

NORTH SUSPENSION FOOTBRIDGE FOUNDATIONS REHABILITATION

Lagoon City

Tender Document

21004652-B0

Tender Closing

April 25th, 2024
2:00 PM

Tender Questions

April 11th, 2024
2:00 PM

LATE TENDERS WILL NOT BE ACCEPTED

File:

Prepared by:

Prepared for:

21004652-B0 **EXP Services Inc**
220 Commerce Valley Drive West,
Markham, Ontario L3T 0A8

Date:

T 905-695-3217

**February 23rd,
2024** **exp.com**

The Corporation of the Township of Ramara
2297 Highway 12, P.O. Box 130
Brechin, Ontario L0K 1B0

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(OPSS.MUNI 100 - Nov 2019)

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INSTRUCTIONS TO BIDDERS

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1 Instruction to Bidders

To be read in conjunction with the Ontario Provincial Standard General Conditions of Contract, OPSS.MUNI 100, November 2019.

1.1 DEFINITIONS

Bidder	a person or entity that is submitting a Tender in response to the Tender process
Closing Date and Time	has the meaning ascribed thereto in Section 1.12: Tender Closing
Contract	an agreement to be signed between the Owner and a successful Bidder pursuant to this Tender process
Contract Administrator	EXP Services Inc. or any other person or entity as may be authorized or appointed by the Owner to act on behalf of the Owner in any particular capacity
Contract Documents	the documents listed in Section 7: Schedule of Drawings, Specifications, Standards & Conditions of Contract
Contractor	the successful Bidder pursuant to this Tender process that has executed a Contract
Consulting Engineer	EXP Services Inc. or any other engineer as may be authorized or appointed by the Owner to act on behalf of the Owner in any particular capacity
Engineer	EXP Services Inc. or any other engineer as may be authorized or appointed by the Owner to act on behalf of the Owner in any particular capacity
OPS	the Ontario Provincial Standards
Owner	the Owner as described in Section 6 of the Agreement
Point of Tender Delivery	the location identified in Section 1.4: Office of the Consulting Engineer and Section 1.12: Tender Closing
Project	the Work generally described in Section 1.3: Scope of Work and in the Contract Documents listed in Section 7
Proper Invoice	an invoice submitted by the Contractor to the Owner and the Contract Administrator in accordance with the Construction Act in the format described in Section 8.3.10
Start Work Order	the document in writing, referred to in the Tender Form that is issued by the Owner and that authorizes the Contractor to begin the work
Tender	the tender documents issued by the Owner in respect of a specific opportunity and also refers to the documents submitted by a Bidder in response to this Tender process
Tender Documents	the documents listed in Section 1.10: Tender Submission
Work	the Work to be performed by a Contractor pursuant to a Contract issued as a result of this tender as described in the Contract Documents and includes, but is not limited to, the work generally described in Section 1.3: Scope of Work

1.2 LOCATION OF WORK

The location of the work is as follows:

- 24.4 m span pedestrian suspension bridge over the canal, located between 15 and 17 Poplar Crescent in Lagoon City, refer to ST-1 for location plan.

1.3 SCOPE OF WORK

The general scope of work is as follows:

- Supply and setup of temporary floating work platform(s) over canal watercourse around existing bridge foundations to facilitate construction operation area and to accommodate for the construction equipment(s);
- Installation of temporary bracing to stabilize/protect existing A-Frames of the bridge;
- Provide drainage control for drill flushes and cuttings, containment systems around existing pile caps/foundations to prevent materials, debris and effluent arising from the work from falling into the watercourse;
- Installation of micropile foundations;
- Installation of steel supporting frame to connect micropile foundation to existing A-Frames;
- Removal of floating platform(s), temporary bracing and containment systems.
- Restoration of all disturbed areas

1.4 OFFICE OF THE CONSULTING ENGINEER

The office of the Consulting Engineer is as follows:

EXP Services Inc.

905-695-3217

**220 Commerce Valley Drive West
Markham, Ontario L3T 0A8**

1.5 PROJECT MANAGER

The Project Manager is as follows:

Amir Khalil, P.Eng.

**905-695-3217, 416-316-8122
Amir.Khalil@exp.com**

1.6 TENDER DOCUMENTS & DRAWINGS

Drawings and Contract Documents for the work may be obtained from Biddingo.com

and the Township of Ramara website.

There will be no consideration of any claim after submission of Tenders that there is a misunderstanding with respect to the conditions imposed by the Contract.

Each Bidder must satisfy themselves, by their own study of the Drawings and Contract Documents, by calculation and by personal inspection of the site respecting the conditions existing or likely to exist in connection with the execution of the Work, as to the practicability of completing the Work successfully within the stipulated time.

The Ontario Provincial Standard Specifications (OPSS), Ontario Provincial Standard Drawings (OPSD), and the standard drawings and specifications of the municipality having jurisdiction over the work shall govern the work under this Contract except as otherwise noted. All bidders on this tender shall obtain their own current copies of these Standard Specifications and Drawings.

1.7 BIDDER EXAMINATION

The Bidder shall visit the site of the Work and carefully investigate all conditions potentially affecting the Work and how it is to be completed, with respect to site access, working area, storage areas, local features, including private property and utilities, as well as any other conditions that may influence the undertaking and/or pricing of the Work.

The Bidder shall examine all Contract Documents, Specifications, Drawings and Reports to ensure that the scope of Work and the conditions of the Contract are clear.

A Geotechnical Report is NOT available for this site.

The Bidder may carry out such further investigations as are necessary to inform them of the subsurface conditions, which will be encountered during Construction of the Works with the approval of the Owner(s) of said lands. The arrangements for such investigations should be made with the Engineer, the Owner and any other appropriate authorities.

1.8 TENDER CORRESPONDENCE & QUESTIONS

All correspondence (with the exception of the tender submission) shall be directed to the Project Manager. Emails shall reference the tender number in the subject line of the email.

Amir Khalil

Amir.Khalil@exp.com

Bidders may submit questions regarding the tender up to the Time Limit for Questions, which is:

April 11th, 2024

Questions are to be submitted via mail or email to the Project Manager at the office of the Consulting Engineer. Bidders shall be responsible to ensure proper receipt of questions.

Where the Consulting Engineer deems that an explanation or interpretation is necessary or desirable, an Addendum will be issued to all Bidders. Addenda will normally be issued via email.

No oral explanation or interpretation provided by the Consulting Engineer or any other person during the tender period shall modify any of the requirements or provisions of the Tender Documents.

1.9 TENDER SUBMISSION

Bidders shall submit the following forms complete in all respects:

- | | |
|--|---------------------|
| ▪ Tender Form | Section 2 |
| ▪ Schedule of Items & Prices | Section 3 |
| ▪ List of Subcontractors & Suppliers | Section 4 |
| ▪ Bidder's Ability & Experience Form | Section 5 |
| ▪ All Addenda issued during the Tender Process | duly signed |
| ▪ Tender Security | as specified herein |

Each Tender must be fully legible, signed, sealed and witnessed in the spaces provided, with the signature of a responsible officer of the Bidder.

All Sections of the Tender Documents must be completed in ink, with all of the blank spaces completed. All items shall be tendered according to instructions in the Tender Documents, with entries made for unit price, lump sums, extensions and totals as appropriate.

Bidders may submit the entire document if they so desire.

Tenders are to be sealed in an envelope bearing the contract number and name of the bidder.

Tenders WILL NOT be accepted via email.

1.10 TENDER SECURITY

A Tender Security document is required to accompany the tender in the amount of:

\$15,000

The Tender Security is to be a certified cheque made payable to the Owner. If Section

1.10 allows submissions via email, a properly completed bid bond shall be submitted in electronic format with the tender submission.

The Bidder agrees that, if they should withdraw their Tender or fail for any reason to execute the agreement or provide the required bonds or other documents required, the Owner may retain the Tender Security for the use of the Owner and may accept any other Tender, advertise for new Tenders, or not accept any Tender as the Owner deems advisable.

The Tender Securities for the 3 low bidders shall be retained until the expiration of the tender period of validity or a contract is executed, whichever is shorter.

1.11 TENDER CLOSING

Tenders will be received at the Township of Ramara via mail, courier or personal delivery to the drop box at the Township Administration Building up to the Closing Date and Time noted below. Each Tender will be marked with the time and date it is received.

April 25th, 2024

The bidder is responsible to confirm receipt of the tender package prior to the closing of tenders. Tenders received after the Official Closing Date and Time, regardless of manner of delivery, shall not be considered. The manner of delivery of any Tender shall be at the risk of the Bidder.

If Section 1.10 allows submissions via email, then the bid submission must be received at the email address provided no later than the Closing Date and Time. Potential for delays in the delivery of electronic submissions shall be at the risk of the Bidder.

1.12 TENDER OPENING

Tenders will be opened privately immediately following the closing of Tenders.

1.13 TENDER AMENDMENT OR WITHDRAWAL

A Bidder who has already submitted a tender may submit a further tender at any time up to the official Closing Date and Time of tenders. The last tender received shall supersede and invalidate all tenders previously submitted by that Bidder for this Contract.

A Bidder may withdraw their tender at any time up to the official closing Date and Time by submitting a letter bearing their signature and seal as in their tender to the Township of Ramara.

1.14 INFORMAL TENDERS

Tenders that are incomplete, conditional, illegible or obscure or that contained additions not called for, reservations, erasures, alteration or irregularities of any kind, may be rejected as informal. Bidders are required to fill in all the blanks. Wherever in a Tender that an item's total tendered amount does not agree with the extension of estimated quantity and the tendered unit price, the unit price shall govern and the total tender price shall be corrected accordingly. Tenders that contain prices which appear to be so unbalanced as likely to adversely affect the interests of the Owner may be rejected at the Owner's sole discretion.

1.15 DISQUALIFICATION OF TENDER

Tenders will not be opened and are disqualified if they are received after the closing time and date of tenders.

Tenders may be declared invalid and disqualified if presented as follows:

- with blank spaces missing required information;
- with additions uncalled for;
- unbalanced;
- conditional;
- qualified;
- irregular;
- without the tender security in the prescribed form;
- unsigned and unsealed;
- illegible;
- obscure; or
- completed in pencil.

1.16 RIGHT TO ACCEPT OR REJECT

Contract award will be by written notification from the Owner to the successful Bidder, if any. The Bidder acknowledges that the Owner shall have the right to reject any, or all Tenders for any reason, or to accept any Tender which the Owner in its sole

discretion deems most advantageous to itself. The lowest or any Tender shall not necessarily be accepted.

1.16.1 Consideration for Award

Consideration for award shall only be undertaken in relation to Bidders who are determined by the Owner to have satisfied all requirements of the Tender.

The Owner hereby reserves the right, privilege, entitlement and absolute discretion, and for any reason whatsoever to:

1. accept a Tender which is not the lowest Tender submission, or reject a Tender that is the lowest Tender even if it is the only Tender received;
2. cancel this Call for Tenders at any time, either before or after the Closing Date and Time;
3. accept the Tender deemed most favourable to the interest of the Owner or that may provide the greatest value, advantage and benefit to the Owner based upon and not limited to:
 - i. price
 - ii. ability
 - iii. quality of work
 - iv. service
 - v. past experience
 - vi. past performance
 - vii. qualification
4. accept or reject any and all Tenders whether in whole or in part;
5. with the exception of disqualified Tenders, waive any informalities, requirements, discrepancies, errors, omissions, or any other defect of deficiencies in any Tender Form or Tender submission;
6. award any part of any Tender;
7. accept or reject any unbalanced, irregular, or informal Tenders; or
8. reject any Bidder who is involved in litigation with the Owner.

1.16.2 Evaluation of Tender

The owner reserves the right to consider, during the evaluation of tenders:

1. information provided in the Tender itself;
2. information provided in response to enquiries of credit, experience and industry references set out in the Tender;
3. information received in response to enquiries made by the Owner of third parties apart from those disclosed in the Tender in relation to the reputation, reliability, experience and capabilities of the Bidder;
4. the manner in which the Bidder provides services to others;
5. the experience and qualification of the Bidder's senior management, and project management; and
6. the compliance of the Bidder with the Owner's requirements and specifications.

The Bidder acknowledges that the Owner may rely upon these and any other criteria, which the Owner deems relevant; even though such criteria may not have been disclosed to the Bidder. By submitting a Tender, the Bidder acknowledges the Owner's rights under this Section and absolutely waives any right, or cause of action against the Owner and its Engineer, by reason of the Owner's failure to accept the Tender submitted by the Bidder, whether such right or cause of action arises in Contract, negligence, or otherwise.

1.17 MATERIAL INCORPORATED INTO THE WORK

All material incorporated into the work and necessary for the proper completion of the work including testing and certification shall be supplied by the Contractor unless otherwise noted.

All material supplied by the Contractor shall be new. In no case is material to be remanufactured, factory reconditioned, or recycled from the site unless specifically approved and tested by the Engineer.

1.18 CONTRACT

The party to whom the Contract is awarded will be required to execute the Agreement contained herein in triplicate and to furnish a certified copy of a satisfactory insurance policy referred to in Section 6 within 7 days not including Sunday or a legal holiday, after notification (by mail or email) by the Owner to them at their business address stated in their Tender, of the award of the Contract to them. Should the said party fail to execute this Agreement within the time stipulated above, the Tender Security accompanying their Tender (if applicable) shall be forfeited to the Owner.

1.19 INSURANCE

The Successful Bidder shall be required to provide a certified copy of an insurance policy covering the types of insurance required under the OPS General Conditions of Contract November 2019. As a minimum the Contractor shall provide general liability insurance per GC 6.03.02 and automobile liability insurance per GC 6.03.03.

The minimum amount shall be \$5,000,000 exclusive of interest and cost.

Where aircraft are used the Contractor shall supply aircraft liability insurance per GC 6.03.04.01. Where watercraft are used the Contractor shall supply watercraft insurance per GC 6.03.04.02. Where buildings are erected the Contractor shall supply all risks property insurance per GC 6.03.05.01. Where pressure vessels are installed the Contractor shall supply boiler insurance per GC 6.03.05.02.

General liability insurance shall list as additional insured to the Contractor, the Owner and Owner's agents, and/or the Municipality and their agents, EXP Services Inc., and/or the Consulting Engineer and Contract Administrator in the same manner and to the same extent as if a separate policy had been issued for each.

In addition to the above requirements, if blasting operations are used in the Contract, the Contractor shall take out and keep in force an insurance policy providing coverage for blasting operations to the same limits as set out in the OPS General Conditions of Contract including coverage, as indicated above.

1.20 WORKPLACE SAFETY & INSURANCE BOARD CLEARANCE

The Successful Bidder shall supply a Certificate from the Workplace Safety and Insurance Board indicating that they are in good standing with the Board prior to the start of construction, with each request for payment, and at any other time when requested by the Engineer.

1.21 STARTING DATE

No work shall begin until the Engineer has issued a Start Work Order. The Start Work Order will be issued once the Contractor has provided all forms, permits, plans, schedules, insurance forms etc. to the satisfaction of the Engineer and all permits and approvals for the work are in place. **Bidders are advised the Township has made a submission to Lake Simcoe Region Conservation Authority and work may not proceed until this approval is secured.**

1.22 PROGRESS & COMPLETION

The Bidders attention is drawn to the Substantial Performance and Contract Completion dates stipulated in the Tender Form (Section 2), with due consideration to the Liquidated Damages Clause in General Conditions Supplementary Section 8.3.17. The Contractor shall be required to submit a detailed Schedule of Work as set out in the Special Provisions prior to starting work.

The Contractor shall advertise the Certificate of Substantial Performance in the Daily Commercial News (DCN) and shall pay all related costs. The Contractor shall be responsible to provide proof of publication prior to release of holdback.

1.23 TESTING & CERTIFICATION

All works constructed shall be subjected to testing, inspection and recording of their location. The Contractor shall test the works and/or make the works available for testing. The Contractor shall make the works available for inspection by the Engineer.

The Engineer shall certify the work unless specified elements of the work require specific design and certification by the supplier. Where specific certification is required this shall be included in the cost of the element.

The Contractor shall perform all testing of inground works for certification and repeat until all work is successfully tested.

1.24 AS-BUILT INFORMATION

The Contractor shall reasonably assist the Engineer with gathering field information as a check for compliance with the design. The Contractor shall be responsible to gather detailed as-built information and communicate any variances from the design immediately to the Engineer. The Contractor's as-built information shall be provided to the Engineer in digital (AutoCAD) format. The Engineer's check of compliance with design shall not relieve the Contractor from the responsibility to construct the works according to the "approved for construction" drawings and specifications.

1.25 TAXES

The Tendered unit and lump sum prices submitted by the Bidder shall **exclude** the Federal Harmonized Sales Tax (HST). Payment of the HST shall be added to the monthly payment certificates. Payment of the HST shall be contingent upon the submission of the Contractor's HST Registration Number.

1.26 FAIR WAGES

The Bidder's attention is drawn to the Fair Wages and Labour and Conditions

applicable to this Contract as outlined in the General Conditions Supplementary.

1.27 OCCUPATIONAL HEALTH & SAFETY ACT

The Contractor by executing the Contract, unequivocally acknowledges that they are the “Constructor” within the meaning of the Occupational Health and Safety Act and the Contractor undertakes to carry out the duties and responsibilities of “Constructor” with respect to the Work.

1.28 CONSTRUCTION ACT

The Contract shall be administered in full compliance with the Construction Act. In any instances where any part of the Tender and/or Contract Documents are not in agreement with the Construction Act, the Construction Act shall govern.

1.29 ACCESSIBILITY

Contractors shall be compliant with the “Accessible Customer Service Standard”, Ontario Regulation 429/07 made under the “Accessibility for Ontarians with Disabilities Act” (AODA) 2005. Applicable policies and proof of employee training shall be provided upon request.

1.30 ROAD OCCUPANCY PERMITS

Prior to any work being undertaken, the Contractor shall obtain and pay for road occupancy permits from the appropriate municipality or regional authority. The permits obtained shall be taken out in the name of the Contractor.

1.31 TEST HOLES

Test holes WILL NOT be excavated by the Owner during the tender period.

1.32 PERMIT TO TAKE WATER

Not Applicable.

1.33 FREEDOM OF INFORMATION & PRIVACY

All bids submitted to the Owner being a Municipality become the property of the Owner and as such, are subject to the Municipal Freedom of Information and Protection of Privacy Act.

2

TENDER FORM

2 Tender Form

To: The Corporation of the Township of Ramara
2297 Highway 12 P.O. Box 130
Brechin, Ontario L0K 1B0

Attn: Cathy Wainman
Deputy Clerk

The undersigned has carefully examined the Instructions to Bidders, Tender Form, Schedule of Items and Prices, General Conditions, General Conditions Supplementary, Drawings, Specifications and Special Provisions for this Contract and acknowledges the same to be part of the Contract. Further, the undersigned has visited the site and studied all conditions therein which affect the Work and is fully informed as to the nature of the Work and the conditions relating to its performance.

The undersigned hereby proposes to furnish all plant, labour, and materials including in every case, freight, duty, exchange and sales tax in effect (excluding HST), except as otherwise specified and to complete the Work in strict accordance with the requirements of the Contract at the unit prices named in the Schedule of Items and Prices for the sum of:

in words \$

in numbers \$

The undersigned agrees to the following:

1. To execute the Agreement in triplicate and to furnish in triplicate to the Owner, the required certified copy of the Insurance Policy required under the Contract, construction schedule and, if required by the Owner, the Bonds as described in the Instructions to Bidders within 7 days, not including Sunday or a legal holiday, from the date of mailing or emailing of the notice of acceptance of this Tender by the Owner to the address stated hereunder.
2. This offer is to continue open to acceptance until the Contract is executed by the Successful Bidder or for a period of 60 days commencing from the Closing Date and Time of Tenders, whichever event first occurs and that the Owner may, at any time within that period, accept this Tender whether any other Tender has been previously accepted or not.
3. The Owner may reject any or all Tenders without explanation.
4. The Bidder shall have no claim against or entitlement to damages from the Owner by reason of the Owner rejecting its Tender or all tenders or by reason of any delay in acceptance of a Tender.
5. If requested in writing by the Owner, the undersigned will enter into a Contract with the Owner based upon his Tender but jointly in the names of the Bidder and the Bidder's parent company, if any. The Bidder further agrees that any request by the Owner as indicated above is not and shall not be deemed to be a counter-offer by the Owner.
6. This Tender is subject to a formal contract being prepared and executed by both parties.
7. No person, firm or corporation other than the Bidder has any interest in this Tender or in the proposed Contract for which this Tender is made.
8. This Tender is made without any connection, comparison of figures or arrangements with, or knowledge of, any other corporation, firm or person making a Tender for the same work and is in all respects fair and without collusion or fraud.
9. The Work will be commenced within 5 days of the issuance of a Start Work Order. A Start Work Order will be subject to receiving all approvals. It is expected that all approvals will be in place to issue the Start Work Order on:

July 18th, 2024

10. The Contract shall be Substantially Performed within the noted period following the Start Work Order or by the date noted below:

Four weeks

11. The Contract shall be Completed within the noted period following the Start Work Order or by the date noted below:

Six weeks

12. That the Tender documents submitted by the Bidder comprise the following:

initial

- Tender Form Section 2

- Schedule of Items & Prices Section 3

- List of Subcontractors & Suppliers Section 4

- Bidder’s Ability and Experience Forms Section 5

- Addenda ___ through ___

- Tender Security

13. That the Bidder is not entitled to payment for Contingency Items except for additional work carried out by him in accordance with the Contract and approved by the Contract Administrator and Owner and then only to the extent of such additional work.

The Bidder solemnly declares that the several matters stated in the foregoing Tender are in all respects true.

Authorized Officer: _____
print name

signature date

Witness _____
print name

signature date

Company Seal:

This Tender is submitted by:

Company Name: _____

Address: _____

Telephone: _____ Fax: _____

HST Registration: _____

Name & Title: _____

Signature of Bidder: _____ Date: _____

Company Seal:

3

SCCHEDULE OF ITEMS & PRICES

3 Schedule of Items & Prices

The Bidder shall tender a Total Tender Price for the Work based on this Schedule of Items and Prices

ITEM NO.	SP NO.	DESCRIPTION	UNIT	QTY.	UNIT PRICE	AMOUNT BID
1.1	2	Mobilization and Demobilization	LS	n/a		\$
1.2	3	Supply and Install Floating Platform to Allow for Work over Watercourse	LS	n/a		\$
1.3	4	Installation and Removal of Containment Systems to Protect Watercourse and Environment	LS	n/a		\$
1.4	5	Installation and Removal of Bracing to Stabilize/Protect A-Frames of Existing Bridge	LS	n/a		\$
1.5	6	Supply Equipment for Installing Micropiles.	LS	n/a		\$
1.6	6	Supply and Installation of Micropiles	per pile	8	\$	\$
1.7	7	Installation of Steel Supporting Frames to Connect Micropile Foundations to Existing A-Frames	LS	n/a		\$
1.8	8	Site Restoration	LS	n/a		\$
1.9	9	Contingency Allowance	LS	n/a		\$
Provisional Item						
2.1	10	Supply and Installation of Cable	m	n/a		\$
TOTAL TENDER PRICE (ITEMS 1.1 to 2.1)						\$

4

LIST OF SUBCONTRACTORS & SUPPLIERS

5

BIDDER'S ABILITY & EXPERIENCE

5 Bidder’s Ability & Experience

5.1 PROJECT EXPERIENCE

The Bidder shall provide information on 3 contracts in this class of work that has been undertaken over the past 5 years.

Project 1 _____ Year _____

Project Tender Value _____

Description of Work _____

Project Owner _____

Project Manager _____ Tel _____

Contract Completion Date (as per contract) _____

Substantial Completion Date _____

Additional Comments (optional) _____

Project 2 _____ Year _____

Project Tender Value _____

Description of Work _____

Project Owner _____

Project Manager _____ Tel _____

Contract Completion Date (as per contract) _____

Substantial Completion Date _____

Additional Comments (optional) _____

Project 3 _____ Year _____

Project Tender Value _____

Description of Work _____

Project Owner _____

Project Manager _____ Tel _____

Contract Completion Date (as per contract) _____

Substantial Completion Date _____

Additional Comments (optional) _____

Project 4 _____ Year _____

Project Tender Value _____

Description of Work _____

Project Owner _____

Project Manager _____ Tel _____

Contract Completion Date (as per contract) _____

Substantial Completion Date _____

Additional Comments (optional) _____

Reference Release: Authorization is hereby provided to the Consulting Engineer to contact the person or organizations listed above for the purpose of obtaining reference information relating to the Contractor and Subcontractor. These persons are authorized to disclose such information.

Name of Bidder _____

Signature of Bidder: _____

Date: _____

5.2 QUALIFICATIONS OF SENIOR SUPERVISORY STAFF

Senior Supervisory Staff as listed below cannot be changed without prior written approval of the Contract Administrator.

Name & Title _____
Qualifications
& Experience _____

Name & Title _____
Qualifications
& Experience _____

Name & Title _____
Qualifications
& Experience _____

Name & Title _____
Qualifications
& Experience _____

5.3 PROPOSED CONSTRUCTION EQUIPMENT FOR THIS CONTRACT

Equipment Available

Equipment to be Rented

Equipment to be Purchased

6

AGREEMENT

6 Agreement

This Agreement made in triplicate on _____ by and between:

Contractor:

and

Owner:

WITNESSETH

That, the Contractor for and in consideration of the payment specified in his Tender for this Work, hereby agrees to furnish all necessary plant, labour and materials, except as otherwise specified, and to complete the said Work in strict accordance with the Contract Documents, all of which are to be read herewith and form part of this present Agreement as fully and completely to all intents and purposes as though all the stipulations thereof have been embodied therein.

The Contractor further agrees that he will deliver the whole of the Work completed in accordance with the Agreement.

IN CONSIDERATION WHEREOF, the Owner agrees to pay to the Contractor for all Work done, the stipulated lump sum or sums in the Tender as enclosed herein. Holdbacks and Payment terms to be as stipulated in the Contract Documents.

THIS AGREEMENT SHALL ensure to the benefit of and be binding upon the heirs, executors, administrators, and assigns of the Contractor and on the heirs and successors of the Owner.

IN WITNESS WHEREOF, the Contractor and the Owner have hereunto signed their names and set their seals on the day first above written.

Signed & Sealed by the Contractor

Signature _____
I have the ability to bind the corporation

Name _____

Title _____

Date _____

Witness
Signature _____

Name _____

Signed & Sealed by the Owner

Signature _____
I/we have the ability to bind the corporation

I/we have the ability to bind the corporation

Name _____

Title _____

Date _____

Witness
Signature _____

Name _____

Date of Tender Submission

Total Tender Price

Contractor's HST No.

7

SCCHEDULE OF DRAWINGS, SPECIFICATIONS, STANDARDS & CONDITIONS OF CONTRACT

7 Schedule of Drawings, Specifications Standards & Condition of Contract

The Work specified in this contract will be performed in strict accordance with the following Drawings, Specifications, Standards and Conditions of Contract.

7.1 DRAWINGS

Drawing		Rev	Prepared by
ST-1	General Arrangement	1	Exp Services Inc.
ST-2	Temporary Works	1	Exp Services Inc.
ST-3	Rehabilitation Details	1	Exp Services Inc.

7.2 SPECIFICATIONS

Specifications	Section	Prepared by
Special Provisions	SP1 to SP10	Exp Services Inc.

7.3 STANDARDS

Refer to Contract Drawings for reference to applicable Municipal Standards, Ontario Provincial Standards and Standards of other authorities having jurisdiction.

7.4 CONDITIONS OF CONTRACT

Conditions of Contract	Section	Prepared by
Instructions to Bidders	1.1 – 1.33	Exp Services Inc.
General Conditions of Contract	Appendix A	OPSS.MUNI.100, Nov 2019
General Conditions Supplementary	8.1 – 8.10	Exp Services Inc.

It shall be the Contractor's responsibility to obtain copies of the current applicable Municipal standards, and the current Ontario Provincial Standard Specifications and Standard Drawings.

8

GENERAL CONDITIONS SUPPLEMENTARY

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8 General Conditions Supplementary

8.1 GENERAL CONDITIONS

The words General Conditions in this Contract mean the Ontario Provincial Standards General Conditions of Contract, as attached hereto.

If there is any discrepancy between the General Conditions and the General Conditions Supplementary, the General Conditions Supplementary will apply.

If there is any discrepancy between the General Conditions or General Conditions Supplementary and the Construction Act, the Construction Act shall govern.

8.2 DESIGNATION OF PARTIES

Where the word "Owner" is used in this Contract, it shall mean:

The Corporation of the Township of Ramara

Where the word "Contract Administrator", "Consulting Engineer" or "Engineer" is used in this Contract it shall mean:

EXP Services Inc.

or any other Engineer as may be authorized or appointed by the Owner to act on behalf of the Owner in any particular capacity.

Where the word "Contractor" is used in this Contract, it shall mean in every case the General Contractor, but where referred to in the trades it shall also mean the Subcontractor.

8.3 AMENDMENTS TO THE GENERAL CONDITIONS

8.3.1 Section GC1.04 of the General Conditions, Definitions

Amended by adding the following:

"Measured Quantity" means that quantity within the approved Limits of the Works, measured in the field.

8.3.2 Section GC2.01 of the General Conditions, Reliance on Contract Documents

Amended by adding the following:

- .02 a) A Geotechnical Report is not available for this project.
- b) A Geotechnical Report is not available for this project

8.3.3 Section GC2.02 of the General Conditions, Order of Precedence

Amended by deleting paragraph .01 and replacing it with the following:

.01 In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following descending order:

1. Agreement
2. Addendum(s) (if any)
3. Special Provisions
4. Contract Drawings
5. Instructions to Bidders
6. General Conditions Supplementary
7. Standard Specifications
8. Tender
9. General Conditions
10. Working Drawings

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

8.3.4 Section GC3.09 of the General Conditions, Subcontracting by the Contractor

Amended by the addition of the following:

.07 The Contractor shall submit a list of proposed subcontractors, showing the value of the work to be sublet to each. The value of the work sublet shall not exceed 50% of the total work.

8.3.5 Section GC7.03 of the General Conditions, Working Area

Amended by the addition of the following:

- .06 Materials and/or Equipment shall **not** be stored within 3 metres of the travelled portion of any roadway.
- .07 Notwithstanding the foregoing, the Contractor shall, at their own expenses, remove any equipment or material which in the Engineer's opinion, constitutes a traffic hazard.

- .08 The storage of materials and equipment on-site is limited and subject to the Owner's approval. The Contractor shall allow for off-site storage in their tendered price.

8.3.6 Section GC7.06 of the General Conditions, Maintaining Roadways and Detours

Amended by deleting paragraph .10 and replacing it with the following:

- .10 Where, the Walkway, Bridge and the underneath Canal Waterway are closed and the pedestrian and/or boat traffics diverted entirely off to the detour routes, the Contractor shall, at no extra cost to the Owner, supply, erect, and maintain traffic control devices in accordance with the approved Working Drawings, and to the satisfactory of the Contract Administrator

8.3.7 Section GC7.16 of the General Conditions, Warranty

Amended by deleting paragraph .02 and replacing it with the following:

- .02 The Contractor guarantees that with ordinary wear and tear, the Work shall, for a period of 12 months from the Date of Substantial Performance of the Work or where there is no Substantial Performance Certificate, of 12 months from the date of completion of the Work as set out in the Completion Certificate, or such longer periods as may be specified for certain materials or Work, remain in such condition as will meet the approval of the Engineer, and that the Contractor will upon being required by the Engineer, make good in permanent manner, satisfactory to the Engineer, any imperfections due to materials or workmanship used in the construction of the Work. The decision of the Engineer is to be final as to the nature and cause of such imperfections and the necessity for remedying same. Should the Contractor fail to comply with the directions of the Engineer, the Engineer may, after giving the Contractor 24 hours written notice perform the necessary work, and the cost thereof may be deducted from the Contractor or their Surety jointly or severally in any court of competent jurisdiction as a debt due to the Owner. If the Engineer notifies the Contractor in writing of imperfections prior to the termination of the Warranty Period, then the Contractor shall make good the imperfections as specified above, notwithstanding that the Work may commence after or extend beyond the end of the warranty period.

8.3.8 Section GC 8.01.01 of the General Conditions, Quantities

Amended by the addition of the following:

- .04 The Contract Administrator, Contractor or the Owner may dispute the quantity that is specified for payment on a plan quantity basis. Where there is a dispute, this

shall be supported by calculations, drawings, and any other evidence indicating why the plan quantity is believed to be in error. If the plan quantity is found to be in error, payment will be made in accordance with the adjusted plan quantity.

8.3.9 Section GC 8.01.02 of the General Conditions, Variations in Tender Quantities

Amended by the addition of the following:

- .02 Tender Items noted as "provisional" can be deleted, used in part or exceed the estimated quantity with payment based on the final measurement and tendered unit prices. The owner will not accept any claim for monies lost by the Contractor due to the above for any reason.

8.3.10 Section GC 8.02.04.01 of the General Conditions, Progress Payment

Amended by deleting paragraph .02 h) and replacing it with the following:

- .02 h) In support of the Proper Invoice, the Contractor shall submit to the Contract Administrator, except the first Proper Invoice, a Statutory Declaration regarding Payment of Accounts in a form acceptable to the Owner, signed by an authorized signing officer of the Contractor stating that all workers employed by the Contractor in the performance of the Contract have been paid in full and in accordance with the requirements of the Contract not less frequently than semi-monthly and up to and including the pay-day immediately preceding the date of the declaration and that all other liabilities incurred by the Contractor arising out of work performed or materials supplied as set forth in the monthly estimate relating to the last monthly statement previously submitted have been discharged. The Owner may issue a Notice of Non-Payment if the Contractor fails to submit such a declaration or if the Contractor submits an improperly completed declaration.

8.3.11 Section GC 8.02.04.01 of the General Conditions, Progress Payment

Amended by adding the following:

- .05 Payment of a Proper Invoice submitted by the Contractor shall not bind the Owner in his evaluation of the Works completed.
- .06 Fifteen percent (15%) of the value of contract items which must be tested or for which as-built information must be gathered may be retained to guarantee the quality of the work performed and shall be termed Testing/As-Built Holdback. The Testing/As-Built Holdback shall reduce the value of the work completed to date on the progress certificate. The Testing/As-Built Holdback will be gathered if in the opinion of the Contract Administrator the testing of contract

work is not being pursued in a timely manner. Work has proceeded without required testing or as-built information has not been gathered and recorded. The Testing/As-Built Holdback shall be released in the monthly Progress Payment Certificate after the work has been satisfactorily tested, inspected and approved by the Engineer. The Contractor shall present the as-built drawings with the payment claim for review by the Engineer showing the information gathered.

- .07 Ten percent (10%) of all monies due to the Contractor in accordance with the Proper Invoice shall be retained by the Owner and shall be termed Statutory Holdback in accordance with the Construction Act.
- .08 Prior to Substantial Performance an additional two and one-half percent (2.5%) of all monies due to the Contractor in accordance with the Proper Invoice shall be retained by the Owner and shall be termed Warranty Holdback. Upon application by the Contractor, contract items may be removed from the aggregate value of work complete for which the warranty holdback applies.
- .09 The warranty holdback shall be paid to the Contractor at the expiration of the Warranty Period and upon issuance of the Final Acceptance Certificate.

8.3.12 Section GC 8.02.04.04 of the General Conditions, Certificate of Substantial Performance of work Amended by adding the following:

- .07 The Work will be deemed to be substantially performed when:
 - a) the Work to be performed under the Contract or a substantial part thereof is ready for use or is being used for the purpose intended;
 - b) the Work to be performed under the Contract is capable of completion or, where there is a known defect, the cost of correction is not more than:
 - 3% of the first \$1,000,000 of the Contract price,
 - 2% of the next \$1,000,000 of the Contract price, and
 - 1% of the balance of the Contract price.
 - c) The Contract Administrator has verified the works have satisfactorily passed the required inspection and testing and has verified the Contract has been substantially performed.
- .08 For the purposes of this Contract, where the Work or a substantial part thereof is ready for use or is being used for the purposes intended and the remainder of the Work cannot be completed expeditiously, for reasons beyond the control of the Contractor or, where the Owner and the Contractor agree not to complete the Work expeditiously, the price of the services or materials remaining to be supplied and

required to complete the Work shall be deducted from the Contract price in determining Substantial Performance.

- .09 In accordance with the Construction Act, a 10% Finishing Holdback will be captured for works completed after the issuance of the Certificate of Substantial Performance. The Finishing Holdback will be released upon the issuance of a Final Acceptance Certificate by the Contract Administrator.

8.3.13 Section GC 8.02.05.05 of the General Conditions, Payment for Material

Amended by deleting paragraph .01 and replacing it with the following:

- .01 The Owner will pay the Contractor for Material used on each Time and Material project at 105% of the cost of the Material.

8.3.14 Section GC 8.02.05.06.01 of the General Conditions, Payment for Equipment – Working Time

Amended by deleting paragraphs .01, .02 and .03 and replace with the following:

- .01 The Owner will pay the Contractor for the Working Time of all equipment other than Rented Equipment and Operated Rented Equipment used on the Work on a Time and Material Basis at 60% of the 127 Rates.
- .02 The Owner will pay the Contractor for the Working Time of Rented Equipment used on the Work on a Time and Material at 105% of the invoice price approved by the Contract Administrator up to a maximum of 60% of the 127 Rate. This constraint will be waived when the Contractor Administrator approves the invoice price prior to the use of the Rented Equipment.
- .03 The Owner will pay the Contractor for the Working Time of Operated Rented Equipment used on the Work on a Time and Material at 105% of the Operated Rented Equipment invoice price approved by the Contract Administrator prior to the use of the equipment on the Work on a Time and Material Basis.

8.3.15 Section GC 8.02.05.08 of the General Conditions, Payment for Work by Subcontractors

Amended by deleting paragraph .01 and replacing it with the following:

- .01 Where the Contractor arranges for Work on a Time and Material Basis, or a part of it, to be performed by Subcontractors on a Time and Material basis and has received approval prior to the commencement of such work, in accordance with the requirements of subsection GC 3.09, Subcontracting by the Contractor, the Owner will pay the cost of Work on a Time and Material Basis by the Subcontractor calculated as if the Contractor had done the Work on a Time and Material Basis, plus a 5% mark-up.

8.3.16 Section GC8.02.06 of the General Conditions, Final Acceptance Certificate

Amended by the addition of the following:

- .03 No certificate other than the Final Acceptance Certificate shall be deemed to imply approval of any part of the Work or of the Contractor's due performance of the Contract or any part thereof.

8.3.17 Section GC8.02.09 of the General Conditions, Liquidated Damages

Amended by deleting paragraph .01 and replacing it with the following:

- .01 a) It is agreed by the parties to the Contract that in case all the work called for under the Contract is not finished or completed by the Completion Date stipulated in the Tender Form, damage will be sustained by the Owner and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Owner will sustain in the event of and by reason of such delay and the parties hereto agree that the Contractor will pay to the Owner the sum of \$500 for liquidated damages for each and every working day delay in finishing the work in excess of the dates of completion prescribed. It is agreed that this amount is an estimate of the actual damage to the Owner which will accrue during the period in excess of the completion dates stipulated. In addition to the above amount per day Liquidated Damages charge, the Contractor shall pay to the Owner in respect of additional site supervision, office supervision and administration caused by the delay in finishing the Work in excess of the completion dates stipulated.
- b) The Owner may deduct any amount due under this paragraph from any monies that may be due or payable to the Contractor on any account whatsoever. The liquidated damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Owner.

8.4 PAYMENTS

Payments shall be made in accordance with the Construction Act.

8.5 NIGHT, WEEKEND & HOLIDAY WORK

Working hours are to be in accordance with relevant Municipal By-Laws. No night work will be permitted except in the case of an emergency and then only with the written permission of the Engineer and to such extent as they deem necessary. However, the Engineer reserves the right to order any work under this Contract to be undertaken at night

and the Contractor shall comply with such an order and shall carry out all night work with adequate illumination and with due respect for the noise restrictions requested by local residents or authorities having jurisdiction consistent with the faithful performance of the work.

Night shall be defined as that time after sunset and before sunrise.

No Sunday work will be permitted except in the case of emergency and then only with written permission of the Engineer and to such extent, as they deem necessary.

Except in cases of emergency and then only with the consent in writing of the Engineer, the Contractor shall not work on any Saturday or Statutory Holiday. In the case the Contractor desires to work on a Saturday or Statutory Holiday he shall request in writing the permission of the Engineer. This request shall be at least four (4) days in advance of such holiday stating those places where such work will be conducted. In case the Contractor fails to give such notice in advance, no work within the terms of the Contract shall be done on such Saturday or Statutory Holiday. The Contractor is responsible for obtaining approval from authorities having jurisdiction over local noise bylaws for such work.

The above provisions shall not apply to any maintenance operations, which the Contractor is required to perform under this Contract or as required by the Engineer at any time including Nights, Saturdays, Sundays and Statutory Holidays.

Prior to moving off the job before each weekend, Public Holiday or any other non-working day, the Contractor shall erect all signs, barricades and lights so that they will remain in place during the period of absence. The roadway shall be graded to provide a smooth travelling surface and water and calcium chloride added where necessary or as directed by the Engineer.

The Contractor shall provide the Engineer with the name and telephone number of their project superintendent or other reliable supervisor who can be contacted during the Contractor's absence from the job. Such person shall be responsible for inspecting the job periodically during the Contractor's absence and shall check all signs, barricades and lights and repair the roadway surface as required. No additional payment will be made for this work.

8.6 DEFECTIVE WORK

The Contractor shall, at any time when so required by the Engineer, during construction or during the warranty period, make such openings, and to such extent through any part of the Work as the Engineer may direct, which he shall forthwith make good again to the satisfaction of the Engineer. Should the work so opened be found in the opinion of the Engineer, faulty in any respect, the whole of the expense, including the cost of inspection, shall be borne by the Contractor, but if the work so opened up be found in perfect condition,

the said expense shall be borne by the Owner.

All defective work or materials discovered by these or any other means must be forthwith wholly removed, and made good by the Contractor, to the satisfaction of the Engineer and the whole cost of such renewal, including the cost of materials, labour, and inspection shall be borne by the Contractor. Should the Contractor refuse to make such renewals as are ordered by the Contract Administrator, then the Contract Administrator will order to proceed with the work in any manner the Contract Administrator may deem fit. The cost of such work shall be paid by the Contractor or deducted from any monies due, or if necessary, deducted from the Contractor or their Surety jointly or severally in any court of competent jurisdiction as a debt due to the Owner.

8.7 SITE MEETINGS

The Contractor shall attend a pre-construction meeting and weekly meetings with the Contract Administrator at the contract site or as directed by the Contract Administrator to discuss the progress of the Work and co-ordinate the work of utilities. The Contractor's Superintendent shall attend this meeting. Minutes of Meetings shall be recorded and shall be binding on both parties to the Contract.

8.8 LABOUR CONDITIONS & FAIR WAGES

Labour Conditions and Fair Wages are to be in accordance with the current schedule.

8.9 WORKPLACE SAFETY & INSURANCE BOARD CLEARANCE CERTIFICATE

The Contractor shall provide the Engineer with a copy of the Workplace Safety and Insurance Board Clearance Certificate indicating the Contractor's good standing with the Board:

- Immediately prior to the Owner authorizing the Contractor to commence any Work.
- In support of a Proper Invoice
- Prior to the issuance of the Certificate of Substantial Performance.
- Prior to the expiration of the Warranty Period.
- At any other time when requested by the Engineer.

8.10 SILTATION & EROSION CONTROL MEASURES

The Contractor shall install siltation and erosion control measures in accordance with OPSS.MUNI.805 as required and as directed by the Engineer, prior to the start of any Work. All siltation and erosion control measures shall be inspected and maintained for the duration of the Contract.

9

SPECIAL PROVISIONS

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9 Special Provisions

These Special Provisions are based on Ontario Provincial Standard Specifications. The Standard Specifications together with the following Special Provisions shall apply to this Contract. The Special Provisions shall take precedence over the Standard Specifications.

The Work under this Contract shall include all work within the Limits shown on the drawings and in addition shall include the work on private property where required such as the grading of boulevards. The Contractor shall obtain permission to enter such properties when required.

SP1 GENERAL WORK

Special Provision

SP1.1 Scope

The Contractor shall perform all the general work covered by the following Specifications.

SP1.2 Schedule of Work

Upon being awarded the Contract, the Contractor shall forthwith supply to the Engineer for their approval a copy of their detailed planned Schedule of Work, showing clearly that the Work will be completed within the stipulated time. No work shall commence on the Contract until the Engineer has approved the Schedule of Work.

The Schedule of Work shall indicate proposed progress in 1-week periods for at least the following work as applicable:

- Mobilization and installation of temporary bracing to stable existing A-frames of bridge;
- Installation of temporary floating work platform(s) and containment systems for watercourse protection;
- Installation of micropiles;
- Installation of steel supporting frame to connect micropile foundation to existing A-frames of bridge;
- Removal of temporary floating work platform(s), temporary bracing and containment systems; and
- Site restoration and demobilization.

SP1.3 Performance Bond & Labour and Materials Payment Bond

Not Required.

SP1.4 General Liability & Automobile Liability Insurance

The Contractor shall provide insurance in accordance with the Instructions to Bidders. Proof of this insurance must be provided to the Engineer, prior to commencing the Work.

SP1.5 Permits & Fees

The Contractor shall obtain all necessary permits and approvals required for this Contract and pay all respective fees.

SP1.6 Field Office

A field office is not required.

SP1.7 Winter Work

No payment will be made for protection of the Work as required by these Specifications for Winter Conditions. The Contractor shall schedule their work to avoid placing concrete in Winter Conditions and to avoid freezing of granular material during the operations employing these materials.

SP1.8 Materials Supplied by the Contractor

The Contractor shall base their Tender on the materials specified as to quality and price. The Contractor may, however, after acceptance of their Tender, request permission to substitute alternative material where “other approved” is allowed in the specification. Should the Engineer not approve such alternative material, the Contractor shall have no claim whatsoever against the Owner.

All material supplied by the Contractor shall be new, in no case remanufactured or factory reconditioned and in no case recycled from any site unless specifically approved and tested by the Engineer.

SP1.9 Testing of Material

The Contractor shall submit samples of Granular materials (if applicable) and the mix designs of concrete grout within two weeks after award of the Contract for approval by the Engineer, unless specified elsewhere in the Contract Documents.

No material shall be placed until approved.

SP1.10 Temporary Water & Power

The Contractor shall make arrangements for the supply of temporary water and power.

SP1.11 Existing Utilities, Water Mains & Sewers

The Contractor shall be responsible for obtaining information in regard to the exact location of buried utilities, sewers and water mains including existing service connections. This shall include excavation of inspection holes if necessary.

It shall be the Contractor’s responsibility to contact all Utility Companies regarding their scheduling of work.

SP1.12 Dust & Silt Control

The Contractor will be responsible for dust control at all times during construction as directed by the Engineer. No separate payment will be made for dust control but shall be part of the General Work of the Contract.

The Contractor shall be responsible for mud tracked off the site. The mud mats used to stop mud tracking off

site shall be maintained throughout the construction and any mud/soil tracked off site shall be cleaned as required to keep external road systems clean and safe for all traffic.

SP1.13 Disposal of Materials

The Contractor shall dispose of all waste surplus materials in the areas approved by the Engineer. The Contractor shall be responsible for all work and costs involved in disposing waste or excess material including trucking, access roads and levelling. All work shall be in accordance with OPSS.MUNI 180.

SP1.14 Traffic Control

The pedestrian bridge and the underneath canal navigation waterway shall be closed for the duration of the construction activities. The contractor is responsible for provision of all required signage and traffic control devices.

SP1.15 Fencing

Snow fence shall be erected in areas where there exists, in the opinion of the Engineer, a danger to pedestrian or vehicular traffic. Snow fence is to provide a highly visible barrier to the perceived danger and is not to be confused with guard rails, safety barriers, safety fencing or hoarding. No separate payment will be made for fencing but shall be part of the General Work of the Contract.

SP1.16 As-Built Drawings

The Contractor shall provide as-built drawings and information through the course of the work ready for review by the Engineer at any time. The drawings and information shall be reviewed with every progress claim, and shall include:

- a clean set of “approved for construction” with red line revisions showing the as-built information;
- drawings shall be signed by the author; and
- drawings may be accompanied by digital record.

SP1.17 Measurement & Payment

No measurement of quantities will be made for the General Work. No direct payment will be made for any of this General Work. The Contractor shall allow in the unit prices bid for all labour, material and equipment necessary for the general work described herein or specified elsewhere in the contract.

SP2 MOBILIZATION AND DEMOBILIZATION

Special Provision

The scope of work shall include:

- The supply, installation, maintenance and removal of site privy (if applicable).
- The supply, installation and maintenance of all remaining temporary facilities and other items not required to form part of the permanent works and not covered by other items in the Schedule of Items and Prices.

- All labour, equipment and material required to transport and remove equipment and materials to and from the site, including surplus and unsuitable materials.

No measurement for payment will be made for this item.

Payment at the Contract lump sum price shall be full compensation for all labour, equipment and material to do the work. Payment will be made at 60% on the first Progress Payment Certificate and 40% on the Substantial Performance Payment Certificate.

SP3 SUPPLY AND INSTALL FLOATING PLATFORM TO ALLOW FOR WORK OVER WATERCOURSE

Special Provision

Under this item, the Contractor shall select and/or determine / design, supply and install temporary access / floating work platforms around the existing bridge foundations and proposed micropile locations over the watercourse to

- Be adequate and capable to accommodate the weight / load of the construction equipments, materials, working crew, etc., plus the load induced by the operation of the construction equipments to carry out all the required work in a safe manner;
- Be properly fastened and secured in place against water wave throughout the work;
- Conform to the requirements of the Ontario Occupational Health and Safety Act and Regulations for Construction Projects, O. Reg. 213/91, and all of its amendments;
- Provide guard rails and/or fall arrest systems (as required) to safely complete the work;
- Comply with the standards of the Environment (Protection) Act;
- Comply with the standards of the Federal Fisheries Act;
- Be removed and disposed safely upon completion of the work.

The Contractor shall investigate site condition includes canal width, navigation clearance and water depth, range of water level rise and down, to ensure the suitability for the use / placement of the said access / platforms.

It is the Contractor's responsibility to ensure the delivery of the said access / platforms to the final site position is feasible whether transportation / shipping by highway or waterway.

Work area is within the Watershed of Lake Simcoe. The Township is working to obtain a Lake Simcoe Conservation Region Authority permit, the Contractor shall comply with said permit.

The Contractor shall be aware of the potential for the water level in the canal to rise dramatically over a short period of time. The Contractor shall continually monitor the weather forecast and, monitor the water level and assess the risk of the work area flooding accordingly. The Township will not accept any claim for demobilization or remobilization to the work area due to flooding.

The Contractor must set adequate measure to prevent damage to existing bridge, adjacent properties, canal bank walls and the surrounding environment, during the storm / flood, and / or windy day events throughout the work.

The Contractor shall submit to the Contract Administrator for review a detailed proposal for the select / design of temporary access / floating work platforms. The proposal shall outline:

- Style / shape, size and material, assembly details, draught of the work platforms, etc.;
- details for delivery, shipping method and required clearance / dimensions.
- Character such as resist to the water wave, securing measure against water;
- Loading capacity and available top working area of the work platforms;
- Weight, size, operation load of the proposed construction equipment to be loaded;
- Plan drawing shown the canal waterway, existing bridge, properties, etc., and the size and final location of temporary access / work platforms on site, “to scale”.

The Contract Administrator’s review shall not release the Contractor from their responsibility and liability for any damage or any consequence as a result of inadequate select / design, non-compliance with governing legislation, improper erection /installation or misuse of these systems.

If, upon review of the proposal, the design appears to the Contract Administrator to be insufficient or inadequate, the design will not be utilized in the completion of the work and will be returned to the Contractor for revision. No claim for additional costs or delays associated with revisions and resubmissions shall be considered.

Work shall not proceed until the Contract Administrator has reviewed the proposal and provided authorization for the Contractor to proceed with the work.

All proposal submitted should bear the seal and signature of a Professional Engineer licensed to practice in the Province of Ontario. The same Engineer shall be responsible for both the design and inspection of the access and work platforms (on site)

There will be no separate measurement for payment.

Payment for this work shall be at the Contract lump sum price and shall be full compensation for all design, materials, tools and equipment, labour, supervision and inspection services necessary to satisfactorily complete the work.

Payment will be made at the rate fifty percent (50%) of the Contract lump sum price upon erection and satisfactory operation of the systems, forty percent (40%) pro-rated over the duration of the work and the final ten percent (10%) of the Contract lump sum price for removal of the systems.

SP4 INSTALLATION AND REMOVAL OF TEMPORARY BRACING TO EXISTING A-FRAMES

Special Provision

Under this item, the Contractor shall design / detail, construct, maintain, monitor, adjust, and remove the temporary bracing system required to protect the stable of steel A-frame of the existing footbridge as specified on the Contract Drawings, for the duration of the work.

Work under the item shall conform to OPSS.MUNI 907 – November 2021, and the CSA S6-19 Canadian Highway Bridge Design Code.

Alternative design scheme maybe acceptable, the Contractor shall demonstrate that the proposed design scheme (as detailed by him on the submitted shop drawings) is suitable for the imposed loads, existing ground conditions, available materials, available equipments and the design criteria either shown on the drawings or identified in the specification.

Submissions and reviews thereof prior to the start of installation of the bracing system shall conform to the requirements of OPSS.MUNI 907 – November 2021.

Temporary bracing system shall be removed and disposed safely upon completion of the work.

There is no measurement for payment.

Payment at the Contract lump sum price shall be full compensation for all design, labour, equipment and materials to complete the work.

SP5 ENVIRONMENT PROTECTION MEASURE, INSTALLING AND REMOVAL OF CONTAINMENT SYSTEM

Special Provision

Under this item, the Contractor shall:

- 1) design and develop the environment protection scheme / plan - the plan as shown in the Contract Drawings is schematic only. The Contractor is wholly responsible for the adequacy of the plan. The working drawings signed and sealed by a Professional Engineer licensed in the Province of Ontario, shall be submitted to the Contract Administrator for review and approval three weeks prior to the work commencing.
- 2) be advised that the environment protection plan shall include the temporary containment system, tarps, or other necessary mechanisms suit the construction work area / stages, to prevent materials, debris and effluent arising from the work, soil, and/or vegetation from the banks, falling into the watercourse. Furthermore, the system shall be sealed sufficiently to prevent the release of sediment from the work area into the surrounding waterbody. Any material entering the canal shall be immediately removed.
- 3) determine the timing of this submission to ensure that approval from the Conservation Authority is secured prior to commencing construction.
- 4) supply and install, maintain, monitor, adjust or relocate the system as per approved working drawings and as directed by the Contract Administrator.
- 5) remove and depose the system safely upon completion of the work.

Work to be in accordance with OPSS.MUNI 182 and OPSS.MUNI 805, and addition requirement below:

- Any heavy-duty silt fence proposed for use on this project shall be in accordance with OPSD 219.131.
- Environmental protection measures in accordance with OPSS.MUNI 805 shall be constructed by the Contractor if the banks of the canal become disturbed by the Contractor's activity. All disturbed areas must be stabilized and re-vegetated immediately following completion of the work and restored to its pre-disturbed state or better.

- All materials and equipment used for the project shall be operated and stored in a manner that prevents deleterious substances from entering the canal. All stockpiled materials should be stored and stabilized away from the water. Vehicle and equipment refueling and maintenance must be carried out at least 30 metres away from the canal in a designated area to prevent discharge of petroleum products into the canal. Any part of equipment entering the canal shall be free of fluid leaks and externally cleaned/degreased to prevent pollution of the water.
- The Contractor shall amend the temporary system immediately if any part of the work is found to be ineffective at the sole discretion of the Contract Administrator.
- Contractor is advised that the Contract Administrator will be completing inspections of all environmental protection measures on a regular basis and following each rain event. Where deficiencies are noted, they will be brought to the Contractor's attention and the Contractor will be provided 24 hours to complete the required repairs. If the repairs are not completed within this time frame, the Owner may choose to hire a third-party company to correct the deficiencies and all charges for such shall be incurred by the Contractor.

Payment at the Contract lump sum price shall be full compensation for all labour, equipment and material to do the work. Payment will be made at 50% on the first Progress Payment Certificate and 50% on the Substantial Performance Payment Certificate.

SP6 SUPPLY EQUIPMENT FOR INSTALLING MICROPILES, MICROPILES

Special Provision

1.0 SCOPE

This Special Provision covers the requirements for the installation of grouted micropiles as shown on the Contract Drawings.

1.01 Qualifications of the Contractor

As part of the submission requirements, the micropile contractor/subcontractor shall submit their qualifications and experience for the installation and testing of grouted micropiles. The contractor shall demonstrate that they have successfully completed projects of similar scope, working condition and complexity.

The Contractor shall be experienced in the construction and load testing of micropiles and have successfully constructed at least 3 projects in the last 5 years involving construction of similar micropiles to those required in the Contract Drawings.

The Contractor shall submit construction documents from at least three different previous projects, to confirm that the Contractor had experience in the micropile drilling, installing and grouting in the soil/rock similar to this project conditions (includes successful load test results).

2.0 REFERENCES

This Special Provision refers to the following standards, specifications or publications:

Ontario Provincial Standard Specifications, General and Construction:

OPSS 180	Management of Excess Material
OPSS 903	Deep foundations
OPSS 904	Concrete Structures
OPSS 905	Steel Reinforcement for Concrete
OPSS 906	Structural Steel

Ontario Provincial Standard Specifications, Material:

OPSS 1002	Aggregates – Concrete
OPSS 1301	Hydraulic Cementing Materials
OPSS 1302	Water
OPSS 1303	Admixtures for Concrete
OPSS 1350	Concrete - Materials and Production
OPSS 1440	Steel Reinforcement for Concrete
OPSS 1840	Non-Pressure Polyethylene Plastic Pipe Products

Canadian Standards Association Standards, CSA:

A23.1-14/A23.2-14	Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practice for Concrete
A283-19	Qualification Code for Concrete Testing Laboratories
G30.18-09 (R2019)	Carbon Steel Bars for Concrete Reinforcement
G40.20/G40.21-13	General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels
W59-13	Welded Steel Construction

American Society for Testing and Materials Standards, ASTM:

A722/A722M-18	Standard Specification for High-Strength Bar for Prestressing Concrete
A252/A252M-19	Standard Specification for Welded and Seamless Steel Pipe Piles
D1143M-20	Standard Test Methods for Deep Foundation Elements Under Static Axial Compressive Load
D1784-20	Standard Classification System and Basis for Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
D3350-21	Standard Specification for Polyethylene Plastic Pipe and Fittings Material
D4380-20	Standard Test Method for Determining Density of Construction Slurries

American Society of Civil Engineers (ASCE):

ASCE 20-96 Standard Guidelines for the Design and Installation of Pile Foundations

International Organization for Standardization/International Electrotechnical Committee, ISO/IEC

DIS 17025:1999 General Requirements for the Competence of the Testing and Calibration Laboratories

American Petroleum Institute (API)

5CT (N-80)	Specification for Casing and Tubing
5D (N-80)	Specification for Drill Pipe
13A	Drilling Fluid Materials, 18th Edition, 01.10.06
RP 13B-1	Standard Procedure for Field Testing Water Based Drilling Fluids, 4th Edition

Others:

Post Tensioning Institute Publications - Recommendations for Prestressed Rock and Soil Anchors – 1996.
Canadian Foundation Engineering Manual (CFEM), 4th Edition.

FHWA NHI-05-039: Micropile Design and Construction Reference Manual, December 2005.

3.0 DEFINITIONS

For the purposes of this Special Provision, the following definitions apply:

Admixture means a substance added to the grout to either control bleed and/or shrinkage, improve flowability, reduce water content, retard setting time, or resist washout.

Bond Length means the length of the micropile that is bonded to the ground and capable of transferring the applied axial loads to the surrounding soil or rock.

Bond-Breaker means a sleeve placed over the reinforcement steel to prevent load transfer.

Casing means a steel pipe introduced during the drilling process to temporarily stabilize the drill hole and permanently reinforce the pile.

Centralizer means a device used to centrally locate the reinforcing element(s) within the casing and/or borehole to ensure that minimum grout cover is provided.

Central Bar or Central Steel means steel reinforcing bars or pipes used to strengthen or stiffen the pile, excluding any left-in drill rod or casing.

Coupler means a device used to transmit load from one partial length of reinforcement to another.

Design Engineer means the Engineer (licensed by the Professional Engineers of Ontario to practice in the Province of Ontario) retained by the Contractor who produces the Working Drawings.

Design Load (DL) means the anticipated final maximum service load in the micropile. The design load includes appropriate factors to ensure that the overall structure has adequate capacity for its intended use.

Duplex Drilling means a drilling system involving the simultaneous rotation and advancement of (inner) drill rod and (outer) drill casing in which the cuttings from the inner drill rod exit the borehole via the annulus between the rod and the casing.

Encapsulation means a corrugated or deformed tube protecting the reinforcing steel against corrosion.

Micropile means a bored, cast-in-place pile containing steel reinforcement, designed to accept load (axial, bending or lateral) directly, and transfer it to an appropriate bearing stratum.

Overburden means a non-lithified material, natural or placed, which normally requires cased drilling methods to provide an open borehole to underlying strata.

Post-Grouting means the injection of additional grout into the load transfer length of a micropile after the Primary grout has set.

Primary Grout means Portland cement based grout that is injected into the micropile hole prior to or after the installation of the reinforcement to provide the load transfer to the surrounding ground along the micropile and

affords a degree of corrosion protection when the micropile is in compression.

Quality Verification Engineer (QVE) means an engineer who has a minimum of five (5) years experience in the field of design and/or installation of micropiling or alternatively has demonstrated expertise by providing satisfactory quality verification services for the work at a minimum of two (2) projects of similar scope to the Contract. The Quality Verification Engineer shall be retained by the Contractor to certify that the work is in general conformance with the Contract Documents and to issue Certificate(s) of Conformance.

Reinforcement Steel means the steel component(s) of the micropile which accepts and/or resists applied loadings. This includes the central steel bar and/or the permanent steel casing.

Rotary Percussive Duplex (Concentric) means a drilling system involving the simultaneous rotation, percussion and advancement of an (inner) drill rod and an (outer) drill casing in which the cuttings from the inner drill rod exit the borehole via the annulus between rod and casing.

Rotary Percussive Duplex (Eccentric or Lost Crown) means a drilling system involving the simultaneous rotation, percussion and advancement of an (inner) drill rod combined with an eccentric underreaming bit and an (outer) drill casing in which the cuttings from the inner drill rod exit the borehole via the annulus between rod and casing. Previously called the Overburden Drilling Eccentric (ODEX) System.

Sheathing means a smooth or corrugated piping or tubing that protects the reinforcing steel against corrosion.

Spacer means a device used to separate elements of a multiple-element steel bar reinforcement.

Tremie Grouting means the placing of grout in a borehole via a grout pipe introduced to the bottom of the hole.

Ultimate Grout-To-Ground Bond Value means the estimated ultimate geotechnical unit grout-to-ground bond strength selected for use in design.

4.0 DESIGN AND SUBMISSION REQUIREMENTS

4.01 Construction Site Visit and Site Survey

Before bidding the Work, the Contractor and Micropile Subcontractor shall review the available subsurface information and visit the site to assess the site geometry, equipment access conditions, and location of existing structures and above ground facilities.

One week prior to commencing any work associated with the micropile operation, the Contractor shall submit to the Contract Administrator, a condition survey of property and structures that may be affected by the work. The survey shall include, but not be limited to, the locations and conditions of existing suspension pedestrian bridge, adjacent properties, canal bank wall structure, underground structures and utility services.

4.02 Working Drawings Design and Submission Requirements

4.02.01 Design Requirements

The Contractor shall choose the construction platform, equipment and methods, suitable for the current site conditions and the restrictions of the property right-of-way. The micropile drilling shall cause no damage or movement to the existing suspension pedestrian bridge includes the superstructure and its foundations, or adjacent properties, canal bank wall structure and/or utility services.

The Contractor shall be responsible for the stable of the existing bridge during the construction period as specified in SP4 of Section 9 of this SPEC.

The Contractor shall design/detail and provide the site drainage control for the proper dispose of drill flush and drill cuttings during micropile installation; the containment systems to prevent materials, debris and effluent arising from the work from falling into the watercourse. The control/ prevent systems shall be installed and removed to suit the construction stages.

4.02.02 Working Drawings and Construction Submittals

At least three (3) weeks prior to the commencement of the micropile installation operations, the Contractor shall submit the Working Drawings to the Contract Administrator for review. The Working Drawings, format 11'x17', shall seal and bear the signature of the Design Engineers.

The Contract Administrator will approve or reject the Contractor's submittal within 15 calendar days after receipt of a complete submission. If revisions are necessary, the Contractor shall make the necessary corrections and resubmit the drawings. The Contractor will not be allowed to begin micropiles construction or incorporate materials into the work until the submittal requirements are satisfied and found acceptable to the Contract Administrator. Changes or deviations from the approved submittals must be re-submitted for approval. No adjustments in contract time or delay or impact claims will be allowed due to incomplete submittals.

Working drawings shall be revised when plan dimensions are changed due to field conditions or for other reasons. Revised design calculations signed by the approved licensed professional engineer shall be submitted for all design changes made during the construction of the micropiles.

Information to be shown on the Working Drawings and Construction Submittals shall describe and illustrate the complete details of the micropile installation, include, but not limited to the following:

- a) Plans, Elevations and Sections
 - i. Site conditions include but not limited to, canal waterway, existing bridge and the temporary bracing, right-of-way restrictions and temporary construction easement limits, adjacent properties, bank wall structures and/or service, or other potential interferences, work platforms, location of site drainage control and containment systems elements, as mentioned at 4.02.01
 - ii. Micropile locations, spacing, identification numbers and design load
 - iii. General notes for constructing the micropiles including construction methods, sequencing and other special construction requirements, material for micropile components
 - iv. Anticipated total micropile length, casing diameter, casing plunge length, uncased bond length and estimated bond stresses, rock socket hole diameter
 - v. Micropile components and their typical sections,
 - vi. Details, dimensions of steel casing, central bars, corrosion protection, grout, pile top attachment
 - vii. A listing of the summary of estimated quantities
 - viii. Procedures for monitoring micropile installation

- b) Materials
 - i. Physical properties of reinforcement steel (central bar and casing)
 - ii. Physical properties of pile top attachment
 - iii. Bond length grout materials and mix proportions
 - iv. Corrosion protection material physical/mechanical properties

- c) Micropile Installation
 - i. Schedule of major equipment resources
 - ii. Information on floating work platform (if using) arrangement and set-up, headroom and space requirements for installation equipment that verifies the proposed equipment(s) can perform at

- the site, measures to avoid impact to existing bridge, bank wall structures and/or service
 - iii. Sequence of pile installation and coordination of work
 - iv. Proposed start date and time schedule
 - v. Plan describing how drill flush, cuttings, and excess waste grout will be controlled & disposed
 - vi. Proposed grouting plan and detailed procedures.
- d) **Micropile Construction Details**
- i. Detailed step-by-step description of the proposed construction procedures. This step-by-step procedure shall be shown on the working drawings in sufficient detail to allow the Contractor Administrator to monitor the construction and quality of the micropiles.
 - ii. Method of drilling the micropile holes and maintaining the stability of the holes during the micropile installation.
 - iii. Method to be employed to penetrate the boulders while minimizing the surface ground movement at the adjacent structure.
 - iv. Detailed description of the drilling equipment and materials including drill bit/auger diameter and lengths, casing diameter and lengths, flush type, slurry materials or other materials (if applicable) to facilitate the construction of the micropile hole.
 - v. Method of verifying the lengths of micropile holes.
 - vi. Method of placing and centering the central bar reinforcement steel including the method used to maintain it in the centre of the hole over the design bond length.
 - vii. Detailed description of the grout mixing procedure and the method of grout installation and placement. The description shall include the grout pressures and details of the procedure(s) for assuring that the annulus between the outside of the micropile casing and bedrock is completely filled with grout during the installation.

4.02.04 Pre-installation Meeting

A pre-installation meeting will be scheduled by the Contractor Administrator and held prior to the start of micropile construction. The Contractor Administrator, Contractor, micropile subcontractor, and geotechnical instrumentation specialist (if applicable) shall attend the meeting. Attendance is mandatory. The pre-installation meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the prime Contractor and the various Subcontractors - specifically those pertaining to working platform preparing for micropile structures, anticipated subsurface conditions and micropile installation, micropile survey control and site drainage control.

4.02.04 Mill Certificates

The Contractor shall submit to the Contract Administrator at the time of delivery to the job site, one copy of the certified mill test reports, indicating that the steel meets the requirements for the appropriate standards for casing and central bar reinforcement, plates and shapes. The ultimate strength, yield strength, elongation, and material properties composition shall be included. For steel pipe used as permanent casing, the Contractor shall submit a minimum of two representative coupon tests or mill certifications on each load delivered to the project.

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 DIS 17025 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.

4.02.05 Grout

The Contractor shall submit to the Contract Administrator a suitable, site specific grout mix design, including details of all materials to be incorporated, and the procedure for mixing and placing the grout. This submittal shall include certified test results verifying the acceptability of the proposed mix designs. The acceptability of the mixes will be further verified on site prior to production.

4.02.06 Installation Records

The Contractor shall submit micropile installation records, signed by the Quality Verification Engineer, to the Contract Administrator, within 3 business days after installation is completed. The installation records for each pile shall include the following information:

- a) Pile identification number and location, as marked in the Working Drawings;
- b) Pile drilling duration, including date of installation and start and finish time;
- c) Pile drilling observations, including nature of and variation in cuttings return, penetration rates for each 0.5 m of penetration, presence of boulders or obstructions, connections between holes, top of weathered bedrock, top of competent bedrock;
- d) Information on depth of drilling and soil and rock types encountered, including description of strata, depth to water, etc.;
- e) Sequence of installation;
- f) Inclination and direction;
- g) Final tip elevation;
- h) Casing tip elevation;
- i) Cut-off elevation;
- j) Length and diameters of all components;
- k) Bar length, spacers/coupler details;
- l) Description of unusual installation behaviour, conditions;
- m) Any deviations from the intended parameters, exceptions and “unusual” events;
- n) Grout pressures attained, where applicable;
- o) Grout mix proportions;
- p) Grout quantities pumped;
- q) Pile materials and dimensions;

4.02.07 Quality Control

4.02.07.01 Interim Inspections during Installation of Micropiles

The Quality Verification Engineer shall conduct Interim Inspections of the:

- a) drilling (including depth, diameter and cleaning/flushing of the rock sockets);
- b) casing installation (including cleanliness of casing and size of annulus between casing and the bedrock);
- c) central bar reinforcement steel placement (including cleanliness of central bar); and,
- d) grouting (including in particular that the annulus between the casing and the bedrock is completely filled with grout).

The above shall be carried out for each individual micropile to verify that the works are constructed in general conformance with the Contract Documents and Working Drawings.

4.02.07.02 Certificate of Conformance

The Contractor shall submit, to the Contract Administrator, a Certificate of Conformance upon completion of all of the micropile installations. The certificate shall be sealed, signed and dated by the QVE. The certificate shall state that all of the micropiles have been supplied and installed in general conformance with the Contract Documents and Working Drawings.

4.02.08 As-Built Drawings

As-built drawings shall be submitted to the Contract Administrator in a reproducible format prior to final acceptance of work. The as-built drawings shall bear the seal and signature of the Quality Verification Engineer.

5.0 MATERIALS

5.01 Water

Water for mixing grout shall be according to OPSS 1302.

5.02 Admixtures

Admixtures shall be according to OPSS 1303. Admixtures which control bleed, improve flowability, reduce water content, and retard set may be used in the grout only if the admixture manufacturer certifies that their use will not affect the required properties of the grout. Expansive admixtures shall only be added to the grout used for filling sealed encapsulations (if used). Accelerators and admixtures with chlorides shall not be permitted. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations.

5.03 Cement

Conforming to OPSS.MUNI 1301, the type of cement used shall be suitable for the required use of the grout. Accelerators shall not be used.

5.04 Fillers

Inert fillers such as sand may be used in the grout in special situations (e.g., presence of large voids in the ground, when grout take and travel are to be limited) and only if the QVE certifies that their use will not affect the required properties of the grout.

5.05 Grout

The grout mix materials and procedures for placement and testing shall conform to OPSS 1301, OPSS 1302, OPSS 1303, OPSS 1350 and CSA A23.2-1B.

The Contractor shall provide a stable, homogenous neat cement grout or a sand cement grout. The grout shall be suitable to use in wet and/or underwater condition. The grout shall be free of any lumps and not contain any evidence of poor or incomplete mixing. The grout shall be mixed to the supplier's specification. The water/cement ratio of the grout (by weight) shall not exceed 0.45. The grout shall have the following physical properties:

- a) A minimum compressive strength of 25 MPa at 7 Days.

- b) A minimum compressive strength of 35 MPa at 28 Days.
- c) No segregation and a bleed of less than 2 percent when allowed to stand for 1 hour.

5.06 Reinforcement Steel

5.06.01 Central Bar

The central bar reinforcement steel shall be double corrosion protected, Dywidag Threadbar or approved equivalent according to OPSS 1440 Grade 520.

Double corrosion protected shall be defined in the Post Tensioned Institute Publication “Recommendations for Pre-Stressed Rock and Soil Anchors.”

A sacrificial steel (material) allowance for corrosion protection is not permitted in the contract.

5.06.02 Couplers

Couplers for central bar reinforcement steel shall be as specified by the supplier of the central bar and shall develop at least 100% of the guaranteed minimum ultimate strength of the central bar. The couplers in the permanent bridge shall be double corrosion protected as defined in the Post Tensioning Institute Recommendations for Prestressed Rock and Soil Anchors.

5.06.03 Casing

The steel casing shall meet the requirements of ASTM A252 Gr. 3 or API 5CT N-80, minimum yield strength $F_y = 550$ MPa.

New “Structural Grade” (a.k.a. “Mill Secondary”) steel pipe meeting the above but without Mill Certification is acceptable for use as permanent casing provided it is free from defects (dents, cracks, tears) and is accompanied by two coupon tests per truckload confirming it meets the above requirements.

All casing joints shall be threaded. The casing joints shall develop at least the required compressive, tensile and/or bending strength used in the design of the micropile. All casing joints shall be watertight.

5.07 Plates and Shapes

Structural steel plates and shapes for pile top attachments shall be according to CAN/CSA G40.21, Grade 350A.

5.08 Centralizers and Spacers

Centralizers shall be fabricated from schedule 40 PVC pipe or tube, steel, or material that is non-detrimental to the reinforcement steel. Wood shall not be used.

6.0 EQUIPMENT

6.01 General

All equipment for the installation and monitoring of the micropiles shall be suitable for the intended purposes and capable of working on the site under the prevailing access and clearance conditions.

The equipment used shall be capable of installing and grouting the micropiles to the prescribed depths or elevations without damage to the pile materials or to the adjacent structures.

6.02 Grouting Equipment

All grout mixers, pumps and hoses shall be of an adequate capacity and shall be sized to enable the grout to be pumped in one continuous operation, while keeping the grout in constant agitation prior to pumping, and to allow continuous grouting of an individual micropile within one hour.

A high speed, high shear, colloidal grout mixer with a gauge to measure the quantity of water discharged into the mixer shall be used. A paddle mixer is not acceptable.

The grout pump(s) shall be equipped with a pressure gauge to monitor grout pressures of at least 1 MPa or twice the actual grouting pressures used, whichever is greater.

7.0 CONSTRUCTION

7.01 General

The Contractor shall be responsible for the material, fabrication, installation, monitoring of the micropiles.

The drilling, grouting and micropile installation will be carried out immediately adjacent to the existing bridge foundations and canal bank walls. The Contractor shall select construction techniques that will prevent settlement or heave of the existing bridge foundations and canal bank walls. The Contractor shall select drilling and grouting methods and be prepared with suitable equipment and procedures to penetrate through the overburden soils and into the bedrock while minimizing basal heave, soil cave in and surface ground movement at the adjacent existing bridge foundations and canal bank walls so as to avoid causing an unacceptable level of disturbance as defined elsewhere in the Contract Documents.

The drilling and installation method shall allow for all rock sockets for casing and bond zone to be inspected for cleanliness, depth and diameter prior to placement of any grout and central bar reinforcement. The steel casing shall be left in place and taken as the part of the reinforcement steel for the pile.

The lateral performance of the micropiles relies on intimate contact between the casing and the bedrock. In this regard, the Contractor shall ensure that proper filling of the annular spacing between the permanent casing and the bedrock using grout is carried out.

The Contractor shall control all drilling fluids, water and drill cuttings during micropile installation and upon completion of the micropile installations shall clean up, and off-site dispose of all excess fluids and cuttings in accordance with the requirements of OPSS 180.

The Contractor shall comply with all environmental provisions as specified elsewhere in the Contract Documents.

7.02 Subsurface Conditions

A Geotechnical Report is NOT available for this site. However, Subsurface Investigation Report for an adjacent project is available for review as a reference, as specified elsewhere in the Contract.

The Contractor is alerted that the subsurface conditions shown on the contract drawings were based on the interpretation of data given in the mentioned report, the Geological Survey Map/Document for Southern Ontario, and as-built data from the nearby construction site, subjects to following limitations and exceptions:

- a) Subsurface conditions and depth of competent bedrock shown on the contract drawings is not warranted.
- b) Contractor shall satisfy himself as to the sufficiency of the information presented for the intended construction purpose and obtain any updating or additional information as required to facilitate the deep

shall use steel casing during drilling and installation. Bentonite slurries to stabilize the holes are not permitted.

The holes shall be drilled using duplex drilling techniques with the cuttings returning up the inside of the casing. Drilling shall be conducted in a manner that does not result in significant loss of ground beyond the hole diameter. Disposed cuttings shall not exceed 110% of the theoretical borehole volume based on the outside diameter of the casing. The Contractor shall take appropriate measures to prevent water and mud flowing into the drill casing during the work.

The Contractor is alerted that, in case the top elevation of compete limestone bedrock encountered is higher than said elevation shown in the Contract drawings, the micropiles shall be drilled & installed to the deeper of:

- a) Actual depth as a result by replacing the said elevation shown with the said elevation encountered.
- b) A minimum depth for which, the tip elevation of the permanent steel casing is 22.65m and the tip elevation of the rock socket is 20.55m (assumed the top elevation of existing concrete abutment is 31.25m) [Also needs to define BM in the dwgs – note: BM is NOT given at the moment].

The Contractor shall determine and schedule all installation techniques such that there will be no damage to previously installed micropiles.

7.04.04 Reinforcement Steel

7.04.04.01 General

Pile reinforcement steel (central bar and permanent casing) shall be installed as specified in the Contract Documents and detailed on the stamped Working Drawings.

7.04.04.02 Placement

The Contractor shall be responsible for determining the number of centering devices required. As a minimum, centralizers shall be provided at 3 m centre maximum spacing on central bar reinforcement. The uppermost centralizer shall be located a maximum of 1.5 m from the top of the micropile. Centralizers shall permit the free flow of grout without misalignment of the reinforcement.

The central bar reinforcement steel with centralizers shall be lowered into the stabilized, open and unobstructed drill holes to the desired depth.

All pile top elevations shall be checked and adjusted to ensure all installed micropiles are installed to the planned elevations.

7.04.04.03 Connections

The pile reinforcement steel connections (splices) shall be constructed using mechanical connectors only, to develop the required design strength of the pile section. The proposed pile splice/connections shall be submitted to the Contract Administrator, for review, prior to use.

Reinforcement steel central bar connections shall not be in the same plane as casing connections/splices. Secure lengths of casing and reinforcement steel central bar to be joined in proper alignments and in such a manner that causes no eccentricity between the axles of the two joined lengths or the angle between them.

7.04.05 Grouting

7.04.05.01 General

The grout shall be installed as specified in the Contract Documents and as detailed on the stamped Working Drawings.

The Contractor shall provide systems and equipment to measure the grout quality, quantity, and pumping pressure during the grouting operations.

After drilling, the Contractor shall flush the hole to remove drill cuttings and/or other loose debris.

As soon as practical after completion of drilling and installation of reinforcement steel, the Contractor shall inject the grout from the lowest point of the drill hole (by tremie methods) until clean, pure grout flows from the top of the micropile (to be verified by specific gravity testing with a Baroid mud balance). The tremie grout may be pumped through grout tubes or drill rods.

During grouting, the exit of the tremie pipe is to be kept at least 3 m below the level of the grout in the hole.

Subsequent to tremie grouting, all installation operations associated with completion of the micropile, including partial extraction of drill casing (if applicable), must ensure complete continuity of the grout column. The use of compressed air to directly pressurize the fluid grout is not permissible. The grout pressures and grout take volumes shall be controlled for each stage of each pile to prevent excessive heave or fracturing in the foundation soils, rock formations or adjacent structure. The entire micropile shall be grouted to the design cut-off level through the tremie grout tube(s).

The Contractor must assure that this annulus spacing between the permanent casing and the bedrock is completely filled with grout during and upon completion of the micropile installation.

The grout within the micropiles shall be permitted to attain the minimum strength of 25 MPa prior to being loaded.

Any micropiles not installed according to the specifications shall be replaced, or otherwise remediated appropriately. The cost of replacement and any required foundation modifications, and therefore induced modifications to the proposed steel supporting frame as shown in the Contract drawings, are to be carried out at no additional cost to the Owner.

If necessary, the Contractor shall undertake cold weather protection requirements, preparation and protection in accordance with CSA CAN3-A23.1. The temperature of the grout during mixing and pumping shall be maintained between 10°C and 30°C.

7.04.05.02 Quality of Grout Mixture

7.04.05.02.01 General

Any grout mixture showing evidence of dampness, lumps, harden pieces, or contamination shall not be incorporated in the work.

The Contractor shall be responsible for testing of bleeding, preparation and initial storage of grout cubes for determination of compressive strength, and delivery of the grout cubes to a testing laboratory designated by the Owner.

The Contractor shall employ staff from a testing company certified according to CSA A283 - Certification for Additional Tests 1B, by an organization accredited by the Standards Council of Canada, to carry out testing for bleeding, making and curing of grout cubes and early strength determination.

Making of grout cubes for compressive strength test and testing of bleeding, shall be done on a level, vibration free surface.

The Contractor shall perform specific gravity testing using a Baroid mud balance following ASTM D4380-84 on the grout utilized for each and every micropile.

7.04.05.02.02 Bleed Requirements

The testing for bleed of the grout shall be according to CSA A23.2- 1B.

Prior to the grouting operation, in the presence of the Quality Verification Engineer and the Contract Administrator, a trial batch shall be mixed and the grout tested for bleed, to ensure that the grout meets the requirements specified in the Contract Documents. The trial batch of grout shall not be used in the actual grouting operation unless it meets the requirements for bleed as specified herein.

During the grouting operation, bleeding measurements shall be performed on the grout sampled at the mixer. The measurements shall be performed at least once a day and as requested by the Contract Administrator.

The bleed test results shall be submitted to the Contract Administrator in writing at the end of each Working Day. The test results that indicate the grout is not meeting the requirements of the Contract Documents shall be reported immediately to the Contract Administrator and the grouting operation halted until the cause of the problem is identified and corrected.

7.04.05.02.03 Strength Requirements

Grout cubes shall be prepared as follows on site from the grout pumped into the micropile:

- a) Three sets of grout cubes, consisting of three cubes each, shall be made each day the grouting operations are carried out.
- b) The grout cubes shall be prepared and stored according to CSA A23.2-1B, and shall not be moved prior to demoulding.
- c) The grout cubes shall be demoulded and transported to the laboratory within 24 hours \pm 4 hours.
- d) The grout cubes shall be transported in a sealed white opaque plastic bag containing at least 250 mL of water and maintained at a temperature between 15°C and 25°C.
- e) Compressive strength testing shall be carried out on the grout cubes according to CSA A23.2-1B at 3, 7 and 28 Days and the test results provided to the Contract Administrator.
- f) The Contractor shall prepare and test additional grout cubes to determine when the grout has attained a compressive strength of 25 MPa.

7.06 Tolerances

The allowable tolerances are as follows:

- a) Centreline of the installed micropiles shall not be more than 75 mm from that shown on the Contract Drawings.
- b) Micropile-hole alignment shall be within 2 % of the total-length plan alignment.
- c) Top elevation of micropile shall be within +15 mm or -25 mm maximum of the vertical design elevation.
- d) Centreline of central bar reinforcement shall not be more than 19 mm from centerline of micropile.

7.07 Management of Excess Material

Management of excess material shall be according to OPSS 180.

7.08 As-Built Drawings

As-built drawings shall be prepared by the Contractor for Owner designed installations as follows:

- a) Be submitted within fifteen (15) calendar days of completion
- b) For all work incorporated in the completed structure that required the submission of Working Drawings.
- c) For all changes from the original Contract requirements.

8.0 MEASUREMENT FOR PAYMENT

8.1 Install Micropiles

There is no measurement for payment in the case that, the top elevation of compete limestone bedrock encountered is higher than (or the same as of) the said elevation shown in Contract drawings.

Measurement will be made in metres of the extra depth portion of the micropiling left in place after cut-off, in the case that, top elevation of compete limestone bedrock encountered is lower than the said elevation shown in the Contract drawings.

9.0 BASIS FOR PAYMENT

9.1 Supply Equipment for Installing Micropiles - Item

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials required to do the work.

9.2 Micropile– Item

Payment at the Contract lump sum price for the above item shall be full compensation for all labour, equipment and materials required to do the work, in the case that, top elevation of compete limestone bedrock encountered is higher than or the same as to the said elevation shown in the Contract drawings.

Payment at the Contract lump sum price plus the measurement of the extra depth times the contract unit metre price, for the above item shall be full compensation for all labour, equipment and materials required to do the work. in the case that, top elevation of compete limestone bedrock encountered is lower than the said elevation shown in the Contract drawings.

The measurement of the extra depth herein shall be rounded up to the nearest Decimeter, and the contract unit metre price shall be calculated as the bidding micropile Lump Sum price divided by the overall lengths of micropiles shown on the contract drawings.

SP7 INSTALLATION OF STEEL SUPPORTING FRAMES

Special Provision

Work under this item shall consist of fabrication, delivery, and erection of the structural steel supporting frames as shown in the contract drawings.

It is the Contractor's responsibility to ensure the fitness of the structural steel frames to the existing A-frames and the as-built locations of the micropiles.

The Contractor shall verify the dimensions of existing bridge A-frames prior to fabricate the structural steel frames.

Work under the item shall conform to OPSS.MUNI 906 – Nov 2021, except as amended or extended herein.

OPSS.MUNI 906 is amended as follows:

906.01 SCOPE

Section 906.01 of OPSS.MUNI 906 is deleted and replaced with the following:

This specification covers the construction requirements for the fabrication, delivery, and erection of the structural steel for this pedestrian footbridge.

906.10 BASIS OF PAYMENT

Section 906.10 of OPSS.MUNI 906 is deleted and replaced with the following:

Payment at the Contract lump sum price for the above tender items shall be full compensation for all labour, equipment and material required to do the work.

SP8 SITE RESTORATION

Special Provision

Work shall be in accordance with OPSS.MUNI 802 and OPSS.MUNI 803 (as required).

Work under this item shall include restoration of disturbed areas of the ground, including disturbed sod, topsoil, sub-soil, grading, vegetation, riverbanks, riverbed, and pedestrian pathways, to their pre-construction condition or better and to the satisfaction of the Contract Administrator and the Township.

There will be no measurement for payment.

Payment at the contract lump sum price shall be full compensation for all labour, equipment and material to do the work.

SP9 CONTINGENCY ALLOWANCE

Special Provision

The contingency allowance provides for additional or extra work required during the course of the Contract and may be drawn upon only for additional work described by a change order approved by the Owner.

The Tenderer agrees that he is not entitled to payment for the Contingency Allowance except for additional work carried out by him in accordance with the Contract and approved by the Engineer and Owner and then only to the extent of such additional work.

SP10 SUPPLY AND INSTALLATION OF CABLE

Special Provision

Work under this item shall consist of supply, delivery, and erection of cable if replacement is deemed necessary during construction.

All cable shall be galvanized bridge strand per ASTM A586, at least 1” in diameter and no more than 1¹/₈” in diameter.

All parts required for the installation of cable including but not limited to e.g. turnbuckle shall be included in the price and all bolts and hardware shall be galvanized.

The Contractor shall verify the dimension and the length of the cable needed for repair prior to the fabrication of the cable.

Cables shall not be fully tensioned until backfilling has been complete. Initial tensioning prior to backfilling shall ensure initial slack has been removed to prevent cable alignment change after backfill.

Cable shall be tensioned to the original condition after repairment, as per original drawings dated 1969.

BASIS OF PAYMENT

Payment at the Contract unit price for the above tender items shall be full compensation for all labour, equipment and material required to do the work.

Appendix A:
Ontario Provincial Standards
General Conditions of Contract
(OPSS.MUNI 100 - Nov 2019)



OPSS MUNI GENERAL CONDITIONS OF CONTRACT

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SECTION GC 1.0 - INTERPRETATION

GC 1.01 Captions

.01 The captions appearing in these General Conditions have been inserted as a matter of convenience and for ease of reference only and in no way define, limit, or enlarge the scope or meaning of the General Conditions or any provision hereof.

GC 1.02 Abbreviations

.01 The abbreviations on the left below are commonly found in the Contract Documents and represent the organizations and phrases listed on the right:

"AASHTO"	-	American Association of State Highway Transportation Officials
"ACI"	-	American Concrete Institute
"ANSI"	-	American National Standards Institute
"ASTM"	-	ASTM International
"AWG"	-	American Wire Gauge
"AWWA"	-	American Water Works Association
"CCIL"	-	Canadian Council of Independent Laboratories
"CGSB"	-	Canadian General Standards Board
"CSA"	-	CSA Group - formerly Canadian Standards Association
"CWB"	-	Canadian Welding Bureau
"GC"	-	General Conditions
"ISO"	-	International Organization for Standardization
"MECP"	-	Ontario Ministry of the Environment, Conservation and Parks
"MTO"	-	Ontario Ministry of Transportation
"MUTCD"	-	Manual of Uniform Traffic Control Devices, published by MTO
"OHSA"	-	Ontario Occupational Health and Safety Act
"OLS"	-	Ontario Land Surveyor
"OPS"	-	Ontario Provincial Standard
"OPSD"	-	Ontario Provincial Standard Drawing
"OPSS"	-	Ontario Provincial Standard Specification
"OTM"	-	Ontario Traffic Manual
"PEO"	-	Professional Engineers Ontario
"SAE"	-	SAE International
"SCC"	-	Standards Council of Canada
"SSPC"	-	The Society for Protective Coatings
"UL"	-	Underwriters Laboratories
"ULC"	-	Underwriters Laboratories Canada
"WHMIS"	-	Workplace Hazardous Materials Information System
"WSIB"	-	Workplace Safety & Insurance Board

GC 1.03 Gender and Singular References

.01 References to the masculine or singular throughout the Contract Documents shall be considered to include the feminine and the plural and vice versa, as the context requires.

GC 1.04

Definitions

.01 For the purposes of the Contract Documents the following definitions shall apply:

Abnormal Weather means an extreme climatic condition characterized by wind speed, air temperature, precipitation, or snow fall depth, that is less than or greater than 1-1/2 standard deviations from the mean determined from the weather records of the 25-year period immediately preceding the tender opening date.

Actual Measurement means the field measurement of that quantity within the approved limits of the Work.

Addenda means any additions or change in the Tender documents issued by the Owner prior to Tender closing.

Additional Work means work not provided for in the Contract Documents and not considered by the Contract Administrator to be essential to the satisfactory completion of the Contract within its intended scope.

Agreement means the agreement between the Owner and the Contractor for the performance of the Work that is included in the Contract Documents.

Base means a layer of Material of specified type and thickness placed immediately below the pavement, driving surface, finished grade, curb and gutter, or sidewalk.

Business Day means any Day except Saturdays, Sundays, and statutory holidays.

Certificate of Subcontract Completion means the certificate issued by the Contract Administrator in accordance with clause GC 8.02.04.02, Certification of Subcontract Completion.

Certificate of Substantial Performance means the certificate issued by the Contract Administrator at Substantial Performance.

Change Directive means any written instruction signed by the Owner, or by the Contract Administrator where so authorized, directing that a Change in the Work or Extra Work be performed.

Change in the Work means the deletion, extension, increase, decrease, or alteration of lines; grades; dimensions; quantities; methods; drawings; substantial changes in geotechnical, subsurface, surface, or other conditions; changes in the character of the Work to be done; or Materials of the Work or part thereof, within the intended scope of the Contract.

Change Order means a written amendment to the Contract signed by the Contractor and the Owner, or the Contract Administrator where so authorized, covering contingencies, a Change in the Work, Extra Work, Additional Work; and establishing the basis for payment and the time allowed for the adjustment of the Contract Time.

Completion means contract completion as set out in the Construction Act.

Completion Certificate means the certificate issued by the Contract Administrator at Completion.

Completion Payment means the payment described more particularly in clause GC 8.02.04.07.

Construction Act means as set out in the Construction Act, R.S.O. 1990, c. C.30, as amended.

Constructor means, for the purposes of, and within the meaning of the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended and amendments thereto, the Contractor who executes the Contract.

Contract means the undertaking by the Owner and the Contractor to perform their respective duties, responsibilities, and obligations as prescribed in the Contract Documents.

Contract Administrator means the person, partnership, or corporation designated by the Owner to be the Owner's representative for the purposes of the Contract.

Contract Documents mean the executed Agreement between the Owner and the Contractor, Tender, General Conditions of Contract, Supplemental General Conditions of Contract, Standard Specifications, Special Provisions, Contract Drawings, Addenda incorporated in a Contract Document before the execution of the Agreement, such other documents as may be listed in the Agreement, and subsequent amendments to the Contract Documents made pursuant to the provisions of the Agreement.

Contract Drawings or **Contract Plans** mean drawings or plans, any Geotechnical Report, any Subsurface Report, and any other reports and information provided by the Owner for the Work, and without limiting the generality thereof, may include soil profiles, foundation investigation reports, reinforcing steel schedules, aggregate sources list, Quantity Sheets, and cross-sections.

Contract Time means the time stipulated in the Contract Documents for Substantial Performance or Completion of the Work, including any extension of time made pursuant to the Contract Documents.

Contractor means the person, partnership, or corporation undertaking the Work as identified in the Agreement.

Control Monument means any horizontal or vertical (benchmark) monument that is used to lay out the Work.

Controlling Operation means any component of the Work that, if delayed, may delay the completion of the Work.

Cut-Off Date means the date up to which payment shall be made for Work performed.

Daily Work Records mean daily Records detailing the number and categories of workers and hours worked or on standby, types and quantities of Equipment and number of hours in use or on standby, and description and quantities of Material utilized.

Day means a calendar day.

Drawings or **Plans** mean any Contract Drawings or Contract Plans, or any Working Drawings or Working Plans, or any reproductions of drawings or plans pertaining to the Work.

End Result Specification means specifications that require the Contractor to be responsible for supplying a product or part of the Work. The Owner accepts or rejects the final product or applies a price adjustment that is commensurate with the degree of compliance with the specification.

Engineer means a professional engineer licenced by the Professional Engineers of Ontario to practice in the Province of Ontario.

Equipment means all machinery and equipment used for preparing, fabricating, conveying or erecting the Work and normally referred to as construction machinery and equipment.

Estimate means a calculation of the quantity or cost of the Work or part of it depending on the context.

Extra Work means work not provided for in the Contract as awarded but considered by the Contract Administrator to be essential to the satisfactory completion of the Contract within its intended scope, including unanticipated Work required to comply with legislation and regulations that affect the Work.

Final Acceptance means the date on which the Contract Administrator determines that the Work has passed all inspection and testing requirements and the Contract Administrator is satisfied that the Contractor has rectified all imperfect Work and has discharged all of the Contractor's obligations under the Contract Documents.

Final Acceptance Certificate means the certificate issued by the Contract Administrator at Final Acceptance of the Work.

Final Detailed Statement means a complete evaluation prepared by the Contract Administrator showing the quantities, unit prices, and final dollar amounts of all items of Work completed under the Contract, including variations in tender items and Extra Work, all as set out in the same general form as the monthly Estimates.

Geotechnical Report means a report or other information identifying soil, rock, and ground water conditions in the area of any proposed Work.

Grade means the required elevation of that part of the Work.

Hand Tools means tools that are commonly called tools or implements of the trade and include small power tools.

Highway means a common and public highway any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

Inclement Weather means weather conditions or conditions resulting directly from weather conditions that prevent the Contractor from proceeding with a Controlling Operation.

Lot means a specific quantity of Material or a specific amount of construction normally from a single source and produced by the same process.

Lump Sum Item means a tender item indicating a portion of the Work for which payment will be made at a single tendered price. Payment is not based on a measured quantity, although a quantity may be given in the Contract Documents.

Major Item means any tender item that has a value, calculated based on its actual or estimated tender quantity, whichever is the larger, multiplied by its tender unit price, which is equal to or greater than the lesser of,

- a) \$100,000, or
- b) 5% of the total tender value calculated based on the total of all the estimated tender quantities and the tender unit prices.

Material means Material, machinery, equipment and fixtures forming part of the Work.

Monument means either a Property Monument or a Control Monument.

Owner means the party to the Contract for whom the Work is being performed, as identified in the Agreement, and includes, with the same meaning and import, "Authority."

Pavement means a wearing course or courses placed on the Roadway and consisting of asphaltic concrete, hydraulic cement concrete, Portland cement concrete, or plant or road mixed mulch.

Performance Bond means the type of security furnished to the Owner to guarantee completion of the Work in accordance with the Contract and to the extent provided in the bond.

Plan Quantity means that quantity as computed from within the boundary lines of the Work as shown in the Contract Documents.

Project means the construction of the Work as contemplated by this Contract.

Proper Invoice has the meaning as set out in the Construction Act.

Property Monument means any property bar, concrete pillar, rock post, cut cross or other object that marks the boundary between real property ownership.

Quality Assurance (QA) means a system or series of activities carried out by the Owner to ensure that Work meets the specified requirements.

Quality Control (QC) means a system or series of activities carried out by the Contractor, Subcontractor, supplier, and manufacturer to ensure that Work meets the specified requirements.

Quantity Sheet means a list of the quantities of Work to be done.

Quarried Rock means Material removed from an open excavation made in a solid mass of rock that, prior to removal, was integral with the parent mass.

Quarry means a place where aggregate has been or is being removed from an open excavation made in a solid mass of igneous, sedimentary, or metamorphic rock or any combination of these that, prior to removal, was integral with the parent areas.

Rate of Interest means the prejudgment interest rate determined under subsection 127(2) of the *Courts of Justice Act* or, if the contract or subcontract specifies a different interest rate for the purpose, the greater of the prejudgment interest rate and the interest rate specified in the contract or subcontract.

Records mean any books, payrolls, accounts, or other information that relate to the Work or any Change in the Work, Extra Work, Additional Work or claims arising therefrom.

Roadway means that part of the Highway designed or intended for use by vehicular traffic and includes the Shoulders.

Shoulder means that portion of the Roadway between the edge of the travelled portion of the wearing surface and the top inside edge of the ditch or fill slope.

Special Provisions mean directions containing requirements specific to the Work.

Standard Drawing or Standard Specification means a standard practice required and stipulated by the Owner for performance of the Work.

Statutory Holdback means the holdbacks required under the Construction Act.

Subbase means a layer of Material of specified type and thickness between the Subgrade and the Base.

Subcontractor means a person, partnership or corporation undertaking the execution of a part of the Work by virtue of an agreement with the Contractor.

Subgrade means the earth or rock surface, whether in cut or fill, as prepared to support the pavement structure, consisting of Base, Subbase, and Pavement.

Substantial Performance has the meaning as set out in the Construction Act, R.S.O. 1990, c. C.30, as amended.

Subsurface Report means a report or other information identifying the location of Utilities, concealed and adjacent structures, and physical obstructions that fall within the influence of the Work.

Superintendent means the Contractor's authorized representative in charge of the Work and who shall be a "competent person" within the meaning of the definition contained in the Occupational Health and Safety Act, R.S.O. 1990, c. 0.1, as amended.

Surety means the person, partnership or corporation, other than the Contractor, licensed in Ontario to transact business under the Insurance Act, R.S.O. 1990, c.1.8, as amended, executing a bond provided by the Contractor.

Tender means an offer in writing from the Contractor, submitted in the format prescribed by the Owner, to complete the Work.

Time and Material means costs calculated according to clause GC 8.02.05, Payment on a Time and Material Basis.

Utility means an aboveground or underground facility maintained by a municipality, public utility authority or regulated authority and includes services such as sanitary sewer, storm sewer, water, electric, gas, oil, steam, data transmission, telephone, and cable television.

Warranty Period means the applicable time period according to clause GC 7.16.02, Warranty.

Work means the total construction and related services required by the Contract Documents.

Working Area means all the lands and easements owned or acquired by the Owner for the construction of the Work.

Working Day means any Day,

- a) except Saturdays, Sundays and statutory holidays;
- b) except a Day as determined by the Contract Administrator, on which the Contractor is prevented by inclement weather or conditions resulting immediately therefrom, from proceeding with a Controlling Operation. For the purposes of this definition, this shall be a Day during which the Contractor cannot proceed with at least 60% of the normal labour and Equipment force effectively engaged on the Controlling Operation for at least 5 hours;
- c) except a Day on which the Contractor is prevented from proceeding with a Controlling Operation, as determined by the Contract Administrator by reason of,
 - i. any breach of the Contract by the Owner or if such prevention is due to the Owner, another contractor hired by the Owner, or an employee of any one of them, or by anyone else acting on behalf of the Owner.
 - ii. non-delivery of Owner supplied Materials.
 - iii. any cause beyond the reasonable control of the Contractor that can be substantiated by the Contractor to the satisfaction of the Contract Administrator.

Working Drawings or Working Plans means any Drawings or Plans prepared by the Contractor for the execution of the Work and may, without limiting the generality thereof, include formwork, falsework, and shoring plans; Roadway protection plans; shop drawings; shop plans; or erection diagrams.

GC 1.05 Ontario Traffic Manual

- .01 All references in the Contract Documents to the MUTCD, including all Parts and Divisions thereof, or MTO Traffic Control Manual for Roadway Work Operations, or Traffic Control Manual for Roadway Operations Field Edition are hereby deleted and replaced by all currently available books which make up the Ontario Traffic Manual.

GC 1.06 Final Acceptance

- .01 For the purposes of determining whether Final Acceptance has occurred, the Contract Administrator shall not take into account, in determining the discharge of the Contractor's obligations, any warranty obligation of the Contractor to the extent that the warranty extends beyond 12 months after Substantial Performance.

GC 1.07 Interpretation of Certain Words

- .01 The words "acceptable," "approval," "authorized," "considered necessary," "directed," "required," "satisfactory," or words of like import, shall mean approval of, directed, required, considered necessary, or authorized by and acceptable or satisfactory to the Contract Administrator, unless the context clearly indicates otherwise.

SECTION GC 2.0 - CONTRACT DOCUMENTS

GC 2.01 Reliance on Contract Documents

- .01 The Owner warrants that the information furnished in the Contract Documents can be relied upon with the following limitations or exceptions:
- a) Based on available information at the time of the contract, the location of all mainline underground Utilities that may affect the Work shall be shown to a tolerance of:
 - i. 1 m horizontal, and
 - ii. 0.3 m vertical
- .02 The Owner does not warrant or make any representation with respect to:
- a) interpretations of data or opinions expressed in any Subsurface Report available for the perusal of the Contractor, that are not included as part of the Contract Documents, and
 - b) other information specifically excluded from this warranty.

GC 2.02 Order of Precedence

- .01 In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following descending order:
- a) Agreement
 - b) Addenda
 - c) Special Provisions
 - d) Contract Drawings
 - e) Standard Specifications
 - f) Standard Drawings
 - g) Tender
 - h) Supplemental General Conditions
 - i) OPSS.MUNI 100 General Conditions of Contract
 - j) Working Drawings

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

- .02 In the event of any conflict among or inconsistency in the information shown on Drawings, the following rules shall apply:
- a) Dimensions shown in figures on a Drawing shall govern where they differ from dimensions scaled from the same Drawing;
 - b) Drawings of larger scale shall govern over those of smaller scale;
 - c) Detailed Drawings shall govern over general Drawings; and

- d) Drawings of a later date shall govern over those of an earlier date in the same series.
- .03 In the event of any inconsistency or conflict in the contents of Standard Specifications the following descending order of precedence shall govern:
- a) Owner's Standard Specifications
 - b) Ontario Provincial Standard Specifications
 - c) Other standards referenced in OPSSs and OPSDs (e.g., CSA, CGSB, ASTM, and ANSI).
- .04 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.

SECTION GC 3.0 - ADMINISTRATION OF THE CONTRACT

GC 3.01 Contract Administrator's Authority

- .01 The Contract Administrator shall be the Owner's representative during construction and until the issuance of the Completion Certificate or the issuance of the Final Acceptance Certificate, whichever is later. All instructions to the Contractor, including instructions from the Owner, shall be issued by the Contract Administrator. The Contract Administrator shall have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents.
- .02 All claims, disputes and other matters in question relating to the performance and the quality of the Work or the interpretation of the Contract Documents shall be referred to the Contract Administrator in writing by the Contractor.
- .03 The Contract Administrator may inspect the Work for its conformity with the Contract Documents, and to record the necessary data to establish payment quantities under the schedule of tender quantities and unit prices or to assess the value of the Work completed in the case of a lump sum price Contract.
- .04 The Contract Administrator shall provide an estimate of the amounts owing to the Contractor under the Contract as provided for in section GC 8.0, Measurement and Payment.
- .05 The Contract Administrator, to not cause delay in the schedule, shall, with reasonable promptness, review and take appropriate action upon the Contractor's submissions such as shop drawings, product data, and samples in accordance with the Contract Documents .
- .06 The Contract Administrator shall investigate all allegations of a Change in the Work made by the Contractor and issue appropriate instructions.
- .07 The Contract Administrator shall prepare Change Directives and Change Orders for the Owner's approval.
- .08 Upon written application by the Contractor, the Contract Administrator and the Contractor shall jointly conduct an inspection of the Work to establish the date of Substantial Performance of the Work or the date of Completion of the Work or both.
- .09 The Contract Administrator shall be, in the first instance, the interpreter of the Contract Documents and the judge of the performance thereunder by both parties to the Contract. Interpretations and decisions of the Contract Administrator shall be consistent with the intent of the Contract Documents and, in making these decisions, the Contract Administrator shall not show partiality to either party.
- .10 The Contract Administrator shall have the authority to reject any part of the Work or Material that does not conform to the Contract Documents.
- .11 In the event that the Contract Administrator determines that any part of the Work performed by the Contractor is defective, whether the result of poor workmanship the use of defective Material or damage through carelessness or other act or omission of the Contractor and whether or not incorporated in the Work or otherwise fails to conform to the Contract Documents, then the Contractor shall if directed by the Contract Administrator promptly, as directed by the Contract Administrator, remove the Work and replace, make good, or re-execute the Work at no additional cost to the Owner.
- .12 Any part of the Work destroyed or damaged by such removals, replacements, or re-executions shall be made good, promptly, at no additional cost to the Owner.

- .13 If, in the opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with the Contract Documents, the Owner may deduct from monies otherwise due to the Contractor the difference in value between the Work as performed and that called for by the Contract Documents amount that will be determined in the first instance by the Contract Administrator.
- .14 Notwithstanding any inspections made by the Contract Administrator or the issuance of any certificates or the making of any payment by the Owner, the failure of the Contract Administrator to reject any defective Work or Material shall not constitute acceptance of defective Work or Material.
- .15 The Contract Administrator shall have the authority to temporarily suspend the Work for such reasonable time as may be necessary:
 - a) to facilitate the checking of any portion of the Contractor's construction layout;
 - b) to facilitate the inspection of any portion of the Work; or
 - c) for the Contractor to remedy its non-compliance with any provisions of the Contract Documents.

The Contractor shall not be entitled to any compensation for suspension of the Work in these circumstances.
- .16 The Owner has the right to terminate the Contract for wilful or persistent violation by the Contractor or its workers of any applicable laws or bylaws, including but not limited to, the Occupational Health and Safety Act legislation and regulations, Workplace Safety and Insurance Board Act, and Regulation 347 of the Environmental Protection Act.
- .17 If the Contract Administrator determines that any worker employed on the Work is incompetent, as defined by the Occupational Health and Safety Act, or is disorderly, then the Contract Administrator shall provide written notice to the Contractor and the Contractor shall immediately remove the worker from the Working Area. Such worker shall not return to the Working Area without the prior written consent of the Contract Administrator.

GC 3.02 Working Drawings

- .01 The Contractor shall arrange for the preparation of clearly identified and dated Working Drawings as called for by the Contract Documents.
- .02 The Contractor, to not cause delay in the Work, shall submit Working Drawings to the Contract Administrator with reasonable promptness and in orderly sequence . If either the Contractor or the Contract Administrator so requests, they shall jointly prepare a schedule fixing the dates for submission and return of Working Drawings. Working Drawings shall be submitted in printed form. At the time of submission, the Contractor shall notify the Contract Administrator in writing of any deviations from the Contract Documents that exist in the Working Drawings.
- .03 The Contract Administrator shall review and return Working Drawings in accordance with an agreed upon schedule, or otherwise, with reasonable promptness so as not to cause delay.
- .04 The Contract Administrator's review shall be to check for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the Working Drawings or of responsibility for meeting all requirements of the Contract Documents, unless a deviation on the Working Drawings has been approved in writing by the Contract Administrator.

- .05 The Contractor shall make any changes in Working Drawings that the Contract Administrator may require to make the Working Drawings consistent with the Contract Documents and resubmit, unless otherwise directed by the Contract Administrator. When resubmitting, the Contractor shall notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.
- .06 Work related to the Working Drawings shall not proceed until the Working Drawings have been signed and dated by the Contract Administrator.
- .07 The Contractor shall keep one set of the reviewed Working Drawings, marked as above, at the site at all times.

GC 3.03 Right of the Contract Administrator to Modify Methods and Equipment

- .01 The Contractor shall, when requested in writing, make alterations in the method, Equipment, or work force at any time the Contract Administrator considers the Contractor's actions to be unsafe, or damaging to either the Work or existing facilities or the environment.
- .02 The Contractor shall, when requested in writing, alter the sequence of its operations on the Contract so as to avoid interference with work being performed by others.
- .03 Notwithstanding the foregoing, the Contractor shall ensure that all necessary safety precautions and protection are maintained throughout the Work.

GC 3.04 Emergency Situations

- .01 The Contract Administrator has the right to determine the existence of an emergency situation and, when such an emergency situation is deemed to exist, the Contract Administrator 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 Contract Administrator may direct others to remedy the situation.
- .02 If the emergency situation was the fault of the Contractor, the remedial Work shall be done at the Contractor's expense. If the emergency situation was not the fault of the Contractor, the Owner shall pay for the remedial Work.

GC 3.05 Layout Information

- .01 The Contract Administrator shall provide background information, including without limitation, baseline and benchmark information, to facilitate the general location, alignment, elevation and layout of the Work.
- .02 The Contract Administrator shall provide pre and post construction inventories of all Monuments, etc. that are located within the Working Area.
- .03 The Owner shall be responsible only for the correctness of the layout information provided by the Contract Administrator.

GC 3.06 Extension of Contract Time

- .01 An application for an extension of Contract Time shall be made in writing by the Contractor to the Contract Administrator as soon as the need for such extension becomes evident and at least 15 Days prior to the expiration of the Contract Time. The application for an extension of Contract Time shall enumerate the reasons and state the length of extension required.

- .02 Circumstances suitable for consideration of an extension of Contract Time include the following:
 - a) Delays, subsection GC 3.07.
 - b) Changes in the Work, clause GC 3.10.01.
 - c) Extra Work, clause GC 3.10.02.
 - d) Additional Work, clause GC 3.10.03.
- .03 The Contract Administrator shall, in reviewing an application for an extension to the Contract Time, consider whether the delays, Changes in the Work, Extra Work, or Additional Work involve a Controlling Operation.
- .04 The Contract Time shall be extended for such additional time as may be recommended by the Contract Administrator and deemed fair and reasonable by the Owner.
- .05 The terms and conditions of the Contract shall continue for such extension of Contract Time.

GC 3.07 Delays

- .01 If the Contractor is delayed in the performance of the Work by,
 - a) war, blockades, and civil commotions;
 - b) errors in the Contract Documents;
 - c) an act or omission of the Owner or Contract Administrator, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the Contract Documents;
 - d) a stop work order issued by a court or public authority, provided that such order was not issued as the result of an act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly;
 - e) the Contract Administrator giving notice under section GC 7.0, Suspension of Work;
 - f) Abnormal Weather; or
 - g) archaeological finds, in accordance with subsection GC 3.15, Archaeological Finds,then the Contractor shall be reimbursed by the Owner for reasonable costs incurred by the Contractor as the result of such delay, provided that in the case of an application for an extension of Contract Time due to Abnormal Weather, the Contractor shall, with the Contractor's application, submit evidence from Environment Canada in support of such application. Extension of Contract Time may be granted in accordance with subsection GC 3.06, Extension of Contract Time.
- .02 If the Work is delayed by labour disputes, strikes or lock-outs, including lock-outs decreed or recommended to its members by a recognized contractor's association, of which the Contractor is a member or to which the Contractor is otherwise bound, which are beyond the Contractor's control, then the Contract Time shall be extended in accordance with subsection GC 3.06, Extension of Contract Time.
- .03 In no case shall the extension of Contract Time be less than the time lost as the result of the event causing the delay, unless a shorter extension is agreed to by the Contractor. The Contractor shall not be entitled to payment for costs incurred as the result of such delays unless such delays are the result of actions by the Owner.

- .04 The Contractor shall not be entitled to payment for the cost of delays incurred as a result of a dispute between the Contractor and Owner. The Contractor shall execute the Work and may pursue resolution of the dispute in accordance with subsection GC 3.13, Claims, Negotiations, Mediations.

GC 3.08 Assignment of Contract

- .01 The Contractor shall not assign the Contract, either in whole or in part, without the prior written consent of the Owner.

GC 3.09 Subcontracting by the Contractor

- .01 Subject to clause GC 3.09.03, Subcontracting by the Contractor, the Contractor may subcontract any part of the Work, in accordance with the Contract Documents and any limitations specified therein.
- .02 The Contractor shall notify the Contract Administrator in writing in 10 Days prior to the start of construction of the intention to subcontract. Such notification shall identify the part of the Work, and the Subcontractor with whom it is intended.
- .03 The Contract Administrator shall, within 5 Days of receipt of such notification, accept or reject the intended Subcontractor. The rejection shall be in writing and shall include the reasons for the rejection.
- .04 The Contractor shall not, without the written consent of the Owner, change a Subcontractor who has been engaged in accordance with this subsection.
- .05 The Contractor shall preserve and protect the rights of the Owner under the Contract Documents with respect to that part of the Work to be performed under subcontract and shall,
- a) enter into agreements with the intended Subcontractors to require them to perform their Work in accordance with the Contract Documents; and
 - b) be as fully responsible to the Owner for acts and omissions of the Contractor's Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the Contractor.
- .06 The Owner's consent to subcontracting by the Contractor shall not be construed to relieve the Contractor from any obligation under the Contract and shall not impose any liability upon the Owner. Nothing contained in the Contract Documents shall create a contractual relationship between a Subcontractor and the Owner.

GC 3.10 Changes

GC 3.10.01 Changes in the Work

- .01 The Owner, or the Contract Administrator where so authorized, may, by order in writing, make a Change in the Work without invalidating the Contract. The Contractor shall not be required to proceed with a Change in the Work until in receipt of a Change Order or Change Directive. Upon the receipt of such Change Order or Change Directive the Contractor shall proceed with the Change in the Work.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of clause GC 3.06, Extension of Contract Time.

- .03 If the Change in the Work relates solely to quantities, payment for that part of the Work shall be made according to the conditions specified in clause GC 8.01.02, Variations in Tender Quantities. If the Change in the Work does not solely relate to quantities, then either the Owner or the Contractor may initiate negotiations upwards or downwards for the adjustment of the Contract price in respect of the Change in the Work pursuant to subsection GC 3.13, Claims, Negotiations, Mediation or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.10.02 Extra Work

- .01 The Owner, or Contract Administrator where so authorized, may instruct the Contractor to perform Extra Work without invalidating the Contract. The Contractor shall not be required to proceed with the Extra Work until in receipt of a Change Order or Change Directive. Upon receipt of such Change Order or Change Directive the Contractor shall proceed with the Extra Work.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of clause GC 3.06, Extension of Contract Time.
- .03 Either the Owner or Contractor may initiate negotiations upwards or downwards for the payment for the Extra Work pursuant to subsection GC 3.13, Claims, Negotiations, Mediation, or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.10.03 Additional Work

- .01 The Owner, or Contract Administrator where so authorized, may request the Contractor to perform Additional Work without invalidating the Contract. If the Contractor agrees to perform Additional Work, the Contractor shall proceed with such Additional Work upon receipt of a Change Order.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of subsection GC 3.06, Extension of Contract Time.
- .03 Payment for the Additional Work may be negotiated pursuant to subsection GC 3.13, Claims, Negotiations, Mediation, or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.11 Notices

- .01 Any notice permitted or required to be given to the Contract Administrator or the Superintendent in respect of the Work shall be deemed to have been given to and received by the addressee on the date of delivery if delivered by hand, email, or by facsimile transmission and on the fifth Day after the date of mailing, if sent by mail.
- .02 The Contractor and the Owner shall provide each other with the mail and email addresses; cell phone, and telephone numbers for the Contract Administrator and the Superintendent at the commencement of the Work, and update as necessary.
- .03 In the event of an emergency situation or other urgent matter the Contract Administrator or the Superintendent may give a verbal notice, provided that such notice is confirmed in writing within 2 Days.
- .04 Any notice permitted or required to be given to the Owner or the Contractor shall be given in accordance with the notice provision of the Contract.

GC 3.12 Use and Occupancy of the Work Prior to Substantial Performance

- .01 Where it is not contemplated elsewhere in the Contract Documents, the Owner may use or occupy the Work or any part thereof prior to Substantial Performance, provided that at least 30 Days written notice has been given to the Contractor.
- .02 The use or occupancy of the Work or any part thereof by the Owner prior to Substantial Performance shall not constitute an acceptance of the Work or parts so occupied. In addition, the use or occupancy of the Work shall not relieve the Contractor or the Contractor's Surety from any liability that has arisen, or may arise, from the performance of the Work in accordance with the Contract Documents. The Owner shall be responsible for any damage that occurs because of the Owner's use or occupancy. Such use or occupancy of any part of the Work by the Owner does not waive the Owner's right to charge the Contractor liquidated damages in accordance with the terms of the Contract.

GC 3.13 Claims, Negotiations, Mediation

GC 3.13.01 Continuance of the Work

- .01 Unless the Contract has been terminated or completed, the Contractor shall in every case, after serving or receiving any notification of a claim or dispute, verbal or written, continue to proceed with the Work with due diligence and expedition. It is understood by the parties that such action shall not jeopardize any claim it may have.

GC 3.13.02 Record Keeping

- .01 Immediately upon commencing Work that may result in a claim, the Contractor shall keep Daily Work Records during the course of the Work, sufficient to substantiate the Contractor's claim, and the Contract Administrator shall keep Daily Work Records to be used in assessing the Contractor's claim, all in accordance with clause GC 8.02.07, Records.
- .02 The Contractor and the Contract Administrator shall attempt to reconcile their respective Daily Work Records on a daily basis, to simplify review of the claim, when submitted. If the Contractor and the Contract Administrator fail to reconcile their respective Daily Work Records, then the Contractor shall submit its Daily Work Records as part of its claim, whereby the resolution of the dispute about the Daily Work Records shall not be resolved until there is a resolution of the claim.
- .03 The keeping of Daily Work Records by the Contract Administrator or the reconciling of such Daily Work Records with those of the Contractor shall not be construed to be acceptance of the claim.

GC 3.13.03 Claims Procedure

- .01 The Contractor shall give verbal notice of any situation that may lead to a claim for additional payment immediately upon becoming aware of the situation.
- .02 The Contractor shall provide written notice within 7 Days of the commencement of any part of the Work that may be affected by the situation.
- .03 The Contractor shall submit detailed claims as soon as reasonably possible and in any event no later than 30 Days or such time as mutually agreed after completion of the Work affected by the situation. The detailed claim shall:
 - a) identify the item or items in respect of which the claim arises;
 - b) state the grounds, contractual or otherwise, upon which the claim is made; and

- c) include the Records maintained by the Contractor supporting such claim.
- .04 Within 30 Days of the receipt of the Contractor's detailed claim, the Contract Administrator may request the Contractor to submit any further and other particulars as the Contract Administrator considers necessary to assess the claim. The Contractor shall submit the requested information within 30 Days of receipt of such request.
- .05 Within 90 Days of receipt of the detailed claim, the Contract Administrator shall advise the Contractor, in writing, of the Contract Administrator's opinion regarding the validity of the claim.

GC 3.13.04 Negotiations

- .01 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, open and timely disclosure of relevant facts, information, and documents to facilitate these negotiations.
- .02 Should the Contractor disagree with the opinion given in clause GC 3.13.03.05, with respect to any part of the claim, the Contract Administrator shall enter into negotiations with the Contractor to resolve the matters in dispute. Where a negotiated settlement cannot be reached and it is agreed that payment cannot be made on a Time and Material basis in accordance with clause GC 8.02.05, Payment on a Time and Material Basis, the parties shall proceed in accordance with clause GC 3.13.05, Mediation, or subsection GC 3.14, Arbitration.
- .03 Prior to the expiry of 30 Business Days from the date of receipt of the Contractors claim, the Contract Administrator shall provide a written response to the Contractor stating the Contract Administrator's final price for the Change Order and an explanation of the rationale and basis of the Contract Administrator's position which shall be deemed to be the initial site response.

GC 3.13.05 Mediation

- .01 If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.13.04, Negotiations, within a period of 30 Days following the opinion given in clause GC 3.13.03.05, and the Contractor wishes to pursue the issue further, the parties may, upon mutual agreement, utilize the services of an independent third-party mediator.
- .02 The mediator shall be mutually agreed upon by the Owner and Contractor.
- .03 The mediator shall be knowledgeable regarding the area of the disputed issue. The mediator shall meet with the parties together or separately, as necessary, to review all aspects of the issue. In a final attempt to assist the parties in resolving the issue themselves prior to proceeding to arbitration the mediator shall provide, without prejudice, a non-binding recommendation for settlement.
- .04 The review by the mediator shall be completed within 90 Days following the opinion given in clause GC 3.13.03.05.
- .05 Each party is responsible for its own costs related to the use of the mediation process. The cost of the third-party mediator shall be equally shared by the Owner and Contractor.

GC 3.13.06 Payment

- .01 Payment of the claim shall be made no later than 28 Days after the date of resolution of the claim or dispute. Such payment shall be made according to the terms of section GC 8.0, Measurement and Payment.

GC 3.13.07 Rights of Both Parties

- .01 It is agreed that no action taken under subsection GC 3.13, Claims, Negotiations, Mediation, by either party shall be construed as a renunciation or waiver of any of the rights or recourse available to the parties, provided that the requirements set out in this subsection are fulfilled.
- .02 It is further agreed that the parties may at any time resort to the adjudication procedure contained in the Construction Act.

GC 3.14 Arbitration

GC 3.14.01 Conditions of Arbitration

- .01 If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.13.04, Negotiations, or the mediation stage noted in clause GC 3.13.05, Mediation, either party may invoke the provisions of subsection GC 3.14, Arbitration, by giving written notice to the other party.
- .02 Notification that arbitration shall be implemented to resolve the issue shall be communicated in writing as soon as possible and no later than 60 Days following the opinion given in clause GC 3.13.03.05. Where the use of a third-party mediator was implemented, notification shall be within 120 Days of the opinion given in clause GC 3.13.03.05.
- .03 The parties shall be bound by the decision of the arbitrator.
- .04 The rules and procedures of the Arbitration Act, 1991, S.O. 1991, c.17, as amended, shall apply to any arbitration conducted hereunder except to the extent that they are modified by the express provisions of subsection GC 3.14, Arbitration.

GC 3.14.02 Arbitration Procedure

- .01 The following provisions are to be included in the agreement to arbitrate and are subject only to such right of appeal as exist where the arbitrator has exceeded his or her jurisdiction or have otherwise disqualified him or herself:
 - a) All existing actions in respect of the matters under arbitration shall be stayed pending arbitration;
 - b) All outstanding claims and matters to be settled are to be set out in a schedule to the agreement. Only such claims and matters as are in the schedule shall be arbitrated; and
 - c) Before proceeding with the arbitration, the Contractor shall confirm that all matters in dispute are set out in the schedule.

GC 3.14.03 Appointment of Arbitrator

- .01 The arbitrator shall be mutually agreed upon by the Owner and Contractor to adjudicate the dispute.
- .02 Where the Owner and Contractor cannot agree on a sole arbitrator within 30 Days of the notification of arbitration noted in clause GC 3.14.01.02, the Owner and the Contractor shall each choose an appointee within 37 Days of the notice of arbitration.
- .03 The appointees shall mutually agree upon an arbitrator to adjudicate the dispute within 15 Days after the last appointee was chosen or they shall refer the matter to the ADR Institute of Ontario (ADRIO), which may select an arbitrator to adjudicate the dispute within 7 Days of being requested to do so.
- .04 The arbitrator shall not be interested financially in the Contract nor in either party's business and shall not be employed by either party.

- .05 The arbitrator may appoint independent experts and any other persons to assist him or her.
- .06 The arbitrator is not bound by the rules of evidence that govern the trial of cases in court but may hear and consider any evidence that the arbitrator considers relevant.
- .07 The hearing shall commence within 90 Days of the appointment of the arbitrator.

GC 3.14.04 Costs

- .01 The arbitrator's fee shall be equally shared by the Owner and the Contractor.
- .02 The fees of any independent experts and any other persons appointed to assist the arbitrator shall be shared equally by the Owner and the Contractor.
- .03 The arbitration hearing shall be held in a place mutually agreed upon by both parties or in the event the parties do not agree, a site shall be chosen by the arbitrator. The cost of obtaining appropriate facilities shall be shared equally by the Owner and the Contractor.
- .04 The arbitrator may, in his or her discretion, award reasonable costs, related to the arbitration.

GC 3.14.05 The Decision

- .01 The reasoned decision shall be made in writing within 90 Days of the conclusion of the hearing. An extension of time to make a decision may be granted with consent of both parties. Payment shall be made in accordance with clause GC 3.13.06, Payment.

GC 3.15 Archaeological Finds

- .01 If the Contractor's operations expose any items that may indicate an archaeological find, such as but not limited to building remains, hardware, accumulations of bones, pottery, or arrowheads, the Contractor shall immediately notify the Contract Administrator and suspend operations within the area identified by the Contract Administrator. Notification may be verbal provided that such notice is confirmed in writing within 2 Days. Work shall remain suspended within that area until otherwise directed by the Contract Administrator in writing, in accordance with subsection GC 7.09, Suspension of Work.
- .02 Any delay in the completion of the Contract that is caused by such a suspension of Work shall be considered to be beyond the Contractor's control in accordance with clause GC 3.07.01.
- .03 Any Work directed or authorized in connection with an archaeological find shall be considered as Extra Work in accordance with clause GC 3.10.02, Extra Work.
- .04 The Contractor shall take all reasonable action to minimize additional costs that may accrue as a result of any work stoppage.

SECTION GC 4.0 - OWNER'S RESPONSIBILITIES AND RIGHTS

GC 4.01 Working Area

- .01 The Owner shall acquire all property rights that are deemed necessary by the Owner for the construction of the Work, including temporary working easements, and shall indicate the full extent of the Working Area on the Contract Drawings.

GC 4.02 Approvals and Permits

- .01 The Owner shall pay for all plumbing and building permits.
- .02 The Owner shall obtain and pay for all permits, licences, and certificates solely required for the design of the Work.

GC 4.03 Management and Disposition of Materials

- .01 The Owner shall identify in the Contract Documents the Materials to be moved within or removed from the Working Area and any characteristics of those Materials that necessitates special Materials management and disposition.
- .02 In accordance with regulations under the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended, the Owner advises that,
 - a) the designated substances silica, lead, and arsenic are generally present throughout the Working Area occurring naturally or as a result of vehicle emissions;
 - b) the designated substance asbestos may be present in cement products, asphalt, and conduits for Utilities;
 - c) the following hazardous materials are ordinarily present in construction activities: limestone, gypsum, marble, mica, and Portland cement; and
 - d) exposure to these substances may occur as a result of activities by the Contractor such as sweeping, grinding, crushing, drilling, blasting, cutting, and abrasive blasting.
- .03 The Owner shall identify in the Contract Documents any designated substances or hazardous materials other than those identified above and their location in the Working Area.
- .04 If the Owner or Contractor discovers or is advised of the presence of designated substances or hazardous Materials that are in addition to those listed in clause GC 4.03.02, or not clearly identified in the Contract Documents according to clause GC 4.03.03, then verbal notice shall be provided to the other party immediately with written confirmation within 2 Days. The Contractor shall stop Work in the area immediately and shall determine the necessary steps required to complete the Work in accordance with applicable legislation and regulations.
- .05 The Owner shall be responsible for any reasonable additional costs of removing, managing and disposing of any Material not identified in the Contract Documents, or where conditions exist that could not have been reasonably foreseen at the time of tendering. All work under this paragraph shall be deemed to be Extra Work.

- .06 Prior to commencement of the Work, the Owner shall provide to the Contractor a list of those products controlled under the Workplace Hazardous Materials Information System (WHMIS), that the Owner may supply or use on the Contract, together with copies of the Safety Data Sheets for these products. All containers used in the application of products controlled under WHMIS shall be labelled. The Owner shall notify the Contractor in writing of changes to the list and provide relevant Safety Data Sheets.
- .07 Unless expressly permitted in the Contract Documents, the Contractor shall not bring onto the Work Area any designated substance or hazardous Material per OHSA without the prior written authorization of the Contract Administrator.
- .08 The Contractor shall use all reasonable care to avoid spilling or disturbing any designated substances or hazardous Material per OHSA.

GC 4.04 Construction Affecting Railway Property

- .01 The Owner shall pay the costs of all flagging and other traffic control measures required and provided by the railway company unless such costs are solely a function of the Contractor's chosen method of completing the Work.
- .02 Every precaution shall be taken by the Contractor to protect all railway property at track crossings; or otherwise, on which construction operations are to take place in accordance with the terms of this Contract.
- .03 The Contractor shall be required to conduct the construction operations in such a manner as to avoid a possibility of damaging any railway property in the vicinity of the Works. Every reasonable precaution shall be taken by the Contractor to ensure the safety of the workers, Subcontractors, and Equipment, as well as railway property throughout the duration of the Contract.

GC 4.05 Default by the Contractor

- .01 If the Contractor fails to commence the Work within 14 Days of a formal order to commence Work signed by the Contract Administrator or, upon commencement of the Work, should neglect to prosecute the Work properly or otherwise fails to comply with the requirements of the Contract and, if the Contract Administrator has given a written statement to the Owner and Contractor that sufficient cause exists to justify such action, the Owner may, without prejudice to any other right or remedy the Owner may have, notify the Contractor in writing that the Contractor is in default of the Contractor's contractual obligations and instruct the Contractor to correct the default in the 5 Working Days immediately following the receipt of such notice.
- .02 If the Contractor is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the Contractor's insolvency or if a receiver is appointed because of the Contractor's insolvency, the Owner may, without prejudice to any other right or remedy the Owner may have, by giving the Contractor or receiver or trustee in bankruptcy notice in writing, terminate the Contract.

GC 4.06 Contractor's Right to Correct a Default

- .01 The Contractor shall have the right within the 5 Working Days following the receipt of a notice of default to correct the default and provide the Owner with satisfactory proof that appropriate corrective measures have been taken.
- .02 If the Owner determines that the correction of the default cannot be completed within the 5 Working Days following receipt of the notice, the Contractor shall not be in default if the Contractor,
 - a) commences the correction of the default within the 5 Working Days following receipt of the notice;

- b) provides the Owner with a schedule acceptable to the Owner for the progress of such correction;
and
- c) completes the correction in accordance with such schedule.

GC 4.07 Owner's Right to Correct Default

- .01 If the Contractor fails to correct the default within the time specified in subsection GC 4.06, Contractor's Right to Correct a Default, or subsequently agreed upon, the Owner, without prejudice to any other right or remedy the Owner may have, may correct such default and deduct the cost thereof, as certified by the Contract Administrator, from any payment then or thereafter due to the Contractor.

GC 4.08 Termination of Contractor's Right to Continue the Work

- .01 Where the Contractor fails to correct a default within the time specified in subsection GC 4.06, Contractor's Right to Correct a Default, or subsequently agreed upon, the Owner, without prejudice to any other right or remedy the Owner may have, may terminate the Contractor's right to continue the Work in whole or in part by giving written notice to the Contractor.
- .02 If the Owner terminates the Contractor's right to continue with the Work in whole or in part, the Owner shall be entitled to,
 - a) take possession of the Working Area or that portion of the Working Area devoted to that part of the Work terminated;
 - b) utilize any Material within the Working Area;
 - d) withhold further payments to the Contractor with respect to the Work or the portion of the Work withdrawn from the Contractor until the Work or portion thereof withdrawn is completed;
 - d) charge the Contractor the additional cost over the Contract price of completing the Work or portion thereof withdrawn from the Contractor, as certified by the Contract Administrator and any additional compensation paid to the Contract Administrator for such additional service arising from the correction of the default;
 - e) charge the Contractor a reasonable allowance, as determined by the Contract Administrator, to cover correction to the Work performed by the Contractor that may be required under subsection GC 7.16, Warranty;
 - f) charge the Contractor for any damages the Owner sustained as a result of the default; and
 - g) charge the Contractor the amount by which the cost of corrections to the Work under subsection GC 7.16, Warranty, exceeds the allowance provided for such corrections.

GC 4.09 Final Payment to Contractor

- .01 If the Owner's cost to correct and complete the Work in whole or in part is less than the amount withheld from the Contractor under subsection GC 4.08, Termination of Contractor's Right to Continue the Work, the Owner shall pay the balance to the Contractor as soon as the final accounting for the Contract is complete.

GC 4.10 Termination of the Contract

- .01 Where the Contractor is in default of the Contract the Owner shall, without prejudice to any other right or remedy the Owner may have, terminate the Contract by giving written notice of termination to the Contractor, the Surety, and any trustee or receiver acting on behalf of the Contractor's estate or creditors.
- .02 If the Owner elects to terminate the Contract, the Owner shall provide the Contractor and the trustee or receiver with a complete accounting to the date of termination.

GC 4.11 Continuation of Contractor's Obligations

- .01 The Contractor's obligation under the Contract as to quality, correction, and warranty of the Work performed prior to the time of termination of the Contract or termination of the Contractor's right to continue with the Work in whole or in part shall continue to be in force after such termination.

GC 4.12 Use of Performance Bond

- .01 If the Contractor is in default of the Contract and the Contractor has provided a Performance Bond, the provisions of section GC 4.0, Owner's Responsibilities and Rights, shall be exercised in accordance with the conditions of the Performance Bond.

GC 4.13 Payment Adjustment

- .01 If any situation should occur in the performance of the Work that would result in a Change in the Work, the Owner shall be entitled to an adjustment and those adjustments shall be managed in accordance with clause GC 3.10.01, Changes in the Work.

SECTION GC 5.0 - MATERIAL

GC 5.01 Supply of Material

- .01 All Material necessary for the proper completion of the Work, except that listed as being supplied by the Owner, shall be supplied by the Contractor. The Contract price for the appropriate tender items shall be deemed to include full compensation for the supply and delivery of such Material.

GC 5.02 Quality of Material

- .01 All Material supplied by the Contractor shall be new, unless otherwise specified in the Contract Documents.
- .02 Material supplied by the Contractor shall conform to the requirements of the Contract.
- .03 As specified in the Contract Documents or as requested by the Contract Administrator, the Contractor shall make available, for inspection or testing, a sample of any Material to be supplied by the Contractor.
- .04 The Contractor shall obtain for the Contract Administrator the right to enter onto the premises of the Material manufacturer or supplier to carry out such inspection, sampling, and testing as specified in the Contract Documents or as requested by the Contract Administrator.
- .05 The Contractor shall notify the Contract Administrator of the sources of supply sufficiently in advance of the Material shipping dates to enable the Contract Administrator to perform the required inspection, sampling, and testing.
- .06 The Owner shall not be responsible for any delays to the Contractor's operations where the Contractor fails to give sufficient advance notice to the Contract Administrator to enable the Contract Administrator to carry out the required inspection, sampling, and testing before the scheduled shipping date.
- .07 The Contractor shall not change the source of supply of any Material without the written authorization of the Contract Administrator.
- .08 Material that is not specified shall be of a quality best suited to the purpose required, and the use of such Material shall be subject to the approval of the Contract Administrator.
- .09 All Material inspection, sampling, and testing shall be carried out on random basis in accordance with the standard inspection or testing methods required for the Material. Any approval given by the Contract Administrator for the Materials to be used in the Work based upon the random method shall not relieve the Contractor from the responsibility of incorporating Material that conforms to the Contract Documents into the Work or properly performing the Contract and of any liability arising from the failure to properly perform as specified in the Contract Documents.

GC 5.03 Rejected Material

- .01 Rejected Material shall be removed from the Working Area expeditiously after the notification to that effect from the Contract Administrator. Where the Contractor fails to comply with such notice, the Contract Administrator may cause the rejected Material to be removed from the Working Area and disposed of, in what the Contract Administrator considers to be the most appropriate manner, and the Contractor shall pay the costs of disposal and the appropriate overhead charges.

GC 5.04 Substitutions

- .01 Where the Contract Documents require the Contractor to supply a Material designated by a trade or other name, the Tender shall be based only upon supply of the Material so designated, that shall be regarded as the standard of quality required by the Contract Documents. After the acceptance of the Tender, the Contractor may apply to the Contract Administrator to substitute another Material identified by a different trade or other name for the Material designated as aforesaid. The application shall be in writing and shall state the price for the proposed substitute Material designated as aforesaid, and such other information as the Contract Administrator may require.
- .02 Rulings on a proposed substitution shall not be made prior to the acceptance of the Tender. Substitutions shall not be made without the prior approval of the Contract Administrator. The approval or rejection of a proposed substitution shall be at the discretion of the Contract Administrator.
- .03 If the proposed substitution is approved by the Contract Administrator, the Contractor shall be entitled to the first \$1,000 of the aggregate saving in cost by reason of such substitution and to 50% of any additional saving in cost in excess of such \$1,000. Each such approval shall be conveyed to the Contractor in writing or by issuance of a Certificate of Equality on the Owner's standard form of "Certification of Equality" and, if any adjustment to the Contract price is made by reason of such substitution, a Change Order shall be issued as well.

GC 5.05 Owner Supplied Material

GC 5.05.01 Ordering of Excess Material

- .01 Where Material is supplied by the Owner and where this Material is ordered by the Contractor in excess of the amount specified to complete the Work, such excess Material shall become the property of the Contractor on completion of the Work and shall be charged to the Contractor at cost plus applicable overheads.

GC 5.05.02 Care of Material

- .01 The Contractor shall, in advance of receipt of shipments of Material supplied by the Owner, provide adequate and proper storage facilities acceptable to the Contract Administrator, and on the receipt of such Material shall promptly place it in storage, except where it is to be incorporated forthwith into the Work.
- .02 The Contractor shall be responsible for acceptance of Material supplied by the Owner, at the specified delivery point and for its safe handling and storage. If such Material is damaged while under the control of the Contractor, it shall be replaced or repaired by the Contractor at no expense to the Owner, and to the satisfaction of the Contract Administrator. If such Material is rejected by the Contract Administrator for reasons that are not the fault of the Contractor, it shall remain in the care and at the risk of the Contractor until its disposition has been determined by the Contract Administrator.
- .03 Where Material supplied by the Owner arrives at the delivery point in a damaged condition or where there are discrepancies between the quantities received and the quantities shown on the bills of lading, the Contractor shall immediately report such damage or discrepancies to the Contract Administrator who shall arrange for an immediate inspection of the shipment and provide the Contractor with a written release from responsibility for such damage or deficiencies. Where damage or deficiencies are not so reported, it shall be assumed that the shipment arrived in good condition and order, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner.

- .04 The full amount of Material supplied by the Owner in each shipment shall be accounted for by the Contractor and such Material shall be at the risk of the Contractor after taking delivery. Such Material shall not, except with the written permission of the Contract Administrator, be used by the Contractor for purposes other than the performance of the Work under the Contract.
- .05 Empty reels, crates, containers, and other type of packaging from Material supplied by the Owner shall become the property of the Contractor when they are no longer required for their original purpose and shall be disposed of by the Contractor at the Contractor's expense unless otherwise specified in the Contract Documents.
- .06 Immediately upon receipt of each shipment, the Contractor shall provide the Contract Administrator copies of bills of lading, or such other documentation the Contract Administrator may require to substantiate and reconcile the quantities of Material received.
- .07 Where Material supplied by the Owner is ordered and stockpiled prior to the award of the Contract, the Contractor shall, at no extra cost to the Owner, immediately upon commencement of operations, check the Material, report any damage or deficiencies to the Contract Administrator and take charge of the Material at the stockpile site. Where damage or deficiencies are not so recorded by the Contractor, it shall be assumed that the stockpile was in good condition and order when the Contractor took charge of it, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner.

SECTION GC 6.0 - INSURANCE, PROTECTION AND DAMAGE

GC 6.01 Protection of Work, Persons and Property

- .01 The Contractor, the Contractor's agents, and all workers employed by or under the control of the Contractor, including Subcontractors, shall protect the Work, persons, and property from damage or injury. The Contractor shall be responsible for all losses and damage that may arise as the result of the Contractor's operations under the Contract, unless indicated to the contrary below.
- .02 The Contractor is responsible for the full cost of any necessary temporary protective Work and the restoration of all damage where the Contractor damages the Work or property in the performance of the Contract. If the Contractor is not responsible for the damage that occurs to the Work or property, the Contractor shall restore such damage, and such Work and payment shall be administered according to these General Conditions.
- .03 The Contractor shall immediately inform the Contract Administrator of all damage and injuries that occur during the term of the Contract. The Contractor shall then investigate and report back to the Contract Administrator within 15 Days of occurrence of incident, or as soon as possible. The Contract Administrator may conduct its own investigation and the Contractor shall provide all assistance to the Contract Administrator as may be necessary for that purpose.
- .04 The Contractor shall not be responsible for loss and damage that occurs as a result of,
 - a) war;
 - b) blockades and civil commotions;
 - c) errors in the Contract Documents; or
 - d) acts or omissions of the Owner, the Contract Administrator, their agents and employees, or others not under the control of the Contractor, but within the Working Area with the Owner's permission.
- .05 The Contractor and the Contractor's Surety shall not be released from any term or provision of any responsibility, obligation, or liability under the Contract or waive or impair any of the rights of the Owner, except by a release duly executed by the Owner.

GC 6.02 Indemnification

- .01 The Contractor shall indemnify and hold harmless the Owner and the Contract Administrator, their elected officials, agents, officers, and employees from and against all claims, demands, losses, expenses, costs, damages, actions, suits, or proceedings by third parties, hereinafter called "claims", directly or indirectly arising or alleged to arise out of the performance of or the failure to perform the Work, provided such claims are,
 - a) attributable to bodily injury, sickness, disease, or death or to damage to or destruction of tangible property;
 - b) caused by negligent acts or omissions of the Contractor or anyone for whose acts the Contractor may be liable; and
 - c) made in writing within a period of 6 years from the date of Substantial Performance of the Work as set out in the Certificate of Substantial Performance of the Work or, where so specified in the Contract Documents, from the date of certification of Final Acceptance.

- .02 The Contractor shall indemnify and hold harmless the Owner from all and every claim for damages, royalties or fees for the infringement of any patented invention or copyright occasioned by the Contractor in connection with the Work performed or Material furnished by the Contractor under the Contract.
- .03 The Owner expressly waives the right to indemnity for claims other than those stated in clauses GC 6.02.01 and GC 6.02.02.
- .04 The Owner shall indemnify and hold harmless the Contractor, their elected officials, agents, officers, and employees from and against all claims, demands, losses, expenses, costs, damages, actions, suits, or proceedings arising out of the Contractor's performance of the Contract that are attributable to a lack of or defect in title or an alleged lack of or defect in title to the Working Area.
- .05 The Contractor expressly waives the right to indemnity for claims other than those stated in clause GC 6.02.04.

GC 6.03 Contractor's Insurance

GC 6.03.01 General

- .01 Without restricting the generality of subsection GC 6.02, Indemnification, the Contractor shall provide, maintain, and pay for the insurance coverages listed under clauses GC 6.03.02 and GC 6.03.03. Insurance coverage in clauses GC 6.03.04, GC 6.03.05, and GC 6.03.06 shall only apply when so specified in the Contract Documents.
- .02 The Contractor shall provide the Contract Administrator with an original Certificate of Insurance for each type of insurance coverage that is required by the Contract Documents. The Contractor shall ensure that the Contract Administrator is, at all times in receipt of a valid Certificate of Insurance for each type of insurance coverage, in such amounts as specified in the Contract Documents. The Contractor will not be permitted to commence Work until the Contract Administrator is in receipt of such proof of insurance. The Contract Administrator may withhold payments of monies due to the Contractor until the Contractor has provided the Contract Administrator with original valid Certificates of Insurance as required by the provisions of the Contract Documents.

GC 6.03.02 Commercial General Liability Insurance

- .01 Commercial General Liability Insurance shall be in the name of the Contractor, with the Owner and the Contract Administrator named as additional insureds, with limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof. The insurance shall be provided in a form acceptable to the Owner.
- .02 Approval of this insurance shall be conditional upon the Contractor obtaining the services of an insurer licensed to underwrite insurance in the Province of Ontario and obtaining the insurer's certificate of equivalency to the required insurance.
- .03 The Contractor shall submit annually to the Owner, proof of continuation of the completed operations coverage and, if the Contractor fails to do so, the limitation period for claiming indemnity described in clause GC 6.02.01 c), shall not be binding on the Owner.
- .04 Should the Contractor decide not to employ Subcontractors for operations requiring the use of explosives for blasting, pile driving or caisson work, removal or weakening of support of property building or land, the Commercial General Liability Insurance shall include the appropriate endorsements.
- .05 The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, termination, or material change.

.06 "Claims Made" insurance policies shall not be permitted.

GC 6.03.03 Automobile Liability Insurance

.01 Automobile liability insurance in respect of licensed vehicles shall have limits of not less than five million dollars inclusive per occurrence for bodily injury, death and damage to property, in the following forms endorsed to provide the Owner with not less than 30 Days written notice in advance of any cancellation, termination, or material change.

- a) standard non-owned automobile policy including standard contractual liability endorsement, and
- b) standard owner's form automobile policy providing third party liability and accident benefits insurance and covering licensed vehicles owned or operated by the Contractor.

GC 6.03.04 Aircraft and Watercraft Liability Insurance

GC 6.03.04.01 Aircraft Liability Insurance

.01 Aircraft liability insurance with respect to owned or non-owned aircraft used directly or indirectly in the performance of the Work, including use of additional premises, shall be subject to limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof, and limits of not less than five million dollars for aircraft passenger hazard. Such insurance shall be in a form acceptable to the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage.

GC 6.03.04.02 Watercraft Liability Insurance

.01 Watercraft liability insurance with respect to owned or non-owned watercraft used directly or indirectly in the performance of the Work, including use of additional premises, shall be subject to limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof. Such insurance shall be in a form acceptable to the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage.

GC 6.03.05 Property and Boiler Insurance

GC 6.03.05.01 Property Insurance

.01 All risks property insurance shall be in the name of the Contractor, with the Owner and the Contract Administrator named as additional insureds, insuring not less than the sum of the amount of the Contract price and the full value, as may be stated in the Contract Documents, of Material that is specified to be provided by the Owner for incorporation into the Work.

GC 6.03.05.02 Boiler Insurance

.01 Boiler insurance insuring the interests of the Contractor, the Owner and the Contract Administrator for not less than the replacement value of boilers and pressure vessels forming part of the Work, shall be in a form acceptable to the Owner.

GC 6.03.05.03 Use and Occupancy of the Work Prior to Completion

.01 Should the Owner wish to use or occupy part or all of the Work prior to Substantial Performance, the Owner shall give 30 Days written notice to the Contractor of the intended purpose and extent of such use or occupancy. Prior to such use or occupancy, the Contractor shall notify the Owner in writing of

the additional premium cost, if any, to maintain property and boiler insurance, which shall be at the Owner's expense. If because of such use or occupancy the Contractor is unable to provide coverage, the Owner upon written notice from the Contractor and prior to such use or occupancy shall provide, maintain, and pay for property and boiler insurance insuring the full value of the Work, including coverage for such use or occupancy, and shall provide the Contractor with proof of such insurance. The Contractor shall refund to the Owner the unearned premiums applicable to the Contractor's policies upon termination of coverage.

- .02 The policies shall provide that in the event of a loss or damage, payment shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of both the Owner and the Contractor for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the Contractor shall proceed to restore the Work. Loss or damage shall not affect the rights and obligations of either party under the Contract, except that the Contractor shall be entitled to such reasonable extension of Contract Time relative to the extent of the loss or damage as the Contract Administrator may decide in consultation with the Contractor.

GC 6.03.05.04 Payment for Loss or Damage

- .01 The Contractor shall be entitled to receive from the Owner, in addition to the amount due under the Contract, the amount at which the Owner's interest in restoration of the Work has been appraised, such amount to be paid as the restoration of the Work proceeds, and in accordance with the requirements of section GC 8.0, Measurement and Payment. In addition, the Contractor shall be entitled to receive from the payments made by the insurers the amount of the Contractor's interest in the restoration of the Work.
- .02 The Contractor shall be responsible for deductible amounts under the policies, except where such amounts may be excluded from the Contractor's responsibility by the terms of this Contract.
- .03 In the event of a loss or damage to the Work arising from the action or omission of the Owner or others, the Owner shall pay the Contractor the cost of restoring the Work as the restoration of the Work proceeds and in accordance with the requirements of section GC 8.0, Measurement and Payment.

GC 6.03.06 Contractor's Equipment Insurance

- .01 All risks Contractor's Equipment insurance covering construction equipment used by the Contractor for the performance of the Work, including boiler insurance on temporary boilers and pressure vessels, shall be in a form acceptable to the Owner and shall not allow subrogation claims by the insurer against the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage. Subject to satisfactory proof of financial capability by the Contractor for self-insurance of the Contractor's Equipment, the Owner agrees to waive the equipment insurance requirement, and for the purpose of this Contract, the Contractor shall be deemed to be insured. This policy shall be amended to provide permission for the Contractor to grant prior releases with respect to damage to the Contractor's Equipment.

GC 6.03.07 Insurance Requirements and Duration

- .01 Each insurance policy as noted in the Contract Documents shall be in effect from the date of commencement of the Work until 10 Days after the date of Final Acceptance of the Work, as set out in the Final Acceptance Certificate.
- .02 The Contractor shall provide the Owner, on a form acceptable to the Owner, proof of insurance prior to commencement of the Work and signed by the underwriter or the broker.

- .03 The Contractor shall, on request, promptly provide the Owner with a certified true copy of each insurance policy exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. The certified true copy shall include the signature of an officer of the insurer.
- .04 Where a policy is renewed, the Contractor shall provide the Owner, on a form acceptable to the Owner, renewed proof of insurance immediately following completion of renewal.
- .05 Unless specified otherwise, the Contractor shall be responsible for the payment of deductible amounts under the policies.
- .06 If the Contractor fails to provide or maintain insurance as required in subsection GC 6.03, Contractor's Insurance, or elsewhere in the Contract Documents, then the Owner shall have the right to provide and maintain such insurance and give evidence thereof to the Contractor. The Owner's cost thereof shall be payable by the Contractor to the Owner on demand.
- .07 If the Contractor fails to pay the cost of the insurance placed by the Owner within 28 Days of the date on which the Owner made a formal demand for reimbursement of such costs, the Owner may deduct the costs thereof from monies which are due or may become due to the Contractor.

GC 6.04 Bonding

- .01 The Contractor shall provide the Owner with the surety bonds in the amount required by the Contract Documents.
- .02 Such bonds shall be issued by a duly licensed surety company authorized to transact a business of suretyship in the Province of Ontario and shall be to the satisfaction of the Owner. The bonds shall be maintained in good standing until the Final Acceptance.

GC 6.05 Workplace Safety and Insurance Board

- .01 The Contractor shall provide the Contract Administrator with a copy of a Certificate of Clearance indicating the Contractor's good standing with the Workplace Safety and Insurance Board, as follows:
 - a) Immediately prior to the Contract Administrator authorizing the Contractor to commence Work.
 - b) Prior to issue of the Certificate of Substantial Performance.
 - c) Prior to expiration of the Warranty Period.
 - d) At any other time when requested by the Contract Administrator.

SECTION GC 7.0 - CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK

GC 7.01 General

GC 7.01.01 Site Visit

- .01 The Contractor warrants that the site of the Work has been visited during the preparation of the Tender and the character of the Work and all local conditions that may affect the performance of the Work are known.

GC 7.01.02 Commencement of Work

- .01 The Contractor shall not commence the Work nor deliver anything to the Working Area until the Contractor has received a written order to commence the work from the Contract Administrator.

GC 7.01.03 Control and Responsibility

- .01 The Contractor shall have complete control of the Work and shall effectively direct and supervise the Work so as to ensure conformity with the Contract Documents. The Contractor shall be responsible for construction means, methods, techniques, sequences, and procedures and for coordinating the various parts of the Work.
- .02 The Contractor shall provide adequate labour, Equipment, and Material to ensure the completion of the Contract in accordance with the Contract Documents. The Work shall be performed as vigorously and as continuously as weather conditions or other interferences may permit.
- .03 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance, and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use.
- .04 Notwithstanding clause GC 7.01.03, where the Contract Documents include designs for temporary structures and other temporary facilities or specify a method of construction in whole or part, such facilities and methods shall be considered to be part of the design of the Work, and the Contractor shall not be held responsible for that part of the design or the specified method of construction. The Contractor shall, however, be responsible for the execution of such design or specified method of construction in the same manner that the Contractor is responsible for the execution of the Work.
- .05 The Contractor shall comply with and conform to all statutes, laws, by-laws, regulations, requirements, ordinances, notices, rulings, orders, directives and policies of the municipal, provincial and federal governments and any other lawful authority and all court orders, judgments and declarations of a court of competent jurisdiction (collectively referred to as the "Laws"), applicable to the Work to be provided by, and the undertakings and obligations of, the Contractor under this Contract.

GC 7.01.04 Compliance with the Occupational Health and Safety Act

- .01 The Contractor shall execute the terms of the Contract in strict compliance with the requirements of the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended, (the "Act") and Ontario Regulation 213/91, as amended, (that regulates Construction Projects) and any other regulations as amended under the Act (the "Regulations") that may affect the performance of the Work, as the "Constructor" or "employer," as defined by the Act, as the case may be. The Contractor shall ensure that:
- a) worker safety is given priority in planning, pricing, and performing the Work;

- b) its officers and supervisory employees have a working knowledge of the duties of a "Constructor" and "employer" as defined by the Act and the provisions of the Regulations applicable to the Work, and a personal commitment to comply with them;
 - c) a copy of the most current version of the Act and the Regulations are available at the Contractor's office within the Working Area, or, in the absence of an office, in the possession of the supervisor responsible for the performance of the Work;
 - d) workers employed to carry out the Work possess the knowledge, skills, and protective devices required by law or recommended for use by a recognized industry association to allow them to work in safety;
 - e) its supervisory employees are "Competent Persons" as defined in the OHSA, and carry out their duties in a diligent and responsible manner with due consideration for the health and safety of the workers;
 - f) all Subcontractors and their workers are properly protected from injury while they are at the Working Area; and
 - g) following execution of the Contract and prior to the issuance of the order to commence by the Owner, upon request the Contractor submits to the Contract Administrator a copy of the Notice of Project issued to the Ministry of Labour.
- .02 The Contractor, when requested, shall provide the Owner with a copy of its health and safety policy and program at the pre-start meeting and shall respond promptly to requests from the Owner for confirmation that its methods and procedures for carrying out the Work comply with the Act and Regulations. The Contractor shall cooperate with representatives of the Owner and the inspectors appointed to enforce the Act and the Regulations in any investigations of worker health and safety in the performance of the Work. The Contractor shall indemnify and save the Owner harmless from any additional expense that the Owner may incur to have the Work performed as a result of the Contractor's failure to comply with the requirements of the Act and the Regulations.
- .03 Prior to commencement of the Work, the Contractor shall provide to the Contract Administrator a list of those products controlled under the Workplace Hazardous Materials Information System or "WHMIS", which the Contractor expects to use on the Contract. Related Safety Data Sheets shall accompany the submission. All containers used in the application of products controlled under "WHMIS" shall be labelled. The Contractor shall notify the Contract Administrator in writing of changes in the products to be used and provide relevant Safety Data Sheets.
- .04 During the course of the Work, the Contractor shall furnish forthwith to the Contract Administrator a copy of all correspondence, reports, orders or charges respecting occupational health and safety, including under the Act, Technical Standards and Safety Act, 2000, S.O. 2000, c.16 as amended, and the Criminal Code, R.S.C., 1985, c. C-46 as amended, which are received by, or which come to the notice of, the Contractor that apply or are relevant to any of the Work or activities conducted under the terms of the Contract.
- .05 Nothing in this Contract shall be construed as requiring the Owner to monitor or approve the workplace health and safety practices of the Contractor.

GC 7.01.05 Contractor's Representatives

- .01 The Contractor shall have an authorized representative on the site while any Work is being performed, to supervise the Work and act for or on the Contractor's behalf. Prior to commencement of construction, the Contractor shall notify the Contract Administrator of the names, addresses, positions, and cell phone, and telephone numbers of the Contractor's representatives who can be contacted at any time to deal with matters relating to the Contract, and update as necessary.

- .02 The Contractor shall designate a person to be responsible for traffic control and work zone safety. The designated person shall be a competent worker who is qualified because of knowledge, training, and experience to perform the duties; is familiar with Book 7 of the Ontario Traffic Manual; and has knowledge of all potential or actual danger to workers and motorists. Prior to the commencement of construction, the Contractor shall notify the Contract Administrator of the name; address; position; cell phone, and telephone numbers of the designated person, and update as necessary. The designated person may have other responsibilities, including other construction sites, and need not be present in the Working Area at all times.

GC 7.01.06 Assistance to the Contract Administrator

- .01 The Contractor shall, at no additional cost to the Owner, furnish all reasonable aid, facilities, and assistance required by the Contract Administrator for the proper inspection and examination of the Work or the taking of measurements for the purpose of payment.

GC 7.01.07 Schedule

- .01 The Contractor shall prepare and update, as required, a construction schedule of operations, 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 time specified in the Contract Documents. The schedule shall be submitted to the Contract Administrator within 14 Days from the Contract award. If the Contractor's schedule is materially affected by changes in the work, the Contractor shall submit an updated construction schedule, if requested by the Contract Administrator, within 7 Days of the request. This updated schedule shall show how the Contractor proposes to perform the balance of the Work, to complete the Work within the time specified in the Contract Documents.
- .02 For Contracts with a specified number of Working Days, the construction time shown on the initial schedule shall not exceed the specified number of Working Days. The activities on the critical path shall assist the Contract Administrator in determining the Controlling Operation for the purpose of the charging of Working Days. The construction schedule shall include all non-working periods and appropriate allowances for Inclement Weather.
- .03 For Contracts which specify a Contract Time, the construction time shown on the initial construction schedule shall not extend beyond the specified Contract Time. The construction schedule shall include all non-working periods and appropriate allowances for Inclement Weather.

GC 7.01.08 Errors and Inconsistencies Relating to the Contract

- .01 Where the Contractor finds any error, inconsistency, or omission relating to the Contract, the Contractor shall promptly report it to the Contract Administrator and shall not proceed with the activity affected until receiving direction from the Contract Administrator.
- .02 The Contractor shall promptly notify the Contract Administrator in writing if the subsurface conditions observed in the Working Area differ materially from those indicated in the Contract Documents.

GC 7.01.09 Utilities

- .01 The Contractor shall arrange with the appropriate Utility authorities for the stake out of all underground Utilities and service connections that may be affected by the Work. The Contractor shall observe the location of the stake outs prior to commencing the Work and if there is a discrepancy between the location of the stake outs and the locations shown on the Contract Documents, that may affect the Work, the Contractor shall immediately notify the Contract Administrator and the affected Utility companies, in order to resolve the discrepancy. The Contractor shall be responsible for any damage done to the underground Utilities and service connections by

the Contractor's forces during construction if the stake out locations are within the tolerances given in clause GC 2.01.01 a).

- .02 In the case of damage to or interference with any Utilities, pole lines, pipe lines, conduits, farm tiles, or other public or privately-owned works or property, the Contractor shall immediately notify the Owner, Contract Administrator, and the owner of the works of the location and details of such damage or interference.

GC 7.02 Monuments and Layout

- .01 Prior to commencement of construction, the Contract Administrator and the Contractor shall locate on site those Monuments that delineate the Working Area and may be used to lay out the Work, all as shown on the Contract Drawings. Property Monuments shall be inventoried in the report format required by the Owner.
- .02 These Monuments shall be protected by highly visible T-bars or 1.0 metre tall stakes with survey ribbon set within 0.3 metres of the Monument.
- .03 The Contractor shall be responsible for the preservation of all Property Monuments while the Work is in progress, except those Property Monuments that must be removed to facilitate the Work as identified and agreed by the Contractor and Contract Administrator. Monuments removed to facilitate the Work shall be replaced at the Owner's expense, and all others shall be replaced at the Contractor's expense.
- .04 All Monuments disturbed, damaged, or removed by the Contractor's operations shall be documented in the inventory report and replaced under the supervision of an Ontario Land Surveyor.
- .05 The Monument inventory report referred to in clauses GC 7.02.01 and GC 7.02.04 shall include as a minimum:
 - a) Contract number, Contract name, Contract Administrator's name;
 - b) Project/site construction limits;
 - c) Rough location, type, identification number, and condition of each Monument before and after construction;
 - d) The solutions for protection of the Monuments that may be impacted by construction;
 - e) Reference ties;
 - f) A summary of those Monuments affected by the Work and how they were reset or replaced, and by what type of Monument.
- .06 At no extra cost to the Owner, the Contractor shall provide the Contract Administrator with such materials and devices as may be necessary to lay out the baseline and benchmarks, and as may be necessary for the inspection of the Work.
- .07 The Contractor shall provide qualified personnel to lay out and establish all lines and grades necessary for construction. The Contractor shall notify the Contract Administrator of any layout work carried out, so that the same may be checked by the Contract Administrator.
- .08 The Contractor shall install and maintain substantial alignment markers and secondary benchmarks as may be required for the proper execution of the Work. The Contractor shall supply one copy of all alignment and grade sheets to the Contract Administrator.
- .09 The Contractor shall assume full responsibility for alignment, elevations, and dimensions of each and all parts of the Work, regardless of whether the Contractor's layout work has been checked by the Contract Administrator.

- .10 All stakes, marks, and reference points shall be carefully preserved by the Contractor. In the case of their destruction or removal, for any reason, before the end of the Contract Time such stakes, marks, and reference points shall be replaced, unless otherwise mutually agreed between the Contractor and the Contract Administrator, at the Contractor's expense.
- .11 Benchmarks and survey monuments identified in the Contract Documents shall be protected by the Contractor. In the case of their destruction or removal, such benchmarks and survey monuments shall be replaced by the Owner at the Contractor's expense.

GC 7.03 Working Area

- .01 The Contractor shall maintain the Working Area in a tidy condition and free from the accumulation of debris and prevent dust nuisance, mud, and ponding water, other than that caused by the Owner or others.
- .02 The Contractor's sheds, site offices, toilets, other temporary structures, and storage areas for Material and Equipment shall be grouped in a compact manner, maintained in a neat and orderly condition at all times and removed upon completion of the Work.
- .03 The Contractor shall confine the construction operations to the Working Area. Should the Contractor require additional space, the Contractor shall obtain such space at no additional cost to the Owner.
- .04 The Contractor shall not enter upon or occupy any private property for any purpose, unless the Contractor has received prior written permission from the property owner.
- .05 Upon completion of the Contract, the Working Area used by the Contractor shall be restored to its original condition or better unless otherwise specified in the Contract Documents including the removal of all excavated and stockpiled materials at the Contractor's expense.

GC 7.04 Damage by Vehicles or Other Equipment

- .01 If at any time, in the opinion of the Contract Administrator, damage is being done or is likely to be done to any Roadway or any improvement thereon, outside the Working Area, by the Contractor's vehicles or other Equipment, whether licensed or unlicensed Equipment, the Contractor shall, on the direction of the Contract Administrator, and at no extra cost to the Owner, make changes or substitutions for such vehicles or Equipment, and shall alter loadings, or in some other manner, remove the cause of such damage to the satisfaction of the Contract Administrator.

GC 7.05 Excess Loading of Motor Vehicles

- .01 Where a vehicle is hauling Material for use on the Work, in whole or in part; upon a Highway; and where motor vehicle registration is required for such vehicle, the Contractor shall not cause or permit such vehicle to be loaded beyond the legal limit specified in the Highway Traffic Act, R.S.O. 1990, c.H.8, as amended, whether such vehicle is registered in the name of the Contractor or otherwise, except where there are designated areas within the Working Area where overloading is permitted. The Contractor shall bear the onus of weighing disputed loads.

GC 7.06 Maintaining Roads and Detours

- .01 Unless otherwise specified in the Contract Documents, if an existing Roadway is affected by construction, it shall be kept open to both vehicular and pedestrian traffic.
- .02 Subject to the approval of the Contract Administrator, the Contractor shall, at no additional cost to the Owner, be responsible for providing and maintaining for the duration of the Work an alternative route for both pedestrian and vehicular traffic through the Working Area in accordance with the OTM,

whether along the existing Highway under construction or on a detour road beside or adjacent to the Highway under construction.

- .03 Subject to the approval of the Contract Administrator, the Contractor may block traffic for short periods of time to facilitate construction of the Work in accordance with the OTM. Any temporary lane closures shall be kept to a minimum.
- .04 The Contractor shall not be required to maintain a road through the Working Area until such time as the Contractor has commenced operations or during seasonal shut down or on any part of the Contract that has been accepted in accordance with these General Conditions. The Contractor shall not be required to apply de-icing chemicals or abrasives or carry out snowplowing.
- .05 Where only localized and separated sections of the Highway are affected by the Contractor's operations, the Contractor shall not be required to maintain intervening sections of the Highway until such times as these sections are located within the limits of the Highway affected by the Contractor's general operations under the Contract.
- .06 Where the Contract Documents provide for or the Contract Administrator requires detours at specific locations, payment for the construction of the detours and, if required, for the subsequent removal of the detours, shall be made at the Contract prices appropriate to such Work.
- .07 Compensation for all labour, Equipment, and Materials to do this Work shall be at the Contract prices appropriate to the Work and, where there are no such prices, at negotiated prices. Notwithstanding the foregoing, the cost of blading required to maintain the surface of such roads and detours shall be deemed to be included in the prices bid for the various tender items and no additional payment shall be made.
- .08 Where Work under the Contract is discontinued for any extended period, including seasonal shutdown, the Contractor shall, when directed by the Contract Administrator, open and place the Roadway and detours in a passable, safe, and satisfactory condition for public travel.
- .09 Where the Contractor constructs a detour that is not specifically provided for in the Contract Documents or required by the Contract Administrator, the construction of the detour and, if required, the subsequent removal shall be performed at the Contractor's expense. The detour shall be constructed and maintained to structural and geometric standards approved by the Contract Administrator. Removal and site restoration shall be performed as directed by the Contract Administrator.
- .10 Where, with the prior written approval of the Contract Administrator, the Highway is closed and the traffic diverted entirely off the Highway to any other Highway, the Contractor shall, at no extra cost to the Owner, supply, erect, and maintain traffic control devices in accordance with the OTM.
- .11 Compliance with the foregoing provisions shall in no way relieve the Contractor of its obligations under subsection GC 6.01, Protection of Work, Persons, and Property, dealing with the Contractor's responsibility for damage claims, except for claims arising on sections of Highway within the Working Area that are being maintained by others.

GC 7.07 Access to Properties Adjoining the Work and Interruption of Utility Services

- .01 The Contractor shall provide at all times and at no extra cost to the Owner,
 - a) safe and adequate pedestrian and vehicular access;
 - b) continuity of Utility services; and

c) access for emergency response services;

to properties adjoining the Working Area.

- .02 The Contractor shall provide at all times and at no extra cost to the Owner access to fire hydrants, water and gas valves, and all other Utilities located in the Working Area.
- .03 Where any interruptions in the supply of Utility services are required and are authorized by the Contract Administrator, the Contractor shall give the affected property owners notice in accordance with subsection GC 7.11, Notices by the Contractor, and shall arrange such interruptions so as to create a minimum of interference to those affected.

GC 7.08 Approvals and Permits

- .01 Except as specified in subsection GC 4.02, Approval and Permits, the Contractor shall obtain and pay for any permits, licences, and certificates, which at the date of tender closing, are required for the performance of the Work.
- .02 The Contractor shall arrange for all necessary inspections required by the approvals and permits specified in clause GC 7.08.01, Approvals and Permit.

GC 7.09 Suspension of Work

- .01 The Contractor shall, upon written notice from the Contract Administrator, discontinue or delay any or all of the Work and Work shall not be resumed until the Contract Administrator so directs in writing. Delays, in these circumstances, shall be administered according to subsection GC 3.07, Delays.

GC 7.10 Contractor's Right to Stop the Work or Terminate the Contract

- .01 If the Owner is adjudged bankrupt or makes a general assignment for the benefit of creditors because of insolvency or if a receiver is appointed because of insolvency, the Contractor may, without prejudice to any other right or remedy the Contractor may have, by giving the Owner or receiver or trustee in bankruptcy written notice, terminate the Contract.
- .02 If the Work is stopped or otherwise delayed for a period of 30 Days or more under an order of a court or other public authority and provided that such order was not issued as the result of an act or fault of the Contractor or of anyone directly employed or engaged by the Contractor, the Contractor may, without prejudice to any other right or remedy the Contractor may have, by giving the Owner written notice, terminate the Contract.
- .03 The Contractor may notify the Owner in writing, with a copy to the Contract Administrator, that the Owner is in default of contractual obligations if,
 - a) the Contract Administrator fails to issue certificates in accordance with the provisions of section GC 8.0, Measurement and Payment;
 - b) the Owner fails to pay the Contractor, within 28 Days of the due dates identified in clause GC 8.02.04, Certification and Payment, the amounts certified by the Contract Administrator or within 28 Days of an award by an arbitrator or court; or
 - c) the Owner fails to comply with the requirements of the Contract.
- .04 The Contractor's written notice to the Owner shall advise that if the default is not corrected in the 7 Days immediately following receipt of the written notice, the Contractor may, without prejudice to any other right or remedy the Contractor may have, stop the Work or terminate the Contract.

- .05 If the Contractor terminates the Contract under the conditions set out in subsection GC 7.10, Contractor's Right to Stop the Work or Terminate the Contract, the Contractor shall be entitled to be paid for all Work performed according to the Contract Documents and for any losses or damage as the Contractor may sustain as a result of the termination of the Contract.

GC 7.11 Notices by the Contractor

- .01 Before any Work is carried out that may affect the property or operations of any Ministry or agency of government or any person; company; partnership; or corporation, including a municipal corporation or any board or commission thereof, and in addition to such notices of the commencement of specified operations as are prescribed elsewhere in the Contract Documents, the Contractor shall give at least 48 hours advance written notice of the date of commencement of such Work to the person, company, partnership, corporation, board, or commission so affected.

GC 7.12 Environmental Incident Management under Legislation Protecting the Environment and Natural Resources

- .01 The Contractor shall be in strict compliance with the requirements of the following legislation, as amended, regarding environmental incidents under the control of the Contractor or that are a result of the Contractor's operations:
- a) Environmental Protection Act, R.S.O. 1990, c. E.19
 - b) Fisheries Act, R.S.C. 1985, c. F-14
 - c) Technical Standards and Safety Act, 2000, S.O. 2000, c. 16
 - d) Pesticides Act, R.S.O. 1990, c. P.11
 - e) Ontario Water Resources Act, R.S.O. 1990, c. O.40
 - f) Transportation of Dangerous Goods Act, 1992, S.C.1992, c. 34
- .02 The requirements of the legislation listed in clause GC 7.12.01 include but are not restricted to:
- a) Immediate containment of the material, pollutant, contaminant, deleterious substance, or dangerous good;
 - b) Immediate notification of the environmental incident to the proper authority; and
 - c) Clean up and restoration of the environment to preconditions.
- .03 The Contractor shall possess a plan demonstrating that environmental incidents shall be managed to satisfy the requirements of clauses GC 7.12.01 and GC 7.12.02.
- .04 The Contractor shall provide a copy of the environmental incident plan to the Contract Administrator when required and shall inform the Contract Administrator immediately of:
- a) An environmental incident when it occurs; and
 - b) Any actions taken or intended to be taken by the Contractor regarding the environmental incident.

- .05 The Contractor shall indemnify and save the Owner harmless from any additional expense that the Owner may incur to have the Work performed as a result of the Contractor's failure to comply with the requirements of the legislation listed in clause GC 7.12.01.

GC 7.13 Obstructions

- .01 Except as otherwise noted in these General Conditions, the Contractor assumes all the risks and responsibilities arising out of any obstruction encountered in the performance of the Work and any traffic conditions, including traffic conditions on any Highway or road giving access to the Working Area caused by such obstructions, and the Contractor shall not make any claim against the Owner for any loss, damage, or expense occasioned thereby.
- .02 Where the obstruction is an underground Utility or other man-made object, the Contractor shall not be required to assume the risks and responsibilities arising out of such obstruction, unless the location of the obstruction is shown on the Plans or described in the Contract Documents and the location so shown is within the tolerance specified in clause GC 2.01.01 a), or unless the presence and location of the obstruction has otherwise been made known to the Contractor or could have been determined by the visual site investigation made by the Contractor in accordance with these General Conditions.
- .03 During the course of the Contract, it is the Contractor's responsibility to consult with Utility companies or other appropriate authorities for further information in regard to the exact location of these Utilities, to exercise the necessary care in construction operations, and to take such other precautions as are necessary to safeguard the Utilities from damage.

GC 7.14 Limitations of Operations

- .01 Except for such Work as may be required by the Contract Administrator to maintain the Work in a safe and satisfactory condition, the Contractor shall not carry out operations under the Contract on Saturdays, Sundays, and any holidays recognized by the Owner without permission in writing from the Contract Administrator.
- .02 The Contractor shall cooperate and coordinate the Work with other Contractors, Utility companies, and the Owner and they shall be allowed access to their Work or plant at all reasonable times.

GC 7.15 Cleaning Up Before Acceptance

- .01 Upon attaining Substantial Performance of the Work, the Contractor shall remove surplus materials, tools, and Equipment not required for the performance of the remaining Work. The Contractor shall also remove all temporary works and debris other than that caused by the Owner or others and leave the Work and Working Area clean and suitable for occupancy by the Owner, unless otherwise specified.
- .02 The Work shall not be deemed to have reached Completion until the Contractor has removed surplus materials, tools, and Equipment. The Contractor shall also have removed debris, other than that caused by the Owner, or others.

GC 7.16 Warranty

- .01 Unless otherwise specified in the Contract Documents for certain Materials or components of the Work, the Contractor shall be responsible for the proper performance of the Work only to the extent that the design and standards permit such performance.
- .02 Subject to the previous paragraph the Contractor shall correct promptly, at no additional cost to the Owner, defects or deficiencies in the Work that appear,

- a) prior to and during the period of 12 months from the date of Substantial Performance of the Work, as set out in the Certificate of Substantial Performance of the Work,
- b) where there is no Certificate of Substantial Performance, 12 months from the date of Completion of the Work as set out in the Completion Certificate, or
- c) such longer periods as may be specified in the Contract Documents for certain Materials or some of the Work.

The Contract Administrator shall promptly give the Contractor written notice of observed defects or deficiencies.

- .03 The Contractor shall correct or pay for damage resulting from corrections made under the requirements of clause GC 7.16.02.

GC 7.17 Contractor's Workers

- .01 The Contractor shall only employ orderly, competent, and skillful workers to do the Work and whenever the Contract Administrator shall inform the Contractor in writing that any worker or workers involved in the Work are, in the opinion of the Contract Administrator, incompetent, or disorderly such worker or workers shall be removed from the Work and shall not be employed on the Work again without the consent in writing of the Contract Administrator.

GC 7.18 Drainage

- .01 During construction and until the Work is completed, the Contractor shall make all reasonable efforts to keep all portions of the Work properly and efficiently drained, to at least the same degree as that of the existing drainage conditions.

SECTION GC 8.0 - MEASUREMENT AND PAYMENT

GC 8.01 Measurement

GC 8.01.01 Quantities

- .01 The Contract Administrator shall make an Estimate in writing once a month, unless otherwise specified in the Contract Documents, of the quantity of Work performed and provide such Estimate to the Contractor within 10 Days of the Cut-Off Date.
- .02 Quantities for progress payments shall be construed and held to approximate. The final quantities for the issuance of the Completion Payment shall be based on the measurement of Work completed.
- .03 Measurement of the quantities of the Work performed may be either by Actual Measurement or by Plan Quantity principles as indicated in the Contract. Adjustments to Plan Quantity measurements shall normally be made using Plan Quantity principles but may, where appropriate, be made using Actual Measurements. Those items identified on the Tender by the notation (P) in the unit column shall be paid according to the Plan Quantity. Items where the notation (P) does not occur shall be paid according to Actual Measurement or lump sum.

GC 8.01.02 Variations in Tender Quantities

- .01 Where it appears that the quantity of Work to be done or Material to be supplied or both by the Contractor under a unit price tender item may exceed or be less than the tender quantity, the Contractor shall proceed to do the Work or supply the Material or both required to complete the tender item and payment shall be made for the actual amount of Work done or Material supplied or both at the unit prices stated in the Tender except as provided below:
 - a) In the case of a Major Item where the quantity of Work performed or Material supplied or both by the Contractor exceeds the tender quantity by more than 15%, either party to the Contract may make a written request to the other party to negotiate a revised unit price for that portion of the Work performed or Material supplied or both which exceeds 115% of the tender quantity. The negotiation shall be carried out as soon as reasonably possible. Any revision of the unit price shall be based on the actual cost of doing the Work or supplying the Material or both under the tender item plus a reasonable allowance for profit and applicable overhead. Alternatively, where both parties agree, an allowance equal to 10% of the unit price on the amount of the underrun in excess of 15% of the tender quantity shall be paid.
 - b) In the case of a Major Item where the quantity of Work performed or Material supplied or both by the Contractor is less than 85% of the tender quantity, the Contractor may make a written request to negotiate for the portion of the actual overheads and fixed costs applicable to the amount of the underrun in excess of 15% of the tender quantity. For purposes of the negotiation, the overheads and fixed costs applicable to the item are deemed to have been prorated uniformly over 100% of the tender quantity for the item. Overhead costs shall be confirmed by a statement certified by the Contractor's senior financial officer or auditor and may be audited by the Owner. Alternatively, where both parties agree, an allowance equal to 10% of the unit price on the amount of the underrun in excess of 15% of the tender quantity shall be paid.

Written requests for compensation must be received no later than 60 Days after the issuance of the Completion Payment.

GC 8.02 Payment

GC 8.02.01 Non-Resident Contractor

- .01 If the Contractor is not a registered entity in Ontario, the Contractor shall obtain all necessary approvals, consents, permits, licences, certificates, registrations, and other authorizations prior to execution of the Contract.
- .02 The Contractor shall ensure that all Subcontractors the Contractor proposes to use for carrying out any of the Work required by the Contract and who are not a registered entity in Ontario have obtained all necessary approvals, consents, permits, certificates, registrations, and other authorizations prior to execution of the subcontract.

GC 8.02.02 Price for Work

- .01 Prices for the Work shall be full compensation for all labour, Equipment and Material required in its performance. The term "all labour, Equipment, and Material" shall include Hand Tools, supplies, and other incidentals.
- .02 Payment, for Work which is identified in the Contract Documents but not specifically detailed as part of any one item shall be deemed to be included in the items with which it is associated.

GC 8.02.03 Advance Payments for Material

- .01 The Owner shall make advance payments for Material intended for incorporation in the Work upon the written request of the Contractor and according to the following terms and conditions:
 - a) The Contractor shall deliver the Material to a site approved by the Contract Administrator and the Contractor shall, in advance of receipt of the shipment of the Material, arrange for adequate and proper storage facilities.
 - b) The value of aggregates, processed and stockpiled, shall be assessed by the following procedure:
 - i. Sources Other Than Commercial
 - (A) Granular A, B, BI, BII, BIII, M, and O shall be assessed at the rate of 60% of the Contract price.
 - (B) Coarse and fine aggregates for hot mix asphaltic concrete, surface treatment and Portland cement concrete shall be assessed at the rate of 25% of the Contract price for each aggregate stockpiled.
 - ii. Commercial Sources
 - Payment for separated coarse and fine aggregates shall be considered at the above rate when such Materials are stockpiled at a commercial source where further processing is to be carried out before incorporating such Materials into a final product. Advance payments for other Materials located at a commercial source shall not be made.
 - c) Payment for all other Materials, unless otherwise specified elsewhere in the Contract Documents, shall be based on the invoice price, and the Contractor shall submit proof of cost to the Contract Administrator before payment can be made by the Owner.
 - d) The payment for all Materials shall be prorated against the appropriate tender item by paying for sufficient units of the item to cover the value of the Material. Such payment shall not exceed 80% of the Contract price for the item.

- e) All Materials for which the Contractor wishes to receive advance payment shall be placed in the designated storage location immediately upon receipt of the Material and shall thenceforth be held by the Contractor in trust for the Owner as collateral security for any monies advanced by the Owner and for the due completion of the Work. The Contractor shall not exercise any act of ownership inconsistent with such security, or remove any Material from the storage locations, except for inclusion in the Work, without the consent, in writing, of the Contract Administrator.
 - f) Such materials shall remain at the risk of the Contractor who shall be responsible for any loss, damage, theft, improper use, or destruction of the Material however caused.
- .02 Where the Owner makes advance payments subject to the conditions listed in clause GC 8.02.03.01, such payment shall not constitute acceptance of the Material by the Owner. Acceptance shall only be determined when the Material meets the requirements of the appropriate specification.

GC 8.02.04 Certification and Payment

GC 8.02.04.01 Progress Payment

- .01 The Contractor shall submit a Proper Invoice for progress payments monthly or at intervals specified in the Contract Documents after starting the Work on this Contract. The Contractor shall submit the Proper Invoice to the Contract Administrator and to the Owner. This Proper Invoice shall be for work completed at the agreed to Cut-Off Date.
- .02 A Proper Invoice shall include;
- a) the requirements as set out in section 6.1 of the Construction Act;
 - b) the quantities of Work performed;
 - c) the value of Work performed;
 - d) any advanced payment for Material;
 - e) the amount of Statutory Holdback, liens, Owner's set-off;
 - f) the amount of any applicable taxes;
 - g) the amount due to the Contractor; and
 - h) any other information that may be prescribed in the Contract Documents.
- .03 Payment shall be made within 28 Days of the submission of the Proper Invoice unless a notice of non-payment has been issued in accordance with the Construction Act.
- .04 The Owner shall retain the Statutory Holdback in the form and amount as required under the Construction Act.

GC 8.02.04.02 Certification of Subcontract Completion

- .01 Before the Work has reached the stage of Substantial Performance, the Contractor may notify the Contract Administrator, in writing that a subcontract is completed satisfactorily and ask that the Contract Administrator certify the completion of such subcontract.

- .02 The Contract Administrator shall issue a Certificate of Subcontract Completion, if the subcontract has been completed in a form satisfactory to the Contract Administrator, and all required inspection and testing of the works covered by the subcontract have been carried out and the results are satisfactory to the Contract Administrator.
- .03 The Contract Administrator shall set out in the Certificate of Subcontract Completion the date on which the subcontract was completed and, within 7 Days of the date the subcontract is certified complete, the Contract Administrator shall give a copy of the certificate to the Contractor and to the Subcontractor concerned.

GC 8.02.04.03 Subcontract Statutory Holdback Release Certificate and Payment

- .01 Following receipt of the Certificate of Subcontract Completion, the Owner shall release and pay the Contractor the Statutory Holdback retained in respect of the subcontract. Such release shall be made 61 Days after the date the subcontract was certified complete and providing the Contractor submits the following to the Contract Administrator:
 - a) a document satisfactory to the Contract Administrator that shall release the Owner from all further claims relating to the subcontract, qualified by stated exceptions such as holdback monies;
 - b) evidence satisfactory to the Contract Administrator that the Subcontractor has discharged all liabilities incurred in carrying out the subcontract;
 - c) a satisfactory clearance certificate or letter from the Workplace Safety and Insurance Board relating to the subcontract; and
 - d) a copy of the contract between the Contractor and the Subcontractor and a satisfactory statement showing the total amount due the Subcontractor from the Contractor.
- .02 Clause GC 8.02.04.03.01 d), shall only apply to Lump Sum Items and then only when the Contract Administrator specifically requests it.
- .03 Upon receipt of the Statutory Holdback, the Contractor shall forthwith give the Subcontractor the payment due under the subcontract.
- .04 Release of Statutory Holdback by the Owner in respect of a subcontract shall not relieve the Contractor, or the Contractor's Surety, of any of their responsibilities.

GC 8.02.04.04 Substantial Performance of Work

- .01 The Contractor, as part of the application for Substantial Performance, shall submit an itemized list of the outstanding work.
- .02 Upon application by the Contractor and when the Contract Administrator has verified that the Contract has been substantially performed, the Contract Administrator shall issue a Certificate of Substantial Performance.
- .03 The Contract Administrator shall set out in the Certificate of Substantial Performance the date on which the Contract was substantially performed and, within 7 Days after signing the said certificate, and shall provide a copy to the Contractor.
- .04 Upon receipt of a copy of the Certificate of Substantial Performance, the Contractor shall forthwith, as required by Section 32(1) Paragraph 5 of the Construction Act, as amended, publish a copy of the certificate in the manner set out in the regulations.

- .05 Where the Contractor fails to publish a copy of the Certificate of Substantial Performance as required above within 7 Days after receiving a copy of the certificate signed by the Contract Administrator, the Owner may publish a copy of the certificate at the Contractor's expense.
- .06 Except as otherwise provided for in Section 31 of the Construction Act, the 60 Day lien period prior to the release of holdback as referred to in clause GC 8.02.04.05, Substantial Performance Payment and Statutory Holdback Release Payment Certificates, shall commence from the date of publication of the Certificate of Substantial Performance as provided for above.

GC 8.02.04.05 Substantial Performance Payment and Substantial Performance Statutory Holdback Release Payment Certificates

- .01 Prior to the Contract Administrator issuing the Certificate of Substantial Performance, the Contractor shall submit a Proper Invoice for the Work completed. In addition to the requirements specified under section 8.02.04.01.02, the Proper Invoice shall include:
 - a) the value of Work performed to the date of Substantial Performance;
 - b) the value of outstanding or incomplete Work;
 - c) the amount of the Statutory Holdback, allowing for any previous releases of Statutory Holdback to the Contractor in respect of completed subcontracts and deliveries of pre-selected Equipment; and
 - d) the amount due the Contractor.
- .02 Payment shall be made within 28 Days of the date of submission of the Proper Invoice.
- .03 The Substantial Performance Statutory Holdback Release Payment Certificate shall be a payment certificate releasing to the Contractor the Statutory Holdback due in respect of Work performed up to the date of Substantial Performance. Payment of such Statutory Holdback shall be due 61 Days after the date of publication of the Certificate of Substantial Performance but subject to the provisions of the Construction Act and the submission by the Contractor of the following documents:
 - a) a satisfactory Certificate of Clearance from the Workplace Safety and Insurance Board; and
 - b) proof of publication of the Certificate of Substantial Performance.
- .04 Any amount of security retained shall be identified on the Substantial Performance Payment Certificate.

GC 8.02.04.06 Certification of Completion

- .01 Upon application by the Contractor and when the Contract Administrator has verified that the Contract has reached Completion, the Contract Administrator shall issue a Completion Certificate.
- .02 The Contract Administrator shall set out in the Completion Certificate the date on which the Work was completed and, within 7 Days of signing the said certificate, the Contract Administrator shall provide a copy to the Contractor.

GC 8.02.04.07 Completion Payment and Completion Statutory Holdback Release Payment Certificates

- .01 Prior to the Contract Administrator issuing the Completion Certificate, the Contractor shall submit a Proper Invoice for the Work completed. In addition to the requirements noted under section 8.02.04.01.02, the Proper Invoice shall include:
- a) measurement and value of Work at Completion;
 - b) the amount of the further Statutory Holdback based on the value of further Work completed over and above the value of Work completed shown in the Substantial Performance Payment Certificate referred to above; and
 - c) the amount due the Contractor.
- .02 The Completion Statutory Holdback Release Payment Certificate shall be a payment certificate releasing to the Contractor the further Statutory Holdback. Subject to any outstanding liens and permissible set-offs and upon submission of a satisfactory Certificate of Clearance from the Workplace Safety and Insurance Board, the Owner shall pay the remaining holdback on the Work done, within 28 Days after the expiration of the 60-Day lien period.
- .03 Any amount of security retained shall be identified on the Completion Payment Certificate.

GC 8.02.04.08 Interest

- .01 Interest due to the Contractor shall be based on simple interest and calculated using the applicable Rate of Interest. Interest shall begin to accrue on an amount that is not paid when it is due to be paid under Part-I of the Construction Act, at the prejudgment interest rate determined under subsection 127 (2) of the *Courts of Justice Act* or, if the Contract specifies a different interest rate for this purpose, the greater of the prejudgment interest rate and the interest rate specified in the Contract.

GC 8.02.04.09 Interest for Late Payment

- .01 Provided the Contractor has complied with the requirements of the Contract, including all documentation requirements, when payment by the Owner to the Contractor for Work performed, or for release of Statutory Holdback, is delayed by the Owner, then the Contractor shall be entitled to receive interest on the outstanding payment at the Rate of Interest, if payment is not received on the dates set out below:
- a) Progress Payment: 28 Days after submission of Proper Invoice;
 - b) Subcontract Statutory Holdback Release Payment: 89 Days after the date on which the subcontract was completed;
 - c) Substantial Performance Payment: 28 Days after the date of issuance of the certificate;
 - d) Substantial Performance Statutory Holdback Release Payment: 89 Days after publication of the Payment Certificate of Substantial Performance;
 - e) Completion Payment: 28 Days after the date certified as the date on which the Contract reached Completion; and
 - f) Completion Statutory Holdback Release Payment: 89 Days after the date certified as the date that the Work was completed.

- .02 If the Contractor has not complied with the requirements of the Contract, including all documentation requirements, prior to expiration of the time periods described in clause GC 8.02.04.09.01, interest shall only begin to accrue when the Contractor has completed those requirements.

GC 8.02.04.10 Interest for Negotiations and Claims

- .01 Except as hereinafter provided, where a notice of negotiation, notice of intent to claim and the subsequent claims are submitted in accordance with the time limits or procedure or both described by subsection GC 3.13, Claims, Negotiations, Mediation, the Owner shall pay the Contractor the Rate of Interest on the amount of the negotiated price for that part of the Work or on the amount of the settled claim. Such interest shall not commence until 30 Days after the satisfactory completion of that part of the Work.
- .02 Where the Contractor fails to give notice of a claim within the time limit prescribed by subsection GC 3.13, Claims, Negotiations, Mediation, interest shall not be paid.
- .03 Where a Contractor fails to comply with the 30 Day time limit and the procedures prescribed in clause GC 3.13.03.03 for submission of claims, interest shall not be paid for the delay period.

GC 8.02.04.11 Owner's Set-Off

- .01 Pursuant to the Construction Act, the Owner may retain from monies owing to the Contractor under this Contract an amount sufficient to cover any outstanding or disputed liabilities, including the cost to remedy deficiencies, the reduction in value of substandard portions of the Work, claims for damages by third parties that have not been determined in writing by the Contractor's insurer, undetermined claims by the Owner, and any assessment due the Workplace Safety and Insurance Board.
- .02 Under these circumstances the Owner will give the Contractor appropriate notice of such action.

GC 8.02.04.12 Delay in Payment

- .01 The Owner shall not be deemed to be in default of the Contract provided any delay in payment does not exceed the due dates as defined in clause GC 8.02.04.09.01.

GC 8.02.05 Payment on a Time and Material Basis

GC 8.02.05.01 Definitions

- .01 For the purpose of clause GC 8.02.05 the following definitions apply:

Cost of Labour means the amount of wages, salary, travel, travel time, food, lodging, or similar items and Payroll Burden paid or incurred directly by the Contractor to or in respect of labour and supervision actively and necessarily engaged on the Work based on the recorded time and hourly rates of pay for such labour and supervision but shall not include any payment or costs incurred for general supervision, administration, and management time spent on the entire Work or any wages, salary, or Payroll Burden for which the Contractor is compensated by any payment made by the Owner for Equipment.

Cost of Material means the cost of Material purchased or supplied from stock and valued at current market prices for the purpose of carrying out Extra Work by the Contractor or by others, when such arrangements have been made by the Contractor for completing the Work, as shown by itemized invoices.

Operated Rented Equipment means Rented Equipment for which an operator is provided by the supplier of the Equipment and for which the rent or lease includes the cost of the operator.

Payroll Burden means the payments in respect of workplace insurance, vacation pay, employment insurance, public liability and property damage insurance, sickness and accident insurance, pension fund, and such other welfare and benefit payments forming part of the Contractor's normal labour costs.

Rented Equipment means Equipment that is rented or leased for the special purpose of Work on a Time and Material Basis from a person, firm, or corporation that is not an associate of the lessee as the word "associate" is defined by the Securities Act, R.S.O. 1990, c.S.5, as amended, and is approved by the Contract Administrator.

Road Work means the preparation, construction, finishing, and construction maintenance of roads, streets, Highways, and parking lots and includes all work incidentals thereto other than Work on structures.

Sewer and Watermain Work means the preparation, construction, finishing, and construction maintenance of sewer systems and watermain systems, and includes all work incidental thereto other than Work on structures.

Standby Time means any period of time that is not considered Working Time and which together with the Working Time does not exceed 10 hours in any one Working Day and during which time a unit of Equipment cannot practically be used on other Work but must remain on the site in order to continue with its assigned task and during which time the unit is in fully operable condition.

Structure Work means the construction, reconstruction, repair, alteration, remodelling, renovation, or demolition of any bridge, building, tunnel, or retaining wall and includes the preparation for and the laying of the foundation of any bridge, building, tunnel, or retaining wall and the installation of Equipment and appurtenances incidental thereto.

The 127 Rate means the rate for a unit of Equipment as listed in OPSS.PROV 127, Schedule of Rental Rates for Construction Equipment, Including Model and Specification Reference, that is current at the time the work is carried out or for Equipment that is not so listed, the rate that has been calculated by the Owner, using the same principles as used in determining The 127 Rates.

Work on a Time and Material Basis means Changes in the Work, Extra Work, and Additional Work approved by the Contract Administrator for payment on a Time and Material basis. The Work on a Time and Material Basis shall be subject to all the terms, conditions, Standard Specifications and provisions of the Contract.

Working Time means each period of time during which a unit of Equipment is actively and of necessity engaged on a specific operation and the first 2 hours of each immediately following period during which the unit is not so engaged but during which the operation is otherwise proceeding and during which time the unit cannot practically be transferred to other Work but must remain on the site in order to continue with its assigned tasks and during which time the unit is in a fully operable condition.

GC 8.02.05.02 Daily Work Records

- .01 Daily Work Records, prepared as the case may be by either the Contractor's representative or the Contract Administrator reporting the labour and Equipment employed and the Material used on each Time and Material project, should be reconciled and signed each Day by both the Contractor's representative and the Contract Administrator. If it is not possible to reconcile the Daily Work Records, then the Contractor shall submit the un-reconciled Daily Work Records with its claim, whereby the resolution of the dispute about the Daily Work Records shall not be resolved until there is a resolution of the claim.

GC 8.02.05.03 Payment for Work

- .01 Payment as herein provided shall be full compensation for all labour, Equipment, and Material to do the Work on a Time and Material Basis except where there is agreement to the contrary prior to the commencement of the Work on a Time and Material Basis. The payment adjustments on a Time and Material basis shall apply to each individual Change Order authorized by the Contract Administrator.

GC 8.02.05.04 Payment for Labour

- .01 The Owner shall pay the Contractor for labour employed on each Time and Material project at 135% of the Cost of Labour up to \$3,500, then at 120% of any portion of the Cost of Labour in excess of \$3,500.
- .02 The Owner shall make payment in respect of Payroll Burden for Work on a Time and Material Basis at the Contractor's actual cost of Payroll Burden.
- .03 At the Owner's discretion, an audit may be conducted in which case the actual Payroll Burden so determined shall be applied to all Time and Material work on the Contract.

GC 8.02.05.05 Payment for Material

- .01 The Owner shall pay the Contractor for Material used on each Time and Material project at 120% of the Cost of the Material up to \$3,500, then at 115% of any portion of the Cost of Material in excess of \$3,500.

GC 8.02.05.06 Payment for Equipment

GC 8.02.05.06.01 Working Time

- .01 The Owner shall pay the Contractor for the Working Time of all Equipment, other than Rented Equipment and Operated Rented Equipment, used on the Work on a Time and Material basis at The 127 Rates with a cost adjustment as follows:
 - a) Cost \$12,000 or less - no adjustment;
 - b) Cost greater than \$12,000 but not exceeding \$24,000 - payment \$12,000 plus 90% of the portion in excess of \$12,000; and
 - c) Cost greater than \$24,000 - \$22,800 plus 80% of the portion in excess of \$24,000.
- .02 The Owner shall pay the Contractor for the Working Time of Rented Equipment used on the Work on a Time and Material Basis at 110% of the invoice price approved by the Contract Administrator up to a maximum of 110% of the 127 Rate. This constraint shall be waived when the Contract Administrator approves the invoice price prior to the use of the Rented Equipment.
- .03 The Owner shall pay the Contractor for the Working Time of Operated Rented Equipment used on the Work on a Time and Material Basis at 110% of the Operated Rented Equipment invoice price approved by the Contract Administrator prior to the use of the Equipment on the Work on a Time and Material Basis.

GC 8.02.05.06.02 Standby Time

- .01 The Owner shall pay the Contractor for Standby Time of Equipment at 35% of The 127 Rate or 35% of the invoice price whichever is appropriate. The Owner shall pay reasonable costs for Rented Equipment where this is necessarily retained in the Working Area for extended periods agreed to by

the Contract Administrator. This shall include Rented Equipment intended for use on other work, but has been idled due to the circumstances giving rise to the Work on a Time and Material Basis.

- .02 In addition, the Owner shall include the Cost of Labour of operators or associated labourers who cannot be otherwise employed during the Standby Time or during the period of idleness caused by the circumstances giving rise to the Work on a Time and Material Basis.
- .03 The Contract Administrator may require Rented Equipment idled by the circumstances giving rise to the Work on Time and Material Basis to be returned to the lessor until the Work requiring the Equipment can be resumed. The Owner shall pay such costs as a result from such return.
- .04 When Equipment is transported, solely for the purpose of the Work on a Time and Material Basis, to or from the Working Area on a Time and Material basis, payment shall be made by the Owner only in respect of the transporting units. When Equipment is moved under its own power it shall be deemed to be working. The method of moving Equipment and the rates shall be subject to the approval of the Contract Administrator.

GC 8.02.05.07 Payment for Hand Tools

- .01 Notwithstanding any other provision of this Section, no payment shall be made to the Contractor for or in respect of Hand Tools or Equipment that are tools of the trade.

GC 8.02.05.08 Payment for Work by Subcontractors

- .01 Where the Contractor arranges for Work on a Time and Material Basis, or a part of it, to be performed by Subcontractors on a Time and Material basis and has received approval prior to the commencement of such Work, in accordance with the requirements of subsection GC 3.09, Subcontracting by the Contractor, the Owner shall pay the cost of Work on a Time and Material Basis by the Subcontractor calculated as if the Contractor had done the Work on a Time and Material Basis, plus a markup calculated on the following basis:
 - a) 20% of the first \$3,500; plus
 - b) 15% of the amount from \$3,500 to \$12,000; plus
 - c) 5% of the amount in excess of \$12,000.
- .02 No further markup shall be applied regardless of the extent to which the work is assigned or sublet to others. If Work is assigned or sublet to an associate, as defined by the Securities Act, no markup whatsoever shall be applied.

GC 8.02.05.09 Submission of Invoices

- .01 At the start of the Work on a Time and Material Basis, the Contractor shall provide the applicable labour and Equipment rates not already submitted to the Contract Administrator during the course of such Work.
- .02 Separate summaries shall be completed by the Contractor. Each summary shall include the Change Directive or Change Order number and covering dates of the Work and shall itemize separately the labour, Materials, and Equipment. Invoices for Materials, Rented Equipment, and other charges incurred by the Contractor on the Work on a Time and Material Basis shall be included with each summary.

- .03 Each month the Contract Administrator shall include with the monthly progress payment, the costs of the Work on a Time and Material Basis incurred during the preceding month all in accordance with the contract administrative procedures and the Contractor's invoice of the Work on a Time and Material Basis.
- .04 The final summary as per clause 8.02.05.09.02 shall be submitted by the Contractor within 60 Days after the completion of the Work on a Time and Material Basis.

GC 8.02.05.10 Payment Other Than on a Time and Material Basis

- .01 Clause GC 8.02.05 does not preclude the option of the Contract Administrator and the Contractor negotiating a Lump Sum Item or unit price payment for Change in the Work, Extra Work, and Additional Work.

GC 8.02.05.11 Payment Inclusions

- .01 Except where there is agreement in writing to the contrary, the compensation, as herein provided, shall be accepted by the Contractor as compensation in full for profit and all costs and expenses arising out of the Work, including all cost of general supervision, administration, and management time spent on the Work, and no other payment or allowance shall be made in respect of such Work.

GC 8.02.06 Final Acceptance Certificate

- .01 After the acceptance of the Work or, where applicable, after the Warranty Period has expired, the Contract Administrator shall issue the Final Acceptance Certificate. The Final Acceptance Certificate shall not be issued until all known deficiencies have been adjusted or corrected, as the case may be, and the Contractor has discharged all obligations under the Contract.
- .02 Any remaining amount of security shall be released upon Final Acceptance of the Contract.

GC 8.02.07 Records

- .01 The Contractor shall maintain and keep accurate Records relating to the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom. Such Records shall be of sufficient detail to support the total cost of the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom. The Contractor shall preserve all such original Records until 12 months after the Final Acceptance Certificate is issued or until all claims have been settled, whichever is longer. The Contractor shall require that Subcontractors employed by the Contractor preserve all original Records pertaining to the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom for a similar period of time.
- .02 The Owner may inspect and audit the Contractor's Records relating to the Work, Changes in the Work, Extra Work, and Additional Work at any time during the period of the Contract. The Contractor shall supply certified copies of any part of its Records required, whenever requested by the Owner.

GC 8.02.08 Taxes

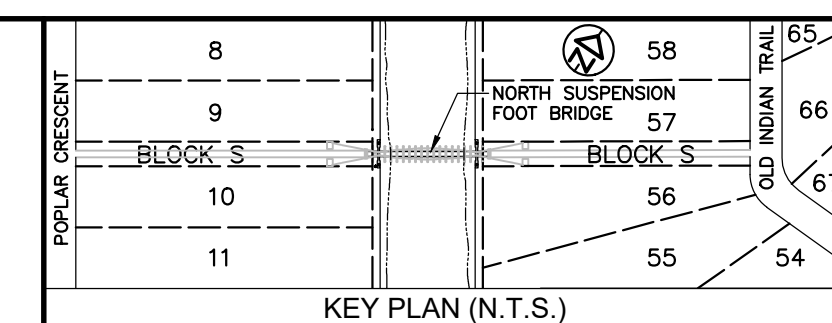
- .01 Where a change in Canadian Federal or Provincial taxes occurs after the date of tender closing for this Contract, and this change could not have been anticipated at the time of Tender, the Owner shall increase or decrease Contract payments to account for the exact amount of tax change involved.

- .02 Claims for compensation for additional tax cost shall be submitted by the Contractor to the Contract Administrator on forms provided by the Contract Administrator to the Contractor. Such claims for additional tax costs shall be submitted not less than 30 Days after the date of Final Acceptance.
- .03 Where the Contractor benefits from a change in Canadian Federal or Provincial taxes, the Contractor shall submit to the Contract Administrator on forms provided by the Contract Administrator, a statement of such benefits. This statement shall be submitted not later than 30 Days after Final Acceptance.
- .04 Changes in Canadian Federal or Provincial taxes that impact upon commodities, which when left in place form part of the finished Work, or the provision of services, where such services form part of the Work and where the manufacture or supply of such commodities or the provision of such services is carried out by the Contractor or a Subcontractor, are subject to a claim or benefit as detailed above. Services in the latter context means the supply and operation of Equipment, the provision of labour, and the supply of commodities that do not form part of the Work.
- .05 The Contractor shall add the Harmonized Sales Tax (HST) to all invoices.

GC 8.02.09 Liquidated Damages

- .01 When liquidated damages are specified in the Contract and the Contractor fails to complete the Work in accordance with the Contract, the Contractor shall pay such amounts as are specified in the Contract Documents.

Appendix B: Contract Drawings



CAUTION: DO NOT SCALE DRAWINGS. THIS REPRODUCTION MAY BE AT A SIZE DIFFERENT THAN ORIGINALLY DRAWN. EXP ASSUMES NO RESPONSIBILITY FOR INCORRECT SCALING. UNAUTHORIZED REPRODUCTION OR REUSE IS STRICTLY PROHIBITED. NOT PUBLISHED - ALL RIGHTS RESERVED. EXP EXPRESSLY DISCLAIMS RESPONSIBILITY ARISING FROM UNAUTHORIZED USE OF THESE DRAWINGS AND NOTES. AUTHORIZATION MUST BE IN WRITING.

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DIMENSIONS NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.

GENERAL NOTES:

DESIGN CODE:
CANADIAN HIGHWAY BRIDGE DESIGN CODE
CAN/CSA S6-19 AND SUPPLEMENTS

CONSTRUCTION NOTES:

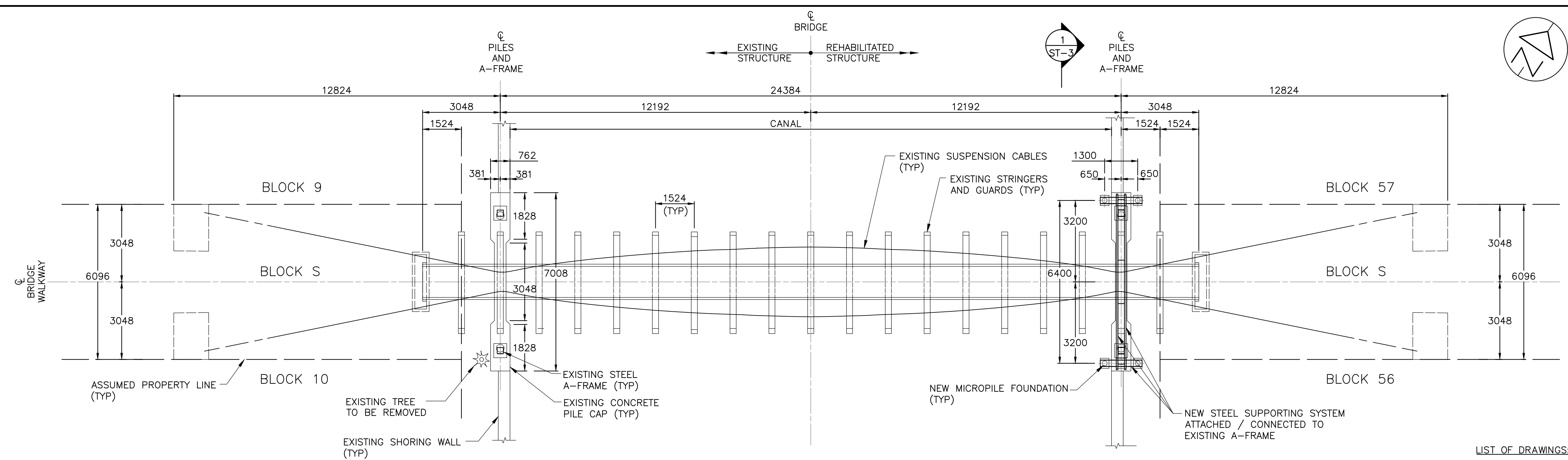
- THIS BRIDGE SHALL BE CLOSED TO THE PUBLIC DURING REHABILITATION PERIOD. CANAL WATERWAY UNDER BRIDGE SHALL BE CLOSED TO PUBLIC ACCESS DURING CONSTRUCTION REFER TO THE SPECIFICATION FOR DETAILED REQUIREMENT.
- DIMENSIONS, ELEVATIONS SHOWN FOR EXISTING STRUCTURE ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR.
- IT IS CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SAFETY ON WORK SITE AND THE STABLE OF THE BRIDGE DURING ITS REHABILITATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND SUPERVISION OF ALL TEMPORARY BRACING AND FALSEWORK TO SUIT THEIR CONSTRUCTION METHODS.
- SURVEY REFERENCE POINT: ASSUMED TOP ELEVATION FOR THE NORTH STEEL BASE PLATE OF EXISTING EAST A-F-RAME = 31.300m.

LIST OF DRAWINGS:

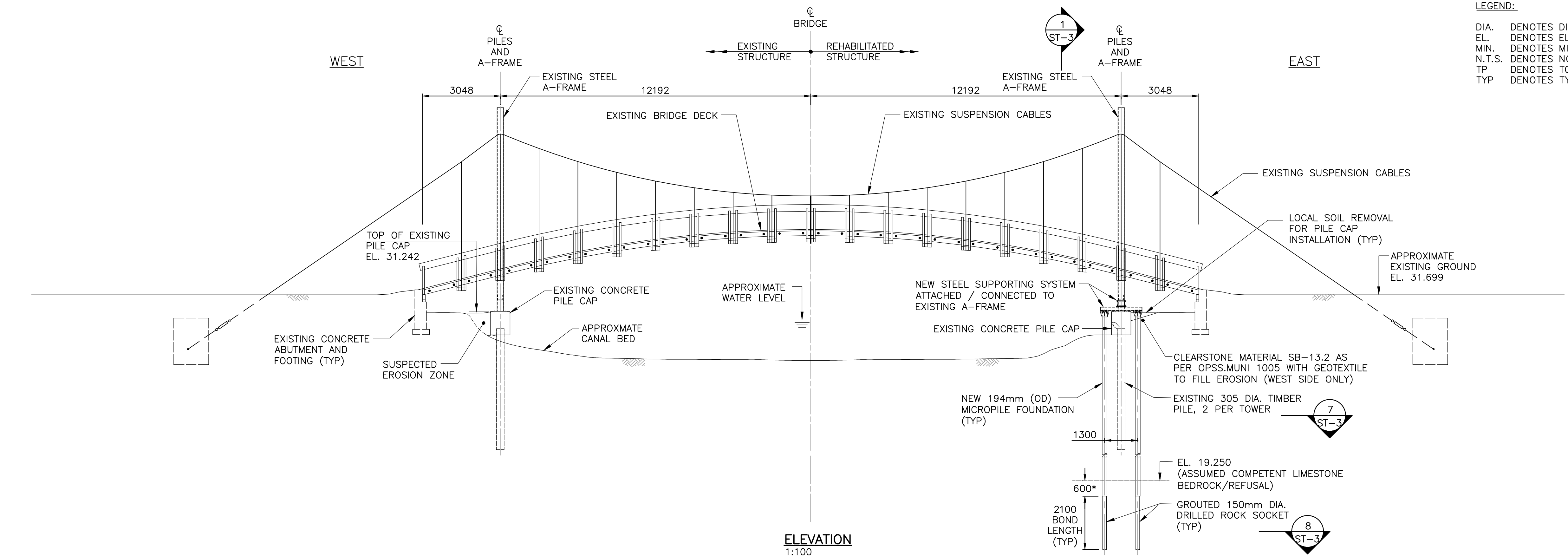
- ST-1 GENERAL ARRANGEMENT
- ST-2 TEMPORARY WORKS
- ST-3 REHABILITATION DETAILS

LEGEND:

- DIA. DENOTES DIAMETRE
- EL. DENOTES ELEVATION
- MIN. DENOTES MINIMUM
- N.T.S. DENOTES NOT TO SCALE
- TP DENOTES TOP OF PAVEMENT
- TYP DENOTES TYPICAL



PLAN
1:100



ELEVATION
1:100

*: MINIMUM EMBEDMENT LENGTH OF STEEL CASING IN THE BEDROCK (SEE FURTHER REQUIREMENT AT CONTRACT SPECIFICATION)

MICROPILE NOTES:

- MICROPILE PERMANENT STEEL CASING SHALL BE 194mm (OD)x12.7mm PIPE CONFORM TO API 5CT N80 WITH A MINIMUM YIELD STRENGTH OF 550 MPa. ALL SPLICES SHALL BE MECHANICAL, VIA API - THREADFORM PIN & BOX THREADED JOINTS OR FLUSH THREADFORM PIN & BOX THREADFORM JOINTS. ALL JOINTS SHALL BE WATERTIGHT.
- MICROPILE CENTRAL REINFORCEMENT SHALL BE A SINGLE 43mm DIA. DOUBLE CORROSION PROTECTION DWIDAG THREAD BAR, GRADE 550 MPa, CONFORMING TO CSA G30.18/ASTM A615.
- THREADED BAR HARDWARE SHALL BE CAPABLE OF WITHSTANDING 125% OF BAR YIELD STRENGTH.
- CENTRALIZERS SHALL BE ARRANGED TO PROVIDE CONCENTRICITY OF THREADED BAR THROUGH BOTH CASED AND UNCASSED PORTIONS OF THE MICROPILE. CENTRALIZERS SHALL BE MADE FROM PVC PIPE OR APPROVED EQUIVALENT.
- MICROPILE GROUT SHALL BE HIGH EARLY STRENGTH CEMENTITIOUS AT MAXIMUM W/C (BY WEIGHT) 0.45. THE GROUT SHALL HAVE THE FOLLOWING PHYSICAL PROPERTIES:
 - A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 7 DAYS.
 - A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa AT 28 DAYS.
 - NO SEGREGATION AND A BLEED OF LESS THAN 2 PERCENT WHEN ALLOWED TO STAND FOR 1 HOURS.

- BEARING PLATE AND STIFFENER PLATES SHALL BE STEEL CONFORMING TO CSA G40.21, GRADE 350A.
- MICROPILE CONTRACTOR SHALL SUBMIT STAMPED SHOP DRAWING AS PER PROJECT SPECIFICATION FOR APPROVAL BY CONTRACT ADMINISTRATOR PRIOR TO INSTALLATION.
- REQUIRED LOAD CARRYING CAPACITY PER PILE:

	ULS	SLS
VERTICAL	240 kN	180 kN
HORIZONTAL AT TOP	8 kN	3 kN

REFERENCES:

- LAGOON CITY PEDESTRIAN BRIDGE, NORTH BRIDGE REPAIRS. JOB NO. 306844, REV. 2, DATED OCTOBER 19, 2012, PREPARED BY C.C. TATHAM & ASSOCIATES LTD.
- LAGOON CITY STATE 1A & 1B SUSPENSION FOOT BRIDGE.DWG. NO. 643-C-5, REV. 2, DATED NOVEMBER 16, 1969, PREPARED BY INDUCON ENGINEERING LIMITED.
- SUBSURFACE INVESTIGATION, LAGOON CITY DEVELOPMENT CONCESSIONS 4 AND 5, TOWNSHIP OF NARA, ONTARIO. REFERENCE NO. 73-5-1, DATED JULY 16, 1973, PREPARED BY DOMINION SOIL INVESTIGATION LIMITED.

NOTES FOR NEW STEEL SUPPORTING SYSTEM:

- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD G40.20/G40.21 GRADE 350A.
- ALL BOLTS, NUTS, AND WASHERS FOR STRUCTURAL STEEL CONNECTIONS SHALL CONFORM TO ASTM A325M TYPE 3. BOLT THREADS SHALL BE EXCLUDED FROM SHEAR PLANE.
- ALL STEEL MEMBER SHALL BE COATED WITH A LOW VOC EPOXY ZINC/EPOXY/POLYURETHANE SYSTEM. COLOR OF TOP COAT SHALL MATCH TO THE EXISTING A-F-RAME COLOR.
- TOUGH UP SHOP PRIMER TO BOLT, WELD, AND BURNED AND SCRATCHED SURFACES AT COMPLETION OF ERECTION.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

No.	DATE (MM/DD/YY)	REVISION	BY
1	11/19/2021	ISSUED FOR TENDER	W.K.

CLIENT
LAGOON CITY TOWNSHIP OF RAMARA

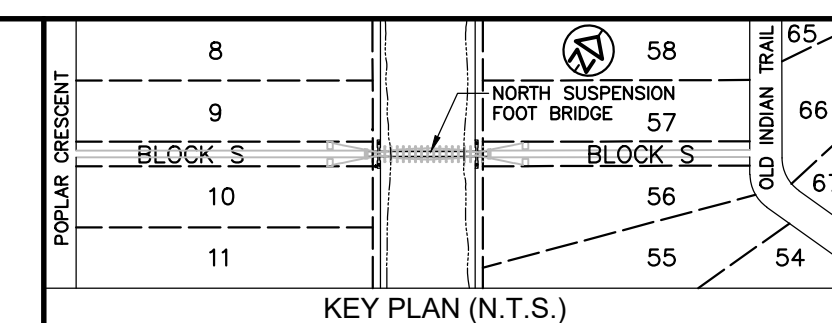
PROJECT TITLE
NORTH SUSPENSION FOOTBRIDGE FOUNDATIONS REHABILITATION

PROJECT No. **MRK-21004652-B0**

DRAWING TITLE
GENERAL ARRANGEMENT

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	T.P.	AS INDICATED
	DRAWN	PLAN No.
	T.Z.	000-0000
	CHECKED	DRAWING No.
	W.K.	ST-1
		EXP Services Inc. 1+1 905.695.3217 1+1 905.695.0167 220 Commerce Valley Dr W Suite 110 Markham, ON L3T 0A8 Canada www.exp.com
REVIEW ENGINEER		

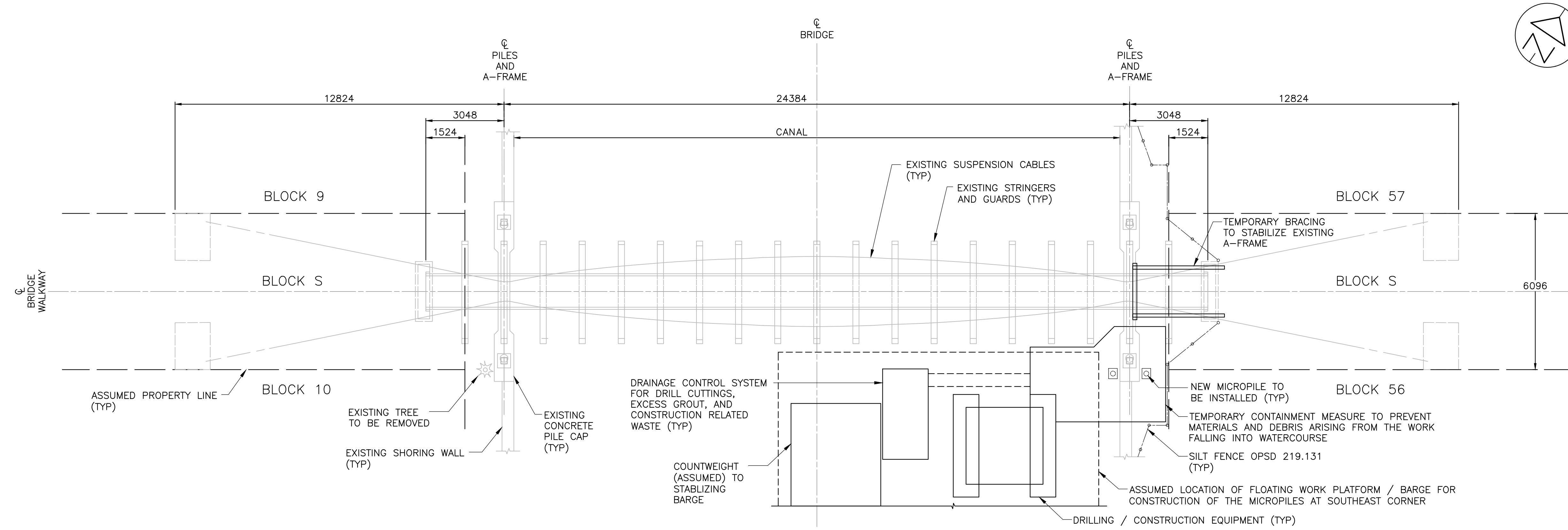
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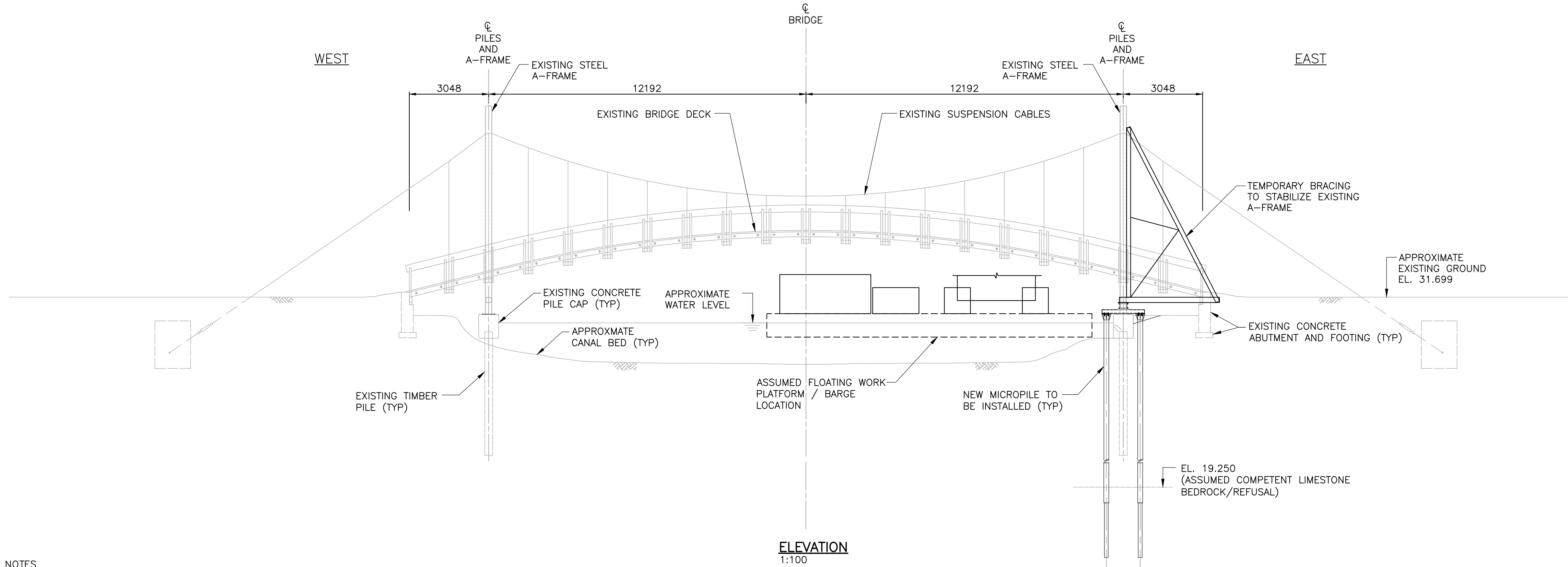
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DIMENSIONS NOTES:
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APPLICABLE STANDARD DRAWINGS:
OPSD 219.131 HEAVY-DUTY WIRE-BACK SILT FENCE BARRIER
OPSD 219.240 DEWATERING TRAP
OPSD 219.260 TURBIDITY CURTAIN
OPSD 219.261 TURBIDITY CURTAIN, SEAM DETAIL



PLAN
1:100



ELEVATION
1:100

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWING ST-1. TEMPORARY WORKS SHOWN ON THE DRAWINGS ARE SCHEMATIC FOR THE CONSTRUCTION OF THE MICROPILES AT THE SOUTHEAST CORNER AND INTENDED TO INDICATE THE MINIMUM REQUIREMENTS ONLY. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE ADEQUACY OF THESE MEASURES AND ENSURE THAT THEY ARE SUFFICIENT FOR THEIR OPERATIONS.
- ALL WORK SHALL BE UNDERTAKEN IN ACCORDANCE WITH ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS OF THE CONTRACT.
- ALL CONSTRUCTION ACTIVITIES SHALL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATERCOURSE. VEHICLE AND EQUIPMENT REFUELING AND MAINTENANCE SHALL BE CONDUCTED 30m AWAY FROM THE WATERCOURSE.
- CONTRACTOR IS TO PROVIDE A DETAILED WORKING DRAWINGS FOR THE TEMPORARY WORKS INCLUDES OF ENVIRONMENTAL PROTECTION MEASURES TO THE CONTRACT ADMINISTRATOR FOR REVIEW A MINIMUM OF THREE WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. PLAN SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN ONTARIO.
- DRAINAGE CONTROL AND CONTAINMENT MEASURE SHALL BE IMPLEMENTED PRIOR TO, AND MAINTAINED DURING THE CONSTRUCTION. ALL CONTROLS TO BE INSPECTED DAILY AND ALL DAMAGE SHALL BE REPAIRED AND/OR REPLACED WITHIN 24 HOURS OF THE INSPECTION.
- THE CONTRACTOR SHALL COORDINATE WORK WITH MECHANICAL AND ELECTRICAL TRADES REGARDING ANY EXISTING MECHANICAL AND ELECTRICAL SERVICES ADJACENT TO OR WITHIN THE AREA OF WORK.
- THE SURFACE WATER SHALL BE CONTROLLED DURING CONSTRUCTION IN ORDER TO FACILITATE THE WORK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR SUCH CONTROL OPERATIONS.
- NO IN WATER WORK SHALL BE PERMITTED BETWEEN APRIL 1ST AND JULY 15TH OF ANY GIVEN YEAR.
- ANY MACHINERY REQUIRED FOR CONSTRUCTION SHALL BE OPERATED IN A MANNER THAT MINIMIZES THE DISTURBANCE TO THE BANKS OR BED OF THE WATER BODY. MACHINERY IS TO ARRIVE ON SITE IN A CLEAN CONDITION AND IS TO BE MAINTAINED FREE OF FLUID LEAKS. CONSTRUCTION EQUIPMENT SHALL BE PROHIBITED FROM ENTERING THE WATERCOURSE.
- WHERE APPLICABLE, SEDIMENT LADEN DEWATERING DISCHARGE SHALL BE PUMPED TO A SETTLING BASIN WELL AWAY FROM THE WATERCOURSE AND ALLOWED TO SETTLE AND/OR FILTER BEFORE RE-ENTERING THE WATERCOURSE.
- THE CONTRACTOR SHALL PROTECT EXISTING TREES, SHRUBS AND VEGETATION TO BE RETAINED FROM INJURY DURING CONSTRUCTION UNLESS OTHERWISE NOTED. SHOULD ANY BE DAMAGED DURING OPERATIONS, THE CONTRACTOR SHALL REPLACE IN KIND AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL PREVENT THE TRACKING OF MUD AND SOIL FROM THE SITE ONTO ADJACENT ROADS AND STREETS. IF FOR ANY REASON, IT IS TRACKED TO OTHER ROADS OR STREETS, IT SHALL BE REMOVED IMMEDIATELY.
- THE CONTRACTOR SHALL REMOVE ALL TEMPORARY WORKS AND ANY ACCUMULATED SEDIMENT AT THE END OF THE CONTRACT.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

1	11/19/2021	ISSUED FOR TENDER	W.K.
No.	DATE (MM/DD/YY)	REVISION	BY

CLIENT
**LAGOON CITY
TOWNSHIP OF RAMARA**

PROJECT TITLE
**NORTH SUSPENSION FOOTBRIDGE
FOUNDATIONS REHABILITATION**

PROJECT No. **MRK-21004652-B0**

DRAWING TITLE
TEMPORARY WORKS

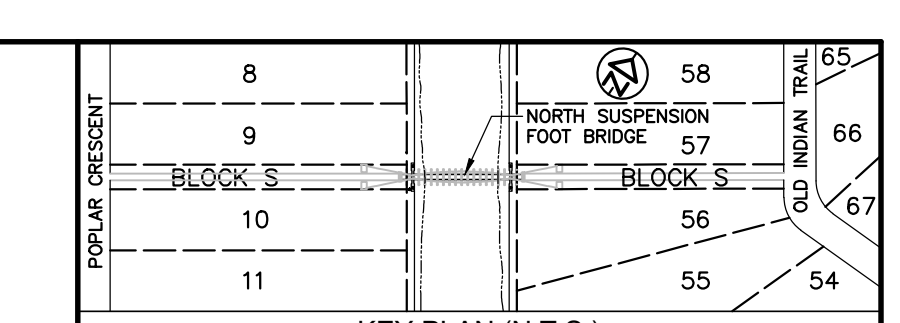
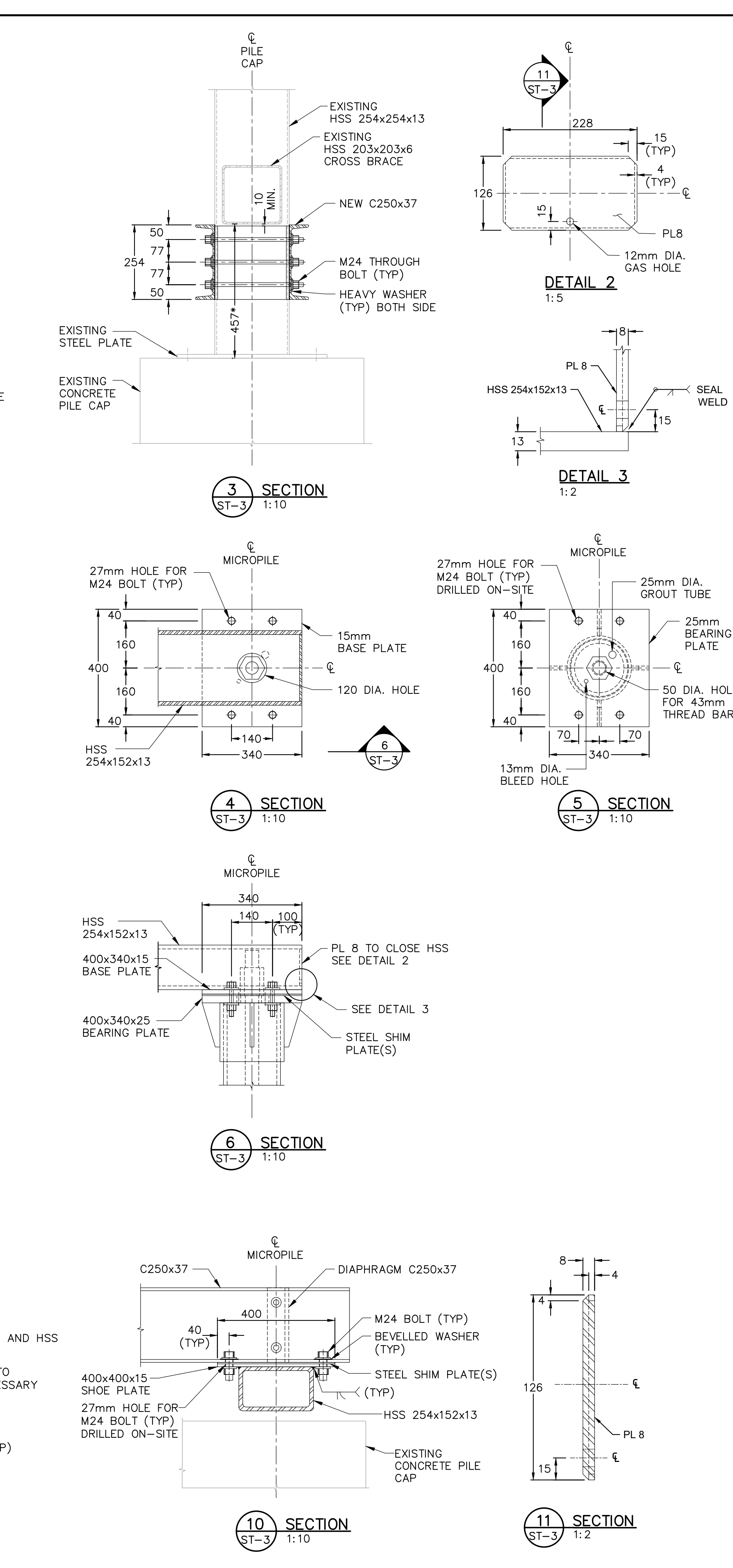
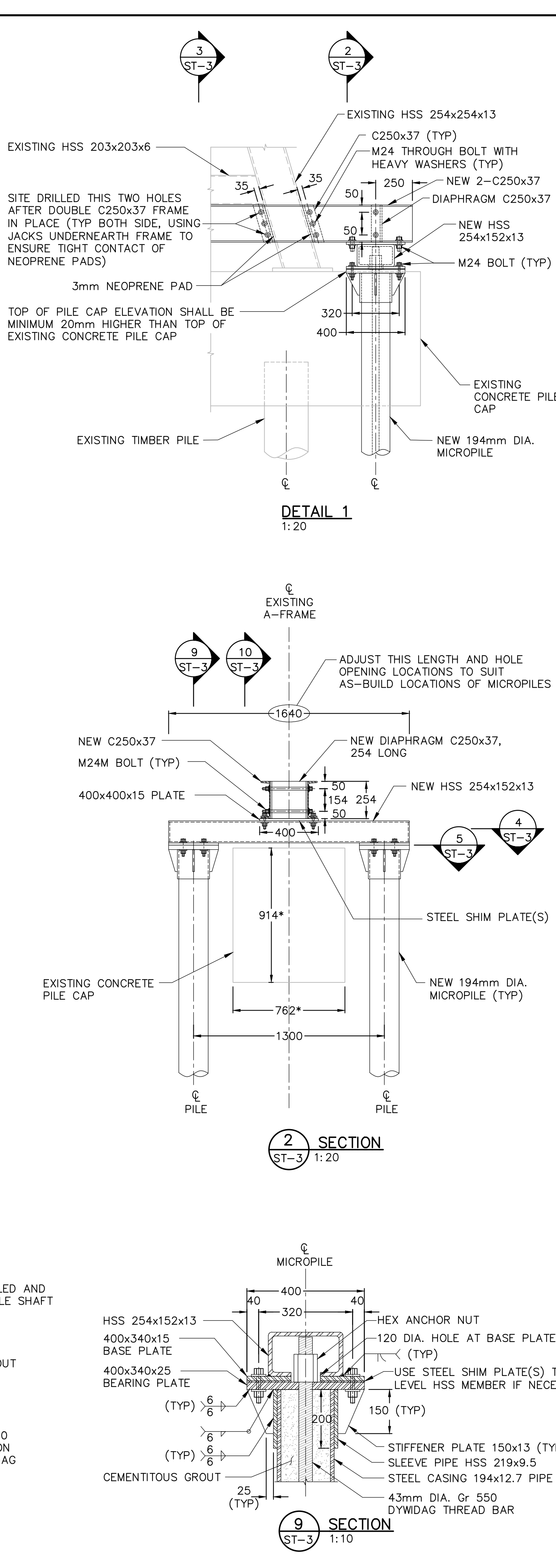
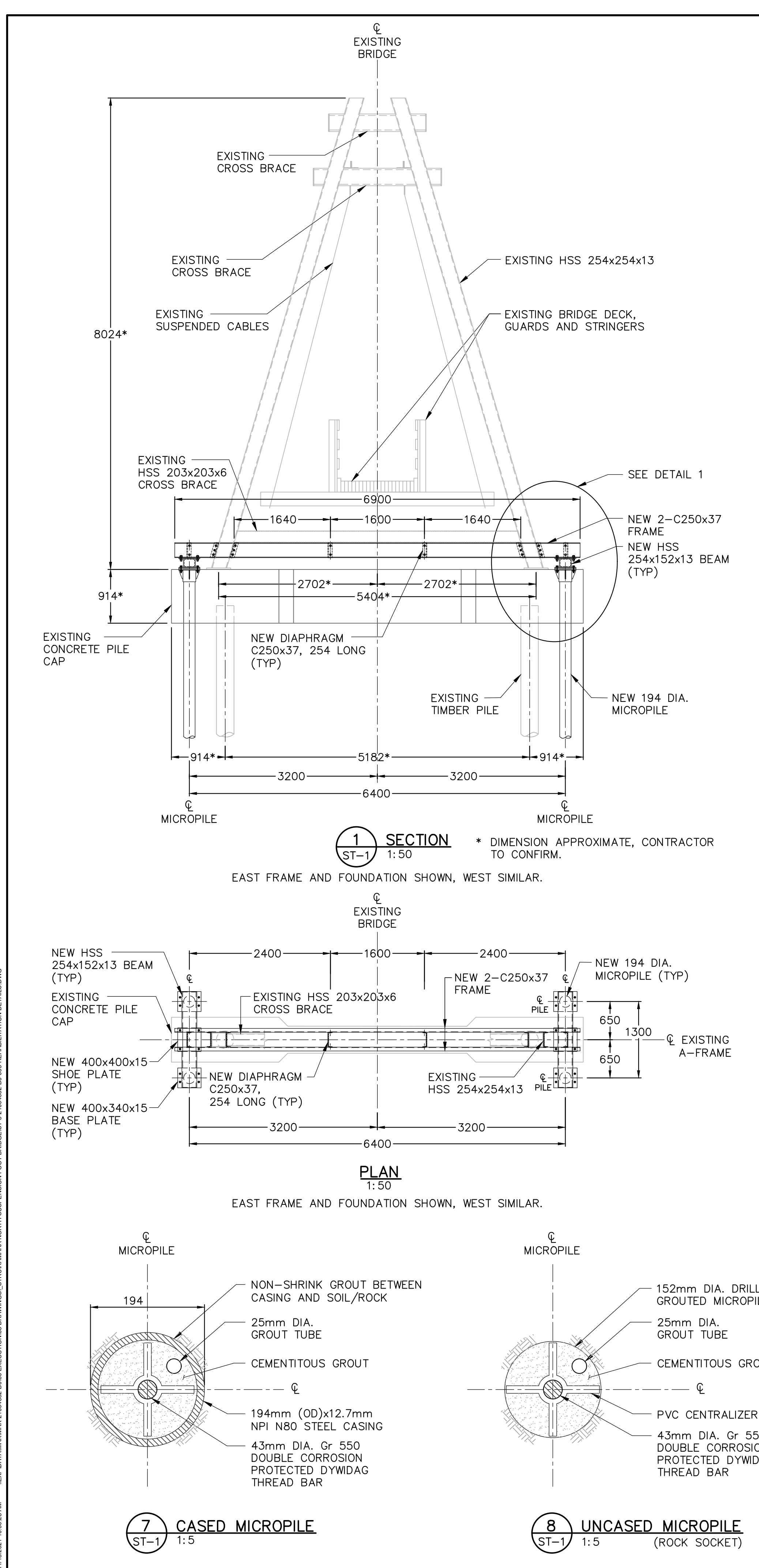
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	CHECKED	DRAWING No.
	W.K.	ST-2

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 Markham, ON L3T 0A8
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REVIEW ENGINEER

11/19/2021 9:28:17 AM \\exp\parks\mrk-21004652-B0\EXECUTION\DWG\DRAWINGS\STRUTRAMARA NORTH SUSPENSION FOOT BRIDGE\ST-2\1004652-B0-002-TEMPORARY WORKS.DWG



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DIMENSIONS NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT DRAWING ST-1.

SUGGESTED CONSTRUCTION SEQUENCE:

1. INSTALL MICROPILES AND STEEL BEARING PLATES, ANCHOR BEARING PL WITH HEX ANCHOR NUT ONCE GROUT STRENGTH > 25MPa
2. FABRICATE, INSTALL HSS 254x152x13 BEAM TO SPAN MICROPILES, USE SHIM PLATES BELOW BASE PLATE TO LEVEL THE BEAM. (NOTE TO MEMBER FABRICATION: ADJUST HSS LENGTH AND HOLE OPENING LOCATIONS TO SUIT AS-BUILT LOCATIONS OF MICROPILES).
3. ATTACH / INSTALL PRE-FABRICATED DOUBLE C250x37 FRAME TO EXISTING A-FRAME. USE JACKS UNDERNEATH FRAME TO ENSURE TIGHT CONTACT OF NEW NEOPRENE PADS TO EXISTING A-FRAME MEMBERS (KEEP JACKS IN PLACE UNTIL FINISH OF SEQUENCE STEP 4).
4. CONNECT ENDS OF DOUBLE C250x37 FRAME TO HSS 254x152x13 BEAM. USED STEEL SHIM PLATES UNDER SHOE PLATES TO SUIT.

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

1	11/19/2021	ISSUED FOR TENDER	W.K.
No.	DATE (MM/DD/YY)	REVISION	BY

CLIENT
LAGOON CITY TOWNSHIP OF RAMARA

PROJECT TITLE
NORTH SUSPENSION FOOTBRIDGE FOUNDATIONS REHABILITATION

PROJECT No. **MRK-21004652-B0**

DRAWING TITLE
REHABILITATION DETAILS

	DESIGNED	SCALE
	T.P.	AS INDICATED
	DRAWN	PLAN No.
	T.Z.	000-0000
	CHECKED	DRAWING No.
	W.K.	ST-3
		EXP Services Inc. 1+1 905.695.3217 1+1 905.695.0167 220 Commerce Valley Dr W Suite 110 Markham, ON L3T 0A8 Canada www.exp.com

11/19/2021 10:30:28 AM \\P:\DATA\RAMARA\21004652-B0\00 EXECUTION\DRAWINGS_ST\RAMARA NORTH SUSPENSION FOOT BRIDGE\ST-3\1004652-B0-03-REHABILITATION DETAILS.DWG

Appendix C:
Reference Soil Reports from
Adjacent Project

LIBRARY

DOMINION SOIL INVESTIGATION LIMITED

CONSULTING SOIL & FOUNDATION ENGINEERS

104 CROCKFORD BLVD., SCARBOROUGH, ONT. M1R 3C6 · (416)751-6565 · TELEX 02-21210 · CABLES: DOMSOIL

REF. NO. 73-5-1

SUBSURFACE INVESTIGATION
LAGOON CITY DEVELOPMENT
CONCESSIONS 4 AND 5
TWP. OF HARA, ONTARIO

REF. NO. 73-5-1

JULY 1973

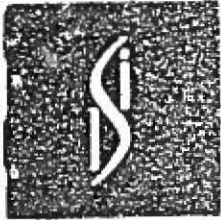
PREPARED FOR:

INDUCON CONSTRUCTION OF CANADA LIMITED

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DOMINION SOIL INVESTIGATION LIMITED

CONSULTING SOIL & FOUNDATION ENGINEERS

104 CROCKFORD BLVD., SCARBOROUGH, ONT. M1R 3C6 - (416) 751-6565 - TELEX 02-21210 - CABLES: DOMSOIL

Ref. No. 73-5-1

July 12, 1973

Inducon Construction of Canada Limited
111 RAILSIDE ROAD
DON MILLS, Ontario

Attention: Mr. Gary D. Morrison
Project Engineer

Re: Subsurface Investigation
Lagoon City Development

Dear Sirs:

At your request, we have investigated the subsurface conditions at various locations throughout the above development and are pleased to submit herewith the results of the exploratory borings.

The scope of the investigation was to determine the subsurface conditions and the depth to refusal at thirteen locations designated by yourself and to present you with the factual results of the borings.

FIELD WORK

A total of thirteen boreholes was put down at the approximate locations shown on Enclosure No. 1 of this report. The actual locations of the boreholes were staked out and later tied in by your surveyors who have also supplied us with the ground surface elevations at the various borehole locations. The elevations shown on the borehole logs are referred to your local datum in which elevation 100 corresponds approximately to elevation 718.25 ft. above the geodetic datum. The field work was carried out between May 16 and 25, 1973 and the boreholes were advanced by a power auger machine equipped with hollow stem augers. All boreholes were extended to refusal which was encountered at depths ranging between 17 and 48 ft. Sampling of the subsoil was effected by the Standard Penetration test method at 5 ft. intervals. In cohesive clay deposits, the in-situ undrained shear strength of the soil was measured by field vane tests. The field work was carried out under the supervision of the engineering personnel of this firm.



SITE AND GEOLOGY

The site is located in Concessions 4 and 5 of the Twp. of Mara, about 2-1/2 miles west of Brechin on the east shore of Lake Simcoe. With the exception of a few small ridges, the terrain has a generally low relief with ground surface elevations only 2 to 4 ft. above the level of Lake Simcoe. The drainage of the area is generally poor and swampy conditions prevail throughout

Geologically, the site is located in a clay plain dotted with drumlins. The drumlins are elongated hills or ridges running in the southwest to northeast direction and consist of stoney, calcareous till. The depressions between the drumlins have been filled in by deep clay and silt strata deposited by the post glacial Lake Algonquin which inundated the present Lake Simcoe Basin and the surrounding low lying areas reaching up to the present Georgian Bay. The regression of the Lake to its present size have left many poorly drained areas where swampy conditions prevail

It is believed that in the present investigation, some of the boreholes (boreholes no. 44, 46 and 51) were located on some of these drumlins and that the rather complex past geological history of the area as described above explains the presence and the great variations in the thickness of the soft peat and clay deposits.

SUBSURFACE CONDITIONS

Details of the subsurface conditions are shown on the individual borehole logs presented as Enclosure nos. 2 to 14, inclusive

The typical subsurface profile consists of a surface deposit of highly organic and partially decomposed peat, underlain by soft clay and silt strata, followed by hard or very dense clayey or sandy silt till. Refusal was encountered at depths ranging from 17 to 48 ft. and after penetrating the till between 3 and 36 ft. It is uncertain, however, whether the refusal was encountered on boulders or on the underlying paleozoic limestone bedrock.

- i) The depth of the peat varied between 8-1/2 and 16 ft. except in boreholes nos. 44, 46 and 51 which were located on one of the drumlins and where the peat was absent.
- ii) Below the peat, soft clay and silt strata were encountered, the thickness of which varied between 6 and 22 ft. The Standard Penetration tests gave N-values ranging between 1 and 5 blows per ft. indicating a very soft to soft consistency which was also confirmed by in-situ vane tests yielding undrained shear strength values between 300 and 2500 p.s.f., but average values less than 1000 p.s.f. The clay has a high moisture content and is considered to be highly plastic and compressible.

S

- iii) The above deposits are underlain by a sandy to clayey silt till which was absent only in boreholes 48 and 52. The till was penetrated in the various boreholes between 3 and 36 ft. before encountering refusal. Refusal may have been encountered on bedrock or possibly on boulders within the till. Standard Penetration resistances or N-values within the till ranged between 5 to over 100 blows per ft. indicating loose to very dense relative density. On the average however, the till is dense to very dense.

The groundwater table was encountered generally at shallow depths or occasionally at or even above the ground surface. The recorded groundwater levels range between Elevations 100 and 103₊ ft. which is 0 to 3 ft. above the lake level.

DISCUSSION OF THE RESULTS

As the terms of reference of this investigation was to supply factual information, the results of the borings will be discussed only very briefly as relevant to the various projects proposed.

a) Foundations

Neither the peat nor the underlying soft clay is a competent bearing stratum and, therefore the use of normal spread footing foundations is feasible only in areas where the depth of these deposits is not excessive, i.e. in the area of boreholes 44, 46 and possibly borehole 51. Elsewhere, even light structures should be supported on piles. Basically, two types of piles could be considered as practical alternatives: timber or steel piles. The safe working capacity and the length of these piles, however, will vary with location on the site. Generally, timber piles will develop their maximum structural capacity (about 20 tons) after penetrating the dense zone of the till for a depth of about 3 to 5 ft. Provided that the piles caps are established below the low ground water level (possibly corresponding to the low lake level) untreated timber piles could be used. Steel-H or tube piles should be driven to practical refusal to take advantage of their higher structural strength. For the purpose of estimating the design capacity of such piles, a working stress of 9000 p.s.i. per net steel area of the pile section could be used. In the design of the piles, the negative skin friction or drag down forces due to the consolidation of the peat and clay strata should also be considered.

b) Roads

Roads built on top of the peat may be endangered by two factors:

- (1) failure by lateral flow or shear and,
- (2) failure by consolidation or excessive settlement.

There are generally three methods that could be considered for road construction, such as:

- "floating" the road
- complete excavation of the peat and replacement with suitable backfill, and
- partial excavation of the peat.

The cheapest method as far as the initial cost is concerned is to place the fill directly over the organic material. If the fibres are not fully decomposed, the peat would provide some stability and will be able to carry a certain height of fill. If local experience indicates that roads could in the past be constructed by this method, then consideration could be given to carry out this practice for future road constructions. If the existing roads are not "floated" then the feasibility of this method should be more closely investigated and the chief factors to be considered should be differential settlement, the lateral support of the embankment, the type of material used, and method of construction.

The complete removal of the organic material is generally uneconomical where the depth of organic deposits is over 15 ft. Since in the present case in many instances depths greater than 15 ft. were recorded and also because the peat is underlain by soft and highly compressible clay material, the complete excavation and replacement of the peat is not considered to be a practical alternative.

As a further alternative, a road construction method could be considered where only part of the organic material is excavated and the remaining material is displaced or consolidated either by gravity displacement or explosives. In either case, the stability of the embankment at various stages of construction must be carefully considered. Roads constructed by this method will undergo large long term settlements, a factor which will have to be considered in choosing the most suitable surface treatment.

c) Sewers

The major construction problem for sewers will be the stability of the trenches and the bedding of the pipes. Because of the low shear strength of the peat and the clay, the trench walls will have to be supported and the stability of deeper excavations may be endangered by bottom heave due to shear failure. Because of the low permeability of the peat and the underlying clay, dewatering problems are expected only in areas where granular deposits are encountered (borehole 51). Conventional pipes will have to be supported either on Class "A" type of bedding or on pile bents. Consideration could, therefore, be given to the use of pipes with flexible joints which can tolerate differential settlements or using entirely flexible (polyethylene) pipes with fused joints which can tolerate large deformations without structural failure. The requirements for bedding of this pipe will be different and less critical than for conventional pipes.

We trust that you will find this report complete within our terms of reference, however, if you wish to discuss this project in more detail, we shall be glad to be of further assistance and service to you.

Yours very truly,

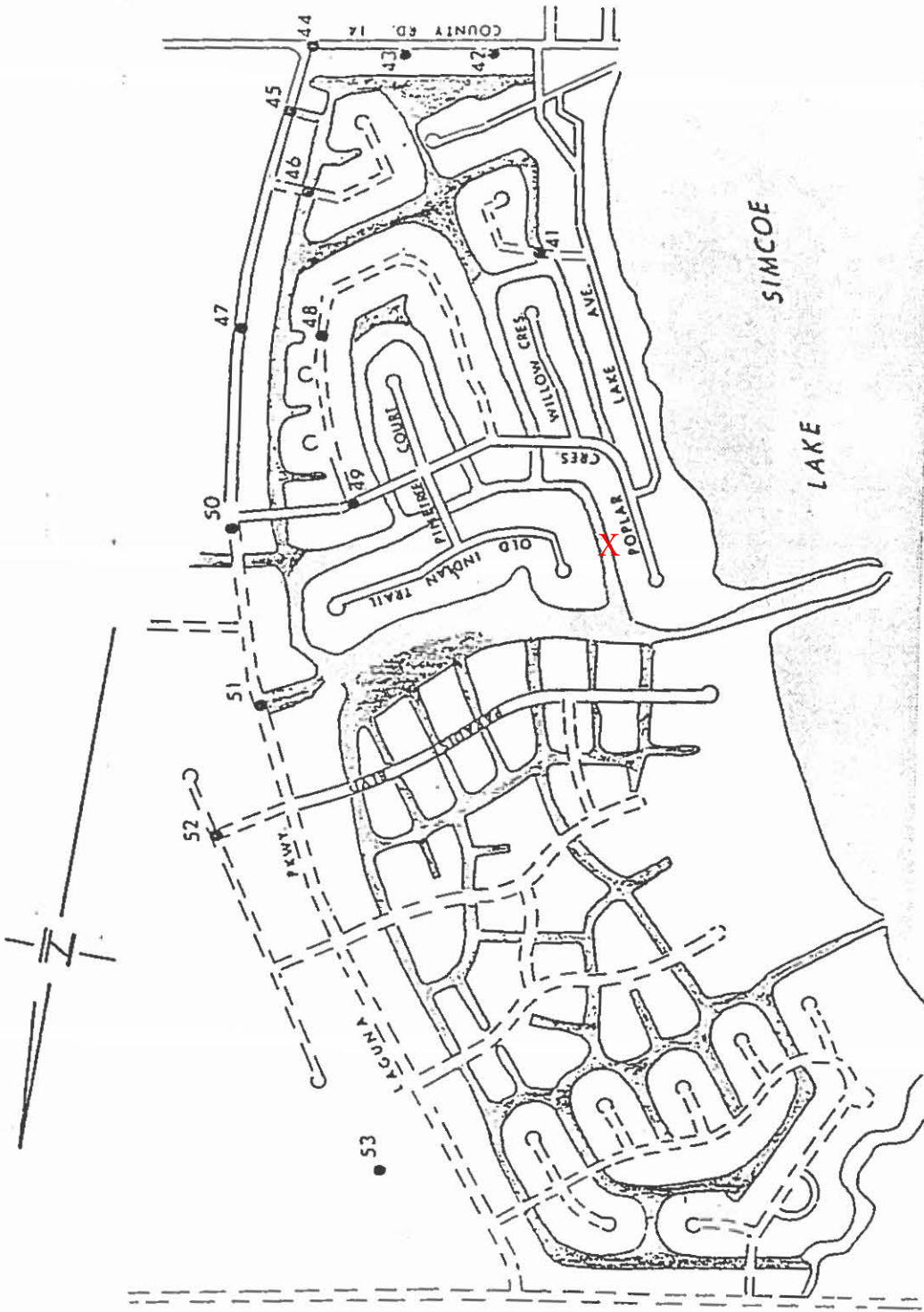
DOMINION SOIL INVESTIGATION LIMITED

I.P. Lieszkowszky, P.Eng.

IPL:fs



E N C L O S U R E S



BOREHOLE LOCATION PLAN



LOG OF BOREHOLE 41







Reference No. 73-5-1

Page No. 1

CLIENT: DOMINION CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: TWP OF MARA
 DATUM ELEVATION:

DRILLING DATA

Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 23, 1973

ELEVATION FT.	DEPTH FT.	SUBSURFACE PROFILE		SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS		
		DESCRIPTION	SYMBOL	GROUND WATER	NUMBER	TYPE	'N' Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W		LIQUID LIMIT W _L	
		GROUND SURFACE															
104.1	0	Soft, Dark PEAT															
	5				1	SS	2	0									
					2	SS	1/18"										
94.6	9.5				Soft, Grey SILTY CLAY			3	SS	1/12"							
								4	TW	-							
87.6	16.5	Dense SANDY SILT TILL															
					5	SS	50/1"										
82.1	22.0	END OF B.H.															

W.L. 100.0' MAY 25
 999 ft.

VERTICAL SCALE: 1 inch to 5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED

LOG OF BOREHOLE 42

Reference No. 72-5-1

Enclosure No. 3

CLIENT: INDECON CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: SWF OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 23, 1973

DEPTH (ft)	SURFACE PROFILE		SAMPLES			PENETRATION RESISTANCE (Blows/Ft)					WATER CONTENT (%)			REMARKS
	DESCRIPTION	SYMBOL	NUMBER	TYPE	IN' Blows/Ft	20	40	60	80	100	PLASTIC LIMIT	NATURAL	LIQUID LIMIT	
						UNDRAINED SHEAR STRENGTH 1000 p.s.f.					W _p	W	W _L	
						0.5	1.0	1.5	2.0	2.5				
102.6	GROUND SURFACE													
100.0	10" SAND & GRAVEL FILL													
95.0	Soft, Dark PEAT		1	SS	1/6"									
93.6			2	SS	1/8"									
90.0	Soft, Grey Organic SILTY CLAY		3	SS	5									
85.0			4	TW	-									
80.0			5	SS	1									
75.1			6	TW	-									
27.5			7	SS	3									
30.0	SANDY SILT TILL		8	SS	6									
35.0			9	SS	82									
60.9	Loose Dense Clayey													REFUSAL TO AUGER
41.7	END OF B.H.													

VERTICAL SCALE: 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED

LOG OF BOREHOLE 43

Reference No. 73-5-1

Enclosure No. 4

CLIENT: INDUCON CONSULTANTS OF CANADA

DRILLING DATA

PROJECT: LAGOON CITY

Method: AUGERING (H/S)

LOCATION: TWP. OF MARA

Diameter: 6.5"

DATE: ELEVATION

Date: MAY 22, 1973

DEPTH Feet	SUBSURFACE PROFILE		SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS		
	DESCRIPTION	SYMBOL	GROUND WATER	NUMBER	TYPE	IN Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT	NATURAL		LIQUID LIMIT	
							UNDRAINED SHEAR STRENGTH 1000 p.s.f.					W _p	W		W _L	
	GROUND SURFACE															
103.2	0	Sand & Gravel FILL														
101.2	2.0	Soft, Dark PEAT	100.2	1	SS	2										
	5			2	SS	3										
94.7	8.5			3	SS	5										
	10	Soft, Grey SILTY CLAY	MAY 25	4	TW	-										
	15			5	SS	1										
	20			6	SS	1/18"										
	25			7	SS	8										
75.2	28.0	SANDY SILT TILL	W.L. 100.2'	8	SS	6										
	30			9	SS	16										
	35	Loose Compact	MAY 25													
	40															
61.0	42.2	END OF B. H.													REFUSAL TO AUGER	

VERTICAL SCALE: 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN BY: CHECKED:

LOG OF BOREHOLE.....44.....

Reference No. 73-5-1

Enclosure No. 5

CLIENT: DOMINION CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: TWP. OF MARA
 ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 22, 1973

DEPTH	SURFACE PROFILE	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS	
				NUMBER	TYPE	'N' Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT	NATURAL	LIQUID LIMIT		
	DESCRIPTION						UNDRAINED SHEAR STRENGTH 1000 p.s.f. + FIELD VANE TEST ● COMPRESSION TEST					W _p	W	W _L		
							0.5	1.0	1.5	2.0	2.5					
117.4	GROUND SURFACE															
0	4" TOPSOIL															
5	V. Dense															
8.5	Brown															
10	Grey															
15	SANDY SILT TILL															
20																
25																
30																
35																
35.5	END OF B.H.															REFUSAL TO AUGER

VERTICAL SCALE 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 45

Our Reference No. 73-5-1

Enclosure No 6

CLIENT: INDUCON CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: TWP. OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 18 1973

ELEVATION Ft.	DEPTH Ft.	SUBSURFACE PROFILE DESCRIPTION	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE - Blows/Ft.					WATER CONTENT %			REMARKS			
					NUMBER	TYPE	Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L				
								UNDRAINED SHEAR STRENGTH 1000 p.s.f.											
								FIELD VANE TEST					COMPRESSION TEST						
								0.5	1.0	1.5	2.0	2.5							
104.3	0	GROUND SURFACE																	
		Sand & Gravel FILL																	
101.8	2.5	Soft, Dark PEAT		103.5	1	SS	3												
	5				2	SS	1/6"												
	10				3	SS	1/2"												
94.3	10	Organic Soft, Gray SILTY CLAY		W.L. 103.3 MAY 75	4	SS	1												
	15				5	SS	1												
	20				6	TW	-												
	25																		
	30				7	SS	3												
72.3	32.0	Loose V Dense SANDY SILT TILL			8	SS	5												
	35				9	SS	65												
	40				10	SS	64												
57.3	47.0	END OF B.H.														REFUSAL TO AUGER			

VERTICAL SCALE: 1 inch = 20.5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 46

Our Reference No. 73-5-1

Enclosure No. 7

CLIENT: INDUCON CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: TWP. OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6" 3/4"
 Date: MAY 22, 1973

ELEVATION Ft.	DEPTH Ft.	SUBSURFACE PROFILE DESCRIPTION	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS
					NUMBER	TYPE	DEPTH Ft.	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L	
103.0	0	GROUND SURFACE														
	0	6" TOPSOIL														
	5	SANDY SILT TILL														
		Brown														
		Grey														
	10															
		Compact														
		Dense														
	15															
86.3	16.7	END OF B.H.														REFUSAL TO AUGER
	20															
	25															
	30															
	35															
	40															

VERTICAL SCALE: 1 inch to 5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 47

Reference No. 73-5-1

Enclosure No. 8

INDUCON CONSULTANTS OF CANADA
 LOCATION: LAGOON CITY
 TWP. OF MARA
 ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 18, 1973

DEPTH (ft)	SUBSURFACE PROFILE	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE (Blows/Ft)					WATER CONTENT %			REMARKS
				NUMBER	TYPE	IN / Ft	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L	
							UNDRAINED SHEAR STRENGTH (1000 p.s.f.)								
							+ FIELD VANE TEST @ COMPRESSION TEST								
							0.5	1.0	1.5	2.0	2.5				
92.7	GROUND SURFACE														
	Soft, Dark PEAT	~													
				1	SS	1									
				2	SS	1 7/8"									
97.2	Organic Soft, Grey SILTY CLAY	/		3	SS	1/18"									
				4	TW	-									
				5	SS	1/18"									
				6	TW	-									
				7	SS	1									
64.7	SANDY SILT TILL	T		8	SS	16									
45	Compact V Dense	T		9	SS	73									
54.7	END OF B. H.														

REFUSAL TO ANSWER

SCALE: 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: GJW CHECKED:

LOG OF BOREHOLE.....48.....

Reference No. 3-5-1

Enclosure No. 9

CLIENT: DOMINION CONSULTANTS OF CANADA
 PROJECT: LAGDON CITY
 LOCATION: TWP. OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 17, 1973

ELEVATION FT.	SUBSURFACE DEPTH FT.	SUBSURFACE PROFILE DESCRIPTION	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS
					NUMBER	TYPE	"N" Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L	
102.5		GROUND SURFACE														
		Soft, Dark PEAT														
					1	SS	2/18"									
					2	SS	1/18"									
					3	SS	1/18"									
87.5		Organic V. Soft Grey CLAY			4	SS	0									
					5	TW	-									
					6	SS	0									
					7	SS	1/18"									
67.5	75	END OF B.H.														REFUSAL TO AUGER

VERTICAL SCALE: 1 inch to 5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 49

ENCLOSURE No. 10

DOMINION CONSULTANTS OF CANADA
 AGRIUM CITY
 OFFICE OF MAPA
 LOCATION

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 16 1973

DEPTH (ft)	PROFILE	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE (Blows/Ft)					WATER CONTENT (%)			REMARKS
				NUMBER	TYPE	'N' Blows/Ft	20	40	60	80	100	PLASTIC LIMIT	NATURAL	LIQUID LIMIT	
							UNDRAINED SHEAR STRENGTH (1000 p.s.f.)								
							+ FIELD VANE TEST ● COMPRESSION TEST								
							0.5	1.0	1.5	2.0	2.5				
103.4	GROUND SURFACE														
101.4 - 2.0	Silty Sand FILL														
	Soft, Black PEAT			1	SS	1									
				2	SS	2									
92.9 - 10.5	V. Soft, Grey SILTY CLAY			3	SS	1/18"									
				4	TW	-									
				5	SS	1/18"									
75.2 - 28.2	Dense SANDY SILT TILL			6	SS	28									
	END OF B.H.														REFUSAL TO AUGER

VERTICAL SCALE: 1 inch to 5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 50

DRILLING DATA

Method AUGERING (H.C.I.)
Diameter 6.5"
Date MAY 24, 1973

Geological Survey of Canada
LAWSON, ONT.
SOUTH OF WILSON
WILSON STATION

DEPTH (ft)	DESCRIPTION	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE (Blows/Ft)					WATER CONTENT (%)				
				NUMBER	TYPE	Blows/Ft	20	40	60	80	100	PLASTIC LIMIT	NATURAL	LIQUID LIMIT		
							UNDRAINED SHEAR STRENGTH (1000 psi)									
							+ FIELD VANE TEST • COMPRESSION TEST					W _p W W _L				
							0.5 1.0 1.5 2.0 2.5									
102.5	GROUND SURFACE															
101.8 - 102.0	SILTY SAND FILL															
93.3 - 101.8	Soft, Dark PEAT															
86.3 - 93.3	Organic Soft, Grey SILTY CLAY															
80.3 - 86.3	Compact SANDY SILT TILL															
	3' Sand Seam															
0.8 - 41.0	END OF B.H.															REFUSAL TO AUGER

102.6
 W.L. 102.5' MAY 25

VERTICAL SCALE: 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: G.J.W. CHECKED:

LOG OF BOREHOLE 51

Reference No. 73-5-1

Enclosure No. 12

DOMINION CONSULTANTS OF CANADA
 1000 LAGOON CITY
 STATION TWE OF MARA
 AIRM. ELEVATION

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 25, 1973

DEPTH (ft)	SURFACE PROFILE	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE (Blows/Ft)					WATER CONTENT (%)			REMARKS
				NUMBER	TYPE	N ^o Blows/Ft	20	40	60	80	100	PLASTIC LIMIT	NATURAL	LIQUID	
							UNDRAINED SHEAR STRENGTH 1000 p.s.f.					W _p	W	W _L	
							0.5	1.0	1.5	2.0	2.5				
103.4	GROUND SURFACE														
0	6" PEAT														
5	Stiff, Brown SILTY CLAY														
96.4	7.0														
10	Loose Compact														
15	FINE SAND														
21	Dense														
28.5	END OF B.H.														REFUSAL TO AUGER

VERTICAL SCALE: 1 inch to 5 ft.

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: D.J.W.





LOG OF BOREHOLE 52

Reference No. 13-5-1

E-13

CLIENT: DOMINION CONSULTANTS OF CANADA
 PROJECT: LACON CITY
 LOCATION: TWP. OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 24, 1973

DEPTH ft	SUBSURFACE PROFILE	SYMBOL	GROUND WATER	SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS
				NUMBER	TYPE	'N' Blows/Ft.	20	40	60	80	100	PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L	
	GROUND SURFACE						0.5	1.0	1.5	2.0	2.5				
104.3	Crushed Gravel FILL														
104.8	FILL Silty Sand Gravel Cinders														
98.3	Soft, Dark PEAT														
90.3	Firm SILTY CLAY														
73.3	END OF B. H.														REFUSAL TO AUGER

VERTICAL SCALE 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED:

LOG OF BOREHOLE 53

Our Reference No. 73-5-1

Enclosure No. 1

CLIENT: INDUCON CONSULTANTS OF CANADA
 PROJECT: LAGOON CITY
 LOCATION: TWP OF MARA
 DATUM ELEVATION:

DRILLING DATA
 Method: AUGERING (H/S)
 Diameter: 6.5"
 Date: MAY 25, 1973

SUBSURFACE PROFILE		SAMPLES			PENETRATION RESISTANCE Blows/Ft.					WATER CONTENT %			REMARKS			
ELEVATION Ft.	DEPTH Ft.	DESCRIPTION	SYMBOL	GROUND WATER	NUMBER	TYPE	'N' Blows/Ft.	20	40	60	80	100		PLASTIC LIMIT W _p	NATURAL W	LIQUID LIMIT W _L
								UNDRAINED SHEAR STRENGTH 1000 p.s.f.								
								0.5	1.0	1.5	2.0	2.5		+ FIELD VANE TEST ● COMPRESSION TEST		
105.3	0	GROUND SURFACE														
103.8	1.5	Crushed Gravel FILL														
	5	FILL Sand Gravel Cinders														
	7.0				1	SS	4									
	10	Soft, Dark SILTY CLAY			2	SS	2									
	15				3	SS	1/18"									
99.3	16.0	Dense SANDY SILT TILL			4	SS	6									
	20				5	TW	-									
80.3	22.0	END OF B.H.														
	25															
	30															
	35															
	40															

VERTICAL SCALE: 1 inch to 5 ft

DOMINION SOIL INVESTIGATION LIMITED

DRAWN: DJW CHECKED

REFUSAL TO AUGER