

ONTARIO NORTHLAND

TRANSPORTATION COMMISSION

Request for Proposals No. RFP 2024 012

For

**ONTC Bridge Rehabilitation
Mile 162.00 Island Falls Subdivision**

REPLY BY DATE: 2:00:00 p.m. Friday, April 26, 2024

Primary Contact:

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Table of Contents

PART 1 REQUEST FOR PROPOSALS.....	1
SECTION 1 - INTRODUCTION.....	2
1.1 General	2
1.2 Ontario Northland Transportation Commission	3
SECTION 2 - THE RFP DOCUMENTS	4
2.1 Request for Proposals Documents	4
2.2 Priority of Documents	5
2.3 Distribution of Documents – Electronic Distribution.....	5
2.4 Information Provided by ONTC.....	5
SECTION 3 – THE RFP PROCESS.....	6
3.1 RFP Process	6
3.2 Questions and Communications Related to the RFP Documents	6
3.3 Addenda/Changes to the RFP Documents	7
3.4 Respondents’ Meeting.....	7
3.5 Prohibited Contacts	8
3.6 Media Releases, Public Disclosures, Public Announcements and Copyright.....	9
3.7 Confidentiality and Disclosure Issues – Respondent Information.....	9
3.8 Confidential Information.....	10
3.9 Governing Laws and Attornment	11
3.10 Licenses and Permits	12
3.11 Respondents’ Costs	12
3.12 Delay and Costs of Delay	12
3.13 Clarification and Verification of Respondent’s Proposal.....	13
3.14 Two-Envelope Process.....	13
SECTION 4 - PROPOSAL CONTENT AND FORMAT	14
4.1 Format and Content of Proposal.....	14
4.2 Proposal Submission Form.....	15
4.3 Bid Performance Security	15
4.4 References and Past Performance Issues.....	17
4.5 Conflict of Interest	17
SECTION 5 - PROPOSAL SUBMISSION, WITHDRAWAL, MODIFICATION.....	18
5.1 Submission of Proposals and Late Proposals.....	18
5.2 Late Proposals	20
5.3 Withdrawal of Proposals.....	20
5.4 Amendment of Proposals	20
5.5 Proposal Irrevocability	20

5.6	One Proposal per Person or Entity	20
	SECTION 6 - PROPOSAL EVALUATION	21
6.1	Evaluation Team	21
6.2	Evaluation of Proposals.....	21
6.3	Short-Listing	22
6.4	Interviews, Site Visits, Demonstrations and Presentations.....	22
	SECTION 7 - GENERAL EVALUATION AND DISQUALIFICATION PROVISIONS	22
7.1	ONTC’s Discretion.....	22
7.2	Disqualification	23
7.3	General Rights of ONTC	24
	SECTION 8 – AGREEMENT FINALIZATION AND DEBRIEFING AND SUCCESSFUL RESPONDENT	25
8.1	Finalization of the Agreement.....	25
8.2	Notification If Successful or Not.....	26
8.3	Debriefing.....	26
	SECTION 9 - LEGAL MATTERS AND RIGHTS OF ONTC.....	27
9.1	Limit on Liability.....	27
9.2	Power of Legislative Assembly.....	27
9.3	RFP Not a “Bidding Contract” or a Tender.....	28
	SECTION 10 – VENDOR PERFORMANCE	28
10.1	General	28
10.2	Vendor Performance Evaluation.....	28
10.3	Vendor Ratings for Proposal Evaluation Purposes	28
	SECTION 11 – TRANSPARENCY AND FAIRNESS.....	28
11.1	General	28
	SECTION 12 – INTERPRETATION	29
12.1	General	29
	PART 2 REQUEST FOR PROPOSALS SUMMARY OF REQUIREMENTS.....	1
	SCHEDULE 2-A RFP DATA SHEET.....	2
	SCHEDULE 2-B PARTICIPATION REGISTRATION FORM.....	7
	PART 3 REQUEST FOR PROPOSALS SPECIFICATIONS.....	1
	SCHEDULE 3-A SCOPE OF WORK.....	2
	SCHEDULE 3-A-1 TECHNICALSPECIFICATIONS	7
	SCHEDULE 3-A-2 CONTRACT DRAWINGS, REFERENCE DRAWINGS AND REPORTS	8
	SCHEDULE 3-A-3 SITE LOCATION.....	9
	SCHEDULE 3-A-4 SITE PHOTOS.....	10
	SCHEDULE 3-A-5 WORK BLOCKS	12
	PART 4 REQUEST FOR PROPOSALS FORM OF PROPOSAL	1
	PART 5 REQUEST FOR PROPOSALS CCDC 4 – 2011 SUPPLEMENTARY CONDITIONS.....	1



PART 1

REQUEST FOR PROPOSALS

SECTION 1 - INTRODUCTION

1.1 General

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

(2) In this RFP:

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

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

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

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

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

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

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

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

“RFP Data Sheet” means the information and requirements contained in Schedule 2-A of Part 2;

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

“Short-listed Respondent” means a Respondent selected to proceed to the next step in the evaluation process pursuant to section 6.2 (2) of the RFP;

“Substantially Compliant” means Proposal does not meet the requirements of the RFP Documents; however, the Proposal includes all of the Material items, as identified in the RFP Data Sheet;

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

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

1.2 Ontario Northland Transportation Commission

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

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

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

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

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

SECTION 2 - THE RFP DOCUMENTS

2.1 Request for Proposals Documents

(1) The Request for Proposals documents consist of:

Part 1 – Request for Proposals

Part 2 – Requests for Proposals Summary of Requirements

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

Part 3 – RFP Specifications

- (a) Schedule 3-A – Scope of Work
- (b) Schedule 3-A-1 – Technical Specifications
- (c) Schedule 3-A-2 – Contract Drawings, Reference Drawings and Reports
- (d) Schedule 3-A-3 – Site Location
- (e) Schedule 3-A-4 – Site Photos
- (f) Schedule 3-A-5 – Working Blocks

Part 4 – Form of Proposal

- (a) Proposal Form 1 – Proposal Submission Form
- (b) Proposal Form 1-A – Proposal Submission Form
- (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' Meeting Registration Form
- (h) Proposal Form 7 – Health, Safety and Environment
- (i) Proposal Form 8 – Schedule of Materials
- (j) Proposal Form 9 – List of Equipment
- (l) Proposal Form 10 – Schedule and Proposed Approach
- (m) Proposal Form 11 – Schedule of Progress Payments
- (n) Proposal Form 12 – List of Personnel
- (o) Proposal Form 13 – Current Labour Agreements
- (p) Proposal Form 14 – Contractor's Qualification Statement
- (q) Proposal Form 15 – Claims

Part 5 – Ontario Northland Supplementary Conditions - CCDC 4 – 2011, and Ontario Northland – Special Supplementary Conditions – Schedule of Pricing.

(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 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 was known to it on a non-confidential basis before it was disclosed to the Respondent by ONTC.

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

4.4 References and Past Performance Issues

- (1) If specified in the RFP Data Sheet, Respondents shall provide reference information. Unless otherwise set out in the RFP Data Sheet, all references shall be, where possible, with respect to similar goods and/or services, as applicable, during the five (5) years immediately prior to the Submission Deadline. Unless otherwise set out in the RFP Data Sheet, the Respondent shall provide a minimum of three (3) references.
- (2) ONTC may, in its sole discretion, confirm the Respondent's experience and ability to provide the Goods and/or Services by contacting the Respondent's references. However, ONTC is under no obligation to contact references submitted by any Respondent. References and information received from references, if contacted, will be taken into account in the evaluation process as identified in the RFP Data Sheet.
- (3) ONTC may take into account in the evaluation process reliable information received from the Government of Ontario or its Agencies regarding past performance of a Respondent, provided information evidencing past poor performance by a Respondent is provided to the Respondent (subject to any restrictions 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 Senior Manager of Strategic Procurement by prepaid courier or personal delivery at the following address:

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

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

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

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

5.2 Late Proposals

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

5.3 Withdrawal of Proposals

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

5.4 Amendment of Proposals

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

5.5 Proposal Irrevocability

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

5.6 One Proposal per Person or Entity

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

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

SECTION 6 - PROPOSAL EVALUATION

6.1 Evaluation Team

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

6.2 Evaluation of Proposals

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

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

6.3 Short-Listing

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

6.4 Interviews, Site Visits, Demonstrations and Presentations

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

SECTION 7 - GENERAL EVALUATION AND DISQUALIFICATION PROVISIONS

7.1 ONTC's Discretion

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

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

7.2 Disqualification

- (1) ONTC may, in its sole discretion, disqualify a Respondent or a Respondent's Proposal or cancel its decision to identify a Respondent as a Short-listed Respondent or a Successful Respondent, at any time prior to the execution of the Final Agreement by ONTC, if:
 - (a) The Respondent fails to cooperate in any attempt by ONTC to clarify or verify any information provided by the Respondent in its Proposal;
 - (b) The Respondent contravenes RFP Section 3.5, RFP Section 3.6 or RFP Section 5.6(2);
 - (c) The Respondent fails to comply with the Applicable Laws;
 - (d) The Proposal contains false or misleading information, or the Respondent provides false or misleading information in any part of the RFP Process;
 - (e) The Proposal, in the sole discretion of ONTC, reveals a Conflict of Interest that cannot be managed, mitigated or minimized;
 - (f) There is evidence that the Respondent colluded with one or more other Respondents in the preparation or submission of Proposals;
 - (g) The Respondent has previously breached or been in default of compliance with any term of any agreement with ONTC and such breach or default has not been waived by ONTC or the Respondent has not cured the default;
 - (h) The Respondent has been convicted of an offence in connection with any services rendered by the Respondent to ONTC, or to any Ministry, Agency, Board or Commission of the Government of Ontario or the Government of Canada;
 - (i) The Respondent, at the time of issuance of this RFP or any time during the RFP Process, has an outstanding claim or is engaged in an ongoing legal dispute with ONTC, other than an adjudication under the Construction Act;
 - (j) The Proposal is not Substantially Compliant;
 - (k) The Respondent has failed to notify ONTC of, or ONTC has not approved, a 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 the Confidentiality, Personal Information, Intellectual Property ownership and infringement, Indemnification, Limitation of Liability or rights of ONTC on termination. ONTC, as an Ontario Crown corporation, is unable to provide indemnities pursuant to s.28 of the *Financial Administration Act* (Ontario).**

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

- (6) If a Successful Respondent fails or refuses to enter into and execute the Final Agreement within ten (10) Business Days of being notified they are the Successful Respondent (ONTC may extend such period of time in ONTC's sole discretion), or a Successful

Respondent fails or refuses to provide the documentation in accordance with Section 8.1(7), ONTC may, in its sole discretion, take any one of the following actions:

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

<http://ontariocourtforms.on.ca/en/construction-lien-act-forms/>
 - (b) certificates of insurance as specified in the CCDC 4-2011;
 - (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(8) within the time period specified in Section 8.1 or fails to execute the Final Agreement shall be limited to the value of the Bid Performance Security provided by the Respondent pursuant to Section 4.3. The liability of the Respondents for any other loss or damage suffered by ONTC as part of this RFP Process shall be without limit.
- (2) By submitting a Proposal,
 - (a) each Respondent acknowledges ONTC's rights as stated herein and absolutely waives any right of action against ONTC for ONTC's failure to accept the Respondent's Proposal whether such right of action arises in contract, negligence, bad faith, or any other cause of action;
 - (b) each Respondent covenants and agrees that, under no circumstances, shall ONTC, or any of its employees, officers, representatives, agents or advisors, be liable to any Respondent, whether in contract, tort, restitution, or pursuant to any other legal theory, for any claim, action, loss, damage, cost, expense or liability whatsoever and howsoever arising from this RFP Process, a Respondent's Proposal in response to this RFP Process, or due to the acceptance or non-acceptance of any Proposal, or as a result of any act or omission by ONTC and/or its employees, officers, representatives, agents or advisors, including any information or advice or any errors or omissions that may be contained in the RFP Documents, or any other documents or information provided to a Respondent, or arising with respect to the rejection or evaluation of any or all of the Proposals, any negotiations with any of the Respondents, or the selection of any Respondent as a Short-listed Respondent or the Successful Respondent; and,
 - (c) each Respondent shall indemnify and hold harmless ONTC, its employees, officers, representatives, agents and advisors, from and against any and all claims, demands, actions or proceedings brought by third parties, including but not limited to the Respondent's subcontractors or suppliers, in relation to this RFP Process.

9.2 Power of Legislative Assembly

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

9.3 RFP Not a “Bidding Contract” or a Tender

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

SECTION 10 – VENDOR PERFORMANCE

10.1 General

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

10.2 Vendor Performance Evaluation

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

10.3 Vendor Ratings for Proposal Evaluation Purposes

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

SECTION 11 – TRANSPARENCY AND FAIRNESS

11.1 General

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

SECTION 12 – INTERPRETATION

12.1 General

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



PART 2

**REQUEST FOR PROPOSALS
SUMMARY OF REQUIREMENTS**

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

RFP 2024 012 ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision	
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	
Respondents' Meeting	A mandatory virtual Respondents' Meeting carried out by a Teams conference call will take place on Wednesday, April 10, 2024 at 9:00 am. Respondents must complete the Respondents' Meeting Registration Form and return it via email by Tuesday, April 9, 2024 at 4:00 pm to Ashley Commanda at: ashley.commanda@ontarionorthland.ca . Registered Respondents will receive an invitation to the Teams call.
Validity of Proposals	90 days following the Submission Deadline
Format of Submission	Respondents shall submit their Proposal through MERX Electronic Bid Submissions (EBS). Refer to Part 1, Request for Proposals, Section 5.1 (1) (a). MERX EBS does not allow Proposals to be uploaded after the Submission Deadline; therefore, Respondents shall ensure they allow sufficient time to upload the documents. Proposals which are submitted by facsimile transmission, by email or by electronic means other than MERX <u>will NOT</u> be considered.
Two-Envelope Process	This procurement will not be a two-envelope process.
Distribution Method	The RFP Documents will be posted on the ONTC website and MERX. Any addenda to the RFP will be shared with those Respondents who attended the Mandatory Respondents' Meeting.

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

RFP 2024 012 ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision			
Proposal Detail <i>continued</i> – <u>Note the requirements below are new to ONTC</u>			
Submission Requirements	Respondents are required to submit all of the documents listed below as part of their Proposal. Respondents shall confirm they have included the documents listed below with their Proposal by placing a checkmark in the column “Included in Proposal”. If the Respondent fails to include a document listed below as being “Material”, the respondent may be disqualified in accordance with section 6.2 (3) of the RFP.		
	Item	Included in Proposal (indicate with ✓)	Item is classified as Material
	This checklist		
	Proposal Form 1 - Proposal Submission Form		Material
	Proposal Form 1-A – Proposal Submission Form		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		
	Proposal Form 12 - List of Personnel <u>and Resumes</u>		Material
	Proposal Form 13 - Current Labour Agreements		
	Proposal Form 14 - Contractor’s Qualification Statement		Material
	Proposal Form 15 - Claims		
Bid Performance Security as prescribed in Part 1, Request for Proposals, Section 4.3.		Material	

PART 2 – REQUEST FOR PROPOSALS

**SUMMARY OF REQUIREMENTS
 SCHEDULE 2-A *continued*
 RFP DATA SHEET**

RFP 2024 012 ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision			
Important Dates			
Publication Date	Tuesday, March 26, 2024		
Participation Registration Form	Complete and submit to the Contact Person as soon as possible		
Deadline for Additional Information Request	Four (4) full Business Days prior to the Submission Deadline		
Submission Deadline Date and Time	Friday, April 26, 2024 at 2:00:00 p.m. (ET)		
Target Completion Date	October 31, 2025		
Notes Pertaining to Final Agreement			
Liquidated Damages	The per diem rate calculated in relation to Section 10.4 of the Supplementary Conditions is \$2,000 for each calendar day of delay beyond the prescribed date for Substantial Performance of the Work until Substantial Performance of the Work is achieved and certified, pursuant to the terms of the Contract.		
Procedure of Selection			
Mandatory Requirements	Respondents must first satisfy that all of the Mandatory Requirements listed below have been met. Respondents will receive a pass/fail for each Mandatory Requirement. Respondents who fail any of the Mandatory Requirements will be disqualified from the RFP Process.		
	Mandatory Requirement	Pass	Fail
	Respondent has participated in the Mandatory Respondents' Meeting		
	Respondent has submitted all of the documents as specified in the Submission Requirements listed in Part 2, Request for Proposals, Summary of Requirements, RFP Data Sheet		
	Respondent has provided sufficient evidence to pass the Contractor Safety Pre-Qualification (Part 4 – Form of Proposal, Proposal Form 7, Health, Safety and Environment)		
	Respondent has achieved a minimum score of 10 under Experience and Qualifications		
	Bid Bond and Agreement to Bond included in Proposal Submission (scanned copy acceptable)		

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

RFP 2024 012 ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision		
Procedure of Selection <i>continued</i>		
Evaluation General Procedure	ONTC will proceed with an evaluation of the Proposals. The evaluation will be based on the following criteria:	
Evaluation Criteria	Description	Weight
	Price ONTC will use the following to calculate the initial score for price: Lowest price of all Proposals / price of Respondent x 45 = Score <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 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>	45
	Experience and Qualifications ONTC will assess Respondents’ experience and qualifications using the information supplied as part of Part 4 of this RFP. The following sub-weights will apply: Company Profile and Resumes of Key Personnel – 5 points Project Profile 1 – 5 points Project Profile 2 – 5 points Project Profile 3 – 5 points (ONTC may or may not contact references as part of the evaluation and may use this information as part of this score)	20
	Schedule and Proposed Approach ONTC will assess the Respondent’s Schedule and Proposed Approach based on the following: Is the Schedule in the format requested and are the milestone dates in conjunction with the ONTC deadline? 5 points Is the schedule and proposed approach logical and does it have sufficient detail with durations for each task? 5 points	10

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

RFP 2024 012 ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision		
Procedure of Selection <i>continued</i>		
Evaluation Criteria	Local Benefit Describe how and when you will use local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services – 10 points Describe your organization’s diversity programs – 5 points	15
	Environmental and Sustainability Provide evidence of compliance to Ontario’s environmental requirements (e.g. recycling, waste management, etc.) – 10 points	10
	Total	100
Alternative Proposals		
General Procedure	ONTC will consider alternative proposals for this procurement. In the event ONTC receives an alternative proposal, it will be reviewed by the consulting engineer to determine if the solution achieves the objectives. If it does, then it will be evaluated along with the other submissions in the same manner.	

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

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

Date: _____
Reference Number: RFP 2024 012
Description of Requirement: ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision

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 SCOPE OF WORK

PART 1 - INTRODUCTION

Ontario Northland Transportation Commission (ONTC) maintains over 100 bridges and 2,000 culverts spread across 700 miles of track exposed to the Northern Ontario climate. ONTC is conducting the rehabilitation of a bridge located at Mile 162.00 on the Island Falls Subdivision; we are requesting proposals for the bridge rehabilitation project at this location (see Schedule 3-A-4). The work is scheduled to commence in Spring 2024. All submissions must be submitted by:

Friday, April 26, 2024 at 2:00:00 p.m. local time (North Bay, ON)

PART 2 - Conditions of the Place of Work

The Place of the Work is at Mile 162.00 Island Falls Subdivision located in the Province of Ontario.

Each Respondent must form their own opinions and conclusions with respect to the Work addressed in the RFP Documents. Before submitting a Proposal, investigate the Place of the Work to fully ascertain existing conditions, circumstances and limitations affecting the Work. No allowances will be made for additional costs and no claims will be entertained in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence prior to submitting a bid.

Respondents will be required to use the photos included in Schedule 3-A-4 in lieu of a site visit as well as information supplied during the virtual site meeting.

PART 3 - Scope of Work

The Work covered under this contract involves the concrete and steel work for “ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision”, in accordance with the Bid Documents. The bridge is located south of the Town of Moosonee, Ontario, in ONTC’s Island Falls Subdivision. (See Part 3 – Schedule 3-A-3 Site Location).

All documentation submitted to the company shall be titled:

“ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision”

The Work covered under this contract involves, but is not limited to, the supply of all Labour, material and equipment required to carry out the following work:

1. Comply with all requirements of safety guidelines for Contractor and Environmental Guidelines in Appendix 2;
2. Environmental protection;
3. Develop project schedule in consultation with ONTC;

4. Mobilize to site;
5. Perform site survey and confirm sizes, measurements on site. Resolve any discrepancies with the design engineer prior to start of work;
6. Design, supply, erect and dismantle all types of scaffolding and temporary platforms, as required;
7. Design, supply, install and remove cofferdams or other dewatering apparatus required for abutment construction/ rehabilitation;
8. Disposal of chipped and demolished concrete and removed steel pieces as shown on the drawings or as identified by the Engineer in the field;
9. Supply and install abutment riprap protection;
10. No in-water work April 1 to June 20;
11. Survey of top of rail profile for 500 ft of approach on both ends of the bridge at maximum 20 ft intervals and preparation of survey drawing;
12. Track support as required;
13. Excavation, supply and installation of backfill as needed;
14. Supplying and installing the jacking beams;
15. Supplying and installing steel pedestals. This will require jacking the span end. The base of rail elevation before and after construction shall be the same;
16. Temporary removal and reinstallation of end brace frame components to facilitate jacking beam installation;
17. Chipping and demolition of concrete on abutments, backwalls and wing walls;
18. Protect all existing reinforcing steel unless noted otherwise;
19. Supplying and installing steel dowels and a reinforced concrete refacing on concrete abutments, backwalls and wing walls including formwork and reinforcement bars;
20. Supply and installation of new reinforced concrete wingwalls including formwork and reinforcement bars.
21. Installation of temporary steel sheet piles and removal;
22. Installation of temporary anchor rods for sheet piles and removal;
23. Protect and restore site as required by environmental agencies and all relevant regulatory bodies;
24. All other work as called for on the drawings and/or described in the specifications;

25. Remove all debris and all types of materials from site; and,
26. Demobilization.

The Contractor shall contact Ontera as soon as possible after award of contract and provide construction details/plans with planned construction start and completion dates. The contractor is also required to provide Ontera a work schedule indicating when work affecting the Fibre optic cable will take place.

Ontera Contacts:

Peter.Aultman@Ontera.ca
Serge.Contant@Ontera.ca
Michael.Pollon@Ontera.ca

Additionally, the Contractor shall contact On1call and / or any private locates prior to any excavation work on railway property and project site prior to work taking place.

The Work shall be performed at the site within the dates shown on the agreed upon schedule as well as respecting any no in-water work restrictions. The work plan will highlight any required track work blocks that propose to shut down Railway traffic – if required. The scheduling of the work blocks will be negotiated with the Railway.

PART 4 - General Contractor Requirements

1. The Contractor will be required to obtain and pay for all necessary permits and ministry notifications required for the project including, but not limited to, the following:
 - 1.1 Filing notice of project with the Ontario Ministry of Labour.
2. The Contractor will be required to arrange and pay for their own locates.
3. All excavated material (soil, gravel, stones, broken concrete, etc.) shall be disposed off ONTC property. The disposal of these materials shall be coordinated with ONTC's representative on site. The Contractor shall pay the disposal fees.
4. The Contractor shall:
 - 4.1 Supply their own on-site facilities, including construction trailer, eating areas, and washroom facilities;
 - 4.2 Plan and organize the work prior to and during construction;
 - 4.3 Prepare all required documentation submittals in compliance with the contract documents;
 - 4.4 Supply personal protective equipment (PPE) and consumable supplies as required;

- 4.5 Designate a site supervisor who will be responsible for managing the project and be responsible for on-site safety. This site supervisor will be required to communicate with ONTC supervision to ensure the work is completed safely with minimal impact on the operation of the facility;
- 4.6 Coordinate required site inspections with independent test firms and AECOM;
- 4.7 Construct, maintain and remove temporary access roads as required for the work;
- 4.8 Purchase and deliver to the site all Contractor supplied materials, equipment, facilities, and manpower necessary to accomplish the work within the schedule;
- 4.9 Establish a site-use plan acceptable to the ONTC providing an organized, safe, and efficient means of personnel transport, material handling, storage/laydown areas, construction trailer locations, access points and methods of access, and limits of construction within the premises. Obtain all temporary access agreements with third parties to access the work site, if required;
- 4.10 Receive, unload, store, protect, secure, and transport within the job site all Contractor and ONTC furnished equipment and materials;
- 4.11 Provide on-site and off-site quality control services as required in specifications, drawings and documents;
- 4.12 Maintain complete records including daily construction site diary/logbook, shop drawings, and pertinent photographs;
- 4.13 Provide qualified personnel to perform the work;
- 4.14 Ensure that the project is started and completed on schedule;
- 4.15 Make every reasonable effort to contain any dust or fumes so that adjacent work areas are not contaminated during the project;
- 4.16 Clean up and demobilize areas upon completion of the work; and
- 4.17 Supply all necessary tools and equipment to perform the work including, but not limited to, scaffolding, ladders, man lifts, temporary lighting, heating, lifting equipment. The Contractor shall provide all necessary vehicles and suitably qualified personnel to transport materials.

5. If new information becomes available relating to conditions at the site that may require mitigation measures to be undertaken by the Contractor, such as previously unknown environmental or other impacts, ONTC and the Contractor and the Consultant shall evaluate the effect, if any, of the new information on the Work in accordance with GC 6.4 and CG 9.6.2 of the CCDC 4 General Conditions of Contract as amended by the Supplementary Conditions.

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

Refer to the technical specifications prepared by AECOM, as outlined below, and which are attached to this Schedule 3-A-1.

SECTION	TITLE
01340	Submittals
01500	Temporary Facilities
01545	Safety Requirements
01546	Flagging and Track Protection
01560	Environmental Protection
01600	Material and Equipment
01610	Setting Out and Measurement
01620	Quality Control and Assurance
01800	Project Closeout
02000	Mobilization and Demobilization
02072	Geotextiles
02140	Dewatering
02141	Access Road
02225	Sitework Demolition and Removals
02231	Clearing and Grubbing
02235	ONR Crushed Rock Ballast
02272	Erosion Control
02315	Excavating, Trenching and Backfilling
02368	Temporary Cofferdam
02372	Rip Rap Rock Protection
02383	Piling
02701	Granular Materials
03010	Portland Cement and Concrete
03100	Concrete Formwork and Falsework
03200	Concrete Reinforcement
03203	Concrete Accessories
03205	Concrete Dowels
03300	Cast-in-Place Concrete
05122	Structural Steel for Bridges
05500	Jacking
07142	Laminated Elastomeric Bearings
07560	Damp Proofing and Sealer
09900	Surface Preparation and Field Tough-Ups

Note: Works specified in specifications sections with no measurement and payment part shall be deemed incidental to the various prices submitted in the Form of Tender, and no separate payment will be made for them.

PART 1 - GENERAL

- .1 Submit to the Engineer, for review, shop drawings, product data and samples specified.
- .2 Submit six (6) copies of shop drawings and product data and two (2) copies of samples.
- .3 Clearly identify all shop drawings, product data and samples with the project title as it appears on the Railway's drawing title block including subdivision and mileage.
- .4 All shop drawings, product data and samples shall be reviewed, stamped and signed by the Contractor prior to submission to the Railway.
- .5 All such drawings, product data and samples must be reviewed by the Engineer before the work involved is started.
- .6 Until submission is reviewed, work involving relevant product may not proceed.
- .7 The Work carried out prior to having shop drawings reviewed shall be at the Contractor's own risk, and liable for rejection at no cost to the Railway.
- .8 The review of shop drawings will not relieve the Contractor of any responsibility should errors occur in them, and further, the review by the Engineer of any shop drawings submitted by the Contractor shall not form, or be construed as forming, the basis of a claim for any extra, unless such claim is specifically made by the Contractor at the time of submission of such drawings for review and has been agreed to in writing by the Engineer.

1.1 SHOP DRAWINGS

- .1 Drawings to be originals prepared by the Contractor, Supplier or Distributor, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- .2 Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- .3 Sheet size, same as used on Contract set of drawings.
- .4 All shop drawings shall be signed and sealed by a Professional Engineer.

1.2 **PRODUCT DATA**

- .1 Manufacturer's standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will only be accepted in lieu of shop drawings when authorized by the Engineer.

- .2 Above will only be accepted if they conform to the following:
 - .1 Delete information that is not applicable to the project.
 - .2 Supplement standard information to provide additional information applicable to project.
 - .3 Show dimensions and clearances required.
 - .4 Show performance characteristics and capacities.

***** END OF SECTION *****

1.1 ACCESS

- .1 The Contractor shall be limited to using available access onto the site or as directed. Provide and maintain adequate access to project site.
- .2 Roads constructed between any points in the working area for the convenience of the Contractor, for the conveyance of material or otherwise, shall be at the Contractor's own expense and risk.
- .3 The Contractor is advised that there will be other Contractors working on ONTC property using the same accesses. No claims arising out of this situation will be considered.
- .4 The Contractor shall comply with all Municipal and Provincial Regulations, Ordinances, Bylaws, etc., pertaining to the usage of Municipal and Provincial roads, and shall protect the Railway against any and all claims arising out of his noncompliance with above Ordinances, Regulations and Bylaws.
- .5 Prior to using any Municipal and/or Provincial roads, the Contractor must provide ONTC documentation that he has advised the Municipal and/or Provincial Authorities of his haul route and has received authority to use the roads on his haul route for purposes of transporting fill material.
- .6 The Contractor shall construct adequate access roads for the conveyance of equipment, material, disposal, etc. that they deem necessary for their operations. On completion of the work, ONTC and private property shall be restored to original condition as approved by ONTC and private landowners.
- .7 The Contractor shall be solely responsible for entering into agreement with local landowners for any additional access to property that they deem necessary for their operations.
- .8 Whenever the Contractor enters into an agreement with any landowner said agreement shall be in writing, signed by the landowner and a representative of the Contractor. A copy of the agreement must be provided to ONTC prior to use of such access.
- .9 On completion of the work, provide a signed clearance from the landowner that the areas used have been cleaned up to the landowner's satisfaction. A copy of the clearance must be provided to ONTC prior to final payment.
- .10 In cases of dispute between the Contractor and the landowner, it will be expected that the Contractor shall reach a favorable settlement with the landowner.
- .11 If the Contractor cannot reach a settlement with the landowner, then ONTC shall arbitrate an agreement binding on the Contractor to the satisfaction of and at no cost to ONTC.

- .12 Secure site with fencing and gates to prevent public access to the site. Maintain access to all driveways in the vicinity of construction.

1.2 CONTRACTOR'S SITE OFFICE

- .1 The Contractor shall provide for the use of his employees, the necessary sheltered, heated facilities.

1.3 STORAGE SHEDS

- .1 Provide adequate weathertight sheds with raised floors, for storage of materials, tools, and equipment that are subject to damage by weather.

1.4 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Provide a separate sanitary facility adjacent to the Engineer's office for the sole use of Railway representatives.
- .3 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .4 Facilities shall be cleaned at regular intervals as arranged by the Contractor.

1.5 WATER AND POWER

- .1 The Contractor must make all arrangements with the local Utility Company for the supply and installation of temporary light and power required in carrying out the Contract, and pay all costs involved in connection therewith.
- .1 If local power is not available, use generators to supply continuous 24/7 regulated power, including supply of fuel and all maintenance.
- .2 The generator must be a quiet type with a noise level at the rated output not exceeding 60 dB. The noise level at $\frac{1}{4}$ of the rated output must be less than 55 dB.
- .3 The Generator shall be CSA approved and shall bear CSA labels.
- .2 The Contractor must make all arrangements and pay for all water required for construction and drinking purposes, and supply and install all necessary piping and connections.

***** END OF SECTION *****

1.1 CONSTRUCTION SAFETY MEASURES

- .1 Observe and enforce construction safety measures required by the Canada Labour Code, Canadian Construction Safety Code, Provincial Government, Workers' Compensation Board, ONTC Health and Safety Policy Statement and all other appropriate laws and regulations governing worker health and safety.
- .2 In the event of conflict between any provisions of above authorities, the most stringent provision will apply.
- .3 The Contractor's personnel, while on the ONTC property, will be required to always wear safety protective equipment at the site. Such equipment shall include a hard hat, safety glasses, blaze or international orange reflective apparel, and steel-toed safety boots in accordance with ONTC regulations:
 - .1 Persons wearing prescription glasses will be governed by the following requirements:
 - .1 Glasses shall meet the standards set out in CSA Z94.3 or as required in applicable legislation;
 - .2 Lenses shall be plastic or polycarbonate; and
 - .3 Glasses shall be equipped with properly fitting side shields conforming to the size and shape of lenses and must be worn at all times on Railway property.
 - .2 The Contractors shall ensure that all employees, sub-contractors and visitors must, at all times, clearly display his/her given and family names on their safety hard hat; and
 - .3 Reflective apparel must be properly fastened and closed around the body to minimize the possibility of catching on equipment and causing injury.

1.2 FIRST AID AND SAFETY

- .1 At the work site, provide and maintain readily accessible first aid equipment and installations required by the Workers' Compensation Act, and all safety and lifesaving equipment appropriate to the nature of the works.

1.3 CONTRACTOR SAFETY PROGRAM

- .1 The Contractor shall comply with the required legislated safety requirements and ONTC safety requirements before they begin any construction activity on the site. Authority to commence construction will be authorized only after this is completed.

- .2 The Contractor shall designate a full-time safety officer responsible for enforcing the safety program at the site for the duration of the work and shall indicate to ONTC in writing the name of that person as well as his/her alternate.
- .3 The Contractor shall ensure that all employees and all persons admitted to the work site attend a daily briefing session with the ONTC flagman, and that they comply with the safety program and all applicable laws, regulations and codes.
- .4 Ensure that all workers on the site be qualified to perform the work in a safe manner.
- .5 Carry out frequent work site inspections to ensure compliance with the required safety measures.
- .6 Conduct weekly Safety Meetings and provide minutes of those meetings to the Engineer.
- .7 Send the notice of job start and completion, as required by the MOL and / or WSIB.

1.4 CONTRACTOR'S EMPLOYEE QUALIFICATIONS

- .1 Contractors working for ONTC projects must comply with the requirements below. Exemptions may only be granted by the Engineer or his/her representative in the case of emergencies:
 - .1 Contractor's Obligations:
 - .1 Identify a safety officer who will be a point of contact for ONTC on:
 - .1 Safety related matters such as action plans;
 - .2 Employee qualifications;
 - .3 Employee training; and
 - .4 Exchanging documentation on policy and procedure changes, etc.
 - .2 Provide ONTC with a list of the employees working on ONTC property and their qualifications. This includes the employee's full name, as well as:
 - .1 Training completion dates;
 - .2 Refresher and re-certification due dates;

- .3 Proof of training provider (i.e. ONTC, other railroad, outside college, etc.);
 - .4 ONTC will only accept CROR and USOR qualifications that are provided by an approved training supplier;
 - .5 Employees who are not on the above list and whose proof of qualifications are not provided will not be allowed on ONTC property;
 - .6 Employees must carry documented proof of training in their possession while on ONTC property; and
 - .7 Contractors must ensure that their employees are briefed and are provided current copies of ONTC's standards and policies including the most recent updates.
- .3 In order to allow new employees access to a ONTC work site, the following process must be followed:
- .1 Contractor must provide their names and qualifications to the Engineer prior to these employees gaining access to ONTC property; and
 - .2 Contractor must receive ONTC's acceptance of the qualifications prior to new employees entering ONTC property.
- .4 Provide a Site-Specific Safety Plan to the Engineer including the following, but not limited to:
- .1 An injury prevention program;
 - .2 Specify method of ensuring compliance and an auditing process; and
 - .3 Field level risk assessments.

1.5 EMERGENCY PROCEDURES

- .1 The Contractor shall prepare emergency procedures and evacuation plan for the work to be carried out at the site prior to commencing work.
- .2 The Contractor shall post this plan in a conspicuous place and ensure that all persons having access to the job site are familiar with the plan prior to having access to the site.

-
- .3 The emergency procedure and evacuation plan shall include, but not be limited to, the following information:
- .1 Emergency phone numbers for police, fire, ambulance, hospital and utility companies;
 - .2 Emergency phone number for ONTC;
 - .3 Phone numbers of the Contractor's Project Manager/Superintendent, Site Supervisor/Foreman and Safety Officer;
 - .4 Phone numbers of the Engineer and/or his Site Representative;
 - .5 Map showing the route and location of the nearest hospital;
 - .6 List of onsite first aid attendants;
 - .7 All material safety data sheets for materials used on site; and
 - .8 Phone number of Contractor's 24 hour emergency contact person.

1.6 VEHICLE TRAFFIC PROTECTION

- .1 Provide flag persons to protect vehicular and pedestrian traffic during the operations, at any time when workers or equipment could endanger such traffic, all to the complete satisfaction of the Engineer and any other authority having jurisdiction at this location.
- .2 Accept responsibility for any damage to vehicles and damage and injury to pedestrians' occupants of vehicles resulting from the operations or the operating of equipment by others. Provide adequate protection to the satisfaction of the Engineer.
- .3 Wherever the work is intersected by public or private roads, provide convenient openings to pass and maintain all crossings in a condition so they can be used safely and without any just grounds for complaint during the progress of the work; all to the satisfaction of the Engineer and respective Road Authority.
- .4 Supply, erect and maintain the traffic control measures (signs, cones, delineators, barriers) when construction operations may affect vehicular or pedestrian traffic.

1.7 WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

- .1 Prior to the commencement of work the Contractor shall provide, to the Engineer, a list of those products controlled under WHMIS which he expects to use on the contract. Related Material Safety Data Sheets shall accompany the submission.

All containers used in the application of products controlled under WHMIS shall be labeled.

- .2 The Contractor shall notify the Engineer of changes to the list, in writing, and provide relevant Material Safety Data Sheets.

***** END OF SECTION *****

PART 1 - GENERAL

- .1 Note that part of the work shall be carried out under and adjacent to the Railway's operating tracks.
- .2 Up to 3 scheduled trains may be operated during any 24-hour period as well as Extra WorkTrains that are not on any fixed schedule and ordered only as required. Most of these trains would be considered daytime traffic:
 - .1 The expected train schedule and available work blocks are shown in Schedule 3-A-5.
- .3 Ensure that construction operations are carried out without interfering with the continued safe movement of rail traffic:
 - .1 Bear all cost of train delays and cost of repairs to any rail, ties and ballast required as a result of damage caused by the operation.
- .4 Give the Engineer 72 hours' notice of the hours within which work is to be carried out in order that protection may be provided. Time wasted unnecessarily by the Railway personnel due to the Contractor, will be charged against the Contractor.
- .5 The Railway will provide flag persons for the protection of the Railway's plant and equipment:
 - .1 The Contractor shall not commence work at the start of each workday unless authorized by the Railway flag person and shall not continue or resume site work outside of the daily work hours unless approved by the Engineer.
- .6 The Contractor shall ensure that a responsible person is always present to whom the Railway personnel will issue orders regarding work near the tracks. Comply immediately with such orders and instructions.
- .7 The Contractor is to hold Safety Meetings with all personnel engaged in working on the site and discuss all safety matters pertaining to the work including all matters involving working around and near the railway tracks and structures.
- .8 The Contractor shall supply portable, handheld, two-way radios to be used by the flag person to communicate instructions to the Contractor's responsible person. The number of radios shall be sufficient to supply one each to the flag person, the ONTC Site Supervisor and at least one responsible person for the Contractor at each work location.
- .9 The flag person and the Contractor shall have a daily briefing at the beginning of the shift to inform the Contractor what trains are expected and that rail traffic

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- protection is in place. The flag person will also explain the procedure to be used to clear trains.
- .10 On the approach of a train, the flag person will communicate to the Contractor's responsible person, either by radio or personal contact that a train is approaching.
 - .11 After receiving the train information from the flag person, the Contractor's responsible person will ensure that all workers, equipment and materials are "Clear Of The Track" then communicate this to the flag person.
 - .12 "Clear Of The Track" shall be defined as:
 - .1 All workers, equipment and material must be at least 13 feet from the nearest rail of the track on which the train is to pass;
 - .2 No one shall be allowed on the deck of the bridge while a train is passing;
 - .3 All off-track equipment within 33 feet of the nearest rail must stop working on the approach of a train and remain stopped until the entire train has passed. Machine operators will leave their equipment unless directed otherwise by the foreman;
 - .4 All on-track equipment shall be moved into the siding or other track not being used by the approaching train and remain there until directed by the flag person. Operators will leave their equipment unless directed otherwise by the foreman; and
 - .5 Booms of cranes or other similar equipment must not be moved over passing trains.
 - .13 The Contractor shall safely expedite the "Clearing of the Track" so as not to cause any delays to passing trains.
 - .14 Once the flag person has received confirmation that the track is Clear, the approaching train will be authorized to pass through the working limits.
 - .15 After the train has passed, no one is to foul the track until the flag person advises that it is safe to do so.
 - .16 Ensure that all personnel are instructed in the Safety Requirements contained herein prior to entering the work site.
 - .17 Provide all means necessary to prevent the entrance of unauthorized personnel on to the work site.
 - .18 The Contractor is responsible for ensuring that all new workers or visitors to the site are made aware of the safety and flagging procedures.

- .19 Anyone failing to comply with these procedures will be removed from the work site.

PART 2 - TRACK PROTECTION

- .1 At all locations where there is a possibility of trees, rock or other debris falling on the tracks, provide track protection such as timber mats or an approved equivalent to prevent possible damage to rail, ties and ballast.
- .2 Prevent excavated material from fouling ballast and sub-ballast.

PART 3 - RESTRICTIONS ON CONSTRUCTION OPERATIONS

- .1 To ensure the continued safe movement of rail traffic, certain restrictions shall be imposed on the construction operations. Without in any way limiting the generality of the foregoing statement, the following are some of the limitations or restrictions that shall be imposed:
- .1 When operations are being carried out which may endanger the existing track or impede the safe passage of trains, perform such work only during such times as there is a block on the mainline rail traffic;
- .2 All equipment within 33 feet from the nearest rail must stop working on the approach of a train and remain stopped until the train has passed;
- .3 Do not work closer than 33 feet from the nearest rail without the prior consent of the Engineer and only during such times as there is rail traffic protection provided by the Railway;
- .4 Confine all work activities to daylight hours and do not exceed 10 hours per day unless authorized by the Engineer; and
- .5 Drilling or welding to support construction equipment will not be permitted.
- .2 The Railway may, from time to time, delay or suspend operation under the Contract, either upon the whole of the works, or at any point or points. Should any such delay or suspension, in the opinion of the Engineer, unreasonably limit the time for the completion of the works, the Engineer may allow such additional limit, in extension of such time for completion; but no such delay, or suspension shall vitiate the Contract, or any part hereof, or any security or obligation for the performance hereof, nor shall the Contractor be entitled to make any claim for damages by reason thereof. Upon the termination of such delay, or suspension, or the removal of the cause thereof, or upon the Contractor receiving notice from the Engineer requiring him to resume the work, he shall at once resume operations and diligently carry on the same.

PART 4 - CROSSING TRACKS

- .1 Do not cross tracks of the Railway Company with scrapers, bulldozers, trucks, barrows or other mechanical equipment at grade nor place crossing planks except by authority of the Engineer, at locations designated by him. 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.
- .2 Construct grade level track crossing at a location and to a standard acceptable to the Engineer. Crossings constructed to a standard less than the following shall be used by equipment only when flagging protection has been provided by Railway personnel.
- .3 The crossing shall:
 - .1 Have a level gradient on either side for a distance of 30 feet or not less than the maximum length of vehicle using it;
 - .2 Have approach grades not greater than 5%;
 - .3 Have a crossing surface of suitable material extending at least 3 feet beyond the traveled width on both sides measured at right angles to the roadway; and
 - .4 Be of an overall safe width suitable for the use intended.
- .4 Equipment capable of crossing in the time available, considering sight distances, may use the crossing without special protection, but must stop 10 feet short of the nearest rail and ensure that it is safe to cross before doing so. Crawler-mounted equipment and all equipment (including low bed type equipment) which is not capable of safely completing a move across the crossing within the time determined by the sight lines and train speed shall use the crossing only when flagging protection has been provided by Railway personnel.
- .5 To minimize fouling the ballast, install filter fabric over the entire ballast section under the crossing planks and approaches.
- .6 Construct, upgrade and maintain crossings to meet the aforementioned requirements.
- .7 All costs for material and labor to construct the crossing shall be the responsibility of the Contractor.

PART 5 - SHORT WORK BLOCKS

- .1 The Railway may, between scheduled trains, and when required, be able to provide positive protection against train movements for a short time period.

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- .2 During this block time, no rail traffic shall pass through the construction area except in case of emergency.
 - .3 Generally, this train protection is for the construction operations which, in the opinion of the Engineer, have minimal potential to impede rail traffic or damage the main track. The Contractor shall give the Engineer 48 hours advance notice when work requiring such a block is to be carried out.
 - .4 The Railway is prepared to schedule this short work block only to permit the Contractor to do minor work on the structure.
 - .5 The traffic indicates that these short work blocks occur every day. For work which requires a long duration see "Long Work Blocks" below.

PART 6 - LONG WORK BLOCKS

- .1 These work blocks can occur Saturday to Sunday (Summer Schedule) or Saturday to Monday (Fall/Winter/Spring Schedule), at any time of the day or night. The proposed duration of the work blocks specified herein may be subject to negotiation with the Engineer.
- .2 During these block times, no rail traffic will pass through the construction area except in case of emergency.
- .3 The specific time of day is subject to confirmation by the Engineer.
- .4 During the long and short blocks, railway traffic will be stopped and the Contractor will be permitted to occupy the track portion of the bridge.
- .5 Outside of these "blocks", the Contractor will not be permitted under any circumstances to occupy the operating track portion of the bridge or in any way affect scheduled train operations:
 - .1 The Contractor and his equipment must stay out of the train operating area: and
 - .2 When handling structural members, the Contractor shall ensure that they never encroach into the operating area of the track.

PART 7 - MEASUREMENT AND PAYMENT

7.1 MEASUREMENT

- .1 No measurement for payment will be made for Rail Traffic Protection and Work Blocks.

7.2 PAYMENT

- .1 No payment will be made for Rail Traffic Protection and Work Blocks.

***** END OF SECTION *****

PART 1 - GENERAL ENVIRONMENTAL REQUIREMENTS

1.1 COMPLIANCE WITH LAWS, REGULATION, GUIDELINES AND POLICY

- .1 The Contractor shall comply with any applicable laws, rules or regulation of any public authority, orders of a Court of competent jurisdiction or ONTC environmental directive with respect to the contracted work. The Contractor shall also indemnify and hold harmless ONTC from all damages and liabilities assessed against ONTC as a result of Contractor non-compliance therewith.
- .2 The Contractor shall ensure and warrant that all employees possess and will maintain in effect all licenses, permits, authorizations, insurance and any other documents that the acts and/or regulations pertaining to environmental protection require it to have for the performance of contracted works.
- .3 The Contractor shall be solely responsible for the cost of all work carried out to correct any environmental contamination caused by the Contractor, their subcontractors or employees on ONTC location or otherwise. If the Contractor fails to correct any environmental contamination resulting from the contracted work, ONTC may perform such work by its employees or agent. ONTC may charge the Contractor for all cost incurred by ONTC in correcting such environmental contamination, plus thirty percent (30%) for overhead, and the Contractor shall pay ONTC's invoice or invoices for such cost under the same terms and condition as would otherwise apply in the contracted works for Contractor invoices to ONTC. In the event such remedial work is carried out by any public authority, the cost shall be borne by the Contractor.
- .4 Failure by the Contractor, subcontractors or employees to respect the established environmental protection program may lead to temporary stoppage of work, suspension of an employee from working on ONTC property, closure of the site until the situation is corrected or removal of the Contractor from the job site. Delays resulting from such closings and any resulting penalties shall be charged to the Contractor. The Contractor will not issue any claims against ONTC for these delays. No extension of contractual work completion date will be granted as a result of any work stoppage associated with environmental spills and/or incidents.

1.2 CONTRACTOR ENVIRONMENTAL PROTECTION PROGRAM

- .1 An Environmental Protection Program shall be drawn up by the Contractor and submitted to the Engineer for approval. This program should address all potential environmental hazards associated with the use of materials, equipment and/or operations and establish appropriate environmental protection practice including preventative measures and spill response to achieve compliance with the above noted laws, regulation, guidelines and policy.

- .2 The Contractor shall designate a full-time environmental protection officer with the proper training responsible for enforcing the environmental protection program and shall indicate to ONTC in writing the name of that person as well as his/her alternate.
- .3 The Contractor shall keep on site a list of hazardous materials, toxic products, work procedures and contaminants used in the work, and clearly display at the site the lists and material safety data sheets.

1.3 SPILL RESPONSE PROCEDURE

- .1 Quickly locate the source of contamination and, if possible, neutralize it.
- .2 Cut the supply of electrical current and turn off all sources of ignition. Extinguish any flame.
- .3 Restrict access to the spill area and set up a secure zone.
- .4 Use a spill kit or any other barrier (sand, peat, moss, snow) to contain the spill.
- .5 Prevent seepage into watercourse, storm drains, sewer systems etc. Use plastic tarps or other materials to build a retention pond.
- .6 The recovered products and contaminated natural soil must be stored, treated recycled or disposed only by authorized carriers.
- .7 Refer the media to ONTC Public Affairs.

1.4 FIRES

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

1.5 DISPOSAL OF WASTES

- .1 The Contractor must not bury rubbish and waste materials on site unless approved by the Engineer.
- .2 The Contractor must not dispose of waste or volatile materials; such as, mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .3 Any contaminated soils or materials must be handled in accordance with the Environmental Protection Act.

1.6 DRAINAGE

- .1 The Contractor must provide temporary drainage and pumping as necessary to keep excavations and site free from water. Outfall from pumping operations must be directed away from creeks onto approved splash pads or retention areas.

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- .2 The Contractor must not pump water containing suspended materials into waterways, sewer or drainage systems.
 - .3 The Contractor must control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
 - .4 The Contractor must make provisions to contain any oil or chemical spill that may occur on site.

1.7 SITE CLEARING AND PLANT PROTECTION

- .1 The Contractor must protect trees and plants on site and adjacent properties where indicated.
- .2 The Contractor must wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2m.
- .3 The Contractor must protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 The Contractor must minimize stripping of topsoil and vegetation. Existing vegetation on embankments must be maintained as long as possible.
- .5 The Contractor must restrict tree removal to areas indicated or designated by the Engineer.

1.8 WORK ADJACENT TO WATERWAYS

- .1 The Contractor must not operate construction equipment in waterways.
- .2 The Contractor must not use waterway beds for borrow material without the Engineer's approval.
- .3 The Contractor must not dump excavated fill, waste material or debris in waterways.
- .4 The Contractor must design and construct temporary crossings to minimize erosion to waterways.
- .5 The Contractor must not skid logs or construction materials across waterways.
- .6 The Contractor must avoid indicated spawning beds when constructing temporary crossings of waterways.

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- .7 The Contractor must carry out its operations in or adjacent to any water course as per the regulations and requirements of applicable regulatory authorities having jurisdiction.
 - .8 The Contractor must not blast under water or within 100m of indicated spawning beds.
 - .9 All material storage and fueling areas must be away from creeks in locations approved by the Engineer.

1.9 POLLUTION CONTROL

- .1 The Contractor must maintain temporary erosion and pollution control features installed under this contract.
- .2 The Contractor must control emissions from equipment and plant to local authority's emission requirements.
- .3 The Contractor must prevent extraneous materials from contaminating air beyond application area by providing temporary enclosures.
- .4 The Contractor must cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and unprotected ground surfaces.
- .5 The Contractor must notify the Engineer of any suspected hazardous materials in excavation. Do not remove or bury such material without written permission from the Engineer.
- .6 The Contractor must supply, place and maintain rock check dams as required.
- .7 The stockpiling of topsoil must be restricted to outside the limits of flood plains.

1.10 RESTORATION

- .1 New slopes must be stabilized as soon as possible after the completion of grading by seeding and mulching.
- .2 The site must be restored to as near pre-construction conditions as soon as possible after completion of construction.

1.11 EROSION AND SEDIMENT CONTROL PLAN

- .1 Prior to the commencement of any work on this project that might cause erosion and/or sedimentation, the Contractor must receive approval from the Engineer for an erosion and sedimentation control program that the Contractor proposes to

use. This program must be in accordance with Ontario Guidelines on Erosion and Sediment Control for Urban Construction Sites (May 1987 or latest version).

1.12 DUST AND MUD CONTROL

- .1 The Contractor must take such steps as may be required to prevent dust nuisance resulting from his/her operations.
- .2 Where work requires the sawing of asphalt or the sawing or grinding of concrete, blades and grinders of the wet type must be used together with sufficient water to prevent the incidence of dust, wherever dust would affect traffic or wherever dust would be a nuisance to residents of the area where the work is being carried out.
- .3 The cost of all such preventative measures will be borne by the Contractor.
- .4 The Contractor will be responsible for all dirt and mud that is tracked onto the roadways and parking lots from vehicles entering or leaving the job site. The Contractor must, upon request from the Engineer, immediately proceed with cleanup operation at his/her expense, or if in the opinion of the Engineer, the Contractor has not or cannot sufficiently remove the mud from the road, the Engineer will proceed with the necessary clean up with all costs being charged to the Contractor.

***** END OF SECTION *****

1.1 TRANSPORTATION OF EQUIPMENT AND MATERIAL

- .1 The Contractor shall handle all material at his own expense, including the loading and unloading of Railway cars and shall unload all material from cars promptly on their arrival or will be liable to the regular demurrage charges at destination provided for in the current car service regulations.
- .2 All equipment, plant and materials used on the job site by the Contractor if shipped via the Railway is to be at the Contractor's expense under full tariff rates currently enforced.
- .3 The Contractor shall include in his tender the entire cost of transportation, handling and placing of all materials, and all overhead, office, insurance and supervision costs connected therewith.

1.2 APPROVAL OF MATERIAL

- .1 All material subject to the approval of the Underwriter's Laboratories or Canadian Standards Association must be of makes passed and listed in the list of "Approved Materials" and materials subject to factory inspection must bear the Underwriter's or Canadian Standards Association's labels.
- .2 The Contractor must furnish for approval, a complete list of all materials he/she proposes to use on the work, and any purchase of material that he/she may make before this approval is given must be at his/her own risk.
- .3 All material specified in the documents shall be "new" material.

1.3 OVERHAUL

- .1 No payment will be made for the overhaul of any material.

1.4 TESTS

- .1 All inspection tests, etc., outlined in the various specifications covering the different materials entering into this work, will be carried out and rigidly enforced by the Railway.
- .2 The Contractor, in submitting Unit and Lump Sum Prices, is therefore to understand distinctly that each and every clause of these specifications will be rigidly enforced.
- .3 The Contractor shall be responsible to conduct their own quality assurance program to ensure all materials, compaction, etc. meet the requirements of the specifications, as per Section 01620 Quality Control and Assurance of these Specifications.

1.5 SPECIAL MATERIALS AND SAMPLES

- .1 Special materials are specified for the purpose of establishing a standard or criterion of quality and the Contractor shall bid on the basis of the materials specified.
- .2 Other materials of similar and equal quality may be substituted but in such cases only with the written consent of the Engineer.
- .3 Application for the substitution of materials will not be considered by the Engineer until after the Contract has been awarded.
- .4 Application for the substitution of material shall be made in writing setting forth clearly the description and function of the article for which substitution is desired and the difference in cost, if any.
- .5 The acceptance of any substitution does not relieve the Contractor of liability should the article substituted not fully perform the function claimed for it.
- .6 Where required, samples of materials provided for use in the work shall be submitted to the Engineer, in duplicate, for his approval before being used.
- .7 The sample shall be retained by the Engineer in his office and referred to as standards.

***** END OF SECTION *****

1.1 SETTING OUT OF WORKS

- .1 The Contractor shall be responsible for the true and proper laying out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works, and for the provision of all necessary instruments and labour in connection therewith. If, at any time during the progress of the works any error shall appear or arise in the position, levels, dimensions or alignment of any part of the works, the Contractor shall, at his own expense, rectify such errors to the satisfaction of the Engineer, unless such error is based on incorrect data supplied by the Engineer.
- .2 There are existing control points on site; however, it may be far from the proposed construction works. The Contractor shall create a new minimum of two (2) benchmarks and three (3) horizontal control monuments with the suitability and accuracy of these points prior to the commencement of the Work.
- .3 After the Contractor has verified the accuracy of the control points established, the Contractor shall set and maintain horizontal or vertical controls necessary for complete and accurate layout and construction of the work including, but not necessarily limited to station stakes, centerline stakes, offset, grade stakes, stakes for pipelines, subdrains, batter boards, control points for footings as well as all other.
- .4 The Contractor shall furnish all assistance and co-operation, to the Engineer's survey crew as necessary for them to provide these points.
- .5 The checking of the setting out of any line or level by the Engineer shall not in any way relieve the Contractor of his responsibility for the correctness thereof, and the Contractor shall carefully protect and preserve all benchmarks, control points, stakes, legal monuments and other items used in setting out of the works.
- .6 Where it is necessary to replace a stake or control point, removed or destroyed by the Contractor without the consent of the Engineer, they may be replaced by the Engineer at the expense of the Contractor.

1.2 MEASUREMENT

- .1 The Contractor will carry out all measuring and surveying necessary to confirm the quantity of Work performed for payment of each item in the Contract, and any other items subsequently appended to the Contract.
- .2 The Contractor shall supply the Engineer with sets of original and final cross-sections, in digital format acceptable to the Engineer, after all stages of construction, for calculation purposes.

- .3 If for any reason the Contractor is unable to provide data acceptable to the Engineer, as listed above, quantity calculations will be based on design volumes or plan quantities.
- .4 The Engineer may perform periodic checks on the Contractors measurements to ensure that the work is being constructed as specified.

1.3 PAYMENT

- .1 Payment for the work of the Section shall be deemed incidental to the various prices submitted in the Form of Tender, and no separate payment will be made.

***** END OF SECTION *****

1.1 QUALITY CONTROL AND ASSURANCE

- .1 Contractor shall be responsible to conduct their own quality assurance program to ensure all materials, compaction, etc. meet the requirements of the specifications.
- .2 The Contractor shall provide a Quality Control / Quality Assurance plan outlining methods and frequency of tests, to the Engineer for approval prior to start of the works, based on the following minimum requirements:

Item	Lift (m) depth	OMC	SPMDD	Test Type
Earth Cut				
Disturbed areas & Sub-grade		± 2%	95%	Proof-roll
Earth Fill & Borrow				
Each material type or borrow source				Standard Proctor & OMC Soil Test Analysis & Characterization
Sub-grade				Proof-roll
Top 0 – 2 m	0.20	± 2%	98% ± 2%	Compaction, 25m grid
Bottom 2 – 10 m	0.30	± 2%	95%	Proof-roll each lift
Granular Materials				
Prior to Ordering				2 samples, sieve, Proctor
Production				1 sample per 5,000t
Placing	0.15	± 2%	98%	Compaction, 25m grid, per lift
Drainage Structures, Trench Base & Backfill, Foundation Base, Retaining Walls & Backfill, Pipe Bedding & Backfill				
Base (Foundation)				Verify load bearing capacity
Bedding	0.15	± 2%	98% ± 2%	Compaction, every 5m, per lift
Backfill	0.15	± 2%	98% ± 2%	Compaction, every 5m, per lift
Concrete				
Mix Design				Verify meets specification
Daily or per 38 m ³ or element				2 tests for air content
Daily or per 38 m ³ or element				2 tests for slump
Daily or per 38 m ³ or element				set of 4 cylinders

- .3 The Contractor shall conduct all required tests and provide copies of all results, including re-test of failed areas, to the Engineer daily.
- .4 Where tests or inspections by the Contractor’s testing laboratory reveal work not in accordance with the contract requirements, the Contractor shall pay costs for additional tests or inspections required by the Engineer to verify the acceptability of corrected work.

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- .5 The Engineer may carry out his own Quality Assurance activities. The Quality Assurance effort undertaken by the Engineer will not relieve the Contractor in any way with respect to the accuracy
 - .6 The Contractor shall give the Engineer a minimum of 24 hours' notice for testing to be permitted.
 - .7 Where tests or inspections are called for prematurely or the testing laboratory is delayed by the Contractor, the Contractor shall pay all additional costs incurred.
 - .8 The Contractor shall furnish all labour and facilities to:
 - .1 Provide access to work to be inspected and tested;
 - .2 Facilitate inspections and tests;
 - .3 Make good work disturbed by inspection and test;
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples;
 - .5 Where materials are specified to be tested, deliver representative samples in required quantity for laboratory testing; and
 - .6 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by the Engineer.
 - .9 The Engineer shall not be responsible for any delays to the Contractor's operations where the Contractor fails to give sufficient advance notice to the Engineer to carry out the required inspection, sampling and testing.
 - .10 As the work progresses and as the Engineer and Contractor gain familiarity and confidence in the quality control regime, the Engineer may permit the Contractor to proceed with less testing than specified, but this will in no way relieve the Contractor from any responsibilities with respect to quality or warranties for the Works.

1.2 PAYMENT

- .1 Payment for the work of the Section shall be deemed incidental to the various prices submitted in the Form of Tender, and no separate payment will be made.

***** END OF SECTION *****

1.1 PROJECT RECORD DRAWINGS

- .1 The Contractor shall co-ordinate and maintain project "as-constructed" record drawings and record accurately significant deviations from Contract documents caused by site conditions and changes ordered by the Engineer and approved by Owner. Mark changes in red.
- .2 The information shall be provided by the Contractor in accordance with Section 01340 Submittals, in following forms:
 - .1 Tables;
 - .2 CAD drawings: 2-D, 3-D and Points File where applicable;
 - .3 PDF drawings; and
 - .4 2 Binders and 2 Hard Drives containing the above and shall include the following as a minimum (workplans, submittals, reports, testing, letters, final surveys, MTRs, Weld Matrix, NDE reports, etc). The Contractor shall provide a Table of Contents indicating the list of items for review and acceptance 3 weeks prior to project closeout.
- .3 Record the following information:
 - .1 Location of underground or internal utilities and appurtenances concealed in the construction, referenced with dimensions to visible and accessible features of the structure. This shall include existing utilities encountered during construction;
 - .2 Field changes of dimension and details;
 - .3 Changes made by Change Orders; and
 - .4 Details not on the original Contract Drawings.
- .4 Provide inspection reports and As-built drawings, signed and sealed by a Professional Engineer in accordance with the requirements of Section 05122.

1.2 FINAL INSPECTION & ACCEPTANCE

- .1 A joint inspection will be carried out between the Engineer and Contractor prior to the Engineer accepting any portion of the works.
- .2 Deficiencies shall be noted during this inspection and any such deficiencies must be corrected within 5 working days and before final acceptance for use by the Engineer.

**ONTARIO
NORTHLAND
TRANSPORTATION
COMMISSION**

**PROJECT CLOSEOUT
BRIDGE REHABILITATION
MI. 162.00 ISLAND FALLS SUB**

**SECTION 01800
MARCH 2024
PAGE 2**

***** END OF SECTION *****

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1	Submittals	Section 01340
.2	Safety Requirements	Section 01545
.3	Flagging and Track Protection	Section 01546
.4	Environmental Protection	Section 01560
.5	Materials and Equipment	Section 01600
.6	Setting Out and Measurement	Section 01610
.7	Quality Control and Assurance	Section 01620
.8	Project Closeout	Section 01800

1.2 SCOPE OF WORK

- .1 All preparatory work within and outside the work areas.
- .2 Supply, installation and maintenance of temporary facilities including signs, lighting, crossings, site and access roadway grading and drainage, maintenance of site roadways, dust control, roadway barricades, signs, and site access gates.
- .3 Supply, installation and maintenance of traffic control measures for the Contractor's operations at the construction gate locations to meet local and provincial requirements. Included in traffic control measures are flagging personnel, temporary conditions signage, dust control and cleaning of mud and debris on roadways off of Railway property.
- .4 Provision of attendants (gate keepers) at construction gates and at temporary track crossings for the purpose of enforcing track protection requirements. Refer to Section 01546 Flagging and Track Protection for details of specific requirements.
- .5 All costs related with maintaining access to the site for the duration of the construction.
- .6 All costs related to establishing construction offices for the Engineer, Contractor and all subcontractors.
- .7 Communication and other temporary utilities which may be required.

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- .8 Security on site to guard the materials, tools, equipment, offices, vehicles, and fencing, as necessary, etc.
 - .9 The supply and transportation to the site of construction equipment, cranes, and workforce as required for the performance of the Work.
 - .10 Upon completion of the work, any disturbed areas of the site shall be restored to its original condition or better to the satisfaction of the Engineer.
 - .11 Payment for permits including Road Occupancy Permits from the applicable municipalities.
 - .12 All cost associated with supplying bonds and insurance coverage.
 - .13 All cost associated with management of the work.
 - .14 All costs associated with the implementation of the Section 01340 – Submittals, Section 01545 – Safety Requirements, Section 01546 – Flagging and Track Protection, Section 01560 – Environmental Protection, Section 01600 – Materials and Equipment, Section 01610 – Setting Out and Measurement, Section 01620 – Quality Control and Assurance, Section 01800 – Project Closeout and Railway requirements as included within these tender documents.
 - .15 All other costs, including administrative costs, which are not directly associated with the execution of items specified in the Form of Tender.

1.3 QUALITY ASSURANCE

- .1 Not applicable.

PART 2 - PRODUCTS

- .1 Not applicable.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

3.2 GENERAL

- .1 Liaise with Engineer and all other applicable stakeholders in a timely manner to ensure that a safe quality product is delivered within the timeframe specified herein.

3.3 ACCESS AGREEMENTS

- .1 Coordinate with adjacent construction projects to establish Construction Access agreements as required.
- .2 Access Agreements should be made to always ensure time / space separations between construction projects. Provisions for multiple gates, check ins, gate men etc. shall be coordinated between the various contractors as required.
- .3 The Contractor shall make appropriate arrangements and implement measures such that they are "Constructor" for this works at all times throughout construction.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement will be made for the work of this Section.

4.2 PAYMENT

- .1 The Contractor will be paid 60% of the Contract Bid Price for Mobilization and Demobilization item upon completion of the mobilization operation. The remainder of the Contract Bid Price for this item will be paid when the Contractor demobilizes from the site and restores the site to a condition acceptable to the Engineer.
- .2 The Lump Sum price A1 for "Mobilization and Demobilization" items in the Form of Tender shall not exceed ten (10%) percent of the Total Estimated Contract Item Price.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1	Submittals	Section 01340
.2	Environmental Protection	Section 01560
.3	Quality Control and Assurance	Section 01620
.4	Site Grading	Section 02311
.5	Granular Materials	Section 02701

1.2 REFERENCES

- .1 American Standard Society of Testing and Materials International (ASTM):
- .1 D4439-23, Standard Terminology for Geotextiles;
 - .2 D4595-17, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method;
 - .3 D4759-11(2018)e1, Standard Practice for Determining the Specification Conformance of Geotextiles;
 - .4 D4873/D4873M-17(2021), Standard Guide for Identification, Storage, and Handling of Geotextiles;
 - .5 D5262-21, Standard Test Method for Evaluating the Unconfined Tension Creep Behavior of Geotextiles;
 - .6 D5321/D5321M-21, Standard Test Method for Determining the Coefficient of Soil and Geotextile or Geotextile and Geotextile Friction by the Direct Shear Method; and
 - .7 D6637/D6637M-15, Standard Test Method for Determining the Tensile Properties of Geogrids by the Single Rib or Multi-Rib Tensile Method.
- .2 Ontario Provincial Standard Specifications (OPSS):
- .1 OPSS.PROV 206, Construction Specification Grading (November 2014).

1.3 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance to ensure the geotextile meet the requirements of the specifications, as per Section 01620 – Quality Control and Assurance of this Section.
- .2 Manufacturer Qualifications by Geosynthetic Accreditation Institute (GAI) - Laboratory Accreditation Program (LAP).

1.4 SUBMITTALS

- .1 The Contractor shall submit all of the submittals for review in accordance with this Section and Section 01340 – Submittals.
- .2 Provide manufacturer’s data sheets for product. Provide test results as requested.

1.5 DELIVERY, STORAGE & HANDLING

- .1 Geotextile labeling, shipment, and storage shall follow ASTM D4873. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- .2 Each geotextile roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.
- .3 During storage, elevate and cover geotextile rolls to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals, and flames including welding sparks, excess temperatures, and any other environmental conditions that may damage the physical property values of the geotextile.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Non-woven geotextile with an Apparent Opening Size (AOS) of <0.15mm (ASTM D4751) and a grab tensile strength of >1.3kN (ASTM D4632). Acceptable products are Terrafix 270R or approved equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Geotextile shall be placed as shown on the drawings or as directed by the Engineer.
- .2 Geotextile may be temporarily secured in-place with staples, pins, sandbags or backfill as required by fill properties, fill placement procedure or weather condition, or as directed by the Engineer.
- .3 Geotextile shall be overlapped as recommended by the Manufacturer and connected mechanically to form splices.
- .4 Backfill material shall be placed in lifts and compacted as directed under project specifications. Backfill shall be placed, spread and compacted in such a manner as to minimize the development of wrinkles in and/or movement of the geotextile. A minimum fill thickness of 150 mm (6 in) is required prior to the operation of tracked vehicles over the geotextile.
- .5 Turning of tracked vehicles should be kept to minimum to prevent tracks from displacing the fill and damaging the geotextile. Rubber tired equipment may pass over the geotextile reinforcement at low speeds, less than 16 km/hr. (10mph).
- .6 Sudden braking and sharp turns shall be avoided. Any geotextile damaged during installation shall be replaced by the Contractor at no additional cost to the Owner.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Measurement and payment for work of this section will be based on field measurement, in square ft (sq. ft), of product properly installed, with no allowance for waste, side overlap or side splices.

4.2 PAYMENT

- .1 No separate payment will be made for work described in this section. Payment for the Work of this Section shall be included in the unit prices included in the Form of Tender. Payment will be full compensation for all materials, labour, use of equipment, tools and incidentals necessary to complete the Work of this section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the requirements of dewatering required for the construction Work.
- .2 The Contractor shall design, supply, install, maintain and remove the dewatering pumping system for the project as required.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Clearing and Grubbing Section 02231
- .5 Erosion Control Section 02272
- .6 Excavating, Trenching and Backfilling Section 02315
- .7 Dust and Mud Control Section 02362
- .8 Rip Rap Rock Protection Section 02372

1.3 REFERENCES

- .1 Ontario Water Resources Act, R.R.O. 1990, Regulation 903.
- .2 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.PROV 517, Construction Specification for Dewatering (November 2017).

1.4 SUBMITTALS

- .1 The Contractor shall submit all of the submittals for review in accordance with this Section and Section 01340 Submittals.
- .2 Submit a Dewatering Plan at least fourteen (14) days before commencing with the work containing Shop Drawings and design data indicating the following:
 - .1 Proposed type of dewatering systems.

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- .2 Arrangement and location of system components.
 - .3 Description of equipment including back-up/stand-by pumps.
 - .4 Installation, operation and maintenance procedures.
 - .5 Details of the cofferdam.
 - .3 The dewatering system shall be of sufficient size and capacity necessary to carry the base flow at each location. Construction must be carried out in dry conditions
 - .4 Preferred methods of dewatering include, as a minimum, double row of heavy duty silt fence separated by straw bales, "pea stone" coffer dams, pumps with fish screens, pump lines, "envirobag" outlets, and splash pads (clean river stone on geotextile).
 - .5 Dewatering methods shall be proposed by the Contractor and shall be subject to the approval of the Engineer.
 - .6 Before excavating for the culvert, the water flow through the creek, if any, should be diverted or pumped around the construction area. Perched groundwater inflow into the excavation may be encountered from the fill and within the sandy silt till. The flow should be adequately controlled using conventional gravity dewatering techniques with filtered sump/pumps.
 - .7 Plan the excavations during dry days and follow with backfilling operation immediately to minimize pumping requirements.
 - .8 Continue with dewatering until the culverts are in place including backfilling 1m above the inverts and rip rap is in place.

1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.
- .2 Contractor's Environmental Plans must also be strictly adhered to and no deviations will be tolerated.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- .1 Contractor shall be responsible for providing all materials, tools, equipment, labor and services necessary to complete the work.
- .2 Provide complete standby equipment, installed and available for immediate operation in the event of partial or complete failure of the primary system.

PART 3 - EXECUTION

- .1 Excavation work shall not commence prior to the installation of all other erosion and sedimentation control measures.
- .2 The Contractor shall operate the dewatering system continuously twenty-four (24) hours a day, seven (7) days a week until installation and backfill is completed.
- .3 Provide and maintain perimeter and diversion ditches to prevent surface water from entering any excavation.
- .4 Perform dewatering in accordance with reviewed Shop Drawings and Dewatering Plan. Advise the Engineer of any changes made to accommodate field conditions. Revise and resubmit Shop Drawings as necessary to reflect current installation.
- .5 Maintain stability of side slopes and bottom of excavation.
- .6 The dewatering system shall be maintained and the surrounding area monitored by the Contractor for impacts to items such as, but not limited to, settlement and ground water usage. The Engineer shall be advised immediately of any impacts.
- .7 The Contractor must inspect the operation of the dewatering system at a minimum frequency of twenty-four (24) hours (or shorter), whenever the dewatering systems are in place, and including weekends and holidays.
- .8 The Contractor shall be responsible for controlling of all water.
- .9 Excavation work shall not commence prior the approved dewatering system is in place.
- .10 If backfill operation around the culvert is completed, dewatering can be discontinued. Prior to discontinuing operation and removal of the dewatering system the Contractor shall obtain written approval from the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement will be made for work of this section.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be included in the lumpsum price for Dewatering included in the schedule of quantities and prices. Payment will be full

compensation for all materials, labor, use of equipment, tools and incidentals necessary to complete the Work of this section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the requirements of design, supply and install, maintenance of construction access road for the Works.

1.2 RELATED SECTIONS

- | | | |
|-----|-------------------------------|---------------|
| .1 | Environmental Protection | Section 01560 |
| .2 | Quality Control and Assurance | Section 01620 |
| .3 | Site Entrance | Section 02144 |
| .4 | Clearing & Grubbing | Section 02231 |
| .5 | Erosion Control | Section 02272 |
| .6 | Site Grading | Section 02311 |
| .7 | Traffic Control | Section 02350 |
| .8 | Dust & Mud Control | Section 02362 |
| .9 | Rip Rap Rock Protection | Section 02372 |
| .10 | Culverts | Section 02630 |
| .11 | Granular Materials | Section 02701 |

1.3 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance program to ensure Access Road construction meet the requirements of the specifications, as per Section 01620 – Quality Control and Assurance of this Section.

1.4 SUBMITTALS

- .1 Refer to Section 01340 – Submittals.

1.5 DELIVERY, STORAGE & HANDLING

- .1 Not applicable.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

PART 2 - EXECUTION

2.1 GENERAL

- .1 The Contractor shall design and construct the construction access road in accordance with the proposed alignment as shown in the contract drawings.
- .2 The Contractor shall install erosion control measures prior to commencing the construction of the access road.
- .3 The Contractor shall remove the topsoil along the proposed access road, supply and install minimum of 300mm of granular B Type II as road base.
- .4 The Contractor shall provide uniaxial Geogrid SG200 By Stratagrid or approved equivalent, with an ultimate strength of 52.5kPa and creep limited strength of 33.9kPa over proposed subgrade subjected to site conditions and on-site Geotechnical recommendations.
- .5 The Contractor shall ensure positive drainage along the access road and install the necessary culverts and pipes to avoid blocking the drainage along the access and entrances.
- .6 The Contractor shall comply with the requirement of Section 02350 – Traffic Control regarding the traffic control.
- .7 The Contractor shall include for wooden mats at the staging areas as needed to complete the work and store materials and equipment.
- .8 The existing utilities/ pipeline shall be identified in the field using the hydro vac truck or by hand digging, and the silt fence will be placed 3m from the utilities.
- .9 The contractor is not allowed beyond this silt fence area except during the connection work.
- .10 Wooden mats are not required on the approach ramp.

2.2 ACCESS ROAD CONSTRUCTION

- .1 Install Light Duty Silt Fence barriers to control erosion and siltation as well as to delineate the working areas, setback areas, environmentally sensitive areas as identified on the Contract Drawings and as directed by the Engineer.

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- .2 Install orange construction fence between staging areas to identify limit of construction shown in the contract drawing and as required by the Engineer.
 - .3 Ensure that all grades, turns and curves of the access road meets the requirement for all equipment transportation vehicles for the project.
 - .4 Maintain access road during construction and do necessary repairs as required.

PART 3 - MEASUREMENT AND PAYMENT

3.1 MEASUREMENT

- .1 No measurement for the work.

3.2 PAYMENT

- .1 No separate payment item for the work. Payment for the Work of this Section shall be incidental to and included in applicable items in the Form of Tender for which access roads are required for construction.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This Section specifies the requirements for demolition, salvage and removal, wholly or in part, of those materials and structures so designated, including the requirements for excavation, backfilling of resulting trenches holes or pits.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Construction Facilities and Temporary Controls Section 01520
- .3 Environmental Protection Section 01560

1.3 REFERENCES

- .1 The following references shall be used in completion of fabrication, delivery, erection, etc.:
 - .1 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 180, General Specification for the Management and Disposal of Excess Material (November 2016);
 - .2 OPSS.PROV 314, Construction Specification for Untreated Granular, Sub-base, Base, Surface, Shoulder and Stockpiling (November 2015);
 - .3 OPSS.MUNI 501, Construction Specification for Compacting (November 2017);
 - .4 OPSS.PROV 510, Construction Specification for Removal (November 2014);
 - .5 OPSS.PROV 1010, Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material (April 2013); and
 - .6 OPSS.PROV 1350, Material Specification for Concrete – Materials and Production (November 2019).

1.4 SUBMITTALS

- .1 The Contractor shall submit the following submittals 10 days prior to the Work in accordance with this Section and Section 01340 – Submittals:
 - .1 Removal Plans and Working Drawings.
 - .2 The submission should include, but not limited to, layout and description of removal sequences, equipment and temporary supports. Protection measures for the rail track, utilities, environment and property shall also be included.

PART 2 - PRODUCTS

2.1 NOT APPLICABLE

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Before the start of any demolition work, the Contractor must verify the geometry of the structure/component to be repaired and send detailed measurements to the Engineer for review. Identify any measurements that does not confirm to the information provided in the drawings.
- .2 The Contractor to inspect site and verify with Engineer items designated for removal and items to be preserved.
- .3 Locate and protect all utility lines. Preserve in operating condition active utilities traversing the site.
- .4 Notify and obtain approvals and permits from all agencies prior to commencing work.
- .5 Blasting and the use of explosives will not be permitted on this project.

3.2 PROTECTION

- .1 In all circumstances ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
- .2 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .3 Maintain and protect from damage, water, sewer, gas, electric, communication and other utilities and structures encountered. Comply with authorities having

jurisdiction with respect to requirements for working in close proximity to their utility. Temporarily support utilities or their supports during work that could affect their stability including poles/guy anchors. Submit drawings with support details. All submitted drawings to bear signature and stamp of qualified professional engineer registered or licensed in Ontario.

- .4 Where utility lines or structures exist in area of work, obtain direction of Engineer before removing or rerouting.
- .5 Design, supply, erect and remove upon completion of work any temporary shoring if required for the removal of existing structure.
- .6 Protect existing buildings and surface features which may be affected by work from damage while work is in progress. In event of damage, immediately make repair to the satisfaction of the Engineer.
- .7 Erect necessary hoarding, fencing, guardrails, markers; place temporary warning lights; and take all other precautions to ensure that no damage or injury is caused to persons or property as a result of this Work.
- .8 Protect any open excavations, maintaining warning devices during construction and periods of inactivity.
- .9 Protect the work of other trades or other Contractors working at the Site as well as Owner's existing property, stored products, services, and utilities.

3.3 RAILWAY PROTECTION

- .1 Protect the existing railway track and property from damage during all aspects of the work.
- .2 Design, supply, erect and remove upon completion of work any temporary shoring if required.
- .3 Comply with ONR Policy Minimum Safety Requirements For Contractors Working On Railway Property.
- .4 Contamination of ballast will not be permitted.
- .5 Erect temporary fencing, as directed by the Engineer, to permit work adjacent to tracks without affecting train movements.

3.4 REMOVALS

- .1 Removal associated with contract will include chipped concrete and possibly reinforcing steel as indicated in the drawings.

- .2 Do not remove concrete facing more than specified in the drawings. Consult with the Engineer if the site conditions require more/additional concrete to be removed prior to proceeding with the work. Removal of the deteriorated concrete shall not result in damaging the existing sound concrete.
- .3 Concrete from the abutment backwall and the wingwalls shall not be removed until the abutment below the backwall has been rehabilitated. Rehabilitation of the abutment backwall and wingwalls shall follow immediately after the concrete removal, without any substantial delay.
- .4 Other steel removals may include rivets, corroded stiffeners, bearings etc.
- .5 Cut existing ballast ties to fit new ballast wall and dispose of excess timber.
- .6 New ballast ties may be provided at the discretion of ONTC.

3.5 DISPOSAL

- .1 The Contractor shall dispose of all removed materials off site at appropriate recycling facilities or disposal sites, in accordance with all municipal, provincial, and federal regulations.
- .2 The Contractor shall assume the structural steel coating contains lead. It is responsibility of the Contractor to verify any contaminates in coating prior to disposal.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Measurement of reinforced concrete removal shall be in cu. ft of concrete removed for required dimension indicated on Drawings. Excess concrete removed beyond the dimensions on the Drawings will not be measured, unless approved by the Engineer.
- .2 No measurement for payment will be made for all other types of Sitework Demolition and Removal.

4.2 PAYMENT

- .1 Payment will be full compensation for all materials, labor, use of equipment, tools and incidentals necessary to complete the Work of this section, as per Schedule A – Schedule of Quantities and Prices. This includes but is not limited to engineering, removal, protection, temporary support, stockpiling, and disposal off site.

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- .2 Payment for the removal of the steel shall be included in the price to supply and install the steel items.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the Clearing and Grubbing requirements for the Work. The Contractor shall remove and dispose of trees and vegetation of any types and sizes within the Limits of Construction of the Project.
- .2 The Contractor shall undertake Clearing and Grubbing for all the Lands identified as construction access and laydown areas within to facilitate the construction of the Project.
- .3 The Contractor shall adhere to the requirements of Section 01560 – Environmental Protection.
- .4 The Contractor shall undertake pruning of shared or boundary trees, scrub, and shrubs of any diameter at breast height that conflict with Construction activities.
- .5 The Contractor shall coordinate with ONTC to acquire necessary permits for works around water course(s) in accordance with the regulations.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Dewatering Section 02140
- .5 Excavation, Trenching and Backfilling Section 02315

1.3 REFERENCES

- .1 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 201, Construction Specifications for Clearing, Close Cut Clearing, Grubbing and Removal of Surface Boulders and Piled Boulders (April 2019).
- .2 Government of Canada - Migratory Birds Convention Act, 1994 (1994, c. 22).
- .3 Government of Canada, Fisheries and Oceans Canada (DFO),
- .4 Government of Canada - Interim code of practice: temporary stream crossings.

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- .5 Government of Canada - Measures to protect fish and fish habitat.

1.4 DEFINITIONS

- .1 '*Clearing*' consists of cutting off trees and brush vegetative growth and disposing of felled trees, previously felled/fallen trees and stumps, and surface debris. This surface debris may include fenceposts and wire, tires, barrels, metal objects such as shopping carts, pieces of concrete and asphalt, wood and other building materials, asphalt shingles, landscaping debris, etc.
- .2 '*Grubbing*' consists of excavation and disposal of stumps and roots, boulders, rock fragments of specified size, and other objectionable material to not less than a specified depth below existing ground surface.

1.5 QUALITY ASSURANCE

- .1 Not applicable

1.6 SUBMITTALS

- .1 Not applicable

1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

1.8 PROTECTION

- .1 Clearing and grubbing is restricted to the Limits of Construction as outlined in the Contract Drawings.
- .2 Prevent damage to signs, trees, landscaping, survey control monuments and benchmarks, buildings, pavement, utility lines, site appurtenances and root systems of trees which are to remain.
- .3 Repair any damaged items to approval of Engineer.
- .4 Replace any trees designated to remain, if damaged, as directed by Engineer.

PART 2 - PRODUCTS

- .1 Not applicable

PART 3 - EXECUTION

3.1 RESTRICTIONS ON CLEARING

- .1 Vegetation clearing (nesting birds / migratory bird habitat) is restricted between April 1st and August 31st. The Contractor shall appoint a qualified arborist / biologist (monitor) and shall confirm the vegetation clearing timing window for any given year that vegetation clearing shall occur.
- .2 Removal of vegetation/trees during the restricted period should only occur under very limited circumstances. A qualified biologist / arborist retained by the Contractor shall conduct a wildlife sweep to document the absence of migratory birds and/or nests at those sites (including both vegetation and structures) at the time of clearing. If the area is cleared by the qualified biologist, vegetation removal should occur within 24 hours of the completion of the avian survey; otherwise, an additional survey will be required.
- .3 The Contractor is required to limit vegetation clearing to areas where necessary as shown on the Limits of Construction Drawing in the Contract Drawings.
- .4 Trees shall be felled away from the watercourses and waterbodies.
- .5 The Contractor shall ensure that the erosion and sediment control measures provided during clearing and grubbing work are in accordance with the Contract Drawings and requirements in DFO, Interim code of practice: temporary stream crossings and DFO's measures to protect fish and fish habitat.
- .6 The Contractor shall coordinate with ONTC to acquire necessary permits in accordance with the required in-water works timing windows required by DFO.
- .7 The Contractor may be required to modify or implement additional mitigation measures for vegetation and tree removal. ONTC will notify the Contractor of any changes.
- .8 The Engineer shall not be responsible for any delays to the Contractor's operations where the Contractor fails to give sufficient advance notice to the Engineer to carry out the required inspection.

3.2 PREPARATION

- .1 Inspect site and verify with Engineer, items designated to remain.
- .2 Locate and protect utility lines. Preserve active utilities traversing the site in operating condition.
- .3 Notify utility authorities before starting the clearing and grubbing.
- .4 Clearly mark out limits of all areas to be grubbed for approval of the Engineer.

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- .5 Clearing and grubbing operations shall not commence until areas have been inspected and approved by the Engineer.

3.3 CLEARING

- .1 Clear as indicated and directed by Engineer, by cutting at a height of not more than 150mm above ground.
- .2 Where limbs may contact utility lines or are close that movement in the trees could bring them into contact with the lines, branches shall be cut off using only insulated pole pruners C.S.A. approved for such work. Where practical, this work will be done from the ground or an aerial lift.
- .3 The Contractor shall be required to hand-clear areas in which clearing by machine may cause damages to fences, telephone or power lines.
- .4 Cut off branches and cut down trees overhanging the area as directed by Engineer.
- .5 Cut off and remove unsound branches on trees designated to remain as directed by Contractor Certified Arborist.

3.4 GRUBBING

- .1 Grub out all stumps and roots below ground surface.
- .2 Grub out visible rock fragments and boulders, greater than 300mm in greatest dimension but less than 0.25m³.

3.5 REMOVAL AND DISPOSAL

- .1 Remove and dispose of all grubbed material off site, including all items listed in Part 3.3 above. The Contractor may choose to chip and mulch the cleared and grubbed material to the satisfaction of the Engineer and disposed off-site.
- .2 Burying or burning of grubbed materials on the site, including trees, shrubs, brush, stumps and logs is not permitted.

3.6 STOCKPILE FOR ENVIRONMENTAL WORKS

- .1 Stockpile sufficient wood debris material to meet the requirements of the various environmental features required by the Contract Drawings and Specifications.
- .2 Topsoil will be stripped and stockpiled in accordance with the Grading Plan Drawings and Soil Management Plan for all permanent and temporary construction areas. Topsoil piles shall be marked with appropriate signage to prevent accidental admixing. Topsoil shall not be imported to or exported from the Site.

- .3 Subsoil will be stored separately from topsoil with a minimum of 1m separation of the piles. Topsoil from the natural areas will be separated from other topsoil so that it may be used for restoration.
- .4 The Contractor shall handle and store soils during construction in a manner that protects soil quality for re-use. Potentially contaminated soils that are observed during construction will be treated in accordance with the Soil Management Plan.
- .5 Remove and dispose of any material not required for these works off site.

3.7 FINISHED SURFACE

- .1 Leave ground surface in condition suitable for immediate grading operations or stripping of topsoil.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No field measurements will be made for the work of this Section.
- .2 Measurements for work of this section shall be in hectares (ha) cleared based on plan quantities for areas as shown on the drawings.
- .3 Measurements for placement of stockpiled wood debris shall be incidental to and included in the various lump sum and unit prices included in the Form of Tender.
- .4 Individual trees that require removal may not be shown on the Contract Drawings, the Contractor shall be responsible for removal as if shown on the Contract Drawings. The removal of such trees shall be considered incidental to clearing and no separate payment will be made.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be included in the unit prices included in the Form of Tender. Payment will be for full compensation for all materials, labor, certified biologist, certified arborist, permits, use of equipment, tools and incidentals necessary to complete the Work of this Section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section specifies the requirements for supply and handling of crushed rock ballast.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560

1.3 REFERENCE DOCUMENTS

- .1 American Society of Testing and Materials International (ASTM):
 - .1 ASTM C26/C29M-17a, Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate;
 - .2 ASTM C88/C88M-18, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate;
 - .3 ASTM C117-17, Standard Test Method for Materials Fine then 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing;
 - .4 ASTM C131/C131M-20, Standard Test Method for Resistance to Degradation of Small Size Course Aggregate by Abrasion and Impact in Los Angeles Machine; and
 - .5 ASTM C136/C136M-19, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

1.4 QUALITY CONTROL AND ASSURANCE

- .1 The Contractor shall be responsible for conducting its own quality control and assurance programs to ensure all materials, compaction and other requirements meet the requirements of this Section and Section 01620 – Quality Control and Assurance.

PART 2 - PRODUCTS

2.1 CRUSHED ROCK BALLAST

- .1 The material for railway ballast can be waste mine rock or other suitable quarry rock, some of which has been primary crushed and should conform with present environmental regulations regarding the mineral content and its suitability for railway ballast. The Supplier/Contractor of the rock will provide Ontario Northland with a certificate of compliance respecting any and all governing environmental regulations by the Ministry of the Environment of Ontario or any other governing agency. The Supplier/Contractor is to accept full responsibility for size, condition and location of the raw material relative to the designated location of the proposed stone pile of such material.
- .2 The material shall be composed of hard, strong and durable particles clean and free from clay and shale and from excess of dust or elongated pieces.
- .3 All tests shall be carried out according to the latest revision of the standard test methods referred to in this specification.
- .4 Deleterious substances shall not be present in prepared ballast in excess of the following amounts:
 - .1 Soft and pliable pieces 5%
 - .2 Material finer than #200 sieve 1%
- .5 The percentage of wear of prepared ballast as tested by the Los Angeles machine (ASTM C131) shall not be greater than 40% except as otherwise specified by the Director Rail Infrastructure.
- .6 The soundness of prepared ballast shall be such that when tested in the sodium sulphate or magnesium sulphate soundness test (ASTM C88), the weighted average loss shall not exceed 10% after 5 cycles.

MI. 162.00 ISLAND FALLS SUB

Sieve Size	% Passing By Weight
Nominal Size Square Opening 1- 1/2" - 3/4"	(Square Opening Lab. Sieves)
50 mm (2")	100
37.5 mm (1-1/2")	90 – 100
25.4 mm (1")	20 – 55
19 mm (3/4")	0 – 15
12.5 mm (1/2")	-
9.4 mm (3/8")	0 – 5
4.76 mm (No. 4)	-
74 Micron (No. 200)	0 – 1

- .7 Grading of crushed gravel ballast shall be determined by ASTM C136, latest edition.
- .8 Amount of material finer than 74 micron (no. 200) shall be determined by ASTM C117, latest edition.
- .9 Specific gravity, loose density and rodded unit weight of crushed rock ballast shall be performed on sample for every 500 tons of prepared ballast, unless otherwise ordered by the Rail Infrastructure Department. The samples shall be representative and shall not weigh less than 50 pounds.

2.2 QUALITY CONTROL

- .1 The Contractor shall ensure that the ballast is manufactured in accordance with these specifications.
- .2 At the start of production, the Contractor shall perform all specified tests on ballast samples and submit results to the Ontario Northland to establish compliance with this specification, at least two (2) weeks prior to delivery to the site.
- .3 Prepared ballast shall be handled at the producing plant in such a manner that it is kept clean and free from segregation. It shall be loaded only into trucks which are in good order, tight enough to prevent leakage and waste material and which are clean and free from rubbish or any substance which would foul or damage ballast.
- .4 Determination of deleterious substances, resistance to abrasion and soundness shall be made at a testing laboratory selected by the purchaser, but visual inspection and gradation tests shall be made at the place of production prior to shipment as often as considered necessary.
- .5 The following tests shall be performed by the Contractor: Sampling of materials shall be in accordance with ASTM D75:

- .1 ASTM C29 – Unit Weight of Aggregates.
- .2 ASTM C88 – Soundness of Aggregates
- .3 ASTM C131 - Resistance to Degradation
- .4 ASTM C136 – Sieve Analysis of Aggregates
- .6 All tests to be performed to the latest edition of the specific standards by a certified testing facility.
- .7 The Ontario Northland’s decision as to the quality of ballast will be final.

2.3 HANDLING AND LOADING

- .1 Prepared ballast shall be handled at the producing plant in such a manner that it is kept clean and free from segregation. It shall be loaded only into trucks which are in good order, tight enough to prevent leakage and waste material and which are clean and free from rubbish or any substance which would foul or damage ballast.
- .2 The Contractor shall handle, stockpile, load and distribute ballast and troweling stone in such a manner as to minimize abrasion of particles and segregation of size.
- .3 The Contractor shall not allow rubber tired or crawler type vehicles to operate repeatedly over the stockpile of crushed material.

PART 3 - MEASUREMENT AND PAYMENT

3.1 MEASUREMENT

- .1 No measurement will be made for the work of this section. Measurement will be provided in tons from the weight tickets provided by scales certified by the testing authority of the Dominion Government and supplied from the trucks delivering the ballast to the site.

3.2 PAYMENT

- .1 Payment for the Work of this Section shall be included in the unit price items that would require Crushed Rock Ballast included in the Schedule A – Schedule of Quantities and Prices. Payment will be full compensation for labor, use of equipment, tools and incidentals necessary to complete the Work of this section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the erosion and sediment control requirements for the temporary and permanent Work.
- .2 The Contractor shall design, supply, install, maintain and remove temporary cofferdam as required for the work.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Geotextiles Section 02072
- .5 Dewatering Section 02140
- .6 Excavating, Trenching and Backfilling Section 02315
- .7 Dust and Mud Control Section 02362
- .8 Rip Rap Rock Protection Section 02372

1.3 REFERENCES

- .1 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.PROV 801, Construction Specification for the Protection of Trees (April 2018)
 - .2 OPSS.PROV 805, Construction Specification for Temporary Sediment Control (November 2020).
- .2 Ontario Provincial Standard Drawings (OPSD):
 - .1 OPSD 219.110, Light Duty Silt Fence Barrier (November 2021);
 - .2 OPSD 219.130, Heavy Duty Silt Fence Barrier (November 2021); and
 - .3 OPSD 219.200, Sandbag Flow Check Dam (November 2022).

-
- .3 Government of Canada, Fisheries and Oceans Canada (DFO):
 - .1 Interim code of practice: temporary stream crossings; and
 - .2 Measures to protect fish and fish habitat.
 - .4 Province of Ontario – Fish and Wildlife Conservation Act, 1997, S.O. 1997.

1.4 QUALITY ASSURANCE

- .1 The Contractor shall be responsible for conducting their own quality assurance program to ensure that all erosion and sediment control for the Project meet the requirements of this Section and Section 01620 – Quality Control and Assurance.

1.5 SUBMITTALS

- .1 The Contractor shall submit the following submittals in accordance with this Section and Section 01340 – Submittals:
 - .1 Shop Drawings and Other Submittals; and
 - .2 Product Data and samples – geotextiles and plastic fencing.
 - .3 Weekly inspection logs of erosion and sediment control measures.

1.6 DELIVERY, STORAGE & HANDLING

- .1 Not applicable.

1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Conform to OPSD standard drawings as follows:
 - .1 Light Duty Silt Fence Barrier OPSD 219.110. and
 - .2 Geotextile Terrafix 270R or approved equivalent.
 - .3 Pea Gravel

PART 3 - EXECUTION

3.1 GENERAL

- .1 Install all erosion and siltation control devices and tree fencing prior to commencement of clearing, grubbing and grading works, to the satisfaction of the Engineer. The Contractor shall notify the Engineer of any proposed changes to erosion and siltation control devices or installation resulting from site conditions and shall be included in the weekly inspection logs.
- .2 No work will be permitted on site until all such erosion and siltation control devices are properly installed and verified by the Engineer.
- .3 The Contractor must limit vegetation disturbance and tree removal to the Limits of Construction as per extents indicated in Contract Documents. The Contractor shall install exclusion fencing in sensitive areas adjacent to active construction areas in accordance with the Contract Drawings.
- .4 Stockpiles onsite shall have silt fencing installed a minimum of 1m distance from the toe of the stockpile.

3.2 EROSION AND SILTATION CONTROL

- .1 Install silt fence barriers to control siltation as well as to delineate the environmentally sensitive areas identified in the Drawings and as directed by the Engineer.
- .2 Maintain all erosion and siltation control devices in accordance with the requirements of OPSS.PROV 805, section 805.07.09 Maintenance and to the satisfaction of the Engineer.
- .3 The Contractor shall inspect all erosion and sediment control measures on a weekly basis and before and after rainfall events (10mm / 24 hours) and significant snow melts to ensure proper functioning, re-establish if damaged, cleanout (when sediment accumulation reaches approximately 30%), and provide a repair or restoration plan outline. The Contractor is responsible for correcting any identified deficiencies within one working day, following an inspection. The Contractor shall report to the Engineer any major repairs within 24 hours and document in the inspection logs.
- .4 The Contractor shall maintain an inspection log and report any concerns, such as observed breaches of temporary sediment control, or sediment transport to a waterbody, sensitive receptor or private property to the Engineer. The Contractor shall submit inspection logs to the Engineer on a weekly basis in accordance with the requirements of Section 01340 Submittals.
- .5 The Contractor shall ensure that the erosion and sediment control measures provided during clearing and grubbing work are in accordance with the Contract

Drawings and requirements in DFO, Interim code of practice: temporary stream crossings and DFO's measures to protect fish and fish habitat.

- .6 The Contractor shall coordinate with ONTC to acquire necessary permits in accordance with the required in-water works timing windows required by DFO.
- .7 Remove temporary erosion control devices upon completion of work in accordance with the requirements of OPSS.PROV 805.
- .8 If it is determined by the Engineer that the Contractor has improperly installed erosion and sediment control measures, the Contractor will be responsible for correcting the installation at his/her cost.

3.3 TEMPORARY COFFERDAM

- .1 Supply, install, design, maintain and remove temporary cofferdam, as required for the work.

3.4 TREE FENCING

- .1 Install tree protection barriers at the Limits of Construction under the direction of a certified arborist and as directed by the Engineer.
- .2 Install tree fencing in accordance with the requirements of OPSS.PROV 801 and as modified below.
 - .1 Tree protection barriers must be maintained at 1.2m high and consist of orange plastic web snow fencing on a wood frame made of 2x4 boards. Where excavation or fill material is to be temporarily placed near a tree protection barrier, plywood must be used to ensure no material extend beyond the Limits of Construction.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement for work under this section.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be included in the unit prices included in the Form of Tender for all Erosion Control measures required for the Work. Payment will be for full compensation for all materials, labor, use of equipment, tools, periodic removal of accumulated silt and sediment, removal and disposal of all erosion control measures and all incidentals necessary to complete all of the work under this section.

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**EROSION CONTROL
BRIDGE REHABILITATION
MI. 162.00 ISLAND FALLS SUB**

**SECTION 02272
MARCH 2024
PAGE 5**

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the excavation, trenching, backfilling and compaction requirements for the Work.

1.2 RELATED SECTIONS

- .1 Environmental Protection Section 01560
- .2 Quality Control and Assurance Section 01620

1.3 REFERENCES

- .1 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.PROV 180, General Specification for the Management of Excess Materials (November 2016);
 - .2 OPSS.PROV 206, Construction Specification for Grading (November 2014);
 - .3 OPSS.PROV 401, Construction Specification for Trenching, Backfilling and Compacting (November 2015);
 - .4 OPSS.PROV 501, Construction Specification for Compacting (November 2014);
 - .5 OPSS.PROV 1010, Material Specification for Aggregates, Base, Subbase, Select Subgrade and Backfill Material (April 2013);
 - .6 OPSS.PROV 1205, Material Specification for Clay Seal (April 2015); and
 - .7 OPSS.MUNI 1359, Material Specification for Unshrinkable Fill (November 2016).
- .2 Ontario Provincial Standard Drawings (OPSD):
 - .1 OPSD 802.010, Flexible Pipe, Embedment and Backfill, Earth Excavation for trenching limits (November 2014).
- .3 American Society of Testing and Materials International (ASTM):

MI. 162.00 ISLAND FALLS SUB

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- .1 C136/C136M-19, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

1.4 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance program to ensure all materials, compaction, etc. meet the requirements of the specifications, as per Section 01620 – Quality Control and Assurance of these Specifications.
- .2 The Engineer may also carry out independent Quality Assurance tests as per Section 01620 – Quality Control and Assurance of these Specifications.

1.5 SUBMITTALS

- .1 Not applicable.

1.6 DELIVERY, STORAGE & HANDLING

- .1 Protect stockpiled materials from contamination.

1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

1.8 DEFINITIONS

- .1 Classification of excavated materials shall conform to OPSS 206.03.
- .2 The following classes of materials shall be recognized:
 - .1 Common Material (CM) is defined as any material remaining on site after stripping has been performed. CM Excavation refers to the removal of such material as specified by the Drawings. Suitable CM shall be utilized for construction where specified. Suitable CM is specified in Clause 2.1 of this Section. The excavation of all materials including hardpan, quicksand and frozen earth; also rock, concrete or masonry less than 1.0m³ in volume shall be classified as CM excavation;
 - .2 Earth means all soils except those defined as rock, and excludes stone masonry, concrete, and manufactured materials; and
 - .3 Unsuitable material is defined as material the Engineer determines to be:
 - .1 Of such unstable nature as to be incapable of being compacted to a specified density using ordinary methods;

MI. 162.00 ISLAND FALLS SUB

- .2 Too wet to be properly compacted and circumstances prevent suitable in-place drying prior to incorporation into the Work;
- .3 Frozen or containing ice particles;
- .4 Containing organic, peat or other deleterious material; or
- .5 Otherwise unsuitable for the planned use.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Select Subgrade Material (SSM, OPSS 1010) with a maximum particle size of 75mm can be use as bedding and backfill to Section 02701, with 90% passing the 75bmm sieve.
- .2 Sand bedding: to Section 02701 – Granular Material and following requirements:
 - .1 Natural sand consisting of hard, strong, durable particles, free from a coating of any injurious material and free from injurious amounts of other deleterious materials;
 - .2 Gradations to be within limits specified when tested to ASTM C136-19. Sieve sizes as shown.

Sieve Designation	% Passing
4.75 mm	100
2.36 mm	95 - 100
1.18 mm	60 - 100
0.600 mm	35 - 80
0.300 mm	15 - 50
0.150 mm	2 - 15
0.075 mm	0 - 5

- .3 Backfill at structure foundations:
 - .1 Granular B Type II, in accordance with requirements of Section 02701 – Granular Materials; and
 - .2 Unshrinkable fill in accordance with requirements of OPSS.MUNI 1359 Material Specification for Unshrinkable Fill.

MI. 162.00 ISLAND FALLS SUB

- .4 Native Backfill: selected material from excavation approved by the Engineer for use intended, unfrozen and free from rocks larger than 75mm, cinders, ashes, sods, refuse or other deleterious materials.
- .5 Natural Clay, as per OPSS 1205.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

- .1 Examine site and geotechnical report to determine local conditions under which the work will be undertaken.

3.2 PROTECTION OF EXISTING FEATURES

- .1 Existing buried utilities and structures:
 - .1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed;
 - .2 Prior to commencing excavation work, notify Authorities having jurisdiction, establish location and state of use of buried utilities and structures. The Engineer or authorities having jurisdiction shall clearly mark such locations to prevent disturbance during work;
 - .3 Confirm locations of buried utilities by careful test excavations;
 - .4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered. Obtain direction of the Engineer before moving or otherwise disturbing utilities or structures; and
 - .5 Record the location of maintained, rerouted and abandoned underground lines.
- .2 Protect existing trees, landscaping, benchmarks, buildings, pavement, signage, signals, etc. which are to remain. If damaged, restore to original or better condition unless directed otherwise.

3.3 DEWATERING

- .1 Dewatering to be in accordance with Section 02140 – Dewatering.
- .2 Keep excavations free of water while work is in progress.
- .3 Protect open excavations against flooding and damage due to surface run off.

MI. 162.00 ISLAND FALLS SUB

- .4 Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction, and in conformance to all environmental regulations.
- .5 Continuously dewater the excavations to control surface runoff or perched water table seepage for concreting and other work to be carried out in the dry condition.
- .6 Submit for the Engineer's review details of proposed dewatering methods, such as dikes or well points.

3.4 EXCAVATION

- .1 Excavate to lines, grades, locations, elevations and dimensions as indicated or directed by the Engineer.
- .2 Remove excavated material and other obstructions encountered during excavation.
- .3 Excavation longer than 3m must not interfere with normal 45° splay of bearing from bottom of any footing.
- .4 Do not disturb soil within branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with sharp axe or saw.
- .5 Dispose of surplus and unsuitable excavated material by removal and disposal off-site.
- .6 Do not obstruct flow of surface drainage.
- .7 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter. Notify the Engineer when bottom of excavation is reached. Bottom of the excavation will be confirmed by the Engineer.
- .8 Remove unsuitable material from trench bottom to extent and depth as directed by the Engineer.
- .9 Correct unauthorized over excavation as follows:
 - .1 Fill with SSM material or approved equivalent, compacted to 98% SPMDD, as specified in Section 02701 – Granular Materials.
- .10 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to approval of the Engineer.

MI. 162.00 ISLAND FALLS SUB

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- 3.5 DISPOSAL OF SURPLUS AND UNSUITABLE EXCESS SOIL BY REMOVAL FROM PROPERTY**
- .1 Prior to removal of excess soil from any property, if required, ONTC will obtain bulk soil test analysis on all material to be disposed of, as well as waste characterization analysis, if required, and results will be provided to the Contractor. Bottom of the ditch sub excavation is saturated and it will be subject of the off-site disposal.
 - .2 Based on the results presented in the Geotechnical Report, the Contractor shall propose disposal sites, following the requirements of OPSS.PROV 180.
 - .3 For each proposed disposal site the Contractor shall provide to the Engineer for review:
 - .1 Landowner/Facility Names and civic addresses, or other property descriptions (e.g. Lot and Concession, etc.) if addresses are unavailable;
 - .2 Expected quantity and source location of materials to be disposed of at the site;
 - .3 Expected schedule for disposal; and
 - .4 Completed OPSS site selection form.
 - .4 Upon review and acceptance of the proposed disposal sites and accompanying documentation:
 - .1 For disposal sites registered as licensed waste disposal facilities, the Engineer will grant approval and authorize disposal to commence; and
 - .2 For disposal sites not registered as licensed waste disposal facilities (i.e. industrial, commercial, residential, agricultural and similarly zoned properties):
 - .1 ONTC will prepare an acceptance package for the disposal site and provide to the Contractor; and
 - .2 The Contractor shall provide the acceptance package to the Landowner for review and signature.
 - .5 The Engineer will not be responsible for any costs or delays associated with site selection or approvals for soil disposal.
 - .6 Submit Transportation and Manifest documentation to the Engineer in accordance with the requirements of O Reg. 347 General – Waste Management.

MI. 162.00 ISLAND FALLS SUB

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- .7 Submit Soils Disposal Reports to the Engineer for all soil disposed of off-site at non licensed waste disposal facilities; including:
 - .1 Landowner/Facility Names and civic address;
 - .2 Date of disposition;
 - .3 Quantity (bill of lading);
 - .4 A record of the exact location where the soil is deposited at the Receiving Site (This can include maps, photos, and/or surveyed information).
 - .8 If requested by ONTC, the Contractor should work with the Engineer to ensure any other concerns ONTC has with the excess soil movement are properly addressed.

3.6 BEDDING AND SURROUND OF UNDERGROUND SERVICES

- .1 Place and compact granular bedding for all services, as shown on the drawings.
- .2 Shape bedding to suit services.
- .3 Cover (surround) to be from Select Subgrade Material (SSM, OPSS 1010) with a maximum particle size of 75mm, as shown on the Drawings.
- .4 Place and compact surround in layers not exceeding 200mm to 98%, $\pm 2\%$ SMPDD for sewers and culverts.
- .5 Place and compact backfill to haunches of pipe before continuing with cover backfill.
- .6 Place bedding and surround material in unfrozen condition.

3.7 BACKFILLING

- .1 Backfill around culverts:
 - .1 Place bedding and surround material as specified;
 - .2 Place layers simultaneously on both sides of installed work to equalize loading. Difference not to exceed 0.3m; and
 - .3 Heavy equipment shall not operate within 1.0m of the culverts.
- .2 Backfill at Structures:

MI. 162.00 ISLAND FALLS SUB

- .1 Place unshrinkable backfill in accordance with requirements of Ontario Provincial Standard Specification OPSS.MUNI 1359, Material Specification for Unshrinkable Backfill;
- .2 Place granular backfill in accordance with the requirements of Ontario Provincial Standard Specification OPSS.PROV 501, Construction Specification for Compacting;
- .3 Prior to placement of backfill material, the subgrade shall be prepared to the satisfaction of the Engineer. All deleterious material shall be removed, and in some cases, excavation of native mineral soils may be required;
- .4 Place granular backfill in 150mm loose lifts simultaneously behind both sides of the structure, keeping the height of the backfill approximately the same. At no time shall the difference in the elevation shall be greater than 500 mm. Prior to adding each lift, the previous lift shall be compacted in accordance with OPSS 501 to at least 98% standard Proctor maximum dry density. Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction; and
- .5 The Contractor shall repair and replace any granular material lost through washouts or bladed off the roadway at no additional cost.

3.8 RESTORATION

- .1 Upon completion of work, remove waste materials and debris, and correct defects as directed by the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement work under this section.
- .2 No measurement for any over excavation and backfilling.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be deemed incidental to and included in the various lump sum and unit prices included in the Form of Tender, including but not limited to all excavation regardless of the depth, shoring, disposal of surplus and unsuitable material off site, bedding and backfill necessary to complete the Work of this section. Over - excavation and backfilling will not be considered for payment.

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**EXCAVATING, TRENCHING
AND BACKFILLING
BRIDGE REHABILITATION
MI. 162.00 ISLAND FALLS SUB**

**SECTION 02315
MARCH 2024
PAGE 9**

***** END OF SECTION *****

PART 1 - GENERAL

1.1 GENERAL

- .1 This Section specifies the requirements of the temporary cofferdam required for the pier Works.

1.2 RELATED SECTIONS

- | | | |
|-----|------------------------------------|---------------|
| .1 | Submittals | Section 01340 |
| .2 | Safety Requirements | Section 01545 |
| .3 | Flagging and Track Protection | Section 01546 |
| .4 | Environmental Protection | Section 01560 |
| .5 | Materials and Equipment | Section 01600 |
| .6 | Setting Out and Measurement | Section 01610 |
| .7 | Quality Control and Assurance | Section 01620 |
| .8 | Project Closeout | Section 01800 |
| .9 | Erosion Control | Section 02272 |
| .10 | Excavation, Trenching, Backfilling | Section 02315 |
| .11 | Traffic Control | Section 02350 |
| .12 | Rip Rap Rock Protection | Section 02372 |
| .13 | Piling | Section 02383 |
| .14 | Concrete Formwork and False Work | Section 03100 |
| .15 | Concrete Reinforcement | Section 03200 |
| .16 | Concrete Accessories | Section 03203 |
| .17 | Cast-in-Place Concrete | Section 03300 |
| .18 | Structural Steel for Bridges | Section 05122 |

1.3 REFERENCES

- .1 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 539, Construction Specification for Temporary Protection Systems (November 2014).
 - .2 OPSS.PROV 517, Construction Specification for Dewatering (November 2016)

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure all materials, installation procedures and all work required for Site grading, meet the requirements of the Specifications.
- .2 The Contractor shall engage the services of a Specialist Subcontractor having minimum of five (5) years of experience in the field of cofferdam work to prepare Shop Drawings, provide all design, materials, products, accessories, tools, equipment, services, transportation, labor and supervision, manufacturing techniques required for the design and installation of the sheet piles, the supporting structural steel elements and all of the relevant connections and undertake any other work required.

1.5 SUBMITTALS

- .1 All submissions shall bear the seal and signature of an Engineer experienced in this field.
 - .1 The Contractor shall submit a detailed monitoring plan including the existing structure and the proposed cofferdam for review.
 - .2 Other submittals shall as per OPSS.PROV 539 and OPSS.PROV 517, as required.

PART 2 - PRODUCTS

2.1 TIE-BACK ANCHORS

- .1 Tie-back anchors and related elements shall be as per Section 02370 – Temporary Tie-back Anchors.

2.2 PILES

- .1 Steel piles shall be as per Section 02383 - Piling.

2.3 EXISTING INFORMATION

- .1 Hydraulic information: All available hydraulic information is provided on the Drawings. Any additional information required for the design and detailing shall be obtained by the Contractor.
- .2 Geotechnical/ Subsurface information: No subsurface information is available. The contractor shall obtain their own information sufficient for design and detailing.

2.4 DESIGN CRITERIA

- .1 The design shall be for performance level 2 as per OPSS.PROV 539.

PART 3 - EXECUTION

3.1 GENERAL

- .1 All works related to the temporary cofferdam shall conform to the requirements of OPSS.PROV 517 and OPSS.PROV 539 unless noted otherwise in this section.

3.2 EQUIPMENT

- .1 The Contractor shall ensure that:
 - .1 All equipment for the work is suitable for the intended purposes and capable of working on the site under the prevailing access and clearance conditions; and
 - .2 The equipment does not cause damage to the cofferdam or any other adjacent structure.

3.3 MONITORING AND STABILITY OF EXISTING PIERS

- .1 The Contractor shall undertake monitoring of the existing piers for vibration control and movement.
- .2 The Contractor shall ensure that the monitoring of the existing pier is carried out during construction of the cofferdam and to continue until it's removal or up to a point the cofferdam is no longer required to be monitored or as agreed with Engineer.
- .3 Monitoring precision: The Monitoring system shall be capable of providing movement with a maximum tolerance of +/- 2.0mm.
- .4 Targets:

- .1 A minimum of four structure monitoring points shall be installed on the bottom plate of the existing bearings on each pier. One target shall be installed at each vertex of the rectangle formed by the outer corners of each bearing plate.
- .2 One rail monitoring point shall be installed on each rail at the centerline pier.
- .5 Monitoring frequency:
 - .1 Target Reading: Readings shall be taken weekly, except during installation of piles, where the monitoring shall be daily. A minimum of three readings shall be taken and recorded prior to start of work, to establish a baseline. If movement exceeds any of the threshold stated below, the readings shall be taken two times a day until the movement is stabilized. Stability of movement for this clause shall be considered as no movement in six readings. The reading frequency can go back to weekly after the movement is stabilized. Continue monitoring for at least three weeks after the cofferdam is removed.
 - .2 Visual Monitoring: The existing structure and the cofferdam shall be visually monitored each day. If any cracks, spalls or delamination of the existing structure or deformation/settlement of the soil is observed, a qualified Engineer, employed by the contractor shall visit the site for inspection and report the following to ONTC:
 - .1 Site information, location
 - .2 Width and length of the cracks and their location
 - .3 Length and depth of heave or settlement
 - .4 Provide recommendation for any remedial works
 - .5 Employment of the Engineer and any proposed remedial works shall be done at the Contractor's expense.

.6 Movement thresholds are as follows:

Allowable Limit (mm)		Review Limit (mm)		Alarm Limit (mm)	
Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
4	4	6	6	8	8

Note: The above limits do not apply to rail longitudinal (along the bridge length) movement

.7 Threshold exceedance protocol:

-
- .1 Allowable Limit: Review the available data and provide comments on any potential ground movement concerns and implications to railway operations. The ground movement monitoring reports shall be forwarded to ONTC and their designated representatives within 24 hours of readings.
 - .2 Review Limit: Immediately notify all parties involved. Monitoring frequency shall be increased to determine if any additional ground movement is occurring. Monitoring frequency shall remain increased until there is stabilization of the ground movement. The Contractor shall plan for remedial track/structure works within 7 days. The work may continue under approval by ONTC.
 - .3 Alarm Limit: Immediately notify all parties involved. The work will immediately cease until an assessment of the observed ground movement is conducted and inspected by a qualified and competent Geotechnical Engineer, at the Contractor's expense. The Contractor shall arrange for immediate repairs to the track and structure. The findings with a proposed action plan will be reviewed by ONTC. No construction work shall take place until instructed by a qualified and competent Geotechnical Engineer and ONTC or their representative after the following conditions being satisfied:
 - .1 The cause of ground movement has been identified.
 - .2 A corrective / preventive plan is established and adopted.
 - .3 Any corrective and / or preventive measure deemed necessary is implemented.
 - .8 Reporting: The monitoring results shall be provided to ONTC on weekly basis. In event of an exceedance, the reporting frequency will increase to match the reading frequency. The Monitoring report shall have the following as a minimum:
 - .1 Plan and elevation sketch of all targets with numbering for identification. The plan shall include the Northing and Easting directions adopted for the monitoring.
 - .2 Data shall be presented in a tabular and graphical format for each point, showing the differential and cumulative movements in all spatial directions.
 - .3 Include comments by the monitoring team as needed to help understand the information.
 - .9 Vibration monitoring shall be as per Section 02383 – Piling.

- .10 Any damage to (or excessive movement of) the ONTC infrastructure, from the works of the Contractor, shall be remediated to the satisfaction of ONTC at the Contractor's expense.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement is required for the works under this section.

4.2 PAYMENT

- .1 The Lump Sum price submitted in the Form of Tender shall include all labor, materials, equipment and incidentals required to obtain relevant information, supply, install, monitor, remove the cofferdam for successful rehabilitation of the bridge piers where shown on the drawings and as called for in this specification. No additional payment will be made for works related to temporary cofferdams.

END OF SECTION

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the requirements for rip rap rock protection for the Work.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Geotextile Section 02072
- .5 Erosion Control Section 02272
- .6 Excavation, Trenching, and Backfilling Section 02315

1.3 REFERENCES

- .1 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.PROV 511, Construction Specification for Rip-Rap Rock Protection and Gravel Sheeting (November 2018);
 - .2 OPSS.PROV 1004 Material Specification for Aggregates - Miscellaneous (November 2012); and
 - .3 OPSS.PROV1860 Material Specification for Geotextiles (November 2019).
- .2 Ontario Provincial Standard Drawings (OPSD):
 - .1 OPSD 810.010 General Rip-Rap Layout for Sewer and Culvert Outlets (November 2018).
- .3 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.MUNI 511, Construction Specification for Rip-Rap, Rock Protection, and Granular Sheeting (November 2018); and
 - .2 OPSS.PROV 1004, Material Specification for Aggregates – Miscellaneous (November 2012).

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- .4 American Society of Testing and Materials International (ASTM):
 - .1 ASTM D4595-17, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method. Canadian General Standards Board (CGSB):
 - .5 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB 148.1, No. 3-M85, Methods of Testing Geosynthetics and Geomembranes; and
 - .2 CAN/CGSB 148.1, No. 3-M85, Methods of Testing Geotextiles and Geomembranes – Thickness of Geotextiles.

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure that the rip rap for the work meet the requirements of this Section and Section 01620 – Quality Control and Assurance.

1.5 SUBMITTALS

- .1 The Contractor shall submit the following submittals for review in accordance with the requirements of this Section and Section 01340 – Submittals:
 - .1 Samples for different types of stones. The sample shall represent the material that will be supplied by the Contractor.

1.6 SOURCE QUALITY CONTROL

- .1 Inform the Engineer of proposed source of material and provide access for sampling at least 4 weeks prior to commencing production.
- .2 If, in opinion of the Engineer, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements. Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

1.7 DELIVERY, STORAGE & HANDLING

- .1 Store and handle Product to avoid any damage and contamination.

1.8 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

PART 2 - PRODUCTS

2.1 GRANULAR TYPE B

- .1 Provide granular B type II in accordance with Section 02701 – Granular Materials.

2.2 GEOTEXTILE

- .1 Geotextile in accordance with the requirements of Section 02072 Geotextile.

2.3 RIPRAP

- .1 Materials:
 - .1 The rock shall be hard, dense with relative density not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects and well graded;
 - .2 The riprap shall be well graded and shall meet the gradation requirements shown in the following tables:

Table 1: Rock Gradation for D₅₀ = 16 “ type stone (R-50)

Size (inches)	Percentage Passing (%)
12	100
10.4	70-90
8.3	40-55
3.9	0-15

- .2 Installation:
 - .1 Blend riprap in accordance with the gradation as specified in Table 1;
 - .2 Place riprap according to the details provided in the Contract Drawings;
 - .3 Riprap rock protection shall be constructed in accordance with the requirements of OPSS.PROV 511.

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- .4 Ensure a smooth transition where riprap will be placed adjacent to a watercourse to match the existing up and downstream channel sections; and
 - .5 Geotextile shall be placed beneath rip rap beds and extend 300mm beyond each edge and tuck in perpendicular to the ground.
 - .6 The placement and gradation of the riprap shall be completed to the satisfaction of the Engineer.

PART 3 - MEASUREMENT AND PAYMENT

3.1 MEASUREMENT

- .1 Measurement of Payment for the riprap placement shall be by square foot, including all equipment, materials and labour.

3.2 PAYMENT

- .1 Payment at the contract price for the above tender item shall be full compensation for all labour, equipment and materials required to complete the work.

***** END OF SECTION *****

GENERAL CONDITIONS

This section specifies the requirements for sheet piling for the temporary works.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1	Submittals	Section 01340
.2	Safety Requirements	Section 01545
.3	Flagging and Track Protection	Section 01546
.4	Environmental Protection	Section 01560
.5	Materials and Equipment	Section 01600
.6	Setting Out and Measurement	Section 01610
.7	Quality Control and Assurance	Section 01620
.8	Project Closeout	Section 01800
.9	Excavation, Trenching, Backfilling	Section 02315
.10	Traffic Control	Section 02350
.11	Temporary Tie-back Anchors	Section 02350
.12	Site Demolition and Removals	Section 02220

1.2 REFERENCES

- .1 This specification refers to the following standards, specifications or publications:
 - .1 Canadian Standards Association Standards:
 - .1 CSA G40.20/G40.21- General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Sheets
 - .2 W47.1- Certification of Companies for Fusion Welding of Steel Structures
 - .3 W48.1 - Carbon Steel Covered Electrodes for Shielded Metal Arc Welding

- .4 W59 - Welded Steel Construction (Metal Arc Welding)
- .2 American Society for Testing and Materials Standards:
 - .1 ASTM A 572/ A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

1.3 DEFINITIONS

- .1 For the purposes of this specification, the following definitions apply:
 - .1 Anvil: means the component of a diesel hammer that acts as an impact block for the ram
 - .2 Bedrock: means a natural solid bed of the hard, stable, cemented part of the earth's crust, igneous, metamorphic or sedimentary in origin which may or may not be weathered. The actual surface of the bedrock, weathered or unweathered, exists immediately below the overburden.
 - .3 Cap Block: means a material placed on top of the helmet to cushion the blow of the hammer and to attenuate the peak impact energy without causing excessive loss of the impact energy.
 - .4 Deep Foundation: means a structural member, driven or otherwise installed in the ground to transfer the loads from a structure to soil or rock and derives supporting resistance from the surrounding soil or rock or from the soil or rock strata below its tip or a combination of both.
 - .5 Driving Shoe: means a reinforcement attached to the bottom of the pile and designed to protect the pile during driving or to penetrate into a hard stratum.
 - .6 Driving to a Set: means driving the pile to a penetration that satisfies pile driving criteria correlated to a required pile resistance.
 - .7 Follower: means a removable extension which transmits the hammer blows to the head of the pile.
 - .8 Helmet: means a formed steel cap that fits over the top of a pile head to retain in position a resilient cap block.
 - .9 Jetting: means the use of a jet of water at high pressure directed into the ground below the pile tip to assist its penetration

- .10 Pile: means a relatively slender structural element which is installed, wholly or partly in the ground by driving, drilling, auguring, jetting or other means.
- .11 Pile Cap: means a footing or some other structural component used to transfer the load to the piles as well as maintaining them in position.
- .12 Pile Cushion: means a pad of resilient material placed between the helmet and the top of a reinforced concrete or timber pile to minimize damage to the head during driving.
- .13 Pile Group: means the piles supporting a pile cap.
- .14 Retapping: means verifying that the specified resistance previously attained has been sustained by imparting appropriate hammer energy to the pile and monitoring pile penetration.
- .15 Rock Points: means a specially designed steel tip, fitted to piles to enable them to be driven into hard, sound sloped bedrock.
- .16 Sheet Pile: means a pile that is designed to interlock with adjacent piles and form a continuous wall for the purpose of resisting mainly lateral forces and to reduce seepage.
- .17 Stamped: means drawings or details that have been reviewed and stamped "Conforms With Contract Documents".

1.4 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance program to ensure all materials, compaction, etc. meet the requirements of the specifications, as per Section 01620 – Quality Control and Assurance of these Specifications.
- .2 The Engineer may also carry out independent Quality Assurance tests as per Section 01620 – Quality Control and Assurance of these Specifications.

1.5 SUBMITTALS

- .1 All submissions shall bear the seal and signature of an Engineer experienced in this field.
 - .1 Equipment and Installation Procedure
 - .1 The Contractor shall submit to the Engineer for review and stamping, the equipment and installation procedure and the procedure for monitoring installation.

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- .2 Mill Certificates
 - .1 The Contractor shall submit to the Engineer at the time of delivery one copy of the mill certificate, indicating that the steel meets the requirements for the appropriate standards for H-piles and sheet piles.
 - .2 Where mill test certificates originate from a mill outside Canada or the United States of America the Contractor shall have the information on the mill certificate verified by testing by a Canadian laboratory. The laboratory shall be accredited by a Canadian National Accreditation Body to comply with the requirements of ISO/IEC Guide 25 for the specific tests or type of tests required by the material standard specified on the mill test certificate. The mill test certificates shall be stamped with the name of the Canadian testing laboratory and appropriate wording stating that the material conforms to the specified material requirements. The stamp shall include the appropriate material specification number, the date and the signature of an authorized officer of the Canadian testing laboratory.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel H Piles:
 - .1 Steel H piles shall be according to CSA G40.20/G40.21 and shall be 350 W grade, sizes and types as indicated on the drawings.
- .2 Driving Shoes:
 - .1 Steel Driving Shoes in accordance with OPSD 3000.100
- .3 Steel Sheet Piles:
 - .1 Steel sheet piles shall be according to ASTM A572 grade 350 W, sizes and types as indicated on the drawings. Steel sheet piles shall not be spliced.
 - .2 Steel sheet piles shall be of a design that ensures continuous interlock throughout the entire length when in place.
 - .3 Steel sheet piles and interlocks shall not have excessive kinks, camber or twist that would prevent the pile from reasonably free sliding to grade.
- .4 Structural Steel:

- .1 Walers, struts, anchor plates, anchor sleeves, miscellaneous sections and hardware shall be according to CSA G40.21 and shall be 300 W grade, sizes and types as indicated on the drawings.
- .5 Welding:
 - .1 Welding materials to CSA W59 and welding electrodes to CSA W48 Series

PART 3 - EXECUTION

3.1 VIBRATION AND MOVEMENT MONITORING

- .1 The Contractor shall develop and submit for the Engineer's approval, a procedure to monitor vibrations induced by pile driving operations based on the following criteria:
 - .1 Monitoring points are to be established on the existing abutments. Two points minimum per substructure.
 - .2 Measurements shall be in peak particle velocity (PPV) in mm/sec.
 - .3 Induced vibrations shall be limited to a maximum peak particle velocity (PPV) of less than 25 mm/sec.
- .2 Vibration monitoring is to be conducted on a continual basis during pile driving operations and results provided to the Engineer for review.
- .3 Notwithstanding any prior approved procedures, or allowable levels of PPV ground vibrations, should ONTC deem the pile driving to be harmful to ONTC's operations or property, the procedures shall be abandoned and new procedures designed so as to lower the pile driving effects to an acceptable level to ONTC.
- .4 Monitoring of movement for substructure shall be as described in section 02368 – Temporary Cofferdam. Each abutment shall be provided with a minimum of two structure monitoring points, installed at location which are not disturbed during first phase of the abutment rehabilitation.

3.2 INSTALLATION

- .1 The Contractor shall submit, for information purposes only, one (1) week prior to construction:
 - .1 Type of equipment and hammer details including Contractors stated potential energy (rated energy) of the hammer, operating efficiency, weight of ram, anvil and helmet.
 - .2 Procedure including sequence for pile installation.

.3 Procedure for monitoring installation.

3.4 TOLERANCES

.1 Sheet Piles

.1 All steel piles shall conform to a straightness tolerance of 1.5 mm maximum per metre of length.

.2 H-Piles

.1 Cut off +/- 25 mm.

.2 Deviation from vertical not more than 1 in 50, except in the case of a pile cap or footing supporting only a single row of piles the deviation shall not be more than 1 in 75 in the direction of the span.

.3 The deviation from the specified inclination for battered piles shall not exceed 1 in 25.

.4 The centre of the pile at the junction with the pile cap shall be within 50 mm of that specified (measured horizontally) except in the case of a pile cap or footing supported on a single row of piles the deviation shall not be more than 75 mm (measured horizontally) in the direction of the span.

3.5 DRIVING SHOES AND ROCK POINTS

.1 Rock points and driving shoes shall be as specified. Driving shoes shall transfer the driving stresses to the pile over the full cross-sectional area of the pile.

.2 Where the contract shows details of "Splice and Driving Shoe Details for Steel 'H' Piles, the Contractor may substitute the Titus "H" Bearing Pile Point, Standard model, in place of the driving shoe details shown.

.3 Welding of Titus Points shall conform to the manufacturer's specifications.

.4 Where the Contractor elects to use any of the above substitutions, the cost shall be deemed to be included in the contract price for the appropriate item.

3.6 HELMETS AND STRIKER PLATES

.1 The head of piles shall be protected by a striker plate or a helmet. Helmets shall have adequate and suitable cushioning material. Helmets and striker plates shall distribute the blow of the hammer evenly throughout the cross-section of the pile head.

3.7 EQUIPMENT

- .1 The hammers shall be capable of driving the piles to the prescribed depth or to the specified resistance without damage to portions that are not cut off.

3.8 SUBSURFACE CONDITIONS

- .1 No subsurface information is available. The contractor shall carry out their own subsurface investigation, as required, to successfully install the piles as per the contract requirements and in accordance with the intended method of construction.

3.9 TRANSPORTATION, HANDLING, STORAGE

- .1 Piles, shall be transported, stored and handled in such a manner that damage and distortion is prevented and that the strength and integrity are maintained.

3.10 PILE DRIVING REQUIREMENTS AND RESTRICTIONS

- .1 Piles shall be installed at the locations indicated and to the set or depth specified without being damaged.
- .2 Damage to adjacent structures, utilities and fresh concrete shall be prevented during pile installation. Piles shall not be driven within a radius of 7.5 m of concrete which has been in place for less than 72 hours. Piles shall not be driven within a radius of 15 m of concrete that has been in place for less than 72 hours without the approval of the Engineer.
- .3 The tops of all piles shall be either square to the longitudinal axis of the pile or horizontal as indicated on the Contract Drawings.
- .4 Piles shall not be forced into their proper position by the use of excessive manipulation. Pile damage due to excessive driving shall be avoided.

3.11 SPLICING

- .1 All splicing of piles shall be limited to the unavoidable minimum governed by the length of piling readily available on the market and the type of equipment used.
- .2 In general, no more than one splice per pile will be used, with minimum length of 3m. All splicing, where necessary, shall be carried out by means of a full strength butt-weld, as shown on the drawings.
- .3 Sheet piles shall not be spliced without approval by the Engineer.

3.12 CUTTING OFF PILES

- .1 Driven piles shall be cut to the elevation as specified in the contract.

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- .2 The length of pile supplied shall be sufficient to ensure there is no damaged material below the cut off. Damaged material at the pile head shall be cut off.

3.13 CUTTING OFF SHEET PILES UPON COMPLETION OF WORKS

- .1 Piles shall be cut off, when specified in the drawings, upon completion of the work.
- .2 Minimum pile cutoff shall be 3' below grade unless specified otherwise in the drawings.

3.14 HOLES FOR ANCHOR RODS

- .1 Holes in the sheet piles shall be provided for the anchor rods after the piles are installed.
- .2 Hole diameter in the sheet pile shall be minimized.

3.15 QUALITY CONTROL

- .1 Monitoring Driven Piles
- .1 The driving of piles shall be carefully monitored and controlled and pile driving records produced for each pile. All driving records shall be certified by the Contractor and submitted to the Engineer.
- .2 Driving to a Set
- .1 The founding elevation shall be established by driving to a set determined in accordance with the dynamic formula specified or by the application of the wave equation analysis procedure that verifies the pile resistance. This set shall be established on the first pile of every ten piles driven in a pile group.
- .2 The other piles shall be controlled by the pile penetration rate in blows per mm that correlates to the set.
- .3 When new conditions such as change in hammer size, change in pile size or change in soil material occur, new sets shall be determined.

3.16 HAMMER PERFORMANCE

- .1 When requested by the Engineer, the Contractor shall verify the hammer performance using the Pile Driving Analyzer or other approved equivalent. The Contractor shall provide all instrumentation, related access and assistance for the testing and monitoring as directed by the Engineer.

- .2 Hammer performance shall be verified to ensure that the actual potential energy is not less than 90% of the stated potential energy.

3.17 RETAPPING PILES

- .1 Each pile shall be retapped no sooner than 24 hours after installation of the individual pile to confirm the bearing resistance has been sustained.
- .2 Where the retapping reveals that the bearing resistance of the piles has not been achieved, the piles shall be redriven to the specified resistance. Where piles have risen, the piles shall be redriven to the original depth.

3.18 WELDING

- .1 All welding, where applicable, shall be in accordance with CSA W59.

PART 4 - MEASUREMENT & PAYMENT

4.1 H PILES

- .1 Measurement is in metres (m) based on length of steel H-piles actually driven, measured between tip and cut-off elevation.

4.2 SHEET PILES

- .1 Measurement is in square metres (m²) based on length of sheet pile actually driven, measured between tip and cut-off elevation multiplied by overall length.

4.3 DRIVING SHOES AND ROCK POINTS

- .1 Measurement is for each (ea) driving shoe and/or rock point specified and used.

4.4 RETAPPING PILES

- .1 Measurement is for each (ea) pile retapped.

4.5 WALERS AND STRUCTURAL STEEL

- .1 No measurement will be made for work of this section and will be deemed incidental to and included in the various lump sum and unit prices included in the Form of Tender.

4.6 SUBSURFACE CONDITIONS

- .1 No measurement will be made for work of this section and will be deemed incidental to and included in the various lump sum and unit prices included in the Form of Tender.

4.7 VIBRATION MONITORING

- .1 No measurement will be made for work of this section and will be deemed incidental to and included in the various lump sum and unit prices included in the Form of Tender.

4.8 PAYMENT

- .1 The Lump Sum and Unit Prices, submitted in the Form of Tender, shall be full compensation for all materials, labor, equipment, tools and incidentals necessary to complete the work. No additional payment will be made for the pile cut off upon completion of the work.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section specifies the granular materials requirements for the work.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Construction Access Road Section 02141
- .5 Excavating, Trenching and Backfilling Section 02315

1.3 REFERENCES

- .1 American Society Testing and Materials International (ASTM):
 - .1 ASTM C117-17, Standard Test Method for Materials Finer than 75m (No. 200) Sieve in Mineral Aggregates by Washing;
 - .2 ASTM C136/C136M-19, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates;
 - .3 ASTM D698-12(2021), Standard Test Methods for Laboratory Compaction of Soil Effort;
 - .4 ASTM D1557-12(2021), Standard Test Methods for Laboratory Compaction of Soil Modified Effort; and
 - .5 ASTM D4791-19, Standard Test Method for Flat Particles, Elongated Particles or Flat and Elongated Particles in Coarse Aggregate;
- .2 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 1010, Material Specification for Aggregates-Base, Subbase, Select Subgrade and Backfill Material (April 2013).
- .3 Canadian Standards Association (CSA):
 - .1 CAN/CGSB 8.1-88, Sieves, Testing, Woven Wire, Inch Series.

1.4 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance program to ensure all materials, compaction, etc. meet the requirements of this Section and, Section 01620 – Quality Control and Assurance.
- .2 The Contractor shall engage services of an inspection and testing company as part of its scope under Section 01620 – Quality Control and Assurance, to undertake necessary sampling and testing of granular materials specified.
- .3 The Engineer may also carry out independent Quality Assurance tests as per Section 01620 – Quality Control and Assurance of these Specifications.

1.5 SUBMITTALS

- .1 The Contractor shall submit the following submittals for review in accordance with this Section and Section 01340 – Submittals:
 - .1 Granular Material Samples and Test Results providing samples and testing results of all types of granular materials in accordance with Section 01620 – Quality Control and Assurance, Section 02311 – Site Grading and this Section; and
 - .2 Inspection and Test Reports for all tests and inspections performed by the Contractor.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Conform to Section 01560 – Environmental Protection.

1.7 SOURCE QUALITY CONTROL

- .1 Inform the Engineer of proposed source of aggregates and provide access for sampling at least six (6) weeks prior to commencing production.
- .2 If, in opinion of the Engineer, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .3 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.
- .4 Provide sampling facilities at discharge end of production conveyor, to allow the Engineer to obtain representative samples of items being produced. Stop conveyor belt when requested by the Engineer to permit full cross section sampling.

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- .5 Allow continual sampling by the Engineer during production.

PART 2 - PRODUCTS

2.1 MATERIALS- GENERAL

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.
- .2 Flat and elongated particles of coarse aggregate: to ASTM D4791:
- .1 Greatest dimension not to exceed five times least dimension.

2.2 PRODUCTS

- .1 Granular "A":
- .1 Granular 'A' OPSS.PROV 1010 to this Section and following requirements:
- .1 Crushed quarried rock consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, reclaimed asphalt or concrete, frozen material and other deleterious materials; and
- .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB 8.1.
- .2 Granular "B": Type II:
- .1 Granular material, Granular 'B' Type II, OPSS 1010 and following requirements:
- .1 Crushed quarried rock or crushed pit run stone consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, reclaimed asphalt or concrete, frozen material and other deleterious materials; and
- .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1.
- .2 Granular produced by crushing pit-run material consisting of naturally formed deposits of sand, gravel, and cobbles will be acceptable as Granular B, Type II, but it must conform to the gradations described above and have a Percent Crushed Minimum of 50%.

PART 3 - EXECUTION

3.1 HANDLING & STOCKPILING

- .1 Handle and transport aggregates to avoid segregation, contamination and degradation following the Air Quality Best Management Practice Plan.
- .2 Stockpile aggregates off site, or where directed by the Engineer within the Limits of Construction as shown on the Contract Drawings.
- .3 Stockpile aggregates in sufficient quantities to meet project schedules.
- .4 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- .5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
- .6 Do not use intermixed or contaminated materials. Do not incorporate bottom 300mm of stockpile into work. Remove and dispose of rejected materials as directed by the Engineer within 48 hours of rejection.

3.2 PLACING

- .1 Compact subgrade per Section 01620 – Quality Control and Assurance.
- .2 Place granular as subbase, base, or backfill, as indicated on drawings.
- .3 Place granular after subgrade is inspected and approved by the Engineer.
- .4 Construct granular to depth and grade in areas indicated.
- .5 Ensure no frozen material is placed.
- .6 Place material only on clean unfrozen surface, free from snow or ice.
- .7 Place granular materials using methods which do not lead to segregation or degradation.
- .8 For spreading and shaping material, use spreader boxes having adjustable templates or screens which will place material in uniform layers of required thickness.
- .9 Place material to full width in uniform layers not exceeding 150mm compacted thickness.
- .10 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

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- .11 Remove and replace portion of layer in which material has become segregated during spreading.

3.3 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from the Engineer before use.
- .3 Equipped with device that records hours of actual work, not motor running hours.
- .4 Compaction in accordance with ASTM D698 and ASTM D1557:
 - .1 Sewer and culvert bedding: Compact to density of not less than 100% SPMDD;
 - .2 Pavement sub-base, or granular under cast in place concrete: Compact to density of not less than 98% SPMDD; and
 - .3 Backfill, including of subgrade weak or soft spots: Compact to density of not less than 98% of SPMDD unless otherwise indicated.
- .5 Shape and roll alternately to obtain smooth, even and uniformly compacted sub base.
- .6 Apply water as necessary during compaction to obtain specified density.
- .7 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by the Engineer.
- .8 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.4 SITE TOLERANCES

- .1 Finished sub base surface to be within 10mm of elevation as indicated but not uniformly high or low.

3.5 PROTECTION

- .1 Maintain finished sub base in condition conforming to this section until succeeding base is constructed, or until granular sub base is accepted by the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement for work of this item.
- .2 Material used for culverts, drainage structures, subdrains, pipelines, etc. shall be considered incidental to and included in this work and no separate payment shall be made.
- .3 Material used for construction access road works shall be considered incidental to and included in this work and no separate payment shall be made.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be included in the unit prices included in the Form of Tender. Payment will be full compensation for all materials, labor, use of equipment, tools and incidentals necessary to complete the Work of this section.
- .2 The Contractor will not receive payment for any quantity of material placed outside of the site tolerances specified.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 The Work specified in this Section consists of furnishing Portland cement concrete in accordance with CSA A23.1:
 - .1 The Work includes development and control of concrete mix design; storage and quality control of concrete ingredients; batching, mixing, production quality control, and delivering concrete of indicated compressive strength class;
 - .2 All concrete is to be air entrained; and
 - .3 The compressive strength of cast-in-place concrete shall be as shown on the Drawings.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Quality Control and Assurance Section 01620
- .3 Concrete Formwork and Falsework Section 03100
- .4 Concrete Reinforcement Section 03200
- .5 Concrete Accessories Section 03203
- .6 Cast-in-Place Concrete Section 03300

1.3 REFERENCE DOCUMENTS

- .1 American Standards for Testing and Materials International (ASTM):
 - .1 C1567-22, Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Material and Aggregate (Accelerated Mortar-Bar Method).
- .2 Canadian Standards Association (CSA):
 - .1 A23.1:19/A23.2 Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete; latest edition; and
 - .2 A23.3; latest edition, Design of Concrete Structures.

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- .3 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 1002, Material Specification for Aggregates – Concrete (April 2018).

1.4 DEFINITIONS

- .1 The word, "concrete", indicates normal weight concrete, i.e., concrete having a unit weight of approximately 2,300 kg per cubic meter without reinforcement.
- .2 The nominal compressive strength of concrete is indicated as the minimum specified compressive strength at 28 days, which expresses the nominal strength, in megapascals (MPa) of test specimens at 28 days when prepared and tested in accordance with CSA A23.2.

1.5 QUALITY ASSURANCE

- .1 The Contractor shall be responsible to conduct their own quality assurance program to ensure that the structural concrete for the Work meet the requirements of this Section and, Section 01620 – Quality Control and Assurance.
- .2 Concrete shall be produced in a weatherproof concrete batch plant that has the capacity to produce and deliver concrete conforming to specified requirements at the required rate. Ready mix concrete will be acceptable provided the quality standards are met.

1.6 SUBMITTALS

- .1 The Contractor shall submit the following submittals at least 14 days working days prior to starting the work for review in accordance with this Section and Section 01340 – Submittals:
 - .1 Design mixes for each concrete class determined by the Contractor through an approved design laboratory, to produce the results as specified herein. New design mixes shall be submitted for each change of ingredients, ingredient sources, and admixtures;
 - .2 Methods for cold and hot weather mixing, if applicable;
 - .3 Certifications of conformance of all concrete ingredients to the specified requirements; and
 - .4 Certifications of conformance of design mixes to specified requirements in respect to strength, unit weight, maximum size aggregate, air entrainment and slump.

- .2 Submit an evaluation of cement-aggregate reactivity to Engineer, along with results from tests stipulated in Section 2.1, article 3.
- .3 Submit batching plant recorder printouts to Engineer. Refer to section 3.7, article 2 for information to be recorded on printout.

1.7 TESTING OF CONCRETE

- .1 Three specimens will comprise a compressive strength test. There will be at least one strength test for each 50 cubic meters (m³) of each class of concrete (or fraction thereof) and in any event not less than one strength test for each class of concrete each day it is used.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement:
 - .1 CSA A23.1, Type GU; and
 - .2 All concrete shall be made with low alkali Portland Cement (with less than 0.6% sodium equivalents). Cement shall be stored in suitable weatherproof silos that will protect the cement from dampness. Provision for storage shall be ample to meet minimum requirements specified herein, and shipments of cement as received shall be stored separately in such a manner as to provide easy access for the identification and inspection of each shipment, and so that the cement of each shipment may be used in the Work in the order in which the shipments are received.
- .2 Aggregates for Structural Concrete:
 - .1 Coarse Aggregate: Stone having specific gravity of not less than 2.65 and conforming to CSA A23.1. Maximum size of aggregate shall be 20 mm for all concrete.
 - .3 Fine Aggregate: Natural sand conforming to CSA A23.1:
 - .1 The grading and quality of aggregates shall conform to the requirements of CSA A23.1. Aggregates shall be handled and stored in a manner to prevent segregation or the intrusion of foreign materials. Fine and coarse aggregates shall be stored separately so as to prevent the two materials from becoming intermixed;
 - .2 Quality testing of aggregate shall include an evaluation of cement-aggregate reactivity as outlined in CSA A23.1. The Contractor shall

submit an evaluation of cement- aggregate reactivity as outlined in the OPSS 1002;

- .3 The Contractor shall submit results of ASTM C1567 and CSA A23.2 to the Engineer. Until the above test results are available, the Contractor may use low-alkali cement or other means as approved by the Engineer; and
- .4 Water: Free from substance which would interfere with the chemical action by which concrete is formed, would detract from the strength and durability of the concrete, would cause variations in the color of the concrete, or would cause a combination of such defects.
- .4 Admixtures:
 - .1 Air Entraining Agents shall conform to CSA A23.1. Precautions shall be taken to ensure the air-entraining agent does not become frozen, either in transit or storage. Air entraining agent that has at any time been frozen shall not be used;
 - .2 Water Reducers, Retarders, Accelerators, Water Reducer/Retarders, and Water Reducer/Accelerators: CSA A23.1; and
 - .3 Admixtures containing chloride are prohibited.

PART 3 - EXECUTION

3.1 EQUIPMENT

- .1 Conform to CSA CAN3-A23.1.
- .2 The Contractor shall have equipment of sufficient capacity to undertake the Work to the satisfaction of the Engineer.
- .3 The batch plant shall be certified with the Ready-Mix Concrete Association of Ontario (RMCAO).

3.2 AGGREGATE PROCESSING

- .1 Do not mix aggregates from different sources, except as required to satisfy the accepted mix design.
- .2 Do not change mix designs and sources of aggregates without written acceptance by the Engineer.
- .3 Do not allow aggregate mixtures to become segregated.

3.3 TEMPERATURE CONTROL

- .1 Prepare aggregates by methods that produce concrete having a temperature of not more than 30° Celsius and not less than 10° Celsius at the time of placement in the forms.
- .2 Do not heat water more than 60° Celsius.
- .3 Heat concrete ingredients when ambient air temperature is 5° Celsius and falling or cool concrete ingredients when ambient air temperature rises above 30° Celsius, by methods approved by the Engineer.

3.4 PROPORTIONING

- .1 Proportion concrete ingredients in conformance with the accepted mix design for the indicated strength class and usage and CSA CAN3-A23.1.
- .2 All concrete mixes shall be of the proportions approved by the Engineer. Minor changes in the relative quantities of fine and coarse aggregates may be made for the purpose of adjusting the workability of the mix with the Engineer's approval.

3.5 MEASURING, BATCH PLANT, MIXERS AND AGITATORS, MIXING AND DELIVERY

- .1 Conform to CSA A23.1.
- .2 Materials shall be measured by weighing, except as otherwise specified. The apparatus provided for weighing the aggregate and cement shall be suitably designed and constructed to secure the specified quantities in each batch. Each size of aggregate and the cement shall be weighed separately. The accuracy of all weighing devices shall be such that all weights may be determined to within one percent.
- .3 Cement in standard packages need not be weighed, but bulk cement shall be weighed.
- .4 When sacked cement is used, each batch shall contain a whole number of sacks. The use of fractional sacks of cement will not be permitted.
- .5 The mixing water shall be measured by volume or by weight. An approved water measuring device shall be provided upon or in conjunction with the mixer capable of being set to deliver the specified quantity of water. Such measuring devices shall be accurate to within one-half of one percent of the total required for batch mix.
- .6 Concrete shall be thoroughly mixed in a batch mixer of an approved size and type that will ensure a uniform distribution of the materials throughout the mass.

- .7 The mixer shall be equipped with adequate water storage and a device for accurately measuring and automatically controlling the amount of water used in each batch. Mechanical means shall be provided for recording the number of revolutions for each batch and automatically preventing the discharge of the mixer until the materials have been mixed the specified minimum time.
- .8 The entire contents of the mixer shall be removed from the drum before materials for a succeeding batch are placed therein. Materials composing a batch shall be deposited at the same time in the mixer.
- .9 All concrete shall be mixed for a period of not less than 1-1/2 minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed.
- .10 The first batch of concrete materials placed in the mixer shall contain a sufficient excess of cement, sand and water to coat the inside of the drum without reducing the required mortar content of the mix. Upon the cessation of mixing for a considerable period the mixer shall be thoroughly cleaned.
- .11 The batch plant must be enclosed and heated to a minimum temperature of 7° Celsius to protect all batching equipment from cold, wind, rain and snow.

3.6 ADMIXTURES

- .1 Dispense admixtures in liquid form for each batch from a dispenser having capacity to measure the quantity required for one batch and operated by one of the following two methods:
 - .1 Method A: By introducing liquid at a uniform and constant rate into the stream of water entering each batch; and
 - .2 Method B: By introducing liquid into pre-measured water for each batch.

3.7 PRODUCTION QUALITY CONTROL OF STRUCTURAL CONCRETE

- .1 Concrete Batch Plant:
 - .1 Concrete shall conform to the accepted mix design and to CSA A23.1;
 - .2 Weighing, indicating, and control equipment shall be insulated against vibration and movement from operating equipment;
 - .3 When entire plant is running, scale readings at cut-off shall not vary from calculated batch weight for accepted mix design by more than one percent for cement, or one percent for total aggregate in any batch; and

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- .4 Calibrate scales, as frequently as Engineer may deem necessary to ensure their accuracy.
 - .2 Recorders:
 - .1 Batching plant shall be equipped with an accurate recorder which shall produce a digital printout of batch number and scale readings corresponding to each of ingredients of each concrete batch, including zero initial readings. Recordings shall indicate by name or code each individual ingredient corresponding to each weight, including amount of each admixture;
 - .2 Each printout shall indicate date and time of batching, identification number identical to that of concrete delivery ticket, and codes for mix design and project section;
 - .3 Printout shall be produced in duplicate and one copy delivered with its corresponding concrete delivery ticket to Engineer;
 - .4 Each recorder mechanism shall be housed in a locked, dust-tight cabinet; and
 - .5 Recorders shall be placed in a position convenient for observation.
 - .3 Permit and assist Engineer to take concrete for moulding of test specimens at points of delivery of concrete to worksite at no cost to the Company.
 - .4 The Contractor shall furnish and maintain a storage box, for use by the Engineer, for curing test specimens. The storage box will be of sufficient size to facilitate the storage of test specimens from the time they are cast until they are moved to a testing facility. The storage box shall maintain the temperature of the cylinders between 20° and 24° Celsius and prevent loss of moisture. The storage box will be equipped with an automatic heater, a minimum registering thermometer and a locking system with three keys.
 - .5 The allowable range of air content in the concrete is 5 - 8% by volume.
 - .6 The allowable slump range for the concrete is defined on the drawings.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 No measurement for payment will be made for Portland Cement concrete.

4.2 **PAYMENT**

- .1 Payment for the Work of this Section shall be included in the lump sum and unit price items for Concrete included in the Schedule of Quantities and Prices. Payment will be full compensation for material, labor, use of equipment, tools and incidentals necessary to complete the Work of this Section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 The Work in this section includes but is not limited to the following:
 - .1 Design of forms and supporting falsework;
 - .2 Use of wood or steel forms for all cast-in-place concrete;
 - .3 Shoring, bracing and anchorage;
 - .4 Formed openings for other trades;
 - .5 Co-ordination of installation of concrete accessories;
 - .6 Cleaning erected formwork prior to concrete placement; and
 - .7 Removal of forms and supporting falsework.

1.2 RELATED SECTIONS

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Concrete Reinforcement Section 03200
- .5 Concrete Accessories Section 03203
- .6 Cast-in-Place Concrete Section 03300

1.3 REFERENCE STANDARDS

- .1 National Building Code of Canada.
- .2 Canadian Standards Association (CSA):
 - .1 A23.1:19/A23.2:19, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete;
 - .2 B111-1974 (R2003), Wire Nails, Spikes and Staples;
 - .3 O121-08 (R2013), Douglas Fir Plywood;

- .4 O141:05 (R2019), Softwood Lumber.
- .3 American Concrete Institute (ACI):
 - .1 ACI 347-14(21), Guide to Formwork for Concrete.

1.4 QUALITY CONTROL AND ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure that the structural concrete for the Works meets the requirements of the Specifications, in accordance with Section 01620 – Quality Control and Assurance.
- .2 Formwork shall be designed so that all face joints, corners, gaps or holes shall be water-tight and non-absorbent.
- .3 Materials used for form leakage control shall produce, flush, water-tight and non-absorbent surfaces and joints and shall be compatible with type of forming materials selected.
- .4 Form ties shall be in a uniform pattern and shall be she-bolt, coil or taper tie type. Form ties shall be designed to prevent loss of parts or moisture.

1.5 SUBMITTALS

- .1 The Contractor shall submit the following submittals for review, in accordance with the requirements of this Section and Section 01340 – Submittals:
 - .1 Design of forms, falsework, accessories, etc. to be completed by a Professional Structural Engineer registered in the Province of Ontario. The same Engineer is also to inspect the erected formwork and certify, in writing, that it is in accordance with the design; and
 - .2 Submit shop drawings for review in accordance with the General Conditions.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 For Exposed Surfaces: square-edged, smooth surfaced panels true in plane, free of holes, surface markings or defects.
- .2 For Unexposed Surfaces: square-edged T&G lumber, plywood or other material suitable to retain concrete without leakage or distortion.
- .3 Wood Materials:

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- .1 Plywood: Douglas fir, conforming to CSA 0121-M, solid one side select sheathing - tight face grade. Sound, undamaged sheets with clean true edges;
 - .2 Lumber: conforming to CSA 0141; and
 - .3 Nails, Spikes and Staples: galvanized or phosphatized, conforming to CSA B111.
 - .4 Prefabricated Forms:
 - .1 Steel Type: minimum 1.6 mm steel thickness; well matched, tight fitting and adequately stiffened to support the weight of concrete without deflection detrimental to structural tolerance and appearance of finished concrete surface.
 - .5 Accessories:
 - .1 Form Ties: removable or snap-off metal type with metal form spacers, fixed or adjustable length; minimum working strength of 13 kN. When assembled, free of defects that will leave metal closer than 40mm from concrete surface. Wire ties are not permitted. Use plastic cone snap type on exposed surfaces;
 - .2 Form Release Agent: colorless mineral oil that will not stain concrete or impair natural bonding or color characteristics of coating intended for use on concrete;
 - .3 Corner or Chamfer Fillets: extruded plastic or mill finish pine, 19mm width, maximum possible lengths, miter ends; and
 - .4 Sealing Tape: reinforced, self-adhesive polyvinyl-chloride.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Before starting Work, the Contractor shall examine work done by others having an effect on this Work.
- .2 Rectify all conditions that would prejudice proper completion of this Work.
- .3 Commencement of Work implies acceptance of existing conditions.

3.2 ERECTION

- .1 Verify lines, levels and centres before proceeding with formwork. Ensure dimensions agree with the Drawings.
- .2 Construct formwork and falsework to meet design and regulatory requirements and to produce finished concrete conforming to surfaces, shapes, lines and dimensions indicated on the Drawings. Ensure visible lines of the walls follow a smooth profile both vertically and horizontally.
- .3 Arrange and assemble formwork to permit removal without damage to concrete.
- .4 Align joints and make watertight to prevent leakage of cement paste and disfiguration of concrete. Keep form joints to a minimum.
- .5 Do not use earth surfaces to form concrete without written approval of Engineer.
- .6 Arrange forms to allow removal without removal of principal shores where these are required to remain in place.
- .7 Provide falsework to ensure stability of formwork. Prop or strengthen all previously Understanding constructed parts liable to be overstressed by construction loads.
- .8 Position form joints to suit any expressed lines required in exposed concrete. Arrange form board panels in a regular symmetrical pattern to the approval of the Engineer.
- .9 Provide 19mm chamfer on all internal and external corners and edges of exposed concrete unless shown otherwise.
- .10 Form chases, slots, openings, drips and recesses as detailed on the Drawings.
- .11 Set screeds with top edge level to required elevations.
- .12 Check and re-adjust formwork to required lines and levels during placing of concrete.
- .13 If form sheathing is to be re-used, remove nails and clean surfaces in contact with concrete before re-using.

3.3 TOLERANCES

- .1 Construct formwork and all supporting or bracing members to within the following deflection limitations under the weight or pressure of wet concrete and other loadings incidental to construction. Deflections are not cumulative:
 - .1 Forms: $1/270$ of span between supporting studs;

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- .2 Studs: 1/270 of backing wale space; and
 - .3 Wales: 1/270 of span between ties or other support points.
 - .2 Construct formwork to produce concrete with dimensions, lines, and levels within the following discrete tolerances:
 - .1 Deviation from Vertical Line for Walls: 6 mm in 3m, 9 mm in 6m, and 20 mm in 12m or more;
 - .2 Deviation from Flat Surface of Walls: 3 mm in 3m;
 - .3 Deviation from Horizontal Line: 6 mm in 3m;
 - .4 Deviation from Position of Walls: 6 mm; and
 - .5 Deviation in Cross-sectional Dimensions of Walls or Thickness of Slabs: +6 mm/-0 mm.
 - .3 If tolerances are exceeded, the Contractor must remove, replace or modify placed concrete as directed by the Engineer at no additional cost to the Company.
 - .4 The Contractor must provide for settlement, closure of joints and elastic shortening of the forms and shoring.

3.4 CONSTRUCTION JOINTS

- .1 Locate joints not indicated on the Drawings so as to least impair the strength of the structure. Obtain the Engineer's approval before proceeding.
- .2 Construct joints in accordance with CSA A23.1.
- .3 Roughen surface of hardened concrete and thoroughly clean of any foreign matter and laitance. Wet surface with water and ensure forms are tight against face of hardened concrete.

3.5 FORM TIES

- .1 Submit tie patterns to the Engineer for review for all exposed surfaces. Arrange ties in a uniform pattern, both horizontally and vertically.
- .2 For exposed concrete, fit ties with cones approximately 20 mm in diameter and not longer than 50 mm. Through-hole ties are not permitted. Snap-off ties can be removed while ensuring enough ties remain to hold form in place. Cutting ties back from the face of the wall is not permitted.

- .3 Below grade or below water level and all non-exposed concrete: fill all holes left by withdrawal of rods, or holes left by removal of tie ends with solid mortar.
- .4 Remove all cones from exposed concrete surfaces. If surface is to be sandblasted, leave cones in place until after sandblasting is complete. Fill cone holes with small amount of grey sealant to cover metal rod.
- .5 The holes left by withdrawal of rods or the holes left by removal of ends of ties shall be filled solid with mortar after first being thoroughly wetted. Holes not passing entirely through the wall shall be filled with a small tool that will permit packing the hole solid with mortar. Any excess mortar at the wall shall be struck off flush with the surface.

3.6 EMBEDDED ITEMS

- .1 Provide formed openings where required for pipes, conduits, sleeves and other work to be embedded in and passing through the concrete members.
- .2 Accurately locate and set in place, items which are to be cast directly into concrete.
- .3 Co-ordinate the work of other Sections and cooperate with trades involved in forming openings, slots, recesses, chases and setting sleeves, bolts, anchors and other inserts.
- .4 Do not set anchor bolts, sleeves and inserts into placed concrete.

3.7 QUALITY CONTROL

- .1 Inspect and check complete formwork, falsework, shoring, and bracing to ensure that the work is in accordance with formwork design and that supports, fastenings, wedges, ties and parts are secure.
- .2 Inform Engineer when formwork is complete and has been cleaned to allow for inspection. Engineer's inspection will be for verification that forms are clean and free from debris.
- .3 Do not patch formwork for any exposed concrete surfaces.
- .4 Allow the Engineer to inspect each section of formwork prior to re-use. Formwork may be re-used if approved by the Engineer.

3.8 CLEANING

- .1 Clean forms as erection proceeds to remove foreign matter. Remove cuttings, shavings and debris from within the forms. Flush completely with water to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

- .2 During cold weather, remove ice and snow from within the forms. Do not use de-icing salts. Do not use water to clean out completed forms unless formwork and concrete construction proceed within a heated enclosure. Use compressed air or other means to remove foreign matter.

3.9 PREPARATION

- .1 Apply form release agent in accordance with the manufacturer's recommendations prior to placing reinforcing steel, anchoring devices and embedded parts.
- .2 Do not apply form release agent where concrete surfaces are to receive special finishes or applied coverings that are affected by the agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces moist prior to placing the concrete.

3.10 FORM REMOVAL

- .1 Notify Engineer prior to removing falsework.
- .2 The following Table is to be used as a guide for the removal of forms and supports:

	Min. Period of Time	Min. Concrete Strength (based on 28 Day Strength)
Caisson (or Drilled Shaft) Caps	3 days	70%
Arches, Girder, Beams	14 days	80%
Pier Caps	5 days	70%
Columns	3 days	70%
Pier Shafts and Vertical Walls	3 days	50%
Deck	5 days	70%
Suspended Slabs	5 days	70%
Footings	2 days	70%

- .3 Remove falsework progressively in accordance with regulatory requirements and ensure that no shock loads or imbalanced loads are imposed on the structure.
- .4 Loosen forms carefully. Do not apply tools to exposed concrete surfaces.
- .5 Leave forms loosely in place for protection until the Engineer approves complete removal.
- .6 Store removed forms for exposed architectural concrete in a manner that surfaces to be in contact with fresh concrete will not be damaged. Marked or scored forms will be rejected.

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- .7 Proper curing of all concrete components shall be maintained in accordance with the relevant sections of these specifications.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Form work and falsework will not be measured for payment.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be incidental to the contract items requiring this work. Separate payment for this item shall not be made.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This Section consists of furnishing and placing reinforcing steel bars for cast-in-place concrete complete with tie wire, support chairs, bolsters, bar supports and spacers for reinforcing, all as shown on the Contract Documents.

1.2 RELATED WORK

- .1 Submittals Section 01340
- .2 Quality Control and Assurance Section 01620
- .3 Cast-in-Place Concrete Section 03300

1.3 REFERENCE STANDARDS:

- .1 Canadian Standard Association (CSA):
 - .1 A23.1-19/A23.2-19, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete; latest edition;
 - .2 A23.3-19, Concrete Structures;
 - .3 G30.15-M1983 (R1998), Welded Deformed Steel Wire Fabric for Concrete Reinforcement;
 - .4 G30.18:21, Carbon Steel Bars for Concrete Reinforcement;
 - .5 G30.3-M1983 (R1998), Cold-Drawn Steel Wire for Concrete Reinforcement;
 - .6 G30.5-M1983 (R1998), Welded Steel Wire Fabric for Concrete Reinforcement;
 - .7 W186:21, Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .2 American Concrete Institute (ACI):
 - .1 315:18, Guide to Presenting Reinforcing Steel Design Details; and
 - .2 318-19M, Building Code Requirements for Structural Concrete

.3 ACI Detailing Manual MNL-66(20).

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure that the steel reinforcement and mechanical connections for concrete structures for the Works meet the requirements of the Specifications, in accordance with Section 01620 – Quality Control and Assurance.
- .2 Reinforcing bars shall be placed in accordance with CSA A23.3 and the following tolerances:
- .1 Concrete cover to formed surfaces: plus zero, minus 6mm;
- .2 Minimum spacing between bars: plus zero, minus 6mm; and
- .3 Crosswise of members: spaced evenly within 50mm.

1.5 SUBMITTALS

- .1 the Contractor shall submit the following submitted for review in accordance with the requirements of this Section and Section 01340 – Submittals:
- .1 Placement drawings, mill certificates, and bar lists shall be submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the drawings and lists and for providing all bar reinforcing steel in accordance with the details indicated. Reinforcing bars shall be detailed in accordance with CSA A23.1. The prepared drawings and lists shall show bending and dimensions. Each list shall show weights of each bar, the total weights of each bar size, and the total weight of the reinforcement shown on that list. Weights shall be calculated in accordance with CSA G30.18M. All shop drawings shall bear the stamp of a qualified Professional Engineer registered in the Province of Ontario; and
- .2 The Contractor shall notify the Engineer in sufficient time to permit sampling and testing of reinforcement before reinforcement is shipped. Each bundle of steel shall be tagged at the mill with an identifying mill tag, showing the name of the mill and the heat number. Tags shall be metal and shall be attached with a lead seal and placed in an exposed position for easy identification. A certified copy of mill tests on each heat, showing physical and chemical analyses, shall be available to the Engineer at the time of sampling. Two or more samples, each 2-1/2 feet long, may be taken at random from each size in each heat. All samples shall be furnished by the Contractor without cost to the Company.

PART 2 - PRODUCTS

2.1 BAR REINFORCEMENT

- .1 Bars shall be deformed and shall be of the sizes and shapes indicated and shall conform to CSA G30.18.09 (R2018).

2.2 FABRICATION

- .1 Bars shall be neither bent nor straightened in a manner that will injure the material. Bars with kinks or improper bends, or both, shall not be used. All bars shall be bent cold. Field bending, without prior acceptance from the Engineer, will not be allowed.

PART 3 - EXECUTION

3.1 REINFORCING BARS

- .1 Bars shall be placed where indicated and shall be secured by wiring at intersections with No. 16 gauge, black, soft wire and shall be supported by either pre-cast mortar blocks or metal chairs, spacers, metal hangers, supporting wires, or other accepted devices having a strength which will resist crushing under full load. Where any portion of accessories has less than the specified minimum cover, they shall be hot dipped galvanized. The placing of bars on layers of fresh concrete as the work progresses, and the adjusting of bars during the placing of concrete, will not be permitted.

3.2 CONCRETE PROTECTION FOR REINFORCEMENT

- .1 The minimum clear cover for reinforcement shall conform to the requirements of CSA A23.1, Table 17 (Concrete Cover) for exposure condition C-1 unless otherwise indicated on Drawings.

3.3 SPACING OF REINFORCING STEEL

- .1 Spacing shall be as shown on the Contract Drawings and conform to the requirements of CSA A23.1, Chapter 6.

3.4 SPLICING OF BAR REINFORCING STEEL

- .1 Splicing shall be either by lapping or by mechanical coupler, except that no lapped splices shall be used for bars larger than No. 11 (35M). The bar-to-concrete clearance shall not be impaired. Bar reinforcing steel may be continuous at locations where splices are indicated.

3.5 SPLICE LOCATIONS

- .1 Splices shall be used only where shown on the Drawings or approved by the Engineer. When not indicated, splices shall be determined by the Contractor, but with prior approval by the Engineer, and shall be based upon using available commercial lengths where practicable. Splices at points of maximum tensile stress shall be avoided wherever possible; such splices where used shall fully develop the strength of the reinforcement or provided with Class B tension lap splices.

3.6 LENGTH OF LAPPED SPLICES

- .1 No. 11 (35M) bars and smaller deformed bars shall be lapped as indicated on the Drawings. Bar laps not indicated shall be Class B tension lap splices unless otherwise approved by the Engineer. Bars shall be placed in contact with each other and shall be wired together in a manner that will maintain a clearance of not less than the indicated clear distances. Unless otherwise indicated or permitted by the Engineer, splices shall be staggered not less than 30 bar diameters, and not more than one-third of the bars may be spliced at one location, provided the indicated clearances are maintained.

3.7 MECHANICAL COUPLER SPLICES

- .1 Mechanical Coupler splices shall develop 125 percent of the specified yield strength of the bars.
- .2 Mechanical splices shall be used only when approved by the Engineer.

3.8 INSPECTION

- .1 Concrete shall not be placed until the Engineer has accepted placement of reinforcement.

3.9 INTERFERENCE

- .1 Interference with other reinforcing steel and embedded items may be avoided by moving bars. If bars are moved either more than one diameter, or enough to exceed the tolerances specified herein, the resulting bar arrangement shall be subject to acceptance by the Engineer.

3.10 CLEANING

- .1 Before concrete is placed, the reinforcement to be embedded shall be free of mortar, oil, dirt, paint, loose mill scale, ice, and other coating of that character which would destroy or reduce the bond.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Concrete Reinforcement will per pound (lbs) of reinforcing steel provided.

4.2 PAYMENT

- .1 The Work specified in this Section will be as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labor, equipment, and material required to complete placement drawings, fabricate, and place reinforcement in accordance with this section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section includes concrete finishing, styrofoam, inserts, expansion and construction joints, waterstops, and other concrete accessories where shown on the Drawings and as called for in this Section
- .2 Supply and install at locations as shown on the drawings, or as required by the consultant.

1.2 WORKMANSHIP

- .1 The Work shall be carried out by a recognized Contractor having at least five (5) years' experience and mechanics skilled in the use of the materials specified.
- .2 The Contractor shall examine the Work surfaces to ensure that they are in condition to receive the material specified. Installation of the materials shall indicate acceptance of the surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Waterstops: EPSEAL PVC Waterstops; Type 6380 supplied by W.R. Meadows Ltd. or approved equal. Waterstops to be spliced by hot vulcanizing using Sealtight Electric Splicer No. 3845, by W.R. Meadows Ltd., or approved equal.
- .2 Joint Sealer: Dow Corning 888 Silicone highway joint sealant, or approved equal capable of withstanding a temperature of 223°C.
- .3 Styrofoam: H1 40 (Extruded expanded polystyrene), Dow Chemical or Celfortec.
- .4 SikaGrout-212 or approved equivalent, for concrete dowels.
- .5 All products shall be used in strict compliance with their manufacturer's published instructions.

PART 3 - EXECUTION

3.1 WATER STOP

- .1 The water stop strips shall be supplied for all construction joints, in maximum lengths available and joints shall be fusion welded.
- .2 The entire cost to supply and install water stops at locations shown on the Drawings, or as required, shall be included in the various Form of Tender for concrete.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Concrete Accessories will not be measured for payment.

4.2 PAYMENT

- .1 Payment for the Work of this Section shall be incidental to the contract items requiring this work. Separate payment for this item shall not be made.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SCOPE

- .1 This Section covers the requirements for the installation of metallic dowels into concrete.

1.2 RELATED SECTIONS AND REFERENCES

- .1 Submittals Section 01340
- .2 Safety Requirements Section 01545
- .3 Environmental Protection Section 01560
- .4 Materials and Equipment Section 01600
- .5 Quality Control and Assurance Section 01620
- .6 Concrete Formwork and False Work Section 03100
- .7 Concrete Reinforcement Section 03200
- .8 Concrete Accessories Section 03203
- .9 Cast-in-Place Concrete Section 03300

1.3 REFERENCE DOCUMENTS

- .1 Ontario Ministry of Transportation Publications:
- .2 Designated Sources for Materials (DSM) Manual
- .3 Pull Test Guide for Testing of Metallic Dowels, of Uncoated, Coated or Stainless Steel

1.4 DEFINITIONS

- .1 For the purpose of this Section the following definitions apply:
 - .1 **Adhesive** means an adhesive comprised of chemical components that cure when blended together; such as epoxies, polyurethanes, polyesters, methyl methacrylate's or vinyl esters, that is used to secure a dowel in concrete.

- .2 **Cartridge System** means two-component adhesives packaged in a cartridge for use with either manually or power-driven dispensers. Metering and mixing of the components are automatically controlled as the adhesive is dispensed through a manifold and disposable mixing nozzle.
- .3 **Dowel** means a post-installed deformed reinforcing steel bar, or stainless steel reinforcing bar, inserted into hardened concrete, that transfers loads to the concrete by the bond between the dowel and the adhesive and the bond between the adhesive and the concrete.
- .4 **Dowel Type** means a dowel differentiated by bar size, orientation of embedment (horizontal, vertical, or other), and embedment length.
- .5 **Manufacturer's Printed Installation Instructions (MPII)** means published instructions for correct installation of dowels under all covered installation conditions as supplied in product packaging by the manufacturer of the adhesive. The MPII includes information on storage conditions, and shelf life of the adhesive, and restrictions on installation conditions.
- .6 **Piston Plug** means a device on the end of a flexible injection tube equaling the hole diameter, which facilitates injection of liquid adhesive into a drilled hole.
- .7 **Pull Test** means a test consisting of the application of a specified tensile axial load for a specified time period to installed dowels selected for testing.

1.5 SUBMITTALS

- .1 Dowels
 - .1 Submission requirements for the certification of the manufacturer of metallic dowels shall be according to Section 03200 – Concrete Reinforcement.
- .2 Manufacturer's Printed Installation Instructions (MPII)
 - .1 The adhesive's MPII shall be submitted to the Contract Administrator at least 7 Days prior to drilling of any dowel holes.

PART 2 - MATERIALS

2.1 ADHESIVE

- .1 The adhesive shall be an approved cartridge system supplied from a source named on the ministry's DSM, suitable for the application. Adhesive cartridges shall be stored according to the MPII.

2.2 DOWELS

- .1 The dowel type shall be as specified in the Contract Documents. Dowels shall be new, clean, and free of deleterious material.

PART 3 - EXECUTION

3.1 OPERATIONAL CONSTRAINT

- .1 Dowels shall not be installed in concrete less than 21 Days old.

3.2 PROOF OF PROCESS

- .1 When the Contract Administrator determines that in-situ pull testing is not possible due to insufficient clearance for proper positioning of the testing device or dowels too short to fit the testing device grips, a proof of process installation and pull testing shall be carried out in lieu of in-situ pull testing.
- .2 Dowels shall not be installed into the work until the Contract Administrator has accepted the proof of process installation procedure, including personnel, and provided notification in writing.
- .3 The purpose of proof of process installation is to demonstrate to the Contract Administrator that the dowel installation material and methods used in the work are capable of meeting the pull test requirements as specified in the Contract Documents.
- .4 The proof of process installation shall be installed at another location in the work subject to the approval of the Contract Administrator. The proof of process installation shall be carried out using the same personnel, equipment, materials, and methods intended for use in the work, and shall be in the same orientation (vertical or horizontal) required for the work.
- .5 An approved proof of process installation procedure for dowel types shall be valid for the work for 120 Days from the date of acceptance. After 120 Days, proof of process installation shall be repeated using the same personnel, materials, dowel type, and process to re-qualify the proof of process installation procedure.

- .6 Re-qualification of the proof of process installation procedure shall be required when any personnel, materials, dowel type, and process changes. The Contract Administrator may at any time require a re-qualification of the proof of process installation. When re-qualification is required, and it has been deemed acceptable by the Contract Administrator, it shall be valid for 120 Days from the date of re-qualification.
- .7 Upon the successful completion of a proof of process installation procedure, the approved personnel shall be permitted to install dowel types using the accepted installation procedure.

3.3 INSTALLATION

- .1 Drill Holes:
 - .1 Holes shall be drilled straight at the locations specified in the Contract Documents. The drill holes dimensions and depths shall be as specified in the Contract Documents. The drill hole diameter shall not be greater than 1.5 times the diameter of the dowel. Core drilling of the holes shall not be permitted.
 - .2 Existing reinforcement, utility ducts, post tensioning hardware, and any unsound concrete in the vicinity of the dowel locations shall be located prior to the drilling of any holes. Steel reinforcement and other existing embedments shall not be cut or damaged by the drilling process. If any of the above is encountered during drilling operations, the Contract Administrator shall be notified immediately.
 - .3 The drilling operations shall not cause spalling, cracking, or other damage to the surrounding concrete. Any damage shall be repaired in a manner acceptable to the Contract Administrator.
 - .4 Holes that are started but not completed shall be cleaned and filled with a proprietary patching material from the Owner's pre-qualified products list in a manner acceptable to the Contract Administrator.

3.4 CLEANING DRILL HOLES

- .1 Immediately prior to installation of dowels, drill holes shall be thoroughly cleaned and free of debris according to the MPII. At a minimum, the drill hole shall be cleaned with compressed air followed by a cleaning brush and a second jet of compressed air.

3.5 INSTALLING DOWELS

- .1 Each cartridge system shall be tested for proper mixing on a disposable surface prior to injecting any adhesive into the drill hole. The test material shall not be incorporated into the work.

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- .2 A piston plug shall be used for adhesive injection for dowels installed in the horizontal and overhead directions.
 - .3 Dowels shall be installed in the positions specified in the Contract Documents. The adhesive shall be placed according to the MPII and shall completely fill the drill hole once the dowel is installed. All excess adhesive shall be struck-off flush with the concrete surface and removed from the surrounding concrete surface area.
 - .4 Dowels shall be maintained in the proper position, protected from being disturbed during the setting of the adhesive, and loss of adhesive from the holes shall be prevented.

3.6 INSPECTION AFTER INSTALLATION OF DOWELS

- .1 A written "Request to Proceed" request shall be submitted to the Contract Administrator after the installation of all dowels in a lot are ready for testing and prior to placement of concrete.
- .2 Access to the dowels for pull testing shall be provided to the Contract Administrator. The Contract Administrator shall be allowed 5 Business Days to carry out the pull testing.
- .3 Until the pull tests have been completed and the lots are accepted into the work, installation of formwork or attachment of anything to the dowels (such as steel reinforcement or utility ducts) shall not be permitted.
- .4 The next operation shall not proceed until the Contract Administrator has accepted the test results and provided a "Notice to Proceed" in writing.

3.7 QUALITY ASSURANCE

- .1 Installed dowels shall be accepted based on conformance to the visual acceptance criteria and pull testing criteria.
- .2 All dowels, except for dowels installed in the following applications, shall be subjected to in-situ pull testing for acceptance purposes:
 - .1 Concrete box culvert extensions;
 - .2 Re-facing of all structural elements (e.g., abutments, columns, wing walls) less than 2 m in height;
 - .3 Widening of footings;
 - .4 Concrete patches;
 - .5 Concrete pavement repairs;

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- .6 Slip-formed barrier walls; and,
 - .7 When the Contract Administrator determines that in-situ pull testing is not possible due to insufficient clearance for proper positioning of the testing device or dowels too short to fit the testing device grips. A proof of process installation and pull testing shall be carried out in lieu of in-situ pull testing.

3.8 VISUAL ACCEPTANCE CRITERIA

- .1 Completed dowel installations shall be properly positioned as specified in the Contract Documents and free of any defects and deficiencies up to the date of completion of the placement of concrete.
- .2 Any spalling, cracking, or other damage to the surrounding concrete caused by the installation or removal of dowels shall be repaired in a manner acceptable to the Contract Administrator.
- .3 Any damaged dowels determined to be rejected by the Contract Administrator shall be cut as close to flush with the concrete face as possible. A replacement dowel shall be installed at a location determined by the Contract Administrator.

3.9 HORIZONTAL DOWELS

- .1 Completed horizontal dowel installations shall not have excessive run-out of adhesive resulting in incomplete coverage of the dowel in the hole. Dowels shall be prevented from sag during adhesive cure. Drill holes shall be completely filled with adhesive.

3.10 PULL TESTING CRITERIA

- .1 Pull testing shall be carried out by the Contract Administrator according to the Pull Test Guide for Testing of Metallic Dowels, available from Engineering Materials Office, Concrete Section.
- .2 The Contractor may be present during the testing procedure. When requested by the Contractor, the Contract Administrator shall provide documentation of equipment calibration.
- .3 An individual dowel shall not be subjected to more than one pull test.

3.11 LOAD AND DURATION TIME

- .1 Dowels shall be considered acceptable when they can maintain the load for the duration in time specified in Table 1.

3.12 PROOF OF PROCESS INSTALLATION

- .1 The Contract Administrator shall be notified in writing at least 5 Business Days prior to proof of process installation.
- .2 The Contract Administrator shall select the location for proof of process installation in another area of the same structural element, or in another comparable structural element.
- .3 The number of dowels required for each proof of process installation shall be five for each dowel type to be installed in the work. Straight bars shall be installed for proof of process installation.
- .4 If any dowel fails pull testing, the proof of process installation shall be considered unacceptable.
- .5 Any installed dowels used for proof of process installation that fail the pull test shall be removed by the Contractor at no additional cost to the Owner. If directed by the Contract Administrator, any remaining dowels shall be removed by the Contractor at no additional cost to the Owner. Cutting off dowels flush with the concrete surface is permitted.

3.13 LOT SIZE

- .1 Dowels tested in-situ will be accepted on a lot basis. A lot shall consist of no more than 200 dowels of the same type in a single stage. Where a single stage is less than 200 dowels of the same type, the lot shall be the single stage.

3.14 DOWELS

- .1 The Contract Administrator shall randomly select 10 dowels in each lot for testing. All testing shall be completed before concrete is placed.
- .2 If two or more dowels fail, the Contract Administrator shall conduct additional pull testing on 20 dowels in the lot. If two or more additional dowels fail, the lot shall be deemed unacceptable and the lot shall be removed and replaced.
- .3 Replacement dowels shall be accepted by pull testing, proof of process installation, or other means, as directed by the Contract Administrator. Additional pull testing shall be according to the Quality Assurance Section. The Contractor shall be charged the cost of the additional pull test according to the Basis of Payment Section.

3.15 REPLACEMENT OF FAILED DOWELS

- .1 Any installed dowels that fail the pull test shall be removed and replaced. In lieu of removal, dowels may be cut off flush with the concrete surface.

- .2 The Contractor shall install the new dowel in a location approved by the Contract Administrator.

PART 4 - MEASUREMENT FOR PAYMENT

4.1 DOWELS INTO CONCRETE

- .1 For measurement purposes, a count shall be made of the number of dowels installed.

4.2 PLAN QUANTITY MEASUREMENT

- .1 When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clauses under Actual Measurement.

4.3 BASIS OF PAYMENT

- .1 Dowels Into Concrete - Item
- .1 Payment for Dowels into Concrete will be made at the Contract Unit Prices included in Schedule A – Schedule of Quantities and Prices for each dowel acceptably installed. Payment will be full compensation for all materials (except steel dowel), labor, use of equipment, tools and incidentals necessary to complete the work.
- .2 The steel dowel itself will be paid as per section 03200 – Concrete Reinforcement.
- .3 Additional pull tests shall be at the Contractor’s expense. The Owner shall deduct \$1,000 for each mobilization to the Working Area to perform additional pull tests, and \$50 for each additional dowel, from payments under the Contract.

**TABLE 1
DOWEL PULL TEST LOADS**

Dowel Size	Specified Embedment Depth Less Than or Equal to 160 mm		Embedment Depth 161 mm to 205 mm		Embedment Depth Greater Than 205 mm	
	Test Loads kN	Duration Seconds	Test Loads kN	Duration Seconds	Test Loads kN	Duration Seconds
10M	20	15	25	15	35	15
15M	40	15	50	15	70	15

20M	60	15	75	15	110	15
25M	100	15	120	15	180	15
30M	140	15	175	15	250	15
35M	190	15	240	15	340	15

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This Section consists of placing, finishing, and curing portland cement concrete.

1.2 RELATED WORK

- .1 Submittals Section 01340
- .2 Quality Control and Assurance Section 01620
- .3 Portland Cement Concrete Section 03010
- .4 Concrete Formwork and Falsework Section 03100
- .5 Concrete Reinforcement Section 03200
- .6 Concrete Accessories Section 03203
- .7 Concrete Dowels Section 03205

1.3 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA):
 - .1 A23.1:19/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete; latest edition.
 - .2 S269.1 - Falsework for Construction Purposes.
- .2 American Society of Testing and Materials International (ASTM):
 - .1 ASTM C309-19, Standard Specification for Liquid Membrane - Forming Compounds for Curing Concrete; and
 - .2 ASTM C932-06(2019), Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
- .3 American Concrete Institute (ACI):
 - .1 ACI 304, Guide for Measuring, Mixing, Transporting and Placing Concrete
- .4 Ontario Provincial Standard Specification

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- .1 OPSS.PROV 904 (Nov. 2019), CONSTRUCTION SPECIFICATION FOR CONCRETE STRUCTURES

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure that the structural concrete for the Works meets the requirements of the Specifications, in accordance with Section 01620 – Quality Control and Assurance.
- .2 Qualifications of Concreting Supervisor: Five (5) years minimum experience in placing, consolidating, and curing Portland cement concrete in structures similar to those in this Contract, in which the last two (2) years of experience involved overall responsibility for such work.
- .3 Concrete Pumping Plant Design Criteria: Conform to recommendations of ACI 304.
- .4 Allowable Deviations from Indicated Dimensions and Elevations:
- .1 Caisson (or Drilled Shaft) Caps: 2 mm;
- .2 Footings and Abutments:
- .1 Misplacement and eccentricity, as measured to centre of footing: 25mm;
- .2 Elevation of top: 6mm; and
- .3 All other footing dimensions: Minus 6mm or plus 50mm.
- .3 Variation from indicated elevation on sloped surface: 5mm;
- .4 Thickness of finished monolithic slabs: 6mm;
- .5 Variation from a 3m straight edge placed in all directions on horizontal and inclined plane surfaces: 6mm
- .6 Top elevation of walls: Plus or minus 6mm.
- .7 Flatness of finished horizontal surfaces: Eliminate depressions that could hold water;
- .8 Elevation of bottom of slabs on grade: Plus zero, minus 25mm; and
- .9 Thickness of walls: 6mm.

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- .5 Field Quality Control for Placed Concrete: Take samples of concrete in accordance with CSA A23.2 for each batch of concrete or as required by the Engineer. Immediately test samples, in the presence of the Engineer, to determine if changes in slump, air content, and other significant mix characteristics have occurred. Should tests show that such changes have occurred, modify corresponding adjustments to mix design. The Engineer has the right to refuse concrete that is not in compliance with mix design or Contract Documents.

1.5 SUBMITTALS

- .1 Submit the following for each concrete placement operation at least fourteen (14) working days prior to first concrete placement for review in accordance with this Section and Section 01340 – Submittals::
- .1 Detailed descriptions of intended equipment and methods for conveying, placing, consolidating, preliminary finishing, and curing concrete;
 - .2 Detailed description of intended means of protecting fresh concrete from extremes of temperature and inclement weather. This shall include a Temperature Control Plan according to OPSS.PROV 904.
 - .3 Location and scheduled date of concrete placement intended rate of placing and mix design designation with updates as required; and
 - .4 Composite working drawings, for each concrete lift, indicating locations and sizes of pipe sleeves, conduits, inserts, openings, recesses, construction joints, and similar configurations for work of other disciplines.

1.6 JOB CONDITIONS

- .1 Cold Weather: Conform to recommendations of CSA A23.1 and OPSS.PROV 904 when temperature is predicted to drop to five (5) degrees Celsius or lower.
- .2 Hot Weather: Conform to recommendations of CSA A23.1 and OPSS.PROV 904. When required to prevent concrete temperature from rising above 30° degrees Celsius, as determined by the Engineer, pre-cool aggregates and mixing water.
- .3 The control of temperature and temperature difference shall be according to OPSS.PROV 904

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Pigmented Curing Compound: Two component, mineral-filled, epoxy-polysulphide polymer conforming to FS MMM-A-001993.
- .2 Chemical Bonding Agents: Film-forming, freeze-thaw resistant compound suitable for brush or spray application conforming to ASTM C 932.
- .3 Preformed Joint Filler: AASHTO M33.

2.2 MIXTURES

- .1 Concrete:
 - .1 Strength shall be as specified on the Contract Drawings or other sections of the specifications, unless otherwise approved by the Engineer; and
 - .2 Pumped concrete shall be as recommended by ACI 304, subject to modification by the Engineer.
- .2 Mortar for patching of concrete shall be one-part portland cement of same type and manufacture as used in the impinged concrete to two parts fine aggregate conforming to CSA A23.1 and of same gradation and source as that of the fine aggregate used in the impinged concrete.

PART 3 - EXECUTION

3.1 EQUIPMENT

- .1 Capacity: To maintain continuous flow at the accepted rate of concrete placement.
- .2 Chutes:
 - .1 Material: Steel or steel-lined;
 - .2 Maximum slope, unless discharging into hopper shall be one vertical to two horizontal; and
 - .3 The above requirements do not apply to discharge hose from an "elephant trunk" (reinforced rubber hose).
- .3 Belt Conveyors:

- .1 Operate in horizontal position or on a slope less than that which would cause segregation; and
- .2 Arrange discharge to prevent segregation. Do not use hopper.
- .4 Pumped Concrete Equipment: As recommended by ACI 304, subject to review by Engineer at all times and to prompt correction if not operating correctly.
- .5 Buggies: Steel, rubber-tired.
- .6 Bottom Dump Buckets: Steel, non-clogging.
- .7 Collector Cone (for use in placing concrete in deep narrow forms): Provide with drop chute consisting of a rubber tube that collapses flat when concrete is not being discharged.
- .8 Vibrators: Immersion type selected in accordance with ACI 309, Table 5.1.4 and provided in sufficient quantity to properly consolidate each batch of concrete immediately following its placement.
- .9 Expendable Materials:
 - .1 Burlap: AASHTO M182, Class 4;
 - .2 Blanket insulation: FS HH-I-521F; and
 - .3 Vapour Barrier (min. 6 mil)

3.2 INSPECTION IMMEDIATELY PRIOR TO START OF CONCRETING

- .1 Substrate Surface Condition: Foundation conditions shall be inspected and approved by the Engineer prior to placing concrete. Unsuitable material shall be excavated and replaced with new material as directed by the Engineer. Verify that bearing capacity of sub grade meets indicated density requirements, and that surface is hard, reasonably level, slightly moist, and free from loose, saturated, and frozen material and debris. Also verify that previously placed concrete has been prepared for bonding and is free from loose and extraneous matter.
- .2 Embedded Items: Inspect embedded anchorage devices, replace defective pieces and correct improper positioning, omissions, and weaknesses in fastenings against displacement. Verify that embedded pipes, conduits, thermocouples etc., have been satisfactorily tested, that external threads are completely capped that internally threaded and non-threaded ends are acceptably plugged, and that embedded anchorage devices are secured in their indicated locations.

- .3 Formwork: Inspect formwork for defects in alignment, grade, and integrity of bracing, tie-bolts, falsework, camber, waterstops, and joints; and correct defects. Verify that the temperature of contacting surface is not greater than temperature that will permit normal setting time for the concrete.
- .4 Concrete Reinforcement: Inspect reinforcing steel for quantity, sizes, and positioning. Verify that fastenings will prevent displacement. Verify that the temperature of the reinforcement is not greater than that temperature which will permit normal setting time for the concrete. Do not start placement of concrete until initial inspection has been satisfactorily completed and approved by the Engineer.

3.3 PREPARATION

- .1 Maintain continuous flow of concrete to point of placement, without segregation or loss of mortar, by use of appropriate equipment. Ensure that equipment is cleaned prior to contact with fresh concrete.
- .2 Vibrators: Provide sufficient spare vibrators as replacements for possible outages.
- .3 Working Platforms: Arrange temporary runways for buggies to ensure efficient placement of concrete. Properly support runways on formwork.
- .4 Devices for Conveying and Placing Concrete: Arrange facilities to maintain mobility.
- .5 Uncoated Wood Forms: Thoroughly wet forms with form oil immediately before placing concrete.
- .6 Bonding at Construction Joints and Patching Areas: Roughen surfaces of set concrete at joints, remove laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner that will expose aggregate uniformly and not leave laitance, loose particles of aggregate, and damaged concrete on surface. Amplitude of the surface roughness shall not be less than 6mm. Prepare for bonding fresh concrete to new concrete that has set, but is not fully cured, as follows:
 - .1 The existing concrete surface shall be Saturated Surface Dry (“not contributing water to” or “absorbing water from” the new concrete mixture) with no water ponding.
 - .2 At joints between footings and walls or columns, and between walls or columns they support, and elsewhere, unless otherwise indicated: Dampen, but do not saturate, roughened and clean surface of set concrete immediately before placing fresh concrete;

- .3 At joints in exposed work, vertical joints in walls, other structural members, dampen, but do not saturate, roughened and cleaned surface of set concrete and apply a liberal coating of neat cement grout;
- .4 Use cement grout consisting of equal parts Portland cement and fine aggregate by weight and not more than six gallons of water per sack of cement. Apply with a stiff broom or brush to a thickness of not less than 2mm. Deposit fresh concrete before cement grout has attained its initial set;
- .5 In lieu of cement grout, bonding grout may be an epoxy-resin-bonding agent, acceptable to the Engineer, applied to cleaned concrete surfaces in accordance with bonding material manufacturer's printed instructions; and
- .6 Prepare for bonding fresh concrete to fully cured, hardened concrete or existing concrete by using epoxy-resin bonding agent as follows:
 - .1 Handle and store epoxy-resin bonding agent in compliance with manufacturer's printed instructions and safety precautions;
 - .2 Mix epoxy-resin bonding agent in proportions recommended by manufacturer, carefully following directions for personnel safety; and
 - .3 Before depositing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and coat with epoxy-resin grout not thinner than 2mm. Place fresh concrete while epoxy-resin material is still tacky, without removing in-place grout coat, and as required by the epoxy-resin manufacturer.

3.4 CONVEYANCE BY PUMPING

- .1 Equipment: Furnish, install, operate, and maintain equipment in accordance with the accepted working drawings and the recommendations of ACI 304. Maintain backup equipment on site in case of breakdown during concreting. Pneumatic placers will not be permitted.
- .2 Preparations: Prior to charging pipeline, operate pump to verify that moving parts are in satisfactory operating condition. Pump portland cement grout through the line immediately ahead of the concrete. Do not place grout in the work, except as bedding for construction joints. Transport grout, once used, off the worksite.
- .3 Conveyance: Operate pumps at low speed until concrete fills line and is moving steadily and at speeds below those at which pump would be required to be stopped during necessitated slow-down in placing concrete. If placement is impeded by delay in concrete delivery, from repairs or other circumstances, reduce pumping rate just to maintain some movement in the concrete. During long delays, limit the

pump operation to occasional single strokes. For placement in confined areas during long delays, re-circulate concrete through a return line to receiving hopper. If delays are of such duration as to render concrete in the line immovable, clean-out line and restart work cycle, as described above. When form is nearly filled and there is enough concrete in line to complete placement, stop pump and force go-devil through line.

- .4 Field Quality Control for Pumped Concrete: Take samples of concrete in accordance with CSA A23.2 at points of placement of pumped concrete for each change of location, as required by the Engineer. Immediately test samples, in the presence of the Engineer, to determine if changes in slump, air content, and other significant mix characteristics have occurred. Should tests show that such changes have occurred, modify corresponding adjustments to mix design. The Engineer has the right to refuse concrete that is not in compliance with mix design or Contract Documents.
- .5 Clean-Up: Dump waste concrete in a container and remove it from the worksite.

3.5 PLACEMENT

- .1 Deposit concrete as near as possible to final position. Do not use vibrators to alter the location of poured concrete. Do not drop concrete more than 1.2m free fall.
- .2 Deposit concrete against leading face of lift being placed.
- .3 Deposit concrete continuously in layers of such thickness as can be properly consolidated; cover previously placed layers before concrete has begun to harden. Cover each layer with fresh concrete within 30 minutes. Each layer shall be of as uniform a thickness as possible.
- .4 Do not place concrete that has attained its initial set, and that which has contained its mix water for more than one hour unless accepted by the Engineer.
- .5 In monolithic placements, do not deposit concrete in supported elements such as slabs until concrete previously deposited in walls has set for two hours.
- .6 In concrete slabs, deposit and consolidate concrete between indicated construction joints in a single continuous operation without interruption.
- .7 Locate construction joints as indicated or as shown on the Contract Documents or approved Shop Drawings.

3.6 CONSOLIDATION

- .1 Consolidate concrete during placement with high frequency internal vibrators of type, size, and number as recommended by CSA A23.1 for the particular conditions, until voids are filled, and free mortar appears on surface.
- .2 Use enough vibrators to consolidate incoming concrete within 15 minutes after depositing concrete in forms.
- .3 Provide spare vibrator at worksite during concreting when more than twenty cubic meters of concrete is being placed.
- .4 Apply vibrator only for such time as necessary to obtain maximum consolidation without causing segregation of mortar and coarse aggregate, and without causing water and cement paste to flush to surface.
- .5 Space the points of vibrator insertion at one and a half times the radius of action recommended by CSA A23.1 for the particular application.
- .6 Operate vibrators for a time period equal to two-thirds of the duration of concrete placement.
- .7 Penetrate previously placed layer of fresh concrete a few inches at regular intervals.
- .8 When consolidating concrete in slabs, make vibrator penetrate and re-vibrate previously placed fresh concrete in top of supporting members.
- .9 Special care shall be exercised to avoid honeycombing, cold joints or excessive surface air voids/ bug-holes with thin walls or concrete facing where the new concrete width is narrow. Use appropriate vibrator type and ensure that all concrete is exposed to the vibration.
- .10 Use external vibrators only when acceptable to the Engineer, and if forms have been constructed sufficiently rigid to resist deformation and damage from external vibration.

3.7 CONCRETE FINISHES

- .1 Unformed Finishes: Follow the requirements for finishing in CSA A23.1. Consolidate concrete with a compacting type screed operated on and between supports or headers, until a uniform surface is obtained. Use templates and strike boards alternately to tamp and strike off the concrete with a combined longitudinal and transverse motion, and that are rigidly constructed and designed to prevent deflection and distortion. Leave a uniform film of mortar or grout of suitable consistency on the concrete surface after last pass of template and strike board.

- .2 Formed Surfaces: Remove fins and irregular projections from surfaces that are exposed to view and from surfaces that will receive waterproofing. Fill holes vacated by removable components of form ties with mortar of same mix and ingredients as employed in surrounding concrete. Prepare pointing mortar not more than 30 minutes prior to use. Maintain mortar patches, wet and cure and leave contraction and articulated joints carefully tooled and free from mortar and concrete. Leave joint filler exposed for its full length with clean and true edges.
- .3 Horizontal surfaces shall be slightly sloped such that there is no water ponding on the final surface and all water is timely drained. The sloping shall not adversely affect the concrete cover for the reinforcing steel.
- .4 All of the above to be performed as part of the unit price or lump sum price for concrete in accordance with this section.

3.8 REPLACEMENT OF DEFECTIVE CONCRETE

- .1 General: The Engineer will determine whether defective section shall be removed and completely replaced or the extent and manner of action to be taken for the correction of defective concrete as may be revealed by surface defects or otherwise. Do not commence any repair until allowed by the Engineer.
- .2 Repair of Formed Surfaces: Repair and patch defective areas with cement mortar of mix proportions and materials identical to those used in the surrounding concrete and produce a finish on the patch that is indistinguishable from the finish of the surrounding concrete, immediately after removing forms, in a manner and by a method accepted by the Engineer in writing prior to start of repair operation. Cut-out honeycomb, rock pockets, and voids having a diameter more than 15mm to solid concrete but not shallower than 25mm. Make edges of cuts perpendicular to concrete surface. Before placing cement mortar, thoroughly clean, dampen, and brush-coat area to be patched with neat cement grout. Proprietary patching compounds may be used if accepted by the Engineer in writing prior to start of repair operation. Fill holes extending through concrete by means of plunger-type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure complete filling.
- .3 Repair of Unformed Surfaces: Test unformed surfaces for smoothness and to verify conformance of surface plane to tolerances specified. Correct low and high areas and test unformed sloped surfaces for trueness of slope and smoothness, using a template having required slope. Repair finished unformed surfaces that contain defects which adversely affect durability of concrete. Grind high areas in unformed surfaces either during or immediately after concrete has cured sufficiently to permit repairs without damaging adjacent areas. Cut-out low areas in unformed surfaces either during or immediately after completion of surface finishing operations and replace with fresh concrete. Finish repaired areas to blend into adjacent concrete. Cut-out defective areas,

except random cracks and single holes not exceeding one inch diameter and replace with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and exposed reinforcing steel within at least 20mm clearance all around. Dampen concrete surfaces in contact with patching concrete and brush with a neat cement grout coating. Place patching concrete before grout takes initial set. Mix patching concrete of same materials and in same proportions as adjacent concrete. Place, compact, and finish as required to blend with adjacent concrete. Cure in same manner as adjacent concrete. Repair isolated random cracks and single holes not over one inch in diameter by the dry-pack method. Groove tops of cracks, cut-out holes to sound concrete, and remove dust, dirt, and loose particles. Dampen cleaned concrete surfaces and brush with neat cement grout coating. Mix dry pack, consisting of one-part portland cement to 2-1/2 parts fine aggregate passing No. 1.18 mm sieve, using only enough water for handling and patching. Place dry pack before grout takes initial set. Compact dry-pack mixture in-place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours. Repair methods not specified above may be used, subject to acceptance by Engineer in writing.

3.9 CURING

- .1 Protect freshly placed concrete from excessively hot and cold temperatures as specified elsewhere in this Section.
- .2 During curing period keep wood forms wet. If forms are removed before curing is completed, use any of the specified methods of curing immediately and continue for remainder of curing period.
- .3 Maintain surface of newly placed concrete moist until the accumulated time in days and fractions thereof, during which the temperature of the air in contact with the concrete is warmer than ten (10) degrees Celsius, has totaled not less than four (4).
- .4 When the mean daily temperature of the atmosphere is cooler than five (5) degrees Celsius, maintain the temperature of newly placed concrete between ten (10) and twenty (20) degrees Celsius, for no less than four (4) consecutive days.
- .5 Cover concrete surface with double thickness burlap sheet, laid directly on concrete and always kept wet. Maintain sheet in good condition and position in such manner that entire surface of concrete being cured is always fully covered. Immediately repair any damaged burlap. Cover burlap with vapour barrier.
- .6 The forms may not be stripped until the concrete has reached the strength specified in and not sooner than 24 hours after placement.

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- .7 The curing period shall be a minimum of 7 Days for concrete subject to cold weather or concrete cured with curing compound. For all other concrete, the curing period shall be a minimum of 4 Days.
- .8 To avoid cracking of the concrete due to a sudden temperature change near the end of the curing period, the protection shall not be completely removed until the concrete has cooled to the temperature differential given in Table 20 of CSA A23.1. For high-performance concrete, the maximum temperature differential for all structural components shall be 20 °C.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Cast-In-Place Concrete will be measured in cu. foot of concrete placed, as measured from dimensions indicated on Drawings. No measurement will be made for any concrete that is placed outside of the dimensions indicated on Drawings unless approved by the Engineer.

4.2 PAYMENT

- .1 Cast-in-place Concrete will be paid for in accordance with the unit price item as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labor, equipment, and material required to complete concrete as per the Contract Documents and in strict accordance with this Section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section applies to the furnishing of all labor, material and equipment for the supply, detailing, fabrication, transporting, erection and finishing of structural steel and associated items for bridges as outlined in the Contract Documents.

1.2 RELATED SECTIONS

- .1 Construction Facilities Section 01520
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Jacking Section 05500
- .5 Laminated Elastomeric Bearings Section 07142
- .6 Surface Preparation and Field Touchups Section 09900

1.3 REFERENCES

- .1 AREMA Manual for Railway Engineering (Chapter 15).
- .2 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.PROV 180, General Specification for the Management and Disposal of Excess Material (November 2016);
 - .2 OPSS.PROV 906, Construction Specification for Structural Steel Bridges (November 2020); and
 - .3 OPSS.MUNI 919, Formwork and Falsework (November 2021).
- .3 Canadian Standards Association (CSA):
 - .1 CSA-B95-1962 (R2002), Surface Texture (Roughness, Waviness and Lay);
 - .2 CSA-G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels;
 - .3 CSA G164-18, Hot Dip Galvanizing of Irregularly Shaped Objects;

- .4 CSA G189-1966 (R2003), Sprayed Metallic Coatings for Atmospheric Corrosion Protection;
- .5 CSA-S6:19, Canadian Highway Bridge Design Code;
- .6 CSA-S16:19, Design of Steel Structures;
- .7 CSA S269.1-16 (R2021), Falsework and Formwork;
- .8 CSA-W47.1:19, Certification of Companies for Fusion Welding of Steel;
- .9 CSA-W48:23, Filler Metals and Allied Materials for Metal Arc Welding; and
- .10 CSA-W59-18, Welded Steel Construction.
- .4 American Society of Testing and Materials International (ASTM):
 - .1 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings for Steel Products;
 - .2 ASTM A563/A563M-21ae1, Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric);
 - .3 ASTM F436M/F436M-19, Standard Specification for Hardened Steel Washers Inch and Metric Dimensions; and
 - .4 ASTM F3125,F3125M-22, Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
- .5 American Welding Society (AWS):
 - .1 AWS A5 Series Standards published by the Committee on Filler Metals and Allied Materials.

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure that the structural steel for the Works meets the requirements of the Specifications, in accordance with Section 01620 – Quality Control and Assurance.
- .2 Visual inspection and sampling will be done in the fabricating shop and in the field by an inspector to confirm the material supplied, fabrication, and erection is as specified in the Contract Documents.

- .3 The Contractor is responsible for supply of electric power scaffolding, protection from the weather, and free access for inspection and testing of material, to all aspects of the fabrication, delivery, and erection of the structural steel at no additional cost to the Owner.
- .4 The marking on the material will be compared to the mill test reports to verify the material is as specified in the Contract Documents and coupon test reports will be examined.
- .5 Inspection of bolted construction shall be according to CSA S16.

1.5 SUBMITTALS

- .1 The Contractor shall submit the following submittals at least three (3) weeks before fabrication for review in accordance with the requirements of this Section 05120 and Section 01340 – Submittals:
- .2 Erection diagrams shall include at least the following:
 - .1 Principal dimensions of the bridge;
 - .2 Erection marks;
 - .3 Size and type of bolts;
 - .4 Bolt installation requirements, including the number of fitting up bolts required at each connection and identification of oversize and slotted holes;
 - .5 Bracing during erection of structural steel; and
 - .6 Treatment at faying surfaces for joints designed as slip critical.
- .3 Shop drawings that fully conform to the Contract Drawings shall be accompanied by a letter bearing the seal and signature of an Engineer verifying this conformity and shall include the following:
 - .1 Full detail dimensions and sizes of all component parts of the structure making allowances for changes in shape due to weld shrinkage, camber, and any other effects that cause finished dimensions to differ from initial dimensions;
 - .2 Erection marks and all material specifications;
 - .3 Identification of areas requiring special surface treatment;
 - .4 Identification of fracture-critical and primary tension members and component parts;

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- .5 Bolt installation requirements, including number of fitting up bolts required at each connection and oversize and slotted holes; and
 - .6 Locations of all shop and field splices.
 - .4 Procedures:
 - .1 At least three (3) weeks before commencement of erection, pdf copies of the erection procedures, including lifting point locations and details of all temporary supports shall be submitted to the Engineer for review; and
 - .2 The erection procedure, including drawings and calculations signed and sealed by a Professional Engineer, fully illustrating the proposed method of erection, including erection sequence; weight and lifting points of the members; and locations and lifting capacities of the cranes to be used to lift them.
 - .5 Mill Test Certificates shall be submitted as follows:
 - .1 One (1) copy of mill test certificates for all material to be used in the fabrication shall be available for review at the fabricating plant during fabrication. The mill test certificates shall show that the material is according to the Contract Documents. If mill test certificates cannot identify the material, coupons shall be taken and tested, and these test certificates shall be made available to the Engineer; and
 - .2 Where mill test certificates originate from a mill outside Canada or the United States of America, the Contractor shall have the information on the mill test certificate verified by testing by a Canadian laboratory, accredited by the Standards Council of Canada.
 - .6 Fastener Test Reports: When requested by the Engineer, the Contractor shall provide proof that the bolts, nuts, and washers meet the chemical composition, mechanical properties, dimensions, workmanship, and head burst as required by ASTM F3125, ASTM A563M, or ASTM F436M. Verification of the acceptability of assemblage of zinc-coated bolts shall be provided with the bolts, nuts, and washers delivered to the job site. For bolts supplied from a manufacturer outside Canada or the United States of America, the above information shall be verified by testing by a Canadian laboratory as outlined in the Mill Test Certificates clause.
 - .7 Copies of all inspection reports shall bear the seal and signature of an Engineer and shall be submitted to the Engineer.
 - .8 As-built drawings shall be prepared by the Contractor as follows:
 - .1 For all work incorporated in the completed structure that required the submission of working drawings;

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- .2 For all changes from the original Contract requirements; and
 - .3 The as built drawings shall be signed and sealed by a Professional Engineer. The submission of as built drawings as well as an electronic copy shall be accompanied by a letter bearing the seal and signature of a Professional Engineer stating the as built drawings contain any changes to the work.
- .9 Review and Return of Approvals: Two copies of each submission to be returned shall be marked as one of the following:
- .1 Stamped with the wording that allows for permission to construct meaning that work can commence upon receipt of the drawing by the Contractor. A copy of these drawings shall be available at the site prior to and during construction;
 - .2 Stamped with the wording that allows for permission to construct as noted meaning that work can start on receipt of the drawings by the Contractor. The drawings shall be updated as noted and shall have a stamp affixed that is signed by a Professional Engineer stating the drawings have been revised according to the noted comments. A copy of the stamped updated drawings shall be available at the site prior to and during construction; and
 - .3 Showing only required changes meaning that the drawings shall be updated as required and the submission process repeated.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL

- .1 Structural steel shall be new and of the grade and category specified on the drawings and in the Contract Documents and shall be according to CSA G40.20/G40.21.
- .2 Substitution of material for size and grade is not permitted unless approved by the Engineer.

2.2 FASTENERS

- .1 High strength bolts, nuts, and hardened washers shall be according to ASTM F3125, ASTM A563, and ASTM F436. The nuts, bolts, and washers shall be shipped together as an assembly.
- .2 High strength bolts, nuts, and washers for use with unpainted corrosion-resistant steel shall be Type 3. Bolts, nuts, and washers used with steel specified in the Contract Documents shall receive a paint coating or

galvanizing, shall be Type 1, and shall be galvanized or painted as indicated on the drawings.

2.3 SHOP PAINTING

- .1 With the exception of the steel components specified under clause 2.3.2, all other steel where called for on the drawing as being painted shall receive a primer coating and top coat of paint with one of the paint systems specified under Clause 2.4.5 herein:
- .2 The components with surfaces made up of 75% or more of faying or mating surfaces shall receive the primer coat only of the zinc primer only from one of the manufacturers specified under Clause 2.4.5 herein:
- .3 **Preparation of Surfaces - Near White Blast Cleaning:**
 - .1 Clean all surfaces of steel by Near-White Blast cleaning in accordance with SSPC-SP10.
 - .2 The final surface appearance should correspond to SSPC-VIS-1-89 Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs).
- .4 Application of the paint shall be executed prior to the commencement of rusting of any of the blast-cleaned surfaces. If rusting occurs prior to the application of the paint system, the Fabricator shall re-clean the surfaces by sand blasting or mechanical wire brush.
- .5 All surfaces of new steel shall be shop painted with one of the following paint systems:
 - .1 Paint Systems:
 - .1 System no. 1 supplied by Amercoat Canada:
 - .1 Primer coat: zinc Dimetecote 9; and
 - .2 Topcoat – epoxy paint Amercoat 385.
 - .2 System no. 2 supplied by Stoncor:
 - .1 Primer coat: - zinc primer Carbozinc 11; and
 - .2 Topcoat - epoxy paint Carboguard 890.
 - .3 System no. 3 supplied by Devoe Coating:
 - .1 Primer coat - zinc primer Cathacoat 304; and

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- .2 Topcoat - epoxy paint Devran 224HS.
 - .4 System no. 4 supplied by International Paints:
 - .1 Primer coat - zinc primer Interzinc 22 QHA027/QHA028; and
 - .2 Topcoat - epoxy paint Interseal 670HS.
 - .2 Colour of Paint:
 - .1 Primer coat shall be light gray, or an approved equivalent; and
 - .2 Color of topcoat (finish coat) shall be as selected by the Engineer or to match color of existing bridge.
 - .6 Primer Coat: The Primer Coat shall be applied to all steel surfaces to a dry film thickness of 3 mils.
 - .7 For steel receiving a topcoat, prior to the application of the topcoat, **ALL FAYING SURFACES** (shop or field) which are connected with high strength connection bolts, **MUST BE MASKED** so that the topcoat is not applied closer than 2" from a group of bolt holes.
 - .8 Top Finish Coat: apply the topcoat to a dry film thickness of 5.0 mils.

2.4 HOT-DIP GALVANIZING

- .1 All steel except anchor bolts, where called for on the drawing as being hot dip galvanized shall be executed after fabrication of the element and shall be in accordance with CSA Standard G164 "Hot Dip Galvanizing of Irregularly Shaped Objects" (ASTM A123) and shall have a minimum mass of zinc coating of 610g/m² (2 oz/ft²).
- .2 F1554 anchor bolts shall be galvanized by the following methods:
 - .1 Grade 36, 55 and 105-Zinc Hot Dip to ASTM A143/A143M.
- .3 Galvanized nuts shall be tapped oversize according to ASTM A563 and shall meet the requirements of supplementary requirement S1 of ASTM 563. Excess hot-dip galvanized on threaded portions shall be removed by centrifuging or air blasting immediately upon withdrawal, flame chasing is prohibited.
- .4 Prior to galvanizing all steel components shall be prepared in accordance with SSPC- SP10.

PART 3 - EXECUTION

3.1 STRUCTURAL STEEL FABRICATION

- .1 Plate bending shall adhere to the following:
 - .1 Steel plate for main members shall be cut so that the primary direction of rolling is parallel to the direction of tensile or compressive stress;
 - .2 Sheared edges of plates more than 16mm in thickness and carrying calculated tension load shall have 3mm of edge material removed by planning, milling, or grinding;
 - .3 Oxygen cutting of structural steel shall be done by machine, with the exception of hand-guided cutting which is permitted for copes, blocks and similar cuts where machine cutting is impractical. Re-entrant corners shall be ground smooth and shall have a fillet of the largest practical radius but not less than 25mm;
 - .4 Plasma arc cutting is not permitted unless approved by the Engineer;
 - .5 The quality of the cut edges and their repair shall be according to CSA W59. All cut edges that are not to be welded shall have a surface roughness not greater than 1000 as defined by CSA B95; and
 - .6 Inspection and repair of planar discontinuities shall be according to CSA W59.
- .2 Bent plates shall be fabricated in accordance with the following:
 - .1 Load carrying, rolled steel bent plates shall be cut from the stock plates such that the bend line is at right angles to the direction of rolling unless otherwise approved by the Engineer;
 - .2 Before bending, the edges of the plate shall be lightly chamfered by grinding in the region of the bend;
 - .3 Cold bending shall be carried out in such a manner that no cracking or tearing of the plate occurs. Minimum bend radii for various plate thickness (t), measured to the concave face of the metal shall be:

<u>t, mm</u>	<u>radius</u>
≤ 12	2 t
> 12 ≤ 25	2-1/2 t
> 25 ≤ 38	3 t
> 38 ≤ 65	3-1/2 t
> 65 ≤ 100	4 t

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- .4 Forming radii less than that permitted for cold bending shall be done by hot bending at a plate temperature not greater than 600°C. Accelerated cooling of a hot bent component will only be permitted when the temperature of the component is below 300°C. Only compressed air or water shall be used for accelerated cooling.
- .3 Straightening shall be as follows:
- .1 All steel shall be flat and straight according to the specified mill tolerances before commencement of fabrication. Material with sharp kinks or bends shall only be straightened with the approval of the Engineer. Any details of the method of straightening shall be according to CSA W59 and submitted to the Engineer two (2) weeks prior to the Contractor arranging for inspection; and
- .2 After straightening, the surface of the steel will be examined by the Engineer who will specify an appropriate method of testing to be used by the Contractor to determine whether or not there is evidence of fracture or other damage. If necessary, the Engineer will specify the corrective action to be taken.
- .4 Holes in structural steel members shall be as follows:
- .1 Except as specified for punched holes in material up to 16mm in thickness, all holes shall be, punched, drilled, or reamed to the finished diameter;
- .2 The nominal diameter of a hole other than oversize or slotted holes shall not be more than 2mm greater than the nominal bolt size. Oversize or slotted holes shall only be used when specified in the Contract Documents or may be considered for use in bracing and diaphragms;
- .3 Oversize holes shall be 4mm larger than bolts 22mm and less in diameter, 6mm larger than bolts 23 to 26mm in diameter, and 8mm larger than bolts 27mm and greater in diameter;
- .4 Short slotted holes shall be 2mm wider than the bolt diameter and have a length that does not exceed the oversize diameters above by more than 2mm;
- .5 Long slotted holes shall be 2mm wider than the bolt diameter and have a length greater than short slotted holes, but are not longer than 2.5 times the bolt diameter;
- .6 Nominal diameter of a hole requirements may be waived to permit the use of a 3/4" bolt in a 22mm hole, a 7/8" bolt in a 24mm hole, or either a 1" bolt or an M24 bolt in a 27mm hole;

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- .7 Holes shall only be punched to finish size in material 16mm or less in thickness and the diameter of a hole punched to finish size shall not be more than 2mm larger than the nominal diameter of the bolt unless oversize holes are approved;
- .8 The diameter of the die shall not exceed the diameter of the punch by more than 2mm. Holes shall be clean cut without ragged or torn edges.
- .9 Holes which are to be reamed to finished diameter shall first be sub-drilled or sub-punched to 4mm smaller than the hole diameter. With connecting parts assembled and securely held, the holes shall be reamed to 2mm larger than the nominal diameter of the bolts. The parts shall be match-marked before disassembling;
- .10 Holes which are drilled to finished diameter shall be 2mm larger than the nominal diameter of the bolt unless oversize or slotted holes have been specified. Holes to be drilled shall be accurately located by using suitable numerically controlled drilling equipment, or by using a steel template carefully positioned and clamped to the steel. The dimensional accuracy of holes and locations prepared in this manner shall be such that like parts are exact duplicates and require no match marking; and
- .11 The holes for any connection may be drilled to finished diameter when the connecting parts are assembled and clamped in position, in which case the parts shall be match-marked before disassembling.
- .5 Pins and rollers shall be fabricated as follows:
- .1 Pins and rollers shall be accurately turned to the dimensions and finish shown on the Contract Documents and shall be straight and free from flaws. Pins and rollers more than 175mm in diameter shall be forged and annealed. Pins and rollers 175mm or less in diameter may be either forged and annealed or may be of cold-finished carbon-steel shafting; and
- .2 Holes for pins shall be bored to the diameter and finish specified in the Contract Documents and at right angles to the axis of the member. The diameter of the pin hole shall not exceed that of the pin by more than 0.5mm for pins 125mm or less in diameter or by 0.75mm for larger pins. Built up members shall be completely assembled prior to boring of pinholes.
- .6 Cambering shall be completed as follows:
- .1 Girders shall be cambered before heat-curving. When rolled sections are heat cambered, the method of heat cambering shall be submitted to the Engineer for review prior to cambering;

- .2 Plate girders shall have the required camber cut into the web with suitable allowance for camber loss due to cutting and welding; and
- .3 Steel box girders fabricated with webs in an upright position shall have the fabricated camber verified by subtracting ordinates for deflections for girder segments from the relaxed camber diagram ordinates. The ends of cambered girders shall be trimmed to be vertical under full dead load.
- .7 Heat curving: Steel beams and welded girders with a specified minimum yield point greater than 350 MPa shall not be heat curved. If approved by the Engineer, a detailed procedure for the heat curving operation shall be submitted for review describing the type of heating to be employed, the extent of the heating patterns, the sequence of operations, and the method of support of the girder, including an assessment of any dead-load stresses present during the operation.
- .8 Identification Marks for Erection: Each member shall carry an erection mark for identification. Permanent marking shall be affixed in an area not exposed to view in the finished structure.

3.2 WELDING

- .1 Unless otherwise stated in the Contract Documents or approved by the Engineer, all welding is to be shop welding.
- .2 Prior to commencement of welding, the Contractor shall make available the Canadian Welding Bureau's valid identification cards for each welder, or welding operator to be employed for the Work.
- .3 All welding procedures, conditions of prequalification, selection of type of groove, including workmanship, tolerances, weld quality, techniques, repairs and qualification control of distortion and shrinkage stresses shall be according to the requirements of CSA W59 except where modified by the following clauses:
 - .1 The electroslag and electrogas welding processes shall not be used for welding quenched and tempered steels or for welding components of members subject to tension stress or stress reversal;
 - .2 Members and components of members designated fracture-critical or primary tension shall be constructed according to the requirements specified in the Fracture Control for Fracture-Critical and Primary Tension Members subsection;
 - .3 The use of heat to alter the sweep or camber of fracture critical girders shall be approved by the Engineer prior to the application of heat;

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- .4 Welding procedure specifications, datasheets, and procedures used for repairs shall be submitted for approval to the Contract Administrator two (2) weeks prior to commencement of work;
 - .5 The companies undertaking welded fabrication and erection shall be certified according to CSA W47.1, Division 1 or Division 2.1;
 - .6 Complete joint penetration groove welds shall be according to CSA W59 and unless produced with the aid of a backing, the root of the initial weld shall be gouged, chipped, or otherwise removed to sound metal before commencing welding the other side;
 - .7 Runoff tabs or extension bars shall be provided so that groove welds terminate on the tab. The welds that attach the tabs to the pieces being welded shall be placed inside the joint so that they are incorporated into the final weld;
 - .8 Where practical, web to flange fillet welds shall be made continuously by automatic welding. Welds may be repaired using either a semi-automatic or manual process; however, the repaired weld shall blend smoothly with the adjacent welds;
 - .9 Assembly shall be according to CSA W59 and the following guidelines. Bearing stiffeners shall be vertical under full dead load. Intermediate stiffeners shall be either vertical or perpendicular to fabrication work lines. Bearing stiffeners fitted to bear shall have a minimum bearing contact area of 50% and the separation of any remaining portions shall not exceed 0.50mm, except locally at the tips of the bearing stiffeners where a separation of 0.75mm is permissible. Fitted intermediate stiffeners shall have a minimum bearing contact area of 25% and a maximum separation of 2mm. Longitudinal web stiffeners shall be cut 25mm short of the transverse web stiffeners;
 - .10 Tack welds shall be according to CSA W59, however they shall not be used on fracture-critical or primary tension members unless they are incorporated into the final weld;
 - .11 Temporary welds shall be according to CSA W59, however they shall not be used on fracture-critical and primary tension members. In addition, temporary welds shall not be used on flange material in compression unless approved by the Engineer;
 - .12 Groove welds in web splices and tension flange splices shall be finished flush;
 - .13 Any steel members subjected to shape corrections or straightening shall be allowed to cool in still air

- .14 Stress relief-heat treatment temperatures shall be recorded using thermo-couples or other methods acceptable to the Engineer. A record showing temperature and time data of the heat treating operation shall be maintained and be made available upon request; and
- .15 Arc strikes in fracture-critical and primary tension members shall be repaired according to the provisions of the Welding Corrections and Repairs for Fracture- Critical and Primary Tension Members clause.
- .4 Fracture Control for Fracture-Critical and Primary Tension Members shall be as outlined in OPSS 906, unless otherwise approved by the Engineer
- .5 Only welding consumables meeting the requirements of the Canadian Welding Bureau according to the CSA W48 series standards or to AWS A5 series specifications shall be used.
- .6 Groove welds shall be in accordance with OPSS 906, unless otherwise approved by the Engineer.
- .7 Welding Repairs or Corrections shall be as specified in OPSS 906.07.04 unless otherwise approved by the Engineer. Any section of weld that does not meet the acceptance standards shall be removed, re-welded, and re-examined.

3.3 STRUCTURAL STEEL CONNECTIONS

- .1 Bolted Connections: ASTM F3125 Grade 325 high strength bolts shall be used for bolted connections. Bolts shall be sufficiently long to exclude threads from the shear plane.
- .2 Assembly: The assembly of joints shall be according to CSA S16 except that Turn-of-Nut tightening method shall be the only installation method used. When assembled, all joint surfaces, including those adjacent to bolt heads, nuts and washers, shall be free of loose scale, burrs, dirt, and foreign material. The faying surfaces of connections identified as slip-critical connections shall as follows:
 - .1 For clean mill scale, the surfaces shall be free of oil, paint, lacquer, or any other coating and then blast cleaned;
 - .2 For coated surfaces other than galvanized, the surfaces shall be free of oil, lacquer, or other deleterious coatings;
 - .3 Hot dip galvanized surfaces shall be roughened after galvanizing by means of hand wire brushing. Power wire brushing is not permitted; and
 - .4 This treatment shall apply to all areas within the bolt pattern and for a distance beyond the edge of the bolt hole that is the greater of 25 mm or the bolt diameter.

- .3 Bolt Tension: Pretensioned bolts shall be tightened to at least 70% of the specified minimum tensile strength provided in the corresponding ASTM standard.
- .4 Galvanized bolts shall not be reused once they have been fully tightened. Bolts that have not been fully tensioned may be reused up to two times, providing that proper control on the number of reuses can be established. Retightening of bolts loosened due to the tightening of adjacent bolts is not considered to be a reuse.
- .5 Washers shall be as follows:
 - .1 Hardened washers are required under the head or nut of bolts, when that part is turned as well as under the nut or bolt head adjacent to joint surfaces containing oversize or slotted holes. When used with slotted holes the washer shall be at least 8mm thick and of sufficient size to overlap the hole by 5mm all around; and
 - .2 Bevelled washers shall be used to compensate for lack of parallelism where an outer face of bolted parts has more than 5% slope with respect to a plane normal to the bolt axis.
- .6 Nut tightening shall be as outlined in OPSS 906, unless otherwise approved by the Engineer.

3.4 TOLERANCES

- .1 Structural members consisting of a single rolled shape and built up bolted structural members shall meet the straightness tolerances of CSA G40.20/G40.21 except that compression members shall not deviate from straight by more than 1/1000 of the length between points of lateral support. A variation of 1 mm from the detailed length is permissible in the length of members that have both ends finished for contact bearing. Other members without finished ends may have a variation from the detailed length of not more than 2mm for members 10m or less in length or not more than 4mm for members over 10m in length.
- .2 When compression members are butted together to transmit loads in bearing, the contact faces shall be milled or saw-cut. The completed joint shall have at least 75% of the entire contact area in full bearing, which is defined as not more than 0.5 mm separation, and the separation of the remainder shall not exceed 1mm. At joints where loads are not transferred in bearing, the nominal dimension of the gap between main members shall not exceed 10mm.
- .3 The surface finish of bearing surfaces that are in contact with each other or with concrete, shall meet the following roughness requirements according to CSA B95:

Steel slabs or plates in contact with concrete	2000 Micro-inches
Plates in contact as part of bearing assemblies	1000 Micro-inches
Milled ends of compression members	500 Micro-inches
Milled or ground ends of stiffeners	500 Micro-inches
Bridge rollers or rockers	250 Micro-inches
Pins and pin holes	125 Micro-inches
Sliding bearings - steel and copper alloy or steel and stainless steel	125 Micro-inches

.4 Surfaces of flanges that are in contact with bearing sole plates shall be flat within 0.5 mm over an area equal to the projected area of the bearing stiffeners and web. Outside this area a 2 mm deviation from flat is acceptable. The bearing surface shall be perpendicular to the web and bearing stiffeners.

.5 Bearing Plate Tolerances shall be as follows:

.1 Rolled steel bearing plates 50mm or less in thickness may be used without planing provided that a satisfactory contact bearing is obtained;

.2 Rolled steel bearing plates over 50mm but not over 100mm may be straightened by pressing or by planing on all bearing surfaces to obtain a satisfactory contact bearing; and

.3 Rolled steel bearing plates over 100mm in thickness shall be planed on all bearing surfaces except for those surfaces which are in contact with concrete foundations and are subsequently grouted to ensure full bearing.

.6 Allowable tolerance for bolt or rivet holes shall be as follows:

.1 Matching holes for bolts and rivets shall line up so that dowel 2mm less in diameter than hole passes freely through assembled members at right angles to such members;

.2 Finish holes not more than 2mm in diameter larger than diameter of rivet or bolt unless otherwise specified by the Engineer;

.3 Centre-to-centre distance between any two holes of group to vary by not more than 1mm from dimensioned distance between holes; and

.4 Centre-to-centre distance between any two groups of holes shall not vary more than following:

Centre-to-Centre Distance (m)	Tolerance (\pm mm)
Less than 10	1
10 to 20	2
20 to 30	3

3.5 TRANSPORTATION AND STORAGE

- .1 The Contractor shall perform all work necessary to ensure safe loading, delivery, unloading and storage of structural steel. This includes loading and shipping in such a manner that transportation and unloading do not cause excessive stress, deformation, or other damage. Plate girders must be transported with their webs in a vertical plane unless otherwise approved by the Engineer. Structural steel shall be stockpiled to avoid excessive stress deformation or other damage while stored.
- .2 The Work shall consist of loading the members, transporting them, and unloading at the site and shall include temporary works for access, and providing a delivery schedule to the Engineer at least one (1) week in advance.
- .3 Protect unpainted weathering steel, before erection, with waterproof covering and ensure that no portion of steel comes into contact with ground.

3.6 STEEL ERECTION

- .1 Before erection of structural steel, perform dimensional survey of existing bridge elements and verify locations of substructure and superstructure units, elevations, and location of fasteners, etc. Immediately report any discrepancies to the Engineer.
- .2 Components shall be lifted, placed, and maintained in position using appropriate lifting equipment, temporary bracing, guys, or stiffening devices so that the components are at no time overloaded, unstable, or unsafe. Additional permanent material may be provided, if approved by the Engineer, to ensure that the member capacities are not exceeded during erection. The additional material shall be shown in the erection diagram.
- .3 The Engineer shall be notified in writing of the starting date at least two (2) weeks prior to the commencement of field operations. Work shall not be carried out until an inspector is on the site.
- .4 Unless otherwise approved by the Engineer, at least 50% of the holes in the joints shall be filled with drift pins or hand tightened bolts prior to removing the crane. At least 50% the bolts required in the flanges shall be installed. Drift pins shall not be left in place over traffic when the crane is removed.
- .5 Material intended for use in the finished structure shall not be used for erection or temporary purposes unless such use has been shown on the working drawings or authorized by the Engineer.
- .6 Hammering that will damage or distort the members is not permitted.

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- .7 All falsework, including necessary foundations, required for the safe construction of the structure shall be designed, furnished, maintained, and removed according to OPSS 919.
 - .8 Any error in shop fabrication or any deformation resulting from handling or transportation that prevents the proper assembly and fitting of parts, especially splices of main material, shall be reported and the proposed method of correction shall be submitted to the Engineer for approval
 - .9 Bolt heads shall be located on the outside faces of the exterior girders. Bolt heads in field splices for box girders shall be located on the exterior surfaces.
 - .10 The bridge shall be erected to the proper alignment in plan and in elevation, taking into account the dead load camber specified in the Contract Documents.
 - .11 Parts shall be assembled according to the erection marks shown on the erection drawings and the component match marks. For temporary fit ups, main girder splices and connections shall be aligned with drift pins and a sufficient number of fitting up bolts shall be installed to maintain the integrity of the connection. The fitting up bolts may be the high strength bolts used in the installation. Drift pins shall be 1mm larger in diameter than the required bolts. Excessive drifting that distorts the metal and enlarges the holes shall not be allowed. Reaming up to 2mm over the nominal hole diameter is permitted, with the exception of in oversize or slotted holes.
 - .12 When cantilever erection is used splices that support the cantilevering member shall be fully bolted before extending.
 - .13 Attachments making use of tack welds or other welds that are not part of the welds shown on the working drawings shall not be permitted.
 - .14 In addition to quality control measures instituted by the Contractor, the Contractor shall be responsible for the quality control procedures as outlined in OPSS 906 including but not limited to Control of Material, Visual Inspection, Non-Destructive Testing, Testing of Welds, and Erected Elevations.
 - .15 Management and disposal of excess material shall be in accordance with OPSS 180 and the authority having jurisdiction.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Measurement of Structural Steel for Bridges shall be by various units of measurements indicated in the Schedule A – Schedule of Quantities and Prices for the work.

4.2 PAYMENT

- .1 The Contractor will be paid for Structural Steel in accordance with the unit price items per type of steel as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labor, equipment, and material required to complete shop / erection drawings, other submittals, fabrication, finishes, transport and installation of Structural Steel in accordance with this Section.

***** END OF SECTION *****

PART 5 - GENERAL

5.1 DESCRIPTION

- .1 This section applies to the supply of all labor, materials and equipment required to complete the installation of jacking beams and jacking for installing the bridge bearings and pedestals.

5.2 RELATED SECTIONS

- .1 Structural Steel for Bridges Section 05122

5.3 WORKMANSHIP AND QUALITY ASSURANCE

- .1 The Contractor's workforce shall be experienced in executing this type of work and shall have a minimum of 5 years' experience in the jacking of spans and bearing replacement.

5.4 DAMAGE TO EXISTING SPAN MEMBERS

- .1 Do not damage the span members and especially avoid making notches to the edges of members which may cause cracks due to fatigue stresses.
- .2 The field drilling or burning of holes, in any member, is strictly forbidden.

PART 6 - PRODUCTS

6.1 LEVELLING MORTAR

- .1 Supply and place a fast-setting pre-mixed non-shrink grout, "Sikagrout 428FS" by Sika Construction, or approved equal.

PART 7 - ANCHOR BOLT GROUT

- .1 Supply and fill space around anchor bolts with approved non-shrink grout, "SikaGrout 212" supplied by Sika Construction or approved equal.

PART 8 - EXECUTION

8.1 EXECUTION

- .1 Actual jacking of spans for bearings and steel pedestals can only take place during an arranged track closure, approved by ONR.

8.2 PREPARATORY WORK PRIOR TO JACKING OF SPANS

- .1 Prior to the commencement of the scheduled train block, the Contractor shall have the following components in place:
 - .1 All blocking and steel shims pre-cut to size;
 - .2 Timber stiffeners and blocking and jacks shall be in position;
 - .3 Replace existing rivets with high strength bolts. As existing rivets are being removed, they shall be immediately replaced with high strength bolts;
 - .4 Install jacking devices and jacking beams as detailed;
- .2 Rehearse the entire operation to detect flaws in the plan and defective equipment. Time how long it will take to do the various operations. Ensure that all equipment and materials will fit in the place provided for it.

8.3 JACKING OF STEEL SPANS

- .1 The Contractor shall appoint one person who will be responsible for the operation. All other groups shall report to the person in charge and must follow his directions.
- .2 Ensure that all workers taking part know what the plan is and what their part is.
- .3 Jacking:
 - .1 Jacks shall be of adequate size to lift the lifting loads shown on the drawings;
 - .2 All jacks shall have a 30% spare capacity;
 - .3 Test all jacks and pumps to ensure that they will carry the design load;
 - .4 Keep hydraulic fluid, reservoirs, and piping surgically clean;
 - .5 Use as few jacks as possible and have all of them the same size and capacity;
 - .6 Use jacks with as long a stroke as possible and which are lowered by internal springs;
 - .7 Load jacks perpendicular and prevent jacks from tilting;

- .8 Put appropriate blocking and stiffeners above and below the jack. Check the crushing and bearing strength of all this material. All blocking and shims shall be cut to exact sizes and thicknesses before starting to jack; and
- .9 Spans should be jacked a maximum of 1/4" or just enough to release the bearings.
- .4 Spare equipment should be on hand for all items of work (jacks, high pressure piping, hydraulic fluid, pumps, cranes, gasoline, generators, lights, etc.)

8.4 RIVET REMOVAL AND HIGH STRENGTH FIELD CONNECTION BOLTS

- .1 Where the Contractor is executing steel replacement, the existing rivets shall be carefully removed and shall be replaced with permanent erection bolts.
- .2 Rivet removal shall be by pneumatic or mechanical methods without damage or distortion of the structural members from which the rivets are being removed. Removed rivets shall be recuperated and shall be disposed off-site by the Contractor. If the Contractor experience difficulty in removing a rivet, in order to facilitate its removal, the Contractor will be permitted to drill through the center of the rivet using a 1/2 " drill bit.
- .3 **Combusting cutting equipment will NOT BE PERMITTED on any member whatsoever, unless specifically indicated on the drawing, in which case the Contractor shall supply and place a thermal barrier (ie. Rigid asbestos sheet or other approved material) thus protection adjacent steel surfaces.**
- .4 Rivet removal shall be pre planned and properly executed in accordance with specifications.
- .5 All connection bolts, nuts and washers shall be ASTM F3125 Grade 325, Type I.
- .6 All connection bolts, nuts and washers shall be installed and tightened by the turn-of-nut method.
- .7 For inspection purposes, all bolts must have their "Snug Tight" positions marked by the Contractor prior to the final tightening.
- .8 All high strength connection bolts, ASTM F3125 Grade 325, Type I, black bolts and nuts may be **USED ONLY ONCE** and then discarded and replaced with new high strength bolts.
- .9 Existing rivet holes which have not been incorporated in a final field connection shall be filled by Contractor with a permanent high strength field connection bolt and fully tightened in the same manner as all other bolts.

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- .10 Field paint touch-up of permanent high strength bolts and connections shall be executed only after bolt tightening has been accepted by Engineer.

8.5 NEW BOLT HOLES

- .1 The perimeter of new bolt holes shall not exceed a surface roughness of ASA 500.
- .2 The Contractor shall accommodate the inspector who will verify surface roughness and presence of cracks in the existing bolt holes.
- .3 Instructions will be given to the Contractor if reaming is required.

8.6 INSTALLATION PROCEDURES AND INSTALLATION TOLERANCES

- .1 Fabrication procedures and tolerances shall be in accordance with Part 3, Chapter 15, A.R.E.M.A. Standard, unless stated otherwise in the specifications or on the drawings.
- .2 All holes must be drilled from the solid.
- .3 Steel templates with hardened bushings will be required for drilling holes.
- .4 Strictly adhere to the various procedures of installation called for on the drawings.

8.7 HANDLING OF COMPONENTS

- .1 The various components shall be delivered to the bridge site and handled by the Contractor.
- .2 All pieces shall be handled in such a way to avoid damages to the members. Steel slings or chains shall not be used for handling materials. If steel slings or chains must be used, the pieces shall be surrounded and protected so that the steel slings do not come in contact with the components.
- .3 Do not drop, throw or drag pieces during loading and unloading from trucks or cars. Do not slide shop-painted components. Pieces that have not been grouped together must be handled individually during loading and unloading.
- .4 Existing steel shall be carefully removed so as not to be damaged for re-installation where required by the drawings.
- .5 The Contractor shall also remove and re-install, as required, certain pieces where the new piece does not fit.

8.8 GOUGES TO STEEL MEMBERS

- .1 Gouges in parent material caused by the Contractor in excess of 1/8" shall be subject to complete member replacement at the Contractor's expense.
- .2 Gouges up to 1/16" shall be ground smooth by the Contractor to 1/10 slope to the Engineer's complete satisfaction.
- .3 Gouges in the existing bottom flanges are not allowed. Any gouge in the bottom flange shall be reported to the engineer with a repair methodology for review and approval.

8.9 REMOVAL OF MATERIALS

- .1 Removed materials shall become the property of the Contractor and shall be disposed off-site by the Contractor.

8.10 INSTALLATION

- .1 All pieces shall be handled in such a way to avoid damages to the members. Steel slings or chains shall not be used for handling materials. If steel slings or chains must be used, the pieces shall be surrounded and protected so that the steel slings do not come in contact with the components.
- .2 Do not drop, throw or dag pieces during loading and unloading from trucks or cars. Do slide galvanized components. Pieces that have not grouped together must be handled individually during loading and unloading.

8.11 TOUCH-UPS

- .1 Any damaged areas of the galvanized, zinc-metallic or painted coating due to filed installation by the Contractor shall be made good by touching-up with cold-applied galvanizing compound or appropriate paint finish to the satisfaction of the Engineer.

8.12 MARKING

- .1 Bearings, pedestals/shim plated and transition plates will be tagged and identified in accordance with the "Type Code" indicated on the drawings.

8.13 SETTING OF ANCHOR BOLTS

- .1 Drill anchor bolt holes using rotary drills and in accordance with drawings.
- .2 Place anchor bolts in drilled holes to elevations and locations indicated. Turn anchor bolt one full turn. Protect holes against entry of water and foreign material.

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- .3 Supply necessary materials and protection as directed and completely fill space around anchor bolts with approved non-shrink grout, "SikaGrout 212" supplied by Sika Construction, or approved equal.

PART 9 - MEASUREMENT AND PAYMENT

9.1 MEASUREMENT

- .1 Jacking will not be measured for payment.

9.2 PAYMENT

- .1 Jacking will be paid for in accordance with the unit price item as outlined in Schedule A – Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labor, equipment, and material required to complete concrete as per the Contract Documents and in strict accordance with this Section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This Section covers the supply and installation of the steel-laminated elastomeric bearings and anchor bolts.

1.2 RELATED WORK

- .1 Structural Steel for Bridges Section 05122
- .2 Jacking and Pedestals Section 05500

1.3 REFERENCES

- .1 A.R.E.M.A – Chapter 15, Part 5 Bearing Design & Construction, latest revision.
- .2 Ontario Provincial Standard Specifications (OPSS):
 - .1 OPSS.PROV 922 - Construction Specification for Installation of Bearings, latest revision (April 2017); and
 - .2 OPSS.PROV 1202 - Bearings - Elastomeric Plain and Steel Laminated, latest revision (April 2017).
- .3 Canadian Standards Association (CSA):
 - .1 G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel; and
 - .2 G189-1966 (R2003), Sprayed Metal Coatings for Atmospheric Corrosion Protection.
- .4 American Society for Testing and Materials International (ASTM):
 - .1 ASTM D429-14(2023), Standard Test Methods for Rubber Property – Adhesion to Rigid Substrates;
 - .2 ASTM F1554-20, Standard Specification for Anchor Bolts, Steel, 36, 55 and 105 ksi Yield Strength; and
 - .3 ASTM F3125/F3125M-22, Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 Mpa and 1040 Mpa Minimum Tensile Strength.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 **Structural steel** shall be new and of the grade and category specified in the Contract Documents and shall be according to CSA G40.20/G40.21:
 - .1 Grade and types of steel:
 - .1 350W: bearing assemblies.
 - .2 **Anchor bolts, nuts and washers:** to ASTM F1554, Grade 105 galvanized.
 - .3 **Bearing Plates:** as detailed on the drawings.
 - .1 All non-sliding bearing surfaces shall be zinc metallized with a minimum coating thickness of 0.25mm in accordance with CSA G189 "Sprayed Metallic Coatings for Atmospheric Corrosion Protection".
 - .2 All edges of steel (bearing plates, etc.) to be metallized shall be slightly rounded in order that the metallizing will adhere.

2.2 STEEL REINFORCED ELASTOMERIC BEARING PADS

- .1 The Fabricator shall supply and place steel reinforced bearing pads where indicated on the drawings.
- .2 Steel reinforced Elastomeric Bearing Pads:
 - .1 Bearing pads shall be fabricated from virgin rubber to Durometer Hardness 60:
 - .1 Rubber bearing pads shall conform to A.R.E.M.A. Chapter 15, Part 5, Clause 5.6 meeting the requirements of Table 15-5-5 Elastomeric Material Property Test Requirements. The rubber pad shall be exposed to field temperatures falling to – 40° Celsius. frequently for short durations and may remain below -15° Celsius. continuously for up to 2 months. The test temperature for Low Temperature Properties shall be -30° Celsius.
 - .2 The internal steel plates shall be sand-blasted and cleaned of all surface coating rust, mill scale before bonding, shall be free of sharp edges and burrs and shall have a minimum edge cover of 5mm of elastomer;
 - .3 Bearings shall be manufactured as a single unit; and

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- .4 The vulcanized bond between the elastomer and steel plates shall develop a minimum peel strength of 7 kN/m. Peel strength tests shall be performed in accordance with ASTM D429, Method B.
 - .3 The Fabricator shall submit a certificate from his supplier to the Engineer stating the requirements of the above clause have been met and the test requirements of Clause 3.2 have been executed.
 - .4 Protect pads for shipment.

PART 3 - EXECUTION

3.1 PREPARATION AND PLACEMENT

- .1 The Contractor shall perform top of rail track survey to determine bearing elevations and provide drawing of results and proposed bearing and pedestal elevations.
- .2 The bearings shall be installed in accordance with all the requirements of A.R.E.M.A. Chapter 15, Section 11 and of OPSS 922 and data provided on the drawings.

3.2 TESTING OF STEEL REINFORCED BEARING PADS

- .1 The fabricator shall proof test 1 steel reinforced Elastomeric Bearing Pad in accordance with Test Requirement No. I of the A.R.E.M.A. Chapter 15, Part 5, Clause 5.12.9(b).
- .2 The Engineer will randomly select the bearings to test and shall be present for the testing. Test results shall be submitted to the Engineer in writing.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Measurement shall be based on units installed.

4.2 PAYMENT

- .1 Payment for Laminated Bearings will be made at the Contract Unit Prices included in Schedule A – Schedule of Quantities and Prices for each bearing installed. Payment will be full compensation for all materials, labor, use of equipment, tools and incidentals necessary to complete the work.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This Section consists of labor, supply and application of damp proofing and sealer to concrete surfaces as shown on the Contract Documents, and in accordance with the manufacturer's directions.

1.2 RELATED WORK

- .1 Submittals Section 01340
- .2 Environmental Protection Section 01560
- .3 Quality Control and Assurance Section 01620
- .4 Cast-in-Place Concrete Section 03300

1.3 REFERENCES

- .1 American Society of Testing and Materials International (ASTM):
 - .1 ASTM D4259-18, Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application

1.4 QUALITY ASSURANCE

- .1 The Contractor is responsible for conducting its own quality assurance program to ensure damp proofing meets the requirements of the Specifications, in accordance with Section 01620 – Quality Control and Assurance.
- .2 Perform Work in accordance with the printed requirements of the membrane manufacturer and this specification. Advise designer of any discrepancies prior to commencement of the Work.
- .3 Maintain one copy of manufacturers literature on site throughout the execution of the Work.
- .4 At the beginning of the Work and at all times during the execution of the Work, allow access to site by the manufacturer's representatives.
- .5 Materials used in this Section, including, primers, mastics and membranes, asphaltic protection boards, composite drainage boards and expansion joint membranes shall be fully compatible, and each system shall be sourced and or produced by one manufacturer.

1.5 SUBMITTALS

- .1 The Contractor shall provide the following submissions for review in accordance with requirements of this Section and Section 01340 – Submittals:
 - .1 Prior to commencing the Work, the manufacturer shall furnish evidence that the specified materials have been manufactured by the same source and successfully utilized on a yearly basis for a minimum of five (5) years on projects of a similar scope to that shown and specified for this Project. The work shall be performed by a firm having yearly experience with spray applied systems for a minimum of five (5) years' experience in the installation of materials specified herein on projects comparable to this project. Submit evidence of successful completion of work of similar scope to that shown and specified for this project using similar applications and materials;
 - .2 Submit manufacturer's printed literature, specifications and installation instruction for the application systems and other data as may be required to show compliance with the Contract Documents. Indicate by transmittal form that a copy of manufacturer's installation details has been sent to the applicator;
 - .3 Before commencing work submit written statement signed by the Trade Contractor and the Applicator stating that the Contract Documents have been reviewed with a qualified representative of the manufacturer of the sealing systems, and that he agrees that the selected materials are appropriate and compatible for the applications shown, and that the conditions and details are not in conflict with the Manufacturer's Warranty specified herein. Indicate by transmittal form that a copy of the statement has been sent to the manufacturer;
 - .4 Submit a certified statement issued by the manufacturer of the materials, and countersigned by the applicator, attesting that all areas to receive damp proofing and sealer have been inspected and found satisfactory for the reception of this Work; and are not in conflict with the "Warranty" requirements. Application will be construed as acceptance of surfaces; and
 - .5 Submit Material Safety Data Sheets with products delivered to jobsite.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer, product, grade, class and other qualifying information.
- .2 Cold applied membrane should be stored in closed containers outdoors.

- .3 Store materials in a dry location in such manner as to prevent damage or invasion of foreign matter, and in accordance with manufacturer's instructions. Conspicuously mark "Rejected" on materials which have once been wet or damaged and remove from the job site.
- .4 Membrane contain petroleum solvents and are flammable. Do not use near open flame.
- .5 Store role materials horizontally in original packaging.
- .6 Keep solvents away from open flame or excessive heat.

1.7 PROJECT CONDITIONS

- .1 Weather Condition Limitations: Proceed with application and associated work only when weather conditions will permit unrestricted use of materials and adequate quality control of work being installed, in compliance with requirements and with recommendations of primary materials manufacturers.
- .2 Do not apply moisture protection materials during inclement weather or when ambient temperature and surfaces are less than specified by the manufacturer's application instructions. Do not apply materials to frozen or frost-filled surfaces. Protect completed application from weather and other damage for a period of 24 hours after installation.

1.8 PROTECTION

- .1 Protect all adjacent construction for damage resulting from spillage, dripping and dropping of material. Prevent materials from entering and clogging drains and water conductors. Repair and restore or replace other work that is soiled or damaged in connection with the performance of this work. Protect work of other trades from damage resulting from work of this section. Make good such damage at own expense to satisfaction of the consultant.

1.9 WARRANTY

- .1 Warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties made by the Trade Contractor under requirements of the Contract Documents.
- .2 Provide a written warranty, directly to the Owner, for a period of 10 years warranting against leaks resulting from defects of materials or workmanship. Upon notification of such defects, within the warranty period, make the necessary repairs and replacements, at the convenience of the Owner.

PART 2 - PRODUCTS

2.1 DAMP PROOFING

- .1 Provide and apply damp proofing on all concrete surfaces that are in contact or will be in contact with soil.
- .2 **Damp proofing**
- .3 Damp proofing: two heavy coats of emulsified asphalt compound. The emulsified asphalt compound shall be Bakor 700-01 or shall be Bakor 710-11 as manufactured by Bakor Inc. or approved equal.
- .4 Primer:
 - .1 When using Bakor 700-01: apply Bakor 700-01 diluted 20% by volume with clean water and let dry. Rate of application shall be in accordance with the manufacturer's recommendations; and
 - .2 When using Bakor 710-11: apply Bakor Primer 910-01 and allow to dry. Rate of application shall be in accordance with the manufacturer's recommendations.

2.2 SEALANT

- .1 Components and materials must be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.
- .2 Sealant product: Sikagard A50 by Sika Canada Inc., or approved equivalent.
- .3 Provide and apply the sealant on all the concrete surfaces exposed to air.
- .4 Before applying the sealant, the concrete shall be completely cured as per manufacturer's recommendations.
- .5 Apply the product according to the manufacturer's instructions, at the specified rate of application.

2.3 CRACK SEALANT

- .1 Cracks in concrete shall be repaired by epoxy injection using Sikadur 35 Hi-Mod LV or approved equal.
- .2 Product shall be pressure injected as per manufactures guidelines.

PART 3 - EXECUTION

3.1 GENERAL

- .1 All material, equipment, construction, delivery and erection shall be as per drawings.
- .2 Damp proofing shall be applied to all concrete surfaces that are in contact or will be in contact with soil.
- .3 Sealer shall be applied to all concrete surfaces that will be exposed to air.

3.2 PRE-INSTALLATION MEETING

- .1 If required, Prior to the start of the Work, and at the Trade Contractor's direction, meet at the Project site to review methods and sequence of spray applied waterproofing installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work. The meeting shall include the Consultant, the Construction Manager, spray applied applicator, spray applied waterproofing materials manufacturer representative, and any other subtrades whose work requires coordination with this work.

3.3 CONDITION OF SURFACES

- .1 Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Do not proceed with the Work until unsuitable conditions have been corrected.
- .2 The manufacturer of the spray applied waterproofing membrane and the applicator shall inspect and approve the concrete substrate to review the acceptability of the concrete for application of the waterproofing membrane system.

3.4 PREPARATION

- .1 Clean substrate of debris and deleterious material, which would impair the Work. Surfaces shall be free of oil grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products and other detrimental matter. All steel surfaces shall be degreased before cleaning. No visible moisture shall be present on the surface at the time of the application. Dry substrate using method and materials approved by the spray applied waterproofing manufacturer.
- .2 Do not proceed with installation until all defects in the substrate have been corrected and vents, drains, curbs, and other projections through the waterproofing have been installed.

- .3 Holes, honeycombs and cavities shall be pointed or filled, patched and finished flush to provide a smooth, structurally sound surface, in accordance with manufacturer's directions utilizing materials recommended by the manufacturer of the spray applied waterproofing membrane. Cut off high spots and grind smooth. Treat non-moving cracks, penetrations, control joints and other joints in substrate with materials, methods and designs as recommended by the waterproofing membrane manufacturer.
- .4 The substrate surface shall be abrasively cleaned (shot blasting) in accordance with ASTM D4259, to provide a sound substrate free from laitance.
- .5 The grout tubes shall be cut flush with the deck surface prior to sand blasting and shall be re-cut flush with the concrete surface if shot-blasting results in the tube projecting from above the concrete.
- .6 Following the preparation work and prior to the application of the spray applied waterproofing system, the substrate shall be inspected and approved by the spray applied waterproofing system applicator and the manufacturer of the spray applied waterproofing to ensure the preparatory works are satisfactory and the finished substrate meets the required standard. Comply with submittal of substrate acceptability statement as specified in "Submittals".

3.5 INSTALLATION

- .1 At the start of the installation and periodically as work progresses provide the services of the manufacturer's technical representative at the job site as often as deemed necessary by the manufacturer to advise on all phases of this work.
- .2 Install the damp proofing system and sealant system in accordance with the manufacturer's instructions. Install and complete the system to assure that no water leakage through the system occurs.

3.6 FIELD QUALITY CONTROL

- .1 An inspection agency may be engaged by the Owner to inspect work specified herein. The presence of the Inspection Agency is for the Owner's own Purposes and any information or assistance furnished by his Inspection Agency shall not relieve the Trade Contractor of the responsibility for the Work.
- .2 The Trade Contractor's Responsibility is as follows:
 - .1 Upon award of Contract, complete the form furnished by the Inspection Agency;
 - .2 Provide the Inspection Agency with safe access to the Work;
 - .3 Notify the Inspection Agency whenever work is to be done, in sufficient time to arrange inspection;

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- .4 Discontinue any practice immediately when notified which, in the Inspection Agency's opinion is not in accordance with the Specifications or will act to the detriment of the system. The Inspection Agency will notify the Owner, the Consultant, the Trade Contractor and the manufacturer immediately of all violations. Any work affected by the practice will be subject to complete replacement; and
 - .5 Give written notice to the Inspection Agency stating that the installation has been completed in accordance with the Contract Documents and requesting that a final inspection be conducted.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

- .1 Measurement of Concrete Damp proofing and Sealer will be per square foot of surface completed.

4.2 PAYMENT

- .1 Concrete Damp proofing and Sealer will be paid for in accordance with the unit price item as outlined in the Schedule of Quantities and Prices. Payment at the Contract price for the above items shall be full compensation for all labor, equipment, and material required to complete the work of this section.

***** END OF SECTION *****

PART 1 - GENERAL

1.1 SURFACE PREPARATION

- .1 The work shall include the supply of all labor, materials and equipment required to clean steel contact surfaces destined to receive new materials and touch up repair of existing paint.
- .2 Clean all surfaces by removing all paint, rust, mill scale, welding slag, dirt, oil, grease and other foreign substances by Power Tool Cleaning in accordance with SSPC-SP3 of the "Steel Structures Painting Council".
- .3 All traces of removed materials such as lead based paint, rust, etc., shall be recuperated by vacuum or by other method approved by the environmental authorities.
- .4 The Contractor shall abide by all environmental laws set out by federal, provincial, and municipal authorities. The Contractor shall contact these authorities prior to commencing the work so that all measures in force are implemented in the execution of the work.

1.2 RELATED SECTIONS

- .1 Environmental Protection Section 01560
- .2 Structural Steel for Bridges Section 05122

1.3 FIELD PAINTING

- .1 The work shall include the supply of all labor, materials and equipment required to apply an epoxy top coat to all permanent field connection bolts after repair steel is in place and also where a second coat was not applied in the shop or where paint was damaged by the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS - PAINT

- .1 The paint system to be used for the field touch-up of connection bolts, for painting around all connections where only one coat was applied in the fabrication shop and where paint was damaged by the Contractor shall be an epoxy coating system, Interseal 670HS as supplied by International Paints, or approved equal.

- .2 Color of topcoat (finish coat) shall be as selected by the Engineer or to match color of existing bridge.
- .3 Mixing and application shall be in strict accordance with manufacturer's written instructions.
- .4 Paint Film Thickness:
 - .1 Two coats epoxy coating to a minimum dry film thickness of 4.0 mils each coat.

2.2 MATERIALS –GALVANIZING TOUCH-UP

- .1 Touch-up of Galvanizing shall be completed by using Rust-Anode Primer by Galvatech2000 or approved equivalent.

PART 3 - EXECUTION

3.1 FIELD PAINT TOUCH-UPS

- .1 All steel components/assemblies supplied by the railway will have been shop painted with the exception of around connections where only one shop primer coat will have been applied
- .2 The Contractor shall supply and apply an epoxy topcoat to field connection bolts, nuts and washers applied in the field.
- .3 The Contractor shall also touch-up only the areas where over cleaning of the contact surfaces was done.
- .4 All high strength **permanent field connection bolts** shall be cleaned and touched-up with an epoxy topcoat:
 - .1 Contractor shall note that when bolt spacing pattern is very close, the Contractor shall paint the entire component;
 - .2 For each high strength connection bolt, remove heavy deposits of oil or grease by Solvent Cleaning to SSPC-SP-1-63;
 - .3 The various Price submitted on the Form of Tender for strengthening and/or retrofitting of various members, shall include the entire cost of all labor, materials and equipment required to clean, supply and apply an epoxy field touch-up coat as specified; and
 - .4 Both sides of bolts shall be cleaned and painted (heads, nuts and washers).

- .5 All surfaces to be touched-up or field painted shall be cleaned and prepared in accordance with the paint manufacturer's recommendations
- .6 The various Prices submitted on the Form of Tender for the replacement of various members, shall include the entire cost of all labor, materials and equipment required to:
 - .1 supply and apply an epoxy field touch-up coat to all **permanent field connection bolts**;
 - .2 supply and apply paint to areas where the paint was damaged during the installation of these components;
 - .3 the supply of paint and the execution of all field touch-ups around all connections where only one coat was applied;
 - .4 touch-up areas where over cleaning of the contact surfaces was done; and
 - .5 cleaning and painting of areas identified on the Drawings.

3.2 FIELD GALVANIZING TOUCH-UPS

- .1 Any damaged areas of the galvanized or zinc-metallic coating due to field installation by the Contractor shall be made good by touching-up with cold-applied galvanizing compound to the satisfaction of the Engineer.
- .2 All surfaces to be touched-up shall be cleaned and prepared in accordance with the manufacturer's recommendations.

3.3 CLEAN UP OF EXISTING PAINTED SURFACE

- .1 Protect the existing paint from any damage (scratch, gouge, scrape etc.) while cleaning.
- .2 Do not use chemicals for cleaning the existing painted surfaces. Avoid wire brushes or abrasive pads. Use soft brush or cloth to avoid damaging the paint surface.

3.4 METHOD OF PAYMENT FOR THE CLEANING OF SURFACES

- .1 The various Prices submitted on the Form of Tender for the replacement of various members, shall include the entire cost of all labor, materials and equipment required to:
 - .1 The cleaning of surfaces and the costs associated with the recuperation of all contaminated materials obtained from the surface cleaning operations and all other costs associated with abiding by all

environmental protection requirements set out by the authorities having jurisdiction over this matter.

***** END OF SECTION ****

PART 3 – RFQ SPECIFICATIONS
SCHEDULE 3-A-2
CONTRACT DRAWINGS, REFERENCE DRAWINGS AND REPORTS

Refer to the contract drawings prepared by AECOM, as outlined below, and which are attached to this Schedule 3-A-2.

CONTRACT DRAWINGS

Drawing No.	Description	Date
ISF-162.00-1.01	GENERAL ARRANGEMENT	03/05/2023
ISF-162.00-1.02	RETAINING WALLS - SOUTH ABUTMENT	03/05/2023
ISF-162.00-1.03	RETAINING WALLS - NORTH ABUTMENT	03/05/2023
ISF-162.00-1.04	JACKING BEAM DETAILS	03/05/2023
ISF-162.00-1.05	CONCRETE DEMOLITION DETAILS - SOUTH ABUTMENT	03/05/2023
ISF-162.00-1.06	CONCRETE DEMOLITION DETAILS - NORTH ABUTMENT	03/05/2023
ISF-162.00-1.07	CONCRETE DEMOLITION DETAILS - PIERS	03/05/2023
ISF-162.00-1.08	CONCRETE DIMENSIONS - SOUTH ABUTMENT	03/05/2023
ISF-162.00-1.09	CONCRETE REINFORCEMENT DETAILS - SOUTH ABUTMENT	03/05/2023
ISF-162.00-1.10	CONCRETE DIMENSIONS - NORTH ABUTMENT	03/05/2023
ISF-162.00-1.11	CONCRETE REINFORCEMENT DETAILS - NORTH ABUTMENT	03/05/2023
ISF-162.00-1.12	CONCRETE DIMENSIONS - PIERS	03/05/2023
ISF-162.00-1.13	CONCRETE REINFORCEMENT DETAILS - PIERS	03/05/2023
ISF-162.00-1.14	REINFORCING BAR LISTS	03/05/2023
ISF-162.00-1.15	PEDESTAL DETAILS	03/05/2023
ISF-162.00-1.16	PIER PROTECTION PLATE DETAILS	03/05/2023
ISF-162.00-1.17	BILL OF MATERIALS	03/05/2023

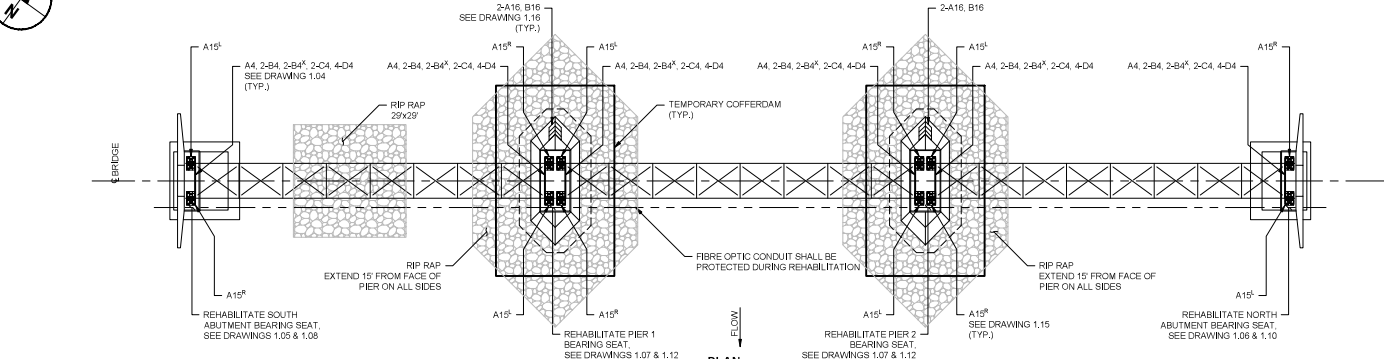
REFERENCE DRAWINGS AND REPORTS

Drawing No.	Description	Date
C-262	CHEEPAS RIVER CROSSING M.P. 162.0 AND OTAKWAHEGAN RIVER CROSSING M.P. 157.6 JAMES BAY EXTENSION (TEMISKAMING & NORTHERN ONTARIO RLY.)	Jan. 15, 1931
D-264	PLANS AND ELEVATIONS, PIERS AND ABUTMENTS CHEEPAS RIVER CROSSING MILE 162 – JAMES BAY EXTENSION (TEMISKAMING & NORTHERN ONTARIO RLY.)	JULY 21, 1931
1	95'-0" GIRDERS (THE CANADIAN BRIGDE COMPANY)	JUNE 09, 1931
2	95'-0" GIRDERS (THE CANADIAN BRIGDE COMPANY)	JUNE 09, 1931
3	BRACE FRAMES – LATERALS & PIER MEMBERS (THE CANADIAN BRIGDE COMPANY)	JUNE 18, 1931
E1	ERECTION DIAGRAM (THE CANADIAN BRIGDE COMPANY)	April 28, 1931
E2	TIE PLAN (THE CANADIAN BRIGDE COMPANY)	JUNE 19, 1931
10143-B-1	STRESS DIAGRAM – 95 FT GIRDERS (THE CANADIAN BRIGDE COMPANY)	APRIL 10, 1931



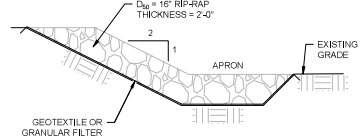
SOUTH TO COCHRANE

NORTH TO JAMES BAY

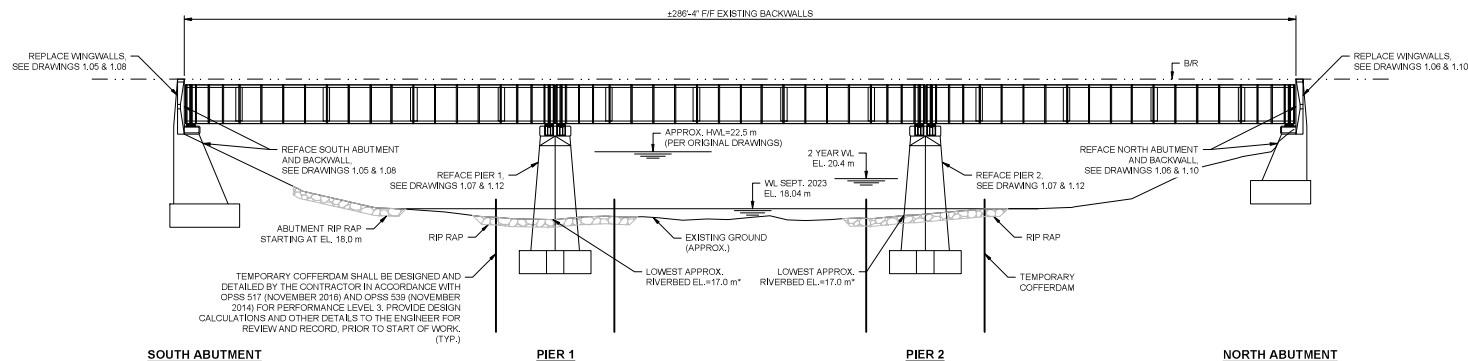


PLAN
Scale 1/16"=1'-0"

NOTE: RAIL AND TIES NOT SHOWN FOR CLARITY



RIP-RAP DETAIL
NTS



ELEVATION
Scale 1/16"=1'-0"

*TO BE FIELD CONFIRMED BY CONTRACTOR

GENERAL NOTES:

- IT IS PROPOSED TO REPLACE THE WINGWALLS, REFACE THE ABUTMENTS AND BALLAST WALLS, REFACE THE PIERS, INSTALL JACKING BEAMS AND GRILLAGES.
- BASE OF RAIL ELEVATION TO REMAIN THE SAME.
- ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR, REPORT ANY DISCREPANCIES AND RESOLVE WITH THE DESIGN ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL SURVEY THE EXISTING TOP OF RAIL PROFILE INCLUDING THE BRIDGE AND 500' APPROACH ON BOTH ENDS OF THE BRIDGE AT MAXIMUM 20' INTERVALS. THE TOP ELEVATION OF THE BEARING PEDESTAL SHALL BE CORRECTLY DETERMINED BASED ON THE EXISTING TOP OF RAIL PROFILE.
- THOROUGHLY CLEANUP THE EXISTING STEEL SPANS, REMOVE ALL DEBRIS AND DIRT FROM THE TOP SURFACE OF THE BOTTOM FLANGE, GUSSET PLATES AND BRACING ANGLES. THE METHOD OF REMOVAL SHALL NOT AFFECT THE EXISTING PAINT.

DESIGN NOTES:

- DESIGN AND WORKMANSHIP: AREMA CHAPTERS 8 & 15 (LATEST EDITION)
- LIVE LOAD: COOPER E80 WITH DIESEL IMPACT

MATERIAL SPECIFICATIONS:

- CONCRETE: CSA-A23.1 & A23.2 (LATEST EDITION) CLASS C-1, MINIMUM SPECIFIED COMPRESSIVE STRENGTH SHALL BE 35 MPa AT 28 DAYS. ALL CONCRETE SHALL BE 5 TO 8% AIR-ENTRAINED WITH SLUMP OF 3" ± 1".
- REINFORCING STEEL: CSA-G30.18 (LATEST EDITION) 400W DEFORMED UNCOATED BARS.
- STRUCTURAL STEEL: CSA-G40.20/G40.21 (LATEST EDITION) GRADE 350W OR EQUAL.
- HOLES: 3/4" UNLESS NOTED OTHERWISE (UNO), HOLES SHALL BE DRILLED FULL SIZE OR SUB-PUNCHED AND REAMED.
- BOLTS: 3/4" HIGH STRENGTH ASTM F1554 GRADE A325 TYPE 1 WITH HEAVY HEX NUT AND HARDENED ROUND WASHER. GUNDS NUTS SHALL BE TIGHTENED BY USING THE TURN-OF-NUT METHOD.
- GALVANIZING: ASTM A123/A123M OR ASTM A153/A153M, AS APPLICABLE.
- WELDING: CSA W59 (LATEST EDITION)
- PAINT: SEE SPECIFICATION.
- ANCHOR BOLTS: ASTM F1554, GRADE 105 (GALVANIZED AS PER ASTM A143/A143M).
- RIP-RAP: NOMINAL STONE SIZE=16" MINIMUM THICKNESS=2'-0"

REFERENCES:

- EXISTING DRAWINGS: 162.00 ISFSD A-4298, A-4298B, B-168, C-262, D-264, 162.00 ISFSD SERIES M-12
- SURVEY: 1010325-ISF M, 162.00 ISFSD NAD83 CSRS, BY GROMA TECHNICAL SERVICES, SURVEY COMPLETED 2023-09-20.
- INSPECTION REPORT: 162.00 ISLAND FALLS - 2022, BY AECOM, DATED OCTOBER 22, 2022.
- NEAREST STATION: MOOSE RIVER CROSSING.

LIST OF DRAWINGS:

- 1.01 - GENERAL ARRANGEMENT
- 1.02 - WINGWALL SHORING - SOUTH ABUTMENT
- 1.03 - WINGWALL SHORING - NORTH ABUTMENT
- 1.04 - JACKING BEAM DETAILS
- 1.05 - CONCRETE DEMOLITION DETAILS - SOUTH ABUTMENT
- 1.06 - CONCRETE DEMOLITION DETAILS - NORTH ABUTMENT
- 1.07 - CONCRETE DEMOLITION DETAILS - PIERS
- 1.08 - CONCRETE DEMOLITION DETAILS - SOUTH ABUTMENT
- 1.09 - CONCRETE DEMOLITION DETAILS - NORTH ABUTMENT
- 1.10 - CONCRETE DIMENSIONS - SOUTH ABUTMENT
- 1.11 - CONCRETE DIMENSIONS - NORTH ABUTMENT
- 1.12 - CONCRETE DIMENSIONS - PIERS
- 1.13 - CONCRETE REINFORCEMENT DETAILS - PIERS
- 1.14 - REINFORCING BAR LISTS
- 1.15 - PEDESTAL DETAILS
- 1.16 - RIP PROTECTION PLATE DETAILS
- 1.17 - BILL OF MATERIALS

ESTIMATED QUANTITIES: (ON THIS DRAWING)

RIP-RAP 9556 FT³

LEGEND:

APPROX. = APPROXIMATE	MIN. = MINIMUM
B.R. = BASE OF RAIL	N.F. = NEAR FACE
B.S. = BOTH SIDES	N.S. = NEAR SIDE
DPG = DECK PLATE GRIDER	PL = PLATE
DWG. = DRAWING	R = RADIUS
E.F. = EACH FACE	TYP. = TYPICAL
EL. = ELEVATION	T & B = TOP AND BOTTOM
F.S. = FAR SIDE	UNO = UNLESS NOTED OTHERWISE
F.F. = FAR FACE	WL = WATER LINE
H.M. = HIGH WATER LINE	

NOT FOR CONSTRUCTION

ENGINEERS STAMP

REGISTERED PROFESSIONAL ENGINEER

R. NAWAZ

100526-419

PROFESSIONAL OF ONTARIO

MARCH 5, 2024

No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		

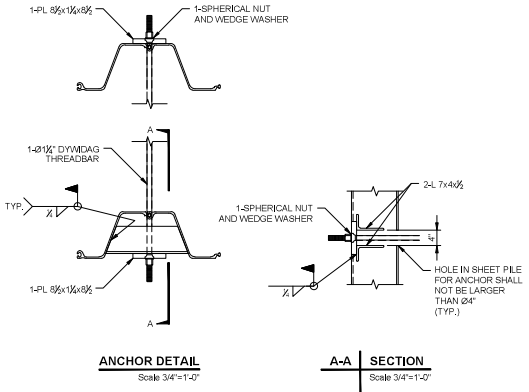
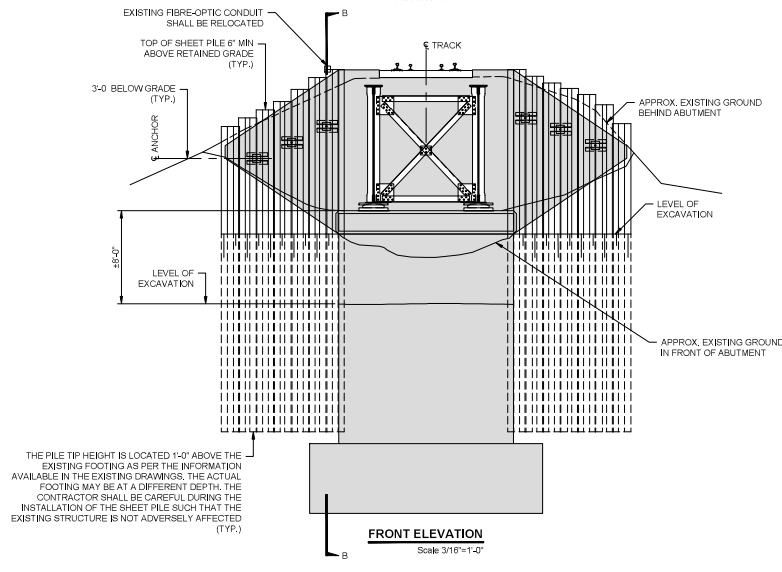
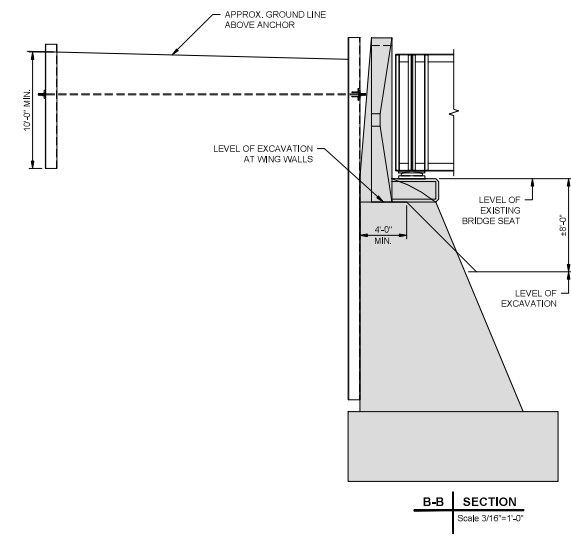
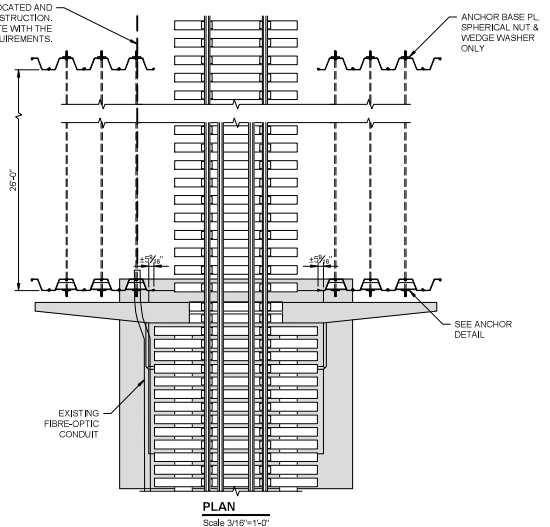
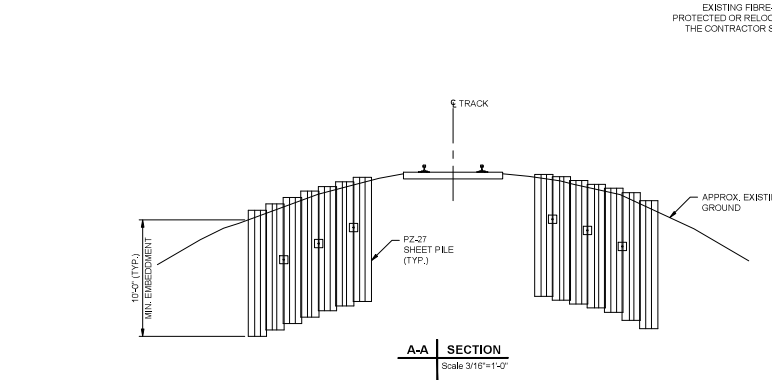
AECOM

AECOM PROJECT No. 60678205

BRIDGE OVER CHEEPAS CREEK
MILE 162.00 ISLAND FALLS SUBDIVISION
GENERAL ARRANGEMENT

BRIDGE REHABILITATION

DWG BY: AM	CHK BY: DA	OFFICE FILE:
ENGINEER: R. NAWAZ	SCALE: 1/16"=1'-0"	
PROJECT MANAGER: M. RAVAL	DATE: MARCH 5, 2024	
	DWG No. ISF-162.00-1.01	



- NOTES:**
- FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.
 - IT IS PROPOSED TO INSTALL SHEET PILING ON EACH SIDE OF THE SOUTH ABUTMENT TO FACILITATE THE CONCRETE REPAIRS ON THE ABUTMENT.
- SHEET PILE WALL NOTES:**
- SHEET PILES SHALL BE P227 IN ACCORDANCE WITH ASTM A572, GRADE 50 OR APPROVED EQUIVALENT.
 - ALL OTHER STEEL SHALL BE GRADE 300W AS PER CANCSA G40.21.
 - ANCHOR MATERIAL SHALL BE GRADE 1035 MPA DYWIDAG THREADBAR - PRESTRESSING STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A722 "CP" Ø16.4 mm 7-WIRE UNCOATED, LOW RELAXATION STRANDS HAVING MINIMUM ULTIMATE STRENGTH OF 1860 MPa AND MEETING THE REQUIREMENTS OF ASTM A496/A498M. USE TWO STRANDS PER ANCHOR.
 - SNUG TIGHT THE NUT.
 - THE SHEET PILE INSTALLATION METHODOLOGY SHALL BE SELECTED SUCH THAT THE EXISTING STRUCTURE IS NOT ADVERSELY AFFECTED.
 - THE CONTRACTOR IS RESPONSIBLE FOR THE TRACK STABILITY DURING CONSTRUCTION.
 - UPON COMPLETION OF THE WORKS, CUT THE SHEET PILES 3' BELOW GRADE.
 - DO NOT REMOVE OR DAMAGE THE EXISTING HORIZONTAL STEEL REINFORCEMENT EMBEDDED IN THE EXISTING CONCRETE BACKWALL DURING ANCHOR INSTALLATION.
 - DO NOT REMOVE THE EXISTING WINGWALL CONCRETE MORE THAN 1'-0" BELOW THE ANCHOR ROD UNTIL THE ANCHOR RODS COMPLETELY INSTALLED.
 - THE CONTRACTOR SHALL DEVELOP A DETAILED SHEET PILE AND ANCHOR INSTALLATION METHODOLOGY WITH EMPHASIS ON PROTECTION OF THE EXISTING INFRASTRUCTURE AND SUBMIT FOR REVIEW AND ACCEPTANCE.
 - ALTERNATE TRACK PROTECTION SYSTEM WILL ONLY BE ALLOWED THROUGH WRITTEN APPROVAL FROM THE ENGINEER. ALTERNATE SYSTEM SHALL BE AS FOLLOWS:
 - DESIGN LATERAL LIVE LOAD SHALL BE COOPER E-80 AS PER AREA.
 - MAXIMUM LATERAL DEFLECTION OF THE SYSTEM SHALL NOT EXCEED 1.0" AT ANY POINT.
 - ALTERNATE SYSTEM SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND THE DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW AND ACCEPTANCE.

ESTIMATED QUANTITIES:

STRUCTURAL STEEL	696 LBS
SHEET PILE	560 FT
Ø1 1/2x28-2" DYWIDAG THREADBAR	6 EACH

LEGEND:

EXISTING CONCRETE

NOT FOR CONSTRUCTION

ENGINEERS STAMP

R. NAWAZ
100526-419
PROVINCE OF ONTARIO
MARCH 5, 2024

No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		

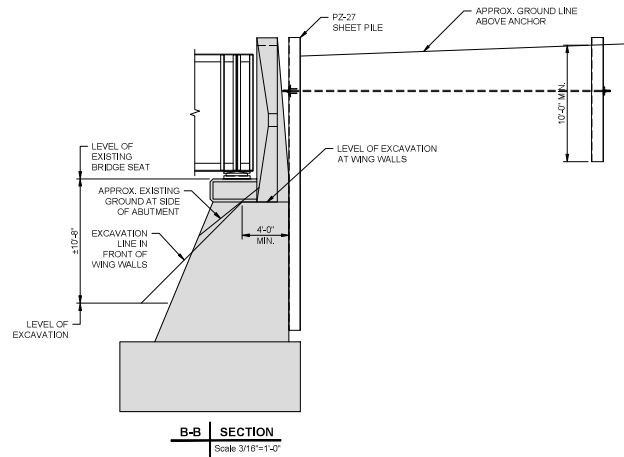
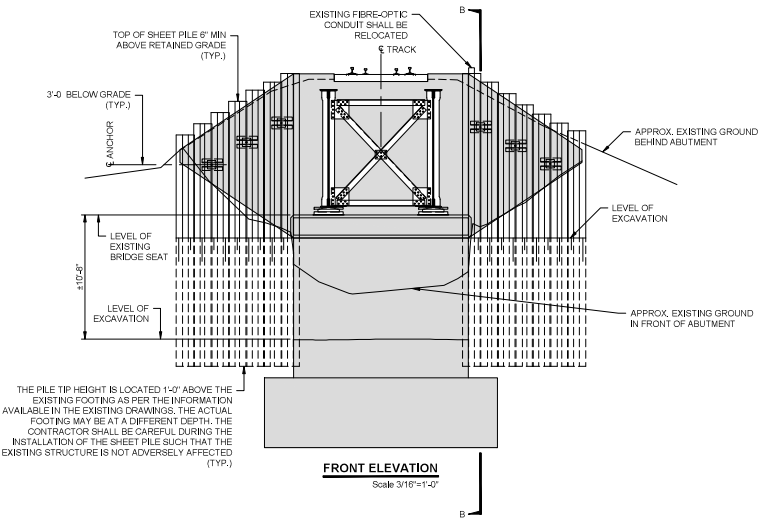
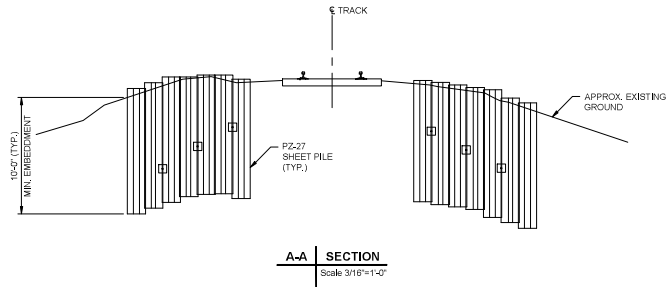
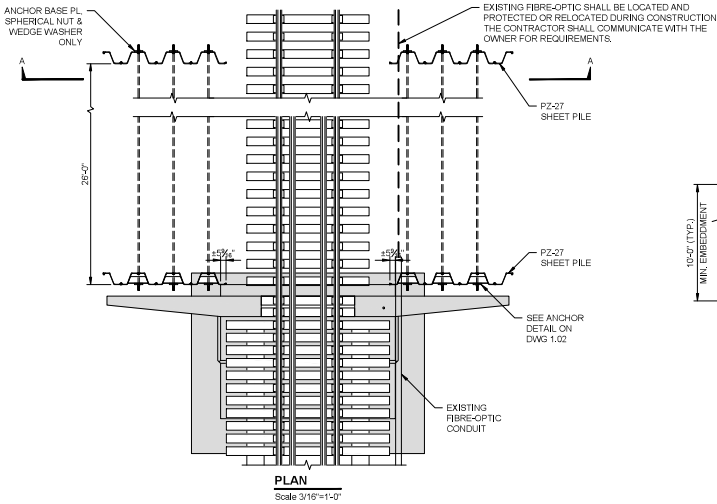
Ontario Northland

AECOM

AECOM PROJECT No. 60678205

**BRIDGE OVER CHEEPAS CREEK
MILE 162.00 ISLAND FALLS SUBDIVISION
BRIDGE REHABILITATION
WINGWALL SHORING
SOUTH ABUTMENT**

DWG BY: AM	CHK BY: DA	OFFICE FILE:
ENGINEER: R. NAWAZ	SCALE: 3/16"=1'-0"	
PROJECT MANAGER: M. RAVAL	DATE: MARCH 5, 2024	
	DWG No.:	ISF-162.00-1.02



- NOTES:**
- FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.
 - IT IS PROPOSED TO INSTALL SHEET PILING ON EACH SIDE OF THE NORTH ABUTMENT TO FACILITATE THE CONCRETE REPAIRS ON THE ABUTMENT.
 - FOR SHEET PILE WALL NOTES SEE DRAWING 1.02.

ESTIMATED QUANTITIES:

STRUCTURAL STEEL	686 LBS
SHEET PILE	460 FT
Ø1"x28"-2' DYWIDAG THREADBAR	6 EACH

LEGEND:
 EXISTING CONCRETE

NOT FOR CONSTRUCTION

ENGINEERS STAMP

No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		

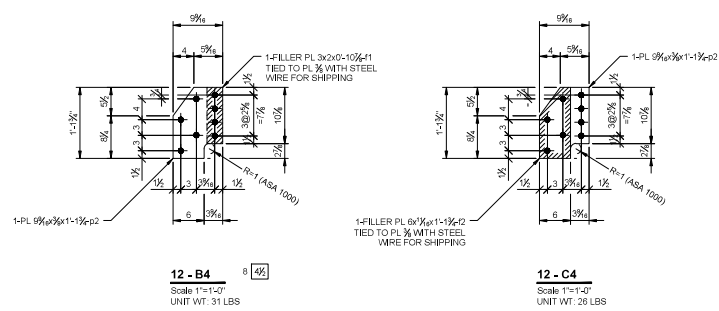
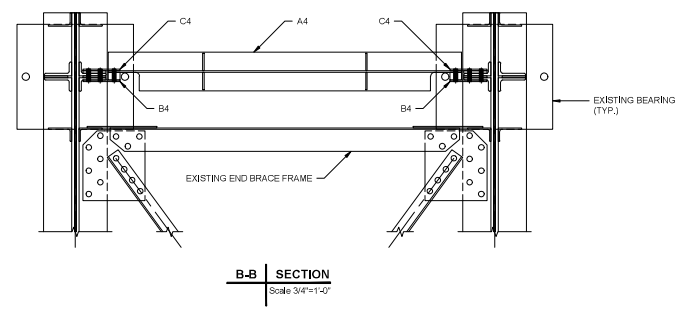
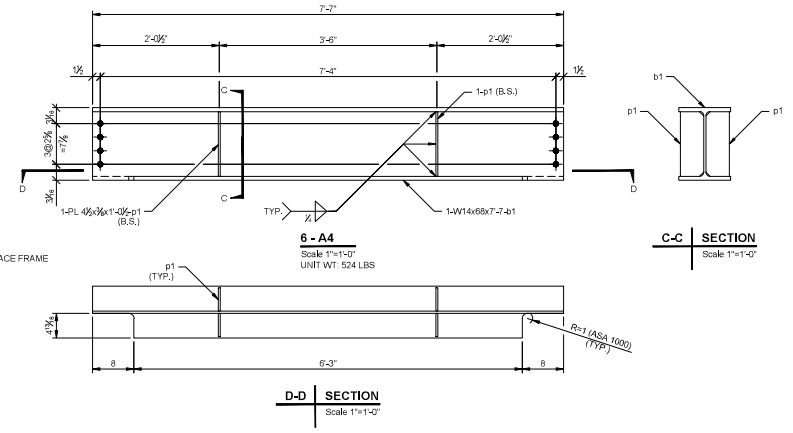
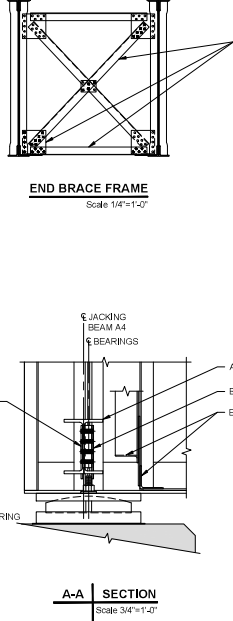
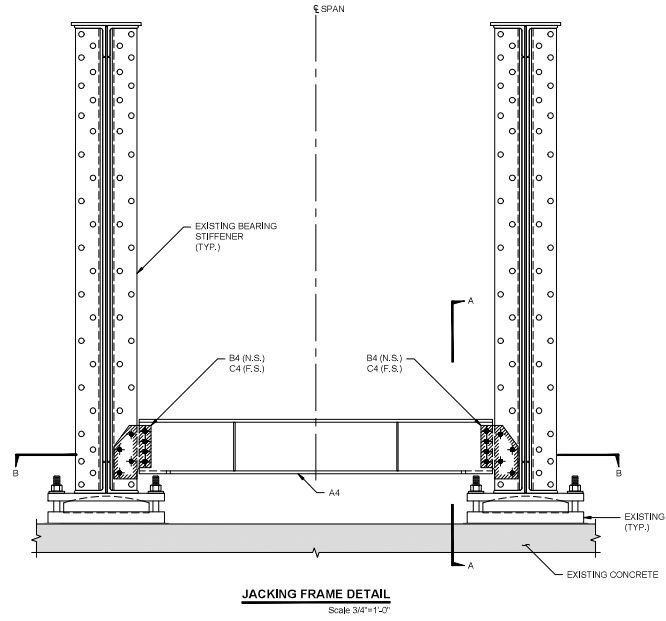


AECOM PROJECT No. 60678205

**BRIDGE OVER CHEEPAS CREEK
 MILE 162.00 ISLAND FALLS SUBDIVISION
 BRIDGE REHABILITATION
 WINGWALL SHORING
 NORTH ABUTMENT**

DWG BY: AM	CHK BY: DA	OFFICE FILE:
ENGINEER: R. NAWAZ	SCALE: 3/16"=1'-0"	DATE: MARCH 5, 2024
PROJECT MANAGER: M. RAVAL	DWG No. ISF-162.00-1.03	

NOTES:
 1. FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.

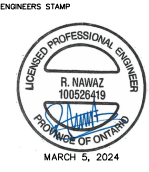


ESTIMATED QUANTITIES: (ON THIS DRAWING)
 STRUCTURAL STEEL _____ 3828 LBS

LEGEND:

	EXISTING CONCRETE
8	QUANTITY AND LENGTH OF FIELD BOLTS

NOT FOR CONSTRUCTION

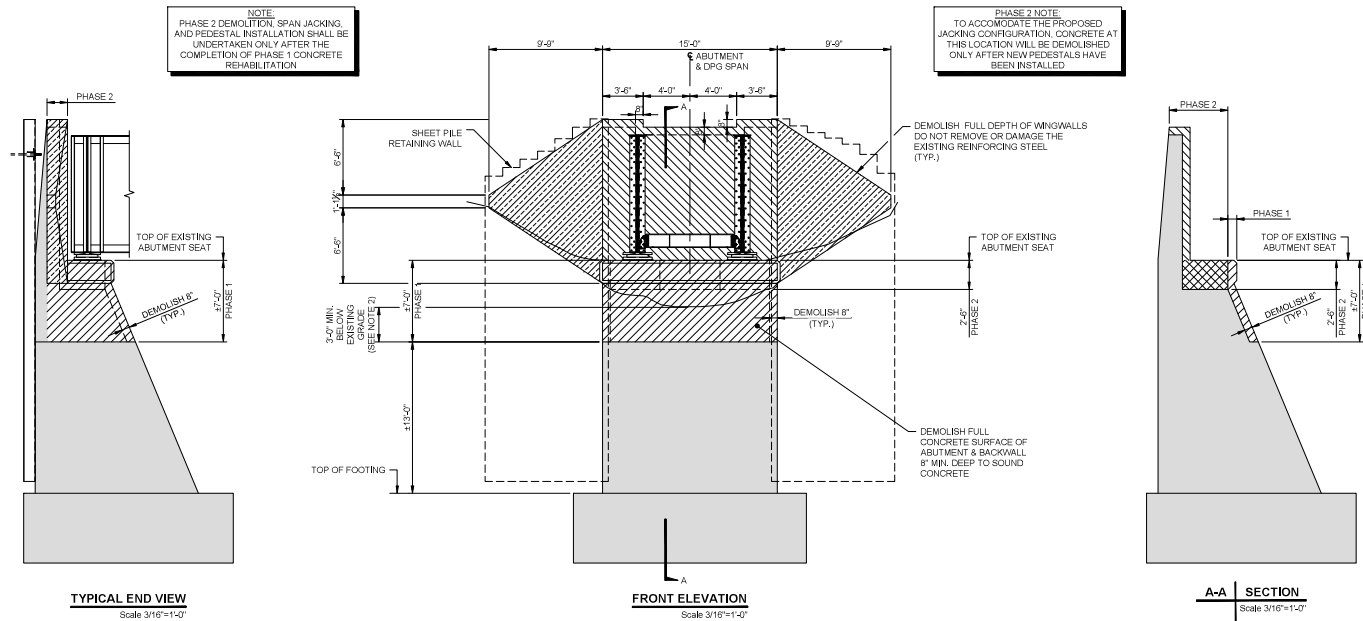


No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		



AECOM PROJECT No. **60678205**

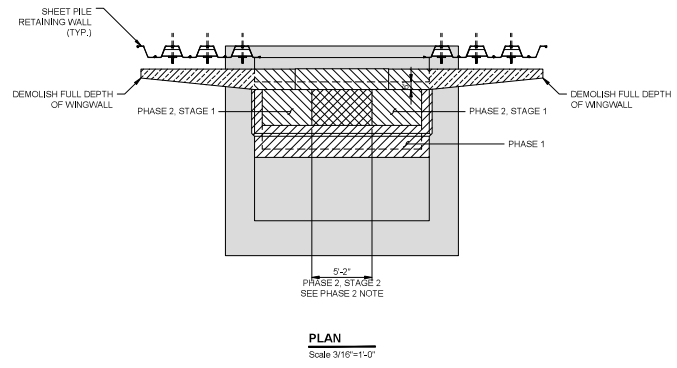
BRIDGE OVER CHEEPAS CREEK MILE 162.00 ISLAND FALLS SUBDIVISION BRIDGE REHABILITATION			
JACKING BEAM DETAILS			
DWG BY: AM	CHK BY: DA	OFFICE FILE:	
ENGINEER: R. NAWAZ	DATE: MARCH 5, 2024	SCALE: AS NOTED	
PROJECT MANAGER: M. RAVAL	DWG No. ISF-162.00-1.04		



TYPICAL END VIEW
Scale 3/16"=1'-0"

FRONT ELEVATION
Scale 3/16"=1'-0"

A-A SECTION
Scale 3/16"=1'-0"



PLAN
Scale 3/16"=1'-0"

NOTE:
PHASE 2 DEMOLITION, SPAN JACKING AND PEDESTAL INSTALLATION SHALL BE UNDERTAKEN ONLY AFTER THE COMPLETION OF PHASE 1 CONCRETE REHABILITATION

PHASE 2 NOTE:
TO ACCOMMODATE THE PROPOSED JACKING CONFIGURATION, CONCRETE AT THIS LOCATION WILL BE DEMOLISHED ONLY AFTER NEW PEDESTALS HAVE BEEN INSTALLED

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1-01.
- DEPTH OF CONCRETE REPLACEMENT SHALL BE FIELD CONFIRMED. A DELAMINATION SURVEY SHALL BE CONDUCTED BY THE CONTRACTOR TO VERIFY THE DEPTH OF DETERIORATED CONCRETE BELOW GRADE. THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL AND OTHER QUANTITIES ACCORDINGLY.

CONCRETE NOTES:

- USING 15 LBS JACK HAMMER OR CHIPPING HAMMER, CHIP MIN. 8" UNLESS NOTED OTHERWISE (UNO) OF DAMAGED CONCRETE SUBSTRATE. HEAVIER CHIPPING EQUIPMENT SHALL BE USED ONLY WITH PRIOR CONSENT OF THE ENGINEER.
- IF PERMETER OF EXISTING REINFORCING STEEL BAR IS EXPOSED MORE THAN 50% CHIP UNDER BAR TO GET 1" CLEAR.
- ALL EXISTING BARS ARE TO REMAIN, UNLESS ANY BAR IS CORRODED BY MORE THAN 20% IN DIAMETER SHALL BE REPLACED. CHIP ADDITIONAL CONCRETE TO OBTAIN SPLICE LENGTH IF NECESSARY.
- REMOVE LOOSE CONCRETE AND/OR DEBRIS USING OIL-FREE COMPRESSED AIR OR LIGHT SANDBLAST.
- SANDBLAST ALL EXISTING REINFORCING STEEL.
- ALL REINFORCEMENT SHALL HAVE A MINIMUM 2" CLEAR CONCRETE COVER (UNO).
- FORMED SURFACES SHALL MATCH THE ORIGINAL ABUTMENT AND PIER DIMENSIONS UNLESS SHOWN OTHERWISE.
- WET CONCRETE SUBSTRATE TO OBTAIN A SATURATED SURFACE AND REMOVE EXCESS WATER.
- KEEP CONCRETE SURFACE MOIST FOR A PERIOD OF SEVEN (7) DAYS.
- APPLY CONCRETE SEALER TO NEW CONCRETE SURFACE FOLLOWING CURING COMPOUND, AS PER MANUFACTURER'S SPECIFICATIONS.
- CONCRETE SURFACE REMOVAL, DOWEL INSTALLATION, CONCRETE REINFORCEMENT INSTALLATION AND CONCRETE POUR, AT THE BACKWALL SHALL BE CARRIED OUT IN CONTINUOUS STEPS, ONE AFTER THE OTHER, WITHOUT SUBSTANTIAL TIME GAPS.
- REINSTATE THE ABUTMENT HEAD SLOPES UPON COMPLETION OF THE WORKS.

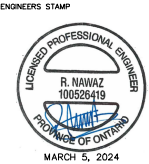
ESTIMATED QUANTITIES:

CONCRETE REMOVAL _____ 21.4 yd³

LEGEND:

	EXISTING CONCRETE
	PHASE 1 DEMOLITION
	PHASE 2 DEMOLITION
	PHASE 2 DEMOLITION AFTER PEDESTAL INSTALLATION
	WINGWALL DEMOLITION

NOT FOR CONSTRUCTION



No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		



AECOM PROJECT No. 60678205

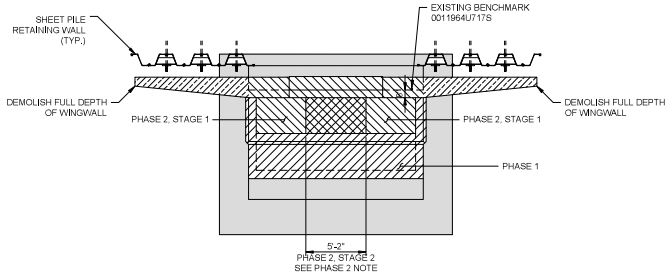
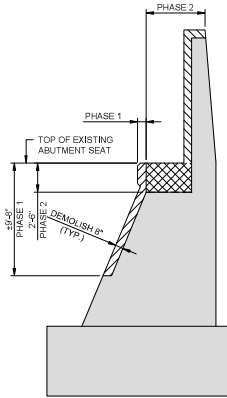
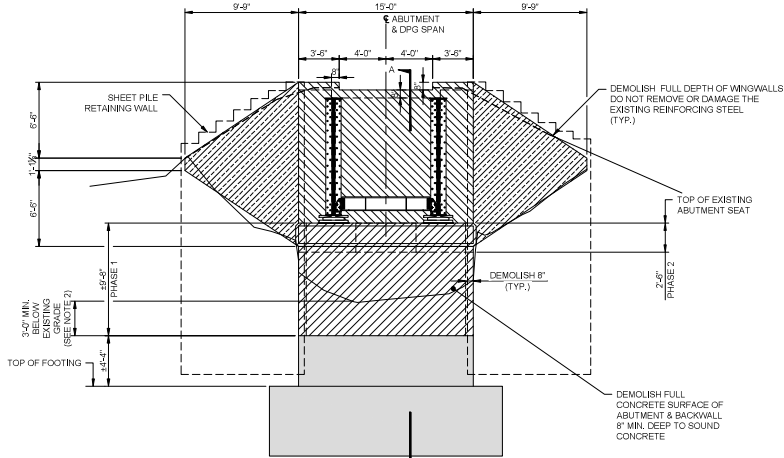
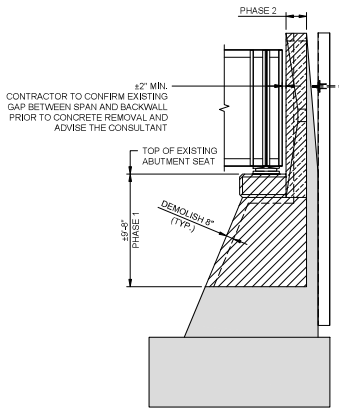
BRIDGE OVER CHEEPAS CREEK MILE 162.00 ISLAND FALLS SUBDIVISION BRIDGE REHABILITATION CONCRETE DEMOLITION DETAILS SOUTH ABUTMENT			
DWG BY:	AM	CHK BY:	DA
ENGINEER:	R. NAWAZ	SCALE:	3/16"=1'-0"
PROJECT MANAGER:	M. RAVAL	DATE:	MARCH 5, 2024
		DWG No.:	ISF-162.00-1.05

NOTE:
PHASE 2 DEMOLITION, SPAN JACKING AND PEDESTAL INSTALLATION SHALL BE UNDERTAKEN ONLY AFTER THE COMPLETION OF PHASE 1 CONCRETE REHABILITATION

PHASE 2 NOTE:
TO ACCOMMODATE THE PROPOSED JACKING CONFIGURATION, CONCRETE AT THIS LOCATION WILL BE DEMOLISHED ONLY AFTER NEW PEDESTALS HAVE BEEN INSTALLED

NOTES:

- FOR GENERAL NOTES AND SPECIFICATIONS SEE DRAWING 1.01.
- DEPTH OF CONCRETE REPLACEMENT SHALL BE FIELD CONFIRMED. A DELAMINATION SURVEY SHALL BE CONDUCTED BY THE CONTRACTOR TO VERIFY THE DEPTH OF DEGENERATED CONCRETE BELOW GRADE. THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL AND OTHER QUANTITIES ACCORDINGLY.
- FOR CONCRETE NOTES SEE DRAWING 1.05.



ESTIMATED QUANTITIES:

CONCRETE REMOVAL _____ 23.5 yd³

LEGEND:

	EXISTING CONCRETE
	PHASE 1 DEMOLITION
	PHASE 2 DEMOLITION
	PHASE 2 DEMOLITION AFTER PEDESTAL INSTALLATION
	WINGWALL DEMOLITION

NOT FOR CONSTRUCTION

ENGINEERS STAMP

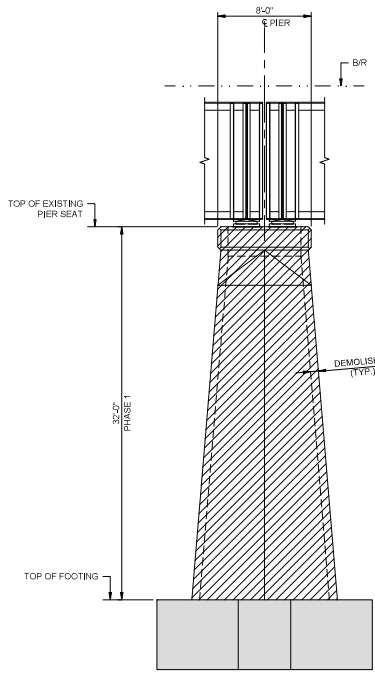
ENGINEER
R. NAWAZ
100526-419
PROVINCE OF ONTARIO
MARCH 5, 2024

No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		

Ontario Northland
AECOM

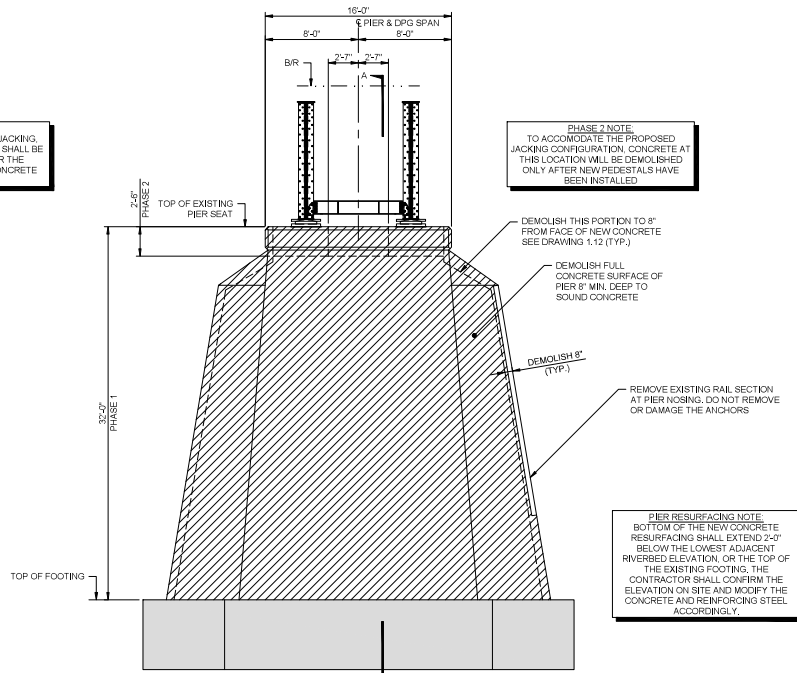
AECOM PROJECT No. 60678205

BRIDGE OVER CHEEPAS CREEK MILE 162.00 ISLAND FALLS SUBDIVISION BRIDGE REHABILITATION CONCRETE DEMOLITION DETAILS NORTH ABUTMENT			
DWG BY:	AM	CHK BY:	DA
ENGINEER:	R. NAWAZ	SCALE:	3/16"=1'-0"
PROJECT MANAGER:	M. RAVAL	DATE:	MARCH 5, 2024
		DWG No.:	ISF-162.00-1.06



TYPICAL END VIEW
Scale 3/16"=1'-0"

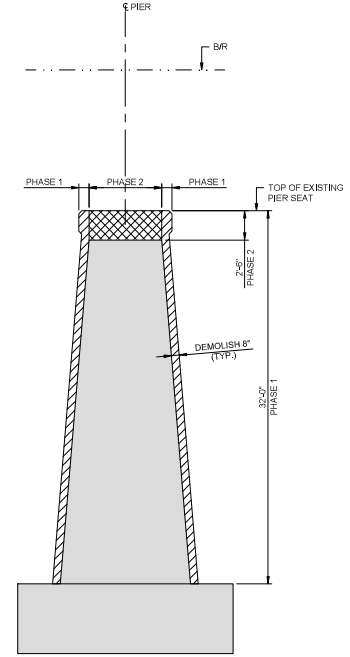
NOTE:
PHASE 2 DEMOLITION, SPAN JACKING, AND PEDESTAL INSTALLATION SHALL BE UNDERTAKEN ONLY AFTER THE COMPLETION OF PHASE 1 CONCRETE REHABILITATION



NORTH ELEVATION
Scale 3/16"=1'-0"

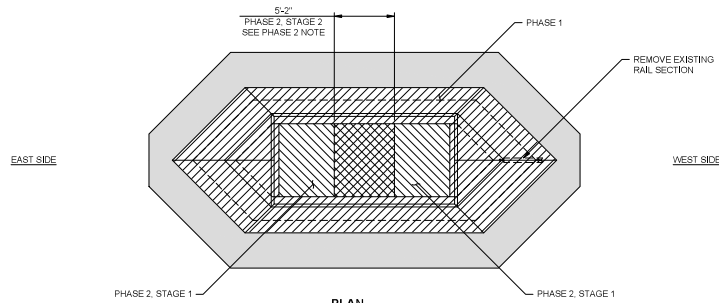
PHASE 2 NOTE:
TO ACCOMMODATE THE PROPOSED JACKING CONFIGURATION, CONCRETE AT THIS LOCATION WILL BE DEMOLISHED ONLY AFTER NEW PEDESTALS HAVE BEEN INSTALLED

PIER RESURFACING NOTE:
BOTTOM OF THE NEW CONCRETE RESURFACING SHALL EXTEND 2'-0" BELOW THE LOWEST ADJACENT RIVERBED ELEVATION, OR THE TOP OF THE EXISTING FOOTING. THE CONTRACTOR SHALL CONFIRM THE ELEVATION ON SITE AND MODIFY THE CONCRETE AND REINFORCING STEEL ACCORDINGLY.



A-A SECTION
Scale 3/16"=1'-0"

- NOTES:**
1. FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.
 2. FOR CONCRETE NOTES SEE DRAWING 1.05.



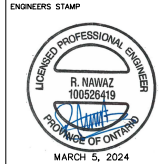
PLAN
Scale 3/16"=1'-0"

ESTIMATED QUANTITIES: (FOR ONE PIER)
CONCRETE REMOVAL _____ 58.9 yd³

LEGEND:

	EXISTING CONCRETE
	PHASE 1 DEMOLITION
	PHASE 2 DEMOLITION
	PHASE 2 DEMOLITION AFTER PEDESTAL INSTALLATION

NOT FOR CONSTRUCTION



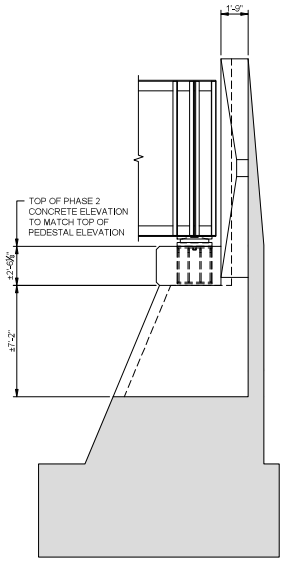
No.	DATE	REVISION	R.N. BY
0	03/05/24	ISSUED FOR TENDER	



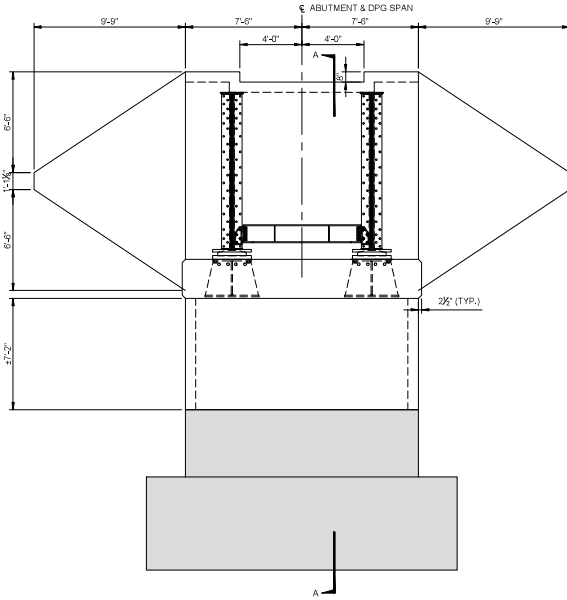
AECOM PROJECT No. 60678205

**BRIDGE OVER CHEEPAS CREEK
MILE 162.00 ISLAND FALLS SUBDIVISION
BRIDGE REHABILITATION
CONCRETE DEMOLITION DETAILS
PIERS**

DWG BY: AM	CHK BY: DA	OFFICE FILE:
ENGINEER: R. NAWAZ	SCALE: 3/16"=1'-0"	DATE: MARCH 5, 2024
PROJECT MANAGER: M. RAVAL	DWG No. ISF-162.00-1.07	

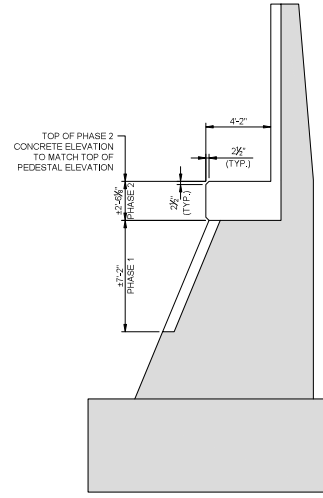


TYPICAL END VIEW
Scale 1/4"=1'-0"

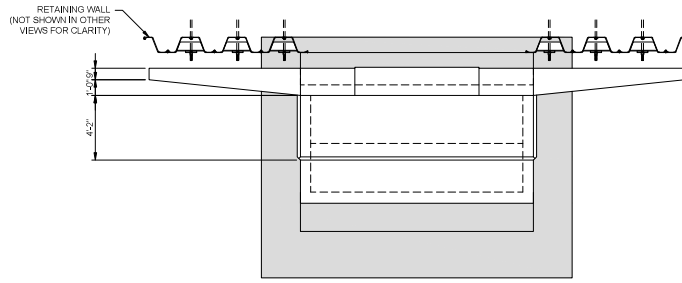


FRONT ELEVATION
Scale 1/4"=1'-0"

PHASE 1 CONCRETE REHABILITATION SHALL BE COMPLETED PRIOR TO PHASE 2 DEMOLITION & PEDESTAL INSTALLATION



A-A SECTION
Scale 1/4"=1'-0"



PLAN
Scale 1/4"=1'-0"

NOTES:

1. FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.
2. FOR CONCRETE NOTES SEE DRAWING 1.05.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 1.11.
4. CONCRETE FOR BRIDGE SEAT SHALL BE ONE FOUR.

ESTIMATED QUANTITIES:

NEW CONCRETE _____ 23.7 yd³
REINFORCING STEEL _____ 3037 LBS

LEGEND:
[Grey Box] EXISTING CONCRETE

NOT FOR CONSTRUCTION

ENGINEERS STAMP



No.	DATE	REVISION	R.N.	BY
0	03/05/24	ISSUED FOR TENDER		



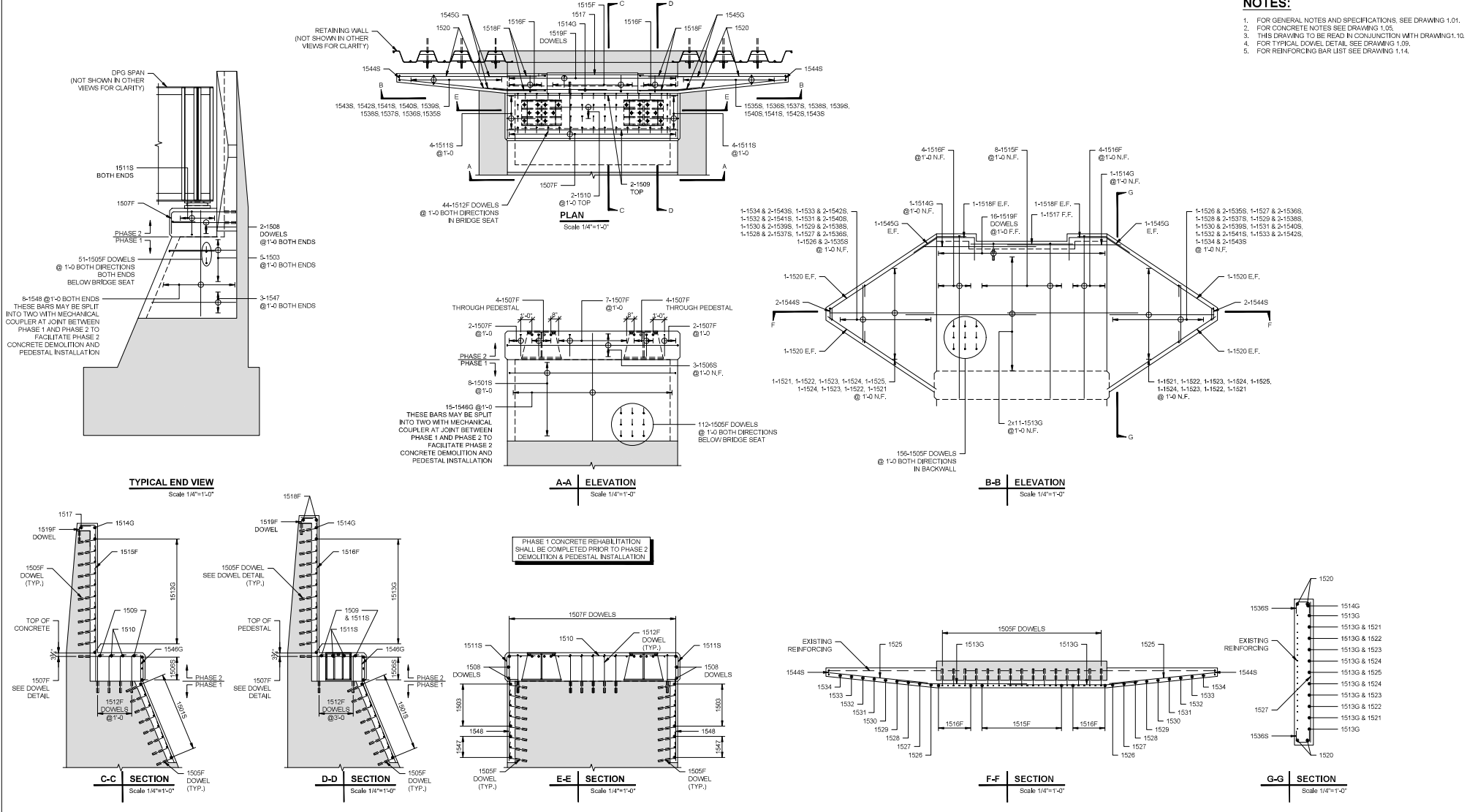
AECOM PROJECT No. 60678205

**BRIDGE OVER CHEEPAS CREEK
MILE 162.00 ISLAND FALLS SUBDIVISION
BRIDGE REHABILITATION
CONCRETE DIMENSIONS
NORTH ABUTMENT**

DWG BY:	AM	CHK BY:	DA	OFFICE FILE:
ENGINEER:	R. NAWAZ			SCALE: 1/4"=1'-0"
PROJECT MANAGER:	M. RAVAL			DATE: MARCH 5, 2024
				DWG No. ISF-162.00-1.10

NOTES:

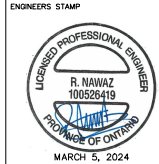
1. FOR GENERAL NOTES AND SPECIFICATIONS, SEE DRAWING 1.01.
2. FOR CONCRETE NOTES SEE DRAWING 1.05.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 1.10.
4. FOR TYPICAL DOWEL DETAIL SEE DRAWING 1.09.
5. FOR REINFORCING BAR LIST SEE DRAWING 1.14.



LEGEND:

	EXISTING CONCRETE
N.F.	NEAR FACE
F.F.	FAR FACE
E.F.	EACH FACE
T & B	TOP & BOTTOM

NOT FOR CONSTRUCTION



0	03/05/24	ISSUED FOR TENDER	R.N.
No.	DATE	REVISION	BY

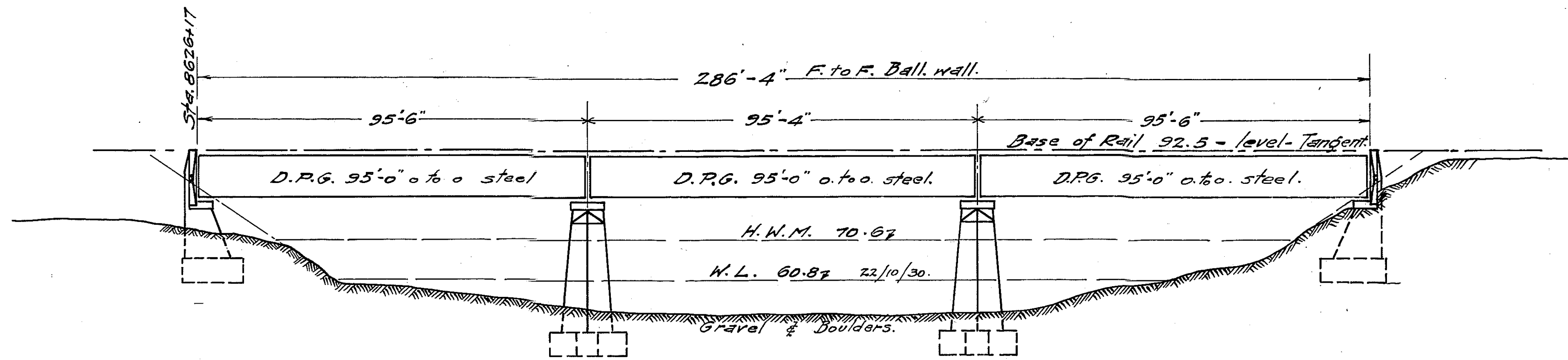


AECOM PROJECT No. 60678205

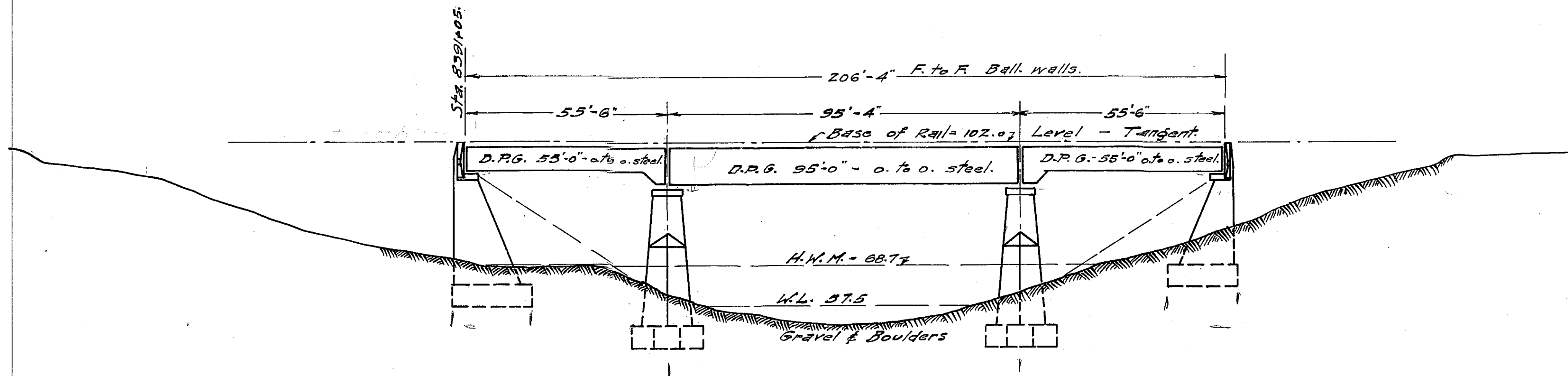
**BRIDGE OVER CHEEPAS CREEK
MILE 162.00 ISLAND FALLS SUBDIVISION
BRIDGE REHABILITATION
CONCRETE REINFORCING DETAILS
NORTH ABUTMENT**

DWG BY:	AM	CHK BY:	DA	OFFICE FILE:
ENGINEER:	R. NAWAZ	SCALE:	1/4"=1'-0"	
PROJECT MANAGER:	M. RAVAL	DATE:	MARCH 5, 2024	
		DWG No.	ISF-162.00-1.11	

C-262



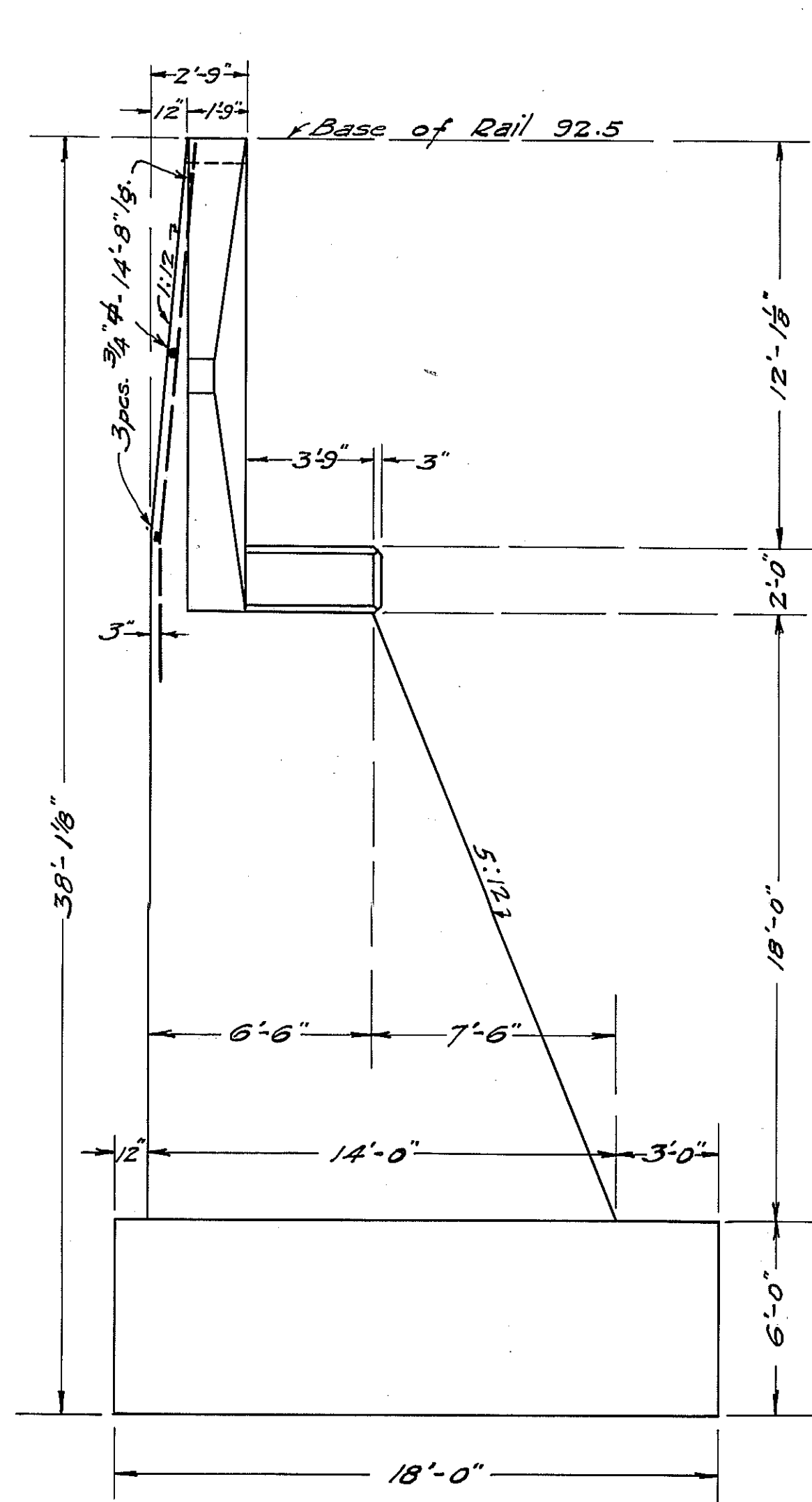
CHEEPAS RIVER CROSSING M.P. 162.0



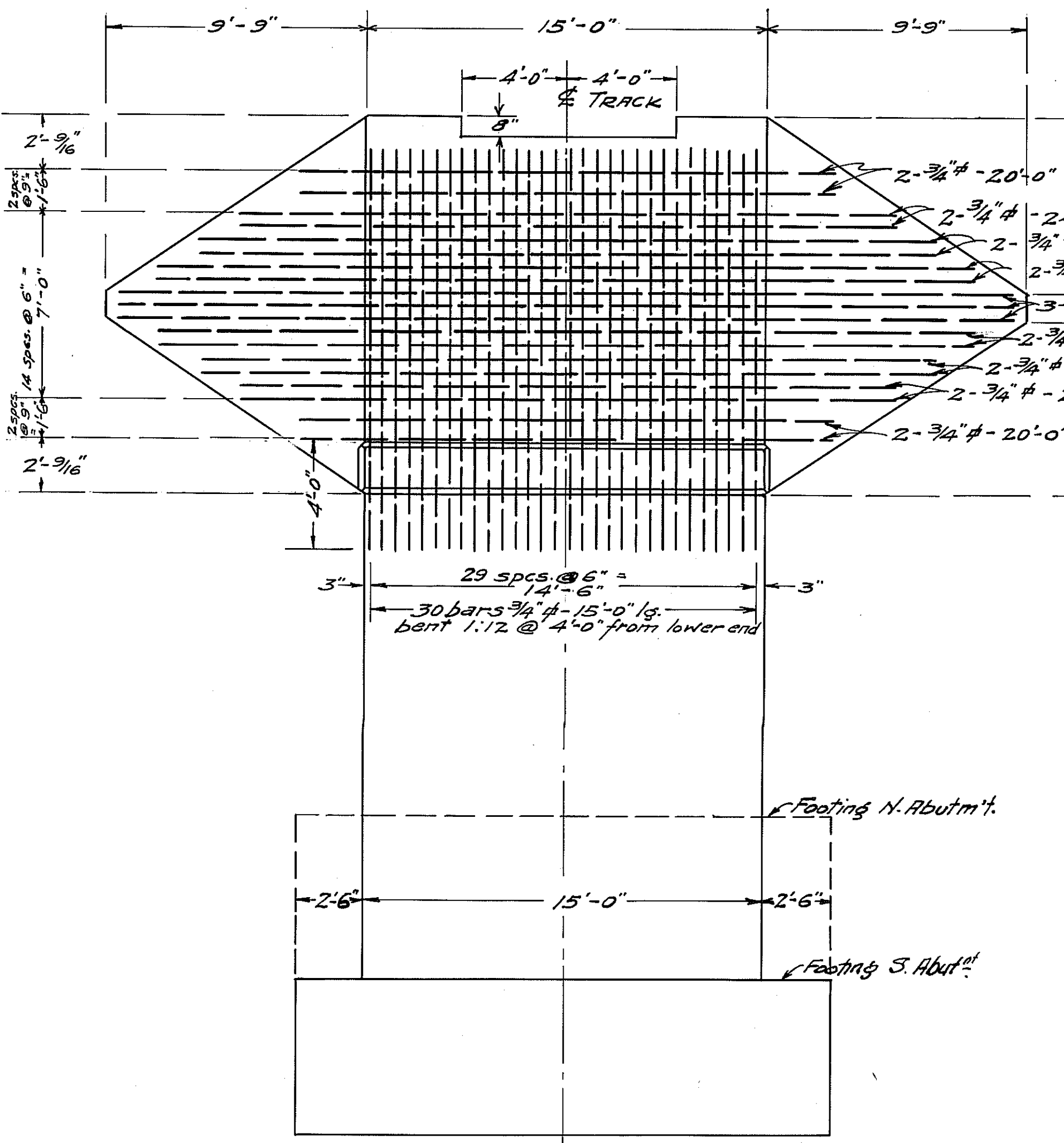
OTAKWAHEGAN RIVER CROSSING M.P. 157.6

NOTE:- FOR DETAILS OF TIMBER DECK
SEE DRAWING #B-514.

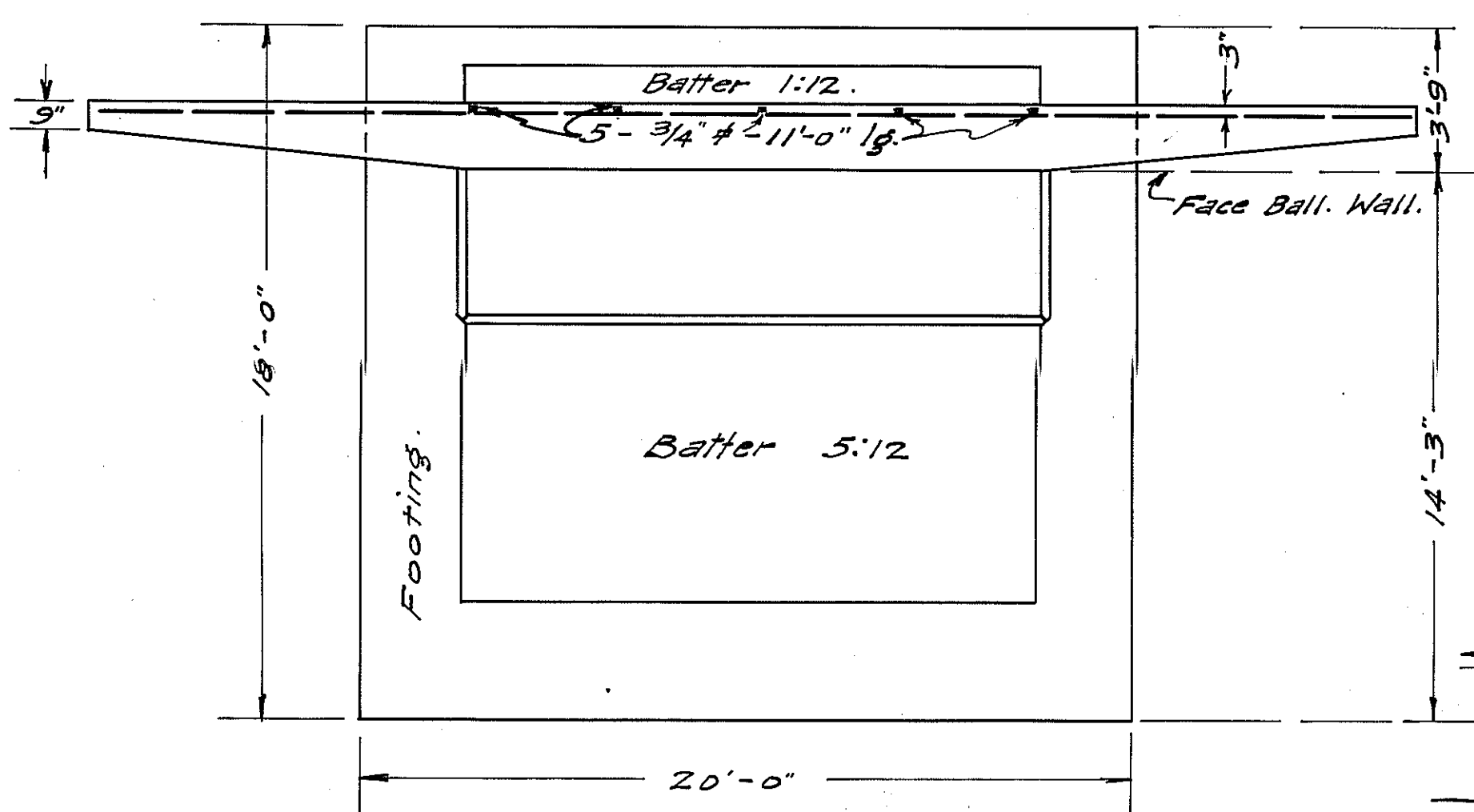
TEMISKAMING & NORTHERN ONTARIO RLY.		
ENGINEERING DEPARTMENT - NORTH BAY - ONT.		
CHEEPAS RIVER CROSSING - M.P. 162.0		
AND		
OTAKWAHEGAN RIVER CROSSING - M.P. 157.6		
JAMES BAY EXTENSION		
APPR.	CHIEF ENGR.	Corr. <i>Alan Abel</i> ASST. ENGR.
Scale - 1" = 20'	Date - Jan 15/31	No.
Drawn by - AMR.	Traced by - E.S.O.	C-262.



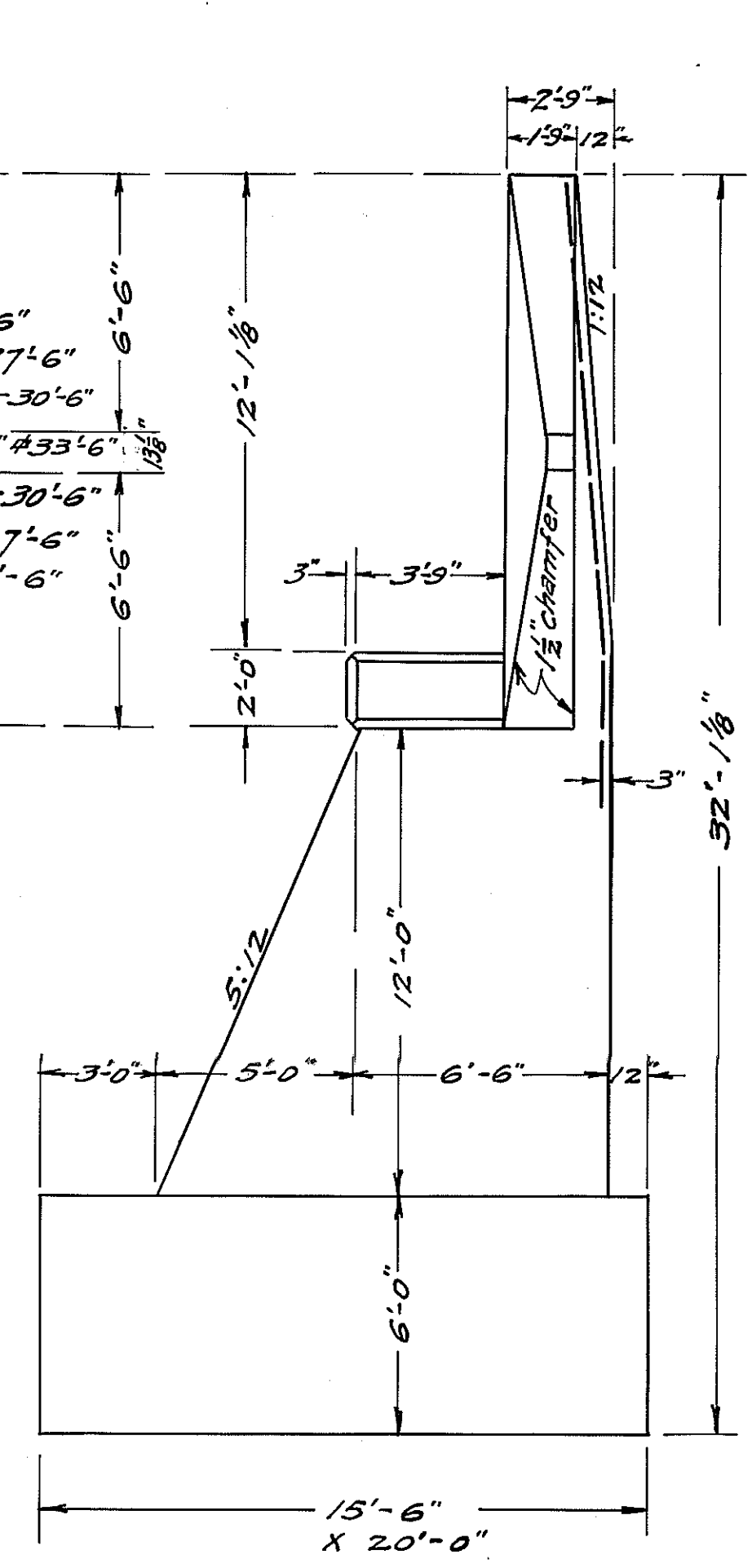
SIDE ELEVATION - SOUTH ABUTMENT



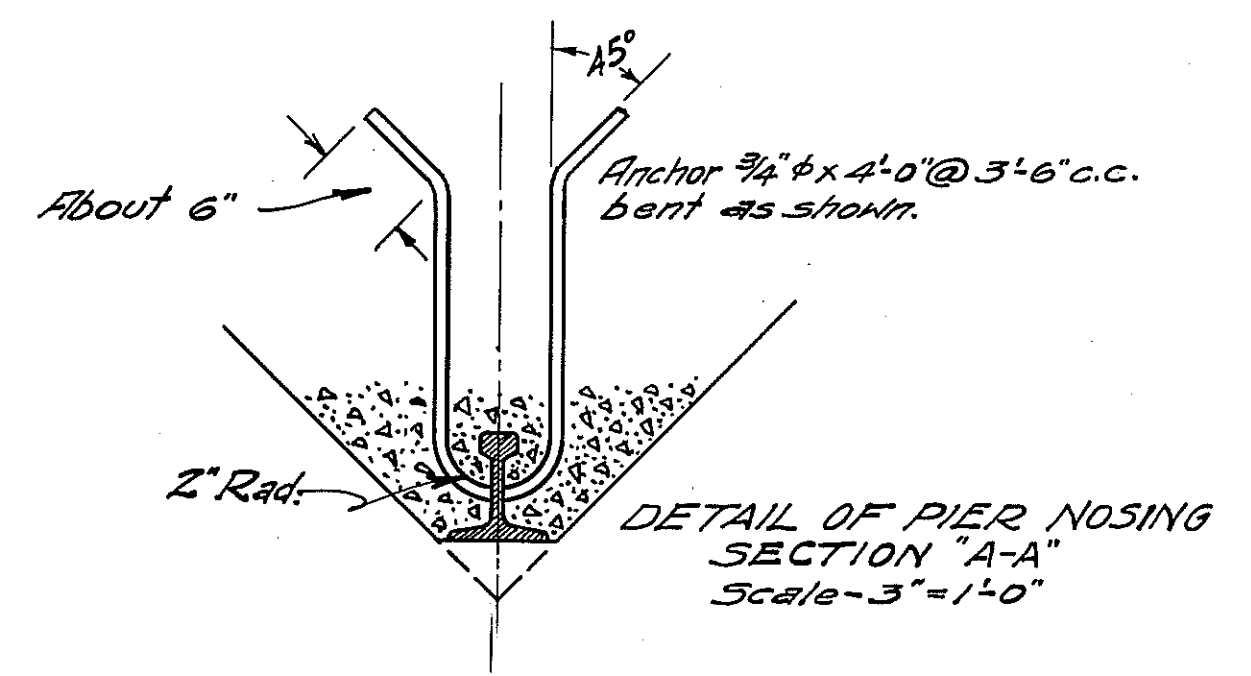
FRONT ELEVATION



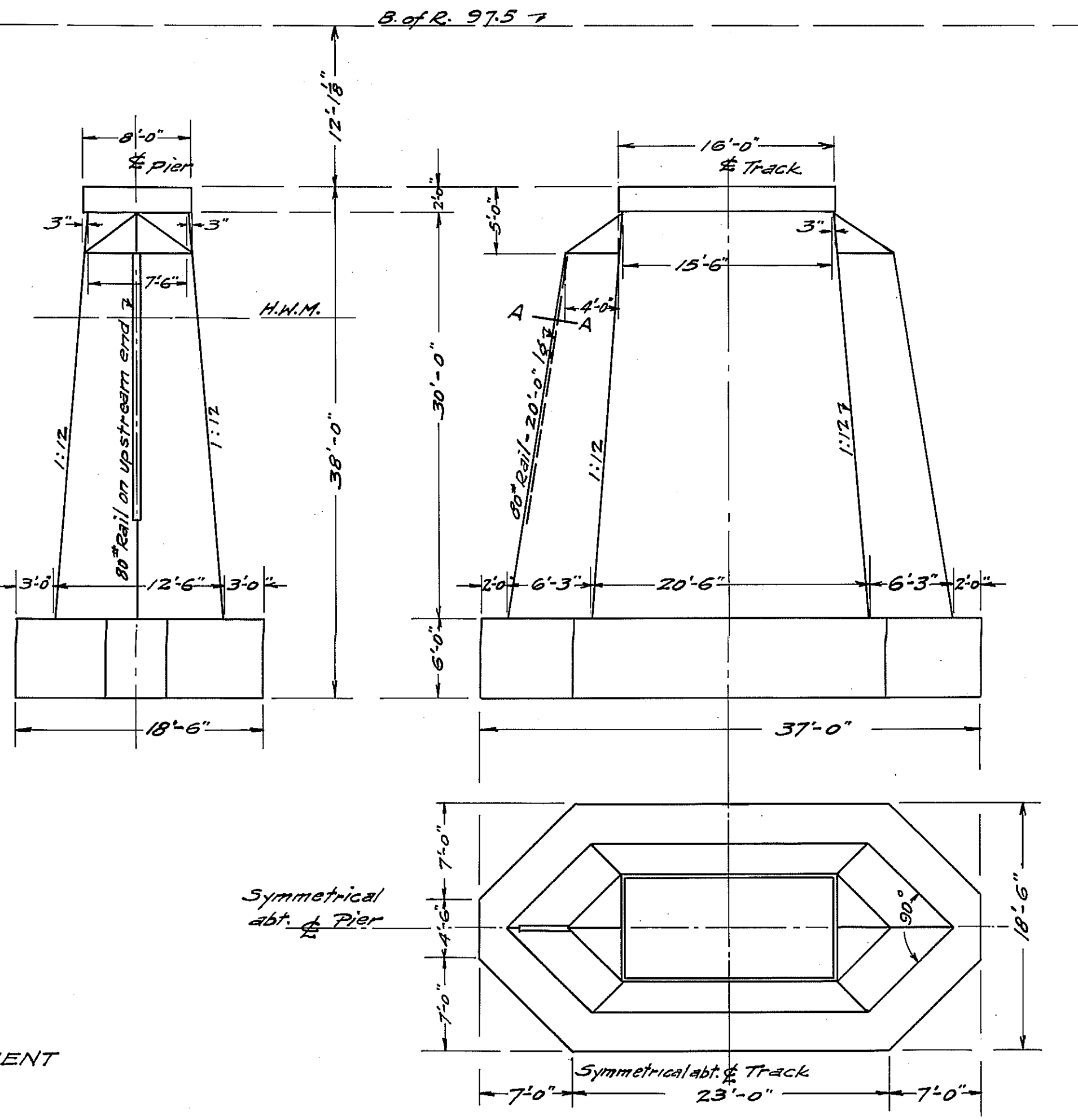
PLAN - SOUTH ABUTMENT



SIDE ELEVATION - NORTH ABUTMENT

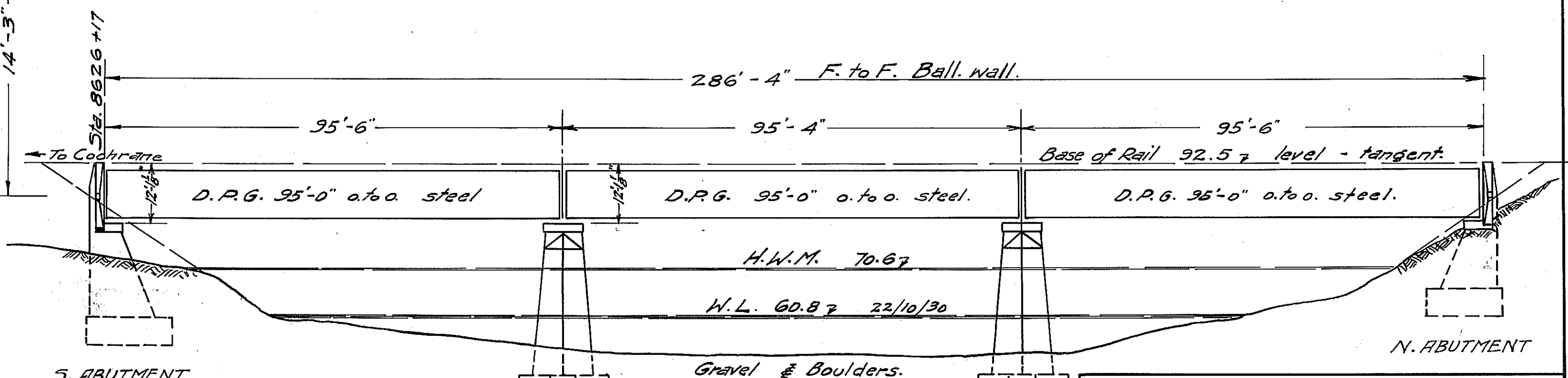


DETAIL OF PIER NOSING SECTION 'A-A' Scale - 3" = 1'-0"



DETAIL OF PIERS #1 & #2 Scale 1/8" = 1'-0"

NOTE:- All exposed corners chamfered 3" except where 1/2" chamfer is noted.



ELEVATION Scale - 1" = 20'-0"

DETAIL OF ABUTMENTS Scale 1/4" = 1'-0"

CONCRETE

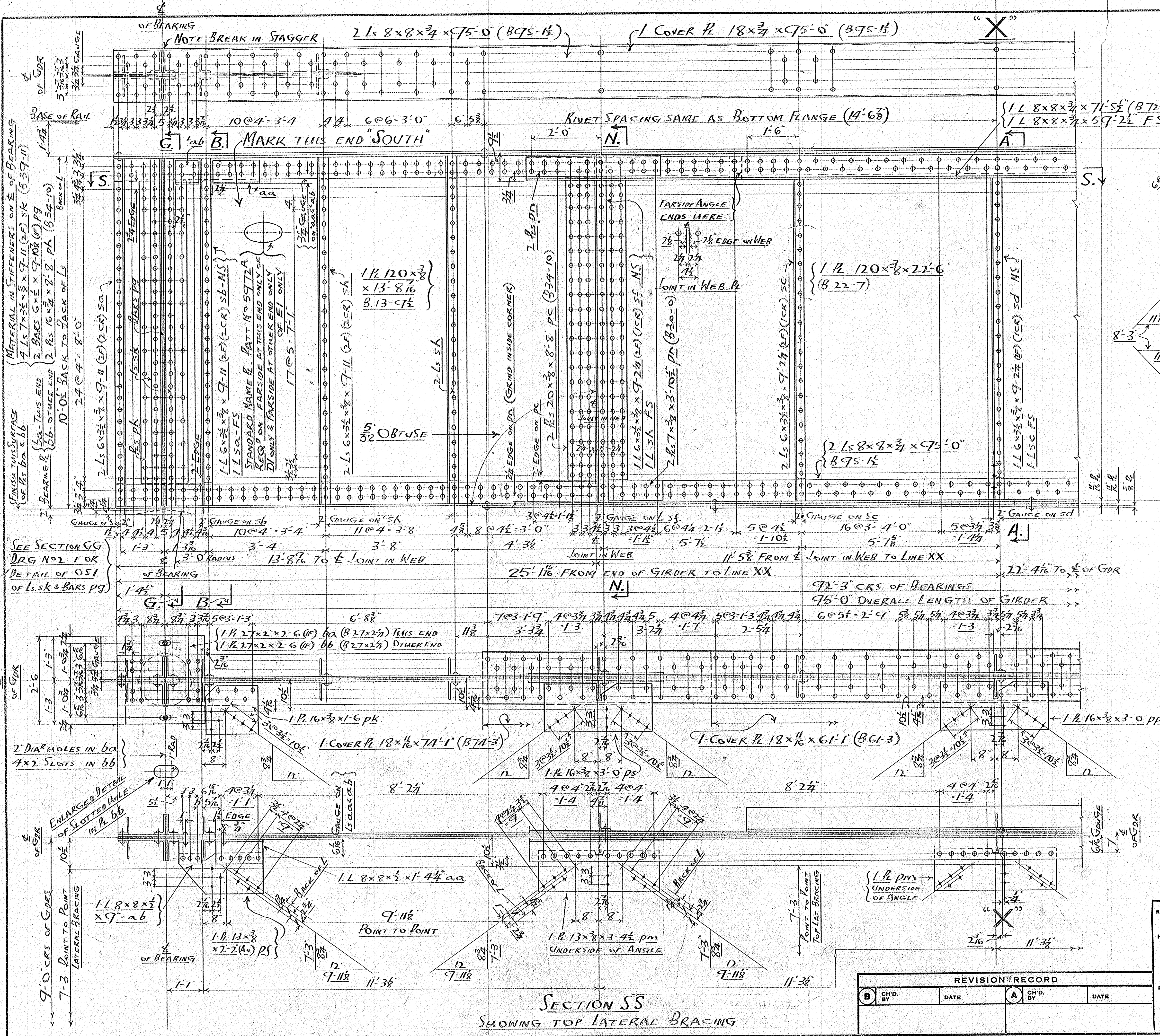
SOUTH ABUTMENT	- 213 Cu. Yds.
PIER #1	- 397 " "
PIER #2	- 397 " "
NORTH ABUTMENT	- 159 " "
TOTAL	- 1166 Cu. Yds.

TEMISKAMING & NORTHERN ONTARIO RLY.
ENGINEERING DEPARTMENT - NORTH BAY, ONT.

PLANS AND ELEVATIONS
PIERS AND ABUTMENTS
CHEEPAS RIVER CROSSING
MILE 162 - JAMES BAY EXTENSION

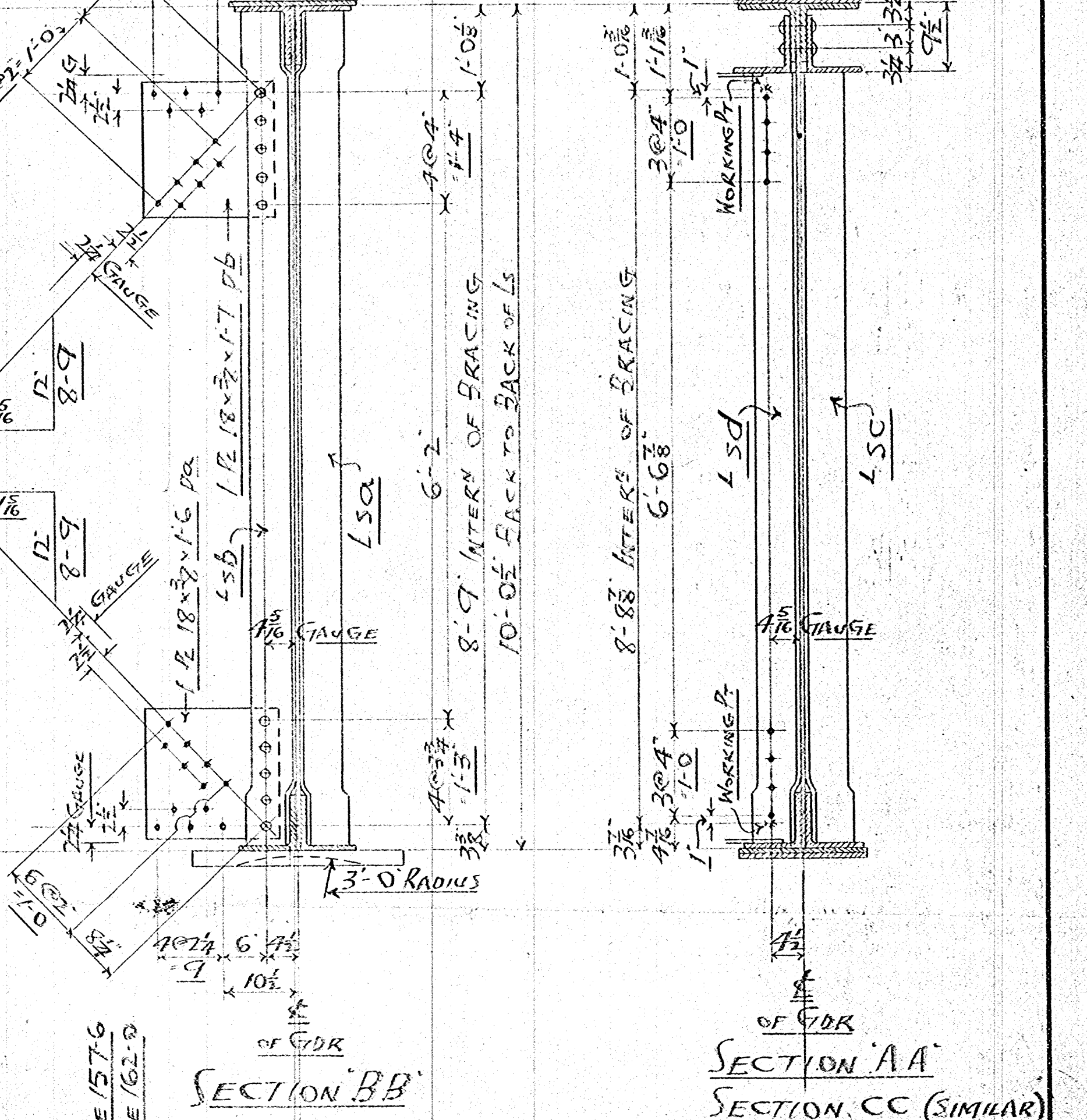
APP. *[Signature]* CORR. *[Signature]*
CHIEF ENGR. ASST. ENGR.

SCALE - As shown. DATE - July-21-31 NO.
DRAWN BY - A.A.M.R. TRACED BY - E.S.O. NO. D-264



NOTES

HOLES: PUNCH $\frac{1}{8}$ DIA AND DRILL TO $\frac{1}{16}$ DIA. 1 HOLES IN LATERAL PLAS AND OUTSTANDING LEGS OF STIFFENERS PUNCH $\frac{1}{8}$ EXCEPT AS NOTED AT SECTION GG MATERIAL OVER $\frac{1}{4}$ THICK TO BE DRILLED FROM SOLID SHOP PAINT: 1 COAT OF BRANDON-HENDERSON ANCHORLITE PRIMER NO 67 FINISHED SURFACES TO RECEIVE 1 COAT OF A MIXTURE OF WHITE LEAD & TALLOW



NOTE: WORK THIS DRAWING WITH DRG NO 2 THE GIRDERS ARE ALIKE EXCEPT FOR NAME PLATES. SEE TABLE OF QUANTITIES FOR RIGHTS & LEFTS

TABLE OF QUANTITIES - CONT NO 4577.

NO REQ	MARK	DESCRIPTION	REMARKS
2.	AI	GIRDERS	AS SHOWN AND NOTED
2.	BI	Do	LEFT OF AI
1.	DI	Do	LEFT OF AI AND NOTED
1.	EI	Do	AS SHOWN AND NOTED

TABLE OF QUANTITIES - CONT NO 4576.

NO REQ	MARK	DESCRIPTION	REMARKS
1.	AI	GIRDER	AS SHOWN AND NOTED
1.	BI	Do	LEFT OF AI

LOCATION: OTAKWANEGAN RIVER MILE 157.6 CREEPAS RIVER MILE 162.9

RIVETS: $\frac{7}{8}$ DIA

HOLES: SEE NOTE IN TOP RIGHT HAND CORNER OF THIS DRAWING

PAINT: SEE NOTE IN TOP RIGHT HAND CORNER OF THIS DRAWING

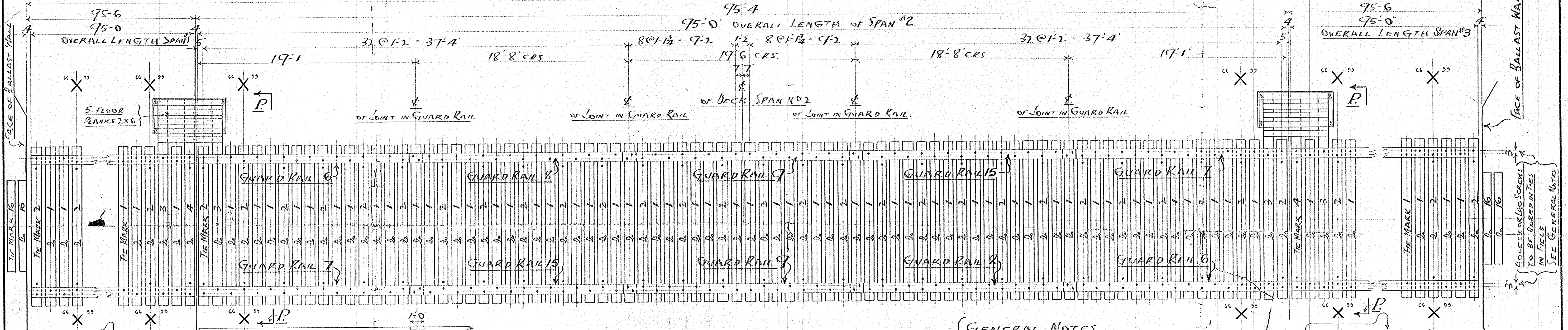
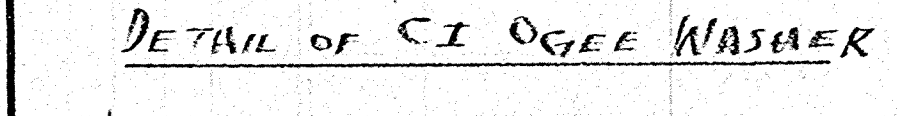
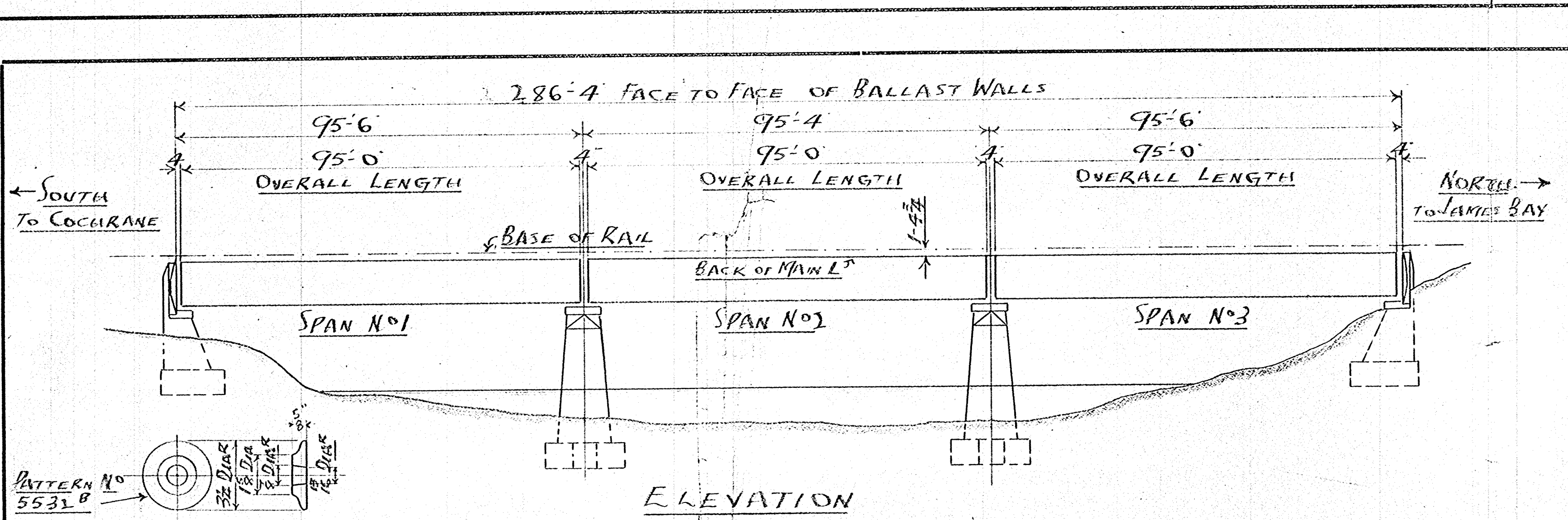
CUSTOMER: TEMISKAMING & NORTHERN ONTARIO RLY
 NAME OF STRUCTURE: BRIDGES (OTAKWANEGAN RIVER CROSSING)
 LOCATION: SEE TABLE (CREEPAS RIVER CROSSING)
 TITLE OF DRAWING: 95-0 GIRDERS
 THE CANADIAN BRIDGE COMPANY, LIMITED
 WALKERVILLE, ONT.

SCALE: MADE BY: L.S.G. started: June 9, 1913 Completed: June 16, 1913
 CHECKED BY: W.H.S. IN CHARGE OF: F.R.P. STEVENS. DRG. NO. 1

REVISION RECORD

NO	CH'D. BY	DATE	NO	CH'D. BY	DATE
B			A		

SECTION SS
SHOWING TOP LATERAL BRACING



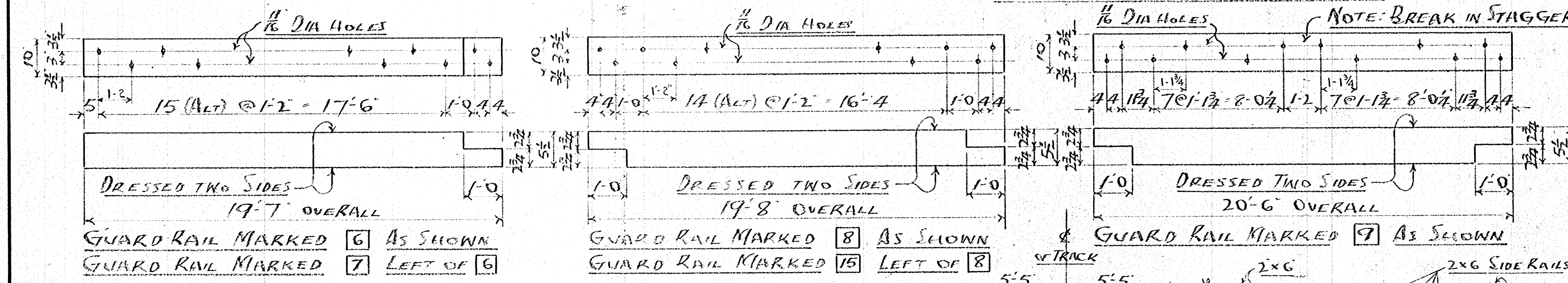
PLAN OF DECK FOR SPAN NO. 2. PLAN OF DECK FOR SPAN NOS 1 AND 3 ARE SAME AS ABOVE EXCEPT AS SHOWN AND NOTED. THE GUARD RAILS ARE THE SAME FOR ALL SPANS.

GENERAL NOTES

ALL BORING, CUTTING AND FRAMING TO BE DONE BEFORE CREOSOTING. SURFACES CUT OR DAMAGED AFTER TREATMENT TO BE THOROUGHLY COATED WITH HOT CREOSOTE. LAG SCREWS MUST NOT BE DRIVEN BUT SCREWED INTO POSITION. HOLES TO BE BORED IN TIES FOR LAG SCREWS ONE INCH DEEPER THAN PENETRATION OF LAG SCREWS. HOLES TO BE BORED IN TIES 2" IN FIELD. (FOR LAG SCREWS). TRACK SPIKES TO BE DRIVEN INTO BORED HOLES. HOLES TO BE 3/4" AND BORED IN FIELD. HOLES BORED AFTER TREATMENT SHALL BE FILLED WITH HOT CREOSOTE. ERECTION MARKS TO BE PAINTED ON BOTH ENDS OF TIES AND GUARD RAILS THUS

BILL OF CREOSOTED FLOOR TIMBER (NETT QUANTITIES)

NO. OR MARK	DESCRIPTION	
158	1	10x16x14'-0" TIES AS SHOWN & NOTED
82	2	10x16x14'-0" TIES " " " "
4	3	10x16x18'-0" TIES " " " "
2	4	10x16x18'-0" TIES " " " "
6	6	5 1/2 x 10 x 19'-7" GUARD RAILS AS SHOWN
6	7	5 1/2 x 10 x 19'-7" " " LEFT OF G
6	8	5 1/2 x 10 x 19'-8" " " AS SHOWN
6	9	5 1/2 x 10 x 20'-6" " " AS SHOWN
6	15	5 1/2 x 10 x 19'-8" " " LEFT OF 8
9	7	2 x 6 x 20'-0" CUT AND FRAMED IN
2	2	4 x 6 x 20'-0" FIELD FOR REFUGE BAY
4	16	8 x 8 x 8'-0" TIES FOR BALLAST WALLS



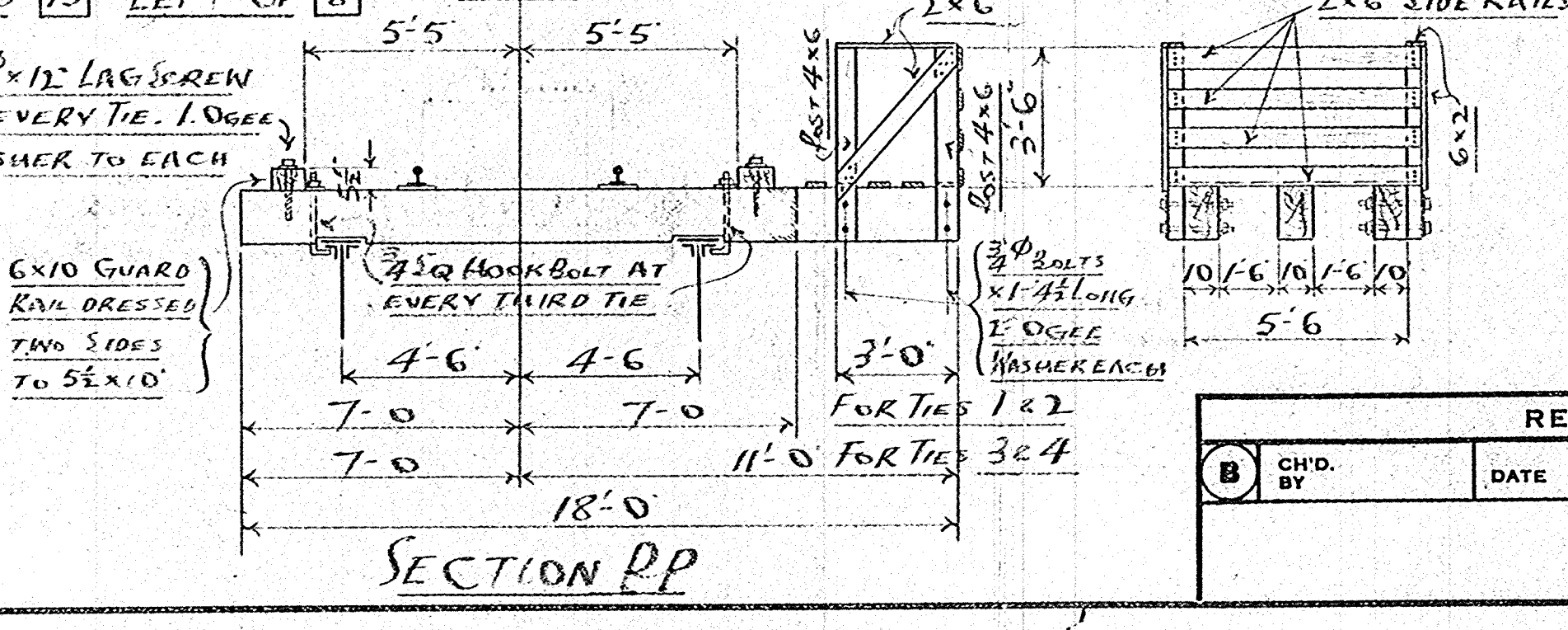
REFUGE BAYS

THE TIMBER FOR REFUGE BAYS TO BE CUT IN FIELD AND FRAMED AND FIXED AS SHOWN ABOVE

ALL TIES AND GUARD RAILS HAVE THE SAME DETAILS AS PIECES OF CORRESPONDING MARKS ON CONTN #4576

BILL OF FLOOR IRON (NETT QUANTITIES) SUPPLIED BY C.B.C.

PREP. SIZE LENGTH	DETAIL	NO. REQ. SIZE LENGTH	DETAIL
HOOK BOLTS	CI Ogee WASHER W/ PAT. NO. 5532 B	16	HEX NUTS (2 CI Ogee WASHERS EACH PAT. NO. 5532 B)
LAG SCREWS	CI Ogee WASHER W/ PAT. NO. 5532 B	516	SPIKES
			W/ SPIKES FOR FRAMING REFUGE BAYS



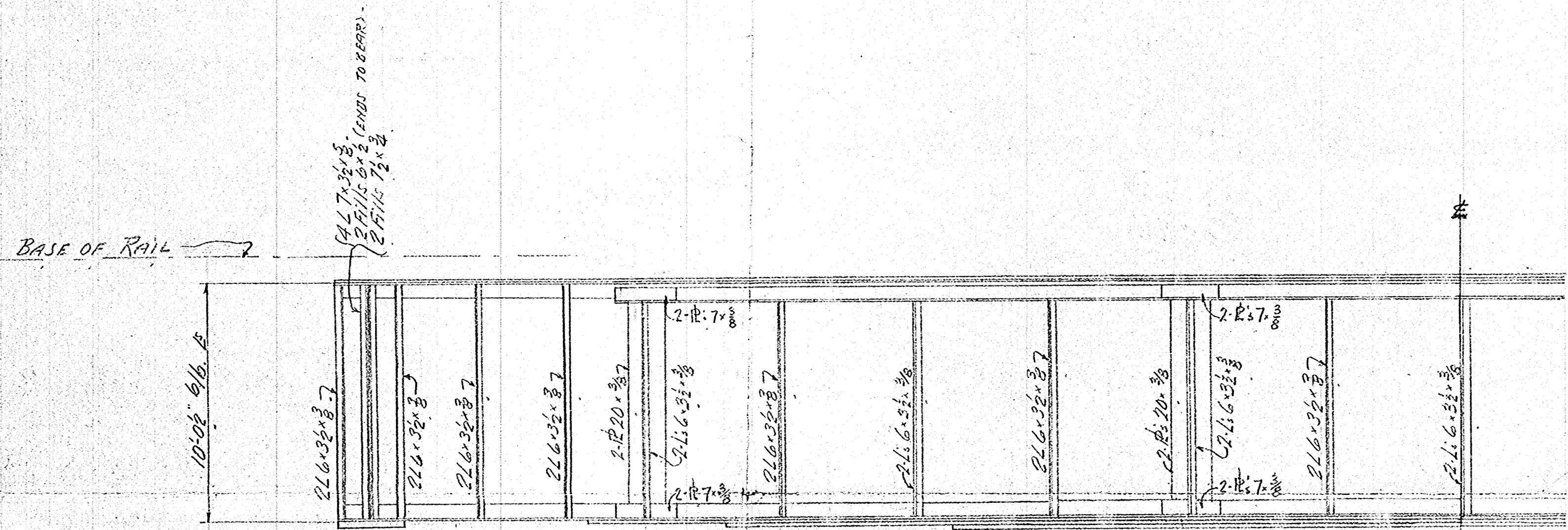
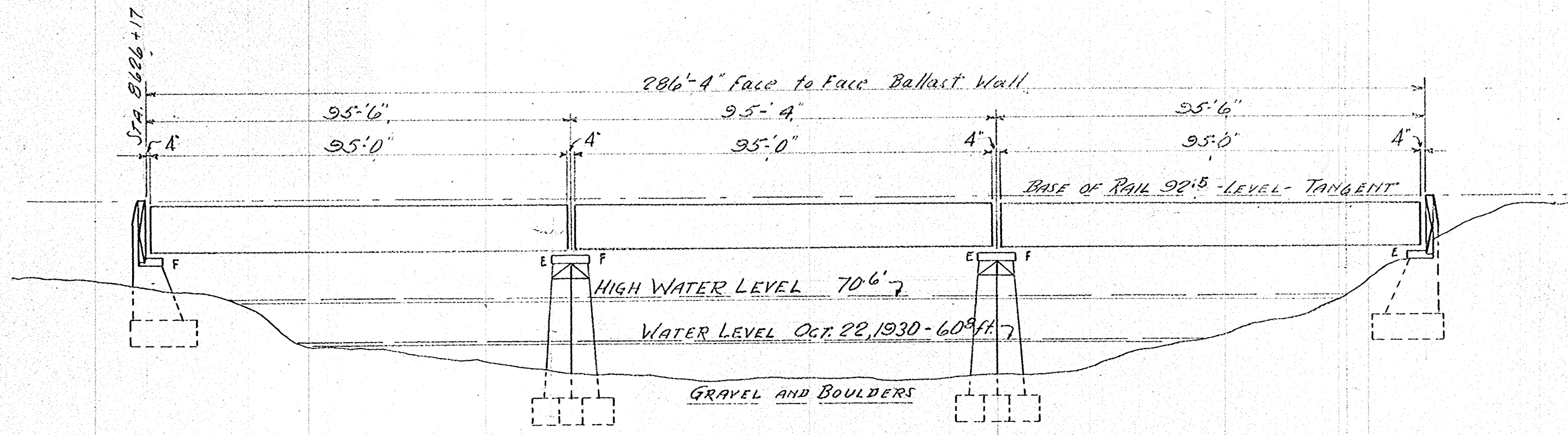
REVISION RECORD	
B	CH'D. BY
A	CH'D. BY
	DATE

THE CANADIAN BRIDGE COMPANY, LIMITED
WALKERVILLE, ONT.

CUSTOMER: JEMISKING & NORTHERN ONT. RLY.
NAME OF STRUCTURE: CHEEPAS RIVER CROSSING
LOCATION: CHEEPAS RIVER MILE 162.0
TITLE OF DRAWING: TIE PLAN

SCALE: 1" = 10'-0"
MADE BY: J.A.S. Started... Completed: MAR 27 1931
CHECKED BY: F.R.S. 4/23/31
IN CHARGE OF: FRED STEVENS DRG. NO. E2

REVISIONS: 1. RE CREOSOTING



PART 3 – RFQ SPECIFICATIONS
SCHEDULE 3-A-3
SITE LOCATION

The Project Site is located at Mile 162.00 Island Falls Subdivision, south of the Town of Moosonee, in the Province of Ontario.



PART 3 – RFQ SPECIFICATIONS
SCHEDULE 3-A-4
SITE PHOTOS





PART 3 – RFQ SPECIFICATIONS
SCHEDULE 3-A-5
WORK BLOCK

The following table reflects the train schedule as of April 30, 2023. The train times are subject to change.

Polar Bear Express			Polar Bear Express					
June 25, 2023 to Oct 20, 2023			Oct 17, 2022 to June 23, 2023					
Freight	No 419 -M-W-F-	No 423 SMT-TF-	No 421 -MT-TF-	Cochrane	No 622 -MT-TF-	No 624 SMT-TF-	No 620 -M-W-F-	Freight
	00:01	08:00	08:00	Arr	22:00	22:00	23:30	
	00:30	09:00	09:00	Dpt	17:00	17:00	18:30	
	05:30	14:00	14:00	Arr	16:15	16:15	18:00	
				Moosonee	Dpt			
					Ord			



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 2023 012

Description: ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision

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 Addendum No. _____ to No. _____ inclusive, and having reviewed the supplied photographs and familiarized ourselves thoroughly with local conditions, hereby agree to supply the services associated with the *ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision* as outlined in our Proposal for a total price of:

\$ _____ (\$ _____) excluding HST

which price includes any specified allowance and all taxes (**excluding HST**) except as may be otherwise provided in the RFP Documents, and to furnish all materials, labour, equipment and transportation to perform the entire Work described in the RFP Documents, in the manner prescribed therein, and in accordance with the specifications.

Include a breakdown of costs on the following Proposal Form 1-A.

Purchase is subject to budgetary approval of expenditures.

Proposal Forms:

The information contained in the Proposal Forms, as listed in the Request for Proposals and attached hereto, forms an integral part of this Proposal.

Declarations:

We hereby declare that:

- (a) We will execute the Agreement within ten (10) Working Days of receipt of the Final Agreement;
- (b) We agree to perform and fully complete the Work on or before the agreed upon schedule;
- (c) The Work is to start no later than the agreed upon start date in the schedule;
- (d) Work is deemed to be complete when Work is substantially complete as defined in the Construction Act and the Contractor is demobilized from the site;
- (e) The statutory holdback pursuant to the Construction Act will be 10%;
- (f) We will provide the required evidence of insurance, as specified in the Ontario Northland – Supplementary Conditions – CCDC 4 - 2011 included in Part 5 of the RFP Documents, with our execution of the Agreement;
- (g) For the General Liability Insurance, Ontario Northland Transportation Commission and AECOM are to be included as additional insured;

- (h) Coverages and limits of insurances will be provided and maintained by all Subcontractors in accordance with subsection (f) above;
- (i) No person, corporation or other legal entity other than the undersigned has any interest in this Proposal or in the proposed Contract for which this Proposal is made;
- (j) This Proposal is irrevocable for a period of ninety (90) days from the Submission Deadline;
- (k) It is understood and agreed that if this Proposal is accepted, we will not commence the Work until we have executed the Final Agreement and delivered it to ONTC and/or we are advised in writing by ONTC to proceed with the Work;
- (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 _____, 2024

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 1-A
PROPOSAL SUBMISSION FORM**

Please refer to the attached Schedule A – Schedule of Quantities and Prices, prepared by AECOM. This form must be completed as part of the proposal.

FORM OF PROPOSAL**PROPOSAL SUBMISSION FORM**

Please refer to the attached Schedule A – Schedule of Quantities and Prices. This form must be completed as part of the proposal.

Schedule A – Schedule of Quantities and Prices

ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision - RFP 2024 012

Unit Prices listed in this Schedule are based on the use of Specified Materials. Unit Price shall include all overhead, profit, handling, and all other related charges and shall hereinafter be referred to as Contract Unit Prices. All the prices listed below are to be included in the Contract Price.

Item	Reference (Section/Dwg No.)	Description	Unit	Est. Qty	Unit Price	Total Amount
1. General						
1.1.	Section 02000	Mobilization & Demobilization	L.S.	1	\$ _____	\$ _____
1.2.	Section 01500	Construction Facilities/ Scaffolding	L.S.	1	\$ _____	\$ _____
2. Bridge Repairs						
2.1.	Sections 01560, 02272	Comply with Environmental Protection throughout the duration of the project including erosion and sediment control	L.S.	1	\$ _____	\$ _____
2.2.	Section 02315	Excavation, disposal of excavated material and backfilling (Including, reinstate head slopes at the abutments, backfill behind abutments, grading, compacting surface after sheet pile removal and excavation and backfill at the piers)	L.S.	1	\$ _____	\$ _____
2.3.	Section 02231	Clearing and Grubbing	Ha	0.1	\$ _____	\$ _____
2.4.	Sections 01340, 01560 & 02368	Design, Supply, Install and Remove Cofferdams for Pier Concrete repairs	L.S.	1	\$ _____	\$ _____
2.5.	Section 02383 Dwg 1.02,1.03	Supply, Install and Remove Sheet piles for temporary shoring at abutment	ft	1020	\$ _____	\$ _____
2.6.	Section 02370 Dwg 1.02,1.03	Supply and Install Tie-back Anchors	ea	12	\$ _____	\$ _____
2.7.	Sections 01340, 01560, & 02272	Design, Supply, Install and Remove Dewatering System	L.S.	1	\$ _____	\$ _____
2.8.	Section 02225 Dwg 1.05,1.06,1.07	Sitework Demolition and Removal of Deteriorated Concrete	ft ³	4410	\$ _____	\$ _____
2.9.	Section 03205 and Dwg 1.09, 1.11, 1.13	Dowels into Concrete	ea	4800	\$ _____	\$ _____
2.10.	Sections 03010, 03100 03200, 03203 & 03300Dwg 1.08,1.10,1.12	Supply and Install Concrete - 8" thick jacket	ft ³	4500	\$ _____	\$ _____
2.11.	Section 03200 &03203 Dwg 1.09,1.11,1.13,1.14	Supply and Install Reinforcement Steel	lbs	26560	\$ _____	\$ _____
2.12.	Section 07560 Dwg 1.03,1.04,1.05,1.07,1.09	Supply and install Sikaguard A50 sealer	ft ²	5430	\$ _____	\$ _____
2.13.	Sections 05122 & 05500 Dwg 1.15	Supply and Install Steel Pedestals A15 and associated anchor bolts C15 and bolts B15 (including all jacking equipment required)	ea	12	\$ _____	\$ _____
2.14.	Section 05122 Dwg 1.02, 1.03,1.04, 1.15	Supply and Install Structural Steel (temporary shoring and Pier nosing) and New Jacking Frame Steel (including required field drilling & determination/verification and supply of shop/field bolts)	lbs	10750	\$ _____	\$ _____
2.15.	Sections 05122 & 09900 Dwg 1.01	Clean all bottom flange angles, inside and outside (full length), bottom of stiffeners and gusset plates at the bottom of the steel spans (without removing or damaging the existing paint)	L.S.	1	\$ _____	\$ _____
2.16.	Dwg 1.01	Perform Top of Rail Track Survey to determine bearing elevations and provide drawing of results and proposed bearing and pedestal elevations	L.S.	1	\$ _____	\$ _____
2.17.	Section 02235 & Dwg 1.1	Supply and Install ONR Crushed Rock Ballast on approaches - If required	tons	20	\$ _____	\$ _____
2.18.	Section 02371 & Dwg	Supply and Install Rip-Rap	ft ³	9600	\$ _____	\$ _____

	1.01					
3. Contingency Items						
3.1.	Section 02225 Dwg 1.05,1.06,1.07	Contingency Amount Additional 10% Sitework Demolition and Removal of Deteriorated Concrete	ft ³	441	\$ _____	\$ _____
3.2.	Sections 03010, 03100 03200 & 03300	Contingency Amount Additional 10% Supply and Install Concrete assuming no additional formwork required, just additional removal depth	ft ³	450	\$ _____	\$ _____
3.3.	Section 05122 & DWG 1.01, 1.04	Contingency to Supply and Install Bolts to replace rivets. (Possibility of additional rivets determined on site)	ea	30	\$ _____	\$ _____
3.4.	Section 02371	Contingency Amount Additional 10% Supply and Install Rip-Rap	ft ³	960	\$ _____	\$ _____
3.5.	Section 02225	Cut and install ONR supplied backwall ties - if required	ea	2	\$ _____	\$ _____
3.6.	Section 02225	Cut off high hook bolts above nut on top of ties, if required	L.S.	1	\$ _____	\$ _____
					Total	\$ _____
					Harmonized Sales Tax (HST)	\$ _____
					TOTAL PROPOSAL PRICE	\$ _____

Total proposal price shall include all labor, subcontractor fees, products, services, tools, equipment and tool rental fees, shop drawings, handling costs, profit, bonding costs, site access preparation including construction of a crossing (if required), environmental protection and control costs, removal of debris, waste and rubble, excavation, shoring, cofferdams, backfilling, dewatering and other work area requirements, cleanup and restoration of site, taxes and all other overhead related charges and incidentals necessary for the total completion of the Work.

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2
RESPONDENT’S GENERAL INFORMATION**

The Respondent must complete this document and submit it as part of his Proposal.

Name <i>Please indicate the complete legal name of the firm</i>	
Tax Registration # (HST)	
Tax Registration # (GST)	
Tax Registration # (QST)	
Address	
Telephone Number	
Fax 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 or manufacturer that has headquarters or a main office in Ontario, and that regularly conduct its activities (i.e., produces manufactured goods, intangible goods, or services) on a permanent basis in Ontario, is clearly identified by name and is accessible during normal business hours.

Canadian Business Yes No

“Canadian Business”: A commercial enterprise that is incorporated pursuant to the laws of Canada and which has ongoing business activities in Canada.

Main Contact Person *(for the purposes of this Proposal)*

Name	
Title	
Telephone #	Fax #
E-mail address	

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 2 *cont'd*
RESPONDENT'S GENERAL INFORMATION**

Indicate below your company/business' invoice terms:

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.

Description of Services	Subcontractor's Name	% Contract Value	Telephone Number

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 3
ACKNOWLEDGMENT TO COMPLY WITH PART 3 - REQUEST FOR PROPOSALS
SPECIFICATIONS**

Ontario Northland Transportation Commission (ONTC) is committed to procuring goods and services through a process that is conducted in a fair and transparent manner, providing equal opportunity to vendors.

ONTC endeavors to provide specifications that meet the requirements of the procurement without naming specific brands. However, there may be instances where a third-party consultant prepares a specification on behalf of ONTC, and a specific brand is named. In these instances, alternates may be used if deemed equal by ONTC and/or the third-party consultant. Respondents shall submit proposed deemed equals as a clarification item to be considered while the procurement remains open per the requirements of Part 1, Section 3, item 3.2 Questions and Communications Related to the RFP Documents.

Respondent acknowledges that they can fully comply with Part 3 – Request for Proposals Specifications.

(Check one) YES _____; NO _____

If the Respondent indicates “NO”, they shall provide details as an attachment to this Proposal Form 3, indicating how they will deviate from the requirements identified in Part 3 – Requests for Proposals – Specifications.

If the Respondent wishes to submit an alternative proposal, it shall be indicated here and submitted separately from the original proposal, clearly indicating that it is an alternative proposal.

Respondent will be submitting an alternative proposal:

(Check one) YES _____; NO _____

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 4
REFERENCES**

The Respondent must supply here the reference information of three (3) customers for which they have provided 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	Contract, Schedule, Article, or Sub-Clause	Existing Wording	Respondent’s Proposed Wording	Reason for Proposed Change
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 6
RESPONDENTS' MEETING REGISTRATION FORM**

Reference Number: RFP 2024 012

Title: ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision

Submitted To: **ONTARIO NORTHLAND TRANSPORTATION COMMISSION**

Please confirm that you plan to attend the Respondents' Meeting by emailing a completed copy of this Registration Form, together with the Release of Liability to ashley.commanda@ontarionorthland.ca, prior to Tuesday, April 9, 2024 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' MEETING WILL BE DECLARED NON-COMPLIANT AND WILL BE REJECTED.

Date of Meeting: Wednesday, April 10, 2024

Time of Meeting: 9:00 a.m.

Location: Teams Conference Call

COMPANY NAME: _____

CONTACT NAME: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

NUMBER OF PERSONS ATTENDING: _____

ACCOMMODATION: ONTARIO NORTHLAND IS AN EQUAL OPPORTUNITY ORGANIZATION. ACCOMMODATION IS AVAILABLE FOR RESPONDENT'S WITH DISABILITIES THROUGHOUT THE PROCUREMENT PROCESS. IF ACCOMMODATION IS REQUIRED, PLEASE CONTACT ashley.commanda@ontarionorthland.ca.

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 7
HEALTH, SAFETY AND ENVIRONMENT**

Respondents shall review the attached Health and Safety Policy Statement and include the following with their Proposal:

1. Submit a copy of the most recent version of your Health, Safety, and Environmental Protection Policy. **Provide evidence of compliance to Ontario's environmental requirements (e.g., recycling, waste management, etc.).**
2. Submit the attached Contractor Health and Safety Responsibility Agreement.
3. Submit the attached Contractor Safety Pre-Qualification Form and associated supporting documents.

Respondents must pass the Contractor Safety Pre-Qualification. Failure to pass will result in disqualification from the procurement process.

DATE FORMALIZED April 2016 REVISED February 2023	Health and Safety Policy
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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 our proposed sub-contractor, 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)

1. Company Identification:

Company Name: _____ Mailing Address: _____ _____	Telephone: _____ Fax: _____ E-mail: _____	ONTC Use _____ _____ _____ _____
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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: _____
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8. Carriers:
Type of Coverage:

_____	_____	_____
_____	_____	_____
_____	_____	_____

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"/> _____	

Contractor Safety Pre-Qualification Form

f) Vehicle Safety	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
g) Compressed Gas Cylinders	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
h) Electrical Equipment Grounding Assurance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
i) Powered Industrial Vehicles (forklifts, cranes, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
j) Heavy Construction Equipment (excavators, backhoes, bulldozers, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
k) Excavation and Trenching	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
l) Housekeeping	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
m) Accident / Incident Reporting and Investigation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
n) Hazard / Unsafe Condition Identification, Reporting and Communication	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
o) Workplace Hazardous Materials information System (WHMIS)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
p) Emergency Action Plan / Evacuation Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
q) Spill Response / Reporting	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
r) Respiratory Protection	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
s) Designated Substances Management	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
t) Waste Staging / Disposal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
u) Traffic Control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
v) Hearing Conservation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
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	<input type="text"/>
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	<input type="text"/>
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	<input type="text"/>
16. Do you have First Aid kits available to your staff?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
17. Does your company use a formalized Health and Safety Plan for conducting large projects?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
18. Does the company conduct pre-placement medical examinations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
19. Is task-adequate PPE provided to workers?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
20. Are employees trained in PPE care, use and maintenance?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>
21. Do you have a corrective actions process for addressing individual health and safety performance deficiencies	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="text"/>

22. Equipment and Manuals:

- a. Do you conduct inspections on operating equipment (e.g. excavators, cranes, forklifts, vehicles, etc.) as per regulatory requirements? Yes No
- b. Do you maintain operating equipment in compliance with regulatory requirements? Yes No
- c. Do you maintain applicable pre-use inspection and maintenance certification records for operating equipment? Yes No
- d. Are records available upon request Yes No

23. Subcontractors

- a. Do you use health and safety performance criteria in the selection of contractors? Yes No
- b. Do you require your subcontractor to have a written health and safety program? Yes No
- c. Are your subcontractors included in
 - health and safety orientation Yes No
 - health and safety meetings Yes No
 - workplace inspections Yes No
 - health and safety audits Yes No
- d. Does the company have a policy for the termination of contracts of subcontractors who do not comply with the Occupation Health and Safety Act, regulations under the Act, contractor rules, programs, protocols policies or procedures? Yes No
- e. Does the company have a progressive discipline policy for employees and subcontractors? Yes No

24. Health and Safety Training

- a. Are you aware for the regulatory training requirements for your employees? Yes No
- b. Have your employees received the required health and safety training? Yes No
- c. Do you have specific health and safety training for supervisors? Yes No
- d. Do you keep records of health and safety training for employees? Yes No
- e. Are records of health and safety training available on request? Yes No

25. Job Skills

- a. Have employees been trained in appropriate job skills? Yes No
- b. Are employee job skills certified where required by regulation or industry standard? Yes No
- c. Are certificates available upon request? Yes No

26. Health and Safety Supervision

- a. Does the company have a health & safety coordinator? Yes 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 of ONTC.

<u>Quantity</u>	<u>Description</u>	<u>Capacity</u>	<u>Condition</u>	<u>Age</u>	<u>Location</u>	<u>Owner</u>	<u>Hourly Rental Rate</u>
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**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 10
SCHEDULE AND PROPOSED APPROACH**

CONSTRUCTION SCHEDULE

Respondents shall include a construction schedule with their Proposal. The construction schedule shall be in Gantt chart format, showing all activities of the Work and the critical path. The construction schedule shall reflect the milestone dates listed below.

Mandatory Teams Conference Call	April 10, 2024
Request for Proposal Close	April 26, 2024
Shop Drawings / Work Plan Submissions	Prior to mobilization
Mobilization to site	May 2024
Completion of the Work	October 31, 2025

Do you agree to complete the Work by October 31, 2025?

Respondent confirms that they will complete the Work by October 31, 2025.

(Check one) YES _____; NO _____

ONTC has established the date for Completion of the Work with consideration for Northern Ontario weather conditions. As such, there is no flexibility to extend the end date for completion of the work, and a failure to confirm that the work will be completed by the identified date may result in a rejection 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 in Part 3 – RFP Specifications, Schedule 3-A, Scope of Work. 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 Principal Personnel who will be assigned to the Work and **include their resumes.** This information shall be for the use of ONTC and the Consultant in assessing the Proposal and such personnel may be subject to the approval of the Consultant. In the event of a Subcontractor(s) being listed as Principal Personnel, the Respondent shall also include their resume(s).

Name

Position

Experience

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 13
CURRENT LABOUR AGREEMENTS**

List the current labour agreements the Respondent or each partner in a joint venture has in force covering this type of work in the Province in which the Work is to be performed.

**PART 4 – FORM OF PROPOSAL
PROPOSAL FORM 14
CONTRACTOR’S QUALIFICATION STATEMENT**

1. The Respondent shall include a company profile.

In the event that the Respondent is using a subcontractor(s) for a portion(s) of the scope of work associated with this RFP, they shall also include with this Proposal Form 14, a company profile for each subcontractor.

2. The Respondent shall supply a minimum of three (3) project descriptions for projects of a similar nature and scope. The project descriptions shall include:
 - a) Company/Client
 - b) Name of contact and contact details
 - c) Project Name
 - d) The scheduled project start and end date
 - e) The actual start and end date
 - f) The project value of the Respondent’s scope of work for the project at the beginning of the project
 - g) The project value of the Respondent’s scope of work for the project at the end of the project
 - h) Detailed description of the Respondent’s scope of work for the project. The description should detail if subcontractors were used to complete part of the scope.
 - i) Outcomes of the project (i.e., completed on schedule and on budget etc.)

ONTC may, in its sole discretion, confirm the Respondent’s experience in the projects identified by contacting the named contacts above, in addition to the references provided as part of Proposal Form 4.

3. The Respondent shall describe how and when you will use local workforce, local vendors, local manufacturers, local contractors, and local apprentices/trainees to achieve the project goals and provide the requested services.
4. The Respondent shall describe their organization’s diversity programs.

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 4 – 2011 SUPPLEMENTARY CONDITIONS

The ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision project will be completed using CCDC 4 – 2011. The Supplementary Conditions, and Special Supplementary Conditions prepared by ONTC, will apply.

ONTARIO NORTHLAND - SUPPLEMENTARY CONDITIONS – CCDC 4 – 2011 – REVISED 15 NOV 2023

AMENDMENTS TO THE AGREEMENT BETWEEN OWNER AND CONTRACTOR

1. ARTICLE A-3 CONTRACT DOCUMENTS

1.1 Add the following to the list of Contract Documents in paragraph 3.1:

“– Ontario Northland - Supplementary Conditions - CCDC 4 – 2011”

2. ARTICLE A-5 PAYMENT

2.1 In Article A-5.1, delete the words “and, where such legislation or regulations do not exist or apply, subject to a holdback of _____ percent (____%)” and replace them with “and subject to the Owner’s right to withhold, set-off, or reduce any payment pursuant to any Notice of Non-Payment”.

2.2 In subparagraph A-5.1.1 delete the words “amount certified by the Consultant together” and replace them with “amount applied for in a Proper Invoice”.

2.3 Delete subparagraph A-5.1.2 in its entirety and replace it with the following:

“.2 upon Substantial Performance of the Work, as certified by the Consultant, and on the 61st day after the publication of the certificate of Substantial Performance of the Work, if there are no claims for lien given to the Owner or registered against the title to the Place of the Work, 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 the Owner’s Notice of Non-Payment that is published in accordance with the *Construction Act*,”

2.4 Delete subparagraph A-5.1.3 in its entirety and replace it with the following:

“.3 upon receipt of the final certificate for payment from the Consultant, and on the 61st day after the date on which the Contractor completes the Work, if there are no claims for lien given to the Owner or registered against the title to the Place of the Work, pay the Contractor the unpaid balance of the Contract Price together with such Value Added Taxes as may be applicable to such payment.”

2.5 Delete subparagraph A – 5.3 in its entirety and replace it with the following:

“Interest on late payments, if any, will be in accordance with the *Construction Act*.”

3. ARTICLE A-9 CONFLICT OF INTEREST

3.1 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*.”

4. ARTICLE A-10 TIME OF THE ESSENCE / LIQUIDATED DAMAGES

4.1 Add new 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 within the Contract Time stated in Article A-1 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 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 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, 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 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 Substantial Performance of the Work until Substantial Performance of the Work 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 Owner 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 5.7 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

5. DEFINITIONS

- 5.1 Add the following new definition:

“*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 determined by the Owner;
- (c) any addition costs or loss of revenue incurred by the Owner due to the delay.”

5.2 Add the following new definition:

“*Adjudication* means construction dispute interim adjudication as defined under the *Construction Act*.”

5.3 Add the following new definition:

“The *Arbitration Act* means the *Arbitration Act*, 1991, S.O. 1991, c. 17, as amended.”

5.4 Add the following new definition:

“Confidential Information” means all information of the Owner that is confidential by its nature or in the circumstances in which it is received, including all confidential information in the custody or control of the Contractor, regardless whether it is identified as confidential or not, which comes into the knowledge, possession or control of the Contractor in connections with this Agreement, 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.

5.5 Add the following new definition:

“*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.

5.6 Add the following new definition:

“The *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, Parts I.1 (Prompt Payment) and II.1 (Construction Dispute Interim Adjudication) of the *Construction Act* apply to this Contract.”

5.7 Add the following new definition:

“The *Construction Schedule* or construction schedule means the schedule for the performance of the Work provided by the Contractor pursuant to GC 3.5 – CONSTRUCTION SCHEDULE, including any amendments to the Construction Schedule made pursuant to the Contract Documents.”

5.8 Delete the definition of “Consultant” and replace it with the following:

"The *Consultant* is the person, partnership or corporation designated by the Owner to be the Owner's representative for the purposes of the Contract. References to the "Engineer" in the Specifications or to the "Contract Administrator" in OPSS shall mean the "Consultant" as defined herein."

5.9 Delete the definition of "Contract Price" and replace it with the following:

"The *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 unit prices or lump sum prices submitted by the Contractor in its proposal as stipulated in paragraph 4.1 of Article A-4 CONTRACT PRICE in the Contract, and includes any additional or reduced amounts payable for approved Changes in the Work as provided for and authorised in the Contract Documents."

5.10 Add the following new definition:

"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."

5.11 At the end of the definition of "Drawings", add the following:

"and a waste disposal plan."

5.12 Add the following new definition:

"*Environmental Contaminants* means any substance, material or waste defined, regulated, listed or prohibited by Environmental Laws";

5.13 Add the following new definition:

"*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 governmental authority relating to Environmental Contaminants or the protection of human health, natural resources or the environment;

5.14 Add the following new definition:

"*Estimate* means a calculation of the quantity or cost of the Work or part of it depending on the context."

5.15 Add the following new definition:

5.16 "*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 emergency changes to any acts, orders, legislation, regulations, directives, or priorities of any government or other public authority; provided such event is not caused by the affected party's negligence or failure to exercise reasonable diligence. 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. For clarity, the COVID-19 pandemic may be considered a Force Majeure event if it causes the Contractor or the Owner a substantiated delay in complying with all or part of their obligations under this Agreement.

5.17 Add the following new definition:

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.

5.18 Add the following new definition:

Intellectual Property Rights” means any intellectual or industrial property rights protected or protectable under the laws of Canada, any foreign country, or any political subdivision of any country, including any intellectual property rights protected by legislation (such as legislation governing copyrights, industrial designs, integrated circuit topographies, patents or trademarks), or by common law (such as confidential information and trade secrets). At any time in the future, Intellectual Property Rights shall include any intellectual or industrial property rights protected or protectable at such time under the laws of Canada, any foreign country, or any political subdivision of any country. ”

5.19 Add the following new definition:

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.”

Add the following new definition:

5.20 “*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.”

5.21 Add the following new definition:

“*The 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.”

5.22 Add the following new definition:

“*The 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.”

5.23 Add the following new definition:

“*Statutory Declaration* means the “Ontario Northland Statutory Declaration of Progress Payment Distribution by Contractor” form, attached to the Supplementary Conditions as Schedule “B”.

AMENDMENTS TO THE GENERAL CONDITIONS OF THE UNIT PRICE CONTRACT

6. GC 1.1 CONTRACT DOCUMENTS

6.1 Where a General Condition or paragraph of the General Conditions of the Unit 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.

6.2 Add new sentence to the end of paragraph 1.1.6:

“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 Consultant to settle disputes among the Subcontractors and Suppliers in respect to such divisions.”

6.3 Amend paragraph 1.1.7 by adding the following to the end of that paragraph:

“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.”

6.4 Delete paragraph 1.1.7.1 in its entirety and replace it with new 1.1.7.1:

“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 4
- 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 to the RFP - Scope of Work
- Contractor’s Proposal in Part 4 of the RFP in response to the RFP
- Technical Specifications
- Working Blocks
- Contract Drawings”

6.5 Further amend paragraph 1.1.7 by adding new paragraphs 1.1.7.5, and 1.1.7.6, as follows:

“.5 Annotations on the drawings shall govern over the graphic representation of the drawings.

.6 Schedules of Division 01 - General Requirements of the Specifications shall form part of and be read in conjunction with the technical specification section as listed in the table of contents of the specifications.”

6.6 Delete paragraph 1.1.8 in its entirety and substitute new paragraph 1.1.8:

“The Owner shall provide the Contractor, without charge, an electronic version of the Contract Documents.”

6.7 Delete paragraph 1.1.9 in its entirety and substitute new paragraph 1.1.9:

“All deliverables 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 is 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.”

6.8 Add new paragraph 1.1.11 as follows:

“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 Consultant agrees otherwise.”

6.9 Add new paragraph 1.1.12 as follows:

“Wherever in the Contract provision is made for the giving or issuing of any notice, consent, approval, certificate or determination by any person, unless otherwise specified such notice, consent, approval certificate or determination shall be in writing and shall not unreasonably be withheld or delayed.”

7. GC 1.2 LAW OF THE CONTRACT

7.1 Delete paragraph 1.2.1 in its entirety and substitute 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.”

8. GC 1.4 ASSIGNMENT

8.1 Delete paragraph 1.4.1 in its entirety and substitute 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 not relieve the Contractor from its obligations and liabilities hereunder.”

9. GC 2.1 AUTHORITY OF THE CONSULTANT

9.1 Delete paragraph 2.1.3 in its entirety.

10. GC 2.2 ROLE OF THE CONSULTANT

10.1 Amend paragraph 2.2.5 by adding the words “Within 7 calendar days of receipt of the Contractor’s Proper Invoice,” at the beginning of the paragraph.

- and -

Add to the end of the paragraph the following words “If the Consultant determines that the amount payable to the Contractor differs from the amount stated in a Proper Invoice, the Consultant shall immediately notify the Owner as provided in paragraph 5.3.1.2 and prepare a draft of the applicable Notice of Non-Payment for the amount in dispute.”

10.2 Amend paragraph 2.2.6 by adding to the beginning of the paragraph:

“Except as provided otherwise in the agreement between the Consultant and the Owner,”

10.3 Amend paragraph 2.2.13 by adding the following to the end of that paragraph:

“If, in the opinion of the Contractor, the Supplemental Instruction involves an adjustment in the Contract Price or in the Contract Time, it shall, within three (3) Working Days of receipt of a Supplemental Instruction provide the Consultant and the Owner with a written notice to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.13 shall be deemed an acceptance of the Supplemental Instruction by the Contractor without adjustment in the Contract Price or Contract Time.”

11. GC 2.3 REVIEW AND INSPECTION OF THE WORK

11.1 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.”

11.2 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.”

12. GC 2.4 DEFECTIVE WORK

12.1 Add new paragraphs 2.4.1.1 and 2.4.1.2 as follows:

.1 Without limiting the foregoing, the Contractor shall rectify, in a manner acceptable to the Owner and the Consultant, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

.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.”

13. GC 2.5 EMERGENCY SITUATIONS

13.1 Add new GC 2.5 EMERGENCY SITUATIONS as follows:

.1 The Consultant has the right to determine the existence of an emergency situation and, when such an emergency situation is deemed to exist, the Consultant 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 Consultant may direct others to remedy the situation.

.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.

14. GC 3.1 CONTROL OF THE WORK

14.1 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 Consultant in writing and obtain written instructions from the Consultant before proceeding with any part of the affected work.”

14.2 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.

15. GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

15.1 Delete paragraph 3.2.2.1 in its entirety and substitute “Intentionally left blank”.

15.2 Delete paragraph 3.2.2.2 in its entirety and substitute “Intentionally left blank”.

15.3 Add new paragraph 3.2.3.4 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).”

16. GC 3.4 DOCUMENT REVIEW

16.1 Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1:

“The Contractor shall review the Contract Documents and shall report promptly to the Consultant any error, inconsistency or omission the Contractor may discover. Such review by the Contractor shall comply with the standard of care described in paragraph 3.14.1 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 Consultant for the accuracy of the Contract Documents. Provided it has exercised the degree of care and skill described in this paragraph 3.4.1, 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 not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.”

16.2 Add new paragraph 3.4.2 as follows:

“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 Consultant by means of a written Request for Information (“RFI”) and the Consultant will provide written instructions or explanations. Neither the Owner nor the Consultant will be responsible for oral instructions.”

16.3 Add new paragraph 3.4.3 as follows:

“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.”

17. GC 3.5 CONSTRUCTION SCHEDULE

17.1 Delete paragraph 3.5.1 in its entirety and substitute the following:

“The Contractor shall prepare, and update as required, a construction schedule, including identification of the critical path of the Work and the schedule of operations and indicating 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 specified Contract Time. The schedule shall be submitted to the Consultant within 10 Working Days from the date of the contract award, unless otherwise required by the Contract Documents. The schedule will include activity sequences and durations, special allocation of labour and Products, processing of Working Drawings and samples, delivery of Products involving long lead time procurement and usage and occupancy requirements of the Owner of those portions of the Work having usage or occupancy priority and any other schedule requirements set out in the Contract Documents. The Contractor shall, during performance of the Work and in accordance with the controls and reporting requirements in the Contract Documents, provide for the Consultant’s review and approval 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 Changes, the Contractor shall submit an updated construction schedule, if requested by the Consultant, 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 time specified in the Contract Documents. The Owner may, at its sole discretion, not issue an order to commence work until the schedule has been received and approved.”

17.2 Add new paragraphs 3.5.2 and 3.5.3 as follows:

3.5.2 “For the duration of the Contract term, the Contractor shall provide progress reports with each application for payment, in the form provided by the Owner attached as Schedule C, for review and approval, including an update of the Construction Schedule referred to in paragraph 3.5.1.”

3.5.3 If,

.1 at any time it should reasonably appear to the Owner or the Consultant that the actual progress of the Work is behind schedule or is likely to become behind schedule, based on critical path methodology, and notice of such opinion is given to the Contractor; or

.2 the Contractor has noticed slippage in the 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 and the Consultant a recovery plan demonstrating how the Contractor will achieve the recovery of the Construction Schedule.”

18. GC 3.6 SUPERVISION

18.1 Amend paragraph 3.6.1 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.”

18.2 Add new paragraph 3.6.3 as follows:

“Notwithstanding paragraph 3.6.2, the representative of the Contractor attending a meeting with one or more of the Owner or the Owner’s representative and the Consultant shall be deemed to have authority to act on behalf of the Contractor and bind the Contractor in matters related to this Contract.”

18.3 Add new paragraph 3.6.4 as follows:

“The Owner may, at any time during the course of the Work, request the replacement of the appointed representative(s), where the grounds for the request involve conduct on the part of the 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.”

19. GC 3.7 SUBCONTRACTORS AND SUPPLIERS

19.1 Add new paragraph 3.7.1.4:

“ensure the Subcontractors and Suppliers, while working on the Owner’s property, are aware of and comply with the Owner’s policies, including its Drug and Alcohol 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.”

19.2 Delete paragraph 3.7.2 in its entirety and substitute new paragraph 3.7.2

“The Contractor shall not change Subcontractors or Suppliers set out in the Contract Documents without the prior written approval of the Owner which approval will not be unreasonably withheld.”

19.3 Add new paragraph 3.7.7 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.”

20. GC 3.8 LABOUR AND PRODUCTS

20.1 Amend paragraph 3.8.1 by 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.”

20.2 Amend paragraph 3.8.3 by adding the words, “..., agents, Subcontractors and Suppliers ...” after the word “employees” toward the end of line one.

20.3 Add new paragraph 3.8.4 as follows:

“Upon receipt of a written notice from the Consultant, the Contractor shall take action to rectify any situation involving tradespersons and labourers whose work is unsatisfactory to the Consultant or the Owner or who are considered by the Consultant or 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 tradespersons or labourers 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 labourers or tradespersons.”

20.4 Add new paragraph 3.8.5 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 to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information on the Products to be supplied by the Owner.”

20.5 Add new paragraph 3.8.6 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.”

20.6 Add new paragraph 3.8.7 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.”

21. GC 3.9 DOCUMENTS AT THE SITE

21.1 Delete paragraph 3.9.1 in its entirety and substitute new paragraph 3.9.1:

“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 and the Consultant.”

21.2 Add new paragraph 3.9.2 as follows:

“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 Consultant and his representatives for the duration of the Work.”

22. GC 3.10 SHOP DRAWINGS

22.1 Add new sentence to the end of paragraph 3.10.5 as follows:

“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.”

23. GC 3.13 CLEANUP

23.1 Add at the end of paragraph 3.13.1 the following:

“The Contractor shall provide to the Owner for approval a waste disposal 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.

23.2 Add new paragraph 3.13.4 as follows:

“In performing work to correct deficiencies or work under warranty following Substantial Performance of the Work, the Contractor shall maintain the Place of the Work in a tidy condition and shall immediately remove waste products and debris.”

23.3 Add new paragraph 3.13.5 as follows:

“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.”

23.4 Add new paragraph 3.13.6 as follows:

“In the event that the Contractor fails to remove waste and debris as provided in this GC 3.13, then the Owner or the Consultant may give the Contractor twenty-four (24) hours’ written notice to meet its obligations respecting clean up. Should the Contractor fail to meet its obligations pursuant to this GC 3.13 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.”

24. GC 3.14 PERFORMANCE BY CONTRACTOR

24.1 Add new GC 3.14 – PERFORMANCE BY CONTRACTOR as follows:

- .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, personnel or procedures which it may recommend to the Owner or employ on the Project.”
- .2 The Contractor further represents, covenants and warrants to the Owner that:
 - .1 The personnel 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 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 these Services 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>.”

25. GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

25.1 Delete GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER in its entirety including all paragraphs thereunder and replace it with “Intentionally left blank.”

25.2 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

25.3 Delete paragraph 5.2.1 in its entirety and substitute new paragraph 5.2.1:

Subject to paragraph 5.2.2, applications for payment on account as provided in Article A-5 of the Contract – PAYMENT may be made monthly as the Work progresses and must be delivered to the Owner and the Consultant in the same manner as a Notice in Writing. Unless otherwise directed in writing by the Owner, the applications for payment shall be delivered by email to pay.inv@ontarionorthland.ca and to the Owner’s representative listed in Article A-6 of the Contract – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING and to the Consultant. If the Contractor fails to deliver its application for payment, at the interval prescribed in this GC 5.2.1, subject to written approval by the Owner, the Contractor shall not be entitled to submit its application for payment until the next prescribed interval.”

25.4 Delete paragraph 5.2.2 in its entirety and substitute new paragraph 5.2.2:

“5.2.2 Applications for payment shall be dated the last day of each payment period which is the last day of the month preceding the month in which the application for payment is submitted pursuant to GC 5.2.1.”

25.5 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*.”

25.6 Amend paragraph 5.2.4 by deleting the words “the Consultant, at least 15 calendar days” and replacing them with “the Owner and the Consultant, at least 30 calendar days”

- and -

add the words “in a form acceptable to the Owner,” after the words “Contract Price”.

25.7 Amend paragraph 5.2.5 by adding the words “or the Owner” after the words “ as the Consultant”

- and -

In the second line of paragraph 5.2.5, delete the second word “Consultant” and substitute “Owner”.

25.8 Delete paragraph 5.2.6 in its entirety and substitute new paragraph 5.2.6:

“Each application for payment delivered by the Contractor in accordance with this GC 5.2 shall include all of the requirements for a Proper Invoice.”

25.9 Amend paragraph 5.2.7 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.”

25.10 Add new paragraph 5.2.8 as follows:

“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 Consultant 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.”

25.11 Add new paragraph 5.2.9 as follows:

“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 and the Consultant, during the Restricted Period (Proper Invoice).”

25.12 Add new paragraph 5.2.10 as follows:

“The Consultant shall prepare an Estimate of the quantity of Work immediately upon the conclusion of each

payment period. The first Estimate shall be for the quantity of Work performed since the Contractor commenced the Contract, and every subsequent Estimate shall be of the quantity of Work performed since the preceding Estimate was made. The Consultant shall provide the Estimate to the Contractor within 10 calendar days after the end of the payment period, or at such other time agreed to by the Owner and the Contractor in writing. If the Consultant has not delivered an Estimate to the Contractor within the 10 calendar days' period, the Contractor shall deliver a Notice to this effect to the Owner and the Consultant."

25.13 Add new paragraph 5.2.11 as follows:

Within five (5) calendar days following the delivery of the Estimate to the Contractor, the Contractor shall deliver its application for payment to the Owner and to the Consultant in accordance with GC 5.2.1 for Work performed during a payment period (the "**Proper Invoice Submission Date**"), provided that if the fifth (5th) calendar day following the delivery of the Estimate to which an invoice relates falls on a calendar day that is not a Working Day, the Proper Invoice Submission Date shall be deemed to fall on the next Working Day. The parties hereby consent to the giving and receiving of Proper Invoices electronically and in accordance with the requirements of GC 5.2.1."

26. GC 5.3 PROGRESS PAYMENT

26.1 Delete paragraph 5.3.1 in its entirety and substitute new paragraph 5.3.1:

"After receipt by the Owner and the Consultant of an application for payment submitted by the Contractor in accordance with GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT:

- .1 the Owner and the Consultant will assess whether all of the criteria for a Proper Invoice are satisfied and, if not, the Owner or the Consultant, as the Owner's agent, will return the application for payment to the Contractor with reasons setting out why the application for payment is not a Proper Invoice;
- .2 the Owner reserves the right, in its sole, absolute, and unfettered discretion to permit the Contractor to correct an error or minor irregularity in an application for payment submitted by the Contractor in accordance with GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT, and to permit the Contractor to re-submit the application for payment before the next interval prescribed by GC 5.2; however, the Owner shall be under no obligation to exercise this right and the date of resubmission of the application for payment shall be deemed to be the date of receipt by the Owner of the Proper Invoice, provided that the requirements of the Proper Invoice are then satisfied;
- .3 within 14 calendar days after receipt of a Proper Invoice (or on the next Working Day if the 14th day is not a Working Day), in the event that the Owner disputes the amount claimed as payable in the Proper Invoice, the Owner shall deliver to the Contractor an executed Notice of Non-Payment (Form 1.1); and
- .4 the Owner shall make payment to the Contractor, on account as provided in Article A-5 of the Agreement – PAYMENT, 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."

26.2 Add new paragraph 5.3.3 as follows:

"Where the Owner has delivered a Notice of Non-Payment, as specified under paragraph 5.3.1.3, 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 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."

26.3 Add new paragraph 5.3.4 as follows:

"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 5.3.1.4."

26.4 Add new paragraph 5.3.5 as follows:

“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.”

26.5 Add new paragraph 5.3.6 as follows:

“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 5.3.6 will be made available to the Owner within 5 Working Days following receipt by the Contractor of a Notice in Writing making such request.”

27. C 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

27.1 Delete paragraph 5.4.3 in its entirety and substitute new paragraph 5.4.3:

“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 documentation described in paragraph 5.4.5, 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.”

27.2 Add new paragraph 5.4.4 as follows:

“Immediately following the issuance of a certificate of Substantial Performance of the Work, the Contractor shall publish the certificate referred to in paragraph 5.4.2.2 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.”

28. GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

28.1 Amend paragraph 5.5.1 by adding the words “and within 15 calendar days for the deliverables under paragraphs 5.5.1.1 and 5.5.1.2, and within 45 calendar days for the deliverable under paragraph 5.5.1.3,” immediately after “the Work,”.

28.2 Add new paragraph 5.5.1.3 as follows:

- .3 submit to the Consultant all specified as-built drawings, warranties, records, operation and maintenance manuals, data books, literature maintenance sheets, list of outstanding work and deficiency list, Certificate of Clearance from WSIB, and proof of publication of the certificate of Substantial Performance of the Work. Failure to submit all the foregoing material and documentation shall be grounds for the Consultant to reject the Contractor’s application for Substantial Performance of the Work.”

28.3 Delete paragraph 5.5.2 in its entirety and substitute new paragraph 5.5.2:

“After receipt of an application for payment of the holdback amount from the Contractor and other documents required under paragraph 5.5.1, and upon satisfying itself that the application for payment is a Proper Invoice, the Consultant will issue a certificate for payment of the statutory holdback amount. Where after thirty (30) days

following the publication of the certificate of Substantial Performance of the Work, pursuant to paragraph 5.4.4, the value of the Work remaining to be complete under the Contract, plus the estimated cost to repair any remaining deficiencies, exceeds the amount of the unpaid balance of the Contract Price (as determined by the Consultant, acting reasonably), the Owner may publish a Notice of Non-Payment of holdback in accordance with the *Construction Act* (Form 6) and retain an amount from the holdback to supplement the unpaid value of the Contract Price to secure the correction of deficiencies and completion of the Work.”

28.4 Delete paragraph 5.5.3 in its entirety and substitute “Intentionally left blank”.

28.5 Delete the first and second sentences in paragraph 5.5.4 and replace them with the following:

“The holdback amount authorized by the certificate for payment of the holdback amount issued by the Consultant, pursuant to paragraph 5.5.2, is due and payable on the 61st calendar day following the publication of the certificate of Substantial Performance of the Work referred to in paragraph 5.4.2.2.”

29. GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

29.1 Delete GC 5.6.1 in its entirety, and replace it with the following:

“Where legislation and the Contract Documents permit progressive release of the holdback for a portion of the Work and the Consultant has certified or verified that the part of the Work has been performed prior to Substantial Performance of the Work, the Owner will release such portion to the Contractor in accordance with such legislation.”

30. GC 5.7 FINAL PAYMENT

30.1 Delete GC 5.7 – FINAL PAYMENT in its entirety and substitute the following:

“5.7.1 When the Contractor considers that the Work is completed the Contractor may submit an application for final payment to the Owner and the Consultant.

5.7.2 After receipt by the Owner of an application for final payment submitted by the Contractor in accordance with paragraph 5.7.1:

- .1 the Owner and Consultant will assess whether all of the criteria for a Proper Invoice are satisfied and, if not the Owner will return the application for payment to the Contractor with reasons setting out why the application for final payment is not a Proper Invoice;
- .2 within 14 calendar days of receipt of the Proper Invoice (or on the next Working Day if the 14th day is not a Working Day), in the event that the Owner disputes the amount claimed as payable in the Proper Invoice, the Owner shall deliver to the Contractor an executed Notice of Non-Payment (Form 1.1); and
- .3 the Owner shall make payment to the Contractor 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.

5.7.3 Where the Owner has delivered a Notice of Non-Payment, as specified under paragraph 5.7.2.2, 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 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.

5.7.4 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 5.7.2.3.

- 5.7.5 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 5.7.2.3.
- 5.7.6 Notwithstanding anything else in this GC 5.7 – 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.
- 5.7.7 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.”

31. GC 5.8 WITHHOLDING OF PAYMENT

31.1 Add new paragraph 5.8.2 as follows:

“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 5.8.2, 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*.”

31.2 Add new paragraph 5.8.3 as follows:

“If because of climatic or other conditions reasonably beyond the control of the Contractor, there are items of work that cannot be performed, payment in full for that portion of the Work which has been performed as certified by the Owner shall not be withheld or delayed by the Owner on account thereof, but the Owner may withhold, until the remaining portion of the Work is finished, only such an amount that the Owner determines is sufficient and reasonable to cover the cost of performing such remaining work.”

31.3 Add new paragraph 5.8.4 as follows:

“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.”

31.4 Add new paragraph 5.8.5 as follows:

“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.”

32. GC 5.10 CONSTRUCTION LIENS

32.1 Add new GC 5.10 – CONSTRUCTION LIENS as follows:

“GC 5.10 – CONSTRUCTION LIENS

- 5.10.1 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.
- 5.10.2 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 or commence an application to the Court to 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.
- 5.10.3 If the Contractor fails or refuses to take such steps as required under paragraph 5.10.2, 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.
- 5.10.4 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.
- 5.10.5 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.”

33. GC 6.1 OWNER’S RIGHT TO MAKE CHANGES

33.1 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.”

33.2 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.”

34. GC 6.2 CHANGE ORDER

34.1 Add new paragraph 6.2.4 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.”

34.2 Add new paragraph 6.2.5 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.”

35. GC 6.3 CHANGE DIRECTIVE

35.1 Amend paragraph 6.3.6 in the second line by adding the word “actual” before the word “cost”.

35.2 Delete paragraph 6.3.6.3 in its entirety and substitute the following:

“.3 The Contractor’s fee shall be as specified in paragraphs 6.2.4 and 6.2.5.”

35.3 Amend paragraph 6.3.7 by adding the word “actual” before the word “cost” in line 1.

36. GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

36.1 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.”

36.2 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.”

36.3 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 3.14.1, 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.”

37. GC 6.5 DELAYS

37.1 Amend paragraph 6.5.1 by in the third line, after the word “Contractor” insert “and the Owner approves” and deleting all of the words in the fourth line following the word “for” and substituting the following:

“reasonable direct costs directly flowing from the delay but excluding any indirect, consequential, or special damages.”

37.2 Delete paragraph 6.5.2 in its entirety and substitute:

“If the Contractor is delayed in the performance of the Work by a stop work order issued by a court or other public authority 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) or the Consultant 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 Consultant may recommend in consultation with the Contractor and the Owner approves. 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."

37.3 Delete paragraph 6.5.3 in its entirety and substitute:

"6.5.3.1 If the performance of the Work or the performance of any other obligation(s) of 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 written notice 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."

37.4 Delete paragraph 6.5.4 in its entirety and substitute new paragraph 6.5.4:

"No extension of the Contract Time will be approved unless the Contractor notifies the Owner in writing within 3 Working Days of the date upon which the Contractor ought reasonably to have been aware of the delay contemplated in paragraph 6.5.3. For the written notice 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."

37.5 Add new paragraph 6.5.6 as follows:

"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 Agreement for each day of delay if Substantial Performance of the Work is not achieved in accordance with the Construction Schedule due to the delay. 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."

37.6 Add new paragraph 6.5.7 as follows:

"If the Contractor is delayed in the performance of the Work due to the replacement of a representative or a worker pursuant to GC 3.6.4 or 3.8.4, the Contractor shall pay to the Owner the per diem rate for liquidated damages specified in Article 10 of the Agreement for each day of delay if Substantial Performance of the Work is not achieved in accordance with the Construction Schedule due to the delay. 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. GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

38.1 Amend paragraph 7.1.2 by adding the words "including failing or neglecting to comply with the requirements in GC 3.5 – CONSTRUCTION SCHEDULE..." immediately following the word "properly" in line one.

38.2 Amend paragraph 7.1.3.1 as follows:

Insert after the word "commences" the words "and is diligently proceeding with".

38.3 Revise paragraph 7.1.3.2 by substituting the words "an acceptable schedule" with "a schedule acceptable to the Owner".

38.4 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*."

38.5 Amend paragraph 7.1.5.3 by substituting the words "the difference" at the end of paragraph 7.1.5.3 with the words "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 5.7 – FINAL PAYMENT".

38.6 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 5.10 – CONSTRUCTION LIENS".

38.7 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 written notice 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."

38.8 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."

38.9 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."

38.10 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."

38.11 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 any terms and conditions agreed upon by the Owner and the Contractor.”

38.12 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.”

39. GC 7.2 CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

39.1 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*.”

39.2 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 or the advice, recommendations and instructions of public health officials, directly by the Owner, the Owner’s other contractor(s) or the Consultant 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.”

39.3 Delete paragraph 7.2.3.1 in its entirety and replace them with “Intentionally left blank”.

39.4 Delete paragraph 7.2.3.3 in its entirety and substitute new paragraph 7.2.3.3:

“.3 the Owner fails to pay the Contractor when due the amount certified by the Consultant or awarded by arbitration or a Court, except where the Owner has a bona fide claim for set off; or”

39.5 Amend paragraph 7.2.3.4 by deleting the words “except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER”.

39.6 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*.”

39.7 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.”

40. GC 8.2 NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

40.1 Delete GC 8.2 – NEGOTIATION, MEDIATION, ARBITRATION, including all paragraphs thereunder and substitute the following:

“GC 8.2 – NEGOTIATION, MEDIATION, ARBITRATION AND ADJUDICATION

- “8.2.1 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 8.2.1.1, 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 8.2.1.3, 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 8.2.1.3, the Dispute may proceed to under either step as described in paragraphs 8.2.2 or 8.2.3.
- 8.2.2 If the Dispute remains unresolved despite the Parties’ attempting to resolve it following the process in paragraph 8.2.1, 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*. Where either party has delivered a notice of Adjudication in a form prescribed by the *Construction Act*, the procedures and rules set out under the *Construction Act* and the regulations thereto shall govern the Adjudication.
- 8.2.3 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).
- 8.2.4 If the Dispute remains unresolved despite the Parties attempting to resolve it following the process in paragraph 8.2.1, or following a determination of the Dispute pursuant to an Adjudication under paragraph 8.2.2, 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 8.2.1.2 or 8.2.1.3, 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 8.2.4, 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.
- 8.2.5 If neither party elects to proceed to mediation within the timelines outlined in paragraph 8.2.2 or 8.2.4, 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.
- 8.2.6 The timelines in paragraphs 8.2.1, 8.2.2 and 8.2.4 may be amended by mutual agreement of the parties.”

41. GC 8.3 RETENTION OF RIGHTS

41.1 Add new paragraph 8.3.3 as follows:

“If the Owner gives the notice in writing described in paragraph 8.2.6 to have a dispute resolved by arbitration, the Contractor agrees that this paragraph 8.3.3 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 8.3.3 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.”

42. 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.”

42.1 Delete paragraph 9.1.2 in its entirety and substitute 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 3.14.1.”

42.2 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 either the Owner or the Consultant. 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.”

43. GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

43.1 Add new paragraph 9.2.10 as follows:

“The Contractor shall indemnify and hold harmless the Owner, the Consultant, 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 12.1 – INDEMNIFICATION or which otherwise exist respecting a person or party described in this paragraph.”

44. GC 9.4 CONSTRUCTION SAFETY

44.1 Delete paragraph 9.4.1 in its entirety and substitute:

“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, including any advice, recommendations or instructions on physical distancing, cleaning or disinfecting during the COVID-19 pandemic 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 contractors as well as the Contractor’s employees,

Subcontractors and Suppliers. 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. ”

44.2 Add new paragraph 9.4.2 as follows:

“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*.”

44.3 Add new paragraph 9.4.3 as follows:

“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.”

44.4 Add new paragraph 9.4.4 as follows:

“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 Drug and Alcohol Policy, and with the Ontario Northland Operating Manual, including the Current Summary Bulletin, current Ontario Northland Time Table, C.R.O.R. 2015, Infrastructure Special Instructions, Dangerous Goods and Ontario Northland General Operating Instructions, as applicable.”

44.5 Add new paragraph 9.4.5 as follows:

“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.”

45. GC 9.6 IMPACT ASSESSMENT

45.1 Add new GC 9.6 as follows:

“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;

- .2 the Contractor shall immediately take reasonable steps, including stopping the Work if necessary, to ensure that any potential impacts are mitigated; and,
- .3 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;
- .2 not be entitled to request a Change Order relating to the failure to comply; and
- .3 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."

46. GC 9.10 ENVIRONMENTAL PROTECTION FOR CONSTRUCTION IN AND AROUND WATERBODIES

46.1 Add new GC 9.10 as follows:

- .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.
- .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 Consultant and the Owner of any such incidents. Failure to notify DFO of such incidents is a federal offence.
- .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.
- .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 Consultant or 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.

47. GC 9.11 ENVIRONMENTAL SPILLS AND RELEASES

47.1 Add new GC 9.11 as follows:

- .1 All spills and releases of hazardous substances in the course of the Work must be immediately reported by the Contractor to the Consultant and the Owner who will report the spill or release to the MOECP SAC. If the Consultant or the Owner is not available, the Contractor shall report the incident to the MOECP SAC and the ONTC RTC at 800-558-4129 X 141.
- .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 Consultant or the Owner may direct others to remedy the situation.
- .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.

.3 If the spill or release was not the fault of the Contractor, the Owner shall pay for the remedial work.

48. GC 10.1 TAXES AND DUTIES

48.1 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.”

48.2 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 or the Owner’s representative, 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 taxing or other authority, as may be required to give effect to this paragraph 10.1.3.”

48.3 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.”

48.4 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.”

48.5 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.”

48.6 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.”

49. GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

49.1 Delete paragraph 10.2.2 in its entirety and substitute the following:

“The Owner has Crown immunity from the *Building Code Act* and the *Planning Act* and will not be obtaining building permits or development approvals. The Owner shall obtain and pay for any permanent easements required for the completion of the Work. The Contractor shall be responsible for all other permissions for access to land.”

49.2 Add to the end of paragraph 10.2.4, the following words:

“Whenever standards of law, ordinances, rules, regulations, codes and orders relating to the Work differ, the most stringent standards shall govern.”

49.3 Amend paragraph 10.2.5 by adding the words, “Subject to paragraph 3.4.1” to the beginning of the paragraph.

- 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 Consultant.”

49.4 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 12.1.1, the Contractor agrees to indemnify and to hold harmless the Owner and the Consultant from and against any claims, demands, losses, costs, damages, actions, suits or proceedings resulting from such failure by the Contractor.”

49.5 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”.

49.6 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.”

50. GC 10.3 PATENT FEES

41.1 Delete paragraph 10.3.2 in its entirety.

51. GC 10.4 WORKERS’ COMPENSATION

51.1 Amend paragraph 10.4.1 in the first line by deleting the words, “...and the issuance of the final certificate of payment. . .” and replacing them with, “the issuance of the final certificate of payment and with all applications for payment”.

51.2 Add new paragraph 10.4.3 as follows:

“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.”

52. GC 11.1 INSURANCE

52.1 Add new paragraph 11.1.9 as follows:

"The minimum limits of insurance in this GC 11 – INSURANCE AND CONTRACT SECURITY and in CCDC 41 December 2020 shall be varied to provide the following:

- .1 General Liability Insurance shall have a deductible amount per occurrence of not more than \$50,000;
- .2 Contractor's Pollution Liability Insurance shall have a deductible amount per occurrence of not more than \$50,000; and;
- .3 Broad Form Property Insurance shall have a deductible amount not more than \$50,000.

53. GC 11.2 CONTRACT SECURITY

53.1 Add new paragraph 11.2.3 as follows:

"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*."

53.2 Add new paragraph 11.2.4 as follows:

"The bonds provided in accordance with paragraph 11.2.3 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 Consultant's 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."

53.3 Add new paragraph 11.2.5 as follows:

"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."

53.4 Add new paragraph 11.2.6 as follows:

"The Contractor shall be responsible for notifying the surety company of any changes made to the Contract during the course of the Work."

53.5 Add new paragraph 11.2.7 as follows:

"The premiums for bonds required by the Contract Documents shall be included in the Contract Price."

53.6 Add new paragraph 11.2.8 as follows:

"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, through the Consultant, with any such bonds that may be required."

54. GC 12.1 INDEMNIFICATION

54.1 Delete GC 12.1 – INDEMNIFICATION in its entirety and substitute the following:

“12.1.1 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.

12.1.2 GC 12.1 – INDEMNIFICATION shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.

12.1.3 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.

12.14 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.

12.15 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 Agreement 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.

12.16 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 governmental authority 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 Agreement;
- (c) a claim by any third party against the Owner alleging that the Deliverables 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.

55. GC 12.2 WAIVER OF CLAIMS

55.1 Delete GC 12.2 – WAIVER OF CLAIMS in its entirety and substitute the following:

“12.2.1 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 12.1 – 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.

12.2.2 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 9.3 – TOXIC AND HAZARDOUS SUBSTANCES, GC 9.5 – MOULD, or GC 10.3 – PATENT FEES.

12.2.3 GC 12.2 – WAIVER OF CLAIMS shall govern over the provisions of paragraph 1.3.1 of GC 1.3 – RIGHTS AND REMEDIES.”

56. GC 12.3 WARRANTY

- 56.1 Amend paragraph 12.3.2 by adding the words, "Subject to paragraph 3.4.1...." at the beginning of that paragraph.
- 56.2 Delete paragraphs 12.3.4, 12.3.5 and 12.3.6 and substitute the following paragraphs:
- "12.3.4 The Contractor shall correct promptly, 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 has been given to the Contractor prior to the expiration of the Warranty Period.
- 12.3.5 The Contractor shall, within fourteen (14) days after receiving written instructions from the Owner or the Consultant, unless otherwise agreed to by the Owner, make good, in a permanent manner satisfactory to the Consultant, any defects or deficiencies discovered in the work.
- 12.3.6 The decision of the Consultant shall be final as to the existence of such defects or deficiencies, the necessity of remedying same, and the remedial measures required.
- 12.3.7 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 and 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.
- 12.3.8 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.
- 12.3.9 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.
- 12.3.10 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.
- 12.3.11 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.
- 12.3.12 The Contractor's obligations under this GC 12.3 shall continue notwithstanding any withholding of payment made by the Owner under GC 5.8 – WITHHOLDING 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."

57. ADD NEW PART 13 AS FOLLOWS:

PART 13 OTHER PROVISIONS

57.1 GC 13.1 OWNERSHIP OF MATERIALS

“13.1.1 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 Consultant.”

57.2 GC 13.2 CONTRACTOR DISCHARGE OF LIABILITIES

“13.2.1 In addition to the obligations assumed by the Contractor pursuant to GC 3.7 – 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.”

57.3 GC 13.3 DAILY REPORTS/DAILY LOGS

“13.3.1 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.

13.3.2 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 3.5 – CONSTRUCTION SCHEDULE, and comparing that resourcing to the resourcing anticipated when the most recent version of the schedule was prepared pursuant to GC 3.5 – CONSTRUCTION SCHEDULE.”

57.4 GC 13.4 CONFIDENTIAL INFORMATION

- .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.
- .2 The Contractor must not, and must ensure that the Contractor’s personnel do not, without the prior written approval of ONTC:
 - (a) use Confidential Information other than as necessary for the purposes of fulfilling the Contractor’s obligations under this Contract; or
 - (b) 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).
- .3 The Contractor must, within 10 Business 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.
- .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.
- .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.

.6 The rights and obligations under this Part continue after the termination of this Contract.”

57.5 **GC 13.5 GENERAL**

“13.5.1 Nothing contained in this Agreement 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.

13.5.2 In addition to those provisions which are expressly stated to survive the termination or expiration of this Agreement, the provisions of this Agreement that are by their nature intended to survive termination or expiration of this Agreement shall continue in full force and effect subsequent to and notwithstanding termination or expiration until or unless they are satisfied.

13.5.3 This Agreement 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 Agreement 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

To satisfy the requirements for a Proper Invoice, the Contractor's application for payment must satisfy the following criteria:

- .1 it is in the form of a written bill, invoice, application for payment, or request for payment;
- .2 it is in writing;
- .3 it contains the Contractor's name, telephone number and mailing address and contact information of the Contractor's project manager;
- .4 it 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 it contains the date the written bill, invoice, application for payment, or request for payment is being issued by the Contractor;
- .6 it 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 approved 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 completion, 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 3.5 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 disposal 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.



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:

- 1) Holdback monies properly retained,
- 2) Payments deferred by agreement, or
- 3) 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 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):

Immediate Actions Taken:
 (Describe the activities/works that are being / have been immediately implemented. e.g. mitigation measures, damming / pumping etc.)

Photos: Attached
 (Where feasible, it is recommended that the photos be submitted with the form or as follow up)

PART 4: EMERGENCY WORKS

Description of Proposed Emergency Works:
 (Be as specific as possible. Describe what work will be undertaken within the next two weeks. E.g. culvert replacement (include existing and new culvert diameter / length / type), slope restoration (include material / method),:

Mitigation measures:
 (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.):

Indicate which of the works will be followed (if applicable):

<input type="checkbox"/> Beaver Dam Removal	<input type="checkbox"/> Culvert Maintenance
<input type="checkbox"/> Bridge Maintenance	<input type="checkbox"/> Like-for-like culvert replacement
<input type="checkbox"/> Ditch maintenance within 30 m of a waterbody	<input type="checkbox"/> Temporary watercourse crossing
<input type="checkbox"/> Riparian vegetation maintenance in existing right-of-way	

The Emergency Works are (check one):

<input type="checkbox"/> Temporary (additional work will be required)	<input type="checkbox"/> Final (no additional work required)
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Proposed Start Date: (YYYY/MM/DD)	Proposed End Date: (YYYY/MM/DD)
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PART 5: OTHER AGENCIES NOTIFIED

Other Agency(ies) Notified: Yes <input type="checkbox"/> No <input type="checkbox"/>	Agency(ies) Notified:
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Date Notified:	Incident Report No. (if issued by notified Authority):
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END OF SUPPLEMENTARY CONDITIONS

**ONTARIO NORTHLAND – SPECIAL SUPPLEMENTARY CONDITIONS – SCHEDULE OF PRICES
REV 26 MAR 2024**

These Special Supplementary Conditions amend the CCDC 4 Agreement and General Conditions and the Ontario Northland Supplementary Conditions – CCDC 4-2011 – Rev 15 NOV 2023. These Special Provisions take precedence over any other provision in any of the Contract Documents.

SSC 1. The Ontario Northland – Supplementary Conditions – CCDC 4 – 2011 – Rev 15 NOV 2023 are hereby amended as follows:

(a) Add new supplementary condition 2A as follows:

“2A ARTICLE A-4 CONTRACT PRICE

2A.1 In Article A-4.1, delete the first sentence and replace it with the following:

The *Schedule of Prices* forms the basis for determining the *Contract Price*. Quantities for *Unit Price* items in the *Schedule of Prices* are estimated.

(b) Delete SC 5.9 and replace it with the following:

“5.9 Delete the definition of “Contract Price” and replace it with the following:

Contract Price

The *Contract Price* is the amount payable by the *Owner* to the *Contractor* for the performance of the *Work* in accordance with the *Unit Prices* established in the *Schedule of Prices* and the method and manner of payment stipulated in the Contract, which is estimated to be the price stipulated in Article A-4.4, including any additional or reduced amounts payable for approved changes in the *Work* as provided for and authorized by the *Owner*.”

(c) Add new SC 5.18.1 as follows:

“Delete the definition of “Schedule of Prices” and replace it with the following:

Schedule of Prices

The *Schedule of Prices* means the following schedule, approved by the *Owner*, subject to adjustment as provided in the *Contract Documents*:

- Schedule A – Schedule of Quantities and Prices RFP 2024 012 – ONTC Bridge Rehabilitation – Mile 162.00 Island Falls Subdivision.