



Halifax Regional  
School Board

# TENDER #3877-A

## WASTEWATER TREATMENT SYSTEM REPLACEMENT SAMBRO ELEMENTARY

Closing Date:

FRIDAY JUNE 2ND, 2017

Closing/Opening Time:

2:00:00 P.M.

Closing Location:

Halifax Regional School Board  
33 Spectacle Lake Drive  
Dartmouth, N.S. B3B 1X7

Substantial Completion Date:

AUGUST 23RD, 2017

HRSB Contacts:

Jennifer King, Buyer  
Tel: (902) 464-2000 #2223  
Fax: (902) 464-0161  
Email: [jiking@hrsb.ca](mailto:jiking@hrsb.ca)

School Location:

SAMBRO ELEMENTARY  
3725 Old Sambro Rd  
Sambro NS, B3V 1G1

Operations Contact:

Ron Curran, Manager - Regulatory Compliance  
Tel: (902) 464-2000 #5114  
Email: [rcurran@hrsb.ca](mailto:rcurran@hrsb.ca)

A mandatory bidders' site meeting is scheduled for **Wednesday May 24<sup>th</sup> 2017 at 11:00 a.m.** Please meet at the front entrance of the school.

To obtain documents:

Download tender documents in .pdf format from the School Board's Website:

<http://www.hrsb.ca/about-hrsb/financial-services/purchasing/tenders/tender-listing>

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**SECTION 00 00 15 - DESCRIPTION OF WORK & LIST OF DRAWINGS**

**1. General**

- 1.1.** The work of this contract includes the provision of all materials, labour and equipment necessary to complete the **WASTEWATER TREATMENT SYSTEM REPLACEMENT** at **SAMBRO ELEMENTARY**, as per the documentation drawings and specifications prepared by **CBCL Limited**.
  
- 1.2.** The work involves but is not necessarily limited to the supply and installation of new, preselected recirculating textile filter (RTF) system, including septic tanks, treatment module, discharge pumps, UV disinfection, electrical wiring and controls, connection to existing sanitary piping and outfall, maintaining sanitary service when required, commissioning, operator training operations and maintenance manual, environmental protection, decommissioning and removal of existing wastewater treatment plant, and complete site reinstatement. Preselected equipment supplier is Atlantic Purification Systems.
  - 1.2.1.** Certain materials have been pre-selected by the Owner.
  - 1.2.2.** Contractor is responsible for placing Purchase Orders with the Pre-selected Equipment Suppliers upon the award of the Contract. The results of the equipment pre-selection will not be subject to renegotiation in the construction Contract unless approved in writing by the Consultant. The Pre-Selected Equipment Allowance is \$56,800 excluding HST.
  - 1.2.3.** Adhere to special payment schedule applicable to the pre-selected equipment package. Refer Appendix A - copy of pre-selected equipment quotation.
  - 1.2.4.** Placing Purchase Order does not relinquish responsibility of the Contractor or the Suppliers from any conditions of the Contract. Material will be delivered to the site in the manner and subject to the conditions provided in the Contract.
  - 1.2.5.** Coordinate the delivery of the Pre-selected Equipment with the Pre-selected Equipment Suppliers as required.
  - 1.2.6.** Provide handling and storage of Pre-selected Equipment with the Pre-selected Equipment as per the recommendations of the Equipment Supplier.
  - 1.2.7.** In some cases, Duty Chargeable and/or Foreign Exchange Rate applicable have been provided by the Supplier with the quoted price. Any increase or decrease in the Duty Chargeable and/or Foreign Exchange applicable to the said equipment on the date of the

Purchase Order shall result in a corresponding increase or decrease in the price charged by the Supplier. However, no change in price shall be made if the net amount of increase or decrease is less than five hundred dollars (\$500). Any increase or decrease in price shall be claimed by the Supplier through the Contractor as the case may be and debited or credited. In the case of dispute, Duty Chargeable will be supported by receipts and Foreign Exchange Rate will be as determined by the Bank of Canada at closing.

**1.2.8.** The Contractor will be expected to issue the Purchase order for Pre-selected Equipment within one (1) week of notification of award.

**1.3.** It is the School Board's intent to have all work completed, to point of Substantial Performance, prior to **AUGUST 23RD, 2017**. The Building will be occupied during this time period. It is expected that an early award of this contract will enable the Contractor to facilitate shop drawing review and ordering of materials to allow commencement of work immediately following award of tender.

**1.4.** The whole of the work shall agree in all particulars with the levels, measurements and details contained in the drawings accompanying this specification and with such other drawings or information as may from time to time be supplied by the School Board, or may be supplied by the Contractor and reviewed by the School Board.

**1.5.** Work that affects the existing plant may only be performed between **July 1st, 2017 and September 1st, 2017**.

## 2. List Of Drawings

<u>Drawing NO.</u>	<u>Drawing Title</u>
C00	Cover Sheet
C01	Civil – Site Plans and Sections
C02	Civil – Miscellaneous Details
E01	Electrical – Site Plans
E02	Electrical – Diagrams, Details, and Schedules

END OF SECTION 00 00 15

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***SECTION 00 05 00 - LIST OF CONSULTANTS***

**Owner:** HALIFAX REGIONAL SCHOOL BOARD  
33 SPECTACLE LAKE DRIVE, DARTMOUTH NS

**Consultant:** Sarah Ensslin, P. Eng.  
CBCL Limited  
Phone: 902-421-7241 ext. 2238  
Email: [sensslin@cbcl.ca](mailto:sensslin@cbcl.ca)

**END OF SECTION 00 05 00**

**SECTION 00 21 13 – INFORMATION FOR BIDDERS**

**Invitation:**

**1. Bid Call**

- 1.1.** The HALIFAX REGIONAL SCHOOL BOARD (The Board/HRSB) will receive offers in the form of a bid from Contractors which is signed and received on or before the date and time specified on the cover sheet of this document. HRSB deems the correct time to be the time indicated on the phone clock on the Receptionist's desk at at 33 Spectacle Lake Drive.
- 1.2.** Offers submitted after the closing time/date shall be returned to the bidder unopened.
- 1.3.** Submit completed tender documents for above project in sealed envelope marked as follows: **TENDER #3877-A, WASTEWATER TREATMENT SYSTEM REPLACEMENT - SAMBRO**
- 1.4.** Bids will be opened at the time indicated on the cover sheet of this document. As of April 1, 2014 Public tender openings are no longer held for any tenders relating to goods, services or construction for HRSB. A list of bidders and bid amounts will be posted on the Procurement Services website (<http://novascotia.ca/tenders/tenders/ns-tenders.aspx>) shortly following the closing of the tender. All bid submissions are subject to evaluation after opening and before award of contract. The winning bidder and award amount will be posted on the Procurement Services website (<http://novascotia.ca/tenders/tenders/ns-tenders.aspx>) after award.
- 1.5.** In the event that the HALIFAX REGIONAL SCHOOL BOARD office is closed due to inclement weather or any other reason on the date and at the time of closing, the Closing Date and Time will be extended one (1) business day. Proponents should note that closure of Schools does not necessarily mean closure of the Board's Regional Office.
- 1.6.** Amendments to the submitted offer will be permitted if received in writing prior to bid closing and if endorsed by the same party or parties who signed and executed the offer.
- 1.7.** Emailed/Faxed Bid Submissions **will not** be accepted.

**2. Intent**

- 2.1.** The intent of this bid call is to obtain an offer to perform all work associated with **Tender #3877-A, WASTEWATER TREATMENT SYSTEM REPLACEMENT**, at **SAMBRO ELEMENTARY** for a Stipulated Price Contract in accordance with the Contract Documents.

**3. Scope of work**

- 3.1.** Refer to Section 00 00 15 – Description of Work and List of Drawings.

**4. Availability**

- 4.1.** Bid Documents can be obtained as per the directions on the cover sheet of this document.
- 4.2.** Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not confer a license or grant for other purposes.
- 4.3.** The HALIFAX REGIONAL SCHOOL BOARD is not responsible for accuracy of documents and project postings obtained from any other source.

**5. Examination**

- 5.1.** Bid Documents are on display at the offices of the Nova Scotia Construction Association (CANS), Halifax, NS.
- 5.2.** Upon receipt of Bid Documents verify that documents are complete; notify the Board's Buyer by email to [ilking@hrsb.ca](mailto:ilking@hrsb.ca), should the documents be incomplete, or upon finding discrepancies or omissions in the Bid Documents.
- 5.3.** Bidders shall become fully aware of the content of all tender documents for the preparation of the Bidder's offer.
- 5.4.** Bidders will be deemed to have familiarized themselves with the existing site and working conditions and all other conditions which may affect the performance of the work. No plea of ignorance of such conditions as a result of failure to make all necessary examinations will be accepted as a basis for any claims for extra compensation or an extension of time.

**6. Clarification and Addenda**

- 6.1.** Notify Jennifer King, Buyer, by email to [ilking@hrsb.ca](mailto:ilking@hrsb.ca) no less than **five (5)** working days before Tender Closing of any questions, omissions, errors or ambiguities found in Contract Documents. If HRSB considers that correction, explanation or interpretation is necessary, a reply will be in the form of an addendum, a copy of which will be posted on the [novascotia.ca/tenders](http://novascotia.ca/tenders) and/or HRSB website as applicable, and it is the responsibility of the Bidder to ensure all addenda are received and acknowledged.



- 6.2. Addenda will be issued no less than three (3) business days before tender closing date and time, and will form part of the Contract Documents.
- 6.3. Verbal answers to queries are not binding. Information must be confirmed by written addenda. The Board and its representatives shall not be bound by or be liable for any representation or information provided verbally. Information obtained by any other source is not official and will not bind the HALIFAX REGIONAL SCHOOL BOARD.
- 6.4. Complete tender form (section 00 41 13) acknowledging that addenda have been received.

## 7. Product/System Options

- 7.1. Alternatives to specified products and systems will only be considered during the bidding period in the manner prescribed below.
  - 7.1.1. Where the Bid Documents stipulate a particular product, alternatives may be considered by the Consultant up to five (5) working days before tender closing date and time. Bidders must forward their written requests by email to: [ilking@hrsb.ca](mailto:ilking@hrsb.ca). The Buyer will relay the requests to the appropriate person(s) for review.
- 7.2. The submission must provide sufficient information to enable the Consultant to determine acceptability of such products. Request for an alternate must be accompanied with:
  - 7.2.1. information about how the request affects other work in order to accommodate each alternate;
  - 7.2.2. the dollar amount of additions to or reductions from the Bid Price, including revisions to other Work.

A later claim by the bidder for an addition to the contract price because of changes in work necessitated by use of alternates shall not be considered.
- 7.3. When a request to substitute a product is made and pursuant to consultation with the Consultant, HRSB may approve or disapprove the substitution. The bidder making the request will be notified of the Board's decision and if the alternate is approved, HRSB will issue an Addendum.
- 7.4. Alternates must be submitted in above manner; otherwise, they will not be accepted.

## 8. Mandatory Bidders' Site Meeting (Site Assessment)

8.1. Bidders will be deemed to have familiarized themselves with existing project site and working conditions and all other conditions, which may affect performance of the Contract. No plea of ignorance of such conditions as a result of failure to make all necessary examinations will be accepted as a basis for any claims for extra compensation or an extension of time.

8.1.1.A Mandatory Bidders' Site Meeting has been scheduled as per the information on the cover sheet of this document. All Bidders are required to attend. Representatives of HRSB and the Consultant will be in attendance;

## 9. Bidders Registration

9.1. The successful Contractor and Sub-contractors must comply with the Nova Scotia Corporations Registration Act or Partnerships and Business Name Registration Act, or equivalent, before a contract is awarded.

## 10. Qualifications

### 10.1. Sub-Contractors

10.1.1. HRSB reserves the right to reject a proposed sub-contractor for a reasonable cause.

10.1.2. Refer to Article GC 3.7.3 of CCDC-2 2008.

## 11. Bid Submission

### 11.1. Submissions

11.1.1. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.

11.1.2. Bids must be submitted on the **Bid Form** provided by HRSB (Section 00 41 13 – Bid Form). These forms are to be completely filled out in ink, with the signature in longhand, and corporate sealed as applicable, and the completed form shall be without interlineations, alterations or erasures. Electronic bid submissions sent by facsimile transmission or email will not be accepted.

11.1.3. Fully complete the Tender Bid Form and enter the contract price in both written words and numerals. Where this bid is requested in both words and numbers, and if the two (2) do not represent the identical amount, words shall prevail.

- 11.1.4. Submit the executed offer on the Bid Forms together with the required bid security in a closed opaque envelope, clearly identified with bidder's name, project name and tender number on the outside.
- 11.1.5. Improperly completed information, irregularities in the bid security, may be cause to declare the bid informal.

## 12. Accuracy of Referencing

- 12.1. Indexing and cross-referencing are for convenience only.

## 13. Conditions of Tendering

- 13.1. Take full cognizance of content of all Contract Documents in preparation of Tender. Refer to Section 00 41 13 – Tender Form, Subsection 5.0 for a complete list of Contract Documents.

## 14. Preparation of Tender

- 14.1. Complete Tender Bid Form (section 00 41 13) provided with Contract Documents in ink. Tender all items and fill in all blanks. Have corrections initialed by person signing Tender. Bidders' are required to provide all information as detailed.

## 15. Amendment or Withdrawal of Tender

- 15.1. Bids may be amended or withdrawn by post, hand or facsimile prior to date and time of closing.
- 15.2. A Tender Price Amendment Form is provided immediately following the Bid Form (section 00 41 73).
  - 15.2.1.1. The Tender Price Amendment Form provided is the standard Master form for submission of all tender price amendments for this project.
  - 15.2.1.2. Copy and complete form, as directed, for all tender price amendments submitted.
- 15.3. Amendments shall not disclose either original or revised total price.
- 15.4. Sign, execute and submit to HRSB Board Office or by facsimile to (902) 464-0161 prior to time of Tender Closing.

## 16. Bid Ineligibility (reason for rejection)

- 16.1. HRSB may reject a bid which has been received prior to the closing time where:
  - 16.1.1. The bid is not submitted on the required bid form (Section 00 41 13) included herein.
  - 16.1.2. The bid is submitted by electronic transmission.

- 16.1.3. There are omissions of information that HRSB in its sole discretion deems to be significant.
- 16.1.4. The bid is not signed as required.
- 16.1.5. The bid has conditions attached which are not authorized by the invitation to bid.
- 16.1.6. The bid fails to meet one or more standards specified in the invitation to bid.
- 16.1.7. All addenda have not been acknowledged.
- 16.1.8. Any other defect which, in the opinion of the HRSB brings the meaning of the bid into question.
- 16.1.9. A major irregularity is a deviation from the bid request which affects the price, quality, quantity, or delivery of the project and is material to the award, and is a reason for rejection.
- 16.1.10. A minor irregularity is a deviation from the bid request which affects form, rather than substance. The effect on price, quality, quantity or delivery is not material to the award, and may be waived by the HRSB.
- 16.1.11. The required bid security in the required form is not provided.
- 16.1.12. Bidder failed to attend Bidders' Mandatory Site Meeting.

## 17. Communications Affecting Bids

- 17.1. Electronic Transmissions, including, but not limited to facsimile transmission:
  - 17.1.1. Bid forms submitted by facsimile and/or e-mail etc. transmission are not acceptable and will be rejected.
  - 17.1.2. Electronic transmissions (facsimile only) modifying bidder supplied information are acceptable when signed by an authorized signatory of the original bid. Submission and receipt of such electronic transmissions is at the risk of the bidder. HRSB assumes no liability for the receipt of the electronic transmission or for their proper inclusion with original bid. There is no requirement for HRSB to follow up upon receipt of an electronic transmission. Electronic submissions will be considered binding on both parties. Electronic submissions must be submitted and received prior to closing time and date specified in the bid documents. HRSB Procurement Department Date and Time stamps will prevail. **HRSB Procurement facsimile number is 902-464-0161.**

**18. Right to Accept or Reject any Tender**

- 18.1. The Board reserves the right to reject any bid in its sole and absolute discretion for any reason whatsoever.
- 18.2. The Board specifically reserves the right to reject all bids if none is considered to be satisfactory in the Board's sole and absolute discretion and, in that event, at its option, to call for additional bids.
- 18.3. Without limiting the generality of any other provision herein, the Board reserves the right to accept or reject any bid in accordance with bullet #16 above. (Bid Ineligibility)
- 18.4. Notwithstanding the above, the Board shall be entitled, in its sole and absolute discretion, to waive any irregularity, informality or non-conformance with these instructions in any proposal received by the Board. HRSB reserves the right to reject any or all tenders, or to accept any tender, or portion thereof, deemed in its best interest.
- 18.5. In the event that a number of Bidders submit bids in substantially the same amount, the Board may, at its discretion, call upon those Bidders to submit further bids or take into consideration any value added services being provide in determination of award.
- 18.6. No term or condition shall be implied, based upon any industry or trade practice or custom or in a practice or policy of the Board or otherwise, which is inconsistent or conflicts with the provisions contained in these Instructions.

**19. Construction Contract Guidelines**

- 19.1. The printed policies of the Nova Scotia Construction Guidelines, dated May 18, 2006 (or latest revisions) are applicable to these bid documents.

**20. Bid and Security Forms – Signatures**

- 20.1. All bid forms, bid security forms and performance assurance forms **must** bear the Bidder's original signature and name HRSB as insured.

**21. Bid Security**

- 21.1. Submit with Bid one of the following: Bid security in the form of a Certified Cheque, Irrevocable Letter of Credit, or Bid Bond on CCDC Form 220, in the amount of ten percent (10%) of the Bid Price made payable to, or naming HRSB (as obligee), must accompany the tender.

- 21.2. Where bid bond is provided as bid security:

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- 22.3.** Endorse Performance Assurance as specified for bid security.
- 22.4.** Should it become apparent that the final cost of the project will exceed the total amount payable by more than 20%, the bidder shall arrange to have their bonds reissued based on the projected final cost.
- 22.5.** Refer to Section 00 72 13 – General Conditions GC11.2 and Section 00 73 00 – Supplementary General Conditions for form of Contract Security. Refer to project documents for amount of Contract Security and alternate type of Contract Security if applicable.
- 22.6.** Submit as Performance Assurance one of the following:
- 22.6.1.** Where a Bid Bond was used as bid security:
- 22.6.1.1.** Within ten (10) days after notification of award of the Contract, provide a Performance Bond and a Labour & Material Payment Bond, each in an amount equal to fifty percent (50%) of the amount of the Contract, naming HRSB.
- 22.6.1.2.** Performance Bond and Labour and Material Payment Bonds, submitted by the bidders, shall be provided at the expense of the bidder and shall be with an established Surety Company satisfactory to and approved by HRSB.
- 22.6.1.3.** Include the cost of providing the Performance Bond and Labour and Material bond in the Contract price.
- 22.6.2.** Where a Certified Cheque or Bank Draft is used as Contract Security:
- 22.6.2.1.** The Certified Cheque or Bank Draft submitted during the bid period will be cashed and the amount retained by HRSB shall serve as Performance Assurance, including the payment of all obligations arising under the Contract.
- 22.6.2.2.** The Certified Cheque or Bank Draft will be held in lieu of the Performance Bond and Labour and Material Bonds, providing that, at Contract award, the successful Bidder shall supplement their Certified Cheque or Bank Draft to maintain an amount of ten (10%) of the total amount payable (Contract Price plus HST) under the contract.
- 22.6.2.3.** The amount remaining will be returned without interest after a period of not less than twelve (12) months after the issue of the substantial performance certificate certified by HRSB and shall serve as performance assurance and not until completion of the contract.

- 22.6.2.4.** Where certified cheque or bank draft is used as Performance Assurance, include the cost of providing the certified cheque in the Contract price.
- 22.6.3.** Where an Irrevocable Standby Letter of Credit is used as Contract Security:
- 22.6.3.1.** The Irrevocable Standby Letter of Credit submitted during the bid period will be retained by HRSB and shall serve as performance assurance, including the payment of all obligations arising under the contract. The irrevocable standby letter of credit shall be issued by a certified financial institution subject to the Uniform Customs and Practices for Documentary Credit (1993 revision) International Chamber of Commerce (Publication No. 500).
- 22.6.3.2.** Where irrevocable standby letter of credit is used as Performance Assurance, include the cost of providing and Irrevocable Standby Letter of Credit in the Contract Price. The contractor shall provide to HRSB documentation throughout the duration of the contract that the irrevocable standby letter of credit remains in full effect at all times as specified,
- 22.6.3.3.** Upon expiry of the Irrevocable Standby Letter of Credit, a separate Irrevocable Standby Letter of Credit shall be provided for work requiring extended warranties for such amounts as are required by the contract.
- 22.6.3.4.** The Irrevocable Standby Letter of Credit is to be in effect for a period of not less than twelve (12) months after the issue of the substantial performance certificate certified by HRSB and shall serve as performance assurance and not until completion of the contract.



**23. Insurance**

- 23.1.** Refer to Section 00 72 13 -General Conditions of Contract, GC 11.1 – Insurance and Section 00 73 00 – Supplementary General Conditions for form of Insurance. Refer to project documents for amount of insurance, duration of coverage and alternate type of Insurance if applicable.
- 23.2.** General Contractor shall secure and maintain at its expense during the term of the Insurance:
- 23.2.1.** Workers’ Compensation to meet Statuary requirements and/or Employers Liability.
- 23.2.2.** Wrap Up liability Insurance must insure the general contractor(s) and all sub-contractors on this project:
- 23.2.2.1.** including but not limited to, products liability and completed operations, contractual liability, owners and contractors liability, attached machinery extension endorsement, independent contractor, for a combined single limit of no less than \$5,000,000.00 per occurrence.
- 23.2.3.** Commercial Auto Liability insurance covering all owned, non-owned and hired vehicles for a minimum combined single coverage of \$2,000,000.00 per occurrence.
- 23.2.4.** Builders Risk – all risks – in the amount of the project contract stipulated bid price.
- 23.2.5.** Deliver a certificate of insurance evidencing the above prior to work being performed. It is also agreed that the above insurance coverage is primary and must be kept in force during the term of this agreement. Furthermore, HRSB must receive, in writing, at least thirty (30) days’ notice of cancellation or modification of the above insurances. All insurance policies or certification documents shall specify coverage being applicable to this contract. The Contractor shall not do or omit to do or suffer anything to be done or omitted to be done which will in any way impair or invalidate such policy or policies of insurance.
- 23.3.** Primary Insurance- Supplier agrees that the insurance as required above shall be primary and non-contributory.
- 23.4.** No limitation- Supplier is responsible for determining whether the above minimum insurance coverage’s are adequate to protect its interests. The above minimum coverage’s do not constitute limitations upon Supplier’s Liability.
- 23.5.** Endorsements – For the policies in para 23 above, there shall contain an endorsement naming HRSB and its Affiliates as an Additional Insureds, and eliminating and removing any exclusion of liability for:

- 23.5.1. injury, including bodily injury and death to an employee of the insured or of HRSB, or
- 23.5.2. any obligation of the insured to indemnify, hold harmless, defend, or otherwise make contribution to School Board because of damage arising out of injury, including bodily injury and death, to an employee of HRSB.

#### **24. Proof of Competency of Bidder**

- 24.1. Any bidder may be required to furnish evidence satisfactory to the owner that he and his proposed sub-contractors have sufficient means and experience in the types of work called for to assure completion of the contract in a satisfactory manner.
  - 24.1.1. The successful bidder **must** be a member in good standing with CRCA, RCANS; and
  - 24.1.2. Nova Scotia Construction Safety Association or approved recognized association or program.

#### **25. Bid Form Requirements**

##### **25.1. Bid Submission**

- 25.1.1.1. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.
- 25.1.1.2. Bids must be submitted on forms provided by the Board. These forms are to be completely filled out in ink or by typewriter, with the signature in longhand, and the completed form shall be without interlineations, alterations or erasures.
- 25.1.1.3. Submit the executed bid on the bid forms provided, signed and corporate sealed as applicable together with the required security in a closed opaque envelope, clearly identified with Bidders name, project name on the outside.
- 25.1.1.4. Improperly completed information, irregularities, in required enclosures may be cause to declare the bid informal.

##### **25.2. Bid Signing**

- 25.2.1. The bid form **Must** be signed and under seal (as applicable) by a duly authorized signing officer(s) in their normal signatures.

##### **25.3. Contract Time**

- 25.3.1. The bidder, in submitting an offer, agrees to achieve Substantial performance of the work by the date indicated in the contract documents. The Substantial Performance date in the agreement shall be as indicated on the cover sheet.

## **26. Offer Acceptance / Rejection**

### **26.1. Duration of offer**

**26.1.1.** Bids shall remain open to acceptance and shall be irrevocable for a period of ninety (90) days after the bid closing date.

### **26.2. Award/Selection/Acceptance of Offer**

**26.2.1.** In the evaluation of a bid, HRSB will consider, but not be limited to, the following criteria:

**26.2.1.1.** Compliance with Bid requirements.

**26.2.1.2.** Bid price submitted.

**26.2.1.3.** The qualifications and experience of the bidder with similar projects in size and scope.

**26.2.1.4.** References.

**26.2.1.5.** Gantt chart (schedule of proposed scope of work for various disciplines).

**26.2.1.6.** Completion date.

**26.2.2.** The Owner's evaluation of any and all bid submission(s) will be final.

**26.3.** HRSB reserves the right to accept or reject any or all offers or to accept any offer deemed most satisfactory, HRSB reserves the right to waive any informality in any or all bids.

**26.4.** After acceptance HRSB will issue to the successful bidder, a written bid acceptance.

**26.5.** After acceptance by HRSB, the successful bidder shall be notified in writing of acceptance of the bid and will be issued an official purchase order.

## **27. Agreement**

**27.1.** After acceptance by HRSB and the successful bidder will enter into a CCDC-2 –2008, standard form of contract for the execution of the work.

## **28. Post Bid Submissions**

**28.1.** Provide after closing of bid period, but before award of Contract, when requested by HRSB, a copy of the following documents:

**28.1.1.** Current Certificate of Recognition or Letter of Good Standing:

**28.1.1.1.** Certificate of Recognition issued jointly by the Nova Scotia Department of Labour and an occupational health and safety organization approved by Nova Scotia Department of Labour, or a valid letter of Good Standing from an occupational health and safety organization approved by HRSB

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indicating the Contractor is in the process of qualifying for the Certificate of Recognition. Contractor shall remain in good standing for the duration of the contract. In the event that any such certification during the term of the contract expires, the obligation remains with the contractor to provide the updated required certificates.

**28.1.1.2. Worker's Compensation Coverage**

**28.1.1.2.1.** Evidence of an account with the Workers' Compensation board, coverage under the Workers Compensation Act, R.S.N.S. and a clearance certificate indicating the bidder is in good standing and shall remain so for the duration of the contract. In the event that any such certification during the term of the contract expires, the obligation remains with the contractor to provide the updated required certificates.

**28.1.1.3.** Certificates of good standing with CRCA (Canadian Roofing Contractors Association) and RCANS (Roofing Contractors Association of Nova Scotia),

**28.1.2.** Submit Post-Bid Submissions requested by HRSB within forty-eight (48) hours of request in order to be eligible to receive award of contract.

**28.1.3.** Submit the following post award documents within ten (10) working days of notice of award:

**28.1.3.1.** Provide all required contract security and insurance documentation,

**28.1.3.2.** Schedule of Values,

**28.1.3.3.** Copy of safety plan,

**28.1.3.4.** Copy of Hot Work Permit system and procedures,

**28.1.3.5.** Shop drawings, as applicable, and

**28.1.3.6.** Applicable documentation as required by the Tender Documents.

**28.1.4.** All post bid submissions must be received by HRSB in the manner prescribed above, or prior to commencement of work and delivery of materials on-site, whichever occurs first.

**29. Taxes**

**29.1.** The General Conditions of the Contract state that the Contractor as of April 1, 1997 and thereafter, the Contractor is to pay all Harmonized Sales Tax.

- 29.2.** HRSB is not exempt for Harmonized Sales Tax (HST) purposes. As a result, the aggregate amount of the bid for contracts is subject to HST; however, **prices submitted shall not include HST.**
- 29.3.** The HST payable by the Board will be added as a separate item during the processing of progress payments and therefore **HST will not appear as a cost in the aggregate amount of the tender.**
- 29.4.** Bidders are advised that they may be eligible to claim an Input Tax Credit (ITC) for a portion of the HST paid in relation to the Contract requirement of the Government of Canada.
- 29.5.** Bidders are to note that prices indicated on the Bid Form and the appendices to the Bid Form shall not include Provincial Sales Taxes, the Federal Goods and Services Tax or the Harmonized Sales Tax.
- 29.6.** Exclude Harmonized Sales Tax in Tender Contract Price, unless requested to do otherwise.
- 29.7.** Refer to CCDC-2 - 2008 (Section 00 72 13) and Supplementary General Conditions (Section 00 73 00).

**END OF SECTION 00 21 13**

**SECTION 00 41 13 - TENDER FORM**

**1. Salutation:**

**To:** HALIFAX REGIONAL SCHOOL BOARD  
33 SPECTACLE LAKE DRIVE, DARTMOUTH NS  
Attn: JENNIFER KING, BUYER

**For:** #3877-A WASTEWATER TREATMENT SYSTEM REPLACEMENT – SAMBRO ELEM

**From:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_

**E-Mail:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**Person Signing for Firm:** \_\_\_\_\_

**Position:** \_\_\_\_\_  
\_\_\_\_\_

**2. Bidder Declares:**

- 2.1. That this tender was made without collusion or fraud.
- 2.2. That the proposed work was carefully examined.
- 2.3. That the Bidder was familiar with local conditions.
- 2.4. That Contract Documents and Addenda were carefully examined.
- 2.5. That all the above were taken into consideration in preparation of this Tender.

**3. Bidder Agrees:**

- 3.1. To provide all necessary equipment, tools, labour, incidentals and other means of construction to do all the Work and furnish all the materials of the specified requirements which are necessary to complete the Work in accordance with the Contract and agrees to accept, therefore, as payment in full the Lump Sum Price stated in Subsection 6 hereunder.
- 3.2. Carefully examined the site of the work described herein; become familiar with local conditions and the character and the extent of the work; carefully examined every part of the proposed Contract and thoroughly understands its stipulations, requirements and provisions.
- 3.3. Determined the quality and quantity of materials required; investigated the location and determined the source of supply of the materials required; investigated labour conditions; and has arranged for the continuous prosecution of the work herein described

- 3.4. To be bound by the award of the contract and if awarded the contract on this bid to execute the required contract within ten (10) days after notice of award.
- 3.5. Noted that the Harmonized Sales Tax is excluded from his "Contract Price".
- 3.6. School/Work site access control: Contractor's employees shall always report to the main office of a school, indicate who they are and state their purpose on site prior to starting any work in the school. Contractor is not permitted to work on the school site without School Board's assigned representative on site unless authorized by School Board Operations representative. Typical hours of work are daylight hours. Working in occupied schools will be determined by the Operations representative. No work shall be conducted on weekends or holidays without specific approval of the Operations Representative.
- 3.7. Hours of work – All work shall be carried out during regular business hours unless otherwise indicated below or in writing by the Manager of Operations or designate. Hours of work shall comply with local ordinances and bylaws for each site.
- 3.8. As noted in Section 00 00 15, Item 1.5 - Work that affects the existing plant may only be performed between **July 1st, 2017 and September 1st, 2017**.

#### 4. Owner Agrees

- 4.1. To examine this bid and in consideration, therefore, the bidder hereby agrees not to revoke this bid:
  - 4.1.1. until some other bidder has entered into the contract with The School Board for the performance of the work and the supply of the materials specified in the notice inviting bids; or in the Information to Bidders, or
  - 4.1.2. until ninety (90) days after the time fixed in the Information to Bidders for receiving bids has expired,
  - 4.1.3. Whichever first occurs; provided, however, that the bidder may revoke this bid at any time before the time fixed in the Information to Bidders for receiving bids has expired upon receipt by the Board from the bidder of written notice of such revocation before said time has expired.
  - 4.1.4. The Bidder declares that he has obtained from the Subcontractors all Bid Security required to be provided by Subcontractors pursuant to the "Instructions to Bidders".

**5. Contract Documents include:**

- 5.1.1. Cover Page
- 5.1.2. Table of Contents – Section 00 00 01
- 5.1.3. Description of Work & List of Drawings – Section 00 00 15
- 5.1.4. List of Consultants – Section 00 05 00
- 5.1.5. Information for Bidders – Section 00 21 13
- 5.1.6. Tender Form – Section 00 41 13
- 5.1.7. Tender Price Amendment Form (if applicable) – Section 00 41 73
- 5.1.8. Agreement Between Owner and Contractor (CCDC 2 – 2008) – Section 00 52 00
- 5.1.9. Definitions (CCDC 2 – 2008) – Section 00 52 13
- 5.1.10. General Conditions of the Stipulated Contract Price (CCDC 2 -2008) – Section 00 72 13
- 5.1.11. Supplementary General Conditions – Section 00 73 00
- 5.1.12. HRSB General Terms & Conditions – Section 00 73 10
- 5.1.13. Specifications of Work (all applicable sections)
- 5.1.14. Drawing(s) – as applicable
- 5.1.15. Addendum/Addenda issued by HRSB.
- 5.1.16. Contract Sets (2)

**6. Fee Submission - Contract Price:**

- 6.1. The undersigned Bidder, having carefully read and examined the aforementioned Contract Documents prepared by the Consultant, for Halifax Regional School Board hereby accepts the same as part and parcel of the Contract herein referred to, and having carefully examined the locality and Site of Works and having full knowledge of the work required and of the materials to be furnished and used, does hereby Tender and offer to enter into a contract to perform and complete, the whole of the said works and provide all necessary labour, plant, tools, materials and equipment and pay all applicable taxes, as set forth and in strict accordance with the Specifications, Drawings and other Contract Documents and to do all therein called for on the terms and conditions and under the provisions therein set forth for the following:





7.1.1.2. The undersigned Bidder agrees if awarded the Contract on this Bid to achieve the Substantial Completion Date providing the contract is awarded within ten (10) business days of tender closing time.

**7.2. Detailed breakdown of overall project specific phases (schedule of proposed scope of work for various disciplines)** written and/or Gant Chart to be provided with bid documents or within five (5) business days of tender award.

**8. Addenda Acknowledgement**

I/We have received and noted the following addenda for Tender #3877-A WASTEWATER TREATMENT SYSTEM REPLACEMENT:

<b>Addendum #</b>	<b>Dated</b>	<b># Of Pages</b>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**9. Supporting Information**

**9.1. References: (Minimum of three)**

Bidder to furnish particulars of at least three (3) similar contracts successfully completed or currently being carried to completion. The projects quoted should preferably be approximate in nature to the work now tendered for and be of comparable or greater size. References are to be submitted with the bid prior to closing date and time.

<b>Contact Name &amp; Phone #</b>	<b>Date</b>		<b>Contract Value</b>
_____	<b>From</b> _____	<b>to</b> _____	<b>\$</b> _____
_____	<b>From</b> _____	<b>to</b> _____	<b>\$</b> _____
_____	<b>From</b> _____	<b>to</b> _____	<b>\$</b> _____
_____	<b>From</b> _____	<b>to</b> _____	<b>\$</b> _____

9.2. Bid submission to include a minimum of two letters of endorsement from clients commenting upon the contractor’s ability to deliver quality projects, similar in scope and size, which met schedule and budget.

**10. Proof Of Competency Of Bidder**

10.1. Any bidder may be required to furnish evidence satisfactory to the Owner that he and his proposed sub-contractors have sufficient means and experience in the types of work called for to assure completion of the Contract in a satisfactory manner.

10.1.1. The Bidder acknowledges, as part of their bid submission, their responsibility and contract obligations to ensure that the proposed sub-contractors will fully perform the project requirements and meet the timings as detailed in this tender call.

10.2. **Sub-Contractors:** The Bidder to provide the name and address of each major sub-contractor used in making up this tender. This list of sub-contractors is to be submitted with the bid prior to closing date and time. Only one sub-contractor shall be named for each part of the work to be sublet.

<u>Subcontractor/Suppliers/Manufacturers</u>	<u>Service/Material</u>
Site Works	
Electrical	
Mechanical	
Roof	

10.2.1. **Project Personnel:** The Bidder to include below, the names, qualifications and previous experience of those people who will be directly involved with the project. The names shall, for example, include foremen, superintendent, project engineer and/or project manager, labourers and trade staff. This list of personnel is to be submitted with the bid prior to closing date and time.

Name	Position	Qualifications/Experience

**Signature** \* The undersigned Bidder declares that this bid is made without connection with any other person(s) submitting bids for the same work and is in all respects fair and without collusion or fraud.

**SIGNATURE:**

SIGNED AND DELIVERED  
in the presence of:

\_\_\_\_\_  
Witness

**CONTRACTOR**

\_\_\_\_\_  
Company name

\_\_\_\_\_  
Signature of Signing Officer

\_\_\_\_\_  
Name and Title (printed)

***HRSB is directly responsible for the safety of its students and staff. Should contractors be required to work in or on school property while children are present, it is a MANDATORY SCHOOL BOARD REQUIREMENT that contractors assign the work to employees and/or sub-contractors who DO NOT have a CRIMINAL RECORD and who ARE NOT LISTED ON THE CHILD ABUSE REGISTRY. Failure to comply with this requirement may result in immediate contract termination.***

***By checking the "Agreed" box you are confirming that you understand and will abide by this mandatory School Board requirement.***

***Agreed***

***\*Note: Bids submitted **Must** be signed by a duly authorized officer or agent.***

**END OF SECTION 00 41 13**

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SECTION 00 41 73 - TENDER AMENDMENT FORM

# #3877-A WASTEWATER TREATMENT SYSTEM REPLACEMENT SAMBRO ELEMENTARY

**Note:** to be completed and forwarded for each Bid Price adjustment prior to bid closing time and date as detailed on the Cover Sheet of the tender document and related Addendum.

**Lump Sum Price Adjustment – Section 00 41 13 Tender form, Article 6.1.1 Contract Price**

Increase Bid by		Decrease Bid By	
<b>Amount</b> (excluding HST)	\$	<b>Amount</b> (excluding HST)	\$
<b>HST</b>	\$	<b>HST</b>	\$
<b>Total Amount</b> (including HST)	\$	<b>Total Amount</b> (including HST)	\$

It is the Bidder's responsibility to ensure the table above is legible

**Attachments included:**      no       yes  (one)

If yes above, check  and complete information regarding attachments

**Revised Bid Form:**      Dated \_\_\_\_\_ # of pages \_\_\_\_\_

**Other, Specify** \_\_\_\_\_

Dated \_\_\_\_\_ # of pages \_\_\_\_\_

Total number of pages (including this form) \_\_\_\_\_

**Submitted by:**

\_\_\_\_\_  
**Company Name** (please print as it appears on original tender envelope)

\_\_\_\_\_  
**Authorized Bidder's Name** (please print as it appears on Bid Form)

\_\_\_\_\_  
**Authorized Bidder's Signature**

END OF SECTION 00 41 73

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***SECTION 00 52 00 - AGREEMENT BETWEEN OWNER AND CONTRACTOR  
CCDC 2 – 2008***

**(a copy of Section 00 52 00, Standard Construction Contract CCDC 2 – 2008 (5 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)**

**END OF SECTION 00 52 00**

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***SECTION 00 52 13 - DEFINITIONS  
CCDC 2 - 2008***

**(A copy of section 00 52 13, Standard Construction Contract CCDC 2 – 2008 (2 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)**

**END OF SECTION 00 52 13**

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***SECTION 00 72 13 - GENERAL CONDITIONS  
OF THE STIPULATED PRICE CONTRACT  
CCDC 2 - 2008***

(A copy of section 00 72 13, Standard Construction Contract CCDC 2 – 2008 (23 pages) is available upon request, otherwise, will form part of the contract sets to the successful bidder)

END OF SECTION 00 72 13

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***SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS CCDC2 – 2008***

The Canadian Standard Construction Document for Stipulated Price Contract (CCDC 2, 2008 version), Definitions and General Conditions governing same, shall be used by the project. The following Supplementary General Conditions are intended to supplement or amend the General Conditions, and where conflicts occur, the Supplementary Conditions shall take precedence.

Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

**ARTICLE A-5 PAYMENT**

Delete paragraph 5.1 in its entirety and insert:

5.1 "Subject to applicable legislation and the provisions of the Contract Documents, and in accordance with legislation and statutory regulations respecting holdback percentages and, where such legislation or regulations do not exist or apply, subject to a holdback of ten percent (10%) including the HST (Harmonized Sales Tax), the Owner shall:"

- .1 Make progress payments to the Contractor on account of the Contract Price (work performed) when due in the amount certified by the Consultant together with Value Added Taxes as may be applicable to such payments, and
- .2 Upon Substantial Performance of the Work as certified by the Consultant, pay to the Contractor the unpaid balance of monies then due, excepting that amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items may be retained by the Owner pending Total Performance of the work or other authorization for the release by the Consultant, and
- .3 Upon Total performance of the Work as certified by the Consultant pay to the contractor the unpaid balance of monies due together with such Value Added Taxes as may be applicable to such payment.

Change 5.3.1 (1) to read: "1% per annum above the prime rate."

Delete 5.3.2 (2) in its entirety.

## DEFINITIONS

Add subparagraph 19a to definitions:

### **19a. Submittals**

Submittals are documents or items required by the Contract Documents to be provided by the Contractor, such as:

- 1 Shop Drawings, samples, models, mock-ups to include 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.

## GC 1.1 CONTRACT DOCUMENTS

Add to the end of subparagraph 1.1.2.2:

1.1.2.2 Except where the Consultant shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3.

Add subparagraph 1.1.7.5:

1.1.7.5 Should conflicts occur between Contract Documents and any work is done without consulting the Consultant for his decision, the Contractor shall assume full responsibility.

Add subparagraph to 1.1.7.6:

1.1.7.6 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the Contract Documents.

Delete paragraph 1.18 in its entirety and insert:

1.18 "The Contractor will be provided with up to a maximum of ten (10) copies, without charge, of the Contract Documents or parts thereof for the performance of the work. Extra copies may be obtained for cost of printing and mailing."

#### **GC 2.4 DEFECTIVE WORK**

Add new subparagraphs 2.4.1.1 and 2.4.1.2:

2.4.1.1 The Contractor shall rectify, in a manner acceptable to the Owner and the Consultant, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

2.4.1.2 The Contractor shall prioritize the correction of any defective work which, in the sole discretion of the Owner, adversely affects the day to day operation of the Owner.

#### **GC 3.1 CONTROL OF THE WORK**

Add new paragraph 3.1.3:

3.1.3 Prior to commencing individual procurement, fabrication, and construction activities, the Contractor shall verify, at the Place of 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 contradictions exist, or exact locations are not apparent, the Contractor shall immediately notify the Consultant before proceeding with any part of the affected work.

#### **GC 3.4 DOCUMENT REVIEW**

Delete paragraph 3.4.1 in its entirety and substitute new paragraph:

3.4.1 The Contractor shall review the Contract Documents and shall report promptly to the Consultant and error, inconsistency or omission the Contractor may discover. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. The Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Contractor could not have reasonably have discovered. If the Contractor does discover any error, inconsistency, or omission in the Contract Documents the Contractor shall not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.

### **GC 3.7 SUBCONTRACTORS AND SUPPLIERS**

Add the following paragraph 3.7.7:

- 3.7.7 A copy of the agreement between Contractor and any subcontractor(s) shall be provided to the Consultant if so requested.

### **GC 3.8 LABOUR AND PRODUCTS**

Add the following paragraph 3.8.4:

- 3.8.4 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the Products or other persons or property and in locations at the Place of the Work to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information on the Products to be supplied by the Owner.

### **GC 3.10 SHOP DRAWINGS**

Add the words "AND OTHER SUBMITTALS" to the Title after SHOP DRAWINGS in GC 3.10.

Add "and submittals" after the words "Shop Drawings" in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11 and 3.10.12.

Delete 3.10.3 in its entirety and substitute new paragraph:

- 3.10.3 Prior to the first application for payment, the Contractor and the Consultant shall jointly prepare a schedule of the dates for submission and return of Shop Drawings and any Submittals.

Add the following subparagraph 3.10.6.1:

- 3.10.6.1 The following paragraph shall apply to each shop drawing and submittals reviewed in connection with the project. This review shall not mean that the Consultant approved the detailed design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same. The Contractor is responsible for information that pertains solely to fabricated processes or to techniques of construction and installation, and for coordination of the work of all sub trades.

Delete and insert the words in paragraph 3.10.12

3.10.12 “with reasonable promptness so as to cause no delay in the performance of the Work” and replace with “within ten (10) working days or such longer period as may be reasonably required”

### **PART 3 EXECUTION OF THE WORK**

Add new GC 3.14 as follows:

#### **GC 3.14 CONTRACTOR RESPONSIBILITY FOR WATER TIGHTNESS**

GC 3.14.1 The drawings and specifications are not intended to depict each and every condition or detail of construction. As the knowledgeable party in the field, the contractor is in the best position to verify that all construction is completed in a manner which will provide a watertight structure. The contractor has the sole responsibility for ensuring the watertight integrity of the structure.

Add new GC 3.15 as follows:

#### **GC 3.15 PERFORMANCE BY CONTRACTOR**

GC 3.15.1 In performing its services and obligations under the Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that throughout the Contract, the Contractor’s obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any products, personnel, or procedures which it may recommend to the Owner.

The Contractor further represents, covenants and warrants to the Owner that:

1. The personnel it assigns to the Project are appropriately experienced;
2. It has sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the Owner’s approval, in the event of death, incapacity, removal or resignation.

#### **GC 4.1 CASH ALLOWANCES**

Delete paragraph 4.1.4 in its entirety and substitute:

4.1.4 Where cost under a cash allowance exceed the amount of the allowances, unexpended amounts from other cash allowances shall be reallocated at the *Consultant's* direction to cover the shortfall.

Delete paragraph 4.1.5 in its entirety and substitute:

4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price by Change Order.

Delete paragraph 4.1.7 in its entirety and substitute:

4.1.7 At the commencement of the work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant, a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items call for under cash allowances and items that are specified to be Owner purchased and Contractor installed or hooked up are required at the site to avoid delaying the progress of the Work.

Add new paragraph 4.1.8:

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.

#### **GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER**

Delete section GC 5.1 in its entirety.

#### **GC 5.2 APPLICATION FOR PROGRESS PAYMENT**

Add the following at the end of paragraph 5.2.2:

5.2.2 Such applications shall be accompanied by one or more of the following documents: a Statutory Declaration Waiver of Lien or receipt stating that the holdback monies claimed have been paid to the particular party or parties so named or referred to in the Declaration. Form of Statutory Declaration shall meet the approval of the Consultant.

Add the following paragraph 5.2.8:

5.2.8 The reference to payment for products delivered to the place of work in Article 5.2.7 shall not be construed as covering day-to-day financing of the project. Products delivered to the place of work shall be construed to mean major items of equipment or quantities of items that are essential for the expedient conduct of the work.

### **GC 5.3 PROGRESS PAYMENT**

Supplement paragraph 5.3.1 by adding the following:

5.3.1 A holdback percentage of ten (10) percent (%) shall apply to progress payments. The sworn statement by the Contractor for release of holdback monies shall be in the form of a Statutory Declaration meeting the approval of the Consultant. Amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items, may be retained by the Owner after Substantial Performance has been obtained, pending Total Performance of the work or other authorization for release by the Consultant.

Amend subparagraph 5.3.1.3 as follows:

5.3.1.3 Delete "20" and replace with "30."

### **GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK**

Add the following paragraph 5.4.4:

5.4.4 Before the Contractor submits his application for Substantial Performance of the Work, all Operations and Maintenance Manual materials shall be submitted in accordance with the Contract Documents. The Certificate of Substantial Performance will not be issued until this requirement is met.

### **GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK**

Add the following subparagraphs 5.5.1.3 and 5.5.1.4:

5.5.1.3 Submit a certificate from barrister stating that there are no Builders' Liens filed relating to the Contract Works.

5.5.1.4 Submit a clearance letter from the Workers' Compensation Board.

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## GC 5.7 FINAL PAYMENT

Add the following subparagraphs 5.7.1.1, 5.7.1.2, 5.7.1.3, 5.7.1.4 and 5.7.1.5:

5.7.1.1 Contractor's application for final payment is considered to be valid when the following have been performed:

1. Work has been completed and inspected for compliance with Contract Documents, and the Consultant is satisfied that all the requirements of the Contract have been fulfilled by the Contractor.
2. Defects have been corrected and deficiencies have been completed.
3. Equipment and systems have been tested, adjusted and balanced and are fully operational, and written reports as outlined in the Contract Documents have been provided to the Consultant.
4. Certificates required by Utility companies, manufacturer's representative and inspectors have been submitted.
5. Spare parts, maintenance materials, warranties and bonds have been provided.

5.7.1.2 If Work is deemed incomplete by Consultant, complete outstanding items and request re-inspection.

5.7.1.3 If in opinion of the Consultant, it is not expedient to correct defective work or Work is not performed in accordance with the requirements of the Contract, the Owner may deduct from Contract Price difference in value between work performed and that called for by Contract Documents, amount of which shall be determined by the Consultant.

5.7.1.4 If, within sixty (60) days after the issue by the Consultant of the Certificate of the Substantial Performance, the Contractor has not corrected all the deficiencies, the Owner will retain sufficient money to cover the cost of completing said deficiencies, as determined by the Consultant, in addition to holding monies retained in accordance with the Contract and subject to the provisions of the Builders' lien legislation of Nova Scotia.

5.7.1.5 Neither the final certificate nor the payment thereunder, nor any provision in the Contract Documents shall relieve the Contractor from responsibility for faulty material or workmanship which shall appear within a period of one (1) year from the date of Substantial Performance of the Work and he shall remedy any defects due thereto and pay for any damage to other Work resulting therefrom which shall appear within such period of one year. The Owner shall give notice of observed defects promptly. This article shall not be deemed to restrict any liability of the Contractor arising out of any law in force in the Province of Nova Scotia.



**GC 6.2 CHANGE ORDER**

Add the following paragraphs 6.2.3, 6.2.4, 6.2.5, 6.2.5, 6.2.6 and 6.2.7:

- 6.2.3 All contemplated changes in the work shall be issued by the Consultant on a "Contemplated Change Order" form.
- 6.2.4 For lump sum pricing, the Contractor shall, upon receipt of the Contemplated Change Order, submit to the Consultant for approval within seven (7) days, a quotation for changes in the work.
- 6.2.5 Quotation for changes shall be priced in sufficient detail (GC6.6 applies).
- 6.2.6 Consultant shall, within five (5) working days, notify the Contractor whether estimates are accepted by Owner or further information required. Acceptance of Owner shall be indicated by writing, and a signed copy of form (Change Order) returned to Contractor.
- 6.2.7 Contractor shall take reasonable measures to stop work or minimize the work in areas affected by or related to the contemplated changes.

#### GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

Add new paragraph 6.4.5:

6.4.5 The *Contractor* confirms that, prior to bidding the *Project*, it carefully investigated the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.15.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the Contractor prior to submission of bid, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid.

#### GC 6.5 DELAYS

Delete the period at the end of paragraph 6.5.1 and substitute the following words:

6.5.1 “, but excluding any consequential, indirect or special damages.”

Add new paragraph 6.5.6:

6.5.6 If the Contractor is delayed in the performance of the Work by any act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly, or by any cause within the Contractor’s control, then the Contract Time shall be extended for such reasonable time as the Consultant may decide in consultation with the Contractor. The Owner shall be reimbursed by the Contractor for all reasonable costs incurred by the Owner as the result of such delay, including all services required by the Owner from the Consultant as a result of such delay by the Contractor and, in particular, the cost of the Consultant’s services during the period between the date of Substantial Performance of the Work stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of Substantial Performance of the Work achieved by the Contractor.

Add new paragraph 6.5.7:

6.5.7 If the Contractor is delayed in the completion of the Work by any act or neglect of: The School Board, any employee or either any other Contractor employed by The School Board, changes ordered in the Work, strikes, lockouts, fire, unusual delay by common carriers, unavoidable casualties, any other cause of any kind whatsoever beyond the Contractor’s control or by any cause within the Contractor’s control which the Consultant shall decide as justifying the delay, then the time of completion shall be extended for such reasonable time as the Consultant may decide.

Add new paragraph 6.5.8:

6.5.8 No such extension shall be made for delay occurring more than seven (7) days before claim therefore is made in writing to the Consultant, provided however that in the case of a continuing cause of delay, only one (1) claim shall be necessary.

Add new paragraph 6.5.9:

6.5.9 If no schedule is made, no claim for delay shall be allowed on account of failure to furnish such schedule until two (2) weeks after demand for such schedule and not then unless such claim be reasonable.

Add new paragraph 6.5.10:

6.5.10 The Consultant shall not, except by written notice to the Contractor, stop or delay any part of the main Contract Work pending decisions or proposed changes.

#### **GC6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE**

Amend paragraph 6.6.5 as follows:

6.6.5 Add the words “as noted in paragraph 6.6.3” after the words “of the claim” and add the words “and the consultant”, at the end.

#### **GC 6.7 VALUATION OF CHANGES**

Add the following Header and paragraphs 6.7.1, 6.7.2, 6.7.3 and 6.7.4 in their entirety:

**GC 6.7 VALUATION OF CHANGES**

6.7.1 The value of any change shall be determined in one or more of the following way as determined by the Consultant:

(a) By estimate and acceptance in a lump sum, submitted with sub-contractors' and suppliers' signed quotations and breakdown estimates including itemized material and labour lists.

For changes where the individual trade cost is anticipated to be less than \$1000, the requirement for the detailed cost breakdown may be waived, but individual trade quotation must be supplied.

(b) By unit prices agreed upon or as listed in the contract.

(c) Cost of work and percentage or by cost and fixed fee.

6.7.2 In cases of additional work to be paid for under method "c", the Contractor shall keep and present in such form as the Consultant may direct, a correct account of the net cost of labour and materials, together with vouchers. In any case, the Consultant shall certify to the amount due to the Contractor including the profit and overhead. Pending final determination of value, payments on account of changes shall be made on the Consultant's certificate.

6.7.3 In determination of method ".1(a) or ".1(c) above, the labour costs to be calculated by the actual estimated hours at an hourly rate determined as follows:

The hourly labour rate to be total payroll costs including hourly wage, statutory contributions to UIC, WCB, CPP, Training Funds, Health Benefits and other applicable labour burdens paid directly by the employer such as vacation pay, holiday pay, pension plan etc.

The School Board reserves the right to verify the payroll cost by independent audit.

To the total payroll cost the following percentage factors will be recognized.

- small tools/expenditures 5% (on payroll costs)
- site supervision 5% (on payroll costs)

(d) In determination of methods ".1(a)" and ".1(c)" above, the material costs to be calculated as follows:

Contractors net costs, including contractor discounts from suppliers, FOB the project site plus applicable taxes.

(e) In determination of methods ".1(a)" and ".1(c)" above, equipment rental costs for major pieces of equipment required will be at local industry rates.

(f) In determination of methods “.1(a)” and “.1(c)” above, overhead and fees shall be calculated as follows:

The cost of any authorized change shall be determined by the net total of labour and material or equipment as outlined in “.3(a)”, “.3(b)” and “.3(c)” above on which the percentage markup shall be determined as follows:

For Extras Up to \$5,000:

Sub- Contractors Own Work	- Overhead & Fee – 15% total
General Contractors Own Work	- Overhead & Fee – 15% total
General Contractors on Sub Contractors work (no percentage markup shall be applied to deductions)	- 10% total

For Extras Above \$5,000:

Sub Contractors Own Work	- Overhead & Fee – 10% total
General Contractors Own Work	- Overhead & Fee – 10% total
General Contractors on sub contractor’s work (no percentage markup shall be applied to deductions)	– 8% total

6.7.4 Submit to the Consultant and The School Boards representative detailed breakdown of the hourly labour rate as defined in paragraph “.3(a)”.

**GC 8.2 NEGOTIATION, MEDIATION, AND ARBITRATION**

Add the following paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12, 8.2.13, 8.2.14, and 8.3:

8.2.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the Owner and the Contractor shall give the Consultant a written notice containing:

- a) a copy of the notice of arbitration;
- b) a copy of supplementary conditions 8.2.9 to 8.2.14 of this contract, and;
- c) any claims or issues which the Contractor or the Owner, as the case may be, wishes to raise in relation to the Consultant arising out of the issues in dispute in the arbitration.

8.2.10 The Owner and the Contractor agree that the Consultant may elect, within ten days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the Consultant:

- a) has a vested or contingent financial interest in the outcome of the arbitration;

- b) gives the notice of election to the Owner and the Contractor before the arbitrator is appointed;
- c) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and;
- d) agrees to be bound by the arbitral award made in the arbitration.

8.2.11 If an election is made under paragraph 8.2.10, the Consultant may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration.

8.2.12 The arbitrator in the arbitration in which the Consultant has elected under paragraph 8.2.10 to become a full party may:

- a) on application of the Owner or the Contractor, determine whether the Consultant has satisfies the requirements of paragraph 8.2.10, and;
- b) make any procedural order considered necessary to facilitate the addition of the Consultant as a party to the arbitration.

8.2.13 The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the Consultant to any sub-consultant.

8.2.14 In the event of notice of arbitration given by the Consultant to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.

8.3 An application for arbitration shall be accompanied by security in the amount of \$1000 to apply to the cost of arbitration. Any claims of excess costs must be submitted in writing to the Consultant within two weeks of completion or alleged completion of the work. No claims shall be accepted after this date and, also, no claims shall be accepted for disputed work unless the Consultant has been notified as specified.

#### **GC 9.1 PROTECTION OF WORK AND PROPERTY**

Delete subparagraph 9.1.1.1 in its entirety and substitute the following new paragraph 9.1.1.1:

9.1.1.1 errors in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.15.1.

Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

9.12 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in the Contract Documents, or that are discoverable by applying to an Inspection of the Place of Work exercising the degree of care and skill described in paragraph 3.15.1.

#### **GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

Add in paragraph 9.2.6 after the word “responsible”, the following new words:

9.2.6 Or whether any toxic or hazardous substances or materials already at the Place of Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner and others,

Add in subparagraph 9.2.7.4:

9.2.7.4 “and the Consultant” after “Contractor”:

Add in paragraph 9.2.8 after the word “responsible”, the following new words:

9.2.8 or that any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirement, or which threatens, humane health and safety or the environment, or material damage to the property of the Owner or others.

#### **GC 9.5 MOULD**

Add in subparagraph 9.5.3.4:

9.5.3.4 “and the Consultant” after “Contractor”

#### **GC 10.1 TAXES AND DUTIES**

Add the following paragraph 10.1.3:

10.1.3 The Contractor shall indicate on each application for payment as a separate amount, the appropriate Harmonized Sales Tax the Owner is legally obliged to pay. This amount will be paid to the Contractor in addition to the amount certified for payment under the Contract.

#### **GC 10.2 LAWS, NOTICES, PERMITS AND FEES**

Delete from the first line of paragraph 10.2.5 the word, “The” and substitute the words:

10.2.5 “Subject to paragraph 3.15.1, the”

#### **GC 10.4 WORKERS' COMPENSATION**

Add the following paragraphs 10.4.3, 10.4.4, and 10.4.5:

10.4.3 The contractor is referred to regulations, as applicable, under the Worker's Compensation Act of Nova Scotia.

10.4.4 Registration with Worker’s Compensation Board shall be continuous during the contract. Should registrations be scheduled to expire during the contract period, the Contractor shall submit a copy of registration renewal one month prior to the expiration of the current certificate.

10.4.5 The Contractor shall furnish evidence of coverage under the Worker’s Compensation Act, R.S.N.S. and a clearance Certificate providing proof of registration with Worker’s Compensation Board prior to commencement of work. (A photocopy of the Contractors registration certificate is acceptable proof). On-going proof of good standing with the Worker’s Compensation Board during the term of the contract is required.



## GC 11.1 INSURANCE

Delete sentences and replace with the following in subparagraph 11.1.1.1:

- 11.1.1.1 "General liability insurance shall be maintained from the commencement of the work until one year from the date of Substantial Performance of the Work. Liability coverage shall be provided for completed operations hazards from the date of Substantial Performance of the Work, as set out in the certificate of Substantial Performance of the Work, on an ongoing basis for a period of 6 years following the Substantial Performance of the Work" **and replace with:** " General Liability Insurance or Wrap- Up Liability Insurance, (as detailed in the Information to Tenders section under "Insurance Requirements"), shall be maintained from the commencement of the work until final completion and acceptance of the work including the making good of faulty work or materials, except that coverage of completed operations liability shall in any event be maintained for twelve (12) months from date of Substantial Performance of the work as certified from the Consultant, and approved by the Owner".

Add the following subparagraphs 11.1.1.1.1, 11.1.1.1.2, and 11.1.1.2.1:

- 11.1.1.1.1 The general liability insurance to be maintained by the Contractor shall include Commercial General Liability Insurance covering Premises and Operations Liability, elevators, board form property damage, board from automobile, owners and contractors protective, blanket contractual, personal injury, completed operations liability contingent employers liability, cross liability clause, non-owned automobile liability, and a 30 day notice of cancellation clause.
- 11.1.1.1.2 All liability insurance policies shall be written in such terms as will fully protect the Contractor and  
The School Board as an additional named insured.
- 11.1.1.2.1 Liability coverage of not less than two million dollars (\$2,000,000) is required with regard to operations of owned automobiles.

Delete subparagraph 11.1.1.4 in its entirety and insert the following subparagraphs:

- 11.1.1.4 Broad Form (All Risks) Builders Risk Coverage - Prior to the commencement of any Work the Contractor shall maintain and pay for Broad Form (All Risks) Builders Risk Coverage in the joint names of The School Board and the Contractor totalling not less than one hundred percent (100%) of the total value of the Work done and materials delivered on the site (contract value), so that any loss under such policies of insurance will be payable to The School Board and the Contractor as their respective interests appear. The Builders

Risk Insurance shall include all materials related to the work while in transit or at other locations.

- 11.1.1.4.1 Should a loss be sustained under the Builders Risk Coverage, the Contractor shall act on behalf of The School Board and Contractor for the purpose of adjusting the amount of such loss with the insurance companies. As soon as such adjustment has been satisfactorily completed, the Contractor shall proceed to repair the damage and complete the Work and shall be entitled to receive from The School Board in addition to any sum due under the Contract, the amount at which The School Board interest has been appraised in the adjustment made with the insurance companies as referred to above, said amount to be paid to the Contractor as the Work of restoration proceeds. Any loss or damage which may occur shall not affect the rights and obligations of either party under the Contract except as aforesaid and except that the Contractor shall be entitled to a reasonable extension of time for the performance of the Work, as The School Board may decide.
- 11.1.1.4.2 Upon approval by The School Board of the Substantial Performance certificate issued by the Consultant, the Contractor's obligation to maintain Builder Risk Insurance shall cease and The School Board shall assume full responsibility for insuring the whole of the Work against loss or damage.
- 11.1.1.4.3 "Broad form" property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors* The Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:
- 11.1.4.3.1 Ten (10) Calendar days after the date of *Substantial Performance of the Work*;
  - 11.1.4.3.2 on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square meter in area, or parking purposes, or for the installation, testing and commissioning or equipment forming part of the *Work*; and
  - 11.1.4.3.3 when left unattended for more than thirty (30) consecutive calendar days or when construction activity has ceased for more than thirty (30) consecutive calendar days.

Paragraph 11.1.2 is clarified as follows:

11.1.2 Submit Certified true copies of each insurance policy to the Owner's Contract Authority within seven (7) working days after notification of award or in any event prior to payment of the first progress claim. Such copies shall be exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. Prior to the commencement of any work, the Contractor shall file with the Owner a certified copy of each insurance policy and certificate required.

Delete 11.1.5 in its entirety and replace with the following:

11.1.5 Insurance contracts shall be procured from and the premiums paid to a resident agent of an insurance Company licensed to underwrite insurance in the Province of Nova Scotia.

Add the following paragraph 11.1.9:

11.1.9 All of the insurance policies shall contain a clause stating that no change in terms and conditions or cancellation may at any time be made without the full knowledge and consent of the owner.

## **GC 11.2 CONTRACT SECURITY**

Add the following subparagraph 11.2.2.1:

11.2.2.1 "Bonds shall be procured from a Nova Scotia resident agent of an insurance company licensed to do business in Nova Scotia and shall be maintained in good standing and held by the Owner until one (1) year after Substantial Performance of the Work.

Add the following paragraph 11.2.3:

11.2.3 If a Certified Cheque is held as contract security it shall be in an amount equal to ten (10) percent (%) of the Contract Price. Supplement the Certified Cheque as necessary to maintain the amount equal to ten (10) percent (%) of the total amount payable (Contract Price plus HST).

- .1 The Certified Cheque will be deposited at the chartered bank holding The School Board deposits.
- .2 The School Board will return the cheque amount to the Contractor upon satisfactory completion of the contract and duration as specified in the Tender documents.
- .3 Should Contractor default, total amount payable under the Certified Cheque will be the face value of the cheque plus all accrued interest.

- .4 Payment for completion of work, due to failure of performance of the Contractor, shall include all reasonable obligations under the Contract, including architectural and engineering costs arising because of the default of the Contractor.
- .5 Payment for labour and materials shall be limited to those who have a direct contract with the Contractor for the provision of labour and/or material (which includes equipment rental).

### **GC 12.3 INDEMNIFICATION**

Add the following paragraph 12.1.1.3:

- 12.1.1.3 The Contractor shall indemnify and hold harmless the Consultant, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceeding 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 six (6) years from the date of Substantial Performance of the Work, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the Place of Work.

### **GC 12.3 WARRANTY**

Delete from the first line the word, "The" and substitute the words in paragraph 12.3.2:

12.3.2 "Subject to paragraph 3.15.1, the..."

Add the following paragraph 12.3.7:

- 12.3.7 Warranty repairs or replacements which arise during warranty period which affect the operation of the system shall be attended to immediately upon notification from the Consultant.

**END OF SECTION 00 73 00**

**SECTION 00 73 10 - HRSB GENERAL TERMS & CONDITIONS**

**1. General**

- 1.1. These Terms and Conditions, shall apply only to those documents (Quotations, Request for Proposals and Tenders, herein referred to as Public RFX or RFX) that reference them specifically. In the event of any conflict or disagreement between these Terms and Conditions and the RFX documents, the RFX documents have precedence and will be assumed to be correct.
- 1.2. These Terms and Conditions are intended to cover a wide range of procurements, including goods and services. As such, not all clauses will be applicable in all situations. If Suppliers have questions regarding any of these Terms and Conditions, they should contact the Halifax Regional School Board (HRSB) Procurement Division. To satisfy special requirements, supplementary Terms and Conditions may also apply to some acquisitions. If this is the case, the RFX documents will reference any such documents, in addition to these Terms and Conditions.
- 1.3. For the purpose of these Terms and Conditions HRSB intends to only contract with responsible Suppliers who are in the business of providing the goods and/or services submitted upon, and can provide proof that they can furnish satisfactory performance based on past work experience with HRSB, other companies, or government agencies and have the financial managerial, and resource capabilities for the size of project bid upon. Satisfactory performance includes meeting all of the requirements of the various federal and provincial regulations and agencies for the completion of work and making payment to sub-contractors in a timely basis.
- 1.4. All of the terms, conditions and/or specifications stated or referenced in the Solicitation are assumed to be accepted by the Bidder and incorporated in the Bid.

**2. RFX Documents**

- 2.1. RFX Documents should be obtained as indicated on the Cover Sheet of the tender document.
- 2.2. While HRSB has tried to ensure accuracy in the RFX documents, it is not guaranteed or warranted by HRSB to be accurate, nor is it necessarily comprehensive or exhaustive.
- 2.3. HRSB cannot ensure the accuracy of RFX documents obtained from any other source. (i.e. Construction Association of Nova Scotia (CANS), Nova Scotia Electronic Tendering Bulletin Board, Project Consultants, etc.).
- 2.4. All inquiries to this RFX are to be directed, in writing, to HRSB Procurement Division representative indicated in the RFX documents. Information obtained from any other source is not official and will not bind HRSB.
- 2.5. HRSB will assume that all Suppliers have resolved any questions they might have about the RFX and have informed themselves as to existing conditions and limitations, site restrictions, etc. before providing a RFX submission.
- 2.6. Nothing in the RFX is intended to relieve Suppliers from forming their own opinions and conclusions with respect to the matters addressed in the RFX or its associated documents.
- 2.7. In the event that HRSB Regional Office (33 Spectacle Lake Drive, Dartmouth) is closed (this includes partial day closures) due to inclement weather on the date and time of the RFX closing, the closing date and time will be extended one (1) business day. Bidders should note that closure of Schools does not necessarily mean the closure of the Board's Regional Office. Closures are detailed on HRSB website.

- 3. Verbal instructions:** Any changes to RFX call, specifications, terms and conditions shall be stated in writing. Verbal statements made by employees or representatives of HRSB, whether or not they appear to have the proper authority, shall not be binding on HRSB.

- 4. Addenda:** HRSB reserves the right to modify the terms of the RFX documents prior to closing, at its sole discretion by addenda.

- 4.1. HRSB Procurement Division will make every effort to ensure the information provided on HRSB.ca is complete and accurate, please report any omissions or discrepancies to the Procurement Division immediately. **Any questions or requests for clarification arising from omissions, discrepancies, or ambiguities, must be made in writing no later than five(5) working days prior to the closing date, not including the closing date.** Replies to requests for clarification, if required, will be made in the form of written addenda, copies of which will be posted on www.HRSB.ca/tender no later than three (3) working days prior to the date of closing, not including the closing date.
- 4.2. By downloading files from the www.hrsb.ca, you will automatically become registered for the applicable RFX. HRSB Procurement Division will make reasonable efforts, strictly as a courtesy, to directly inform registered Suppliers of any addenda, **however it is the sole responsibility of each registered Supplier to ensure that they have all the documents associated with any RFX and, to this end, every registered Supplier should review HRSB Tender Web Site daily.** These documents must be downloaded from the www.hrsb.ca/tender or obtained from HRSB Procurement Division, as applicable. Suppliers must acknowledge receipt of all addenda(s) with their RFX Submission.
5. **Suppliers Responsibility:** Suppliers are solely responsible for their own expenses in preparing, delivering or presenting a RFX and for subsequent negotiations, if any, with HRSB. It will be the responsibility of the Supplier to acquire at the Suppliers cost, any RFX documents as indicated on the Cover Sheet of the tender document.
6. **Existing Conditions:** Suppliers will be deemed to have familiarized themselves with the existing conditions which may affect the performance of required goods, services and construction. No plea of ignorance of such conditions as a result of failure to make all necessary examinations will be accepted as a basis for any claims for extra compensation or an extension of time. Suppliers are to ensure that they understand the expected use for the requested goods, service and construction and submit their RFX submission accordingly.
7. **RFX Submissions**
- 7.1. RFX will close at the time, date and location specified in the RFX documents (Atlantic Time Zone).
- 7.2. All RFX submissions must be received in their entirety on or before the closing time specified. Suppliers are responsible for ensuring that their RFX submission, however submitted, is received on time and at the location specified.
- 7.3. RFX Submissions must be submitted on the forms provided or in such format as directed in the RFX documents. These forms must be legible, complete, filled out in ink, or by typewriter, with the signature in longhand and the completed form shall be without interlineations, alterations or erasures.
- 7.4. If an electronic transmission (i.e. Facsimile, e-mail or HRSB.ca upload) can be accepted, as detailed in the applicable RFX documents, it is the responsibility of the Supplier:
- 7.4.1. to ensure that the submissions are delivered on or before the closing time and date shown on the RFX documents;
- 7.4.2. that the correspondence is legible and properly transmitted; and
- 7.4.3. that the name and number of the RFX is clearly displayed.
- 7.5. Electronic transmission of a RFX submission cannot be used where original documents are required, e.g. bid bonds, certified cheques, samples, etc., or as may be otherwise stated in the RFX documents.
- 7.6. **Sealed RFX submissions** must be delivered to HRSB Receptionist, 1st floor, 33 Spectacle Lake Drive, Dartmouth, Nova Scotia, on or before the closing time and date shown on the RFX documents. The RFX Submission is to be submitted on the provided forms, signed (together with the required RFX security as applicable) in a sealed opaque envelope, clearly identified with Suppliers name, RFX identification number and name, and closing date on the outside of the envelope. RFX Submissions are date and time stamped upon receipt at the Procurement Division (not at any other location) by the Procurement date time stamp. Any submission received after the

closing date and time shown on the RFX documents will not be accepted and will be returned to the Supplier unopened and deemed non-compliant.

- 7.7. Facsimile submissions** received are date and time stamped by the Procurement Division Facsimile, no other time stamp will be considered. A facsimile submission received after the closing date and time shown on the RFX documents will not be accepted and shall be deemed non-compliant. **The facsimile number for the Procurement Department of HRSB is (902) 464-0161. Do not send RFX correspondence to any other fax number.**

7.7.1. Where specified, facsimile submissions are accepted for the convenience of the Supplier; HRSB cannot ensure the confidentiality or error-free receipt of facsimile submissions.

**7.8. Amendments/Withdrawn Submissions**

7.8.1. Submissions may be withdrawn or amended by written request (on company letterhead or equivalent), prior to RFX closing date and time, but cannot be altered or changed in any way after the RFX closing.

7.8.2. Facsimile transmissions modifying supplier provided information are acceptable when signed by a duly authorized officer or agent. Submission of such electronic transmissions is at the risk of the Supplier. HRSB assumes no liability for the receipt of the electronic transmissions or their proper inclusion with original RFX submission. An electronic submission must be submitted prior to closing time and date specified in the RFX documents.

7.8.3. An amendment to a RFX submission replaces any other RFX submission amendment previously submitted by the supplier; only the last of any RFX submission amendment received will be accepted.

**7.9.** All RFX submissions must be signed by an authorized representative of the entity.

**7.10.** HRSB's time clocks will be assumed to be correct in the event of dispute.

**7.11.** HRSB reserves the right in its sole discretion to clarify any RFX submission after closing by seeking further information from that Supplier, without becoming obligated to clarify or seek further information from any or all other Supplier. However, Suppliers are cautioned that any clarifications sought will not be an opportunity either to correct errors or change their Bids in any substantive manner.

- 8. Brand Name:** Some terminology may be used that would imply or denote a particular supplier. Brand names may be utilized to designate the type and quality of the product requested. Such usage shall not to be construed as restrictive in any way. Suppliers must be prepared to provide samples if required.

**9. Substitute**

**9.1.** If the Supplier is offering an equivalent (similar) substitute product to those specified, unless a specific product is requested, the supplier must clearly identify this substitution and supply the manufacturer's name, product number and provide any technical information required so that HRSB can determine the acceptability of the substitute.

**9.2.** HRSB reserves the right to inspect or test any product bid to determine equivalency, and may require demonstrator or sample items in order to be able to evaluate the items proposed.

**9.3.** HRSB shall be the sole judge of the acceptability of any substitute or proposed equivalent.

**9.4.** Specifications may, for technical or logistical reasons, require that the items specified be supplied without substitution.

**10. Warranty**

- 10.1.** The supplier must describe the duration, type (e.g. on-site, depot, ship-in or carry-in) and terms of the manufacturer's warranty on all goods. If the supplier provides any additional/supplementary warranty coverage, describe this as well.
- 10.2.** If warranties can be upgraded or extended, identify the upgrade costs separately. Do not include warranty upgrade or extension costs in the price unless the RFX documents specifically states that the upgrade is a mandatory requirement.

**11. Pricing**

- 11.1.** All prices must be extended and totaled, where practical to do so. RFX Submission may be rejected as incomplete if total figures are not provided. In the case of an error in the extension of prices, the unit prices shall prevail.
- 11.2.** Prices must be in Canadian funds, and shall include all shipping, handling, freight, offloading, duty, insurance and any other charges, which are applicable at time RFX is awarded (FOB – Destination). HRSB will not assume responsibility for any goods or services until they have been delivered to the destination(s) specified in the Solicitation. It is the responsibility of the Supplier to find out from the appropriate authorities what rates and charges are applicable to this RFX. No extra charges will be paid by HRSB.
- 11.3.** In the event that a number of Suppliers provide submission in substantially the same amount, HRSB may, at its discretion, call upon those Suppliers to submit further bids.

**12. Permits and Taxes:** It is the responsibility of the Supplier to ensure that quotations include all taxes, permits, and other charges required to supply the goods, services and construction. The successful Supplier is to comply with all codes, regulations, and by-laws and all government and applicable standards pertaining to the work and job-site including, and not limited to, the Nova Scotia Occupational Health and Safety Act and Regulations. HRSB is required to pay a Harmonized Sales Tax (HST) at a rate specified by the Province of Nova Scotia. This tax is to be shown as a separate line item.

**13. Standards**

- 13.1.** All goods, services and construction supplied to HRSB shall, when standards are available, be certified in accordance with the applicable code(s), but not limited to:
  - 13.1.1. Canadian Standards Association;
  - 13.1.2. Canadian Government Standards HRSB;
  - 13.1.3. Underwriters Laboratories of Canada; and
  - 13.1.4. And all applicable Federal, Provincial and Municipal regulations and acts.
- 13.2.** HRSB reserves the right to discontinue the purchase of any product/service that does not continue to meet the applicable standard(s).

**14. Inspection:** HRSB reserves the right to inspect any goods, services or construction supplied either during or after manufacture and delivery, and shall be the sole judge as to the acceptability of goods, services and construction to meet the needs of HRSB and fulfills the requirements as specified.

**15. Rejection of RFX Submissions/Compliance:**

- 15.1.** Failure to comply with any of the mandatory terms or conditions contained or referenced in the RFX documents shall result in the rejection of the RFX submission.
- 15.2.** HRSB specifically reserves the right to accept or reject any or all RFX submission and implies no obligation on HRSB to accept any RFX submission, a portion of any RFX submission or any RFX submission. HRSB reserves the right to cancel any RFX in its entirety and shall not be responsible, in any manner, for expenses incurred by the



Supplier for preparing a RFX submission. HRSB may award all or a portion of the work to one or more Suppliers. Without limiting the generality or any other provision hereof, HRSB reserves the right to reject or accept any RFX submission:

- 15.2.1. that contains any irregularity or informality;
- 15.2.2. that is not accompanied by the security documents required;
- 15.2.3. that contains an alteration in the quoted price that is not initialed by the or on behalf of the Supplier;
- 15.2.4. that is incomplete or ambiguous;
- 15.2.5. contains clauses additional to the RFX that are "qualified" or "conditional"; and/or
- 15.2.6. that does not strictly comply with the requirements contained in these instructions.

**15.3.** HRSB reserves the right to waive minor non-compliance where such non-compliance is not of a material nature in its sole and absolute discretion, or to accept or reject in whole or in part any or all RFX submissions, with or without giving notice. Such minor non-compliance will be deemed substantial compliance and capable of acceptance. HRSB will be the sole judge of whether a RFX submission is accepted or rejected.

**15.4.** HRSB reserves the right to accept or reject any or all RFX submission, not necessarily accept the lowest priced RFX submission, or to accept any RFX submission which it may consider to be in its best interest.

**16. Evaluation criteria:** If applicable, award of the RFX will be based on "Best Value" (which includes, but not limited to; price, discounts, product specifications, warranty, delivery, reference checks, etc.

**17. Cancellation/no award**

**17.1.** Issuing a RFX implies no obligation on HRSB to accept any submission, or a portion of any submission. The lowest or any RFX submission will not necessarily be accepted.

**17.2.** RFX's may be cancelled in whole or in part by HRSB in its sole discretion when:

- 17.2.1. the RFX submission price exceeds the funds allocated for the purchase;
- 17.2.2. there has been a substantial change in the requirements after the RFX has been issued;
- 17.2.3. information has been received by the RFX after the RFX has been issued that the RFX believes has substantially altered the procurement;
- 17.2.4. there was insufficient competition in order to provide the level of service, quality of goods or pricing required.

**17.3.** If no compliant RFX submission is received in response to a RFX, the RFX reserves the right to enter into negotiations with one or more suppliers in order to complete the procurement.

**17.4.** HRSB will be the sole judge of whether there is sufficient justification to cancel any RFX.

**17.5.** No action or liability will lie or reside against HRSB in its exercise of its rights under this section.

**18. Eligibility and Conflict of Interest**

**18.1.** A RFX Submission may not be eligible for acceptance if current or past corporate or other interests of the Bidder may, in HRSB's opinion, give rise to a conflict of interest in connection with a project.

**18.2.** Suppliers are cautioned that acceptance of their RFX submission may preclude them from submitting a response on subsequent phases where a conflict of interest may arise. Suppliers should study the project implementation strategy to determine whether or not they plan to submit response on subsequent phases.

**18.3.** If the RFX submission covers the first phase of what may prove to be a multi-phased project, the successful Supplier on the initial phase may be permitted to respond on subsequent phases as long as, in HRSB's opinion, no conflict of interest would be created in performance of the work by that Supplier.

**18.4.** Sub-contracting to any firm or individual whose current or past corporate or other interests may, in HRSB's opinion, give rise to a conflict of interest in connection with this bid will not be permitted. This includes, but is not limited to, any firm or individual involved in the preparation of the RFX documents.

- 19. Disputes:** In case of dispute as to whether or not an item or service quoted or delivered meets RFX requirements, the decision of HRSB, or its authorized representative, shall be final and binding on all parties.
- 20. Exceptions:** A RFX submission shall be considered an agreement to all terms and conditions provided herein and in various RFX documents, unless specifically noted otherwise in the RFX documents.
- 21. Irrevocable Offer:** A RFX submission represents an irrevocable offer, unless otherwise stated in the RFX documents and shall be valid for a period of ninety (90) days following the closing date for RFX submissions.
- 22. Patent right and royalties:** The successful Supplier shall pay all royalties and patent license fees required for the performance of the work. The successful Supplier shall hold HRSB harmless from and against claims, demands, losses, costs, damages, action suits or proceedings arising out of the successful Supplier's performance of the Contract which are attributable to an infringement or an alleged infringement of a patent of invention by the successful Supplier or anyone for whose acts the successful Supplier may be liable.
- 23. Assignment:** The successful Supplier shall not assign the Contract (or portion thereof) nor sub-contract without the prior written consent of HRSB, consent shall not be unreasonably withheld.
- 24. Purchase Order:** Work by the Supplier will begin only with the issuance of HRSB's official purchase order and/or any Contract Documents as applicable. The purchase order number must appear on any/all invoices covering same. No work is authorized until the successful Supplier has received an official HRSB purchase order and/or required Contract Documents. HRSB accepts no responsibility for any work performed prior to the issuance of a purchase order and/or required Contract Documents.
- 25. Delivery**
- 25.1.** Where the RFX Document includes a mandatory delivery schedule, HRSB will assume that the Supplier can meet the requested schedule and is satisfied that the goods or services required will be available for delivery on the requested date(s).
- 25.2.** If Suppliers wish to specify a delivery schedule different from that requested in the RFX document, they must provide specific delivery dates or a schedule in calendar days from the date a Purchase Order is issued. RFX Submission that do not meet the delivery schedule as requested in the RFX documents may be rejected.
- 25.3.** Time is of the essence, and supplier's delivery schedule is legally binding. HRSB reserves the right to assess penalties or cancel awards to Suppliers who fail to meet their stated delivery or completion dates.
- 26. Invoices**
- 26.1.** All invoices are to be submitted quoting the Purchase Order number (as applicable). The H.S.T. number must be shown on each invoice. Invoices must include a description of the goods, services and construction provided with HRSB Work Order Numbers (where applicable). Invoices must also clearly indicate list price, discounts offered and net price, if applicable. All invoices are to be forwarded to:
- Halifax Regional School Board  
33 Spectacle Lake Drive  
Dartmouth, NS, B3B 1X7  
Attn: Accounts Payable**
- 26.2.** All Suppliers are required to maintain their tax status in good standing. In this regard, Suppliers are advised that verification of good standing with the Nova Scotia Minister of Finance and Revenue Canada (GST/HST) may be carried out prior to the award of a contract to a successful Supplier.

**26.3.** In order to maximize efficiencies, as well as to be more environmentally friendly, vendor payments are now being paid via EFT (Electronic Funds Transfer) direct deposit to vendor bank accounts. A vendor direct deposit form must be filled out with banking information for EFT payments.

**27. Payment:**

**27.1.** HRSB's normal payment terms are thirty (30) days from acceptance that the goods, services and construction meet the specifications. Alternative payment schedules may be proposed and are to be shown as an option and list any additional discounts to HRSB. Early payment discount terms (minimum period ten (10) days) may be considered in the evaluation of the RFX response. Payment of term discount invoices will be calculated from the date of the invoice or goods have been received, whichever is later. Discount terms must appear on the invoice.

**27.2.** The Supplier shall make application for payment at least monthly with the application based on progress or services provided during that month. HRSB will hold back ten percent (10%) of any payment until the lien periods have expired and the Supplier has provided HRSB with a complete release of any lien registered as a result of any work carried out by the Supplier, or any sub-contractor or supplier to the Supplier.

**28. Right to offset:** The successful Supplier agrees that HRSB may apply payments for goods, services and construction to any amount owing to HRSB by the Supplier or supplier including any related administration fees.

**29. Confidentiality:** The Supplier shall keep private, treat as being confidential, and not make public or divulge during, as well as after, the term on this Agreement, any information or material to which the Supplier or staff becomes privy as a result of acting under this Agreement without having first obtained HRSB's consent in writing.

**30. Freedom of Information and Protection of Privacy (FOIPOP) Act and Personal Information International Disclosure Protection Act (PIIDPA)**

**30.1.** As a public body, HRSB is subject to provincial legislation, Freedom of Information and Protection of Privacy (FOIPOP) Act. RFX submissions and associated documents are subject to disclosure and protection under this legislation. In the event an application for disclosure of information is made under FOIPOP, HRSB is subject to the disclosure and protection of information in accordance with that legislation. Suppliers are recommended to visit the following websites for more information on the Act: <http://www.gov.ns.ca/just/IAP/default.asp> and <http://www.foipop.ns.ca/>

**30.2.** The Province of Nova Scotia is required to comply with the Personal Information International Disclosure Protection Act (PIIDPA)(S.N.S 2006, c.3). The act creates obligations for the Province of Nova Scotia and its service providers when personal information is collected, used or disclosed. Requirements include limiting storage, access and disclosure of personal information to Canada, except as necessary or otherwise required by law. Suppliers are recommended to visit the following PIIDPA websites for more information on the Act: [http://nslegislature.ca/legc/bills/60th\\_1st/3rd\\_read/b019.htm](http://nslegislature.ca/legc/bills/60th_1st/3rd_read/b019.htm) and <http://www.gov.ns.ca/just/IAP/PIIDPAquest.asp#p01>

**30.3.** The Supplier acknowledges and confirms that it is a "service provider" as defined in the Personal Information International Disclosure Protection Act, SNS 2006 c. 3 ("PIIDPA"), that the Supplier has read and understands its obligations as a service provider thereunder and that as a service provider It is legally bound by the obligations imposed on it by PIIDPA. It is a condition precedent to HRSB entering into the Agreement with the Supplier that the Supplier irrevocably undertakes covenants and agrees to be bound by and comply with the obligations imposed on it as a service provider under PIIDPA.

**30.4.** The Supplier further covenants, warranty and represents to HRSB that it will not at any time provide or allow the release of personal information to which it has access in its capacity as a service provider to HRSB in response to any "foreign demand for disclosure" or permit or allow the "unauthorized disclosure of personal information" as each of those terms are defined in PIIDPA.

- 30.5.** The Supplier shall implement and strictly enforce security arrangements that will ensure that all personal information that it collects or uses on behalf of HRSB is protected at all times from unauthorized access or disclosure and shall confirm in writing to HRSB, upon request, the details of such security arrangement. The Supplier also agrees to implement and enforce any additional security procedures as may be required by HRSB from time to time to protect the personal information that the Supplier collects on behalf of HRSB. HRSB shall be authorized, upon giving prior written notice to the Supplier, to enter the premises of the Supplier during normal business hours for the purpose of conducting an audit of the security arrangement referenced herein.
- 30.6.** All personal information that the Supplier obtains or becomes aware of while providing services to HRSB is not and shall not be or be deemed to be the property of the Supplier. The Supplier acknowledges and agrees that it will not, either directly or indirectly, acquire any rights to use or own any such information other than the right to use it for the sole purpose of fulfilling its obligations to HRSB under the Agreement.
- 30.7.** All RFX submissions become the property of HRSB. By providing a RFX submission, the supplier hereby grants HRSB a license to distribute, copy, print or translate the RFX submission for the purposes of the RFX. Any attempt to limit HRSB's right in this area may result in rejection of the RFX submission.
- 30.8.** Suppliers RFX submission may be subject to disclosure under the Province's "freedom of information" legislation. By submitting a RFX submission, the Supplier agrees to the appropriate disclosure of the information supplied, subject to the provisions of the governing law. HRSB cannot guarantee the confidentiality of the complete content of any RFX submissions after the procurement has been awarded to the successful supplier.
- 30.9.** During the delivery and installation of goods and/or services, the supplier or supplier's staff may have access to confidential information belonging to HRSB. Should this occur, the supplier must ensure that such information is not released to any third parties or unauthorized individuals; failure to comply may result in legal action being taken and/or the supplier's disqualification from any further RFX's issued by HRSB.
- 31. Indemnification:** The Supplier shall indemnify and hold harmless HRSB, their agents, representatives and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of, or resulting from the performance of this work, provided that any such claim is caused in whole or in part by the negligent act or omission of the Supplier, and sub-contractor, supplier, licensee, anyone directly or indirectly employed by any one of them or anyone for whose act any of them is liable, regardless of whether or not it is cause in part by a party indemnified hereunder.
- 32. Insurance:** Unless otherwise stated, Commercial General Liability Insurance with policy limits of not less than two (2) million dollars (\$2,000,000.00) must be filed with the Procurement Department of HRSB; such insurance shall be in the name of the Supplier and HRSB. The insurance must include non-owned automobile liability with policy limits of not less than two (2) million dollars (\$2,000,000.00). All insurances are to be maintained in good standing for the duration of the Contract.
- 33. Termination for convenience:** HRSB may terminate a contract, in whole or part, whenever HRSB determined that such termination is in the best interest of HRSB, without just cause giving sixty (60) days written notice to the proponent. However, in no event shall the proponent be paid an amount that exceeds the submitted price for the work performed.
- 34. Termination for default:** When the proponent has not performed or has unsatisfactorily performed the contract, HRSB may terminate the contract for default. Upon termination for default, outstanding payment will be withheld at the discretion of HRSB. Failure on the part of the proponent to fulfill the contract obligations shall be considered just cause for termination of the contract. The proponent will be paid for work satisfactorily performed prior to termination, less any excess costs incurred by HRSB in re-procuring and completing the work.
- 35. Workers Compensation:** Prior to commencing the work, the Supplier shall provide a current clearance letter from the Workmen's Compensation HRSB (WCB) and must maintain this coverage during the whole term of the Contract.

- 36. WHMIS:** All controlled products supplies to HRSB must have approved Workplace Hazardous Materials Information System (WHMIS) supplier labels; Material Safety Data Sheets must also be supplied. Failure to comply with this requirement may result in rejection of any shipment, and may result in cancellation of the order and the return of goods to the supplier at the supplier's expense.
- 37. Health and Safety Act:** The Supplier shall take every precaution to ensure that every employee, self-employed person and employer performing work in respect of the project complies with the latest revisions of the Nova Scotia Occupational Health and Safety Act and the Regulations. Halifax Regional School HRSB Occupational Health and Safety Policy BP 303.1, and all other safety measures as required by authorities having jurisdiction.
- 38. Site Safety Plan:** Before being permitted access to the site to commence construction the Supplier may be requested provide HRSB with a written Project Specific Site Safety Plan. The Site Safety Plan provided shall be a written course of action that, through a pre-job evaluation, identifies and sets out specific actions to be taken to eliminate or control hazards associated with the work to be performed and to also deal with concerns or hazards that may develop during the course of the project. This Plan shall include, but not be limited to, identification of safety hazards anticipated during the project, solutions to those hazards, safety procedures, identification of designated safety officers and provision for safe access to the site for HRSB staff and or Consultants. Receipt and acceptance of the safety plan shall be mandatory prior to commencement of work.
- 39. Extension to the Broader Public Sector**
- 39.1.** HRSB may choose to allow the Broader Public Sector to purchase goods or services from some RFX's. The Broader Public Sector are generally permitted to purchase from "Standing Offers", which are contracts resulting from a RFX. Other RFXs may also be available to the Broader Public Sector; if so, the Solicitation documents will state this.
- 39.2.** By submitting a response to a RFX, the Supplier agrees to extend the same pricing to other eligible Broader Public Sector institutions as per the terms and specifications in the Solicitation
- 40. Governing Laws and Trade Agreements**
- 40.1.** Unless the RFX documents specifically state otherwise, the RFX, all submissions, and any subsequent contracts will be construed and interpreted in accordance with the laws of the Province in which the Solicitation was issued.
- 40.2.** RFX's subject to the Atlantic Procurement Agreement, the Agreement on Internal Trade, any other inter-provincial trade agreements, or any international trade agreements, will be specifically identified as such in the public notice and/or the Solicitation documents.
- 40.3.** Information of any applicable trade or procurement agreements and/or legislation can be obtained by contacting HRSB Procurement Department.
- 40.4.** Suppliers agree to comply with all applicable laws, regulations and standards, including all labour, occupational health & safety, and worker compensation requirements of the Province.
- 40.5.** HRSB may consider and evaluate any RFX submission from other jurisdictions on the same basis that the purchasing authorities in those jurisdictions would treat a similar RFX submission from a supplier located in this Province. HRSB will be the sole judge of whether these conditions will be used and the extent to which they will be applied.
- 40.6.** Suppliers registered to do business in any Atlantic Province can bid on RFX issued by any other Atlantic Province without having to satisfy any local registration or residency requirements.
- 40.7.** Under Canadian law (and international agreements), your RFX submission must be arrived at separately and independently, without conspiracy, collusion or fraud; see:  
<http://www.competitionbureau.gc.ca/internet/index.cfm?itemid=1243&lg=e> for further information.

**41. Other General Conditions**

- 41.1.** No RFX submissions shall be accepted from any person or corporation who, or which, has a claim or has instituted a legal proceeding against HRSB or against whom HRSB has a claim or has instituted a legal proceeding with respect to a previous contract, without prior approval of HRSB.
- 41.2.** The Supplier shall perform the obligations of this Contract in a good and workmanlike manner in compliance with all applicable legislation in effect in Nova Scotia, and in accordance with industry standards and practice.
- 41.3.** The Supplier shall be solely responsible for all means, methods, techniques and procedures necessary for performing the work required under this Contract.
- 41.4.** All Suppliers must comply with the Nova Scotia Corporations Registration Act (CRA) or the Partnerships and Business Names Registration Act (PBNRA) as one of the conditions of doing business with the Province of Nova Scotia. In this regard, Suppliers are advised that verification of registration and good standing may be carried out prior to the final award of a contract to a successful Supplier. Suppliers residing outside Nova Scotia (which are not otherwise carrying on business in Nova Scotia) are expected to be registered in an equivalent manner in their respective jurisdictions.
- 41.5.** Unless otherwise specified, all materials installed by the Supplier as part of this Contract shall be new and shall comply with the specifications and any applicable building codes. The Supplier is, at all times, responsible for correcting any defective work or materials at the Supplier's cost, and payment by HRSB to the Supplier does not relieve the Supplier of that responsibility.
- 41.6.** Where applicable, the end user must be provided with complete operation manuals, warranty registration forms, user licenses/ authentications and/or other associated documentation normally provided by the manufacturer, reseller, installer and/or consultant.
- 41.7.** The Supplier shall, at all times, keep HRSB premises free from accumulations of waste and rubbish. Disposal of all waste and rubbish shall be at approved waste disposal sites.
- 41.8.** If the Supplier files for bankruptcy, becomes insolvent or fails to perform the Supplier's obligations under this Contract in a timely and workmanlike manner, HRSB may, by written notice, immediately terminate the employment of the Supplier and the Supplier shall be entitled only to the value of work performed and materials supplied up to the date of the termination.
- 41.9.** The Supplier shall not permit smoking by any of its employees or sub-contractors on HRSB property and will act in accordance to the Halifax Regional School HRSB policy BP101.3 Tobacco-Free Schools and Workplaces.
- 41.10.** The Supplier warrants its work and materials for a minimum of twelve (12) months after the date of substantial completion.
- 41.11.** The Supplier, if performing work on HRSB property may be required to provide a safety program certified with the Nova Scotia Construction Safety Association or with an approved alternate safety association and/or program.
- 41.12.** HRSB reserves the right to split an award amongst Suppliers as deemed in the best interests of HRSB.

**END OF SECTION 00 73 10**

**SECTION 01 11 00 - HRSB SUMMARY OF WORK**

**1. Project Location & General Scope**

**1.1. SAMBRO ELEMENTARY, 3725 Old Sambro Rd**

**1.2.** Scope: Refer to Section 00 00 15 for scope and schedule information.

**2. Contract Documents**

**2.1.** Work will be performed under CCDC-2, 2008 contract.

**3. General Conditions**

**3.1.** Halifax Regional School Board and CCDC-2, 2008, form an integral part of this Project Manual, a copy of which is bound herein.

**4. Project Manual**

**4.1.** Sections of the Project Manual are numbered in conformance with the Master List of Section Titles and Numbers, CSC Document 004E, published jointly by Construction Specifications Canada and The Construction Specifications Institute (USA). Sections are arranged in their standard format.

**4.2.** Sections are written as units of the Work which have been assigned numbers in conformance with the CSC/CSI system. They are arranged in sequence for this Manual. Gaps in the order of numerical sequence do not indicate that a section has been inadvertently omitted from this Manual, but, rather that a Section is not required for completion of the Work.

**4.3.** Wherever the project location building name occurs in the Contract Documents it shall be taken to mean all work included in the Contract.

**4.4.** Wherever in the Contract Documents the words "approval", "approved", "direction", "directed", "selection", "selected", "request", "requested", "report", and similar words are used, such approvals, directions, selections, requests and reports shall be given by the HRSB unless specifically stated otherwise.

**4.5.** Wherever in the Contract Documents the word "provide" is used in any form, it shall mean that the Work concerned shall include both supply and installation of the products required for completion of that part of the Work.

**4.6.** Wherever in this Project Manual it is specified that Work is to proceed or to meet approval, direction, selection or request of jurisdictional authorities or others, such approval, direction, selection or request shall be in writing.



**5. Errors & Omissions**

- 5.1.** If errors or omissions are observed in the Contract Documents, immediately notify the HRSB Procurement in writing of all such errors or omissions. In the event no such notice is given, the Contractor will be held responsible for the results of any such error or omission and the cost of rectifying the same.

**6. Division 1**

- 6.1.** The provisions of all Sections of **Division 1** shall apply to each Section of this Specification.

**7. Wage Rates**

- 7.1.** Pay all employees engaged on the Work a wage not less than the minimum wage per hour as set out by the Province of Nova Scotia. For overtime work beyond 48 hours in any one week, pay no employee at a rate of less than one and one-half times the minimum wage per hour noted above. Provide for these wage rates in tendered contract amount.

**8. Work Performed Under Separate Contracts**

- 8.1.** Work not to be included in the Contract, as noted "NIC" on the Drawings, shall be governed by Article 37, Separate Contracts, of General Conditions of Contract.
- 8.2.** Furniture installation will be carried out by others.
- 8.3.** Computer installation will be carried out by others.

**9. Project Schedule**

- 9.1. Refer to Section 00 00 15 Description of Work.**
- 9.2.** Existing services (mechanical & electrical) will need to be maintained through the renovations.
- 9.3.** During construction, all life safety systems as well as mechanical and electrical systems must be in active, usable condition to permit the school to operate or alternate methods used to ensure the safe operation of the school as directed by HRSB project representative.
- 9.4.** As construction progresses revise the schedule to compensate for any delays or unforeseen activities so as to maintain the contract completion date. Each schedule submission is to be complete with a statement indicating the changes made, the reason they were changed and confirmation that the project completion date will not change. The above schedule information is to be submitted monthly or more often if necessary.



## **10. Site Progress Records**

- 10.1.** Maintain at site a permanent written record of progress of Work. Make the record available at all times with copies provided when requested. Include in record each day:
  - 10.1.1.** Commencement and completion dates of the Work of each trade in each area of Project.
  - 10.1.2.** Attendance of Contractor's and Subcontractor's Work forces at Project and a record of the work they perform.
  - 10.1.3.** Visits to site by representatives of the Owner, Engineer, jurisdictional authorities, Contractor, Subcontractors, and suppliers.
- 10.2.** Maintain a progress chart in approved format. Show on chart proposed Work schedule and progress of Work by Contractor and Subcontractor.

## **11. Examination**

- 11.1.** Site:
  - 11.1.1.** Examine site, and ensure that site conditions have been examined, that all are fully informed on all particulars which affect Work thereon and at the place of construction, and in order that construction proceeds competently and expeditiously.
  - 11.1.2.** Ensure by examination that all physical features, and working restrictions and limitations which exist are known.
- 11.2.** Previously Completed Work:
  - 11.2.1.** Verify dimensions of existing Work in place before construction of Work to be incorporated with it.
  - 11.2.2.** Verify that previously executed Work and surfaces are satisfactory for construction, and that performance of subsequent Work will not be adversely affected.
  - 11.2.3.** Commencement of Work will constitute acceptance of site conditions and previously executed Work as satisfactory.
  - 11.2.4.** Report to Engineer defects in prior Work which will affect quality of subsequent Work, or construction schedule.
- 11.3.** Construction Measurements:
  - 11.3.1.** Before commencing installation of Work, verify that its layout is accurate in accordance with intent of Drawings, and that locations, elevations, and clearances to adjacent infrastructure are maintained.
  - 11.3.2.** If Work is installed in wrong location, rectify it before other Work concerned proceeds.

**12. PROTECTION OF WORK, PROPERTY & PERSONS**

- 12.1.** Include in Work necessary methods, materials, and construction to ensure that no damage or harm to Work, materials, property and persons results from the Work of this Contract. Temporary facilities relating to protection are specified in Section 01 52 00.
- 12.2.** Protect, and if damaged make good, adjacent private and public property.
- 12.3.** Keep surfaces, on which finish materials will be applied, free from grease, oil, and other contamination which would be detrimental in any way to the application of finish materials.
- 12.4.** Protect finished surfaces of completed Work from damage by restriction of access or by use of physical means suitable to the material and surface location. Establish with each Subcontractor the suitability of such protection in each case.
- 12.5.** Protect existing underground infrastructure, mechanical, electrical, telephone and similar services from damage. If necessary, relocate active services to ensure that they function continuously in safety and without risk of damage.
- 12.6.** Cap off and remove unused utility services encountered during Work after approval is given by the utilities concerned or jurisdictional authorities, whichever may apply. Relocation, removal, protection and capping of existing utility services shall be performed only by the applicable utility and of other services by licensed mechanics.
- 12.7.** To prevent soiling or damage to finish flooring where pedestrian traffic occurs after the flooring has been installed, install and maintain 6 mil. polyethylene membrane or reinforced kraft paper temporary protection, secured in place and with joints sealed by reinforced pressure sensitive tape.
- 12.8.** Install plywood panels of minimum ¼" thickness over completed finish flooring materials, on which further construction Work is performed by other trades or delivery of products is made, or both. Seal joints between panels with reinforced pressure sensitive tape.
- 12.9.** Prevent spread of dust beyond the construction zone by wetting, or by other approved means, as it accumulates.
- 12.10.** Outside work areas shall be appropriately demarked and/or surrounded by rigid chain link panels or fencing to prevent unauthorized entry to the work area. Any area of roof having work completed is to be covered below with this fencing approximately 10' from the edge of the building. It is to be maintained at all times throughout the project. All waste disposal bins are to be fenced in using the same type of fencing as indicated above during working hours. After working hours, all waste disposal bins shall be located a minimum of 25 feet from any structure. Any windows where the debris chute is located are to be covered. All entrances below the roof area are to have covered scaffolding erected to ensure a safe travel path to a distance of ten

feet from edge of building. All workers shall contain their activity to the work site area. Access to the school shall only be allowed as planned in coordination with HRSB Operations and the school administration.

- 12.11.** The contractor is responsible for security of all project materials and access to the project site and/or the school through the project site at all times until completion of work and acceptance of the finished project by HRSB. Such additional security costs for security personnel or other means of security as deemed necessary by the contractor will be the sole responsibility of the contractor. The HRSB will provide security personnel up to and including the Substantial Completion date as noted on the bid submission documents.
- 12.12.** The contractor shall keep the work site free from accumulated debris caused by the employees or work and shall remove all debris at the end of each work shift. Debris shall not be deposited in HRSB controlled garbage and/or recycling containers.
- 12.13.** All waste materials and debris created during demolition and/or construction shall be disposed of in a dumpster provided by the contractor, to be removed at the end of the construction project, using a methodology that is in compliance with the applicable HRM solid waste by laws. Otherwise, the material must be removed and disposed of off site at the end of each working day. The waste materials may not be stored on site unless they are held in an approved project dumpster no closer than twenty five (25) feet from any structure.
- 12.14.** All temporary structures such as portable washroom facilities, materials storage trailer, work trailer, debris dumpster, vehicles, etc., shall be located a minimum of (25) twenty-five feet from the school building.
- 12.15.** Where applicable, a hot work permit will be required to be completed prior to commencement of work and all conditions of the permit must be maintained until completion of hot work. A copy of the hot work permit signed by the contractor representative shall be provided to HRSB upon completion of each hot work session. Contractor must assign a designated fire watch as noted on the permit document who shall remain on site for three hours after completion of each hot work session.
- 12.16.** A school washroom will be designated for use where appropriate. However, protection of the surfaces as indicated above must be maintained. It should also be noted that access to the building during summer months will be limited for security reasons. Contractor is responsible to provide temporary portable washroom facilities for general use of contractor staff.
- 12.17.** Access to Interior of School - All interior access is to be scheduled with the PM. This will allow for notice to the school admin., custodial and possible scheduling of a security guard for after hour access.
- 12.18.** Adhesives / Torch Work - All adhesive use and torch work must be completed after school

hours.

**13. Cleaning**

- 13.1.** Ensure that during and after construction the public streets and existing asphalt parking lot are cleaned as required.

**14. Salvage**

- 14.1.** Unless otherwise specified, salvaged material resulting from construction, and surplus materials and construction debris shall become property of Contractor, who must dispose of it away from Site.

**15. Site Limitations**

- 15.1.** Since the existing building will be occupied during the Work (in accordance with the Phasing Schedule) the Consultant will designate the precise areas on the site which may be utilized for work and storage, and where personnel will be permitted to be present. Refer also to Drawings. Allow for hoarding to secure construction areas from occupied portions of the Building and Site.
- 15.2.** All access to the construction site is to be coordinated with the Project Manager for HRSB and communicated at the pre-construction meeting.
- 15.3.** Any Work carried out in the building is to be carried out during hours approved by the School Administration.
- 15.4.** Any disruption to services within the building must occur during hours approved by School Administration.
- 15.5.** Any Work which may have an adverse affect on the occupancy functions, must have prior approval of the School Administration and **may** require scheduling during off-hours.

**16. Security Regulations**

- 16.1.** Perform Work in conformance to the security regulations of the building as directed by the Project Manager for HRSB.

**17. Project Identification**

- 17.1.** No project sign is required on this Project.

**18. Owner's Occupancy**

- 18.1.** The Owner reserves the right to occupy and use portions of the Project, whether partially or

entirely completed, or whether completed on schedule or not, provided such occupancy does not interfere with the Contractor's continuing Work.

- 18.2.** Partial occupancy or installation by the Owner of his equipment shall not imply acceptance of the Project in whole, or in part, nor shall it imply acknowledgement that terms of the Agreement are fulfilled.

**END OF SECTION 01 11 00**

***SECTION 01 11 25 - PRICES***

**1. General**

- 1.1. Prices included in the Contract shall be complete for the applicable Work, and shall include for each price:
  - 1.1.1. Expenditures for wages and for salaries of workmen, engineers, superintendents, draftsmen, foremen, timekeepers, accountants, expeditors, clerks, watchmen and such other personnel as may be approved, employed directly under the Contractor and while engaged on the applicable Work at the site and expenditures for travelling and board allowances of such employees when required by location of the applicable Work or when covered by trade agreements and when approved; provided, however, that nothing shall be included for wages or salary of the Contractor if an individual, or of any member of the Contractor's firm if the Contractor is a firm or the salary of any officer of the Corporation if the Contractor is a corporation, unless otherwise agreed to in writing.
  - 1.1.2. Expenditures for material used in or required in connection with the construction of the applicable Work including material tests and required by the laws or ordinances of any authority having jurisdiction and not included under Subparagraph .9.
  - 1.1.3. Expenditures for preparation, inspection, delivery, installation and removal of materials, equipment, tools and supplies.
  - 1.1.4. Temporary facilities as required for the applicable Work.
  - 1.1.5. Travelling expenses properly incurred by the Contractor in connection with the inspection and supervision of the applicable Work or in connection with the inspection of materials prepared or in course of preparation for the applicable Work and in expediting their delivery.
  - 1.1.6. Rentals of all equipment whether rented from the Contractor or others, in accordance with approved rental agreements including any approved applicable insurance premiums thereon and expenditures for transportation to and from the site of such equipment, costs of loading and unloading, cost of installation, dismantling and removal thereof and repairs or replacements during its use on the applicable Work, exclusive of any repairs which may be necessary because of defects in the equipment when brought to the Work or appearing within thirty (30) days thereafter.
  - 1.1.7. The cost of all expendable materials, supplies, light, power, heat, water and tools (other than tools customarily provided by tradesmen) less the salvage value thereof at the completion of the applicable Work.

- 1.1.8. Assessments under the Workmen's Compensation Act, the Unemployment Insurance Act, Canada Pension Act, statutes providing for government hospitalization, vacations with pay or any similar statutes; or payments on account of usual vacations made by the Contractor to his employees engaged on the applicable Work at the site, to the extent to which such assessments or payments for vacations with pay relate to the Work covered by the specified price; and all sales taxes or other taxes where applicable.
- 1.1.9. The amounts of all Subcontracts related to the specified price.
- 1.1.10. Premiums on all insurance policies and bonds called for under this Contract as related to the specified price.
- 1.1.11. Royalties for the use of any patented invention on the applicable Work.
- 1.1.12. Fees for licences and permits in connection with the applicable Work. No Building Permit is required for the project.
- 1.1.13. Duties and taxes imposed on the applicable Work.
- 1.1.14. Such other expenditures in connection with the applicable Work as may be approved.
- 1.1.15. Provided always that except with the consent of the Owner, the above items of cost shall be at rates comparable with those prevailing in the locality of the Work.

**END OF SECTION 01 11 25**

***SECTION 01 11 41 - PROJECT COORDINATION***

**1. Requirements Included**

- 1.1. Each Trade Contractor's responsibilities include the coordination of Work within his own Contract and with the Work of other Contracts.

**2. Related Requirements**

- 2.1. Project Meetings: Section 01 31 19
- 2.2. Submittals: Section 01 33 00

**3. Description**

- 3.1. Coordinate Work on which subsequent Work depends to facilitate mutual progress, and to prevent conflict between parts of the work.
- 3.2. Ensure that each Section makes known for the information of the Construction Manager and other Sections, the environmental and surface conditions required for the execution of its Work, and the sequence of others Work required installation of its Work.
- 3.3. Ensure that each Section, commencing Work, and that each Section is assisted in the execution of its preparatory Work by Sections depending upon its preparation.
- 3.4. Deliver materials supplied by one Section to be installed by another well before the installation begins.
- 3.5. Sections giving installation information in error, or too late to incorporate in the Work, shall be responsible for having Work done which was thereby additionally made necessary.
- 3.6. Coordinate warranty conditions of interconnected Work to ensure that full coverage is obtained.
- 3.7. Remove work installed in error which is unsatisfactory for subsequent Work.

**4. Cutting And Patching**

- 4.1. Include under Work of this Section all cutting and patching of asphalt required by the Work.
- 4.2. Finish new surfaces flush with existing surfaces.
- 4.3. Cut and patch as required making work fit.
- 4.4. Make cuts with clean, true, smooth edges.
- 4.5. Patching of existing or new asphalt shall be performed only by workmen with expertise in that particular trade and who normally perform that Trade.
- 4.6. Replace, and otherwise make good, damaged or defective Work. If required by the Construction Manager.



- 4.7. Do not endanger Work or property by cutting, digging, or similar activities. No Section shall cut or alter the Work of another Section unless approved by the Section which has installed it.
- 4.8. Cut and drill with true smooth edges and to minimum suitable tolerances.
- 4.9. If required, before cutting, drilling, or sleeving structural load bearing elements, obtain approval of location and methods.
- 4.10. Cutting, drilling and sleeving of Work shall be done only by the Section which has installed it. The Section requiring drilling and sleeving shall inform the Section performing the Work of the location and other requirements for drilling and sleeving. The Contractor shall directly supervise performance of cutting and patching.
- 4.11. Cutting and Patching for Holes Required by Mechanical & Electrical Work:
  - 4.11.1. Include under Work of Mechanical Divisions cutting or provision of holes up to 8" in diameter and related patching.
  - 4.11.2. Include under Work of this Section holes and other openings required by the work of Mechanical Divisions which are larger than 8" in diameter or least dimension, and chases, bulkheads, furring and required patching. This Section shall be responsible for determination of Work required for holes in excess of 8" diameter or least dimension.
  - 4.11.3. Include under the Work of Electrical Divisions all cutting or provision of holes and related patching for the Work of that Division.
- 4.12. Include under Work of this Section all other cutting and patching required by the Work except as described in Clause .11 above.
- 4.13. Patching or replacement of damaged Work shall be done by the Subcontractor under whose Work it was originally executed, and at the expense of the Subcontractor who caused the damage.
- 4.14. Make patches invisible in final assembly.

## 5. Quality Assurance

- 5.1. Requirements of Regulatory Agencies:
  - 5.1.1. Make known and coordinate the requirements of jurisdictional authorities, as made explicit by the Contract Documents, and by representatives of such authorities
- 5.2. Source Quality Control:
  - 5.2.1. Ensure that Work meets specified requirements
  - 5.2.2. Schedule, supervise and administer inspection and testing as specified in Section 01 45 00.
- 5.3. Job Records:
  - 5.3.1. Maintain job records and ensure that such records are maintained by subcontractors.

**6. Submittals**

- 6.1. Prepare a Project schedule in accordance with Section 01 33 00, and ensure that all subcontractors and suppliers are aware of the details of this schedule, and progressively of their general compliance with the schedule.
- 6.2. Become aware of the required submittals specified in each Section, and expedite submission of such submittals so as not to hinder the Project Schedule.
- 6.3. Review submittals and make comments as specified in Section 01 33 00.

**7. Job Conditions**

- 7.1. Ensure that Work proceeds under conditions meeting specified environment and job safety requirements
- 7.2. Ensure that protection of adjacent property and the Work is adequately provided and maintained to meet specified requirements.

**8. Product Delivery, Storage And Handling**

- 8.1. Site has limited spaces for storage, only delivery of materials agreed upon by the Construction Manager will be allowed. Comply with Construction Manager's allocations. Any requirement for modifications to the building in order to allow delivery and storage of the materials to complete this work is the responsibility of the contractor.
- 8.2. Schedule delivery of products & removal of material with Construction Manager.
- 8.3. Make available areas for storage of products and construction equipment to meet specified requirements, and to ensure a minimum of interference with progress of the Work and relocations.
- 8.4. Trade Contractor to provide flag persons, traffic signals, barricades and Flares/lights/lanterns as required to perform the Work and to protect the public.
- 8.5. Material and Waste - Deliveries and Removals - Must be coordinated to be completed 30 minutes after school dismissal where applicable.

**END OF SECTION 01 11 41**

**SECTION 01 31 19 – PROJECT MEETINGS**

**1. Pre-Award Meeting**

- 1.1.** A Pre-award meeting will be held at which time the following will be addressed:
- 1.1.1.** Owner and HRSB's functions.
  - 1.1.2.** The Consultant and the Consultant's functions.
  - 1.1.3.** The General Contractor and the General Contractor's functions.
  - 1.1.4.** Documentation requirements from the General Contractor.
  - 1.1.5.** Obligees for Performance and Payment Bonds from Sub-contractors.
  - 1.1.6.** Progress Claims.
  - 1.1.7.** CO's & CCO's.
  - 1.1.8.** Construction Schedule.
  - 1.1.9.** Project Start-up.
  - 1.1.10.** Job Meetings.
  - 1.1.11.** Superintendent – General Contractor's Representative.
  - 1.1.12.** Design / Administration authority.
  - 1.1.13.** Owner's Representative.
  - 1.1.14.** Special Consultants.
  - 1.1.15.** Quality of Workmanship.
  - 1.1.16.** Accountability.
  - 1.1.17.** Harmonized Sales Tax.
  - 1.1.18.** Contract Close-out Documentation.

**2. Preconstruction Meeting**

- 2.1.** Within fifteen (15) days after award of Contract, arrange a meeting between the, Consultant, Subcontractors, Project Superintendents, Inspection and Testing Company Representatives, and representatives of others whose coordination is required during construction.
- 2.2.** Discuss at the meeting the means by which full cooperation and coordination of the participants during construction can be achieved.
- 2.3.** Document the responsibilities and necessary activities of the participants during construction as discussed, and distribute to each participant.
- 2.4.** Establish procedures for maintenance and completion of Project record drawings specified in Section 01 77 00.
- 2.5.** Review and establish methods of maintaining life safety and egress for the school occupants. Communicate these methods thoroughly with the School Principal.

**3. Progress Meeting**

- 3.1.** Invite representatives of HRSB, to attend twice monthly site meetings called by the Contractor during the progress of the Work.

- 3.2. Inform HRSB of each meeting and of proposed agenda a minimum of five (5) days before meeting.
- 3.3. Submit proposed schedule of site meetings to Engineer and Owner.
- 3.4. Record, prepare and distribute minutes of each meeting to HRSB and to each other participant within 72 hours of meeting.
- 3.5. Ensure that all representatives who attend meetings have the authority to conduct business on behalf of firms they represent.
- 3.6. Details of Progress Meetings to be discussed at the project start-up meeting.

**4. Suggested Agendum (Preconstruction Meeting)**

- 4.1. Distribution and discussion of:
  - 4.1.1. List of major subcontractors and suppliers.
  - 4.1.2. Projected Construction Schedules.
- 4.2. Critical work sequencing.
- 4.3. Major equipment deliveries and priorities.
- 4.4. Project Coordination:
  - 4.4.1. Designation of responsible personnel.
- 4.5. Procedures and Processing of:
  - 4.5.1. Field decisions
  - 4.5.2. Proposal requests
  - 4.5.3. Submittals
  - 4.5.4. Change orders
  - 4.5.5. Applications for Payment.
- 4.6. Adequacy of distribution of Contract Documents.
- 4.7. Procedures for maintaining Record Documents.
- 4.8. Use of premises:
  - 4.8.1. Office, work and storage areas.
  - 4.8.2. Owners requirements.
- 4.9. Construction facilities, controls and construction aids.
- 4.10. Safety/Tool Box Meetings.
- 4.11. Security procedures.
- 4.12. Housekeeping procedures.
- 4.13. Egress/life safety procedures

**5. Suggested Agendum (Progress Meetings)**

- 5.1. Review and approval of minutes of previous meeting.
- 5.2. Safety meeting minutes.
- 5.3. Review of work progress since previous meeting.
- 5.4. Field observations, problems, conflicts.

- 5.5. Problems which impede Construction Schedule.
  - 5.6. Review of off-site fabrication, delivery Schedules.
  - 5.7. Corrective measures and procedures to regain projected schedules.
  - 5.8. Revisions to Construction Schedules.
  - 5.9. Maintenance of quality standards.
  - 5.10. Pending changes and substitutions and effect on Construction Schedule.
  - 5.11. Other Business.
- 
- 6. Attend, with representatives of HRSB twice monthly meetings with the School Administration to review construction activities and concerns of Building Occupants.
  - 7. Quarterly meetings with Contractor and School Board / User during Warranty Period including major sub-trade contractors.
  - 8. Dates for meetings will be set at time of completion.

**END OF SECTION 01 31 19**

**SECTION 01 33 00 – SUBMITTAL PROCEDURES**

**1. General Requirements**

- 1.1. Make submittals specified in this Section to Consultant unless otherwise specified, with additional submissions made, in manner he directs, to other parties involved with construction of the Project as their interests are concerned. These parties are, but shall not be restricted to, consultants, jurisdictional authorities, and Subcontractors whose Work must be coordinated with Work related to Submittals.
- 1.2. Ensure that submissions are made to allow sufficient time for review without the construction schedule being delayed.

**2. Document Submissions Required**

- 2.1. At Commencement of Contract:
  - 2.1.1. Performance and Payment Bonds.
  - 2.1.2. Public Liability and Property Damage Insurance Certificates.
  - 2.1.3. List of Subcontractors by firm name.
  - 2.1.4. Construction Schedule and other required schedules and estimates.
  - 2.1.5. Site Specific Safety Plan/Safety Policy.
  - 2.1.6. Workers' Compensation Board status.
- 2.2. During Construction:
  - 2.2.1. Bi-weekly progress reports.
  - 2.2.2. Job meeting reports and minutes.
  - 2.2.3. Updated construction schedules.
  - 2.2.4. Shop drawings as required.
  - 2.2.5. Inspection and test reports.
  - 2.2.6. Daily communication of Hot Work Permits as needed.
- 2.3. Submissions at completion of Work are specified in Section 01 77 00, Contract Closeout.

**3. Administrative**

- 3.1. Submit to Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time no claim for extension by reason of such default will be allowed.
- 3.2. Do not proceed with Work affected by submittal until review is complete.
- 3.3. Present shop drawings, product data, samples and in Imperial units.
- 3.4. 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.

- 3.5. Notify Consultant in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- 3.6. Verify field measurements and affirm that affected adjacent work is co-ordinated.
- 3.7. Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
- 3.8. Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant's review.
- 3.9. Keep one review copy of each submission on site.

#### **4. Construction Schedules**

- 4.1. Submit proposed construction schedule at beginning of Project, as specified in Project Documents.
- 4.2. As construction progresses, submit up-dated construction schedules as specified in Project documents.

#### **5. Shop Drawings And Product Data**

- 5.1. 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.
- 5.2. Submit drawings stamped and signed by professional consultant registered or licensed in Province of Nova Scotia of Canada.
- 5.3. 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.
- 5.4. Allow seven (7) days for Consultant's review of each submission. Do not proceed with work involving relevant products until completion of shop drawing review.
- 5.5. 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.

- 5.6.** 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.

Accompany submission with transmittal letter, in duplicate, containing:

- 5.6.1.** Date
  - 5.6.2.** Project title and number
  - 5.6.3.** Contractor's name and address
  - 5.6.4.** Identification and quantity of each shop drawing, product data and sample.
  - 5.6.5.** Other pertinent data.
- 5.7.** Submission to include:
- 5.7.1.** Date and revision dates.
  - 5.7.2.** Project title and number.
  - 5.7.3.** Name and address of:
    - 5.7.3.1.** Subcontractor.
    - 5.7.3.2.** Supplier.
    - 5.7.3.3.** Manufacturer.
  - 5.7.4.** Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - 5.7.5.** Details of appropriate portions of Work as applicable:
    - 5.7.5.1.** Fabrication.
    - 5.7.5.2.** Layout, showing dimensions, including identified field dimensions, and clearances.
    - 5.7.5.3.** Setting or erection details.
    - 5.7.5.4.** Capacities.
    - 5.7.5.5.** Performance characteristics.
    - 5.7.5.6.** Standards.
    - 5.7.5.7.** Relationship to adjacent work.
- 5.8.** After Consultant's review, distribute copies.
- 5.9.** Submit for review one electronic copy in PDF file format of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.
- 5.10.** Submit electronic copies of product data sheets for 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.
- 5.11.** Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Consultant.



- 5.11.1. 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.
- 5.11.2. Testing must have been within three (3) years of date of contract award for project.
- 5.12. Documentation of testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- 5.13. Delete information not applicable to project.
- 5.14. Supplement standard information to provide details applicable to project.
  - 5.14.1. If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of work may proceed.
  - 5.14.2. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of work of sub-trades.

## 6. SAMPLES

- 6.1. Submit for review samples in duplicate as requested in respective specification Sections, as requested by the Consultant. Label samples with origin and intended use.
- 6.2. Deliver samples prepaid to Consultant's business address.
- 6.3. Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- 6.4. Adjustments made on samples by Consultant are not intended to change.
- 6.5. Make changes in samples which Consultant may require, consistent with Contract Documents.
- 6.6. Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

## 7. Record Drawings

- 7.1. Record, as the Work progresses, changes and deviations in the location of Work concealed by the finished Work, and such other approved changes that occur during progress of Work, to ensure that an accurate record is provided for future maintenance and alterations.

- 7.2. White prints will be provided by the School Board for use in preparing record drawings. Record changes in the Work on these prints in red ink.
- 7.3. Dimension location of concealed Work in reference to building walls, and elevation in reference to floor elevation. Indicate at which point dimension is taken to concealed Work. Dimension all terminations and offsets of runs of concealed work.
- 7.4. Record work constructed differently than shown on Contract Documents, changes in the work caused by site conditions, by Owner, Consultant, Contractor and Subcontractor originated changes, and by site instructions, supplementary instructions, field orders, change orders, addenda, correspondence and directions of jurisdictional authorities.
- 7.5. Record location of mechanical and electrical services, piping, valves, conduits, pull boxes, junction boxes and similar work not clearly in view, and position of which is required for maintenance, alteration work and future additions. Do not conceal critical work until its location has been recorded.
- 7.6. Identify record drawings as a "Project Record Copy". Maintain in good condition, do not use for construction purposes and make available to Consultant at all times.
- 7.7. Submit record drawings at completion of Work. Final acceptance of the Work will be predicated on receipt and approval of record drawings.

## 8. Extra Stock

- 8.1. Supply extra stock at completion of Project as specified in other Sections of the Project Manual.
- 8.2. Deliver extra stock as directed by the Consultant to location he designates.
- 8.3. Extra stock is specified to be supplied in the following Sections:

Section 09 30 13 Ceramic Tile

Section 09 51 13 Acoustical Ceiling Units

Section 09 65 19 Resilient Tile Flooring

Section 09 91 23 Painting

Refer to Mechanical & Electrical Divisions for Extra Stock requirements in those Trades.

## 9. Maintenance Manual & Operating Instructions

- 9.1. Submit three (3) copies of Maintenance Manual with application for completion certificate.
- 9.2. Include in Maintenance Manual one (1) copy of each final approved shop drawing issued for Project on which have been recorded changes made during fabrication and installation caused by unforeseen conditions.
- 9.3. Submit extended guarantees together in one (1) report binder.
- 9.4. The Manuals shall:

- 9.4.1. Consist of a hard-cover, black, vinyl-covered, loose-leaf, letter-size binder.
- 9.4.2. Have a title sheet, or sheets preceding data on which shall be recorded Project name, Project number, date, list of contents, and Contractor's and Subcontractors' names.
- 9.4.3. Be organized into applicable Sections of Work with each Section separated by hard paper dividers with plastic covered tabs marked by Section.
- 9.4.4. Contain only typed or printed information and notes, and neatly drafted drawings.
- 9.4.5. Contain maintenance and operating instructions on all building, and mechanical and electrical equipment.
- 9.4.6. Contain maintenance instructions as specified in various Sections.
- 9.4.7. Contain brochures and parts lists on all equipment.
- 9.4.8. Contain sources of supply for all proprietary products used in the Work.
- 9.4.9. Contain lists of supply sources for maintenance of all equipment in Project of which more detailed information is not included above.
- 9.4.10. Contain finished hardware schedule.
- 9.4.11. Contain charts, diagrams and reports specified in Mechanical & Electrical Divisions.

## **10. Extended Warranties**

- 10.1. Submit the extended warranties as specified in each applicable Section of this Project Manual.
- 10.2. Extended warranties shall commence on termination of the standard one-year warranty granted in this Contract.
- 10.3. Submit each extended warranty on a standard Form of Warranty, a sample of which is included in this Section.
- 10.4. Secure each extended Warranty by a Maintenance Bond in an amount indicated.

## **11. Inspection Laboratory Reports**

- 11.1. Submit copies of inspection and test reports obtained by the Contractor and Subcontractors for their Work or for Jurisdictional Authorities, if requested by Consultant.
- 11.2. Submit reports in accordance with requirements specified in Section 01 41 00.

## **12. Documentation On Suppliers & Manufacturers**

- 12.1. Provide information under headings identifying the following: Associated Technical Section, Manufacturer, Supplier, Contact Name, Phone Numbers.

**SAMPLE FORM OF WARRANTY FOLLOWS THIS PAGE**

## Sample Form for Warranty

**Date** .....

**Client** .....

**Project** .....  
.....

**Warranty** .....  
(title of work)

We hereby undertake to warrant all materials supplied and installed under our Contracts and include the providing of necessary materials and labour to cover the result of faulty materials or workmanship. Upon written notification from Client or the Consultant that the above work is defective any repair or replacement work required shall be to the Consultant's satisfaction at no cost to the Client. This Warranty shall not apply to defects caused by the work of others, maltreatment of materials, negligence or Acts of God. This Warranty shall remain in effect for the total period from the acceptance of the Work to (....date....), irrespective of the date of completion or the beneficial use by the Owner.

**Signature** .....

**Authorized Signing Officer** .....

**Name of Firm** .....

**Address** .....

END OF SECTION 01 33 00

***SECTION 01 35 13 – APPENDIX A - SPECIAL PROJECT PROCEDURES***

**1. Introduction**

- 1.1.** School construction, renovation and maintenance projects are scheduled every year as a normal and necessary course of business by operations departments in each Nova Scotia School Board. Building modifications, repairs and additions/demolitions to buildings may impact the school environment without appropriate controls. With increased controls based primarily on the CSA standards implementation, proper scheduling and clear communication on adequate controls can be put into place to eliminate/minimize the impact to all occupants.
- 1.2.** Projects of this nature may generate varying levels of dusts, noises and odors. It is possible, unknown/unforeseeable environmental contaminants, such as spills, mould, fumes, lead or asbestos exposure maybe identified.
- 1.3.** To successfully complete work within the school environment, it is necessary to plan and implement appropriate containment and control strategies. This document is developed to provide a minimum standard for contaminant controls for various types of projects in schools. These standards are in addition to and should complement all legislated protocols for working with regulated materials such as asbestos, lead paints, PCB's etc.
- 1.4.** Executing a successful project will depend primarily on clear, concise communication. This may involve a number of parties (Project Manager, Operations staff, School Administration and Health & Safety staff and Joint Occupational Health & Safety Committee).

**2. Communication Plan**

- 2.1.** The most critical element of any project management plan is effective communication between all stakeholders. Communication between the Operations project manager/supervisor, the contractor and school administrators before the start of a project is very important. This meeting is meant to explain the scope, schedule and risk assessment for the project. The meeting will also help establish clear expectations when managing planned and unplanned exposure risks associated with contaminant controls.
- 2.2.** The communication plan shall include:
  - 2.2.1.** A description of potential contaminants, which may include but is not limited to:
    - 2.2.1.1.** Particulates (dirt, concrete/silica, steel, fiberglass, wood dust, ash, cellulose, etc.)
    - 2.2.1.2.** Moisture: external water infiltration, internal system leaks (domestic water, sanitary, storm, sprinkler)
    - 2.2.1.3.** Noise from equipment/tool operation,
    - 2.2.1.4.** Fumes/odors from equipment exhaust, boiler exhaust, septic waste, chemical/adhesives, etc.
    - 2.2.1.5.** Hazardous materials including, asbestos, PCB, mercury, lead, fuel oil, fungi/mould, etc.
    - 2.2.1.6.** Excessive heat/cold

- 2.2.2. A description of the control measure which may include but not be limited to:
  - 2.2.2.1. Isolation within an enclosure (water, noise, hazardous materials)
  - 2.2.2.2. Ventilation and filtration
  - 2.2.2.3. Dehumidifiers/blowers (moisture)
  - 2.2.2.4. Personal protective equipment
  - 2.2.2.5. Schedule outside or inside school hours
  - 2.2.2.6. Sound dampeners
  - 2.2.2.7. Monitoring
  - 2.2.2.8. Security
- 2.2.3. Other Hazards created by the work, including but not limited to fire safety and the need to alter fire safety plans.
- 2.3. For small routine work orders the communication plan may only involve one tradesperson and the school principal or designate. This communication is equally as important for management of contaminant controls.

### **3. Contaminant Control Management**

- 3.1. Regardless of the contaminant or control measure used, the following procedures shall apply for every project:
  - 3.1.1. Every project, including all routine work requests, shall be assessed, as per this document, by appropriate personnel for potential contaminant risk.
  - 3.1.2. Clear lines of communication must be established between project personnel, site supervisor or project manager and the school administration.
  - 3.1.3. Control strategies as per this document, shall be, communicated to workers as well as the site JOHSC and implemented prior to starting the work.
  - 3.1.4. Where isolation is used as a control, all entry points must be clearly posted to describe the purpose of the enclosure and limitations of access.
  - 3.1.5. During the execution of the project, the control measures must be regularly inspected and maintained before the start of each work shift, and throughout the shift as required.
  - 3.1.6. A process for stop work and remediation orders must be established to ensure the project manager; site supervisor and school administrator have a means to cease project operations when a contaminant control breach may impact the school environment. Breached control measures must be reported immediately to the board project manager upon discovery. He/she will be responsible to communicate to the school principal or designate. Work shall be stopped immediately until the control measures are re-established.
  - 3.1.7. Access to the controlled work site is only permitted by authorized personnel. The project supervisor or designate shall determine appropriate personal protective equipment (PPE) and necessary worker orientation.

#### **4. Particulate Control**

- 4.1.** Exposure to minimal levels of dust is a normal condition in most outdoor and indoor environments and is typically controlled inside a building through building ventilation, filtration and routine housekeeping measures. However, as noted, construction projects generally create elevated dust levels in work areas, whether inside or outside of a building.
- 4.2.** Operational Services Managers must ensure maintenance staff and contracted service providers implement dust control measures appropriate for the type and scope of work being performed. This will include assessing the type and amount of dust being created as well as the location of the work being conducted.
  - 4.2.1.** Interior Construction Projects:
  - 4.2.2.** Construction projects may be described as projects that may include window replacement, wall creation/demolition, etc.
- 4.3.** As a minimum for these types of construction projects, all interior entry points into a construction zone must be effectively sealed. The barrier must prevent contaminants from the work area to be distributed to other areas of the school. Appropriate signage must be posted to indicate only authorized persons are permitted access.
- 4.4.** Entrance design could range from a two flap plastic tarp door to a fully constructed sealed entry door with negative hepa-filtered ventilation on the construction side of the barrier.
- 4.5.** Exterior Construction Projects:
  - 4.5.1.** Exterior work shall be performed so as not to affect the safety of building occupants. It will also provide controls to avoid impact to adjacent properties. Depending up on the results identified in the risk assessment, at a minimum consideration must be given to prevent dust from entering into the school environment. This may be controlled through isolation, dampening application, closing building AHU and window/door openings.

#### **5. Noise Control**

- 5.1.** Hearing plays an essential role in communication, speech and language development and learning within a school environment. During construction the contractor is responsible for ensuring acceptable noise levels will be adhered to for school board staff and students within the building. Noise related to a project may prove to be very distracting for staff and students. To minimize distractions and interruptions in student learning the following are important to consider:
  - 5.1.1.** Contractors are responsible to ensure appropriate noise control measures are taken
  - 5.1.2.** "No work" periods may need to be incorporated into construction schedules
  - 5.1.3.** Work causing a noise disruption may need to take place during unoccupied times and/or during pre-determined acceptable times of the day (i.e. before and after class times)

- 5.1.4. It may be necessary for the School Administrator to make a request to the Board Project Manager or the Contractor to exclude undertaking certain noisy activities during particular periods and/or activities.

## 6. Moisture Control

- 6.1. Moisture levels are to be controlled during construction and maintenance activities. Moisture levels above normal may impact the air in the room and/or building and may also penetrate building materials giving the potential to lead to mould growth.
- 6.2. Certain activities (i.e. tape and mud of drywall, painting, pressure washing, concrete cutting with water or other water based dust-suppression) introduce high amounts of moisture into the room environment and ventilation and or drying is required to control local moisture.
- 6.3. An enclosure properly set-up to contain other contaminants will similarly contain/control high levels of airborne moisture. A wet-vac should be available on-site for activities which have a risk of water spillage of more than 5 gallons at any instance.
- 6.4. Standing and or stagnate water must be avoided on construction sites, for a number of reasons, including, but not limited to; insects breed in these bodies of water, the water may give off odours, it is a nuisance to walk through, and it may be an ice hazard in cold weather.
- 6.5. It is important that all water leaks and flooding are reported immediately to the board's project manager and building supervisor. Where works to existing "plumbing" is to occur the water lines (potable, heating, fire suppression) must be isolated and drained (de-energized/de-pressurized) following Lock Out - Tag Out procedure. Adequate supplies such as buckets and absorbents should be present when drains are not available to drain a line.
- 6.6. When an interruption to the water supply, potable or service, is to occur then the "owner's representative" and building supervisor should be notified 24 hours in advance. Bottled water provision may be required.
- 6.7. Materials used in the construction and or maintenance activities are to be stored in dry areas. The introduction of materials to the activities with moisture levels above the acceptable (XXX%)CNBC states for wood, on dry weight basis, a max of 19%, I can't find info on drywall but assume it is much lower range is prohibited as these materials are highly susceptible to colonization by mould spores.

## 7. Fumes

- 7.1. Fumes may be produced on a project site for a variety of reasons such as use of motorized equipment, off gassing of sealants, adhesives and finish products, cutting/torching processes, exposure of sanitary systems, process ignition gases such as propane and acetylene, proximity of project temporary washrooms, radon, etc.
- 7.2. The impact of fumes on occupants may range from discomfort to health risk, to life safety risk.



- 7.3. The project manager or supervisor must ensure that all potential fume sources are identified and remedial or control measures included in the scope of work by the contractor.
- 7.4. Monitoring equipment may be required to determine for example radon exposure or safety of confined space access.

## 8. Activity Assessment

- 8.1. Activities that may produce contaminants which require control may be considered as low, medium and high impact.
- 8.2. Low impact activities include routine maintenance and repairs that may create localized dust or odors or brief periods of noise which are not considered harmful to occupants but may be a nuisance which requires minimal control. These may include activities such as opening ceiling tiles or gyproc walls, replacing a plumbing fixture, paint touch ups, drilling through a wall, etc.
- 8.3. Medium impact activities include larger repair jobs or longer duration projects that will create more wide spread levels of contaminant which must be controlled to prevent exposure to building occupants. Boiler cleaning, ceiling replacement, long periods of hammer drilling, etc.
- 8.4. High impact activities include large demolition and construction projects, or jobs with exposure to contaminants that are a risk to health or life safety such as asbestos remediation, mould abatement, lead paint clean up, etc.

## 9. Hazard Assessment

- 9.1. A hazardous assessment is required to be completed for each job to ensure hazards are identified and corresponding controls are implemented. Depending upon the circumstances at the site it may be necessary to upgrade and/or add other precautions.
- 9.2. Determine the most appropriate hazard classification and apply the corresponding protocols. The attached hazard assessment identifies the minimum controls that must be in place during the corresponding activities. Depending on the specific circumstances at a site further controls may be required. When the hazards are deemed to be in the C or F category the form including specific controls must be submitted to the board for review, prior to commencing work. The contractor may still be required to complete their own hazard assessment of the job/work.

## 10. Contaminant Controls Procedure for initiating work for all Contaminant Controls:

### 10.1. Contaminant Control I

- 10.1.1. The tradesperson or project manager for the board will discuss the details, including the scope and any impacts of the job/project with the principal.

- 10.1.2. Ensure fire exiting requirements and life safety systems are addressed or adequate mitigating plans are implemented for the building, construction staff and building occupants.
- 10.1.3. Presence of lead paint or ACM's (Asbestos Containing Materials) must be determined prior to the start of any job. Specific protocols or Codes of Practice may apply.
- 10.1.4. Consideration will be given for work that is anticipated to generate significant noise, odours or VOC's (Volatile Organic Compounds) and this will be scheduled outside of school hours or during times when the noise will not disrupt occupant activities. This will require coordination with the Principal.
- 10.1.5. The work area shall be isolated where possible. This may be achieved at varying levels, by closing doors and opening outside windows for ventilation or by installing appropriate hoarding and negative pressure units to ensure contaminants are not circulated throughout the school causing further health and safety concerns.
- 10.1.6. Dust shall be minimized during the activity. When drilling, sanding or cutting is taking place, wetting the area may be necessary to reduce dust.
- 10.1.7. Good housekeeping practices shall be maintained at all times on the work site. Bag and remove dust and debris from the building as soon as possible.
- 10.1.8. Possible environmental impacts shall be managed and minimized. If work uncovers environmental contaminants or suspected contaminants such as oil spills (current or historic) or potentially friable asbestos materials (check the school asbestos audit) that may be disturbed, this information shall be brought to the attention of the Board's employee responsible for the project so that appropriate actions can be taken.
- 10.1.9. When the activity is completed the work area shall be inspected and cleaned. Dust and debris shall be removed from the area and all efforts will be made to return items to their pre-maintenance activity location.
- 10.1.10. The Principal shall be notified that the work is completed.
- 10.2. **Contaminant Control II** - All Contaminant Control I measures shall apply, as well as;
  - 10.2.1. Cover furniture, bookshelves and teaching materials with plastic sheets.
  - 10.2.2. Water misting while performing dust generating activities may be required.
  - 10.2.3. Seal un-used doors. Seal wall penetrations, electrical outlets, or any other source of air leaks in the construction area.
  - 10.2.4. Seal exhaust air vents in construction area and open the windows. If possible shut down air handling system in the area for duration of project.
  - 10.2.5. A walk out mat at exterior of exit door to trap dust may be required.
- 10.3. **Contaminant Control III** - All Contaminant Control I and II measures shall apply, as well as;
  - 10.3.1. Install an impermeable dust barrier from the true ceiling to the floor consisting of two layers of 6 mil fire retardant polyethylene or solid wall and sealed door. The wall shall remain in place until the job is finished and the clean-up is completed.

- 10.3.2. Seal all wall penetrations
- 10.3.3. Seal off all return and supply air handling ducts and close all windows.
- 10.3.4. Turn off the air handling system in the area of construction.
- 10.3.5. Maintain negative air pressure in the construction area using HEPA filter equipped exhaust ventilation. The pressure differential between the project area of contamination and the building's occupied areas shall be demonstrable by a means approved by the Board employee responsible for the project.
- 10.3.6. Ensure that the air is exhausted directly outside and away from intake vents.
- 10.3.7. Vacuum all horizontal surfaces including drop cloths with a hepa vacuum.
- 10.3.8. Remove drop clothes
- 10.3.9. Vacuum again all horizontal surfaces with HEPA Vacuum.
- 10.3.10. Restore ventilation.
- 10.3.11. Remove enclosure and equipment.
- 10.4. **Control IV: (External Work)**
  - 10.4.1. External work may impact building interior or occupants.
  - 10.4.2. To reduce the impact to building interior or occupants, it may be necessary to contain the work area from impacting building interior. This may include closing or opening windows, tarping ceilings to capture debris or water, temporary relocation of occupants or ventilation controls.
  - 10.4.3. The job supervisor shall consider weather conditions and forecast to reduce the effect of any weather impacts to the building materials or building occupants.
  - 10.4.4. It may be necessary to use protective tarps and ground cover sheets below equipment and work areas to contain building debris such as paint chips, materials, dust or oil from equipment.
  - 10.4.5. When the job is completed and the tarps have been lifted, inspect the ground around the job for debris and clean as necessary.

**Fire Protection**

**10.5. Type V: General Fire Protection**

- 10.5.1.** Ensure fire exiting requirements and life safety systems are addressed or adequate mitigating plans are implemented for the building, construction staff and building occupants. Staff must be aware of temporary modifications to fire safety plans.
- 10.5.2.** MSDSs for all materials to be used must be reviewed and available on site.
- 10.5.3.** Construction materials stored outside must be a minimum distance of ten feet from the building and be in a secured area.
- 10.5.4.** Flammable or Combustible liquids must be stored as per Fire Code requirements. All flammable and combustible liquids or materials must be kept in a secure area at all times.

**10.6. Control VI: Fire Protection (minor hot work) - All Contaminant Control V shall apply as well as;**

- 10.6.1.** Notify the Principal that a risk of fire has increased and the area in which the hot work will occur.
- 10.6.2.** Refer and implement the board's hot work permit process. At a minimum the following should be considered;
  - 10.6.2.1.** Sweep the work area and remove all unnecessary materials in the vicinity; particularly all combustible and flammable materials and liquids shall be removed from the area (35 feet).
  - 10.6.2.2.** Have an appropriate size fire extinguisher available.
  - 10.6.2.3.** Inspect the work location for areas (such as a hole in the wall) where hot material or sparks could fall and smolder and close them off so that any hot debris can only fall within your field of view.
  - 10.6.2.4.** If it is possible that the flame will go past the object being welded or soldered and excessively heat a flammable or combustible material then either protect that material with a non-flammable material or wet the material and keep it wetted during the use of heat or grinding.
  - 10.6.2.5.** Remain in the area while the joint and/or heated materials cool to room temperature (ambient) while checking for the smell or appearance of smoke in the area.
  - 10.6.2.6.** Stay in the area for at least Y2 hour and then re-inspect for any smell or appearance of smoke.
  - 10.6.2.7.** Ask another staff person to inspect the area for the smell or appearance of smoke. Record who you asked to do the final inspection.

**10.6.3. Type VII: Fire Protection (hot work w fire watch) - All Contaminant Control V and VI shall apply as well as;**

- 10.6.4.** Notify the Principal that a risk of fire has increased and the area in which the hot work will occur. If any life safety system components (sprinkler, detectors, fire alarms) are not functioning, hot work should not proceed until these systems are

functioning unless fire watch procedures for life systems are followed. See Activation of Fire Watch for Life Safety Systems checklist. Appendix...XX

- 10.6.5.** Refer and implement the board's hot work permit process. At a minimum the following should be considered;
- 10.6.5.1.** Cover all floor openings with fire stop material. Seal duct work openings with metal covers or blankets and close all doors.
  - 10.6.5.2.** Ensure that there are no potentially explosive atmospheres in the area.
  - 10.6.5.3.** Hot work on vessels, pressure tanks or boilers, use only contractors who are qualified by nationally or internationally recognized boiler and pressure vessel code.
  - 10.6.5.4.** Notify the local fire department of the type of work and the work schedule.
  - 10.6.5.5.** Before hot work is started, designate one employee responsible to complete the fire watch: while work is in progress, during lunch breaks and other breaks and for one hour after all flames are extinguished for the day and monitor the area for an additional two hours. After three hours after the last flame has been extinguished, have a second employee do a final survey of the area for smells or evidence of smoldering or fire and record the inspection.

**APPENDIX**  
**Fire Watch Activation Checklist**

1. Documentation (identify locations to be checked on an hourly basis, provide contact information for relevant board staff and outside agencies} Board provided template to be used for documentation.
2. Procedure reviewed with Custodian or individual responsible for fire watch. Any high risk areas shall be identified to be highlighted on the documentation page and checked during the rounds.
3. Staff working in the building have been notified of the Fire Watch and that they are responsible to monitor areas for signs of fire or smoke and have been reminded of required actions to take according to the school fire safety plan.
4. Staff responsible for fire watch have been trained in how to use a fire extinguisher. (PASS)
5. Staff responsible for the fire watch have a means of communication (cell phone or walkie-talkies)
6. Staff responsible for the fire watch are aware of the procedure for initiating fire alarm and what systems are functioning. i.e. systems (sprinklers, alarm panel or if school has monitoring company or if calling 911 is required)
7. The School Insurance Program (SIP) Emergency Information Line has been notified 1-902-448-2840
8. All relevant information has been documented in the school's fire books. Including date, time and reason for fire watch.

**Fire Watch De-Activation Checklist**

1. Document the date, time and actions taken to remedy the deficiency requiring the fire watch.
2. School Insurance Program (SIP) has been notified
3. Copy of the Fire Watch documentation is kept in the fire book and the original is sent to the HRSB Project Representative.

**END OF SECTION 01 35 13**

**SECTION 01 35 29 - OCCUPATIONAL HEALTH & SAFETY REQUIREMENTS**

**1. References**

- 1.1.** CSA S269.1-1975 Falsework for Construction Purposes.

**2. CONSTRUCTION SAFETY MEASURES**

- 2.1.** Observe construction safety measures of:

**2.1.1.** National Building Code 2010, Part 8

**2.1.2.** National Fire Code of Canada

**2.1.3.** Provincial Government, including but not limited to the:

**2.1.3.1.** Occupational Health & Safety Act revised Statutes of Nova Scotia 1996, Chapter 7 and regulations.

**2.1.3.2.** Workers' Compensation Act

**2.1.3.3.** Fire Protection Act

**2.1.3.4.** Dangerous Goods Transportation Act

- 2.2.** In case of conflict or discrepancy the more stringent requirement shall apply.

- 2.3.** Ensure that employees working on this specific project have met training requirements as legislated by the Nova Scotia Occupational Health & Safety Act and its regulations.

- 2.4.** 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.

**3. Equipment & Tools**

- 3.1.** Each user of equipment or tools shall be responsible to examine for sufficiency before use. Make equipment and tools safe if necessary.

**4. WHMIS**

- 4.1.** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets.

- 4.2.** Have a copy of WHMIS data sheets available at the workplace on delivery of materials.

**5. Hazardous Material**

- 5.1. 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.
- 5.2. 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 Jurisdictional Authority.

**6. Site Cleaning**

- 6.1. Except where special permission is obtained, maintain clear access on public sidewalks and roads.
- 6.2. Maintain walks and roads clear of construction materials and debris, including excavated material. Clean walks and roads as frequently as required to ensure that they are cleared of materials, debris and excavated material.

**7. Fire Safety Requirements**

- 7.1. 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.
- 7.2. Smoking is not permitted on school property.
- 7.3. Advise 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 and in areas where work is being done.
- 7.4. Ensure nothing subverts the integrity of fire protection provided for the building structure.

**8. Reporting Fires**

- 8.1. Know the location of the nearest fire alarm box and telephone, including the emergency phone number.
- 8.2. Report immediately all fire incidents to the fire department as follows:
  - 8.2.1. Activate nearest fire alarm box, or
  - 8.2.2. Telephone local fire department
  - 8.2.3. 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.



- 8.2.4. When reporting a fire by telephone, give location of fire, name or number of building and be prepared to verify the location.

## 9. Safety Document Submission

- 9.1. Ensure Safety Document Submission applies to Work of this specific project and site.
- 9.2. Submit two (2) copies of Project Safety Document at the Pre-Construction Meeting. Do not commence Work nor deliver material on-site prior to submission.
- 9.3. Include 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:
- 9.3.1. Ensure the Health & Safety of persons at or near the Work; including, but not limited to, the Public.
- 9.3.2. Ensure the measures and procedures of the regulatory agencies specified are carried out.
- 9.3.3. Ensure every employee, self-employed person and employer performing Work under this contract complies with the regulatory agencies specified.
- 9.3.4. 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 Owner prior to implementation.

## 10. Safety Document Organization

- 10.1. Organize information in the form of an instructional manual as follows:
- 10.1.1. Place in binders of commercial quality, accommodating 8½" x 11" paper size.
- 10.1.2. Cover: Identify binder with typed or printed title 'Project Safety Document' and list the title of project.
- 10.1.3. Provide tabbed fly leaf for each separate heading, with typed heading on tab.
- 10.1.4. Where drawings are within the safety document, provide with reinforced punched binder tab. Bind in with text; fold in larger drawings to size of text pages.
- 10.1.5. Arrange content under Safety Document headings specified herein.

**11. Safety Document Headings**

**11.1. Employee Safety Training**

**11.1.1.** Place, under this heading, a statement indicating employees working on this specific project have met specified training requirements, if required.

**11.2. Company Safety Policy**

**11.2.1.** Place, under this heading, information pertaining to the company's policy and commitment to Occupational Health & Safety, including the responsibilities of management, supervisors and workers.

**11.3. Company Safety Rules in General Terms**

**11.3.1.** Place, under this heading, information of a general, global nature, applying to every work environment where the company has staff and pertaining to rules directing compliance to policy. For example state company safety rules with respect to use of hard hats, safety glasses, safety foot ware, CSA approval on such items, use of alcohol or non-prescription drugs.

**11.4. Hazard Assessment**

**11.4.1.** Place, under this heading, information identifying possible hazards specific to this project and identify safe methods and procedures for the execution of work to ensure safety in the work place.

**11.4.2.** Arrange contents of this heading by technical section number of the project manual.

**11.5. Emergency Action Plan**

**11.5.1.** Place, under this heading, information detailing action to be taken in the event of various emergencies.

**11.5.2.** Arrange content under the following sub-headings:

**11.5.2.1. First Aid**

11.5.2.1.1. Include information concerning establishment of a First Aid Station, related supplies, staff awareness of location and staff training in First Aid Care of Casualties.

**11.5.2.2. Contact of Emergency Support Groups:**

11.5.2.2.1. Include relative information including phone location for emergency use, the emergency telephone numbers and their location for the various organizations which must be contacted in case of an emergency, and staff training in procedures.

**11.5.2.3.** Cessation of Work:

11.5.2.3.1. Include relative information how work cessation during emergencies is handled and communicated to persons present on site.

**11.6.** Joint Occupational Health & Safety Committee/Representative:

**11.6.1.** Place under this heading information detailing membership and terms of reference.

**OCCUPATIONAL HEALTH & SAFETY SUMMARY FOLLOWS THIS PAGE**

**Occupational Health & Safety Summary** (to be submitted with each monthly Progress estimate)

The following information summarizes Occupational Health & Safety activities on the project conducted by the Contractor during the month and includes activities of Subcontractors. Activities include all matters prescribed by the Occupational Health & Safety Act and Regulations and the submitted Occupational Health & Safety Document for the Project.

**Indicate the applicable # number below:**

**List new Contractors on Site below:**

# \_\_\_\_ new contractors on site,

\_\_\_\_\_

# \_\_\_\_ orientations

\_\_\_\_\_

# \_\_\_\_ toolbox talks

\_\_\_\_\_

# \_\_\_\_ safety meetings

\_\_\_\_\_

# \_\_\_\_ Joint Occupational Health  
and Safety Committee meetings

\_\_\_\_\_

\_\_\_\_\_

# \_\_\_\_ hazard assessments

# \_\_\_\_ formal written inspections

# \_\_\_\_ warnings issued to employees or subcontractors

# \_\_\_\_ other, explain \_\_\_\_\_

The Contractor certifies that the above noted activity list is accurate and that during the month:

Check

All activities on the Project were found to be in compliance with the Occupational Health & Safety Act and Regulations

Some activities on the Project were not found to be in compliance with the Occupational Health & Safety Act and Regulations but were adequately corrected in an appropriate time frame.  
Explain \_\_\_\_\_

Prepared by

Certified by

\_\_\_\_\_  
(Contractor Project Manager)

\_\_\_\_\_  
(Contractor Senior Management)

**END OF SECTION 01 35 29**

**SECTION 01 37 00 - SCHEDULE OF VALUES**

**1. Related Documents**

- 1.1. General Conditions of Contract.

**2. General**

- 2.1. Submit to the Consultant, and Owner, Schedule of Values, within twenty (20) days after signing Agreement.
- 2.2. Use Schedule of Values as basis for Contractor's Progress Claim.

**3. Form Of Submittal**

- 3.1. Form included at end of this Section.
- 3.2. **The form included below is a suggested guide but might not be appropriate for all projects. Contractors may submit their own template to the Owner for review/approval.**

**4. Preparing Schedule Of Values**

- 4.1. Itemize separate line item cost for work required.
- 4.2. Round off figures to nearest ten (10) dollars.
- 4.3. The sum of all values listed in the schedule shall equal the total contract sum.

**5. Review And Submittal**

- 5.1. After review by Consultant and Owner, revise and resubmit Schedule as directed.
- 5.2. The form shall be completed and supported by such evidence as to its correctness as the Consultant may reasonably direct.

**Schedule Of Values**

**Project Name** WASTEWATER TREATMENT SYSTEM REPLACEMENT #3877-A

**Contract Number** \_\_\_\_\_

**Consultant** \_\_\_\_\_

**Contractor** \_\_\_\_\_

**Date** \_\_\_\_\_

Item	Description	Item Amount
------	-------------	-------------

**1. General Requirements**

- 1.1. Mobilization & Initial Expenses
- 1.2. Site Overhead & Fee
- 1.3. Bonds
- 1.4. Certificates
- 1.5. Testing
- 1.6. Construction Facilities & Temporary Controls
- 1.7. Other (Specify)

Total (Items 1.1 to 1.7) \_\_\_\_\_

**2. Excavation, Backfill, Sitework**

Total (Item 2.) \_\_\_\_\_

**3. Concrete**

Total (Item 3.) \_\_\_\_\_

Item	Description	Item Amount
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**4. Masonry**

Total (Item 4.) \_\_\_\_\_

**5. Metals**

Total (Item 5.) \_\_\_\_\_

**6. Wood & Plastics**

- 6.1. Rough Carpentry
- 6.2. Finish Carpentry
- 6.3. Architectural Woodwork

Total (Items 6.1 to 6.3) \_\_\_\_\_

**7. Thermal & Moisture Protection**

- 7.1. Insulation
- 7.2. Air Vapour Barrier
- 7.3. Aluminum Composite Panels
- 7.4. Preformed Metal Siding
- 7.5. Fire Stopping
- 7.6. Roofing

Total (Item 7.1 to 7.6) \_\_\_\_\_

**8. Doors And Windows**

- 8.1. Metal Doors & Frames
- 8.2. Wood Doors
- 8.3. Hardware
- 8.4. Windows

Total (Items 8.1 to 8.4) \_\_\_\_\_

<u>Item</u>	<u>Description</u>	<u>Item Amount</u>
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**9. Finishes**

- 9.1. Acoustic Ceiling Systems
- 9.2. Gypsum Board and Support Systems
- 9.3. Hard Tile
- 9.4. Resilient Tile
- 9.5. Painting

Total (Items 9.1 to 9.5) \_\_\_\_\_

**10. Specialties**

- 10.1. Tackboards, Communication Boards
- 10.2. Toilet & Bath Accessories
- 10.3. Manufactured Specialties
- 10.4. Food Service Equipment

Total (Items 10.1 to 10.4) \_\_\_\_\_

**11. Mechanical**

- 11.1. As per Sections

Total (Item 11.) \_\_\_\_\_

**12. Electrical**

- 12.1. As per Sections

Total (Item 12.) \_\_\_\_\_

**TOTAL (Items 1 - 12)** \_\_\_\_\_

END OF SECTION 01 37 00

**SECTION 01 41 00 - REGULATORY AGENCIES**

**1. Jurisdictional Authorities**

- 1.1.** 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 building.

**2. Definitions**

- 2.1.** The "Constructor" named in the Construction Safety Act, Chapter 52, Revised Statutes of Nova Scotia, as amended by 1972, Chapter 25; and Construction Safety Regulations, pursuant to Chapter 52 R.S.N.S., including any amendments, shall mean the "Contractor" for the Work performed under this Specification.

**3. Fire Prevention, Safety & Protection**

- 3.1.** General Construction Safety Measures:
- 3.1.1.** Observe safety measures of the
    - 3.1.1.1.** National Building Code 2010, Part 8.
    - 3.1.1.2.** National Fire Code of Canada.
    - 3.1.1.3.** Provincial Government, including but not limited to the Occupational Health & Safety Act Revised Statutes of Nova Scotia 1996, Chapter 320, and the Construction Safety & Industrial Safety Regulations made pursuant to the Occupational Health and Safety Act, 1996.
    - 3.1.1.4.** Workers'/Workmen's Compensation Board.
  - 3.1.2.** In case of conflict or discrepancy the more stringent requirement shall apply.
  - 3.1.3.** Maintain clear emergency exit paths for personnel.
- 3.2.** Except where special permission is obtained, maintain clear access on public sidewalks and roads.
- 3.3.** Maintain walks and roads clear of construction materials and debris, including excavated materials. Clean walks and roads as frequently as required to ensure that they are cleared of materials, debris and excavated materials.
- 3.4.** WHMIS:
- 3.4.1.** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada and Health & Welfare Canada.



- 3.4.2. Have a copy of WHMIS data sheets available at the workplace on delivery of materials.

**Blockage Of Roadways**

- 3.5. Advise Fire Chief of any work that would impede fire apparatus response. This includes violation of minimum overhead clearance, as prescribed by fire chief, erecting of barricades and the digging of trenches.

**4. Smoking Precautions**

- 4.1. Observe, at all times, smoking regulations.

**5. Rubbish And Waste Materials**

- 5.1. Rubbish and waste materials are to be kept to a minimum.  
5.2. The burning of rubbish is prohibited.

**6. Flammable And Combustible Liquids**

- 6.1. The handling, storage and use of flammable and combustible liquids are to be governed by the current National Fire Code of Canada.  
6.2. Flammable and combustible liquids such as gasoline, kerosene and naphtha will be kept for ready use in quantities not exceeding 45 litres 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 and combustible liquids exceeding 45 litres for work purposes, requires the permission of the Fire Chief.  
6.3. Transfer of flammable and combustible liquids is prohibited within buildings or jetties.  
6.4. Transfer of flammable and combustible liquids will not be carried out in the vicinity of open flames or any type of heat-producing devices.  
6.5. Flammable liquids having a flash point below 38°C such as naphtha or gasoline will not be used as solvents or cleaning agents.  
6.6. Flammable and combustible waste liquids, for disposal, will be stored in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and the Fire Department is to be notified when disposal is required.

**7. Hazardous Substances**

- 7.1. Work entailing the use of toxic or hazardous materials, chemicals and/or explosives, otherwise creates a hazard to life, safety or health, will be in accordance with the National Fire Code of Canada.

- 7.2. Where flammable liquids, such as lacquers or urethanes are to be used, proper ventilation will be assured and all sources of ignition are to be eliminated. The Fire Chief is to be informed prior to and at the cessation of such work.

## **8. Questions and/or Clarification**

- 8.1. Direct any questions or clarification on Fire Safety in addition to above requirements to Fire Chief.

## **9. Fire Inspection**

- 9.1. Site inspections by Fire Chief will be coordinated through AVRSB Project Manager.
- 9.2. Allow Fire Chief unrestricted access to the work site.
- 9.3. Co-operate with the Fire Chief during routine fire safety inspection of the Work site.
- 9.4. Immediately remedy all unsafe fire situations observed by the Fire Chief.

## **10. Reference Standards**

- 10.1. Where edition date is not specified, consider that references to manufacturer's and, published codes, standards and specifications are made to the latest edition, (revision) approved by the issuing organization, current at the date of this Specification.
- 10.2. Reference standards and specifications are quoted in this Specification to establish minimum standards. Work which in quality exceeds these minimum standards shall be considered to conform.
- 10.3. Should the Contract Documents conflict with specified reference standards or specifications the General Conditions of the Contract shall govern.
- 10.4. Where reference is made to manufacturer's directions, instructions or specifications they shall include full information on storing, handling, preparing, mixing, installing, erecting, applying, or other matters concerning the materials pertinent to their use and their relationship to materials with which they are incorporated.
- 10.5. Have a copy of each code, standard and specification, and manufacturer's directions, instructions and specifications, to which reference is made in this Specification, always available at construction site.
- 10.6. Standards, specifications, associations, and regulatory bodies are generally referred to throughout the specifications by their abbreviated designations:

AA	The Aluminum Association
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ARI	Air Conditioning & Refrigeration Institute
ASTM	American Society for Testing & Materials
CCA	Canadian Construction Association
CGSB	Canadian General Standards Board
CSA	Canadian Standards Association
NSDTIR	Department of Transportation & Infrastructure Renewal, Province of Nova Scotia
IAO	Insurers Advisory Organization
NBC	National Building Code
NFPA	National Fire Protection Association
CANS	Construction Association of Nova Scotia
ULC	Underwriters Laboratories of Canada
WHMIS	Workplace Hazardous Materials Information System

**END OF SECTION 01 41 00**

**SECTION 01 45 00 - QUALITY CONTROL**

**1. Section Includes**

- 1.1. Inspection and testing, administrative and enforcement requirements
- 1.2. Tests and mix designs.
- 1.3. Mock-ups.
- 1.4. Mill tests.
- 1.5. Equipment and system adjust and balance.
- 1.6. Verification by affidavits and certificates that specified products meet requirements of reference standards: In applicable Sections of the Specification.
- 1.7. Testing, balancing and adjusting of equipment: In applicable Mechanical and Electrical Sections of the Specification.
- 1.8. Cutting & Patching: Section 01 11 41.

**2. Related Sections**

- 2.1. Section 01 33 00 Submittal Procedures: Submission of samples to confirm product quality.
- 2.2. Section 01 61 00 Material & Equipment: Material and workmanship quality – reference standards.
- 2.3. Section 01 77 00 Contract Closeout.

**3. REVIEW OF WORK**

- 3.1. The Owner shall have access to the Work. If part of the Work is in preparation at locations other than the Place of the Work, access shall be given to such work whenever it is in progress.
- 3.2. Give timely notice to the Owner's Representative, requesting review of the Work as indicated in the Contract Documents.
- 3.3. If the Contractor covers or permits to be covered Work that has been designated for review by the Owner before such is made, uncover such Work, have the review satisfactorily completed and make good such Work at no extra cost to Owner.

**4. Testing, Inspections, Approvals**

- 4.1. Provide such assistance, labour and materials as are normally required for examining, measuring and testing the quality, weight, or quantity. Supply samples of materials before incorporation in the Works for testing as may be selected and as specified.

- 4.2. Perform or arrange for the performance of all tests on all equipment in complete accordance with the relevant clauses of these Specifications and in the presence of the Consultant.
- 4.3. The Owner will cover the cost of testing however the provision of all assistance, samples, etc., for testing and arranged tests will be deemed to be covered by and included in the contract price unless noted otherwise, elsewhere in these specifications.
- 4.4. The Contractor will have no claim against the Owner or the Consultant in respect of any financial loss which may be suffered from the rejection of any materials or equipment due to their failure to meet specified test requirements, and the Contractor must also bear the costs of remedying any defects such that the material or equipment will meet the specified tests, or failing this, of removing the material or equipment from the site. The decision to repair or replace materials and equipment which have failed to meet test requirements will be made by the Consultant.
- 4.5. Coordinate building inspections, permits, and electrical approvals. All fees associated in doing so will be directed to and paid by the owner.

## 5. Access To Work

- 5.1. Allow inspection/testing agencies access to the Work, off site manufacturing and fabrication plants.
- 5.2. Co-operate to provide reasonable facilities for such access.

## 6. Procedures

- 6.1. Notify the appropriate agency and Owner in advance of the requirement for tests, in order that attendance arrangements can be made.
- 6.2. Submit samples and/or materials required for testing, at specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
- 6.3. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

## 7. Rejected Work

- 7.1. Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in the Work or not, which has been rejected, including (but not limited to) defective Work rejected by the Owner as failing

to conform to the Contract Documents. Replace or re-execute in accordance with the Contract Documents.

- 7.2. Make good other Contractor's work damaged by such removals or replacements promptly.
- 7.3. If in the opinion of the Owner, it is not expedient to correct defective Work or Work not performed in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by the Contract Documents, the amount of which shall be determined by the Owner.

## 8. Reports

- 8.1. Submit four (4) copies of inspection and test reports to the Owner.
- 8.2. Provide copies to Contractor's Consultant and Subcontractor of Work being inspected or tested.

## 9. Tests and Mix Designs

- 9.1. Furnish test results and mix designs as may be requested.
- 9.2. The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by law of the Place of Work shall be appraised by the Owner and may be authorized as recoverable.

## 10. Mock-Up

- 10.1. Prepare mock-up for Work for each finish in the Work and other work specifically requested in the specifications. Include for Work of all Sections required to provide mock-ups.
- 10.2. Construct in all locations as specified in specific Section.
- 10.3. Prepare mock-up for Owner's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the Work.
- 10.4. Failure to prepare mock-up in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- 10.5. If requested the Owner will assist in preparing a schedule fixing the dates for preparation.
- 10.6. Mock-ups may remain as part of the Work, unless specified otherwise in the Contract Documents.

## 11. Mill Tests

11.1. Submit mill test certificates as may be requested.

**12. Equipment And Systems**

12.1. Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

12.2. Refer to Contract Documents for definitive requirements.

**END OF SECTION 01 45 00**

***SECTION 01 52 00 – CONSTRUCTION & TEMPORARY FACILITIES***

**1. General**

- 1.1. Include in the Work construction and temporary facilities required as construction aids or by jurisdictional authorities or as otherwise specified. Install to meet needs of construction as Work progresses. Maintain construction and temporary facilities during use, relocate them as required by the Work, remove them at completion of need and make good adjacent Work and property affected by their installation.
- 1.2. Include in the Work construction and temporary facilities to provide for construction safety such as: fences, barricades, bracing, supports, storage, sanitation and first aid facilities, fire protection, stand pipes, electrical supply, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, and walkway, morality and guard lights, and as otherwise required of the Constructor by the Construction Safety Act, of the Province of Nova Scotia, as well as all other applicable regulations or jurisdictional authorities.
- 1.3. Construct temporary Work of new materials unless use of second-hand materials is approved.
- 1.4. Ensure that structural, mechanical, and electrical characteristics of temporary facilities are suitable and adequate for use intended. Be responsible that no harm is caused to persons and property by failure of temporary facilities because of placing, location, stability, protection, structural sufficiency, removal, or any other cause.
- 1.5. Locate temporary facilities as directed and coordinated with School Administration and HRSB.
- 1.6. Relocate construction and temporary facilities as required by the Progress of the Work, and remove at completion of Work.
- 1.7. Do not permit construction personnel to use new washroom and toilet facilities.
- 1.8. Interior work zones to be complete with temporary negative air ventilation units to be functioning at all times to control dust migration to occupied areas.
- 1.9. Refer also to HRSB Policies & Guidelines contained in Appendix A of Section 01 35 13.

**2. Services**

- 2.1. Temporary Electric Power:
  - 2.1.1. The Contractor will provide a source of electric power for all construction purposes.
  - 2.1.2. Coordinate with the Building Operator locations of power sources and arrange to connect under his direction.
  - 2.1.3. Install electric service distribution conductors and necessary components. Determine anticipated demand which will be placed on service during normal peak



periods and obtain approval on this basis before making installation. Supply power of characteristics required by the Work. Install a power centre for miscellaneous tools and equipment for each major building floor area with distribution box, a minimum of four 20 amp grounded outlets, and circuit breaker protection for each outlet. Make connections available to any part of the Work within distance of a 100'-0" extension.

2.2. Temporary Lighting:

2.2.1. Install lighting for

2.2.1.1. emergency evacuation, safety and security throughout the Project at intensity levels required by jurisdictional authorities.

2.2.1.2. performance of Work throughout Work areas as required, evenly distributed, and at intensities to ensure that proper installations and applications are achieved.

2.2.1.3. performance of finishing Work in areas as required, evenly distributed and of an intensity of at least 15 foot candles.

2.2.2. Permanent fluorescent lighting may be used during construction, provided that fixtures, lamps and lenses are completely cleaned. Incandescent sources may be used during construction to the extent of 20% of the total. Electrical Division Contractor to provide 20% spare lamps to the Owner for replacement purposes.

2.3. Temporary Sanitary Facilities:

2.3.1. Provide sanitary facilities for persons on the Work site. Facilities in areas of the building are only to be used under extraordinary circumstances and with prior approval.

2.4. Maintain fire protection as required by jurisdictional authorities. The Contractor is responsible for de-activating and re-activating Fire Alarm zones as required by the Work of the Contract and to maintain protection in the existing building.

**3. Construction Aids**

3.1. Hoists & Cranes:

3.1.1. Select, operate and maintain hoisting equipment and cranes as may be required. Operate such equipment only by qualified hoist or crane operators. Make hoist available for Work of each Section.

3.2. Building Enclosure:

3.2.1. Include in Work temporary enclosure for building as required to protect it, in its entirety or in its parts, against the elements, to maintain environmental conditions

required for Work. Design enclosures to withstand wind pressures required for the building by jurisdictional authorities. Erect enclosures to allow complete accessibility for installation of materials during the time enclosures remain in place.

3.3. Scaffolding:

- 3.3.1. Each user of scaffolding shall be responsible for its examination and testing for sufficiency before using it. He shall make it secure if necessary, or shall notify the Contractor in writing that he will not commence work until it is made secure; otherwise he will be held responsible for accidents due to its insufficiency.

**4. Barriers**

- 4.1. Install barricades for traffic control, and to prevent damaging traffic over exterior and interior finished areas, as well as safety barricades and otherwise, as may be required.
- 4.2. Construct hoardings and walkways as required by HRSB or jurisdictional authorities.

**5. Protection**

- 5.1. Protect roofs and podiums by substantial temporary construction to ensure that no damage occurs. Provide protection by materials of sufficient thickness to prevent all damage to structure and finish, and to waterproofing qualities of membranes, whenever each of these individual components are exposed. Damage shall include harm resulting from all construction work, such as falling objects, wheel and foot traffic, failure to remove debris, operation of machinery and equipment, and scaffolding and hoisting operations. Positively secure protection to prevent displacement from any cause.
- 5.2. Box with wood or otherwise protect from damage, by continuing construction, finished sills, jambs, corners, and the like.

**END OF SECTION 01 52 00**

***SECTION 01 61 00 - MATERIAL & EQUIPMENT***

**1. General**

- 1.1.** Products refer to materials, manufactured components and assemblies, fixtures and equipment incorporated in the Work.
- 1.2.** Use only products of Canadian manufacture unless such products are not manufactured in Canada, are specified otherwise, or are not competitive.
- 1.3.** Products for use in the Project and on which the Tender was based shall be in production at that time, with a precise model and shop drawings available for viewing.
- 1.4.** Where equivalent products are specified, or where alternatives are proposed under "substitution of products", these products claimed by the Contractor as equivalent shall be comparable in construction, type, function, quality, performance, and, where applicable, in appearance, as approved. Where specified equivalents are used in the tendered bulk sum price for the Work, they shall be subject to final approval.
- 1.5.** Incorporate products in the Work in strict accordance with manufacturers' directions unless specified otherwise.
- 1.6.** Products delivered to the Project site for incorporation in the Work shall be considered the property of the Owner. Maintain protection and security of products stored on the site after payment has been made for them.
- 1.7.** Do not install permanently incorporated labels, trademarks and nameplates, in visible locations unless required for operating instructions or by jurisdictional authorities.

**2. Specified Products**

- 2.1.** Products specified by manufacturer's name, brand name or catalogue reference shall be the basis of the bid and shall be supplied for the Work without exception in any detail, subject to allowable substitutions as specified.
- 2.2.** Where several proprietary products are specified, any one of the several will be acceptable.
- 2.3.** For products specified by reference standards, the onus shall be on the supplier to establish that such products meet reference standard requirements. The Consultant may require affidavits from the supplier, as specified in Section 01 33 00, or inspection and testing at the expense of the supplier, or both, to prove compliance. Products exceeding minimum requirements established by reference standards will be accepted for the Work if such products are compatible with and harmless to Work with which they are incorporated.

### **3. Substitution Of Products During Progress Of Work**

- 3.1.** Products substituted for those specified or approved, or both, shall be permitted only if the listed product cannot be delivered to maintain construction schedule and if the delay is caused by conditions beyond the Contractor's control.
- 3.2.** Obtain approval for substitutions. Application for approval of substitutions shall be made only by Contractor. Process proposals for substituted Work in accordance with procedures established for changes in the Work.
- 3.3.** Submit, with request for substitution, documentary evidence that substituted products are equal to, or superior to, approved products, and a comparison of price and delivery factors for both specified or approved products, and proposed substitute.
- 3.4.** Ensure that substituted products can be both physically and dimensionally incorporated in the Work with no loss of intended function, performance, space or construction time, and that spare parts and service are readily available. The Contractor shall be responsible for additional installation costs, including architectural and engineering fees, required by incorporation of substituted products, and for adaptations made otherwise necessary to ensure that above requirements are satisfied.

### **4. Product Handling**

- 4.1.** Manufacture, pack, ship, deliver and store products so that no damage occurs to structural qualities and finish appearance, nor in any other way detrimental to their function or appearance, or both.
- 4.2.** Ensure that products, while transported, stored or installed, are not exposed to an environment which would increase their moisture content beyond the maximum specified.
- 4.3.** Schedule early delivery of products to enable Work to be executed without delay. Before delivery, arrange for receiving at site.
- 4.4.** Deliver package products, and store until use, in original unopened wrapping or containers, with manufacturer's seals and labels intact.
- 4.5.** Label packaged products to describe contents, quantity and other information as specified.
- 4.6.** Product handling requirements may be repeated and additional requirements specified, in other Sections.

**5. Storage & Protection**

- 5.1. Coordinate material delivery to ensure that areas within or on building are available to receive them.
- 5.2. Store manufactured products in accordance with manufacturer's instructions, when such instructions are attached to products or submitted by him.
- 5.3. Store finished products and woodwork under cover at all times.
- 5.4. Store and handle flammable liquids and other hazardous materials in approved safety containers and as otherwise prescribed by safety authorities. Store no flammable liquids or other hazardous materials in bulk within the Project.
- 5.5. Storage and special protection requirements may be repeated, and additional requirements specified, in other Sections.

**6. Defective Products & Work**

- 6.1. Products and Work found defective; not in accordance with the Specifications; or defaced or injured through negligence of the Contractor, his employees or subcontractors, or by fire, weather or any other cause will be rejected for incorporation in the Work.
- 6.2. Remove rejected products and Work from the premises immediately.
- 6.3. Replace rejected products and Work with no delay after rejection. Provide replacement products and execute replacement Work precisely as required by the Specification for the defective Work replaced. Previous inspection and payment shall not relieve the Contractor from the obligation of providing sound and satisfactory Work in compliance with this Project Manual.

**7. Workers, Suppliers & Subcontractors**

- 7.1. Assign Work only to workers, suppliers, and Subcontractors who have complete knowledge, not only of the conditions of this Project Manual, but of jurisdictional requirements, and reference standards and specifications.
- 7.2. Give preference to use of local workers, suppliers, and Subcontractors wherever possible.

**8. Workmanship**

- 8.1. Unless otherwise specified in a more detailed manner, workmanship shall be of the highest quality recognized by trade executing the Work in accordance with standard practices, by the best methods recommended by the manufacturer of the Product, and as approved by the Consultant.

**END OF SECTION 01 61 00**

***SECTION 01 77 00 – CONTRACT CLOSEOUT***

**1. Section Includes**

- 1.1. Final cleaning.
- 1.2. Spare parts and maintenance materials.
- 1.3. Take over procedures.

**2. Related Sections**

- 2.1. Individual Specifications Sections: Specific requirements for operation and maintenance data.

**3. Final Cleaning**

- 3.1. Refer to the General Conditions of Contract.
- 3.2. Before final inspection, replace glass and mirrors broken, damaged and etched during construction, or which are otherwise defective.
- 3.3. In addition to requirements for cleaning-up specified in General Conditions of the Contract, include in Work final cleaning by skilled cleaning specialists on completion of construction.
- 3.4. Remove temporary protections and make good defects before commencement of final cleaning.
- 3.5. Remove waste products and debris other than that caused by the Owner, other contractors or their employees, and leave the Work clean and suitable for occupancy by Owner.
- 3.6. Remove surplus products, tools, construction machinery and equipment. Remove waste products and debris other than that caused by the Owner or other Contractors.
- 3.7. Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- 3.8. Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors and ceilings.
- 3.9. Vacuum clean and dust building interiors, behind grilles, louvres and screens as affected by Work.
- 3.10. Wax, seal, shampoo, buff or prepare floor finishes, as recommended by the manufacturer. Use products compatible with products used by building maintenance staff.
- 3.11. Broom clean and wash all horizontal and vertical surfaces as affected by Work.
- 3.12. Clean up and make good exterior grades, lawns, planting and surfaces after removal of temporary access and facilities.
- 3.13. Removing of visible labels left on materials, components, and equipment.

3.14. Maintain cleaning until Owner has taken possession of building or portions thereof.

**4. Spare Parts And Maintenance Materials**

- 4.1. Spare parts and maintenance materials provided shall be new, not damaged or defective, and of the same quality and manufacture as Products provided in the Work. If requested, furnish evidence as to type, source and quality of Products provided.
- 4.2. Defective Products will be rejected, regardless of previous inspections. Replace products at own expense.
- 4.3. Store spare parts and maintenance materials in a manner to prevent damage, or deterioration.
- 4.4. Provide spare parts, special tools, maintenance and extra materials in quantities specified in individual specification Sections.
- 4.5. Provide items of same manufacture and quality as items in the Work.

**5. Demonstration Of Systems & Equipment**

- 5.1. Give a complete demonstration of all systems and equipment in the presence of the Consultant at the following times:
  - 5.2. When each is 100% completed at the request of the Contractor.
  - 5.3. At time of inspection to validate final completion.
  - 5.4. At final completion for the benefit of the maintenance staff for the Project.
  - 5.5. Responsible personnel representing the Subcontractor responsible for the Work being demonstrated shall be present at each demonstration.

**6. Submittals**

- 6.1. Submit with application for substantial performance certificate.
  - 6.1.1. Certificate of substantial completion inspection report from electrical utility or inspection.
  - 6.1.2. Certificate of verification of fire alarm system.
  - 6.1.3. Certificate from the Fire Marshal's Office and I.A.O. of final inspection of sprinkler system.
  - 6.1.4. Air balance reports.
  - 6.1.5. Other reports required or specified.
  - 6.1.6. Maintenance Manuals and Operating Instructions.
- 6.2. Submit with application for release of final payment:
  - 6.2.1. Final project record drawings.
  - 6.2.2. Extra stock.

- 6.2.3. Performance bonds which shall remain in effect for one (1) year after take-over date.
- 6.2.4. Completed Liability Insurance Policy extended for one (1) year from take-over date.
- 6.2.5. Written guarantee covering all workmanship and materials used in the Work.
- 6.2.6. Maintenance bonds as specified.
- 6.2.7. Extended Warranties as specified
- 6.2.8. Certificate from Workers' Compensation Board.
- 6.2.9. Certificate from Health Services Tax Division.

## 7. Final Inspection Procedures

- 7.1. Schedule, make arrangements for and administer final inspections and close out in the following stages.
- 7.2. Contractor's Inspection:
  - 7.2.1. Determination that Project meets requirements for substantial performance and inspection is the responsibility of the Contractor.
  - 7.2.2. The Contractor and all Subcontractors shall conduct an inspection of the work, identify deficiencies and defects; repair as required. Notify the Consultant in writing of satisfactory completion of the contractor's Inspection and that corrections have been made. Request a Consultant's Substantial Performance Inspection.
- 7.3. Consultant's Inspection: Consultants and the Contractor will perform an inspection of the Work to identify obvious defects or deficiencies. The contractor shall correct Work accordingly.
- 7.4. Substantial Performance Inspection:
  - 7.4.1. When the items noted above are complete, request a substantial performance inspection of the Work by the Consultant, and the Contractor. If Work is deemed incomplete by the Consultant, complete the outstanding items and request a re-inspection.
  - 7.4.2. Substantial performance inspections shall be scheduled to begin within eight working days of the Contractor's request.
  - 7.4.3. Present at the substantial performance inspection will be:
    - 7.4.3.1. The Consultant and his Sub-consultants that he requires and notifies.
    - 7.4.3.2. The Owner's representatives, upon notification by the Consultant.
    - 7.4.3.3. The Contractor and such Subcontractors that he considers are required.
    - 7.4.3.4. The Contractor will compile a substantial performance deficiency list at this inspection and issue it to the Consultant and Owner.
    - 7.4.3.5. The Contractor shall correct substantial performance deficiencies before a date agreed upon by the Contractor and Consultant.



- 7.4.3.6. Upon the Consultant's approval of substantial performance, the Contractor shall submit an application for a substantial performance certificate.
- 7.4.3.7. When the Contractor has satisfied himself that these corrections have been completed in a satisfactory manner by his inspection he shall schedule a final Contractor's inspection by the Consultant, and the Owner's representatives if required, within five working days of the Contractor's request.
- 7.4.3.8. Upon the Consultant's approval of completion, the Contractor shall submit an application for a completion certificate.

## **8. Substantial Performance**

- 8.1. The Consultant will issue a Certificate of Substantial Performance when satisfied outstanding deficiencies noted during inspections prior to the substantial completion inspection have been corrected, the Work is substantially complete and is so certified by the Owner.
- 8.2. A list of remaining deficiencies to be rectified before final acceptance will be attached to the Certificate of Substantial Performance.
- 8.3. Make submissions specified in Subparagraph 1.06 of this Section.

## **9. Certificate For Release Of Amount Due At Substantial performance**

- 9.1. The Consultant will issue to the Owner a certificate for release of money in an amount equal to the amount due the Contractor under the Agreement providing he is satisfied the Work has been substantially completed.
- 9.2. The certificate shall indicate the date of substantial performance.
- 9.3. Payment shall be due upon date of substantial performance.

## **10. Completion Certificate**

- 10.1. The Consultant will issue a Certificate of Completion (DSS Document DC670-92) when he is satisfied that outstanding deficiencies noted during inspections have been corrected and the Work is completed and is so certified by the Owner.
- 10.2. The date of the completion certificate will commence the required sixty (60) day period before release of final payment.

## **11. Certificate For Release Of Final Payment**

- 11.1. The Consultant will issue to the Owner a certificate for release of final payment sixty (60) days after date of completion certificate providing he is satisfied the Work has been completed.

- 11.2. The certificate will be in an amount equal to the remaining money due the Contractor under the Contract, and shall indicate the date of final completion.
- 11.3. Payment shall be due upon date of final completion.

**12. Warranties**

- 12.1. Establishment of Warranties:
  - 12.1.1. Warranties shall commence on date of substantial performance certificate.
- 12.2. Warranty Period:
  - 12.2.1. The Owner will advise the Consultant of defects observed during warranty periods.
  - 12.2.2. The Consultant will notify the Contractor of defects observed during warranty period and request him to remedy the defects in accordance with the Contractor documents.
  - 12.2.3. Thirty (30) days before expiration of warranties the Owner's representatives, the Consultant and the Contractor will inspect the Work as arranged by the Contractor noting defects of products and workmanship.
  - 12.2.4. The Contractor shall immediately remedy such noted defects.

**END OF SECTION 01 77 00**

**CONTRACTOR'S CHECKLIST**

Enclose the following documents with your bid:

- ***Bid Security as required in section 21.1(Information for Bidders)*** - in the amount of 10% of the Contract Price (before HST).
- ***Contract Security for bids over \$100,000 as required in section 22.6.1.1(Information for Bidders)*** – required upon award)
- ***Certificate of Insurance*** indicating a minimum of ***\$5,000,000 Commercial General Liability Insurance*** per occurrence and ***Commercial Auto Liability Insurance*** covering all owned, non-owned and hired vehicles for a minimum combined single limit of ***\$2,000,000*** per occurrence and ***Builder's Risk Insurance*** in the amount of the contract price.
- ***Tentative Work Schedule (Timelines)*** – Subsequently, within five (5) business days of tender award the successful bidder shall provide a schedule clearly indicating timelines for completion of all aspects of the project.
- ***Workers' Compensation Board Letter*** of Good Standing
- ***Certificate of Recognition from one of the seven safety audit companies that jointly sign with the WCB:***
  - East Coast Mobile Medical Inc.
  - HSE Integrated
  - Nova Scotia Construction Safety Association
  - Nova Scotia Trucking Safety Association
  - Occupational Health & Educational Services (2002) Inc.
  - Safety Services Nova Scotia
  - Stantec Inc.

This list can be found on WCB's website: [www.wcb.ns.ca](http://www.wcb.ns.ca).
- ***Completed HRSB Safety Plan***
- ***Applicable Warranty Information***



## Project Safety Plan Outline

During the planning of each project, environmental and occupational health and safety issues will be assessed like any other key project component.

Prior to beginning a new project, tendering contractors shall examine the work area to identify potentially hazardous site specific situations.

Once identified, these hazards should be prioritized on this Hazard Assessments/Project Safety Plan Outline and corrective *actions* noted to eliminate or control each hazard. The dates of when and names of the persons who are responsible for completing the *action* should also be assigned.

Copies of the completed Safety Plan Outline shall be submitted as part of the tender document submittal, sent to the HRSB Operations Services Regional Manager, made available on the job site and communicated to the workers.

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Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

Project Start date: \_\_\_\_\_

Project End date: \_\_\_\_\_

Company Name: \_\_\_\_\_

Completed by: \_\_\_\_\_

(Contractor's project manager)

Date: \_\_\_\_\_

Copy to: \_\_\_\_\_

**PLANNING:**

Does the Contractor's Occupational Health and Safety Program deal with the work activities associated with this project?     Yes                       No

Describe tasks to be undertaken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**HAZARDS ASSESSMENT:**

Identify the hazards that could present themselves on this project (e.g. live electrical wires, over water, confined space, etc) and describe what steps will be taken to prevent an incident (e.g. cover up, de-energize, safe work practices, netting, etc). Prioritize from #1 as needing immediate action.

#	Hazard	Required Action	Completed by	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

**ENVIRONMENTAL ASSESSMENT:**

Identify the environmental issues that could present themselves on this project (e.g. oil spills, asbestos, etc.) and describe the action that will be taken to eliminate or reduce the risk of occurrence (e.g. mop kits, air sampling, etc.)

#	Hazard	Required Action	Completed by	Date
1				
2				
3				
4				
5				

**EMERGENCY RESPONSE:**

In the event of an incident, pre-plan the response and write up the procedures. Minimally, the following list should be completed and posted on site:

Contact	Phone #	Contact	Phone #
Fire	911	Poison Control	428-8161
Ambulance	911	Dangerous Goods	1-800-565-1633
Doctor	911	Waste Disposal	
Police	911	Insurance	
HRSB Office	493-5110	Min/Dept of Labour	1-800-952-2687
Min./Dept.of Transport.		Min/Dept of Environment	1-800-565-1633

- Identify and arrange source of first aid, ambulance and rescue.
- Accidents will be reported to: \_\_\_\_\_
- Accidents will be investigated by: \_\_\_\_\_
- Back-up call to: \_\_\_\_\_
- HRSB # emergency/after hours: day 493-5110 after 4:00 pm 442-2476

**SAFETY MEETINGS:**

On this project, given the nature of the work and the anticipated size of the work force, the following frequency will apply:

Site meetings \_\_\_\_\_

Site Audits \_\_\_\_\_

Follow up with HRSB Manager: \_\_\_\_\_

**SITE IMPLEMENTATION:**

- Health and Safety Rep & Safety Committee:  
Establish liaison between HRSB, contractor, site administration  
First Aid, PPE, other safety items as required.
  
- Documentation:  
Applicable MSDS  
Safety program  
Applicable work procedures  
Permits  
First Aid Certification

**TRAINING:**

The following training/testing will be mandatory on site:

1) \_\_\_\_\_  
\_\_\_\_\_

2) \_\_\_\_\_  
\_\_\_\_\_

3) \_\_\_\_\_  
\_\_\_\_\_

**TENTATIVE SCHEDULE OF WORK:**

- 1) Date Project Will Commence: \_\_\_\_\_
- 2) Number of Weeks to Complete Project: \_\_\_\_\_ weeks

***NOTE:***

***Within one week of tender award the successful bidder shall provide a schedule clearly indicating timelines for completion of all aspects of the project.***



**Halifax Regional School Board**





# **Sambro Elementary School Wastewater Treatment System Replacement**

**Issued for Tender**

**May 2017**

# Sambro Elementary School Wastewater Treatment System Replacement

Issued for Tender	<i>WJD</i>	May 17/17	<i>JHE</i>
Issued for Approval	DT	Apr 7/17	SE
Issued for 90% Review	SE	Apr 3/17	MA
<i>Issue or Revision</i>	<i>Reviewed By:</i>	<i>Date</i>	<i>Issued By:</i>
 <p><b>CBCL LIMITED</b> Consulting Engineers</p>			

<u>Section</u>	<u>Title</u>	<u>Pages</u>
<u>Division 07 - Thermal and Moisture Protection</u>		
07 13 00	SHEET MEMBRANE WATERPROOFING	3
07 80 00	FIRESTOPPING AND SMOKE SEALS	5
07 92 00	SEALANTS	4
<u>Division 26 - Electrical</u>		
26 05 00	ELECTRICAL GENERAL REQUIREMENTS	12
26 05 20	WIRE AND BOX CONNECTORS (0 - 1000V)	1
26 05 21	WIRES AND CABLES (0 - 1000V)	2
26 05 28	GROUNDING - SECONDARY	3
26 05 29	FASTENINGS AND SUPPORTS	2
26 05 31	JUNCTION, PULL BOXES AND CABINETS	2
26 05 32	OUTLET BOXES, CONDUIT BOXES AND FITTINGS	2
26 05 34	CONDUITS, CONDUIT FASTENINGS AND CONDUIT FITTINGS	3
26 28 14	FUSES - LOW VOLTAGE	3
26 28 23	DISCONNECT SWITCHES - FUSED AND NON-FUSED	2
26 90 00	PLANT INSTRUMENTATION AND CONTROLS EQUIPMENT	6
<u>Division 31 - Earthwork</u>		
31 23 10	EXCAVATING, TRENCHING AND BACKFILLING	12
31 32 19	GEOTEXTILES	3
31 37 10	GRANULAR MATERIALS AND RIP-RAP	3
<u>Division 32 - Exterior Improvements</u>		
32 12 16	HOT MIX ASPHALT PAVING	5
32 31 00	CHAIN LINK FENCE AND GATE	4
32 91 19	TOPSOILING AND FINISH GRADING	5
32 92 21	HYDRAULIC SEEDING	5
32 98 00	REINSTATEMENT	3
<u>Division 33 - Utilities</u>		
33 05 14	PRECAST STRUCTURES	3
33 31 00	SANITARY SEWER	5
33 65 76	DIRECT BURIED UNDERGROUND CONDUITS	2
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44 42 11	PACKAGED WASTEWATER TREATMENT EQUIPMENT	6
<u>Appendices</u>		
	APPENDIX A - QUOTATION DOCUMENT	59

PART 1 - GENERAL

1.1 WORK INCLUDED .1 This section includes the requirements for supplying and installing sheet membrane waterproofing and protection board at the tanks as indicated.

1.2 RELATED WORK .1 Precast Structures Concrete: Section 33 05 14

1.3 QUALITY ASSURANCE .1 Membrane: applied by applicator trained and approved by manufacturer for application of its products.  
.2 Applicators: minimum five (5) years proven experience.  
.3 Manufacturers representative:  
.1 Inspect substrate prior to commencement of work, during application of membrane and upon completion of work.  
.2 Provide technical assistance to applicator and assist where required in correct installation of membrane.

1.4 SAMPLES .1 Submit samples in accordance with Section 01 33 00.  
.2 Submit 300 mm X 300 mm sample of membrane waterproofing.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Composite sheets comprised of rubberized asphalt integrally bonded to a film of high density cross laminated polyethylene, minimum 1.5 mm thick.  
.1 Acceptable products: W.R. Grace Bituthene 3000, Bakor Blueskin WP 200, or approved equivalent.  
.2 Primer: as recommended by the waterproofing manufacturer.  
.3 Mastic: recommended by membrane manufacturer.

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- 2.1 MATERIALS  
(Cont'd)
- .4 Adhesives: recommended by membrane manufacturer.
  - .5 Liquid membrane for detailing: recommended by membrane manufacture.
  - .6 Protection board: semi-flexible board, compatible with waterproofing.
    - .1 Acceptable products: Sealtight Vibraflex Waterproofing Protection Board - Type 150, Bakor 990-31.

- 2.2 COMPATIBILITY
- .1 Verify compatibility of all materials used.
  - .2 Provide proof of compatibility.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Confirm concrete surfaces are smooth, clean, dry and free of foreign matter.

- 3.2 PREPARATION
- .1 Prime all surfaces to receive membrane waterproofing by means of roller or spray at a rate recommended by the manufacturer. Prepare surface as per the manufacturer's recommendation prior to placing the primer.
  - .2 Allow primer to dry adequately before proceeding with membrane. Avoid puddles.
  - .3 Treat only as much area as can be covered with membrane the same day.
  - .4 Confirm metal surfaces are free of grease, oil, dirt, loose paint, rust or other contaminants.

- 3.3 APPLICATION OF MEMBRANE
- .1 Do waterproofing work in accordance with membrane manufacturers printed application instructions, except where specified otherwise.
  - .2 Apply membrane fully adhered to surfaces as indicated.
-

3.3 APPLICATION OF  
MEMBRANE  
(Cont'd)

- .3 Lap membrane joints as recommended by manufacturer. Roll seams continuously.
- .4 Lap sheets at junction of horizontal and vertical surfaces as recommended by manufacturer.
- .5 Install reinforcing strip of membrane waterproofing over all outside corners, width as recommended by manufacturer. Install reinforcing strips prior to sheet membrane application.
- .6 Centre reinforcing strip of membrane over non-working joints and cracks up to a maximum of 5 mm. Width of reinforcing strip as recommended by manufacturer.
- .7 Notify the Consultant of non-working joints over 5 mm, and treat as directed.
- .8 Apply liquid mastic to horizontal and vertical terminations.
- .9 Seal daily terminations with mastic.
- .10 Seal penetrations through membrane with liquid membrane and sheet membrane as recommended by manufacturer.
- .11 Install membrane at pipe penetration, on the wall and along the pipe as a continuous sheet with no voids. Fasten membrane to pipe with stainless steel straps.

3.4 PROTECTION  
BOARD

- .1 Confirm membrane is undamaged before application of protection board.
- .2 Apply protection board over entire surface of waterproofing membrane using compatible adhesive.
- .3 Do not backfill around foundations until after protection board is applied.

3.5 FIELD QUALITY  
CONTROL

- .1 Inspection and testing of waterproofing application will be carried out by testing laboratory designated by the Consultant.

3.5 FIELD QUALITY CONTROL .2 Costs of tests will be paid as specified in Section 01 45 00.  
(Cont'd)

3.6 CLEAN-UP .1 Remove debris and surplus materials from site.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for supplying and applying firestopping and smoke seal material as required for wall/floor/ceilings in areas/rooms which are fire-rated, as noted in the Room Finish Schedule.
- 1.2 RELATED WORK .1 Firestopping and smoke seals within electrical assemblies (i.e. inside conduits) are specified in Division 26.
- 1.3 REFERENCES .1 ASTM E2174-2014B, Standard Practice for On-site Inspection of Installed Fire Stops.  
.2 ULC S115-2011, Method of Fire Tests of Firestop Systems.  
.3 International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.  
.4 National Building Code, 2010.
- 1.4 SAMPLES .1 Submit samples in accordance with Section 01 33 00.  
.2 Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.
- 1.5 SUBMITTALS .1 Submit shop drawings and product and safety data in accordance with Section 01 33 00.  
.2 Submit shop drawings to show proposed material, including composition and limitations, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.
-



1.5 SUBMITTALS  
(Cont'd)

- .3 Provide manufacturer's engineering judgments identification number and drawing details when no ULC or UL system are available for an application. Engineered judgments must include both project name and contractor's name who will install firestop system as described in drawing.
- .4 Submit material safety data sheets provided with product delivered to job site.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Firestopping and smoke seal systems: in accordance with ULC-S115.
  - .1 Asbestos-free materials and systems capable of maintaining an effective barrier in compliance with requirements of ULC-S115 and not to exceed opening sizes for which they are intended.
  - .2 Firestop system rating: F.
- .2 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No. 40 U19.
- .3 Service penetration firestop components: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed firestopping assembly in accordance with NBC.
- .5 Firestopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Firestopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

2.1 MATERIALS  
(Cont'd)

- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .10 Sealants for vertical joints: non-sagging.
- .11 Acceptable manufacturers:
  - .1 Hilti Canada Corporation
  - .2 3M
  - .3 A/D Fire Protection Systems

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Confirm substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with firestopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.2 COORDINATION

- .1 Coordinate location and proper selection of cast-in-place firestop devices with trade responsible for the work. Install device before placement of concrete.
  - .2 Provide adequate spacing of field run pipes to allow for installation of cast-in-place firestop devices without interference.
-

3.3 INSTALLATION

- .1 Install firestopping material and components in accordance with ULC certification and manufacturer's instructions.
- .2 Install firestopping and smoke seal material and components at all walls, floors and ceilings in fire rated rooms as noted on Room Finish Schedule on Drawings and also for all floor to floor penetrations.
- .3 Install firestopping and smoke seal on both sides of wall or slab where penetration or opening exists in fire rated rooms.
- .4 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
- .5 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .6 Tool or trowel exposed surfaces to a neat finish.
- .7 Remove excess compound promptly as work progresses and upon completion.

3.4 INSPECTION

- .1 Notify the Consultant when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

3.5 SCHEDULE

- .1 Firestop and smoke seal at:
    - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
    - .2 Top of fire-resistance rated masonry and gypsum board partitions.
    - .3 Intersection of fire-resistance rated masonry and gypsum board partitions.
    - .4 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
    - .5 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
    - .6 Openings and sleeves installed for future use through fire separations.
-

- 3.5 SCHEDULE .1 (Cont'd)  
(Cont'd)
- .7 Around mechanical and electrical assemblies penetrating fire separations.  
.8 Rigid ducts (greater than 129 cm<sup>2</sup>): fire stopping to consist of bead of firestopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.
- 3.6 FIELD QUALITY CONTROL .1 Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- .2 Keep areas of work accessible until inspection by applicable code authorities.
- .3 Perform inspection of through-penetration firestopping in accordance with ASTM E2174.
- .4 Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.
- .5 Install a warning card that is clearly visible adjacent to all large and medium openings that may be re-penetrated. This card should contain the following information:  
.1 Warning that the opening has been firestop protected.  
.2 Indicate the firestop system used (ULC).  
.3 F rating or FT rating.  
.4 Firestop product(s) used.  
.5 Person to contact and phone number in case of modification or new penetration of firestop system.
- 3.7 CLEAN UP .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of firestopping and smoke seal materials.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for supplying, and applying sealants as indicated.
- 1.2 RELATED WORK .1 Precast Structures Concrete: Section 33 05 14  
.2 Packaged Wastewater Treatment Equipment: Section 44 42 11
- 1.3 REFERENCES .1 ASTM C920-2014, Specification for Elastomeric Joint Sealants.  
.2 CAN/CGSB-19.13-M87 Sealing Compound, One Component, Elastomeric, Chemical Curing.  
.3 CAN/CGSB-19.24-M90 Multi-component, Chemical Curing Sealing Compound.
- 1.4 DELIVERY, STORAGE AND HANDLING .1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels intact. Protect from freezing, moisture and water.
- 1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS .1 Sealant and substrate materials to be minimum 5°C.  
.2 Should it become necessary to apply sealants below 5°C, consult sealant manufacturer and follow their recommendations.  
.3 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
-

- 1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS (Cont'd) .4 Conform to manufacturer's recommended temperatures, relative humidity and substrate moisture content for application and curing of sealants including special conditions governing use.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Primers: type recommended by sealant manufacturer.
- .2 Joint fillers:  
.1 General: compatible with primers and sealants, oversized 30 to 50%.  
.2 Polyethylene, urethane, neoprene or vinyl: extruded closed cell foam, Shore A hardness 20.
- .3 Bond breaker: pressure sensitive plastic tape, which will not bond to sealants.
- .4 Sealants:  
.1 Interior and exterior caulking around perimeter of pressed steel frames and to base of frames to flooring: to CAN/CGSB-19.13, one-component, moisture curing, modified polyurethane, paintable, normal temperature range dry conditions, movement range to 10%.  
.1 Acceptable product: DyMonic by Tremco Limited, or approved equivalent.  
.2 Interior control and expansion joints: to CAN/CGSB-19.24 multi-component sealant, self levelling, for joint movement up to 25%.  
.1 Acceptable product: Duoflex SL by Sternson Division of Sika Canada Inc., THC-900 for horizontal joints and THC-901 for vertical joints by Tremco Limited, or approved equivalent.  
.3 Interior locations including: at corner joints where masonry walls butt into continuous walls, at masonry walls and concrete floor slabs, and at equipment pads to floor slabs, except where another sealant is specified: to CGSB 19.13.  
.1 Acceptable product: DyMonic by Tremco Limited, or approved equivalent.
- .5 Joint cleaner: xylol, methylethyleketon or non-corrosive type recommended by sealant manufacturer and compatible with joint forming materials.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Remove by brushing, scrubbing, scraping or grinding loose mortar, dust, oil, grease, oxidation, mill scale, coatings and all other materials affecting bond of compounds from surfaces to which sealant compounds must adhere, except for painted surfaces.
- .3 Clean down caulked metal surfaces with clean cellulose sponges or rags soaked in solvent recommended by sealant manufacturer, and wipe dry with clean cloths. Confirm solvent is not injurious to painted surfaces.
- .4 Confirm releasing agents, coatings or other treatments have either not been applied to joint surfaces, or that they are entirely removed.
- .5 Confirm joint surfaces are dry and frost free.

3.2 APPLICATION

- .1 Apply sealant products where indicated on the drawings and as outlined in Clause 2.1 of this Section.
  - .2 Where necessary to prevent staining, mask adjacent surfaces before priming and caulking.
  - .3 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.
  - .4 Apply sealants, primers, joint fillers, and bond breaker if required, to manufacturer's instructions. Apply sealant using gun with proper size nozzle. Use sufficient pressure to fill voids and joints solid. Superficial pointing with skin bead is not acceptable.
  - .5 Form surfaces of sealant with full bead, smooth, free from ridges, wrinkles, sages, air pockets, embedded impurities. Neatly tool surface to a slight concave joint.
-

3.3 CURING

- .1 Cure sealants in accordance with sealant manufacturer's instructions.
- .2 Do not cover up sealant until proper curing has taken place.

3.4 CLEANING

- .1 Clean adjacent surfaces immediately and leave work neat and clean.
- .2 Remove excess and droppings, using recommended cleaners as work progresses.
- .3 Remove masking tape after initial set of sealant.
- .4 Do not use chemicals, scrapers, or other tools which would damage surfaces of caulked materials when excess compounds or droppings are removed. Repair Work damaged by cleaning.



PART 1 - GENERAL

- 1.1 GENERAL
- .1 This section covers items common to sections of Division 26 and portion of Division 33.
  - .2 Refer to Electrical Drawings and scope of work outlined herein, for demolition and removals to be carried out.
- 1.2 RELATED WORK
- .1 Direct Buried Underground Conduits: Section 33 65 76
- 1.3 REFERENCES
- .1 CSA-C22.1-15, Canadian Electrical Code, Part 1.
  - .2 CAN/CSA C22.2 No. 0.1-M1985(R2013), General Requirements for Double-Insulated Equipment.
  - .3 CSA-C22.3 No. 7-2015, Underground Systems.
  - .4 CAN3-C235-83(R2015), Preferred Voltage Levels for AC Systems, 0 to 50 000 V.
  - .5 EEMAC Y1-2-1979, Standard for Performance Specification for Finishing Systems for Outdoor Electrical Equipment.
- 1.4 CODES AND STANDARDS
- .1 Do complete installation in accordance with CSA C22.1 and local regulations except where specified otherwise.
  - .2 Comply with all CSA electrical bulletins in force at the time of tender submission. While not identified or specified by reference number in this division, the bulletins must be considered to form part of the related CSA part II standard.
  - .3 Abbreviations for electrical terms: to CSA Z85.
  - .4 Do underground systems in accordance with CSA C22.3 No. 7, except where specified otherwise.
-

1.5 CARE, OPERATION  
AND START-UP

- .1 Instruct operating personnel in the operation, care and maintenance of equipment.
- .2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components.
- .3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.

1.6 VOLTAGE RATINGS

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard. Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

1.7 PERMITS, FEES  
AND INSPECTION

- .1 Submit to the Electrical Inspection Department, Municipal Authority and Supply Authority the necessary number of drawings and specifications for examination and approval prior to commencement of work. Submit this information within twenty (20) working days of the award of Tender and provide the Consultant with written notice at the time this has been submitted.
  - .2 Provide the Consultant with a copy of the Electrical Inspection Department and Supply Authority Plans Review Report immediately upon receipt. No shop drawings will be reviewed prior to receipt of the Plans Review Report from the Contractor.
  - .3 Obtain all necessary permits including an Electrical Wiring Permit for electrical work and Communications Cabling Permit for communications cabling work from the authority having jurisdiction prior to commencement of work. Provide a copy of each permit to the Consultant upon receipt. Properly display the permits on the work site.
-

1.7 PERMITS, FEES  
AND INSPECTION  
(Cont'd)

- .4 Upon specific request, the Consultant will provide to the Contractor, up to a maximum of three (3) copies of the drawings and specifications required for submittal to the Electrical Inspection Department and Supply Authority. These drawings and specifications will be provided to the Contractor at no cost, unless specified otherwise.
- .5 Arrange for all required inspections to be conducted by the authority having jurisdiction. Provide a copy of all inspection reports to the Consultant immediately upon receipt. Notify the Consultant immediately of changes required by the authority having jurisdiction prior to making changes. All changes must be approved by the Consultant.
- .6 Furnish Certificates of Acceptance from authorities having jurisdiction upon completion of Work. Include a copy in the Operations and Maintenance Manual.
- .7 Pay all associated fees.

1.8 SHOP DRAWINGS,  
PRODUCT DATA AND  
SAMPLES

- .1 Submit shop drawings, product data and samples in accordance with Section 01 33 00.
- .2 Indicate details of construction, dimensions, capacities, weights and electrical performance characteristics of equipment or material.
- .3 Where applicable, include wiring, single line and schematic diagrams.
- .4 Include wiring drawings or diagrams showing interconnection with work of other Sections.

1.9 OPERATION AND  
MAINTENANCE DATA

- .1 Provide operation and maintenance data for incorporation into operation and maintenance manual in accordance with Section 01 33 00.
  - .2 Include in operations and maintenance data:
-

- 1.9 OPERATION AND MAINTENANCE DATA (Cont'd)
- .2 (Cont'd)
    - .1 Details of design elements, construction features, component function and maintenance requirements, to permit effective start-up, operation, maintenance, repair, modification, extension and expansion of any portion or feature of the installation.
    - .2 Technical data, product data, supplemented by bulletins, component illustrations, exploded views, technical descriptions of items, and parts lists. Advertising or sales literature not acceptable.
    - .3 Wiring and schematic diagrams and performance curves.
    - .4 Names and addresses of local suppliers for items included in maintenance manuals.
    - .5 Copy of reviewed shop drawings.
- 1.10 MATERIALS AND EQUIPMENT
- .1 Provide materials and equipment in accordance with Section 01 61 00.
  - .2 Equipment and material to be CSA certified or certified by an agency approved by the Electrical Inspection Department having jurisdiction. Where there is no alternative to supplying equipment which is not certified, obtain special approval from Electrical Inspection Department and the Consultant.
  - .3 Factory assemble control panels and component assemblies.
- 1.11 ELECTRIC MOTOR, EQUIPMENT AND CONTROLS
- .1 Coordinate supplier and installer responsibility for mechanical and process equipment specified in other specification divisions to ensure complete and functioning systems.
  - .2 Confirm location of mechanical and process equipment and associated control devices specified in other divisions. All device locations may not be necessarily shown on the electrical drawings.
- 1.12 FINISHES
- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two (2) coats of finish enamel.
-

1.12 FINISHES  
(Cont'd)

- .1 (Cont'd)
  - .1 Paint indoor switchgear and distribution enclosures light grey to EEMAC 2Y-1.
  - .2 Paint outdoor electrical equipment green finish to EEMAC Y1-1.
- .2 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint to the satisfaction of the Consultant. If not acceptable, replace equipment at no additional cost to the contract.
- .3 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

1.13 FASTENERS AND  
EQUIPMENT MOUNTING

- .1 Fastening devices for all equipment and components, including bolts, nuts, washers, and screws shall be stainless steel.

1.14 EQUIPMENT  
IDENTIFICATION

- .1 Identify electrical equipment with nameplates and labels as specified herein.
- .2 Identification:
  - .1 Provide all panels, disconnect switches, receptacles, control panels, magnetic starters, TOL's, etc. with "lamicoid" nameplates as further described herein. Take care to affix all plates true and level, and plumb in all instances.
  - .2 Affix nameplates to surfaces with contact type cement.
  - .3 Apply contact type cement (buttered) to complete rear side of plate, as opposed to several locations or areas on same.
  - .4 Lamicoid nameplates installed on distribution panelboards, must indicate the following:
    - .1 Designated name of equipment.
    - .2 Amperage of overcurrent protection device.
    - .3 Voltages, number of phases and wires.
    - .4 Designation of power source.  
PANEL C  
100, 120/208V, 3PH, 4W  
FED FROM PANEL B

1.14 EQUIPMENT  
IDENTIFICATION  
(Cont'd)

.2 (Cont'd)

.5 Lamicoid nameplates installed on combination starters, magnetic starters, manual starter and all various systems controls, control panels, disconnect switches, etc., must contain the following information:

- .1 Designated name of equipment or equipment being fed, whichever is applicable.
- .2 Designated name of power source.
- .3 Branch circuit breaker number(s) where possible.
- .4 Voltage(s) and phase.

FAN NO. 5	SUPPLY FAN NO. 3
PANEL H - CKT. 17	M.C.C. NO. 1
120V - 1 PH	600V - 3 PH

.6 Lamicoid nameplates installed on fusible type disconnect switches are to also indicate the maximum designated/designed fuse size.

.7 Install lamicoid nameplates on all junction and pull boxes sized 150 mm x 150 mm and larger indicating name of system, designated panel name and electrical characteristics where applicable.

.8 Install lamicoid nameplates above all types of receptacles and abutted directly to tops of their respective device plates. Identification is to indicate respective panel source complete with associated circuit breaker number(s). Lamicoid plate to be 1.5 mm thick x 13 mm high complete with 6 mm black letters on white core, directly above all flush receptacles. Plate to be identical width as finish device plate and the top left and right corners to be rounded off.

.9 Identify lamicoid nameplates above 120V receptacles protected by GFCI circuit breakers, or GFCI type receptacles as per the following:

- .1 1.5mm thick x 19mm wide complete with 6 mm black letters on white core above all receptacles. Identical width as finish device plate (EXAMPLE: GFCI Protected Panel H-26).

.10 Allow for an "average" of 40 letters for each lamicoid nameplate.

.11 Lamicoid 3 mm thick plastic engraving sheet, white face, black core, for all electrical systems.

1.14 EQUIPMENT  
IDENTIFICATION  
(Cont'd)

- .2 (Cont'd)  
.12 Lettering on lamicoid nameplates shall not "start", nor "end" nearer than 9 mm from either, or both ends of said plates. Size of lettering, including overall lengths of various plates must be as indicated in the following chart:

NOMINAL NAMEPLATE SIZES

Size 1	10mm x	50mm	1 line	5mm high letters
Size 2	13mm x	75mm	1 line	6mm high letters
Size 3	16mm x	75mm	2 lines	5mm high letters
Size 4	19mm x	90mm	1 line	10mm high letters
Size 5	50mm x	90mm	2 lines	13mm high letters
Size 6	25mm x	100mm	1 line	13mm high letters
Size 7	25mm x	100mm	2 lines	6mm high letters
Size 8	50mm x	150mm	2 lines	13mm high letters
Size 9	50mm x	100mm	3 lines	10mm high letters

- .3 Have the wording on nameplates and labels to be approved by Consultant prior to manufacture.
- .4 Identification to be English.
- .5 Provide lamicoid nameplates and install on, or adjacent to, all various systems' control panels and/or cabinets complete with information as indicated. Nameplates to reflect individual system's assigned name, and where applicable, also indicate both designated panel name and associated branch circuit breaker number(s).
- .6 Co-ordinate names of equipment and systems with other trades to ensure that equipment identification is consistent.
- .7 Provide clearly visible marking on electrical equipment to warn persons of potential electrical shock and arc flash hazards as specified in Section 2 of the Canadian Electrical Code.
- .8 Provide terminal boxes, panels and miscellaneous equipment fed from two (2) or more sources with a warning nameplate prominently displayed: "CAUTION - MORE THAN ONE SOURCE VOLTAGE".

1.15 WIRING  
IDENTIFICATION

- .1 Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring. Panduit PLD-1 and PLD-2 or approved equivalent.
- .2 Maintain phase sequence and colour coding throughout.
- .3 Colour code: to CSA C22.1.

1.16 WIRING  
TERMINATIONS

- .1 Lugs, terminals, screws used for termination of wiring to be suitable for either copper or aluminum conductors.

1.17 MANUFACTURERS  
AND CSA LABELS

- .1 Visible and legible after equipment is installed.

1.18 WARNING SIGNS

- .1 As specified and to meet requirements of Electrical Inspection Department. Include arc flash hazard equipment labels.
- .2 Treated polyethylene plastic coated or rust free aluminum signs, minimum size 180 mm x 250 mm.

1.19 MOUNTING  
HEIGHTS

- .1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.
  - .2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.
  - .3 Install electrical equipment at following heights unless indicated otherwise.
    - .1 Panelboards: as required by Code or as indicated.
-



1.20 FIELD QUALITY  
CONTROL

- .1 Conduct and pay for following tests:
  - .1 Power distribution system including voltage, grounding and load balancing.
  - .2 Circuits originating from branch distribution panels.
  - .3 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
- .2 Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.
- .3 Insulation resistance testing:
  - .1 Megger circuits, feeders and distribution equipment up to 350 V with a 500 V instrument.
  - .2 Check resistance to ground before energizing.
  - .3 Provide a type written tabular report indicating test results.
- .4 Provide a type written tabular report indicating the normal field measured load current for all motors, indicating the motor circuit protector trip setting or fuse type/rating, the overload heater element sizes and/or settings. Indicate the motor nameplate current.
- .5 Advise the Consultant of dates when testing will take place. Provide five (5) days notice of such tests.
- .6 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .7 Submit test results for the Consultant's review and approval.

1.21 SHORT-CIRCUIT  
& PROTECTION  
COORDINATION STUDY

- .1 Confirm circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

1.22 QUALITY  
ASSURANCE

- .1 Instructions:
  - .1 Interferences: electrical drawings are generally of a diagrammatic nature. Plan and coordinate the work to eliminate interferences with other trades. Provide all necessary raceway offsets, fittings, and boxes, adjust all fixture and equipment boxes, adjust all fixture and equipment locations and provide all supporting materials required for a planned, coordinated and neat installation. Where interferences occur, the Consultant's authorized representative will decide which item must be relocated regardless of which was installed first.
  - .2 Electrical workmanship: provide workmanship of the highest quality. Sub-standard work will not be accepted. Use only persons skilled in the trades involved.
  - .3 Electrical materials: provide all materials used in this work, unless particularly specified otherwise, that are new, free from flaws, or imperfections.
  - .4 Sleeves and inserts: furnish and locate all sleeves and inserts required for this work in accordance with drawings.
- .2 Applicable standards:
  - .1 All electrical work must conform with the requirements and recommendations of the latest edition of the Canadian Electrical Code and all local codes and ordinances. In conflicts between codes, the more stringent requirements shall govern.
  - .2 In no instance will the standard established by this specification be reduced by any of the codes or standards referred to in this specification.
  - .3 Standards: the specifications and standards of the following organizations are by reference made as part of these specifications and all electrical work, unless otherwise indicated, shall comply with their requirements and recommendations wherever applicable.
  - .4 Canadian Standard Association (CSA).
  - .5 Institute of Electrical and Electronics Engineers (I.E.E.E.).
  - .6 Instrument Society of America (I.S.A.).
  - .7 American Society for Testing Materials (A.S.T.M.).
  - .8 Insulated Power Cable Consultants Association (I.P.C.E.A.).
  - .9 National Electrical Manufacturer's Association (N.E.M.A.).

- 1.22 QUALITY ASSURANCE  
(Cont'd)
- .2 (Cont'd)
    - .10 National Fire Protection Association (N.F.P.A.).
    - .11 Underwriter's Laboratories of Canada (U.L.C.).
    - .12 Joint Industrial Council (J.I.C.).
    - .13 All local and provincial codes and ordinances.
- 1.23 PROCESS EQUIPMENT PACKAGES  
EQUIPMENT PACKAGES
- .1 Coordinate electrical work with the process system vendors.
  - .2 Verify connection details and requirements for interwiring between vendor supplied process equipment packages specified in other divisions and Owner-supplied.
  - .3 Refer to manufacturer's shop drawings for connection details and recommended installation details.
  - .4 Supply and install cable, conduit, supports and miscellaneous hardware as per the requirements of this specification.
- 1.24 RECORD DRAWINGS  
DRAWINGS
- .1 Record Drawings:
    - .1 After award of Contract, Consultant will provide a set of full-sized drawings for purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by Consultant.
    - .2 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by Consultant.
    - .3 On completion of Work and prior to final inspection, submit record documents to Consultant.
- 1.25 WASTE MANAGEMENT AND DISPOSAL  
DISPOSAL
- .1 Remove from site and dispose of all debris and waste materials at appropriate disposal/recycling facilities.
  - .2 Separate and recycle waste materials in accordance with applicable Construction/Demolition Waste Management And Disposal Regulations.
-

PART 2 - PRODUCTS

2.1 NOT USED .1 Not applicable.

PART 3 - EXECUTION

3.1 NOT USED .1 Not applicable.

PART 1 - GENERAL

- 1.1 REFERENCES .1 CSA C22.2, No. 65-13, Standard for Wire Connectors.

PART 2 - PRODUCTS

- 2.1 WIRE AND BOX CONNECTORS .1 Pressure type wire connectors: with current carrying parts of copper sized to fit copper conductors as required.
- .2 Clamps or connectors for armoured cable, liquid tight, flexible conduit, as required.
- .3 All wire connectors must be rated for operating voltage indicated.

PART 3 - EXECUTION

- 3.1 WIRE AND BOX CONNECTORS INSTALLATION .1 Make all connections and terminations electrically and mechanically secure. Sizes of connectors to be as per manufacturer's recommendations for various sizes and combinations of wire sizes.
- .2 Make all joints required in branch wiring #8 and smaller utilizing twist-on pressure type connectors as manufactured by Ideal (colour coded wirenut) or Marrettes #31, #33 or #35, or approved equivalents.
- .3 Plier tighten marrette type connectors.

PART 1 - GENERAL

1.1 SUBMITTALS .1 Submit shop drawings, and product data in accordance with Section 01 33 00.

1.2 RELATED SECTIONS .1 Conduits, Conduit Fastenings and Conduit Fittings: Section 26 05 34  
.2 Wire and Box Connectors (0 - 1000V): Section 26 05 20  
.3 Primary Process Instrumentation Devices and Cabling: Section 26 90 00

1.3 REFERENCES .1 CSA C22.1-15, Canadian Electrical Code.

PART 2 - PRODUCTS

2.1 BUILDING WIRES .1 Conductors: soft drawn, stranded, copper(of 98% conductivity). Minimum size #12 AWG.  
.2 Copper conductors: size as indicated, with 600V insulation of chemically cross-linked thermosetting polyethylene material rated RW90-XLPE.  
.3 Copper conductors: size as indicated, with 1000V insulation of chemically cross-linked thermosetting polyethylene material rated RWU90-XLPE.  
.4 Colour code wiring in accordance with the Canadian Electrical Code.

2.2 PROCESS CONTROL AND INSTRUMENTATION CABLING .1 Refer to Section 26 90 00 and electrical drawings.

---

PART 3 - EXECUTION

3.1 INSTALLATION OF BUILDING WIRES .1 Install wiring as follows:  
.1 In conduit systems in accordance with Section 26 05 34.

PART 1 - GENERAL

1.1 RELATED WORK .1 Electrical General Requirements: Section 26 05 00

PART 2 - PRODUCTS

2.1 EQUIPMENT .1 Clamps for grounding of conductor, size as required and suitable for application.

.2 Direct buried grounding conductors: bare stranded copper of 98% conductivity, soft annealed, size as indicated.

.3 Insulated grounding and bonding conductors: soft drawn, stranded copper of 98% conductivity, type RW90 (green coloured insulation).

.4 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:

.1 Grounding and bonding bushings.

.2 Protective type clamps.

.3 Bolted type conductor connectors.

.4 Thermit welded type conductor connectors.

.5 Bonding jumpers, straps.

.6 Pressure wire connectors.

.7 Copper, crimp type compression connectors.

2.2 MANUFACTURERS .1 Acceptable manufacturers: FCI - Burndy Corporation, Erico Inc., Thomas & Betts, Ilsco.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL .1 Install complete permanent, continuous, grounding systems including conductors, connectors, accessories, as indicated to conform to requirements of Consultant, and local authority having jurisdiction over installation.

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3.1 INSTALLATION  
GENERAL  
(Cont'd)

- .2 Install connectors in accordance with manufacturer's instructions.
- .3 Protect exposed grounding conductors from mechanical injury.
- .4 Make buried connections and connections to electrodes using exothermic welding process or inspectable copper crimp type compression connectors.
- .5 Use mechanical connectors for grounding connections to equipment provided with grounding lugs.
- .6 Use copper, crimp type compression connectors for grounding connections to equipment not provided with connectors.
- .7 Soldered joints not permitted.
- .8 Make grounding connections in radial configurations only, with connections terminating at single grounding point. Avoid loop connections.
- .9 Install insulated copper bonding conductor in all conduit runs. Size bonding conductor as per the Canadian Electrical Code (minimum size #14 AWG).
- .10 The 'feed' bonding conductor shall be secured (wrapped around unbroken) to the grounding screw of each outlet/device box, before connecting to the other grounding conductors and/or providing a "pig-tail" lead for device terminations.
- .11 Twist together all ground/bond wires with a screw-on type wire connector, and then place in the rear of the outlet box.

3.2 SYSTEM AND  
CIRCUIT GROUNDING

- .1 Install system and circuit grounding connections to neutral of secondary systems.

3.3 EQUIPMENT  
GROUNDING & BONDING

- .1 Install grounding and bonding connections to typical equipment included in, but not necessarily limited to following list: Service equipment, frames of motors, motor starters, control panels, distribution panels, process equipment, instrumentation, and process piping.

3.4 FIELD QUALITY  
CONTROL

- .1 Perform tests in accordance with Section 26 05 00.
- .2 Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of the Consultant and local authority having jurisdiction over installation.
- .3 Perform tests before energizing electrical system.
- .4 Disconnect ground fault protection during tests.

PART 1 - GENERAL

1.1 NOT APPLICABLE .1 Not applicable.

PART 2 - PRODUCT

2.1 SUPPORT CHANNELS .1 U shape, size 41 mm x 41 mm, 2.7 mm thick, surface mounted, suspended or set in poured concrete walls and ceilings unless otherwise indicated.  
.2 Standard rolled structural steel shapes and plates or prefabricated structural systems.  
.3 Unless otherwise indicated, use stainless steel materials.

2.2 CABLE TIES .1 Nylon flame retardent, low smoke cable tie, size as required.  
.2 Nylon flame retardant, low smoke cable tie mounting bracket. Mechanical fastening type only; adhesive mounts not acceptable.  
.3 The use of cable ties for supporting purposes is not permitted. Cable ties can only be used to hold various system cables in place.

PART 3 - EXECUTION

3.1 INSTALLATION .1 Secure equipment to solid masonry, tile and plaster surfaces with lead anchors or nylon shields.  
.2 Secure equipment to poured concrete with expandable inserts.  
.3 Secure equipment to hollow masonry walls with stainless steel toggle bolts.

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3.1 INSTALLATION  
(Cont'd)

- .4 Support equipment, conduit or cables using clips, spring loaded bolts, cable clamps designed as accessories to basic channel members.
- .5 Fasten exposed conduit or cables to building construction or support system using straps.
  - .1 One-hole straps to secure surface conduits and cables 50 mm and smaller.
  - .2 Two-hole straps for conduits and cables larger than 50 mm.
  - .3 Conduit straps to match conduits in material and finish. Cable straps to be stainless steel.
- .6 For surface mounting of two or more conduits and cable, use support channels spaced in accordance with the Canadian Electrical Code (maximum 1.5m spacing).
- .7 Provide metal brackets, frames, hangers, clamps and related types of support structures where indicated or as required to support conduit and cable runs.
- .8 Provide adequate support for conduits and cables dropped vertically to equipment where there is no wall support.
- .9 Do not use wire lashing or perforated strap to support or secure conduits or cables.
- .10 Do not use supports or equipment installed for other trades for conduit or cable support except with permission of other trade and approval of Consultant.
- .11 Provide fastenings and supports as required for each type of equipment, cables and conduits, and in accordance with manufacturer's installation recommendations.
- .12 Provide isolation pads between dis-similar metals where required.
- .13 Coordinate the location of electrical support systems with other trades before installation.

PART 1 - GENERAL

1.1 SUBMITTALS

- .1 Submit shop drawings, and product data in accordance with Section 01 33 00.

PART 2 - PRODUCTS

2.1 CABINETS,  
JUNCTION AND PULL  
BOXES

- .1 General: Provide outlet, tap, junction and pull boxes with screw-fastened covers unless noted otherwise. Provide junction and pull boxes longer than 500mm (20") in any dimension complete with continuously hinged cover.
- .2 Cabinets: Provide wall mounted cabinets, NEMA 4X rated and of 14 gauge stainless steel (316SS) construction. Cabinets are to be complete with continuously hinged and gasketed door, stainless steel padlocking handle (3 point latch), inner painted steel panel, grounding stud, and door swing kit.
- .3 Provide all outdoor enclosures that house electrical components complete with padlocking attachment.
- .4 Junction/Pull Boxes: Provide NEMA Type 4X water-tight boxes with clamped, threaded or bolted covers. Boxes shall be stainless steel (316SS) or copper free cast aluminum boxes.
- .5 All boxes and enclosures must have corrosion resistant stainless steel external hardware.

PART 3 - EXECUTION

3.1 CABINETS,  
JUNCTION AND PULL  
BOXES

- .1 Only main junction and pull boxes are indicated on the drawings. Provide boxes to suit field conditions and where required by the Canadian Electrical Code.
  - .2 Install junction and pull boxes in inconspicuous but accessible locations.
-

3.1 CABINETS, .3 Mount cabinets with top not higher than 2m above  
JUNCTION AND PULL finished floor/grade.  
BOXES

(Cont'd) .4 Provide required mounting hardware.

.5 Bond pull boxes, junction boxes and enclosures.

3.2 IDENTIFICATION .1 Provide equipment identification in accordance with  
Section 26 05 00.

PART 1 - GENERAL

1.1 NOT APPLICABLE .1 Not applicable

PART 2 - PRODUCTS

2.1 OUTLET AND CONDUIT BOXES .1 General:  
.1 Size boxes in accordance with CSA C22.1.  
.2 100 mm square or larger outlet boxes as required for special devices.  
.3 Gang boxes where wiring devices are grouped.  
.4 Blank cover plates for boxes without wiring devices.

2.2 FITTINGS - GENERAL .1 Bushing and connectors with nylon insulated throats.  
.2 Knock-out fillers to prevent entry of foreign materials.  
.3 Conduit outlet bodies for conduit up to 32 mm and pull boxes for larger conduits.  
.4 Use watertight bushings and cable connectors for all cable/conduit connections to exterior cabinets and pull/junction boxes.

PART 3 - EXECUTION

3.1 OUTLET BOX, AND CONDUIT BOX INSTALLATION .1 Support boxes independently of connecting conduits.  
.2 Fill boxes with paper, sponges or foam or similar approved material to prevent entry of construction material.

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3.1 OUTLET BOX, AND .3 Provide correct size of openings in boxes for  
CONDUIT BOX conduit and armoured cable connections. Reducing  
INSTALLATION washers not allowed.  
(Cont'd)



PART 1 - GENERAL

1.1 LOCATION OF CONDUIT .1 Drawings do not show all conduits. Those shown are in diagrammatic form only.

1.2 RELATED WORK .1 Section 26 05 29 - Fastenings and Supports.  
.2 Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings.

1.3 REFERENCES .1 CAN/CSA-C22.2 No. 18.1-13, Outlet Boxes, Conduit Boxes and Fittings and Associated Hardware.  
.2 CSA-C22.2 No. 211.2-06(R2011), Rigid PVC (Unplasticized) Conduit.  
.3 CSA C22.2 No. 45.2-2008 (R2013), Electrical Rigid Metal Conduit - Aluminium.  
.4 CSA C22.2 No. 56-2013, Flexible Metal Conduit and and Liquid Tight Flexible Metal Conduit.

PART 2 - PRODUCTS

2.1 CONDUITS .1 Rigid aluminum threaded conduit, fittings and connectors: to CSA C22.2 No. 45.2.  
.2 Rigid PVC conduit, fittings and connectors: to CSA C22.2 No. 211.2.  
.3 Flexible aluminum conduit and liquid-tight flexible metal conduit: to CSA C22.2 No. 56.  
.4 Minimum power and control/instrumentation conduit size for all areas: 21mm.  
.5 Rigid PVC conduit to be FT4 rated.

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- 2.2 CONDUIT FASTENINGS
- .1 One hole conduit straps to secure surface conduits 50 mm and smaller. Two hole conduit straps for conduits larger than 50 mm.
  - .2 Heavy duty pipe clamps (with adjustable saddle) to secure conduits to support channels.
  - .3 Refer to specification Section 26 05 29 for suspended and surface support systems for conduits.
  - .4 Finish and material for conduit fastenings to match conduit.
  - .5 Provide isolators between dis-similar metals as required.

- 2.3 CONDUIT FITTINGS
- .1 Fittings: manufactured for use with conduit specified. Coating: same as conduit.
  - .2 Factory "ells" where 90° bends are required for 25 mm and larger conduits.

- 2.4 EXPANSION FITTINGS FOR RIGID CONDUIT
- .1 Weatherproof expansion fittings with internal bonding assembly suitable for linear expansion as required.
  - .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection in all directions.
  - .3 Provide expansion fittings at exit point (above-ground) of all underground services, and where indicated on the drawings.

- 2.5 FISH CORD
- .1 Polypropylene.

PART 3 - EXECUTION

- 3.1 CONDUIT INSTALLATION
- .1 General:
    - .1 Use threaded rigid aluminum above grade. EMT conduit may be used within the school.
-

- 3.1 CONDUIT  
INSTALLATION  
(Cont'd)
- .1 (Cont'd)
    - .2 Use rigid PVC conduit for all direct buried underground services transition from rigid PVC conduit to rigid aluminum conduit below grade.
    - .3 Install conduits to cause minimum interference in spaces through which they pass.
    - .4 Use liquid tight flexible metal conduit for connection to vibrating equipment and instruments.
    - .5 Bend conduit cold. Replace conduit if kinked or flattened more than 1/10th of its original diameter.
    - .6 Mechanically bend metallic conduit over 21 mm dia.
    - .7 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
    - .8 Where conduits become blocked, remove and replace blocked section. Do not use liquids to clean out conduits.
    - .9 Dry conduits out before installing wire.
    - .10 Provide minimum 300 mm spacing between instrumentation/control conduits and 240V power conduits. Where possible, instrumentation control conduits to cross at right angles to 240V power conduits.
  - .2 Surface conduits:
    - .1 Run parallel or perpendicular to support structures aboveground.
    - .2 Group conduits wherever possible on surface channels.
  - .3 Conduits underground: slope conduits to provide drainage.
  - .4 Supply and install pull string in each spare conduit. Cap and seal conduit at each end.

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 CSA C22.2 No. 248.8-2011, Low Voltage Fuses - Part 8: Class J Fuses.
  - .2 CSA C22.2 No. 248.4-00(R2015), Low Voltage Fuses - Part 4: Class CC Fuses.
- 1.2 SHOP DRAWINGS AND PRODUCT DATA
- .1 Submit shop drawings and product data in accordance with Section 01 33 00.
- 1.3 MAINTENANCE MATERIALS
- .1 Provide three (3) spare fuses of each type and size.
- 1.4 DELIVERY AND STORAGE
- .1 Ship fuses in original containers.
  - .2 Do not ship fuses installed.
  - .3 Store fuses in original containers in moisture free location.

PART 2 - PRODUCTS

- 2.1 FUSES GENERAL
- .1 Fuses: use the product of one (1) manufacturer throughout.
  - .2 Low voltage fuses, types as specified, to be CSA certified in accordance with applicable CSA Standard referred to in 1.1.
- 2.2 FUSE TYPES
- .1 All fuses to be high rupturing capacity (HRC) type, minimum 200kA interrupting rating (momentary RMS symmetrical).
  - .2 Class J:
-

2.2 FUSE TYPES  
(Cont'd)

- .2 (Cont'd)
  - .1 Fuses rated 1 to 600 amperes, 600 Vac, to be CSA certified Class J in accordance with Standard C22.2 No. 248.8.
  - .2 Where a time delay characteristic is required, fuses shall carry 500% of their ampere rating for not less than 10 seconds and be clearly labeled "time delay".
- .3 Class CC:
  - .1 Fuses rated 1 to 30 amperes, 600 Vac, to be CSA certified Class CC in accordance with Standard C22.2 No. 248.4.
  - .2 Where a time delay characteristic is required, fuses shall carry 200% of their ampere rating for not less than 12 seconds.
- .4 Standard of acceptance:
  - .1 Class J: Mersen type A4J (non-time delay) and AJT (time delay).
  - .2 Class CC: Mersen type ATMR (non-time delay) and ATDR (time delay) and ATQR (time delay).
- .5 Acceptable manufacturers:
  - .1 Mersen.
  - .2 Bussmann.
  - .3 Littlefuse.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Install fuses in mounting devices immediately before energizing circuit.
- .2 Confirm correct fuses are fitted to physically matched mounting devices.
- .3 Confirm correct fuses are fitted to assigned electrical circuit.
- .4 Confirm fuse size is correctly identified on equipment.
- .5 For feeder circuit fuses, use fast acting Class J fuses unless otherwise noted.

3.1 INSTALLATION  
(Cont'd)

- .6 For full voltage non-reversing motor starters, full voltage reversing motor starters, full voltage multi-speed motor starters and transformers, use time delay Class J fuses.
- .7 For 600Vac control circuits, use Class CC type fuses. Use time delay Class CC fuses upstream of control transformers and solenoids.

PART 1 - GENERAL

1.1 RELATED WORK .1 Electrical General Requirements: Section 26 05 00

1.2 SHOP DRAWINGS AND PRODUCT DATA .1 Submit shop drawings and product data in accordance with Section 01 33 00.

PART 2 - PRODUCTS

2.1 DISCONNECT SWITCHES .1 Heavy duty, fusible and non-fusible, horsepower rated, disconnect switch in size and voltage as indicated.

.2 Provision for padlocking in the off switch position by three padlocks.

.3 Mechanically interlocked door to prevent opening when handle in ON position.

.4 Fuses: size and type as indicated.

.5 Fuseholders: suitable without adaptors, for type and size of fuse indicated.

.6 Quick-make, quick-break action.

.7 ON-OFF switch position indication on switch enclosure cover.

.8 Provide equipment identification in accordance with Section 26 05 00.

.9 Switches to be complete with NEMA 4X enclosure unless noted otherwise.

.10 Provide switches complete with viewing window to view open/close status of the disconnect switch blades.

.11 Provide disconnect switches serving motors controlled by VFD and soft starters complete with an auxiliary contact (10A @ 120Vac). Auxiliary contacts to make after and break before main switch contacts.

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- 2.1 DISCONNECT SWITCHES  
(Cont'd)
- .12 Switch to be suitable for service entrance where specified.
  - .13 Acceptable manufacturers: Square D, Cutler Hammer, Siemens.

PART 3 - EXECUTION

- 3.1 DISCONNECT SWITCH INSTALLATION
- .1 Install disconnect switches complete with fuses as indicated on drawings.
  - .2 Install true, plumb and square to building lines.
  - .3 Confirm disconnect switch has proper clearance for operation of handle.



PART 1 - GENERAL

- 1.1 WORK INCLUDED
- .1 This section and its associated drawings specifies the requirements for the supply, calibration, installation, cabling, termination, testing and commissioning of the instrumentation and controls equipment.
  - .2 The Work also includes the following:
    - .1 Supply, calibrate, store, install, cable, terminate, test and commission instrumentation and controls equipment as identified on the drawings and specified herein.
    - .2 Supply and install termination junction boxes as indicated on the drawings and specified herein.
    - .3 Install and terminate process equipment including Owner-supplied equipment as identified on the drawings and specified in other divisions. Refer to the vendor shop drawings for the instrumentation and controls equipment installation and termination details.
    - .4 Assist the process equipment vendors as necessary during testing and commissioning of the new wastewater treatment system and associated controls and instrumentation.
- 1.2 RELATED WORK
- .1 Electrical - General Requirements: Section 26 05 00
  - .2 Packaged Wastewater Treatment Facility: Section 44 42 11.
- 1.3 REFERENCES
- .1 Carry out the Work under this section in accordance with all applicable Federal, Provincial, Municipal and other laws, ordinances and with the latest edition of the following standards which shall be deemed to be and form part of this specification:
    - .1 American Society of Mechanical Engineers.
    - .2 Institute of Electrical and Electronic Engineers.
    - .3 American Society for Testing Materials.
    - .4 Manufacturers Standardization Society.
    - .5 Canadian Standards Association.
    - .6 Instrument Society of America.
    - .7 Canadian Electrical Code.
-

- 1.3 REFERENCES  
(Cont'd)
- .2 In the event of a conflict between the above mentioned standards, this specification, or the attached drawings, notify the Consultant who will then advise on which standard is to be followed.
  - .3 Have all Instrumentation works (Instrumentation mounting, tubing, cabling, terminating, calibration and commissioning) carried out by certified inter-provincial ticketed Instrument Tradesmen. Include these services in the Contract Price.
- 1.4 SUBMITTALS
- .1 Submit shop drawings in accordance with Section 01 33 00. Have shop drawings reviewed and approved by the Consultant before ordering any equipment.

PART 2 - PRODUCT

- 2.1 TERMINATION  
JUNCTION BOXES
- .1 Where junction boxes are indicated, or otherwise deemed necessary, provide as follows:
    - .1 Termination junction boxes must be NEMA 4X (stainless steel).
    - .2 Termination junction boxes must have a pre-drilled and tapped copper ground bar and be provided with a grounding lug for a #6 AWG external ground connection.
    - .3 Terminal blocks must be rated for at least 600V, 32A, minimum of 6mm wide, capable of accepting a 10 AWG conductor size, DIN rail mounted, complete with white marking tags with black lettering. The standard of acceptance is Weidmuller WDU4, or approved equivalent.
    - .4 Have termination junction boxes sized by the Supplier to accommodate the required hardware, terminal blocks, etc., as well as the number of conduit entries.
    - .5 Provide spare terminals in minimum quantities of 20% of used terminals of any one (1) strip.
    - .6 Wire analog and digital I/O signals to separate terminals strips and separate by a barrier.
    - .7 Provide junction boxes with hinged covers.
    - .8 All junction box hardware (hinges, latches, etc.) must be 316 SS. Provide all panels and junction boxes complete with a back mounting plate.
-

2.1 TERMINATION  
JUNCTION BOXES  
(Cont'd)

- .1 (Cont'd)
- .9 Individually label all termination junction boxes with a lamicaid tag on the outside of the door and include the cabinet tag number. Nameplates to have a white background with black undercut lettering (316 SS screw mounted). Minimum lettering size to be 13mm.
- .10 Arrange terminal blocks so that no more than two (2) wires are terminated on any one (1) terminal block (including field wiring). The use of wire jumpers between terminal blocks will not be permitted. Only terminal block vendor approved cross-connection systems can be used for cross wiring between terminal blocks.

2.2 INSTRUMENTATION  
CABLING/WIRING

- .1 24 VDC instrumentation signal and digital control cables to be single or multi-paired (or triad), individually and overall shielded, #16 gauge copper conductors, 600V, XLPE insulation, with overall PVC jacket.
- .2 120 Vac instrumentation digital control cables to be multiconductor industrial control cable, #14 or #16 gauge copper conductors, 600V, RW90 insulation with overall PVC jacket.
- .3 Handle, install and support cables in accordance with manufacturer's guidelines.
- .4 Ground shields for 24 VDC twisted pair and triad Instrumentation signal cables on the end supplying the loop power, and tape on the opposite end. All shield grounds must be continuous through any intermediate field junction boxes (individually terminated).
- .5 Ground 120 VAC multiconductor control cable grounds on both ends. When run through intermediate junction boxes, 120 VAC cable grounds are brought to a common junction box ground bar, and connected to earth ground via the junction box ground.
- .6 Ground control panels and termination junction boxes to nearest ground using a #6 green copper grounding conductor in conduit.

2.2 INSTRUMENTATION  
CABLING/WIRING  
(Cont'd)

- .7 All cables and conduits must enter field instruments, control panels and junction boxes from the bottom only. Use grounding bushings when terminating in non-conductive boxes or plates.
- .8 Identify conductors using wire markers (Weidmuller PT transparent sleeves with TM-I labels, or approved equivalent). Mark conductors with their corresponding instrument tag number and instrument terminal block number (ex: HS3004/C, where HS3004 is the Instrument tag number, and "C" is the Instrument terminal block number the conductor is terminated on). This conductor identifier must remain the same through any intermediate junction boxes, etc.
- .9 Clearly identify all cables at both ends with its cable number using flexible PVC slip-on wire markers on a carrier strip and fastened to the cable using chemical resistant ty-raps (Electrovert K-Markers, or approved equivalent). Provide labelling at all cable terminal points and on the armour at the point of junction box/instrument entry.
- .10 Leave conductors being terminated within a junction box/control panel long enough to be removed from its assigned terminal block and reassigned to anywhere within the junction box/control panel.
- .11 Coil spare conductors of a cable together inside its associated junction box/control panel and clearly identified with the cable number (ex: Spare-JB3000), unless indicated to be terminated on spare terminals. Leave adequate length to run the spare conductors anywhere within the junction box/control panel. Terminate spare conductors where identified.
- .12 Fit stranded conductors with vinyl insulated wire end ferrules when terminating to terminal blocks, and vinyl insulated locking fork terminal connectors when terminating to screw terminals.

PART 3 - EXECUTION

3.1 TERMINATION  
JUNCTION BOXES

- .1 Install termination junction boxes where indicated.

3.1 TERMINATION  
JUNCTION BOXES  
(Cont'd)

- .2 Install and terminate all cables and equipment as per the drawings and the manufacturer's instructions.
- .3 Mount and position all equipment, to allow for easy access for maintenance purposes.
- .4 Store materials in a manner to ensure the preservation of their quality and fitness for the work, and to facilitate inspection by the Consultant at any time. Keep equipment clean and protect against damages, dirt and moisture.

3.2 INSTALLATION

- .1 Install equipment neatly and per manufacturer's instructions.
  - .2 Install all instrumentation and control equipment being supplied by or issued to the Contractor, where and as indicated on the drawings, and in accordance with the manufacturer's instructions. Strictly adhere to the manufacturer's installation instructions.
  - .3 Install and terminate cables/conductors as per the drawings and the manufacturer's instructions.
  - .4 The Drawings indicate the extent and general arrangement of the electrical system. Exact installation locations, distances and levels will be governed by actual field conditions.
  - .5 If any departures from the original intent of the Drawings and/or the Specifications are deemed necessary by the Contractor, submit details of such departures with Drawings is necessary, together with reasons for the departure the Consultant as soon as practical for approval. No such departure will be made without prior written consent of the Consultant.
  - .6 Fabricate and erect all support brackets and mounting brackets required. Contractor supplied instruments must be purchased with all necessary mounting brackets from the instrument vendor.
-

- 3.2 INSTALLATION  
(Cont'd)
- .7 Locate instruments to minimize the possibility of damage from high temperature, vibration or humidity, and shall not interfere with, or be damaged by, maintenance of other equipment. Instrument installation must also provide for easy accessibility for operation, inspection, and maintenance purposes.
  - .8 Protect installed equipment against water or dirt until it is commissioned. Use clear plastic sheeting of not less than 8-mil thickness for this purpose.
  - .9 Coordinate equipment delivery, storage and installation requirements with other Division package vendors including Owner-supplied equipment.
- 3.3 TESTING AND CALIBRATION EQUIPMENT
- .1 Calibrate all test and calibration equipment to an industry recognized standard and have affixed proof of calibration along with date of next calibration.
- 3.4 TESTING AND CHECK-OUT
- .1 Complete tests necessary to ensure that the supplied equipment will perform as specified (verify wiring, wire continuity checks, tubing leak tests, etc.).
  - .2 Coordinate with the Owner-supplied packaged treatment plant supplier for their required testing and commissioning procedures.
- 3.5 COMMISSIONING AND START-UP
- .1 Assist and coordinate with package treatment plant manufacturer's service technician to check the electrical installation and start up the equipment. Refer to Section 44 42 11 for additional information.
  - .2 Provide technical personnel during start up and commissioning for instrument recalibration, re-wiring, reprogramming, etc., as required until the integrated plant control system is deemed ready for plant operation.

PART 1 - GENERAL

- 1.1 WORK INCLUDED
- .1 This Section specifies requirements for furnishing all materials, labour, tools and equipment and performing all operations necessary to excavate all types of material encountered, placing of excavated material as backfill, disposal of unsuitable and surplus material and furnishing backfill material as specified below, all as shown on the Drawings and as specified in this Section.
  - .2 The Work generally includes, but is not necessarily limited to the following items:
    - .1 Trench excavation and backfilling for pipelines, manholes, duct banks, conduits and appurtenances.
    - .2 Structure excavation and backfilling for structures.
    - .3 Supplying and placing pipe foundation material where required.
    - .4 Control of water by dewatering.
    - .5 Providing borrow material when required.
    - .6 Removal and disposal of surplus and/or unsuitable material.
    - .7 Sheet piling, shoring and bracing to support trench walls, sides of excavations, existing structures or utilities.
    - .8 Excavation of unsuitable material and placement of structural fill.
- 1.2 RELATED SECTIONS
- .1 Hydraulic Seeding: Section 32 92 21
  - .2 Granular Materials and Rip Rap: Section 31 37 10
  - .3 Precast Structures: Section 33 05 14
  - .4 Sanitary Sewer: Section 33 31 00
  - .5 Packaged Wastewater Treatment Equipment: Section 44 42 11
- 1.3 REFERENCES
- .1 CAN/ULC-S701-11, Thermal Insulation, Poly-styrene, Boards and Pipe Covering.
-

1.3 REFERENCES .2 ASTM D 698-12e2, Standard Test Methods for  
(Cont'd) Laboratory Compaction Characteristics Of Soil Using  
Standard Effort (12,400 FT-LBF/FT<sup>3</sup>(600 KN-M/M<sup>3</sup>)).

1.4 DEFINITIONS .1 Unsuitable Material: all organic or other excavated  
material which is not suitable for use in work must  
be disposed of as defined by the Consultant.

.2 Rock: solid rock which requires drilling and  
blasting, wedging, sledging or barring or breaking  
up with power operated tools for its removal and  
boulders and pieces of concrete masonry exceeding  
one cubic metre (1.0 m<sup>3</sup>) in volume. Frozen material  
is not considered rock.

.3 Common: materials of whatever nature, which are not  
included under the definition of solid rock  
including dense tills, hardpan, frozen materials and  
partially cemented materials which can be ripped and  
excavated with heavy construction equipment.

.4 Surplus material: excavated material not required  
for re-use.

1.5 SAMPLES .1 Submit samples, sieve analysis, mix design for any  
imported materials as specified when requested by  
the Consultant, all in accordance with Section  
01 33 00.

1.6 PROTECTION OF .1 Existing buried utilities and structures:  
EXISTING FEATURES .1 Size, depth and location of existing utilities  
and structures as indicated are for guidance only.  
Completeness and accuracy are not guaranteed.  
.2 Prior to commencing excavation work, notify  
applicable Owner or authorities having jurisdiction,  
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 excavations.  
.4 Maintain and protect from damage, water, sewer,  
gas, electric, telephone and other utilities and  
structures encountered.

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1.6 PROTECTION OF  
EXISTING FEATURES  
(Cont'd)

- .1 (Cont'd)
  - .5 Where utility lines or structures exist in area of excavation, obtain direction of Consultant before removing or re-routing. Advise Consultant of existing lines in area of excavation that require removal or relocation and cost for such work.
  - .6 Record location of maintained, re-routed and abandoned underground lines.
- .2 Existing surface features:
  - .1 Conduct, with Consultant, a condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, pavement, survey bench marks and monuments which may be affected by work.
  - .2 Protect existing buildings and surface features from damage while work is in progress. In event of damage, immediately make repair to approval of Consultant.

1.7 EXISTING  
CONDITIONS

- .1 A geotechnical investigation has been carried out for the Site. CBCL Report titled "Geotechnical Investigation, Proposed Wastewater Treatment Plant - Sambro Elementary School, Sambro, NS" dated July 2016 is available for viewing at the office of the Consultant upon request. Any interpretation or extrapolation of its contents are at sole discretion of the Contractor and the Consultant will be held liable from such interpretations and extrapolations.
- .2 Underground pipelines are located within site boundaries. Prior to starting any excavation work review any available as-built information to identify these pipelines clearly in the field. Investigate and determine the presence of any underground utilities and repair any damage and/or pay all costs associated with damage to these existing utilities.

1.8 SUPPORT OF  
EXCAVATION

- .1 Suitably slope or properly shore sides of excavations according to site conditions, all in accordance with Provincial Safety Act. Provide use of support as necessary.
-

1.8 SUPPORT OF  
EXCAVATION  
(Cont'd)

- .2 The choice of any method of support shall be the responsibility of the Contractor. However, drawings and calculations for the method of support selected, designed by a qualified professional engineer in accordance with the Provincial safety requirements, are to be submitted to the Consultant for review before its use.
  
- .3 If it is desirable that any support, other than that which may be shown on the Drawings, be left in the excavations, then the Consultant will issue instructions accordingly.
  
- .4 Take every precaution against slips or falls, but if any should occur, at once make good the same. If any such slip or fall affects or may affect the stability of the permanent work, execute such remedial work as necessary, including filling up of any space left by the slip or fall with approved granular material. Submit proposed remedial work to Consultant for review.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Select Backfill Material: approved material from site excavation or borrow pits. Such material must be free from stumps, trees, roots, sod, muck or other deleterious material, and must not contain rock, boulders or masonry larger than 200 mm. The material shall be free from frost, and shall not be placed on frozen ground or in water. It must have a moisture content that will allow compaction to the specified densities.
  
- .2 Clear stone: crushed and screened, hard, durable stone, free from clay and organic matter, and graded as follows:

Clear stone, 28mm:

<u>Sieve Designation</u>	<u>Cum. % Passing</u>
28 000	5-100
14 000	25-60
5 000	0-10

Clear Stone, 80 mm:

(Cont'd)

<u>Sieve Designation</u>	<u>Cum. % Passing</u>
80 000	100
56 000	25-60
28 000	0-5

.3 Granular Materials: as specified in Section 31 37 10.

.4 Sand bedding: hard granular, sharp freshwater material, well-graded from coarse to fine, free of impurities, chemicals and organic matter, and graded as follows:

<u>Sieve Size</u>	<u>Cum. % Passing</u>
4.75 mm	100
0.150 mm	0-5

.5 Granular bedding materials: well graded, clear stone conforming to concrete aggregate as follows:

<u>Sieve Size</u>	<u>Cum. % Passing</u>
25 mm	100
19 mm	90-100
9.5 mm	20-55
4.75 mm	0-10
2.36 mm	0-5

.6 Foundation Material: crushed quarry-run material, nominal size 150mm or as determined by the Consultant as conditions dictate.

.7 Structural Fill: well graded, sound, durable, granular material, free from clay, frozen lumps, organic, or deleterious matter, graded as follows:

<u>Sieve Size, mm</u>	<u>% Passing</u>
112	100
80	95-100
20	20-100
5	0-70
0.080	0-10

- 2.1 MATERIALS  
(Cont'd)
- .8 Rip Rap: as specified in Section 31 37 10.
  - .9 Rigid Insulation: to CAN/ULC-S701, Type 4, expanded polystyrene, minimum compressive strength 400 kPa (60 psi).
    - .1 Acceptable products: Styrofoam Highload 60, as manufactured by Dow Chemical, Foamular 600 as manufactured by Owens Corning, or approved equivalent.
  - .10 Geotextile: as specified in Section 31 32 19.
  - .11 Underground warning tape:
    - .1 Detectable metallic tape, 50 mm wide clearly marked as follows:
      - .1 "CAUTION - BURIED SEWER LINE", colour GREEN.
      - .2 Polyethylene, 3.5 mils thick, 75 mm wide, clearly marked as follows:
        - .1 "CAUTION - BURIED ELECTRICAL CONDUIT", colour RED.
      - .3 Acceptable product: Brady Identoline or approved equivalent.

PART 3 - EXECUTION

- 3.1 STOCKPILING
- .1 Stockpile excavated materials for re-use in areas designated by the Consultant. Stockpile imported materials in manner to prevent segregation. Cover all materials to seal against rain.
- 3.2 SHORING AND BRACING
- .1 Construct temporary works to depths, heights and locations as approved by Consultant.
  - .2 During backfill operation:
    - .1 Unless otherwise indicated or as directed by Consultant, remove sheeting and shoring from excavations.
    - .2 Do not remove bracing until backfilling has reached respective levels of such bracing.
  - .3 Upon completion of substructure construction:
    - .1 Remove shoring and bracing.
    - .2 Remove excess materials from site as directed by the Consultant.
-

3.3 EXCAVATION -  
GENERAL

- .1 Advise Consultant forty-eight (48) hours before starting earthworks.
- .2 Excavate in all kinds of materials including rock encountered on Site and make own computations of amounts and nature of excavation required.
- .3 Select method of excavation, support and dewatering suitable for the works. Submit proposed method to Consultant for review.
- .4 Protect property or structures above or below ground in accordance with the Contract.
- .5 Where excavation is through pavement, cut pavement along neat, straight lines.
- .6 Bear foundations or underside of all structures including pipe surrounds on the material as shown on the Drawings and neatly finish all bearing surfaces to the required levels and grades.
- .7 Earth bottoms of excavations to be undisturbed soil, free from loose, soft, or organic matter. Remove any soil softened due to frost or standing water prior to placing structures.
- .8 Where foundations of structures or buildings are founded on undisturbed subgrade, the subgrade surface shall be proof rolled in the presence of an experienced geotechnical inspector. Overexcavate any soft spots and backfill with structural fill.
- .9 If the excavated surface is unsuitable, the Consultant will determine what work is required to secure a proper foundation. If such work is due solely to the nature of the ground, then the Consultant will measure the work, but if such work is due to any act or default of the Contractor in carrying out of the Works, resulting in disturbance of natural ground conditions, then execute such work at no additional cost to the Contract.
- .10 Excavation to greater depth than is shown on the Drawings will be at no additional cost to the Contract, unless ordered by the Consultant. Make good trench bottom with approved granular material adequately compacted as approved by the Consultant or with concrete as may be necessary for the safety or stability of the Works.

3.3 EXCAVATION -  
GENERAL  
(Cont'd)

- .11 Pile excavated material a safe distance away from sides of trench so it will not endanger personnel and the work, reduce sight distances, and obstruct roadways.
- .12 Leave existing utility controls unobstructed and accessible at all times.
- .13 Do not obstruct drainage ditches and natural watercourses.
- .14 The Consultant reserves the right to require surplus material to be placed for embanking, general grading or other improvement or use on site, for the general benefit of the Owner.
- .15 Control grading so that the surface of the ground will be properly sloped to prevent water from running into excavated areas. Promptly remove any water which accumulates in excavations.

3.4 BLASTING

- .1 Obtain appropriate permits before proceeding with blasting.
- .2 Conduct blasting with all possible care to avoid injury to persons and property, including damage to adjacent properties. Sound an audible warning in vicinity of work immediately prior to blasting. Make certain there are no persons within danger area before blasting.

3.5 DRAINING,  
PUMPING AND THAWING

- .1 Keep excavations and trenches free of water. Control excavations to prevent surface water running into excavated areas.
- .2 Do work in connection with dewatering and supply and maintain on the work, pumps, in number and capacity sufficient to keep bottom of excavations dry and free from water so placing of pipe, manholes, and concrete will be done in the dry. Operate equipment for as long as necessary.

3.5 DRAINING,  
PUMPING AND THAWING  
(Cont'd)

- .3 Dispose of water removed from excavations in a manner that will prevent injuries to public health or private property or to any operation of the work completed or under construction. Do not pump water containing silt or other material in suspension into streams or drainage courses.
- .4 Confirm sub-drains, sump holes, wells or the like required for dewatering do not endanger the stability of the Works. On completion of the work completely backfill and consolidate excavations.
- .5 Excavate, remove or thaw out frozen ground as necessary.

3.6 STRUCTURE  
EXCAVATION

- .1 Excavate to lines, grades, dimensions and elevations shown on Drawings or as directed by the Owner's geotechnical engineer until soils meeting the design condition are identified.
- .2 Extend excavations sufficient distance from footings and walls to allow placing and removal of forms and for placing backfill materials indicated.

3.7 TRENCH  
EXCAVATION

- .1 Trenches for piping, conduit, and related excavations must be of sufficient width and depth at all points to allow pipes to be laid, joints to be formed, and appurtenance structures to be built in a workmanlike manner, and when needed, to allow for sheeting and shoring, pumping, draining, and for removing and replacing all materials unsuitable for foundations.
- .2 Excavate trenches so pipe can be laid to the alignment and depth required. Excavation length to be not more than pipe length that can be laid and backfilled in one day. Brace and drain trench so workers may work safely and efficiently.
- .3 Remove organic material and soft deposits to a depth where medium dense to dense materials are encountered as designated by the Consultant.
- .4 Do not stockpile excavated materials alongside trench if the bearing soil will cause trench side failure or bottom uplift and affect pipe alignment.

3.8 UNSUITABLE  
MATERIAL  
EXCAVATION AND  
BACKFILLING

- .1 Notify Consultant when materials unsuitable for use in the work are encountered and remove to depth and extent as directed by Consultant.
- .2 Backfill excavations with foundation material or selected backfill material as directed by the Consultant.
- .3 Dispose of unsuitable material off-site, at no additional cost to the Contract.

3.9 GRANULAR  
BEDDING & SURROUND

- .1 Place granular bedding material in uniform layers not exceeding 150 mm compacted thickness to depth as indicated.
- .2 Shape bed true to grade to provide continuous uniform bearing surface for pipe. Do not use blocks when bedding pipe.
- .3 Shape transverse depressions in bedding as required to suit joints.
- .4 Carry bedding material across actual trench width. Mounding bedding will not be permitted.
- .5 Compact each layer full width of bed to at least 95% of standard Proctor dry density.
- .6 Fill excavation below design elevation of bottom of specified bedding with compacted bedding material or foundation material as directed by the Consultant.
- .7 After pipe installation, place and compact bedding to haunch line of pipe. Place and compact bedding material from haunch line of pipe to top of pipe in maximum 200 mm layers. Place remaining bedding material to 300 mm above top of pipe before further compaction. Compact to a density of 95% of standard Proctor density as determined by ASTM D698.

3.10 BACKFILLING-  
GENERAL

- .1 Do not proceed with backfilling operation until Consultant has inspected and approved installations.
-



3.10 BACKFILLING-  
GENERAL  
(Cont'd)

- .2 After pipelines, and structures have been built, backfill trenches and other excavated areas with materials shown on Drawings or as specified. Remove timber and debris from excavation before backfilling is commenced. Do not cover up or put out of view any work until it has been examined, measured and approved by the Consultant. If any work is covered without approval of the Consultant, it must, if required, be uncovered for examination.
- .3 Do not backfill around or over cast-in-place concrete within 24 hours after placing.
- .4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures, permit concrete to cure minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure.

3.11 BACKFILLING  
STRUCTURES

- .1 After installation of foundations, clean excavations of trash and debris. Backfill to consist of material shown on Drawings. Place material to meet following requirements and approval of the Consultant:
  - .1 Place backfill in horizontal layers not more than 200 mm deep.
  - .2 Compact each layer by rollers, mechanical tampers, or other suitable equipment to obtain a density of not less than 100% Standard Proctor density, unless noted otherwise.
  - .3 Compact the fill placed below the footings and floor slab as well as within the zone of influence of the building to not less than 100% standard Proctor maximum dry density.

3.12 BACKFILLING  
TRENCHES

- .1 Backfill trench from top of bedding to top of subgrade using materials shown on Drawings.
- .2 Place backfill in 300 mm layers and compact to 95% Standard Proctor density. Thoroughly compact each layer before placing next layer. Carry out compaction tests to demonstrate the effectiveness of backfill thickness per lift versus the number of passes with the selected equipment to achieve the specified compaction.

3.12 BACKFILLING TRENCHES  
(Cont'd)

.3 During backfilling, keep trenches free of water at all times and controlled so as to prevent surface water running into excavated areas. Remove silty materials, which become wetted and subsequently liquid or extremely plastic.

.4 Leave surface of backfill initially high and repair settlement of trench backfilling.

3.13 MARKER TAPE

.1 Place marker tape and plank in trenches above electrical conduits and pipes, where indicated.

3.14 INSULATION

.1 Place rigid insulation in trench as indicated on Drawings. Do not disturb or break boards during backfilling.

3.15 REINSTATEMENT

.1 Upon completion of work, remove surplus materials and debris, trim slopes, and correct defects as directed by Consultant.

.2 Reinstall disturbed areas to condition, elevation and thickness equal to or better than that, which existed before excavation.

.3 Clean and reinstall areas affected by work as directed by the Consultant.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies the requirements for the supply, transportation, and installation of geotextile fabric associated with the placement of foundation granular fills.
- 1.2 RELATED SECTIONS .1 Excavating, Trenching and Backfilling: Section 31 23 10.
- 1.3 REFERENCES .1 ASTM D4491/D4491M-17, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- .2 ASTM D4533-D4533M-15, Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
- .3 ASTM D4632/D4632M-15a, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
- .4 ASTM D4751-16, Test Method for Determining the Apparent Opening Size of a Geotextile.
- .5 ASTM D6241-14, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile - Related Products Using a 50-mm Probe.
- 1.4 TEST DATA AND CERTIFICATES .1 Submit to the Consultant copies of manufacturer's test data and certificates at least two (2) weeks prior to start of work.
- 1.5 DELIVERY AND STORAGE .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris, sharp objects or edges, and rodents.
- 1.6 WASTE MANAGEMENT AND DISPOSAL .1 Separate waste materials for reuse and recycling in accordance with the regulations of the authority having jurisdiction.
-

- 1.6 WASTE MANAGEMENT AND DISPOSAL  
(Cont'd)
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
  - .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, and packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.
  - .4 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

- 2.1 MATERIAL
- .1 Geotextile: non-woven needle punched sythetic fibre fabric composed of minimum 85% by mass of polyester or polypropylene fibres with inhibitors to resist deterioration by moisture supplied in rolls.
    - .1 Physical properties:
      - .1 Grab tensile strength and elongation (in any principal direction): to ASTM D4632.
        - .1 Tensile strength: minimum 445 N.
        - .2 Elongation at break: minimum 50%.
      - .2 Trapezoidal tearing strength: to ASTM D4533.
        - .1 Tearing strength: minimum 200 N.
      - .3 Puncture CBR: to ASTM D6241, minimum 1110 N.
    - .2 Hydraulic properties:
      - .1 Apparent opening size: to ASTM D4751, maximum 0.212 mm.
      - .2 Permittivity: to ASTM D4491, minimum 2.0  $\text{sec}^{-1}$ .
    - .3 Acceptable products:
      - .1 Terrafix 270R by Terrafix Geosynthetics Inc.
      - .2 LP4 by Layfield Canada Ltd.
      - .3 Approved equivalent.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- .1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated.

3.1 INSTALLATION  
(Cont'd)

- .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 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .5 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .6 After installation, cover with overlying layer within 4 hours of placement.
- .7 Replace damaged or deteriorated geotextile to approval of the Consultant.
- .8 Height of drop should not exceed 300 mm when placing approved aggregate over geotextile.

3.2 PROTECTION

- .1 Do not allow vehicles to drive directly on geotextile.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for supplying, transporting and placing gravel to lines, grades and typical cross-sections indicated on the Drawings or as directed by the Consultant.
- 1.2 RELATED WORK .1 Excavating, Trenching and Backfilling: Section 31 23 10
- .2 Sanitary Sewer: Section 33 31 00
- 1.3 REFERENCE STANDARDS .1 Nova Scotia Transportation and Infrastructure Renewal (NSTIR), Standards Specifications.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Granular material: crushed and screened rock or gravel, consisting of approved hard and durable stone particles, free from flat, elongated or other objectionable pieces. Gradation shall be dense, uniform and as follows:

.1 Type 1:	
<u>Sieve Size (micrometre)</u>	<u>Percent Passing</u>
20,000	100
14,000	50-85**
5,000	20-50
160	5-12
080	3-8*

2.1 MATERIALS    .1    (Cont'd)  
(Cont'd)    .2    Type 2:

<u>Sieve Size (micrometre)</u>	<u>Percent Passing</u>
80,000	100
56,000	70-100
28,000	50-80
14,000	35-65
5,000	20-50
160	5-12
080	0-7*

\* For gravel sources not classified as quarries the allowable percentage passing the 080 sieve shall be 3 to 5%.

\*\* For gravel sources classified as quarries the allowable percentage passing the 14,000 sieve shall be 50 to 90%.

.3 Incorporation of existing roadway recovered aggregates into Type 2 sub-base or subgrade may be considered by the Consultant if the Contractor proves suitability of the blend through analysis to the satisfaction of the Consultant.

.4 Physical properties: gravel materials shall conform to the physical properties listed in Table 3.2.3, Nova Scotia Transportation and Infrastructure Renewal, Standard Specification.

.2 Rip-rap: durable field or quarry stone with rough surfaces and angular shape, minimum thickness not less than one third of length or width and having a minimum of two parallel sides and one plane face at right angles to parallel sides. Rounded stone or boulders will not be permitted. Supply rock spalls to fill open voids. Nominal size of rip-rap 100 mm, with gradation as follows:

100% < 150mm  
30% > 100mm  
80% > 75mm

.3 Sand: as specified in Section 31 23 10.

.4 Clear stone: as specified in Section 31 23 10.

---

PART 3 - EXECUTION

- 3.1 PLACING RIP-RAP
- .1 Fine grade area to receive rip-rap to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
  - .2 Place rip-rap in accordance with thickness and details as indicated. Take care to not move pipe out of alignment.
  - .3 Place stones in manner approved by Consultant to secure surface and create a stable mass. Place larger stones at bottom of slopes.
- 3.2 PLACING GRANULAR MATERIALS
- .1 Place granular material for pipe and for roadways in accordance with Section 31 23 10.



PART 1 - GENERAL

- 1.1 RELATED WORK
- .1 Excavating, Trenching and Backfilling: Section 31 23 10
  - .2 Granular Materials: Section 31 37 10
- 1.2 REFERENCES
- .1 Nova Scotia Department of Transportation and Infrastructure Renewal, Standard Specification, Division 4 - Pavements.
  - .2 ASTM D3203-2011, Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.
- 1.3 SAMPLES
- .1 At least four (4) weeks prior to commencing Work inform the Consultant of proposed source of aggregates, liquid asphalt and asphalt cement and provide access for sampling.
  - .2 Preliminary approval of any sample or samples of any material does not constitute a final approval of the material or its source of supply.
  - .3 All materials to be incorporated into the Work will be continuously and regularly sampled and tested in the field and in the laboratory and must comply with the requirements of the material specification.
- 1.4 MATERIAL CERTIFICATION
- .1 At least four (4) weeks prior to commencing Work submit viscosity-temperature chart for asphalt cement to be supplied showing either Saybolt Furol viscosity in seconds or Kinematic Viscosity in centistokes, temperature range 105 to 175°C.
  - .2 Submit manufacturer's test data and certification that asphalt cement meets requirements of this section.
-

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Asphalt material: hot mixed, hot-laid combination of mineral aggregates, uniformly coated and mixed with an asphaltic binder in a suitable mixing plant. Asphalt materials and aggregates shall meet the requirements of Division 4, Section 4 of the Nova Scotia Department of Transportation and Infrastructure Renewal Specification.
- .2 Composition of asphalt mixture: to grading and asphalt content requirements in Table 4.4.1-Physical Requirements of Asphalt Concrete of the Nova Scotia Department of Infrastructure Renewal Specification, Type B-HF and Type C-HF mix. Minimum Marshall Stability to be 7.5 kN @ 60°C formulated for truck route traffic.
- .3 Liquid asphalt primer: to requirements in Table 4.5.1 of the Nova Scotia Department of Transportation and Infrastructure Renewal Specification.
- .4 Liquid asphalt tack coat: to same requirements as liquid asphalt primer.

## PART 3 - EXECUTION

### 3.1 EQUIPMENT

- .1 Pavers: mechanical self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.
  - .2 Rollers: sufficient number of rollers of type and weight to obtain specified density of compacted mix.
  - .3 Haul trucks: of adequate size, speed and condition to ensure orderly and continuous operation and as follows:
    - .1 Boxes with tight metal bottoms.
    - .2 Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.
    - .3 In cool weather or for long hauls, insulate entire contact area of each truck box.
-

### 3.2 PREPARATION

- .1 Make vertical saw cut to full depth of asphalt concrete in straight lines. Cut back 300 mm minimum from edge of excavation or beyond to eliminate tension cracks.
- .2 Remove additional existing asphalt in locations where longitudinal strips less than 1 m wide and/or asphalt "islands" less than 10m<sup>2</sup> in size occur after saw cutting and replace with new asphalt.
- .3 Cold mill an additional 300 mm wide by 40 mm deep longitudinal strip along all saw cut joints to facilitate an overlap joint in the surface asphalt.
- .4 Place or remove gravel to depth indicated.
- .5 Shape, fine grade and compact gravel surface to 100 percent standard proctor density.

### 3.3 PLACING

- .1 Obtain the Consultant's approval of granular base and preparation prior to placing asphalt.
- .2 Before placing asphalt, clean surface of loose and foreign material. Apply liquid asphalt primer to Nova Scotia Department of Transportation and Infrastructure Renewal specifications. Application rate: 1.0 litre/m<sup>2</sup>.
- .3 Apply tack coat over Type B-HF base course and over existing asphalt. Apply liquid asphalt tack coat to Nova Scotia Department of Transportation and Infrastructure Renewal Standard Specification between Class B-HF binder and Class C-HF surface courses, and as primer at all cold joints. Application rate: 0.15 litre/m<sup>2</sup>.
- .4 Place asphalt concrete in compacted lifts to thicknesses, grades and lines as indicated or as directed by the Consultant.
- .5 Set catch basin and manhole covers into final position prior to placement of Type C-HF asphalt.
- .6 Placing conditions:
  - .1 Place asphalt mixtures only when air temperature is above 5°C and rising.

- 3.3 PLACING  
(Cont'd)
- .6 (Cont'd)
- .2 When temperature of surface on which material is to be placed falls below 10°C, provide extra rollers as necessary to obtain required compaction before cooling.
- .3 When the air temperature is 5°C, or less, or after the 31st of October, the Contractor shall not be permitted to lay any asphalt pavement, unless otherwise approved by the Consultant.
- .4 Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.
- .7 Place, roll and compact asphalt concrete in accordance with Division 4, Section 4, Province of Nova Scotia, Department of Transportation and Infrastructure Renewal, Standard Specification.
- .8 Rake all joints.
- .9 The minimum density acceptable must be 95% of the theoretical Maximum Relative Density determined according to ASTM D3203.
- 3.4 ASPHALT  
PATCHING
- .1 Remove existing asphalt by saw cutting in straight lines and removing cut asphalt with suitable excavating equipment to full depth of asphalt.
- .2 Provide tack coat on edges of saw cut.
- .3 Reinstate asphalt to full depth of existing asphalt using mix type C-HF asphalt concrete.
- .4 Dispose of excavated asphalt at approved disposal site.
- 3.5 FINISH  
TOLERANCES
- .1 Finished asphalt surface to be within 6 mm of design elevation but not uniformly high or low.
- .2 Finished asphalt surface must not have irregularities exceeding 6 mm when checked with a 3 m straight edge placed in any direction.
-

- 3.6 PROTECTION .1 Restrict traffic during setting period to prevent damage as directed by the Consultant.
- 3.7 DEFECTIVE WORK .1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form a true and even surface and compact immediately to specified density.
- .2 Repair areas showing checking or rippling.
- .3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.
- .4 If, at any time before the Work is finally accepted, any ravelling, shoving or other fault develops in the pavement as laid, remove all mixed materials in such places, cut edges of joints square and paint with tack coat. Place fresh asphalt mixture and compact. Do all such removal and replacement of unsatisfactory material at no additional cost to the Contract.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for constructing chain link fence and gate. Work includes excavation, supply and installation of concrete footings, chain link fence, gates, accessories, and reinstatement.
- 1.2 REFERENCES .1 Excavating, Trenching and Backfilling: Section 31 23 10  
.2 Reinstatement: Section 32 98 00
- 1.3 REFERENCE STANDARDS .1 CAN/CGSB-138.1M-97, Fabric for Chain Link Fence.  
.2 CAN/CGSB-138.2M-96, Steel Framework for Chain Link Fence.  
.3 CAN/CGSB-138.3M-96, Installation of Chain Link Fence.  
.4 CAN/CGSB-138.4M-96, Gates for Chain Link Fence.
- 1.4 SHOP DRAWINGS .1 Submit shop drawings in accordance with Section 01 33 00.
- 1.5 CERTIFICATES .1 Submit manufacturer's test data and certification that products and materials meet requirements of this Section in accordance with Section 01 33 00.
- 1.6 HANDLING AND STORAGE .1 Handle and store fence materials in such a manner as to avoid damage. Do not damage coatings.
-

PART 2 - PRODUCTS

2.1 GENERAL .1 Height, fabric type and style: as indicated on the Project Drawings.

2.2 MATERIALS .1 Concrete: cement type GU, C-1 class of exposure, 32 MPa at 28 days, slump of 80mm ±20mm.  
.2 Fabric and coating: to CAN/CGSB 138.1-M.  
.3 Posts, rails, and Fittings: to CAN/CGSB 138.2-M, galvanized steel. Dimensions as indicated.  
.4 Gates and accessories: to CAN/CGSB 138.4-M, type as indicated. Framing dimensions in accordance with the following table:

<u>GATE TYPE</u>	<u>OPENING (metres)</u>	<u>FRAMING O.D.(mm)</u>	<u>FRAMING Wall (mm)</u>
Double swing	3.6	42.9	100

PART 3 - EXECUTION

3.1 GRADING .1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts. Provide clearance between bottom of fence and ground surface as indicated.

3.2 ERECTION OF FENCE .1 Erect fence along lines as indicated and in accordance with CAN/CGSB-138.3.  
.2 Auger post holes to dimensions indicated by methods approved by the Consultant.  
.3 Space line posts 3 m apart, measured parallel to ground surface.

3.2 ERECTION OF  
FENCE  
(Cont'd)

- .4 Space straining posts at equal intervals not exceeding 150 m if distance between end or corner posts on straight continuous lengths of fence over reasonably smooth grade is greater than 150 m.
- .5 Install additional straining posts at sharp changes in grade and where directed by the Consultant.
- .6 Install corner post where change in alignment exceeds 10°.
- .7 Install end posts at end of fence and at buildings. Install gate posts on both sides of gate openings.
- .8 Place concrete in post holes then embed posts into concrete to depths indicated. Extend concrete 50mm above ground level and slope to drain away from posts. Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .9 Do not install fence fabric until concrete has cured sufficiently. Submit concrete mix to the Consultant for review.
- .10 Install brace between end and gate posts and nearest line post, at inclination as indicated. Install braces on both sides of corner and straining posts in similar manner.
- .11 Install overhang tops and caps.
- .12 Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
- .13 Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
- .14 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300mm intervals. Knuckled selvedge at bottom. Twisted selvedge at top.
- .15 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450mm intervals. Give tie wires a minimum of two (2) twists.



- 
- 3.2 ERECTION OF FENCE  
(Cont'd)
- .16 Install barbed wire strands and clip securely to lugs of each projection where indicated.
  - .17 Install grounding rods as indicated.
- 3.3 INSTALLATION OF GATES  
GATES
- .1 Install gates in locations as indicated.
  - .2 Level ground between gate posts and set gate bottom as indicated above ground surface.
  - .3 Install gate stops where indicated.
- 3.4 TOUCH UP  
TOUCH UP
- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two (2) coats of organic zinc-rich paint, to CGSB 1.181, to damaged areas. Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.
- 3.5 CLEANING  
CLEANING
- .1 Clean and trim areas disturbed by operations. Dispose of surplus material and reinstate disturbed surfaces.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for preparation of subgrade, provision, placement, and fine grading of topsoil for seeded lawn areas. Work includes supply and placement of materials, complete with all related components and accessories.
- 1.2 RELATED SECTIONS .1 Hydraulic Seeding: Section 32 92 21
- 1.3 REFERENCE STANDARDS .1 Canadian Nursery Landscape Association - Canadian Standards for Nursery Stock - latest edition.
- .2 Cornell University (CU)-Soil standards or equivalent.
- .3 Canadian Council of Ministers of the Environment, 2005; Guidelines for Compost Quality. ISBN 1-896997-60-0; Canadian Council of Ministers of the Environment.
- 1.4 SOURCE QUALITY CONTROL .1 Inform the Consultant of proposed source of topsoil to be supplied and provide access for sampling.
- 1.5 DELIVERY, STORAGE AND PROTECTION .1 Schedule deliveries to minimize storage at job site without causing delays.
- .2 Protect newly graded and filled areas from washouts and settlements caused by rain and water damage. Fill and grade settled or washed out areas to required levels and slopes as specified.
- 1.6 SCHEDULING .1 Schedule topsoiling and finish grading operations to coincide with seeding, sodding, and plant operations.
-

PART 2 - PRODUCTS

2.1 TOPSOIL

- .1 Imported, manufactured or site prepared from friable loam that is neither heavy clay nor of very light sandy in nature free from debris, vegetation, toxic materials and stones and roots over 50mm maximum dimension and any other deleterious materials that might inhibit plant growth and development. Limit the organic matter to a maximum of 20% by volume.
  
- .2 Topsoil to be rated to Canadian System for Soil Classification. Refer to soil rating chart in Clause 2.2.3. Provide "A" rated soil for seeded areas. Manufacture topsoil or topsoil derived from site sources is to be improved as necessary to meet topsoil qualifications above.
  
- .3 Topsoil Suitability - Standard Topsoil Triangle:
  - .1 This rating indicates the kind and severity of limitations if the soil is used without corrective measures to grow "normal" landscaping stock (i.e., excluded rhododendrons, blueberries, and other plants with special soil requirements). It does not account for socio-economic factors such as markets or accessibility that make some materials desirable for development regardless of related development costs.
  - .2 The degree of limitation or soil suitability is determined by the most restrictive (least suitable) rating assigned to any of the listed soil properties. The cumulative effect of individual soil properties may act to further downgrade a soil.

Soil Factor	Rating			
	A	B	C	D
pH	6-7.5	5-7.5	4-7.5	4-7.5
Organic Matter	4.0-8.0	2.0-8.0	1.0-8.0	u/a
Coarse Fragments	<5%	<10%	<20	20-50%

Definitions:

- pH: as measured in water.
- Organic Matter: Walkley Black method or equivalent (% by weight)
- Coarse Fragments: Particles over 2mm in diameter (% by volume)

- 2.2 MANURE .1 Well rotted, unleached livestock manure, not less than eight (8) months or more than two (2) years old, free of harmful chemicals and substances, containing no more than 25% straw, leaves or other materials unsuitable for planting use.
- 2.3 PEAT MOSS .1 Derived from partially decomposed fibrous or cellular stems and leaves of species of sphagnum mosses.
- .2 Elastic and homogeneous; brown in colour.
- .3 Free of wood and deleterious material which could inhibit growth.
- .4 Shredded particle minimum size 5mm.
- 2.4 BONE MEAL .1 Raw bone meal, finely ground with a minimum analysis of 2% nitrogen and 20% phosphoric acid.
- 2.5 FERTILIZER .1 Complete non-toxic, non-burning, slow release fertilizer.
- .2 Fertilizer analysis for hydroseeding areas, sodding areas and planting areas as determined from soil sample test.
- 2.6 LIMESTONE .1 Ground agricultural limestone containing minimum 85% of total carbonates.
- .2 Gradation requirements: percentage passing by weight, 90% passing 1.0mm sieve, 50% passing 0.125mm sieve.
- 2.7 PLANTING SOIL MIXTURE .1 Mechanically mix: nine (9) parts topsoil with one (1) part well-rotted manure, compost or peat moss.
- .1 Incorporate bone meal at rate of 3 kg bone meal per cu. m.
- .2 Incorporate fertilizer at rate determined by soil sample test.
-

2.8 COMPOST

- .1 Mixture of soil and decomposing organic matter containing 40% by volume, or more organic matter as determined by the LOI test or its equivalent under the Walkley-Black test.
- .2 Product must be sufficiently decomposed (i.e., stable) so that any further decomposition does not adversely affect plant growth C:N ratio below 25:50, and contain no toxic or growth inhibiting contaminants.
- .3 Composted bio-solids must meet the requirements of the guidelines for Compost Quality, Category (A), produced by the Canadian Council of the Ministers of the Environment (CCME).

PART 3 - EXECUTION

3.1 GENERAL

- .1 Where required, raise subgrade to rough grade levels with landscape fill, deposit in layers not exceeding 200mm. Consolidate each layer to minimum 95% Standard Proctor Density.

3.2 PREPARATION OF  
EXISTING GRADE FOR  
SODDING

- .1 Verify subgrade elevations are correct.
- .2 Grade soil. Eliminate uneven areas and low spots to promote positive drainage.
- .3 Cultivate entire area which is to receive topsoil to a depth of 100mm where practical. Repeat cultivation in those areas where equipment used for hauling and spreading has compacted the soil.
- .4 Remove surface debris, roots, vegetation, branches, and stones in excess of 50mm in diameter.

3.3 PLACING TOPSOIL

- .1 Do not spread approved topsoil until subgrade has been approved by the Consultant.
  - .2 Spread planting soil mixture with adequate moisture in uniform layers over approved, unfrozen subgrade where planting is indicated.
-

- 3.3 PLACING TOPSOIL .3 Lightly compact topsoil. Bring topsoil to finished  
(Cont'd)
- 3.4 SOIL AMENDMENTS .1 Apply lime or other soil amendments at specified  
rate as determined by soil sample test.
- .2 Mix soil amendment well into full depth of topsoil  
prior to fertilizer application.
- 3.5 FERTILIZER .1 Fertilizer type and rate of application to be  
determined from soil test and approved by the  
Consultant.
- .2 Spread fertilizer uniformly over entire area of  
topsoil.
- 3.6 FINISH GRADING .1 Fine grade entire topsoil area to contours and  
elevations as indicated or directed. Eliminate rough  
spots and low areas to ensure positive drainage.
- .2 Prepare loose friable bed by means of raking prior  
to sodding.
- .3 Leave surface smooth, uniform, and firm against deep  
foot printing, with a fine loose texture using  
approved equipment.
- 3.7 ACCEPTANCE .1 Consultant will inspect and test topsoil in place  
and determine acceptance of material, depth, and  
finish grading.
- 3.8 CLEAN UP .1 Remove surplus materials at no additional cost to  
the Contract.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for supplying and applying seed by the hydraulic method to all finished areas, including ditches, and areas not located on the site, but disturbed during construction that are not to be gravelled, paved or sodded.
- 1.2 PRODUCT DATA .1 Submit product data in accordance with Section 01 33 00.
- .2 Provide product data for:
- .1 Seed.
  - .2 Mulch.
  - .3 Tackifier.
- .3 Submit in writing to the Consultant four (4) days prior to commencing work:
- .1 Size of truck slurry tank in litres.
  - .2 Quantity of material to be used per tank based on size of slurry tank.
  - .3 Number of tank loads required per hectare to achieve specified slurry mixture per hectare.
- 1.3 SCHEDULING .1 Schedule hydraulic seeding to coincide with preparation of soil surface.
- 1.4 DELIVERY AND STORAGE .1 Deliver seed in original containers showing:
- .1 Analysis of seed mixture
  - .2 Percentage of pure seed
  - .3 Year of production
  - .4 Net mass
  - .5 Date when tagged and location
  - .6 Percentage germination
-

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Seed: Canada "Common No. 1" grade in accordance with Government of Canada "Seeds Act and Regulations".
  - .1 Grass seed mixture (by mass):
    - .1 30% Perennial Ryegrass
    - .2 40% Kentucky Bluegrass
    - .3 15% Red Fescue
    - .4 15% Chewing Fescue
  - .2 Mulch:
    - .1 Fibre: wood or wood cellulose fibre free of germination or growth-inhibiting ingredients, capable of dispersing in water to form homogenous slurry, and forming blotter-like green ground cover allowing absorption and percolation of water.
  - .3 Fertilizer:
    - .1 Type 1: (in slurry) complete synthetic, minimum 65% water soluble nitrogen. Ratio 1:4:4.
    - .2 Type 2: (during establishment) complete synthetic, slow release, with maximum 35% water soluble nitrogen. Ratio 2:1:1.
  - .4 Tackifier: water dilutable liquid dispersion containing polyvinyl acetate terpolymer emulsion.
  - .5 Water: potable, free of impurities that would inhibit germination.

2.2 EQUIPMENT

- .1 Truck:
  - .1 Slurry tank: approved commercial hydraulic equipment.
  - .2 Pumps capable of maintaining continuous non-fluctuating flow of solution.

PART 3 - EXECUTION

3.1 SITE PREPARATION

- .1 Fine grade areas, eliminating uneven areas and low spots, ensuring positive drainage.



- 
- 3.1 SITE PREPARATION  
(Cont'd)
- .2 Remove debris, roots, branches, stone in excess of 38mm diameter and other deleterious materials. Dispose of removed material off site.
- 3.2 WORKMANSHIP
- .1 Take care to prevent contamination by seeding slurry of structures, signs, fences and utilities.
- .2 Where contamination occurs, remove seeding slurry to satisfaction of, and by means approved by Consultant.
- .3 Do not perform work under adverse field conditions such as wind speeds over 20 km/h, or on frozen ground or ground covered with snow, ice or standing water.
- .4 Perform hydraulic seeding in the spring after snow has melted.
- 3.3 PLACING TOPSOIL
- .1 Refer to Section 32 91 21.
- 3.4 SLURRY APPLICATION
- .1 Slurry mixture applied per hectare (ha):
- .1 Seed: 125 kg/ha.
  - .2 Mulch: 1350 kg/ha.
  - .3 Tackifier: as per manufacturer's recommendation
  - .4 Fertilizer: 375 kg/ha, 15-25-15 for seeding done between May and September and 10-20-20 thereafter.
  - .5 Water: quantity as required to form slurry in accordance with manufacturer's recommendations.
- .2 Apply seed slurry uniformly.
- .3 Blend applications into adjacent grass, sodded areas and previous applications to form uniform surface.
- .4 Re-shoot areas where application is not uniform.
- 3.5 ESTABLISHMENT
- .1 Perform following operations from time of seed application until final acceptance by Consultant.
-

- 
- 3.5 ESTABLISHMENT .1 (Cont'd)  
(Cont'd)
- .1 Water seeded area as required to maintain optimum soil moisture level and to ensure germination and continued growth of grass. Control watering to prevent washouts.
  - .2 Fertilize seeded areas one month after seeding. Spread evenly and water in well. Fertilizer at rate determined by soil test. Postpone fertilizing until following spring if application falls within four week period prior to expected end local growing season.
  - .3 Repair dead or bare spots to allow establishment of seed prior to acceptance.
- 3.6 ACCEPTANCE .1 Areas will be accepted by the Consultant at the end of the maintenance period provided that:  
PERIOD
- .1 Seeded areas are properly established.
  - .2 Area is free of bare and dead spots.
- .2 Areas seeded in the fall will be accepted the following spring one month after the start of the growing season provided acceptance.
- 3.7 MAINTENANCE .1 Perform following operations from time of acceptance until end of maintenance period:  
PERIOD
- .1 Water areas at weekly intervals to obtain optimum soil moisture conditions to depth of 100 mm.
  - .2 Repair and reshoot bare spots to satisfaction of Consultant.
  - .3 Cut grass and remove clippings that will smother grass to height as follows:
    - .1 Turfgrass Nursery Sod:
      - .1 40 mm during normal growing conditions.
      - .2 65 mm at end of growing season and during periods of high temperatures and low precipitation.
    - .2 Cut grass at two (2) week intervals or as directed by Consultant, but at intervals so that approximately one third of growth is removed in single cut.
    - .3 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.
-

3.7 MAINTENANCE .3 (Cont'd)  
DURING WARRANTY .4 Eliminate weeds by mechanical means to extent  
PERIOD acceptable to Consultant.  
(Cont'd)

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 The work to be done under this Section consists of furnishing all materials, labour, tools and equipment and performing all operations necessary for the complete reinstatement of surfaces and structures disturbed by work of this Contract.
- .2 Repair damage or disturbance to surfaces, properties and structures, within limits of the Site or elsewhere on other properties occupied, traversed or otherwise used by the Contractor during the Contract period to a condition equal to or better than that before work began, at no additional cost to the Contract.
- 1.2 RELATED WORK .1 Excavating, Trenching and Backfilling: Section 31 23 10
- .2 Granular Materials and Rip Rap: Section 32 11 23
- .3 Hot Mix Asphalt Paving: Section 32 12 16
- .4 Hydraulic Seeding: Section 32 92 19
- 1.3 REFERENCES .1 NS Department of Transportation and Infrastructure Renewal Standard Specifications, latest edition.
- 1.4 MAINTENANCE .1 Take care and maintain all reinstated areas until final acceptance of the work.
- .2 Repair damaged areas to the approval of the Consultant.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Granular material: in accordance with the requirements of Section 32 11 23.
-

- 2.1 MATERIALS  
(Cont'd)
- .2 Asphalt material: as specified in Section 32 12 16.
  - .3 Grass surface materials: as specified in Section 32 92 19.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Maintain surfaces to be reinstated level with adjoining existing surfaces gravel until final reinstatement.

- 3.2 ASPHALT SURFACES
- .1 Keep surface of asphalt paved roads and surfaces in good condition by repairing settlement of trench backfilling as described in Section 31 23 10.
  - .2 Carry out final reinstatement of asphalt surfaces as follows:
    - .1 Cut back broken edges of original pavement to full depth, in straight lines. Cut back 300mm minimum from edge of excavation to eliminate tension cracks. Clean contact surfaces and apply tack coat before placing asphalt concrete.
    - .2 Before placing final surface material, remove existing gravel to a depth indicated over disturbed area, grade and recompact. Add gravel to compacted depths indicated. Compact to not less than 100% maximum corrected dry density.
    - .3 Supply, place, roll and compact asphalt mixture in accordance with Section 32 12 16.
    - .4 Compact asphalt concrete in lifts not exceeding 50mm in thickness.
    - .5 Confirm finished surface is even, dense and matches grade of existing road or surface, as approved by the Consultant.

- 3.3 GRAVEL SURFACES
- .1 Reinstatement gravel surfaces by placing 200 mm compacted thickness of gravel at an elevation such that gravel surface is smooth and even with adjacent surfaces.

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3.3 GRAVEL SURFACES .2 Place and compact gravel for surfaces in accordance  
(Cont'd) with the requirements of NS Department of  
Transportation, Infrastructure and Energy Standard  
Specifications.

3.4 GRASS SURFACES .1 Hydraulic Seeding: to Section 32 91 23. Fine grade  
areas to be reinstated to smooth surface. Grade to  
allow for topsoil and hydraulic seeding to be placed  
so finish grade is smooth and even with existing  
surfaces.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for installing Owner preselected precast concrete process tanks. Work includes installation of precast concrete sections, risers, all appurtenances metal castings and testing.
- 1.2 RELATED WORK .1 Sheet Membrane Waterproofing: Section 07 13 00
- .2 Excavating, Trenching and Backfilling: Section 31 23 10
- 1.3 REFERENCES .1 ASTM C478-2013, Specification for Precast Reinforced Concrete Manhole Sections.
- .2 ASTM D698-2012, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
- .3 CAN/CSA B66-2010, Design, Material and Manufacturer Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks.
- .4 CSA A23.4-09(R2014), Precast Concrete, Materials and Construction.
- 1.4 SHOP DRAWINGS .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Submit manufacturer's test data and certification that materials meet requirements of this section. Include manufacturer's drawings, information, size of components, dimensions and details where pertinent, including details of connection between risers and precast structures.
- 1.5 HANDLING AND STORAGE .1 Prevent damage to materials during storage and handling.
-

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1.5 HANDLING AND STORAGE  
(Cont'd)

.2 Store gaskets in cool location out of direct sunlight, and away from petroleum products.

PART 2 - PRODUCTS

2.1 PRE-SELECTED MATERIAL

.1 Pre-selected equipment includes:  
.1 Two (2) pre-cast concrete septic tanks, complete with access risers and covers.  
.2 One (1) septic tank effluent filter.

2.2 BEDDING

.1 Sand bedding material: as specified in Section 31 23 10.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Carefully inspect products for defects.

3.2 EXCAVATION AND BACKFILL

.1 Excavate and backfill in accordance with Section 31 23 10 and as indicated.  
.2 Obtain approval of Consultant before installing structures.

3.3 INSTALLATION

.1 Construct units in accordance with details indicated, plumb and true to alignment and grade.  
.2 Tank installation and testing to follow manufacturer's requirements in effect at time of installation.  
.3 Complete units as pipe laying progresses.  
.4 Dewater excavation as directed by Consultant and remove soft and foreign material before placing concrete base.

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3.3 INSTALLATION  
(Cont'd)

- .5 Install structure base on 200mm minimum of granular bedding materials compacted to 95% Standard Proctor Density. Top of base to be level.
- .6 Set first section on concrete base and make joint watertight with O-ring gaskets or butyl rope as applicable. Wrap joints with waterproof membrane, and install protection board, in accordance with Section 07 13 00.
- .7 Plug lifting holes with non-shrink grout.
- .8 Make watertight connections to inlet and outlet pipes.
- .9 Hydrostatically test tank for 24 hours according to manufacturer's requirements. Repair any leaks and retest. Repeat until all leaks are repaired at no extra cost.
- .10 Compact backfill to 95% maximum Standard Proctor Density to ASTM D698.
- .11 Install access risers and covers complete with anchor screws on top section to elevation shown on Drawings or as directed.
- .12 Process Tanks:
  - .1 Where piping penetrates the access risers, seal the penetration using grommets of a diameter equivalent to that of the pipe.
  - .2 Once backfilled and all pipes are connected, fill 150mm up riser and repeat as above to test interconnecting pipes.
  - .3 Exterior of access risers to have minimum of 75mm of spray insulation applied. Spray insulation to be suitable for buried conditions. Attach 50mm thick rigid insulation to inside of covers with stainless steel fasteners.
  - .4 Install filters and floats at elevation shown on drawings or as directed.

PART 1 - GENERAL

- 1.1 RELATED WORK
- .1 Excavating, Trenching and Backfilling and Compaction: Section 31 23 10.
  - .2 Packaged Wastewater Treatment Equipment: Section 44 42 11.
- 1.2 REFERENCES
- .1 ASTM D1599-2014, Standard Test Method for Resistance to Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings.
  - .2 ASTM D2564-2012, Specification for Solvent Cements for Poly(Vinyl-Chloride) PVC Plastic Piping Systems.
  - .3 ASTM D3035-2014A, Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
  - .4 ASTM F714-2013, Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
  - .5 CSA B137 Series-2013, Thermoplastic Pressure Piping Compendium.
  - .6 CSA B1800 Series-2015, Plastic Non-pressure Pipe Compendium.
- 1.3 SHOP DRAWINGS
- .1 Provide shop drawings for all pipe, fittings, and all other items necessary for a complete installation in accordance with Section 01 33 00. Include details showing dimensions and tolerances of pipe and joint proposed.
- 1.4 QUALITY ASSURANCE
- .1 All materials used, manufacturing operations, finished pipes and fittings will be subject to inspection by the Consultant. Furnish all labour necessary to assist the Consultant or or inspectors to inspect materials.
-

1.5 MATERIAL CERTIFICATION .1 At least two (2) weeks prior to commencing work, submit manufacturer's test data and certification that pipe materials meet requirements of this Section.

1.6 MATERIAL HANDLING AND STORAGE .1 Handle and store pipe and fittings in such a manner as to avoid shock and damage. Do not use chains or cables passed through pipe bore.  
.2 Store gaskets in cool location, out of direct sunlight, and away from petroleum products.  
.3 Store PVC pipe under opaque tarps.

PART 2 - PRODUCTS

2.1 PRESSURE PIPE AND FITTINGS .1 Include all pump discharge piping, buried and above grade.  
.2 Polyvinyl chloride (PVC) to CSA B137.3, SCH40.  
.1 Solvent weld: to ASTM D2564.  
.2 Fitting to be series 200, IPS fittings rated at 200 psi.

2.2 SEPTIC TANK PIPING .1 Polyvinylchloride (PVC): to CAN/CSA-B1800, DR35 (green), complete with bell and spigot joints with locked in rubber gaskets.  
.1 Bedding material: sand as specified in Section 31 23 10.

2.3 FLEX CONNECTION .1 Enamel finished cast coupling with 304 SS fasteners appropriate to the type and size of pipe being joined.  
.2 Acceptable Manufacturer: Robar.

2.4 MARKER TAPE .1 As specified in Section 31 23 10.

PART 3 - EXECUTION

- 3.1 PREPARATION
- .1 Clean pipes, fittings and appurtenances of accumulated debris and water before installation. Carefully inspect materials for defects. Remove defective materials from site.
  - .2 Provide proper implements, tools and facilities approved by the Consultant, for the safe and convenient prosecution of the work. Take every precaution to prevent foreign material from entering the pipe.
- 3.2 TRENCHING AND BACKFILL
- .1 Do trenching and backfill work to Section 31 23 10.
- 3.3 PIPE BEDDING
- .1 Place granular bedding material to details indicated or directed.
  - .2 Shape bed true to grade to provide continuous uniform bearing surface for pipe exterior. Do not use blocks when bedding pipe.
  - .3 Shape transverse depressions in bedding as required to make joints.
  - .4 Carry granular bedding material horizontally across actual trench width. Mounding bedding material will not be permitted.
  - .5 After pipe installation, place and compact bedding material to center line of pipe. Place and compact bedding material from center line of pipe to top of pipe. Place remaining bedding material to 100 mm above top of pipe before further compaction.
  - .6 Compact granular bedding to 95% relative density to ASTM D4254.
- 3.4 PIPE LAYING
- .1 Carefully lower pipe into the trench in such a manner as to prevent damage to coatings and linings. Do not drop or dump materials into trench.
-

- 
- 3.4 PIPE LAYING (Cont'd)
- .2 Firmly and accurately set pipe to line and elevation on bedding material to the depth shown on the Drawings.
  - .3 Check profiles at the commencement of work. Confirm grades and depths. Any variation will be made only at the order of the Consultant. Set line of pipe by offset centreline. Set elevation by a method approved by the Consultant.
  - .4 Start laying pipe at lowest pipe and lay upgrade unless approved otherwise by the Consultant. Pipe must maintain a positive upward slope.
  - .5 Do not lay pipe when trench bottom is frozen or underwater or when trench conditions or weather are unsuitable.
  - .6 Temporarily support all pipe during assembly and install fittings in a manner to ensure pipe is not strained during jointing procedure. Do not exceed permissible deflection at joints as recommended by pipe manufacturer.
- 3.5 PIPE JOINTING
- .1 Align pipes carefully before jointing.
  - .2 Install gaskets to manufacturer's recommendations. Support pipes with hand slings or crane as required to minimize lateral pressure on gaskets and maintain concentricity until gaskets are properly positioned.
  - .3 Maintain pipe joints clean and free from foreign materials.
  - .4 Complete each joint before laying next length of pipe.
  - .5 Apply sufficient pressure in making joints to ensure that joint is completed to manufacturer's recommendations. Minimize deflection after joint has been made to avoid damage.
  - .6 Install mechanical joint restraint on all 45 and 90 bends for pressure piping only.
- 3.6 MARKER TAPE
- .1 Place marker tape in trench where indicated.
-

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- 3.7 PIPE FLUSHING .1 After installation and prior to testing, clean piping to remove foreign materials.
- .2 Notify the Consultant 24 hours before flushing.
- .3 Flush pipe with water through available outlets with sufficient flow to produce minimum velocity in main of 1.5 ft/s, for 10 minutes. Flush until foreign materials have been removed, and water is clear. Allow flush water to flow over land away from disturbed area.
- .4 Slowly open and close valves to ensure thorough flushing.
- .5 If satisfactory results cannot be achieved by flushing, swab pipes by approved methods and reflush.
- 3.8 TESTING .1 As specified in Section 33 05 14, 3.3.12.2.

PART 1 - GENERAL

1.1 RELATED SECTIONS .1 Conduits, Conduit Fastenings and Conduit Fittings: Section 26 05 34.

1.2 REFERENCES .1 Canadian Standards Association (CSA)  
.1 CSA C22.2 No. 211.2-06(R2016), Rigid PVC (Unplasticized) Conduit.  
.2 CSA C22.3 No. 7-2015, Underground Systems.

PART 2 - PRODUCTS

2.1 PVC CONDUIT AND FITTINGS .1 Rigid PVC conduit: to CSA C22.2 No. 211.2, with moulded fittings, for direct burial.  
.2 Rigid PVC bends, couplings, reducers, bell end fittings, plugs, caps, adaptors of same product material as conduit to make complete installation.  
.3 Rigid PVC 90° and 45° bends.  
.4 Rigid PVC 5° angle couplings.  
.5 Expansion joints where conduits exit ground.

2.2 SOLVENT WELD COMPOUND .1 Solvent cement for PVC conduit joints.

2.3 CABLE PULLING EQUIPMENT .1 6 mm stranded polypropylene pull rope, tensile strength 5 kN.

PART 3 - EXECUTION

3.1 INSTALLATION .1 Install underground conduits in accordance with manufacturer's instructions and CSA C22.3 No. 7.

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3.1 INSTALLATION  
(Cont'd)

- .2 Clean inside of conduits before laying.
- .3 Open trench completely before conduits are laid and ensure that no obstructions will necessitate change in grade of conduits.
- .4 Ensure full, even support every 1.5 m throughout conduit length.
- .5 Install conduits at elevations indicated and slope conduits with 1 to 400 minimum slope towards underground tanks.
- .6 During construction, cap ends of conduits to prevent entrance of foreign materials.
- .7 Pull through each conduits mandrel not less than 300 mm long and of diameter 6mm less than internal diameter of conduit, followed by stiff bristle brush to remove sand, earth and other foreign matter. Pull stiff bristle brush through each conduits immediately before pulling-in cables.
- .8 In each conduit, install pull rope continuous throughout each underground run with 3 m spare rope at each end.



PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 The Work specified under this section consists of supplying and installing pre-selected packaged wastewater treatment plant as specified and performing all operations necessary including coordination, unloading and insuring, supervision of installation and field testing. Components of the wastewater treatment plant includes treatment module, pumps, disinfection, controls and system accessories.
- .2 A copy of the quotation document and scope of supply is included in Appendix A. The packaged wastewater treatment equipment vendor is APS (Orenco).
- .3 Copies of the detailed shop drawings and specifications will be available for review at the offices of the Consultant during the tendering period and will be made available to the successful Tenderer.
- .4 Become thoroughly familiar with all the requirements of the pre-selected equipment by careful study of the equipment specifications, review drawings, other pertinent information and by direct communication with the named suppliers. No extra payment will be made to the Contractor for any additional work in connection with the proper installation, testing and operation of pre-purchased equipment, necessitated by the Contractor's failure to ascertain the requirements (both direct and ancillary) for this equipment prior to submission of the Tender.
- .5 Ascertain from the equipment supplier the full extent of field work in accordance with the manufacturer's instructions and obtain all details, dimensions and other information necessary for the complete installation.

1.2 RELATED WORK

- .1 Excavating, Trenching & Backfilling: Section 31 23 10.
  - .2 Electrical: Division 26.
  - .3 Utilities: Division 33.
-

1.3 REFERENCE  
STANDARDS

- .1 Work under this Section to conform to the applicable requirements and referenced standards of the American Society for Testing and Materials (ASTM), Canadian Standards Association (CSA), Hydraulic Institute Standards, National Electrical Manufacturer's Association (CEMA), Institute of Electrical and Electronic Engineers (IEEE), Electrical Equipment Manufacturer's Association of Canada (EEMAC).
- .2 Equipment assemblies comprised of electro-mechanical components must be CSA approved where possible and must bear the appropriate label. If the equipment in question is not CSA approved as an assembly, the manufacturer must arrange and pay for spot approval and labelling of the equipment prior to installation.

1.4 REFERENCES

- .1 ANSI/AWWA D120-09, Thermosetting Fibreglass Reinforced Plastic Tanks.
- .2 ASTM A123-2015, Standard Specification for Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products.
- .3 ASTM D698-2012, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m<sup>3</sup>).
- .4 ASTM D1785-2015, Standard Specification for PolyVinyl Chloride Plastic Pipe.
- .5 ASTM D3034-2014A, Standard Specification for Type PSM PolyVinyl Chloride Sewer Pipe and Fittings.
- .6 ASTM D2321-2014A, Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- .7 CSA B66-10 (R2015), Design, Material and Manufacturing Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks.

1.5 SUBMITTALS

- .1 Obtain the shop drawings for this equipment from the Consultant, and take over the purchase order at that time.

1.6 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Coordinate delivery with the Equipment supplier, store and handle materials in accordance with manufacturer's written instructions.
- .2 Prevent damage to materials during storage and handling.
- .3 Store gaskets in cool location out of direct sunlight, and away from petroleum products.
- .4 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address, unload, store and protect on-site.
- .5 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect equipment from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 GENERAL

- .1 Supply all materials and equipment not listed under Owner Supplied Equipment.

2.2 PRE-SELECTED  
EQUIPMENT

- .1 One (1) treatment module complete with pumps, fittings and media.
  - .2 Duplex discharge pumps and pump chamber.
  - .3 UV disinfection equipment, and chamber.
  - .4 Control panel and enclosure.
  - .5 Flow meter and enclosure.
  - .6 Valves, fittings and appurtenances.
-

2.3 ACCESS RISERS  
WITH ACCESS LIDS

- .1 Where piping penetrates the access risers, seal the penetration using grommets of a diameter equivalent to that of the pipe.

2.4 EQUIPMENT  
INSULATION

- .1 Exterior sides of the module to have a minimum of 75mm of spray insulation applied. Spray insulation to be suitable for buried conditions. Attach 50mm thick rigid insulation to inside of cover with stainless steel fasteners.
- .2 Exterior of access risers to have minimum of 75mm of spray insulation applied. Spray insulation to be suitable for buried conditions. Attach 50mm thick rigid insulation to inside of covers with stainless steel fasteners.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Receive packaged wastewater treatment plant and accessories from the supplier at the construction site location.
- .2 Handle and install equipment in strict accordance with manufacturer's instructions. Make these instructions available on site when required.
- .3 Provide small connecting pipework, fittings and valves whether shown on the Drawings or not but required for proper functioning and servicing of the equipment. All such work shall be done in accordance with the manufacturer's instructions at no additional cost to the Contract. Where pipe is to be connected to equipment, connect the fitting such that neither pipe, fitting nor equipment is strained during the joining procedure.
- .4 Complete all electrical connections as per the manufacturers documentation and the contract documents.

3.2 LUBRICATION

- .1 Provide complete initial lubrication of all equipment in accordance with the equipment manufacturer's recommendations.
-

3.3 RESPONSIBILITY  
OF TEMPORARY TRIAL  
USAGE

- .1 Obtain written permission from the Consultant to use and test permanent equipment and systems prior to acceptance by the Consultant.
- .2 The guarantee period must not be affected by temporary trial use of the equipment.
- .3 Clean and renew equipment and systems used before acceptance. Restore to original or new working condition.
- .4 Protect equipment and systems openings from dirt, dust and other foreign materials during temporary usage.

3.4 INSPECTION,  
TESTING AND  
START-UP

- .1 Coordinate, arrange and assist the service person, mechanics or other trained personnel of the equipment supplier's or manufacturers to check the complete installation and be present for start-up of the equipment. A written report signed by the equipment manufacturer's representative shall be submitted to the Consultant stating the following:
  - .1 That satisfactory installation of equipment has been performed and outlining any modifications that have been made as a result of the commissioning or testing of the equipment at no additional cost to the Contract.
  - .2 That the equipment is now ready for permanent operation.
- .2 Test installed equipment with actual operation to verify hydraulic balancing, head loss and flow, sampling to demonstrate effluent quality shall be performed 4-6 weeks after initial commissioning. Make adjustments required to place equipment into operation.
- .3 The costs for the provision of the treatment plant manufacturer's representative to perform on-site start up and commissioning has been included with the supply of the equipment.
- .4 Have the equipment manufacturer's representative fully instruct the permanent operator of the equipment in the proper operation and maintenance of all equipment at no additional cost to the Contract.



## **Appendix A**

### **Quotation Doc and Scope of Supply**

**AdvanTex Quotation and Scope of Supply - Revised 03-Apr-2017**  
**Sambro Elementary School WWTP**



TOTAL 1 PAGES

Item	Description	Quantity
<b>Primary Tank - Tankage</b>		
<b>PRIMARY TANK 1 - TANKAGE</b>		
Tank	1,600 Igal Shaw Pre-Cast Concrete Tank	1
Risers	RR2448 - PVC Kor-Flo Access Riser, 24" Diam. x 48" Deep	3
	RULB30-KIT 3" Long SS Bolt Kit for Kor Flo-Risers	3
	Riser Wrap - 4' Wide 30 mil PVC (LF)	30
Lids	FL24G-4B - FRP Lid 24" Diam. , Urethane Gasket	3
Tank to Riser Adapter	PRTA24 24" Diam. ABS Tank-to-Riser Adapter (Pre-Cast)	3
Epoxy Adhesive & Sealant	Two-Part Structural Epoxy - SA510-GRAY-300/300 (600 mL)	4
<b>PRIMARY TANK 2 - TANKAGE</b>		
Tank	2,000 Igal Pre-Cast Concrete Tank	1
Risers	RR2448 - PVC Kor-Flo Access Riser, 24" Diam. x 48" Deep	3
	RULB30-KIT 3" Long SS Bolt Kit for Kor-Flo Risers	3
	Riser Wrap - 4' Wide 30 mil PVC (LF)	22.5
Lids	FL24G-4B - FRP Lid 24" Diam. , Urethane Gasket	3
Tank to Riser Adapter	PRTA24 24" Diam. ABS Tank-to-Riser Adapter (Pre-Cast)	3
Epoxy Adhesive & Sealant	Two-Part Structural Epoxy - SA510-GRAY-300/300 (600 mL)	4
	MA-MANUAL GUN-600ML - Epoxy Dispensing Gun	1

Item	Description	Quantity
<b>Primary Tank - Equipment</b>		
<b>PRIMARY TANK EQUIPMENT</b>		
High Level Alarm	MF1V-Y-12FT - Mech. Level Alarm Float, Stem, 10' Cord	1
Effluent Filter	FT1266-36AR - Effluent Filter, 12" Diam., 66" Long Housing, 36" Long Filter, Rail Mounted, Alarm Bracket	1

<b>ADVANTEX EQUIPMENT</b>		
Item	Description	Qty
Custom AX25RT Gravity Discharge c/w UV	AX25RT Treatment Pod - Gravity Discharge, UV, Anoxic Return Loop c/w (1) Spare Bulb + 4 Spare Spin Nozzles, 12" Extension Riser	1
Anti-Flotation Beam Kit	AX-20RT-AF BEAM KIT - Anti-Flotation Beams and Hardware for RT Units	1
Control Panel	TCOM Custom Control Panel c/w Intrs. Safe Circuitry (Primary Tank Float)	1

<b>MISCELLANEOUS EQUIPMENT</b>		
Item	Description	Qty
<b>LIFT STATION PACKAGE</b>		
	Lift Station Package c/w	1
	Pump Basin - 30" Diam. x 90" Deep	1
	FL30G - FRP Lid 30" Diam. , Urethane Gasket	1
	RULB30-KIT - 3" SS Bolt Kit for Kor-Flo Risers	1
	Orenco Gravity UV System	1
	PF1001511-20 High Head Effluent Pumps - 10 USGPM (nom.), 1/2 hp, 120 VAC, 20' Cord	2
	HV100BCFCASQ - 1" Discharge Assembly, Ball Valve, Check Valve, Quick Disconnect, Flow Control, No Drain Holes	2
	HVCW100KITNDH - 1" Cold Weather Kit No Drain Hole	2
	HVX100 1" External Flex Assembly	2
	MF4V-YP,B,R,W-39V-20 - Float Assembly, Small Drawdown Mechanical Float Switch, 20' Cord	1

<b>FLOWMETER PACKAGE</b>		
Riser	RR3036 - Kor-Flo PVC Access Riser, 30" Diam. x 36" Deep	1
	FL30G - 30" Diam. Fiberglass Lid c/w Gasket	1
	RULB30-KIT - 3" SS Bolt Kit for Kor-Flo Risers	1
	Riser Wrap - 4' Wide 30 mil PVC (LF)	9
Flowmeter	ABB 1.5" Flowmeter and Remote Transmitter	1
	NEMA4X Enclosure (Flowmeter Transmitter)	1
	G1L 1.0" Grommets (Electrical and Data)	2
	G150L 1.5" Grommets (Piping)	2

<b>MISCELLANEOUS &amp; START-UP</b>		
Item	Description	Qty
	AdvanTex® Start-Up Report, and Operating & Maintenance Manuals	1
	APS & Orenco Project Review, Site Visits (Pre-Install, Installation, Start-up, Training) Two Days Total in Four Trips by APS	1
	Total Shipping to Site	1





**HALIFAX REGIONAL SCHOOL BOARD**

**SAMBRO ELEMENTARY SCHOOL WASTEWATER TREATMENT SYSTEM  
REPLACEMENT**

**QUOTATION No. 3877**

**ADDENDUM NO. 1**

**February 16, 2017**

(To be added to and made part of the Tender Documents)

The following changes or modifications shall be made to the Tender Documents:

**TO THE SPECIFICATIONS**

**SECTION 00 21 14 – INFORMATION TO EQUIPMENT SUPPLIERS**

**Page 1, within subsection 3.0, delete the final two lines and replace with the following:**

“ and must be delivered to the above address no later than 2:00:00 p.m.,  
local time on Thursday, February 23<sup>rd</sup>, 2017.”

**Page 7, delete subsection 9.2 and replace with the following:**

- .2 Provide a complete copy of the operations, installation, and maintenance information in both hard copy (two hard copies) and in pdf file format on a clearly labelled CD (three copies of the CD).

**SECTION 44 42 11 – PACKAGE WASTEWATER TREATMENT FACILITY (WWTF)**

**Page 2, delete subsection 1.3.6 and replace with the following:**

- .6 Waste Type: typical school wastewater with no supplemental alkalinity, and without low-flow fixtures.

**Page 2, delete subsection 1.3.6 and replace with the following:**

- .6 Influent BOD: approx. 300mg/L before septic tank.

**Page 2, add new subsection 1.3.9 as follows:**

- .9 Provide anoxic return loop if required to achieve effluent pH objectives.

**Page 4, delete subsection 2.3.1.1 and replace with the following:**

- .1 Submersible effluent pumps for recirculation (duplex) and if required, anoxic loop (simplex) and/or discharge (duplex):

max. 1/2 Hp, to suit site electrical supply, and rated for a minimum 300 on/off cycles per day.

**Page 6, delete subsection 2.9.1.5 and replace with the following:**

- .5 Flow tube to have a minimum enclosure rating of NEMA 6P. Flow transmitter to have a minimum NEMA 4X rated enclosure, which may be a post mounted SS enclosure.

**Page 7, delete subsection 2.10.2.2 and replace with the following:**

- .2 Enclosure to contain a main fuse type disconnect, motor starters, primary and secondary fused control transformers, microprocessor, anti-condensation heater, 15A GFI receptacle, and all associated control components. Provide pre-installed wireless access point for connection to internet.

**Page 8, delete subsection 2.10.2.8 and replace with the following:**

- .8 All control components must be NEMA design as manufactured by Square D, Allen Bradley, Siemens or Eaton, including door mounted pilot devices, timers, and relays. Include motor current monitoring. All components must be CSA approved.

**Page 8, delete subsection 2.17.2.8 and replace with the following:**

- .3 Any proprietary computer software needed for remote monitoring and control must be provided and upgraded as required at no additional cost to the contract, and data must be downloadable or convertible to .csv or .xls format.

**Page 8, add new subsection 2.11 as follows:**

**2.11 UV Disinfection System**

- .1 General: one (1) stand-alone UV disinfection system, complete with UV lamps, lamp supports, electronic ballasts and accessories as noted herein. Locate the module below grade in a 750mm diameter riser complete with lid, as specified in Subsection 2.5 Access Risers With Access Lids.
- .2 Application/design: provide system designed to disinfect effluent from a recirculating textile filter sewage treatment system with an average flow of 1.7L/min but the pumping flow rate may be higher and must be accommodated. The head loss through the system must permit discharge to effluent outfall as indicated. The system must be designed to achieve a fecal coliform discharge concentration of 200/100ml measured on a 30 day geometric average or better. A suspended solids concentration of >10 mg/l will be assumed for the effluent which is being disinfected.

- .3 Provide complete with a power cable suitable for hazardous areas and of a minimum length of 6.0m.
- .4 Provide UV system with alarm relay.

**TO THE DRAWINGS**

Note for SK-01: The finished grade elevation at the existing WWTP is approximately 2.3 m.

Halifax Regional School Board






# Sambro Elementary School Wastewater Treatment System Replacement

Issued for Quotation

February 2017

CBCL Contract: 160818.02Q

# Sambro Elementary School Wastewater Treatment System Replacement

Issued for Quotation	<i>W.D.E.</i>	Feb 8/17	<i>JHE</i>
Issued for Quotation Review	W. D'E.	Aug 9/16	S.E.
<i>Issue or Revision</i>	<i>Reviewed By:</i>	<i>Date</i>	<i>Issued By:</i>
  			

<u>TITLE</u>	<u>SECTION</u>
<u>BIDDING AND CONTRACT REQUIREMENTS</u>	
Information to Equipment Suppliers	00 21 14
Form of Quotation	00 41 01
<u>DIVISION 33 - UTILITIES</u>	
Precast Structures	33 05 14
<u>DIVISION 44 - POLLUTION AND WASTE CONTROL EQUIPMENT</u>	
Packaged Wastewater Treatment Facility	44 42 11
Attachment SK01 - Proposed Site Layout	
<u>APPENDIX A (FOR INFORMATION)</u>	
Supplementary General Conditions	00 73 00

## 1.0 PROJECT DESCRIPTION

1.1 This project includes the quotation for the supply of one (1) packaged wastewater treatment system complete with precast concrete tank(s), control panel complete with enclosure, treatment unit(s), pumps, risers, lids, switches, valves and flow instruments. Equipment will be pre-selected by the Owner and purchased and installed by the Contractor as part of the General Contract that will be tendered later as a separate Contract.

## 2.0 DEFINITIONS

- 2.1 **"Owner"** means the Halifax Regional School Board and includes the Owner's personal representatives or successors.
- 2.2 **"Consultant"** means CBCL Limited or its duly appointed representative or such other consultant as the Owner may appoint.
- 2.3 **"Equipment Supplier"** means a person, firm or corporation who proposes to submit, or who has submitted a quotation for the supply of the equipment, or part thereof, referred to herein.
- 2.4 **"Supplier"** means the Equipment Supplier, whose equipment has been selected by the Owner, referred to herein, and whom guarantees delivery to the job site.
- 2.5 **"Contractor"** means the person or persons, firm or company, whose bid for the installation of the works will be accepted by the Owner pursuant to a General Contract.
- 2.6 **"General Contract"** means the Advertisement, Information to Bidders, Tender, Agreement, General Provisions, Special Provisions, Technical Specifications, Contract Drawings and all interpretations or addenda issued by the Owner, or Consultant with permission of the Owner for preliminary treatment equipment for the Sambro Elementary School Wastewater Treatment System Replacement installation package.
- 2.7 **"Delivery Period"** means the period commencing on the date of mailing of the Purchaser's official order to the Supplier and ending on the date when delivery to the site designated for delivery, covered by the purchase order, has been complete.
- 2.8 **"Purchase Order"** means the document prepared by the Contractor and submitted to the Supplier for the purchase and delivery of the equipment described herein within the General Contract.
- 2.9 **"Purchaser"** is the party responsible for the payment of the equipment in conformance with the General Conditions of the General Contract and the payment schedule on the Form of Quotation. The Contractor will be the Purchaser of pre-selected equipment.
- 2.10 **"Equipment Manufacturer's Representative"** means a person employed by the Supplier, who is trained and is experienced in the proper installation, start-up, training and maintenance of the equipment or system to be supplied.
-

2.11 **"Provisional"** means that the Halifax Regional School Board may elect not to purchase the item.

### 3.0 QUOTATION SUBMISSION

3.1 Submit completed quotation for equipment listed in the Form of Quotation in sealed envelope marked as follows:

QUOTATION - HALIFAX REGIONAL SCHOOL BOARD  
SAMBRO ELEMENTARY SCHOOL  
WASTEWATER TREATMENT SYSTEM REPLACEMENT  
QUOTATION #3877

and addressed to: Halifax Regional School Board  
33 Spectacle Lake Drive  
Dartmouth, Nova Scotia, B3B 1X7

Telephone: (902) 464-2000 ext. 2223  
Fax: (902) 464-0161

Attention: Jennifer King, Buyer

and must be delivered to the above address no later than **2:00:00 p.m.**, local time on **Wednesday, February 22nd, 2016.**

3.2 Submit quotations on the Form of Quotation provided. Completely fill out forms. The completed form shall be without interlineation, alterations, or erasures. Signatures must be witnessed.

3.3 No other form of Quotation will be acceptable. The appending of any qualifying clauses to the Quotation or failure to comply with these instructions in the completing of any quotations renders such quotation liable to disqualification. The quotation as originally submitted shall be essentially complete to permit a full analysis without the need for additional information. No supplementary explanation is assumed or intended.

3.4 Quotation shall be valid for acceptance for a period of 120 days from the date set for its delivery to the Consultant.

3.5 The Owner will not defray any expenses whatsoever incurred by Equipment Suppliers in the preparation and submission of their quotations.

### 4.0 QUERIES AND ADDENDA

4.1 Notify the Owner in writing at [jlking@hrsb.ca](mailto:jlking@hrsb.ca) of omissions, errors or ambiguities found in the Quotation Documents. If Consultant considers that correction, explanation or interpretation is necessary, a written addendum will be issued. All addenda will form part of Quotation Documents.

4.2 No oral explanation in regard to the meaning of the quotation documents will be made and no oral instructions will be given before the selection of equipment.



- 4.3 Address technical questions to both the Owner at either [jlking@hrsb.ca](mailto:jlking@hrsb.ca) or (902)464-0161 and Sarah Ensslin, P.Eng., at CBCL Limited, 1489 Hollis Street, Halifax, NS B3J 2R7, telephone: (902) 421-7241, ext. 2238, fax: (902) 423-3938, e-mail: [sensslin@cbcl.ca](mailto:sensslin@cbcl.ca).

## 5.0 PURPOSE AND PROCEDURE

- 5.1 The purpose of receiving quotations in accordance with these documents is to permit examination of a variety of equipment on a comparable basis in order to select the equipment best fulfilling the Owner's requirements.
- 5.2 The Owner is interested in receiving and assessing quotations for alternative systems. Where named products, trade names, technologies or characteristics particular to a specific manufacturer are mentioned, they are so mentioned to clarify the anticipated quality, operating requirements and general physical arrangements of the system.
- 5.3 The procedure, in general, will be as follows:
- .1 Receive and assess quotations for equipment. Request and receive additional information as necessary.
  - .2 Select equipment.
  - .3 Notify Supplier of intent to specify their equipment manufacturer as a sole source.
  - .4 Place order for shop drawings preparation and submittal.
  - .5 Receive, examine, approve and return shop drawings.
  - .6 Complete contract documents, and call Tenders for General Contract.
  - .7 Award a General Contract in which the Contractor becomes the Purchaser of the pre-selected equipment, and who then becomes responsible for payment for the equipment per the Payment Schedule in the Form of Quotation. The Supplier is responsible for the supply, delivery and guarantee of the equipment in accordance with the requirements of this Quotation, the subsequent correspondence, and the General Contract.
  - .8 Contractor places Purchase Order for equipment.
  - .9 The Contractor will carry out or arrange for the installation of the equipment under the terms of the General Contract.
  - .10 Equipment Manufacturer's Representative assists in testing, commissioning of equipment and provides operational training to facility staff.

## 6.0 INFORMATION WITH QUOTATION

- 6.1 Quotations to be accompanied by two (2) copies of the following information:
- .1 Descriptive literature, specifications engineering and operating requirements and data on every item of equipment quoted.
  - .2 Dimensional drawings, plans, details of every item of equipment quoted showing general construction and assembly, principal dimensions, materials of construction, material thickness, and finishes.
  - .3 Description of assembly required at the site including equipment, manpower, and time required.
  - .4 Performance curves or data on the full range of design conditions.
  - .5 Complete materials and parts list included with the equipment quoted, with recommended spare parts lists complete with prices.
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- Provide manufacturer's name and model numbers for equipment components and materials.
- .6 Location of nearest qualified manufacturer's service facility and parts stock to Halifax, NS.
  - .7 Size, number and weight of the shipped packages containing the equipment, and method of shipment.
  - .8 Dimensioned information concerning clear space required around equipment for regular servicing and maintenance.
  - .9 Any additional information as may be identified in the technical specification for any equipment item.
  - .10 Price, delivery and site services information as requested in the Form of Quotation.
  - .11 Detailed and quantitative description of the various items of work required to be performed by the Contractor to install the equipment in the field.
  - .12 List of previous installations and contact persons for the proposed equipment.
  - .13 Description of quality assurance/control program, if applicable, employed by the fabricator for this project.
  - .14 Description of what type and quality of lubricants are required for installation, start-up and permanent operation of the pre-selected equipment.
- 6.2 The Supplier shall provide recommended spare parts within their scope of supply for pre-selected equipment. Include the cost to provide said spare parts as requested in the Form of Quotation.
- 6.3 Submit with the quotation, a written description of the system operation.
- 6.4 The Supplier agrees that submission of the foregoing data constitutes a guarantee that the units proposed conform thereto, and are in accordance with, these specifications.
- 6.5 The Supplier shall fill out a Form of Quotation for each system proposed. Supplier may submit more than one quotation and must complete a Form of Quotation for each proposed equipment component. The Section number specific to the equipment being quoted must be filled out on the Form of Quotation along with identification to allow separate quotations to be differentiated.
- 7.0 PRICES**
- 7.1 Quoted prices to include for delivery to the site of the works. Unloading at the site and equipment storage shall be carried out by the Contractor.
- 7.2 Quoted prices to exclude Harmonized Sales Tax.
- 7.3 The fixed quoted prices shall be in Canadian dollars, and shall include and cover all contingencies and provisional sums; all patents and licensing fees, duties, and handling charges, transportation and all other charges.
- 7.4 The prices contained in quotations shall be fixed and open for acceptance for a period of 120 days after the Closing Date for receipt of quotations. It is anticipated that the project timeline will result in

delivery of equipment in mid 2017. Provided that a written Purchase Order for the equipment is placed by the Contractor within the above-mentioned period of validity of the quotation, there shall be no increase in the quoted price of the equipment.

- 7.5 Notwithstanding that it may be known at the time of submission of a quotation that increased or decreased foreign exchange will become chargeable on the equipment in the near future, only foreign exchange applicable on the closing date for receipt of quotations shall be included by the Supplier in the quoted price. Any increase or decrease in the foreign exchange applicable to the said equipment between the closing date and date of Purchase Order shall result in a corresponding increase or decrease in the price charged by the Supplier save that no change in price shall be made if the net amount of increase or decrease is less than \$500. Any increase or decrease in price shall be claimed by the Supplier through the Owner and debited or credited. The Supplier will state foreign exchange rate used in preparation of the quotation on the Form of Quotation.
- 7.6 The Supplier shall notify the Purchaser and the Consultant promptly of relevant changes in rate of import duty or foreign exchange.
- 7.7 If, in the opinion of the Owner, the net increase in price as a result of any change in the rate of import duty or foreign exchange will be such as to affect the relative standing of the pre-selected equipment in relation to equipment offered by other Suppliers, the Owner may at its discretion, and provided that a written order has not already been placed for the said pre-selected equipment, reject the pre-selected equipment and direct that other equipment be ordered instead.
- 7.8 The Supplier shall submit the quotation on the Form of Quotation without any connection, comparison of figures with, or knowledge of any other corporation, firm or person making a quotation for similar equipment for this project and the proposal shall be in all respects fair and without collusion or fraud.
- 8.0 SHOP DRAWINGS AND PRODUCT INFORMATION MATERIAL**
- 8.1 Within three (3) weeks of the Owner placing an order for the equipment shop drawings, the Supplier shall submit to the Consultant for approval, detailed shop drawings and product information for the equipment to be supplied as noted in the technical specifications.
- 8.2 Provide separate price for supply of certified shop drawings and product information as noted in Form of Quotation.
- 8.3 Submit electronic shop drawings for all items of equipment being supplied and shall be complete in every detail and show clear compliance with the specifications. Electronic copies must be high quality and suitable for reproduction at 8.5" x 11" or 11" x 17" paper size. Submit original information in lieu of scanned copies. Illegible or low quality shop drawings will be rejected. The Consultant will return an electronic copy of mark-ups with shop drawing stamp.
- 8.4 The Consultant will review and mark comments as required on a single scanned electronic copy of the material and return them to the Supplier
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- indicating "no apparent errors", "apparent error noted", "rejected - see remarks", or "revise and resubmit". Review of Supplier's shop drawings by the Consultant shall not relieve the Supplier of the responsibility for the correctness thereof nor for the results arising from any error or omission in details of the design. Resubmit all drawings marked "rejected - see remarks" or "revise and resubmit".
- 8.5 Review of shop drawings and acceptance of the equipment shall in any case be subject to final approval of the equipment and materials after they have been commissioned, all guarantees being fulfilled and the general operation of the equipment and materials having been found satisfactory by the Consultant.
- 8.6 After the drawings, information and material have been reviewed by the Consultant, no change shall be made in them without the Consultant's written permission. In the event of any alterations or changes being authorized, a single electronic file of each of the final drawings and specifications indicating these changes shall be immediately furnished at the Supplier's expense.
- 8.7 The Owner will not accept responsibility for cost of changes necessary if any equipment is fabricated without prior review of shop drawings. Review of shop drawings does not relieve the Supplier of responsibility to meet the requirements of the specifications.
- 8.8 The Supplier shall not ship for delivery any equipment to the job site until suitable reviewed shop drawings have been released by the Consultant, until required factory testing is completed and until the installing Contractor has requested shipment.
- 8.9 Material and drawing information to include:
- .1 Dimensional outlines, sections and detail of all equipment, anchor bolt location plan, size of recommended concrete equipment pad and required clearances.
  - .2 General assembly drawing with weights, service requirements, points of connection, flush water flow requirements, recommended clearances, and complete parts list.
  - .3 Information concerning any proprietary components outsourced and fitted, such as electric motors and other electrical devices, drive mechanisms, valves, controls and the like.
  - .4 Control panel or junction box layout drawing including block wiring diagram and Bill of Materials. Provide complete wiring and field interconnection drawings.
  - .5 Detailed instruction for the erection of equipment.
  - .6 Recommended spare parts.
  - .7 Detailed information on equipment lubricants.
- 8.10 The Supplier shall provide recommended spare parts within their scope of supply for pre-selected equipment. The cost to provide said spare parts shall be included in the price quoted in the Form of Quotation for pre-selected equipment.
- 8.11 The Supplier shall confirm what type and quantity of lubricants are required for the installation, startup and permanent operation of the pre-selected equipment. The installing Contractor will be responsible for supplying and installing such lubricants.
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## **9.0 OPERATIONS AND MAINTENANCE MANUALS**

- 9.1 The Supplier shall furnish operations and maintenance manuals containing information or specifying instructions for the following:
- .1 reviewed shop drawings;
  - .2 receiving, handling, storage;
  - .3 installation, alignment checks;
  - .4 electrical connections;
  - .5 instrumentation requirements;
  - .6 operation;
  - .7 servicing and maintenance procedures;
  - .8 relevant drawings;
  - .9 detailed spare parts list complete with current price list;
  - .10 safety instructions; and
  - .11 tests and Supplier inspection procedures.
- 9.2 A complete copy of the operations, installation, and maintenance information shall be provided in pdf file format on a clearly labelled CD. Provide three (3) copies of the CD.
- 9.3 Provide material not later than the date when installation of equipment will commence. Include cost of providing this material in quoted price for supply of equipment.

## **10.0 INSPECTION AT FACTORY/TOUR OF OPERATIONAL FACILITY**

- 10.1 The Consultant or Owner may, before or after pre-selection of equipment has been made, inspect the manufacturing, assembling and testing facilities at the Supplier's factory or at the factory of a proposed sub-supplier of the Supplier, and be satisfied of the capability and facilities to manufacture and test the required equipment.
- 10.2 The Consultant or Owner may inspect the equipment or the process of manufacture or testing of the equipment at the Supplier's factory or at the factory of a sub-supplier of the Supplier at any reasonable time. The Consultant may notify the Supplier at any time of unsatisfactory materials, workmanship or processes.
- 10.3 The Supplier shall provide every reasonable facility, access and co-operation to assist the Consultant in carrying out inspection or testing at the factory or plant.
- 10.4 Alternatively, the Consultant may request inspection of an operational facility.
- 10.5 The Supplier is to provide a provisional cost for a tour of a factory/operational facility for up to three (3) individuals.
- 10.6 Shop tests shall not constitute a waiver of requirements to meet actual field operating conditions or relieve the Supplier of their responsibility.

## **11.0 TESTING**

- 11.1 Where witnessed testing at the factory is specified, the Supplier shall give the Consultant reasonable written notice, with copies to the Owner
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of the date when the equipment will be ready for such testing. Equipment is not to be delivered to the Site until such testing has been completed satisfactory, as specified.

- 11.2 Where certified factory testing of the equipment or any component part thereof is specified, the Supplier shall furnish copies of the required certified test reports, showing that the equipment complies with the specifications, to the Consultant and the Owner before the equipment is delivered to Site.

## **12.0 DELIVERY, STORAGE AND HANDLING**

- 12.1 Ship all equipment completely assembled where possible. Ship large fabricated assemblies in sub-assemblies as large as practical from the point of view of moving them into and about the structures, and piece-marked to facilitate field erection.
- 12.2 The Supplier shall cooperate with the Contractor in the matter of packaging, time of delivery and shipping.
- 12.3 The Supplier shall quote a guaranteed delivery period from the date of the purchase order for each item of equipment for which a quotation is submitted.
- 12.4 The quoted delivery period shall allow for:
- .1 The time required by the Purchaser's official order to reach the Supplier by mail.
  - .2 A three (3) week period for Supplier to submit shop drawings.
  - .3 A four (4) week period for Consultant to review and comment on the Supplier's shop drawings for the equipment to be supplied.
  - .4 The Supplier will be entitled to an extension of the quoted delivery period on account of the following:
    - .1 The Consultant taking more than four (4) weeks to review and return to the Supplier the Supplier's shop drawings, provided that the excess time involved was not due to the shop drawings containing errors or omissions or not complying with the requirements of the specifications.
    - .2 Delay attributable to acts of God or other matters which were not the fault of the Supplier and over which the Supplier had no control provided that the Supplier or manufacturer took all possible action to reduce delays and notified the Owner promptly of the occurrence of such delays.
  - .5 Delivery of anchor bolts and parts to be embedded which are required in advance of taking delivery of equipment shall be made when required by the Purchaser.
- 12.5 The equipment and appurtenances shall be delivered to the Site of the work in a condition satisfactory to the Consultant and the Owner and any omissions, discrepancies or damage evident on delivery shall be made good by the Supplier.
- 12.6 The Contractor at the Site shall sign the carrier's pro bill to indicate receipt of the required number of crates, packages, and shall note any apparent shortages of or visible damage to such crates and packages. The Supplier shall furnish to the Contractor lists showing the contents of the crates and packages available at the job site when delivery of the
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equipment and appurtenances is made. Within seven (7) days after the date of delivery to the job site, the Contractor will notify the Supplier in writing of shortages or damage in the equipment delivered.

### **13.0 SERVICES REQUIRED AT SITE**

- 13.1 The Supplier shall supply the services of a competent, factory-trained technical representative for the minimum period specified in the technical specification, at no additional cost to the Contract, to commission the equipment. Additional commissioning service shall be at the quoted price per day as outlined in the Form of Quotation.
- 13.2 The technical representative shall provide the services stated in the relevant technical sections and shall operate and demonstrate the equipment to the Owner's operating and maintenance staff.
- 13.3 The Supplier shall provide to the Consultant, a letter or certificate stating that the qualified representative has found the installation to be in accordance with the manufacturer's requirements.

### **14.0 EVALUATION OF QUOTATIONS**

- 14.1 Quotations will be evaluated based on durability and reliability of equipment construction, information submitted with the quotation, control methodology, infrastructure requirements, capital and installation cost, operating and maintenance cost, performance records and references, Canadian and local content, and other factors, which may affect the overall cost and performance of the final product.

### **15.0 NOTIFYING RESULTS**

- 15.1 When the selection of equipment has been made, the Consultant will send to each of the Suppliers who submitted a valid quotation, a letter notifying them of the outcome of the selection process. Detail pricing and proposal information of the selected equipment will not be made available to non-successful suppliers.

### **16.0 AMENDMENT OR WITHDRAWAL OF QUOTATION**

- 16.1 Quotations may be amended or withdrawn prior to the closing date by sending amendment via fax: (902) 464-0161 or e-mail: [jlking@hrrsb.ca](mailto:jlking@hrrsb.ca)
- 16.2 Head amendment or withdrawal as follows: "Amendment/Withdrawal of Quotation for Equipment, Halifax Regional School Board, Sambro Elementary School Wastewater Treatment System Replacement, Quotation for Equipment, Quotation #3877". Sign and seal as required for Quotation, and submit at address given for receipt of quotations prior to time of closing.
- 16.3 It is recommended that the intention to submit an amendment to the Quotation be conveyed to the Purchasing Manager prior to making the submission.
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16.4 An amendment of Quotation shall show the amount to be added to or subtracted from the bid price for items.

#### **17.0 INFORMAL OR UNBALANCED QUOTATION**

17.1 Quotations, which in the opinion of the Owner are considered to be informal or unbalanced, may be rejected.

#### **18.0 RIGHT TO ACCEPT OR REJECT ANY QUOTATION**

18.1 The Owner will select a Supplier based on the total technical, delivery, warranty and commercial content of the tender packages. The low quotation will not necessarily be selected by the Owner. The Owner reserves the right to reject any or all Quotations.

18.2 A quotation is binding and irrevocable on the Supplier(s) submitting the quotation until such time as he/she receives formal notification by mail or e-mail of the acceptance or rejection of his/her requires of proposal.

18.3 The Owner reserves the right, in the event that the successful Supplier fails to comply with the conditions as listed, to cancel any agreement in place regarding this proposal and award it to another Supplier without penalty or action against the Owner.

#### **19.0 PROPRIETARY INFORMATION**

19.1 The Owner may reproduce any of the Supplier's quotation and supporting documents for internal use or for any other purposes required by law.

19.2 If the Supplier includes proprietary information in the quotation response, it must be marked as such. The Owner will take all reasonable steps to prevent disclosure of this information, prior to the award of the contract, however, please be advised that the successful proposal may be disclosed and treated as a public document at a regular meeting of the Board, if required.

19.3 Information about the Owner obtained by a Supplier through this quotation process must not be disclosed unless authorized by the Owner. It is agreed that this obligation of confidentiality will survive to the termination of the request for quotation process and any contract that might arise between the parties.

19.4 This Quotation document is the property of the Owner and is not to be copied or distributed without the prior written approval of the Owner.

#### **20.0 GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT**

20.1 The General Conditions of the Construction Contract will be based on CCDC 2 - 2008 Stipulated Price Contract published by Canadian Construction Document Committee. The Supplier should review the CCDC 2 - 2008 prior to the Closing date.

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- 20.2 The General Conditions of the Construction Contract will be amended with Supplementary General Conditions. A copy of Supplementary General Conditions typically used by the Owner is appended to this Quotation Document as Appendix A. The Supplier should review this Supplementary General Conditions section prior to Closing date.
- 20.3 The General Conditions of the Construction Contract and its Supplementary General Conditions, which will be part of the Contract between the Owner and the Contractor, will govern the relationship between the Contractor and the Supplier.
- 20.4 If differences arise between the CCDC 2 - 2008 and the actual General Conditions for the executed Construction Contract between the Owner and the Contractor and if these differences result in an increase or decrease in the price charged by the Supplier or the delivery of the equipment, then the Supplier shall notify the Contractor and the Consultant promptly. Any change in price or delivery shall be claimed by the Supplier through the Contractor. If, in the opinion of the Owner, the price or delivery change will be such as to affect the relative standing of the pre-selected equipment in relation to equipment offered by other Suppliers, the Owner may at its discretion, and provided that a written order has not already been placed for the said pre-selected equipment, reject the pre-selected equipment and direct that other equipment will be ordered instead.

## **21.0 GEOTECHNICAL INFORMATION**

- 21.1 A Geotechnical investigation has been carried out for the Site. Geotechnical Report titled "Geotechnical Investigation - Proposed Wastewater Treatment Plant Sambro Elementary School, Sambro, NS" dated July 14, 2016 by Conquest Engineering is available for viewing at the offices of the Consultant upon request. Any interpretation or extrapolation of its contents are at sole discretion of the Supplier and the Consultant will not be held liable from such interpretations and extrapolations.

**1.0 SALUTATION**

1.1 To: Halifax Regional School Board  
33 Spectacle Lake Drive  
Dartmouth, Nova Scotia  
Canada B3B 1X7

Attention: Jennifer King, Buyer

1.2 For: Halifax Regional School Board  
Sambro Elementary School  
Wastewater Treatment System Replacement  
Quotation #3877

1.3 From: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**2.0 DECLARATION**

We, the undersigned Supplier, having carefully examined the Quotation Documents in respect to quotations for the equipment listed in the Form of Quotation, and Specifications herewith submit in accordance with the terms set out in the documents our quotation for the specified equipment.

We agree that, in case of any conflict between the terms and conditions set out in our accompanying quotation and the terms and conditions set out in the quotation documents, the provisions of the quotation documents shall take precedence and shall govern.

We declare that our quotation for the equipment is made without any connection, comparison of figures, or arrangements with or knowledge of any other corporation, firm or person making a quotation for similar equipment for this project and is in all respects fair, without collusion or fraud.

We undertake to keep our quotation valid and open for acceptance for a period of 120 days after the closing date for submission of quotations, and to make the equipment quoted on hereunder, or any item thereof available for sale to the Owner during the said period at the price and delivery stated herein.

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**3.0 DESCRIPTION OF EQUIPMENT AND EXPERIENCE**

3.1 Particulars of Equipment Suppliers Recent Installations

(1) Owner: \_\_\_\_\_  
Owner Representative (Contact Name): \_\_\_\_\_  
Phone No.: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Date: \_\_\_\_\_  
Approx. Value: \$ \_\_\_\_\_

(2) Owner: \_\_\_\_\_  
Owner Representative (Contact Name): \_\_\_\_\_  
Phone No.: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Date: \_\_\_\_\_  
Approx. Value: \$ \_\_\_\_\_

(3) Owner: \_\_\_\_\_  
Owner Representative (Contact Name): \_\_\_\_\_  
Phone No.: \_\_\_\_\_  
Brief Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Date: \_\_\_\_\_  
Approx. Value: \$ \_\_\_\_\_

3.2 Description of Equipment Including Local Content and/or Local Manufacturing if Applicable.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### 4.0 QUOTATION BREAKDOWN

The prices quoted shall be in Canadian dollars and shall include and cover all provisional sums; all duties, and handling charges, transportation to the Site and all other contingencies. Prices exclude Harmonized Sales Tax.

4.1 Name of Firm Quoting \_\_\_\_\_

Section No. \_\_\_\_\_

Section Title \_\_\_\_\_

Name of System \_\_\_\_\_

- .1 Preparation and submission of all Required shop drawings and product Information: \$ \_\_\_\_\_
- .2 Equipment Price complete as specified (excluding cost of shop drawings): \$ \_\_\_\_\_
  - (a) Duty chargeable at closing included above: \$ \_\_\_\_\_
  - (b) Foreign Exchange Rate Applicable at closing included above: \$ \_\_\_\_\_
- .3 Price for recommended spare parts. Provide separate list with your Submission (Provisional): \$ \_\_\_\_\_
- .4 Price for tour of factory/operational facilities (Provisional): \$ \_\_\_\_\_
- .5 Delivery Period: \_\_\_\_\_ weeks
- .6 Inspection of Installation, field Testing and maintenance instruction, Including travelling and other expenses for each 8 hour day in excess of that specified: \$ \_\_\_\_\_ per day

#### 5.0 PAYMENT SCHEDULE

5.1 Payment for equipment will be through the successful Contractor and claimed by way of submission of approved progress claims.

5.2 Equipment payment will be allowed for at the following milestones during the execution of the General Contract:

- .1 20% due upon the issuance of approved shop drawings.
- .2 50% due upon delivery of equipment to the construction site.
- .3 20% due upon installation of equipment into the works of the treatment plant.

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Halifax Regional School Board  
Sambro Elementary School  
Wastewater Treatment  
System Replacement  
Quotation #3877

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Form of  
Quotation

Section 00 41 01  
Page 4

February 2017

---

.4 10% due upon successful completion of trial testing,  
commissioning and operator training.

---

Signature of Supplier

---

Name and Title (Printed)

**6.0 SIGNATURE**

DATED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Name of Firm Quoting

[Seal]

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Address

\_\_\_\_\_  
Fax

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title (Printed)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title (Printed)

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Name and Title (Printed)

\*NOTE: Quotations submitted by or on behalf of any Corporation must be signed in the name of such corporation by a duly authorized officer or agent, who shall also subscribe own name and office. Affix seal.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for supplying precast concrete process tanks. Work includes supplying and transporting precast concrete sections, risers, all appurtenances metal castings and testing.
- 1.2 RELATED WORK .1 Packaged Wastewater Treatment Equipment: Section 44 42 11.
- 1.3 REFERENCES .1 ASTM D698-2012, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>2</sup> (600 kN-m/m<sup>2</sup>)).
- .2 CAN/CSA B66-2010, Design, Material and Manufacturer Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks.
- .3 CSA A23.4-09(R2014), Precast Concrete, Materials and Construction.
- 1.4 SHOP DRAWINGS .1 Submit shop drawings in accordance with Section 00 21 14.
- .2 Submit manufacturer's test data and certification that materials meet requirements of this section. Include manufacturer's drawings, information, size of components, dimensions and details where pertinent.
- 1.5 HANDLING AND STORAGE .1 Prevent damage to materials during storage and handling.
- .2 Store gaskets in cool location out of direct sunlight, and away from petroleum products.
-

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Septic Tanks:
  - .1 To CAN/CSA B66.
  - .2 Joints: watertight using butyl rope or equivalent.
  - .3 Septic Tank: 15,900L capacity with three (3) risers to surface, complete with riser adapters as required.
  - .4 Recirculation Tank (if required): 4750L capacity with three (3) risers to surface (complete with riser adapters as required, without a partition.
- .2 Acceptable Products: Shaw, Stresscon, Campbell's or approved equivalent.

PART 3 - EXECUTION

3.1 DELIVERY

- .1 Coordinate delivery to the Site with the Consultant and the installing Contractor.
- .2 Inspect, jointly with the Consultant and the installing Contractor, the precast structures upon arrival to the Site. Repair or replace any damaged units at no additional expense to the Contract.

3.2 INSTALLATION

- .1 Installation will be done by others.



PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This Section specifies requirements for supplying the recirculating textile filter packaged wastewater treatment equipment to suit the Site constraints and as specified. This includes commissioning and confirming the installation. Coordinate the delivery of the equipment with the Consultant and the installing Contractor.

1.2 REFERENCES

- .1 ASTM A123-2015, Standard Specification for Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM D698-2012E1, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m<sup>3</sup>).
- .3 ASTM D1785-2015, Standard Specification for PolyVinyl Chloride Plastic Pipe.
- .4 ASTM D3034-2016, Standard Specification for Type PSM PolyVinyl Chloride Sewer Pipe and Fittings.
- .5 ASTM D2321-2014A, Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

1.3 DESIGN  
PARAMETERS

- .1 Site power supply available: 120V single phase or 208V three phase (preferred). Site currently has 30A capacity and up to 60A is available.
- .2 Sewer invert elevation and outfall elevation is shown on Drawing SK-01, which included herein as an attachment to this section.
- .3 Area of Site available is shown on Drawing SK-01. All equipment must fit inside this area and must be accessible, operable and maintainable with a chain link fence installed on the perimeter of this area.
-

- .4 Average design wastewater flow: 2.5 m<sup>3</sup>/d (650 USgpd).
- .5 Peak wastewater flow = 5 m<sup>3</sup>/d (1300 USgpd).
- .6 Waste Type: typical school wastewater with septic tank.
- .7 Influent BOD: approx. 300mg/L
- .8 Effluent to be discharged to existing marine outfall, with the following effluent objective:
  - .1 BOD: 20 mg/L.
  - .2 TSS: 20 mg/L.
  - .3 E.Coli: 200 count/100mL
  - .4 pH: 6.5-9.

1.4 SUBMITTALS

- .1 Submit in accordance with Section 00 21 14.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for all equipment and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit shop drawings including:
    - .1 Design calculations for items designed by manufacturer.
    - .2 Finishing schedules.
    - .3 Methods of handling and erection.
    - .4 Storage facilities.
    - .5 Openings, sleeves, inserts and related reinforcement.

1.5 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions. Coordinate delivery with the Consultant and the installing Contractor.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address, unload, store and protect on-site.

- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect Equipment from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## PART 2 - PRODUCTS

### 2.1 METALS

- .1 Stainless steel: Type 316.
- .2 Steel: to CSA G40.21, 300W.
- .3 Galvanizing: non-stainless steel metal components to be galvanized by hot-dip method with minimum zinc coating of 600 g./m<sup>2</sup> conforming to ASTM A123.

### 2.2 TREATMENT UNITS

- .1 Treatment units: prefabricated package treatment system to treat wastewater as defined in subsection 1.3 above.
  - .2 Provide treatment unit(s) complete with FRP enclosure, concrete utility vault or shed as required and have access covers to allow for visual inspection of entire media surface. Secure the access covers to the unit(s) with stainless steel fasteners.
  - .3 Media to be synthetic type. Spray nozzles must be removable. Inlet piping to have a ball valve and pressure gauge connection for use in setting inlet pressure. Provide an active ventilation system complete with heater and carbon filter. Provide three (3) replacement carbon filters, or bulk carbon as appropriate for three (3) replacements of carbon media.
  - .4 Acceptable manufacturers: Orenco, Waterloo Biofilter, Quanics.
-

2.3 RECIRCULATING AND  
DISCHARGE PUMP SYSTEMS

- .1 Pumping System: Packages which do not require effluent discharge pumps are preferred.
  - .1 Submersible effluent duplex pumps for recirculation and if required, discharge: max. 1/2 Hp, to suit site electrical supply, and rated for a minimum 300 on/off cycles per day.
  - .2 Pumps housed in filtered pump vault if recommended by the manufacturer. Refer to subsection 2.4 herein.
- .2 Pump discharge assemblies to be suitable for operation in winter conditions. Provide barbed fitting and tubing to direct drain back flow into tank. Make connections to the pump discharge and the pressure sewer with PVC Schedule 40 unions. Provide the configuration such that the pumps may easily be removed.
- .3 Pump Power Cable: factory fitted with 6m power cable.
- .4 Pump to have built-in thermal overload protection and current sensors in the control panel.
- .5 Pumps to be UL and CSA listed as an effluent pump and be provided with a non-prorated, five year warranty.

2.4 EFFLUENT FILTERS

- .1 Supply septic tank effluent filter and, if recommended, pump vault filter complete with handle and rail mounted to allow easy removal from finished grade, including all accessories and apparatus.
  - .2 Filter must be capable of removing all solids greater than 3mm in size at designed flow conditions. Size filter to allow for removal by one person once a year for cleaning.
  - .3 Locate filter inlet holes at 50% of liquid depth.
  - .4 Provide float switch to detect high liquid level indicating dirty filter and give high level alarm signal.
-

2.5 ACCESS RISERS  
WITH ACCESS LIDS

- .1 Risers: ribbed PVC or HDPE to CSA B182.4. Allow for 1.2m length (to be confirmed on shop drawings) and a 750mm diameter, unless otherwise recommended by the manufacturer. Provide complete with bolt-down access lids.
  - .1 Supply three (3) risers for septic tank, three (3) risers for recirculation tank (if required) for treatment unit(s) as recommended by the manufacturer, one (1) for flow meter and one (1) for UV system.
- .2 Access lids: constructed of fibreglass, or reinforced polyester, or PVC. Provide a gasketed watertight fit on the top of the riser and at connection to tank, and provide four (4) stainless steel bolts to secure each lid as well as 50mm insulation fastened with stainless steel fasteners.
- .3 Where piping penetrates the access risers, seal the penetration using grommets of a diameter equivalent to that of the pipe.
- .4 Acceptable Products: Orenco Systems Inc., Quanics, Polylok, Soleno, or approved equivalent.

2.6 FLOAT SWITCHES

- .1 Provide one (1) float switch to signal high level alarm in septic tank, and four (4) float switches in recirculation tank to control pumps (off, on/off, override, high level alarm).
- .2 Mechanical type with small drawdown
- .3 Supply float switches with 6m cables, intrinsically safe.
- .4 Floats may be mounted as single assembly on float stem with float collars, or top mounted.
- .5 One (1) SPDT contact, rated for at least 5 amps at 120 VAC (continuous use).

2.7 RECIRCULATION  
SPLITTER VALVE

- .1 Provide splitter valve if required. Valve to be corrosion resistant. Provide Schedule 40 PVC unions and couplings to match treatment

system effluent piping. Valve to direct all flow to recirculation tank at low flows and discharge 20% to effluent at high flows.

## 2.8 VALVES

- .1 Ball Valves: PVC body with EPDM seals and PTFE seats. True union design rated at 150 psi.
- .2 Ball Check Valves: PVC body with EPDM seals. True union design rated at 150 psi, but operable at low head (3-30 ft).
- .3 Gate valves: high impact PVC type II body with polypropylene paddle and non-rising stem.

## 2.9 FLOW INSTRUMENTS

- .1 Magnetic flow meter as specified below.
  - .1 Flow tube must be hard rubber of the "formed" type, complete with SS grid backing. Flow tube diameter to suit typical effluent flow rate.
  - .2 Minimum 316 SS, self-cleaning electrodes.
  - .3 Supply grounding hardware in accordance to manufacturer's recommendations.
  - .4 Provide flow tube to be complete with remote flow transmitter.
  - .5 Flow tube to have a minimum enclosure rating of NEMA 6P. Flow transmitter to have a minimum NEMA 4X rated enclosure.
  - .6 Flow transmitter to be programmable locally using keypad via simple menu-driven software, and to be complete with integral display showing flow rate with engineering units, and totalized flow.
  - .7 Online diagnostics of flow sensor and electronics, including process checks, linearity and calibration checks. Operator alarm notification via transmitter display, relay outputs, and output signal (4-20 mA upscale/downscale manipulation).
  - .8 4-20 mA output of flow rate, self-powered, isolated. Frequency pulse output (dry contact) for flow totalization.
  - .9 Minimum system flow accuracy to  $\pm 0.5\%$  of reading.
  - .10 Have adjustable damping ability.
  - .11 An adjustable low flow cutoff.
  - .12 Transmitter language to be English.
  - .13 Flow instrument to be enclosed in a 760mm

diameter access riser with cover. The riser and lid combination must be watertight, secured with four (4) stainless steel bolts and have 50mm of rigid closed-cell insulation mechanically fastened with corrosion-resistant fasteners to lid.

.14 Acceptable manufacturers: ABB, Siemens, Foxboro, Krohne, Rosemount, or approved equivalent. Inclusion in this list does not exempt the requirement that any proposed model must be compliant with the above equipment specifications.

2.10 TREATMENT  
SYSTEM CONTROL  
PANEL

.1 Provide RTF system controls in an insulated stainless steel NEMA 4X enclosure suitable for post-mounting outdoors. Power supply is to match design parameters in subsection 1.3 herein, provided by others.

- .2 Control panel to be assembled as follows:
- .1 Panel to have inner swing door, through which the HMI, Reset buttons, data port, GFI receptacle and door disconnect are mounted.
  - .2 Enclosure to contain a main fuse type disconnect, motor starters, primary and secondary fused control transformers, microprocessor, anti-condensation heater, GFI receptacle, and all associated control components. Provide module for internet connection to School.
  - .3 Panel to have HAND/OFF/AUTO selector switch for each pump. In AUTO, start/enable command initiated from microprocessor.
  - .4 The control panel microprocessor and I/O cards must have the ability to communicate via an Ethernet communications network or serial communications with Modbus RTU protocol. Include surge and lightning protection for the processor and field I/O power supplies. Provide I/O cards. Adequate digital and analog I/O for this process plus 25% spare for each I/O type (provide a minimum of 4 spare for each I/O type). Wire I/O to an identified field wiring terminal strip.
    - .1 Provide the Owner with the latest electronic copy of the PLC logic.
    - .5 Control panel to contain a panel-mounted local operator interface to facilitate local
-

control (start/stop, set point adjustments, etc.), monitoring (equipment and process status), and troubleshooting (alarms, diagnostics, etc.) of the RTF treatment system equipment and controls. Interface to be accessible by operator without opening inner swing door.

.6 Recirculation System Control:

.1 Control panel microprocessor to control the timed and intermittent filter dosing and recirculation of effluent through the treatment units by activating the recirculation pumps in response to a timer and level control float inputs. Recirculation will be accomplished by pumping in an alternating duplex fashion on a timer with off, on, override, and high level alarm control floats. All timer functions must be capable of automatic trending and adjustment by the panel or manual operation and adjustment by the operator.

.2 UV alarm to be monitored and displayed on the HMI.

.3 Panel to monitor flow meter output, summarizing and data logging daily totalized flow while also displaying real-time or frequently updated flow readings on the system's HMI.

.7 Vendor to provide all system control and operator interface programming.

.8 All components must be NEMA design as manufactured by Square D or Allen Bradley, including door mounted pilot devices. Include motor current monitoring. All components must be CSA approved.

.9 Provide a main, heavy duty, fused disconnect switch for disconnection of power to the main control panel. Disconnect switch to be a quick-make, quick-break type of ampere rating and number of poles to match the load requirements of the control panel. Fuse holders must be suitable without adapters for the size and type of fuse installed. The disconnect switch must be operable from either the front or side without opening the enclosure inner door and there must be provision for padlocking the disconnect switch

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in the off position by a minimum of three padlocks. Disconnect switch to have a defeatable door interlock to prevent the inner door from opening when the operating handle is on.

.10 Motor starters to be single phase magnetic starters, sized in accordance with manufacturer's instructions for the motor being controlled. Motor starters must be NEMA design. IEC equipment or half size motor starters are not acceptable. Motor starters to have a 120V, 60 Hz operating coil and have a minimum of one (1) spare normally open and one (1) spare normally closed run contact. Overload relays must be solid state with visible trip indication, adjustable overload protection, phase loss protection and ground fault protection. Re-settable without opening the inner door.

.11 Control transformers must have primary and secondary fuses. Transformer VA rating shall have 50% extra capacity in excess of the total operating requirements. Secondary fuses shall be HRC, Class CC. Primary fuses to be HRC, class J.

.12 Power fuses must be high rupturing capacity (HRC) type, minimum 200 kA interrupting rating (momentary RMS symmetrical). Use Class J, fast acting type for the main disconnect switch and for non-motor load circuits. Use Class J, time delay type (capable of carrying 500% of its rated current for 10 seconds minimum) for motor loads.

.13 Provide Phoenix UK5N or equal field wiring terminal strips. Colour code and identify all interwiring at both ends.

.14 Provide black and white phenolic name tags for inner door mounted devices.

.15 Provide recommended spare parts.

.16 Operator interface shall include the following as a minimum:

.1 Messages with multi-character display.

.2 Interface to display switches, timers, counter, lights, and alarm indication.

.2 Clearance of all microprocessor faults without use of external

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programmer.

.3 Display flow rate and daily totalized flow.

.4 Display system status parameters including but not limited to alarm status and history, pump status, float status, pump run times, pump cycle counts, average recirculation flow, discharge flow, daily average pump amp draw and UV status alarm.

.5 Log system parameters and operational data for one (1) year, and allow operator to download data using data port mounted through inner door, in readily accessible file format.

.6 Display motor run time in hours and pump start counters for all unit motors. Hour and start counter shall be pass-code non-resettable.

.7 Pump timer settings for normal and override conditions to be fully adjustable by operator and also automatically adjustable based on flow trending.

.8 Display specific alarm condition in words to facilitate troubleshooting.

.9 Alarm silence and alarm reset pushbuttons.

.10 Programming with security pass-code.

.17 Control panel functions and displays must be remotely accessible to allow operator to operate plant through Ethernet connection to internet.

.1 All data must be viewable and all adjustable parameters must be adjustable through remote, password-secured connection.

.2 Alarms must be automatically called out to operator.

.3 No proprietary computer software needed for remote monitoring and control.

.18 Submit with the quotation, a written description of the system operation.

.19 Provide shop drawings that include a dimensional drawing of the outer and inner door, a single line diagram and a complete set of component shop drawings.

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PART 3 - EXECUTION

3.1 GENERAL INSTALLATION.1  
ASSISTANCE

- .1 Handle and install equipment in strict accordance with manufacturer's instructions. Issue instructions at time of shop drawing issue and make available on site when required.
- .2 Provide concrete equipment attachments as required by the equipment and as shown on the Drawings.
- .3 Provide small connecting pipework, fittings and valves whether shown on the Drawings or not but required for proper functioning and servicing of the equipment. Do work in accordance with the manufacturer's instructions at no additional cost to the Contract. Where pipe is connected to equipment, fit pipe in a manner such that neither pipe nor equipment is strained during the joining procedure.

3.2 LUBRICATION

- .1 Provide complete initial lubrication of all equipment in accordance with the equipment manufacturer's recommendations.

3.3 RESPONSIBILITY  
OF TEMPORARY TRIAL  
USAGE

- .1 Obtain written permission from the Consultant to use and test permanent equipment and systems prior to acceptance by the Consultant.
  - .2 The guarantee period must not be affected by temporary trial use of the equipment.
  - .3 Clean and renew equipment and systems used before acceptance. Restore to original or new working condition.
  - .4 Protect equipment and systems openings from dirt, dust and other foreign materials during temporary usage.
-

3.4 INSPECTION,  
TESTING AND  
START-UP

- .1 Assist the installing Contractor by providing the services of competent servicemen, mechanics or other trained personnel of the equipment supplier's or manufacturer's to check the complete installation and be present for start-up of the equipment. Submit a written report signed by the equipment manufacturer's representative to the Consultant stating the following:
  - .1 That a satisfactory installation of equipment has been performed and outlining any modifications that have been made as a result of the commissioning or testing of the equipment at no additional cost to the Contract.
  - .2 That the equipment is now ready for permanent operation;
  - .3 Test installed equipment with actual plant operation to verify hydraulic balancing, head loss and effluent quality. Sampling to demonstrate effluent quality shall be performed 4-6 weeks after initial commissioning. Make adjustments required to place equipment into operation and to optimize the treated water quality.
- .2 The equipment manufacturer's representative will fully instruct the permanent operator of the equipment in the proper operation and maintenance of all equipment at no additional cost to the Contract.
- .3 Advise in writing at least one (1) week in advance of the proposed date for testing and start-up. Conduct all tests in the presence of the Consultant.
- .4 Replace defective material or equipment with new material or equipment. Bear costs including re-testing and repairing.
- .5 A minimum period of four (4) days on site for skilled supervision and instruction and a minimum of two (2) trips to the site should be assumed by the equipment manufacturer. Provide as many trips and days on site to complete the installation and put the equipment into satisfactory operation, including time at site required to inspect the progress of the

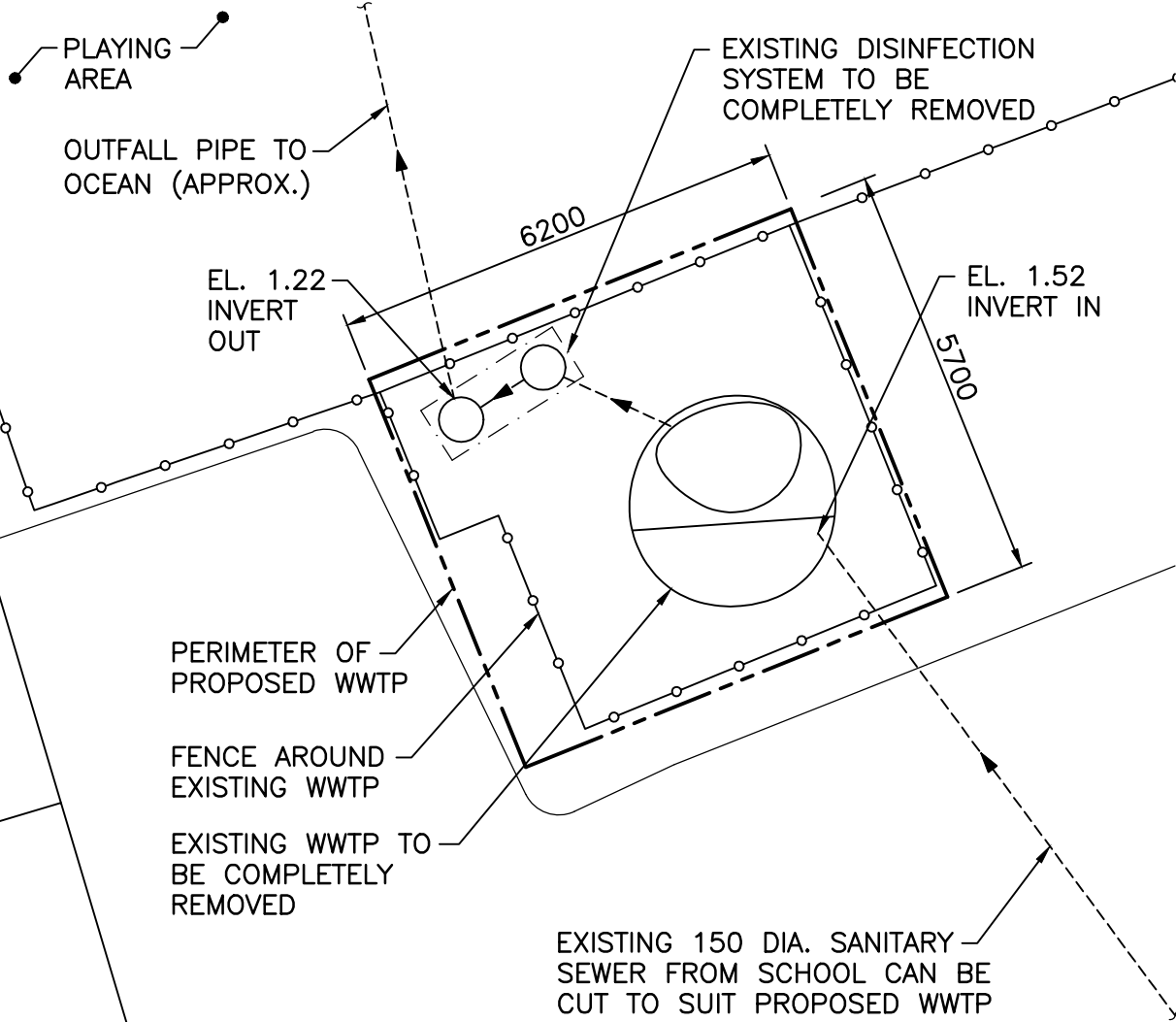
construction works as it pertains to said equipment.

.6 Provide training and demonstration of the equipment to the facility's maintenance staff.

3.5 IDENTIFICATION

.1 Locate manufacturer's nameplates so that they are easily read. Do not paint over plates.

DRAWING\_NAME: K:\PROJECTS\160818.02 HRSB-DESIGN AND TENDER SAMBRO ELEMENTARY\20 CAD\01 CIVIL\160818.02-SK01.DWG LAYOUT\_NAME: SK01 PLOT\_DATE: August-10-16 4:17:02 PM CAD\_OPERATOR: MALLISON



**NOTES:**

1. SITE POWER SUPPLY AVAILABLE: 208 VAC 3 PHASE (PREFERRED) OR 120 VAC 1 PHASE. SITE POWER CAPACITY 30 AMPS BUT COULD BE UPGRADED TO 60 AMPS IF REQUIRED.
2. REQUIRED TREATMENT PLANT PACKAGE IS DESCRIBED IN THE REQUEST FOR QUOTATIONS "SAMBRO ELEMENTARY SCHOOL WASTEWATER TREATMENT SYSTEM REPLACEMENT 160818.02Q".

Date AUG 2016	Scale 1:100	Designed SHE	Drawn MAA	Checked -	Approved -	CBCL No. 160818.02	Contract -
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SAMBRO ELEMENTARY SCHOOL  
WASTEWATER TREATMENT SYSTEM REPLACEMENT

Sketch

PROPOSED SITE LAYOUT

**SK01**

**APPENDIX A**

**HRSB SUPPLEMENTARY GENERAL CONDITIONS TO  
CCDC 2 - 2008:**

### CCDC2 – 2008 – Supplementary General Conditions

The Canadian Standard Construction Document for Stipulated Price Contract (CCDC 2, 2008 version), Definitions and General Conditions governing same, shall be used by the project. The following Supplementary General Conditions are intended to supplement or amend the General Conditions, and where conflicts occur, the Supplementary Conditions shall take precedence.

Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

#### ARTICLE A-5 PAYMENT

Delete paragraph 5.1 in its entirety and insert:

5.1 "Subject to applicable legislation and the provisions of the Contract Documents, and in accordance with legislation and statutory regulations respecting holdback percentages and, where such legislation or regulations do not exist or apply, subject to a holdback of ten percent (10%) including the HST (Harmonized Sales Tax), the Owner shall:"

- .1 Make progress payments to the Contractor on account of the Contract Price (work performed) when due in the amount certified by the Consultant together with Value Added Taxes as may be applicable to such payments, and
- .2 Upon Substantial Performance of the Work as certified by the Consultant, pay to the Contractor the unpaid balance of monies then due, excepting that amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items may be retained by the Owner pending Total Performance of the work or other authorization for the release by the Consultant, and
- .3 Upon Total performance of the Work as certified by the Consultant pay to the contractor the unpaid balance of monies due together with such Value Added Taxes as may be applicable to such payment.

Change 5.3.1 (1) to read: "1% per annum above the prime rate."

Delete 5.3.2 (2) in its entirety.



## DEFINITIONS

Add subparagraph 19a to definitions:

### 19a. Submittals

Submittals are documents or items required by the Contract Documents to be provided by the Contractor, such as:

- 1 Shop Drawings, samples, models, mock-ups to include 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.

## GC 1.1 CONTRACT DOCUMENTS

Add to the end of subparagraph 1.1.2.2:

1.1.2.2 Except where the Consultant shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3.

Add subparagraph 1.1.7.5:

1.1.7.5 Should conflicts occur between Contract Documents and any work is done without consulting the Consultant for his decision, the Contractor shall assume full responsibility.

Add subparagraph to 1.1.7.6:

1.1.7.6 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the Contract Documents.

Delete paragraph 1.18 in its entirety and insert:

1.18 "The Contractor will be provided with up to a maximum of ten (10) copies, without charge, of the Contract Documents or parts thereof for the performance of the work. Extra copies may be obtained for cost of printing and mailing."

#### **GC 2.4 DEFECTIVE WORK**

Add new subparagraphs 2.4.1.1 and 2.4.1.2:

2.4.1.1 The Contractor shall rectify, in a manner acceptable to the Owner and the Consultant, all defective work and deficiencies throughout the Work, whether or not they are specifically identified by the Consultant.

2.4.1.2 The Contractor shall prioritize the correction of any defective work which, in the sole discretion of the Owner, adversely affects the day to day operation of the Owner.

#### **GC 3.1 CONTROL OF THE WORK**

Add new paragraph 3.1.3:

3.1.3 Prior to commencing individual procurement, fabrication, and construction activities, the Contractor shall verify, at the Place of 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 contradictions exist, or exact locations are not apparent, the Contractor shall immediately notify the Consultant before proceeding with any part of the affected work.

#### **GC 3.4 DOCUMENT REVIEW**

Delete paragraph 3.4.1 in its entirety and substitute new paragraph:

3.4.1 The Contractor shall review the Contract Documents and shall report promptly to the Consultant and error, inconsistency or omission the Contractor may discover. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. The Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Contractor could not have reasonably have discovered. If the Contractor does discover any error, inconsistency, or omission in the Contract Documents the Contractor shall not proceed with the work affected until the Contractor has received corrected or missing information from the Consultant.

### **GC 3.7 SUBCONTRACTORS AND SUPPLIERS**

Add the following paragraph 3.7.7:

- 3.7.7 A copy of the agreement between Contractor and any subcontractor(s) shall be provided to the Consultant if so requested.

### **GC 3.8 LABOUR AND PRODUCTS**

Add the following paragraph 3.8.4:

- 3.8.4 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the Products or other persons or property and in locations at the Place of the Work to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information on the Products to be supplied by the Owner.

### **GC 3.10 SHOP DRAWINGS**

Add the words “AND OTHER SUBMITTALS” to the Title after SHOP DRAWINGS in GC 3.10.

Add “and submittals” after the words “Shop Drawings” in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11 and 3.10.12.

Delete 3.10.3 in its entirety and substitute new paragraph:

- 3.10.3 Prior to the first application for payment, the Contractor and the Consultant shall jointly prepare a schedule of the dates for submission and return of Shop Drawings and any Submittals.

Add the following subparagraph 3.10.6.1:

- 3.10.6.1 The following paragraph shall apply to each shop drawing and submittals reviewed in connection with the project. This review shall not mean that the Consultant approved the detailed design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same. The Contractor is responsible for information that pertains solely to fabricated processes or to techniques of construction and installation, and for coordination of the work of all sub trades.

Delete and insert the words in paragraph 3.10.12

3.10.12 “with reasonable promptness so as to cause no delay in the performance of the Work” and replace with “within ten (10) working days or such longer period as may be reasonably required”

### **PART 3 EXECUTION OF THE WORK**

Add new GC 3.14 as follows:

#### **GC 3.14 CONTRACTOR RESPONSIBILITY FOR WATER TIGHTNESS**

GC 3.14.1 The drawings and specifications are not intended to depict each and every condition or detail of construction. As the knowledgeable party in the field, the contractor is in the best position to verify that all construction is completed in a manner which will provide a watertight structure. The contractor has the sole responsibility for ensuring the watertight integrity of the structure.

Add new GC 3.15 as follows:

#### **GC 3.15 PERFORMANCE BY CONTRACTOR**

GC 3.15.1 In performing its services and obligations under the Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The Contractor acknowledges and agrees that throughout the Contract, the Contractor’s obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any products, personnel, or procedures which it may recommend to the Owner.

The Contractor further represents, covenants and warrants to the Owner that:

1. The personnel it assigns to the Project are appropriately experienced;
2. It has sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the Owner’s approval, in the event of death, incapacity, removal or resignation.

#### **GC 4.1 CASH ALLOWANCES**

Delete paragraph 4.1.4 in its entirety and substitute:

4.1.4 Where cost under a cash allowance exceed the amount of the allowances, unexpended amounts from other cash allowances shall be reallocated at the *Consultant's* direction to cover the shortfall.

Delete paragraph 4.1.5 in its entirety and substitute:

4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the Contract Price by Change Order.

Delete paragraph 4.1.7 in its entirety and substitute:

4.1.7 At the commencement of the work, the Contractor shall prepare for the review and acceptance of the Owner and the Consultant, a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items call for under cash allowances and items that are specified to be Owner purchased and Contractor installed or hooked up are required at the site to avoid delaying the progress of the Work.

Add new paragraph 4.1.8:

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.

#### **GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER**

Delete section GC 5.1 in its entirety.

#### **GC 5.2 APPLICATION FOR PROGRESS PAYMENT**

Add the following at the end of paragraph 5.2.2:

5.2.2 Such applications shall be accompanied by one or more of the following documents: a Statutory Declaration Waiver of Lien or receipt stating that the holdback monies claimed have been paid to the particular party or parties so named or referred to in the Declaration. Form of Statutory Declaration shall meet the approval of the Consultant.

Add the following paragraph 5.2.8:

5.2.8 The reference to payment for products delivered to the place of work in Article 5.2.7 shall not be construed as covering day-to-day financing of the project. Products delivered to the place of work shall be construed to mean major items of equipment or quantities of items that are essential for the expedient conduct of the work.

### **GC 5.3 PROGRESS PAYMENT**

Supplement paragraph 5.3.1 by adding the following:

5.3.1 A holdback percentage of ten (10) percent (%) shall apply to progress payments. The sworn statement by the Contractor for release of holdback monies shall be in the form of a Statutory Declaration meeting the approval of the Consultant. Amounts as certified by the Consultant to rectify deficiency items, or incomplete portions of individual work items, may be retained by the Owner after Substantial Performance has been obtained, pending Total Performance of the work or other authorization for release by the Consultant.

Amend subparagraph 5.3.1.3 as follows:

5.3.1.3 Delete "20" and replace with "30."

### **GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK**

Add the following paragraph 5.4.4:

5.4.4 Before the Contractor submits his application for Substantial Performance of the Work, all Operations and Maintenance Manual materials shall be submitted in accordance with the Contract Documents. The Certificate of Substantial Performance will not be issued until this requirement is met.

### **GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK**

Add the following subparagraphs 5.5.1.3 and 5.5.1.4:

5.5.1.3 Submit a certificate from barrister stating that there are no Builders' Liens filed relating to the Contract Works.

5.5.1.4 Submit a clearance letter from the Workers' Compensation Board.

## GC 5.7 FINAL PAYMENT

Add the following subparagraphs 5.7.1.1, 5.7.1.2, 5.7.1.3, 5.7.1.4 and 5.7.1.5:

5.7.1.1 Contractor's application for final payment is considered to be valid when the following have been performed:

1. Work has been completed and inspected for compliance with Contract Documents, and the Consultant is satisfied that all the requirements of the Contract have been fulfilled by the Contractor.
2. Defects have been corrected and deficiencies have been completed.
3. Equipment and systems have been tested, adjusted and balanced and are fully operational, and written reports as outlined in the Contract Documents have been provided to the Consultant.
4. Certificates required by Utility companies, manufacturer's representative and inspectors have been submitted.
5. Spare parts, maintenance materials, warranties and bonds have been provided.

5.7.1.2 If Work is deemed incomplete by Consultant, complete outstanding items and request re-inspection.

5.7.1.3 If in opinion of the Consultant, it is not expedient to correct defective work or Work is not performed in accordance with the requirements of the Contract, the Owner may deduct from Contract Price difference in value between work performed and that called for by Contract Documents, amount of which shall be determined by the Consultant.

5.7.1.4 If, within sixty (60) days after the issue by the Consultant of the Certificate of the Substantial Performance, the Contractor has not corrected all the deficiencies, the Owner will retain sufficient money to cover the cost of completing said deficiencies, as determined by the Consultant, in addition to holding monies retained in accordance with the Contract and subject to the provisions of the Builders' lien legislation of Nova Scotia.

5.7.1.5 Neither the final certificate nor the payment thereunder, nor any provision in the Contract Documents shall relieve the Contractor from responsibility for faulty material or workmanship which shall appear within a period of one (1) year from the date of Substantial Performance of the Work and he shall remedy any defects due thereto and pay for any damage to other Work resulting therefrom which shall appear within such period of one year. The Owner shall give notice of observed defects promptly. This article shall not be deemed to restrict any liability of the Contractor arising out of any law in force in the Province of Nova Scotia.

## GC 6.2 CHANGE ORDER

Add the following paragraphs 6.2.3, 6.2.4, 6.2.5, 6.2.5, 6.2.6 and 6.2.7:

- 6.2.3 All contemplated changes in the work shall be issued by the Consultant on a "Contemplated Change Order" form.
- 6.2.4 For lump sum pricing, the Contractor shall, upon receipt of the Contemplated Change Order, submit to the Consultant for approval within seven (7) days, a quotation for changes in the work.
- 6.2.5 Quotation for changes shall be priced in sufficient detail (GC6.6 applies).
- 6.2.6 Consultant shall, within five (5) working days, notify the Contractor whether estimates are accepted by Owner or further information required. Acceptance of Owner shall be indicated by writing, and a signed copy of form (Change Order) returned to Contractor.
- 6.2.7 Contractor shall take reasonable measures to stop work or minimize the work in areas affected by or related to the contemplated changes.

## GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

Add new paragraph 6.4.5:

- 6.4.5 The *Contractor* confirms that, prior to bidding the *Project*, it carefully investigated the Place of the Work and applied to that investigation the degree of care and skill described in paragraph 3.15.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the Contractor prior to submission of bid, and the sufficiency and completeness of the information provided by the Owner. The Contractor is not entitled to compensation or to an extension of the Contract Time for which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of the bid.

## GC 6.5 DELAYS

Delete the period at the end of paragraph 6.5.1 and substitute the following words:

- 6.5.1 “, but excluding any consequential, indirect or special damages.”

Add new paragraph 6.5.6:



6.5.6 If the Contractor is delayed in the performance of the Work by any act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly, or by any cause within the Contractor's control, then the Contract Time shall be extended for such reasonable time as the Consultant may decide in consultation with the Contractor. The Owner shall be reimbursed by the Contractor for all reasonable costs incurred by the Owner as the result of such delay, including all services required by the Owner from the Consultant as a result of such delay by the Contractor and, in particular, the cost of the Consultant's services during the period between the date of Substantial Performance of the Work stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of Substantial Performance of the Work achieved by the Contractor.

Add new paragraph 6.5.7:

6.5.7 If the Contractor is delayed in the completion of the Work by any act or neglect of: The School Board, any employee or either any other Contractor employed by The School Board, changes ordered in the Work, strikes, lockouts, fire, unusual delay by common carriers, unavoidable casualties, any other cause of any kind whatsoever beyond the Contractor's control or by any cause within the Contractor's control which the Consultant shall decide as justifying the delay, then the time of completion shall be extended for such reasonable time as the Consultant may decide.

Add new paragraph 6.5.8:

6.5.8 No such extension shall be made for delay occurring more than seven (7) days before claim therefore is made in writing to the Consultant, provided however that in the case of a continuing cause of delay, only one (1) claim shall be necessary.

Add new paragraph 6.5.9:

6.5.9 If no schedule is made, no claim for delay shall be allowed on account of failure to furnish such schedule until two (2) weeks after demand for such schedule and not then unless such claim be reasonable.

Add new paragraph 6.5.10:

6.5.10 The Consultant shall not, except by written notice to the Contractor, stop or delay any part of the main Contract Work pending decisions or proposed changes.

## **GC6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE**

Amend paragraph 6.6.5 as follows:

6.6.5 Add the words “as noted in paragraph 6.6.3” after the words “of the claim” and add the words “and the consultant”, at the end.

## **GC 6.7 VALUATION OF CHANGES**

Add the following Header and paragraphs 6.7.1, 6.7.2, 6.7.3 and 6.7.4 in their entirety:

### **GC 6.7 VALUATION OF CHANGES**

- 6.7.1 The value of any change shall be determined in one or more of the following way as determined by the Consultant:
- (a) By estimate and acceptance in a lump sum, submitted with sub-contractors’ and suppliers’ signed quotations and breakdown estimates including itemized material and labour lists. For changes where the individual trade cost is anticipated to be less than \$1000, the requirement for the detailed cost breakdown may be waived, but individual trade quotation must be supplied.
  - (b) By unit prices agreed upon or as listed in the contract.
  - (c) Cost of work and percentage or by cost and fixed fee.
- 6.7.2 In cases of additional work to be paid for under method “c”, the Contractor shall keep and present in such form as the Consultant may direct, a correct account of the net cost of labour and materials, together with vouchers. In any case, the Consultant shall certify to the amount due to the Contractor including the profit and overhead. Pending final determination of value, payments on account of changes shall be made on the Consultant’s certificate.
- 6.7.3 In determination of method “.1(a) or “.1(c) above, the labour costs to be calculated by the actual estimated hours at an hourly rate determined as follows:

The hourly labour rate to be total payroll costs including hourly wage, statutory contributions to UIC, WCB, CPP, Training Funds, Health Benefits and other applicable labour burdens paid directly by the employer such as vacation pay, holiday pay, pension plan etc.

The School Board reserves the right to verify the payroll cost by independent audit.

To the total payroll cost the following percentage factors will be recognized.

- small tools/expenditures 5% (on payroll costs)
- site supervision 5% (on payroll costs)

(d) In determination of methods “.1(a)” and “.1(c)” above, the material costs to be calculated as follows:

Contractors net costs, including contractor discounts from suppliers, FOB the project site plus applicable taxes.

(e) In determination of methods “.1(a)” and “.1(c)” above, equipment rental costs for major pieces of equipment required will be at local industry rates.

(f) In determination of methods “.1(a)” and “.1(c)” above, overhead and fees shall be calculated as follows:

The cost of any authorized change shall be determined by the net total of labour and material or equipment as outlined in “.3(a)”, “.3(b)” and “.3(c)” above on which the percentage markup shall be determined as follows:

For Extras Up to \$5,000:

Sub-Contractors Own Work	- Overhead & Fee – 15% total
General Contractors Own Work	- Overhead & Fee – 15% total
General Contractors on Sub Contractors work	- 10% total

(No percentage markup shall be applied to deductions)

For Extras Above \$5,000:

Sub-Contractors Own Work	- Overhead & Fee – 10% total
General Contractors Own Work	- Overhead & Fee – 10% total
General Contractors on sub contractor’s work	- 8% total

(no percentage markup shall be applied to deductions)

6.7.4 Submit to the Consultant and The School Boards representative detailed breakdown of the hourly labour rate as defined in paragraph “.3(a)”.

## **GC 8.2 NEGOTIATION, MEDIATION, AND ARBITRATION**

Add the following paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12, 8.2.13, 8.2.14, and 8.3:

- 8.2.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the Owner and the Contractor shall give the Consultant a written notice containing:
- a) a copy of the notice of arbitration;
  - b) a copy of supplementary conditions 8.2.9 to 8.2.14 of this contract, and;
  - c) any claims or issues which the Contractor or the Owner, as the case may be, wishes to raise in relation to the Consultant arising out of the issues in dispute in the arbitration.
- 8.2.10 The Owner and the Contractor agree that the Consultant may elect, within ten days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the Consultant:
- a) has a vested or contingent financial interest in the outcome of the arbitration;
  - b) gives the notice of election to the Owner and the Contractor before the arbitrator is appointed;
  - c) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and;
  - d) agrees to be bound by the arbitral award made in the arbitration.
- 8.2.11 If an election is made under paragraph 8.2.10, the Consultant may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration.
- 8.2.12 The arbitrator in the arbitration in which the Consultant has elected under paragraph 8.2.10 to become a full party may:
- a) on application of the Owner or the Contractor, determine whether the Consultant has satisfies the requirements of paragraph 8.2.10, and;
  - b) make any procedural order considered necessary to facilitate the addition of the Consultant as a party to the arbitration.
- 8.2.13 The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the Consultant to any sub-consultant.
- 8.2.14 In the event of notice of arbitration given by the Consultant to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.
- 8.3 An application for arbitration shall be accompanied by security in the amount of \$1000 to apply to the cost of arbitration. Any claims of excess costs must be submitted in writing to the Consultant within two weeks of completion or alleged completion of the work. No claims shall be

accepted after this date and, also, no claims shall be accepted for disputed work unless the Consultant has been notified as specified.

#### **GC 9.1 PROTECTION OF WORK AND PROPERTY**

Delete subparagraph 9.1.1.1 in its entirety and substitute the following new paragraph 9.1.1.1:

9.1.1.1 errors in the Contract Documents which the Contractor could not have discovered applying the standard of care described in paragraph 3.15.1.

Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:

9.12 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in the Contract Documents, or that are discoverable by applying to an Inspection of the Place of Work exercising the degree of care and skill described in paragraph 3.15.1.

#### **GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

Add in paragraph 9.2.6 after the word “responsible”, the following new words:

9.2.6 Or whether any toxic or hazardous substances or materials already at the Place of Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner and others,

Add in subparagraph 9.2.7.4:

9.2.7.4 “and the Consultant” after “Contractor”:

Add in paragraph 9.2.8 after the word “responsible”, the following new words:

9.2.8 or that any toxic or hazardous substances or materials already at the Place of the Work (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the Contractor or anyone for whom the Contractor is responsible in a manner which does not comply with legal and regulatory requirement, or which threatens, humane health and safety or the environment, or material damage to the property of the Owner or others.

#### **GC 9.5 MOULD**

Add in subparagraph 9.5.3.4:

9.5.3.4 “and the Consultant” after “Contractor”

#### **GC 10.1 TAXES AND DUTIES**

Add the following paragraph 10.1.3:

10.1.3 The Contractor shall indicate on each application for payment as a separate amount, the appropriate Harmonized Sales Tax the Owner is legally obliged to pay. This amount will be paid to the Contractor in addition to the amount certified for payment under the Contract.

#### **GC 10.2 LAWS, NOTICES, PERMITS AND FEES**

Delete from the first line of paragraph 10.2.5 the word, “The” and substitute the words:

10.2.5 “Subject to paragraph 3.15.1, the”

#### **GC 10.4 WORKERS' COMPENSATION**

Add the following paragraphs 10.4.3, 10.4.4, and 10.4.5:

10.4.3 The contractor is referred to regulations, as applicable, under the Worker's Compensation Act of Nova Scotia.

10.4.4 Registration with Worker’s Compensation Board shall be continuous during the contract. Should registrations be scheduled to expire during the contract period, the Contractor shall submit a copy of registration renewal one month prior to the expiration of the current certificate.

10.4.5 The Contractor shall furnish evidence of coverage under the Worker’s Compensation Act, R.S.N.S. and a clearance Certificate providing proof of registration with Worker’s Compensation Board prior to commencement of work. (A photocopy of the Contractors registration certificate is

acceptable proof). On-going proof of good standing with the Worker's Compensation Board during the term of the contract is required.

## GC 11.1 INSURANCE

Delete sentences and replace with the following in subparagraph 11.1.1.1:

11.1.1.1 "General liability insurance shall be maintained from the commencement of the work until one year from the date of Substantial Performance of the Work. Liability coverage shall be provided for completed operations hazards from the date of Substantial Performance of the Work, as set out in the certificate of Substantial Performance of the Work, on an ongoing basis for a period of 6 years following the Substantial Performance of the Work" **and replace with:** " General Liability Insurance or Wrap- Up Liability Insurance, (as detailed in the Information to Tenders section under "Insurance Requirements"), shall be maintained from the commencement of the work until final completion and acceptance of the work including the making good of faulty work or materials, except that coverage of completed operations liability shall in any event be maintained for twelve (12) months from date of Substantial Performance of the work as certified from the Consultant, and approved by the Owner".

Add the following subparagraphs 11.1.1.1.1, 11.1.1.1.2, and 11.1.1.2.1:

11.1.1.1.1 The general liability insurance to be maintained by the Contractor shall include Commercial General Liability Insurance covering Premises and Operations Liability, elevators, board form property damage, board from automobile, owners and contractors protective, blanket contractual, personal injury, completed operations liability contingent employers liability, cross liability clause, non-owned automobile liability, and a 30 day notice of cancellation clause.

11.1.1.1.2 All liability insurance policies shall be written in such terms as will fully protect the Contractor and  
The School Board as an additional named insured.

11.1.1.2.1 Liability coverage of not less than two million dollars (\$2,000,000) is required with regard to operations of owned automobiles.

Delete subparagraph 11.1.1.4 in its entirety and insert the following subparagraphs:

11.1.1.4 Broad Form (All Risks) Builders Risk Coverage - Prior to the commencement of any Work the Contractor shall maintain and pay for Broad Form (All Risks) Builders Risk Coverage in

the joint names of The School Board and the Contractor totalling not less than one hundred percent (100%) of the total value of the Work done and materials delivered on the site (contract value), so that any loss under such policies of insurance will be payable to The School Board and the Contractor as their respective interests appear. The Builders Risk Insurance shall include all materials related to the work while in transit or at other locations.

- 11.1.1.4.1 Should a loss be sustained under the Builders Risk Coverage, the Contractor shall act on behalf of The School Board and Contractor for the purpose of adjusting the amount of such loss with the insurance companies. As soon as such adjustment has been satisfactorily completed, the Contractor shall proceed to repair the damage and complete the Work and shall be entitled to receive from The School Board in addition to any sum due under the Contract, the amount at which The School Board interest has been appraised in the adjustment made with the insurance companies as referred to above, said amount to be paid to the Contractor as the Work of restoration proceeds. Any loss or damage which may occur shall not affect the rights and obligations of either party under the Contract except as aforesaid and except that the Contractor shall be entitled to a reasonable extension of time for the performance of the Work, as The School Board may decide.
- 11.1.1.4.2 Upon approval by The School Board of the Substantial Performance certificate issued by the Consultant, the Contractor's obligation to maintain Builder Risk Insurance shall cease and The School Board shall assume full responsibility for insuring the whole of the Work against loss or damage.
- 11.1.1.4.3 "Broad form" property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors* The "Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:
- 11.1.4.3.1 Ten (10) Calendar days after the date of *Substantial Performance of the Work*;
  - 11.1.4.3.2 on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square meter in area, or parking purposes, or for the installation, testing and commissioning or equipment forming part of the *Work*; and
  - 11.1.4.3.3 when left unattended for more than thirty (30) consecutive calendar days or when construction activity has ceased for more than thirty (30) consecutive calendar days.



Paragraph 11.1.2 is clarified as follows:

11.1.2 Submit Certified true copies of each insurance policy to the Owner's Contract Authority within seven (7) working days after notification of award or in any event prior to payment of the first progress claim. Such copies shall be exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. Prior to the commencement of any work, the Contractor shall file with the Owner a certified copy of each insurance policy and certificate required.

Delete 11.1.5 in its entirety and replace with the following:

11.1.5 Insurance contracts shall be procured from and the premiums paid to a resident agent of an insurance Company licensed to underwrite insurance in the Province of Nova Scotia.

Add the following paragraph 11.1.9:

11.1.9 All of the insurance policies shall contain a clause stating that no change in terms and conditions or cancellation may at any time be made without the full knowledge and consent of the owner.

## **GC 11.2 CONTRACT SECURITY**

Add the following subparagraph 11.2.2.1:

11.2.2.1 "Bonds shall be procured from a Nova Scotia resident agent of an insurance company licensed to do business in Nova Scotia and shall be maintained in good standing and held by the Owner until one (1) year after Substantial Performance of the Work.

Add the following paragraph 11.2.3:

11.2.3 If a Certified Cheque is held as contract security it shall be in an amount equal to ten (10) percent (%) of the Contract Price. Supplement the Certified Cheque as necessary to maintain the amount equal to ten (10) percent (%) of the total amount payable (Contract Price plus HST).

- .1 The Certified Cheque will be deposited at the chartered bank holding The School Board deposits.
- .2 The School Board will return the cheque amount to the Contractor upon satisfactory completion of the contract and duration as specified in the Tender documents.
- .3 Should Contractor default, total amount payable under the Certified Cheque will be the face value of the cheque plus all accrued interest.

- .4 Payment for completion of work, due to failure of performance of the Contractor, shall include all reasonable obligations under the Contract, including architectural and engineering costs arising because of the default of the Contractor.
- .5 Payment for labour and materials shall be limited to those who have a direct contract with the Contractor for the provision of labour and/or material (which includes equipment rental).

### **GC 12.3 INDEMNIFICATION**

Add the following paragraph 12.1.1.3:

- 12.1.1.3 The Contractor shall indemnify and hold harmless the Consultant, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceeding 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 six (6) years from the date of Substantial Performance of the Work, or within such shorter such period as may be prescribed by any limitation statute or the province or territory of the Place of Work.

### **GC 12.3 WARRANTY**

Delete from the first line the word, "The" and substitute the words in paragraph 12.3.2:

12.3.2 "Subject to paragraph 3.15.1, the..."

Add the following paragraph 12.3.7:

- 12.3.7 Warranty repairs or replacements which arise during warranty period which affect the operation of the system shall be attended to immediately upon notification from the Consultant.

**END OF SECTION 00 73 00**

# Contract 160818

# Halifax Regional School Board

## LIST OF DRAWINGS

<u>DRAWING No.</u>	<u>DRAWING TITLE</u>
-	COVER SHEET
C01	SITE PLANS AND SECTIONS
C02	MISCELLANEOUS DETAILS
E01	SITE PLANS
E02	DIAGRAMS, DETAILS AND SCHEDULES

# Wastewater Treatment Plant Replacement

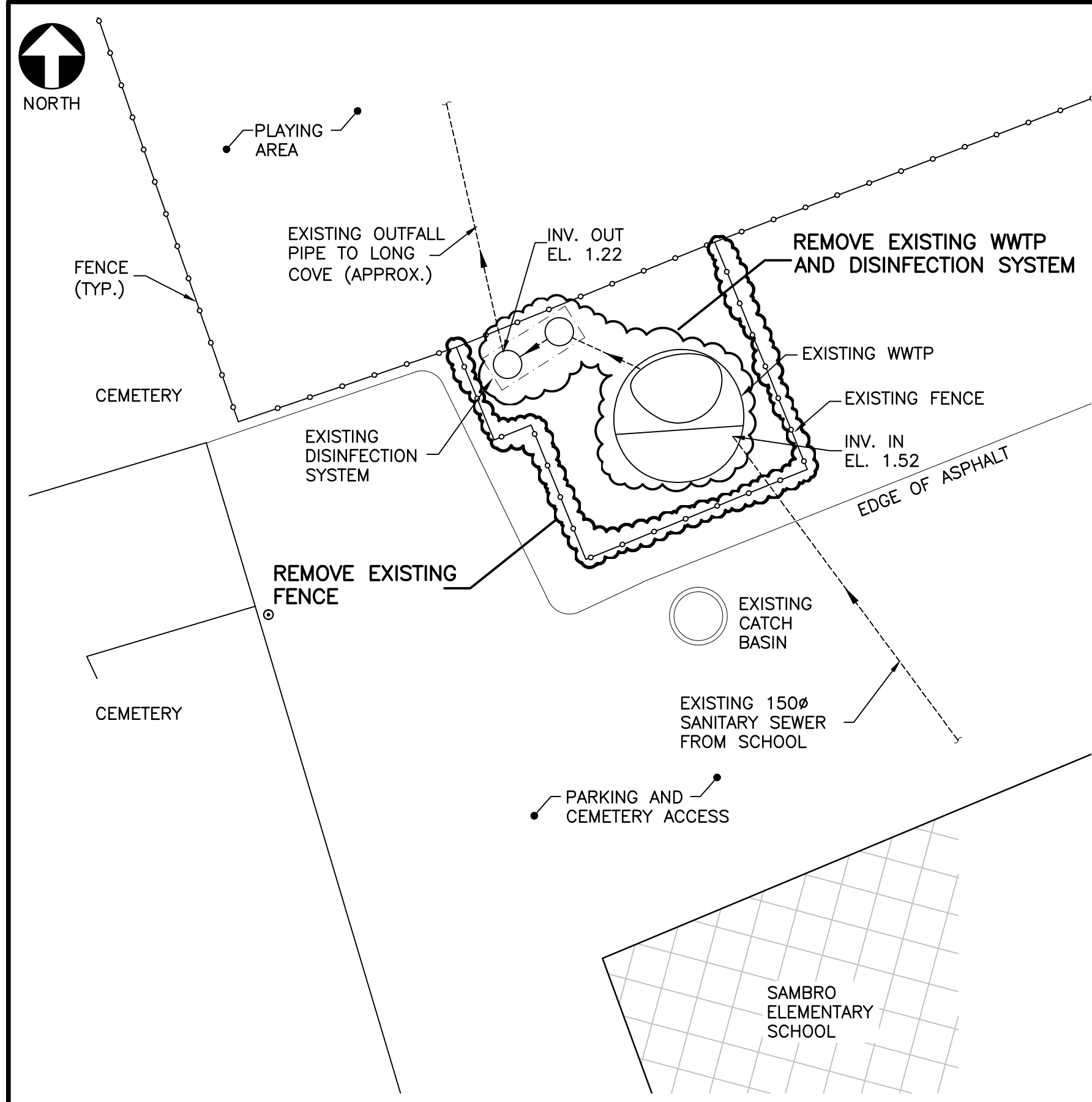


Project No. 160818.02

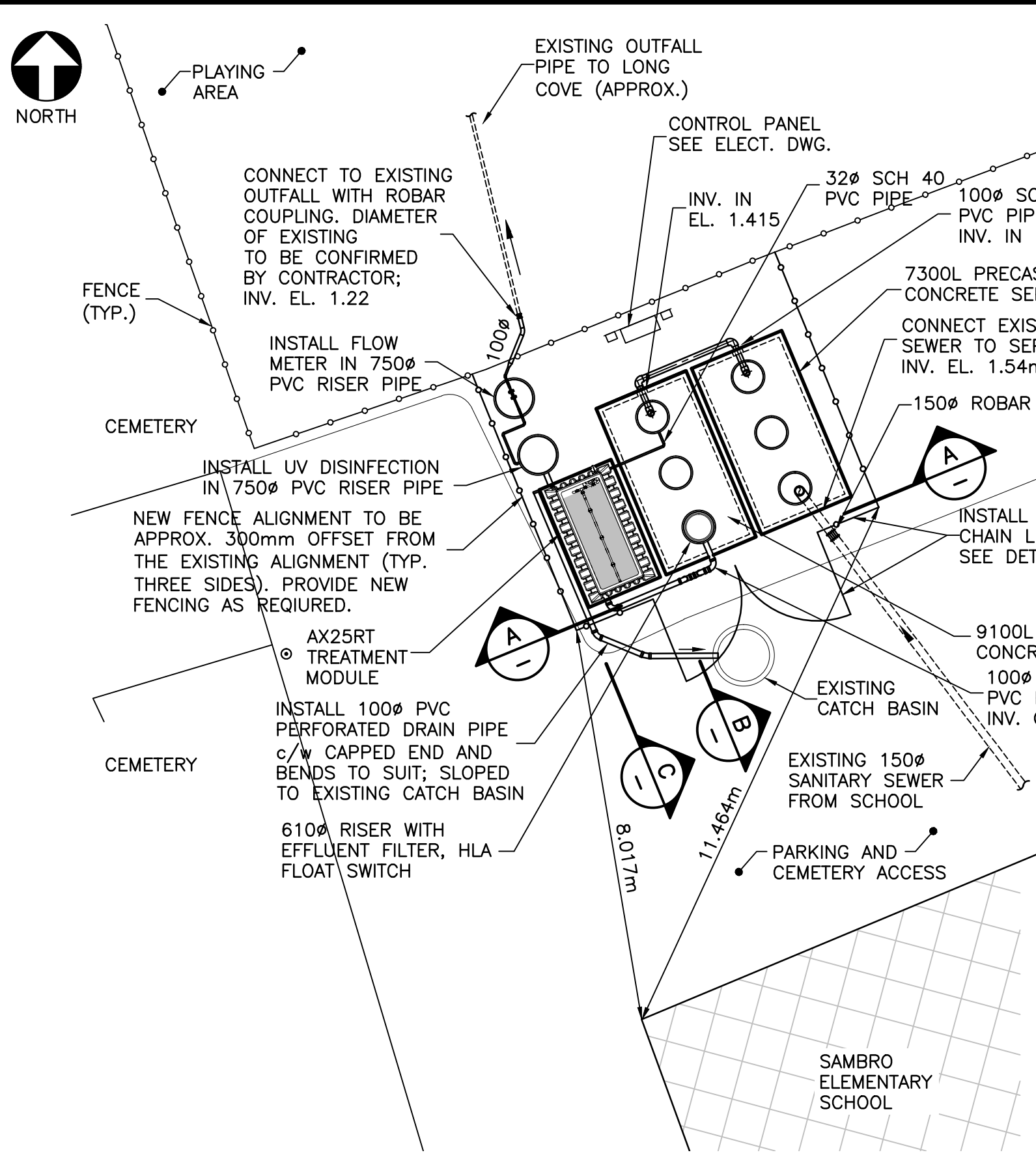
Issued for  
Tender

May 17, 2017



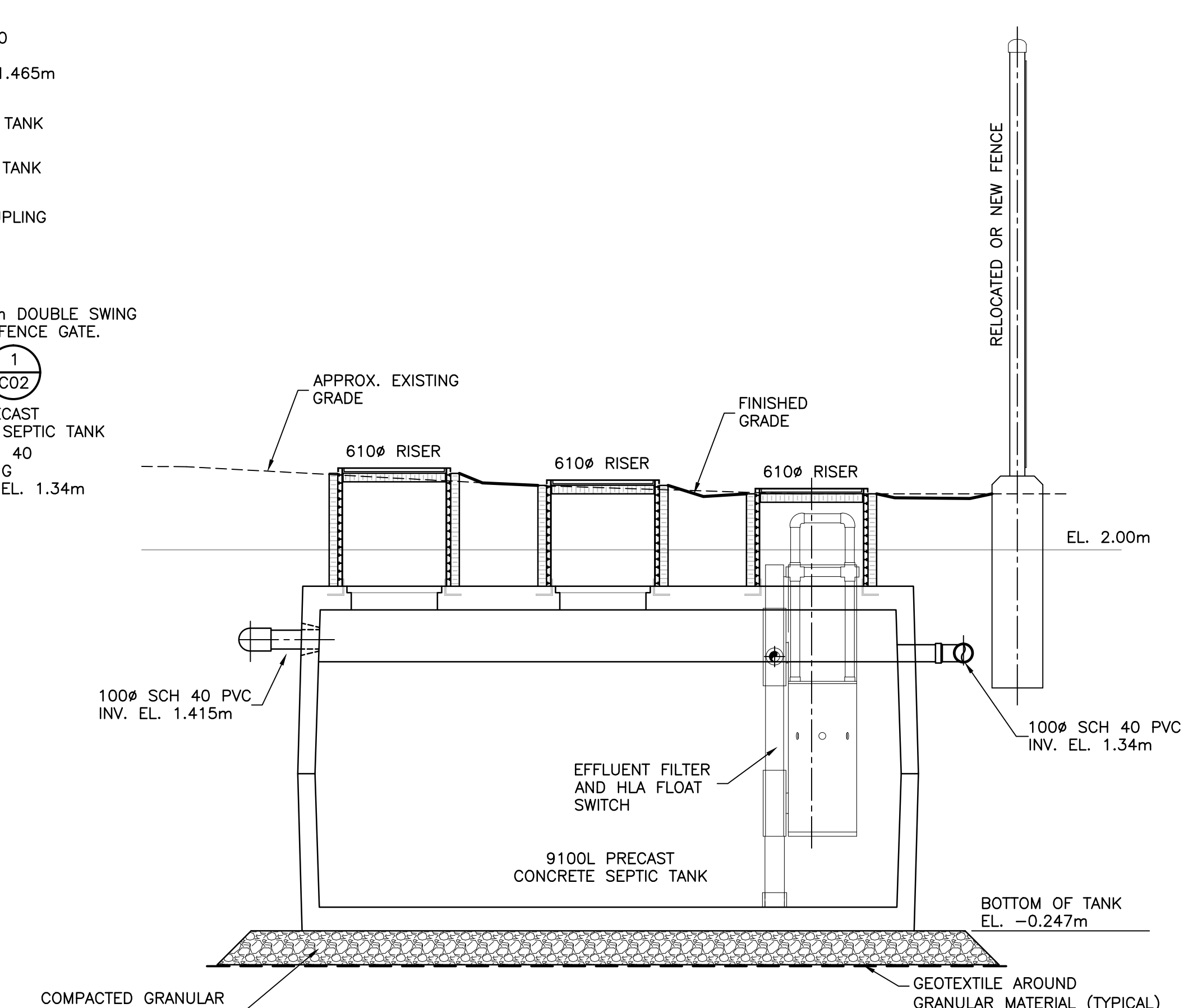


**SITE PLAN—REMOVALS AND RELOCATIONS**  
1:100

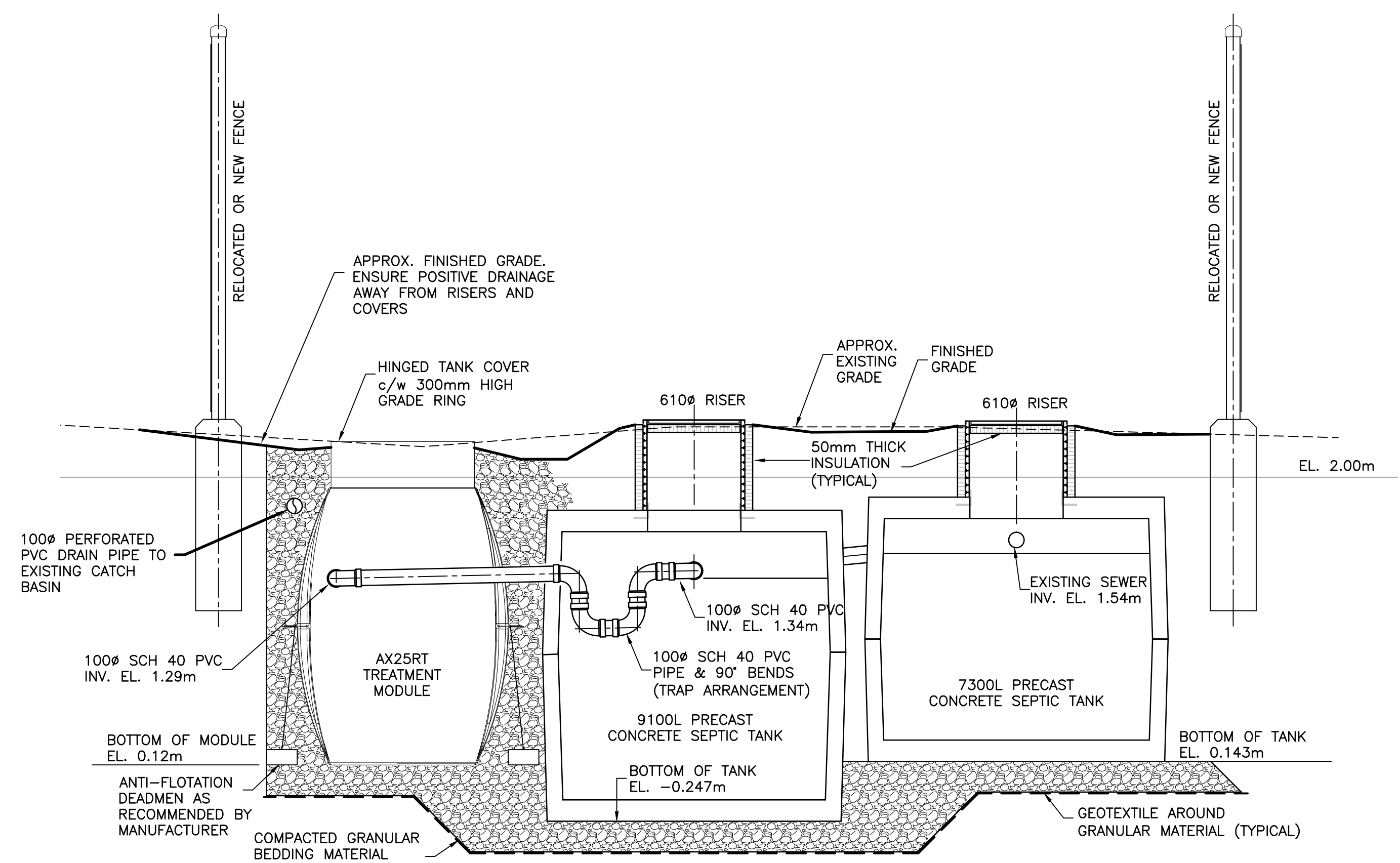


**SITE PLAN—PROPOSED PLANT LAYOUT**  
1:100

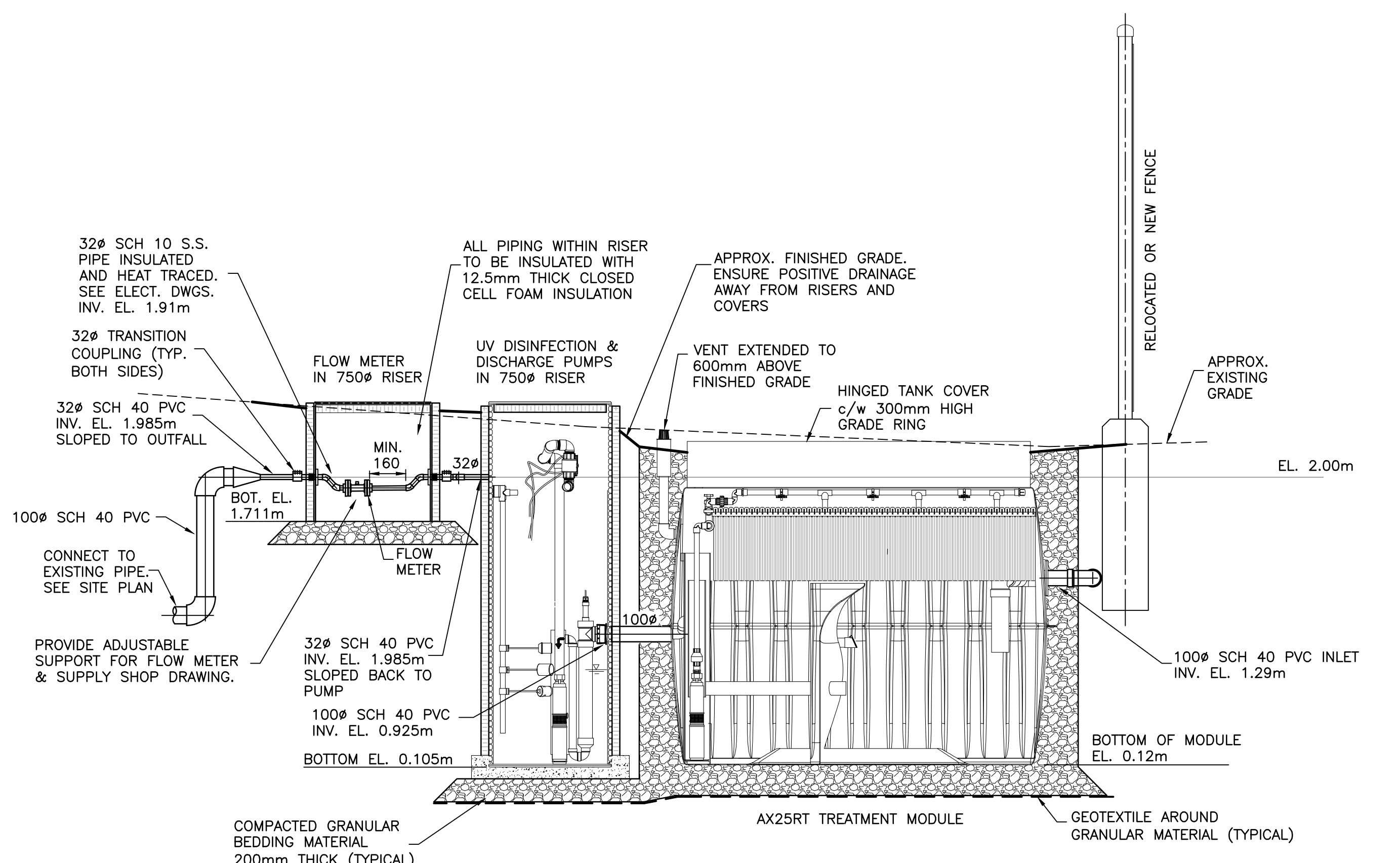
**NOTES:**  
PROTECT EXCAVATIONS FROM SURFACE WATER DRAINAGE AND COMPLETE TANK INSTALLATION PROMPTLY. TANKS MAY FLOAT UNTIL FULLY BACKFILLED AND FILLED WITH WATER.



**B SECTION—SEPTIC TANK (EFFLUENT FILTER)**  
1:25



**A SECTION—TREATMENT MODULE & SEPTIC TANKS**  
1:25



**C SECTION—TREATMENT MODULE & FLOW METER**  
1:25

- NOTES:**
- EXISTING PLANT AND DISINFECTION EQUIPMENT TO BE PUMPED OUT BY A LICENSED SEPTIC HAULER, CLEANED, REMOVED AND DISPOSED OF AT A APPROVED DISPOSAL FACILITY.
  - REINSTATE EXISTING CHAIN LINK FENCING WHERE DISTURBED AND ALL ASPHALT, GRASS, GRAVEL AND PEA GRAVEL SURFACES WHERE DISTURBED.
  - ABSOLUTELY NO JUNCTION BOXES WITHIN TANKS OR RISERS.
  - FLOAT ELEVATIONS TO BE CONFIRMED ON SHOP DRAWINGS.
  - ALL FILTER, FLOAT AND UV HANDLES TO BE EXTENDED TO WITHIN 150mm OF THE TOP OF THE RISER OR MODULE.
  - ALL PIPES LESS THAN 1200mm DEEP TO BE INSULATED AS PER INSULATED PIPE TRENCH DETAIL AND NOTE 1 ON DRAWING C02.
  - ELEVATIONS ARE REFERENCED TO THE CGVD28 VERTICAL DATUM. SURVEY IS IN NAD83 UTM ZONE 20. CONTRACTOR TO VERIFY SURVEY ELEVATIONS.
  - ALL RISERS TO BE AT OR ABOVE FINISHED GRADE, WITH SURFACE DRAINAGE AWAY FROM RISERS, BUT NOT EXPOSED BY MORE THAN 100mm.
  - DRAWINGS IN GENERAL ARE TO SCALE BUT FIGURED DIMENSIONS TAKE PRECEDENCE. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR THE ACCURACY OF INFORMATION SCALED FROM THE DRAWINGS.
  - ALL DIMENSIONS USE METRIC UNITS. DIMENSIONS SHOWN IN MILLIMETERS AND POINT ELEVATIONS AS METERS (UNLESS NOTED OTHERWISE).
  - INSULATE PVC RISERS WITH 50 THICK CLOSED CELL SPRAY FOAM INSULATION c/w PREFINISHED ALUMINUM CLADDING ON SURFACES EXPOSED TO SUNLIGHT. ALSO INSULATE INSIDE OF COVER OR LID WITH 50 THICK HIGH DENSITY RIGID INSULATION.
  - ALL PIPE HANGERS, SUPPORTS AND ASSOCIATED HARDWARE WITHIN TANKS SHALL BE 316 STAINLESS STEEL UNLESS NOTED OTHERWISE.
  - IF PLAYGROUND SURFACE IS DISTURBED DURING CONSTRUCTION, STOCKPILE CLEARED GRAVEL AND REINSTATE UPON COMPLETION OF WORK.

No.	Description	Date	By
0	ISSUED FOR TENDER	MAY 17/17	JG
B	ISSUED FOR APPROVAL	APR 7/17	SHE
A	ISSUED FOR 90% REVIEW	APR 3/17	SHE

Revision or Issue  
**HALIFAX REGIONAL SCHOOL BOARD**  
SAMBRO ELEMENTARY SCHOOL  
WWTP REPLACEMENT

CIVIL  
**SITE PLANS AND SECTIONS**



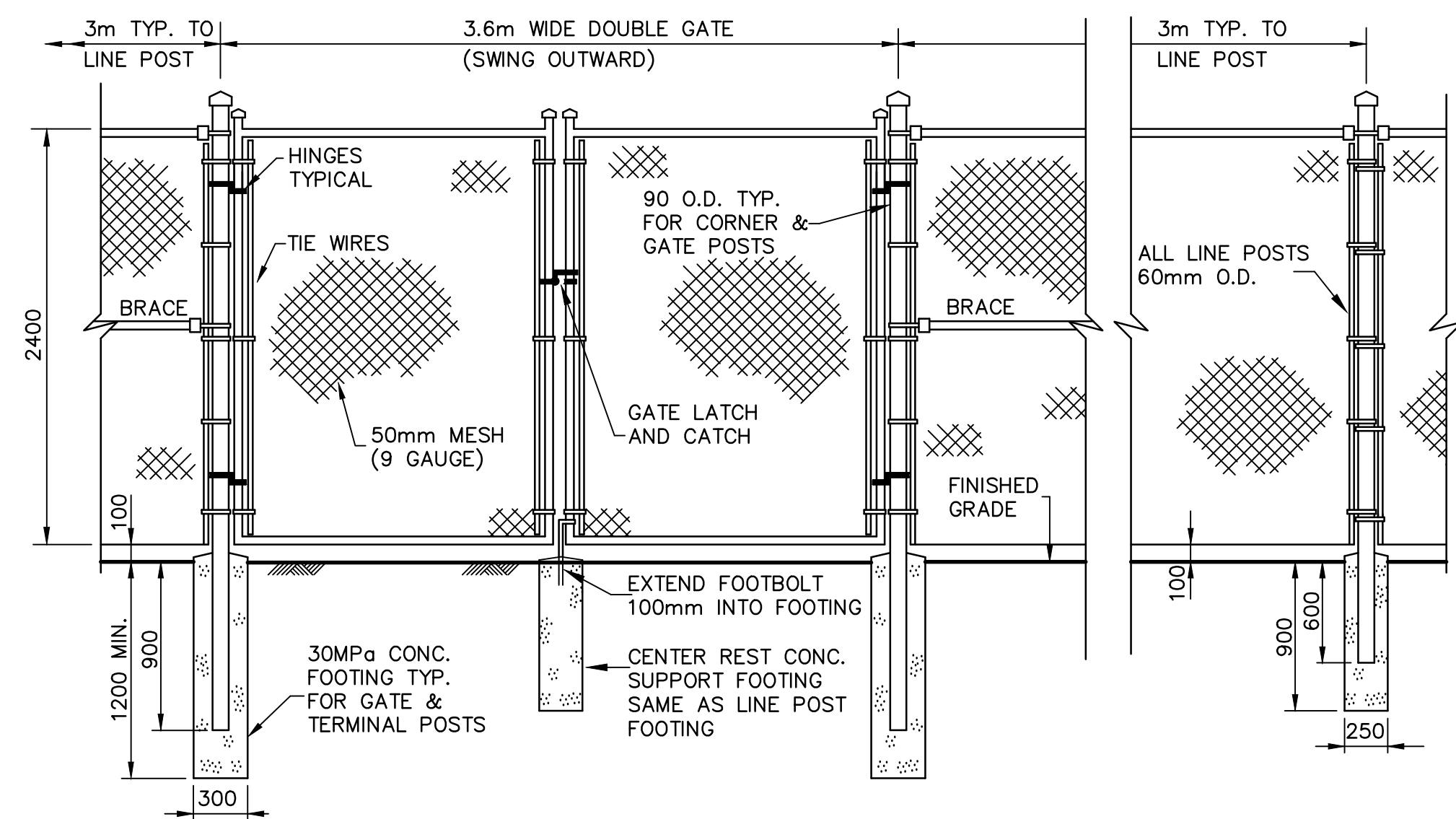
Contract No	Date	Scale
160818.02	MAR 2017	AS NOTED

Designated	Drawn
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Checked	Approved
WD	WD
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1 of 2	

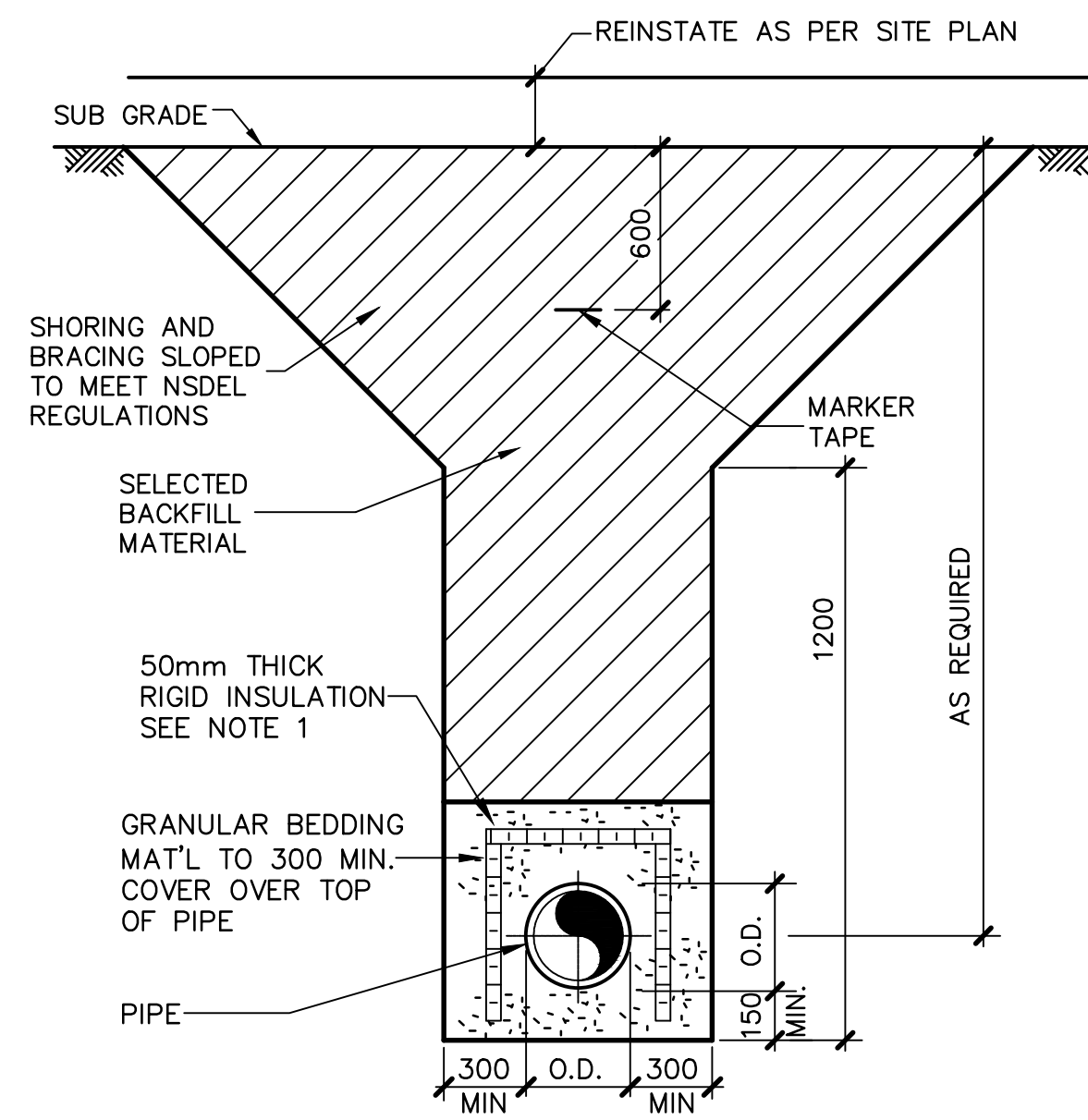
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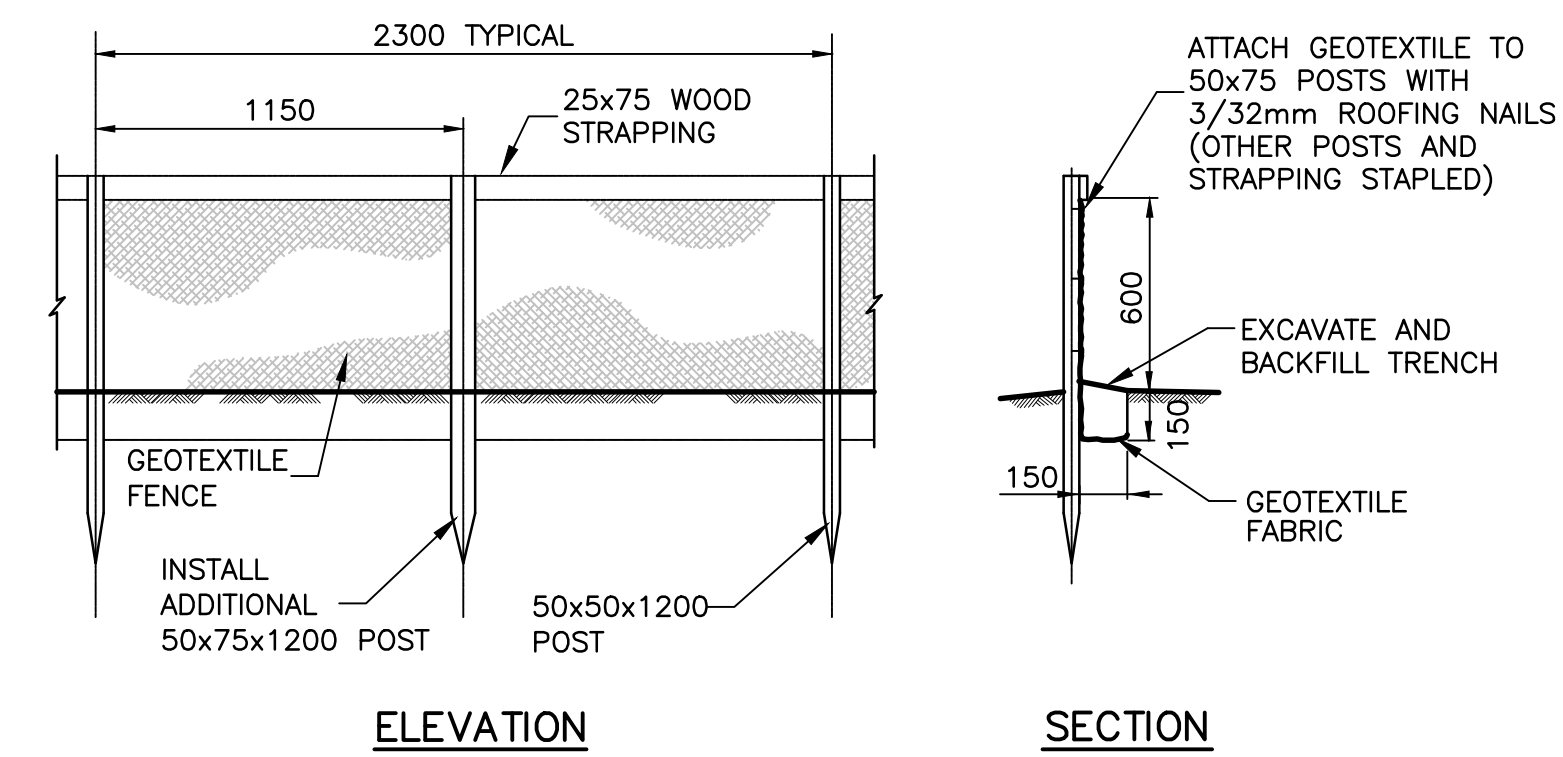




**1**  
C01 NTS  
CHAIN LINK FENCE  
DETAIL—AND DOUBLE SWING GATE



**2**  
C01 NTS  
DETAIL—ONE PIPE TRENCH



**3**  
C01 NTS  
DETAIL—SEDIMENT CONTROL FENCE

**NOTES:**

- WHERE PIPE BURY DEPTH IS BETWEEN 200mm AND 1200mm ABOVE  $\phi$  PROVIDE TWO(2) 50mm THICK LAYERS OF INSULATION ABOVE PIPE EXTENDING 150mm TO EITHER SIDE OF PIPE. PROVIDE SINGLE LAYER OF INSULATION PLACED VERTICALLY ON EACH SIDE TO 150mm BELOW PIPE INVERT. WHERE BURY DEPTH IS BETWEEN 1200mm AND 1500mm PROVIDE SINGLE INSULATION LAYER ABOVE PIPE ONLY AS PER ABOVE. WHERE BURY DEPTH IS 1500mm OR GREATER, NO INSULATION IS REQUIRED.

DRAWING NAME: \\PROJECTS\160818.02\_HRSP-DESIGN AND TENDER\_SAMBRO ELEMENTARY\30\_CAD\01\_CHAIN LINK FENCE\160818.02-002.DWG LAYOUT NAME: C01\_PLOT DATE: May-16-17 4:10:49 PM CAD OPERATOR: D002C

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B	ISSUED FOR APPROVAL	APR 7/17	SHE
A	ISSUED FOR 90% REVIEW	APR 3/17	SHE
No.	Description	Date	By

**Revision or Issue**

**HALIFAX REGIONAL  
SCHOOL BOARD**  
SAMBRO ELEMENTARY SCHOOL  
WWTP REPLACEMENT

CIVIL  
**MISCELLANEOUS DETAILS**



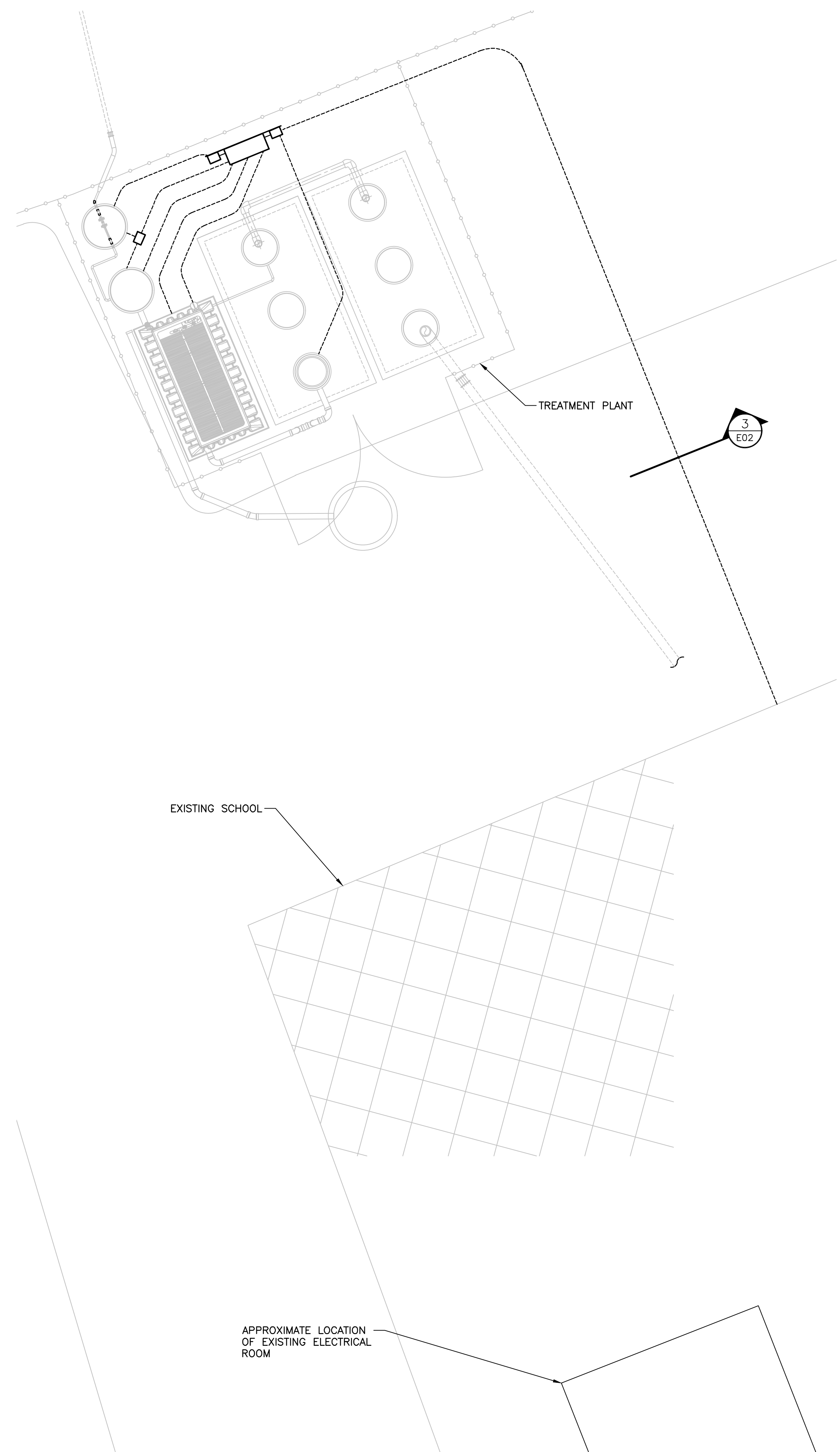
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Checked WD	Approved WD
Sheet No 2 of 2	
Drawing No <b>C02</b>	

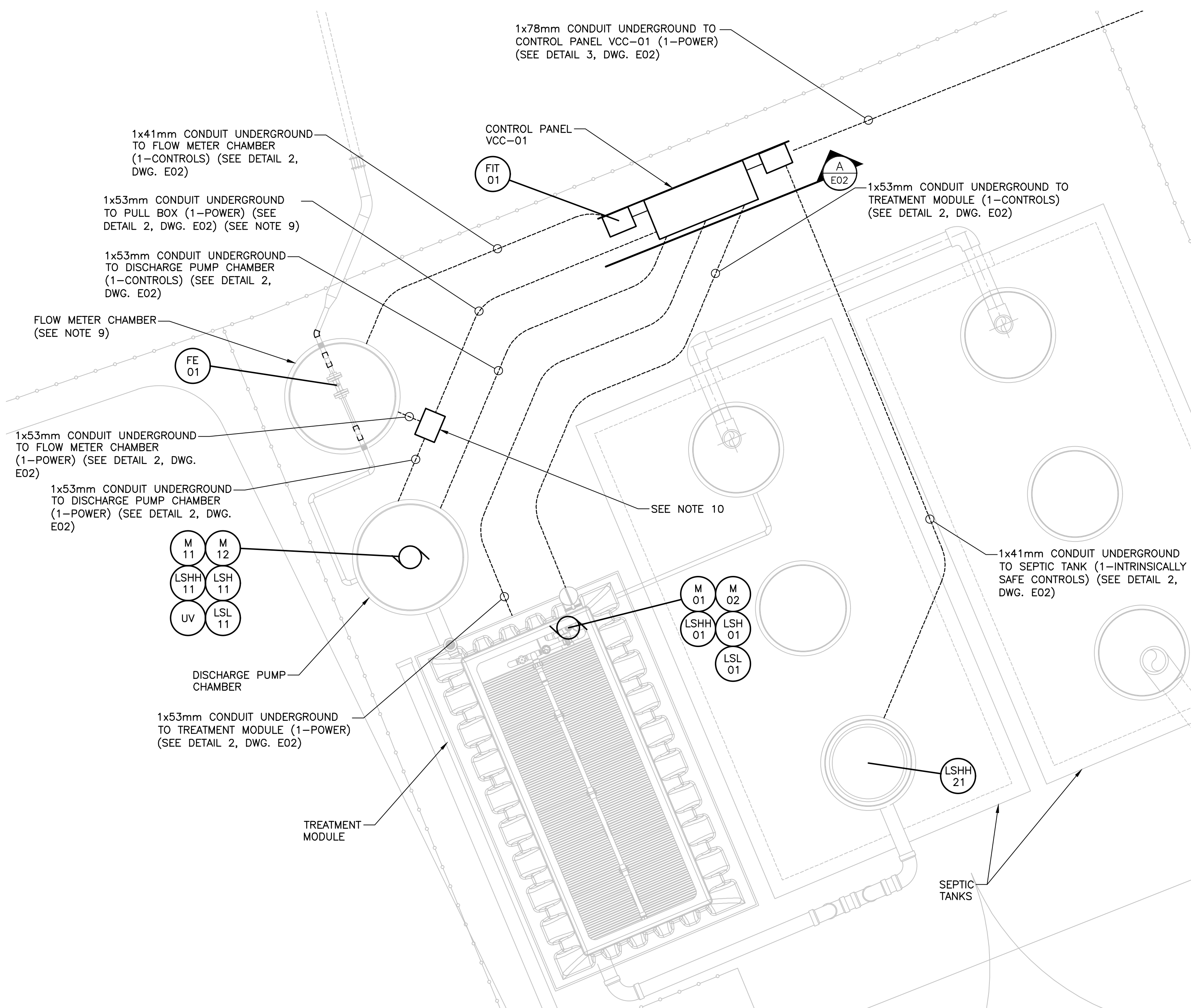




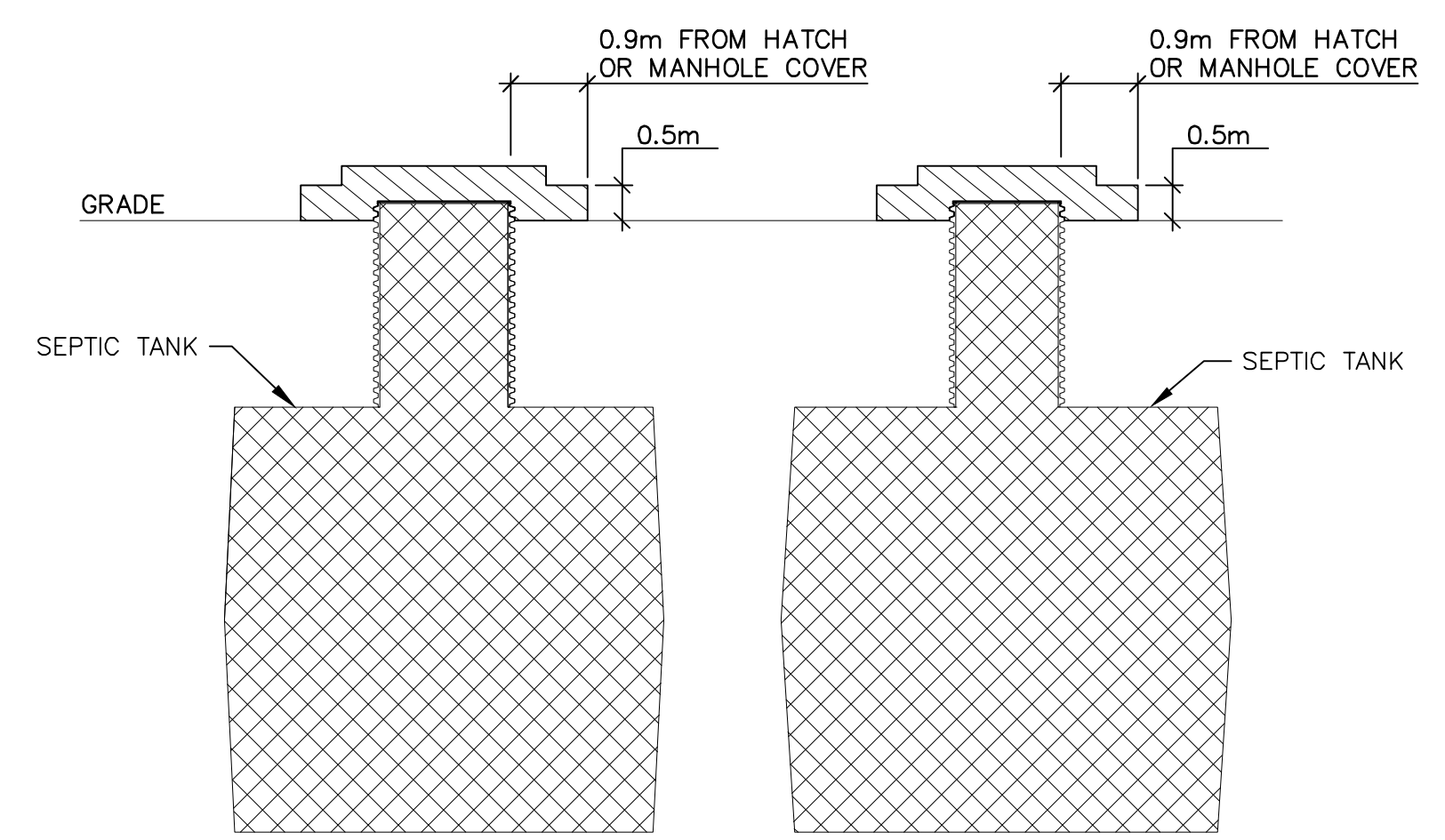
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**SITE PLAN—UNDERGROUND CONDUIT ROUTING**  
1:50



**SITE PLAN—TREATMENT PLANT**  
1:20



**1 DETAIL—TANK HAZARDOUS AREA CLASSIFICATION**  
N.T.S.

**HAZARDOUS CLASSIFICATION LEGEND:**

- INDICATES ZONE 2 HAZARDOUS CLASSIFICATION
- INDICATES ZONE 1 HAZARDOUS CLASSIFICATION
- UNCLASSIFIED

- NOTES:**
- LOCATIONS OF BURIED SERVICES ARE APPROXIMATE. VERIFY LOCATIONS OF BURIED SERVICES PRIOR TO INSTALLATION OF THE NEW UNDERGROUND ELECTRICAL SERVICES.
  - DURING EXCAVATION, ADEQUATELY SUPPORT ANY EXISTING UNDERGROUND SERVICES.
  - IF SITE CONDITIONS PROHIBIT TRENCH DETAILS, ADVISE THE OWNER AND ENGINEER PRIOR TO PROCEEDING.
  - REMOVE AND DISPOSE OF ALL EXISTING ELECTRICAL EQUIPMENT IN EXISTING TREATMENT PLANT INCLUDING, BUT NOT LIMITED TO: MOTORS, BLOWERS, SWITCHES, RECEPTACLES, AND LUMINAIRES. REMOVE AND DISPOSE OF ALL CABLING AND CONDUIT FOR THESE DEVICES.
  - UNLESS NOTED OTHERWISE, ELECTRICAL, CONTROLS, AND INSTRUMENTATION EQUIPMENT IS NEW.
  - RIGID PVC CONDUIT SHALL NOT BE RUN ABOVE GROUND OUTSIDE OF THE SCHOOL. ALL RIGID PVC CONDUIT MUST TRANSITION TO RIGID ALUMINUM UNDERGROUND.
  - MAINTAIN A MINIMUM OF 300mm DISTANCE BETWEEN POWER AND CONTROLS CONDUITS, AND A MINIMUM 1000mm LATERAL SEPARATION BETWEEN ELECTRICAL CONDUITS AND ALL OTHER PIPING.
  - REPLACE EXISTING 30A TREATMENT PLANT DISCONNECT SWITCH WITH NEW 100A, 208V, 3P FUSED DISCONNECT SWITCH c/w 70A CLASS J FUSES. SUPPLY AND INSTALL 3x1C #6 AWG RW90 + #8 AWG BOND IN 78mm CONDUIT BETWEEN NEW DISCONNECT SWITCH AND NEW CONTROL PANEL VCC-01. FIELD ROUTE CONDUIT INSIDE SCHOOL, CONCEALED ABOVE FALSE CEILING.
  - SUPPLY AND INSTALL SELF-REGULATING HEAT TRACING ON PIPING WITHIN FLOW METER CHAMBER AS PER MANUFACTURERS RECOMMENDATIONS. RAYCHEM 5XL1-CR OR EQUIVALENT. MOUNT POWER CONNECTION/END SEAL ON WALL OF FLOW METER CHAMBER. PROVIDE POWER TO HEAT TRACING FROM CONTROL PANEL VCC-01 VIA A NEW 20A, 120V FACELESS GFCI RECEPTACLE.
  - 150x200x300 DEEP FRP STRAIGHT WALL UNDERGROUND ENCLOSURE (HUBBELL B33060806A OR EQUIVALENT) c/w TWO-BOLT COVER PLATE (HUBBELL C30060801A OR EQUIVALENT).

No.	Description	Date	By
0	ISSUED FOR TENDER	MAY 17/17	JG
B	ISSUED FOR APPROVAL	APR 07/17	SHE
A	ISSUED FOR 90% REVIEW	APR 03/17	SHE

Revision or Issue

**HALIFAX REGIONAL SCHOOL BOARD**

**SAMBRO ELEMENTARY SCHOOL WWTP REPLACEMENT**

ELECTRICAL

**SITE PLANS**



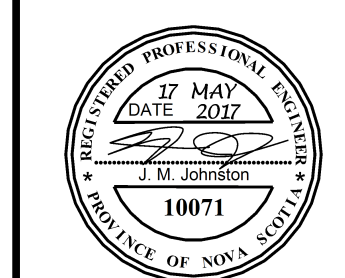
CBCL No	Contract No	Date	Scale
160818.02	160818	MAR 2017	AS NOTED

Designed	Drawn
JMJ	JMJ

Checked	Approved
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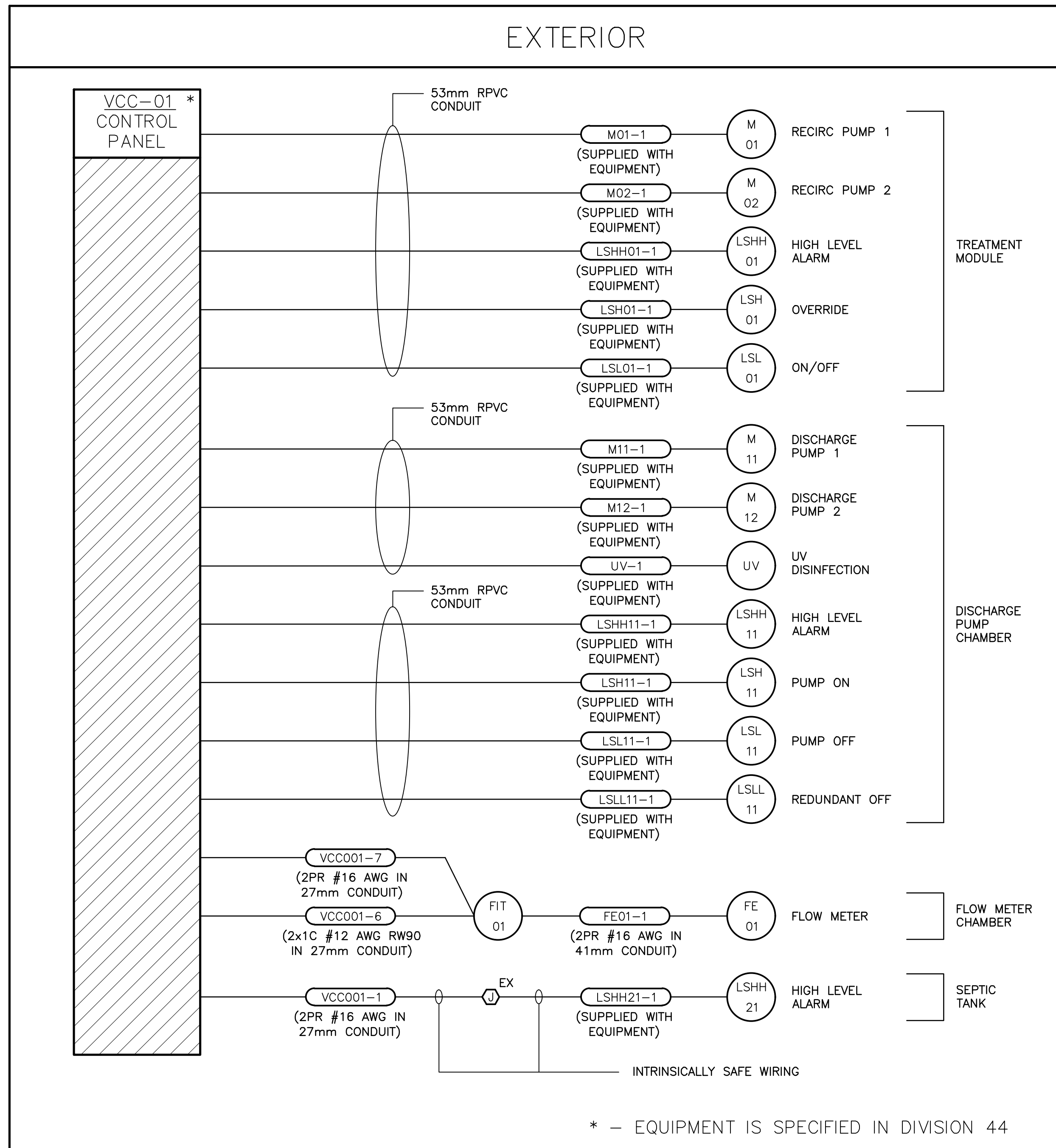
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Drawing No: **E01**

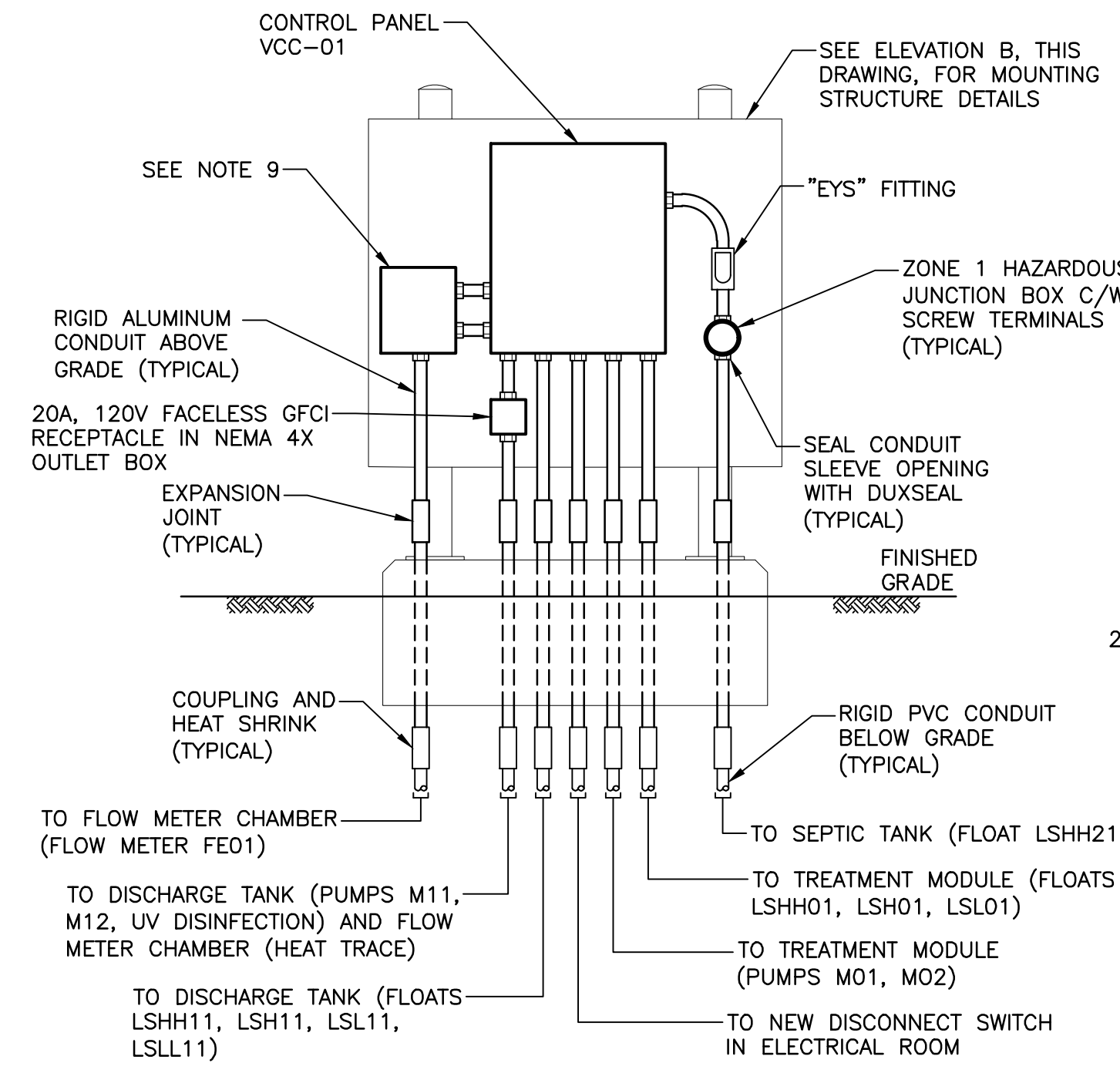




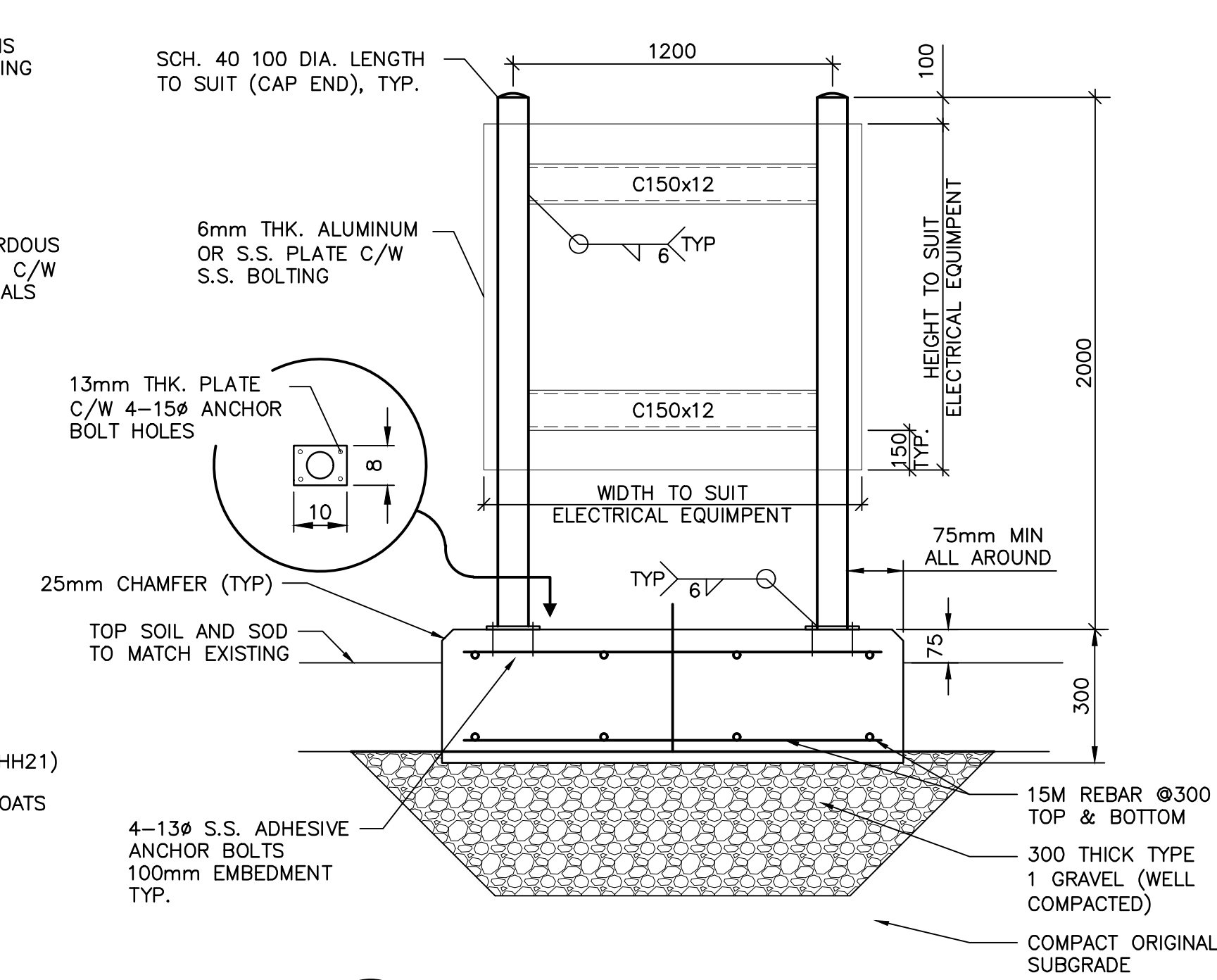
EXTERIOR



**INSTRUMENTATION AND CONTROL CABLING DIAGRAM**  
N.T.S. (SEE NOTE 6)



**A ELEVATION-CONTROL PANEL LAYOUT**  
N.T.S.



**B ELEVATION-CONTROL PANEL MOUNTING**  
N.T.S. (DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE)

- NOTES:**
- PLANKS SHALL EXTEND A MINIMUM OF 50mm ON EITHER SIDE OF CONDUITS.
  - BACKFILLING OF TRENCH TO BE IN LAYERS NOT EXCEEDING 300mm (MECHANICALLY TAMPED).
  - BACKFILL TRENCH WITH SELECTED BACKFILL SOIL IN ACCORDANCE WITH SPECIFICATIONS AND FREE FROM LARGE ROCKS OR DEBRIS.
  - MAINTAIN A MINIMUM 300mm SEPARATION BETWEEN POWER AND CONTROLS CONDUITS, AND A MINIMUM 1m LATERAL SEPARATION BETWEEN CONDUITS AND ALL OTHER PIPING.
  - PROVIDE ADEQUATE TERMINALS IN EACH BOX FOR CONDUCTOR TERMINATION, PLUS 20% SPARE TERMINALS.
  - ALL CONDUITS ARE TO BE COMPLETE WITH A GREEN INSULATED BOND CONDUCTOR, SIZED IN ACCORDANCE WITH CEC REQUIREMENTS, MINIMUM #12 AWG.
  - JUNCTION BOXES ARE TO BE INSTALLED A MINIMUM OF 0.9m AWAY FROM MANHOLES OR TANK HATCHES.
  - INSTRUMENTATION TERMINATION JUNCTION BOX LAYOUT IS TO BE USED AS A GUIDE ONLY. REFER TO THE CABLING DIAGRAMS TO DETERMINE THE REQUIRED NUMBER OF TERMINAL BLOCKS IN EACH FIELD JUNCTION BOX. REFER TO SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
  - INSTALL FLOW METER TRANSMITTER FIT01 IN NEMA 12 HINGED ENCLOSURE c/w ENCLOSURE HEATER. SIZE HEATER TO MAINTAIN A MINIMUM -10°C TEMPERATURE WITHIN ENCLOSURE.

- LEGEND:**
- SINGLE-PHASE MOTOR
  - CONTROL PANEL
  - ▭ MISCELLANEOUS ELECTRICAL EQUIPMENT
  - ▭ 'LB' TYPE CONDUIT FITTING
  - ⊕ JUNCTION BOX
  - EX EXPLOSION-PROOF
  - WP WEATHERPROOF

No.	Description	Date	By
0	ISSUED FOR TENDER	MAY 17/17	JM
B	ISSUED FOR APPROVAL	APR 07/17	SHE
A	ISSUED FOR 90% REVIEW	APR 03/17	SHE

Revision or Issue

**HALIFAX REGIONAL SCHOOL BOARD**

**SAMBRO ELEMENTARY SCHOOL WWTP REPLACEMENT**

ELECTRICAL

**DIAGRAMS, DETAILS, AND SCHEDULES**



Contract No	Date	Scale
160818.02	MAR 2017	AS NOTED

Designated	Drawn
JMJ	JMJ
Checked	Approved
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Sheet No	Drawing No
2 of 2	10071



**E02**

DRAWING NAME: PROJECT/S1/160818.02 - HSBP-DESIGN AND TENDER SAMBRO ELEMENTARY SCHOOL WWTP REPLACEMENT - E01 - 02.DWG. LAYOUT NAME: 023 - ELEC. DATE: MAY-16-17 10:13:47 AM CAD OPERATOR: MORTONSON

**1 DETAIL-CABLE & CONDUCTOR IDENTIFICATION**  
N.T.S. TYP. FOR ALL CABLE AND CONDUIT RUNS

**2 DETAIL-DIRECT BURIED CONDUIT**  
N.T.S. (SEE NOTE 4)

**3 DETAIL-DIRECT BURIED CONDUIT**  
N.T.S. (SEE NOTE 4)

