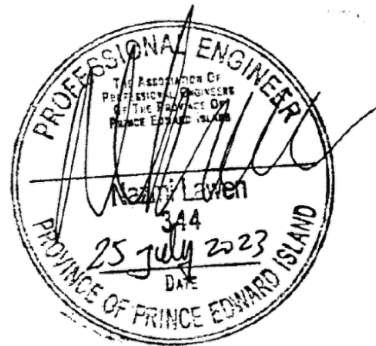


SPECIFICATIONS

**STRATFORD WATERFRONT
GATHERING & EVENT SPACE**

STRATFORD, PE



Consultant:

**Coles Associates Ltd.
Charlottetown, PE**

Project #221122

Issued for Tender - July 25, 2023

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1 General

1.1 LIST OF DRAWINGS

- .1 C0 - Location Plan
- .2 C1 - Site Plan & Profile Station 0+000 to 0+160
- .3 C2 - Site Plan & Profile #2 Station 0+160 to 0+320
- .4 C3 - Site Plan & Profile #3 Station 0+300 to 0+430
- .5 C4 - Profile #4 Station 0+000 to 0+060
- .6 C5 - Boardwalk Sections & Details
- .7 C6 - Lookout Sections & Details
- .8 C7 - Statue Platform Plan & Details
- .9 C8 - Typical Sections, Details, & Notes
- .10 C9 - Erosion Control Plan
- .11 E1 - Electrical Specifications, Legend & Details
- .12 E2 - Electrical Site Plan, Trenches & Details
- .13 E3 - Statue & Lookout Deck Plans, Elevations & Details
- .14 E4 - Service Entrance Detail, Schematics & Schedules

END OF SECTION

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1 General

1.1 APPENDICES

- .1 **Appendix 'A'**
Joose Environmental Consulting Inc.
Geotechnical Investigation Report, dated September 05, 2022
- .2 **Appendix 'B'**
Town of Stratford - Town-Owned Tree Policy
- .3 **Appendix 'C'**
Prince Edward Island Buffer Zone Activity Permit

END OF SECTION

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1 General

1.1 SUMMARY OF WORK

- .1 The Work of this project involves the construction of a new timber boardwalk and lookouts located at the waterfront in Stratford, PE. The work includes but not limited to:
 - .1 Excavating, trenching, backfilling, select borrow, bedding sand, granular material, asphalt pavement, topsoil, seeding/sodding, etc. as indicated.
 - .2 Provision for new marine grade pressure treated boardwalk structure including sleepers, deck planks, floor structure for elevated lookouts, etc. Remainder of wood to be brown pressure treated (i.e. railing & posts at lookouts, boardwalk posts, fencing, electrical receptacle posts, etc.)
 - .3 Provision for lookouts, supporting beam and columns, helical piling and miscellaneous components.
 - .4 Provision for electrical conduits, wiring, light poles, light fixtures, and concrete base.
 - .5 Connections to existing systems (ie. piping, wiring, electrical, controls, etc.)
 - .6 Provision for benches and site furnishings.
 - .7 Traffic control and traffic management during construction.
 - .8 Environmental protection and erosion control.
 - .9 All related miscellaneous items associated with this project.
 - .10 Removal of debris and reinstatement of the disturbed areas and the site in general.
- .2 All in accordance with the requirements of the specifications and drawings listed on the Index of Specifications and Drawings.
- .3 The work included in this Project is subject to various permitting and approval from Authorities Having Jurisdiction including but not limited to approval from the:
 - .1 PEI Department of Environment, Energy and Climate Action.
 - .2 Town of Stratford as it relates to budget and funding.
- .4 All charges by utility companies including but not limited to: Maritime Electric Company Ltd, Bell Aliant, Eastlink, Stratford Utility Corporation, relating to the work of this project shall be paid for with the Cash Allowance carried in the Tender. All invoices will be paid at cost.

1.2 ENQUIRIES

- .1 Direct all inquiries during the tender period to:

Coles Associates Ltd.
85 Fitzroy Street, Suite 201
Charlottetown, PEI C1A 1R6
Attention: Nazmi Lawen, M.A.Sc., P.Eng., P.E., FEC
Phone: (902) 368-2300
Email: nlawen@colesassociates.com
- .2 All inquiries are to be directed to the Consultant a minimum of 3 days prior to tender closing in order to allow the Consultant to issue an addendum a minimum of 2 days prior to tender close.

1.3 TENDER CALL

- .1 The Owner, the Town of Stratford, is issuing this tender as follows:
 - .1 Sealed tenders will be received at the offices of:

**Stratford Town Hall
234 Shakespeare Drive
Stratford, PE C1B 2V8
until 2:00 PM, local time, on August 8, 2023**
 - .2 Tenders are to be clearly marked with the name of the project and the Bidder's name.
 - .3 Tender documents will need to be received at location of tender closing, prior to the time of tender closing noted and on the date specified in the Tender. No submission

- will be accepted after that time.
.4 The tender opening will be public.

1.4 TENDERING PROCEDURE

- .1 Submit tender for the entire work of this Contract, INCLUDING subcontracts, directly to the Owner in accordance with the requirements of the Invitation to Tender and this specification.

1.5 SPECIFICATION EXPLANATION

- .1 Whenever the words "as shown," "as noted," "as called for," "indicated," or similar phrases are used, they shall be understood to refer to this specification and/or the accompanying drawings and addenda.
.2 The words "provided", "install" or similar words shall mean the work described shall be completely supplied, and erected or installed by the Contractor, unless otherwise noted.
.3 All materials are to be new unless noted otherwise.

1.6 EXAMINATION OF SITE

- .1 All bidders submitting tenders for this work shall first examine the site and all conditions thereon and/or therein.
.1 Existing conditions visually evident at the time of tender upon which the Work of this Contract will be installed.
.2 Conditions attached to, abut against or in any other way affected by existing conditions.
.2 All tenders shall take into consideration all such conditions as may affect the work under this Contract.
.3 No extra payment will be made to the Contractor, above the Contract Price, for costs resultant from failure to determine the conditions that affect the Work.
.4 A visit to the project site has been arranged for bidders as noted in the TIMING REQUIREMENTS of this section.

1.7 EXISTING CONDITIONS

- .1 If in the performance of the contract, subsurface or latent conditions at the site are found to be materially different from those indicated by the drawings and specifications, or unknown conditions not usually inherent in work of the character shown and specified, the attention of the Consultant shall be called immediately in writing to such conditions before they are disturbed. Upon such notice or resulting from his own observation of such conditions the Consultant shall promptly make such changes in the drawings and specifications as he finds necessary to conform to the different conditions and any increase or decrease in the cost shall be adjusted as provided under Changes in the Work.
.2 Refer to Appendix 'A' - Geotechnical Investigation Report for more information.

1.8 DOCUMENT INTERPRETATION

- .1 The Consultant's interpretation of Contract Documents shall be final.
.2 Should the Bidder find discrepancies in, or omissions from the drawings, specifications or other tender documents, or be in doubt as to their meaning or interpretation, the Bidder should at once notify the Consultant in writing for clarification.
.3 Any instructions or clarifications to Bidders issued during the period of bidding will be in the form of Addenda and are to be included in the tender. Addenda will form part of the Contract Documents.
.4 The Owner or Consultant will not be responsible for verbal instructions.
.5 It is the responsibility of the Bidder to ensure any addendum issued is received. Addenda will be posted on the PEI Government Tenders website at:
www.princeedwardisland.ca/en/Tenders
.6 Every effort will be made to issue addenda not less than two (2) days prior to the time for the closing of tenders, at the Consultant's discretion.

1.9 PREPARATION AND SUBMISSION OF BIDS

- .1 Contractors shall submit their bids on the Tender Form provided, which will be received at the time and place indicated on the Invitation to Tender. Late tenders will not be accepted and will be returned unopened to the bidder.
 - .2 Bidders shall fill in all information requested on the Tender Form.
 - .1 This form must be completely filled out in ink, or be typewritten with the signature in longhand. The completed forms shall be without interlineation, alteration or erasure.
 - .2 Failure to fill in the Tender Form, as provided, in its entirety may result in the rejection of the bid; however, bidders are not obligated to provide alternative prices to products listed on the Appendix provided for that specific purpose, as part of the tender form.
 - .3 Tender amount shall be stated both in writing and in figures.
 - .4 Signatures shall be without alteration or erasure.
 - .5 Receipt of addenda for the project shall be acknowledged by filling in the addendum number and date of issue for each addendum on the appropriate line on the Tender Form. These lines shall be initialed by the person signing the tender after they have been filled in.
 - .3 Each tender submitted will be accepted on the understanding that it covers all the Work called for in the specifications and on the drawings, regardless of any notations by Bidder that certain parts of the required Work are omitted from their proposal.
 - .4 Each bid must:
 - .1 Give the full business address of the Bidder and be signed by him with his usual signature.
 - .2 Bids by partnerships must furnish the full name of all partners and must be signed in the partnership name of one of the members of the partnership or by some authorized representative, followed by the signature and designation of the person signing.
 - .3 Bids by corporations must be signed with the legal name of the corporation, followed by the name of the Province of incorporation, and by the signature designation of the president, secretary, or other person authorized to bind it in the matter. The name of each person signed shall also be typed or printed below the signature.
 - .4 A bid by a person who affixes to his signature the word "president," "secretary," or "agent," or other designation, without disclosing his principal, may be held to be the bid of the individual signing on behalf of the corporation.
 - .5 A bid of any individual or any group of individuals operating as co-partners or the bid of any corporation which may be submitted shall be executed and authorized so that it shall be and it will constitute a legal binding act of the persons, co-partners, or corporate entity making the bid.
 - .5 Bidders shall include with their tender, in the space designated in Section 00 41 13, Appendix A, the name of each Subcontractor and/or Supplier, as designated, whose price has been included in their tender and who will perform the trade work. Substitution for another Subcontractor in the event that the listed Subcontractor is unable to do the work shall be subject to the approval of the Owner and contingent on evidence satisfactory to the Owner that the original Subcontractor's price was legitimately carried in the Tender, and that the original Subcontractor is now incapable of carrying out the work required under the subcontract, or that he refuses to carry out the work and provides documented reasons for such incapacity or refusal.
 - .6 The term "Own Forces," as a subcontractor, may be used by a Bidder where the Bidder is equipped to and in fact normally carries out the trade work using employees in the direct employment of the Contractor or a wholly owned subsidiary company. Other designations such as "Own Estimate" are unacceptable and may be cause for rejection of the tender by the Owner.
 - .7 When a Bidder indicates "Own Forces" as a subcontractor, the Bidder may be required to demonstrate to the Owner that he has the resources, experience and employees necessary, available and qualified to perform the trade work in a manner and quality satisfactory to fulfill
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- the obligations of the Contract Documents and that the trade work is a normal and continual part of his business operation.
- .8 A Bidder, whose tender is accepted, that included "Own Forces" for a subcontract will if requested, provide the Owner with payroll records verifying that the employees carrying out the "Own Forces" subcontract work are direct employees of the Contractor or of a wholly owned subsidiary company of the Contractor.
- .9 Each bidder shall be prepared, if so requested by the Owner, prior to the award of the Contract to present evidence of his experience, qualifications and financial ability to carry out the terms of the Contract.
- .10 The Owner will evaluate Tenders submitted for this project. The criteria to be considered by the Owner in awarding the Contract will include a combination of:
- .1 Bid price;
 - .2 Scheduling;
 - .3 Compliance;
 - .4 Expertise;
 - .5 Qualifications of the Contractor and named Subcontractors / Suppliers and
 - .6 Any other such conditions as may be determined by the Owner to be in the best interests of the Owner. A decision on the acceptance of a Tender will be made by the Owner based on the results of the Owner's evaluation.
- .11 Bidders may, at their own discretion, submit Alternatives to items identified as "Acceptable Material".
- .1 All proposed Alternatives shall be listed in Appendix "B", ALTERNATIVE PRICES and be identified by name and model number where applicable and each Alternative shall have an associated tender price change "INCREASED BY" \$_____ or "DECREASED BY" \$_____ or "N/A," as compared with the "Acceptable Material" item carried in the tender amount.
 - .2 Alternate prices will include ALL related costs associated with charges from Accepted Material. No additional costs will be accepted for failure of the Contractor to identify the full impact of using alternate systems.
 - .3 Alternate prices will NOT be used in determining the tender price or as the basis for awarding the tender.
- .12 Bidders are to complete any other appendices forming part of the Tender Form as directed under Section 00 41 13 - Bid Form.
- .13 Tender Forms and accompanying documents shall be enclosed in a sealed envelope marked "TENDER" and bearing the following identification.
- .1 Name of project.
 - .2 Name of Contractor submitting tender.
- .14 Envelope to be addressed to the recipient of tenders indicated in the Invitation to Tender and delivered by hand, registered mail or courier.
- .15 Submit one (1) only signed copy of Tender Form.
- .16 Accompanying the Tender Form shall be:
- .1 One (1) copy of Bid Guarantee, together with Surety's Letter of Consent, as specified.
 - .2 One (1) copy of a preliminary schedule demonstrating the full scope of work to be completed within the identified time for the completion of the contract work.
 - .3 One (1) copy of a letter from Bidder's insurance provider identifying a list of any claims made against the Bidder within the last five (5) years.
- .17 Tender forms and securities must bear original signatures.
- .18 Where the bid amount is shown in both written words and number and the two are in conflict, written words will take precedence.

1.10 BID GUARANTEES

- .1 Each tender submitted shall be accompanied by the following Security:
 - .1 For a General Contract Tender less than One Million Dollars (\$1,000,000.00):
 - .1 A Security Deposit in the form of a Certified Cheque or Bank Draft, in an amount not less than ten per cent (10%) of the Bid Amount; OR

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- .2 A Bid Bond as identified below.
 - .2 For a General Contract Tender One Million Dollars (\$1,000,000.00) or more:
 - .1 A Bid Bond only issued by a recognized bonding company, in an amount not less than ten per cent (10%) of the Bid Amount.
 - .3 The Certified Cheque, Bank Draft or Bid Bond shall be made payable to the Owner.
 - .4 The Certified Cheque, Bank Draft or Bid Bond will guarantee that:
 - .1 The Bidder will not withdraw the bid for the period indicated on the Tender Form, following the schedule closing time of the receipt of bids, and
 - .2 The Bidder will enter into a formal agreement with the Owner in accordance with the agreement included as part of the Contract Documents, and
 - .3 The required Certified Cheque, Bank Draft or Bid Bond as Contract Security will be provided to the Owner, and
 - .4 In the event of withdrawal of said bid within said period, or the failure to enter into said Agreement and give said contract security within ten (10) days after notice of the acceptance of the bid, the Bidder shall be liable to the Owner for the full amount of the bid guarantee as representing the liquidating damages to the Owner on account of the default of the Bidder in any particular hereof and shall not be construed as a penalty.
 - .5 Bid Bonds or Security Deposits will be returned to all except the three (3) lowest Bidders within three (3) days after the opening of tenders. The remaining non-successful Bid Bonds or Security Deposits will be mailed to Bidders within forty-eight (48) hours after the Owner and the successful Contractor have executed the Contract and the duly executed Bonds or Certified Cheque representing the Contract Security have been received and accepted by the Owner from the successful Contractor.
 - .6 Bonds and Letters of Surety, provided by General Contractors to the Owner shall be from a recognized Surety Company.
 - .7 Only Bid Bonds issued by insurers, licensed in Canada and authorized to do business in the Province of Prince Edward Island, will be accepted.
 - .8 Security Deposits provided by General Contractors:
 - .1 Must be in the form of a Certified Cheque or Canadian Bank Draft drawn on a bank to which the Bank Act applies or a Credit Union, payable to the Owner, OR
 - .2 Bonds of the Government of Canada, unconditionally guaranteed, as to the principal and interest by the Government of Canada if such Bonds are:
 - .1 Payable to the Bearer, or
 - .2 Accompanied by a duly executed Instrument of Transfer to the Owner in the form prescribed by the Domestic Bonds of Canada Regulations, or
 - .3 Negotiated as to principal or as to principal and interest in the name of the Owner, pursuant to the Domestic Bonds of Canada Regulations.
 - .3 Security Deposits submitted by Subcontractors to General Contractors, shall be in a form satisfactory to the General Contractor.
 - .4 No interest will be paid to either the successful or unsuccessful bidders for any form of Bid Guarantee.

1.11 CONTRACT SECURITY

- .1 Upon award of a Contract, the Contractor shall provide the following Contract Security:
 - .1 For a General Contract Tender less than One Million Dollars (\$1,000,000.00), including Civil and Electrical Subcontract values:
 - .1 A Performance Bond and a Labour and Materials Bond, each in the amount of fifty per cent (50%) of the total Contract Amount,
OR
 - .2 A Security Deposit in the form of a Certified Cheque or Bank Draft, in an amount not less than ten per cent (10%) of the total Contract Amount.
 - .2 For a General Contract Tender One Million Dollars (\$1,000,000.00) or more, including Civil and Electrical Subcontract values:

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- .1 A Performance Bond and a Labour and Materials Bond, each in the amount of fifty per cent (50%) of the total Contract Amount.
 - .2 All Bonds provided by General Contractors, are to be made payable to the Owner.
 - .3 Bonds shall be from a recognized Surety Company, licensed in Canada and authorized to do business in the Province of Prince Edward Island.
 - .4 If a Performance Bond is utilized, it shall be maintained in force for a period of not less than twelve (12) months after the issuance of the Total Performance Certificate.
 - .5 Security Deposits, provided by the General Contractor:
 - .1 Must be in the form of a Certified Cheque or Bank Draft drawn on a bank to which the Canadian Bank Act applies, or a Credit Union, payable to the Owner, OR
 - .2 Bonds of the Government of Canada, unconditionally guaranteed, as to the principle and interest by the Government of Canada if such Bonds are:
 - .1 Payable to the Bearer, or
 - .2 Accompanied by a duly executed Instrument of Transfer to the Owner, in the form prescribed by the Domestic Bonds of Canada Regulations, or
 - .3 Negotiated as to principle or as to principle and interest in the name of the Owner pursuant to the Domestic Bonds of Canada Regulations.
 - .6 Contract Security shall be provided at the expense of the General Contractor. Cheques or Bank Drafts shall be drawn on an account with recognized Financial Institutions.
 - .7 Contract Security submitted by Subcontractors to General Contractors, shall be in a form acceptable to the General Contractor.
 - .8 No interest will be paid to the successful Contractor on any form of Contract Security.
 - .9 If in accordance with the Contract Security requirements the successful Contractor has used a Certified Cheque or Bank Draft as Contract Security, the Certified Cheque or Bank Draft will be deposited in a safety deposit box in a bank until the date of Substantial Performance for the Contract as defined under Definitions and GC 5.4 of CCDC2-2020. Subject to the Work being acceptable to the Owner and Consultant it will be returned to the Contractor, without interest. The Certified Cheque or Bank Draft used as contract Security used through the construction period will be replaced with a Certified Cheque or Bank Draft in the amount of 20% of the original Contract Security during the Warranty Period. Subject to Warranty issues being addressed during the 1-year Warranty Period to the satisfaction of the Owner and Consultant it will be returned to the Contractor, without interest.

1.12 RECEIPT AND OPENING OF BIDS

- .1 Bids will be opened publicly at the time and place stated in the Invitation to Tender. The officer whose duty it is to open them will decide when the specified time has arrived. No responsibility will attach to any officer for the premature opening of a bid not properly addressed and identified.
- .2 Telegraphed, telephoned or facsimile transmitted bids will not be considered.
- .3 Any firm which has submitted a tender has the privilege of being present at the bid opening.

1.13 ADJUSTMENT AND WITHDRAWAL OF BIDS

- .1 Bids may be withdrawn or adjusted in writing by mail, delivered in person or telegram or facsimile transmission delivered to the party to whom the bids were submitted, provided such withdrawal or adjustment is prior to the time fixed for the opening of the bids. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal or adjustment of the bid after the expiration of the time within which bids may be submitted.
 - .1 All withdrawals or adjustments to previously submitted tenders must be faxed to the Town of Stratford at 902-569-5000 prior to the time fixed for the opening of bids.
 - .2 Neither the Owner nor Coles Associates Ltd. accepts responsibility for the Contractors inability to submit faxed modifications within the allotted time for such circumstances, including but not limited to power and equipment failures, transmission failures, paper outages, busy fax line, etc.
 - .3 Adjustments must be signed by the same person who signed the original bid.

1.14 AWARD OF CONTRACT

- .1 The Contract, if awarded, will be awarded as promptly after the opening of bids as is possible, and at the discretion of the Owner. The award date will not extend beyond the period indicated on the Tender Form following the scheduled time of tender closing, without first obtaining permission of the three (3) low bidders, or low bidder only, at the discretion of the Owner.
- .2 The Form of Agreement, (Contract) which the successful Bidder will be required to enter into with the Owner, may be seen on application to the Consultant. The drawings, specifications and any addenda issued during the tender period, will be suitably marked for identification at the time the Form of Agreement is signed by both parties, shall be considered as being included in the Contract, together with the completed Tender form and are hereinafter referred to as the "Contract Documents." All of these documents shall be read together and construed as one document. Following execution of the Contract, the Contractor shall receive from the Owner one (1) complete signed set of Contract Documents.
- .3 Final award of Contract shall be subject to approval of all agencies having direct interest in the project.
- .4 Where identical bids are received, the low bidder will be selected on the basis of a coin toss by the Owner in the presence of the identical bidders.

1.15 REJECTION OF BIDS

- .1 The Owner reserves the right to reject any and all bids.
- .2 The lowest or any bid will not necessarily be accepted.
- .3 Bids submitted which indicate "own forces" for subcontract work, that in the opinion of the Owner cannot be successfully completed by the Contractor's employees will not be accepted.
- .4 Bids not submitted on the required form will be rejected.
- .5 Bids which are incomplete or qualified will be rejected.
- .6 All Bidders acknowledge that they shall have no claim against, or entitlement to damages from the Owner or Consultant by reason of the Owner's rejection of their individual bids or all bids.

1.16 SUBCONTRACT WORK

- .1 Contractor is to ensure that all Subcontractors understand the full extent of their responsibilities in order to complete the entire work of the project. Subcontract work may appear in various Sections of Specifications and on various Drawings.
- .2 Contractors and their Subcontractors are advised to become familiar with all specifications and drawings.

1.17 CONDITIONS OF WORK AND EMPLOYMENT IN PEI

- .1 All Construction Companies and Contractors and subcontractors submitting tenders for this work, or a portion thereof, are advised, in their own interest, to contact the Construction Association of Prince Edward Island, the accredited association for commercial and industrial sectors of the construction industry, to inquire and determine the terms and conditions of work and employment in the Province of Prince Edward Island.

1.18 LABOUR

- .1 No prospective employee in the Province of Prince Edward Island shall, with relation to his employment or eligibility for employment, be discriminated against or favored by reason of sex, racial origin, religious views, or political affiliations.
- .2 Contractors, to the extent possible, are encouraged to maximize the employment of the local labour force for the Work of this Contract.

1.19 HARMONIZED SALES TAX REQUIREMENTS

- .1 The Owner for this project must account for the Harmonized Sales Tax (HST).

-
- .2 All tenders submitted for the work of this Contract shall be calculated on the basis that the Owner is not exempt from HST. The bid will exclude HST but will show it as a separate line item.

1.20 ACCEPTABLE PRODUCTS

- .1 The Bidder shall carry in his tender the base bid product(s) identified in the specifications as "Acceptable Material", or Approved Equals as they are identified throughout the tender period.
- .2 The Bidder is also encouraged to carry the products of other manufacturers, that are not considered equals, as "Alternatives Prices," listing them by name on the Appendix provided for that specific purpose, as part of the Tender Form, together with the price difference compared to the specified products, when such Appendix is identified under Section 00 41 13 - Bid Form.

1.21 APPROVED EQUALS

- .1 Submission for an Approved Equal is to contain literature and descriptive information with full specification data. Where the requested item is contained on a printed document with other items, it is to be clearly identified.
- .2 The Consultant will not search catalogs, e-mails or websites or contact suppliers to obtain the necessary information for proper evaluation.
- .3 Submission by Bidders for evaluation of products requested to be considered as equal must be submitted to Consultant no less than 5 working days prior to closing of tenders. No consideration will be given to approving equals after the close of tenders, except when the specified product is found to have been discontinued by the manufacturer.
- .4 The consideration of a product(s) for Approved Equal status and the acceptance of individual products as approved equals is entirely at the discretion of the Consultant.
- .5 When products are given Approved Equal status these products may, at the discretion of bidders, be carried in their tender price, provided that ALL costs related to changes to the contract work required to incorporate the Approved Equal product are included in the tender price.
- .6 The acceptance of a product by the Consultant as an "Approved Equal," even where not specifically indicated on the Approved Equals listing in the Addendum, is to be understood as being contingent upon the provision of the particular series, model and/or type, complete with all options to meet the specified requirements of the Acceptable Material product.
- .7 Products given approved status that are found, during construction period, to not have all specified options available, or to have discontinued production of same, or to have made other design changes since the time of approval, will not be accepted for use on this project, except when financial compensation has been mutually agreed upon between the Contractor and the Owner and deemed acceptable by the Consultant. Compensation will not be paid to the Contractor for products acknowledged by the Consultant to be superior to the specified products.

1.22 ALTERNATIVES

- .1 Alternative products, when requested under Section 00 41 13 - Bid Form, must be listed in Appendix "B" provided as part of the Tender Form, and are to be understood as being offered only for the Owner's consideration as substitutes for the specified Acceptable Material products, at the amount of increase or decrease in the tender amount indicated in the Appendix. These products and related prices are not to be included in the tender amount.
- .2 Alternative products and their related increase or decrease in the base bid amount are not used as the basis for awarding tenders.
- .3 When alternative products are listed in Appendix "B", ALL costs related to changes to the contract work required to incorporate the alternative product into the work are to be included in the amount stated in Appendix "B".
- .4 Alternative products may or may not be accepted at the discretion of the Owner at the price difference quoted, without any other monetary consideration. If requested, bidders shall promptly supply full details of any or all Alternatives listed. Specific written direction from the

- .5 Consultant must be given to the Contractor to substitute an alternative product.
Alternative prices shall include all fees, taxes and markups.

1.23 UNIT PRICES

- .1 Unit Prices, when requested under Section 00 41 13 - Bid Form, must be listed in Appendix "C", as part of the Tender Form and are to be understood as being offered only for the Owner's consideration; to be accepted or not accepted, at the Owner's discretion in a timely manner during the Work of the Contract, ONLY as a method of adjustment to the Contract Work for changes in the Work, should the Owner opt for the Unit Price Method.
- .2 Unit prices shall include all fees, taxes and markups.

1.24 SEPARATE PRICES

- .1 Separate Prices, when requested under Section 00 41 13 - Bid Form, must be listed in Appendix "D", as part of the Tender Form and are to be understood as being offered only for the Owner's consideration; to be accepted or, not accepted, in whole or in part, at the Owner's discretion. If used the Separate Prices may be incorporated into the Contract Work either at the time of Award of Contract or in a timely manner during the Work of the Contract, at the Owner's discretion.
- .2 Separate Prices shall include all fees, taxes (excluding HST) and markups.

1.25 GUARANTEES

- .1 The Contractor will be required to guarantee the work of this Contract in accordance with the requirements of GC12.3 of the Agreement.
- .2 Notwithstanding the above, the bidder's attention is directed to the fact that certain individual items on this project may be required to be guaranteed by the manufacturer for periods in excess of twelve months. These specific requirements are to be found in various Sections of the specifications for this project.

1.26 PAYMENT OF WORKERS

- .1 The Contractor shall, in addition to any fringe benefits, pay the workers employed by the Contractor on the work at wage rates, not less than those established by the Minimum Wage Order, issued under authority of the Labour Act, which is in effect. The Contractor shall pay workers employed on the work at intervals of not less than twice per month.
- .2 The Contractor shall require each Subcontractor, or person doing any part of the work, to covenant with the Owner that workers are employed at the wage rates and in the manner required by this provision.
- .3 Where any person employed by the Contractor or any Subcontractor, or other person engaged on the Work of this Contract, is paid less than the amount required to be paid under the provisions of this Contract, the Owner may deduct from any monies payable to the Contractor, under this or any other Contract, and pay to such person, a sum sufficient to bring the person's wages up to the amount required to be paid under this Contract.
- .4 No claim for extra payment from the Contractor will be considered by the Owner concerning any change in the Minimum Wage Order which may occur during prosecution of the Contract.

1.27 TIMING REQUIREMENTS

.1 This project will require the achievement of the following project milestones:

- | | | |
|----|-------------------|--|
| .1 | Tender Call | July 25, 2023 |
| .2 | Bidder Site Visit | August 1, 2023 @ 1:00pm local time |
| .3 | Tender Close | August 8, 2023 @ 2:00 PM local time |

**NOTE: Location of Tender Closing is:
Stratford Town Hall, 234 Shakespeare Drive, Stratford, PE**

- | | | |
|----|--------------------|--------------------------|
| .4 | Ready-For-Takeover | December 31, 2023 |
|----|--------------------|--------------------------|

END OF SECTION

1 General

1.1 TENDER

.1 SUBMITTED BY:

_____ (Name)

_____ (Address)

_____ (Contact)

DATE: _____

FOR: PROJECT NAME: **Stratford Waterfront Gathering & Event Space**
LOCATION: **Stratford, PE**

TO: PROJECT OWNER: **Town of Stratford**

Having examined ALL the drawings and specifications for this project, as well as any addenda issued, as prepared by Coles Associates Ltd. and/or their consultants; WE HEREBY OFFER to furnish all materials, plant and labour necessary for the full and proper completion of the Contract work for:

PROJECT NAME: **Stratford Waterfront Gathering & Event Space**
LOCATION: **Stratford, PE**

INCLUDING all prime cost allowances and Government sales or other taxes in force at this date, EXCLUDING Harmonized Sales Tax (HST) but not any other additional or deductible allowances or taxes which may be applicable subsequent to this date, and which shall be payable by or to the Owner, in accordance with the above mentioned Documents, for the bid amount of:

_____ (Dollars)
(\$ _____)

in lawful money of Canada.

In submitting this Tender we recognize the necessity to complete the information requested by any appendices, as well as, the right of the Owner to reject all Tenders or to accept any Tender at the price submitted, on the condition that revised Tenders will not be called for if minor changes are made.

In the event of this Tender being accepted within thirty (30) days of the time stated for the closing of Tenders, and our failing or declining to enter into a Contract, then our Bid Guarantee, submitted with our Tender shall be forfeited to the Owner in lieu of any damages which the Owner may suffer by reason of our failure or refusal to enter into such Contract.

In the event of our Tender not being accepted with thirty (30) days of the time stated for the closing of Tenders, our Bid Guarantee, submitted with our Tender will be returned to us forthwith, unless a satisfactory arrangement is made with us covering its retention for a further stated period.

If we are notified of the acceptance of this Tender within the above specified time, we will:

- .1 Enter into a formal Contract Agreement with the Owner.
- .2 Furnish the Performance Bond and Labour and Materials Payment Bonds, or other form of Contract Security, when specifically permitted, as Contract Security in accordance with the requirements of the specifications.
- .3 Furnish a cost breakdown of the Contract sum, the total aggregating the amount of our Tender, in accordance with the requirements of the specifications.
- .4 Furnish a certified copy of all insurance policies.
- .5 Furnish a certified copy of all insurance policies carried by the named subtrades.
- .6 Complete the entire work on or before the dates stated.
- .7 Provide and update as required a Construction Schedule which clearly shows the state of progress required to complete the work on the date specified.
- .8 Enter into subcontract agreements where applicable.

1.2 ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

- .1 Addendum No. _____ Issued: _____ initial
- Addendum No. _____ Issued: _____ initial
- Addendum No. _____ Issued: _____ initial
- Addendum No. _____ Issued: _____ initial
- Addendum No. _____ Issued: _____ initial

1.3 FORM OF TENDER APPENDICES

- .1 Appendix 'A' must be completed by bidders.
- .2 Appendix 'B' (only the items indicated) may be completed by bidders, any other items are at the bidder's discretion.
- .3 Appendix 'C' must be completed by bidders.
- .4 Appendix 'D' must be completed by bidders.

1.4 DOCUMENTS ACCOMPANYING BID FORM

- .1 As per Section 00 21 13, Par 1.8.16:
 - One (1) copy of Bid Guarantee, together with Surety's letter of consent. _____ initial
 - One (1) copy of preliminary schedule. _____ initial
 - One (1) copy of letter from Bidders Insurance Provider identifying list of claims made against Bidder within last five (5) years. _____ initial

1.5 SUPERINTENDENT

- .1 Name of Superintendent _____.
- .2 Years of Experience with Contractor _____.

1.6 CONFLICT OF INTEREST

- .1 The Contractor warrants that as at the date of this Agreement, no conflict of interest, or any circumstance that might interfere with independent and objective exercise of judgment, exists or is likely to arise in relation to execution of this Agreement or its subject matter. The Contractor shall immediately notify Consultant, in writing, if any such actual or potential conflict of interest should arise at any time during the Term. In the event Consultant discovers or is notified by the Contractor of an actual or potential conflict of interest, Consultant, in its sole discretion, may either:
 - .1 Allow the Contractor to resolve the actual or potential conflict to the satisfaction of Consultant;
OR
 - .2 Terminate the Agreement.

1.7 CONTRACTOR'S SIGNATURE

- .1 Signed sealed and submitted for and on behalf of:

(Company Name)

(Address)

(Authorized Signature)

(Witness)

(Name and Title)

(Name and Title)

(Date)

1.8 APPENDIX 'A'

.1 Herewith are identified the Subcontractors we propose to use on this project. Carrying Sub-Contractor options next to identified work, is not acceptable and may be cause for rejection of the Tender by the Owner.

Excavation and Backfilling: _____

Site and Landscaping: _____

Asphalt Paving: _____

Boardwalk Construction: _____

Helical Piling: _____

Structural Steel: _____

Electrical: _____

Material Testing: _____

COMPANY: _____

AUTHORIZED SIGNATURE: _____

1.9 APPENDIX 'B'

.1 ALTERNATIVE PRICES

We herewith submit for consideration by the Owner the following systems or products as Alternatives to the Base Bid items indicated below and identify the increase or decrease, as applicable, in our tender price, for each item should it be selected by the Owner for installation in lieu of the Base Bid item. The change in tender price includes for all necessary modifications to the base bid systems.

Alternative prices shall include all fees, taxes and markups.

SECTION ITEM BASE BID ALTERNATIVE:	TENDER PRICE INCREASED BY:	TENDER PRICE DECREASED BY:
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____

COMPANY: _____

AUTHORIZED SIGNATURE: _____

1.10 APPENDIX 'C'

.1 UNIT PRICE COMPONENT

We submit herewith our Unit Prices for the additions or deletions to the work listed below. The Unit Prices listed apply to performing the Units of Work, in accordance with the requirements of the appropriate specifications herein, only during the time scheduled for such work in the project work schedule.

Unit prices shall include all fees, taxes and markups.

UNIT OF WORK	ONE (1) UNIT PRICE ONLY FOR EITHER ADDITION OR DELETION
.1 Lookout #1 (including railing, benches & lighting)	\$ _____ each
.2 Lookout #2 (including railing, benches & lighting)	\$ _____ each
.3 Lookout #3 (including railing, benches & lighting)	\$ _____ each
.4 Benches (Type 5/C8)	\$ _____ each
.5 Benches (Type 6/C8)	\$ _____ each
.6 Light standard, concrete bases, trenching, conduits, wiring & backfilling (North & South side)	\$ _____ L.S.
.7 Post Lighting including wiring (North and South side of boardwalk)	\$ _____ L.S.
.8 Statue Deck Lighting, Trenching, Conduit, Wiring & Backfilling	\$ _____ L.S.
.9 Bench Lighting, Trenching, Conduit, Wiring & Backfilling	\$ _____ L.S.
.10 Receptacles, Trenching, Conduit, Wiring & Backfilling (North & South side)	\$ _____ L.S.

COMPANY: _____

AUTHORIZED SIGNATURE: _____

1.11 APPENDIX 'D'

.1 CASH ALLOWANCES

The undersigned hereby acknowledges that the sum of:

FORTY THOUSAND DOLLARS - \$40,000.00 EXCLUDING Harmonized Sales Tax (HST)

is included in the total tender amount as Cash Allowances, to perform the following work: This money to be expended in accordance with the requirements of CCDC2-2020 General Condition GC4.1 - Cash Allowances, only on consultant's written instructions.

Contractors are advised to carry sufficient overhead and administration cost to administer and coordinate this work.

In the event that the Owner decides not to proceed with any or all of this work, we agree to credit the Contract with the unused portion of the full amount of these Cash Allowances, as applicable.

COMPANY: _____

AUTHORIZED SIGNATURE: _____

END OF SECTION

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1 General

1.1 FORM OF AGREEMENT

- .1 The Form of Agreement between Contractor and Owner shall be Canadian Construction Documents Committee CCDC2-2020, "Stipulated Price Contract", including the Definitions and General Conditions therein including items GC1.1 inclusive to GC13.2, and the modifications to items GC1.1 to GC13.2 incorporated into Section 00 73 00 – Supplementary Conditions of this Specification.
- .2 Document CCDC2-2020 may be examined at the Construction Association office in Charlottetown, PEI.

END OF SECTION

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1 General

1.1 GENERAL

- .1 These Supplementary Conditions modify, delete and/or add to the Agreement between Owner and Contractor, the Definitions, and the General Conditions of the Stipulated Price Contract, Standard Construction Document CCDC 2-2020.
- .2 Where any Article or portion of Article conflicts with the Laws of the Province concerned, such Article or portion of the Article is hereby stricken.

1.2 SUPPLEMENTARY CONDITION 1; AGREEMENT BETWEEN OWNER AND CONTRACTOR

- .1 SC1.1; Article A-5 - Payment:
 - .1 Delete paragraph 5.2 and replace it with the following:

"5.2 Should either party fail to make payments as they become due under this Contract or in an award by arbitration, adjudication or court, interest will begin to accrue on the amount that is not paid from the date when it is due until the date it is paid at the prejudgment interest rate prescribed by the Provincial Court of PEI."

1.3 SUPPLEMENTARY CONDITION 2; CCDC2 - 2020, DEFINITIONS

- .1 Amend the following Definitions:
 - .1 Amend the Definition of "Consultant" by adding the following to the end:
 - .1 "For purposes of this Contract, the terms "Consultant", "Architect" and "Engineer", wherever used in the Contract Documents, shall be considered synonymous. The term "Consultant" means the Consultant or Consultants authorized representative.

The Consultant shall be the Owner's Prime Consultant, Coles Associates Ltd., 85 Fitzroy Street, Charlottetown, PEI."
 - .2 Amend the Definition of "Owner" by adding the following to the end:
 - .1 The Owner shall be the Town of Stratford.
 - .3 Amend the Definition of "Subcontractor" by adding the following to the end:
 - .1 All dealings with the Subcontractor shall be through the medium of the Contractor, who will be responsible for the proper coordination and execution of the Sub-contractor's work.
- .2 Add the following new Definitions:
 - .1 **Act**

"Act means the Construction Act (PEI), as amended."
 - .2 **As-Built Drawings**

"As-Built Drawings are the drawings prepared by the Contractor by marking on a copy of the Drawings the changes from the Drawings which occur during the course of the Work including, but not limited to, the exact location of major building components and structures that were shown generally on the Drawings. For certainty, As-Built Drawings shall be in computer-aided design (CAD) format approved by the Owner, as well as in paper and PDF formats."
 - .3 **Deficiency Rectification Security**

"Deficiency Rectification Security means the amount and the form of security to be delivered by the Contractor pursuant to GC 5.4A – DEFICIENCY RECTIFICATION SECURITY."
 - .4 **Engineer**

"The Engineer shall mean the designated engineering representative(s) of the Consultant."
 - .5 **OHSA**

"OHSA means the Occupational Health and Safety Act (PEI), as amended, and all rules and regulations passed under it."

-
- .6 **Proper Invoice**
"Proper Invoice means an application for payment given by the Contractor to the Owner that fully complies with the requirements of GC 5.1A – PROPER INVOICE."
- .7 **Provide**
"Provide means supplied and installed."
- .8 **Submittals**
"Submittals are documents or items required by the Contract Documents to be provided by the Contractor, such as:
- .1 Shop Drawings, samples, models, manuals, mock-ups to indicate details or characteristics before the portion of the Work that they represent can be incorporated into the Work; and
 - .2 As-Built Drawings and manuals to provide instructions to the operation and maintenance of the Work."
- .9 **WCB**
"WCB means the PEI Workers Compensation Board."

1.4 SUPPLEMENTARY CONDITION 3; GENERAL CONDITIONS

- .1 GC 1.1 CONTRACT DOCUMENTS
- .1 Amend paragraph 1.1.2 by adding the following to the end:
"The intent of the Contract Documents is to include all labour, Products, materials, Construction Equipment and services necessary or normally considered necessary for the performance of the Work in accordance with the Contract Documents. Any item of Work mentioned in the Contract Documents or reasonably inferable from the Contract Documents but not otherwise shown or described shall be provided by the Contractor as if shown or otherwise described or inferable. Any items omitted from the Contract Documents which are reasonably necessary or inferable for the completion of the Work shall be considered a portion of the Work and included in the scope of Work to be performed under this Contract."
- .2 Amend paragraph 1.1.5 as follows:
- .1 Amend paragraph 1.1.5.1 by changing the order of the first four bullet points so that, as reordered, the bullet points read as follows:
 - ".1 the order of priority of documents, from highest to lowest, shall be
 - Supplementary Conditions,
 - the Agreement between Owner and the Contractor,
 - the Definitions,
 - the General Conditions"
 - .2 Amend paragraph 1.1.5 by adding the following new paragraph 1.1.5.6:
 - ".6 Notwithstanding the foregoing, if there a conflict or discrepancy between Drawings or between Drawings and Specifications or any other Contract Documents in relation to the Products to be supplied or the amount of labour or materials required to complete a particular item of Work, the Contractor shall supply and shall include in the Work the Products, labour and materials which would provide the greatest benefit to the Owner, as determined by the Owner."
- .3 Amend paragraph 1.1.9 by adding new paragraphs 1.1.9.1 and 1.1.9.2 as follows:
- ".1 The Specifications shall be read as a whole and are the minimum construction requirements. Neither the organization nor the division of the Specifications nor anything else contained in the Contract Documents will be construed to place responsibility on the Consultant to settle disputes among the Subcontractors and Suppliers in respect to such organization or division.
 - .2 The Drawings are intended to convey the scope of the Work and indicate elevations and general and approximate locations, arrangement and sizes of

fixtures, equipment, outlets, utilities and underground services. The Contractor shall obtain more accurate information and shall satisfy itself as to the conditions of the pre-grade elevations and the locations, arrangement and sizes of fixtures, equipment, outlets, utilities and underground services from study and coordination of the Drawings, including Shop Drawings, and shall satisfy itself and become familiar with conditions and spaces affecting these matters before proceeding with the Work. Where site conditions require reasonable minor changes to indicated locations and arrangements, the Contractor shall make such changes at no additional cost to the Owner. Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the Contractor shall include such relocation in the Work at no additional cost to the Owner. The Contractor shall arrange and install fixtures and equipment in such a way as to conserve as much headroom and space as possible.”

- .4 Amend paragraph 1.1.11 as follows:
 - .1 Delete the words “at the Owner’s expense”.
- .5 Add new paragraphs 1.1.12 to 1.1.16 as follows:
 - "1.1.12 The Contract Documents and are intended solely for use by the party with whom the Consultant has entered into a Contract, and there are no representations of any kind made by the Consultant to any party with whom the Consultant has not entered into a Contract.
 - 1.1.13 If the Contractor finds any error, inconsistency or omission in the Contract Documents or has any doubt as to the meaning or intent of any part thereof, the Contractor shall immediately notify the Consultant, who will provide written instructions or explanations. Neither the Owner nor the Consultant will be responsible for oral instructions.
 - 1.1.14 Electronic documents are and shall remain the Consultant's property. Copies of electronic documents may be made available for the preparation of Shop Drawings at the Consultant's sole discretion and for a fee.
 - 1.1.15 The Contractor shall receive up to ten (10) sets of Drawings and Specifications at no cost from the Owner. Additional sets of drawings will be supplied at the cost of reproduction. The above covers the requirements for all Trades.
 - 1.1.16 The Contractor shall keep one copy of the current Contract Documents, Supplemental Instructions, proposed or Contemplated Change Notices, Change Orders, Change Directives, Record Drawings marked up with any changes to be included in As-Built Drawings, cash allowance disbursement authorizations, reports, records meetings, and reviewed Shop Drawings at the Place of the Work, in good order and available to the Owner and Consultant.”
- .2 GC 2.2 ROLE OF THE CONSULTANT
 - .1 Add new paragraph 2.2.19 as follows:
 - "2.2.19 The Consultant will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs required in connection with the Work in accordance with the applicable construction safety

legislation, other regulations or general construction practice.

The Consultant will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Consultant will not have control over, charge of or be responsible for the acts or omissions of the Contractor, Subcontractors, Suppliers, or their agents, employees, or any other persons performing portions of the Work."

.3 GC 2.4 DEFECTIVE WORK

.1 Amend paragraph 2.4.1 by inserting the words ", at the Contractor's sole cost and expense," after the words "The Contractor shall" in the first line of the paragraph.

.2 Add new paragraphs 2.4.4 and 2.4.5 as follows:

"2.4.4 The Contractor shall rectify, in a manner acceptable to the Owner and the Consultant and without cost or expense to the Owner, all defective Work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

2.5.5 The Contractor shall give priority to the correction of any defective work or deficiencies identified as priorities by the Owner or the Consultant."

.4 GC 3.1 CONTROL OF THE WORK

.1 Amend paragraph 3.1.1 by adding the following new paragraphs 3.1.1.1 and 3.1.1.2 as follows:

"1 The Contractor shall co-ordinate his own work and the work of all Subcontractors so as to facilitate and expedite the progress of the work.

2 It is the responsibility of the Contractor to immediately notify the Consultant of any signs of distress or any other indications of actual or potential damage to the contract work, without regard to his awareness of any errors, inconsistencies or omissions in the Contract Documents."

.2 Add new paragraphs 3.1.3 through 3.1.7 as follows:

"3.1.3 The Contractor is solely responsible for the quality of the Work and shall undertake any quality control activities specified in the Contract Documents or, if none are specified, as may be reasonably required to ensure such quality. The Contractor shall perform the Work in accordance with modern practice and in accordance with applicable laws, ordinances, rules, regulations, or codes relating to the performance of the Work. Without limiting the generality of the foregoing, the Contractor is responsible for coordinating the Work so that no part shall be left in an unfinished or incomplete condition.

3.1.4 The Contractor shall abide by and shall enforce directives and policies regarding signs, advertisements, fires, smoking and vaping at the Place of the Work as directed by the Owner.

3.1.5 The Contractor, without in any way limiting its responsibilities under this Contract, shall:

.1 perform the Work so as to avoid disturbing the occupants of any structures at the Place of the Work or any adjacent structures or the public in general,

.2 respect and comply with local regulations and all Owner's requirements regarding permitted work hours, noise levels and work conditions,

.3 take all reasonable steps to avoid interference with fire exits, building

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- access and egress, continuity of electric power and all other utilities, to suppress dust and noise, to avoid conditions likely to propagate mould or fungus of any kind, and shall take all other steps reasonably necessary to promote and maintain the safety and comfort of the users and occupants of any structures at the Place of the Work or any adjacent structures and the public in general, and/or to maintain access to and the operation of such structures,
- .4 take precautions not to allow any unauthorized visitors entry to the Place of the Work.
- 3.1.6 Prior to commencing the Work the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the Contract Documents. Where dimensions are not included or exact locations are not apparent in the Contract Documents, the Contractor shall immediately notify the Consultant in writing and shall obtain written instructions before proceeding with any part of the affected Work. Failure to do so shall be at the sole risk and cost of the Contractor.
- 3.1.7 Before ordering any materials or doing any Work, Contractor shall verify all compensation has been allowed on account of differences between actual site dimensions and the measurements indicated on the drawings. Any difference, which may be found, shall be submitted to the Consultant for consideration before proceeding with the work.
- 3.1.8 The Contractor will be responsible for effecting the removal from the site of any trade, firm, group or person who is delaying the Work, or whose Work is unsatisfactory. The Contractor will arrange for other competent trades people to complete the Work at no expense to the Owner."
- .5 GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS
- .1 Amend paragraph 3.2.2 by deleting the word "Owner" in the second line and replacing it with the word "Contractor".
- .2 Delete paragraphs 3.2.2.2 and 3.2.2.3 in their entirety.
- .3 Amend paragraph 3.2.3.4 by adding the following to the end:
- .1 "Failure by the Contractor to so report shall invalidate any claims against the Owner by reason of the deficiencies in the work of Other Contractors or Owner's own forces except for those deficiencies not then reasonably discoverable; and".
- .6 GC 3.4 CONSTRUCTION SCHEDULE
- .1 Delete paragraph 3.4.1 and replace it with the following:
"3.4.1The Contractor shall:
- .1 within ten (10) Working Days of signing this Contract submit to the Owner and the Consultant, for the Owner's approval, a construction schedule that indicates the timing of major activities and critical milestone dates for the Work, demonstrating that the Work will be performed in conformity with the Contract Time. Such schedule:
- .1 shall provide sufficient detail of the critical events and their inter-relationship and shall include a baseline schedule indicating the critical path for the Project; and
- .2 at each site meeting, provide to the Owner and the Consultant a look-
-

-
- ahead schedule indicating the major activities to be undertaken in the next month."
- .2 Amend paragraph 3.4 by adding the following new paragraph 3.4.2 as follows:
"3.4.2 The Contractor shall not change the scheduled Ready-for-Takeover date."
- .7 GC 3.5 SUPERVISION
- .1 Amend paragraph 3.5 by adding the following new paragraph 3.5.3 as follows:
"3.5.3 The Consultant may require the Contractor to inform him, in writing, of the name and experience of the supervisory personnel he intends to use on the project."
- .8 GC 3.7 LABOUR AND PRODUCTS
- .1 Amend paragraph 3.7 by adding the following new paragraph 3.7.4 as follows:
"3.7.4 All manufactured articles, materials and equipment shall be installed, applied, connected, erected, used, cleaned, conditioned and commissioned as directed by the manufacturer unless specified to the contrary."
- .9 GC 3.8 SHOP DRAWINGS AND OTHER SUBMITTALS
- .1 Delete the title of GC 3.8 as written and replace with the following wording "SHOP DRAWINGS AND OTHER SUBMITTALS".
- .2 Amend paragraphs 3.8.1, 3.8.2, 3.8.3, 3.8.5, 3.8.6 and 3.8.7 by adding the words "and Submittals" after the words "Shop Drawings" wherever they appear in those paragraphs; and amend paragraphs 3.8.3.2 and 3.8.5 by adding the words "and Submittal" after the words "Shop Drawing" wherever they appear in those paragraphs.
- .3 Add new paragraph 3.8.8 as follows:
"3.8.8 The Consultant's review of Shop Drawings and Submittals will be for general detail and arrangement only. The Consultant's review shall not relieve the Contractor from its responsibility for deviations from the Contract Documents, unless the Contractor in writing has notified the Consultant of such deviations at the time of submission of the Shop Drawings and Submittals and the Consultant has given written approval to the specific deviations. The Consultant's review shall not relieve the Contractor from responsibility for defective Work resulting from errors or omissions of any kind on the reviewed Shop Drawings and Submittals and shall not constitute authorization to the Contractor to perform additional Work or changed Work. The Contractor is solely responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes, and for techniques of construction and installation."
- .10 GC 3.9 DOCUMENTS AT THE SITE
- .1 Add new paragraph "3.9 DOCUMENTS AT THE SITE" as follows:
3.9 DOCUMENTS AT THE SITE
3.9.1 Contractor is to maintain at job site, one (1) copy of each document as follows:
.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Reviewed Shop Drawings.
.5 List of Outstanding Shop Drawings.
-

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- .6 Notice of Change.
 - .7 Change Orders.
 - .8 Other Modifications to Contract.
 - .9 Field Test Reports.
 - .10 Approved Work Schedule.
 - .11 Health and Safety Plan and Other Safety Related Documents.
 - .12 CSA Z317.13-07 - Infection Control Guidelines (if applicable).
 - .13 Other documents as specified."
- .11 GC 4.1 CASH ALLOWANCES
- .1 Delete paragraphs 4.1.4 and 4.1.5 and replace them with the following:
 - "4.1.4 Where the actual cost of the Work under any cash allowance exceeds or is expected to exceed the amount of the allowance, the Contractor shall notify the Owner and the Consultant in writing indicating the amount of additional funds required and, in such case, the Contractor shall not proceed with the cash allowance Work until the Contractor receives written instructions from the Consultant. Un-expended amounts from other cash allowances may be reallocated at the Owner's direction to cover the shortfall and, in that case, the Contractor is not entitled to any amount for overhead and profit. Where no such direction is given, or where the actual cost exceeds the allowance even after reallocation of un-expended amounts from other cash allowances, the Contractor shall be compensated for the excess incurred and substantiated, plus an amount for overhead and profit as set out in paragraph 6.2.3.3 of GC 6.2 – CHANGE ORDER, but on the excess only.
 - 4.1.5 The net amount of any un-expended cash allowances, after providing for any re-allocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price without any adjustment for the Contractor's overhead and profit on such amount."
 - .2 Add a new paragraph 4.1.8 as follows:
 - "4.1.8 The Owner reserves the right to call, or to have the Contractor call, for competitive bids for portions of the Work to be paid for from cash allowances."
- .12 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER
- .1 Delete "GC 5.1. Financing Information Required of the Owner" in its entirety.
- .13 GC 5.1A PROPER INVOICE
- .1 Add a new "GC 5.1A Proper Invoice" as follows:
 - "5.1A Proper Invoice
 - .1 In this Contract a Proper Invoice shall mean an application for payment made by the Contractor that:
 - .1 is given to the Owner monthly by e-mail sent to ".com" and is sent concurrently to the Consultant or as the Owner may otherwise direct; and includes all of the following:
 - .1 the *Contractor's* name and address and HST registration number;
 - .2 the date of the application for payment and the period during which the services or materials were supplied;
-

-
- .3 information identifying the authority, whether in the *Contract* or otherwise, under which the services or materials were supplied, including the applicable RFT or purchase order number;
 - .4 a description, including quantities where appropriate, of the services and materials that were supplied;
 - .5 the amount payable for the services or materials that were supplied, and the payment terms. Ensure the amounts align with the *Contractor's* pricing form;
 - .6 the name, title, telephone number and mailing address of the person to whom payment is to be sent;
 - .7 copies of all *Change Orders* and *Change Directives* for which the *Contractor* is claiming payment together with all backup documentation;
 - .8 a statement based on the schedule of values for the *Work*;
 - .9 for all applications for payment except the final payment, the monthly report required by GC 3.4A – CONTRACTOR'S MONTHLY REPORTS, including an updated construction schedule which complies with the requirements of paragraph 3.4.1.1 of GC 3.4 – CONSTRUCTION SCHEDULE;
 - .10 a current valid clearance certificate issued by the WCB;
 - .11 for the second and all subsequent applications for payment, a CCDC 9A Statutory Declaration stating that all accounts for services and materials and other indebtedness incurred by the Contractor for which the Owner may in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified matter in dispute."
- .14 GC 5.2 APPLICATIONS FOR PAYMENT
- .1 Amend paragraph 5.2.2 by adding paragraphs 5.2.2.1 and 5.2.2.2 as follows:
 - "5.2.2.1 Payment shall be less any holdback release, which may have been made in accordance with the specific terms of this Agreement as dictated by GC 5.6. Any such holdback release by the Owner to the Contractor shall be a payment to the Contractor in trust for the specific Subcontractor in respect of whose work the release is made.
 - 5.2.2.2 Payments shall be less 15% Mechanics' Lien Holdback amount claimed against each progress claim."
 - .2 Delete paragraph 5.2.7 in its entirety.
 - .3 Amend paragraph 5.2.8 by adding the following wording to the end:
"Payment for materials will be considered only if such materials are properly stored on site in a secure enclosure acceptable to the Consultant. Security of materials so stored is the responsibility of the Contractor."
 - .4 Add new paragraphs 5.2.9 to 5.2.11 as follows:
 - "5.2.9 Authorized Change Orders shall be listed on the application for payment indicating the amount claimed against each to date of claim.
 - 5.2.10 For the second and all subsequent applications for payment, a CCDC 9A Statutory Declaration stating that all accounts for services and materials and other indebtedness incurred by the Contractor for which the Owner may in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified matter in dispute.

5.2.11 A current valid clearance certificate issued by the WCB;"

.15 GC 5.3 PAYMENT

.1 Delete paragraph 5.3.1 and replace it with the following:

"5.3.1 The *Consultant* will issue to the *Owner* and copy to the *Contractor* a certificate for payment in the amount applied for, or in such other amount as the *Consultant* determines to be properly due.

.2 Add new paragraphs 5.3.1.3 and 5.3.1.4 as follows:

"3 When any claim for payment during the course of construction includes for completed or partially completed Work, which in the opinion of the *Consultant* is defective or otherwise unacceptable, a sum of monies determined by the *Consultant* to be ten (10) times the value of the defective or unacceptable Work, or ten (10) times the value of the Work required to correct the defect or an amount solely at the *Consultants* discretion, will be withheld from the claim.

.4 Deficiency monies may be held back at any time during the course of the project for Work deemed incomplete or unacceptable.

.5 It remains the *Contractor's* responsibility to undertake his own deficiency reviews and ensure the entire Work conforms to the Contract including quality, completeness and commissioning.

.6 Two final deficiency reviews will be conducted by the *Consultant*. The first review with the *Owner* and *Contractor* will identify any minor items which may remain outstanding, and the second review will confirm that these items have been completed. All other deficiency reviews where deficiencies are incomplete or not ready for requested inspections, will be charged at cost to the *Contractor*. The invoice for the additional reviews will be submitted to the *Owner* with a corresponding amount deducted from the *Contractor's* progress payment."

.16 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

.1 Add new paragraphs 5.4.1.3 as follows:

".3 Submit with application for payment letter of clearance from The Workers Compensation Board to the *Owner* stating that the *Contractor* is in good standing with the Board."

.17 SC 3.26 GC 5.5 FINAL PAYMENT

.1 Amend paragraph 5.5.2 by adding the following to the end:

.1 "Any delay in delivering the required Project Record Drawings (As-Builts) as described in Section 01 78 00 - Closeout Submittals will have the effect of delaying the final payment to the *Contractor* until the *Consultant* has received them complete and in good condition."

.18 GC 5.8 WITHHOLDING OF PAYMENT

.1 Add a new "GC 5.8 Withholding of Payment: as follows:

"GC 5.8 WITHHOLDING OF PAYMENT

5.8.1 Notwithstanding any provision in the *Contract Documents* to the contrary, the *Owner* may withhold payment of any amount claimed in an application for payment, in a *Proper Invoice*, or in any certificate for payment to the extent required to offset any claims the *Owner* may have against the *Contractor*, or to offset previous overpayment made to the *Contractor*, or for damages or

costs incurred by the *Owner*, or to the extent as may be necessary to protect and/or indemnify the *Owner* from loss, claims or damage, including as a result of:

- .1 the *Contractor's* failure to perform any of its material obligations or where the *Contractor* is otherwise in default under the *Contract Documents*;
- .2 defective portions of the *Work* not remedied;
- .3 damage done by the *Contractor* to work performed by Other *Contractors* or by the *Owner's* own forces;
- .4 the *Contractor's* failure to make prompt payments to its *Subcontractors* and *Suppliers* respecting *Work* for which the *Owner* has made payment to the *Contractor*;
- .5 claims or reasonable evidence indicating possible commencement of claims for which the *Contractor* may be responsible to indemnify the *Owner*;
- .6 the *Contractor's* failure to remove any liens arising from the *Work* or otherwise to satisfy its obligations under GC 14.2 – LIENS AND ACTIONS;
- .7 reasonable evidence the *Work* will not achieve Ready-for-Takeover in accordance with the construction schedule or within the *Contract Time*;
- .8 any claim for which the *Owner* is entitled to indemnification from the *Contractor* pursuant to the *Contract Documents*.

5.8.2 Where the *Owner* has withheld payment to the *Contractor* pursuant to the provisions of this *Contract*, the *Owner* shall be entitled to apply the amount toward the costs of any required remedial work, completion costs or toward damages or losses suffered and for which the *Owner* is entitled to compensation under this *Contract*, including legal costs and expenses.”

.19 GC 6.2 CHANGE ORDER

- .1 Delete paragraph 6.2.1 and replace it with the following:
 - "6.2.1 When a change in *Work* is proposed or required:
 - .1 The *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall promptly present, in forms acceptable to the *Consultant*, a detailed breakdown of the costs associated with the change, if any; and the adjustment in the *Contract Time*, if any. The breakdown shall include:
 - .1 Actual (not list) costs of material, as well as *Subtrade* and *Supplier* costs.
 - .2 Labour costs, including fringe benefits and wage levies.
 - .3 Equipment rental (excluding hand and small power tool).
 - .2 Change Orders calling for normal changes or additions to the *Work* will be priced in detail giving actual material trade prices (not list prices) and actual labour costs and wage levies (including *Employment Insurance*, *Worker's Compensation*, *Holiday Pay*) and actual equipment rental.
 - .3 Each Change Order will be considered as a whole to complete the work, inclusive of all *Sub- Contract* and/or *General Contract* work.
 - .4 To these prices, the *Contractor* will add:

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- .1 For Work less than \$2,500, involving the General Contractor only, the General Contractor adds 20% to his costs
 - .2 For Work over \$2,500, involving the General Contractor only, the General Contractor adds 15% to his costs.
 - .3 For Work less than \$2,500, involving a Subcontractor only, the Subcontractor adds 20% to his costs, submits this price to the General Contractor who adds 10%.
 - .4 For Work over \$2,500, involving a Subcontractor only, the Subcontractor adds 15% to his costs, submits this price to the General Contractor who adds 5%.
 - .5 For Work less than \$2,500, involving the General Contractor and a Subcontractor, the Subcontractor adds 20% to his costs, submits his price to the General Contractor who adds 10%; to this amount the General Contractor adds the cost of his own Work plus 20% of the cost of his own Work only. The General Contractor does NOT add a further 10% to the cost of his own Work.
 - .6 For Work over \$2,500, involving the General Contractor and a Subcontractor, the Subcontractor adds 15% to his cost, submits this price to the General Contractor who adds 5%; to this amount the General Contractor adds the cost of his own Work plus 15% of the cost of his own Work only. The General Contractor does NOT add a further 5% to the cost of his own Work.
 - .7 Deletions to Contract: A mark-up by either Sub-Contractor or General Contractor shall not be charged or credited on credit Change Orders.
 - .8 Supervision related to Change Orders shall be considered as included in the allowable mark-up, and shall not be added as additional charges for a Change order.
 - .5 Note: Costs related to management, supervision, estimating, scheduling, bonding, insurance, as built drawings, copying, courier, safety, cleaning, site overhead, site vehicle, hand and small power tools etc. are covered by the mark up indicated and shall not be included on Change Orders.
- .2 Add new paragraphs 6.2.3 to 6.2.5 as follows:
- "6.2.3 The mark-ups referred to in paragraph 6.2.1.4 shall constitute the only compensation the *Contractor* shall be entitled to for any and all overhead, profit, general expenses, incidental and administrative costs whatsoever related to a change including, but not limited to, costs relating to superintendence and supervision, general cleanup, *Shop Drawing* production, estimating, site office and head office expenses and personnel, administration costs, workers' tools, temporary facilities and controls, record drawings, *As-Built Drawings*, warranty, insurance, bonding, job safety costs, and coordination of any and all *Work*-related activities.
- 6.2.4 An adjustment to the *Contract Time* will be considered only when the *Contractor* demonstrates to the *Owner* that a change in the *Work* affects the critical path of the *Work*. Any costs associated with an adjustment to the *Contract Time* shall be identified by the *Contractor* and shall be limited to the
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reasonable direct costs directly attributable to the adjustment to the *Contract Time*.

- 6.2.5 The *Contractor* shall not be entitled to any additional compensation or an adjustment to the *Contract Time* arising out of changes to the *Work* aside from the amounts stated in a *Change Order*. In no event shall the *Owner* be liable to the *Contract* for any costs, including indirect, impact or consequential costs, arising out of changes to the *Work* beyond the agreed upon amount of the *Change Order*."

.20 GC 6.3 CHANGE DIRECTIVE

- .1 Delete paragraph 6.3.6 and replace it with the following:

"6.3.6 The adjustment in the Contract Price for a change carried out by way of a Change Directive shall be determined on the basis of cost of the Contractor's actual expenditures and savings attributable to the Change Directive, valued in accordance with paragraph 6.3.7 and as follows:

- .1 The Owner or the Consultant, without invalidating the contract, may make changes by altering, adding to, or deducting from the work, the contract sum being adjusted accordingly. All such work shall be executed under the conditions of the Contract.
- .2 Where work is required to proceed immediately, work may proceed under a Change Directive. The Contractor will be instructed to proceed on a time and materials basis and maintain accurate accounting records for the cost of the change.
- .3 Change Directives calling for changes to the Work will be priced in detail giving actual material trade prices (not list prices) and actual labour costs and wage levies (including Employment Insurance, Worker's Compensation, Holiday Pay) and actual equipment rental.
- .4 Each Change Directive will be considered as a whole to complete the work, inclusive of all Sub-Contract and/or General Contract work.
- .6 To these prices, the Contractor will add:
 - .1 For Work less than \$2,500, involving the General Contractor only, the General Contractor adds 20% to his costs.
 - .2 For Work over \$2,500, involving the General Contractor only, the General Contractor adds 15% to his costs.
 - .3 For Work less than \$2,500, involving a Subcontractor only, the Subcontractor adds 20% to his costs, submits this price to the General Contractor who adds 10%.
 - .4 For Work over \$2,500, involving a Subcontractor only, the Subcontractor adds 15% to his costs, submits this price to the General Contractor who adds 5%.
 - .5 For Work less than \$2,500, involving the General Contractor and a Subcontractor, the Subcontractor adds 20% to his costs, submits his price to the General Contractor who adds 10%; to this amount the General Contractor adds the cost of his own Work plus 20% of the cost of his own Work only. The General Contractor does NOT add a further 10% to the cost of his own Work.
 - .6 For Work over \$2,500, involving the General Contractor and a

Subcontractor, the Subcontractor adds 15% to his cost, submits this price to the General Contractor who adds 5%; to this amount the General Contractor adds the cost of his own Work plus 15% of the cost of his own Work only. The General Contractor does NOT add a further 5% to the cost of his own Work.

- .7 Deletions to Contract: A mark-up by either Sub-Contractor or General Contractor shall not be charged or credited on credit Change Orders
- .8 Supervision related to Change Orders shall be considered as included in the allowable mark-up, and shall not be included in the labour changes for a Change order."

.21 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

- .1 Add a new paragraph 6.4.0 as follows:

".0 The Contractor confirms that, before signing this Contract, it carefully investigated and examined the Place of the Work, the Contract Documents and any other documents made available by the Owner, and has satisfied itself as to the conditions, circumstances, limitations and requirements necessary for the Contractor to perform the Work in accordance with the Contract Documents. No allowances will be made for additional costs and no claims by the Contractor will be considered for an adjustment in the Contract Price or Contract Time in connection with conditions which were reasonably apparent or which could reasonably have been discovered before the signing of this Contract."

.22 GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

- .1 Add a new paragraph 7.1.7 as follows:

".7 The Owner may terminate this Contract for convenience at any time for any or no reason. In such event, the Owner shall pay for the Work performed up to the effective date of termination, including demobilization costs, and for such additional reasonable direct costs directly flowing from and which are a reasonable consequence of the termination, but excluding the costs of the Contractor's head office personnel and overhead costs, any consequential, indirect or special damages, and any loss of profit or loss of opportunity costs and damages arising from or caused by such termination, regardless of whether any such excluded costs, damages or claims are made or incurred by the Contractor or any Subcontractor or Supplier. The Owner shall not be liable for any other claims, costs or damages whatsoever arising from such termination of this Contract."

.23 GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

- .1 Amend paragraph 7.2.3 as follows:

.1 Delete paragraphs 7.2.3.1 and 7.2.3.2;

- .2 Amend paragraph 7.2.4 as follows:

.1 Delete "5" in the second line and replace with "10".

- .3 Delete paragraph 7.2.5 and replace it with the following:

"7.2.5 If the default cannot be corrected within the 10 Working Days specified in paragraph 7.2.4, the Owner shall be deemed to have cured the default if it:

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- .1 commences the correction of the default within the specified time; and
 - .2 provides the Contractor with an acceptable schedule for such correction;
and
 - .3 completes the correction in accordance with such schedule.
- .24 GC 9.1 PROTECTION OF WORK AND PROPERTY
- .1 Add a new paragraphs 9.1.5 and 9.1.6 as follows:
 - "9.1.5 Without in any way limiting the Contractor's obligations under this GC 9.1, should the Contractor or any Subcontractor or Supplier cause loss or damage to property, including roads, buildings, structures, paving, grass, sod, trees or other plantings, whether owned by the Owner or others, and whether at the Place of the Work or adjoining it, the Contractor shall be liable for the cost of making good such damage and for the repair and any replacement cost of the grass, sod, trees or other plantings damaged, including the cost of any arborist or other consultant, and such costs may be deducted by the Owner from amounts otherwise owing to the Contractor. If there is no amount owing by the Owner to the Contractor at that time, then the Contractor shall reimburse the Owner for all of the said costs.
 - 9.1.6 The Contractor shall be responsible for implementing all necessary security measures required to protect the areas of Work under his control and shall be responsible for damage which may arise from the failure of, or the failure to implement such security measures."
- .25 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES
- .1 Amend paragraph 9.2.3 as follows:
 - .1 Delete the words "The Owner" in the first line and replace them with "The Contractor".
 - .2 Add new paragraphs 9.2.5.5 and 9.2.5.6 as follows:
 - ".5 take all reasonable steps necessary to mitigate or stabilize any conditions resulting from encountering toxic or hazardous substances, and
 - .6 take all necessary steps to mitigate the impact on Contract Time and Contract Price."
 - .3 Amend paragraph 9.2.7.3 by adding the following after the words "as a result of the delay" at the end:
 - “, but excluding the costs of the Contractor's head office personnel and overhead costs, any consequential, indirect or special damages, and any loss of profit or loss of opportunity costs and damages arising from or caused by such delay, regardless of whether any such excluded costs, damages or claims are made or incurred by the Contractor or any Subcontractor or Supplier”
 - .4 Delete paragraph 9.2.7.4.
 - .5 Add new paragraphs 9.2.10 and 9.2.11 as follows:
 - "9.1.10 The Contractor shall, immediately upon becoming aware of any environmentally toxic and hazardous substance or materials (within the meaning of applicable environmental legislation), notify the Owner in writing setting out particulars concerning the type of the environmentally toxic and hazardous substance or materials, where it was discovered, and all other information that the Contractor has at the time of the notice.
 - 9.1.11 The Contractor shall indemnify the Owner and its manager, officers, directors, employees, agents and elected officials in respect of any loss,
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costs, expense or fine which might be imposed in respect of any failure by the Contractor to satisfy its obligations under this GC 9.2 and, without limiting the general nature of this indemnity, the Contractor shall indemnify the Owner and its manager, officers, directors, employees, agents and elected officials in respect of any loss, costs, expense or fine if the Project is made subject to an order from a court or government agency requiring remediation of any contamination caused as a result of the Work performed by the Contractor or its Subcontractors or Suppliers."

.26 GC 9.5 MOULD

.1 Amend paragraph 9.5.2.3:

.1 Add the words "and for any delay" immediately before the comma near the end.

.2 Amend paragraph 9.5.3.3 by adding the following after the words "as a result of the delay" at the end:

" , but excluding the costs of the Contractor's head office personnel and overhead costs, any consequential, indirect or special damages, and any loss of profit or loss of opportunity costs and damages arising from or caused by such delay, regardless of whether any such excluded costs, damages or claims are made or incurred by the Contractor or any Subcontractor or Supplier, and"

.27 GC 10.1 TAXES AND DUTIES

.1 Amend paragraph 10.1.1 as follows:

.1 Delete the words "...at the time of closing except for Value Added Taxes" ...and replace with the words "...at the time of closing including Value Added Taxes"...

.2 Amend paragraph 10.1.2 by adding the following to the end:

"For greater certainty, the Contractor shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties."

.28 GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

.1 Delete paragraph 10.2.2 and replace with the following:

"10.2.2 The Owner shall obtain and pay for development approvals, permanent easements, rights of servitude, and all necessary approval and permits, except for the permits and fees referred to in paragraph 10.2.3 or for which the Contract Documents specify as the responsibility of the Contractor.

.1 The Contractor shall apply for, obtain and pay for the building permit."

.2 Amend paragraph 10.2.4 by adding the following to the end:

"The Contractor shall notify the Consultant and the chief building official or the registered code agency where applicable, of the readiness, substantial completion, and completion of the stages of construction set out in the applicable Building Code. The Contractor shall be present at each site inspection by an inspector or registered code agency. If any laws, ordinances, rules, regulations, or codes conflict, the more stringent shall govern."

.29 GC 11.1 INSURANCE

.1 Delete GC 11.1.1 in its entirety and replace it with the following:

"11.1.1 The Contractor shall obtain, maintain, pay for and provide to the Owner evidence of the insurance coverage required under this Contract. Any deductible and/ or self-insured retention are the responsibility of the

Contractor and shall not constitute a Project expense chargeable back to the Owner in any way.

.1 Commercial General Liability Insurance

General liability insurance shall be maintained from the date of commencement of the *Work* until one year from the date of *Ready-for-Takeover*. Liability coverage shall be provided for completed operations hazards from the date of *Ready-for-Takeover*, as set out in the certificate of *Ready-for-Takeover*, on an ongoing basis for a period of 6 years following *Ready-for-Takeover*

Commercial General Liability, underwritten by an insurer licensed to conduct business in the Province of PEI, for a limit of not less than \$5,000,000 per occurrence, an aggregate limit of not less than \$10,000,000, within any policy year with respect to completed operations and a deductible of not more than \$50,000. The insurance coverage shall not be less than the insurance provided by IBC Form 2100 and IBC Form 2320. The policy shall include an extension for a standard provincial and territorial form of non-owned automobile liability policy. This policy shall include but not be limited to:

- .1 Name the Owner as an additional insured;
- .2 Cross-liability and severability of interest;
- .3 Blanket Contractual;
- .4 Products and Completed Operations;
- .5 Premises and Operations Liability;
- .6 Personal Injury Liability;
- .7 Contingent Employers Liability;
- .8 Owners and Contractors Protective;
- .9 Broad Form Property Damage;
- .10 Firefighting Expenses;
- .11 Elevator and Hoist Liability;
- .12 Attached Machinery – while loading and unloading

The following also applies:

- .13 If applicable to the *Project*, coverage shall include shoring, blasting, excavation, underpinning, demolition, pile driving, caisson work and work below ground surface including tunneling and grading.
- .14 If the *Work* involves asbestos removal, the policy shall provide coverage for this exposure.
- .15 If the *Work* involves the use or operation of an owned or non-owned manned aircraft or watercraft, the policy shall provide coverage for this exposure.
- .16 To achieve the desired limits, umbrella or excess liability insurance may be used.
- .17 The Owner reserves the right to request in addition to Commercial General Liability Insurance coverage Wrap-up Liability. The Wrap-up shall be in the names of the Owner, Contractor, all Subcontractors, the Consultant and all other architects, engineers, consultants, planners and project managers. Limits and coverages shall comply with the requirements outlined above.

.2 Automobile Insurance

Standard Form Automobile Liability Insurance that complies with all requirements of the current legislation of the Province of PEI, having an inclusive limit of not less than \$5,000,000 per occurrence for third party liability, in respect of the use or operation of vehicles owned operated or leased by the Contractor.

.3 Builders Risk Insurance

Broad Form Builders' Risk Insurance written in the joint names of the *Contractor, Owner, Subcontractors, Consultants*, and underwritten by an insurer licensed to conduct business in the Province of PEI. The policy shall have limits of not less than 1.1 times the *Contract Price*. Should the *Owner* provide any property to be incorporated into the *Project*, the policy must be endorsed to include the *Owner's* property. Coverage shall be maintained during the term of the *Contract* and until 10 calendar days after the date of *Ready-for- Takeover*.

The Builders' Risk shall:

- .1 Be endorsed to grant permission to occupy prior to the completion or acceptance of the entire *Work*.
- .2 Not be less than the insurance coverage provided by IBC Forms 4042 and 4047 or their equivalent replacement.
- .3 Include the installation, testing, commissioning and subsequent use of any machinery and equipment including boilers, pressure vessels or vessels under vacuum.
- .4 Apply to all *Products*, labour, equipment and supplies of every nature, the property of the *Owner* or *Contractor* or for which the *Owner* or *Contractor* may have assumed responsibility (whether on site or in transit), that is to be used in or pertaining to site preparation, erection, fabrication, construction or reconstruction of the structure.
- .5 Be subject to a waiver of coinsurance.
- .6 Include coverage for materials while in transit, awaiting installation or stored at off-site locations. Coverage shall be in an amount equal to the value of the material.
- 7 Provide that in the case 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 the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurer. 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 a reasonable extension of *Contract Time*.

.4 Boiler and Machinery Insurance

The Boiler and Machinery Policy shall be written in the joint names of the *Contractor, Owner, Consultants* and *Subcontractors* and underwritten by an insurer licensed to conduct business in the Province of PEI. The policy limit shall equal the replacement value of all permanent or temporary boilers and pressure vessels and other

insurable objects forming part of the *Work*. The *Contractor* may elect to carry the testing, commissioning and subsequent use of these objects under the Boiler and Machinery Policy.

.5 Contractor's Equipment Floater

The *Contractor* shall provide and maintain coverage all equipment used on the *Project* during the term of this *Contract*. Coverage will be provided, on a broad form basis, for construction machinery, equipment, tools and stock that will be used by the *Contractor* in the performance of the *Work*. The coverage will also include rental expense. Coverage is to be carried from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.

.6 Contractor's Pollution Liability

The *Contractor* shall carry a Contractor's Pollution Liability Policy, underwritten by an insurer licensed to conduct business in the Province of PEI for a limit of not less than \$2,000,000. Coverage shall include bodily injury, property damage, clean-up and remediation costs

.7 Proof of Insurance

.1 The *Contractor* shall provide the *Owner* with an executed certificate of insurance and a renewal replacement as may be necessary, stating any pertinent exclusions as applicable contained in the policies which may affect coverage as outlined in this *Contract*. The certificate will be delivered prior to the commencement by the *Contractor* of the *Work* or upon renewal of the policy. The *Contractor's* insurance carriers and the insurance policy provisions must be acceptable to the *Owner*. All lines of coverage required by this *Contract* must be shown on the certificate of insurance. The *Contractor* will make available complete certified copies of all applicable insurance policies for examination if required by the *Owner*.

.2 The *Contractor* shall ensure that each *Subcontractor* requires adequate insurance in accordance with the work being performed under the terms of their engagement. It is the *Contractor's* responsibility to ensure this exposure is insured adequately and at no time will costs associated with this exposure be transferred to the *Owner*.

.3 Delivery to and examination or approval by the *Owner* of any certificates of insurance or policies of insurance or other evidence of insurance shall not relieve the *Contractor* of any of its indemnification or insurance obligations under this *Contract*. The *Owner* shall be under no duty to either ascertain the existence of or to examine such certificate of insurance or policies of insurance or to advise the *Contractor* in the event that such insurance coverage is not in compliance with the requirements set out in this *Contract*. The *Contractor* is responsible for ensuring such compliance.

.4 All policies of insurance shall:

.1 Be recorded as being a primary policy and shall be in a form and issued by an insurance company satisfactory to the

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- indemnify and save harmless the Owner from all suits, claims, expenses, costs, demands, losses and damages to which the Owner may be put to reason of injury including death, to persons, and damages to property of the Owner and others, resulting from negligence, carelessness and any other cause whatsoever in the performance of the work.
- .2 The Contractor shall, until the date of issue of the final Certificate of Approval of the work by the Consultant, indemnify and save harmless the Owner, and protect his own interests against:
- .1 Theft, burglary or robbery of, and loss or damage to, all materials and equipment brought to the site for use in the work, whether or not such material and equipment are incorporated in the work at the time that any such theft, burglary, robbery, loss or damage occurs.
- .2 Theft or burglary of, and loss or damage to, any of his own plant and equipment being used on the project and/or stored on the site.
- 11.1.10 In all insurance policies required under this agreement:
- .1 There shall be an endorsement stating that the insurer will provide 30 days' notice to the Province's Risk Manager (or the acting or assistant) of cancellation or material change in coverage;
- .2 The insurer shall acknowledge that the policy is primary and any other insurance policies that may be in effect or any other sources of recovery including the Government of Prince Edward Island's Self Insurance and Risk Management Fund shall not contribute in any way to any judgments, awards, payments, or costs or expenses of any kind whatsoever made as a result of actual or alleged claims. The Ultimate Recipient shall provide the Province with current certificates of insurance, in a form and content reasonably acceptable to the Province, evidencing the required insurance policies hereunder within 10 days of the Effective Date and on each renewal of the insurance policies thereafter. Umbrella insurance may be used to achieve the required insured limits above."
- .30 GC 12.1 READY-FOR-TAKEOVER
- .1 Delete paragraphs 12.1.1.4 and 12.1.1.5 and replace them with the following:
- "4 The delivery to the *Owner* of guarantees, warranties, certificates, testing and balancing reports and spare parts, distribution system diagrams, *Shop Drawings*, maintenance and operating manuals, instructions, samples, existing reports and correspondence from authorities having jurisdiction, and all other close-out materials or documents specified in the *Contract*.
- .5 The delivery to the *Owner* of the final *As-Built Drawings*."
- .2 Add new paragraph 12.1.1.9 as follows:
- "9 Confirmation by the *Consultant* that the aggregate cost of completing the remaining *Work* and correcting known defects and deficiencies is the lesser of \$5,000 and 1% of the *Contract Price*."
- .3 Delete paragraph 12.1.2 and replace with the following:
- "12.1.2 If any prerequisites set forth in paragraphs 12.1.1.3 to 12.1.1.6 are deferred
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by agreement between the *Owner* and the *Contractor*, *Ready-for-Takeover* shall not be delayed.”

.4 Delete paragraph 12.1.6 in its entirety.

.31 GC 12.2 EARLY OCCUPANCY BY THE OWNER

.1 Delete paragraphs 12.2.1 through 12.2.4 and replace them with the following:

"12.2.1 The *Owner*, its agents, and *Other Contractors* shall have the right to enter, occupy and take possession of any portion or all of the undelivered portion of the *Project*, even though *Ready-for-Takeover* may not have been attained, provided that such entry, occupation, taking of possession or use will not interfere, in any material way, with the progress of the *Work*. The entry, occupation, taking of possession or use of any such portion of the *Project* or *Work* shall not be deemed to be the *Owner's* acknowledgement or acceptance of the *Work* or the *Project*, nor shall it be deemed to be an acknowledgement or acceptance by the *Owner* that such *Work*, or portions of the *Work*, have met the *Ready-for-Takeover* requirements described in the *Contract Documents*.

12.2.2 The *Contractor* shall, as directed by the *Consultant*, give priority to certain parts of the *Work* and bring such parts to a “ready for use” status. Such instructions may require installation of temporary stairs and exits and temporary services, all of which shall be provided and subsequently removed.

12.2.3 The *Contractor* shall maintain full access to the *Work* for the *Owner's* use, as required. The *Contractor* shall maintain or restore heat and power to areas when necessary or as scheduled and keep existing utilities and services functional.

12.2.4 The entry, occupation, taking of possession or use of any portion of the *Project* by the *Owner*, its agents or *Other Contractors* pursuant to this GC 12.2 – EARLY OCCUPANCY BY THE OWNER shall not relieve the *Contractor* of any of its obligations under the *Contract*, including the *Contractor's* designation and obligations as “constructor” under *OHSA* and the *Contractor's* obligations respecting construction health and safety, and all the *Contractor's* obligations, rules, regulations and practices shall continue to apply notwithstanding such entry, occupation, taking of possession or use.”

.32 GC 12.3 WARRANTY

.1 Amend paragraph 12.3.1 by adding the following to the end:

“Notwithstanding the foregoing, if an item of *Work* is not completed at *Ready-for-Takeover*, except for extended warranties as described in paragraph 12.3.6, the warranty period for such item of *Work* shall be one year from the date that such item of *Work* has been completed and accepted in writing by the *Owner*.”

.2 Add a new paragraph 12.3.1A as follows:

"12.3.1A If the *Contractor* has been permitted to make use of permanent equipment or systems, as provided in GC 3.12 – CONTRACTOR'S USE OF PERMANENT EQUIPMENT OR SYSTEMS, such permanent equipment or system shall be subject to the same warranty as described in this GC 12.3 and shall be judged, for purposes of assessing compliance with the

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- warranty, as though the equipment or system was new, clean and unused by the Contractor, except for normal commissioning and start-up activities, prior to Ready-for-Takeover.”
- .3 Amend paragraph 12.3.4 by adding the following to the end:
“The Contractor shall perform all remedial and warranty work at its own cost and expense and at a time convenient to the Owner, which may be outside of normal working hours. Before performing the remedial and warranty work the Contractor shall provide, for the Owner's review and approval, a proposed schedule for the performance of such work. Except for any extended warranties provided for in the Contract Documents, the warranty period for any corrective work performed by the Contractor pursuant to GC 12.3 – WARRANTY shall commence on the date that such corrective Work was completed.”
- .4 Add new paragraphs 12.3.5A and 12.3.5B immediately after paragraph 12.3.5 as follows:
- 12.3.5A If the *Contractor* fails to perform the remedial and warranty work and/or fails to correct the defects, deficiencies or items of non-compliant *Work* or is not diligently working towards completion of the same to the satisfaction of the *Consultant*, or if the *Contractor* fails to correct or pay for damage resulting from corrections made, as required in paragraph 12.3.5, the *Owner* may engage others to perform the work necessary to complete and correct the outstanding defects, deficiencies or items of non-compliant *Work* at the risk and cost of the *Contractor*, and may deduct such costs and may pay such costs and damage from the *Deficiency Rectification Security*. If the costs of completion and correction of such defects, deficiencies and/or non-compliant *Work* exceed the amount of the *Deficiency Rectification Security*, the *Contractor* shall reimburse the *Owner* for all excess costs and damages. The *Owner's* rights under this paragraph are in addition to any other rights the *Owner* may have pursuant to the *Contract* and/or at law.
- 12.3.5B Provided that the *Contractor* has completed all outstanding remedial and warranty work and has corrected all defects and deficiencies and has completed all items of non-compliant *Work* and has corrected or paid for all damage resulting from corrections made, all to the satisfaction of the *Consultant*, the *Owner* shall return to the *Contractor* the balance of the *Deficiency Rectification Security*, if any, without interest, 10 *Working Days* after the date that is the later of (a) the date of total completion of the *Contract*, and (b) the date on which the warranty period ends.”
- .33 GC 13.1 INDEMNIFICATION
- .1 Delete GC 13.1 and replace it with the following:
"GC 13.1 INDEMNIFICATION
- 13.1.1 The Contractor shall indemnify and shall defend and save harmless the Owner, its manager, officers, directors, agents, representatives, elected officials, successors, and employees harmless from and against any claims, causes of action, demands, losses, charges, fees, duties, accounts, fines, penalties, expenses and costs (including legal costs on a solicitor and client basis), or other proceedings of every kind or nature whatsoever at law or in equity brought against, suffered by, or imposed on the reason of,
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- .1 the Contractor carrying out or failing to carry out any obligation to which it is subject including the performance of the Work, or exercising any right to which it is entitled, under the Contract except to the extent that the same are caused by the negligence or deliberate wrong-doing of the Owner or other person entitled to indemnification under this section, or
- .2 any patent, trademark, copyright infringement or other breach of any intellectual property right of any person, for which the contractor or any Subcontractor to the Contractor is responsible.
- 13.1.2 The Contractor shall indemnify and hold harmless the Owner's agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, the Contractor's performance of the Contract, provided such claims are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, and caused by negligent acts or omissions of the Contractor or anyone for whose acts the Contractor may be liable, and made in writing within a period of 6 years from the date of Ready-for-Takeover as set out in the certificate of Ready-for-Takeover, or within such shorter period as may be prescribed by any limitation statute or the province or territory of the Place of the Work."
- .34 PART 14 – OTHER PROVISIONS
- .1 Add a new "**PART 14 – OTHER PROVISIONS**" as follows:
- "PART 14 OTHER PROVISIONS**
- GC 14.1 LIENS AND ACTIONS
- 14.1.1 The *Contractor* shall save and keep the *Owner* and the *Place of the Work* free from all construction liens and all other liens whatsoever arising out of the *Work*. If any lien is claimed, filed or registered or any written notice of a lien is received by reason of any *Work* supplied or claimed to have been supplied by or through a *Subcontractor* or *Supplier*, the *Contractor* shall, at its own expense, within ten (10) *Working Days* of being notified of the lien or written notice of a lien, secure the discharge, release, vacating or withdrawal of such lien or written notice of a lien by payment or by giving security or in such other manner as is or may be required or permitted by law, failing which the *Owner* may, but shall not be required, take such steps as it, in its absolute discretion, may deem necessary to release, vacate or discharge the lien or written notice of a lien.
- 14.1.2 If a lien action is commenced arising out of a lien described in paragraph 14.1.1, the *Contractor* shall take all reasonable steps to remove the *Owner* from such action and shall indemnify the *Owner* and hold it harmless in such action.
- 14.1.3 All amounts, including legal costs on a full indemnity basis, disbursements, interest, borrowing, premium or other bonding costs and/or charges incurred by the *Owner* in releasing, vacating, discharging and/or otherwise dealing with a *Subcontractor* or *Supplier* lien, written notice of a lien and/or defending or otherwise dealing with a lien action, shall be charged to the *Contractor* and shall be set off and deducted from
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any amount owing to the *Contractor*. If there is no amount owing by the *Owner* to the *Contractor* at that time, then the *Contractor* shall reimburse the *Owner* for all amounts incurred by the *Owner*.

GC 14.2 CONTRACTOR'S DISCHARGE OF LIABILITIES

14.2.1 In addition to the obligations assumed by the *Contractor* pursuant to GC 3.6 – SUBCONTRACTORS AND SUPPLIERS, the *Contractor* agrees to discharge all liabilities incurred by it for services, materials, *Subcontractors* and *Products*, used or reasonably required for use in the performance of the *Work*, except for amounts withheld by reason of legitimate dispute and which have been identified to the party or parties, from whom payment has been withheld.

GC 14.3 OWNERSHIP OF MATERIALS

14.3.1 Unless otherwise specified, all materials existing at the *Place of the Work* at the time of execution of the *Contract* shall remain the property of the *Owner*. All *Work and Products* delivered to the *Place of the Work* by the *Contractor* shall be the property of the *Owner*. The *Contractor* shall remove all surplus or rejected materials from the *Place of the Work*.

GC 14.4 DAILY REPORTS/DAILY LOGS

14.4.1 The *Contractor* shall cause its supervisor, or such competent person as it may delegate, to prepare and maintain a daily site log with descriptions of Project activities. Make available to *Owner* for inspection and copying all of the records.

GC 14.5 ADVERTISING AND PUBLIC STATEMENTS

14.5.1 The *Contractor* shall not publish, issue or make any statements or news release, electronic or otherwise, concerning the *Contract*, the *Work*, or the *Project*, and shall not use the *Owner's* name, logo, etc. without the prior express written consent of the *Owner*."

END OF SECTION

1 General

1.1 SCOPE OF WORK

- .1 The Contractor is to provide each item, and properly execute all work as specified herein, indicated by drawings, addenda, or change orders issued with respect to this project.
- .2 The Contractor shall coordinate, administer, and supervise all work, material acquisition and labour.
- .3 Contractor shall coordinate with Owner and facilitate installation of Owner provided equipment.

1.2 COORDINATION

- .1 All Trades on site are responsible to co-operate and co-ordinate with each other.
- .2 Where work must be modified or reinstalled to be properly coordinated, the cost to do so will be paid by the Trades involved. The Owner will not pay for uncoordinated work nor will the Owner pay to resolve uncoordinated work.

1.3 DEDUCTIONS FOR UNCORRECTED WORK

- .1 If, in the opinion of the Consultant, it is not expedient to correct defective work or work not done in accordance with the Contract documents, the Owner may deduct from the Contract price the difference in value between the work as done and that called for by the Contract, the amount of which shall be determined in the final instance by the Consultant.

1.4 CORRECTION AFTER COMPLETION

- .1 Subject to any special provisions in the Contract documents, the Contractor shall remedy any defects due to faulty materials or workmanship appearing within a period of one (1) year from the date of substantial completion of the work and shall pay for any damage to other work resulting there from which appears within such period and neither the final certificate nor payment there under shall relieve the Contractor from responsibility hereunder. The Owner shall give notice of observed defects promptly. Questions arising under this Article may be decided as provided in Article 43.

1.5 WARRANTY HOLDBACK

- .1 The Owner will retain the sum of 5% of the tender price of this contract for a period of one (1) year to cover cost associated with warranty items. The money will be released one (1) year from the date of substantial completion, without interest, when the work is rectified and completed to the satisfaction of the Owner and Consultant. The 5% Warranty Holdback is separate from the Mechanics Lien Holdback.

1.6 EXECUTION

- .1 Execute work with least possible interference or disturbance to public and normal use of site.

1.7 DOCUMENTS

- .1 The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all.
 - .2 Descriptions of materials or work which have well known technical or trade meanings shall be held to refer to such recognized standards.
 - .3 Should the specifications conflict with the drawings, the specifications shall govern.
 - .4 In the case of discrepancies between drawings, those of larger scale, or if the scale are the same, those of later date shall govern.
 - .5 All drawings and specifications shall be interpreted in conformity with the agreement.
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1.8 PROTECTION OF WORK AND PROPERTY

- .1 The Contractor shall maintain continuously adequate protection of all their work from damage and shall take reasonable precautions to protect the Owner's property from all injury arising in connection with this Contract. The Contractor shall make good any damage or injury to their work and shall make good any damage or injury to the property of the Owner resulting from the lack of reasonable protective precautions. The Contractor shall not be responsible, however, for any damage or injury to their work and to the property of the Owner which may be directly due to errors in the Contract documents or caused by the Owner, their agents, or employees, or from any work or risk which the Owner has agreed to insure, provided the Contractor has taken reasonable protective precautions. The Contractor shall adequately protect adjacent property as required by law and the Contract documents.

1.9 COMMUNICATION

- .1 All submissions and inquiries shall be directed to the Consultant for review.
- .2 All direction will be transmitted to the Contractor by the Consultant.

1.10 CODES AND REGULATIONS

- .1 Perform work in accordance with the Stratford Utility Corporation Municipal Servicing Standards, PEI Department of Transportation and Infrastructure General Provisions and Contract Specifications for Highway Construction, and any other code of provincial or local application, provided that in any case of conflict or discrepancy the more stringent requirements shall apply.
- .2 Meet or exceed requirements of contract documents and specified standards.
- .3 References to standards, including manufacturer's direction for installation shall be the latest edition.
- .4 All materials, components and equipment as well as construction methods shall comply.
- .5 All equipment supplied or installed shall be CSA approved for the intended use.
- .6 The latest edition of the PEI Occupational Health and Safety Act and Regulations shall govern safe construction practices.
- .7 Provide a copy of all certificates of acceptance issued by Provincial or local authorities.

1.11 WORK SCHEDULE AND PROGRESS REPORTS

- .1 The Contractor will prepare and maintain a consolidated schedule in weekly increments showing scheduled work versus actual work. The schedule shall indicate the contract commencement and completion date for the total project.
- .2 Provide updated schedule information from time to time as the progress of the work or Consultant may require.
- .3 The Contractor shall furnish monthly progress reports from the date of commencement. These reports shall show the percentage of completion of the various divisions of work and contain comments on the general progress of the project.

1.12 CONTRACTOR'S USE OF SITE

- .1 Do not unreasonably encumber site with materials or equipment.
- .2 Move stored products or equipment, which interfere with operations of Consultant or other Contractors.
- .3 Obtain and pay for use of additional off site storage or work areas needed for operations.

1.13 PROJECT MEETINGS

- .1 Hold bi-weekly project meetings at the site, at a time approved by Consultant. In addition hold any additional meetings as the need arises or as directed by the Consultant.
- .2 Notify all parties concerned of such meetings.
- .3 The Consultant will record minutes of meetings and distribute to all parties within three (3) days of meeting.

1.14 SITE INSPECTOR

- .1 No work is to be covered without having received approval from the Consultant. The Consultant will have the authority to cause any part of the work to cease, should, in his or her opinion, there be cause to do so.
- .2 This work shall be examined by the Consultant and approval granted to resume when a satisfactory solution has been found out.
- .3 The Construction Manager does not have authority to authorize changes to work. He or she shall confer with the Consultant who, if necessary will authorize any change.
- .4 The fact that the Construction Manager or Consultant does not reject any work shall not remove the responsibility for completing all work as specified from the Contractor.

1.15 SETTING OUT OF WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations.
- .2 Provide all equipment, materials and devices needed to lay out and construct work.
- .3 Supply such devices as straight edges and templates required to facilitate Consultant's inspection of work.

1.16 EXISTING SERVICES

- .1 Before commencing work, establish the location and extent of service lines and notify Consultant of findings if in conflict with information or intent shown.
- .2 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .3 Contractor shall pay for any or all repairs to existing services that have been damaged due to the Contractor's negligence in the course of his work.
- .4 Notify Consultant and utilities of intended interruption of services and obtain permission.
- .5 Where Work involves breaking into or connecting to existing services, give Consultant 24 hours notice for necessary interruption. Minimize duration of interruptions. Carry out Work at times as directed by governing authorities or Owner with minimum disturbance.
- .6 Provide temporary services when directed by Consultant to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by Authorities Having Jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned service lines.
- .10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.17 ACCESS AND SECURITY

- .1 Access and security on the entire job site will be the responsibility of the Contractor.

1.18 ADDITIONAL DRAWINGS

- .1 The Consultant may furnish as necessary for the execution of the work, additional instructions, by means of drawings or otherwise. All such additional instructions shall be consistent with the contract documents. In giving such additional instructions the Consultant shall have authority to make minor changes in the work, consistent with the Contract.

1.19 RELICS AND ANTIQUITIES

- .1 Relics and antiquities and items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during the work, shall remain property of the Owner. Protect such articles and request directives from Consultant.

- .2 Give immediate notice to Consultant if evidence of archaeological finds are encountered during construction, and await Consultant's written instructions before proceeding with work in this area.

END OF SECTION

1 General

1.1 REFERENCES

- .1 Owner/Contractor Agreement.
- .2 Canadian Construction Documents Committee (CCDC).
 - .1 CCDC 2-2020, Stipulated Price Contract.
- .3 Section 00 73 00 - Supplementary Conditions.

1.2 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Make applications for payment on account as provided in Agreement as Work progresses.
- .2 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .3 Submit to Consultant, at least 14 days before first application for payment, Schedule of Values for parts of Work, aggregating total amount of Contract Price, so as to facilitate evaluation of applications for payment.

1.3 SCHEDULE OF VALUES

- .1 Make schedule of values out in such form and supported by such evidence as Consultant may reasonably direct and when accepted by Consultant, be used as basis for applications for payment.
- .2 Include statement based on schedule of values with each application for payment.
- .3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Consultant may reasonably require to establish value and delivery of products.
- .4 Provide, minimum fourteen (14) days before submitting first application for payment, a Schedule of Values, aggregating the Total Contract Price. After approval by the Consultant the Schedule of Values will be used as a basis for the application for progress payments.
- .5 Contractor shall submit with the Schedule of Values, an itemized list of all trades and applicable labour rates for each, which will be used as a basis for labour rates in changes to contract Work.
- .6 The schedule of values is to indicate separate line items each for mechanical commissioning, electrical commissioning, mechanical operation & maintenance manuals and electrical operations & maintenance manuals.

1.4 PROGRESS PAYMENT

- .1 Consultant will issue to Owner, no later than 10 days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Consultant determines to be properly due. If Consultant amends application, Consultant will give notification in writing giving reasons for amendment.

1.5 SUBSTANTIAL PERFORMANCE OF WORK

- .1 Refer to Section 00 73 00 - Supplementary Conditions.
- .2 Prepare and submit to Consultant comprehensive list of items to be completed or corrected and apply for a review by Consultant to establish Substantial Performance of Work or substantial performance of designated portion of Work when Work is substantially performed if permitted by lien legislation applicable to Place of Work designated portion thereof which Owner agrees to accept separately is substantially performed. Failure to include an item on list does not alter responsibility to complete Contract.
- .3 No later than 10 days after receipt of list and application, Consultant will review Work to verify validity of application, and no later than 7 days after completing review, will notify Contractor if Work or designated portion of Work is substantially performed.

- .4 Consultant shall state date of Substantial Performance of Work or designated portion of Work in certificate.
- .5 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Consultant, establish reasonable date for finishing Work.

1.6 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 After issuance of certificate of Substantial Performance of Work:
 - .1 Submit an application for payment of holdback amount.
 - .2 Submit sworn statement that all accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which Owner might in any way be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.
- .2 After receipt of application for payment and sworn statement, Consultant will issue certificate for payment of holdback amount.
- .3 Where holdback amount has not been placed in a separate holdback account, Owner shall, 10 days prior to expiry of holdback period stipulated in lien legislation applicable to Place of Work, place holdback amount in bank account in joint names of Owner and Contractor.
- .4 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Owner may retain out of holdback amount any sums required by law to satisfy any liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

1.7 WARRANTY HOLDBACK

- .1 The Owner will retain the sum of 5% of the tender price of this contract for a period of one (1) year to cover cost associated with warranty items. The money will be released one (1) year from the date of substantial completion, without interest, when the work is rectified and completed to the satisfaction of the Owner and Consultant.

1.8 FINAL PAYMENT

- .1 Submit an application for final payment when Work is completed.
- .2 Consultant will, no later than 10 days after receipt of an application for final payment, review Work to verify validity of application. Consultant will give notification that application is valid or give reasons why it is not valid, no later than 7 days after reviewing Work.
- .3 Consultant will issue final certificate for payment when application for final payment is found valid.

END OF SECTION

1 General

1.1 APPOINTMENT AND PAYMENT

- .1 The Contractor will arrange and pay for the services of an independent Consultant to carry out the following tests:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by Contractor under the supervision of Consultant.
 - .6 Where tests or inspections reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as Consultant may require to verify acceptability of corrected work.

1.2 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
- .2 Notify Consultant sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Consultant.
- .5 Provide Consultant with two (2) sets of fully documented test reports, submitted immediately following the testing operations.

1.3 CONTRACTOR'S RESPONSIBILITIES - INSPECTION & TESTING REQUIREMENTS

- .1 Testing of materials and inspection and testing of placement and compaction will be carried out by testing laboratory appointed and paid for by the Contractor, in accordance with the requirements of this Section.
 - .2 Testing of all soil material types at source, including collection of sample material by testing firm, to verify compliance with material specifications.
 - .1 Follow up testing of all soil material types delivered to site.
 - .2 Monitoring placement and verifying compaction densities.
 - .3 Monitoring of upgrading work.
 - .4 Verifying the new compaction densities.
 - .5 Fill Materials - Select Borrow & Gravel: (as specified under Section 31 23 00)
 - .1 Testing of material at source, including collection of sample material by testing firm, to verify compliance with material specifications.
 - .2 Follow up testing of material delivered to site.
 - .3 Monitoring placement and verifying compaction densities.
 - .6 Asphalt Paving:
 - .1 Review of asphalt mix design submitted by Contractor.
 - .2 Monitoring placement and compaction of seal and base course.
 - .3 Testing of asphalt for compliance with material specifications from asphalt core samples taken by testing firm.
 - .7 Concrete:
 - .1 Slump, air content and compressive strength.
 - .8 Testing work may occur under various Sections of the Specification.
 - .3 Existing in-situ material:
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- .1 Verification of existing compaction densities.
- .2 Recommendation of procedures to upgrade compaction densities.
- .3 Monitoring of upgrading work.
- .4 Verifying the new compaction densities.

1.4 FINAL REPORT

- .1 Submit to the Owner at completion of job, three (3) bound copies of inspection report. This report to include:
 - .1 All copies of test results, indexed to correspond with testing requirements of this Section.
- .2 Written report from the testing firm carrying out the work of this Contract stating that the work as itemized under Par. 4 of this Section has been performed in strict accordance with the requirements of the Contract documents.
- .3 The report will be signed and sealed by a Professional Engineer registered to practice in the Province of Prince Edward Island and practicing in the field of materials testing.

END OF SECTION

1 General

1.1 TIME AND ORDER OF COMPLETION

- .1 The Consultant may direct the Contractor in writing as to the time, precedence or order in which any work to be done under the contract shall be performed.

1.2 TIME OF COMMENCEMENT

- .1 The Contractor shall commence work within three (3) days after the execution of the Contract, unless specifically indicated or directed otherwise by the Consultant, and shall proceed continuously, diligently and with all reasonable dispatch consistent with the Construction Schedule, and the proper execution of the work, until final completion. The rate of progress made with the work shall be such as to ensure its final completion within the specified time.

1.3 TIME OF COMPLETION

- .1 The whole of the work to be done under this contract shall be finally completed in full accordance with all the terms and conditions of this contract on or before the day specified for such completion in the tender which forms part of this contract.
- .2 The Contractor will be responsible for all costs incurred for failure to complete the project within the project schedule, plus ten (10) working days.
- .3 Costs for Insurance and bonding extensions, Consultant fees for extended services and Construction Management services and expenses for extended services will all be totaled and charged against the Contractors. Costs will be deducted from Progress Claims.

1.4 EXTENSION OF TIME

- .1 An extension of time may be granted in writing by the Consultant in the event of the work being delayed beyond the prescribed time for completion as a result of causes beyond the Contractor's control. Such extensions shall be for such time as the Consultant may prescribe, and the Consultant shall fix the terms on which the said extension may be granted. An application by the Contractor for an extension of time shall be made to the Owner in writing as least fifteen calendar days prior to the date of completion fixed by the contract. Where applicable, all bonds or other surety including Liability Insurance furnished to the Owner by the Contractor shall be amended where necessary at the expense of the Contractor to provide coverage beyond the date of any extension of time granted, and the Contractor shall furnish the Owner with evidence of such amendment of the bonds or other surety and Liability Insurance.
- .2 Any extension of time that may be granted to the Contractor shall be so granted and accepted without prejudice to any rights of the Owner whatsoever under the Contract, and all of such rights shall continue in full force and effect after the time limited in the Contract for the completion of the work and whenever in the Contract, power and authority is given to the Consultant or any person to take any action consequent upon the act, default, breach, neglect, delay, non-observance or non-performance by the Contractor in respect of the work or Contract, or any portion thereof, such powers or authorities may be exercised from time to time and not only in the event of the happening of such contingencies before the time limited in the Contract for the completion of the work but also in the event of the same happening after the time so limited in the case of the Contractor being permitted to proceed with the execution of the work under an extension of time granted by the Consultant.

1.5 SUSPENSION OF WORK

- .1 The Contractor shall, upon written notice from the Consultant, discontinue or delay any or all of the work when, in the opinion of the Consultant, it is unwise to proceed for any reason whatsoever, and the work shall not be resumed until the Consultant shall in writing so direct.

1.6 LABOUR DISPUTE

- .1 Except to the extent that relief is granted under of the Contract, the Contractor shall bear the risk and responsibility of any loss, damage or expense to the work or to himself or any nature and kind whatsoever arising from strikes or labour disputes other than such loss, damage or expense caused by the failure of the Owner to meet its obligations under the Contract.

1.7 CHARACTER AND EMPLOYMENT OF WORKERS

- .1 The Contractor shall employ only orderly, competent and skillful workers to do the work and shall give preference to available residents in the area of the Contract. Whenever the Consultant shall inform the Contractor in writing that any person or persons on the work are, in the opinion of the Consultant, incompetent, unfaithful or disorderly, such person or persons shall be discharged from the work and shall not again be employed on the work without the consent in writing of the Consultant.

1.8 LIMITATIONS OF OPERATIONS

- .1 The Consultant may, in writing, require the Contractor to cease or limit operations under the Contract, on any day or days if the operations are of such nature that the Consultant deems it necessary or expedient to do so.
- .2 The Contractor shall cooperate with other contractors, utility companies and the Owner and they shall be allowed free access to their work at all times. The Consultant reserves the right to alter the method of operations on this Contract to avoid interference with other work.
- .3 The Contractor shall have access to their work to allow the incorporation of a double shift if the Contractor deems it necessary to meet the obligations under the contract.

END OF SECTION

1 General

1.1 GENERAL

- .1 Make specified submittals to the Consultant at commencement of Contract, before beginning work on site (and no later than 10 days after award). Include:
 - .1 Contract Security
 - .2 Proof of Insurance
 - .3 Workers' Compensation clearance letter
 - .4 Cost Breakdown
 - .5 Permits as required
 - .6 Construction schedule for Trade Package activity
 - .7 Corporate Safety Plan
 - .8 Site specific safety plan
 - .9 Shop drawing schedule
- .2 During Construction provide:
 - .1 Updated construction schedule
 - .2 Shop drawings as required
 - .3 Inspection and test reports
 - .4 Request for Information
 - .5 Submission required for payment purposes
- .3 At completion of Work provide
 - .1 Submission at completion of work as specified in Project Close Out, Commissioning, and Operations and Maintenance Data Sections.

1.2 ADMINISTRATIVE

- .1 Refer to CCDC 2-2020 GC 3.8 Shop Drawings.
- .2 Submit to Consultant submittals listed for review. Submit 10 working days after award of contract in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with Work affected by submittal until review is complete.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .7 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are co-ordinated.
- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .11 Keep one reviewed copy of each submission on site.

1.3 SUBMITTAL SCHEDULES:

- .1 Within 10 days following award of contract, prepare and submit a summary of all submittals required by the Trade Package.

.2 Submittal schedule shall be formatted as follows:

SECTION NUMBER	ITEM / EQUIP	SHOP DWG DEL. DATE	ORDER DATE	ITEM DEL DATE

.3 The initial submission shall include completion of the first 3 columns of the above table example. Once approved shop drawings are received by the Contractor, the balance of the summary shall be updated and submitted accordingly.

1.4 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow 10 days for Consultant's review of each submission.
- .4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .5 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .6 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .7 After Consultant's review, distribute copies.
- .8 Submit digital copy of all shop drawings, product data sheets, reports, MSDS sheets and other traditional paper submissions.
- .9 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.
- .10 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .11 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Consultant.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .12 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.

- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .13 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .14 Submit 3 copies of Operation and Maintenance Data for requirements requested in specification Sections, plus one (1) electronic copy and as requested by Consultant.
- .15 Delete information not applicable to project.
- .16 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, transparency will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.5 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where color, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Consultant are not intended to change Contract Price.
- .6 If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .7 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .8 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.6 CERTIFICATES AND TRANSCRIPTS

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

END OF SECTION

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1 General

1.1 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Prince Edward Island
 - .1 Occupational Health and Safety Act, R.S.P.E.I. 1988.
- .4 CSA C22.1-2021 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
- .5 CSA C22.3 No. 1-M87 (R2001) - Overhead Systems.
- .6 CSA C22.3 No. 7-94 (R2000) - Underground Systems.
- .7 CSA - S269.1 - [1975] Falsework for Construction Purposes.
- .8 CAN/CSA - S269.2 - [M87] Access Scaffolding for Construction Purposes.
- .9 COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .10 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
 - .1 FCC No. 301 - June 1982 Standard for Construction Operations.
 - .2 FCC No. 302 - June 1982 Standard for Welding and Cutting.
 - .3 FCC standards, may be viewed at the Regional Fire Protection Services' office (previously known as the Fire Commissioner of Canada) located at 99 Wyse Road, 8th Floor, Dartmouth, NS, Tel: (902) 426-6053.

1.2 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Part 1: List of individual health risks and safety hazards identified by hazard assessments.
 - .2 Part 2: List specific measures to control or mitigate each hazard and risk identified in part one of Plan. State engineering controls, personal protective equipment and safe work practices to be used for work having identified hazard(s) or risk(s).
 - .3 Part 3: Emergency and Communications Measures as follows:
 - .1 Emergency Procedures: standard operating procedures, evacuation measures and emergency response implemented on site during an accident or incident. State step by step procedures, applicable to each identified hazard.
 - .2 Emergency Communications: list names and telephone numbers of officials, to be contacted if incident, accident or emergency situation occurs, including:
 - .1 General Contractor and all Subcontractors.
 - .2 Provincial Departments and resources from local emergency organizations, based on type of hazard, incident or accident which might occur and as stipulated in applicable laws and regulations.
 - .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant.
 - .4 Submit copies of incident and accident reports.
 - .5 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures.
 - .6 Consultant will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Consultant within 2 days after receipt of comments from Consultant.
 - .7 Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health
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- and Safety.
- .8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
- .9 Maintain Worker's Compensation Coverage for duration of contract. Submit Letter of Good Standing to Consultant.

1.3 DEFINITIONS

- .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.
- .2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.
- .3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).
- .4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.
- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.
- .6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.4 PERMITS

- .1 Obtain permits, licenses and compliance certificates, at appropriate times and frequency as stipulated by authorities having jurisdiction.
- .2 Post all permits on site. Submit copies to Consultant.

1.5 FILING OF NOTICE

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.

1.6 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

1.7 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant.
- .2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

1.8 MEETINGS

- .1 Preconstruction Conference:
 - .1 The safety officer shall attend and chair the preconstruction conference and prepare a comprehensive agenda for the conference.
- .2 Meeting On Work Procedures:

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- .1 Meet with Contracting Officer to discuss work procedures and safety precautions. Ensure the participation of the Contractor's superintendent, the quality control, officer and representatives of each subcontractor or trade performing work at the site.
 - .3 Weekly Safety Meetings:
 - .1 Hold weekly at the project site. Prepare minutes showing contract title, signatures of attendees, a list of topics discussed and meeting minutes.
 - .4 Work Phase Meetings:
 - .1 The appropriate activity hazard analysis shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection.
 - .5 Prior to commencement of work hold Health and Safety meeting. Have Contractor's Site Superintendent in attendance.
 - .6 Provide site safety orientation session to all workers, all workers new to the site and other authorized persons prior to granting them access to work site. Brief persons on site conditions and on the minimum site safety rules in force at site. Maintain records of orientation on site.
 - .7 Conduct site specific occupational health and safety meetings for the duration of the work as follows:
 - .1 Formal meetings on a minimum monthly basis.
 - .2 Informal tool box meetings on a regular basis from a predetermined schedule.
 - .8 Keep workers informed of anticipated hazards, on safety practices and procedures to be followed and of other pertinent safety information related to:
 - .1 Progress of Work;
 - .2 New sub-trades arriving on site and;
 - .3 Changes in site and project conditions.
 - .9 Record and post minutes of meetings. Make copies available to Consultant upon request.

1.9 SITE SAFETY OFFICER (SSO)

- .1 Employ and assign to Work, competent and authorized representative as Site Safety Officer (SSO). The SSO must:
 - .1 Have minimum 2 years site-related working experience specific to activities associated with Construction.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .2 The selection of the SSO will be subject to the approval of the Consultant, and changes shall be made as requested by the Consultant.
- .3 The SSO shall be responsible for ensuring that all provisions of the Health and Safety Plan and relevant legislation are implemented.
- .4 The SSO shall ensure that all monitoring and testing, as specified and at the direction of the Consultant, are conducted.
- .5 The SSO shall maintain records of all readings that are taken by the Contractor report and any abnormal or dangerous situation to the Consultant and the Municipality, after having implemented emergency measures, as required, work shall not continue or proceed until the situation has been rectified.
- .6 The Safety Officer shall be at the work site at all times whenever work or testing is being performed, shall conduct daily safety inspections.
- .7 The SSO shall be authorized to act on behalf of the Contractor on all matters related to Health and Safety.
- .8 Qualifications of Site Safety Officer:
 - .1 Ability to manage the on-site Contractor safety program through appropriate management controls.

- .2 Ability to identify hazards and have the capability to expend resources necessary to abate the hazards.
- .3 Must have worked on similar types of projects that are equal to or exceed the scope of the project assigned with the same responsibilities.
- .4 Shall, as a minimum, have attended a recognized training qualification program including at least 40 hours of classroom instruction.
- .9 Qualifications of Qualified Person, Confined Space Entry:
 - .1 The qualified person shall be capable (by educations and specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and protective action to ensure worker safety.

1.10 RECORD KEEPING

- .1 ALL activities associated with Health and Safety shall be recorded daily in a bound notebook. Include as a minimum: activity date, time, location of occurrence, mitigation action taken and results. Records shall be assessed by the Consultant.

1.11 SUSPENSION OF ACTIVITIES

- .1 Exposure to contaminants shall be controlled so that no worker is exposed to contaminants at a concentration greater than the Time Weighted Average (TWA) concentration for the contaminant, for up to a 10 hour workday, 40 hour work week.
- .2 The Contractor will halt activities immediately during unsafe conditions. All costs relating to suspension of work for Contractor's failure to maintain Health and Safety procedures shall be borne by the Contractor.
- .3 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.12 HEALTH AND SAFETY PLAN

- .1 Prior to commencement of the work, submit to the Consultant a detailed Health and Safety Plan for review. The Health and Safety Plan shall comply with the provisions of this section, and shall illustrate the Contractor's knowledge and understanding of health and safety aspects of the work, the Contractor's intention to maintain a high level of safety on-site, and shall include, but not be limited to:
 - .1 Description of Work.
 - .2 Description of Site-specific Hazards:
 - .1 Physical
 - .2 Chemical
 - .3 Environmental
 - .3 Protective Equipment:
 - .1 Respiratory
 - .2 Contact
 - .4 Decontamination Procedures:
 - .1 Personal protective equipment (PPE)
 - .2 Equipment
 - .3 Infection Control personal protective equipment required by CSA Z317.13-03.
 - .5 Medical - Monitoring:
 - .1 Workers medical profile and suitability to work at the site.
 - .6 Air - Monitoring Procedures:
 - .1 Action levels
 - .2 Site monitoring
 - .3 Perimeter monitoring
 - .7 Emergency Procedures:
 - .1 Emergency Equipment
 - .2 Contingency Plans:
 - .1 Spill control

- .2 Fire
- .3 Ventilation
- .4 Medical Emergency
- .8 General Safety:
 - .1 Designation of site-safety officer
 - .1 Safety log
 - .2 Trenching, digging, excavations
 - .3 Storage of flammables, compressed gases
 - .4 Safety inspections
 - .9 Site Training:
 - .1 Initial hazard
 - .2 Daily safety
- .2 All workers shall be trained and be familiar with the Health and Safety Plan and the use of personal protective equipment.
- .3 Safety Document Submission:
 - .1 Ensure Safety Document Submission applies to Work of this specific project and site.
 - .2 Submit two (2) copies of Safety Document at the Pre-Construction Meeting. Do not commence Work nor deliver material on-site prior to submission.
 - .3 Included in Safety Document submission specific information detailing the methods and procedures to be implemented ensuring adherence to the acts, regulations, codes and policies specified in this section and to:
 - .1 Ensure the health and safety of persons at or near the Work; including, but not limited to, the Public.
 - .2 Ensure the measures and procedures of the regulatory agencies specified are carried out.
 - .3 Ensure every employee, self-employed person and employer performing Work under this contract complies with the regulatory agencies specified.
 - .4 Where changes to the methods and procedures in the execution of work change submitted safety methods and procedures, modify submitted Safety Documentation and submit modifications, in writing to the Consultant and Minister prior to implementation.
 - .4 Safety Document Organization:
 - .1 Organize information in the form of an instructional manual as follows:
 - .1 Place in binders of commercial quality, 8-1/2" x 11" x 3" maximum ring size.
 - .2 Cover: Identify binder with typed or printed title "Project Safety Document" and list the title of the project.
 - .3 Provide tabbed fly leaf for each separate heading, with typed heading on tab.
 - .4 Where drawings are within the safety document, provide with reinforced punched binder tab. Bind in with text; fold in larger drawings to size text pages.
 - .5 Arrange content under Safety Document headings specified herein.
 - .5 Safety Document Headings:
 - .1 Employee Safety Training:
 - .1 Place, under this heading, a statement indicating employees working on this specific project have met specified training requirements.
 - .2 Company Safety Policy
 - .1 Place, under this heading, information pertaining to the company's policy and commitment to Occupational Health and Safety, including the responsibilities of management, supervisors and works.

1.13 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

- .2 Perform on-going hazard assessments during the progress of Work identifying new or potential health risks and safety hazards not previously known. As a minimum hazard assessments shall be carried out when:
 - .1 New subtrade work, new subcontractor(s) or new workers arrive at the site to commence another portion of work.
 - .2 The scope of work has been changed by Change Order.
 - .3 Potential hazard or weakness in current health and safety practices are identified by Consultant or by an authorized safety representative.
- .3 Each hazard assessment to be made in writing. Keep copies of all assessments on site for duration of Work. Upon request, make available to Consultant for inspection.
- .4 Contractor to conduct a hazard assessment in conjunction with the Owner's maintenance staff as part of the planning process including isolating existing equipment where applicable and identification of hidden services where anchoring is required. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29 - Health, Safety, and Emergency Response Procedures.

1.14 COMPLIANCE REQUIREMENTS

- .1 Observe and enforce construction safety measures required by National Building Code, latest edition, National Fire Code, Provincial Building Code Act, Worker's Compensation Act and Municipal Statutes and Authorities.
- .2 Comply with Canada Labour Code and Canada Occupational Health and Safety Regulations.
- .3 Latest edition of the Occupational Health & Safety Act Statutes of Prince Edward Island (including any amendments to and regulations).
- .4 Fire Prevention Act.
- .5 Dangerous Goods Transportation Act.
- .6 Industrial Best Practices for Equipment Isolation and Lockout Policy.
- .7 In case of conflict or discrepancy the more stringent requirement shall apply.
- .8 Maintain clear emergency exit paths.
- .9 Ensure that employees working on this specific project have met training requirements as legislated by the Prince Edward Island Occupational Health and Safety Act and its regulations.
- .10 Where reference is made to jurisdictional authorities, it shall mean all authorities who have within their constituted powers the right to enforce the laws of the place of the building and workplace.
- .11 Provide Consultant with Material Safety Data Sheets (MSDS).
- .12 Provide and maintain first aid equipment, supplied and medications appropriate to the work and its location in accordance with the First Aid Regulations. Obtain and implement recommendations from Occupational Health and Safety Division specific to the project work site.

1.15 WHMIS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada and Health and Welfare Canada and Provincial Department of Labour.
- .2 Submit WHMIS data sheets to Consultant in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Maintain WHMIS information station and ensure designated personnel are trained in its use.
- .4 Submit copies of all Tool Box or Safety Meeting notes.
- .5 Submit copies of all Worksite Safety Inspections.

1.16 SMOKING, ALCOHOL & RESTRICTED SUBSTANCES

- .1 Worksites are inherently dangerous, including travelling to and from the site.
- .2 Alcohol, medical and recreational cannabis are restricted substances governed by Federal and Provincial laws as are other forms of illegal drugs.

- .3 The smoking of or use of tobacco products, including e-cigarettes, the use of alcohol and restricted substances including cannabis in any form on the work site is strictly prohibited.
- .4 Where workers have a prescription for medical cannabis, or other prescription drugs that may cause drowsiness, they are to advise their supervisor and discuss with their supervisor safe and appropriate task(s) while under the influence of these prescriptions on the worksite.
- .5 Workers who violate this requirement will be removed from the worksite.

1.17 SITE CONTROL AND ACCESS

- .1 Control work site and entry points. Grant and allow entry to only workers and other persons so authorized. Immediately stop non-authorized persons from circulating within construction areas and remove from site.
- .2 Prior to gaining access to the site, all contractors, subcontractors and suppliers shall file with the General Contractor their proof of Workers Compensation coverage, proof of required Insurance and proof of contract. Upon request, proof of these documents will be provided to the Owner and Consultant.
- .3 Delineate and isolate construction areas from other areas of site by use of appropriate means. Erect barricades, fences, hoarding and temporary lighting as required.
- .4 Erect signage at entry points and at other strategic locations around site, clearly identifying construction area(s) as being "off limits" to non-authorized persons. Signage must be professionally made.

1.18 PROTECTION

- .1 Provide temporary facilities for protection and safe passage to work site.
- .2 Provide safety barricades, lights and signage on work site as required to provide a safe working environment for workers.
- .3 Use personal protection equipment as required by Occupational Health and Safety Act and as required by this site.
- .4 Training of workers in the proper use, fitting, inspection and storage of personal protective equipment shall be done prior to use of the equipment.

1.19 UNFORESEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Consultant verbally and in writing.

1.20 TESTING AND MONITORING

- .1 Test and monitor for hazardous conditions, as required to demonstrate compliance with provincial regulations.
- .2 If multiple locations are being worked simultaneously, provide monitoring at all locations where work is being carried out, including providing additional monitoring instruments.

1.21 ISOLATION OF EXISTING SERVICES

- .1 Obtain Consultant's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.
- .2 To obtain authorization, submit to Consultant following documentation:
 - .1 Written Request for Isolation of the service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.
 - .3 Make a Request for Isolation for each event, unless directed otherwise by Consultant, and as follows:
 - .1 Fill-out standard forms in current use at the Facility when so directed by Consultant or;
 - .2 Where no form exist at Facility, make request in writing identifying:

- .1 Identification of system or equipment to be isolated, including it's location;
- .2 Time duration, indicating Start time & date and Completion time & date when isolation will be in effect.
- .3 Voltage of service feed to system or equipment being isolated.
- .4 Name of person making the request.
- .3 Document to be in typewritten format.
- .4 Do not proceed until receipt of written notification from Consultant granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Consultant may designate other individual at the Facility as the person authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.
- .6 Plan and schedule shut down of existing services in consultation with the Consultant and the Facility Manager. Minimize impact and downtime of facility operations.
- .7 Determine in advance, as much as possible, in cooperation with the Consultant, the type and frequency of situations which will require a Request for Isolation. Follow Consultant's directives in this regard.
- .8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29 - Health, Safety and Emergency Response Procedures.

1.22 LOCKOUTS

- .1 Perform lockouts in compliance with:
 - .1 Canadian Electrical Code
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health, Safety, and Emergency Response Procedures.
 - .3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
 - .4 Procedures specified herein.
 - .2 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.
 - .3 Develop and implement lockout procedures to be followed on site as an integral part of the Work.
 - .4 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
 - .5 Use industry standard lockout tags.
 - .6 Provide appropriate safety grounding and guards as required.
 - .7 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.
 - .8 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:
 - .1 Controlling issuance of permits or tags to workers.
 - .2 Determining permit duration.
 - .3 Maintaining record of permits and tags issued.
 - .4 Submitting a Request for Isolation to Consultant when required by Contractors and / or Owners safety plan.
 - .5 Designating a Safety Watcher, when one is required based on type of work.
 - .6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.
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- .7 Collecting and safekeeping lockout tags, returned by workers, as a record of the event.
- .9 Clearly establish, describe and allocate, within procedures, the responsibilities of:
 - .1 Workers.
 - .2 Designated person controlling issuance of lockout tags/permits.
 - .3 Safety Watcher.
 - .4 Subcontractors and General Contractor.
- .10 Procedures shall meet the requirements of Provincial and Federal Codes and Regulations.
- .11 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.
 - .1 Incorporate site specific rules and procedures established by Facility Manager and in force at site. Obtain such procedures through Consultant.
- .12 Procedures to be in typewritten format.
- .13 Submit copy of Lockout Procedures to Consultant, in accordance with submittal requirements, prior to commencement of work.

1.23 CONFORMANCE

- .1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.
- .2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.
- .3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non-Compliance Notification at Consultant's discretion with possible disciplinary measures imposed as specified in Section 01 35 29 - Health, Safety, and Emergency Response Procedures.

1.24 FIRE SAFETY REQUIREMENTS

- .1 Comply with requirements of latest standard for Building Construction Operations issued by the Fire Commissioner of Canada and Fire Safety Regulations of Local Authority.
 - .2 Enforce fire protection methods, good housekeeping and adherence to local and underwriter's fire regulations including, but not limited to, Fire Protection Act and the Provincial Building Code Act. Provide UL approved fire extinguishers, and other fire fighting services and equipment, except where more explicit requirements are specified as the responsibility of individual Sections.
 - .3 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code, 2010.
 - .2 Fire Protection Standards FCC 301 and FCC 302.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health, Safety, and Emergency Response Procedures.
 - .4 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Consultant will advise on the course of action.
 - .5 Advise the Fire Chief in the area of Work of any work that would impede fire apparatus response, including but not limited to violation of minimum overhead clearance prescribed by the fire chief, erecting of barricades and digging of trenches.
 - .6 Fire Separations:
 - .1 Ensure that fire separations are installed to maintain total integrity and that they are not breached by Work following their installation.
 - .2 Replace fire separations which have suffered a lessening of their required rating during construction.
 - .7 Ensure nothing subverts the integrity of fire protection provided for the building structure.
 - .8 Coordinate work of all sections so that they do not encroach on space required for fire protection and its installation. Ensure that fire protection damage during construction is totally
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replaced.

1.25 FIRE PROTECTION AND ALARM SYSTEMS

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut-off, unless approved by Consultant.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than fire fighting.
- .3 Costs incurred, from the fire department, Facility owner and tenants, resulting from negligently setting off false alarms will be charged to the Contractor in the form of financial progress payment reductions and holdback assessments against the Contract.

1.26 FIRE SAFETY

- .1 The Sub-Contractors are to participate on the Fire Safety Committee under the Joint Health and Safety Committee. The Fire Safety Committee under the direction of the Contractor is responsible for implementation and maintenance of the Construction Fire Safety Plan.
- .2 Construction Fire Safety Plan:
 - .1 The Construction Fire Safety Plan will include the following:
 - .1 Introduction of plan and purpose
 - .2 Fire Safety Committee
 - .3 Terms of reference.
 - .2 Committee composition.
 - .3 Emergency Procedures.
 - .4 Fire protection equipment.
 - .5 Building description.
 - .6 Provisions for fire fighting.
 - .7 Portable extinguishers.
 - .8 Exits.
 - .9 Emergency Lighting.
 - .10 Reduced drawings.
 - .11 Fire safety maintenance schedule:
 - .1 General.
 - .2 Maintenance levels.
 - .3 Skill categories.
 - .4 Frequency.
 - .5 Checklists.
 - .12 Other information:
 - .1 Instruction on use of fire extinguishers.
 - .2 Emergency Fire Drill procedures.
- .3 Portable Fire Extinguishers:
 - .1 During construction, Contractor is to provide and maintain on the site at all times, ULC listed 25 lb ABC dry chemical type portable fire extinguishers.
- .4 Blockage of Roadways:
 - .1 The Fire Department shall be advised of any work that would impede fire apparatus response. This includes violation of minimum overhead clearance, as prescribed by the Fire Department, erecting of barricades and the digging of trenches.
- .5 Rubbish and Waste Materials:
 - .1 Rubbish and waste materials are to be kept to a minimum.
 - .2 The burning of rubbish is prohibited.
 - .3 Removal:
 - .1 All rubbish shall be removed from the work site at the end of the workday or shift or as directed by Consultant.
 - .4 Storage:
 - .1 Extreme care is required where it is necessary to store oily waste in work areas to ensure maximum possible cleanliness and safety.

- .2 Greasy or oily rags or materials subject to spontaneous ignition shall be deposited and kept in an approved receptacle and removed as required in 1.7.3.1.
- .6 Flammable Liquids:
 - .1 The handling, storage and use of flammable liquids are to be governed by the current National Fire Code of Canada.
 - .2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 liters provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable liquids exceeding 45 liters for work purposes, requires the permission of the Fire Department.
 - .3 Transfer of flammable liquids having a flash point below 38°C is prohibited within buildings.
 - .4 Transfer of flammable liquids shall not be carried out in the vicinity of open flames or any type of heat-producing devices.
 - .5 Flammable liquids having a flash point below 38°C, such as naphtha or gasoline, shall not be used as solvents or cleaning agents.
 - .6 Flammable waste liquids, for disposal, shall be stored in approved containers located in a safe ventilated area. Quantities are to be kept to minimum and the Fire Department is to be notified when disposal is required.
- .7 Fire Inspection:
 - .1 The Fire Department shall be allowed unrestricted access to the work site.
 - .2 The Contractor shall cooperate with the Fire Department during routine inspections of the work site.
 - .3 The Contractor shall immediately remedy all unsafe fire situations observed by the Fire Department.
- .8 Reporting Fires:
 - .1 Know the location of the nearest fire alarm box and telephone, including the emergency phone number.
 - .2 Report immediately all fire incidents to the fire department as follows:
 - .1 Activate nearest fire alarm box, or
 - .2 Telephone 911.
 - .3 Where fire alarm box is exterior to building, the person activating the fire alarm box shall remain at the box to direct Fire Department to scene of the fire.
 - .4 When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.

1.27 WELDING AND CUTTING

- .1 Use noncombustible shields for electric and gas welding or cutting executed within two (2) meters of combustible material or in occupied space.
- .2 Place tanks supplying gases as close to work as possible. Fix in upright position, free from exposure to sun or high temperatures.
- .3 Locate fire extinguishing equipment near all welding and cutting operations.

1.28 OPEN FLAMES, SPARKS, EXPLOSION PROTECTION

- .1 Keep open flames and sparks to minimum. When flame or sparks are required, follow proper procedures to prevent fire or explosion.

1.29 HOT WORK AUTHORIZATION

- .1 Hot Work will not be permitted on or within the building structure, tanks, or confined spaces, except as outlined herein.
- .2 Obtain Consultant's written "Authorization to Proceed" before conducting any form of Hot work on site.
- .3 To obtain authorization submit to Consultant:

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- .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used. Shall be included in the safety documentation submission.
 - .4 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Consultant will provide authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Consultant. Follow Consultant's directives in this regard.
 - .5 Requirement for individual authorization based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Consultant to ensure fire safety on premises.
 - .6 Do not perform any Hot Work until receipt of Consultant's written "Authorization to Proceed" for that portion of work.
 - .7 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Consultant. When directed, perform Hot Work only during non-operative hours of Facility. Follow Consultant's directives in this regard.

1.30 HOT WORK PROCEDURES

- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
- .2 Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29 - Health, Safety, and Emergency Response Procedures.
 - .2 Use of a Hot Work Permit system for each hot work event.
 - .3 The step by step process of how to prepare and issue permit.
 - .4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
 - .5 Maintain a fire extinguisher in the immediate area where hot work is being undertaken.
 - .6 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 2 hours immediately upon completion of the hot work.
 - .7 Compliance with fire safety codes and standards specified herein and Occupational Health and Safety regulations specified in Section 01 35 29 - Health, Safety, and Emergency Response Procedures.
- .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.
- .4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
 - .1 Worker(s),
 - .2 Authorized person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractors and Contractor.
- .5 Brief all workers and Subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.

- .1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Consultant's discretion with possible disciplinary measures imposed as specified in Section 01 35 29 - Health, Safety, and Emergency Response Procedures.

1.31 HOT WORK PERMIT

- .1 Hot Work Permit to include, as a minimum, the following data:
 - .1 Project name and project number;
 - .2 Building name, address and specific room or area where hot work will be performed;
 - .3 Date when permit issued
 - .4 Description of hot work type to be performed;
 - .5 Special precautions required, including type of fire extinguisher needed;
 - .6 Name and signature of person authorized to issue the permit.
 - .7 Name of worker (clearly printed) to which the permit is being issued.
 - .8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time & date and completion time & date.
 - .9 Worker signature with date and time upon hot work termination.
 - .10 Specified time period requiring safety watch.
 - .11 Name and signature of designated Fire Safety Watcher, complete with time & date when safety watch terminated, certifying that surrounding area was under his continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.
- .3 Each Hot Work Permit to be completed in full and signed as follows:
 - .1 Authorized person issuing Permit before hot work commences;
 - .2 Worker upon completion of Hot Work;
 - .3 Fire Safety Watcher upon termination of safety watch;
 - .4 Returned to Contractor's Site Superintendent for safe keeping.
 - .5 The permit shall describe compliance with the following procedures. After tank or confined space interiors or building areas have been decontaminated, hot work may be conducted only when the tank or confined space is inverted. Hot work shall not be performed unless monitoring indicates atmospheres within and immediately surrounding are less than eight percent (8%) oxygen inside less than ten percent (10%) of the LFL outside; continuous monitoring shall continue until the hot work is completed. The hot work prohibition includes welding, cutting, grinding, sawing, or other similar operations which could be expected to potentially generate combustion-producing temperatures or sparks, or which could produce potentially hazardous fumes or vapours. An individual at each hot work site shall be designated as a fire watch. This person's sole responsibility shall be to monitor the hot work and have immediate access to at least two (2) twenty (20) pound fire extinguishers located at each hot work site. All extinguishers shall be currently inspection tagged, approved safety pin and tamper resistant seal. A new permit shall be obtained at the start of each work shift during which hot work will be conducted.

1.32 BLASTING

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

1.33 POWER ACTUATED DEVICES

- .1 Use power actuated devices only after receipt of written permission from Consultant.

1.34 HANDLING AND TRANSPORTATION OF DANGEROUS GOODS

- .1 Observe and enforce all measures required by the regulatory agencies including but not limited to Environment Canada, Prince Edward Island Department of Environment, and

- Transport Canada.
- .2 Most current regulatory guidelines and Acts will apply to the work.
- .3 In case of any conflict, the more stringent requirements will apply.

1.35 OPEN EXCAVATIONS

- .1 If open excavation areas are to be left at the end of a work day, protective fencing must be placed around the entire perimeter to limit access by others. Fencing to be self-supporting, approved by the Department of Labour and the Construction Safety and Industrial Safety Regulations.

1.36 POTENTIAL HAZARDS

- .1 Hazards include, but are not limited to, toxic, flammable and explosion hazards associated with cleaning solvents.
- .2 The Contractor shall become familiar with all potential hazards associated with the work, and shall take necessary measures to avoid injury or damage of any kind.

1.37 HAZARDOUS MATERIALS

- .1 Should material resembling hazardous materials, other than those identified with the Contract Documents, including but not limited to spray or trowel applied asbestos, be encountered in course of work; stop work immediately. Do not proceed until written instructions have been received from Consultant.
- .2 Any material which contains asbestos that is disturbed or removed during construction work, shall be removed in accordance with the regulations set out by the Occupational Health and Safety Act. All costs for proper cutting, removal and disposal of all asbestos identified in this contract shall be included in Tender.
- .3 Where work entails use, storage, or disposal of toxic or hazardous materials, chemicals and/or explosives, or otherwise creates a hazard to life, safety, health, or the environment; work shall be in accordance with the Authority Having Jurisdiction (AHJ).

1.38 ENVIRONMENTAL PROTECTION

- .1 Ensure that pollution and environmental control of construction activities are exercised during the Work to requirements of the federal and provincial environmental acts; including, but not limited to, the Prince Edward Island Environmental Protection Act.

1.39 SANITATION / DECONTAMINATION PRACTICES

- .1 After each use, all disposable protective equipment shall be collected in a dedicated container for disposal.
- .2 All respiratory equipment shall be decontaminated daily after use.
- .3 All tools, pumps and equipment used during cleanup should be dedicated to the handling of contaminants and labeled as such and thoroughly decontaminated at the completion of the project.
- .4 Contaminated work clothing shall not be worn outside of regulated areas.
- .5 Workers shall wash their hands and exposed skin before eating, drinking, smoking or using toilet facilities during work shift, and at the completion of a work shift.
- .6 Food, drink and tobacco products shall not be permitted in regulated areas.

1.40 WORK PRACTICES AND ENGINEERING CONTROLS

- .1 Access to work areas shall be regulated and limited to authorized persons. A daily roster shall be kept of persons entering such areas.
- .2 Handling Contaminants and General Work Practices.
 - .1 Transportation and handling of contaminants to meet applicable local, provincial and federal regulations.
 - .2 Emergency respiratory equipment shall be located in readily accessible locations which will remain minimally contaminated with contaminants in an emergency.

- .3 Containers and systems shall be handled and opened with care. Approved protective clothing shall be worn by all employees engaged in regulated areas.
- .4 All wastes and residues containing contaminants shall be collected in appropriate containers.
- .3 Confined or Enclosed Spaces
 - .1 Entry into confined or enclosed spaces, where there is limited egress, shall be controlled by a permit system. Permits shall be signed by an authorized representative of the employer and shall certify that appropriate measures have been taken to prevent adverse effects on the worker's health as a result of his or her entry into such space.
 - .2 Confined or enclosed spaces which have contained contaminants shall be thoroughly ventilated to assure an adequate supply of oxygen, tested for contaminants, and inspected for compliance with these requirements prior to each entry. Adequate ventilation shall be maintained while workers are in such spaces. Each individual entering such confined or enclosed space shall be furnished with appropriate personal protective equipment and clothing and be connected by a lifeline harness to standby worker stations outside of the space. The standby worker shall also be equipped for entry with approved personal protective equipment and clothing and have contact with a third person. The standby person shall maintain communication (visual, voice, signal line, telephone, radio, or other suitable means) with the employee inside the confined or enclosed space.
 - .3 Workers entering confined spaces and standby workers shall be trained at a recognized confined space training program.

END OF SECTION

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1 General

1.1 FIRES

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

1.2 DISPOSAL OF WASTES

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.3 DRAINAGE

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 SITE CLEARING AND TREE PROTECTION

- .1 All work shall comply with the Town of Stratford "Town-Owned Tree Policy" which can be found within Appendix 'B' of these specifications.
- .2 Protect trees and plants on site and adjacent properties where indicated. Trees shall be carefully preserved as far as possible during construction. Trees marked on the drawings for removal shall be transplanted or replaced back to their original position.
- .3 Before work commences, the Contractor shall inspect the site along with the Owner and their representative to indicate the extents of construction impact on the trees. Any additional work which may impact the trees shall only commence after written consent.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of two (2) m.

1.5 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 Design and construct temporary crossings to minimize erosion to waterways.

1.6 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
 - .1 Provide dust control for temporary roads.
 - .1 Control emissions from equipment and plant to local authorities emission requirements.
 - .1 Place construction equipment so that dust, smoke, fumes and odours do not move toward or enter air intakes or windows of the adjacent building. If dust, smoke, fumes or odours are found to be entering adjacent buildings by any means, the Contractor will be required to stop work at the Contractor's own expense and work will not be allowed to

- .1 recommence until problem is rectified to satisfaction of Owner and Consultant.
- .2 Maintain noise level of construction work to minimum practical to avoid unnecessary disturbance of adjacent residences.
- .3 Provide dust control for building demolition and site work. Refer to Section 02242 - Dust Control for requirements relating to work of this project.
- .4 Cover or wet down dry materials and rubbish, while awaiting or during removal, to prevent blowing dust and debris.
- .5 Protect with straw erosion control blankets or uniform open weave straw matting properly secured by steel wire staples and hydro seeded any inclined exposed embankments as soon as possible after removal of embankments.
- .6 Construct and maintain ditch and silt screens. The fence/ditch dams should be installed in such a manner to prevent siltation of the existing storm sewers and surfaces.
- .7 Prepare and submit for approval, by Consultant and Owner, a detailed schedule indicating the sequence and duration of each construction activities along with an environmental protection plan specifying measures that would be incorporated in the work to minimize the impact of the construction activities on the adjacent waterway and the environment.
- .8 Arrange for a meeting between the Contractor (s), the Consultant and the Owner prior to commencement of construction.

1.7 SMOKING RESTRICTIONS

- .1 Smoking is not permitted inside the building at any time or at any stage of construction.

1.8 ENVIRONMENTAL PERMIT APPROVAL

- .1 Comply with requirements contained in any permits in force during the construction phase of this project.

END OF SECTION

1 General

1.1 INSTALLATION AND REMOVAL

- .1 Contractor to provide temporary utilities identified in this Section, in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.2 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.
- .2 Filter water containing silt through geofabric prior to discharge into municipal storm water system or water course.

1.3 WATER SUPPLY

- .1 Arrange for connection with water utility company and pay all costs for installation, maintenance and removal.
- .2 Contractor will pay for utility charges at prevailing rates.
- .3 Water supply will be provided by the Owner for construction usage at no cost. Make arrangements and pay costs for the use and transportation of such services to work area.
- .4 Water supply is available on site and will be provided for construction usage at no cost. Make arrangements for the use and transportation of such services to work area through the Consultant.

1.4 SANITARY FACILITIES

- .1 The Contractor will provide, at no cost to the Owner, sanitary facilities for work force in accordance with governing regulations and ordinances for entire duration of project.
- .2 The Contractor will post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Sanitary facilities must be located within the limits of the temporary construction fence, provided under the work of this Contract.

1.5 TEMPORARY POWER AND LIGHT

- .1 Contractor will pay for temporary power during construction.
- .2 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.
- .3 Temporary power for electric cranes and other equipment is responsibility of Contractor.
- .4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 160 lx.
- .5 Connect to existing power supply in accordance with Canadian Electrical Code and provide meters and switching.
- .6 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Consultant provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.6 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period.
- .2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.

- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies, authorities having jurisdiction, governing codes, regulations and bylaws.

END OF SECTION

1 General

1.1 REFERENCES

- .1 Manual of Uniform Traffic Control Devices for Streets and Highways (latest edition).
- .2 General provisions and contract specifications for highway construction, PEI DTI.

1.2 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 Review with Provincial Traffic Authority and Town of Stratford Project Manager all precautions to be taken and safety measures to be put in place and obtain acceptance before proceeding with work.
- .3 Provide and maintain, if possible, two way traffic (one lane of traffic in each direction) on all roads, adjacent streets, and access to businesses at all times during the construction period.
- .4 When working on traveled way:
 - .1 Place equipment in position to present minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of traveled way.
 - .3 Do not leave equipment on traveled way overnight.
- .5 Do not close any lanes of road without approval of Provincial Traffic Authority and Town of Stratford Project Manager. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in Part D of UTCD.
- .6 Keep traveled way graded, free of pot holes and of sufficient width for required number of lanes of traffic.
 - .1 Provide minimum 7 m wide temporary roadway for traffic in two-way sections through Work and on detours.
 - .2 Provide minimum 5 m wide temporary roadway for traffic in one-way sections through Work and on detours.
 - .3 Maintain two way traffic at all times.
- .7 As indicated, provide graveled detours or temporary roads to facilitate passage of traffic around restricted construction area.
- .8 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, unless other means of road access exist that meet approval of Consultant.
- .9 As part of their submission, the bidders shall submit a detailed Traffic Management Plan. The Plan is to be provided to the Town and Consultant for review prior to any commencement of work. The Traffic Plan shall be approved by the Town and/or their representatives.

1.3 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Part D, Temporary Conditions Signs and Devices, of UTCD manual and PEI TIE manual.
- .3 Place signs and other devices in locations recommended in UTCD manual.
- .4 Meet with Consultant prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Consultant.
- .5 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

1.4 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag persons, trained in accordance with, and properly equipped as specified in, UTCD manual in the following situations:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of traveled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on traveled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 Provide full time flag person during daylight hours to control both construction activities and public traffic and to permit pedestrians safe passage.
 - .6 For emergency protection when other traffic control devices are not readily available.
 - .7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .8 Delays to public traffic due to contractor's operators: maximum ten (10) minutes.
 - .9 Flag person to have two-way radio communications at all times.

END OF SECTION

1 General

1.1 INSPECTION AND DECLARATION

- .1 Contractor's Inspection:
 - .1 Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Consultant's Inspection.
- .2 Consultant's Inspection:
 - .1 Consultant, Owner and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and are fully operational.
 - .4 Systems have been commissioned.
 - .5 Operation of systems have been demonstrated to Owner's personnel.
 - .6 Work is complete and ready for Final Inspection.
- .4 Final Inspection:
 - .1 When items noted above are completed, request final inspection of Work by Owner and Consultant. If Work is deemed incomplete by Consultant complete outstanding items and request re inspection.
- .5 Declaration of Substantial Performance:
 - .1 When Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Certificate of Substantial Performance. Refer to CCDC 2, General Conditions Article for specifics to application.
- .6 Commencement of Lien and Warranty Periods:
 - .1 Date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. Refer to CCDC 2. If Work is deemed incomplete by Owner, complete outstanding items and request re inspection. Cost of re inspection will be deducted from final payment.
- .8 Payment of Holdback:
 - .1 After issuance of Certificate of Substantial Performance of Work, submit an application of payment of holdback amount in accordance with CCDC2.

1.2 CERTIFICATE OF SUBSTANTIAL PERFORMANCE

- .1 Upon approval, a Certificate of Substantial Performance will be issued to the Owner by the Consultant with a copy delivered to the Contractor. This Certificate will take the form shown in Section 01 77 00 - Closeout Procedures.
 - .2 The Certificate of Substantial Performance will establish the date of the Consultant's inspection as the date of Substantial Performance of the Contract, and will commence the required 60-day period before release of the lien holdback amount.
 - .3 During the 60-day period, Contractor shall continue to complete the work.
 - .4 The Contractor shall immediately deliver to the Consultant specified submissions upon receipt of the Certificate of Substantial Performance.
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1.3 ESTABLISHMENT OF WARRANTIES

- .1 Warranties shall commence at date of Substantial Performance of the Work.

1.4 CERTIFICATE FOR PAYMENT OF LIEN HOLDBACK AMOUNT

- .1 The Contractor shall submit statement and supporting documents for application of Release of Lien Holdback amount. These documents include those listed in Paragraph 2.2.2 and 2.2.3 and the Statutory Declaration Form CCDC 9A.
- .2 Within five working days of receipt of application for Release of Lien Holdback amount and if approved, the Consultant will prepare a Certificate for Payment of the Lien Holdback amount. This Certificate dated on the day following termination of the 60 day period will be issued to the Owner with a copy delivered to the Contractor.
- .3 The Owner will before the date of this Certificate ensure that no liens related to the Contract are registered and that no notice of liens has been received at the end of the 60-day period.
- .4 Should no liens exist, the Lien Holdback will be due and payable one day after termination of the 60-day period in the amount indicated on the approved application for Certificate of Substantial Performance.
- .5 The Owner will review jointly with the Contractor's Insurance related to the Contract before the 60-day period is terminated to ensure that all parties are adequately covered.

1.5 TOTAL PERFORMANCE

- .1 The Contractor shall inspect the work to establish its completion in accordance with the Contract Documents and when satisfied of this completion request of the Consultant a final inspection.
- .2 The Consultant will compile a final deficiency list at this inspection and issue it to the Contractor and Owner.
- .3 The Contractor shall correct final deficiencies before a date agreed upon by the Contractor and Consultant.
- .4 When the Contractor has satisfied himself that these corrections have been completed in a satisfactory manner by his inspection, he shall schedule a re-inspection by the Consultant, and the Owner's representatives if required, within five working days of the Contractor's request.
- .5 When the Consultant is satisfied that all deficiencies have been rectified and the work is complete, the Contractor shall submit an application for the final progress payment.
- .6 When "seasonal deficiencies", as determined by the Owner and/or Consultant exist, a sum of money will be withheld in accordance with the requirements of CCDC2 2020-GC 5.6.

1.6 WARRANTY PERIOD

- .1 The Owner will advise the Consultant of defects observed during Warranty periods.
- .2 The Consultant will notify the Contractor of these defects and request him to remedy the defects in accordance with the Contract Documents.
- .3 Thirty days before expiration of Warranties the Owner's representatives, the Consultant and the Contractor will review the work as arranged by the Contractor noting defects of products and workmanship.
- .4 The Contractor shall immediately remedy such noted defects.

1.7 CERTIFICATE

.1 CONTRACTOR: _____

PROJECT: _____

DATE OF SUBSTANTIAL PERFORMANCE: _____

.1 Substantial Performance Inspection for above described work was carried out
_____ (date) by:

.1 For Owner _____

.2 For Consultant _____

.3 For Contractor _____

.2 The items which are not in accordance with the Plans and Specifications and require correction under the Conditions of the Contract Agreement are listed as an attachment to this Document.

CONTRACTOR'S CERTIFICATION

I hereby Certify that the work has been executed in accordance with the Plans and Specifications with the exception of deficiencies listed herewith. The undersigned hereby agrees that notwithstanding the generality of the foregoing, the acceptance of the works shall not prejudice any rights of the Owner or affect any liabilities of the undersigned Contractor pursuant to the provisions of the Contract.

Contractor

Date

OWNER'S ACCEPTANCE

I hereby accept the work on behalf of the Owner providing that the deficiencies listed herewith are completed. This acceptance is not to be construed as relieving the Contractor from the responsibility to correct other defects in the work, whether latent or patent, as may become apparent within the guarantee/warranty period. This acceptance is made without prejudice to the rights of the Owner or to the liabilities of the Contractor which may arise and/or continue after acceptance of the work.

Owner

Date

CONSULTANT'S DECLARATION

Based on periodic visits to the job site and general familiarity with the progress of the work, I declare that, to the best of my knowledge, information and belief, construction is proceeding in accordance with the intent of the design and in general compliance with the plans and specifications, with the exception of the deficiencies listed herewith.

Consultant

Date

1.8 DEFICIENCIES

- .1 The following is a list of deficiencies to be corrected. This acceptance is not to be construed as relieving the Contractor from the responsibility of correcting other defects in the work as may become apparent during the Guarantee/Warranty Period.

- .1 _____
- .2 _____
- .3 _____

END OF SECTION

1 General

1.1 SECTION INCLUDES

- .1 Project Record Documents as follows:
 - .1 As-Built drawings;
 - .2 As-Built specifications;
 - .3 Reviewed shop drawings.
- .2 Operations and Maintenance data as follows:
 - .1 Operations and Maintenance Manual;
 - .2 Maintenance Materials;
 - .3 Spare Parts;
 - .4 Special Tools.

1.2 PROJECT RECORD DOCUMENTS

- .1 Consultant will provide two white print sets of contract drawings and two copies of Specifications Manual specifically for "as-built" purposes.
 - .2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.
 - .3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Consultant at any time during construction.
 - .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of project and prior to interim inspection, neatly transfer notations to second set (also by use of red ink). Submit both sets to Consultant. All drawings of both sets shall be stamped "As-Built Drawings" and be signed and dated by Contractor.
 - .2 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
 - .3 Record following information:
 - .1 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure;
 - .2 Field changes of dimension and detail;
 - .3 Location of all capped or terminated services and utilities.
 - .4 Chases for mechanical, electrical and other services;
 - .5 Ceiling and floor elevations;
 - .6 Reflected ceiling plan condition showing finished layout of all ceiling-mounted services and devices;
 - .7 Plumbing, heating, air conditioning and ventilation, sprinkler and electrical service installation locations; all to be dimensioned and referenced to building columns or load bearing walls;
 - .8 All design elevations, sections, floor plans and details dimensioned and marked-up to consistently report finished installation conditions;
 - .9 Any details produced in the course of the contract by the Consultant to supplement or to change existing design drawings must also be marked-up and dimensioned to reflect final as-built conditions and appended to the as-built drawing document;
 - .10 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.
 - .5 As-built Specifications: legibly mark in red each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.
 - .2 Changes made by Addenda and Change Orders.
-

- .3 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.
- .6 Maintain As-built documents current as the contract progresses. Consultant will conduct reviews and inspections of the documents on a regular basis. Frequency of reviews will be subject to Consultant's discretion. Failure to maintain as-builts current and complete to satisfaction of the Consultant shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.

1.3 REVIEWED SHOP DRAWINGS

- .1 Compile full set of shop drawings and product data reviewed on project and incorporate into Operations and Maintenance Manual. Supply number of shop drawing sets equal to the required number of final Operations and Maintenance manuals.
- .2 Submit shop drawing sets at same time and as part of the contents of the Operation and Maintenance manuals specified in this section.

1.4 OPERATIONS AND MAINTENANCE MANUALS

- .1 Definition: an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of the specifications.
- .2 Manual Language: final manuals to be in English language.
- .3 Number of copies required:
 - .1 Submit 2 draft copies of the manual for review and inspection by Consultant. Make revisions and additions as directed and resubmit.
 - .2 Upon review and acceptance by Consultant, submit 3 final copies. Initial copies are not to be considered as part of the final copies unless they have been fully revised and are identical to the final approved version.
- .4 Submission Date: submit complete operation and maintenance manual to Consultant 3 weeks prior to application for Interim Certificate of Completion of project.
- .5 Binding:
 - .1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.
 - .2 Use vinyl, hard covered, 3 "D" ring binders, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
 - .3 Where multiple binders are needed, correlate data into related consistent groupings.
 - .4 Identify contents of each binder on spine.
 - .5 Organize and divide data into sections same as 16 division numerical order of contract specifications and thereafter subdivided into various equipment or building systems.
 - .6 Material: separate each section by use of cardboard dividers and labels. Provide tabbed fly leaf for each separate product or system within each section and with typed description of product and major component parts of equipment.
 - .7 Type lists and notes. Do not hand write.
 - .8 Drawings, diagrams and manufacturers' literature must be legible, determined solely by the Consultant. Provide with reinforced, punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .6 Manual Contents:
 - .1 Cover sheet containing:
 - .1 Date submitted.
 - .2 Project title, location and project number.
 - .3 Names and addresses of Contractor, and all Sub-contractors.
 - .2 Table of Contents: provide full table of contents in each binder(s), clearly indicate which contents are in each binder.
 - .3 List of maintenance materials.
 - .4 List of spare parts.
 - .5 List of special tools.

-
- .6 Original or certified copy of Warranties and Guarantees.
 - .7 Copies of approvals, and certificates issued by Inspection Authorities.
 - .8 Copies of reports and results from tests designated as Contractor's responsibilities.
 - .9 Product Information Data on all materials, equipment and systems as specified in individual sections of the specifications to include:
 - .1 List of equipment including manufacturer's name, supplier, local source of supplies and service depot(s). Provide full addresses and telephone numbers.
 - .2 Nameplate information including equipment number, make, size, capacity, model number and serial number.
 - .3 Parts list.
 - .4 Installation details.
 - .5 Operating instructions.
 - .6 Maintenance instructions for equipment.
 - .7 Maintenance instructions for finishes.
 - .7 Shop drawings:
 - .1 Bind one complete set of reviewed shop drawings into each copy of operations and maintenance manual.
 - .2 Bind the shop drawings in a manner such that they correspond with the specification section they relate to.
 - .3 Where large quantity of data is supplied due to size of project, fold and bind professionally into separate correctly sized binder.
 - .8 Equipment and Systems Data: the following list indicates the type of data and extent of information required to be included for each item of equipment and for each system:
 - .1 Description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed color coded wiring diagrams.
 - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include seasonal and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Servicing and lubrication schedule, and list of lubricants required.
 - .7 Manufacturer's printed operation and maintenance instructions.
 - .8 Sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed color coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports.
 - .15 Additional requirements as specified in individual specification sections.
 - .9 Materials and Finishes Maintenance Data:
 - .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and color and texture designations.
 - .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
-

- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.5 SPARE PARTS, TOOLS AND MAINTENANCE MATERIALS

- .1 Provide spare parts, special tools and extra materials for maintenance purposes in quantities specified in individual specification sections.
- .2 Tag all items with associated function or equipment.
- .3 Provide items of same manufacture and quality as items in Work.
- .4 Deliver to site in well packaged condition. Store in location as directed by Consultant.
- .5 Clearly mark as to contents indicating:
 - .1 Part number.
 - .2 Identification of equipment or system for which parts are applicable.
 - .3 Installation instructions or intended use as applicable.
 - .4 Name, address and telephone number of nearest supplier.
- .6 Prepare and submit complete inventory list of items supplied. Include list within Maintenance Manual.
- .7 Turnover to Facility Manager and obtain signature. Include receipt with Maintenance Manual.

1.6 SPECIAL TOOLS

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

1.7 SUBMISSION

- .1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .2 Copy will be returned after final inspection, with Consultant's comments.
- .3 Revise content of documents as required prior to final submittal.
- .4 Two (2) weeks prior to Substantial Performance of the Work, submit to the Consultant, two (2) final hard copies and one (1) electronic final copy of operating and maintenance manuals in English.
- .5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .6 If requested, furnish evidence as to type, source and quality of products provided.
- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .8 Pay costs of transportation.
- .9 Failure to deliver maintenance materials, spare parts, special tools and as-builts will delay progress payments.

1.8 FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.

-
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.9 CONTENTS - EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 date of submission; names,
 - .2 addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;
 - .3 schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control and Section 01 77 00 - Closeout Procedures.
- .6 Training: Refer to Section 01 91 13 - General Commissioning Requirements.

1.10 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on 2 sets of white print, opaque drawings, and in copy of Project Manual.
- .2 Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, required by individual specifications sections.

1.11 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.12 WARRANTIES AND BONDS

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

- .2 List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by Subcontractors, suppliers, and manufacturers where specifically requested by individual specification sections, within ten days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.

END OF SECTION

1 General

1.1 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and installation of items of work, as specified in this Section and shown on the Drawings.

2 Products

2.1 MISCELLANEOUS METAL

- .1 Steel sections and plates: to CAN/CSA G40.21, Grade 350W except where specified otherwise.
- .2 Steel pipe and handrails: to ASTM A53, CSA S16.1, Schedule 40 and as indicated on drawings.
- .3 Guardrail Spindels: to CSA C-40.21 round bars to size as indicated.
- .4 Welding materials: to CSA W59.
- .5 Bolts and anchor bolts: to ASTM A307.

2.2 GALVANIZING

- .1 All steel materials supplied for this project, including nuts and washers, shall be hot dipped galvanized (min. 700gr/m³) suitable for marine environment.

3 Execution

3.1 CLEATS

- .1 Install at locations indicated on drawings.

3.2 MISCELLANEOUS METALS

- .1 Do miscellaneous steel work in accordance with CAN/CSA S16.1.
- .2 Welding in accordance with CSA W59. Install miscellaneous site items as indicated on drawings.

3.3 FABRICATION GENERAL

- .1 Fabricate steel, as indicated, in accordance with CAN/CSA-S16.1 and in accordance with reviewed shop drawings.
- .2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .3 Use welded connections for both interior and exterior metal work unless otherwise indicated or approved by Consultant.
- .4 Use self-tapping, shake-proof countersunk flat headed screws on items requiring assembly by screws, or as indicated.
- .5 Where possible, fit and shop assemble work, ready for erection.
- .6 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .7 Grind and polish all exposed edges and corners to leave smooth surface free from burrs or other sharp protrusions.
- .8 All holes shall be punched or drilled. Burning holes in any steel member is NOT permitted.

3.4 CONNECTION TO EXISTING WORK

- .1 Examine dimensions, alignment, elevations and condition of work before commencing fabrication and report any discrepancies and potential problem areas to Consultant and await instructions.

END OF SECTION

1 General

1.1 DESCRIPTION

- .1 This Section specifies the requirements for the supply and installation of pressure treated timber required for the boardwalk, posts, railing and other items as indicated on plans.

2 Products

2.1 MATERIALS

- .1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.
- .2 Species:
 - .1 Softwood timber: Coast Douglas Fir, Eastern Hemlock, Eastern Hemlock, Pacific Coast Hemlock, White or Red Pine conforming to CSA 0141-1970 for softwood lumber, Group A, select grade, free from splits, checks and wane.
 - .2 Hardwood timber: Birch or Maple to National Hardwood Lumber Association (NHLA) requirements, construction grade.
- .3 Preservative Treatment: to CSA 080-Series97 Commodity Standard .18, Table 1 for coastal waters, chromated copper arsenate (CCA) or ammoniacal copper arsenate(ACA). Use of creosote oil NOT permitted.
- .4 Miscellaneous steel: Bolts, nuts, washers: to ASTM A307-83A. All steel material shall be hot dipped galvanized

3 Execution

3.1 INSTALLATION

- .1 Construct softwood stringers to dimension and configurations indicated on plans. Support and secure stringers to pile caps and wales as indicated. Stringers shall be full length to dimensions indicated.
- .2 Construct hardwood timber decking and sleepers to dimensions and configurations indicated on plans and secure to decking with 2 galvanized spikes at each sleepers and end of the decking member. All boardwalk material to be Marine Grade.
- .3 Construct softwood timber posts to dimensions and configurations indicated on plans and bolt to decking at locations shown on plans using galvanized machine bolts.
- .4 Construct softwood timber railing to dimensions and configurations indicated on plans and bolt to timber decking at locations shown on plans.
- .5 All washers, spikes and bolt heads will be countersunk such that the bolt heads and spikes to not extend past the face of the timbers.
- .6 Where it is necessary to cut or countersink pressure treated timber on site treat sawn face with two (2) liberal coats of brush applied copper naphthanate preservative. Allow first coat to fully penetrate wood before applying second coat.
- .7 Blocking:
 - .1 The work comprises the furnishing of all equipment, labour and materials necessary for the provision of all blocks, etc. and related work as specified herein and indicated on the drawings.
 - .2 Hardware including pins, bolts, washers, nails and all other items necessary to be incorporated into the work shall be as specified and as indicated.

END OF SECTION

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1 General

1.1 RELATED WORK

- .1 Submittal Procedures: Section 01 33 00.
- .2 Health and Safety Requirements: Section 01 35 29.
- .3 Environmental Procedures: Section 01 35 43.

1.2 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for all excavation, trenching, backfilling, and compaction as required to complete the work of this Contract, as specified in this Section and as shown on the Drawings.
- .2 The requirements of the following Prince Edward Island, Department of Transportation, Infrastructure & Energy (TIE) Specifications are to be followed for all work relating to the material specifications for fill materials and bedding sand.

1.3 REFERENCES

- .1 ASTM C117-13, Standard Test Method for Material Finer Than: 0.075mm Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136M-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D698-12e2, Test Method for Laboratory Compaction Characteristics of Soil using Standard Effort.
- .4 ASTM D1557-12, Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- .5 CAN/ULC -S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .6 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .7 CAN/CGSB-71-GP-24M Adhesive, Flexible for Bonding Cellular Polystyrene Insulation.

1.4 DEFINITIONS

- .1 Rock excavation: excavation of material from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass and was unable to be removed by a Caterpillar 235 Excavator, or equivalent, machine.
- .2 Common excavation: excavation of materials of whatever nature, which are not included under the definition of rock excavation, including dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment.
- .3 Top Soil: Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .4 Cohesionless soil: For compaction purposes, cohesionless soil is:
 - .1 Materials having less than 20% passing 75 micrometres sieve, regardless of plasticity of fines.
- .5 Cohesive soil: For compaction purposes, cohesive soil is soil not having properties to be classified as cohesionless.

1.5 PROTECTION OF EXISTING FEATURES

- .1 Existing buried utilities and structures:
 - .1 Size, depth and location of existing utilities and structures as indicated are for guidance only; completeness and accuracy are not guaranteed.
 - .2 Prior to commencing any excavation work, notify applicable Consultant or authorities, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.
 - .3 Confirm locations of buried utilities by careful test excavation.
 - .4 Maintain and protect from damage, water, sewer, gas, electric or other utilities encountered. Obtain direction of Consultant before moving or otherwise disturbing

- utilities or structures.
- .5 Where indicated re-route existing lines in area of excavation. Pay costs for such work.
- .6 Remove abandoned utility lines to distance of 1.5m from foundations. Cap or otherwise seal lines at cut-off points.
- .7 Record in accordance with requirements of Section 01 78 00 - Closeout Submittals, locations of maintained, re-routed and abandoned underground lines.
- .8 Make good and pay for damage to any lines resulting from work.
- .2 Existing surface features:
 - .1 Protect existing surface features which may be affected by work from damage while work is in progress and repair damage resulting from work.
 - .2 Where excavation necessitates root or branch cutting do so only under direct control of Consultant.
 - .3 Provide adequate protection around bench markers, layout markers, survey markers, geodetic monuments and signage.

1.6 SHORING, BRACING AND UNDERPINNING

- .1 Comply with Section 01 35 29 - Health and Safety Requirements and applicable local regulations and to protect existing features.
- .2 Whenever shoring, sheeting, timbering and bracing of excavations or underpinning is required engage services of a Professional Engineer registered in Canada, to design and assume responsibility for adequacy of shoring, bracing and underpinning.
- .3 Design and supporting data submitted to bear the stamp and signature of qualified Professional Engineer registered in Canada.

1.7 COMPACTION DENSITIES

- .1 Compaction densities indicated are Standard Proctor Maximum Dry Densities.

1.8 SITE CONDITIONS

- .1 The Contractor is responsible to visit the site, assess the setting and become familiar with the existing site conditions.
- .2 No extra payment will be made to the Contractor, above the Contract Price, for costs resultant from failure to determine the conditions that affect the work.

2 Products

2.1 MATERIALS

- .1 Type 1 Fill: Crushed rock composed of hard sound, durable uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, to comply with the PEI Department of Transportation & Infrastructure (PEI DTI) Specification 401 - Aggregate, for Class "A" material graded within the following limits:

ASTM Sieve Size	Percent Passing
31.5mm	100
25.0mm	95-100
12.5mm	50-83
4.75mm	30-60
1.18mm	15-40
600um	10-32
300um	5-22
75um	3-9

- .2 Type 2 Fill: Crushed rock composed of hard sound, durable uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, to

comply with the PEI DTI Specification 401 - Aggregate, for Class "B" material graded within the following limits:

ASTM Sieve Size	Percent Passing
31.5mm	100
25.0mm	95-100
12.5mm	50-83
4.75mm	30-60
1.18mm	15-40
600um	10-32
300um	5-26
75um	3-7

.3 Type 3 Fill: imported, classified as Common Fill, or material from excavation or other sources, approved by Consultant for use intended, unfrozen, free from rocks larger than 75mm, cinders, ashes, sods, refuse or other deleterious materials.

.4 Type 4 Fill: natural sand or crushed rock screening, free from clay, shale or organic matter, to comply with PEI DTI Specification 402 - Bedding Sand, graded with the following limits.

ASTM Sieve Size	Percent Passing
9.5mm	100
4.75mm	87-98
2.36mm	55-95
1.18mm	30-90
600um	10-70
300um	0-35
150um	0-15
75um	0-8

.5 Type 5 Fill: to requirements of PEI DTI Specification #206.02.02 - Select Borrow as follows: Borrow shall be non-plastic and composed of clean, uncoated particles free from lumps of clay or other deleterious material with a maximum particle size of 100mm, and a maximum of 30% of the material passing the 4.75 sieve shall pass the 0.075 mm sieve.

.6 Type 6 Fill: clean, washed coarse sand free from clay, shale and organic matter and graded within the following limits:

ASTM Sieve Size	Percent Passing
12.5mm	100
4.75mm	90-100
0.85mm	40-100
0.35mm	0-75
0.25mm	0-38
0.75mm	0-8

.7 Type 7 Fill: Crushed rock, composed of hard, sound, durable, uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, graded within the following limits, to comply with the PEI DTI Specification 401 - Aggregate for Class "D" Material.

ASTM Sieve Size	Percent Passing
50.0mm	100
38.0mm	60-100
31.5mm	50-100
25.0mm	35-70
19.0mm	20-50
12.5mm	10-35
9.5mm	5-25
4.75mm	0-10

.8 Geotextile filter fabric: Refer to Section 31 32 21.

3 Execution

3.1 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Where applicable, strip topsoil from within limits of excavation and stockpile as directed by Consultant, for re-spreading.
- .3 Sawcut pavement or concrete neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 STOCKPILING

- .1 Stockpile fill materials in areas designated by Consultant. Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination and freezing.

3.3 DEWATERING OF EXCAVATIONS

- .1 Keep excavations free of water while work is in progress.
- .2 Protect open excavations, trenches and completed installations against damage due to rainwater, surface run-off, spring water, groundwater, backing up of drains, sewers, flooding from watermains and all other water. Provide pumps, equipment and enclosures required for such protection.
- .3 Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction, and in accordance with the requirements of the Environmental Protection Plan.
- .4 All new and existing work damaged by failure to provide protection shall be removed and replaced with new work at the expense of the Contractor.

3.4 SAW CUTTING

- .1 Existing pavement to be saw cut to produce neat, straight vertical cuts at interface between existing asphalt roadway and new pavement, where excavation meets with asphalt driveways, and at limits of Contract, or as directed by Consultant.

3.5 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions indicated or required to construct roadways and to install site services.
 - .2 Remove demolished foundations, rubble and other obstructions encountered during excavation.
 - .3 Excavations must not interfere with normal 45° splay of bearing from bottom of any footing.
 - .4 Do not obstruct flow of surface drainage or natural watercourses.
 - .5 Earth bottoms of excavations to be dry undisturbed soil, level, free from loose or organic matter.
-

- .6 Notify Consultant when soil at bottom of excavation appears unsuitable and proceed as directed by Consultant.
- .7 Obtain Consultant's approval of completed excavation.
- .8 Remove unsuitable material from bottom of excavation to extent and depth directed by Consultant.
- .9 Where required due to unauthorized over-excavation, correct as follows:
 - .1 Fill under other areas with Type 2 compacted to 98% density.
- .10 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed compact foundation soil to density at least equal to undisturbed soil.
- .11 Rock excavation: For the purpose of bidding it is to be assumed that solid sandstone bedrock, as defined under Par. 1.4 above, will not be encountered during the work of this Section.

3.6 FILL TYPES AND COMPACTION

- .1 Dimensions specified in following paragraphs are minimum dimensions of fill after compaction.

3.7 BACKFILLING

- .1 Do not proceed with backfilling operations until Consultant has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water or frozen ground.
- .3 Do not use backfill material which is frozen or contains ice, snow, or debris.
- .4 Place backfill material in uniform layers up to grades indicated. Compact each layer before placing succeeding layer. Use methods to prevent damage to installations.

3.8 TESTING AND INSPECTION

- .1 Refer to Section 01 45 00.

3.9 RESTORATION

- .1 Upon completion of work, remove surplus materials and debris, trim slopes and correct defects noted by Consultant.
- .2 Clean and reinstate areas affected by work to satisfaction of Consultant.

3.10 SURPLUS MATERIAL

- .1 Remove all surplus material from site, and pay all fees as may be charged at disposal site.
- .2 Remove all soil contaminated with oil, gasoline, calcium chloride or other toxic or dangerous materials and dispose of in manner to minimize danger at site and in a manner and to a location off site approved by Provincial Authority governing such disposal.

END OF SECTION

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1 General

1.1 RELATED WORK

- .1 Excavating, Trenching and Backfilling: Section 31 23 10.
- .2 Riprap: Section 31 37 10.

1.2 REFERENCES

- .1 CAN/CGSB-4.2-2004, Textile Test Methods.
- .2 CAN/CGSB-148.1-92, Methods of Testing Geotextiles and Geomembranes.
- .3 ASTM D4595-11, Test Method for Tensile Properties of Geotextiles by the Wide Width Strip Method.
- .4 ASTM D4751-99a, Test Method for Determining the Apparent Opening Size of a Geotextile.

1.3 DELIVERY AND STORAGE

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

2 Products

2.1 MATERIALS

- .1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls of minimum 3.5 meters width and in one length.
 - .1 Standard of Acceptance: Synthetic Industries 1001 or an approved equal.
- .2 Synthetic fibre to be rot proof, unaffected by action of oil or salt water and not subject to attack of insects or rodents.
- .3 Seams or joints to be constructed in accordance with manufacturer's recommendations.
- .4 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.
- .5 Physical properties:
 - .1 Thickness: minimum 2.54 mm.
 - .2 Mass per unit area: minimum 600 g/m².
 - .3 Tensile strength and elongation (in any principal direction):
 - .1 Tensile strength: minimum 1000 N, wet condition.
 - .2 Elongation at break: 50%.
 - .3 Mullen burst strength: minimum 3600 kPa.
 - .4 Apparent opening size (AOS): 50 to 250 micrometres.
- .6 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CSA G164.

3 Execution

3.1 INSTALLATION

- .1 Place geotextile material by unrolling onto graded surface and over backfilled sandstone in orientation, manner and locations indicated and retain in position with weights.
 - .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
 - .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
 - .4 Place geotextile material behind riprap surfaces in one continuous length from bottom of harbour to upper extent of panels as indicated.
 - .5 Overlap each successive strip of geotextile 600 mm over previously laid strip.
 - .6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
 - .7 Replace damaged or deteriorated geotextile to approval of Consultant.
-

3.2 PROTECTION

- .1 Do not permit passage of any vehicle directly on geotextile at any time.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCE DOCUMENTS

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM A106 / A106M-15 Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service.
 - .2 ASTM A252-10 Standard Specification for Welded and Seamless Steel Pipe Piles.
 - .3 ASTM A307-14e1 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 - .4 ASTM F3125 / F3125M-15a Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- .2 Canadian Standards Association (CSA):
 - .1 CSA G40.20-13 / G40.21-13 General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.
 - .2 CAN/CSA G164-18 Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16-19 Design of Steel Structures.
 - .4 CSA W47.1-19 (R2014) Certification of Companies for Fusion Welding of Steel.
 - .5 CSA W48-18 Filler Metals and Allied Materials for Metal Arc Welding.
 - .6 CSA W59-18 Welded Steel Construction (Metal Arc Welding).
- .3 Canadian Geotechnical Society:
 - .1 Canadian Foundation Engineering Manual, 4th Edition, 2006.

1.3 GEOTECHNICAL REPORT

- .1 The contractor is to retain and pay for the services of a geotechnical engineer certified in PEI to provide technical support regarding soil conditions at this site.

1.4 QUALIFICATIONS

- .1 The design and installation of the screw piles shall be stamped by a professional structural engineer registered and licensed in the Province of PEI with experience in the design of helical screw piles.
- .2 The Piling Contractor performing the Work of this Section shall have been regularly engaged in screw pile work for a period of not less than five (5) years and shall be properly equipped to execute the Work with experienced and trained personnel.

1.5 DESIGN

- .1 Pile design to be based on Ultimate Limit States (ULS) approach. Confirm all soil parameters and design requirements with the geotechnical report.
- .2 Geotechnical resistance factor: as per geotechnical report.
- .3 Piles to be based at the elevation required to achieve proper resistance to carry the specified loads.
- .4 Submit pile design criteria to the Consultant for review purposes only.
- .5 Loads indicated on the foundation plan are for the pile design. Pile type and size are to be designed by the Piling Contractor and by an engineer registered in the Province of PEI.
- .6 Design piles to resist all applied loading, including but not limited to:
 - .1 Vertical forces shown on drawings.
 - .2 Uplift forces shown on drawings.
 - .3 Lateral forces shown on drawings.
 - .4 Frost jacking.

-
- .7 Pile supplier to include the design and the cost of pile cap when more than one pile is required under single pile load indicated on the foundation plan. The design of the pile cap required at each pile group is the responsibility of the supplier's Engineer.

1.6 QUALITY CONTROL

- .1 The Piling Contractor's professional engineer responsible for this work and is to inspect the fabrication and installation of piles on behalf of the Piling Contractor.
- .2 Perform steel work in accordance with the requirements of CSA S16 unless noted otherwise.
- .3 Screw pile foundation to be designed with sufficient corrosion resistance for a minimum service life of
 - .1 75 years ("Long life" per CSA S478).

1.7 INSPECTION AND TESTING

- .1 Contractor to submit to the Consultant a final report summarizing the pile data, tip elevations, inspection and testing and Contractor's degree of compliance with the contract documents and reviewed shop drawings, including any remedial requirements that may have been required during the course of the work. This report is to be submitted under the seal and signature of a professional geotechnical engineer registered in the Province of PEI.
- .2 Pay costs for re-testing required due to defective materials or workmanship.
- .3 The Contractor will provide the Consultant with access to the piles and will cooperate with the Consultant and inspection agency at all times for such purposes as inspecting, recording pile movement during drilling and reading the equipment during drilling.

1.8 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Product Data: submit manufacturer's printed product literature, specifications and datasheet.
 - .3 Mill Certificates: Submit three copies of certified mill test reports for the materials used.
 - .1 Where mill test reports originate from a mill outside of Canada or the United States of America, the Contractor shall have mill test reports verified by a certified laboratory in Canada by testing the material to the specified material standards, including boron content. The testing laboratory shall be certified to ISO/IEC 17025 by an organization accredited by the Standards Council of Canada for the tests required. Samples for testing shall be collected by personnel employed by the certified laboratory. A verification letter shall be provided by the certified laboratory that includes at a minimum, the applicable mill test reports, testing standards, date of verification testing, and declaration of material compliance with Contract requirements. The verification letter shall be signed by an authorized officer of the certified laboratory.
 - .4 Shop Drawings:
 - .1 Clearly indicate the following information:
 - .1 Pile layout, schedule of installation and placing sequence.
 - .2 Type of pile, sizes and details.
 - .3 Load capacity of each pile.
 - .4 Splice details.
 - .5 Elevation of pile bases.
 - .6 Elevation of top of pile.
 - .7 Pile cap sizes and details.
 - .8 Type and grade of steel.
 - .2 Prepare shop drawings of piles under the seal and signature of the Piling Contractor's professional engineer responsible for the design.
 - .3 Review of the shop drawings by the Consultant is intended to assist the Contractor and does not relieve the Contractor of responsibility for the completeness and accuracy of the work and its conformance with the contract drawings and specifications.
 - .5 Sub-surface investigation: when site conditions differ from those indicated, submit written notification to Consultant and await further instructions.
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- .6 Submit schedule of planned sequence of installation to Consultant for review, as specified.
 - .7 Quality assurance submittals:
 - .1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .2 Instructions: submit manufacturer's installation instructions.
 - .3 Submit pile installation records.
 - .8 Closeout submittals:
 - .1 Record Documentation: Accurately record the following:
 - .1 Sizes, lengths, and locations of piles.
 - .2 Sequence of installment.
 - .3 Final base and top elevations.

1.9 FIELD RECORDS AND DRAWINGS

- .1 Maintain accurate records of all piles installed. Records are to include the following:
 - .1 Location of piles.
 - .2 Sequence of placing.
 - .3 Final base and head elevations.
 - .4 Date and time of drilling.
 - .5 Pile Details, including shaft diameter and wall thickness, helix diameter and plate thickness, and number of helices.
 - .6 Torque readings at regular increments.
 - .7 Details of unusual occurrences.
 - .8 Inspector's name.
- .2 Submit three (3) copies of all field records and drawings to the Consultant.

1.10 EXISTING STRUCTURES, SERVICES AND UTILITIES

- .1 Confirm and establish the locations and extents of all underground structures, services and utilities in the work area prior to commencement of piling work by notifying the applicable owners, authorities or agencies. Clearly mark such locations to prevent disturbance or damage.
- .2 Arrange and pay for disconnecting, removing and capping services and utilities within area of piling work. Disconnect and stub off as required by the authority having jurisdiction.
- .3 Place markers to indicate location of disconnected services and utilities. Identify utility and service lines and capping locations on as-built drawings.
- .4 The Piling Contractor is to undertake a thorough inspection of existing structures and facilities and document any existing damage. The Piling Contractor will be responsible for repairs of any damage caused by piling operations.

1.11 QUALITY CONTROL BY CONTRACTOR

- .1 A qualified superintendent representing the Contractor is to be in attendance during all phases of the work.

1.12 QUALITY ASSURANCE

- .1 Welding to conform to CSA W59 and all welders will hold welding certificates, issued by the Canadian Welding Bureau.
- .2 The Contractor will be fully experienced in the installation of the type of piling specified.
- .3 The Contractor will provide at least one person thoroughly trained and experienced in the work who will be present at all times during execution of the work and who will direct all work performed under the contract.

1.13 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with the manufacturer's instructions.
- .2 Protect piles from damage due to excessive bending stresses, impact, abrasion or other causes during delivery, storage and handling.
- .3 Replace damaged piles as directed by the Consultant.

2 Products

2.1 MATERIALS AND COMPONENTS

- .1 Only new materials are to be used for the fabrication of screw piles.
- .2 Steel pipe shaft: to ASTM A252, [Grade 2 or 3] [A106 Grade B or C].
 - .1 Minimum pipe shaft thickness to be 9.5 mm.
 - .2 Structural steel with boron content exceeding 0.0008% will not be permitted.
 - .3 The silicon content shall be either less than 0.04% or 0.15 to 0.25% inclusive when steel is to be galvanized.
- .3 Pile cap plates and helical plates: to CSA G40.21, Grade 300.
 - .1 Helix to have minimum thickness of 9.5 mm.
 - .2 Structural steel with boron content exceeding 0.0008% will not be permitted.
 - .3 The silicon content shall be either less than 0.04% or 0.15 to 0.25% inclusive when steel is to be galvanized.
- .4 Bolts: to ASTM A307 or ASTM F3125.
- .5 Welding: to CSA W59.
- .6 All piles shall be installed open ended and ends shall be cut to 45°.
- .7 Leading edge of helix shall be sharpened to minimize soil disturbance during installation.
- .8 Helixes are to be formed to a "True Helix" shape. The helix must be formed such that it remains perpendicular to the pipe shaft (within $\pm 2^\circ$) during the entire distance around the pipe shaft.
- .9 All edges on piles shall be ground and clear of burrs or sharp edges.
- .10 Splice piles only with written approval of Consultant.
 - .1 When permitted, provide details for Consultant's review.
 - .2 Design details of splice to bear dated seal and signature of professional engineer registered and licensed in the Province of PEI.
 - .3 Show all approved splices on the shop drawings.

2.2 WELDING

- .1 All pipe splicing shall be full strength complete penetration groove welds of the combination of a collar and continuous fillet welds on each end of collar to ensure continuity of pipe.
- .2 Helix shall be welded to the pipe section using a continuous fillet weld on both sides of the helix to pipe connection.
- .3 Welding procedure and welder qualification shall conform to CSA W59 and CSA 47.1. Welding electrodes shall conform to CSA W48.1, E7018 for stick welding.

3 Execution

3.1 PREPARATION

- .1 Protect adjacent structures, services and work of other sections from hazards due to pile drilled operations.
- .2 Arrange sequencing of pile drilling operations and methods to avoid damages to adjacent existing structures.
- .3 When damages occur, remedy damaged items to restore to original or better condition at Contractor's expense.

3.2 INSTALLATION

- .1 Notify the Consultant and inspection and testing firm at least 48 hours prior to any installations on site.
- .2 Ensure that site conditions are adequate to support piling equipment and to allow proper performance of drilling operations.
- .3 Ensure piling equipment is adequate for soil conditions. Piling Contractor is responsible for maintenance of the site grade and restoring any damages caused by the use of inappropriate

-
- equipment.
- .4 Do not use piling methods that could cause damage to nearby or existing structures.
 - .5 The Contractor will adequately protect all materials and installed piles from the weather or physical abuse which may impair the quality, strength or usefulness of them. Items not so protected and suffering damage due to neglect by the Contractor in this regard will be rejected by the Consultant.
 - .6 Install piles where indicated on drawings. Piling Contractor is responsible for survey and layout from designated control point or bench mark.
 - .7 Should any obstruction be encountered in drilling pile which prevents pile from being placed to the expected tip elevation, or if drilled characteristics indicate that the pile is being damaged in drilled to the specified criteria, the pile will be abandoned or the pile will be removed. An abandoned pile will be cut off 600 mm below the pile cap soffit. An additional pile will be placed at an adjacent location, to be determined by the Consultant.
 - .8 Minimum embedment depth is typically considered 5 times the diameter of the uppermost helix or to the maximum anticipated frost penetration depth.
 - .9 Depth and torque tolerances: screw-in piles that reach maximum torque rating before reaching minimum depth shall be subject to the following:
 - .1 Terminate at depth obtained with written approval of Consultant.
 - .2 Modify pile design with approval from Engineer of Record. Replace screw-in pile with smaller and/or fewer helix pile, installed beyond the termination depth of the original screw-in pile.
 - .10 Piles will be drilled without interruption until the lengths and drilling criteria shown and specified elsewhere in the Contract Documents are met.
 - .11 Construct all piles to the top of pile cut-off elevation.
 - .12 Piles will be cut-off normal to the pile axis at the elevation shown on the drawings. Field weld pile cap plate to conform to layout
 - .13 Discontinue piling operations and immediately notify Consultant in the event that unusual soil conditions are encountered such that pile load capacities cannot be obtained.
 - .14 Piles may be increased or decreased in length depending on soil conditions only as directed by the Consultant. Ensure that where pile lengths are increased or decreased, adjacent piles are not undermined or capacities are not reduced.
 - .15 The Contractor shall notify the Consultant immediately of any pile not in compliance with the drawings and these specifications.
 - .16 The Contractor will immediately notify the Consultant when any movement in an installed pile is detected, giving the reason for movement, such as heave due to adjacent piling, and the measures proposed to correct the movement.

3.3 EQUIPMENT AND ACCESSORIES

- .1 The Contractor shall provide and operate all necessary equipment for installing the pile foundations. The Contractor will ensure that the piling equipment has sufficient torque to drill piles to design depths indicated on drawings for the work.
- .2 Equipment:
 - .1 Using hydraulic drill head, install helical screw-in piles to depths, torques and positions as indicated on drawings or specifications.
 - .2 Provide torque monitoring device as part of the installation unit or as a separate in-line device capable of recording torque or line pressure. Calibrated torque monitoring data should be made available for review by the Consultant. Torque should be monitored during the entire installation.
 - .3 Torque head should be used that will provide more torque than the minimum required by the Consultant.
 - .4 Connect manufacturer's approved adapters to the installation unit. Pin piers and extensions to the adapter in a safe and controlled manner, using two or more high strength pins. Install screw-in piles in a smooth and continuous manner, rate of advance 5 to 20 rpm. The rate of advance should match the pitch on the pile. Apply sufficient downward pressure to aid in the advancement of the pile into the ground.

- .5 Use two high strength bolts with nuts per coupler connection or proper weld when welded connection is necessary.

3.4 INSTALLATION TOLERANCES

- .1 Do not deviate from true vertical alignment by more than 2% of pile length.
- .2 Do not deviate from centre of true location by more than 75 mm.
- .3 Do not deviate from specified head elevations by more than 25 mm.

3.5 NON-CONFORMING PILES

- .1 Non-conforming piles are piles that are placed out of position or are damaged and/or piles not conforming to size, length and material specifications.
- .2 Provide additional piles or supplement piles with additional pile caps or grade beams to meet specified requirements as directed by the Consultant at no additional cost to the contract.

3.6 INSTALLATION RECORDS

- .1 All screw-in piles should have identification, location, finish torque, finish depth and pile description recorded on an installation summary page.
- .2 Screw pile installation records for all piles shall be provided to the Province and the Consultant.
- .3 The Contractor shall supply the Consultant with the installation torque for each pile. The torque value shall be averaged over 600 mm during installation within 1500 mm of the final depth.

3.7 CERTIFICATION

- .1 Certify at completion of the work all installed by the Piling Contractor under the seal and signature of the Piling Contractor's professional engineer responsible for the work.
- .2 Certify that all piles are capable of developing the capacities specified in the contract specifications and on the drawings.
- .3 Certify that all piles are installed in accordance with the contract documents and the reviewed shop drawings.

3.8 AS-BUILT DRAWINGS

- .1 Submit an as-built drawing prepared by an independent legal surveyor registered in the Province of PEI showing final pile locations, shaft diameter, and top of pile elevation of each pile including all deviations from the contract documents and details of unusual occurrences within five (5) days after the completion of all piles.

END OF SECTION

1 General

1.1 RELATED WORK SPECIFIED ELSEWHERE

- .1 Section 01 35 29 - Health, Safety and Emergency Response Procedures.

1.2 PROTECTION

- .1 Protect in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Protect existing items designated to remain. In event of damage, immediately replace such items or make repairs to approval of Consultant and at no additional cost to Owner.
- .3 Prevent movement, settlement or damage of existing bridge, adjacent utilities, paving, and adjacent grades. Provide bracing, shoring and underpinning required. Make good damage and be liable for injury caused by demolition.
- .4 If safety of structure being repaired or utilities appear to be endangered, cease operations and notify Consultant. Take precautions to support structures. Do not resume operations until permission is granted by Consultant.

1.3 DESCRIPTION OF WORK

- .1 Perform all demolition and removal as specified in this Section and indicated on the Drawings, which includes but is NOT limited to the items referenced under PART 3 - Execution.

2 Products

2.1 NOT APPLICABLE

- .1 Not Applicable.

3 Execution

3.1 PREPARATION

- .1 Inspect site and verify with Consultant items designated for removal and items to be salvaged and re-used.
- .2 During demolition work provide protection to structure along adjacent properties.

3.2 DEMOLITION AND REMOVAL

- .1 Remove items indicated for removal as indicated on drawings and as required to complete the work.
- .2 Minimize dusting and keep dusty materials wetted.

3.3 PROTECTION

- .1 Take all necessary precautions and provide all bracing, shoring, and underpinning to support structure, structures undergoing demolition, adjacent services, roads and walks, landscaping and grading.
- .2 If during the demolition work a situation should develop or a condition be exposed which has the potential to endanger the safety of the workers, occupants or users of the structure in which demolition work is being carried out, or pedestrians and vehicles the Contractor will, cease operations, take whatever emergency action, in the Contractor's opinion, is required to ensure the immediate safety of the workers, users and notify the Consultant before continuing with the work
- .3 Prevent debris from blocking surface drainage, or from damaging or otherwise interfering with mechanical and electrical systems, which must remain active, and/or in place.

3.4 DISPOSAL OF MATERIAL

- .1 Dispose of all removed materials off site.
-

- .2 Except where indicated to be re-used all removed materials become the property of the Contractor and are to be removed from the site and disposed of in a manner and in a location acceptable to Provincial Authority governing such disposal.
- .3 Do not sell, burn or bury materials on site.
- .4 Pay all fees that may be charged to dispose of materials at licensed disposal sites.

END OF SECTION

1 Part 1 General

1.1 RELATED SECTIONS

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

1.2 DESCRIPTION OF WORK

- .1 This Section specifies the requirements for the materials, equipment and methods to be followed for production, placement and compaction of hot mix, hot laid asphalt concrete for pavement construction for a section of the trail.
- .2 The latest revision of Prince Edward Island Department of Transportation, Infrastructure & Energy General Provisions and Contract Specifications for Highway Construction will be followed for all work related to Hot Mix Asphalt Concrete Paving.

1.3 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D995-95b(2002), Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
 - .2 ASTM D1559-89, Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus, was withdrawn in 1998 with no replacement.
- .2 Asphalt Institute (AI)
 - .1 AI MS-2-1993, Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-16.1-M89, Cutback Asphalts for Road Purposes.
 - .2 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse in accordance with Waste Management Plan.
- .2 Divert unused asphalt materials from landfill.
- .3 Divert unused aggregate materials from landfill for reuse as approved by Consultant.
- .4 Unused protective coating material must be disposed of at an official hazardous material collections site as approved by Consultant.
- .5 Unused protective coating material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

2 Products

2.1 MATERIALS

- .1 Asphalt paving mixture: The current Prince Edward Island Department of Transportation and Infrastructure Specifications 603 and 501 for hot-mixed, hot-laid asphalt concrete
 - .1 shall govern the materials and composition of the asphalt concrete pavements.
 - .2 Base: Mix designation 'A' - as per Specification 501
 - .3 Seal: Mix designation 'C' - as per Specification 501
- .2 Asphalt prime: In accordance with the PEI Department of Transportation and Infrastructure Specification 502.
- .3 Asphalt emulsions: In accordance with the PEI Department of Transportation and Infrastructure Specification 503.

3 Execution

3.1 ASPHALT PRIME

- .1 Apply asphalt prime over imported granular base in accordance with the requirements of PEI Department of Transportation and Infrastructure Specification 602, Paragraphs
-

.1 1 to 602.04 inclusive.

3.2 ASPHALT CONCRETE PAVING

.1 Place and compact asphalt concrete base and seal courses in accordance with the requirements of PEI Department of Transportation and Infrastructure Specification 603 to thickness indicated on drawings.

3.3 ASPHALT TACK

.1 Apply asphalt tack between base and seal courses and elsewhere as applicable in accordance with the requirements of PEI Department of Transportation and Infrastructure Specification 601.

3.4 JOINTS

.1 .1 Provide cold plane joint at intersection with existing roads and elsewhere as required in accordance with PEI Department of Transportation and Infrastructure Specification 705, Paragraphs 705.01 and 705.02.

3.5 VEHICLE REQUIREMENTS

.1 In accordance with PEI Department of Transportation and Infrastructure Specification 907.

3.6 TESTING AND INSPECTION

.1 .1 Testing of asphalt materials and inspection and testing of placement and compaction to be carried out by testing laboratory engaged and paid by the Contractor, in accordance with
.1 Section 01 29 83 - Payment Procedures for Testing Laboratory Services. Frequency of tests to be determined by the testing laboratory.

3.7 SURPLUS MATERIALS

.1 Remove all surplus materials from site.
.2 Dispose off site at a location approved by Provincial Authority governing such disposal and pay all fees that may be charged to dispose of materials.

3.8 PROTECTION

.1 Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38 degrees C. Do not permit stationary loads on pavement until 24 hours after placement.
.2 Provide access to buildings as required. Arrange paving schedule so as not to interfere with normal use of premises.

END OF SECTION

1 General

1.1 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and application of water for prevention of dust nuisance caused by traffic, and/or weather conditions.

2 Products

2.1 MATERIALS

- .1 Water: to Consultant's approval.

2.2 SUPPLY

- .1 At least one mobile unit of at least 4.5 KL capacity for applying water shall be available on the project at all times.
- .2 The intake hose to the tank shall be equipped with a device satisfactory to the Consultant to prevent fish from being pumped into the tank.

3 Execution

3.1 APPLICATION

- .1 Apply water, when and where required, in location directed by Consultant, with distributors equipped with a spray system that will ensure uniform application and with positive means of shut-off.

END OF SECTION

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1 General

1.1 RELATED SECTIONS

- .1 Section 31 23 10 - Excavating, Trenching and Backfilling

1.2 REFERENCES

- .1 PEI Department of Transportation and Infrastructure, General Provisions and Contract Specifications for Highway Construction:
 - .1 Section 200 - Earthwork, PEI Department of Transportation and Infrastructure General provisions and Contract Specifications for Highway Construction.
 - .1 Section 212 - Topsoil and Landscaping.
 - .2 Section 800 - Environment, PEI Department of Transportation and Infrastructure General provisions and Contract Specifications for Highway Construction.
 - .1 Section 803 - Hydro Seeding.
 - .2 Section 809 - Sodding.

1.3 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

2 Products

2.1 MATERIALS

- .1 Topsoil will be imported as required.

2.2 TOPSOIL

- .1 Mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.
- .2 Topsoil for seeded/sodded areas:
 - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70 % sand, minimum 15 % clay, and contain 3 to 5 % organic matter by weight.
 - .2 Contain no toxic elements or growth inhibiting materials or debris.
 - .3 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
 - .4 Consistence: friable when moist.
- .3 Planting Beds and Tree Pits:
 - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 30 to 70 % sand, 15-30% clay, and contain 5 to 20 % organic matter by weight.
 - .2 Contain no toxic elements or growth inhibiting materials or debris.
 - .3 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
 - .4 Consistence: friable when moist.

2.3 SOIL AMENDMENTS

- .1 Fertilizer as recommended by soils tests for:
-

- .1 Trees and shrubs.
- .2 Lawn.
- .2 Limestone:
 - .1 Ground agricultural limestone.
 - .2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.
 - .3 Limestone as recommended by soils test.
- .3 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and other micro nutrients suitable to specific plant species or application or defined by soil test.

2.4 SOURCE QUALITY CONTROL

- .1 Site shall be stripped and topsoil shall be stockpiled on site for re-use. Supplemental topsoil shall be imported as required.
- .2 Topsoil to be screened and amended.
- .3 Contractor is responsible for topsoil testing and requirements for amendments to supply topsoil as specified.
- .4 Soil testing by recognized testing facility for PH, P, N and K, and organic matter and sand content.
- .5 Testing of topsoil will be carried out by testing laboratory designated by Consultant. Soil sampling, testing and analysis to be in accordance with Provincial standards.
- .6 Owner will pay for cost of soils tests.

3 Execution

3.1 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct prior to placement of topsoil. If discrepancies occur, notify Consultant and do not commence work until instructed by Consultant.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, lumps of turf, roots, branches, stones in excess of 50 (twenty-five) mm diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 75 (seventy-five) mm above surface. Dispose of removed material off site under direction of Consultant.
- .4 Cultivate entire area which is to receive topsoil to minimum depth of 50 (fifty) mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.2 PLACING AND SPREADING OF TOPSOIL

- .1 Place topsoil after Consultant has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 150 mm.
- .3 For sod areas keep topsoil 15 (fifteen) mm below finished grade.
- .4 Spread topsoil as indicated to following minimum depths after rolling and settlement.
 - .1 150mm for seed areas.
 - .2 150mm for sod areas.
 - .3 450mm for planting beds.
 - .4 As indicated for tree pits.
 - .5 Manually spread topsoil/planting soil around existing trees, shrubs and obstacles.

3.3 SOIL AMENDMENTS

- .1 For tree pits and lawn areas: apply and thoroughly mix soil amendments into full specified depth of topsoil.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Consolidate topsoil to required bulk density using equipment approved by Consultant.
 - .1 Leave surfaces smooth, uniform and firm against deep footprinting.

3.5 ACCEPTANCE

- .1 Consultant will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.6 SURPLUS MATERIAL

- .1 Dispose of surplus materials off site.

3.7 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

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1 General

1.1 SOIL STABILIZATION

- .1 Hydroseeding is to be used for soil stabilization only as required for erosion control.
- .2 Sodding will be used as a permanent finish to all disturbed areas.

1.2 SUBMITTALS

- .1 Product Data.
 - .1 Submit product data in accordance with Division 01 - General Requirements.
 - .2 Provide product data for:
 - .1 Seed.
 - .2 Mulch.
 - .3 Tackifier.
 - .4 Fertilizer.
 - .3 Submit in writing to Consultant, five (5) days prior to commencing work:
 - .1 Volume capacity of hydraulic seeder in liters.
 - .2 Amount of material to be used per tank based on volume.
 - .3 Number of tank loads required per hectare to apply specified slurry mixture per hectare.

1.3 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

1.4 SCHEDULING

- .1 Schedule hydraulic seeding to coincide with preparation of soil surface.
- .2 Schedule hydraulic seeding using grass mixtures and mixtures containing Crownvetch between dates recommended by the Provincial Agricultural Department.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and waste materials in accordance with Waste Management Plan.
- .2 Divert unused fertilizer from landfill to official hazardous material collections site.
- .3 Do not dispose of unused fertilizer into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

2 Products

2.1 MATERIALS

- .1 Seed: "Canada pedigreed grade" in accordance with Government of Canada Seeds Act and Regulations.
 - .1 Grass mixture: "Certified", "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
- .2 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green coloring, free of germination and growth inhibiting factors with following properties:
 - .1 Type I mulch:
 - .1 Made from wood cellulose fiber.
 - .2 Organic matter content: 95% plus or minus 0.5%.
 - .3 Value of pH: 6.0.

- .4 Potential water absorption: 900%.
- .3 Tackifier: water dilutable, liquid dispersion.
- .4 Water: free of impurities that would inhibit germination and growth.
- .5 Fertilizer:
 - .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete synthetic, slow release with 35% of nitrogen content in water-insoluble form.
- .6 Inoculants: inoculant containers to be tagged with expiry date.

3 Execution

3.1 WORKMANSHIP

- .1 Do not spray onto structures, signs, guide rails, fences, plant material, utilities and other than surfaces intended.
- .2 Clean-up immediately, any material sprayed where not intended, to satisfaction of Consultant.
- .3 Do not perform work under adverse field conditions such as wind speeds over 10 km/h, frozen ground or ground covered with snow, ice or standing water.
- .4 Protect seeded areas from trespass until plants are established.

3.2 PREPARATION OF SURFACES

- .1 Fine grade areas to be seeded free of humps and hollows. Ensure areas are free of deleterious and refuse materials.
- .2 Cultivated areas identified as requiring cultivation to depth of 25mm.
- .3 Ensure areas to be seeded are moist to depth of 150mm before seeding.
- .4 Obtain Consultant's approval of grade and topsoil depth before starting to seed.

3.3 FERTILIZING PROGRAM

- .1 Apply lime at a rate of 50kg per 100m² or at a rate determined by soil analysis.

3.4 PREPARATION OF SLURRY

- .1 Measure quantities of materials by weight or weight-calibrated volume measurement satisfactory to Consultant. Supply equipment required for this work.
- .2 Charge required water into seeder. Add material into hydraulic seeder under agitation.
 - .1 Pulverize mulch and charge slowly into seeder.
- .3 After all materials are in the seeder and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.

3.5 SLURRY APPLICATION

- .1 Hydraulic seeding equipment:
 - .1 Slurry tank.
 - .2 Agitation system for slurry to be capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and/or mechanical agitation method.
 - .3 Capable of seeding by 50 m hand operated hoses and appropriate nozzles.
 - .4 Tank volume to be certified by certifying authority and identified by authorities "Volume Certification Plate".
- .2 Slurry mixture applied per hectare.
 - .1 Seed: Grass mixture 2.0 kg, or as recommended by seed manufacturer.
 - .2 Mulch: Type 10 kg.
 - .3 Water: Minimum 100 L.
 - .4 Fertilizer: 500 kg, of nitrogen.
- .3 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.
 - .1 Using correct nozzle for application.

- .2 Using hoses for surfaces difficult to reach and to control application.
- .4 Blend application 300 mm into adjacent grass areas or sodded areas to form uniform surfaces.
- .5 Re-apply where application is not uniform.
- .6 Remove slurry from items and areas not designated to be sprayed.
- .7 Protect seeded areas from trespass satisfactory to Consultant.
- .8 Remove protection devices as directed by Consultant.

3.6 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform following operations from time of seed application until acceptance by Consultant.
- .2 Grass Mixture:
 - .1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
 - .2 Mow grass to 50 mm whenever it reaches height of 70 mm. Remove clippings which will smother grass as directed by Consultant.
 - .3 Fertilize seeded areas after first cutting in accordance with fertilizing program.
 - .1 Spread half of required amount of fertilizer in one direction and remainder at right angles; water in well.
 - .4 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.
 - .1 If chemical means are used, comply with manufacturers written instructions and environmental regulations.
 - .5 Water seeded area to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.
- .3 Repair and Maintenance:
 - .1 Repair minor dead and bare spots as determined by Consultant to allow establishment of seed prior to acceptance.
 - .2 Negotiate repair of major dead and bare spots as determined by Consultant in accordance with site climatic averages and recommendations of local agricultural governmental representative.
 - .3 Mow grass to 100mm whenever height reaches 200 mm and as follows:
 - .1 Do not mow within period commencing 3 weeks before and ending 3 weeks after first severe, average fall frost date and 3 weeks after actual severe fall frost.
 - .2 When mowing after first severe fall frost, mow at a height of not less than 300 mm.
 - .4 Remove clippings which will smother plants as directed by Consultant.
 - .5 Water seeded areas to maintain optimum soil moisture level for germination and continued growth. Control watering to prevent washouts.

3.7 ACCEPTANCE

- .1 Seeded areas will be accepted by Consultant provided that:
 - .1 Plants are uniformly established.
 - .2 Areas have been mown at least twice.
 - .3 Areas have been fertilized.
- .2 Areas seeded in fall will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.8 MAINTENANCE DURING WARRANTY PERIOD

- .1 Perform following operations from time of acceptance until end of warranty period:
- .2 Repair and reseed dead or bare spots to satisfaction of Consultant.

3.9 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 General

1.1 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and installation of imported riprap for the construction of slope protections as indicated, as specified and to lines, grades and typical cross sections shown on drawings.
- .2 Provision for all labour, equipment and material necessary to complete the removal and placement of existing shore protection to facilitate construction of lookouts.

1.2 RELATED WORK

- .1 Section 31 23 10 - Excavating, Trenching and Backfilling.
- .2 Section 31 32 21 - Geotextiles.

1.3 SOURCE SAMPLING

- .1 Inform Consultant of proposed source of materials and, if requested, provide access for sampling at least 2 weeks prior to commencing work.

2 Products

2.1 MATERIALS

- .1 Rock materials:
 - .1 To the requirements of PEI Department of Transportation, Infrastructure and Energy Specification # 213 (General Provisions and Contract Specifications for Highway Construction latest edition) as it relates to imported metamorphic or igneous rock.
 - .2 The rock material is subject to Los Angeles Abrasion Test (ASTM C131), shall have a loss not greater than 35%.
 - .3 When tested for soundness, five cycles of magnesium sulphate (ASTM C88), the rock material shall have a loss not greater than 15%.
 - .4 Stone: Imported metamorphic or igneous stones. Random riprap shall consist of clean hard, durable quarried stone, free from seams, cracks or other structural defects having a density of not less than 2.65 tonne/m³. Stones are to be fractured and angular. Field stone is not acceptable.
 - .1 Armour stone:
 - .1 The largest dimension of each stone is not to exceed two times the smallest dimension.
 - .2 Quarry Run Stone: 400kg to 1000kg each by weight with 60 percent of the total volume to be at the midpoint of the specified size range
 - .2 Conglomerates will not be accepted.
 - .5 Geotextile in accordance with Section 31 32 21 - Geotextiles.

3 Execution

3.1 EXCAVATING

- .1 Excavate and stockpile native infill material that is suitable for reuse as core material in new breakwater and wharf protection. Unsuitable material is to be disposed of off-site.
- .2 Suitable native fill material is to be free of roots and other deleterious material.
- .3 Reinstall rock materials as indicated on drawings.

3.2 PLACEMENT OF ARMOUR STONE

- .1 Place armour stone to lines, grades and dimensions as indicated on the drawings.
 - .2 Place each armour stone in stable position.
-

- .3 Place armour stone in thickness courses to total layer thickness, as shown on the drawing.
- .4 Sort, fit and tightly key each rock to ensure stability of faces.
- .5 Placement not deemed acceptable must be removed and replaced.

3.3 TOLERANCES

- .1 Completed component layers to be within following tolerances of lines and grades as indicated:
 - .1 Armour: plus or minus 300 mm.

3.4 PLACEMENT FOR SHORE PROTECTION

- .1 Where rip-rap is to be placed on slopes, excavate toe in slope in accordance with dimensions as indicated or as directed by Consultant.
- .2 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .3 Place geotextile on prepared surface. Place rip-rap on geotextile so as to avoid puncturing geotextile. Do not drive vehicles directly on geotextiles.
- .4 Place riprap in accordance with thickness and details as indicated or as directed by Consultant.
- .5 Place riprap in manner approved by Consultant to secure surface and create a stable mass. Place larger stones at bottom of slopes and face of slopes.

3.5 BOARDWALK PROTECTION

- .1 Be solely responsible for construction and maintenance of temporary devices for the protection of the existing timber boardwalk and other site features. No separate payment to be made for this work.

END OF SECTION

APPENDIX 'A'

Geotechnical Investigation Report

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**GEOTECHNICAL INVESTIGATION
PROPOSED WATERFRONT BOARDWALK
STRATFORD, QUEENS COUNTY, PEI**

JOOSE ENVIRONMENTAL PROJECT NO. JE0623





Joose Environmental Consulting Inc.
PO Box 19
North Wiltshire, PE C0A 1Y0

September 5, 2022

Joose Environmental Project No. JE0623

Mr. Nazmi Lawen. P. Eng.
Coles Associates Ltd.
85 Fitzroy Street #201
Charlottetown, PE C1A 1R6

Dear Mr. Lawen:

**Reference: Geotechnical Investigation - Proposed Waterfront Boardwalk
Stratford, Queens County, PEI**

This report presents the results of the geotechnical investigation carried out for the above-noted project, in accordance with your request. The purpose of the investigation was to establish the subsurface conditions at the site and, based on the conditions encountered, to provide geotechnical engineering recommendations pertaining to site preparation for the proposed boardwalk.

Although the development plans for this project include the construction of three (3) lookouts, the design details, such as the location of the lookouts in relation to the existing armored slope, have not been established. We would be pleased to provide geotechnical input pertaining to the lookouts when more specifics are known.

PROCEDURE

The field work for the present investigation was carried out on August 24, 2022, and consisted of excavating a total of four (4) test pits at the site, with a Hitachi ZAXIS excavator. The test pits were advanced to a depth of 1.8 m below existing grade, at the locations shown on Drawing No. 1 (appended).

Representative grab samples of the overburden soils encountered were recovered from the test pits for visual classification and laboratory testing. The relative density of the soil strata encountered was estimated based on observation of excavator performance. All soil samples remaining after testing will be stored for a period of 60 days from the date of issue of this report after which they will be discarded unless directions to the contrary are received.



The test pit locations were established in the field by our personnel using the site survey information provided (e.g., location of existing culverts). The ground surface elevations at the test pits were interpolated from the topographic profiles provided and are referenced to Geodetic Datum.

Detailed logs of the strata encountered at the site and of the sampling/testing carried out are shown on the appended Test Pit Records.

SUBSURFACE CONDITIONS

The subsurface conditions encountered at the test pits are shown in detail on the appended Test Pit Records, are summarized on Table 1 (also appended) and are described below. The results of all laboratory testing carried out for soil classification purposes are presented on Table 2 (appended). Photographs of the test pits are also included in the appended Photo Log.

Fill Materials

Fill materials were encountered at the surface of each test pit and were found to extend to depths ranging from 0.3 to 1.4 m below present grade. The fill was generally found to consist of a loose, reddish brown, silty sand, containing some gravel, and occasional sandstone cobbles. The upper 75 mm (+/-) of the fill generally consists of an organic rootmat layer.

Grain size analyses (curves appended) performed on two (2) representative samples of the fill show it to contain an average of 16 percent gravel, 54 percent sand, and 30 percent fines (i.e., silt and clay sizes). The moisture content of the fill samples was found to range from 13 to 35 percent.

Topsoil

A loose mottled brown, silt and sand topsoil layer, approximately 300 mm in thickness and believed to represent original grade at the site, was encountered directly below the fill layer at the test pits. The topsoil contains traces of gravel and organic matter.

Glacial Till

The principal overburden soil encountered at the site generally consists of a compact, reddish brown silt and sand (glacial till) that contains some gravel and occasional sandstone cobbles. The till stratum was encountered directly below the topsoil layer, at depths ranging from 0.6 to 1.7 m below grade. The till surface elevation was found to range from a low of el. 1.00 m at TP-04 to a high of el. 5.90 m at TP-01.

Grain size analyses (curves appended) performed on three (3) representative samples of the till show it to contain an average of 19 percent gravel, 44 percent sand, and 37 percent fines. The natural moisture content of four (4) till samples was found to range from 12 to 13 percent.

Bedrock

Bedrock was not encountered within the depth excavated at the test pit locations; the test pits were terminated within the till stratum.

Groundwater

No evidence of groundwater was observed during excavation of the test pits. In view of the close proximity of the site to the Charlottetown Harbour, it may be assumed that the groundwater table and tidal fluctuations are interrelated. It should be noted that variations to groundwater levels can also occur as result of seasonal changes and/or significant precipitation events.

EXISTING TRAIL

The design information provided for the existing trail shows a 100 mm granular topping layer over a Select Borrow sub-base having a thickness of at least 300 mm. The thickness of the granular topping was determined near each test pit location and samples of the topping were recovered for classification testing, as per the following:

Sample Location	Granular Topping Thickness, mm
TP 1-22	60
TP 2-22	50
TP 3-22	50
TP 4-22	80
Average	60

Grain size analyses (curves appended) performed on two (2) representative samples of the granular topping show it to contain an average of 8 percent gravel, 77 percent sand, and 15 percent fines. The moisture content of four (4) samples of this material was found to range from 3 to 4 percent.

Some of the photographs in the appended Photo Log show views of the existing trail surface. As shown in the photos, some surficial vegetation, of varying extents, was observed within the granular topping layer along the trail at some locations.

DISCUSSION AND RECOMMENDATIONS

Overview

It is understood that the proposed boardwalk is to have a width of 3 m and will generally follow the alignment and grade of the existing trail. The boardwalk is to be constructed using timber decking and timber sleepers placed over a compacted granular base. The preliminary design drawings indicate that the granular base is to consist of 200 mm of compacted Class C gravel, having a maximum fines content of 7 percent.

Site Preparation

Site preparation for the proposed boardwalk should consist of cutting to the underside of the granular base layer. Any remaining surficial vegetation and rootmat (i.e., uppermost zone of existing fill) should also be removed. The subgrade surface (existing fill) should then be compacted with a vibratory roller and then proof-rolled with a loaded tandem truck. Any soft or deformable soils revealed by the proof-rolling, defined by deflecting more than 15 mm under the wheel loads, should be removed.

Following the above, any low areas should then be brought up to the required subgrade level (i.e., underside of granular base) using structural fill. Structural fill should consist of an approved soil (preferably granular) which is free of organics and deleterious material such as pit run sandstone or other approved inorganic soil. Fill material meeting the current Prince Edward Island Transportation and Infrastructure (PEITI) Select Borrow specification (i.e., maximum of 30 percent fines based on the minus 4.75 mm sieve fraction) is commonly used as a general structural fill and would be acceptable for this application.

Granular Base

Although, the proposed granular base thickness of 200 mm is considered to be acceptable for this application, a granular base thickness of at least 250 mm would be preferable. The thicker base would be better suited for the varying soil conditions encountered/expected and would allow for some variation in thickness during placement.

As noted previously, the preliminary design calls for Class C gravel, having a maximum fines content of 7 percent, for use as the granular base. According to the PEITI specifications, Class C gravel (also known locally as shoulder gravel) consists of a minus 45 mm gravel with 3 to 10 percent fines. Since there is no requirement for Class C gravel to contain any crushed particles, it could consist of a local pit run gravel.

Class A gravel (PEITI specification) by comparison consists of a minus 31.5 mm gravel with 3 to 9 percent fines, and must contain at least 75 percent crushed particles. Class A therefore consists of an imported gravel and would be preferable over Class C since it is less prone to degradation over time and would be superior from long-term durability and stability standpoints. Furthermore, the smaller maximum size of Class A versus Class C should allow for more efficient fine-grading below and in between, the sleepers.

Class B gravel, if available, could also be considered for the granular base. Class B is a local gravel with a similar gradation to Class A and must contain at least 50 percent crushed particles. The overall physical properties for Class B are, however, less stringent than those specified for Class A. Consequently, although Class B gravel would represent a step up from Class C, it would still be less durable/desirable than Class A.

General

It is understood that recovery and reuse of the existing trail topping as part of the new granular base has been suggested. This may not be practical, however, in view of the limited measured thickness, the relatively high fines content, and the observed presence of some vegetation.

The subgrade surface and any new subgrade fill should be compacted to at least 98 percent of Standard Proctor maximum dry density. The granular base layer should be compacted to at least 100 percent of Standard Proctor maximum dry density. Lift thickness should be compatible with the fill material selected for use and the compaction equipment used.

All earthworks at the site should be undertaken during dry periods whenever possible to minimize disturbance of the existing fill. Exposed areas of the fill should be graded and compacted at the end of each day's activities to limit water infiltration and subsequent disturbance.

It is recommended that site preparation be monitored by qualified geotechnical personnel to ensure that all unsuitable materials are removed, that only suitable replacement fills are used and that the required degrees of compaction are attained.

With reference to the proposed lookouts and as noted previously, we would be pleased to provide geotechnical input when more specifics are known. It may, however, be assumed that the foundations for the proposed lookouts will have to transfer all loads to the competent native till stratum or to bedrock (if higher capacities are required). The existing fill/topsoil layers, due to their loose and random nature, are not considered to be suitable for foundation support.

CLOSING COMMENTS

A geotechnical investigation is a limited sampling of a site. In the event that any conditions are encountered that differ from those encountered at the test locations, we request that we be notified immediately to permit a reassessment of our design assumptions.

We trust this report contains all of the information required at this time, and we are available at your convenience should you have any questions. We would be pleased to provide further geotechnical input for this project on an as required, as requested basis.

Sincerely,



JOOSE ENVIRONMENTAL CONSULTING INC.

George Zafiris

George W. Zafiris, P. Eng.
Geotechnical Engineer
georgez@jooseenv.com

GWZ/gz

APPENDIX

Table 1 - Test Pit Summary - Proposed Boardwalk, Stratford

	Test Pit Number			
	TP-01	TP-02	TP-03	TP-04
Ground Surface el., m	6.50	4.40	3.50	2.70
Fill Thickness, m	0.30	0.30	0.60	1.40
Topsoil Thickness, m	0.30	0.30	0.30	0.30
Depth to Till Surface, m	0.60	0.60	0.90	1.70
Till Surface el., m	5.90	3.80	2.60	1.00
Depth to Bedrock, m	> 1.83	> 1.83	> 1.83	> 1.83
Bedrock Surface el., m	-	-	-	-
Depth to Groundwater Table, m	> 1.83	> 1.83	> 1.83	> 1.83
Groundwater Table el., m	-	-	-	-
Depth of Test Pit, m	1.83	1.83	1.83	1.83

NOTES:

- the test pits were excavated at the site on August 24, 2022 with a Hitachi ZAXIS 85 excavator
- ground surface elevations at the test pits were interpolated from the survey information provided
- the groundwater table was not encountered within the depth excavated
- bedrock was not encountered within the depth excavated; the test pits were terminated within the till stratum

Table 2 - Laboratory Testing Summary - Stratford Boardwalk

Test Pit No.	Sample No.	Depth, m	Grain Size Distribution, %			Moisture Content, %	Soil Description
			Gravel	Sand	Silt/Clay		
TP-01	1	1.2	21	40	39	13	Silt and sand, some gravel: Till
TP-01	G1	Trail Topping	8	78	14	4	Sand, some silt, trace gravel
TP-02	1	0.8	-	-	-	12	Till
TP-02	2	1.2	10	48	42	13	Silt and sand, some gravel: Till
TP-02	G1	Trail Topping	-	-	-	4	Sand, some silt, trace gravel
TP-03	1	0.5	19	53	28	13	Silty sand, some gravel: Fill
TP-03	2	1.5	27	43	30	13	Gravelly silty sand: Till
TP-03	G1	Trail Topping	8	76	16	3	Sand, some silt, trace gravel
TP-04	1	0.8	12	55	33	35	Silty sand, some gravel: Fill
TP-04	G1	Trail Topping	-	-	-	3	Sand, some silt, trace gravel

The following information is intended to assist in the interpretation of terms and symbols used on the borehole logs, test pit logs and reports.

Soils Description

Terminology describing common soil genesis:

<i>Topsoil</i>	- mixture of soil and humus capable of supporting vegetative growth
<i>Peat</i>	- mixture of visible and invisible fragments of decayed organic matter
<i>Till</i>	- unstratified glacial deposit which may range from clay to boulders
<i>Fill</i>	- material below the surface identified as placed by humans (excluding buried services)

Terminology describing soil structure:

<i>Desiccated</i>	- having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.
<i>Fissured</i>	- having cracks, and hence a blocky structure
<i>Varved</i>	- composed of regular alternating layers of silt and clay
<i>Stratified</i>	- composed of alternating successions of different soil types, e.g. silt and sand
<i>Layer</i>	- > 75 mm in thickness
<i>Seam</i>	- 2 mm to 75 mm in thickness
<i>Parting</i>	- < 2 mm in thickness

Terminology describing soil types:

The classification of soil types are made on the basis of grain size and plasticity in accordance with the Modified Unified Soil Classification System (MUSCS) and in accordance with the Canadian Foundation Engineering Manual Fourth Edition (Canadian Geotechnical Society, 2006). The classification excludes particles larger than 75 mm (3 inches). The MUSCS provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Terminology describing cobbles, boulders, and non-matrix materials (organic matter or debris):

Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter and construction debris) is based upon the proportion of these materials present:

<i>Trace, or occasional</i>	Less than 10%
<i>Some</i>	10-20%
<i>Frequent</i>	> 20%

Symbols and Terms used on Borehole and Test Pit Records

Consistency of Cohesive Soils: May be estimated using simple field tests, or described in terms of a strength scale. In the field, the undrained shear strength (s_u) can be assessed using a simple field tool appropriate for cohesive soils, in conjunction with the relevant calibration. Refer to AS 1726-1993, Table A4.

Consistency - Essentially Cohesive Soils					
Term	Field Guide	Symbol	SPT "N" Value	Undrained Shear Strength s_u (kPa)	Unconfined Compressive Strength q_u (kPa)
Very soft	Oozes between fingers when	VS	0-2	<12	<25
Soft	Easily moulded with fingers.	S	2-4	12-25	25-50
Firm	Can be moulded by strong pressure of fingers.	F	4-8	25-50	50-100
Stiff	Not possible to mould with fingers.	St	8-15	50-100	100-200
Very stiff		VSt	15-30	100-200	200-400
Hard	Can be indented with difficulty by thumb nail.	H	>30	>200	>400

Note: SPT - N to q_u correlation from Terzaghi and Peck, 1967. (General guide only).

Soil Particle Sizes	
Term	Size Range
BOULDERS	>200 mm
COBBLES	63-200 mm
Coarse GRAVEL	20-63 mm
Medium GRAVEL	6-20 mm
Fine GRAVEL	2.36-6 mm
Coarse SAND	0.6-2.36 mm
Medium SAND	0.2-0.6 mm
Fine SAND	0.075-0.2 mm
SILT	0.002-0.075 mm
CLAY	<0.002 mm

Consistency of Non-Cohesive Soils: Is described in terms of the density index, as defined in AS 1289.0-2000. This can be assessed using a field tool appropriate for non-cohesive soils, in conjunction with the relevant calibration. Refer to AS 1726-1993, Table A5; BS5930-1999, p117.

Consistency - Essentially Non-Cohesive Soils				
Term	Symbol	SPT N Value	Field Guide	Density Index (%)
Very loose	VL	0-4	Foot imprints readily	0-15
Loose	L	4-10	Shovels Easily	15-35
Medium dense	MD	10-30	Shovelling difficult	35-65
Dense	D	30-50	Pick required	65-85
Very dense	VD	>50	Picking difficult	85-100

Standard Penetration Test (SPT): Refer to AS 1289.6.3.1-2004. Example report formats for SPT results are shown below:

Test Report	Penetration Resistance (N)	Explanation / Comment
4, 7, 11	N=18	Full penetration; N is reported on engineering borehole log
18, 27, 32	N=59	Full penetration; N is reported on engineering borehole log
4, 18, 30/15 mm	N is not reported	30 blows causes less than 100 mm penetration (3 rd interval) - test discontinued
30/80 mm	N is not reported	30 blows causes less than 100 mm penetration (1 st interval) - test discontinued
rw	N<1	Rod weight only causes full penetration
hw	N<1	Hammer and rod weight only causes full penetration
hb	N is not reported	Hammer bouncing for 5 consecutive blows with no measurable penetration - test discontinued

Rock Description

Except where specified below, terminology for describing rock is as defined by the International Society for Rock Mechanics (ISRM) 2007 publication "The Complete ISRM Suggested Methods for Rock Characterization, Testing and Monitoring: 1974-2006"

Terminology Describing Rock Quality:

RQD	Rock Mass Quality
0 - 25	<i>Very Poor Quality</i>
25 - 50	<i>Poor Quality</i>
50 - 75	<i>Fair Quality</i>
75 - 90	<i>Good Quality</i>
90 - 100	<i>Excellent Quality</i>

Alternate (Colloquial) Rock Mass Quality	
<i>Very Severely Fractured</i>	<i>Crushed</i>
<i>Severely Fractured</i>	<i>Shattered or Very Blocky</i>
<i>Fractured</i>	<i>Blocky</i>
<i>Moderately Jointed</i>	<i>Sound</i>
<i>Intact</i>	<i>Very Sound</i>

RQD (Rock Quality Designation) denotes the percentage of intact and sound rock retrieved from a borehole of any orientation. All pieces of intact and sound rock core equal to or greater than 100 mm (4 inches) long are summed up and divided by the total length of the core run. RQD is determined in accordance with ASTM D6032.

SCR (Solid Core Recovery) denotes the percentage of solid core (cylindrical) retrieved from a borehole of any orientation. All pieces of the solid (cylindrical) core are summed and divided by the total length of the core run (It excludes all portions of core pieces that are not fully cylindrical as well as crushed or rubble zones).

Fracture Index (FI) is defined as the number of naturally occurring fractures within a given length of core. The Fracture Index is reported as a simple count of the natural occurring fractures.

Refer to AS 1726-1993 (Appendix A3.3) for the description and classification of rock material composition, including:

- (a) Rock type (Table A6, (a) and (b))
- (b) Grain size
- (c) Texture and fabric
- (d) Colour (describe as per soil).

The condition of a rock material refers to its weathering characteristics, strength characteristics and rock mass properties. Refer to AS 1726-1993 (Appendix A3 Tables A8, A9 and A10).

Weathering Condition (Degree of Weathering):

The degree of weathering is a continuum from fresh rock to soil. Boundaries between weathering grades may be abrupt or gradational.

Rock Material Weathering		
Weathering Grade	Symbol	Definition
Residual Soil	RS	Soil-like material developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the material has not been significantly transported.
Extremely Weathered Rock	XW	Rock is weathered to such an extent that it has 'soil' properties, i.e. it either disintegrates or can be remoulded in water, but substance fabric and rock structure still recognizable.
Highly Weathered Rock	HW	Strong discolouration is evident throughout the rock mass, often with significant change in the constituent minerals. The intact rock strength is generally much weaker than that of the fresh rock.
Moderately Weathered Rock	MW	Modest discolouration is evident throughout the rock fabric, often with some change in the constituent minerals. The intact rock strength is usually noticeably weaker than that of the fresh rock.
Slightly Weathered	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh Rock	FR	Rock shows no sign of decomposition or staining.

Notes:

1. Minor variations within broader weathering grade zones will be noted on the engineering borehole logs.
2. Extremely weathered rock is described in terms of soil engineering properties.
3. Weathering may be pervasive throughout the rock mass, or may penetrate inwards from discontinuities to some extent.
4. The 'Distinctly Weathered (DW)' class as defined in AS 1726-1993 is divided to incorporate HW and MW in the above table. The symbol DW should not be used.

Strength Condition (Intact Rock Strength):

Terminology Describing Rock Strength

Strength Classification	Grade	Unconfined Compressive Strength (MPa)
Extremely Weak	R0	< 1
Very Weak	R1	1 - 5
Weak	R2	5 - 25
Medium Strong	R3	25 - 50
Strong Very	R4	50 - 100
Strong Extremely	R5	100 - 250
Strong	R6	> 250

Discontinuity Spacing: On the geotechnical borehole log, a graphical representation of defect spacing vs depth is shown. This representation takes into account all the natural rock defects occurring within a given depth interval, excluding breaks induced by the drilling / handling of core. Refer to AS 1726-1993, BS5930-1999.

Defect Spacing			Bedding Thickness (Sedimentary Rock Stratification)	
Spacing/Width (mm)	Descriptor	Symbol	Descriptor	Spacing /Width (mm)
			Thinly Laminated	<6
<20	Extremely Close	EC	Thickly Laminated	6 - 20
20 - 60	Very Close	VC	Very Thinly Bedded	20 - 60
60 - 200	Close	C	Thinly Bedded	60 -200
200 - 600	Medium	M	Medium Bedded	200 - 600
600 - 2000	Wide	W	Thickly Bedded	600 - 2000
2000 - 6000	Very Wide	VW	Very Thickly Bedded	>2000
>6000	Extremely Wide	EW		

Defect Spacing in 3D	
Term	Description
Blocky	Equidimensional
Tabular	Thickness much less than length or width
Columnar	Height much greater than cross section

Direct Persistence (areal extent)
Trace length of defect given in metres

Symbols and Terms used on Borehole and Test Pit Records

The list on the following table provides an explanation of terms and symbols used on the geotechnical borehole, test pit and penetrometer logs.

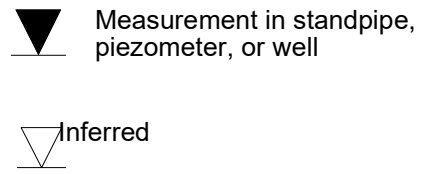
Test Results				Test Symbols	
PI	Plasticity Index	c'	Effective Cohesion	DCP	Dynamic Cone Penetrometer
LL	Liquid Limit	c_u	Undrained Cohesion	SPT	Standard Penetration Test
LI	Liquidity Index	c'_R	Residual Cohesion	CPTu	Cone Penetrometer (Piezocone) Test
DD	Dry Density	ϕ'	Effective Angle of Internal Friction	PANDA	Variable Energy DCP
WD	Wet Density	ϕ_u	Undrained Angle of Internal Friction	PP	Pocket Penetrometer Test
LS	Linear Shrinkage	ϕ'_R	Residual Angle of Internal Friction	U50	Undisturbed Sample 50 mm (nominal diameter)
MC	Moisture Content	c_v	Coefficient of Consolidation	U100	Undisturbed Sample 100mm (nominal diameter)
OC	Organic Content	m_v	Coefficient of Volume Compressibility	UCS	Uniaxial Compressive Strength
WPI	Weighted Plasticity Index	$c_{\alpha c}$	Coefficient of Secondary Compression	Pm	Pressuremeter

Test Results				Test Symbols	
WLS	Weighted Linear Shrinkage	e	Voids Ratio	FSV	Field Shear Vane
DoS	Degree of Saturation	ϕ'_{cv}	Constant Volume Friction Angle	DST	Direct Shear Test
APD	Apparent Particle Density	q_t / q_c	Piezocone Tip Resistance (corrected / uncorrected)	PR	Penetration Rate
s_u	Undrained Shear Strength	q_d	PANDA Cone Resistance	A	Point Load Test (axial)
q_u	Unconfined Compressive Strength	$I_{s(50)}$	Point Load Strength Index	D	Point Load Test (diametral)
R	Total Core Recovery	RQD	Rock Quality Designation	L	Point Load Test (irregular lump)

Sample Type

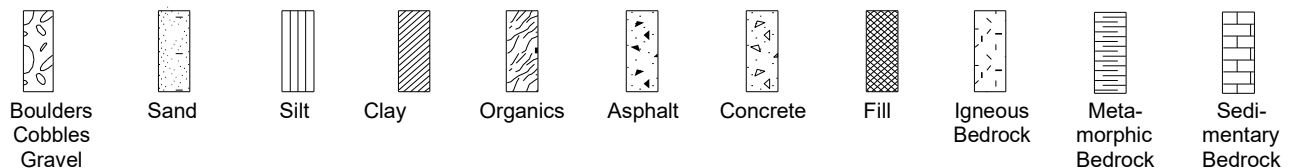
SS	Split spoon sample (obtained by performing the Standard Penetration Test)
ST	Shelby tube or thin wall tube
DP	Direct-Push sample (small diameters tube sampler hydraulically advanced)
PS	Piston sample
BS	Bulk sample
WS	Wash sample
HQ,NQ, BQ, etc	Rock core samples obtained with the use of standard size diamond coring bits.

Water Level Measurement



Strata Plot

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols. The dimensions within the strata symbols are not indicative of the particle size, layer thickness, etc.



Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.3	11.9	3.6	7.9	28.2	39.1	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		10.4490	0.2579	0.1667					

Material Description	USCS	AASHTO
<input type="radio"/> Till TP-1, Sa-1 4ft		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk
 Location: Stratford **Depth:** 4ft **Sample Number:** 1

Remarks:

Figure



Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0.0	0.0	8.2	26.3	34.9	16.3	14.3			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		3.8113	1.6552	1.1708	0.4089	0.0856			

Material Description	USCS	AASHTO
Crushed Fines - TP-1 Sa-G1		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk
Location: Stratford **Sample Number:** G1

Remarks:

Figure



Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.8	7.5	4.3	9.7	33.8	41.9	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		1.8136	0.2076	0.1410					

Material Description	USCS	AASHTO
○ Till TP-2 Sa-2 4ft		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk

○ **Location:** Stratford **Depth:** 4ft **Sample Number:** TP-2 Sa-2

Remarks:



Figure

Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0.0	8.4	11.1	5.0	15.2	32.5	27.8			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		9.1419	0.4198	0.2684	0.0935				

Material Description	USCS	AASHTO
<input type="radio"/> Fill TP-3 Sa-1 1-2ft		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk

Location: Stratford **Depth:** 1-2ft **Sample Number:** TP-3 Sa-1

Remarks:



Figure

Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0.0	13.4	13.8	4.6	9.2	29.0	30.0			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		17.0664	0.4669	0.2414					

Material Description	USCS	AASHTO
<input type="radio"/> Till TP-3 Sa-2 5ft		

Project No. 16064 **Client:** Joose Environmental
Project: MT- Stratford Boardwalk
 Location: Stratford **Depth:** 5ft **Sample Number:** TP-3 Sa-2

Remarks:



Figure

Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0.0	0.0	8.1	24.4	36.4	14.9	16.2			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		3.7287	1.5129	1.0191	0.4018				

Material Description	USCS	AASHTO
<input type="radio"/> Crushed Fines TP-3 Sa-G1		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk
 Location: Stratford **Sample Number:** TP-3 Sa-G1

Remarks:

Figure



Tested By: R.Wakelin **Checked By:** D.Taweel

Particle Size Distribution Report



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.1	6.3	4.0	12.3	38.8	32.5	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		2.7142	0.2507	0.1849					

Material Description	USCS	AASHTO
<input type="radio"/> Fill TP-4 Sa-1 2-3ft		

Project No. 16064 **Client:** Joose Environmental
Project: MT - Stratford Boardwalk
 Location: Stratford **Depth:** 2-3ft **Sample Number:** TP-4 Sa-1


Remarks:



Figure

Tested By: R.Wakelin **Checked By:** D.Taweel

PHOTOGRAPHS


Photograph No. 1	
Date Taken: August 24, 2022	
Description: TP-01 (fully excavated)	
Looking Towards: n/a	

Photograph No. 2	
Date Taken: August 24, 2022	
Description: View of TP-01 during backfilling.	
Looking Towards: Northwest	

Project: Proposed Boardwalk
Location: Stratford, Queens County, PEI
Project No.: JE0623



PHOTOGRAPHS


Photograph No. 3	
Date Taken: August 24, 2022	
Description: TP-02 (fully excavated)	
Looking Towards: n/a	


Photograph No. 4	
Date Taken: August 24, 2022	
Description: View of TP-02 following backfilling. Also shown is some vegetative growth over existing trail.	
Looking Towards: Northwest	

Project: Proposed Boardwalk
Location: Stratford, Queens County, PEI
Project No.: JE0623



PHOTOGRAPHS


Photograph No. 5	
Date Taken: August 24, 2022	
Description: TP-03 (fully excavated)	
Looking Towards: n/a	

Photograph No. 6	
Date Taken: August 24, 2022	
Description: View of TP-03 prior to excavation. Also shown is some vegetative growth over existing trail.	
Looking Towards: Northwest	

Project: Proposed Boardwalk
Location: Stratford, Queens County, PEI
Project No.: JE0623



PHOTOGRAPHS

Photograph No. 7	
Date Taken: August 24, 2022	
Description: TP-04 (fully excavated)	
Looking Towards: n/a	

Photograph No. 8	
Date Taken: August 24, 2022	
Description: View of TP-04 during backfilling. Also shown is some vegetative growth over existing trail.	
Looking Towards: Southwest	

Project: Proposed Boardwalk
Location: Stratford, Queens County, PEI
Project No.: JE0623



TEST PIT RECORD

TP-01

Date Excavated: 24 AUG 2022
Contractor: Matheson Construction
Equipment: Hitachi ZAXIS Excavator

Location: Stratford Waterfront
Datum: Geodetic
Groundwater Table: not encountered

Project No.: JE623
Project: Proposed Boardwalk
Client: Coles Associates Ltd.

Depth	Elevation, m	SOIL DESCRIPTION	Strata Plot	Water Level	Sample Type	Sample Number	Lab Testing	Moisture Content %
								• 10 20 30 40 50 60 70 80 90 •
0	6.50 0.00	Ground Surface						
1	6.20 0.30	Loose reddish brown silty sand, some gravel, occasional sandstone cobbles: Fill ; upper 75 mm (+/-) rootmat						
2	5.90 0.60	Loose mottled brown silt and sand, trace gravel, organics: Topsoil						
3								
4		Compact reddish brown silt and sand, some gravel, occasional sandstone cobbles: Till			GS	1	Sieve	• 13
5								
6	4.67 1.83	End of Test Pit						
7								

TEST PIT RECORD

TP-02

Date Excavated: 24 AUG 2022
Contractor: Matheson Construction
Equipment: Hitachi ZAXIS Excavator

Location: Stratford Waterfront
Datum: Geodetic
Groundwater Table: not encountered

Project No. JE623
Project: Proposed Boardwalk
Client: Coles Associates Ltd.

Depth	Elevation, m	SOIL DESCRIPTION	Strata Plot	Water Level	Sample Type	Sample Number	Lab Testing	Moisture Content %
								• 10 20 30 40 50 60 70 80 90 •
0	4.40 0.00	Ground Surface						
1	4.10 0.30	Loose reddish brown silty sand, some gravel, occasional sandstone cobbles: Fill ; upper 75 mm (+/-) rootmat						
2	3.80 0.60	Loose mottled brown silt and sand, trace gravel, organics: Topsoil						
3					GS	1		•12
4		Compact reddish brown silt and sand, some gravel, occasional sandstone cobbles: Till			GS	2	Sieve	•13
6	2.57 1.83	End of Test Pit						
7								

TEST PIT RECORD

TP-03

Date Excavated: 24 AUG 2022
Contractor: Matheson Construction
Equipment: Hitachi ZAXIS Excavator

Location: Stratford Waterfront
Datum: Geodetic
Groundwater Table: not encountered

Project No. JE623
Project: Proposed Boardwalk
Client: Coles Associates Ltd.

Depth	Elevation, m	SOIL DESCRIPTION	Strata Plot	Water Level	Sample Type	Sample Number	Lab Testing	Moisture Content %
								• 10 20 30 40 50 60 70 80 90 •
0	3.50 0.00	Ground Surface						
1		Loose reddish brown silty sand, some gravel, occasional sandstone cobbles: Fill ; trace to some roots to 300 mm depth; upper 75 mm (+/-) rootmat			GS	1	Sieve	• 13
2	2.90 0.60	Loose mottled brown silt and sand, trace gravel, organics: Topsoil						
3	2.60 0.90							
4		Compact reddish brown <i>silt and sand</i> , some gravel, to <i>gravelly silty sand</i> , occasional sandstone cobbles: Till			GS	2	Sieve	• 13
5								
6	1.67 1.83	End of Test Pit						
7								

TEST PIT RECORD

TP-04

Date Excavated: 24 AUG 2022
Contractor: Matheson Construction
Equipment: Hitachi ZAXIS Excavator

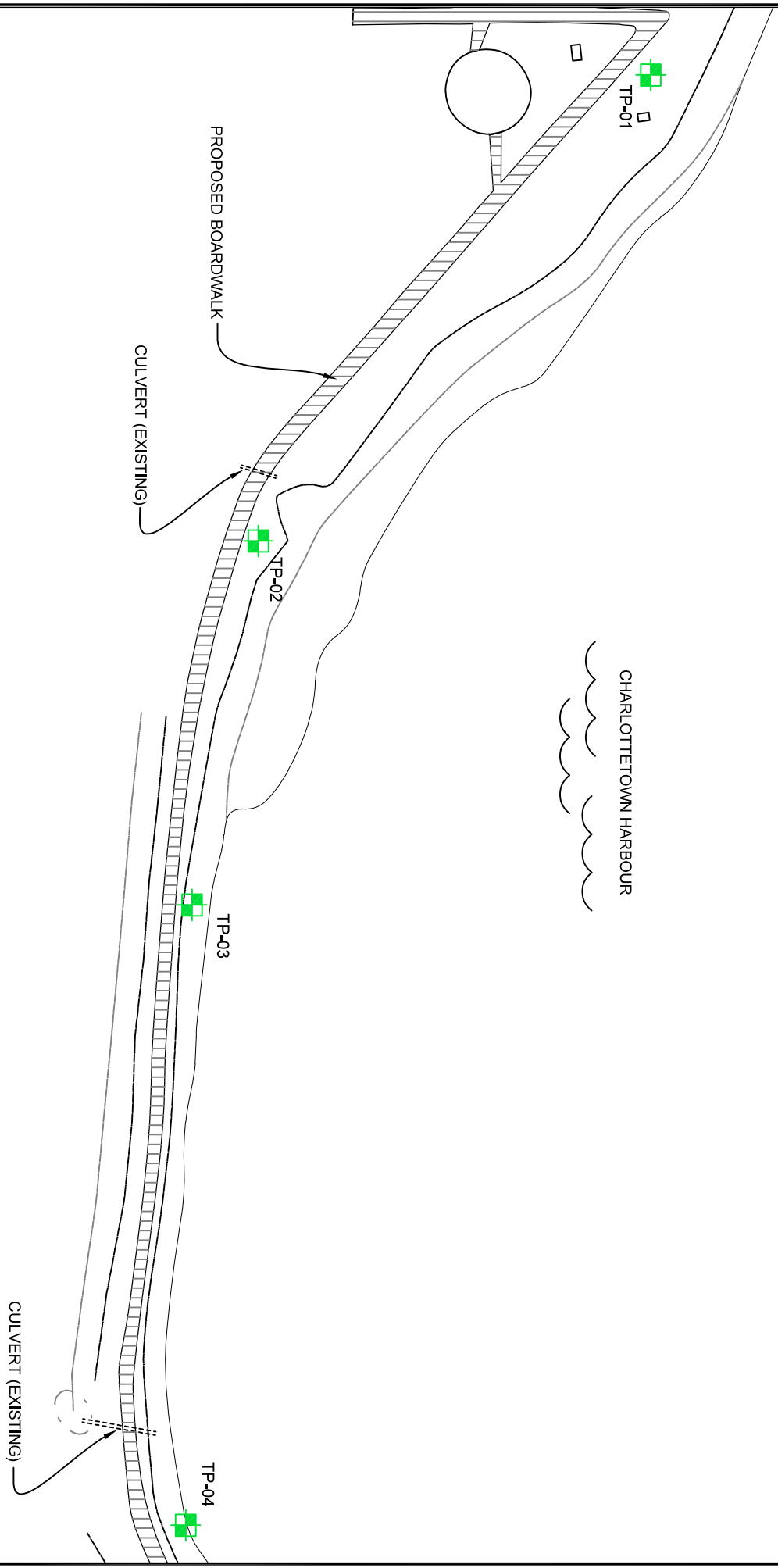
Location: Stratford Waterfront
Datum: Geodetic
Groundwater Table: not encountered

Project No.: JE623
Project: Proposed Boardwalk
Client: Coles Associates Ltd.

Depth	Elevation, m	SOIL DESCRIPTION	Strata Plot	Water Level	Sample Type	Sample Number	Lab Testing	Moisture Content %
								10 20 30 40 50 60 70 80 90
0	2.70 0.00	Ground Surface						
1			[Hatched Pattern]					
2		Loose reddish brown silty sand, some gravel, occasional sandstone cobbles: Fill ; upper 75 mm (+/-) rootmat			GS	1	Sieve	35
3								
4								
5	1.30 1.40	Loose mottled brown silt and sand, trace gravel, organics: Topsoil						
6	1.00 1.70	Compact reddish brown silt and sand, some gravel, occasional sandstone cobbles: Till						
7	0.87 1.83	End of Test Pit						



LEGEND
[Green square with cross symbol] TEST PIT LOCATION (TP)



TEST PIT LOCATION PLAN

PROPOSED BOARDWALK
STRATFORD, QUEENS COUNTY, PEI

CLIENT: COLES ASSOCIATES LTD.

SCALE:	1 : 1000	JOB NO.:	JE0623	DWG NO.:	1
DATE	2022/09/02	DWN BY:	MLJ	APPD BY:	GWZ

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APPENDIX 'B'
Town of Stratford
Town-Owned Tree Policy

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Town of Stratford - Council Policy			
Name:	Town-Owned Tree Policy	Policy Number:	2021-SC-01
Committee:	Sustainability	Approval Date:	December 8, 2021

1. Introduction

The Town of Stratford (the Town) owns many acres of treed and forested land, most of which are within parks and greenspaces. The trees and shrubs on Town property are important natural assets and serve valuable ecological functions. The Town recognizes the important role of trees and does not remove Town-owned trees without first ensuring that a tree poses a serious threat to the safety of assets or people.

This policy has been adopted to provide a consistent approach to making decisions about Town-owned trees and to prevent their indiscriminate removal.

2. Definitions

For the purpose of this policy, the following definitions shall apply:

- a. “CAO” Chief Administrative Officer of the Town of Stratford.
- b. “Natural Area” A property owned by the Town of Stratford or portion of a property owned by the Town of Stratford that is intentionally left in its natural state, with design or maintenance limited to preserving or enhancing natural characteristics.
- c. “Town-owned Tree” Any perennial plant with one or more woody stems whose trunk or stem is located within the boundaries of a property owned by the Town of Stratford.

3. Policy

- a. A Town-owned Tree will not be removed or damaged by anyone without written permission from the CAO, unless that person is an employee of the Town of Stratford acting upon direction from the CAO or designate.

- b. A Town-owned Tree will not be removed by the Town or authorized for removal unless the Town-owned Tree has been assessed by a certified arborist and is considered by the arborist:
 - i. to pose an immediate hazard to humans or property
 - ii. to have a disease or an infestation that puts other trees at risk
- c. A Town-owned Tree may be removed by the Town or authorized for removal without consulting a certified arborist if the removal of the Town-owned Tree is required to accommodate municipal projects such as water and sewer mains, roadways, utilities, active transportation lanes, sports fields, or building projects and there is no cost-effective alternative to save the Town-owned Tree.
- d. The Town may use other forms of intervention based on the advice of a certified arborist, such as pruning or cabling, before removing a Tree.
- e. Standing dead or damaged Town-owned Trees serve a valuable ecological function and will not be removed unless they pose an immediate hazard to humans or property.
- f. In Natural Areas, Town-owned Trees shall be left in their natural wild state wherever possible.
- g. Town of Stratford staff may prune a Town-owned Tree to improve the growth and structure of the Town-owned Tree, or to remove limbs that pose a direct hazard to humans or property.
- h. The Town of Stratford does not prune or remove Town-owned Trees to create or preserve views for public or private benefits.
- i. Requests for removal or pruning of Town-owned Trees will be directed to the CAO or designate.

4. Effective Date

This policy is effective on December 9, 2021.

APPENDIX 'C'
Prince Edward Island
Buffer Zone Activity Permit

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PO Box 2000, Charlottetown
 Prince Edward Island
 Canada C1A 7N8

Environment,
 Energy and
 Climate Action

Environnement,
 Énergie et
 Action climatique



C.P. 2000, Charlottetown
 Île-du-Prince-Édouard
 Canada C1A 7N8

PERMIT NO: QA22-121

PRINCE EDWARD ISLAND BUFFER ZONE ACTIVITY PERMIT

In accordance with the authority provided by Sections 3 and 6 of the Prince Edward Island Watercourse and Wetland Protection Regulations, permission is granted to:

Name: **Coles Associates Ltd. - Town of Stratford**
 Address: **Suite 202, 85 Fitzroy St., Charlottetown, PE**
 Postal Code: **C1A1R6**

to undertake an activity in a buffer zone, namely:

Boardwalk Construction in a buffer zone

adjacent the Hillsborough River, a tributary to the Hillsborough Bay situated

on Provincial Property Number(s): 191254
 571414

at Stratford in Queens County, PEI with coordinates of 46.23021° latitude and -63.10193° longitude.

This permit is, by order of the Minister, effective on **Monday, November 14, 2022**
and expires on **Sunday, December 31, 2023**

and is subject to the full implementation of and compliance with the following terms and conditions:

- [A] That all reasonable measures (in the opinion of the Minister) must be taken to minimize the siltation of the watercourse.
- [B] That it is the applicant's responsibility to obtain any other necessary forms of approval or permission (i.e., permits, etc.) from other government agencies including federal, provincial, and municipal departments or private landowners before the work commences.
- [C] That the issuance of this permit or approval does not imply any warranty against damages due to weather and / or climate change. Government shall not be liable for any claims, demands, losses, costs, damages, actions, suits or proceedings of every nature and kind whatsoever arising out of or resulting from the issuance of this permit or approval as a result of weather or climate change.
- [D] That the installation of environmental protection measures (e.g. silt fencing, check dams) must be an initial step in the construction sequence, and these and other erosion/sediment control measures (e.g. floating booms, mulching, erosion control blankets, seeding, etc.) must be installed and maintained to prevent siltation of the watercourse.
- [E] That all work takes place as outlined in your Watercourse, Wetland and Buffer Zone Activity Permit Application dated October 4, 2022, and attached documents, Coles Project # 221122, Drawings C0, C1, C2, C2b, C3, C4, C5, C6.
- [F] That the contractor must always have on site a minimum 190L Emergency Spill Response Kit.
- [G] That machinery must arrive on site in a clean, washed condition and must be maintained free of fluid leaks.
- [H] That the footprint of construction/ground disturbance in the buffer zone, (operation of

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equipment, disturbance of the ground, etc.) must be kept to the minimum required to complete the work.

[I] That the proponent/contractor must ensure that all work is stabilized as required to prevent sedimentation of any watercourse/wetland prior to leaving the construction site; unstable material/disturbed areas that have the potential of sediment release, must not be left exposed to the elements without the proper erosion/sediment controls in place.


[J] That the applicant is responsible to ensure that this Permit is always maintained on the jobsite for reference and inspection purposes.

[K] That trail must be situated in a manner that avoids live trees/shrubs to the greatest extent possible.

If you have any questions regarding the foregoing permit conditions, please contact Kevin Arsenault (902-314-0024), Shawn Banks (902-314-2737) or Shawn Hill (902-394-1472).

Date issued: Monday, November 14, 2022

Signed:



Shawn Banks
Environment Officer