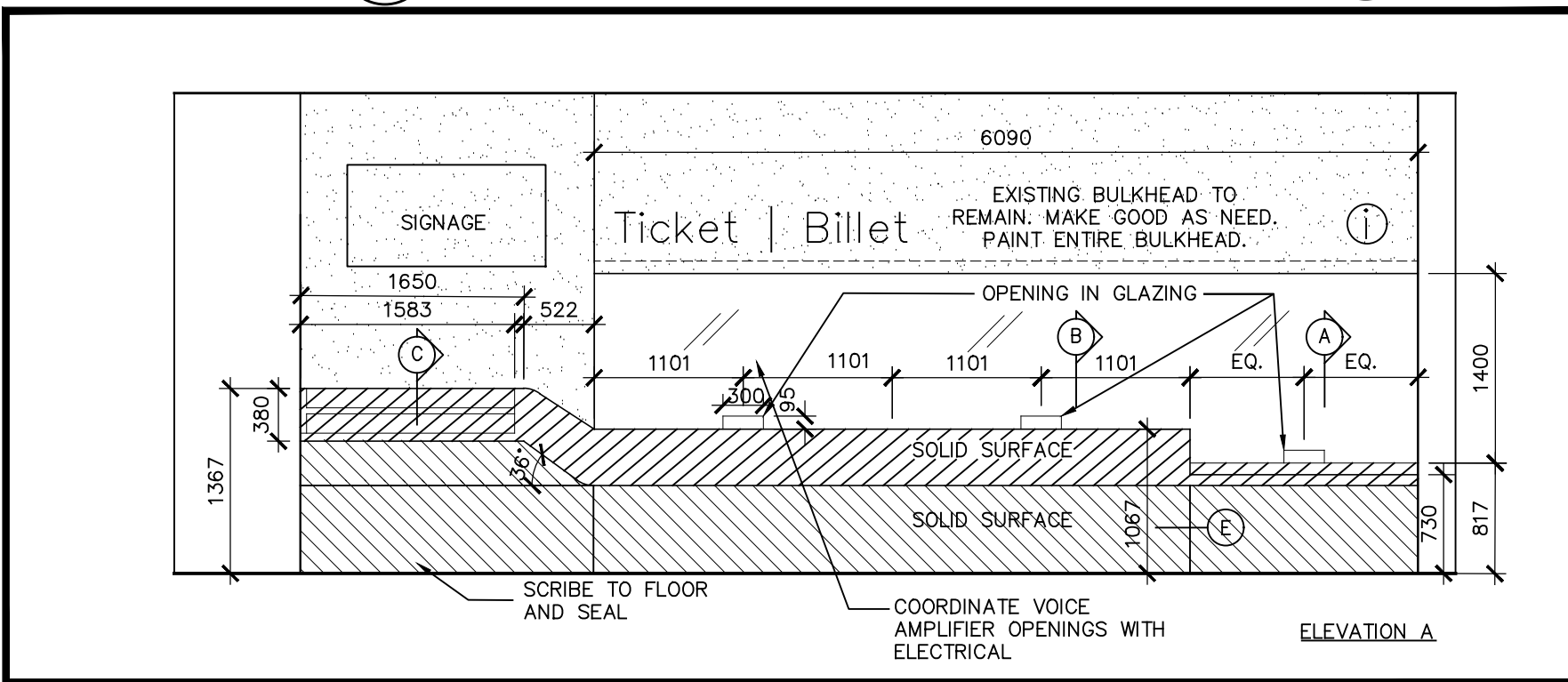
2 PLAN TICKET SALES COUNTER DEMOLITION
A1.02 SCALE 1:50



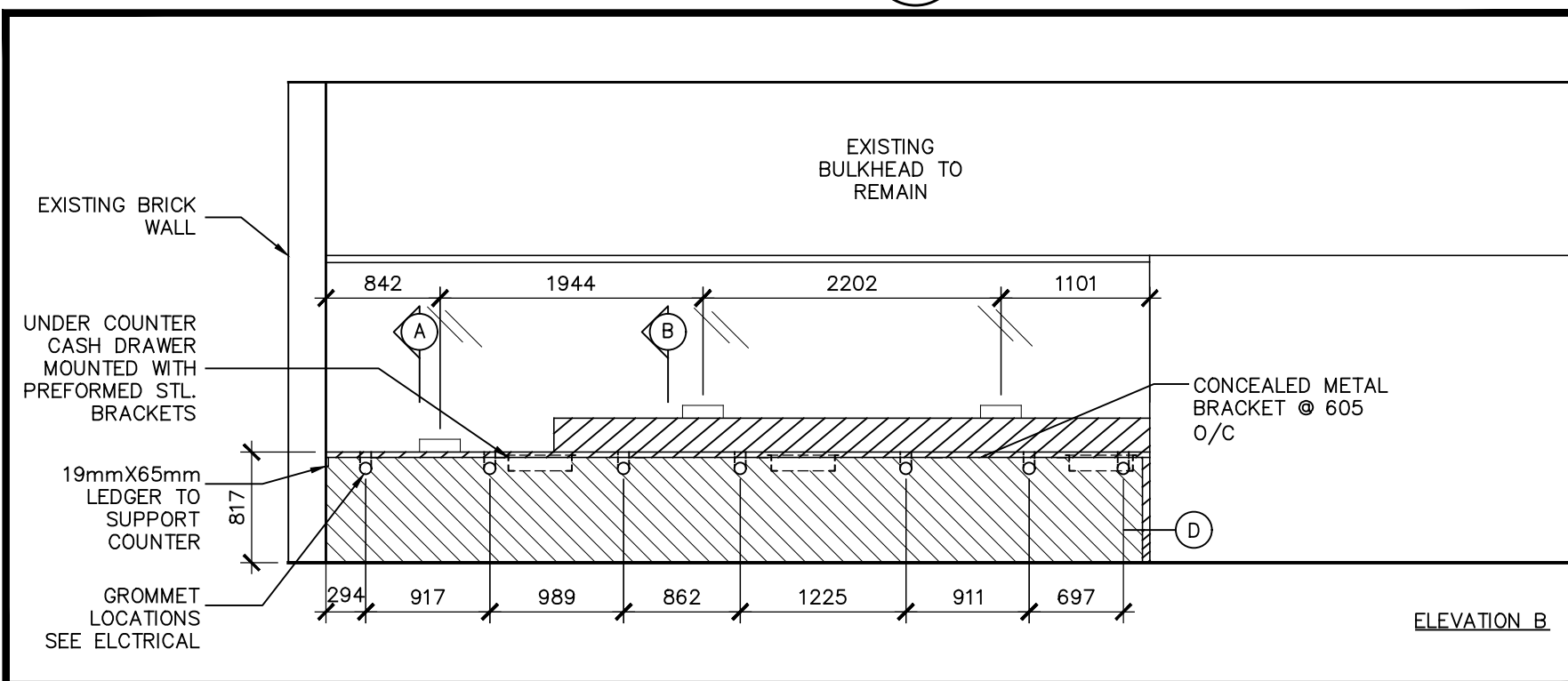
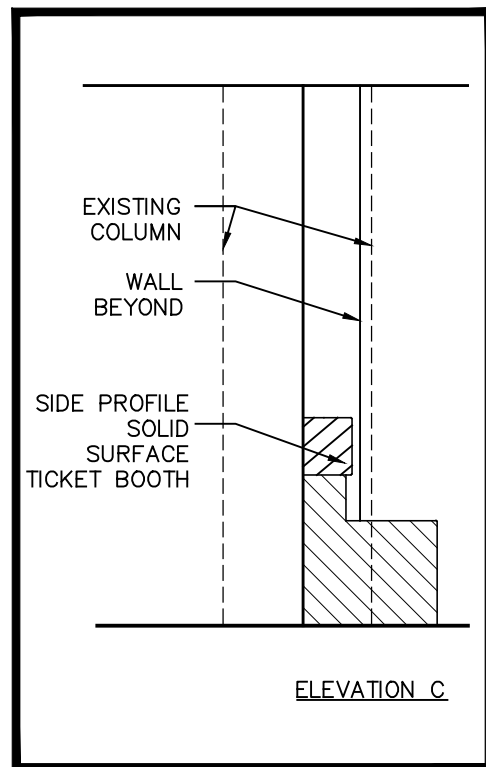
8 INTERIOR ELEVATION WORKING SIDE
A1.02 SCALE 1:50



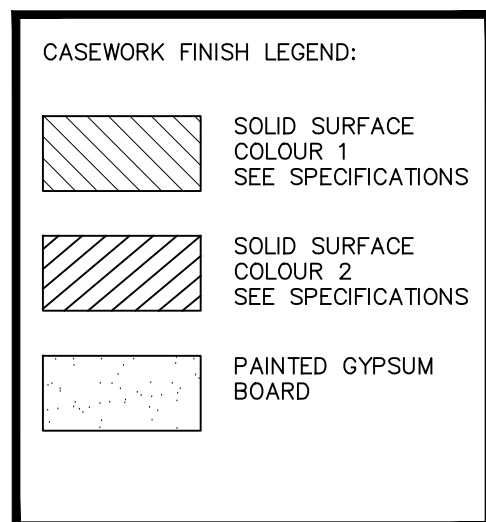
8 NEW SS COUNTER TOP
A1.02 SCALE 1:20



3 INTERIOR ELEVATION PUBLIC SIDE
A1.02 SCALE 1:50

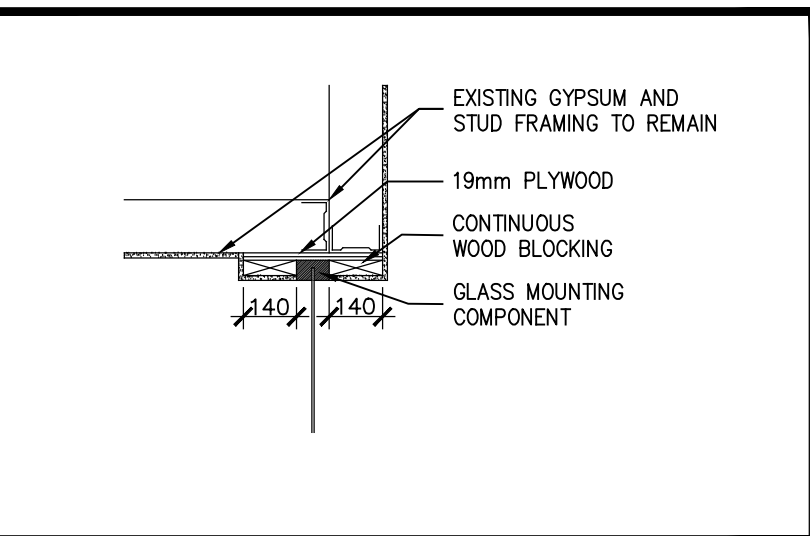


4 INTERIOR ELEVATION WORKING SIDE
A1.02 SCALE 1:50



MILLWORK NOTES:

1. PROVIDE ALL CUTOUPS FOR MISCELLANEOUS OPENINGS AS REQUIRED BY ALL TRADES. COORDINATE LOCATION AND SIZES FOR CUTOUPS WITH ALL TRADES BEFORE CUTTING OPENINGS. FINISH EXPOSED EDGES TO MATCH ADJACENT CASEWORK. COORDINATE WITH OTHER TRADES ALL REQUIRED ROUGH OPENINGS FOR FIXTURES BY OTHERS TO BE MOUNTED WITHIN CASEWORK.
2. SITE MEASURE ALL DIMENSIONS PRIOR TO FABRICATION AND REPORT ANY INCONSISTENCIES TO THE PRIME CONSULTANT.
3. ALL CONCEALED METAL BRACKETS SHALL BE SUPPLIED AND INSTALLED BY DIVISION 05 40 00. REFER TO SECTION 05 50 00 METAL FABRICATIONS FOR STEEL SPECIFICATIONS AND REQUIREMENTS. ALL OTHER METAL FABRICATIONS SHALL BE SUPPLIED SOLELY THROUGH SECTION 05 50 00.



9 BULKHEAD SECTION DETAIL
A1.02 SCALE 1:20

Date	Revision
05.13.2025	ISSUED FOR TENDER

Do not scale from this drawing. The Constructor shall verify all actual on site dimensions and report any discrepancies to the Consultant prior to proceeding with the work.



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Project: ONTARIO NORTH AND BUS TERMINAL RENOVATIONS AND BARRIER FREE ACCESS
100 STATION RD.
NORTH BAY ONTARIO

Drawing Title: RENOVATION FLOOR PLAN
DEMOLITION FLOOR PLAN
INTERIOR ELEVATIONS
PLAN & SECTION DETAILS

Drawn By: ES
Checked By: IH

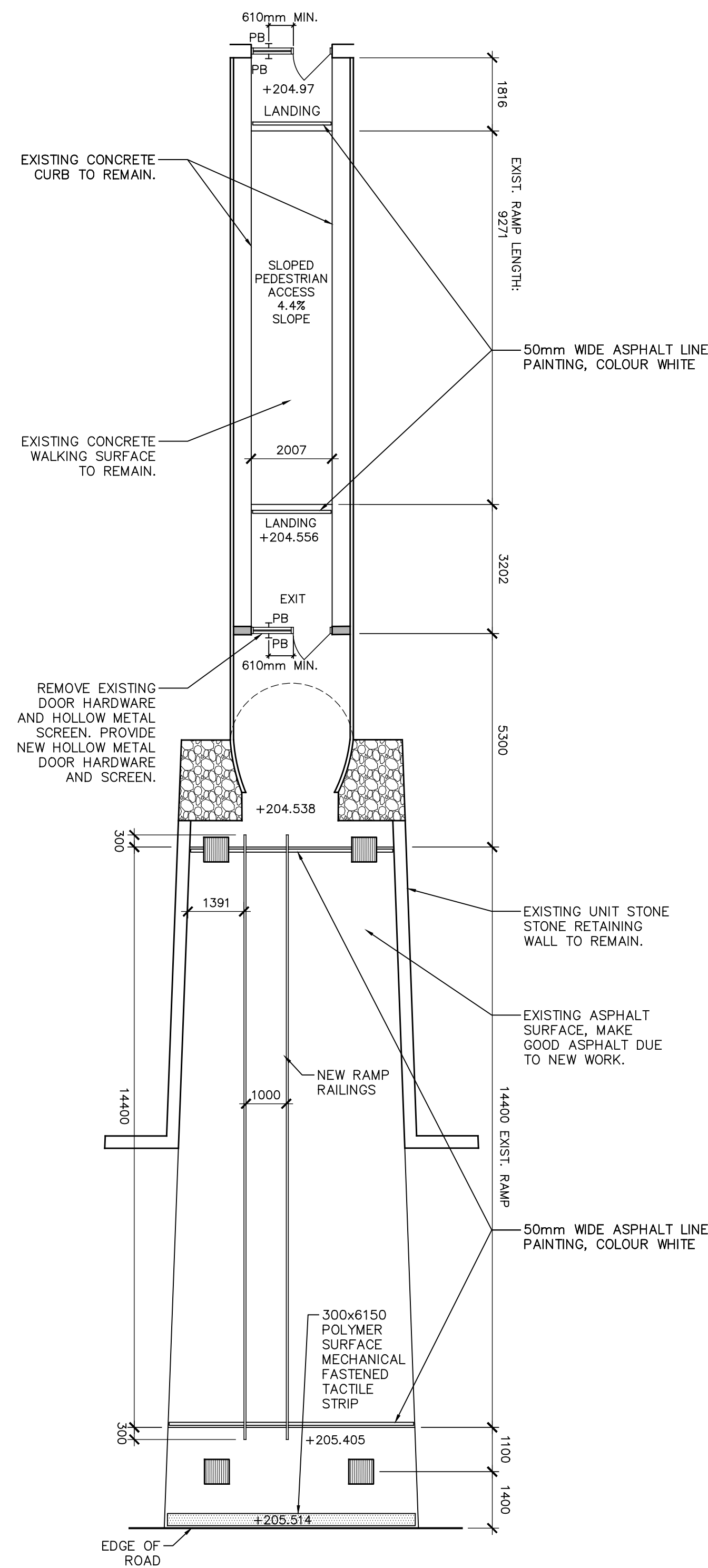
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Project No: 2353

Date Plotted: May 27, 2025

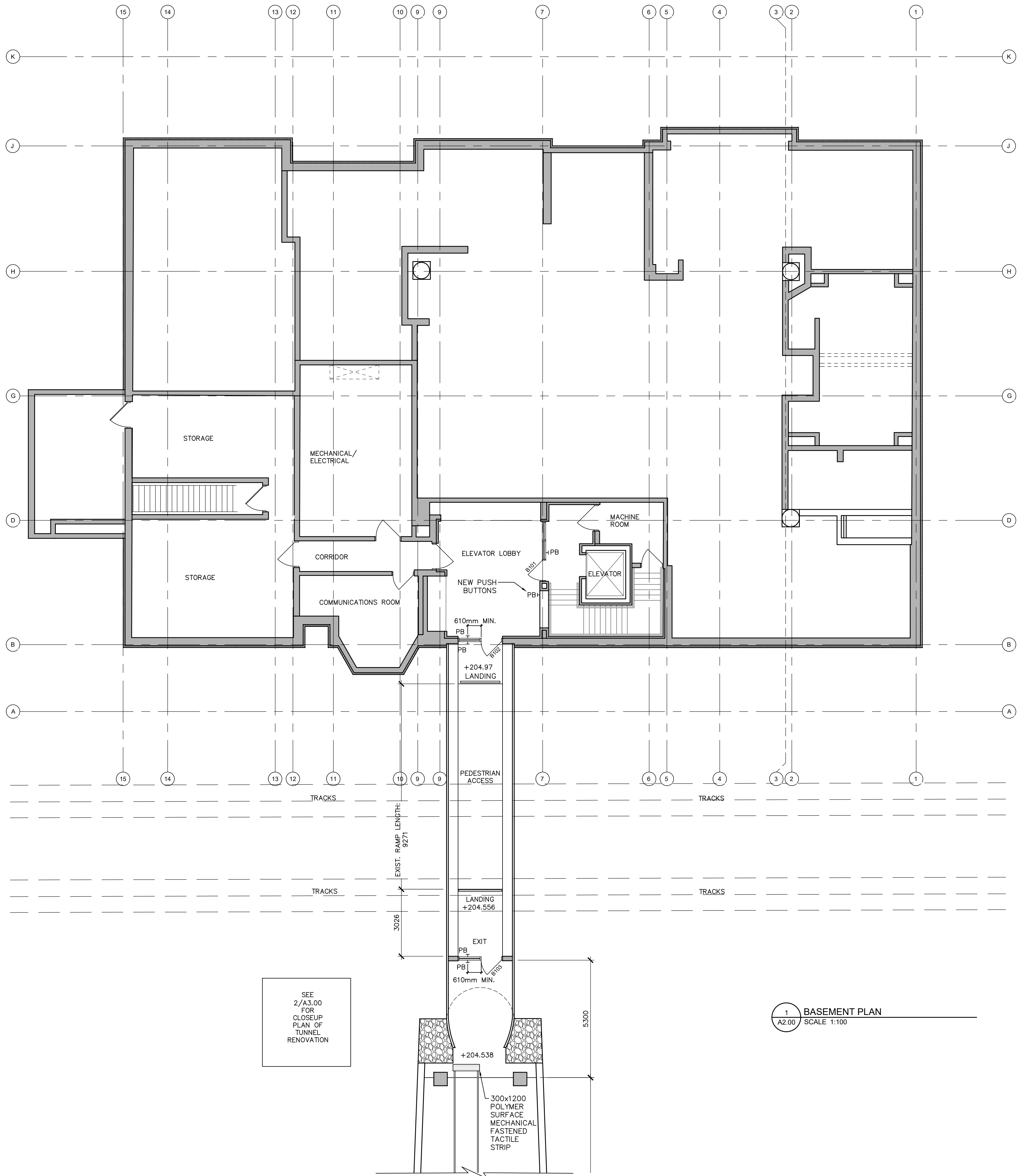
Date Revised: April 3, 2025

Drawing No:

A1.02



2 EXIT TUNNEL PLAN
SCALE 1:100



1 BASEMENT PLAN
SCALE 1:100

SEE
2/A3.00
FOR
CLOSEUP
PLAN OF
TUNNEL
RENOVATION

Revision	Date
05.13.2025	ISSUED FOR TENDER

Do not scale from this drawing. The
Constructor shall verify all actual on
site dimensions and report any
discrepancies to the Consultant
prior to proceeding with the work.

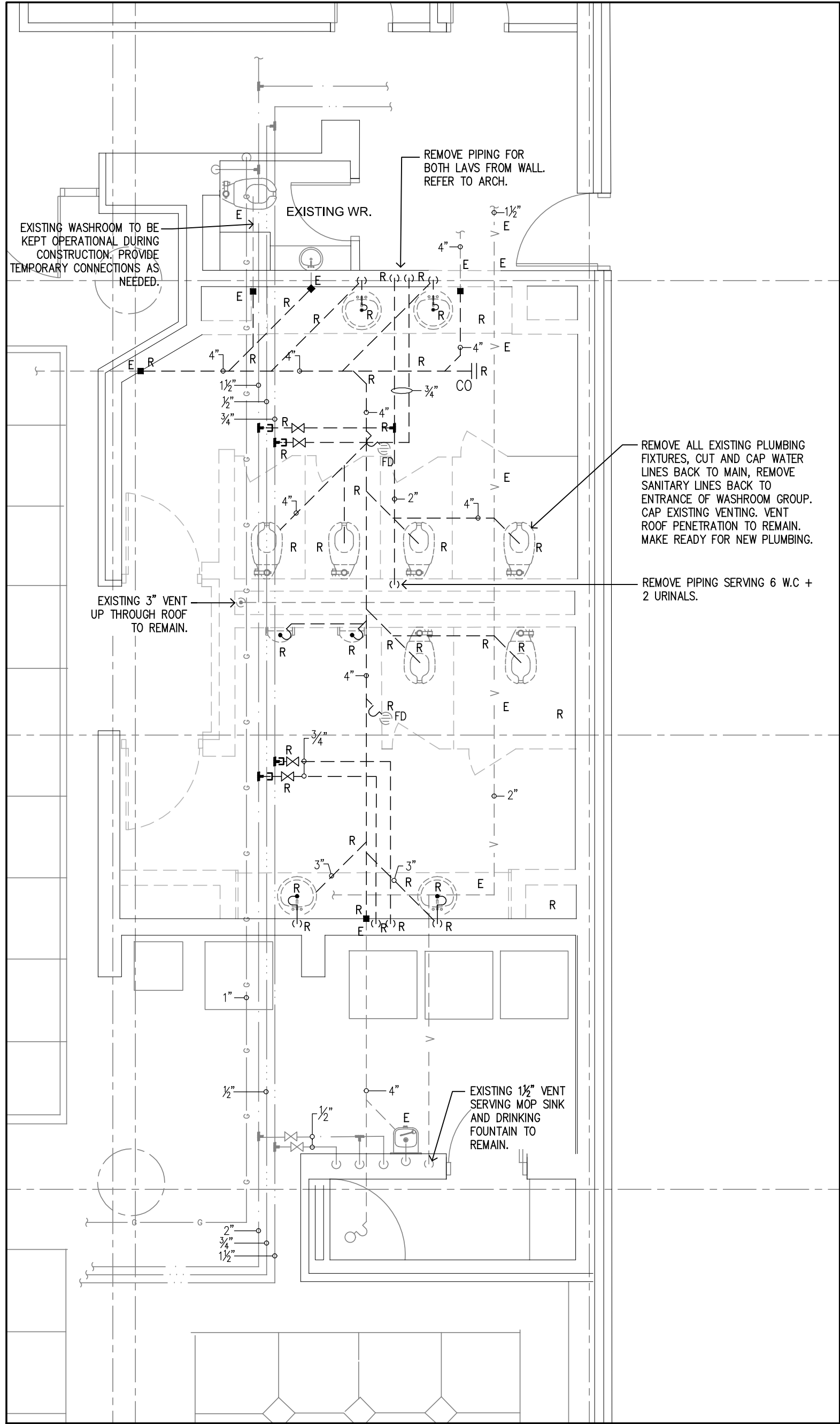


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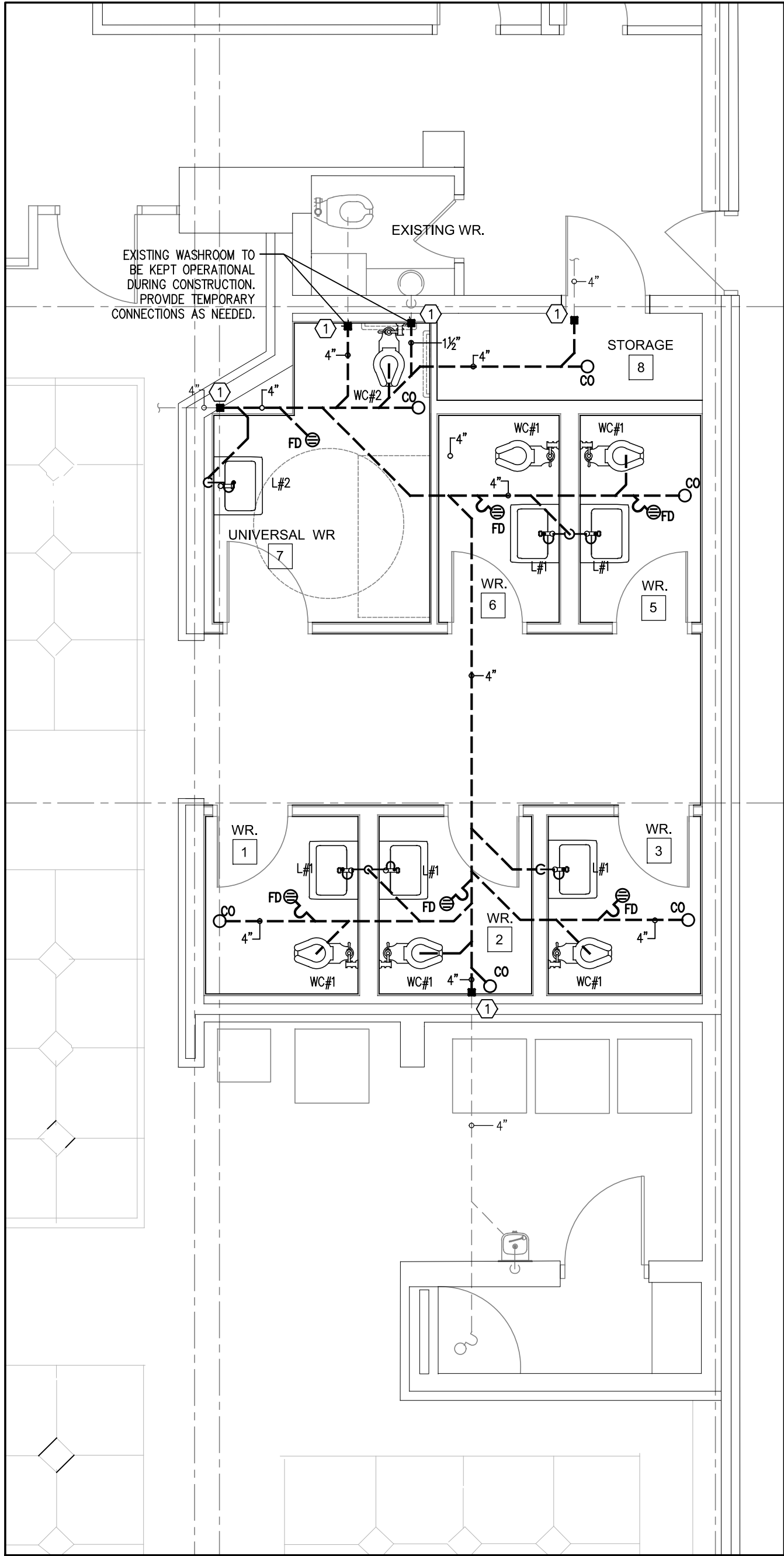
Project: ONTARIO NORTHLAND BUS TERMINAL COUNTER, BARRIER FREE ACCESS, & WASHROOM UPGRADES 100 STATION RD. NORTH BAY ONTARIO	Drawing Title: BASEMENT FLOOR PLAN EXIT TUNNEL FLOOR PLAN
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Drawn By: E.S.	Checked By: A.E.
Scale: 1:100	Project No: 2353
Date Plotted: May 28, 2025	Date Revised: January 3, 2024

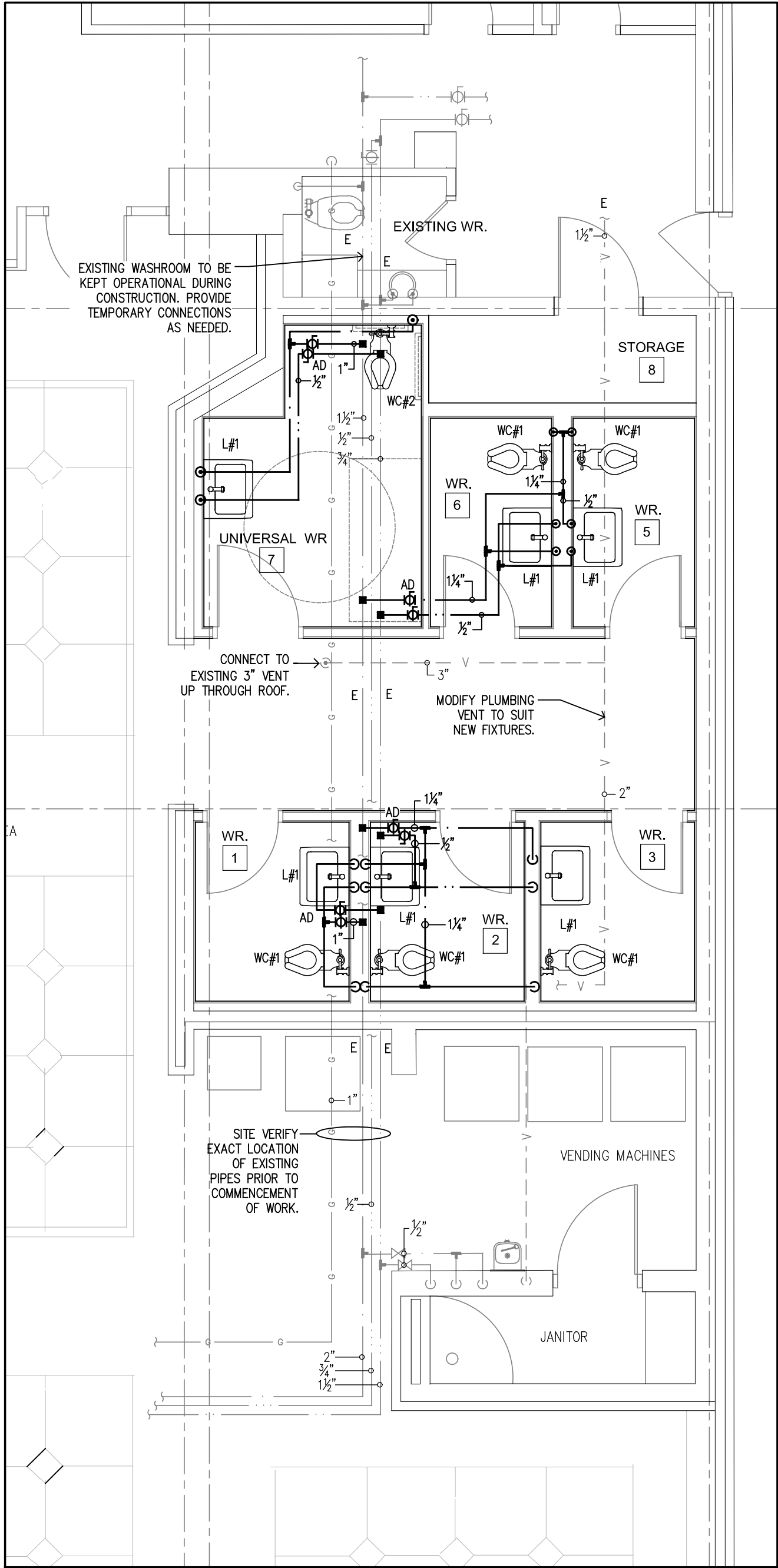
Drawing No:
A2.00



1 Mechanical - Plumbing - Washroom Demolition
M101 1:50



2 Mechanical - Sanitary - Proposed Washroom Floor Plan
M101 1:50



3 Mechanical - Plumbing - Proposed Washroom Floor Plan
M101 1:50

PLUMBING LEGEND

- COLD WATER PIPING
- HOT WATER PIPING
- HOT WATER RECIRCULATION PIPING
- SANITARY SEWER BELOW
- SANITARY SEWER ABOVE
- GAS LINE
- PIPE RISER
- PIPE DROP
- CLEAN OUT
- CLEAN OUT AT FLOOR LEVEL
- TRAP
- CONNECT TO EXISTING
- BALL VALVE
- GATE VALVE
- EXISTING DEVICE TO BE REMOVED
- EXISTING DEVICE TO REMAIN
- IN WALL TIMER SWITCH. REFER TO ELECTRICAL DRAWINGS.
- PROVIDE ACCESS DOOR

MECHANICAL GENERAL NOTES:

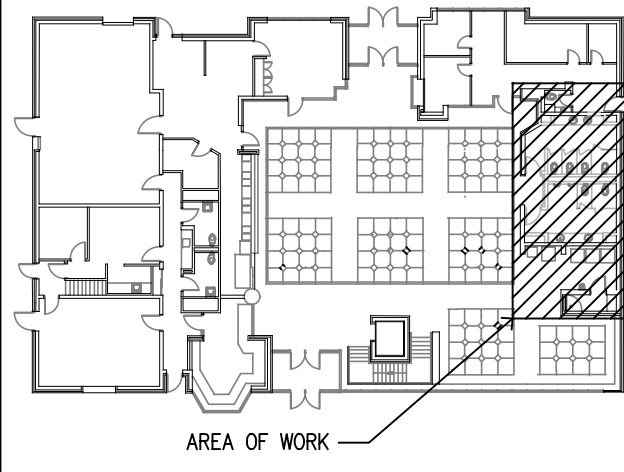
- REMOVE ALL UNUSED EQUIPMENT, PIPING, DUCTWORK, ETC. CUT CAP AND MAKE SAFE.
- FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
- NEW AND REUSED PENETRATIONS THROUGH MASONRY OR CONCRETE TO BE SLEEVED.
- VERIFY ALL POINTS OF CONNECTION TO EXISTING SERVICES PRIOR TO ROUGH-IN.
- COORDINATE WATER CLOSET FLUSH SENSOR HEIGHT WITH GRAB BARS AND WATER CLOSET SEAT. SEAT NOT TO AFFECT SENSOR OPERATION.
- REFER TO SPECIFICATION FOR LEAD FREE FIXTURE, VALVES, SOLDER ETC.
- PROVIDE CLEARANCE TO EQUIPMENT AS PER MANUFACTURERS RECOMMENDATIONS.
- NEW THERMOSTATS, TEMPERATURE SENSORS, OPERATOR INTERFACE CONTROLLERS, ETC. TO BE INSTALLED AT MAXIMUM HEIGHT OF 47" (1200mm) ABOVE FINISHED FLOOR. COORDINATE ON SITE WITH ALL OTHER TRADES PRIOR TO ROUGH IN.
- PRIME ALL FLOOR DRAINS TO COLD WATER PIPING AT NEAREST SINK OR TRAP PRIMER VALVE AS REQUIRED.
- PROVIDE ACCESS DOOR FOR VALVES IN CEILING SPACE.

DRAWING NOTES:

- SITE VERIFY EXACT TIE IN LOCATION AND SIZE PRIOR TO COMMENCEMENT OF WORK.

Plumbing Fixture Schedule

FIXTURE	MARKED	DRAIN	VENT	H.W.	C.W.	COMMENTS
WATER CLOSET	WC	4"	1-1/2"	----	1"	TO FLUSH VALVE
LAVATORY SINK	L	1-3/4"	1-1/4"	1/2"	1/2"	
FLOOR DRAIN	FD	3"	1-1/2"	----	1/2"	FROM PRIMER



Key Plan

N.T.S.

1. ISSUED FOR TENDER 2025/05/28

revision date

the Contractor shall check and verify all dimensions before proceeding with the work

A detail no.
B sheet no. where detailed

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Consultants Limited
1820 Bond St. North Bay, Ontario, P1B 4V6
Ph. 705-472-2536 Fx. 705-476-5105
Email - pcl@piotrowskiconsultants.ca

project
ONTARIO NORTHLAND –
BUS AND TRAIN STATION –
COUNTERS, BARRIER FREE ACCESS
AND WASHROOM UPGRADES

NORTH BAY ONTARIO

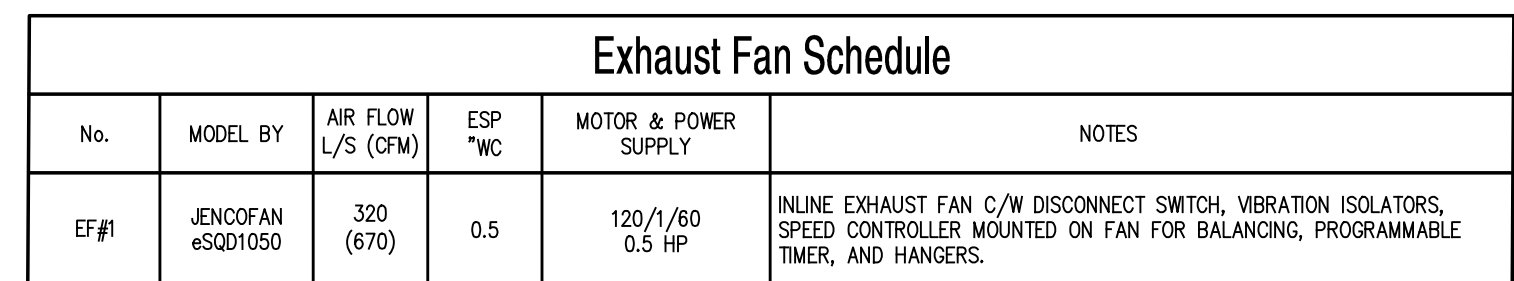
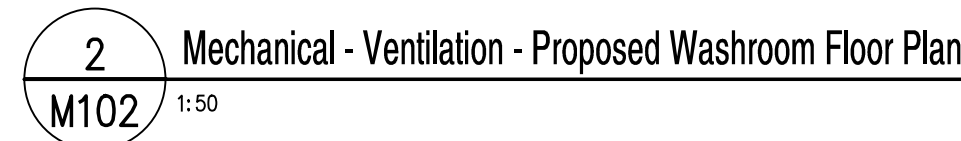
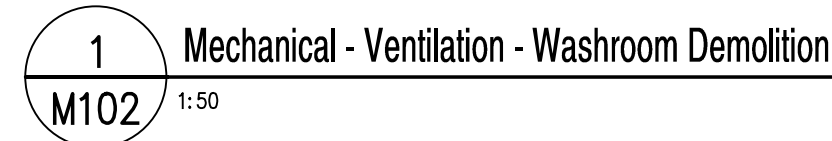
title
MECHANICAL
PLUMBING
WASHROOM FLOOR PLAN
DEMOLIATION AND PROPOSED

drawn by: TW date: MAY 2025

checked by: TK project no: 6649B

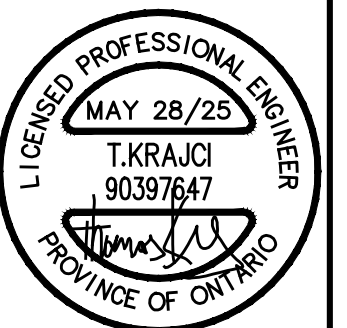
scale: AS NOTED dwg no: M101

plotted: May 28, 2025

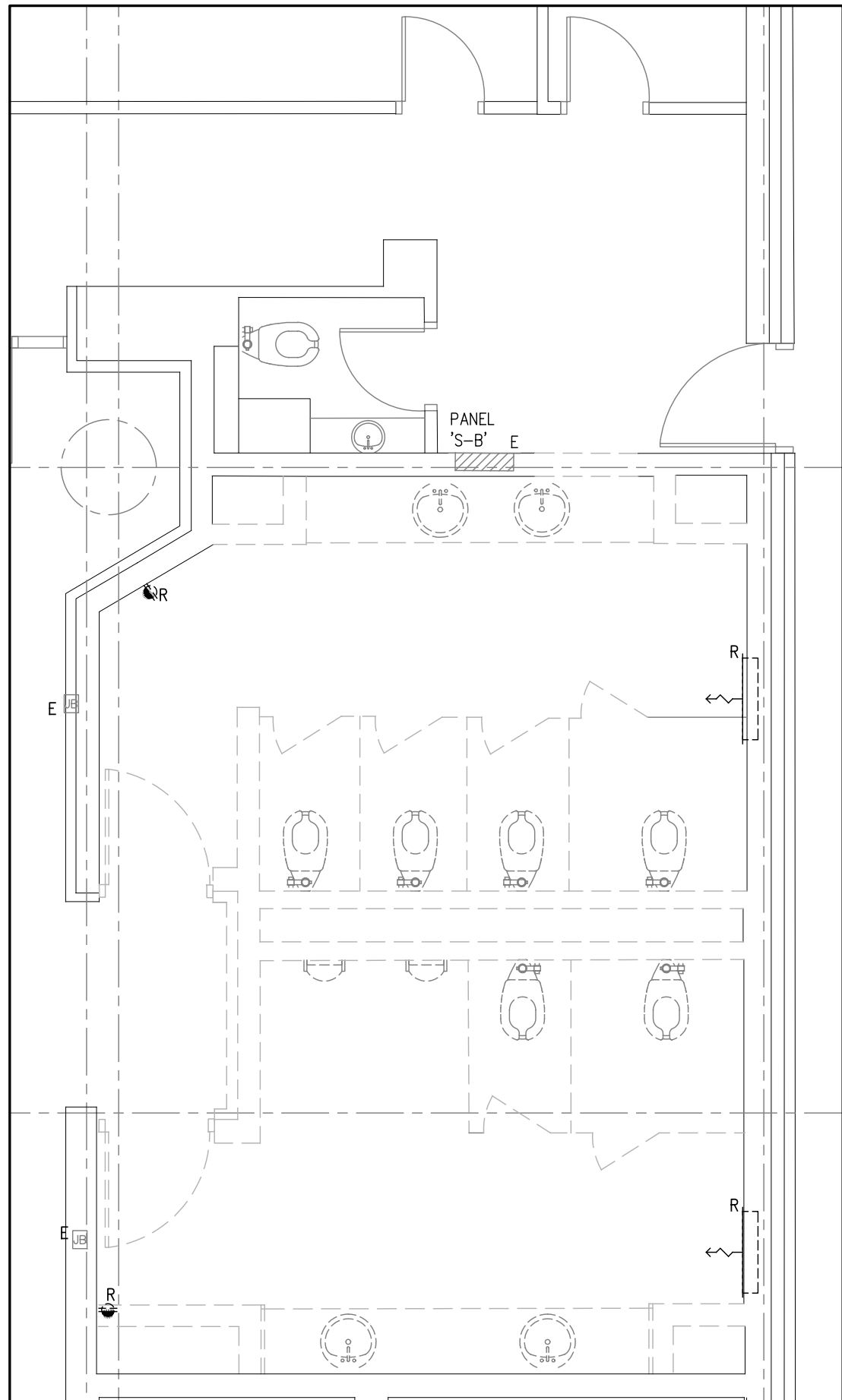


1. ISSUED FOR TENDER	2025/05/28
revision	date

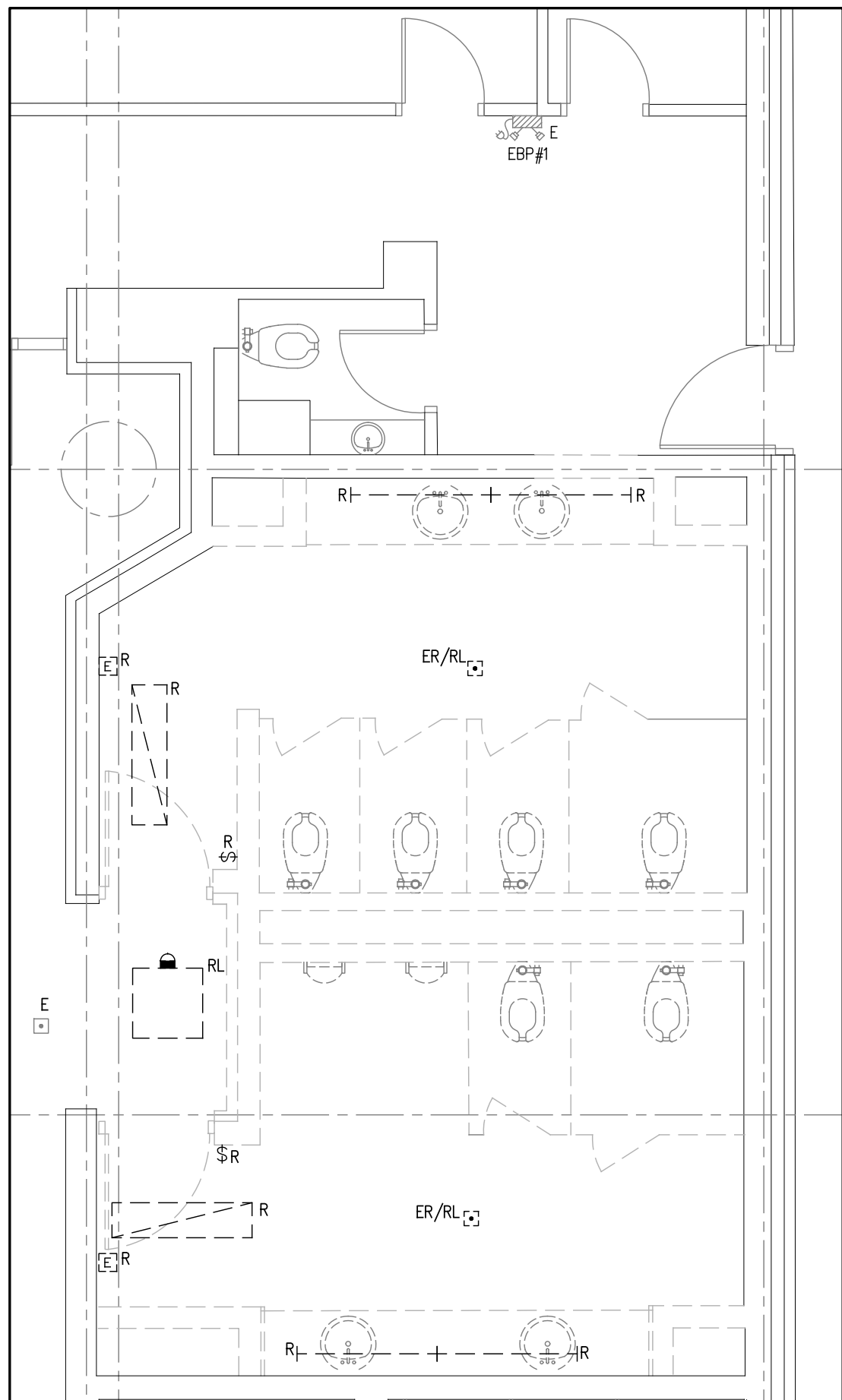
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and are protected by copyright. Reproduction of any
kind is strictly prohibited.



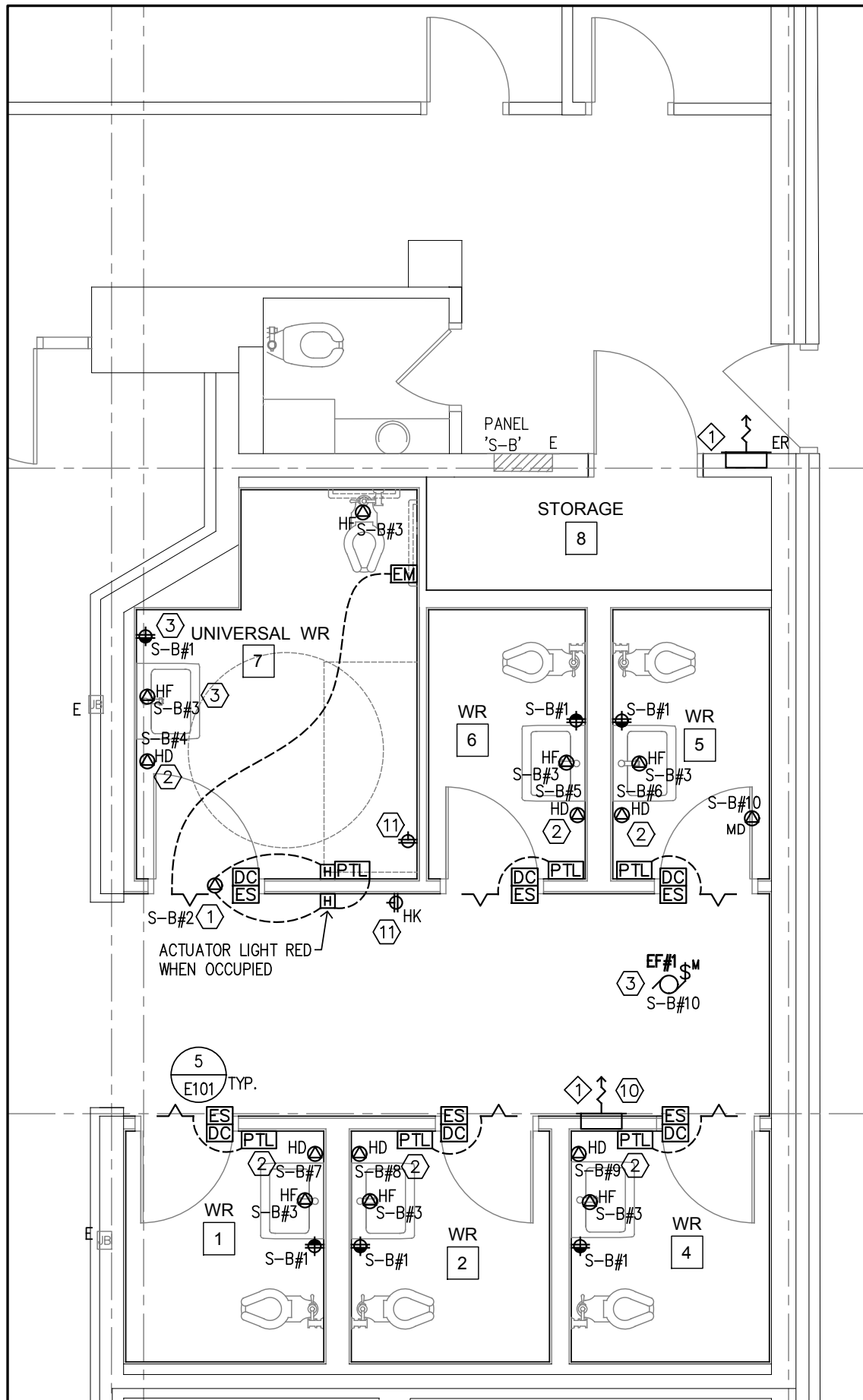
drawn by: TW	date: MAY 2025
checked by: TK	project no: 6649B
scale: AS NOTED	dwg no: M102
plotted: May 28, 2025	



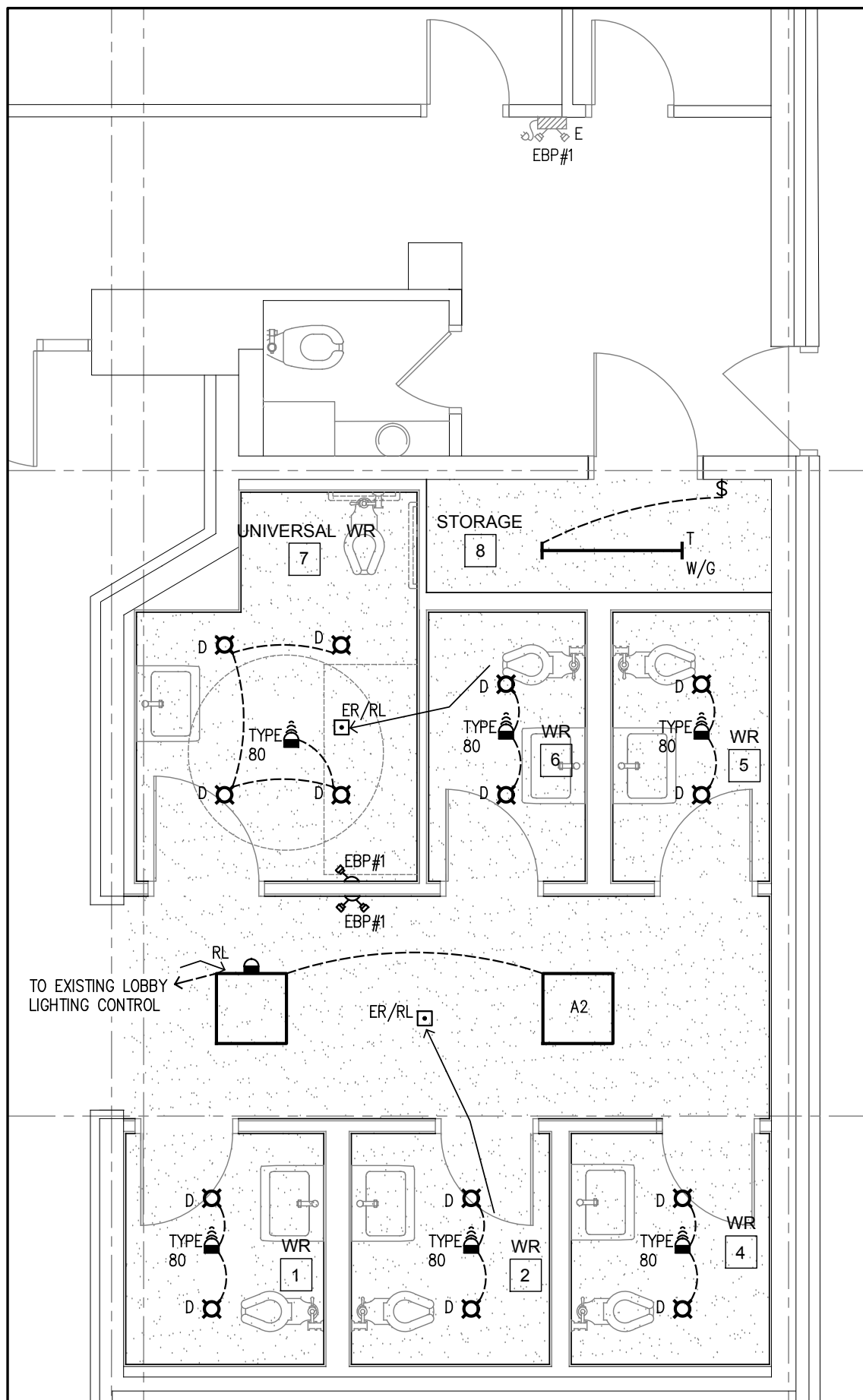
1 Power - Partial Main Floor Plan Existing
E101 1:50



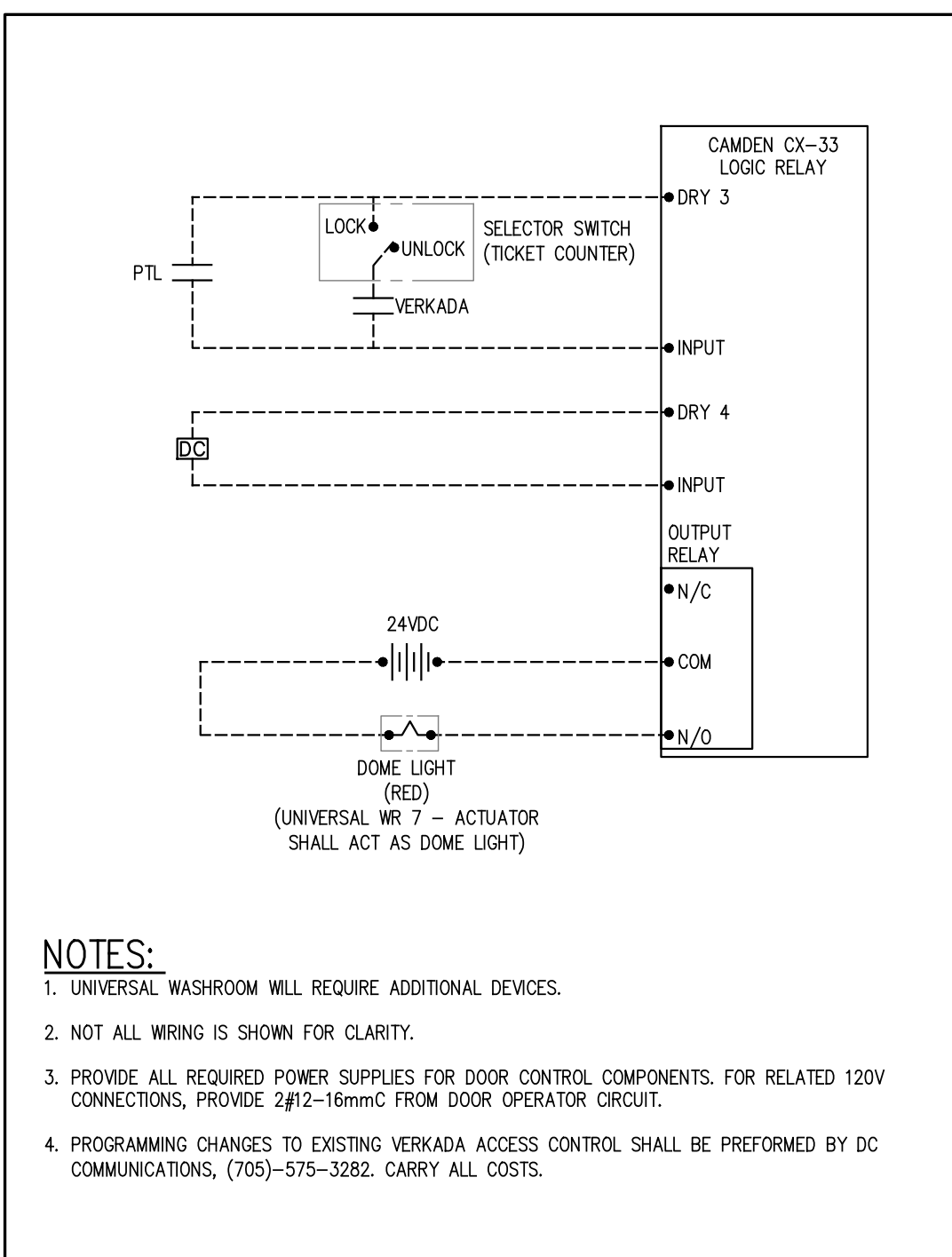
3 Lighting - Partial Main Floor Plan Existing
E101 1:50



2 Power - Partial Main Floor Plan Proposed
E101 1:50



4 Lighting - Partial Main Floor Plan Proposed
E101 1:50



5 Access Control - Typical Washroom Door Wiring Diagram
E101 1:50

WASHROOM ACCESS CONTROL SEQUENCE OF OPERATION:

1. ALL WASHROOM DOORS SHALL LOCK/UNLOCK ON A SCHEDULE USING THE EXISTING VERKADA ACCESS CONTROL SYSTEM. PROGRAM AND PROVIDE HARDWARE SUCH THAT THIS FUNCTIONALITY UTILIZES A SINGLE DOOR LICENSE.
2. PUSH BUTTONS, LOCATED BEHIND THE TICKET COUNTER, SHALL ALLOW STAFF TO MANUALLY UNLOCK WASHROOM DOORS, INDIVIDUALLY, AFTER HOURS.
3. EACH WASHROOM SHALL BE EQUIPPED WITH A DOME LIGHT TO INDICATE OCCUPANCY. THE DOME LIGHT SHALL BE ACTIVATED WHEN THE CORRESPONDING 'PUSH-TO-LOCK' BUTTON IS PRESSED ON THE INTERIOR SIDE.

WR DOOR, STAFF CONTROL PANEL BILL OF MATERIALS		
QUANTITY	DESCRIPTION	PART No. BY EATON
6	NON-ILLUMINATED SELECTOR SWITCH	M22S-WRK-K10
6	LEGEND PLATE HOLDER	M22S-ST-X
6	CUSTOM LEGEND PLATE INSERT - "WR 'X' UNLOCK UNLOCK"	M22-XST-ETCH
1	SIX ELEMENT PLASTIC SHROUD	M22-H6

Emergency Lighting Schedule					
DESCRIPTION	VOLTAGE	WATTAGE	LED HEADS	OPTIONS	ACCEPTABLE PRODUCTS
DUAL REMOTE EMERGENCY LIGHTING HEADS	12V	7W	2 x 7W	COMPLETE ADJUSTABILITY, TWIST LOCK LAMP COLLAR	STANPRO M-LED SERIES
SINGLE REMOTE EMERGENCY LIGHTING HEADS	12V	7W	7W	COMPLETE ADJUSTABILITY, TWIST LOCK LAMP COLLAR	STANPRO M-LED SERIES

Lighting Schedule								
FIXTURE TYPE	DESCRIPTION	LUMENS	COLOUR TEMP.	VOLTAGE	MOUNTING	DIMMING	CONTROLS	OPTIONS
A2	2X2 LED FLAT PANEL	4000	4000K	120V	RECESSED DRYWALL	0-10V TO 1%	nLIGHT AIR WIRELESS	SATIN WHITE LENS
D	6" DOWNLIGHT	2000	4000K	120V	RECESSED DRYWALL	0-10V TO 1%	nLIGHT AIR WIRELESS	WHITE DOWNLIGHT TRIM, SEMI-SPECULAR TRIM FINISH, WHITE PAINTED FLANGE.
T	4FT LED STRIP LIGHT	4000	4000K	120V	SURFACE MOUNTED	N/A	N/A	LITHONIA LDNG SERIES OR APPROVED EQUAL FROM COOPER LIGHTING
U	TAPE LIGHT	300LM/FT	4000K	120V	COVE MOUNTED	TRAC	nLIGHT AIR rPP PCD PHASE ADAPTIVE DIMMING POWER PACK	LESS REFLECTOR, FROSTED DIFFUSER, WHITE PAINT FINISH, WIREGUARD
							END CAP, POWER CORD, MOUNTING CLIPS AND REQUIRED ACCESSORIES	
							LITHONIA ZLIN SERIES OR APPROVED EQUAL FROM COOPER LIGHTING	
							LINEAR LIGHTING 120V AC eSTRIP OR APPROVED EQUAL FROM COOPER LIGHTING	

Electric Heater Schedule						
No.	DESCRIPTION	MAKE & MODEL	CAPACITY (kW)	SIZE mm (in)	VOLTAGE	NOTES
1	FORCED FAN HEATER	QUELLET QAC02008 OR EQUAL BY STELPRO	2.0	408 (16 1/8) X 578 (22 3/4)	208V SP	C/W BUILT-IN TAMPERPROOF THERMOSTAT, WHITE FINISH

ELECTRICAL LEGEND	
	LIGHTING FIXTURE, CLG MTD (TYPE AS NOTED)
	EXISTING LIGHTING FIXTURE TO BE REMOVED
	STRIP LIGHTING FIXTURE (TYPE AS INDICATED)
	TAPE LIGHTING FIXTURE (TYPE AS INDICATED)
	CEILING MOUNTED LIGHT FIXTURE (TYPE AS INDICATED), HATCHING DENOTES UNSWITCHED
	120V WALL MOUNTED SWITCH UNLESS OTHERWISE SPECIFIED
	MOTOR RATED SWITCH WITH PILOT LIGHT
	MULTI-ZONE CAT5 CONNECTED, 0-10V TOUCHSCREEN, WITH 16 SCENE DIM CONTROLS EQUAL TO nLIGHT rPPD GFX SERIES
	OCCUPANCY SENSOR- CEILING MOUNTED - TYPE AS NOTED
	WIRELESS OCCUPANCY SENSOR- CEILING MOUNTED - TYPE AS NOTED
	SINGLE REMOTE EMERGENCY LIGHTING HEAD
	WALL MOUNTED DUAL REMOTE EMERGENCY LIGHTING HEAD
	REMOTE EMERGENCY LIGHTING HEAD - SINGLE LIGHT IN A SINGLE CUBE
	EMERGENCY BATTERY PACK WITH DUAL HEADS
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER
	GROUND FAULT DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER
	2 DUPLEX RECEPTACLES IN A DOUBLE GANG BOX
	GROUND FAULT DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE 5-20R 20A T-SLOT
	VOICE/DATA OUTLET C/W ONE DATA JACKS & 1 VOICE JACK AND A 21mm CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
	DATA OUTLET C/W TWO DATA JACKS AND A 21mm CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
	ANALOGUE PHONE OUTLET C/W ONE RJ-11 VOICE JACK AND A 21mm CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
	WINDOW MOUNTED TALK THROUGH SPEAKER SYSTEM EQUAL TO NORCOM COMMUNICATION TTU-IDX-L-ADA, COMPLETE WITH TTU-WHS WIRELESS HEADSET
	DIRECT CONNECTION FOR EQUIPMENT
	JUNCTION BOX COMPLETE WITH COVER PLATE
	MOTOR CONNECTION
	ELECTRICAL PANEL, FLUSH MOUNTED (DESIGNATION AS SHOWN)
	BARRIER FREE DOOR ACTUATOR - PROVIDE RECESSED DOUBLE GANG BACK BOX AND 21mm CONDUIT TO ACCESSIBLE CEILING SPACE
	ELECTRICAL STRIKE BY DIV.08, PROVIDE BACKBOX AND 16mm CONDUIT TO ACCESSIBLE CEILING SPACE
	PUSH TO LOCK BY DIV.08, PROVIDE BACKBOX AND 16mm CONDUIT TO ACCESSIBLE CEILING SPACE
	DOOR CONTACT BY DIV.08, PROVIDE BACK BOX AND 16mm CONDUIT TO ACCESSIBLE CEILING SPACE
	EMERGENCY CALL STATION BY DIV.08, PROVIDE BACK BOX AND 16mm CONDUIT TO ACCESSIBLE CEILING SPACE
	DOME LIGHT BY DIV.08, PROVIDE BACK BOX AND 16mm CONDUIT TO ACCESSIBLE CEILING SPACE
	FORCED FAN HEATER - RECESSED
	P.A. SYSTEM- NEW CEILING MOUNTED SPEAKER GRILL, ROUND WHITE IN COLOUR
	MOMENTARY PUSH BUTTON
	CENTERLINE DEVICE MOUNTING HEIGHT ABOVE FINISHED FLOOR
	EXHAUST FAN (DESIGNATION AS SHOWN)
	HAND DRYER
	HANDS FREE PLUMBING FIXTURE
	EXISTING DEVICE TO BE REMOVED
	EXISTING DEVICE TO REMAIN
	EXISTING DEVICE TO BE REPLACED WITH NEW
	EXISTING DEVICE TO BE RELOCATED
	DEVICE WITH GUARD AS NOTED
	EXISTING DEVICE TO BE REMOVED AND REINSTALLED

ELECTRICAL GENERAL NOTES:

1. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE.
2. ELECTRICAL CONTRACTOR IS TO OBTAIN ALL APPROVALS FROM LOCAL ELECTRICAL SAFETY AUTHORITY PRIOR TO COMMENCING WORK.
3. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH CRITCHLEY HILL ARCHITECTURE INC. DRAWINGS. ENSURE ALL REQUIREMENTS ARE COORDINATED AND CARRIED.
4. ALL DEVICES SHOWN ARE NEW, UNLESS OTHERWISE NOTED.
5. FIRE STOP ALL PENETRATIONS THRU FIRE RATED ASSEMBLIES.
6. ALL UNUSED WIRING SHALL BE PROPERLY TERMINATED, OR REMOVED. WIRING THAT CANNOT BE REMOVED AND IS CONCEALED AND INACCESSIBLE MUST BE CUT OFF WHERE EXPOSED (SO AS TO BE TOO SHORT TO BE REUSED) AND BE MADE SAFE.
7. CIRCUITING SHOWN IS FOR GROUPING PURPOSES ONLY. ALL CIRCUITS TO BE FROM LOCAL 120V PANELS. RE-USE EXISTING WIRING, WHERE PRACTICAL, AND PROVIDE NEW AS REQUIRED. UPDATE ACTUAL CIRCUIT NUMBERS USED ON AS-BUILT DRAWINGS.
8. PROVIDE STAINLESS STEEL COVERPLATES FOR ALL WIRING DEVICES.
9. COORDINATE ALL WORK WITH ARCHITECTURAL DRAWING AND SPECIFICATIONS, INCLUDING DOOR HARDWARE SCHEDULE. ELECTRICAL CONTRACTOR TO PROVIDE ALL WORK THAT IS INDICATED AS DIVISION 26 IN ARCHITECTURAL DOCUMENTS.
10. ALL EXISTING ELECTRICAL EQUIPMENT WITHIN EXISTING WALLS AND MILLWORK BEING DEMOLISHED ARE TO BE REMOVED, AND WIRING TO BE PULLED BACK TO PANEL. ALL EXISTING ELECTRICAL EQUIPMENT WITHIN EXISTING WALLS AND CEILINGS THAT ARE STAYING ARE TO REMAIN, UNLESS OTHERWISE NOTED. REFER TO ARCH. DRAWINGS FOR DETAILS.

POWER GENERAL NOTES:

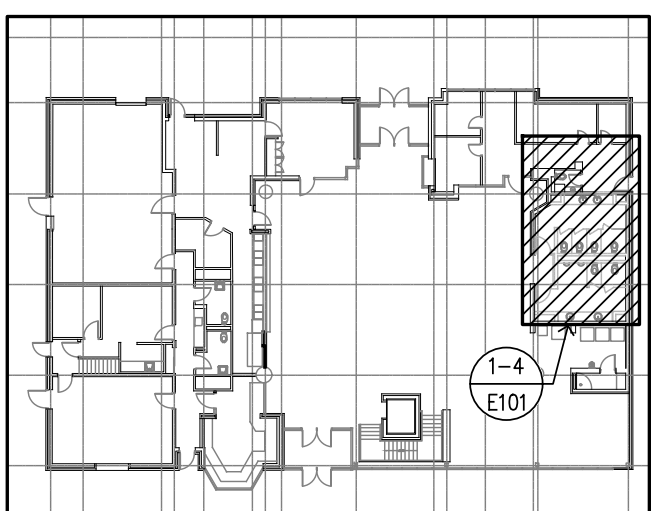
1. BRANCH CIRCUIT WIRING IN CONCEALED SPACES TO BE INSTALLED IN CONDUIT. REFER TO THE SPECIFICATIONS ON THE MAXIMUM LENGTH OF ARMoured CABLES THAT CAN BE USED.
2. ELECTRICAL CONTRACTOR TO PROVIDE THE DEVICE AND ROOM LOCATION INFORMATION ON ALL CIRCUITS IN THE PANEL SCHEDULE. (FOR EXAMPLE, RECEPT - RM 100)
3. PROVIDE CLEAR LABELS ON ALL WIRING DEVICES INDICATING PANEL AND CIRCUIT NUMBERING. (FOR EXAMPLE PNL#A CCT 11.)
4. ALL VOICE / DATA CABLEING TO BE TERMINATED A EXISTING IT RACK IN BASEMENT MECH/ELEC ROOM.
5. ALL VOICE / DATA OUTLETS TO BE COMPLETE WITH 27mm CONDUIT TO ACCESSIBLE CEILING SPACE. ALL CABLES TO BE PROVIDED BY ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED.
6. ALL VOICE, DATA CABLES IN CEILING SPACE TO BE SUPPORTED BY J-HOOKS. REFER TO DIVISION 26 FASTENING AND SUPPORT SPECIFICATIONS FOR FURTHER DETAILS.
7. ALL VOICE, DATA CABLE TO BE FT6 PLENUM RATED.

LIGHTING GENERAL NOTES:

1. DASHED LINES JOINING FIXTURES, SENSORS, AND SWITCHES INDICATE THE FIXTURES THAT ARE CONTROLLED BY EACH SENSOR AND SWITCH.
2. NOT ALL CEILING TYPES ARE SHOWN ON THE DRAWINGS AND ARE USED FOR REFERENCES PURPOSES ONLY.
3. EXISTING LAMPS AND BALLASTS TO BE DISPOSED OF IN MANNER THAT SATISFIES ALL LOCAL AND ENVIRONMENTAL CODES, IN ACCORDANCE WITH MOE GUIDELINES AND IN APPROVED DISPOSAL FACILITY.
4. ALL LIGHTING FIXTURES SHALL BE INDEPENDENTLY SUPPORTED TO THE STRUCTURE BY PROVIDING TWO CHAINS INSTALLED AT EACH OPPOSITE CORNER. COORDINATE EXACT REQUIREMENTS ON SITE.
5. ALL EXISTING LIGHT FIXTURES IN AREAS SHOWN WITH NEW LIGHT FIXTURES ARE TO BE REMOVED. NEW LIGHT FIXTURES TO BE RECONNECTED TO EXISTING CIRCUITS AND WIRING. EXTEND WIRING AS REQUIRED. ALL EXISTING LIGHT FIXTURES, BALLASTS AND LAMPS BEING REMOVED ARE TO BE DISPOSED OF BY CONTRACTOR.

ELECTRICAL DRAWING NOTES:

1. PROVIDE 2#12-16mmC CONNECTION TO AUTOMATIC DOOR OPERATOR FROM SPARE 15A/1P BREAKER IN PANEL 'S-B'. COORDINATE REQUIREMENTS WITH DOOR HARDWARE SUPPLIER ON SITE PRIOR TO ROUGH IN.
2. PROVIDE A DEDICATED 15A/1P BREAKER AND 2#12-16mmC TO NEW HAND DRYER FROM EXISTING 120/208V PANEL 'S-B'. NEW HAND DRYER TO BE EQUAL TO DYSON AIRBLADE V, SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE EXACT LOCATION AND INSTALLATION DETAILS WITH ARCHITECT ON SITE. NEW BREAKER SHALL MATCH EXISTING PANEL K4IC INTERRUPTING RATING. PANEL 'S-B' IS FEDERAL PIONEER NBLP PANELBOARD.
3. PROVIDE A NEW 15A/1P BREAKER IN EXISTING LOCAL 120/208V PANEL 'S-B' AND FEED WITH 2#12-16mmC. NEW BREAKER SHALL MATCH EXISTING PANEL K4IC INTERRUPTING RATING. PANEL 'S-B' IS FEDERAL PIONEER NBLP PANELBOARD.
4. PROVIDE RECESSED ENTERTAINMENT BACK BOX EQUAL TO HUBBELL NSA62M, MOUNTED AT 1500mm AFF, COMES WITH ONE DUPLEX RECEPTACLE AND ONE DATA JACK.
5. PROVIDE 2" (50mm) FLEX-CONDUIT COMPLETE WITH CABLE GROMMET, BLACK IN COLOUR. PROVIDE SHOP DRAWING FOR PASS THROUGH.
6. TAPE LIGHTING FIXTURE TYPE 'U' SHALL BE COMPLETE WITH nLIGHT AIR rPP PCD PHASE ADAPTIVE DIMMING POWER PACK. TAPE LIGHTING FIXTURE SHALL BE CONTROLLED BY EXISTING nTS TOUCH SCREEN WALL SWITCH.
7. PROVIDE A NEW 15A/1P BREAKER IN EXISTING LOCAL 120/208V PANEL B AND FEED WITH 2#12-16mmC. NEW BREAKER SHALL MATCH EXISTING PANEL K4IC INTERRUPTING RATING. PANEL B IS FEDERAL PIONEER NBLP PANELBOARD LOCATED IN BASEMENT ELECTRICAL.
8. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
9. REMOVE AND REINSTALL EXISTING DOOR OPERATOR AS REQUIRED TO ACCOMMODATE NEW HINGES.
10. PROVIDE A NEW 15A/2P BREAKER IN EXISTING LOCAL 120/208V PANEL 'S-B' AND FEED WITH 2#12-16mmC. NEW BREAKER SHALL MATCH EXISTING PANEL K4IC INTERRUPTING RATING. PANEL 'S-B' IS FEDERAL PIONEER NBLP PANELBOARD.
11. PROVIDE A NEW 20A/1P BREAKER IN EXISTING LOCAL 120/208V PANEL 'S-B' AND FEED WITH 2#12-16mmC. NEW BREAKER SHALL MATCH EXISTING PANEL K4IC INTERRUPTING RATING. PANEL 'S-B' IS FEDERAL PIONEER NBLP PANELBOARD.



Key Plan
N.T.S.

1. ISSUED FOR TENDER	2025/05/28
revision	date

the Contractor shall check and verify all dimensions before proceeding with the work

A detail no.
B sheet no. where detailed

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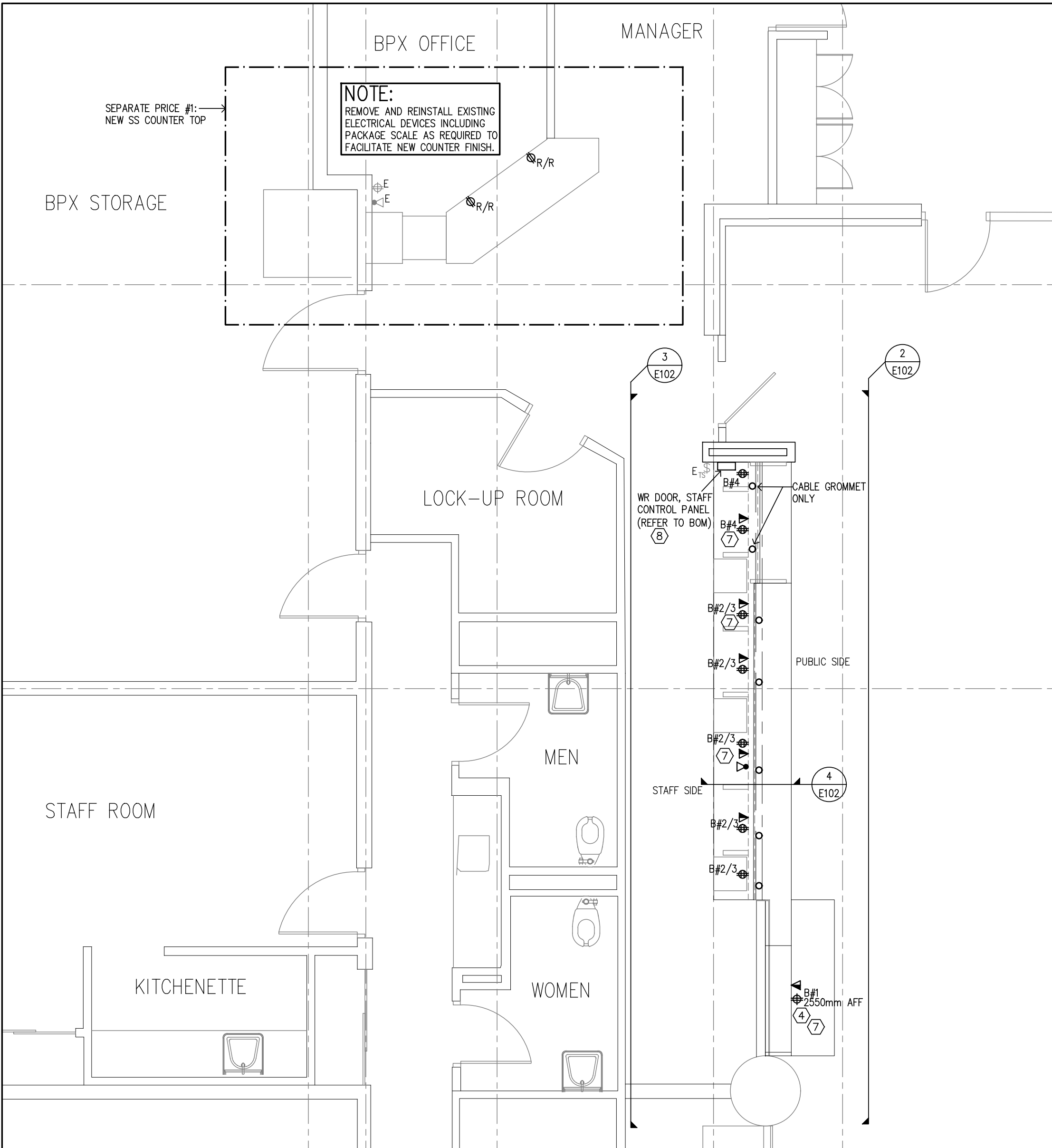
PIOTROWSKI
Consultants Limited
1820 Bond St. North Bay, Ontario, P1B 4V6
Ph. 705-472-2536 Fx. 705-476-5105
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project
**ONTARIO NORTHLAND –
BUS AND TRAIN STATION –
COUNTERS, BARRIER FREE ACCESS
AND WASHROOM UPGRADES**

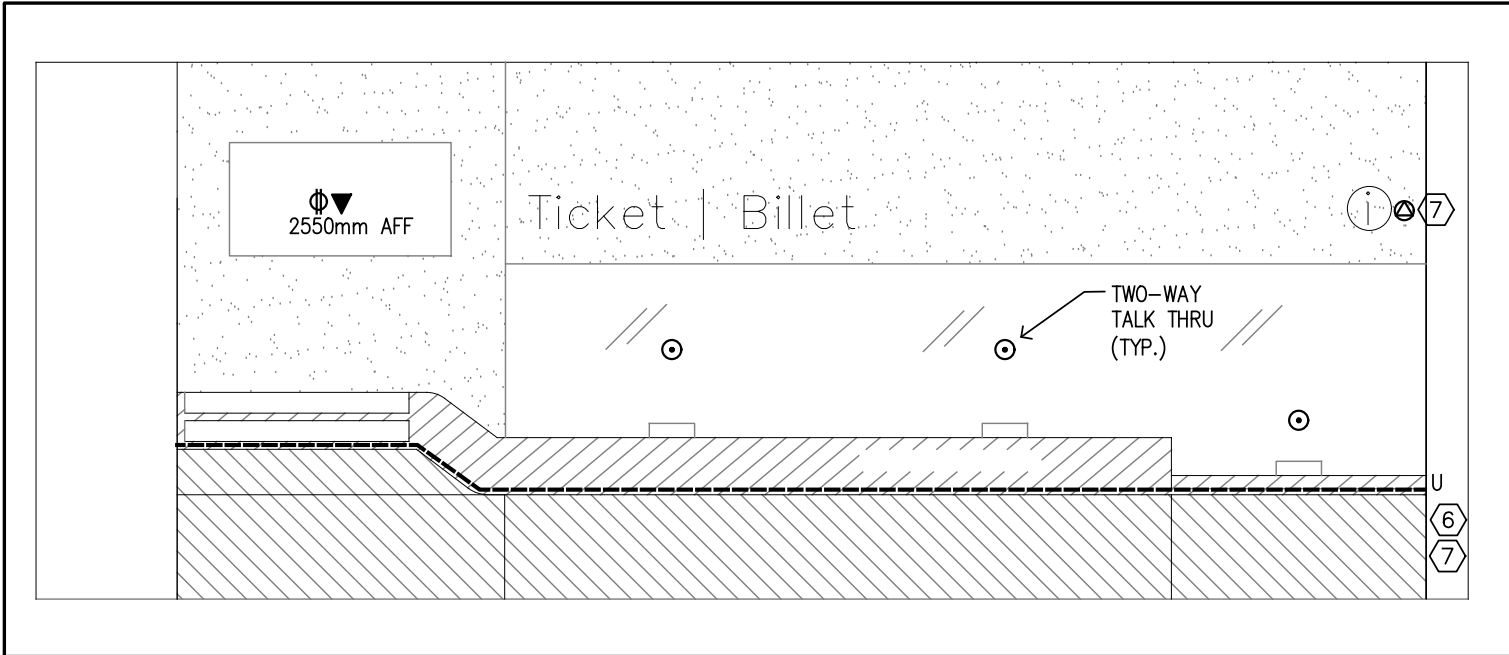
NORTH BAY ONTARIO

title
**ELECTRICAL
POWER AND LIGHTING
PARTIAL MAIN FLOOR PLAN
LEGEND, NOTES & DETAILS**

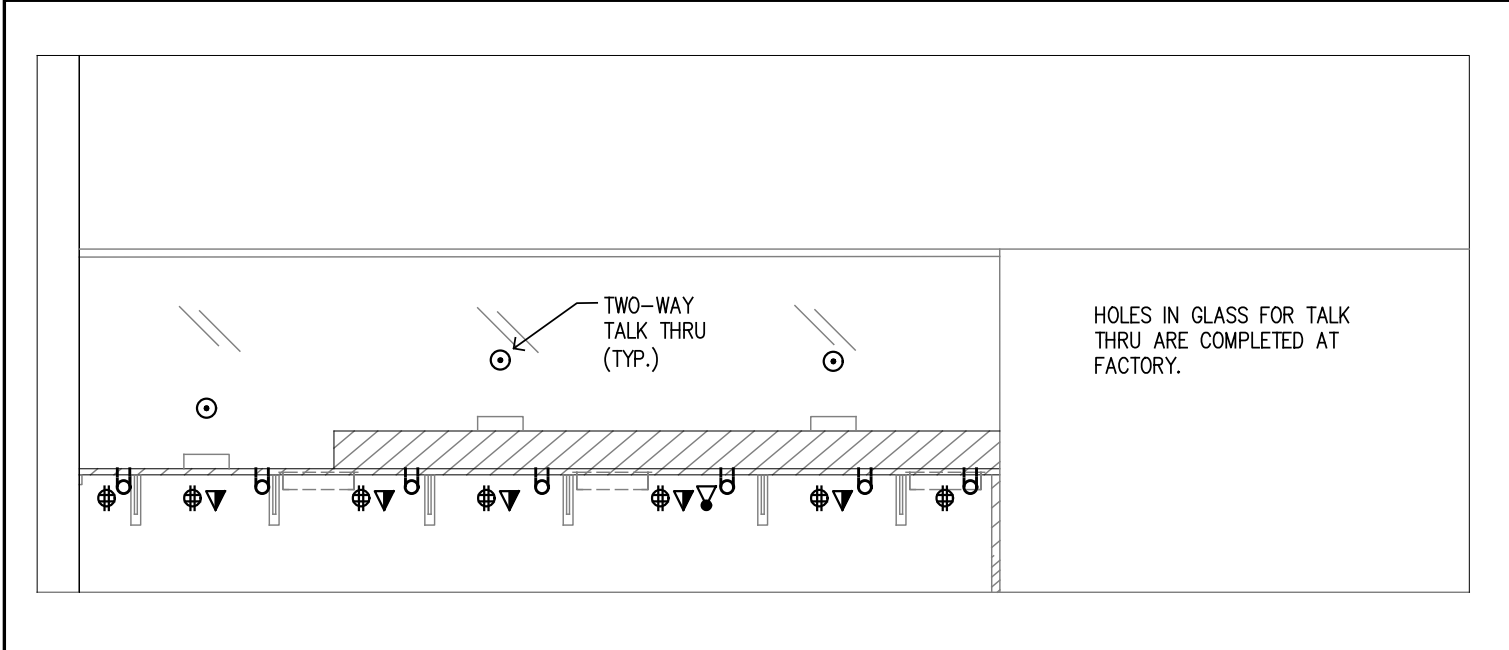
drawn by: EH	date: MAY 2025
checked by: RM	project no: 6649B
scale: AS NOTED	dwg no: E101
plotted: May 28, 2025	



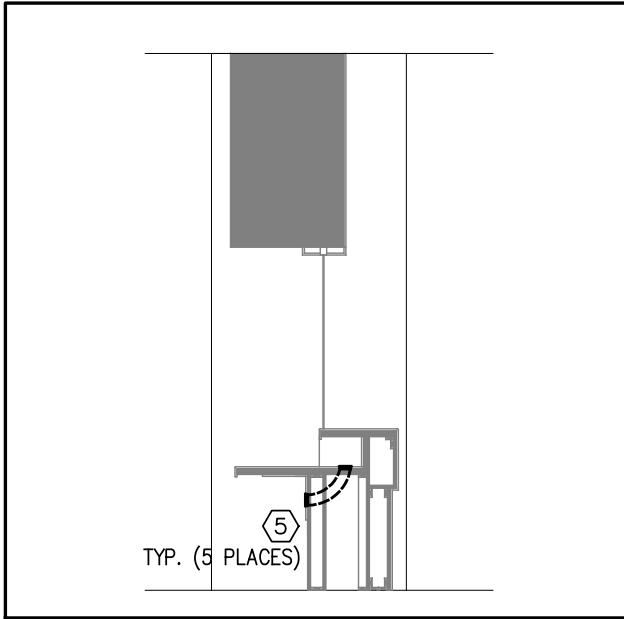
1 Power - Partial Main Floor Plan Ticket Sales Counter
E102 1:50



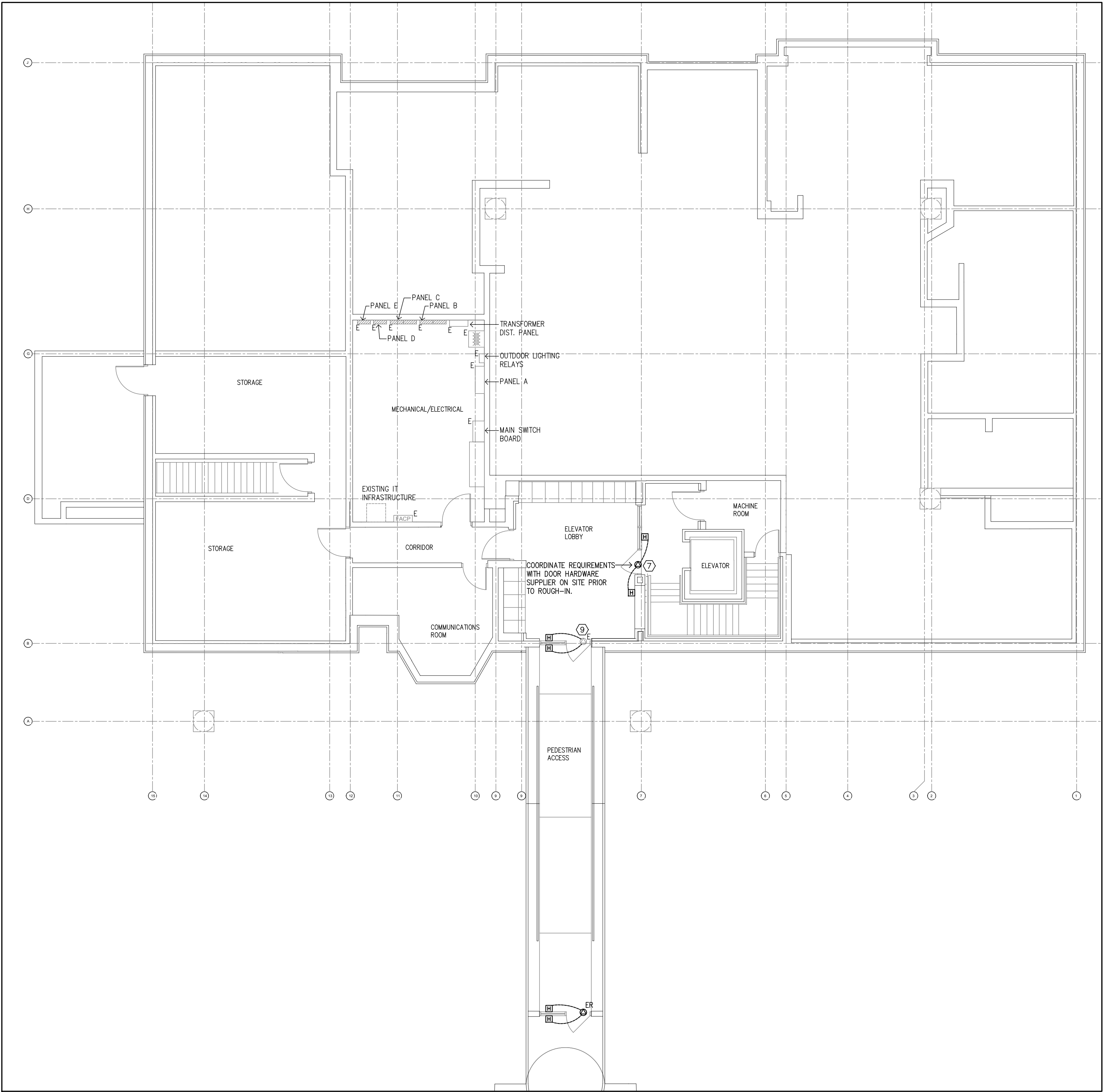
2 Power & Lighting - Interior Elevation Public Side
E102 1:50



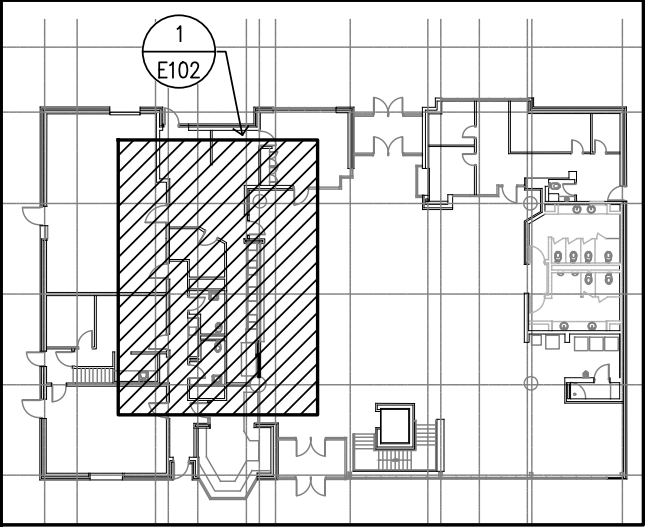
3 Power - Interior Elevation Staff Side
E102 1:50



4 Power - Ticket Section Details
E102 1:50



5 Power - Basement Floor Plan
E102 1:100



Main Floor Key Plan

N.T.S

1. ISSUED FOR TENDER 2025/05/28

revision date

the Contractor shall check and verify all dimensions before proceeding with the work

A detail no.
B sheet no. where detailed

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project
ONTARIO NORTHLAND –
BUS AND TRAIN STATION –
COUNTERS, BARRIER FREE ACCESS
AND WASHROOM UPGRADES

NORTH BAY ONTARIO

title
ELECTRICAL
POWER AND LIGHTING
PARTIAL MAIN FLOOR PLAN

drawn by: EH date: MAY 2025

checked by: RM project no: 6649B

scale: AS NOTED dwg no: E102

plotted: May 28, 2025

PART 3 – RFP SPECIFICATIONS
SCHEDULE 3-A-4
POLOCIES AND PROCEDURES

The Successful Respondent will be required to adhere to the following ONTC Policies and Procedures while under contract with ONTC, and which are attached to this Schedule 3-A-4.

TITLE
Contractors working on ONTC Property Near Railway Tracks
Railway Flagging Protection Policy
Lockout Tag out Procedure
Hot Work Program
Electrical Safety Policy
Contractor / Subcontractor Policy

<p style="text-align: center;">CONTRACTORS WORKING ON ONTC PROPERTY NEAR RAILWAY TRACKS</p>
--

The following procedure is to be followed when it is necessary for a Contractor to work on Ontario Northland Transportation Commission (ONTC) property near railway tracks.

- The Contractor, through the Contract Administrator, shall contact the District Manager for the Ontario Northland Railway (ONR) to coordinate and schedule their operations on or near ONR property.

Contact: Mr. Chad Martin
District Manager - District # 1
Englehart, Ontario
Office Phone No. (705) 544-2292, Extension 125
Cell No. (705) 545-0725

Contact: Mr. Dave Lallier
District Manager - District # 2
Cochrane, Ontario
Office Phone No. (705) 272-4610, Extension 632
Cell No. (705) 272-9588

- The Contractor shall fully comply with all requirements of ONR in the planning, scheduling and control of his works within the ONR right-of-way.
- The Contractor shall plan and carry out his work in a manner that does not interfere with rail traffic, or cause clearance restrictions.
- Flagging protection for railway traffic will be provided by the ONR upon notification as outlined herein. However, flagmen provided shall not relieve the Contractor from liability for damages to Railway facilities caused by the Contractor's operation.
- The Contractor shall have a responsible person present at all times to whom the Contract Administrator will issue instructions regarding work on ONR right-of-way.
- All communications with ONR shall be done through the Contract Administrator. ONR will not deal directly with the Contractor.
- All instructions from flagmen shall be obeyed immediately by all personnel on site.
- A flagman will be required when any personnel or equipment is working within 15 metres of the centerline of the nearest track, or protective devices where the work, in the opinion of the Contract Administrator or the Railway, may be exposed to or interfere with the operation of the Railway tracks.
- When a flagman is required, the Contractor, through the Contract Administrator, shall provide a written notice at least one week in advance to ensure the availability of flagmen.

SCHEDULE “A”

If prior to work commencing, the Contractor, through the contract Administrator, receives confirmation that such flagmen are not available, the Contractor, through the Contract Administrator, shall reschedule the proposed work to a date and time when such flagging protection will be available.

- In no case shall the Contractor or any of his equipment or personnel work closer than 15 metres from the centerline of the nearest track without prior consent of the Contract Administrator.
- No construction equipment, materials, or debris shall be permitted to be used, stored, dropped, or allowed to accumulate within 15 metres of overhead cable and posts.
- All equipment must stop working on the approach of any train when said equipment is on ONR right-of-way or within 15 metres of the centerline of the nearest track.
- The Contractor shall ensure that both rails of the same tracks are never connected with any conductor of electricity, such as steel measuring tapes or metal traction equipment.

Fiber Optic Cable

Along much of ONR's right-of-way lies buried fiber optic cable. A cable locate must be done prior to any work taking place. A locate request can be completed online at <https://www.ontarioonecall.ca/portal/> or by calling 1-800-400-2255.

ONR Railway Flagging Policy and Costs

The Contractor shall be responsible for payment of flagman protection costs. Flagging protection will be billed out by the ONR in accordance with the following:

Any occupation or crossing of the operating railway right-of-way not covered under a license of occupation or private crossing agreement **MUST** be protected by a railway flagman.

Arrangements for flagging protection are to be made by the Contractor, through the Contract Administrator, at least one week in advance by contacting the appropriate District Manager at the numbers provided above.

Flagging protection will be billed out as per the attached “Railway Flagging Protection Policy”.

ONTARIO NORTHLAND TRANSPORTATION COMMISSION RAILWAY FLAGGING PROTECTION POLICY

Work or other activity (on, over or under) or within 15 metres of ONTC's track may impact upon the safe use of the track. Consequently, it is essential that qualified ONTC personnel provide flagging protection when personnel, equipment or vehicles are going to be (on, over or under) or within 15 metres of the track for any purpose. Workers must follow the directions and instructions of the ONTC personnel providing the flagging protection, at all times.

Emergency Situations

There is no exception made to the requirement for flagging protection even when a condition arises where the reliability or safety of an installation or of equipment or the safety of personnel is at risk.

Grade Crossing Exemption

All crossings, equipment or structures encroaching onto railway lands require approval by ONTC, a signed licence agreement with ONTC and (in some cases) proof of insurance. If a person or business has fulfilled the requirements and has obtained a licence agreement for a grade crossing from ONTC, they are permitted to cross the track over their approved crossing – if the way is clear and safe.

Snow removal and brush clearing are subject to specific exemptions and requirements.

Procedure

Arrangements for flagging protection are to be made at least one week in advance by contacting the appropriate District Manager at one of the following numbers:

District # 1	Chad Martin	(705) 545-0725
District # 2	Dave Lallier	(705) 272-9588

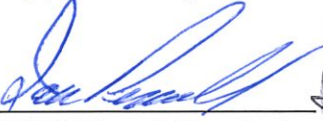
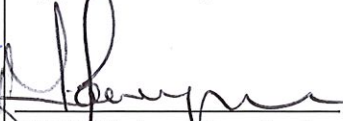
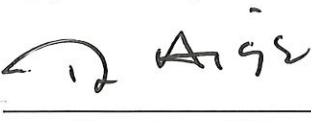
Unless otherwise authorized by the Director of Rail Infrastructure, all fees, as listed below, are to be paid by the applicant. The applicant is to provide a Purchase Order number at the time the arrangements are made with the District Manager.

Billing is based on an hourly rate including travel time, rounded up to the nearest full hour – plus applicable taxes. Rates are provided below.

Service (\$ per hour)	ONTC Fiscal Year					
	2023-24		2024-25		2025-26	
	Regular	Overtime	Regular	Overtime	Regular	Overtime
Flagging - hirail included	\$146.50	\$202.00	\$150.00	\$206.7	\$153.00	\$210.85
Flagging - hirail operator only	\$111.00	\$166.50	\$113.40	\$170.10	\$115.70	\$173.55

Office of the Director of Rail Infrastructure
March 2023

FOR RAIL EMERGENCIES CALL: 1-800-558-4129 Ext. 141

Lockout Tag out Procedure		
Procedure No. HSP-008		Revision:
Date Issued: February 9, 2017		Date:
Approved By: 	Approved By: 	Approved By: 
H&S Mgmt Co-chair	H&S Union Co-chair	Director of Operations

PURPOSE AND SCOPE

To ensure that dangerous machines are properly shut off and not started up again prior to the completion of maintenance or servicing work. This must be followed to avoid the unexpected energization or start up of the machinery or equipment, or the release of stored energy, which could cause injury to employees.

RESPONSIBILITIES

The Supervisor is responsible for ensuring this procedure is adhered to. Employees are to follow the instructions included in this safe operating procedure as well as any additional instructions given by his or her supervisor.

PROCEDURE

The following **SIX STEPS** are a review of basic steps for safely de-energizing equipment:

1. Notify all "affected employees" that the equipment will be shut down.
2. Shut down the equipment by normal stopping procedures. Open the main disconnect switch or breaker.
Note: Disconnect switches should never be pulled while they are under load. Shutdown everything you can at the point of operation, then pull the main switch with your LEFT hand while facing away from the switch box.
3. "Isolate" all the equipment's energy sources.
 - a. **Electrical-** All Electrical lockouts must be done by designated qualified personnel the only acceptable electrical lock out is to lock the correct disconnect switch in the OFF position. Where possible, it is also advisable to remove the fuses. When an electrical lockout is necessary and the control is a breaker, lockout the breaker where possible or switch off the breaker and lock the panel door,
 - b. **Steam/Air/Gas & Hydraulics-** These sources of power can be locked out by chains attached to the valves, by valves with built-in lockout devices or by designing special attachments for the valves. In pneumatic and hydraulic power systems, the pressure between the lock out and the machine must be reduced to zero before any work is begun. The pressure should be reduced slowly through a bleed-off valve. If the system does not incorporate a bleed-off valve, very slowly loosen a line fitting to reduce the pressure.
 - c. **Confined Spaces** – Where work is to be done in the confined spaces such as tanks, bins, etc., the supply lines must be blanked off or disconnected. Valves alone must never be depended upon. Pumps or other related power equipment must be locked out and the person in the confined space must keep the key.
4. Lock out and/or tag out the energy isolating devices with assigned, individual locks. Every employee involved must also put their own lockout and tag on each source of power at this time.
5. Release or restrain any stored energy by grounding, blocking, bleeding down, etc.

6. Assure that no personnel are exposed, and then test the equipment to assure that it will not operate. (check the lockout cannot be operated, then try the machine controls to verify a proper disconnect)

Restoring Equipment to Service:

1. Check to Assure that all employees have been safely positioned or removed from the area.
2. Verify that equipment controls are in neutral.
3. Remove lockout devices and/or tags and re-energize the machine or equipment. (each employee involved is responsible for removal of their own lockout and tag)
4. Notify affected employees that servicing is complete and the equipment is ready for use.

REQUIREMENTS

1. Employee should have metal tag with name and number stamped on the tag for each lock out you use. The tag is to be placed on the shank of the lockout each time the lock out is used.
2. Disconnects should be clearly marked to identify the equipment they energize or control.
3. Never depend on a push button as a means of locking out the equipment. The only positive lock out is made at the disconnect or breaker.
4. If you are being reassigned or going off shift and someone else is going to finish the job, your relief must put on their lock out before you remove your lock out
5. Employees will be issued one key with each lock. A duplicate key will be kept in the Supervisor's office. Each lock and key shall be numbered for ease of identification. The duplicate key is to be used in case of emergency.
6. Under circumstances should lockout be borrowed or loaned.

LOCK OUT REMOVAL PROCEDURE:

1. The area Supervisor shall be informed that a lock out needs to be removed and that the person assigned the lock out cannot be located.
2. The area supervisor will make every effort to contact the lock out owner and documents these attempts
3. If the area supervisor removing the lockout is not the supervisor of the lock out owner, that supervisor will be contacted if possible
4. If the above persons cannot be contacted and the area in question has been inspected and is clear of hazards to everyone, the lock out may be removed (cut-off).

REFERENCES

OSHA Standard: 29 CFR 1910.147

Canada Labour code – Part II

REVISION RECORD

<i>Description of Change</i>	<i>Date</i>
Original Issue	2/9/17

DATE FORMALIZED June 21, 2018 REVISED April 13, 2022	HOT WORK PROGRAM
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POLICY STATEMENT

In keeping with our values of safety, accountability, and continuous improvement Ontario Northland Transportation Commission (ONTC) is committed to the safety and health of all its employees by ensuring that all hazards associated with hot work is properly recognized, assessed and controlled.

PURPOSE

To establish the minimum requirements for the safe performance of hot work when conducting hot work at any ONTC location, and to ensure that all measures are taken to eliminate any risk that is generated by welding, cutting, grinding, soldering, or blazing.

APPLICATION AND SCOPE

This policy applies to any ONTC division, department, and employee who is required to perform hot work at any time during their work.

POLICY

All hot work jobs or projects are to be authorized by a manager, supervisor, designate or identified in daily work schedules and/or job descriptions.

All hot work must be performed by a competent worker who has the knowledge and training in the work being performed as per the identified risks associated with the work.

A competent person will be designated to monitor all hot work activities ensuring all procedures are being followed, and to conduct a fire watch for dangerous sparks.

When hot work is required on a rail car that contains a commodity or residue that is either a flammable gas, flammable liquid, or a liquid with a flash point below the ambient temperature or the temperature in the rail car, the work is to be conducted outside (provide location) and is only permitted when all safety precautions outlined in this procedure have been met and adhered to by personnel who have been trained to assess and control the hazards associated with hot work.

DEFINITIONS

Flammable Commodity:

A commodity that is a flammable gas, a flammable liquid or a liquid that has a flash point below the ambient temperature or temperature inside the rail car.

Flammable Gas:

A gas that has an LEL of less than 13 percent by volume in air or flammable range of more than 12 percent.

Flammable Liquid:

A liquid having a flash point below 37.8°C (100°F), also known as an NFPA Class I liquid.

Flash Point:

The temperature at which a liquid produces enough vapour to ignite in the presence of a suitable source of ignition.

Gas Tester:

Person assigned to perform required testing on/in a confined space, restricted space, railcar, etc. to ensure the area is safe to work on and/or identify control measures required to eliminate risk.

Hot Work:

For the purposes of this procedure, refers to any operation, process, or the use of anything that creates a source of ignition. Hot work includes, but is not limited to: welding, cutting torches, gouging, and the use of tools and equipment that are not intrinsically safe.

Lower Explosive Limit (LEL):

The minimum concentration of a flammable gas mixed with air, where an explosion or deflagration may occur in the presence of a suitable ignition. This concentration is expressed in percent by volume, where 1 percent represents 10,000 parts per million.

Tester:

A competent person who is responsible for making determinations of the conditions in or around the area of work, and has completed appropriate training on the measurement instruments and procedures used to perform the evaluation.

Vapour:

A gas given off by a substance that is normally a liquid at room temperature.

MATERIAL REQUIRED

Hot Work Hazard Assessment and Full task Observation Sheet
Norfalco Acid Tank Car Hazard Safety Inspection Sheet
Personal Protective Equipment
Fire Extinguisher
Testing Equipment – PH Test Paper, Gas Monitoring Equipment
Communication Devices

HAZARDS

This procedure describes some of the potential health hazards associated with welding fumes and gases. It also discusses the control and management of these hazards.

Welding produces metal fumes and gases that can make you sick. The risk depends on:

- The welding method (such as MIG, TIG, or stick)
- What the welding rod (electrode) is made of
- Filler metals and base metals (such as mild steel and stainless steel)
- Paints and other coatings on the metals being welded
- Ventilation

In confined spaces, welding can be much more dangerous. With less fresh air, toxic fumes and gases can be much stronger. Shielding gases, like argon, can displace the oxygen and kill you.

The two most common types of welding used are:

- The electric arc welding of metal using a flux-coated electrode (manual metal arc welding, MMAW, SMAW); and
- The electric arc welding of metal using a gas-shielded wire electrode (gas metal arc welding, GMAW).

Welding Fumes

Cadmium – may be present as a coating in certain materials being welded. Cadmium oxide fume on inhalation may cause acute irritation of the respiratory passages, bronchitis, chemical pneumonia or excessive fluid in the lung tissues (pulmonary oedema). There may be a latent period of several hours between exposure and onset of symptoms. The effects of overexposure to cadmium fumes may resemble metal fume fever initially. A single exposure to a very high concentration of cadmium oxide fume may be fatal. Chronic cadmium poisoning results in injury to lungs and kidneys.

Manganese – potential exposure to manganese occurs whenever this metal is used in electrode cores and coatings or in electrode wire. Acute poisoning from oxides of manganese is very rare in welders, although respiratory tract irritation from the fume may occur. Exposure to fume from welding on manganese steel may give rise to acute

inflammation of lungs. Metal fume fever is also a possibility after exposure to manganese fume. Chronic manganese poisoning, characterized by severe disorder of the nervous system, has been reported in welders working in confined spaces on high manganese steels.

Zinc – may be present as a surface coating on steel products, that is, galvanized steel. Exposure to freshly formed zinc oxide fume may produce a brief acute self-limiting illness known as metal fume fever, zinc chills or brass founder's ague. The symptoms, which resemble those of an acute attack of influenza, usually occur several hours after exposure to fume and usually with complete recovery within about 24 to 48 hours. Freshly formed oxide fume from several other metals has also been reported to cause metal fume fever. Leucocytosis, a transient increase in white blood cell counts, is reported to be a common finding in metal fume fever, but is not known to be common among welders.

Iron – most welding involves ferrous materials. The most abundant constituent of ferrous alloy welding fume is iron oxide. Long, continued exposure to such welding fume may lead to deposition of iron oxide particles in the lungs. When present in sufficient quantities, the deposition is demonstrable on chest x-ray films as numerous fine discrete opacities (nodulation and stripping) resembling silicosis. The technical name for this is siderosis and it is a benign form of pneumoconiosis. Siderosis tends to clear up when the exposure to metallic particles stops.

Molybdenum – Molybdenum is found in some steel alloys. Molybdenum fumes may produce bronchial irritation and moderate fatty changes in the liver and kidneys.

Fluorides – Welders may be exposed to fluoride dust, fume and vapours from certain MMAW and GMAW operations. Fluoride fumes may produce irritation of the eyes, throat, respiratory tract and skin. Chronic fluorosis is a syndrome characterized by an increased density of bones and ligaments due to fluoride deposition. However, no corroborating data are available which identify a relationship between exposure to fluoride-containing welding fumes and disorders of bones or ligaments.

Other Metals – Welding may produce fume from other metals, including aluminium, copper, magnesium, tin, titanium and tungsten. Within the confines of the current information available, no serious health disorders in welders are known to occur from exposure to fume from these metals but, under certain conditions, copper, aluminium and magnesium may give rise to metal fume fever and others to irritation of the respiratory tract.

Beryllium is a volatile and toxic component that may be present in many copper alloys being welded, that is, in the work piece itself. Beryllium oxide fume is very toxic to the respiratory tract, lungs and skin, and is quick acting. Beryllium is suspect human carcinogen. Note that beryllium may also be present in some aluminium or magnesium brazing alloys.

Gases

Oxides of nitrogen – The oxides of nitrogen, nitric oxide and nitrogen dioxide, are frequently formed by the direct combination of oxygen and nitrogen in the air surrounding

the arc or flame, as a result of heat from the electric arc or gas torch (oxidizing flames). In outdoor or open shop welding, hazardous abnormal concentrations are unlikely, except perhaps for short periods. In confined spaces, hazardous concentrations of nitrogen oxides may rapidly build up in welding operations. High concentrations of nitrogen oxides have also been found during gas tungsten-arc cutting of stainless steel.

Exposure to oxides of nitrogen may not always produce immediate effects but may result in fatal excessive fluid in the lung tissues (pulmonary oedema) some hours after the exposure stops.

Ozone – is formed only in small amounts in MMAW and in gas welding. It is however, produced in significant amounts in GMAW when welding with argon, especially when high amperages are used. High ozone concentrations are especially a problem when welding on reflective surfaces, such as aluminum and its alloys and stainless steel, and with high-energy processes such as plasma arc welding.

Phosphine – Phosphine is generated when steel coated with a rust proofing compound is welded. High concentrations of phosphine gas are irritating to the eyes, nose and skin. There may also be serious effects on the lungs and other organs.

Insufficient – oxygen in GMAW, the presence of inert gases (argon, helium) in confined work environments may reduce the oxygen content of the atmosphere to dangerous levels, with the threat of asphyxiation. See also the section on carbon dioxide in this procedure.

Pyrolytic products of resins used in primers / paints – the main products of thermal decomposition of resins used in primers and paints are carbon monoxide and carbon dioxide. Specific toxic or irritant chemicals given off from the resins used in priming materials include such hazardous substances as phenol, formaldehyde, acrolein, isocyanates and hydrogen cyanide. Usually, a very complex mixture of organic gases is formed.

HEALTH EFFECTS

SHORT TERM

Metal fume fever – Metal fume fever occurs in welders who inhale zinc oxide fumes, although other components, for example, copper, aluminum and magnesium, may also produce this condition. Symptoms of metal fume fever, which resemble influenza, usually occur several hours after exposure and include a metallic or sweet taste, chills, thirst, fever, muscle aches, chest soreness, fatigue, gastro-intestinal pain, headache, nausea and vomiting. The symptoms usually subside within one to three days of exposure with no residual effect.

Exposure to ozone – Exposure to ozone generated in GMAW and plasma arc welding may produce excessive mucus secretion, headache, lethargy, eye irritation and irritation and inflammation of the respiratory tract. In extreme cases, excess fluid and even hemorrhage may occur in the lungs. The irritant effects of the gas on the upper respiratory tract and the lungs may be delayed.

Exposure to nitrogen oxides – Nitrogen oxides produce somewhat similar respiratory tract effects to ozone. Inhalation of nitrogen oxides does not always produce immediate irritant effects but may result in excessive fluid in the lung tissues (pulmonary oedema) some hours after exposure ceases.

Control Measures

Where there is a likelihood of worker exposure to welding fumes and gases, steps should be taken to minimize that exposure. A thorough examination of work practices is essential. Procedures should be adopted to ensure that workers are not exposed to the hazard. Control measures include, but are not limited to the following, which are ranked in priority of their effectiveness:

Elimination/Substitution

- Remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones

Engineering Controls

- includes designs or modifications to equipment, ventilation systems, and processes that reduce the hazard at the source of exposure

Administrative Controls

- altering the way the work is done we can reduce the exposure along the path i.e. policies, and **work practices** such as standards and operating procedures (including training, housekeeping, equipment maintenance, and personal hygiene practices) Conduct pre-assessment of work to identify all hazards

Personal Protective Equipment

- Equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise

The control measures in this procedure are intended to assist anyone conducting hot work with identifying and controlling all hazards associated with the nature of the work. All hazards identified in the hazard assessment not identified in the procedure shall be controlled using this hierarchy first always looking to eliminate.

PROCEDURE

Welding, cutting, grinding, soldering and brazing in construction, maintenance, and fabricating activities present a significant opportunity for fire and injury.

Hot work presents an increased risk of fire and explosion hazard when it is performed in a confined and enclosed space. If performing Hot Work in a confined space, please refer to the confined space policy and procedure.

The following procedures are the minimum standard that ONTC anticipates its workers and contractors to achieve for all hot work performed.

1. Inspect the work area and consider the following:
 - Ensure that all equipment is in good operating order before work starts.
 - Ensure that all appropriate personal protective devices are available at the site.
 - Look for combustible materials.
 - Move all flammable and combustible materials away from the work area.
 - Sweep clean any combustible materials on floors around the work zone.
 - Remove spilled grease, oil, or other combustible liquid.

If combustible materials can't be moved:

2. If combustibles cannot be moved, cover them with fire resistant blankets or shields. Protect gas lines and equipment from falling sparks, hot materials, and objects.
3. Secure, isolate, and vent pressurized vessels, piping and equipment as needed before beginning hot work.
4. Post a trained fire watch within the work area, including lower levels if sparks or slag fall during welding, including during breaks, and for at least 30 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer (up to 3 or more hours) after the end of the hot work until fire hazards no longer exist.
5. Inspect the area following work to ensure that wall surfaces, studs, wires, or dirt have not heated up.
6. When work is completed ensure all compressed gas valves are closed and the cylinders are properly stored and secured safely.

Hot Work on Residue/Loaded Rail Cars

Before performing any work on a rail car ensure the following:

Before performing any work on a car containing acid caution must be given to the following risks:

- 1) The tank is still under pressure – highest risk
- 2) The tank will release acid gases/mists when opened and previously checked for pressure

The first time the tank is opened workers should wear a full face shield and protective clothing (e.g. polycoated Tyvek and gloves), and a ½ mask respirator equipped with a stacked P100/acid gas cartridges (or a full face respirator in lieu of the face shield).

Subsequent access if necessary may be limited to respiratory protection for acid gases/mists and gloves, but should not occur unless necessary.

1. The Manager of Quality Assurance shall determine the last contents and, where possible, the paint system used on the car to be worked on. This shall include, as applicable, the review of shipping documents and/or any other documentation or information as appropriate to verify the last contents or the paint system used.

Identification by the commodity stencilled on the car is not sufficient for content determination.

2. Where the car is found to contain an acid commodity a **Hazard/Safety Inspection Assessment Nor Falco Acid Tank Car** form must be completed by the Quality Assurance inspector to indicate if the car has passed or failed.
3. Prior to engaging in any hot work the person conducting the testing shall:
 - a. Identify and record the contents of the tank on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - b. Test for oxygen and then LEL at and around the manways, valves, or other potential sources of flammable gases that are within the distances outline in Section 3.
 - c. Stop any leaks as practicable prior to continuing and record this on the Hot Work Hazard Assessment and Task Observation form.
 - d. Record the final results of the testing on the Hot Work Hazard Assessment and Task Observation sheet.
 - e. Where a car's last commodity contains an acid perform PH testing on the car to ensure there is no acid residue remaining on or in the car
4. When a car contains a flammable commodity, no welding, gouging, flame cutting or similar operation is permitted within 15.4 meters (50 feet) and any other type of hot work is not permitted within 4.6 meters (15 feet) until the identified hazards on the **Hot Work Hazard Assessment and Task Observation** sheet have been controlled.
5. Once safe work condition is met, hot work may proceed only after the assigned worker(s):
 - a. Examines the Hot Work Hazard Assessment and Task Observation sheet and identifies the following items before commencing work:

- Car Number: verify that the number on the car is the same as that identified on the Hot Work Hazard Assessment and Task Observation sheet
 - Test results: verify that the air test meets the Hot Work Hazard Assessment and Task Observation sheet condition, also verify that the test results were conducted on the same shift and date the hot work is to be performed.
- b. Ensure that no other processes or operations are being performed in the area that could contaminate the work area with a significant amount of flammable gas, or that continuous monitoring occurs.
 - c. Ensure that if a combustible insulation is present, a suitable means to extinguish a fire is immediately available.
 - d. Ensure that all equipment to be used is inspected, in good condition and properly used and this is documented on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - e. Ensure that required personal protective equipment is inspected, in good condition, used properly and is documented on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - f. Ensure you print your name and initials on the **Hot Work Hazard Assessment and Task Observation** sheet.
 - g. Ensure that continuous monitoring is in place.
6. Hot work may normally only proceed when the LEL is zero, except where the source of flammable gas is clearly known and continuous monitoring is performed to ensure that the levels do not exceed 10 percent of the LEL.
 7. The tests conducted are valid for no more than the present shift, including overtime hours where applicable.
 8. Welding on the tank car shell of an uncleaned car containing a flammable commodity or residue is strictly prohibited. Welding on reinforcing pads of rail cars which are directly attached to the shell is permitted providing:
 - The welder is qualified and certified
 - No part of the weld is deposited on the tank shell
 - Continuous monitoring in the location of the hot work
 9. The ground connection for welding is to be attached directly to the part to be welded whenever practicable or as near as possible to the weld area
 10. A fully charged 20lb ABC fire extinguisher shall be readily available to the hot work area. In remote locations where work will be performed on a car containing a flammable commodity or residue, it is mandatory to have two (2) fully charged 20lb ABC fire extinguishers. One (1) in close proximity to the hot work site and the other one in an easily accessible location close by.

11. Where individuals are performing hot work on an uncleaned railcar radios must be available to ensure an effective means of communicating during an emergency. This process must be included in the site emergency response plan.
12. If a combustible insulation is present, a suitable means to extinguish a fire must be immediately available when welding, gouging, flame cutting or a similar operation is being performed.
13. When welding, gouging, flame cutting or a similar operation is to be performed, significant quantities of highly combustible materials (paper, wood chips, textile fibres, grass, etc.) must not be within 10 meters (35 feet) of the welding operation. If you are unable to relocate the highly combustible materials, they must be covered with a flame resistant tarp.
14. When welding, cutting, gouging or a similar operation is to be performed on the surface that has a paint system applied to it, using the hierarchy of controls appropriate precautions shall be taken to ensure that the person is not exposed to airborne concentrations above the applicable exposure limits established by the ACGIH or Provincial Legislation, whichever is most restrictive. This may include, but is not limited to:
 - Blasting the area clean prior to the performance of the work
 - Using stripping products to remove coatings, making sure to remove any residue before welding
 - Use wet slurry vacuum removal techniques for removing very toxic coatings
 - Do not grind coatings. Grinding dust may be toxic.
 - The use of engineering controls (e.g., ventilation)
 - The use of appropriate respiratory protection
15. Prior to performing hot work on the jacket of a car containing flammable commodity or residue the following must be completed:
 - a. Test the jacket space for any flammable gas local to the work area, through:
 - b. an existing access point to in the jacket space
 - c. or by creating an access point, local to the work area, into the interstitial space between the shell and jacket using a pneumatic or intrinsically safe drill and keeping the drill bit and work area cool with a suitable coolant.
16. Where any amount of flammable gas is found, the source shall be determined, and if the source is from inside the jacket space it shall be eliminated or controlled

prior to any hot work being performed. Record this on the **Hot Work Hazard Assessment and Task Observation** sheet.

17. If it is reasonably believed that the jacket space may become contaminated with a flammable gas during performance of the work (e.g. product leaks from a tank) then the jacket space shall be continuously monitored.
18. Where contamination is found in the jacket space other than a flammable gas (e.g. sulphur), an assessment of the hazards shall be made and appropriate precautions taken to protect the health and safety of the worker.
19. If the **Hot Work Hazard Assessment and Task Observation** condition is violated, or there is reasonable cause to believe that it may be violated during the performance of the work (e.g. product leaks from a tank into the area of hot work, leaks from a nearby process), the work shall stop immediately while the source is investigated. Retesting must be performed to ensure that the conditions are safe before continuing. The new findings shall be recorded on the **Hot Work Hazard Assessment and Task Observation** sheet.

RESPONSIBILITIES

Employer:

- Ensure that a written program for hot work is developed and maintained in accordance with all relevant legislation.
- Ensure that the hot work program is developed and maintained in consultation with the workplace health and safety committee and/or policy health and safety committee.
- Ensure that the hot work program and associated documentation is current and available to all workers and contractors (as required) performing any hot work.
- Ensure that an adequate assessment of the hazards related to the hot work being performed has been carried out before any worker begins hot work.
- Appoint a person with adequate knowledge, training, and experience to carry out the assessment and maintain a record containing details of the person's knowledge, training, and experience.
- Ensure all workers are given adequate training in recognition of hazards and safe work practices associated with hot work.
- Maintain adequate training records showing who provided the training, who received the training, and the date the training was provided.
- Provide all personal protective equipment (PPE) required to ensure safe work.

Site Supervisor:

- Ensure a full hazard assessment is completed and any hazards are identified and controlled before hot work begins.

- Where rail car contains a flammable commodity or acid base commodity ensure that the Hot Work Hazard Assessment and Task Observation sheet completed.
- Inspect and monitor all hot work jobs to ensure procedures are being followed, and adequate fire protection is provided for a fire watch on site
- Ensure that all work does not begin until all conditions identified have been met.
- Ensure that all personnel follow this policy and procedure.
- Assign an Observer to watch for dangerous sparks in the area above and below the work being completed.

Manager of Quality Assurance Department:

- When hot work is to be performed on a rail car determine the last contents of the rail car and if possible determine the paint system.
- Perform/delegate required testing on the car to ensure the car is safe to work on and/or identify control measures required to eliminate risk.
- Place an ONTC pass or fail sticker on the car to indicate quality assurance testing complete.

Observer:

- Ensure all conditions, precautions and controls are followed.
- Watch for sparks in the area above and below the work being completed.
- Conduct fire watch at all times including any coffee breaks or lunch breaks for 60 minutes after any hot work has been completed. Maintain a fire watch at thirty min intervals to monitor area for 4 hours after work has been completed, in case of flare ups.

Workers:

- Comply with this program and be fully aware of the contents of relevant assessments.
- Notify the site supervisor of any questions or concerns with the hot work being performed or the hot work program.
- Notify the site supervisor of any contraventions of Part 2 of the Canada Labour Code, H&S regulations, and or any ONTC policies and procedures.
- Ensure all required PPE is in worn when conducting hot work.
- Participate in all required training.
- Inspect all cutting torches, and welding equipment for wear, defective parts and any other safety hazard before beginning any hot work and as often as required by the manufactures instructions.

Workplace/Policy Health and Safety Committee:

- Conduct regular audits to ensure the hot work procedures are being adhered to.
- Participate in policy review and provide recommendations to the employer if required

SWITCHING

1. A car that has been dropped off by a switching company (CN, CP, Railserve, etc.) and contains a flammable commodity, is not to be moved with a Trackmobile or similar equipment until an assessment is made to ensure that it is not leaking excessively.
2. Where a car that is leaking to the point where the airborne concentration of gas is likely to exceed 10 percent of the LEL at the coupler, a buffer car shall be positioned between the leaking car and the Track mobile, or similar equipment.
3. The distance set out in Section 3 of Hot Work on Residue/Loaded Rail Cars shall be considered when a car is to be moved such that the car does not enter an area where the requirements of this procedure would be violated (e.g. welding)
4. A car that contains a flammable commodity shall not be brought indoors unless it is confirmed that it is not leaking and it is being brought into an area that meets the requirements of NFPA 497.

Hot Work Hazard Assessment and Task Observation – RECORD RETENTION

When the work has been completed on Residue/Loaded Rail Cars:

1. Quality Assurance Tags to be removed from the car and the hot work hazard assessment and task observation sheets are filed and maintained for a minimum of 2 years.
2. Records for the testing must be kept for a minimum of three years.

TESTING EQUIPMENT

1. The gas monitoring equipment used for this standard is the VENTIS MX4.
2. Where available, the unit is to be set in the PPM mode for all tests.
3. A functional (“bump”) test must be performed on every instrument prior to each day’s use. A functional test is defined as a brief exposure of the monitor to known concentration of gas(s) for the purpose of verifying sensor and alarm operation. It is not intended to be a measure of accuracy of the instrument. The bump test shall be recorded on the bump test form.
4. A full instrument calibration must be performed monthly using certified concentrations of calibration gas(s) and recorded. Each gas-monitoring unit must have a calibration form, which will be maintained with the unit. Record the unit’s model and serial number, date calibrated and the name of the individual performing the calibration. Enter the full span reading for each sensor and the calibration has used.
5. The recommended calibration gas for the LEL sensor is Pentane.
6. The unit shall have the alarm set at 10 percent for LEL.

TRAINING

Any personnel performing hot work on residue/loaded rail cars must receive applicable training including but not limited to Hazard Assessment, WHMIS, and in some

circumstances Transportation of Dangerous Goods. Employees performing the tasks described in the procedure must also be aware of the commodity present in the particular car they are working on.

Personnel performing calibrations, bump testing, or other gas testing must be trained on the specific use and limitations of the particular gas detection devices they are using.

REFERENCES

1. Canada Labour Code R.S.C., 1985, c. L-2, Part II – Occupational Health and Safety
2. Canada Occupational Health & Safety Regulations (SOR/86-304)
3. PSP-S-03 - PROCOR Limited Standard Responsible Care Standard for Hot Work On Residue/Loaded Rails Cars
4. NFPA 51B - Fire prevention in the use of cutting and welding Processes
5. CSA W117.2-12 Safety in Welding, cutting, and allied processes
6. ANSI Z49.1:2012 Safety in Welding, Cutting, and Allied Processes
7. Canadian Centre for Occupational Health & Safety
http://www.ccohs.ca/oshanswers/safety_haz/welding/hotwork.html

DATE FORMALIZED April 6, 2023 REVISED	Electrical Safety Policy
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POLICY STATEMENT

In keeping with our values of Safety Full Stop, Go Beyond, Lead the Way and Never Stop Caring Ontario Northland Transportation Commission (ONTC) commits to ensuring that all employees who may be exposed to electrical hazards associated with their work have the knowledge, skill, tools, and equipment needed to ensure their safety.

In our efforts to Go Beyond our minimal requirements, ONTC commits to continuously improving our safe work practice by striving to incorporate the Workplace Electrical Safety standard, CSA Z462.

All authorized employees will ensure the power supply to electrical installations, equipment, or conductors is disconnected, locked out of service, connected to ground, and tagged before any work is done. **It is a requirement that, where possible, all hazardous energy sources are reduced to and maintained at a ZERO ENERGY state before starting any electrical work.** Should it become necessary that maintenance, cleaning, or adjustments need to be performed on any piece of equipment while it is in operation, safe work procedures for this type of work shall be made available and easily accessible. Only authorized employees shall be allowed to perform such work.

PURPOSE

To ensure employee safety by allowing only **Authorized Employees, Qualified Persons, Certified Electricians** or **Electricians in Training (EIT's)** who are under direct supervision of a **Certified Electrician** to do electrical work such as connect, maintain, or modify electrical equipment or installations at ONTC work locations.

To ensure that all ONTC employees or contractors working for ONTC comply with the Canada Labour Code, Occupational Health and Safety Act, associated regulations and ONTC procedures.

APPLICATION AND SCOPE

This procedure applies to all ONTC workers and contractors at all workplace locations. The procedure applies whenever exposure to a hazardous energy may occur while servicing, installing or maintaining, machinery or equipment.

DEFINITIONS

Affected employee – persons who are not directly involved in the work requiring the hazardous energy control, but who are (or may be) located in the work area.

Authorized employee – a qualified person who, in their duties or occupation, is obliged to approach or handle electrical equipment; or a person who, having been warned of the hazards involved, has been instructed or authorized by a qualified Supervisor or management member.

Certified Electrician – Electricians who have obtained a 442A Industrial or a 309A Construction certificate of qualification.

Control Device – means a device that will safely disconnect electrical equipment from its source of energy.

Electrical Equipment – means equipment for the generation, distribution, or use of electricity.

Electrician in Training (EIT's) – Aspiring electrician's registered with Skilled Trades Ontario who must complete specific criteria, a set number of hours, and a final test to be eligible to become a **Certified Electrician**.

Isolated – means separated or disconnected from every source of electrical, hydraulic, pneumatic, or other kind of energy that is capable of making electrical equipment dangerous.

Qualified Person – One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify hazards and reduce the associated risk.

RESPONSIBILITIES

Employer is responsible to:

1. Provide training and instruction on the Electrical Safety Policy and LOTO program.
2. Properly implement and periodically audit the Electrical Safety Policy and LOTO program.
3. Provide single key locks and tags as well as other LOTO equipment and maintain records of issuance of lock.
4. Provide all relevant PPE to ensure staff are performing their tasks in a safe manner.
5. Prequalify and approve contractors who work at any ONTC location.
6. Discipline, ensuring authorized and affected personnel perform their duties within the requirements of the LOTO Procedure.

Managers/Supervisors are responsible to:

1. Communicate any actual and potential hazards of which they are aware;
2. Apply and enforce the LOTO Program for all personnel in the workplace.
3. Identify those personnel who are authorized and affected and trained in accordance with this policy.
4. Periodically inspect the work area to ensure compliance with this policy;
5. Ensure that only authorized workers perform LOTO, and that work is performed in compliance to the procedure.
6. Provide written instructions as required; and
7. Provide to workers, company supplied LOTO equipment and PPE as required.

Workers and contractors of ONTC are responsible to:

1. Comply with the Electrical Safety Policy and LOTO Procedure.
2. Notify their supervisor or contact person of any questions or concerns with respect to LOTO.
3. Participate in electrical safety training as required.
4. Provide input on the effectiveness of the LOTO Procedure and participate in annual reviews of the electrical safety policy and LOTO Procedure as required.

5. Achieve a zero-energy state where hazardous energy may harm a person and ensure proper LOTO is achieved.
6. Ensure all power sources remain locked out before resuming work after a temporary absence.
7. Ensure only single keyed locks are used. The key must remain in the direct possession of the authorized person engaged in lockout.
8. remove only the locks that have been assigned by ONTC; and
9. avoid using a Point of Operation switch or controller for the sole Lockout of a device or piece of equipment unless it has been designed to accommodate an energy isolating device.

ELECTRICAL SAFETY RULES

1. A sign warning of the danger, and forbidding entry by unauthorized persons will be posted at the entrance to a room or similar enclosure containing exposed live electrical parts.
2. Any piece of equipment or tool found to be damaged or have defective electrical components or found to pose a safety or health hazard to any employee will be disconnected and removed from service without delay and must be tagged appropriately.
3. Any tool or piece of equipment that is capable of conducting electricity and/or endangering the safety of any worker will not be used around or close to any live electrical installation or equipment that might cause electrical contact with the live conductor.
4. Flammable materials/liquids shall not be stored anywhere near electrical equipment.
5. Eye protection must be worn when carrying out a work assignment.
6. Consider all electrical equipment to be live until you have properly tested it to confirm it's dead.
7. Do not work on "live" equipment unless it is absolutely necessary. If it is necessary, a safe work procedure must be in place.
8. If it is necessary to work on "live" equipment wear rubber gloves and work from a dry location.

9. Do not close any switch without knowledge of the circuit and the reason the switch was left open.
10. Notify the persons affected before the power on any circuit is shut off.
11. All electrical equipment of 110 volts or over must be grounded. Circuits sometimes retain a charge.
12. Portable electrical equipment used outdoors or in damp locations must be equipped with a ground fault circuit interrupter installed at the receptacle or on the circuit at the panel.
13. Specially authorized persons and electricians are the only ones permitted to change fuses.
14. Rubber gloves, tools and equipment must be maintained in good condition.
15. Do not handle “live” wires while standing in water or on moist or steel surfaces.
16. Electrically driven machinery and controls should normally be locked out before servicing. However check with your Supervisor to be sure.
17. Only persons authorized to do so may enter any electrical room and/or enclosure containing live parts. The entrance to any electrical and/or enclosure containing live parts will be marked by conspicuous warning signs stating that entry by unauthorized persons is prohibited.

TRAINING

Employees exposed to an electrical hazard when the risk associated with that hazard is not adequately reduced by the applicable electrical installation requirements shall be trained to understand the specific hazards associated with electrical energy.

- Safety-related work practices and procedural requirements necessary to provide protection from the electrical hazards associated with their job or task assignments; and
- They shall be trained to identify and understand the relationship between electrical hazards and possible injury.

Qualified persons shall be trained in and knowledgeable about the construction and operation of equipment or a specific work method and trained to identify and avoid the electrical hazards that might be present with respect to that equipment or work method. The training required shall meet the requirements of the CSA Z462.21 and may include classroom, on-the-job, electronic, or web-based training methodologies with interactive components.

Employees involved in or affected by the lockout procedure must be trained in the lockout procedure and their responsibility in the execution of the procedures.

Retraining in the lockout procedure shall be performed:

- When the procedures are revised;
- At intervals not to exceed 3 years; and
- When supervision or annual inspections indicate that the worker is not complying with the lockout procedure.

Employee training must be documented to confirm that each employee has received the training and retained for the duration of the employee's employment. The documentation must include

- when the employee demonstrates proficiency in the work practices involved
- contain the content of the training, each employee's name, and date of the training.

REFERENCES

Part II Canada Labour Code R.S.C, 1985, c. L-2

Published by the Minister of Justice at the following address:

<http://laws-lois.justice.gc.ca>

Implementing an Occupational Health and Safety (OH&S) program November 2017 DSS Catalogue Number CC273-2/17-1E Canadian Centre for Occupational Health and Safety (CCOHS): www.ccohs.ca

Occupational Health and Safety Act (R.S.O. 1990, c. 0.1) Consolidated Edition, Carswell

Workplace electrical safety, CSAZ462:21 CSA Group., July 20214

DATE FORMALIZED February 2019 REVISED September 17, 2024	CONTRACTOR/SUBCONTRACTOR HEALTH AND SAFETY POLICY
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POLICY STATEMENT

In keeping with our values of Safety Full Stop, Go Beyond, Lead the Way, and Never Stop Caring, Ontario Northland Transportation Commission (ONTC) adheres to the requirements of the Canada Labour Code and all applicable Regulations by ensuring that all selected contractors and subcontractors meet the set health and safety standards associated with each project.

All work shall be done safely no matter how urgent the job is and ONTC will assure that all contractors and subcontractors working on any ONTC property and/or project will follow this policy, adhering to all health and safety legislation and working in a manner that puts the safety of each employee/worker and the environment as the top priority.

PURPOSE

The purposes of this policy are to:

- Ensure that the health and safety of all Ontario Northland Transportation Commission (ONTC) employees, equipment, property, and environment are protected when work is being performed by an outside agency.
- Ensure that all contractors retained by the ONTC are compliant with ONTC policies, procedures, standards, and applicable legislation.
- Ensure that all contractor employees and ONTC employees are provided with a safe and healthy work environment.
- Eliminate or minimize the risk of loss to employees, equipment, property, and environment.
- Minimize corporate liabilities.

APPLICATION AND SCOPE

This procedure applies to all ONTC divisions and departments that engage the services of an outside agency to perform work at any level.

DEFINITIONS

Adequate: in relation to a procedure, plan, material, device, object, or thing, means

- a) Sufficient for both its intended use and actual use; and
- b) Sufficient to protect a worker from occupational illness or occupational injury.

Competent Person: a person who is:

- a) qualified because of knowledge, training, and experience to organize the work and its performance,
- b) familiar with the Occupational Health and Safety Act and/or the Canada Labour Code and the regulations that apply to the work, and
- c) has knowledge of any potential or actual danger to health or safety in the workplace.

Construction: includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project, but does not include any work or undertaking in a mine.

Constructor: a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself/herself or by more than one employer.

Consultant: a person who is retained by ONTC to provide professional non-construction services.

Contractor: any person or entity contracted to provide service to ONTC.

Employer: a person who employs one or more workers, or contracts for the services of one or more workers, and includes a contractor or subcontractor who performs work or supplies services and a contractor or subcontractor who undertakes with an owner, constructor, contractor, or subcontractor, to perform work or supply services.

Lead Employer: an employer who contracts for the services of one or more other employers or independent contractors in relation to one or more confined spaces that are located,

- a) in the lead employer's own workplace, or
- b) in another employer's workplace.

Prescribed: means established in a Regulation made under the Occupational Health and Safety Act or Canada Labour Code

Project: a construction project, whether public or private, including:

- a) the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipeline, duct or well, or any combination thereof,
- b) the moving of a building or structure, and
- c) any work or undertaking, or any lands or appurtenances, used in connection with construction.

Project Administrator: a person who leads/coordinates a project.

Regulation: the regulations made under the Occupational Health and Safety Act or the Canada Labour Code.

Subcontractor: a person or company that a contractor pays to do part of a job that the contractor has agreed to do and is responsible for.

SUPPORTING MATERIAL REQUIRED

Contractor Safety Checklist and Orientation Form
ONTC Contractor Health and Safety Responsibility Agreement
Project Hazard Assessment
Contractor Orientation Training Package

PROCEDURE

Once it has been determined that a contractor will be required, a lead must be immediately established regardless of the size of the project. That lead will become the Project Administrator for the purposes of this policy, ensuring that all requirements of this policy are met.

Before Contractors/Subcontractors begin work/project ensure the following are adhered to:

- All Contractors on the property are compliant and current with all legislative licensing requirements.
- All Contractors provide a valid WSIB Clearance Certificate and/or liability insurance before beginning any work on ONTC property.
- Orientation training is provided to contractors prior to commencement of work.
- Contractors understand their contractual obligations under this standard.
- Provide a designated ONTC contact person to ensure Contractors' compliance to ONTC policies, procedures and standards through ongoing work site inspections, communications and reported safety concerns.
- Ensure that application of this standard is delivered and used consistently throughout ONTC operations.
- Where the work/project is occurring in an area where there may be ONTC employees, inform those employees of potential risk and communicate all restrictions and responsibilities.

The Project Administrator shall establish practices so that all Contractors, subcontractors, or contract workers perform their work in a safe and effective manner and meet all the requirements of the Occupational Health and Safety Act, the Canada Labour Code, and the Construction Regulations. The Project Administrator must be adequately familiar with all applicable laws, codes and regulations and be capable of applying them.

Construction Work that meets Provincial “Project” Definition

Where ONTC retains a Contractor with provincial jurisdiction, and the work meets the definition of “project” per the Provincial Construction Regulations, the Contractor will assume the position of Constructor. Under these circumstances:

- ONTC is not responsible for ensuring that Contractors meet their provincial obligations as they relate to applicable Regulations.
- Contractors will assume control of all work at the construction site.
- ONTC will ensure that any Contractor is pre-qualified before awarding any contract and will monitor work activity to ensure work is being done safely and meets expectations.

ONTC will ensure that:

- all Contractors/Subcontractors are properly trained,
- contractors/Subcontractors are monitored and requirements for safety are observed, and

- procedures for safe conduct of the work are in place and known to Contractor's employees.

The Project Administrator shall direct the Contractor in completion of all applicable documentation, as described by the Contractor Safety Prequalification Procedure. The Project Administrator shall ensure that the Constructor maintains full responsibility for safety.

Where the Project Administrator identifies unsafe situations, they are responsible for bringing this forward to the Contractor and shall stop work if deemed necessary.

Non-Construction Work where ONTC is Acting as the “Employer”

The Project Administrator shall review the ONTC's applicable policies and procedures with the contractors/subcontractors. It is recommended that all contractor/subcontractor workers undergo this training orientation, but it is mandatory that at least the contractor's supervisor or site superintendent receive the orientation and then have a method to ensure that this information is passed on to all employees under their direct control.

NOTE: The requirement of “Lead Employer” must be fulfilled if the work is Confined Space Entry work.

It is the responsibility of the Project Administrator to ensure the contractor is aware that project specific training is to be conducted.

The Project Hazard Assessment form shall be completed by the Project Administrator and reviewed with all contractors prior to commencement of work.

Contractors/subcontractors who regularly perform services at ONTC must complete a Contractor Training Orientation on an annual basis or whenever there is a change in personnel or applicable and safety conditions which may affect the contractor's/subcontractor's workers. For project contracts, a Hazard Safety Assessment form will be completed each time the contractor performs a new project, unless the same contract personnel have performed project work of a similar nature within the previous 12 months.

Prequalification

Pre-Qualification of a contractor is designed to ensure that the contractor has:

- Appropriate current and sufficient insurance,
- WSIB Coverage,
- An appropriate and compliant health and safety policy,
- Competent supervisors, and
- A program to completely undertake and control the construction work being conducted at ONTC.

When pre-qualifying a contractor who will not act as “Constructor,” ONTC shall determine whether the contractor has the specific policies, procedures, training, and supervision to perform the job safely and in compliance with all provisions of the Occupational Health and Safety Act and the applicable Regulations. Use the Contractor Safety Prequalification form to fulfill this policy obligation.

If the Procurement department is completing the prequalification procedure, input may be required from the Manager of Health and Safety or the Project Administrator if there are specific requirements for a project.

The following items must be submitted by the contractor for prequalification:

- Certificates of insurance – general liability insurance (Minor projects \$2,000,000 minimum, Major Projects \$5,000,000 minimum).
- WSIB Safety Record – submit a copy for the last 3 years or equivalent accident/injury data.
- Current Clearance certificate – Confirms Contractor has met reporting and payment obligations to WSIB. ONTC requires the Contractor to submit a copy of the clearance certificate every 2 months and before the final payment on the contract has been made.
- Contractor's Health and Safety Policy.
- Past environmental, Health and Safety Records – a copy for the last 2 years.
- Training and Certification Records – Documentation verifying all workers have received the necessary safety training required for the specific job.
- Hazardous material list – List of all hazardous materials that will be brought onto ONTC property.
- ONTC may require a separate work plan detailing higher hazard work activity or any tasks that may tend to produce adverse consequences.

Procurement or the Project Administrator will ensure that the Contractor Health and Safety Responsibility Agreement has been completed by the Contractor.

Procurement or the Project Administrator will ensure current copies of insurance, WSIB clearance certificates, and annual safety reviews are maintained for pre-qualified contractors.

Contractors who have already been prequalified should be reasonably favoured and used for OTNC projects.

Project Management

In all circumstances except where a Contractor has assumed the role of Constructor, the Project Administrator is responsible for health and safety on the project and must halt the project if there are health and safety concerns. The Project Administrator must maintain communication with the Contractor throughout the project.

The Project Administrator is responsible to ensure that all health and safety documentation for the project is completed and maintained.

The Project Administrator is responsible to create an ONTC Project Assessment Folder and complete it with Contractor prior to any work beginning. The folder includes the following documents:

- Signed Contractor Safety Responsibility Agreement,
- Certificates of Insurance – General Liability Insurance,
- WSIB Safety Record,
- Current Clearance Certificate,
- Contractor's health and safety policy and procedures applicable to the work being conducted,
- Training, licensing, and certification records,

- Hazardous materials list and current SDS for material brought onto ONTC property and already onsite that will be used during or encountered during the project,
- Completed Contractor Orientation Training Records,
- Copies of any applicable ONTC procedures that have been reviewed,
- Completed Contractor Prequalification form.

The Project Hazard Assessment form must be filed once the project has been completed and made available for review if required for auditing purposes.

The Project Administrator must ensure that the Contractor Orientation Training is completed for all workers on the project.

On-Site Safety: All ONTC safety procedures (Fall protection, Confined Space Entry, Lockout/Tagout, Ladder Safety, WHMIS, Personal Protection Equipment, Respiratory Protection, etc.) apply to all construction work on ONTC projects, unless the Contractor's procedures exceed ours.

The Project Administrator shall review all applicable safety procedures with contractors/subcontractors at the site. Copies of the ONTC procedures can be obtained through MyPolicies.

The Project Administrator will ensure that daily safety briefings are conducted prior to the beginning of each project workday, as well as regularly inspect the work site as the project requires.

If the Contractor or subcontractor has a question or concern regarding safety on the project, they should speak to the Project Administrator or their immediate supervisor.

All contractor(s) or subcontractor(s) supervisors must report to the Project Administrator:

- Any unsafe actions or conditions,
- Contraventions of the Occupational Health and Safety Act, Canada Labour Code and Regulations or any ONTC safety procedure, or
- Existence of any hazard at the project.

Any incident (first aid, near miss, etc.) on the project must be immediately reported to the Project Administrator.

NOTE: Workers and their supervisors shall be held accountable for violations of health and safety rules, regulations, and procedures. Disciplinary action, where necessary, will be dictated by the ONTC disciplinary procedure and will be based on the merits of the specific case.

RESPONSIBILITIES

To ensure clarity of responsibility, where a Contractor is hired to conduct work for ONTC and the provincial Occupational Health and Safety Act applies in respect of that work, the Contractor will assume the position of Constructor.

No ONTC employee will be assigned to work on the same project as the general contractor unless there is an agreement between the Contractor and ONTC determining the contractor as the Constructor.

Where a project requires more than one Employer, ONTC may enter into an agreement before the commencement of the project to determine control over the project identifying who will be the Constructor.

Employer

The Employer is responsible to:

- Ensure contractors, employees, supervisors, and managers are adequately aware of the provisions and requirements of the Purchasing Policy and Procedure.
- Ensure that contractors, subcontractors, and project worker companies are adequately prequalified in accordance with the Contractor Safety Prequalification Form for large projects or projects where the combined value of the project exceeds \$50,000.00 and where ONTC is the Constructor.
- Ensure contractors, subcontractors and project worker companies have agreed with and endorsed in writing the terms of the Contractor Health and Safety Responsibility Agreement.
- Properly implement and periodically audit the Contractor prequalification and safety procedure.
- Ensure that authorized staff comply within the Contractor Prequalification and Safety Procedure.
- Discipline and or remove from the authorized contractors list any contractor that fails to comply with this procedure.

Procurement

The Procurement Department is responsible to:

- Conduct prequalification in conjunction with the Project Administrator for consultants and service providers and ensure completion of the Contractor Health and Safety Responsibility Agreement.
- Where required ensure the Contractor completes the Prequalification Form before any construction work is initiated on any of the ONTC properties.
- Maintain a list of all service agreements, memoranda of understanding, and service contracts.
- Obtain a current copy of WSIB Clearance Certificates and Insurance Certificate for pre-qualified consultants and service providers.

Project Administrator

The Project Administrator is responsible to:

- Contract a prequalified contractor.
- Ensure contractors, subcontractors and project worker companies are prequalified in accordance with the Contractor Safety Prequalification Form.
- Ensure the Contractor completes the Contractor Orientation Training with the Contractor's workers prior to the beginning of a project.
- Complete with the Contractor and maintain the Project Hazard Assessment.
- Request applicable training records, certificates, licenses, and written procedures and measures from the Contractor as required.
- Ensure the Contractor Health and Safety Responsibility Agreement is completed by the Contractor prior to the beginning of work.

- Conduct safety briefings with the Contractor(s) prior to the work beginning and as required by the project.
- Periodically view the work areas to ensure compliance with the Occupational Health and Safety Act, associated Regulations and the relevant ONTC safety procedures.
- Respond to safety concerns from contractors and others impacted by a project.
- Ensure all relevant ONTC safety procedures are being implemented at the project.
- Ensure all contractors have provided SDS for all hazardous product used and that the SDS are readily available if stored on ONTC property.
- Inform the supervisor and employees in the area where the work/project is occurring of potential risk, including restrictions and responsibilities needed to ensure their safety.

Where a Contractor is hired to perform work for ONTC and the work is subject to the requirements of the Occupational Health and Safety Act, the Contractor will assume the position of Constructor. The aforementioned duties or similar must then be completed by the Contractor.

Note: The Contractor – Constructor will be required to utilize their own prequalification and safety contract documents for any and all subcontractors hired to perform work on the project.

Contractors

Contractors are responsible to:

- Employ competent Supervisors and Workers.
- Comply with the Contractor Prequalification and Safety Procedure.
- Complete the ONTC Project Hazard Assessment and Contractor Health and Safety Responsibility Agreement.
- Furnish the ONTC with hard copies of applicable training records, certificates, licenses and written procedures and measures as required.
- Ensure that the Contractor Safety Checklist and Orientation form are completed and signed.
- Notify the Project Administrator of any questions or concerns with Contractor Prequalification and Safety Policies.
- Notify the Project Administrator of any contraventions of the Act or ONTC's Procedures.
- Participate in required safety training.
- Provide WSIB documentation and/or liability insurance confirming the Contractor is registered and their account is in good standing.
- Have all products used in their process evaluated by ONTC personnel prior to the products being brought onto ONTC property. This will be done through the evaluation of Safety Data Sheets (SDS) provided by the Contractor/subcontractor.
- Ensure copies of all SDS are readily available.
- Immediately inform designated ONTC contact person of there are any changes in their process or products used in their operation.
- Prior to entering ONTC property, register with Security, appropriate supervisor or designated ONTC contact person for direction.
- Ensure that all equipment and vehicles are properly maintained and meet prescribed safety standards, e.g., no loose pins on backhoe extensions or arms, safety pins and safety features are working properly.

Workplace/Policy Health and Safety Committees

The WHSC/PHSC are responsible to:

- Participate in the development and review of the Contractor/Subcontractor Health and Safety Policy, procedure, and applicable forms.
- Serve as a resource to employees regarding the Contractor/Subcontractor Health and Safety Policy, procedure, and applicable forms.

Manager Health and Safety

The Health and Safety Department is responsible to:

- Provide assistance if needed with prequalification process of contractors as required by the Procurement Department and/or the Project Administrator.
- Approve/disapprove exceptions to the Contractor Safety Prequalification process.
- Facilitate the development and review of the Contractor/Subcontractor Health and Safety Policy, procedure, and applicable forms.
- Apply and audit compliance, and discharge discipline when required, specific to the Contractor/ Subcontractor Health and Safety Policy, procedure, and applicable forms.

TRAINING

ONTC is responsible to ensure that those ONTC employees who have duties and responsibilities to act under this procedure are adequately trained in these duties as applicable.

The training shall reinforce the hazard control hierarchy as follows:

- **Elimination:** activities or practices that involve the complete removal of the hazard from the worker in the workplace.
- **Substitution:** involves the replacement of high hazard task or workplace circumstance with a lower hazard task or workplace circumstance.
- **Engineering Controls:** involves creating and using designed infrastructure or equipment to minimize a hazard.
- **Administrative Controls:** involves creating protocols involving stated obligations and prohibitions that change the way people work.
 - E.g., **Warning Signs:** postings and placards that communicate the presence of a hazard as well as hazard control directives.
- **Personal Protective Equipment (PPE):** involves the use of gear that is worn by the worker to create a barrier between the hazard and the worker. PPE can include gloves, respirators, hard hats, safety glasses, high-visibility clothing, and safety footwear.

The Manager, Health and Safety will ensure that the training is refreshed at adequate frequency.

Retraining will be provided for all authorized workers or contractors whenever there is a change in their job assignments, a change in condition, equipment or processes that presents a new hazard, or when there is a change in the Contractor Safety Prequalification Process.

Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in workers' knowledge or use of the Contractor Safety Prequalification Process. The Project Hazard Assessment will be updated to add any additional hazards and corresponding controls, as required.

APPENDICES/EDUCATIONAL MATERIAL

- Contractor Safety Prequalification Form
- Contractor Health and Safety Responsibility Agreement
- Contractor Safety Checklist and Orientation
- Project Hazard Assessment

REFERENCES

- Ontario Occupational Health and Safety Act R.S.O 1990
- O.Reg 213/91 Construction Projects
- Canada Labour Code R.S.C., 1985 c L-2
- Canada Occupational Health and Safety Regulations SOR/86-304
- Contractors Subcontractors Safety NBRHC OH&S4-017

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.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1
PROPOSAL SUBMISSION FORM

RFP Number: RFP 2025 055

Description: North Bay Station Upgrades

Submitted To: ONTARIO NORTHLAND TRANSPORTATION COMMISSION

We, _____
(Name of Respondent)

having carefully examined, understood, and completed the Request for Proposals Documents as described in Section 2 – The RFP Documents, and Addenda No. ___ to No. __, inclusive, and having familiarized ourselves thoroughly with local conditions, hereby agree to supply the services associated with the North Bay Station Upgrades as outlined on the following Proposal Form 1-A.

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		

Please note that these project cost ranges apply to the *aggregate* price of all change orders and not on a per change order basis. Any OH&P applied shall be calculated against the subtotal of the applicable change order only. 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.

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	
Electrician	
Mechanical Engineer	
Mechanical HVAC technician	
Masonry/Concrete Labour	
General Labour	

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1 *cont'd*
PROPOSAL SUBMISSION FORM

The award of the Contract is subject to budgetary approval.

ONTC reserves the right, in its sole discretion, to disqualify any Respondent that is a U.S. Business as defined in Proposal Form 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.

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 has achieved Substantial Performance as defined in the *Construction Act*;
- (e) The statutory holdback pursuant to the Construction Act will be 10% and a warranty holdback of 2.5%;
- (f) We will provide the required evidence of insurance, as specified in the ONTC – Supplementary Conditions – CCDC 2 - 2020 included in Part 5 of the RFP Documents, with our execution of the 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;

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1 *cont'd*
PROPOSAL SUBMISSION FORM

- (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;
- (l) 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 submitted 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 _____, 2025

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1-A
PROPOSAL SUBMISSION FORM
SCHEDULE OF PRICES**

Please refer to the separate Schedule A – Schedule of Prices excel worksheet. This form must be completed as part of the Proposal.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2
RESPONDENT'S GENERAL INFORMATION

The Respondent must complete this document and submit it as part of their Proposal.

Name <i>Please indicate the complete legal name of the firm</i>	
Tax Registration # (HST)	
Tax Registration # (GST)	
Tax Registration # (QST)	
Address	
Telephone Number	
Web Address	
Please indicate any other name(s) under which the firm operates <i>(if applicable)</i>	

Owner ☐ Partnership ☐ Corporation ☐

Relationship *(if applicable)*

Parent Company	
Subsidiaries	
Affiliates	

Ontario Business ☐ Yes ☐ No

“Ontario Business”: A supplier, manufacturer or distributor of any business structure that conducts its activities on a permanent basis in Ontario. The business either has its headquarters or a main office in Ontario or has at least 250 full-time employees in Ontario at the time of this RFP.

Canadian Business ☐ Yes ☐ No

“Canadian Business”: A supplier, manufacturer or distributor of any business structure that conducts its activities on a permanent basis in Canada. The business either has its headquarters or a main office in any province or territory within Canada or has at least 250 full-time employees in any one province or territory within Canada at the time of this RFP.

Canadian Trade Partner Country: ☐ Yes ☐ No

“Canadian Trade Partner Country”: A country that is signatory to one or more of the following trade agreements:

- Comprehensive Economic and Trade Agreement (CETA);
- World Trade Organization's Agreement on Government Procurement (WTO-GPA);
- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP); or,
- Canada-UK Trade Continuity Agreement (Canada-UK TCA).

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2 *cont'd*
RESPONDENT'S GENERAL INFORMATION

U.S. Business: ☐ Yes ☐ No

“U.S. Business”: A supplier, manufacturer or distributor of any business structure (including a sole proprietorship, partnership, corporation or other business structure) that (i) has its headquarters or main office located in the U.S., and (ii) has fewer than 250 full-time employees in Canada at the time of the applicable procurement process. If a Respondent is a subsidiary of another corporation, part 1 of the definition above is met if that Respondent is controlled by a corporation that has its headquarters or main office located in the U.S.

If the Respondent has not demonstrated eligibility with a “No” response to being a U.S. Business, ONTC reserves the right, in its sole discretion, to disqualify the Respondent.

Bill S-211:

ONTC adheres to, and reports under the Government of Canada's Bill S-211 Fighting Against Forced Labour and Child Labour in Supply Chains Act.

1. Is your company required to report under the Government of Canada's Bill S-211 Fighting Against Forced Labour and Child Labour in Supply Chains Act? Yes ☐ No ☐
2. Is your company compliant with the Government of Canada's Bill S-211 Fighting Against Forced Labour and Child Labour in Supply Chains Act? Yes ☐ No ☐
3. Has your company been involved in forced and/or child labour in the past? Yes ☐ No ☐
If yes, please provide details including the date and action taken to mitigate.

Main Contact Person *(for the purposes of this Proposal)*

Name	
Title	
Telephone #	Fax #
E-mail address	

Indicate below your company/business' invoice terms:

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2 *cont'd*
RESPONDENT'S GENERAL INFORMATION

Does your company/business have the capability to handle Electronic Funds Transfers?

YES_____ NO_____

If yes, please provide the necessary banking information as part of your submission.

If available, please provide your Dunn & Bradstreet Reference 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.

[illegible]

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 3
ACKNOWLEDGMENT TO COMPLY WITH PART 3 - REQUEST FOR PROPOSALS
SPECIFICATIONS

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, alternatives may be used if deemed equal by ONTC and/or the third-party consultant. Respondents shall submit proposed deemed equivalents as a clarification item to be considered while the procurement remains open in accordance with 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, 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) relevant customers for which they have provided similar services within the last five (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	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	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	E-mail

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 5
COMPLIANCE WITH CONTRACT DOCUMENTS

The Respondent may suggest changes to the Supplementary Conditions included in Part 5 of this RFP using the table below. ONTC does not have any obligation to accept any proposed changes to the Supplementary Conditions and will do so in its sole discretion. Significant material proposed changes to the Supplementary Conditions may impact the evaluation of the Respondent's proposal. 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).

Exception	Supplementary Conditions, ONTC 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' SITE VISIT REGISTRATION FORM**

Reference Number: RFP 2025 055

Title: North Bay Station Upgrades

Submitted To: ONTARIO NORTHLAND TRANSPORTATION COMMISSION

Please confirm that you plan to attend the Mandatory Respondents' Meeting by emailing a completed copy of this Registration Form, together with the Release of Liability, to ashley.commanda@ontarionorthland.ca, prior to Wednesday, July 9, 2025 at 4:00 p.m.

Failure to submit this form by the time required may result in ONTC not being able to accommodate your attendance. PROPOSALS SUBMITTED BY RESPONDENTS THAT FAILED TO ATTEND THE RESPONDENTS' MANDATORY MEETING WILL BE DECLARED NON-COMPLIANT AND WILL BE REJECTED.

Date of Meeting: Thursday, July 10, 2025

Time of Meeting: 10:00 a.m.

Location: 100 Station Rd, North Bay, ON P1A 0B7

COMPANY NAME: _____

CONTACT NAME: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

NUMBER OF PERSONS ATTENDING: _____

PLEASE BRING THE FOLLOWING PERSONAL PROTECTIVE EQUIPMENT:

SAFETY BOOTS, REFLECTIVE VEST, HARD HAT, AND SAFETY GLASSES WITH SIDE SHIELDS

ACCOMMODATION: ONTC IS AN EQUAL OPPORTUNITY ORGANIZATION. ACCOMMODATION IS AVAILABLE FOR RESPONDENT'S WITH DISABILITIES THROUGHOUT THE PROCUREMENT PROCESS. IF ACCOMMODATION IS REQUIRED, PLEASE CONTACT ashley.commanda@ontarionorthland.ca.

NOTE: THE ATTACHED RELEASE OF LIABILITY WILL BE REQUIRED TO BE EXECUTED BY ANY PERSONS ATTENDING THE SITE MEETING PRIOR TO ATTENDANCE.

**RELEASE OF LIABILITY
IN RESPECT OF ENTERING AND WORKING UPON
ONTARIO NORTHLAND TRANSPORTATION COMMISSION PROPERTY**

The undersigned applicant requests permission of Ontario Northland Transportation Commission (hereinafter referred to as "ONTC") to enter on ONTC property to attend a mandatory site meeting commencing at 10:00 a.m. on Thursday, July 10, 2025, in North Bay, Ontario, associated with RFP 2025 055.

In consideration of ONTC permitting the Applicant and his/her/its employees, servants and agents to enter ONTC property for the purpose of the site meeting, the Applicant agrees it shall:

1. follow all instructions and directions from ONTC representatives while on ONTC property;
2. be liable for any and all damages to persons or property which may arise out of or be connected with the Applicant's entry on ONTC property, and the Applicant agrees to indemnify ONTC against any and all actions, suits, claims, damages, costs, liability and expenses which may arise by reason of the Applicant's operations while on ONTC property.
3. fully indemnify and save harmless ONTC, its officers, directors, employees, consultants, sub consultants, contractors, and agents (collectively "ONTC Indemnitees") from any kind of liability, suit, claim, demand, fine, action, loss, damage, legal cost and disbursement, or for which ONTC or ONTC Indemnities may become liable or suffer in connection with the Applicant's entry on ONTC property. For the purposes of this indemnity, ONTC is acting as the trustee of the ONTC Indemnitees. This indemnity section will survive the expiry of this permission;
4. enter on ONTC property at the sole cost, risk and expense of the Applicant; and,
5. release and discharge ONTC, its employees, servants and agents of and from any and all claims and demands of whatever nature and howsoever caused by reason of any loss, damage or injury to person or property which the Applicant or its employees, servants and agents may sustain or suffer while on ONTC property.

DATED AT _____ THIS ____ DAY OF _____, 2025.

Applicant _____ Witness _____

**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 Policies. Include any documentation/policies for working around active rail.
2. Provide evidence of compliance with the Occupational Health and Safety Act (OHSA), Construction Projects Regulation (O. Reg. 213/91), Environmental Protection Act (EPA), and ONTC's Technical Specifications. For example, include a comprehensive health and safety plan, provide Certificate of Recognition (COR) for the Infrastructure Health and Safety Association (IHSA) or equivalent, demonstrate experience and training in relevant areas, such as working at heights, confined space entry, etc. Include a plan for managing environmental impacts during the project, such as waste disposal, noise control, dust suppression, etc.
3. Submit the attached Contractor Health and Safety Responsibility Agreement.
4. Submit the attached Contractor Safety Pre-Qualification Form and associated supporting documents. The following items must be submitted by the contractor for prequalification:
 - WSIB Safety Record – submit a copy for the last 3 years or equivalent accident/injury data.
 - Current Clearance certificate – Confirms Contractor has met reporting and payment obligations to WSIB. ONTC requires the Contractor to submit a copy of the clearance certificate every 2 months and before the final payment on the contract has been made.
 - Past environmental, Health and Safety Records – a copy for the last 2 years.
 - Training and Certification Records – Documentation verifying all workers have received the necessary safety training required in relation to the scope of the RFP.
 - Hazardous material list – List of all hazardous materials that will be brought onto ONTC property, if applicable.
 - ONTC may require a separate work plan detailing higher hazard work activity or any tasks that may tend to produce adverse consequences.

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
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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

CONTRACTOR HEALTH AND SAFETY RESPONSIBILITY AGREEMENT

In 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 as required by clause 25(2) (j) of the *Occupational Health and Safety Act*, R.S.O. 1990, c.O.1, as amended, (the "OHSA").

The requirements in (a) do not apply to employers with five (5) or less employees.

- (b) With respect to the Services being offered in this Proposal, I/We and on behalf of our proposed sub-consultants, acknowledge the responsibility to, and shall:

- (i) fulfill all of the obligations under the OHSA and ensure that all work is carried out in accordance with the OHSA and its regulations;
- (ii) ensure that adequate and competent supervision is provided as required under the OHSA to protect the health and safety of workers; and
- (iii) provide information and instruction to all employees to ensure they are informed of the hazards inherent in the work and understand the procedures for minimizing the risk of injury or illness.

- (c) I/We agree to take precautions reasonable in the circumstances for the protection of worker health and safety, as required under the OHSA.

Dated at _____ this _____ day of _____, 202_____

An Authorized Signing Officer

(Key Contact)

(Title)

(Telephone Number)

(Firm's Name)

(Firm's Address)

Contractor Safety Pre-Qualification Form

1. Company Identification:

Company Name:	_____	Telephone:	_____	ONTC Use
Mailing Address:	_____	Fax:	_____	
	_____	E-mail:	_____	

2. Form of Business:

☐ Sole Proprietor
 ☐ Partnership:
 ☐ Corporation

3. Officers:	Years with the Company
President / CEO	_____
Vice President	_____
Treasurer	_____
Who is the manager most responsible for health and safety?	_____
Name:	Title:

4. How many years has your business operated under its current name?	_____
5. Under Current Management Since (Date)	_____

6. Parent Company Information

Parent Name:	_____
City:	Province / State:
Postal / Zip Code:	_____
Subsidiaries:	_____

7. Insurance Contact Information

Title:	Telephone:	Fax:
--------	------------	------

Insurance

8. Carriers:	Type of Coverage:	Telephone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. Organization:

Describe the nature of the work your company specialized in:
<input type="checkbox"/> _____ <input type="checkbox"/> _____
<input type="checkbox"/> _____ <input type="checkbox"/> _____
<input type="checkbox"/> _____ <input type="checkbox"/> _____
<input type="checkbox"/> _____ <input type="checkbox"/> _____
<input type="checkbox"/> _____ <input type="checkbox"/> _____

10. Health and Safety Performance

- | | | |
|---|------------------------------|-----------------------------|
| a) Are any of the above services that you perform normally subcontracted to others? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Can you provide a Workplace Safety & Insurance Clearance Certificate? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Is your company experience rated (CAD-7, NEER)? If yes attach CAD-7 reports for the last 3 years and go to item e). If no, complete item d). | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d) Has an employee of your company suffered a fatal accident or "critical injury" as defined by the <u>Ontario Occupational Health & Safety Act</u> ? Please provide for the last 3 years: i) total number of lost time accidents by rate group, ii) total number medical aid accidents, iii) total number of hours worked by each rate group | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e) Has your company ever been subjected to a Workwell Audit? If yes, what was your final score? ____ | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| f) Are there judgements, claims or suits pending or outstanding against your company? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| g) Have you received any regulatory (MOL, MOE, etc.) orders and/or prosecutions in the last 3 years? If yes, provide details of all prosecution and fines for the past 3 years on a separate sheet. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| h) Do you have involvement in provincial safety associations such as the Infrastructure Health & Safety Association (IHSA) and/or Workplace Safety & Prevention Services (WSPS)? If yes, please name: | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

11. Health and Safety Program and Procedures:

- | | | |
|---|------------------------------|-----------------------------|
| a) Do you have a written health and safety policy? If yes, include a copy. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Do you have a written health and safety program? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) If so, are the following elements addressed? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| i. Participation by all levels in the organization | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii. Accountabilities & responsibilities for managers, supervisors and employees | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iii. Adequate resourcing for meeting health and safety requirements | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| iv. Hazard identification and control | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| v. Health and safety performance measurement and evaluation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| vi. Corrective actions implementation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

12. Health and Safety Program: Does the health and safety program include procedures and practice documents such as:

- | | | |
|---|------------------------------|------------------------------|
| a) Hazardous Energy Control, Lock-out – Tag-out | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Confined Space Entry | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Working at Heights, Fall Protection | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d) Personal Protective Equipment (PPE) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e) Portable / Electric Power Tools | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |

Contractor Safety Pre-Qualification Form

f) Vehicle Safety	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
g) Compressed Gas Cylinders	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
h) Electrical Equipment Grounding Assurance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
i) Powered Industrial Vehicles (forklifts, cranes, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
j) Heavy Construction Equipment (excavators, backhoes, bulldozers, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
k) Excavation and Trenching	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
l) Housekeeping	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
m) Accident / Incident Reporting and Investigation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
n) Hazard / Unsafe Condition Identification, Reporting and Communication	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
o) Workplace Hazardous Materials information System (WHMIS)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
p) Emergency Action Plan / Evacuation Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
q) Spill Response / Reporting	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
r) Respiratory Protection	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
s) Designated Substances Management	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
t) Waste Staging / Disposal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
u) Traffic Control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
v) Hearing Conservation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
13. Do you have a policy/procedure for terminating contracts of subcontractors who do not comply with the requirements of the <u>Occupational Health & Safety Act</u> , associated regulations and / or company safety rules?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
14. Do your employees read, write and understand English to the degree that they can safely perform their tasks without the aid of an interpreter? (<i>If no, provide a description of your plan to assure that they can safety perform their tasks</i>)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
15. Do you have personnel certified in Emergency First Aid and CPR on site? If yes, provide copies of certificates of training for site personnel proposed for the project?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
16. Do you have First Aid kits available to your staff?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
17. Does your company use a formalized Health and Safety Plan for conducting large projects?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
18. Does the company conduct pre-placement medical examinations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
19. Is task-adequate PPE provided to workers?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
20. Are employees trained in PPE care, use and maintenance?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
21. Do you have a corrective actions process for addressing individual health and safety performance deficiencies	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Contractor Safety Pre-Qualification Form

22. Equipment and Manuals:

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Do you conduct inspections on operating equipment (e.g. excavators, cranes, forklifts, vehicles, etc.) as per regulatory requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Do you maintain operating equipment in compliance with regulatory requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Do you maintain applicable pre-use inspection and maintenance certification records for operating equipment? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| d. Are records available upon request | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

23. Subcontractors

- | | | | |
|--|------------------------------|-----------------------------|--|
| a. Do you use health and safety performance criteria in the selection of contractors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Do you require your subcontractor to have a written health and safety program? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Are your subcontractors included in | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> 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 policies or procedures? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| e. Does the company have a progressive discipline policy for employees and subcontractors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

24. Health and Safety Training

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Are you aware for the regulatory training requirements for your employees? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Have your employees received the required health and safety training? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Do you have specific health and safety training for supervisors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| d. Do you keep records of health and safety training for employees? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| e. Are records of health and safety training available on request? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

25. Job Skills

- | | | | |
|---|------------------------------|-----------------------------|--|
| a. Have employees been trained in appropriate job skills? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Are employee job skills certified where required by regulation or industry standard? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| c. Are certificates available upon request? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |

26. Health and Safety Supervision

- | | | | |
|--|------------------------------|-----------------------------|--|
| a. Does the company have a health & safety coordinator? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | |
| b. Who is the highest ranking safety professional in the company | | | |

I agree that the above information is true and correct to the best of my knowledge. I also agree to follow all terms and conditions of the Contractor Safety Program at all times while performing work for ONTC. I understand that supporting documentation may be requested for due diligence verification purposes.

Name: (Please print) _____
 Signature: _____

Title: _____
 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.

ONTC reserves the right to perform random site inspections in order to ensure the Successful Respondent's equipment used to perform the Work coincides with the information provided below. Any deviations may be subject to the terms of the Final Agreement. Any changes to this proposed list of equipment requires prior approval from ONTC.

<u>Quantity</u>	<u>Description</u>	<u>Capacity</u>	<u>Condition</u>	<u>Age</u>	<u>Location</u>	<u>Owner</u>	<u>Daily Rental</u> <u>Rate</u>	<u>Weekly</u> <u>Rental rates</u>
-----------------	--------------------	-----------------	------------------	------------	-----------------	--------------	------------------------------------	--------------------------------------

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 10
SCHEDULE AND PROPOSED APPROACH**

CONSTRUCTION SCHEDULE

Respondents shall include a schedule with their Proposal. The schedule shall be in Gantt chart format, showing all activities of the Work and the critical path. The schedule shall be designed to ensure conformity with the Contract Time. The Contractor shall ensure that the schedule adheres to all contractual requirements and technical submittal requirements. The construction schedule shall reflect the milestone dates listed below:

Request for Proposal Close	July 25, 2025
Project Start Date	August 1, 2025
Project Substantial Performance	November 21 , 2025
Project Ready-for-Takeover	December 5 , 2025

Do you agree to complete the Work and attain Ready-for-Takeover by December 5, 2025?

Respondent confirms that they will complete the Work and attain Ready-For-Takeover by December 5, 2025.

(Check one) YES _____; NO _____

ONTC has established the date for Completion of the Work with consideration for strict project timelines. As such, and subject to ONTC's sole discretion, a failure to confirm that the work will be completed by the identified date may result in disqualification of the Proposal.

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. The respondent should build in any anticipated delays, supply chain timelines and other factors to provide sufficient time in the schedule to meet provided timelines and mitigate potential delays.

Describe how you will provide an uninterrupted supply of the required goods and/or services to avoid any adverse impact on the project schedule. Respondents must identify any anticipated product delays and build this into the schedule.

Evidence of a thorough review of the RFP Documents 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 monthly progress billings (gross before holdback) for the duration of the Agreement.

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 12
LIST OF PERSONNEL

List the names of the key personnel who will be assigned to the Work and **include their full resumes.** This information shall be for the use of ONTC in assessing the Proposal. In the event of a Subcontractor(s) being listed as key personnel, the Respondent shall also include their resume(s).

Roles and Responsibilities of key personnel should include:

- A brief description identifying the role and responsibilities of each key personnel, with respect to the Services requested.
- A statement indicating whether the key personnel is an employee of the Respondent or is a Subcontractor; and,
- A resume for each key personnel, including subcontractors, that includes name, role/title, education and qualifications, professional affiliations, professional certifications, years of experience, specialties, and list of relevant project experience.

The Respondent must designate named individuals for each of the following key personnel roles:

<u>Role</u>	<u>Key Responsibilities</u>	<u>Qualifications and Experience</u>	<u>Name of Individual</u>	<u>Actual Years of Experience</u>
Project Manager	<ul style="list-style-type: none">- Manage all project activities, including planning, coordination, communications, reporting, and ensuring adherence to quality, budget, and schedule requirements.- The Project Manager will act as the main point of contact with the Owner.	Experience: Shall have a minimum of five (5) years in projects of similar size and complexity in facility design and construction industry.		

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 12 *cont'd*
LIST OF PERSONNEL

<u>Role</u>	<u>Key Responsibilities</u>	<u>Qualifications and Experience</u>	<u>Name of Individual</u>	<u>Actual Years of Experience</u>
Site Supervisor	<ul style="list-style-type: none"> - A Site Supervisor must be on-site at all times. - The Site Supervisor(s) will be directly overseeing all work, including subcontractors, safety, and quality control. - They are responsible for ensuring all labour and safety requirements are complied with and ensuring the work site is cleaned each workday. Will be the single point of contact for the site. - Shall communicate with the owner as required to ensure work is completed with no impact on owner operations 	<p>Experience: Shall have a minimum of five (5) years of experience in construction contracts and at least three (3) years of overall construction experience as a Site Supervisor.</p>		

Please list all applicable key personnel that will be assigned to the Work in addition to those key personnel provided above:

<u>Role</u>	<u>Key Responsibilities</u>	<u>Qualifications and Experience</u>	<u>Name of Individual</u>	<u>Actual Years of Experience</u>
--------------------	------------------------------------	---	----------------------------------	--

PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 13
CURRENT LABOUR AGREEMENTS

List the current labour agreements the Respondent 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 providing a high-level overview of their company that describes the company's core business and indicates the length of time (number of years) the company has been providing similar services. Include company history, the location of head office, other offices, number of employees per location, corporate philosophy and description of the specific services offered and specialties.

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) relevant project descriptions for similar projects. Including value, scope, materials, and construction methods, that have been completed within the last five (5) years. Provide examples of similar projects where you managed risks and ongoing site operations.

The project descriptions shall include:

- a) Company/Client
- b) Name of contact and contact details
- c) Project Name
- d) The scheduled project start date, date for substantial performance and the date for Ready-for-Takeover.
- e) The actual project start date, date for substantial performance and the date for Ready-for-Takeover.
- 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 how and when you will use Ontario's local workforce, local vendors, local manufacturers, local contractors, and/or local apprentices/trainees to achieve the project goals and provide the requested services. Please demonstrate your organization's commitment to sourcing goods and services from Ontario-based businesses. Please list any local subcontractors or suppliers being used for the successful completion of this project.

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
CCDC 2 – 2020 SUPPLEMENTARY CONDITIONS

AMENDMENTS TO THE AGREEMENT BETWEEN OWNER AND CONTRACTOR

1. ARTICLE A-1 THE WORK

- 1.1 In paragraph 1.1, delete the words “and for which” and “is acting as and hereinafter called the “*Consultant*””.
- 1.2 Delete paragraph 1.3 in its entirety and replace it with the following:
- “1.3 commence the *Work* by the 1st day of August in the year 2025 and, subject to adjustment in *Contract Time* as provided for in the *Contract Documents*, attain *Substantial Performance of the Work* by the [REDACTED] day of [REDACTED] in the year 2025, and attain *Ready-for-Takeover* by the 5th day of December in the year 2025.”

2. ARTICLE A-4 CONTRACT PRICE

- 2.1 Delete paragraph 4.4 and replace it with the following:
- “The *Contract Price* shall remain fixed for the duration of the *Contract Time*, subject only to adjustments as provided for in the *Contract Documents*. For certainty, the *Contractor* assumes all risks in connection with cost increases for *Products*, labour, and *Construction Equipment* prescribed by the *Contract Documents* for the performance of the *Work*, and the *Contractor* assumes all responsibility for liabilities and additional costs that may arise as a result of the *Contractor’s* inclusion of any *Product*, *Construction Equipment*, *Supplier*, or *Subcontractor* in its calculation of the *Contract Price*.”

3. ARTICLE A-5 PAYMENT

- 3.1 Delete paragraph 5.1 in its entirety, including all subparagraphs thereunder and replace it with the following:
- “5.1 Subject to the provisions of the *Contract Documents* and the *Construction Act*, the *Owner* shall:
- .1 make progress payments to the *Contractor* on account of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payments,
 - .2 upon *Substantial Performance of the Work*, as jointly certified by the *Owner* and the *Contractor*, and upon the expiry of the holdback period that follows the publication of the certificate of *Substantial Performance of the Work*, as stipulated in the *Construction Act*, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* the unpaid balance of the holdback, together with such *Value Added Taxes* as may be applicable to such payment, less any amount stated in any Notice of Non-Payment that is published by the *Owner* in accordance with the *Construction Act*, and
 - .3 after *Ready-for-Takeover* has been achieved in accordance with the *Contract Documents* and the *Work* is complete, there being no claims for lien registered against the title to the *Place of the Work* and no written notices of lien delivered to the *Owner*, pay the *Contractor* the unpaid balance of the *Contract Price* in accordance with GC 5.5. – FINAL PAYMENT, together with such *Value Added Taxes* as may be applicable to such payment.”

- 3.2 Delete paragraph 5.2, including all subparagraphs thereunder in its entirety and replace it with the following:

“5.2 Interest on late payments, if any, will be in accordance with the *Construction Act*.”

4. ARTICLE A-6 RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING

- 4.1 Delete the text of ARTICLE A-6 RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING (retaining the provisions setting out the addresses of the Owner, Contractor and Consultant) and replace it with the following:
- “6.1 *Notices in Writing* between the parties or between them shall be considered to have been received by the addressee on the date of receipt if delivered by hand or by commercial courier during normal business hours or if sent during normal business hours by e-mail during the transmission of which no indication of failure of receipt is communicated to the sender, and addressed as set out below. Such *Notices in Writing*

will be deemed to be received by the addressee on the next *Working Day* if sent by e-mail after normal business hours or if sent by overnight commercial courier. Such *Notices in Writing* will be deemed to be received by the addressee on the fifth *Working Day* following the date of mailing, if sent by pre-paid registered post, when addressed as set out below. An address for a party may be changed by *Notice in Writing* to the other party setting out the new address in accordance with this article."

5. ARTICLE A-9 CONFLICT OF INTEREST

5.1 Add new Article A-9 as follows:

"ARTICLE A-9 CONFLICT OF INTEREST

- 9.1 The *Contractor*, all of the *Subcontractors*, and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a *Conflict of Interest* (actually or potentially, in the sole opinion of the *Owner*) with the provision of the *Work* pursuant to the *Contract*.
- 9.2 The *Contractor* shall disclose to the *Owner*, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a *Conflict of Interest* or a potential *Conflict of Interest*, including the retention of any *Subcontractor* or *Supplier* that is directly or indirectly affiliated with or related to the *Contractor*."

6. ARTICLE A-10 TIME OF THE ESSENCE / LIQUIDATED DAMAGES

6.1 Add new Article A-10 as follows:

"ARTICLE A-10 TIME OF THE ESSENCE/LIQUIDATED DAMAGES as follows:

- 10.1 It is agreed that one of the reasons the *Contractor* was selected by the *Owner* for this *Contract* is the *Contractor's* representation and warranty that it will attain *Substantial Performance of the Work* and *Ready-for-Takeover* within the *Contract Time* stated in Article A-1.3 of this *Contract*. The *Contractor* acknowledges that it has been advised by the *Owner* that it is critical to the *Owner* that *Substantial Performance of the Work* and *Ready-for-Takeover* is achieved within the *Contract Time*. The *Contractor* agrees that time is of the essence in the performance of the *Contractor's* obligations under this *Contract*.
- 10.2 The *Contractor* further acknowledges its understanding that the *Owner* is responsible and must account to the Government of Ontario, its customers and passengers and the residents of Northern Ontario. A failure by the *Contractor* to attain *Substantial Performance of the Work* and *Ready-for-Takeover* within the *Contract Time* will result in damages to the *Owner* and to the Government of Ontario, its customers and passengers and the residents and businesses in Northern Ontario, which would be difficult or impractical to quantify but would nevertheless have a significant negative impact on the *Owner* and its ability to provide the services the *Owner* is obliged to provide to the residents and businesses in Northern Ontario.
- 10.3 Given the significance of the requirement for the *Contractor* to achieve *Substantial Performance of the Work* and *Ready-for-Takeover*, as described in Article A-10.2, the *Contractor* further acknowledges and agrees that, without limiting the *Owner's* entitlement to any additional or other damages, if it fails to achieve *Substantial Performance of the Work* and *Ready-for-Takeover* within the *Contract Time*, the *Owner* will incur substantial damages and the extent of such damages shall be incapable or very difficult of accurate measurement. Nonetheless, the parties acknowledge that as of the effective date of this *Contract*, the amount of liquidated damages set forth in subparagraph 10.4 below represents a good faith estimate on the part of the parties as to the actual potential damages that the *Owner* would suffer because of late completion of the *Project*. It is expressly acknowledged and agreed by and between the parties that the amount of such liquidated damages does not include any penalty. Notwithstanding the foregoing, where the *Project* is delayed beyond the *Contract Time*, the *Owner* shall be entitled to (i) the liquidated damages as calculated pursuant to Article A-10.4, or (ii) in the event that the *Contractor* claims that this liquidated damages provision is invalid or unenforceable and the *Contractor* prevails on such a defence, the damages arising from the delay suffered by the *Owner* including, without limitation, consequential, special, incidental, and indirect damages, costs and other expenses incurred or suffered by the *Owner*.

- 10.4 The *Owner* shall require that the *Contractor* pay to the *Owner* (or have deducted from Contract payments) liquidated damages at the per diem rate set out in the *Contract Documents* for each calendar day of delay beyond the prescribed date for *Ready-for-Takeover* until *Ready-for-Takeover* is achieved and certified, pursuant to the terms of the *Contract*. If there is no per diem rate set out in the *Contract Documents*, the *Contractor* shall pay to the *Owner* the *Administration Costs* incurred by the *Owner* as a result of the delay.
- 10.5 Liquidated damages will be assessed as incurred and reflected as deductions from amounts that may be due under any applications for payment pending at the time that such liquidated damages are assessed. All liquidated damages not deducted from payments prior to final payment shall be deducted from the final payment to be made by the *Owner* to the *Contractor* pursuant to GC 5.5 FINAL PAYMENT and any amount of liquidated damages in excess of the final payment amount, shall be paid by the *Contractor* to the *Owner*, within 30 days following a written demand by the *Owner* for such payment.
- 10.6 The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or any other alternative claim that may be available to the *Owner*."

AMENDMENTS TO THE DEFINITIONS

7. DEFINITIONS

7.1 Add the following new definitions:

Acceptance and *Accepted* means the *Owner* and the *Consultant* acknowledges that the work for a *Submittal* has been completed and that the *Submittal* on its face conforms to the requirements of the *Contract Documents*. *Acceptance* does not mean confirmation by the *Owner* or the *Consultant* that the *Submittal* does not contain errors or omissions, defects, deficiencies or deviations from the *Contract Documents*. Wherever the words "acceptance" and "accepted" are used in the *Contract Documents*, they shall have the meaning set out in this definition even if the words are not capitalized.

Administration Costs means those costs and expenses incurred by the *Owner* as a result of carrying out a process or activity due to a delay in the performance of the *Work* by the *Contractor* and include:

- (a) additional fees payable by the *Owner* to the *Consultant* on a per diem basis according to the *Consultant's* personnel rates;
- (b) the *Owner's* personnel costs associated with the delay, in an amount solely determined by the *Owner*; and
- (c) any additional costs or loss of revenue incurred by the *Owner* due to the delay."

Adjudication means construction dispute interim adjudication as defined under the *Construction Act*.

The *Arbitration Act* means the *Arbitration Act*, 1991, S.O. 1991, c. 17, as amended.

As-Built Drawings means a set of drawings that are marked-up during construction by the *Contractor* that show how the structures and other parts of the *Work* were actually constructed versus how the structures and other parts of the *Work* were originally designed and "*As-Built Record Drawings*" means the *As-Built Drawings* prepared by the *Contractor* following completion of the *Work* that are *Submitted* to the *Owner* with the *Close-Out Documentation*.

Authority Having Jurisdiction means the federal, provincial or municipal entity that is responsible for enforcing codes, standards and regulations relating to building construction, has the power to pass regulations to direct, specify and govern elements or activities of construction projects such as codes, safety, health or standards of manufacture or installation.

Close-out Documentation has the meaning given in GC 5.5.1.2.

Confidential Information means all information of the *Owner* that is confidential by its nature or in the circumstances in which it is received, including without limitation *Personal Information* and all confidential information in the custody or control of the *Contractor*, regardless of whether it is identified as confidential or not,

which comes into the knowledge, possession or control of the *Contractor* in connection with this *Contract*, but *Confidential Information* does not include information that:

- .1 is or becomes generally available to the public without fault or breach by the *Contractor*, but only after that information becomes generally available to the public;
- .2 the *Contractor* can demonstrate to have been rightfully obtained by the *Contractor* without any obligation of confidence from a third party who had the right to transfer or disclose it to the *Contractor* free of any obligation of confidence;
- .3 the *Contractor* can demonstrate to have been rightfully known to or in the possession of the *Contractor*, free of any obligation of confidence, when disclosed; or
- .4 is independently developed by the *Contractor* without the use of any of the *Owner's Confidential Information*.

Conflict of Interest includes, but is not limited to, any situation or circumstance where the interests, conduct, other commitments or relationships of a *Contractor*, a *Contractor's* family member or an officer, director or employee of the *Contractor* could or could be perceived to, directly or indirectly, compromise, impair or be in conflict with the interests of the *Owner*.

Construction Act means the *Construction Act*, R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this *Contract*. For certainty, the first procurement process for the *Project* (i.e., the "improvement" as that term is defined in the *Construction Act*) was commenced on or after October 1, 2019 and Parts I.1 (Prompt Payment) and II.1 (Construction Dispute Interim Adjudication) of the *Construction Act* apply to this *Contract*.

The *Construction Schedule* or construction schedule means the schedule for the performance of the *Work Submitted* by the *Contractor* and *Accepted* by the *Owner* pursuant to GC 3.4 – CONSTRUCTION SCHEDULE, including any amendments to the *Construction Schedule* made pursuant to the *Contract Documents*.

A *Dispute* means all unresolved claims, disputes or controversies of any kind arising out of or in connection with this *Contract* or the carrying out of the *Work*.

Environmental Contaminants means any substance, material or waste defined, regulated, listed or prohibited by *Environmental Laws*.

Environmental Laws means all applicable federal, provincial, territorial, municipal and local laws, statutes, ordinances, by-laws and regulations, judgments, decrees, common laws and principles thereof, and orders, directives and decisions rendered or issued by any *Authority Having Jurisdiction* relating to *Environmental Contaminants* or the protection of human health, natural resources or the environment.

Estimate means a calculation of the quantity or cost of the *Work* or part of it depending on the context.

Excess Soil means "excess soil" as that term is defined under section 3 of the *Excess Soil Regulation*.

Excess Soil Regulation means O. Reg. 406/19: On-Site and Excess Soil Management to the *Environmental Protection Act*, R.S.O. 1990, c. E.19., as amended.

Extended Warranty means the extended warranties described in the *Specifications* and *Extended Warranty Period* means the period or periods described in the *Specifications*;

Force Majeure means an event or a cause beyond the control of a party, which may include war, interference by civil or military authorities, civil insurrection, local or national emergency, blockade, seizure, riot, sabotage, vandalism, terrorism, earthquake, flood, act of God, accident, fire, nuclear or other explosion, disease, epidemic, pandemic, quarantine restriction, strike, lockout or other labour disturbance, governmental embargo, or changes to any acts, orders, legislation, regulations, directives, or priorities of any government or *Authority Having Jurisdiction*; provided such event is not caused by the affected party's negligence, default, failure to exercise reasonable diligence, bankruptcy or insolvency. A *Force Majeure* event or cause does not include an inability to pay or a lack of financial resources unless it is due to a failure of the province to approve the appropriation from the Consolidated Revenue Fund for the *Project*.

Impact Assessment Reports means the impact assessment reports, if any, listed in the *RFP* related to the *Fisheries Act*; *Navigable Waters Act*; *Lakes and Rivers Improvement Act*; heritage reviews; *Endangered Species Act* and *Species at Risk Act*; terrestrial resources (vegetation, wildlife, other features); socio-economic impacts and Indigenous consultations.

Intellectual Property means any improvement, invention or discovery, whether or not patented or patentable, any technical data, know-how or trade secret, any design, any computer software or any work subject to copyright, whether or not such design or copyright is registered or registrable and all Intellectual Property Rights contained, embedded or disclosed in the *Work*.

Notice of Non-Payment means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the *Construction Act*, as applicable to the circumstances.

Payment Period or payment period means the fixed segments of time for which the *Contractor* shall be entitled to claim payment for *Work* performed during such period, as agreed upon by the *Owner* and the *Contractor* at the first pre-construction meeting. To be effective, such agreement must be in writing or reflected in the final and approved pre-construction meeting minutes. In the event that the *Owner* and the *Contractor* do not fix the segment of time for each *Payment Period* at the first pre-construction meeting, then each *Payment Period* shall be a one (1) month period during which *Work* was performed, with the start and end dates of each *Payment Period* deemed to be the first (1st) calendar day of the applicable month and the last calendar day of the same month, respectively.”

Personal Information means information that relates to an identifiable individual or that identifies or may identify an individual as defined in section 2 of the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F.31, as amended.

Pre-Invoice Submission Meeting has the definition given to it under GC 5.2.1.

Proper Invoice means a “proper invoice” as that term is defined in Section 6.1 of the *Construction Act* that complies with the minimum requirements set out in Schedule A to the Supplementary Conditions.

Proper Invoice Submission Date is the dated referenced in GC 5.2.2.

Restricted Period (Adjudication) means the (inclusive) period of time between November 15 in one calendar year to January 2 in the next calendar year, in any given year throughout the duration of the *Contract*.

Restricted Period (Proper Invoice) means the (inclusive) period of time between December 10 to December 28 in any given year throughout the duration of the *Contract*.

RFP means the procurement documents used by the *Owner* for the procurement of the *Contractor* for the *Project*.

Statutory Declaration means the “Ontario Northland Statutory Declaration of Progress Payment Distribution by Contractor” form, attached to the Supplementary Conditions as Schedule “B”.

Submittal(s) means all documentation prepared by the *Contractor* and submitted to the *Owner* and/or the *Consultant* for review and *Acceptance* in accordance with the *Contract Documents*.

Third-Party Property Owner means the owner, tenant or other person having the right to use a property.

Warranty Period means the period during which the *Contractor* provides a warranty for the *Work* described in GC 12.3.

Waste Management Plan means the plan to be submitted by the *Contractor* to the *Owner* and the *Consultant* described in GC 3.11.1 and *Waste Management Report* has the meaning described in the *Specifications*.”

7.2 Delete the definition of “*Consultant*” and replace it with the following:

“The *Consultant* is the *Owner’s* project manager designated by the *Owner* to be the *Owner’s* representative for the purposes of the *Contract*. All references to the *Consultant* in the *Contract Documents* shall mean the *Owner* and, unless otherwise provided in the *Contract Documents*, any requirement for a decision or opinion, in writing

or otherwise, by the *Consultant* shall mean a decision of the *Owner*. References to the “Engineer” in the *Specifications* or to the “Contract Administrator” in OPSS shall mean the *Consultant* as defined herein.”

7.3 At the end of the definition of “*Drawings*”, add the following words “and a Waste Management Plan”.

7.4 Delete the definition of “*Contract Price*” and replace it with the following:

“*Contract Price* is the amount payable by the *Owner* to the *Contractor* for *Work* to be completed under the *Contract* in accordance with the method and manner of payment stipulated in the *Contract Documents* and the lump sum price submitted by the *Contractor* in its proposal as stipulated in Article A-4.1 as amended by any *Change Orders*.”

7.5 Delete the definition of *Payment Legislation*.

7.6 Amend the definition of *Ready-for-Takeover* by deleting all the words after “as verified” and replacing them with “and *Accepted* by the *Owner*.”

AMENDMENTS TO THE GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

8. GC 1.1 CONTRACT DOCUMENTS

8.1 Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

8.2 Delete paragraph 1.1.3 and replace it with the following:

“1.1.3 “The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Owner* any error, inconsistency or omission the *Contractor* may discover. Such review by the *Contractor* shall comply with the standard of care described in paragraph 3.12.1 of the *Contract*. Except for its obligation to make such review and report the result, the *Contractor* does not assume any responsibility to the *Owner* or to the *Owner* for the accuracy of the *Contract Documents*. Provided it has exercised the degree of care and skill described in this paragraph 1.1.3, the *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents* which the *Contractor* could not reasonably have discovered. If the *Contractor* does discover any error, inconsistency or omission in the *Contract Documents*, the *Contractor* shall immediately notify the *Owner* and shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Owner*. If the *Contractor* finds discrepancies in and/or omissions from the *Contract Documents* or has any doubt as to the meaning or intent of any part thereof, the *Contractor* must immediately notify the *Owner* by means of a written Request for Information (“RFI”) and the *Consultant* will provide written instructions or explanations. The *Owner* shall not be responsible for oral instructions.”

8.3 Delete paragraph 1.1.4 and replace it with the following:

“1.1.4 Notwithstanding the foregoing, errors, inconsistencies and/or omissions shall not include lack of reference on the *Drawings* or in the *Specifications* to labour and/or *Products* that are required or normally recognized within respective trade practices as being necessary for the complete execution of the *Work*. The *Contractor* shall not use RFIs, issued during execution of the *Work*, in and of themselves to establish a change and/or changes in the *Work* pursuant to Part 6 – CHANGES IN THE WORK. In the event an RFI or the cumulative effect of RFIs leads to what the *Contractor* considers to be a change in the *Work*, then the procedure under Part 6 – CHANGES IN THE WORK shall be followed.”

8.4 Delete paragraph 1.1.5.1 in its entirety and replace it with new 1.1.5.1:

“the order of priority of documents, from highest to lowest, shall be:

- Special Provisions, if any
- ONTC Special Supplementary Conditions, if any
- ONTC Supplementary Conditions to CCDC 2
- Agreement between the Owner and the Contractor
- Definitions
- General Conditions
- Addenda to the Request for Proposals (“RFP”)

- Schedule 2-A to the RFP – RFP Data Sheet
- Schedule 3-A-1 to the RFP – Scope of Work
- RFP Part 4 – Form 8 SCHEDULE OF MATERIALS, if accepted
- Schedule 3-A-2 to the RFP – Technical Specifications
- Schedule 3-A-3 to the RFP – Issue for Tender Drawings
- Schedule 3-A-4 to the RFP – Policies and Procedures
- Contractor's Proposal in Part 4 of the RFP in response to the RFP"

8.5 Add a new subparagraph 1.1.5.6 as follows:

"6 Schedules of Division 01 - General Requirements of the Specifications shall form part of and be read in conjunction with the technical specification section."

8.6 Add a new sentence to the end of paragraph 1.1.9 as follows:

"The *Specifications* are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the *Contract Documents* will be construed to place responsibility on the *Owner* to settle *Disputes* among the *Subcontractors* and *Suppliers* in respect to such divisions."

8.7 Delete paragraph 1.1.10 in its entirety and replace it with new paragraph 1.1.10:

"All *Submittals* and *Intellectual Property* rights produced by or resulting from the *Work*, including all *Specifications*, *Drawings*, models and copies thereof, shall vest in the *Owner* and are the sole and absolute property of the *Owner* as and when created. The *Contractor* hereby irrevocably assigns and conveys and agrees to assign and convey, without further consideration, all right, title and interest in and to the *Intellectual Property* rights produced or resulting from the *Work*, in perpetuity and throughout the world, to the *Owner* and its successors and assigns. This paragraph 1.1.10 shall survive termination of the *Contract*."

8.8 Add new paragraphs 1.1.12, 1.1.13, 1.1.14, 1.1.15, 1.1.16 and 1.1.17 as follows:

1.1.12 The *Owner* shall provide the *Contractor*, without charge, an electronic version of the *Contract Documents*."

1.1.13 If an item is shown on one document, and it can be reasonably inferred that it was intended to include work not shown on other related documents, the *Contract Price* shall nevertheless include for the cost of the item of work, unless the *Owner* agrees otherwise.

1.1.14 Where a provision in the *Contract* is made for the giving or issuing of any *Notice in Writing*, consent, Acceptance, approval, certificate or determination by any person, unless otherwise specified such *Notice in Writing*, consent, *Acceptance*, approval, certificate or determination shall be in writing and shall not unreasonably be withheld or delayed.

1.1.15 The *Contractor* shall keep one copy of the current *Contract Documents*, *Supplemental Instructions*, contemplated change orders, *Change Orders*, *Change Directives*, reviewed *Shop Drawings*, reports and records of meetings at the *Place of Work* in good order and available to the *Owner*.

1.1.16 The *Contractor* shall keep one copy of current standards and manufacturers' literature specified in the *Contract Documents* at the *Place of Work* in good order and available to the *Owner* for the duration of the *Work*.

1.1.17 The *Drawings* are, in part, diagrammatic and are intended to convey the scope of the *Work* and indicate general and appropriate locations, arrangement and sizes of materials. The *Contractor* shall obtain more accurate information about the locations, arrangement and sizes from study and coordination of the *Drawings* and shall become familiar with conditions and spaces affecting these matters before proceeding with the *Work*. Where site conditions require minor changes in indicated locations and arrangements, the *Contractor* shall make such changes at no additional cost to the *Owner*."

9. GC 1.2 LAW OF THE CONTRACT

9.1 Delete paragraph 1.2.1 in its entirety and replace it with new paragraph 1.2.1:

"This *Contract* shall be governed by and constituted in accordance with the laws in force in the Province of Ontario excluding any conflict of laws principles. The parties hereby irrevocably attorn to the exclusive jurisdiction of the courts of the Province of Ontario for any legal proceedings arising out of this *Contract* or the performance of the obligations hereunder."

10. GC 1.4 ASSIGNMENT

- 10.1 Delete paragraph 1.4.1 in its entirety and replace it with new paragraph 1.4.1:

"Neither party to the *Contract* shall assign the *Contract* or a portion thereof without the written consent of the other, which consent, in the case of the *Owner*, is at the sole discretion of the *Owner*. In the event of an assignment of the *Contract* by the *Contractor*, such assignment shall require prior written consent of the *Owner* and shall not relieve the *Contractor* from its obligations and liabilities hereunder."

11. GC 2.1 AUTHORITY OF THE CONSULTANT

- 11.1 Delete paragraph 2.1.1 in its entirety and replace it with the following:

"2.1.1 The *Owner's* project manager shall have the authority to act on behalf of the *Owner* for all matters arising under the *Contract*."

- 11.2 Delete paragraph 2.2.2 in its entirety.

12. GC 2.2 ROLE OF THE CONSULTANT

- 12.1 Delete paragraph 2.2.3 in its entirety.

- 12.2 Delete paragraph 2.2.4 in its entirety.

- 12.3 Delete paragraph 2.2.6 in its entirety and replace it with the following:

"2.2.6 If there is a *Dispute* between the *Owner* and the *Contractor* regarding the performance of the *Work* or the interpretation of the *Contract Documents*, the parties shall resolve the *Dispute* in accordance with PART 8 – DISPUTE RESOLUTION."

- 12.4 Delete paragraph 2.2.7 in its entirety.

- 12.5 Delete paragraph 2.2.8 in its entirety.

- 12.6 Delete paragraph 2.2.9 in its entirety.

- 12.7 Delete paragraph 2.2.10 in its entirety.

- 12.8 Amend paragraph 2.2.12 by adding the following to the end of that paragraph:

"The *Supplemental Instructions* are not a change in the *Contract Documents*. If, in the opinion of the *Contractor*, the *Supplemental Instruction* requires an adjustment in the *Contract Price* or in the *Contract Time*, it shall, within three (3) *Working Days* after receipt of a *Supplemental Instruction* provide the *Consultant* and the *Owner* with *Notice in Writing* to that effect. Failure to provide *Notice in Writing* within the time stipulated in this paragraph 2.2.12 shall be deemed an acceptance of the *Supplemental Instruction* by the *Contractor* without adjustment in the *Contract Price* or *Contract Time*."

- 12.9 Delete paragraph 2.2.18 in its entirety.

13. GC 2.3 REVIEW AND INSPECTION OF THE WORK

- 13.1 Add new paragraph 2.3.8 as follows:

"Where inspection and testing services are specified, the service provider employed for such services shall be the service provider named by the *Owner*."

- 13.2 Add new paragraph 2.3.9 as follows:

"Where standards of performance are specified and the *Work* does not comply with the specified standard of performance, the deficiency in the *Work* shall be corrected as directed by the *Consultant*. Subsequent testing to ensure that the standard of performance has been attained (including re-testing by *Owner*), shall be carried out at the *Contractor's* expense and shall not be paid from the cash allowances described in GC 4.1."

14. GC 2.4 DEFECTIVE WORK

14.1 Add new paragraphs 2.4.1.1, 2.4.1.2, 2.4.1.3 and 2.4.1.4 as follows:

- “.1 Without limiting the foregoing, the *Contractor* shall rectify, in a manner acceptable to the *Owner*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Owner*.
- .2 The *Contractor* shall prioritize the correction of any *Defective* work which, in the sole discretion of the *Owner*, adversely affects the day to day operations of the *Owner*.
- .3 All such corrections of defective work and deficiencies shall be at the *Contractor's* expense.
- .4 If the *Contractor* fails to do the work to correct the defective *Work* or deficiencies, the *Owner* may carry out such remediation work by its own forces or by other *Contractors* and the *Owner* shall be entitled to recover from the *Contractor* the costs thereof or may deduct the same from any monies due or that become due to the *Contractor*."

14.2 Amend paragraph 2.4.3 by deleting the last sentence and replacing it with the following:

"If the *Owner* and the *Contractor* do not agree in the difference in value, they shall resolve the disagreement pursuant to Part 8 – DISPUTE RESOLUTION."

14.3 Add new paragraph 2.4.4 as follows:

"2.4.4 Neither the *Acceptance* of the *Work* by the *Owner*, nor any failure by the *Owner* to identify, observe or warn of defective *Work* or any deficiency in the *Work* shall relieve the *Contractor* from the sole responsibility for rectifying such defect or deficiency at the *Contractor's* sole cost, even where such failure to identify, observe or warn is negligent."

15. GC 2.5 EMERGENCY SITUATIONS

15.1 Add new GC 2.5 EMERGENCY SITUATIONS as follows:

- “.1 The *Owner* has the right to determine the existence of an emergency situation and, when such an emergency situation is deemed to exist, the *Owner* may instruct the *Contractor* to take action to remedy the situation. If the *Contractor* does not take timely action or, if the *Contractor* is not available, the *Owner* may direct others to remedy the situation. Any such action or direction taken by the *Owner* shall not relieve the *Contractor* of its responsibilities as the "Constructor" pursuant to the *Occupational Health and Safety Act* (Ontario).
- .2 If the emergency situation was the fault of the *Contractor*, the remedial work shall be completed at the cost of the *Contractor* and with no additional cost to the *Owner* and the *Owner* shall be entitled to seek reimbursements for all costs associated with the remedial work including the cost of work done by third parties.
- .3 If the emergency situation was not the fault of the *Contractor*, the *Owner* shall pay for the remedial work."

16. GC 3.1 CONTROL OF THE WORK

16.1 Add new paragraph 3.1.3 as follows:

"Prior to commencing individual procurement, fabrication and construction activities, the *Contractor* shall verify, at the *Place of the Work*, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not

apparent, the *Contractor* shall immediately notify the *Owner* in writing and obtain written clarification from the *Owner* before proceeding with any part of the affected *Work*.”

16.2 Add new paragraph 3.1.4 as follows:

“The *Contractor* shall perform the work in a good and workmanlike manner, using new materials, in accordance with all applicable laws and current best practices and standards in the construction industry at the *Place of Work*. The *Contractor* acknowledges that both time and quality are of the essence and the *Contractor* will perform the *Work* or cause the *Subcontractors* and *Suppliers* to perform the *Work* in accordance with the *Construction Schedule*, as amended from time to time, and in an expeditious and professional manner.”

17. GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

17.1 Add new paragraph 3.2.3.5 as follows:

“Subject to GC 9.4 – CONSTRUCTION SAFETY, for the *Owner’s* own forces and for *Other Contractors*, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation of the *Place of the Work*, including all of the responsibilities of the “Constructor” under the *Occupational Health and Safety Act* (Ontario).”

18.2 Add new paragraph 3.2.3.6 as follows:

“provide for the co-ordination of the activities and work of *Other Contractors* and *Owner’s* own forces with the *Work of the Contract*.”

18. GC 3.4 CONSTRUCTION SCHEDULE

18.1 Delete paragraph 3.4.1 in its entirety and replace it with the following:

“3.4.1 The *Contractor* shall:

- .1 within 10 *Working Days* from the date of the *Contract* award, prepare for the *Owner’s* review and *Acceptance*, a construction schedule, including identification of the critical path of the *Work*, the schedule of operations, the proposed methods of construction and sequence of *Work*, and the time the *Contractor* proposes to complete the various items of *Work* within the *Contract Time*. The schedule shall be designed to ensure conformity with the *Contract Time*. The schedule will be in a Gantt chart format in either .pdf or excel format and include:

- (a) activity sequences and durations;
- (b) process for obtaining any required permits;
- (c) work block planning and track protection requested;
- (d) special allocation of labour and *Products*;
- (e) processing of *Shop Drawings* and samples;
- (f) delivery of *Products* involving long lead time procurement;
- (g) usage and occupancy requirements of the *Owner* of those portions of the *Work* having usage or occupancy priority;
- (h) *Substantial Performance of the Work*, and *Ready-for-Takeover* reflecting that such milestones will be achieved by no later than the dates specified in Article A-1.3; and
- (i) any other schedule requirements set out in the *Contract Documents*.

If the construction schedule submitted by the *Contractor* is not *Accepted* by the *Owner*, the *Contractor* shall make revisions to the construction schedule until it is *Accepted* by the *Owner*.

Once *Accepted* by the *Owner*, the schedule submitted by the *Contractor* shall become the "*Construction Schedule*." Notwithstanding any other terms of this *Contact*, the *Contractor* shall not be entitled to receive any payment from the *Owner* until a construction schedule has been submitted by the *Contractor* and *Accepted* by the *Owner*. The *Owner* may, at its sole discretion, not issue an order to commence *Work* until the schedule has been received and *Accepted*.

- .2 during performance of the *Work* and in accordance with the controls and reporting requirements in the *Contract Documents*, provide for the *Owner's* review and *Acceptance*, progress reports updating the *Construction Schedule*, reporting on the progress achieved, percentage of completion, schedule status and financial status with areas of immediate concern highlighted. If the schedule is affected by approved *Change Orders*, the *Contractor* shall submit an updated *Construction Schedule*, if requested by the *Owner*, within 7 *Working Days* of the request. This updated schedule shall show how the *Contractor* proposes to perform the balance of the *Work*, so as to complete the *Work* within the *Contract Time*.
- .3 provide progress reports with each application for payment, in the form provided by the *Owner* attached as Schedule C, for review and *Acceptance*, including an update of the *Construction Schedule* referred to in paragraph 3.4.1."

18.2 Add new paragraph 3.4.2 and 3.4.3 as follows:

"3.4.2 If,

- .1 at any time it should reasonably appear to the *Owner* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, based on critical path methodology, and *Notice in Writing* of such opinion is given to the *Contractor*; or
- .2 the *Contractor* becomes aware of or notices a slippage in the *Construction Schedule*,

then the *Contractor* shall take appropriate steps to cause the actual progress of the *Work* to conform to the *Construction Schedule* and shall produce and present to the *Owner* for its review and *Acceptance* within 5 *Working Days* after becoming aware of the schedule slippage a recovery plan demonstrating how the *Contractor* will achieve the recovery of the *Construction Schedule*.

3.4.3 The *Contractor* is responsible for performing the *Work* within the *Contract Time*. Any schedule submissions revised from the *Accepted* baseline *Construction Schedule* or *Accepted* revised *Construction Schedule* pursuant to GC 3.4 CONSTRUCTION SCHEDULE during construction are deemed NOT to be approved extensions to the *Contract Time*. Revisions to the *Construction Schedule* shall not be made without the prior written *Acceptance* of the *Owner*. All requests by the *Contractor* for a revision to the *Construction Schedule* that includes an extension to the *Contract Time* or adjustment to the date(s) for *Substantial Performance of the Work* or *Ready-for-Takeover* must be approved by the *Owner* through an executed *Change Order*."

19. GC 3.5 SUPERVISION

19.1 Amend paragraph 3.5.1 by adding at the end of that paragraph:

"..., and upon the *Contractor* obtaining the *Owner's* written consent, which consent will not be unreasonably withheld."

19.2 Add new paragraph 3.5.3 as follows:

"Notwithstanding paragraph 3.5.2, the representative of the *Contractor* attending a meeting with the *Owner* or the *Owner's* representative shall be deemed to have authority to act on behalf of the *Contractor* and bind the *Contractor* in matters related to this *Contract*."

19.3 Add new paragraph 3.5.4 as follows:

"The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed *Contractor's* representative(s), where the grounds for the request involve conduct on the part of the *Contractor's* representative(s) which jeopardizes the safety of the *Owner's* operations or the *Work* or the proper progress of the *Work*. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint an

Acceptable replacement. The *Contractor* shall indemnify and hold the *Owner* harmless from and against any damages, costs, expenses, claims, injuries and other liabilities suffered by the *Owner* arising from the conduct of the representative that is being replaced.”

20. GC 3.6 SUBCONTRACTORS AND SUPPLIERS

20.1 Add new paragraph 3.6.1.4:

“ensure the *Subcontractors* and *Suppliers*, while working on the *Owner’s* property, are aware of and comply with the *Owner’s* policies, including its Fit for Duty Policy, and with the Ontario Northland Operating Manual, including the Current Summary Bulletin, the current Ontario Northland Time Table, C.R.O.R. 2022, Infrastructure Special Instructions, Dangerous Goods and Ontario Northland General Operating Instructions, as applicable.”

20.2 Delete paragraph 3.6.2 in its entirety and replace it with a new paragraph 3.6.2

“The *Contractor* shall not change *Subcontractors* or *Suppliers* identified in the *Contract Documents* without the prior written approval of the *Owner* which approval will not be unreasonably withheld.

20.3 Delete paragraphs 3.6.3 and 3.6.4 in their entirety and replace them with “Intentionally Left Blank.”

20.4 Add new paragraph 3.6.7 as follows:

“The responsibility as to which *Supplier* and/or *Subcontractor* provides the specific labour, *Products* and services for each item of work rests solely with the *Contractor*, within and in accordance with the requirements and limitations listed in the *Contract Documents* with respect to approval of *Suppliers* and/or *Subcontractors* permitted to perform work on the *Project*.”

21. GC 3.7 LABOUR AND PRODUCTS

21.1 Amend paragraph 3.7.1 by adding the words, “..., agents, *Subcontractors* and *Suppliers* ...” after the word “employees”.

21.2 Amend paragraph 3.7.2 by adding the following words at the beginning of the paragraph: “Except as otherwise provided in the technical *Specifications*” and adding the following sentence at the end of that paragraph:

“The *Contractor* represents and warrants that the *Products* supplied by the *Contractor* in accordance with the *Contract* are not subject to any conditional sales contract and are not subject to any security rights obtained by any third party which may subject any of the *Products* to seizure and/or removal from the *Place of the Work*.”

21.3 Add new paragraph 3.7.4 as follows:

“Upon receipt of a *Notice in Writing* from the *Owner*, the *Contractor* shall take action to rectify any situation involving its employee, agent, *Subcontractor* or *Supplier* whose work is unsatisfactory to the *Owner* or who are considered by the *Owner* to be unskilled or otherwise objectionable. If after giving sufficient warning the *Contractor* is not able to reasonably rectify such situation, then such employee, agent, *Subcontractor* or *Supplier* shall be dismissed from the *Place of the Work* and the *Contractor* shall indemnify and hold the *Owner* harmless from and against any damages, costs, expenses, claims, injuries and other liabilities suffered by the *Owner* arising from the dismissal of such employee, agent, *Subcontractor* or *Supplier*.”

21.4 Add new paragraph 3.7.5 as follows:

“The *Contractor* is responsible for the safe on-site storage of *Products* and their protection (including *Products* supplied by the *Owner* and *Other Contractors* to be installed under the *Contract*) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* identified by the *Contractor* and *Accepted* by of the *Owner*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner* or *Other Contractors*.”

21.5 Add new paragraph 3.7.6 as follows:

“The *Contractor* shall not employ any persons to perform *Work* whose labour affiliation, or lack thereof, is incompatible with other labour employed in connection with the *Work*. Any costs arising from labour disputes, as

a result of the employ of any such person by the *Contractor*, its *Subcontractors* or *Suppliers* shall be at the sole expense of the *Contractor*.”

21.6 Add new paragraph 3.7.7 as follows:

“The *Contractor* and the *Owner* and its representatives shall cooperate and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the work at the *Place of the Work*, including cooperation to attempt to avoid work stoppages, trade union jurisdictional disputes and other labour disputes.”

22. GC 3.8 SHOP DRAWINGS

22.1 Delete paragraph 3.8.7 and replace it with the following:

“3.8.7 The *Owner* will review and return *Shop Drawings* in accordance with the schedule agreed upon as described in paragraph 3.8.2, or, in the absence of such schedule, with reasonable promptness. If, for any reason, the *Owner* cannot process them within the agreed-upon schedule or with reasonable promptness, the *Owner* shall notify the *Contractor* and they shall meet to review and develop a revised schedule for processing such *Shop Drawings* that is *Acceptable* to the *Owner*. The *Contractor* shall update the *Shop Drawings* schedule to correspond to changes in the *Construction Schedule*. Changes in the *Contract Price* or *Contract Time* may be made only in accordance with GC 6.1, GC 6.2 or GC 6.3.”

22.2 Add new paragraphs 3.8.8, 3.8.9, 3.8.10 and 3.8.11 and as follows:

“3.8.9 The *Contractor* shall provide *Shop Drawings* and *Submittals* in the form specified, or if not specified, as directed by the *Owner*. *Shop Drawings* provided by the *Contractor* to the *Owner* shall indicate by stamp, date and signature of the person responsible for the review that the *Contractor* has reviewed each one of them. Certain *Specifications* sections require the *Shop Drawings* to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the *Place of the Work* and shall have expertise in the area of practice reflected in the *Shop Drawings*.

3.8.10 *Shop Drawings* which require approval of any *Authority Having Jurisdiction* shall be provided to such authority by the *Contractor* for the authority’s approval.

3.8.11 The *Contractor* shall provide revised *Shop Drawings* to correct those which the *Owner* rejects as inconsistent with the *Contract Documents*, unless otherwise directed by the *Owner*. The *Contractor* shall notify the *Owner* in writing of any revisions to the *Shop Drawings* other than those requested by the *Owner*.

3.8.12 Reviewed *Shop Drawings* shall not authorize a change in the *Contract Price* and/or the *Contract Time*.”

23. GC 3.9 USE OF THE WORK

23.1 Add new GC 3.9 – USE OF THE WORK as follows:

“GC 3.9 USE OF THE WORK

3.9.1 The *Contractor* shall confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and operations of employees and *Subcontractors* to limits indicated by laws, ordinances, permits, or the *Contract Documents* and shall not unreasonably encumber the *Place of the Work*.

3.9.2 The *Contractor* shall not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the safety of the *Work*.

3.9.3 The *Owner* shall have the right to enter or occupy the *Place of the Work* in whole or in part for the purpose of placing fittings and equipment, or for other use before *Ready-for-Takeover*, if, in the opinion of the *Owner*, such entry and occupation does not prevent or substantially interfere with the *Contractor* in the performance of the *Contract* within the *Contract Time*. Such entry or occupation shall neither be considered as acceptance of the *Work* or in any way relieve the *Contractor* from its responsibility to complete the *Contract*.”

24. GC 3.10 CUTTING AND REMEDIAL WORK

24.1 Add new GC 3.10 – CUTTING AND REMEDIAL WORK as follows:

“GC 3.10 CUTTING AND REMEDIAL WORK

- 3.10.1 The *Contractor* shall perform the cutting and remedial work required to make the affected parts of the *Work* come together properly. Such cutting and remedial work shall be performed by specialists familiar with the *Products* affected and shall be performed in a manner to neither damage nor endanger the *Work*.
- 3.10.2 The *Contractor* shall coordinate the *Work* to ensure all cutting and remedial work required is kept to a minimum.”

25. GC 3.11 CLEANUP

25.1 Add new GC 3.11 – CLEANUP as follows:

“GC 3.11 CLEANUP

- 3.11.1 The *Contractor* shall comply with all requirements for cleanup at the *Place of the Work* as specified in the *Contract Documents*. The *Contractor* shall provide to the *Owner* for *Acceptance* a *Waste Management Plan*, and a waste reduction plan if required by *Environmental Laws*, for the waste products, debris and any *Excess Soils* generated by the *Work*, which plan shall comply with all *Environmental Laws* and the *Specifications*. The costs of disposing of all waste products and debris, including products and debris containing *Environmental Contaminants*, and *Excess Soil* resulting from the *Work* is included in the *Contract Price*.
- 3.11.2 Before applying for *Substantial Performance of the Work*, the *Contractor* shall remove waste products and debris and shall leave the *Place of the Work* clean and suitable for use or occupancy by the *Owner*. All products, tools, *Construction Equipment* and *Temporary Work* not required for the performance of any remaining *Work* shall be removed by the *Contractor*.
- 3.11.3 As a condition precedent to final payment, the *Contractor* shall remove any remaining products, tools, *Construction Equipment*, *Temporary Work*, waste products and debris from the *Place of the Work* to the satisfaction of the *Owner*.
- 3.11.4 In performing work to correct deficiencies or work under warranty following *Ready-for-Takeover* of the *Work*, the *Contractor* shall maintain the *Place of the Work* in a tidy condition and shall immediately remove waste products and debris.
- 3.11.5 The *Contractor* shall comply with all *Environmental Laws* in disposing of the waste products, debris and *Excess Soil* resulting from the *Work*. The *Contractor* shall assume all liability and responsibility for any waste products, debris and *Excess Soil*, including any such materials containing *Environmental Contaminants*, which are removed from the *Place of the Work* by the *Contractor* and during the transportation of the waste products, debris and *Excess Soils* to the appropriate waste disposal site. The *Contractor* shall submit landfill weigh bills from a waste disposal site as proof that all waste has been disposed of at a certified waste disposal site. The *Contractor* shall submit a *Waste Management Report* as part of the *Close-Out Documentation* described in paragraph 5.5.1.2. to be submitted with the application for verification of *Ready-for-Takeover*.
- 3.11.6 In the event that the *Contractor* fails to remove waste and debris as provided in this GC 3.11, then the *Owner* may give the *Contractor* twenty-four (24) hours' *Notice in Writing* to meet its obligations respecting clean up. Should the *Contractor* fail to meet its obligations pursuant to this GC 3.11 within the twenty-four (24) hour period next following delivery of the notice, the *Owner* may remove such waste and debris and deduct from payments otherwise due to the *Contractor*, the *Owner's* costs for such clean up, including a reasonable mark-up for *Administration Costs*.”

26. GC 3.12 PERFORMANCE BY CONTRACTOR

26.1 Add new GC 3.12 – PERFORMANCE BY CONTRACTOR as follows:

“GC 3.12 PERFORMANCE BY CONTRACTOR

- 3.12.1 In performing its obligations, duties and responsibilities under this *Contract*, the *Contractor* shall exercise the degree of care, skill and diligence that would normally be exercised by an experienced, skilled and prudent contractor supplying similar services for similar projects. The *Contractor* acknowledges and agrees that, throughout this *Contract*, the *Contractor's* obligations, duties and responsibilities shall be judged, evaluated and interpreted in accordance with this standard. The *Contractor* shall exercise the same standard of care in respect of any *Products*, *Subcontractors*, *Suppliers*, personnel or procedures which it may recommend to the *Owner* or employ on the *Project*.
- 3.12.2 The *Contractor* further represents, covenants and warrants to the *Owner* that:
- .1 The personnel and *Subcontractors* it assigns to the *Project* are appropriately experienced;
 - .2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the *Owner's* approval, in the event of death, incapacity, removal or resignation; and
 - .3 there are no pending, threatened or anticipated claims that would have a material effect on the financial ability of the *Contractor* to perform its work under the *Contract*.”
- 3.12.3 The *Owner* has a Vendor Performance Policy which requires the *Owner* to complete an evaluation of the *Contractor's* performance of its obligations under this *Contract*. The performance evaluation of the *Contractor* for the supply of the *Work* will be used in the assessment of the *Contractor's* proposals in response to future procurements. The performance evaluation may also result in the *Contractor* being disqualified from submitting proposals in response to future procurements in accordance with the terms of the policy. The policy can be found at <http://ontarionorthland.ca/en/requests-tenders>.”

27. 3.13 EXCESS SOIL MANAGEMENT

27.1 Add new GC 3.13 – EXCESS SOIL MANAGEMENT as follows:

“GC 3.13 EXCESS SOIL MANAGEMENT

- 3.13.1 The *Contractor* shall be solely responsible for the proper management of all *Excess Soil* at the *Place of the Work* and for performance of the *Work* in compliance with the rules, regulations and practices required by the *Excess Soil Regulation* until such time as *Ready-for-Takeover* is achieved. Without restricting the generality of the previous sentence, the *Contractor's* responsibility under this GC 3.13 includes the testing, designation, transportation, tracking, temporary and/or final placement, record keeping, and reporting of all *Excess Soil* in connection with the *Work* all in compliance with the *Excess Soil Regulation*.
- 3.13.2 The *Contractor* shall indemnify and save harmless the *Owner*, their agents, officers, directors, administrators, governors, employees, consultants, successors and assigns from and against the consequences of any and all infractions committed by the *Contractor*, or those for whom it is responsible at law, under the *Excess Soil Regulation*, or any environmental protection legislation, including the payment of legal fees and disbursements on a substantial indemnity basis.”

27A GC 4.1 CASH ALLOWANCES

27A.1 Add the following at the end of paragraph 4.1.2:

“The maximum markup for the Contractor’s overhead and profit on a cash allowance shall be five percent (5%).”

27A.2 Delete the last sentence in paragraph 4.1.4.

27A.3 Delete paragraph 4.1.5 in its entirety and replace it with the following:

"The *Contract Price* shall be adjusted by *Change Order* to provide for any difference in the total value of all cash allowances and the actual cost of the *Work* performed under all cash allowances."

27A.4 Add new paragraph 4.1.8:

"4.1.8 The *Owner* may require the *Contractor* to obtain competitive bids, at no additional cost to the *Owner*, for portions of the *Work* to be paid from cash allowances."

28. GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

28.1 Delete GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER in its entirety including all paragraphs thereunder and replace it with "Intentionally left blank."

28.2 GC 5.2 APPLICATIONS FOR PAYMENT

28.3 Delete paragraph 5.2.1 in its entirety and replace it with a new paragraph 5.2.1:

"5.2.1 On a *Working Day* that is not more than 10 calendar days after the end of each *Payment Period*, a representative of the *Contractor* and the *Owner* shall attend a meeting to discuss and review the *Work* completed during the *Payment Period*, including quantities, if applicable (the "**Pre-Invoice Submission Meeting**"). The *Contractor* shall bring with it to the *Pre-Invoice Submission Meeting* the following:

- .1 a draft of its anticipated application for payment for the applicable *Payment Period*;
- .2 the schedule of values submitted in accordance with GC 5.2.4, and *Accepted* by the *Owner* in accordance with GC 5.2.5;
- .3 *Subcontractor* and *Supplier* invoices and supporting materials;
- .4 receipts for reimbursable expenses (where expressly permitted by the *Contract*, if at all);
- .5 accounts and records documenting the cost of performing the *Work* attributable to any *Change Order* or *Change Directive*;
- .6 any visual documentation (photos, videos, diagrams) evidencing the progress of the *Work*; and
- .7 any other documents reasonably required by the *Contract Documents* or the *Owner*."

28.4 Delete paragraph 5.2.2 in its entirety and replace it with a new paragraph 5.2.2:

"5.2.2 Within 5 calendar days following the *Pre-Invoice Submission Meeting*, the *Contractor* shall deliver to the *Owner* its application for payment that complies with the requirements of GC 5.2.6 for *Work* performed during a *Payment Period* (the "**Proper Invoice Submission Date**"), provided that if the fifth (5th) calendar day following the *Pre-Invoice Submission Meeting* falls on a calendar day that is not *Working Day*, the *Proper Invoice Submission Date* shall be deemed to fall on the next *Working Day*. However, the following shall apply to the delivery of all *Contractor* applications for payment:

- .1 If the *Contractor* fails to deliver its application for payment, at the interval prescribed in GC 5.2.2, subject to written approval by the *Owner*, the *Contractor* shall not be entitled to submit its application for payment until the next prescribed interval. Should the *Owner* decide to accept an application for payment submitted after the applicable *Proper Invoice Submission Date* (which the *Owner* is under no obligation to do), such acceptance shall not be construed as a waiver of any of the *Owner's* rights, or as a waiver or release of the *Contractor's* obligations to strictly comply with the requirements prescribed in this GC 5.2 – APPLICATIONS FOR PAYMENT;
- .2 If an application for payment is delivered by the *Contractor* to the *Owner* on a day that is prior to an eligible *Proper Invoice Submission Date*, the application for payment will not be considered or reviewed by the *Owner* until the earliest eligible *Proper Invoice Submission Date* as identified in GC 5.2.2, at which point the application for payment will be deemed to have been received by the *Owner* for the purpose of review and evaluation;

- .3 Notwithstanding any other provision of this *Contract*, the *Contractor* shall not deliver an application for payment for consideration as a *Proper Invoice* by the *Owner*, during the *Restricted Period (Proper Invoice)*;
- .4 The *Owner* and the *Contractor* hereby consent to the giving and receiving of *Proper Invoices* electronically and in accordance with the requirements of this GC 5.2 – APPLICATIONS FOR PAYMENTS.”

28.5 Amend paragraph 5.2.3 by adding the following to the end of that paragraph:

“but no amount claimed shall include *Products* delivered to the *Place of the Work* unless the *Products* are free and clear of all security interests, liens, and other claims of third parties, subject to claims for lien pursuant to the *Construction Act*.”

28.6 Amend paragraph 5.2.4 by deleting the words “the *Consultant*, at least 15 calendar days” and replacing them with “the *Owner* at least 30 calendar days”

- and -

add the words “in a form acceptable to the *Owner*,” after the words “*Contract Price*”.

29.7 Amend paragraph 5.2.5 by deleting the word “*Consultant*” and replacing it with “*Owner*”.

28.7 Delete paragraph 5.2.6 in its entirety and replace it with a new paragraph 5.2.6:

“5.2.6 Each application for payment submitted pursuant to GC 5.2.2 shall:

- .1 be in a form prescribed, or otherwise approved in writing, by the *Owner*;
- .2 include all the requirements for a *Proper Invoice* prescribed by the *Construction Act* and the *Contract Documents*;
- .3 be delivered to the *Owner* in the same manner as a *Notice in Writing*; and
- .4 unless otherwise directed in writing by the *Owner*, by email to pay.inv@ontarionorthland.ca and to the *Owner's* representative listed in Article A-6.”

28.8 Amend paragraph 5.2.8 by adding the following new sentence at the end of that paragraph:

“Any *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall remain at the risk of the *Contractor* notwithstanding the title has passed to the *Owner* pursuant to GC 13.1 – OWNERSHIP OF MATERIALS.”

28.9 Add new paragraph 5.2.9 as follows:

“5.2.9 The *Contractor* shall prepare and maintain current *As-Built Drawings* which shall consist of the *Drawings* and *Specifications* revised by the *Contractor* during the *Work*, showing changes to the *Drawings* and *Specifications*, which current *As-Built Drawings* shall be maintained by the *Contractor* and made available to the *Owner* for review with each application for progress payment. The *Owner* reserves the right to retain a reasonable amount for the value of the *As-Built Drawings* not presented for review.”

28.10 Add new paragraph 5.2.10 as follows:

“5.2.10 Upon receipt of an application for payment submitted for payment by the *Contractor* in accordance with GC 5.2 - APPLICATIONS FOR PAYMENT, the *Owner* will assess whether all of the requirements for a *Proper Invoice* are satisfied and, if the application for payment does not meet the requirements, the *Owner* will return the application for payment to the *Contractor* with reasons setting out why the application for payment does not meet the requirements for a *Proper Invoice* and the *Contractor* may resubmit the application for payment with all required information within three (3) *Working Days* of the *Contractor's* receipt of the *Owner's* reasons. For clarity,

- .1 if an application for payment does not include all of the requirements for a *Proper Invoice* required by GC 5.2.6.2, it shall not be considered a "Proper Invoice" for the purposes of the *Construction Act* and the *Owner* shall have no obligation to make a payment and the time periods set out in GC 5.3 - PAYMENTS and in Section 6.4 of the *Construction Act* shall not apply until the *Contractor* has submitted an application for payment that includes all information required by GC 5.2.6.2;
- .2 if the *Contractor* fails, refuses, or neglects to resubmits its application for payment within three (3) *Working Days* after it is returned in accordance with this GC 5.2.10, the *Contractor* shall be deemed to have failed to deliver its application for payment and GC 5.2.2.1 shall apply;
- .3 where the *Contractor* disagrees with the *Owner's* assessment that some of the of the requirements for a *Proper Invoice* required by GC 5.2.6.2 are missing from its application for payment, nothing in this GC 5.2.10 shall prevent the *Contractor* from resubmitting the same application for payment without any additional or new information; and
- .4 the *Owner* reserves the right, in its sole, absolute and unfettered discretion, to waive an error or minor irregularity in any application for payment delivered by the *Contractor* for the purposes of deeming an application for payment a "Proper Invoice" within the meaning of the *Construction Act*, but the *Owner* shall be under no obligation to exercise this right."

29. GC 5.3 PAYMENT

29.1 Delete paragraph 5.3.1 in its entirety and replace it with a new paragraph 5.3.1:

"5.3.1 After receipt by the *Owner* of an application for payment submitted by the *Contractor* in accordance with GC 5.2 – APPLICATIONS FOR PAYMENT:

- .1 the *Owner* will either:
 - (a) issue a certificate for payment, with a copy to the *Contractor*, in the amount applied for in the *Proper Invoice*, or
 - (b) issue a certificate for payment, with a copy to the *Contractor*, for an amount determined by the *Owner* to be properly due to the *Contractor* after applying any credits, withheld amounts, or other set-offs which the *Owner* is entitled to notwithstanding any notice of dispute or disagreement that the *Contractor* may have served, along with the *Owner's* reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to the *Owner* issuing a *Notice of Non-Payment*, if any, in accordance with GC 5.3.2;
- .2 the *Owner* shall make payment to the *Contractor*, on account as provided in Article A-5,
 - (a) in the amount stated in the certificate for payment, or
 - (b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.3.2,

on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day."

29.2 Add new paragraph 5.3.2 as follows:

"5.3.2 In the event that the application for payment delivered by the *Contractor* pursuant to GC 5.2 – APPLICATIONS FOR PAYMENT does not include the requirements for a *Proper Invoice* or if the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment* (Form 1.1)."

29.3 Add new paragraph 5.3.3 as follows:

"5.3.3 Where the *Owner* has delivered a *Notice of Non-Payment*, as specified under GC 5.3.2, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 10 calendar

days following the issuance of a *Notice of Non-Payment*, the *Owner* and the *Contractor* cannot resolve the dispute, either party may issue a notice of *Adjudication* in a form prescribed under the *Construction Act*, in which case the *Owner* and the *Contractor* will agree to submit the dispute to *Adjudication* as set out under PART 8 – DISPUTE RESOLUTION. The amounts disputed and described under the *Notice of Non-Payment* shall be held by the *Owner* until all disputed amounts of the relevant *Proper Invoice* have been resolved pursuant to PART 8 – DISPUTE RESOLUTION any portion of the *Proper Invoice* which is not the subject of the *Notice of Non-Payment* shall be payable within the time period set out in paragraph 5.3.1.2.”

29.4 Add new paragraph 5.3.4 as follows:

“5.3.4 Without limitation, the *Owner* shall be entitled to deduct from or, set off against, any payment of the *Contract Price* and any other amounts payable by the *Owner* to the *Contractor* under the *Contract*:

- .1 any amount expended by the *Owner* in exercising the *Owner's* rights under this *Contract* to perform any of the *Contractor's* obligations that the *Contractor* has failed to perform;
- .2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the *Owner* as a result of the failure of the *Contractor* to perform any of its obligations under the *Contract*; or
- .3 any other amount owing from the *Contractor* to the *Owner* under this *Contract*.”

29.5 Add new paragraph 5.3.5 as follows:

“5.3.5 The *Contractor* represents, warrants, and covenants to the *Owner* that it is familiar with its prompt payment and trust obligations under the *Construction Act* and will take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the *Construction Act* including, without limitation, section 8.1 of the *Construction Act*. Evidence of the *Contractor's* compliance under this paragraph 5.3.5 will be made available to the *Owner* within 5 *Working Days* following receipt by the *Contractor* of a *Notice in Writing* making such request.”

30. GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

30.1 Delete paragraph 5.4.1.2 in its entirety and replace it with the following:

“.2 jointly with the *Contractor*, state the date of *Substantial Performance of the Work*, or a designated portion of the *Work*, in a certificate.”

30.2 Delete paragraph 5.4.2 in its entirety and replace it with the following:

“5.4.2 After the date of *Substantial Performance of the Work* is established, the *Contractor* and all *Subcontractors* who have completed their subcontracts shall complete, on a commercially reasonable efforts basis, within thirty (30) days, all deficient work including providing the required *Close-Out Documentation*, unless the reasons for any delay is *Acceptable* to the *Owner*. All deficient work not completed within the above time may be completed by the *Owner* and the cost of this work may at the option of the *Owner* be deducted from the *Contractor's* next application for payment, or otherwise recoverable upon written demand by the *Owner* to the *Contractor*.”

30.3 Delete paragraph 5.4.3 and replace it with the following:

“5.4.3 Immediately following the issuance of a certificate of *Substantial Performance of the Work*, the *Contractor* shall publish the certificate referred to in paragraph 5.4.1.2 in the manner provided in the *Construction Act*. Failing valid publication by the *Contractor* within 3 *Working Days* following the issuance of the certificate, the *Owner* shall be at liberty to publish the certificate and back-charge the *Contractor* for its reasonable costs for doing so.”

30.4 Delete paragraph 5.4.4 and replace it with the following:

“5.4.4 After publication of the certificate of the *Substantial Performance of the Work*, the *Contractor* shall submit an application for payment of the outstanding *Construction Act* holdback amount, which application for payment shall:

- .1 include all of the requirements listed in Schedule A to these Supplementary Conditions, as applicable to the application for payment of the holdback amount; and
- .2 include a statement that the *Contractor* has not received any written notices of lien or any claims for liens from any *Subcontractor* or *Supplier*.

After the receipt of a complete application for payment of the holdback amount from the *Contractor*, the *Owner* will issue a certificate for payment of the holdback amount, provided that such amount is subject to and will only become due and payable in accordance with GC 5.4.5 and the *Construction Act*."

30.5 Delete paragraph 5.4.5 and replace it with the following:

"5.4.5 The *Construction Act* holdback amount shall become due and payable the day immediately following the expiration of the holdback period prescribed by the *Construction Act*, subject to the occurrence of any of the following:

- .1 the preservation of a lien in respect of the *Project* that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*;
- .2 receipt by the *Owner* of a written notice of lien that has not been satisfied, discharged or otherwise provided for in accordance with the *Construction Act*; or
- .3 prior to the expiry of 40 calendar days following the publication of the certificate of *Substantial Performance of the Work*, the *Owner* publishes a *Notice of Non-Payment* of holdback in accordance with the *Construction Act*, setting out the amount of holdback that will not be paid, which may include non-payment to secure the correction of deficiencies and/or the completion of the *Work*."

30.6 Add new paragraph 5.4.7 as follows:

"5.4.7 Where the *Construction Act* allows for release of *Construction Act* holdback on subcontract work which is 100% complete prior to the release of holdback contemplated under GC 5.4.5, the *Contractor* may make application to the *Owner* and the *Consultant* by written request for a review by the *Consultant* to determine the date of completion of the subcontract and shall submit such supporting material as the *Consultant* may in its discretion require, including:

- .1 Description of the scope of *Work* included in the subcontract.
- .2 Declaration of Last Supply by the *Subcontractor* as prescribed in subsection 31(5) of the *Construction Act* (Form 7).
- .3 Certificate of Completion of Subcontract as prescribed in subsection 33(1) of the *Construction Act* (Form 10).
- .4 Workplace Safety & Insurance Board Clearance Certificate for the *Contractor*, the *Subcontractor* concerned, and any other *Subcontractors* and *Suppliers* who have provided any services to the *Subcontractor*.
- .5 Statutory declaration by an officer of the *Subcontractor* in the form CCDC Document 9B - 2018.
- .6 *Contractor's* written acknowledgement to the *Owner* that the requirements of the *Contract Documents* will not be altered by early release of the *Construction Act* holdback of the completed subcontracts.
- .7 Confirmation by the bonding company that it has been notified of the intent to claim early release of holdback and does not object.
- .8 Sufficient evidence to the *Owner's* reasonable satisfaction that, as of the date of the *Contractor's* application, no claims for lien have been preserved against the *Place of the Work* that have not been vacated by the posting of security, discharged, or otherwise addressed in accordance with GC 5.8 – CONSTRUCTION LIENS."

31. GC 5.5 FINAL PAYMENT

31.1 Delete GC 5.5 – FINAL PAYMENT in its entirety and replace it with the following:

“5.5.1 When *Ready-for-Takeover* has been achieved in accordance with GC 12.1 – READY-FOR-TAKEOVER and the *Contractor* considers the *Work* is complete, and after the *Contractor* and the *Owner* have attended a *Pre-Invoice Submission Meeting* analogous to the requirement in GC 5.2.1, the *Contractor* may submit an application for final payment to the *Owner* and the *Contractor* shall:

- .1 include all of the requirements set out in GC 5.2.1, including without limitation those requirements listed in Schedule A to these Supplementary Conditions that are specific to an application for final payment;
- .2 ensure that all warranties, *Extended Warranties*, records, operation and maintenance manuals, data books, literature maintenance sheets, list of outstanding work and deficiency list, *Waste Management Report*, keys, Certificate of Clearance from WSIB, proof of publication of the certificate of *Substantial Performance of the Work* and the *As-Built Record Drawings* are submitted to the *Owner* (collectively, the “**Close-Out Documentation**”). Such submissions shall constitute requirements for the *Proper Invoice* for final payment; and
- .3 if applicable, (a) written confirmation from the *Owner* that the deficiencies or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2 have been fully rectified as of the date of the *Contractor's* application for final payment, and/or (b) written confirmation, signed by the *Owner* and the *Contractor*, that the *Contract Price* has been reduced by a specified amount in exchange for the *Owner* releasing the *Contractor* of its obligation to rectify the certain outstanding deficiencies and/or incomplete *Work* waived by the *Owner* pursuant to GC 12.1.2, as detailed in such written confirmation.”

5.5.2 After receipt by the *Owner* of an application for final payment submitted by the *Contractor* in accordance with paragraph 5.5.1:

- .1 the *Owner* will either:
 - (a) issue, with a copy to the *Contractor*, a certificate for payment, in the amount applied for in the *Proper Invoice*, or
 - (b) issue, with a copy to the *Contractor*, a certificate for payment for an amount determined by the *Owner* to be properly due to the *Contractor* after applying any credits, withheld amounts, or other set-offs which the *Owner* is entitled to notwithstanding any notice of dispute or disagreement that the *Contractor* may have served, along with the *Owner's* reasons why an amount other than what is claimed in the *Proper Invoice* is properly due to the *Contractor*, which finding the *Owner* may accept or amend prior to the *Owner* issuing a *Notice of Non-Payment*, if any, in accordance with GC 5.5.3;
- .2 the *Owner* shall make payment to the *Contractor*, on account as provided in Article A-5,
 - (a) in the amount stated in the certificate for payment, or
 - (b) in the amount stated in the certificate for payment less such amount stated in the *Owner's Notice of Non-Payment* issued pursuant to GC 5.3.2,

on the 28th calendar day after receipt of a *Proper Invoice*, unless such 28th calendar day lands on a day that is other than a *Working Day*, in which case payment shall be made on the next *Working Day* after such 28th day.”

5.5.3 In the event that the application for final payment delivered by the *Contractor* does not include the requirements of GC 5.5.1 (including the requirements for a *Proper Invoice*) or where the *Owner* disputes the amount claimed as payable in the *Proper Invoice*, then the *Owner* shall within 14 calendar days of receipt of the application for payment, issue a *Notice of Non-Payment*. Where the *Owner* has delivered a *Notice of Non-Payment*, as specified under this GC 5.5.3, the *Owner* and the *Contractor* shall first engage in good faith negotiations to resolve the dispute. If within 10 calendar days following the issuance of a *Notice of Non-Payment*, the *Owner* and *Contractor* cannot resolve the dispute, either party may issue

a notice of *Adjudication* in a form prescribed under the *Construction Act*. The *Owner* and *Contractor* will then submit the dispute to *Adjudication* as set out under PART 8 – DISPUTE RESOLUTION.

- 5.5.4 The amounts disputed and described under the *Notice of Non-Payment* shall be held by the *Owner* until all disputed portions of the *Proper Invoice* for final payment have been resolved in accordance with PART 8 – DISPUTE RESOLUTION. Any portion of the *Proper Invoice* which is not the subject of a *Notice of Non-Payment* shall be payable within the time period set out in paragraph 5.5.2.2.
- 5.5.5 Subject to the provision of paragraph 10.4.1 of GC 10.4 – WORKERS' COMPENSATION, and any lien legislation applicable to the *Place of the Work*, the *Owner* shall make payment, to the *Contractor* in accordance with paragraph 5.5.2.2.
- 5.5.6 Notwithstanding anything else in this GC 5.5 – FINAL PAYMENT the *Owner* shall retain a finishing holdback as provided for in the *Construction Act*, which shall be released to the *Contractor* upon expiry of the lien period provided for under the *Construction Act*, provided no construction liens have been registered.
- 5.5.7 As additional requirements for release of finishing construction lien holdback, the *Contractor* shall submit the following documentation:
- .1 a written declaration that no claims for lien or written notices of lien have been received by it;
 - .2 a *Statutory Declaration* in the form set out in Schedule B that all accounts for labour, subcontracts, *Products*, construction machinery and equipment, and other indebtedness which may have been incurred by the *Contractor* and for which the *Owner* might in any way be held responsible have been paid in full up to the previous progress payment, except for amounts properly retained as a holdback or as an identified amount in dispute; and
 - .3 a Workplace Safety & Insurance Board Clearance Certificate.”

32. GC 5.8 WITHHOLDING OF PAYMENT

- 32.1 Add new paragraph GC 5.8 WITHHOLDING OF PAYMENT as follows:

“GC 5.8 WITHHOLDING OF PAYMENT

- “5.8.1 Upon notice to the *Contractor*, the *Owner* may, subject to the *Owner's* requirement to issue a *Notice of Non-Payment* under the *Construction Act*, withhold or retain all or any portion of any payment due to the *Contractor* under this *Contract* to ensure the performance of the *Work* or to protect the *Owner's* rights in respect of the events set out in this paragraph 5.8.1, but only such portion of any payment as is reasonably necessary for such purpose. The *Owner* may make such withholding or retention upon the occurrence and continuance of any of the following events:
- .1 the *Contractor* is in default of any of its material obligations under this *Contract*;
 - .2 all or any part of such payment is attributable to *Work* which is defective or not performed in accordance with the *Contract Documents*;
 - .3 the *Contractor* has improperly failed to make prompt payments to its *Subcontractors* and *Suppliers* respecting *Work* for which the *Owner* has made payment to the *Contractor*; or
 - .4 the amounts described in section 17(3) of the *Construction Act*.
- 5.8.2 In the event of deficiencies or delays in the *Work* that the *Contractor* fails or refuses to address upon receiving notice of same in accordance with the requirements of the *Contract*, the *Owner* may, without limiting the remedies available to it under this *Contract* and subject to the *Owner's* requirement to issue a *Notice of Non-Payment* under the *Construction Act*, retain and set off as against any payments that would otherwise be owing to the *Contractor*, the reasonable costs of rectifying such deficiencies or delays as determined by the *Owner*.
- 5.8.3 In addition to any rights the *Owner* has pursuant to the *Construction Act* and subject to the *Owner's* requirement to issue a *Notice of Non-Payment* under the *Construction Act*, if a lien is registered against

the *Place of the Work* or served upon the *Owner*, or an action commenced against the *Owner*, by any *Subcontractor*, the *Owner* having made all payments currently due in accordance with the payment terms of the *Contract Documents*, the *Owner* shall have the right to withhold from any money otherwise due to the *Contractor*, the full amount claimed in the lien action plus an additional amount sufficient to satisfy all of the *Owner* expenses relating to such lien action, including legal and consulting costs. These funds, less expenses incurred, shall be released to the *Contractor* upon the full discharge of all liens and dismissal of all actions against the *Owner*."

33. GC 5.9 CONSTRUCTION LIENS

33.1 Add new GC 5.9 – CONSTRUCTION LIENS as follows:

"GC 5.9 – CONSTRUCTION LIENS

- 5.9.1 Notwithstanding anything else in this PART 5 – PAYMENT, in the event a claim for lien is registered against title to the *Place of the Work* by the *Contractor*, a *Subcontractor* or a *Supplier*, or served on the *Owner* with regard to the *Project* by a *Subcontractor* or a *Supplier*, or the *Owner* receives a written notice of or claim for lien from a *Subcontractor* or a *Supplier*, the *Owner* shall be entitled to withhold any payment otherwise due to the *Contractor* until such time as such claims have been dealt with as provided below.
- 5.9.2 In the event that a claim for lien or a written notice of a lien is received by the *Owner* in relation to the *Project*, the *Contractor* shall, within ten (10) calendar days, at its sole expense, arrange for the vacating or the discharge of the claim for lien and/or the withdrawal of the written notice of lien or have the lien vacated pursuant to the *Construction Act*. If the *Contractor* commences an application to the Court to have the lien vacated, the *Contractor* shall provide the *Owner* with copies of all court documents submitted by the *Contractor* and the *Order* issued by the Court. If the lien is only vacated, the *Contractor* shall, if requested, undertake the *Owner's* defence of any subsequent action commenced in the respect of the lien at the *Contractor's* expense.
- 5.9.3 If the *Contractor* fails or refuses to take such steps as required under paragraph 5.9.2, the *Owner* shall, at its option, be entitled to take all steps necessary to vacate and/or discharge the claim for lien or the withdrawal of the written notice of lien, and all costs incurred by the *Owner* in doing so (including, without limitation, legal fees on a full indemnity basis and any payment which may ultimately be made out of or pursuant to security posted to vacate the lien) shall be the responsibility of the *Contractor*, and the *Owner* may deduct such amounts from the amounts otherwise due or owing to the *Contractor*.
- 5.9.4 Without limiting any of the foregoing, the *Contractor* shall satisfy all judgments and pay all costs resulting from any liens or any actions brought by a *Subcontractor* or *Supplier* in connection with any liens, or in connection with any other claim or lawsuit brought against the *Owner* by any person that provided services or materials to the *Project* which constituted part of the *Work*, and the *Contractor* shall indemnify the *Owner* for any and all costs (including, without limitation, legal fees on a solicitor and client basis) the *Owner* may incur in connection with such claims or actions.
- 5.9.5 Section 20(1) of the *Construction Act* does not apply to this *Contract* and no general lien arises under or in respect of the *Work*, such that all liens shall arise and expire on a lot-by-lot basis."

34. GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

34.1 Amend paragraph 6.1.2 by adding the following to the end of that paragraph:

"This requirement is of the essence and it is the express intention of the parties that any claims by the *Contractor* for a change in the *Contract Price* and/or *Contract Time* shall not be approved unless there has been compliance with PART 6 – CHANGES IN THE WORK. No course of conduct or dealing between the parties, no express or implied acceptance of alterations or additions to the *Work* and no claims that the *Owner* has been unjustly enriched by an alteration or addition to the *Work*, whether in fact there is any such unjust enrichment or not, should be the basis for a claim for additional payment under this *Contract* or a claim for any extension of the *Contract Time*."

34.2 Add new paragraph 6.1.3 as follows:

"The *Contractor* agrees that changes resulting from construction coordination, including but not limited to site surface conditions, site coordination, and *Subcontractor* and *Supplier* coordination, are included in the *Contract Price* and shall not entitle the *Contractor* to claim an addition to the *Contract Price* in relation to coordination."

35. GC 6.2 CHANGE ORDER

35.1 Add new paragraph 6.2.3 as follows:

"The *Contractor* shall not be entitled to any additional compensation arising out of changes to the Work aside from the amounts determined and agreed to under this GC 6.2, or as provided in GC 6.3 – CHANGE DIRECTIVE. The *Contractor's* fee for overhead and profit related to a *Change Order* or *Change Directive* shall be as set out in the *Contract Documents*."

35.2 Add new paragraph 6.2.4 as follows:

"*Change Orders* are not valid and binding upon the *Owner* unless approved and executed in accordance with the *Owner's* internal approval processes."

36. GC 6.3 CHANGE DIRECTIVE

36.1 Delete paragraph 6.3.6.3 in its entirety and replace it with the following:

".3 The *Contractor's* fee shall be as specified in paragraphs 6.2.3 and the *Contractor's* fee for overhead and profit shall be as set out in the *Contract Documents*."

36.2 Amend GC 6.3.7.10 by adding the following to the end of the paragraph:

", provided that such amounts are not caused by negligent acts, omissions, or default of the *Contractor* or *Subcontractor*;"

36.3 Delete GC 6.3.7.17 in its entirety including all subparagraphs.

36.4 Amend paragraph 6.3.12 by deleting the words "the adjustment shall be referred to the *Consultant* for determination" and replacing them with "the Dispute shall be resolved in accordance with Part 8 – DISPUTE RESOLUTION."

37. GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

37.1 Delete paragraph 6.4.2 in its entirety and replace it with the following:

"The *Owner* will promptly investigate such conditions. If the *Owner* determines that the conditions differ materially and would cause an increase or decrease in the *Contractor's* cost or time to perform the *Work*, the *Owner* will issue instructions for a change in the *Work* as provided in GC 6.2 – CHANGE ORDER or GC 6.3 – CHANGE DIRECTIVE. If the *Owner* determines that the conditions at the *Place of the Work* are not materially different or that no change in the *Contract Price* or the *Contract Time* is justified, the *Owner* will provide its reasons for this determination to the *Contractor* in writing."

37.2 Delete paragraph 6.4.3 in its entirety and replace it with the following:

"If the *Contractor* disputes the *Owner's* determination in paragraph 6.4.2, the *Dispute* shall be resolved in accordance with Part 8 – DISPUTE RESOLUTION."

37.3 Amend paragraph 6.4.4 by deleting the words "and GC 9.5 – MOULD" and substituting the words "GC 9.5 – MOULD and GC 9.6 – IMPACT ASSESSMENT."

37.4 Add new paragraph 6.4.5 as follows:

"The *Contractor* acknowledges that it has received the *Impact Assessment Reports* for the *Project* that are described in the *RFP* documents and that it has considered the mitigation measures described in the *Impact Assessment Reports* in the *Contract Price*. If the *Impact Assessment Reports* are not completed prior to the closing of the *RFP* submission deadline, any adjustments required to the *Contract Price* shall be determined in

accordance with GC 9.6.2.3. The *Impact Assessment Reports* are provided for information only and the *Owner* shall not be liable for any errors or omissions in the reports.”

- 37.5 Add new paragraph 6.4.6 as follows:

“The *Contractor* confirms that, prior to submitting its response to the *RFP* for the *Project*, it had the opportunity to carefully investigate the *Place of the Work* and applied to that investigation the degree of care and skill described in paragraph 3.12.1, given the amount of time provided between the issue of the *RFP* documents and the actual submission deadline for the *RFP*, the degree of access provided to the *Contractor* prior to submission of the response, and the sufficiency and completeness of the information provided by the *Owner*. The *Contractor* is not entitled to compensation or to an extension of the *Contract Time* for conditions which could reasonably have been ascertained by the *Contractor* by such careful investigation undertaken prior to the submission of its response.”

38. GC 6.5 DELAYS

- 38.1 Delete paragraph 6.5.1 in its entirety and replace it with the following:

“If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Owner* or anyone employed or engaged by the *Owner* directly, contrary to the provisions of the *Contract Documents*, then the *Contract Time* shall be extended for such reasonable time as the *Owner* determines. The *Contractor* shall be reimbursed by the *Owner* for its reasonable direct costs directly flowing from the delay but excluding any indirect, consequential, or special damages.”

- 38.2 Delete paragraph 6.5.2 in its entirety and replace it with the following:

“If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other *Authority Having Jurisdiction* on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes or the advice, recommendations and instructions of public health officials directly by the *Owner*, the *Owner's Other Contractor(s)* and relating to the *Work* or the *Place of the Work* and providing that such order was not issued as the result of an act or fault of the *Contractor* or any person employed or engaged by the *Contractor* directly or indirectly, then the *Contract Time* shall be extended for such reasonable time as the *Owner* determines in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for the reasonable direct costs directly flowing from the delay but excluding any indirect, consequential, or special damages.”

- 38.3 Delete paragraph 6.5.3 in its entirety and replace it with the following :

“6.5.3.1 If the performance of the *Work* or the performance of any other obligation(s) of a party to this *Contract* is delayed by *Force Majeure*, then the *Contract Time* shall be extended for such reasonable time as the *Owner* and the *Contractor* shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the *Contractor* and the *Owner* agree to a shorter extension. Neither party shall be entitled to payment for its costs incurred by such delays. Upon reaching agreement on the extension of the *Contract Time* attributable to the *Force Majeure* event, the *Owner* and the *Contractor* shall execute a *Change Order* indicating the length of the extension to the *Contract Time* and confirming that there are no costs payable by either party to the other for the extension of *Contract Time*.

6.5.3.2 Notwithstanding the foregoing, the *Owner* may issue a *Change Directive* requiring the *Contractor* to undertake those specific actions identified in the *Change Directive* as the *Contractor* can reasonably and safely initiate to remove or relieve either the *Force Majeure* or its direct or indirect effects on the *Project*, in which case the *Contract Price* will be adjusted in accordance with paragraph 6.3.7. If the *Contractor* fails within the time period specified in the *Change Directive* to take such action, then the *Owner* may, at its sole and absolute discretion and after it has given *Notice in Writing* to the *Contractor*, take some or all of such actions to partially or wholly remove or relieve such *Force Majeure* or its direct or indirect effects, and thereafter require the *Contractor* to resume the performance of the *Work*.”

- 38.4 Delete paragraph 6.5.4 in its entirety and replace it with a new paragraph 6.5.4:

“No extension of the *Contract Time* will be approved unless the *Contractor* provides *Notice in Writing* to the *Owner* within 3 *Working Days* of the date upon which the *Contractor* ought reasonably to have been aware of the delay contemplated in paragraphs 6.5.1, 6.5.2 or 6.5.3. For the *Notice in Writing* to be valid under this paragraph 6.5.4 it must include specific details about:

- .1 the cause of the delay;
- .2 the likely impact the delay will have on the *Contract Time* and details of the extension of time being requested; and
- .3 mitigation efforts, if any, undertaken by the *Contractor* or, where no mitigation efforts have been undertaken by the *Contractor*, the reasons why mitigation is either not possible or has not been undertaken by the *Contractor*."

38.5 Add new paragraph 6.5.6 as follows:

"6.5.6 If the *Contractor* delays the performance of the *Work* and such delay is for a cause within the *Contractor's* control, the *Contractor* shall pay to the *Owner* the per diem rate for liquidated damages specified in Article 10 of the *Contract* for each day of delay if *Ready-for-Takeover* is not achieved in accordance with the time specified in Article A-1.3. If the per diem rate for liquidated damages is not specified in the *Contract Documents*, the *Contractor* shall pay to the *Owner* the *Administration Costs* incurred by the *Owner* as a result of the delay."

38.6 Add new paragraph 6.5.7 as follows:

"6.5.7 If the *Contractor* is delayed in the performance of the *Work* due to the replacement of a representative, worker, *Subcontractor* or *Supplier* pursuant to GC 3.5.4, 3.6.3 or 3.7.4, the *Contractor* shall pay to the *Owner* the per diem rate for liquidated damages specified in Article 10 of the *Contract* for each day of delay if *Ready-for-Takeover* is not achieved in accordance with the time specified in Article A-1.3. If the per diem rate for liquidated damages is not specified in the *Contract Documents*, the *Contractor* shall pay to the *Owner* the *Administration Costs* incurred by the *Owner* as a result of the delay."

38.7 Add new paragraph 6.5.8 as follows:

"6.5.8 If the *Contractor* disputes the determination by the *Owner* in paragraph 6.5.1 or paragraph 6.5.2, the *Dispute* shall be resolved in accordance with Part 8 – DISPUTE RESOLUTION."

39. GC 6.6 CLAIMS FOR A CHANGE IN THE CONTRACT PRICE

39.1 Amend paragraph 6.6.1 by deleting the words "and to the *Consultant*."

39.2 Amend paragraphs 6.6.3 and 6.6.4 by deleting the word "*Consultant*" and replacing it with "other party."

39.3 Delete paragraphs 6.6.5 and 6.6.6 in their entirety and replace them with the following:

"The other party, with respect to a claim made by a party under paragraph 6.6.1, shall make a determination by providing *Notice in Writing* to the claiming party within 30 *Working Days* after receipt of the claim by the other party, or within such other time period as may be agreed by the parties. If such determination is not acceptable to the claiming party, the claim shall be resolved in accordance with Part 8 – DISPUTE RESOLUTION."

40. GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

40.1 Delete paragraph 7.1.2 in its entirety and replace it with the following:

"If the *Contractor* neglects to prosecute the *Work* properly including failing or neglecting to comply with the requirements in GC 3.5 – CONSTRUCTION SCHEDULE or otherwise fails to comply with the requirements of the *Contract* to a substantial degree and the *Owner* determines that sufficient cause exists to justify such action, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, give the *Contractor Notice in Writing* that the *Contractor* is in default of the *Contractor's* contractual obligations and instruct the *Contractor* to correct the default in the 5 *Working Days* immediately following the receipt of such *Notice in Writing*."

40.2 Amend paragraph 7.1.3.1 as follows:

Insert after the word "commences" the words "and is diligently proceeding with".

- 40.3 Revise paragraph 7.1.3.2 by substituting the words “an acceptable schedule” with “a schedule *Acceptable* to the *Owner*”.
- 40.4 Amend paragraph 7.1.4.1 by deleting the words “provided the *Consultant* has certified such cost to the *Owner* and *Contractor*”.
- 40.5 Amend paragraph 7.1.4.2 by adding to the end of the paragraph the words “and within 5 *Working Days* publish a notice of termination (form 8) in accordance with the *Construction Act*.”
- 40.6 Delete paragraph 7.1.5.3 in its entirety and replace it with the following:
- “charge the *Contractor* the amount by which the full costs of finishing the *Work* as determined by the *Owner*, including compensation to the *Owner* for *Administration Costs* and a reasonable allowance to cover the cost of corrections to work performed by the *Contractor* that may be required under GC 12.3 – WARRANTY, exceeds the unpaid balance of the *Contract Price*. If the cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* on the expiry of the warranty period specified in paragraph 12.3.1 for that portion of the *Work* performed by the *Contractor*, provided that such payment shall be made only in accordance with the requirements set out in GC 5.5 – FINAL PAYMENT and GC 5.8 - WITHHOLDING FROM PAYMENT”.
- 40.7 Amend paragraph 7.1.5.4 by substituting the words “the difference” at the end of paragraph 7.1.5.4 with the words “for that portion of the *Work* performed by the *Contractor*, provided that such payment shall be made only in accordance with the requirements set out in GC 5.5 – FINAL PAYMENT and GC 5.8 - WITHHOLDING FROM PAYMENT”.
- 40.8 Add new paragraph 7.1.7 as follows:
- “The *Owner* may, if conditions arise which make it necessary for reasons other than as provided in paragraphs 7.1.1 and 7.1.4, suspend performance of the *Work* or terminate the *Contract* by giving *Notice in Writing* to that effect to the *Contractor* identifying the reason for the suspension and the expected length of the suspension. Such suspension or termination shall be effective in the manner specified in said notice and shall be without prejudice to any claims which either party may have against the other.”
- 40.9 Add new paragraph 7.1.8 as follows:
- “The *Contractor* upon receiving notice of suspension or termination from the *Owner* shall suspend all operations as soon as reasonably possible except work which, in the *Contractor*’s opinion is necessary for the safety of personnel and for the care and preservation of the *Work*, the materials and plant. In the event of such suspension, the *Contractor* shall be reimbursed by the *Owner* for the reasonable costs incurred by the *Contractor* for such protection. Subject to any directions in the notice of suspension or termination, the *Contractor* shall discontinue ordering materials, facilities and supplies and make every reasonable effort to delay delivery of existing orders and, in the event of termination, to cancel existing orders on the best terms available.”
- 40.10 Add new paragraph 7.1.9 as follows:
- “During the period of suspension, the *Contractor* shall not remove from the *Place of the Work* any part of the *Work*, or any *Product* or materials without the consent of the *Owner*.”
- 40.11 Add new paragraph 7.1.10 as follows:
- “If the *Work* should be suspended for a period of 30 days or less, the *Contractor*, upon the expiration of the period of suspension, shall resume the performance of the *Work* in accordance with the *Contract Documents*. If the suspension was not due to an act or an omission of the *Contractor*, there shall be an equitable adjustment to the *Contract Time* and the *Contract Price* as agreed upon by the *Owner* and the *Contractor*.”
- 40.12 Add new paragraph 7.1.11 as follows:
- “If, after 30 days from the date of notice of suspension of the *Work* the *Owner* and the *Contractor* agree to continue with and complete the *Work*, the *Contractor* shall resume operations and complete the *Work* in accordance with the terms and conditions agreed upon by the *Owner* and the *Contractor*.”
- 40.13 Add new paragraph 7.1.12 as follows:

“The *Owner* may terminate this *Contract* at any time for any or no reason. Such termination shall be effective upon the date specified in the *Owner's Notice in Writing* advising of the termination of the *Contract* pursuant to this paragraph 7.1.12. In such event, the *Owner* shall pay for the actual and verifiable *Work* performed up to the effective date of termination, including demobilization costs, and for such additional costs, if any, directly flowing from and which are a reasonable consequence of the termination, but excluding any consequential, indirect or special damages, termination fees, penalties or levies, and any claims for loss of profit, lost deposits, or lost opportunity. The *Owner* shall not be liable to the *Contractor* for any other claims, costs or damages whatsoever arising from such termination of the *Contract*. Within 3 *Working Days* of termination by the *Owner*, the *Contractor* shall deliver a *Notice in Writing* to each of its *Subcontractors* and *Suppliers* confirming the effective date of the termination.”

41. GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

41.1 Amend paragraph 7.2.1 by adding to the end of the paragraph the words “and within 5 *Working Days* publish a notice of termination (form 8) in accordance with the *Construction Act*.”

41.2 Amend paragraph 7.2.2, by:

(i) adding the following after the words “public authority” in the second line:

“on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes of *Authorities Having Jurisdiction*, directly by the *Owner* or the *Owner's Other Contractor(s)* and relating to the *Work* or the *Place of the Work*,”; and,

(ii) adding the following to the end of the paragraph:

“unless an acceptable arrangement for an extension of the *Contract Time* is agreed to by the *Contractor* and the *Owner*.”

41.3 Delete paragraphs 7.2.3.1 and 7.2.3.2 in their entirety and replace them with “Intentionally left blank”.

41.4 Delete paragraph 7.2.3.3 in its entirety and replace it with a new paragraph 7.2.3.3:

“.3 the *Owner* fails to pay the *Contractor* when due the amount certified by the *Owner* or awarded by arbitration or a Court, except where the *Owner* has a bona fide claim for set off; or”

41.5 Amend paragraph 7.2.3.4 by deleting all the words after “degree” and replacing them with “and the *Contractor* confirms by a detailed *Notice in Writing* to the *Owner* that sufficient cause exists. Such detailed written statement must contain particulars, including references to the *Contract Documents*, and supporting documentation demonstrating the alleged default by the *Owner*.”

41.6 Amend paragraph 7.2.4 by adding to the end of the paragraph the words “and within 5 *Working Days* publish a notice of termination (form 8) in accordance with the *Construction Act*.”

41.7 Delete 7.2.5 in its entirety and replace it with the following:

“If the *Contractor* terminates the *Contract* under the conditions described in this GC 7.2, the *Contractor* shall be entitled to be paid for all *Work* performed to the date of termination. The *Contractor* shall also be entitled to recover the costs associated with termination, including the costs of demobilization, losses sustained on *Products* and construction machinery and equipment. The *Contractor* shall not be entitled to any recovery for any indirect, special or consequential losses.”

42. GC 8.1 AUTHORITY OF THE CONSULTANT

42.1 Amend paragraph 8.1.1 by deleting the words “which are not resolved in the first instance by findings of the *Consultant* as provided in GC 2.2 – ROLE OF THE CONSULTANT.”

42.2 Delete paragraph 8.1.2 in its entirety and replace it with “Intentionally left blank”.

42.3 Amend paragraph 8.1.3 by deleting the word “*Consultant*” and replacing it with “*Owner*” in each instance where it occurs in the paragraph.

43. GC 8.2 ADJUDICATION

43.1 Delete GC 8.2 – ADJUDICATION in its entirety, including all subparagraphs thereunder.

44. GC 8.3 NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

44.1 Delete GC 8.3 – NEGOTIATION, MEDIATION, AND ARBITRATION, including all paragraphs thereunder and replace it with the following:

“GC 8.3 – NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

“8.3.1 Save and except where the *Contractor* has given an undertaking, in accordance with the *Construction Act*, to refer a dispute to *Adjudication*, prior to delivering a notice of *Adjudication* in a form prescribed by the *Construction Act*, the parties agree to first address all *Disputes* in a tiered approach as follows:

- .1 A *Dispute* shall be referred to the *Owner's* project manager for the *Project* and a representative of the *Contractor* of the equivalent seniority or position for resolution within a period not to exceed thirty (30) days.
- .2 If unresolved, after following the process described in paragraph 8.3.1.1, the *Dispute* shall be referred to the *Owner's* Director or Vice President who is responsible for the *Project* and an employee of the *Contractor* of the equivalent seniority or position for resolution within a period not to exceed thirty (30) days.
- .3 If unresolved after following the process described in paragraph 8.3.1.2, and only at the election of the *Owner*, the *Dispute* shall be referred to the President and CEO of the *Owner* and the most senior executive employee of the *Contractor* for resolution within a period not to exceed thirty (30) days. If the *Owner* does not elect, at its sole option, to proceed under this paragraph 8.3.1.3, the *Dispute* may proceed to under either step as described in paragraphs 8.3.2 or 8.3.3.

8.3.2 If the *Dispute* remains unresolved despite the *Parties'* attempting to resolve it following the process in paragraph 8.3.1, a party may elect to proceed with the *Dispute* by way of an *Adjudication*. If a party elects to proceed by way of an *Adjudication*, the other party shall not be bound to proceed by way of an *Adjudication*, save and except where the parties are obliged under the *Construction Act*. The following procedures shall apply to any *Adjudications* the parties engage in under the *Construction Act*:

- .1 any hearings shall be held in the offices of the *Owner*, or, if such offices are unavailable, another venue as the parties may agree and which is acceptable to the adjudicator;
- .2 the *Adjudication* shall be conducted in English;
- .3 each party may be represented by counsel throughout an *Adjudication*;
- .4 there shall not be any oral communications with respect to issues in dispute that are the subject of an *Adjudication* between a party and the adjudicator unless it is made in the presence of both parties or their legal representatives; and
- .5 a copy of all written communications between the adjudicator and a party shall be given to the other party at the same time.

8.3.3 Any documents or information disclosed by the parties during an *Adjudication* are confidential and the parties shall not use such documents or information for any purpose other than the *Adjudication* in which they are disclosed and shall not disclose such documents and information to any third party, unless otherwise required by law, save and except the adjudicator.

8.3.4 In respect of any claim or dispute, if the *Contractor* fails to comply with any of the notice requirements set out in the *Contract Documents* then the *Contractor* shall be barred from advancing such claim(s) or dispute(s) and shall have no entitlement whatsoever in respect of such claim(s) or dispute(s) (including to an increase in payment under the *Contract*, or an extension of *Contract Time*) and by failing to comply with the notice requirements waives the right to make any such claim(s) or dispute(s) in an *Adjudication*

or in any other form of dispute resolution available under this *Contract* or at law. This GC 8.3.4 shall operate conclusively as an estoppel and bar in the event such claims or disputes are brought in an *Adjudication* or other form of dispute resolution and the *Owner* may rely on this GC 8.3.4 as a complete defence to any such claims or disputes.

8.3.5 The parties hereby acknowledge and agree:

- .1 that counterclaims, claims of set-off or the exercise or use of other contractual rights that permit the *Owner* to withhold, deduct or retain from monies otherwise owed to the *Contractor* under the *Contract* may be referred to, and included as part of, *Adjudications* under the *Construction Act*;
- .2 that disputes related to the termination or abandonment of the *Contract*, as well as any disputes that arise or are advanced following the termination or abandonment of the *Contract*, shall not be referred to *Adjudication* under the *Construction Act*;
- .3 that notice(s) of *Adjudication*, with respect to any dispute or claim relating to the *Project*, shall not be given, and no *Adjudication* shall be commenced following *Ready-for-Takeover*, abandonment, or termination of the *Contract*;
- .4 that any *Adjudication* between the *Contractor* and a *Subcontractor* or a *Supplier* that relates to an *Adjudication* between the *Owner* and the *Contractor* shall be joined together to be adjudicated by a single adjudicator, provided that the adjudicator agrees to do so, and the *Contractor* shall include a provision in each of its subcontracts that contain an equivalent obligation to this GC 8.3.5.4; and
- .5 that, other than where the *Contractor* is obliged to commence an *Adjudication* pursuant to an undertaking under the *Construction Act*, neither the *Owner* nor the *Contractor* shall commence an *Adjudication* during the *Restricted Period (Adjudication)*.

8.3.6 If the *Dispute* remains unresolved despite the parties attempting to resolve it following the process in paragraph 8.3.1, or following a determination of the *Dispute* pursuant to an *Adjudication* under paragraph 8.3.2, a party may elect to proceed with the *Dispute* under a mediation model to be agreed upon by the parties. A party shall elect to proceed to mediation no later than: (i) ten (10) days following the expiry of the timeline set out in paragraphs 8.3.1.2 or 8.3.1.3, whichever is the later, or (ii) ten (10) days following the rendering of the adjudicator's determination following an *Adjudication*. Where a party elects to proceed with mediation within the timelines prescribed in this paragraph 8.3.6, the other party shall be bound to proceed to mediation. No later than ten (10) days after a party makes an election to proceed to mediation, or such longer period as may be mutually agreed between the parties, the parties shall enter into a mediation agreement which shall set out the mediation process and designate the mediator.

8.3.7 If neither party elects to proceed to mediation within the timelines outlined in paragraph 8.3.5 or 8.3.6, or the parties are unable to enter into a mediation agreement within the time limits, the matter shall proceed and be finally resolved by binding arbitration by a single arbitrator in accordance with the *Arbitration Act* by an arbitration agreement to be executed by the parties and the arbitrator. The parties shall mutually agree on the selection of the arbitrator, failing which the arbitrator shall be appointed in accordance with the *Arbitration Act*. The arbitration proceedings shall take place in Toronto, Ontario, Canada. The language of the arbitration shall be English. The parties agree that any arbitration award, including with respect to costs, shall be binding on the parties, may be enforced in any court of competent jurisdiction and shall be final and no appeals or judicial reviews shall be permitted as of right or by application to any court of competent jurisdiction, except on errors of law. The parties shall each bear their own costs and their proportionate share of any joint costs of arbitration, subject to any award of an arbitrator.

8.3.8 The timelines in GC 8.3. may be amended by mutual agreement of the parties."

45. GC 8.4 RETENTION OF RIGHTS

- 45.1 Amend paragraph 8.4.1 by deleting all the words after “the party has” and replacing them with “complied with the provisions of GC 8.3.”
- 45.2 Amend paragraph 8.4.2 by replacing “paragraph 8.3.6” with “paragraph 8.3.7”.
- 45.3 Add new paragraph 8.4.3 as follows:
- “8.4.3 If the Parties proceed with an arbitration as described in paragraph 8.3.7, the *Contractor* agrees that this paragraph 8.4.3 shall be construed as a formal consent to the stay of any lien proceedings until an award is rendered in the arbitration or such dispute as otherwise resolved between the parties. In no event shall the *Contractor* be deprived of its right to enforce its lien against the *Project* should the *Owner* fail to satisfy any arbitral award against it in full on the dispute in respect of which the lien proceedings were commenced. Provided nothing in this paragraph 8.4.3 shall prevent the *Contractor* from taking the steps required by the *Construction Act* to preserve and/or perfect a lien to which it may be entitled.”

46. GC 9.1 PROTECTION OF WORK AND PROPERTY

Amend paragraph 9.1.1.1 by adding the following words at the end of that paragraph:

“...which the *Contractor* could not reasonably have discovered applying the degree of care and skill described in paragraph 3.4.1 to its review of the *Contract Documents*.”

- 46.1 Delete paragraph 9.1.2 in its entirety and replace it with the following new paragraph 9.1.2:
- “Before commencing any work, the *Contractor* shall determine the locations of all underground utilities and structures indicated in the *Contract Documents* or that are discoverable by applying to an inspection of the *Place of Work* the degree of care and skill described in paragraph 3.12.1.”
- 46.2 Add new paragraph 9.1.5 as follows:
- “The *Contractor* shall neither undertake to repair and/or replace any damage whatsoever to the work of *Other Contractors*, or to adjoining property, nor acknowledge the same was caused or occasioned by the *Contractor*, without first consulting the *Owner* and receiving written instructions as to the course of action to be followed from the *Owner*. However, where there is danger to life or public safety, the *Contractor* shall take such emergency action as it deems necessary to remove the danger.”

47. GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

- 47.1 Amend paragraph 9.2.7.3 by deleting the words “*Consultant* may recommend in consultation with the *Contractor* and” and replacing them with the words “*Owner* may determine in consultation with”.
- 47.2 Add new paragraph 9.2.10 as follows:
- “The *Contractor* shall indemnify and hold harmless the *Owner*, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of or resulting from exposure to, or the presence of, toxic or hazardous substances or materials which were either brought on to the *Place of the Work* by the *Contractor*, or anyone for whom the *Contractor* is in law responsible, and mishandled or handled negligently or improperly or which are otherwise mishandled or handled negligently or improperly by the *Contractor*, or anyone for whom the *Contractor* is in law responsible, thereby creating exposure to toxic or hazardous substances or materials. This obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity set out in GC 13.1 – INDEMNIFICATION or elsewhere in the *Contract* or which otherwise exist respecting a person or party described in this paragraph.”

48. GC 9.4 CONSTRUCTION SAFETY

- 48.1 Delete paragraph 9.4.1 in its entirety and replace it with the following:
- “9.4.1 The *Contractor* shall be solely responsible for construction safety at the *Place of the Work* and for compliance with the rules, regulations and practices required by the applicable construction health and safety legislation and shall be responsible for initiating, maintaining and supervising all safety precautions

and programs in connection with the performance of the *Work*. Without limiting the generality of the foregoing, the *Contractor* shall comply with the occupational health and safety laws and regulations and any orders, recommendations and restrictions made by the federal, provincial or municipal governments and the advice, recommendations and instructions of public health officials, as they apply to the *Place of the Work*. If the *Place of the Work* is located on the *Owner's* premises, the *Contractor* shall comply with all the *Owner's* policies and directions to ensure the health and safety of the *Owner's* employees and *Other Contractors* as well as the *Contractor's* employees, *Subcontractors* and *Suppliers*. The *Contractor* shall submit its Health and Safety Plan to the *Owner* for *Acceptance* prior to commencing the *Work*, which Plan shall include all the elements required by the *Specifications* for a Health and Safety Plan. The *Contractor* shall indemnify and hold harmless the *Owner* for any fines, penalties or other costs imposed or assessed on or incurred by the *Owner* arising from the *Contractor's* failure to comply with the applicable health and safety laws, any orders, recommendations and restrictions of the federal, provincial or municipal governments or the advice, recommendations and instructions of public health officials. "

48.2 Amend GC 9.4.2 by adding the following words after "and the Contractor":

" , *Subcontractors* and *Suppliers*".

48.3 Amend GC 9.4.3 by adding the following words after "and the Contractor":

" , *Subcontractors* and *Suppliers*".

48.4 Delete paragraph 9.4.4 in its entirety and replace it with the following:

"9.4.4 Prior to the commencement of the *Work*, the *Contractor* shall submit to the *Owner*:

- .1 a current WSIB clearance certificate;
- .2 copies of the *Contractor's* insurance policies having application to the *Project* or certificates of insurance, at the option of the *Owner*;
- .3 documentation of the *Contractor's* in-house safety-related programs; and
- .4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "Constructor" under the *Occupational Health and Safety Act*."

48.5 Delete paragraph 9.4.5 in its entirety and replace it with the following:

"9.4.5 The *Contractor* shall indemnify and save harmless the *Owner*, its agents, officers, directors, employees, consultants, successors and assigns from and against the consequences of any and all safety infractions committed by the *Contractor* under the *Occupational Health and Safety Act* and any breaches of the *Emergency Management and Civil Protection Act* and related orders, recommendations or regulations, including the payment of legal fees and disbursements on a full indemnity basis."

48.6 Add new paragraph 9.4.6 as follows:

"9.4.6 The *Contractor* shall ensure that it and its employees, *Subcontractors* and *Suppliers* are aware of and, while being on the *Owner's* property, comply with the *Owner's* policies, including its Fit for Duty Policy, and with the Ontario Northland Operating Manual, including the Current Summary Bulletin, current Ontario Northland Time Table, C.R.O.R. 2022, Infrastructure Special Instructions, Dangerous Goods and Ontario Northland General Operating Instructions, as applicable."

48.7 Add new paragraph 9.4.7 as follows:

"9.4.7 In the event of an emergency threatening health, life or property, the *Contractor* shall take such action as may be necessary to save lives and protect persons from injury and to protect and preserve the property. The *Contractor* shall notify the *Owner* of such emergency as promptly as is practical under the circumstances."

49. GC 9.5 MOULD

- 49.1 Amend paragraph 9.5.3.3 by deleting the words “*Consultant* may recommend in consultation with the *Contractor* and” and replacing them with the words “*Owner* may determine in consultation with”.

50. GC 9.6 IMPACT ASSESSMENT

- 50.1 Add new GC 9.6 – IMPACT ASSESSMENT as follows:

“GC 9.6 IMPACT ASSESSMENT

- 9.6.1 The *Contractor* shall be responsible for:

- .1 ensuring that any potential impacts and areas of concern identified in the *Contract Documents* or *Impact Assessment Reports*, if provided, are mitigated during the *Work*; and,
- .2 identifying any previously unknown impacts relating to fish, navigable waters, species at risk, vegetation, wildlife, socio-economic and heritage that arise prior to commencing the *Work* and during the *Work*.

- 9.6.2 If the *Contractor* or *Owner* observes or reasonably suspects the presence of any impacts described in paragraph 9.6.1.2 that are not mentioned or accounted for in the *Contract Documents* or *Impact Assessment Reports*, if any, and related mitigation plans,

- .1 the observing party shall immediately report the circumstances to the other party;
- .3 the *Contractor* shall immediately take reasonable steps, including stopping the *Work* if necessary, to ensure that any potential impacts are mitigated; and,
- .4 if the *Owner* and *Contractor* do not agree on the existence, significance or mitigation measures for the impact, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine the issue and the parties will enter into a *Change Order* if the mitigation measures will cause an increase or decrease in the *Contractor's* cost or time to perform the *Work*.

- 9.6.3 If the *Contractor* fails to comply with the requirements in paragraph 9.6.2, the *Contractor* shall:

- .1 be responsible for all costs incurred by the *Owner* or the *Contractor* to mitigate the damage caused due to the failure;
- .5 not be entitled to request a *Change Order* relating to the failure to comply; and
- .6 indemnify the *Owner* and hold it harmless from any claims, damages, costs, fines or other expenses, including reasonable legal fees and expenses, relating to or arising from the *Contractor's* failure to comply with paragraph 9.6.2.”

51. GC 9.7 ENVIRONMENTAL PROTECTION FOR CONSTRUCTION IN AND AROUND WATERBODIES

- 51.1 Add new GC 9.7 – ENVIRONMENTAL PROTECTION FOR CONSTRUCTION IN AND AROUND WATERBODIES as follows:

“GC 9.7 ENVIRONMENTAL PROTECTION FOR CONSTRUCTION IN AND AROUND WATERBODIES

- 9.7.1 The *Contractor* shall comply with the environmental protection requirements and mitigation measures that apply to construction involving work in and around waterbodies and on waterbody banks as set out in OPSS.PROV 182.

- 9.7.2 Pursuant to section 38(4) of the *Fisheries Act*, the *Contractor* has an obligation to notify the Department of Fisheries & Oceans(“DFO”) when the *Work* results in the unauthorized death of fish or a harmful alteration, disruption or destruction (“HADD”) of fish habitat or where there is imminent danger that the death of fish or HADD of fish habitat could occur. The notification shall be done using the form attached

as Schedule D. The *Contractor* shall also notify the *Owner* of any such incidents. Failure to notify DFO of such incidents is a federal offence.

9.7.3 In accordance with the *Fisheries Act*, notification must be made without delay to DFO after the *Contractor* ensures the immediate health and safety risks are managed at the *Place of the Work*. Updates to DFO may be provided at a later time, if required.

9.7.4 All spills and sediment releases into a waterbody during the *Work* must be immediately reported by the *Contractor* to the *Consultant* and the *Owner* who must report the release to the Spills Action Centre (“SAC”) operated by the Ministry of Environment, Conservation and Parks (“MECP”) at 800-288-6060. If the *Owner* is not available, the *Contractor* shall report the incident to SAC. The *Contractor* shall take all reasonable measures to mitigate or remedy any adverse effects that result from the occurrence or might reasonably be expected to result from it.”

52. GC 9.8 ENVIRONMENTAL SPILLS AND RELEASES

52.1 Add new GC 9.8 – ENVIRONMENTAL SPILLS AND RELEASES as follows:

“GC 9.8 ENVIRONMENTAL SPILLS AND RELEASES

9.8.1 All spills and releases of hazardous substances in the course of the *Work* must be immediately reported by the *Contractor* to the *Owner* who will report the spill or release to the MOECP SAC. If the the *Owner* is not available, the *Contractor* shall report the incident to the MOECP SAC and the ONTC RTC at 800-558-4129 or EXT 141.

9.8.2 The *Contractor* shall take immediate steps to mitigate the damage to the environment and contain the spill or release. If the *Contractor* does not take timely action or, if the *Contractor* is not available, the *Owner* may direct others to remedy the situation.

9.8.3 If the spill or release was the fault of the *Contractor*, the remedial work shall be completed at the cost of the *Contractor* and with no additional cost to the *Owner* and the *Owner* shall be entitled to seek reimbursements for all costs associated with the remedial work including the cost of work done by third parties.

9.8.4 If the spill or release was not the fault of the *Contractor*, the *Owner* shall pay for the remedial work.”

53. GC 10.1 TAXES AND DUTIES

53.1 Amend paragraph 10.1.2 by adding the following sentence at the end of that paragraph:

“For greater certainty, the *Contractor* shall not be entitled to any mark up for overhead or profit on any increase in such taxes and duties and the *Owner* shall not be entitled to any credit relating to mark up for overhead or profit on any decrease in such taxes.”

53.2 Add new paragraph 10.1.3 as follows:

“Where an exemption or a recovery of sales taxes, customs duties, excise taxes or *Value Added Taxes*, rebates, or monies from incentive programs is applicable to the *Contract*, the *Contractor* shall, at the request of the *Owner*, assist, join in, or make application for any exemption, recovery or refund of all such taxes, duties, rebates and incentives and all amounts recovered or exemptions obtained shall be for the sole benefit of the *Owner*. The *Contractor* agrees to endorse over the *Owner* any cheques received from the federal or provincial governments, or any other *Authority Having Jurisdiction*, as may be required to give effect to this paragraph 10.1.3.”

53.3 Add new paragraph 10.1.4 as follows:

“The *Contractor* shall maintain accurate records tabulating equipment, material and component costs reflecting the taxes, customs duties, excise taxes and *Value Added Taxes paid*.”

53.4 Add new paragraph 10.1.5 as follows:

“Any refund of taxes, including without limitation, any government sales tax, customs duty, excise tax or *Value Added Tax*, whether or not paid, which is found to be inapplicable or for which exemption may be obtained, is the sole and exclusive property of the *Owner*.”

53.5 Add new paragraph 10.1.6 as follows:

“The *Contractor* agrees to cooperate with the *Owner* and to obtain from all *Subcontractors* and *Suppliers* cooperation with the *Owner* in the application for any rebates, incentives or refund or exemption of any taxes, which cooperation shall include, but not be limited to, making or concurring in the making of an application for any such rebates, incentives, refund or exemption and providing to the *Owner* copies, or where required, originals of records, invoices, purchase orders and other documentation necessary to support such applications. All such rebates, incentives or refunds shall either be paid to the *Owner*, or shall be a credit to the *Owner* against the *Contract Price*, in the *Owner's* discretion.”

53.6 Add new paragraph 10.1.7 as follows:

“Customs duties penalties, or any other penalty, fine or assessment levied against the *Contractor* shall not be treated as a tax or customs duty for purposes of this GC 10.1.”

54. GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

54.1 Delete paragraph 10.2.2 in its entirety and replace it with the following:

“The *Owner* has Crown immunity from the *Building Code Act* and the *Planning Act* and may not be obtaining building permits or development approvals. The *Owner* shall obtain and pay for any permanent easements over Third Party Property required for the completion of the Work. The *Contractor* shall be responsible for all other permissions for access to Third Party Property.”

54.2 Add to the end of paragraph 10.2.4. the following:

“Whenever standards of law, ordinances, rules, regulations, codes and orders relating to the *Work* differ, the most stringent standards shall govern.”

54.3 Amend paragraph 10.2.5 by adding the words, “Subject to paragraph 3.4.1” to the beginning of the paragraph.

- and -

Substitute the word “*Owner*” for the word “*Consultant*”

-and-

Add the following to the end of the second sentence:

“...and no further *Work* on the affected components of the *Contract* shall proceed until these changes to the *Contract Documents* have been obtained by the *Contractor* from the *Owner*.”

54.4 Amend paragraph 10.2.6 by adding the following sentence at the end of that paragraph:

“In the event the *Owner* suffers loss or damage as a result of the *Contractor's* failure to comply with paragraph 10.2.5, and notwithstanding any limitations described in paragraph 13.1.1, the *Contractor* agrees to indemnify and to hold harmless the *Owner* from and against any claims, demands, losses, costs, damages, actions, suits or proceedings resulting from such failure by the *Contractor*.”

54.5 Amend paragraph 10.2.7 by adding the words “which changes were not, or could not have reasonably been known to the *Owner* or the *Contractor*, as applicable, at the time of deadline for submission of responses to the *RFP* and which changes did not arise as a result of a public emergency or other *Force Majeure* event” to the second line, after the words “authorities having jurisdiction”.

54.6 Add new paragraph 10.2.8 as follows:

"The *Contractor* shall furnish necessary certificates as evidence that the *Work* installed conforms with laws and regulations of authorities having jurisdiction, including certificates of compliance for *Owner's* occupancy or partial occupancy. These certificates are to be final certificates giving complete clearance of the *Work*."

55. GC 10.3 PATENT FEES

41.1 Delete paragraph 10.3.2 in its entirety.

56. GC 10.4 WORKERS' COMPENSATION

56.1 Add new paragraph 10.4.2 as follows:

"10.4.2 The *Contractor* shall be solely responsible for its employees and officers and for its *Subcontractors* and their officers and employees, including ensuring that all required employer filings, contributions, deductions, and payments are made or remitted, as the case may be, with respect to applicable employer health taxes and under the *Employment Insurance Act*, the Canada Pension Plan, the Ontario *Workplace Safety and Insurance Act, 1997*, and all equivalent legislation in any other applicable jurisdiction. Without limiting the generality of the foregoing, the *Contractor* shall indemnify, defend and hold harmless the *Owner*, its directors, officers, and employees from all claims, demands, actions, suits or proceedings arising from any health, medical, disability or similar claims which *Contractor's* employees or officers or any of its *Subcontractors* or their officers or employees may make against the *Owner*, its directors, officers, or employees during or after the *Contract Time*, whether or not such claims are attributable to the *Contractor's* or *Subcontractor's* performance of the *Work* or related to the *Contractor's* obligations under this *Contract*."

57. GC 11.1 INSURANCE

57.1 Delete all references to "the *Consultant*" in GC 11.1.

57.2 Amend the title of GC 11 to add the words "CONTRACT SECURITY" at the end of the title.

57.3 Delete items 1 to 8 in paragraph 11.1.1 and in CCDC 41 and replace with the following:

1. General Liability insurance shall be with limits of not less than \$10,000,000 per occurrence, an aggregate limit of not less than \$10,000,000 within any policy year with respect to completed operations, and a deductible not exceeding \$50,000. To achieve the desired limit, umbrella or excess liability insurance may be used. Subject to satisfactory proof of financial capability by the *Contractor*, the *Owner* may agree to increase the deductible amounts. The insurance coverage shall not be less than the insurance provided by IBC Form 2100 (including an extension for a standard provincial and territorial form of non-owned automobile liability policy) and IBC Form 2320 including but not limited to:
 - .1 Bodily injury, death, and property damage including loss of use thereof.
 - .2 Premises and operations liability.
 - .3 Products and completed operations liability.
 - .4 Blanket contractual liability.
 - .5 Cross liability and severability of interest clauses.
 - .6 Contingent employer's liability.
 - .7 Personal injury liability.
 - .8 Owner's and Contractor's protective coverage.
 - .9 Broad form property damage.
 - .10 Elevator and hoist liability.
 - .11 Liability for attached machinery, including loading and unloading.
 - .12 Extension of coverage shoring; blasting; excavation; underpinning; demolition; on work; below ground surface work, including tunneling and grading, if applicable to the *Project*.

The General Liability Insurance shall not include any exclusion relating to working in the vicinity of railway operations."

2. Automobile liability insurance in respect of vehicles that are required by law to be insured under a contract by a Motor Vehicle Liability Policy, shall have limits of not less than \$5,000,000 inclusive per occurrence for bodily injury, death, and damage to property, covering all vehicles owned or leased by the *Contractor*.
3. Manned Aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft (if used directly or indirectly in the performance of the *Work*), including use of additional premises, shall have limits of not less than \$10,000,000 inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof and limits of not less than \$10,000,000 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the *Owner*.
4. Unmanned aerial vehicle liability insurance with respect to owned or non-owned aircraft (if used directly or indirectly in the performance of the *Work*), shall have limits of not less than \$5,000,000 per occurrence or accident for bodily injury, death and damage to property or such amounts as required by any applicable law or regulation.
5. Contractors' equipment insurance coverage written on an "all risks" basis covering *Construction Equipment* used by the *Contractor* for the performance of the *Work*, shall be in a form Acceptable to the *Owner* and shall not allow subrogation claims by the insurer against the *Owner*. Subject to satisfactory proof of financial capability by the *Contractor* for self-insurance, the *Owner* may agree to waive the equipment insurance requirement.
6. Professional liability Insurance. This policy shall cover risks of errors, omissions or negligent acts in the performance of professional services for the *Project*. The Named Insureds are to be approved and accepted for coverage by the Insurer. This policy shall provide for a limit of liability of not less than \$1,000,000 per claim and \$2,000,000 in the aggregate (inclusive of defence costs and expenses).
7. Technology Liability Insurance for financial loss arising out of an error, omission, or negligent act in the rendering of services in an amount not less than **\$5,000,000** per claim and **\$5,000,000** aggregate. Such policy shall be on a claims made basis and shall provide coverage for damages and defense costs. The Technology Professional Liability policy will also include an insuring agreement for cyber or network security and privacy liability insurance, covering financial loss arising out of actual or potential unauthorized access, unauthorized use, and a failure to protect confidential information which results in loss or misappropriation of such information in both electronic and non-electronic format. Such insurance will have a limit of an amount not less than \$5,000,000 per claim and \$5,000,000 aggregate. The *Contractor* shall maintain said liability coverage in place for a three-year period after termination of the *Contract* by way of annual policy renewal, or purchase of extended reporting period.
8. "All Risks" Builders Risk and Boiler & Machinery Insurance shall have limits of not less than the sum of 1.1 times *Contract Price*, plus any property, including design services, the *Owner* provides for incorporation into the *Work*. This policy shall cover all risks of direct physical loss or damage to the *Project*, including but not limited to the perils of earthquake and flood, subject to policy sub limits, warranties and exclusions and shall not be less than the insurance provided by IBC Forms 4042 and 4047 or their equivalent replacement. This insurance shall cover all property forming part of the *Project*, and goods and materials to be incorporated in the *Project* while at the *Place of the Work*, in transit, or while in off-site storage. It shall not provide coverage for the *Contractor's* or *Subcontractors'* equipment other than scaffolding, formwork, fences, shoring, hoarding, falsework, tarpaulins and temporary buildings in connection with the *Work*. The insurance shall not have a deductible greater than \$50,000.
9. Pollution Liability Insurance for an amount not less than \$5,000,000 per occurrence and in the aggregate and a deductible of not more than \$50,000. This policy shall be written on either an Occurrence or Claims Made Form and will provide coverage on a sudden and accidental, and gradual pollution events basis for on-site cleanup and remediation as well as on-site and off-site third party claims for bodily injury and property damage, cleanup and remediation.

58. GC 11.2 CONTRACT SECURITY

58.1 Add new GC 11.2 – CONTRACT SECURITY as follows:

"GC 11.2 CONTRACT SECURITY

- 11.2.1 If required by the *RFP*, the *Contractor* shall provide a performance bond and a labour and materials payment bond, each issued by a bonding company acceptable to *Owner* and licensed to issue such instruments in the *Place of the Work*, in the amounts and forms as follows:
- .1 Amount of performance bond shall be equal to not less than 50% of the *Contract Price* in the form prescribed by the *Construction Act*.
 - .2 Amount of labour and material payment bond shall be equal to not less than 50% of the *Contract Price* in the form prescribed by the *Construction Act*.
- 11.2.2 The bonds provided in accordance with paragraph 11.2.1 shall guarantee the faithful performance of the *Contract* in accordance with the *Contract Documents*, including the requirements for warranties provided for the GC 12.3 – WARRANTY, and the payment of all obligations incurred in the event of the *Contractor's* default, including but not limited to the following:
- .1 the payment of legal, accounting, architectural, engineering and other professional services expenses incurred by the *Owner* in determining the extent of *Work* executed and any additional *Work* required as a result of the interruption of the *Work*, and its completion; and
 - .2 the payment of additional expenses to the *Owner* in the form of security guard services, light, heat, power, loss of use of premises, and other related costs, payable over the period between the default of the *Contract* and completion of the *Work*.
- 11.2.3 Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the *Owner* for and against costs and expenses (including legal and consultant services and court costs) arising out of or as a consequence of any default of the *Contractor* under this *Contract*.
- 11.2.4 The *Contractor* shall be responsible for notifying the surety company of any changes made to the *Contract Documents* or the *Contract Price* during the course of the *Work*.
- 11.2.5 The premiums for bonds required by the *Contract Documents* shall be included in the *Contract Price*.
- 11.2.6 Should the *Owner* require additional bonds by the *Contractor* or any of his *Subcontractors*, after the receipt of bids for the *Work*, the *Contract Price* shall be increased by the actual costs attributable to providing such bonds. The *Contractor* shall promptly provide the *Owner* with any such bonds that may be required."

59. GC 12.1 READY-FOR-TAKEOVER

59.1 Delete GC 12.1.1 in its entirety and replace it with the following:

- "12.1.1 *Ready-for-Takeover* shall be achieved when all of the following has occurred, as verified and *Accepted* by the *Owner*:
- .1 *Substantial Performance of the Work* has been achieved, as verified by the *Owner*;
 - .2 the appropriate permits (if any) for the *Place of the Work* have been obtained from the authorities having jurisdiction;
 - .3 the *Work* to be performed under the *Contract* has satisfied the requirements for deemed completion in accordance with Section 2(3) of the *Construction Act*,
 - .4 final cleaning and waste removal, as required by the *Contract Documents*;
 - .5 the *Contractor* has delivered to the *Owner* all inspection certificates from authorities having jurisdiction with respect to any component of the *Work* which has been completed;
 - .6 subject only to GC 12.1.2, the entire *Work* has been completed to the requirements of the *Contract Documents*, including completion of all items on the punch list prepared at the time of *Substantial Performance of the Work* and the *Work* is being used for its intended purpose, and is so certified by the *Consultant*;
 - .7 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* in a collated and organized matter,

all *Close-Out Documentation* and any other materials or documentation required by the *Contract Documents*;

- .8 subject only to GC 12.1.2, all *Products*, systems and components of the *Project* have been commissioned and certified for operation and accepted by the *Owner*, and
- .9 subject only to GC 12.1.2, the *Contractor* has submitted to the *Owner* full and complete *As-built Record Drawings* and *Specifications* revised by the *Contractor* to reflect the as-built state of the *Work*, clearly showing changes to the *Drawings* and *Specifications* from the original *Contract Documents*, all of which have been *Accepted* by the *Owner* acting reasonably.”

59.2 Delete GC 12.1.2 in its entirety and replace it with the following:

“12.1.2 The *Owner* may, in its sole, absolute, and unfettered discretion, waive compliance with a requirement, or a part thereof, for achieving *Ready-for-Takeover* set out in GC 12.1.1.6 to 12.1.1.9 (inclusive). Where the *Owner* exercises the discretion afforded under this GC 12.1.2, the *Contractor* shall be required to comply with GC 5.5.1.3 as part of its application for final payment and the *Owner* and the *Contractor* shall establish a reasonable date for completing the *Work*.”

59.3 Delete GC 12.1.3 in its entirety and replace it with the following:

“12.1.3 When the *Contractor* considers the *Work* has attained *Ready-for-Takeover*, it shall submit a written application to the *Owner* for review.”

59.4 In GC 12.1.4, delete the words “list and” from the second line.

59.5 Delete GC 12.1.5 in its entirety and replace it with the following:

“12.1.5 Following the confirmation of the date of *Ready-for-Takeover* by the *Owner*, the *Contractor* may submit a final application for payment in accordance with GC 5.5 – FINAL PAYMENT.”

59.6 Delete GC 12.1.6 in its entirety.

60. GC 12.2 EARLY OCCUPANCY BY THE OWNER

60.1 Delete GC 12.2 – EARLY OCCUPANCY BY THE OWNER in its entirety.

61. GC 12.3 WARRANTY

61.1 Amend paragraph 12.3.2 by adding the words, “Subject to paragraph 1.1.3....” at the beginning of that paragraph.

61.2 Delete paragraphs 12.3.4, and 12.3.5 and replace it with the following paragraphs:

“12.3.4 The *Contractor* shall correct, at no additional cost to the *Owner*, defects or deficiencies in the *Work* that appear, prior to and during the *Warranty Period*. Any *Work* repaired or replaced during the *Warranty Period* shall be re-warranted for an additional 12 months from the date of completion of the repair or replacement. Notwithstanding the expiration of the *Warranty Period*, the *Contractor* shall not be relieved of its obligations to correct any defects or deficiencies in the *Work* of which *Notice in Writing* has been given to the *Contractor* prior to the expiration of the *Warranty Period*.

12.3.5 The *Owner* shall provide *Notice in Writing* to the *Contractor* of defects and deficiencies in the *Work* discovered during the *Warranty Period*. The *Contractor* shall submit a remediation plan for the permanent rectification of the defects and deficiencies within 2 *Working Days* after delivery of the *Notice in Writing*, including the schedule for the remediation work to be completed. Upon *Acceptance* by the *Owner* of the remediation plan, the *Contractor* shall remediate the defects and deficiencies in accordance with the schedule set out in the *Accepted* plan. *Acceptance* by the *Owner* of a remediation plan does not prohibit the *Owner* from pursuing other remedies it may have against the *Contractor* arising from the defects and deficiencies in the *Work*.

61.3 Amend paragraph 12.3.6 by adding at the end of the paragraph the following:

"The *Extended Warranty Period* for each *Extended Warranty* described in the *Specifications* shall commence on the expiry of the *Warranty Period* described in paragraph 12.3.1. The *Extended Warranties* shall be submitted to the *Owner* as part of the *Close-Out Documentation*."

61.4 Add the following new paragraphs 12.3.7 to 12.3.12

- 12.3.7 The decision of the *Owner* shall be final as to the existence of such defects or deficiencies in the *Work*, the necessity of remedying same, and the remedial measures required.
- 12.3.8 If the *Contractor* fails to do the work to correct the defects or deficiencies, the *Owner* shall be entitled to carry out such work by its own forces or by *Other Contractors*. If such work is work which the *Contractor* should have carried out at the *Contractor's* own expense, the *Owner* shall be entitled to recover from the *Contractor* the cost thereof or may deduct the same from any monies due or that become due to the *Contractor*, including the warranty holdback, if any.
- 12.3.9 Any insurance, contract security, surety or deposit required by the *Contract Documents* shall remain in full effect at the expense of the *Contractor* during the *Warranty Period*.
- 12.3.10 The *Contractor* shall be responsible for the costs for inspection and testing for the correction of defects or deficiencies. The *Owner* shall have the right to deduct the cost of the inspection and testing from any monies owed to the *Contractor*.
- 12.3.11 The *Owner* may hold back, if set out in the *Contract Documents*, on each application for payment, advance payment or progress draw, 2.5% of the total amount payable under each such application for payment, advance payment or progress draw as security for the *Contractor's* performance of its warranty obligations. In the event the *Contractor* fails to correct a defect or deficiency during the warranty period within the required time and/or fails to pay for the redesign, reconstruction and other costs related to damages arising from a defect or deficiency, the *Owner* shall have the right to use the warranty holdback, or such part of it still being held by the *Owner* to pay for the costs of remedying the defect or deficiency and any redesign, reconstruction or other costs relating to the defect or deficiency. If the costs are greater than the amount of the warranty holdback, the *Contractor* shall pay the additional costs upon receipt of an invoice from the *Owner*. The *Contractor* shall have the right to invoice the *Owner* for the balance of the warranty holdback at the end of the *Warranty Period* or *Extended Warranty Period* as described in paragraph 12.3.4.
- 12.3.12 The *Contractor* shall assign to the *Owner* all warranties, guarantees or other obligations for *Work*, services or *Products* performed or supplied by any *Subcontractor*, *Supplier* or other person in connection with the *Work* and such assignment shall be with the consent of the assigning party where required by law or by the terms of that party's contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the *Owner* under the *Contract Documents*. Until the expiry of the relevant *Warranty Periods* enforceable against the *Contractor*, the *Owner* shall have in its custody all warranties, guarantees and other obligations to third parties respecting the *Work*.
- 12.3.13 The *Contractor's* obligations under this GC 12.3 shall continue notwithstanding any withholding of payment made by the *Owner* under GC 5.8 – WITHOLDING OF PAYMENT or by performance by the *Owner* directly or through other forces of the *Contractor's* obligations under this *Contract*, where the *Contractor* is in default in the performance of such obligations."

62. GC 13.1 INDEMNIFICATION

62.1 Delete GC 13.1 – INDEMNIFICATION in its entirety and replace it with the following:

- "13.1.1 The *Contractor* shall indemnify and hold harmless the *Owner* and its directors, officers, employees, contractors and agents (collectively the "*Owner's Indemnitees*") from and against all loss, liability, damage, fines, cost, legal cost and disbursement whatsoever arising out of or related to the *Work* or the *Contract Documents* ("*Loss*"), by whomever made, sustained, incurred, brought or prosecuted, arising out of, or in connection with, anything done or omitted to be done by the *Contractor* in the course of the performance of the *Contractor's* obligations under the *Contract Documents* or otherwise in connection with the *Work*. The *Contractor* shall, at the *Owner's* election, either assume the defence of every proceeding brought in respect of such *Loss*, or cooperate with the *Owner* in the defence, including providing *Owner* with prompt Notice of any possible *Loss* and providing the *Owner* with all information and material relevant to the possible *Loss*.

- 13.1.2 GC 13.1 – INDEMNIFICATION shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.
- 13.1.3 The *Contractor* shall make full and complete compensation for any bodily injury or death to any person and for any damage caused to the *Owner's* or a third party's physical property by the *Contractor's* act or omission.
- 13.1.4 The *Contractor* shall be liable for any claims arising from any personal injuries to or death of any of the *Contractor's* employees, *Subcontractors* or *Suppliers* or from any *Loss* of or damage to any property belonging to the *Contractor* or its employees, *Subcontractors* or *Suppliers* during the performance of the *Work* unless caused by the negligent act or omission of *Owner*.
- 13.1.5 Notwithstanding any other provision of the *Contract Documents*:
- (a) The *Owner* shall not be responsible for indirect, consequential, special, incidental or contingent damages of any nature whatsoever, including loss or revenue or profit or damages resulting from interruption of service or transmission. This limitation shall apply regardless of the form of action, damage, claim, liability, cost, expense or loss, whether in contract (including fundamental breach), statute, tort (including negligence), or otherwise, and regardless of whether the *Owner* has been advised of the possibility of such damages; and,
 - (b) Any express or implied reference to the *Owner* providing an indemnity or any other form of indebtedness or contingent liability that would directly or indirectly increase the indebtedness or contingent liabilities of the *Owner* or the Province of Ontario, whether at the time of execution of this *Contract* or at any time during the performance of the *Work* and the *Warranty Period*, shall be void and of no legal effect in accordance with s.28 of the *Financial Administration Act*, R.S.O. 1990, c. F.12.
- 13.1.6 The *Contractor* shall indemnify the *Owner* and the *Owner Indemnitees* and save them harmless from and against all Loss incurred by the *Owner* arising from:
- (a) any decision or interpretation by any court or *Authority Having Jurisdiction* that: (i) any of the *Contractor's* employees are an employee of the *Owner*; or (ii) the *Owner* is liable to pay statutory contributions or deductions in respect of any of the *Contractor's* employees under any laws, including employment insurance, provincial health insurance, income tax or other employment matters;
 - (b) any health, medical disability or similar claims which the *Contractor* or *Contractor's* employees may have during or after the term of this *Contract*;
 - (c) a claim by any third party against the *Owner* alleging that the *Submittals* and their use by the *Owner*, infringes any *Intellectual Property* rights;
 - (d) safety infractions committed by the *Contractor* under the *Occupational Health and Safety Act* or any other laws, guidelines or public health orders regulating health and safety at the *Work Site*;
 - (e) any claims against the *Owner* for the failure of the *Contractor* to protect the confidentiality of *Confidential Information*;
 - (f) exposure to, or the presence of, toxic or hazardous substances or materials which were either brought on to the *Work Site* by the *Contractor* or the *Contractor* mishandled or handled negligently or improperly the substances or materials;
 - (g) a claim from adjacent landowners or other third parties regarding damage to their property due to the *Work*; and
 - (h) the release into the environment of materials resulting from the *Work* that contain *Environmental Contaminants* during the transportation of such materials from the *Work Site* to the approved waste disposal site.

63. GC 13.2 WAIVER OF CLAIMS

63.1 Delete GC 13.2 – WAIVER OF CLAIMS in its entirety and replace it with the following:

“13.2.1 WAIVER OF CLAIMS BY OWNER

As of the date of the final certificate for payment, the *Owner* expressly waives and releases the *Contractor* from all claims against the *Contractor* including without limitation those that might arise from the negligence or breach of contract by the *Contractor* except one or more of the following:

- .1 those made in writing prior to the date of the final certificate for payment and still unsettled;
- .2 those arising from the provisions of GC 13.1 – INDEMNIFICATION or GC 12.3 – WARRANTY;
- .3 those arising from the provisions of paragraph 9.6.1 of GC 9.6 – IMPACT ASSESSMENTS and arising from the *Contractor* failing to comply with the mitigation plans in the *Impact Assessment Reports* or failing to assess impacts and implement mitigation plans for impacts that arise during the *Work*;
- .4 those arising from the provisions of paragraph 9.2.5 of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES and arising from the *Contractor* bringing or introducing any toxic or hazardous substances and materials to the *Place of the Work* after the *Contractor* commences the *Work*;
- .5 those arising from the provisions of paragraph 9.5.1 of GC 9.5 – MOULD and arising from the *Contractor* bringing or introducing mould to the *Place of the Work*; or
- .6 those made in writing within a period of six (6) years from the date of *Substantial Performance of the Work*, as set out in the certificate of *Substantial Performance of the Work*, arising from the *Contractor's* performance of the *Contract* with respect to material defects or deficiencies in the *Work*.

13.2.2 WAIVER OF CLAIMS BY CONTRACTOR

As of the date of the final certificate for payment, the *Contractor* expressly waives and releases the *Owner* from all claims against the *Owner* including without limitation those that might arise from the negligence or breach of contract by the *Owner* except:

- .1 those made in writing prior to the *Contractor's* application for final payment and still unsettled; and
- .2 those arising from the provisions of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, GC 9.5 – MOULD, or GC 10.3 – PATENT FEES.

13.2.3 GC 13.2 – WAIVER OF CLAIMS shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.”

62. PART 14 OTHER PROVISIONS

62.1 Add new PART 14 as follows:

“PART 14 OTHER PROVISIONS

GC 14.1 OWNERSHIP OF MATERIALS

14.1.1 Unless otherwise specified, all materials existing at the *Place of the Work* at the time of execution of the *Contract* shall remain the property of the *Owner*. All work and *Products* delivered to the *Place of the Work* by the *Contractor* shall be the property of the *Owner*. The *Contractor* shall remove all surplus or rejected materials as its property when notified in writing to do so by the *Owner*.

GC 14.2 CONTRACTOR DISCHARGE OF LIABILITIES

14.2.1 In addition to the obligations assumed by the *Contractor* pursuant to GC 3.6 – SUBCONTRACTORS AND SUPPLIERS, the *Contractor* agrees to discharge all liabilities incurred by it for labour, materials, services, *Subcontractors* and *Products*, used or reasonably required for use in the performance of the

Work, except for amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from whom payment has been withheld.

GC 14.3 DAILY REPORTS/DAILY LOGS

- 14.3.1 The *Contractor* shall cause its supervisor, or such competent person as it may delegate, to prepare a daily log or diary reporting on weather conditions, work force of the *Contractor*, *Subcontractors*, *Suppliers* and any other forces on site and also record the general nature of *Project* activities. Such log or diary shall also include any extraordinary or emergency events which may occur and also the identities of any persons who visit the *Place of the Work* who are not part of the day-to-day work force.
- 14.3.2 The *Contractor* shall also maintain records, either at its head office or at the *Place of the Work*, recording manpower and material resourcing on the *Project*, including records which document the activities of the *Contractor* in connection with GC 3.4 – CONSTRUCTION SCHEDULE, and comparing that resourcing to the resourcing anticipated when the most recent version of the schedule was prepared pursuant to GC 3.4 – CONSTRUCTION SCHEDULE.

GC 14.4 CONFIDENTIAL INFORMATION

- 14.4.1 The *Contractor* must not advertise or issue any information, publication, document or article (including photographs or film) for publication or media releases or other publicity relating to the *Work* or the *Owner's Confidential Information* without the prior written approval of the *Owner*.
- 14.4.2 The *Contractor* must not, and must ensure that the *Contractor's* personnel do not, without the prior written approval of ONTC:
- .1 use *Confidential Information* other than as necessary for the purposes of fulfilling the *Contractor's* obligations under this *Contract*; or
 - .2 disclose the *Confidential Information*, other than to the *Contractor's* personnel who need the information to enable the *Contractor* to perform its obligations under this *Contract*, to the *Contractor's* legal advisors, accountants or auditors, or where disclosure is required by law (including disclosure to any stock exchange).
- 14.4.3 The *Contractor* must, within 10 *Working Days* (or any other period agreed in writing by ONTC) after a direction by the *Owner* to do so, return or destroy all *Confidential Information* in the *Contractor's* possession, custody or control.
- 14.4.4 If the *Owner* or the *Contractor* is required by law to disclose *Confidential Information*, it shall promptly notify the other party so that that party may intervene to prevent the disclosure.
- 14.4.5 The *Contractor* specifically acknowledges that *Owner* is subject to the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F. 4, and that the *Owner* may be compelled by law to disclose certain *Confidential Information*.
- 14.4.6 The rights and obligations under this Part continue after the termination of this *Contract*.

GC 14.5 CORRUPTION, FORCED LABOUR, SANCTIONS

- 14.5.1 The *Contractor* warrants that:
- .1 no bribe, gift or other inducement has been paid, promised or offered to any official or employee of the *Owner*, the Ministry of Transportation, the Government of Ontario or any other government official relating to the *Owner* entering into this *Contract* with the *Contractor*.
 - .2 it will take reasonable steps to ensure that its officials and employees do not extort, accept or pay bribes or illicit payments, charge or accept fees that are not legally due or are in excess of those legally due, or unreasonably delay or obstruct the granting of permits, licences, or other such approvals in relation to the project. If the *Contractor* becomes aware of an actual or attempted bribe, extortion, delay or obstruction relating to this *Contract*, the *Contractor* shall report the incident to the *Owner* immediately.

- .3 it is unaware of any forced labour or child labour being used at any step of the production of goods produced, purchased or distributed by it in Canada or elsewhere or for the production of goods imported by the *Contractor*.
- .4 it has undertaken the appropriate due diligence to ensure its business and its supply chains do not use forced labour or child labour, including an assessment of its business and supply chains that may carry a risk of forced labour or child labour being used and the management of the risk. If applicable, the *Contractor* shall comply with the reporting requirements under the *Fighting Against Forced Labour and Child Labour in Supply Chains Act*, S.C. 2023 c.9.

14.5.2 In compliance with its international obligations or with United Nations obligations, Canada imposes restrictions on trade, financial transactions or other dealings with a foreign country or its nationals. These sanctions may be implemented by regulation under such acts as the *United Nations Act*, the *Special Economic Measures Act (SEMA)*, or the *Export and Import Permits Act*. The text of any such regulations is published in the Canada Gazette, Part II. It is the only text which is authoritative. The *Contractor* shall comply with any such regulations that are in force on the effective date of the *Contract* and will require such compliance by its first-tier *Subcontractors*. The *Owner* relies on such undertaking from the *Contractor* to enter into this *Contract*, and any breach of such undertaking shall entitle the *Owner* to terminate this *Contract* for default and to recover damages from the *Contractor*, including excess re-procurement costs.

GC 14.6 COMMUNICATIONS

14.6 The *Owner* or the Government of Ontario will lead and make any announcements relating to this *Contract* and the *Work*. The *Contractor* shall not make any announcement of any kind, including press releases, social media posts, public declarations, or any form of publication or announcement, in relation to this *Contract* or the *Work* unless prior written consent is given by the *Owner*. Should the *Contractor* be contacted by any media outlet or other person or entity wishing to make any form of publication or announcement, or seeking any information, in relation to this *Contract* or the *Work*, the *Contractor* shall provide no comment and shall immediately notify the *Owner*. The *Contractor* shall immediately notify the *Owner* if it becomes aware of any publication or announcement relating to the *Contract* or the *Work*.

GC 14.7 AUDIT

14.7 The *Contractor* shall keep proper and accurate financial accounts and records, including but not limited to its contracts, invoices, statements, receipts, and vouchers in respect of the *Project* for a least six (6) years after the date that *Ready-for-Takeover of the Project* was achieved (the "*Audit Period*"). The *Owner* has the right to audit all such financial accounts and records associated with the *Project* and the *Contract Documents*, including *Submittals*, timesheets, reimbursable out of pocket expenses, materials, goods and *Construction Equipment* claimed by the *Contractor*, at all reasonable times during the term of the *Contract* and the *Audit Period* by providing *Notice in Writing* of its intention to conduct the audit. The *Contractor* shall provide full access to the records to the *Owner* for the purpose of the audit.

GC 14.8 GENERAL

14.8.1 Nothing contained in this *Contract* shall be deemed or construed by the parties nor by any third party as creating the relationship of principal and agent, landlord and tenant, or of partnership or of joint venture between the parties.

14.8.2 In addition to those provisions which are expressly stated to survive the termination or expiration of this *Contract*, the provisions of this *Contract* that are by their nature intended to survive termination or expiration of this *Contract* shall continue in full force and effect subsequent to and notwithstanding termination or expiration until or unless they are satisfied.

14.8.3 This *Contract* may be executed with electronic signatures or may be executed and delivered by electronic transmission and the parties may rely upon all such signatures as though they were original signatures. This *Contract* may be executed in counterpart and all such counterparts shall, for all purposes, constitute one agreement binding on the parties."

Schedule A to the Supplementary Conditions

Requirements for a “*Proper Invoice*”

To satisfy the requirements for a *Proper Invoice*, the *Contractor's* application for payment must satisfy the following criteria:

- .1 is in the form of a written bill, invoice, application for payment, or request for payment;
- .2 is in writing;
- .3 contains the *Contractor's* name, telephone number and mailing address and contact information of the *Contractor's* project manager;
- .4 contains the title of the *Project* and the *Owner's* contract number or purchase order number under which the work was performed and the related request for qualification, tender, or request for proposal number, as applicable;
- .5 contains the date the written bill, invoice, application for payment, or request for payment is being issued by the *Contractor*;
- .6 identifies the period of time in which the Work, labour, services, *Products* and/or materials were supplied to the *Owner*;
- .7 reference to the provisions of the *Contract* under which payment is being sought (e.g. progress payment / milestone, holdback, final payment, etc.);
- .8 a description, including quantities where appropriate, of the labour, services, *Products*, or materials, or a portion thereof, that were supplied and form the basis of the *Contractor's* request for payment;
- .9 the amount the *Contractor* is requesting to be paid by the *Owner*, set out in a statement, based on the schedule of values *Accepted* under paragraph 5.2.5, separating out any statutory or other holdbacks, set-offs and HST;
- .10 with each application for payment after the first, a written statement that all accounts for labour, services, subcontracts, materials, equipment, *Products*, and other indebtedness which may have been incurred by the *Contractor* and for which the *Owner* might in any way be held responsible have been paid in full up to the previous application for payment, except for amounts properly retained as a holdback or as an identified amount in dispute;
- .11 with the applications for payment of holdback and for final payment, a *Statutory Declaration* in the form provided by the *Owner* attached as Schedule B stating that all accounts for labour, services, subcontracts, materials, equipment, *Products*, and other indebtedness which may have been incurred by the *Contractor* and for which the *Owner* might in any way be held responsible have been paid in full up to the previous application for payment, except for amounts properly retained as a holdback or as an identified amount in dispute;
- .12 a current Workplace Safety Insurance Board Clearance Certificate;
- .13 the progress report required under GC 3.4 CONSTRUCTION SCHEDULE, in the form provided by the *Owner* attached as Schedule C;
- .14 an updated *Construction Schedule* in native and .pdf formats;
- .15 if requested by the *Owner*, a current and valid certificate(s) of insurance for the insurance required under GC 11.1 – INSURANCE;
- .16 the following statement: “Provided this *Proper Invoice* complies with the requirements of the *Contract* and provided no *Notice of Non-Payment* is issued by the *Owner*, payment is due within 28 days from the date this *Proper Invoice* is received by the *Owner*.”;
- .17 the name, title, telephone number and mailing address of the person at the place of business of the *Contractor* to whom payment is to be directed;
- .18 in the case of the *Contractor's* application for final payment;
 - (a) sufficient evidence that the *Contractor* has delivered all warranties to the *Owner*;

- (b) sufficient evidence that the *Place of the Work* has been left in a clean and tidy condition, including evidence that any remaining materials, tools, equipment, temporary work, and waste products and debris have been removed from the *Place of the Work*;
 - (c) landfill waybills for the disposal of the waste products, debris and excess soil removed from the *Place of Work* in accordance with the *Waste Management Plan*; and
 - (d) an executed, original, full and final release of all claims that may arise as a result of the *Work*, which full and final release executed by the *Contractor* shall be in a form approved by the *Owner*;
- .19 information identifying the authority, whether in the *Contract Documents* or otherwise, under which the services or materials were supplied;
- .20 any other information that is prescribed in Article A-3, if any, or identified by the *Owner* as required;
- .21 the amount invoiced to date;
- .22 the percentage of the *Contract Price* invoiced; and
- .23 the individual value of *Change Orders* approved during the invoice period and the cumulative value of *Change Orders* for the *Project*.

Schedule "B" to the Supplementary Conditions



Statutory Declaration of Progress Payment Distribution by Contractor

To be made by the Contractor **prior to payment**

as a condition for release of holdback.

The last application for progress

payment for which the Declarant has

received payment is No. _____

dated _____.

Identification of Contract:

Name of Contract (Location and description of the Work as it appears in the Contract Documents)

Date of Contract : Day : _____ Month : _____ Year : _____

Name of Owner: Ontario Northland Transportation Commission

Name of Contractor:

Name of Declarant:

Position or Title: (of office held with Contractor)

Declaration

I solemnly declare that, as of the date of this declaration, I am an authorized signing officer, partner or sole proprietor of the Contractor named in the Contract identified above, and as such have the authority to bind the Contractor, and have personal knowledge of the fact that all accounts for labour, subcontracts, products, services, and construction machinery and equipment which have been incurred directly by the Contractor in the performance of the work as required by the Contract, and for which the Owner might in any way be held responsible, have been paid in full as required by the Contract up to and including the latest progress payment received, as identified above, except for:

Holdback monies properly retained,

Payments deferred by agreement, or

Amounts withheld by reason of legitimate dispute which have been identified to the party or parties, from who payment has been withheld.

I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

Declared before me in _____

City/Town Province

on _____.

Date

Signature of Declarant

A Commissioner for Oaths or Notary Public

Schedule “C” to the Supplementary Conditions

Project Status Report	
Project Title:	
Reporting Period:	Date:
Project Details:	
Planned Budget: Indicate the original contract value	Current Approved Budget: Indicate the original contract value plus approved change orders
Planned Completion: Indicate the contract schedule completion date	Current Project Completion: Fill in revised date if schedule extension approved through change order
Planned Project Percent Complete: How far should they have progressed by this date?	Actual Project Percent Complete: What is their actual percent complete?
Executive Summary	
Provide a summary of what happened during the period, any concerns, risks or wins and plans for the upcoming period.	
Work Completed in the Period	
List	
List	
List	
List	
List	
Work Planned for Next Period	
List	
List	
List	
List	
Issues and Concerns	
Use this area to identify any concerns related to the project.	
Status of Progress	

Include a graph to show progress or eliminate this section.

SCHEDULE D

DUTY TO NOTIFY/EMERGENCY WORKS NOTIFICATION FORM

ONTC DUTY TO NOTIFY / EMERGENCY WORKS NOTIFICATION FORM

SUBMISSION REQUIREMENTS

Contact DFO By Phone 1-855-852-8320 **AND** submit this form to fisheriesprotection@dfo-mpo.gc.ca

Submit this form to the consultant and the ONTC Project Manager: Esmail Zougari, esmail.zougari@ontarionorthland.ca and to ONTC Legal : legal@ontarionorthland.ca

MNRF Office: Contact Area MNRF Office

PART 1: NOTIFICATION DETAILS

Type of Notification: ☐ DUTY TO NOTIFY ☐ EMERGENCY WORK

Date of Notification:

Time of Notification:

ONTC Contract #:

DFO PATH File # (if applicable):

PART 2: REPORTING INFORMATION

Name of Person Reporting:

Name of Field Contact:

Telephone #:

Telephone #:

Email:

Email:

PART 3: INCIDENT INFORMATION

Bank failure ☐ Culvert failure

Erosion and Sediment Control Measures Failure ☐ Beaver dam breach

Other (specify): ☐ Hwy shoulder failure

Date of Incident:

Time of Incident:

Location of Site:

Geographic Coordinates (Lat/Long):

Nearest Community (city/town):

Name of Waterbody(ies):

Type (watercourse, lake/pond, ditch):

Indicate if any of the following impacts have occurred or are about to occur:

Fish Kill (if yes, approximately how many):_____ ☐ Sediment deposition in channel

Bank failure ☐ Obstruction of fish passage through:

Modification of flows ☐ Channel ☐ Culvert

Other (specify):

<p>Immediate Actions Taken:</p> <p>(Describe the activities/works that are being / have been immediately implemented. e.g. mitigation measures, damming / pumping etc.)</p>	
<p>Photos: <input type="checkbox"/> Attached</p> <p>(Where feasible, it is recommended that the photos be submitted with the form or as follow up)</p>	
<p>PART 4: EMERGENCY WORKS</p>	
<p>Description of Proposed Emergency Works:</p> <p>(Be as specific as possible. Describe what work will be undertaken within the next two weeks.</p> <p>E.g. culvert replacement (include existing and new culvert diameter / length / type), slope restoration (include material / method),:</p>	
<p>Mitigation measures:</p> <p>(Describe what measures have been or will be implemented to address the immediate issue. E.g. sediment fence, turbidity curtain, check dam, fish salvage etc.):</p>	
<p>Indicate which of the works will be followed (if applicable):</p> <p>Beaver Dam Removal <input type="checkbox"/> Culvert Maintenance</p> <p>Bridge Maintenance <input type="checkbox"/> Like-for-like culvert replacement</p> <p>Ditch maintenance within 30 m of a <input type="checkbox"/> Temporary watercourse crossing waterbody</p> <p>Riparian vegetation maintenance in existing right-of-way</p>	
<p>The Emergency Works are (check one):</p> <p>Temporary (additional work will be required) <input type="checkbox"/> Final (no additional work required)</p>	
<p>Proposed Start Date: (YYYY/MM/DD)</p>	<p>Proposed End Date: (YYYY/MM/DD)</p>
<p>PART 5: OTHER AGENCIES NOTIFIED</p>	
<p>Other Agency(ies) Notified: Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>Agency(ies) Notified:</p>
<p>Date Notified:</p>	<p>Incident Report No. (if issued by notified Authority):</p>

END OF SUPPLEMENTARY CONDITIONS