



**REQUEST FOR PROPOSALS  
DEMANDE DE PROPOSITIONS**

**RETURN BIDS TO :  
RETOURNER LES  
SOUMISSIONS A:**

National Research Council Canada (NRC)  
Procurement Services  
1200 Montreal Road, Building M-58  
Ottawa, Ontario  
K1A 0R6  
Bid Fax: (613) 991-3297

<b>Title/Sujet</b> <b>Halifax Energy Metering Project</b>	
<b>Solicitation No./N. de l'invitation</b> <b>18-22088</b>	<b>Date</b> <b>07 December 2018</b>
<b>Solicitation Closes/L'invitation prend fin</b> <b>at/à 14 :00</b> <b>on/le 21 January 2019</b>	<b>Time Zone/Fuseau Horaire</b> <b>EST</b>
<b>Address Enquiries To/Adresser demandes de renseignements à :</b> Collin Long Telephone No./N. de téléphone : <b>(613) 993-0431</b> Facsimile No./N. de télécopieur : <b>(613) 991-3297</b>	

**Instructions: See Herein**

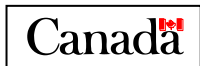
**Instructions: Voir aux présentes**

Proposal To:

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux:

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).



<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No./N. de telephone</b> <b>Facsimile No./N. de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)</b> <b>Nom et titre de la personne autorisé à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

## **HALIFAX ENERGY METERING PROJECT**

### **1.0 PRESENTATION OF PROPOSALS**

- 1.1 You are invited to submit four copies of a Technical Proposal and two copies of a Financial Proposal in two separate envelopes to fulfil the following requirement forming part of this Request for Proposals. One envelope **must** be clearly marked 'Technical Proposal' and the other envelope **must** be marked 'Financial Proposal'. All financial information **must** be fully contained in the Financial Proposal, and only in the Financial Proposal. Vendors who provide financial information in the technical proposal will be disqualified. **All proposals should include the front page of this RFP duly completed.**

### **2.0 SCOPE OF WORK**

- 2.1 To provide Professional Services to provide the expertise, labour and material required to supply, install and integrate energy meters at nine buildings on DND Bases in Halifax and the surrounding area in accordance with the detailed Statement of Requirement attached as Appendix "A".

### **3.0 PERIOD OF CONTRACT**

- 3.1 NRC anticipates that the work will begin on **24 January 2018** and be completed by **March 31, 2020**.
- 3.2 Additional work arising from this contract is subject to a detailed technical review and a Contract Amendment authorizing the additional work. Additional work may be subject to further cost negotiation.

### **4.0 ENQUIRIES**

- 4.1 If you require clarification regarding any aspect of this RFP, address all queries to the Contracting Authority, identified below, at least ten (10) working days before the closing date. All queries must be in writing and queries received less than ten (10) working days prior to the closing date cannot be guaranteed a response. Information received verbally will not be binding upon the NRC.

**Collin Long**

Procurement Officer, Finance Procurement Services

National Research Council Canada

1200 Montreal Road, Bldg. M-58

Ottawa, Ontario K1A 0R6 Telephone: **613-993-0431**

Facsimile: **613-991-3297**

- 4.2 To ensure the equality of information among Bidders, responses to general enquiries will be made available to all bidders unless such publications would reveal proprietary information. The bidder who initiates the question will not be identified. Technical questions that are considered proprietary by the bidder must be clearly identified. NRC will respond individually to the bidder if it considers the questions proprietary. If NRC does not consider the question proprietary, the bidder submitting it will be allowed to withdraw the question, or have the question and answer made available through the Open Bidding System (OBS) to all bidders.
- 4.3 Vendors who attempt to obtain information regarding any aspect of this RFP during the solicitation period through any NRC contacts other than the Contracting Authority identified herein, may be disqualified (for that reason alone).

- 4.4 It is the responsibility of the Bidder to obtain clarification of the requirement contained herein, if necessary, prior to submitting its proposal. The Bidder must have written confirmation from the Contracting Authority for any changes, alterations, etc., concerning this RFP.

## 5.0 **PROPOSAL CLOSING DATE AND BID SUBMISSION INSTRUCTIONS**

- 5.1 Proposals must be delivered not later than 2:00 PM EST, (day), **21 January 2019**, to the following **Contracting Authority**:

**Collin Long**

Procurement Officer, Finance Procurement Services  
National Research Council Canada  
1200 Montreal Road, Bldg. M-58  
Ottawa, Ontario K1A 0R6 Telephone: (613) 993-0431

**Proposals must not be sent directly to the Project Authority**

- 5.2 Proposals must be delivered in a sealed envelope and the Bidder's name and the RFP No. should be clearly indicated on the Proposal Envelope. It is the vendor's responsibility to obtain date and time stamped receipt signed by the receptionist as proof that NRC has received their proposal within the prescribed time limit. All risks and consequences of incorrect delivery of bids are the responsibility of the Bidder.
- 5.3 Bid submissions must be in accordance with the Standard Instructions and Conditions (Applicable to Bid Solicitation) attached as Appendix "**C**" – Standard Instructions and Conditions (Applicable to Bid Solicitation)
- 5.4 Due to the nature of this solicitation, NRC will not accept any proposal documents by facsimile.
- 5.5 NRC will not accept any proposal documents by electronic mail or on diskette.
- 5.6 Proposals received after the closing date will not be considered and will be returned to the sender. The sender has the sole responsibility for the timely dispatch and delivery of a proposal and cannot transfer such responsibility to the NRC. No supplementary information will be accepted after the closing deadline unless NRC requests a clarification.
- 5.7 All submitted proposals become the property NRC and will not be returned to the originator.

## 6.0 **MANDATORY CRITERIA**

- 6.1 Refer to Appendix "**A**" – Proposal Form A – Proposed Products and Services

## 7.0 **COST PROPOSAL**

- 7.1 The cost proposal must be a **fixed price quotation, FOB Destination, excluding GST/HST**. The fixed price must include all the materials and services required to fulfill all aspects of the Statement of Work. Bidders should identify the currency on which the cost proposal is based.
- 7.2 **GOODS AND SERVICES TAX (GST) and HARMONIZED SALES TAX (HST)**: The GST and HST, whichever is applicable, shall be considered an applicable tax for the purposes of this RFP and extra to the price herein. The amount of GST or HST shall be disclosed and shown as a separate item.

- 7.3 Bids will be evaluated in Canadian currency, therefore, for evaluation purposes, the exchange rate quoted by the Bank of Canada as being in effect on date of bid closing, shall be applied as the conversion factor for foreign currency. Prices quoted shall not be subject to, or conditional upon, fluctuations in commercial or other interest rates during either the evaluation or contract period.

## 8.0 **CONDITIONS OF SUBMISSION**

- 8.1 There shall be no payment by the National Research Council for costs incurred in the preparation and submission of proposals in response to this request. No payment shall be made for costs incurred for clarification(s) and/or demonstration(s) that may be required by NRC. The National Research Council reserves the right to reject any or all proposals submitted, or to accept any proposal in whole or in part without negotiation. A contract will not necessarily be issued as a result of this competition. NRC reserves the right to amend, cancel or reissue this requirement at any time.
- 8.2 Proposals submitted must be valid for not less than sixty (60) calendar days from the closing date of the RFP.
- 8.3 Your proposal should contain the following statement:  
"We hereby certify that the price quote is not in excess of the lowest price charged anyone else, including our most favoured customer, for like services".
- 8.4 Any contract resulting from this invitation will be subject to the General Conditions – Services 2010B (copy attached as Appendix “B” – General Conditions 2010B) and any other special conditions that may apply

## 9.0 **Basis of Selections**

- 9.1 The method of selection will be Lowest Valid Price. Proposals must respond to all the mandatory requirements outlined in Appendix “A” – Proposal Form A – Proposed Products and Services. Any proposal that fails to indicate clearly that all mandatory requirements have been met will receive no further consideration.

## 10.0 **OWNERSHIP OF INTELLECTUAL AND OTHER PROPERTY**

- 10.1 All confidential information gathered or viewed or any product developed as a result of this RFP must be treated as confidential and as NRC property

## 11.0 **CONFIDENTIALITY**

- 11.0 This document is UNCLASSIFIED, however; the contractor shall treat as confidential, during as well as after the services contracted for, any information of the affairs of NRC of a confidential nature to which its servants or agents become privy.

## 12.0 **CRIMINAL CODE OF CANADA**

- 12.1 Canada may reject an offer where the Bidder, or any employee or subcontractor included as part of the offer, has been convicted under section 121 (“Frauds on the government” & Contractor subscribing to election fund”), 124 (“Selling or purchasing office”), or 418 (“Selling defective stores to Her Majesty”) of the Criminal Code.

**13.0 DEBRIEFINGS**

- 13.1 After contract award, bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within 15 working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

**ADDITIONAL CONTRACT CLAUSES**

**Bidder compliance with all of the following clauses, terms and conditions of the resulting contract is mandatory.**

**14.0 T4-A SUPPLEMENTARY SLIPS**

- 14.1 Pursuant to paragraph 221(1)(d) of the Income Tax Act, payments made by departments and agencies to contractors under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T4A Supplementary slip. To enable client departments and agencies to comply with this requirement, contractors are required to provide information as to their legal name and status, business number, and/or Social Insurance Number or other identifying supplier information as applicable, along with a certification as to the completeness and accuracy of the information.

**15.0 GOVERNMENT SMOKING POLICY**

- 15.1 Where the performance of the work requires the presence of the Contractor's personnel on government premises, the Contractor shall ensure that its personnel shall comply with the policy of the Government of Canada, which prohibits smoking on any government premises.

**16.0 ACCESS TO GOVERNMENT FACILITIES / EQUIPMENT**

- 16.1 Access to the facilities and equipment necessary to the performance of the work shall be provided through arrangements to be made by the Project Authority named herein. There will be however; no day-to-day supervision of the Contractor's activities nor control of the Contractor's hours of work by the Project Authority.
- 16.2 The Contractor undertakes and agrees to comply with all Standing Orders and Regulations in force on the site where the work is to be performed, relating to the safety of persons on the site or the protection of property against loss or damage from any and all causes including fires.

**17.0 GENERAL CONDITIONS**

- 17.1 The General Conditions 2010B entitled General Conditions Services and attached as Appendix "B" form part of this Contract.

**18.0 ADDITIONAL WORK**

- 18.1 The successful bidder can at NRC's option, be asked to provide additional work related to this requirement. Payment will be limited to the firm per diems quoted in the Contractor's proposal.

**19.0 NON-PERMANENT RESIDENT (FOREIGN COMPANY)**

19.1 The Contractor shall ensure that non-permanent residents intending to work in Canada on a temporary basis in fulfillment of the Contract, who are neither Canadian citizens nor United States nationals, receive all appropriate documents and instructions relating to Canadian immigration requirements and secure all required employment authorizations prior to their arrival at the Canadian port of entry. The Contractor shall ensure that United States nationals having such intentions receive all appropriate documents and instructions in that regard prior to their arrival at the Canadian port of entry. Such documents may be obtained at the appropriate Canadian Embassy/Consulate in the Contractor's country. The Contractor shall be responsible for all costs incurred as a result of non-compliance with immigration requirements.

**20.0 NON-PERMANENT RESIDENT (CANADIAN COMPANY)**

20.1 The Contractor is responsible for compliance with the immigration requirements applicable to non-permanent residents entering Canada to work on a temporary basis in fulfillment of the Contract. In some instances, the employment authorization necessary to enter Canada cannot be issued without prior approval of Human Resources Centre Canada (HRCC). HRCC should always be contacted as soon as the decision to bring in a non-permanent resident is made. The Contractor will be responsible for all costs incurred as a result of non-compliance with immigration requirements.

**21.0 LUMP SUM PAYMENT - WORK FORCE REDUCTION PROGRAMS**

21.1 It is a term of the contract that:

- a. the Contractor has declared to the Departmental Representative whether the Contractor has received a lump sum payment made pursuant to any work force reduction program, including but not limited to the Work Force Adjustment Directive, the Early Departure Incentive Program, the Early Retirement Incentive Program or the Executive Employment Transition Program, which has been implemented to reduce the public service;
- b. the Contractor has informed the Departmental Representative of the terms and conditions of that work force reduction program, pursuant to which the Contractor was made a lump sum payment, including the termination date, the amount of the lump sum payment and the rate of pay on which the lump sum payment was based; and
- c. the Contractor had informed the Departmental Representative of any exemption in respect of the abatement of a contract fee received by the Contractor under the Early Departure Incentive Program Order or paragraph 4 of Policy Notice 1995-8, of July 28, 1995.

**22.0 FORMER PUBLIC SERVANT**

22.1 Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.

**22.2 Definitions**

For the purposes of this clause,

"former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces

or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a) an individual;
- b) an individual who has incorporated;
- c) a partnership made of former public servants; or
- d) a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means, a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c.C-17, the Defence Services Pension Continuation Act, 1970, c.D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c.R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c.R-11, the Members of Parliament Retiring Allowances Act, R.S., 1985, c.M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c.C-8.

### 22.3 Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a) name of former public servant;
- b) date of termination of employment or retirement from the Public Service.

22.4 By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

### 22.5 Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

- a) name of former public servant;
- b) conditions of the lump sum payment incentive;
- c) date of termination of employment;
- d) amount of lump sum payment;
- e) rate of pay on which lump sum payment is based;
- f) period of lump sum payment including start date, end date and number of weeks;
- g) number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

- 22.6 For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.

23.0 **OFFICE OF THE PROCUREMENT OMBUDSMAN (OPO)**

- 23.1 The Office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an independent avenue for suppliers to raise complaints regarding the award of contracts under \$25,000 for goods and under \$100,000 for services. You have the option of raising issues or concerns regarding the solicitation, or the award resulting from it, with the OPO by contacting them by telephone at 1-866-734-5169 or by e-mail at [boa.opo@boa-opo.gc.ca](mailto:boa.opo@boa-opo.gc.ca). You can also obtain more information on the OPO services available to you at their website at [www.opo-boa.gc.ca](http://www.opo-boa.gc.ca).

24.0 **SECURITY LEVEL**

- 24.1 Prior to the performance of the obligations under this contract, all personnel that will be involved with the project must be cleared to the security level of **RELIABILITY** as defined in the security policy of
- 24.2 Any Contract resulting from this invitation will be subject to the Security Requirements Check List (SRCL), form TBS/SCT 350-103, attached at Appendix "D".

25.0 **ATTACHMENTS**

- Appendix "A" – Statement of Requirements  
Appendix "B" – General Conditions 2010B  
Appendix "C" – Standard Instructions and Conditions  
Appendix "D" – Security Requirements Check List



# Appendix "A"

## DND - CFB HALIFAX

### **Energy Metering Shearwater & Willow Park**

### **Specifications**

**Division 00 – Procurement and Contracting Requirements**

Section 00 42 00 – Proposal Forms.....4  
Proposal Form A – Proposed Products and Services.....13  
Proposal Form B – Pricing Details.....4

**Division 01 – General Requirements**

Section 01 00 10 – General Instructions.....9  
Section 01 35 15 – Industrial Security.....5  
Section 01 35 35 – DND Fire Safety Requirements.....7  
Section 01 35 43 – Environmental Procedures.....9  
Section 01 70 12 – Health and Safety Requirements.....10  
Section 01 74 21 – Construction/Demolition Waste Management & Disposal.....4

**Division 02 – Existing Conditions**

Section 02 22 00 – Existing Conditions Assessment.....3

**Division 23 – Heating, Cooling and Air Conditioning (HVAC)**

Section 23 05 00 – Common Work Results for HVAC.....6  
Section 23 09 23.13 – Energy Meters.....7

**Division 25 – Integrated Automation**

Section 25 05 01 – EMCS: General Requirements.....6

**Division 26 – Electrical**

Section 26 05 00 – Common Work Results for Electrical.....4  
Section 26 09 23.01 – Metering and Switchboard Instruments.....6

**END OF SECTION**

**Part 1           General**

**1.01           SUMMARY**

- .1     This Section describes the process for qualifying bids and includes Proposal Forms and supplementary instructions to Bidders for submitting their bids.
- .2     The proposal forms provided at the end of this Section form part of the RFP documents and must be carefully reviewed and completed. Bidders responding to this RFP are requested to submit a detailed proposal that covers the proposed products and services and pricing details to demonstrate compliance of their bid with the mandatory requirements. A combination of the Technical Submission and Financial Submission will constitute the Proposal.
- .3     Objective of the Bid Qualification process:
  - .1     The main objective of the Bid Qualification process described in this Section is to verify the bid's eligibility through a review of the Bidder's proposed products and services for the supply and installation of energy metering systems at CFB Halifax.
  - .2     Compliance with the requirements of this Section is mandatory and proposal forms must be completed by the Bidder so his submission can be properly assessed by the Bid Review Team.
  - .3     The proposal forms will be used to verify that the products and services proposed by the Bidder comply with the RFP Mandatory Requirements. Failure to meet the RFP mandatory criteria will render the Proponent's proposal non-compliant and will lead to the rejection of his RFP submission.

**1.02           BID QUALIFICATION PROCESS**

- .1     A Bid Review Team comprising representatives selected by the NRC will review the proposals. All decisions, as to the degree to which a Bidder's response meets the mandatory requirements of this RFP, are at the sole judgement of the NRC.
- .2     To ensure fairness in the bid review process, the NRC will use the following guiding principles:
  - .1     A review methodology will be established prior to commencing reviews and will be followed consistently by the review team.
  - .2     Proponents will be dealt with in a confidential manner, with no biases, discrimination or favouritism.
  - .3     The review process and guidelines will be applied consistently to the RFP submissions received.
- .3     The mandatory requirements for this RFP place the highest priority on the Bidder's ability to meet the technical requirements set out in the RFP documents. Compliance with RFP mandatory requirements will be determined through a review of the written submission (forms) and the technical documents requested to substantiate the Bidder's claims.
- .4     Proposal Forms:
  - .1     The review of Bidder's responses to this document (Proposal Forms) will be performed in three phases:
    - .1     Products: the first phase will involve a review of the Bidder's products to assess compliance with the project's technical requirements.

- .2 Services: the second phase includes a review of the Bidder's capabilities to deliver this project successfully by verifying the qualifications and certifications of contractors.
- .3 Pricing: pricing submissions will only be opened once the technical review (products and services) is completed. In the event that a Bidder's technical submission is found to be non-compliant, his pricing submission will be "unopened".
- .2 A proposal will only be considered if the products, systems and functionalities proposed by the Bidder comply with the mandatory requirements of this document and the technical specifications.
- .3 The review of Bidder responses with regards to products and services will be based on documentation proof. It is the Bidder's responsibility to demonstrate, in the documents he submits with his response, that the project requirements are met in terms of product performance and contractor qualifications.
- .4 All claims of conformity with product requirements must be substantiated with technical bulletins, specifications sheet or other manufacturer publications.

**1.03 SUBMITTAL REQUIREMENTS**

- .1 Submit Bid in accordance with the instructions provided in the RFP documents.
  - .1 Submit the completed form and information requested in PROPOSAL FORM A – PROPOSED PRODUCTS AND SERVICES with the Bid. The response to this form must be submitted in the separate envelope, titled "TECHNICAL SUBMISSION".
  - .2 Submit the completed form requested in PROPOSAL FORM B – PRICING DETAILS with their bid. The response to this form must be submitted in a separate envelope, titled "FINANCIAL SUBMISSION".
- .2 Technical Submission: original and hard copies, as per the following:
  - .1 Index
  - .2 Form A – Proposed Products and Services, COMPLETED.
  - .3 Products:
    - .1 Appendix A-1: Steam Metering.
    - .2 Appendix A-2: Heating Water Metering.
    - .3 Appendix A-3: Electrical Metering.
  - .4 Services:
    - .1 Appendix B-1: Health and Safety Documents.
    - .2 Appendix B-2: HVAC Subcontractors Qualifications.
    - .3 Appendix B-3: EMCS Designated Contractors.
    - .4 Appendix B-4: Electrical Subcontractors Qualifications.
    - .5 Appendix B-5: Security Clearances.
    - .6 Appendix B-6: Schedule.

- .3 Financial Submission: the response must include original pricing form (Form B – Pricing Details), COMPLETED.

**\*\*\* Important – Financial Submission:**

Details of the Bidder’s financial submission must not be included with the Bidder’s response to the Technical Submission.

**1.04 EMCS DESIGNATED CONTRACTORS**

- .1 DND requires that their current standing offer holders for EMCS related work be used as a subcontractor for integration services in this project. The standing offer holders must be contracted and compensated by the Bidder as part of this Project (not the existing standing offer contract). Costs for VCI and Digicon must be in accordance with the agreed upon rates in their existing standing offer with DND/DCC. Contact information is provided below:

- .1 For Buildings SH14, SH57, SH100, SH251, SH330 and WL57:

Reg Collier   Branch Manager VCI CONTROLS Inc.   SustainCo Solutions & Services 1550 Bedford Highway, Suite 210, Sun Tower   Bedford, NS. B4A 1E6 Tel: 902-835-6330 Fax: 902-835-3737
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- .2 For Buildings SH342(X), SH343(Y) and SH344(Z):

Les Beal   Manager Digicon Building Control Solutions Limited 201-11 Rownlow Avenue   Dartmouth, NS. B3B 1W2 Tel: 902-468-2633 (x102) Cell: 902-456-8071 Toll Free: 866-200-2606
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- .2 Coordination:

- .1 Coordinate all material/equipment selections with the Designated EMCS Contractors (VCI and Digicon) to ensure all meters and related hardware can be integrated with the existing EMCS platforms and the energy data trends can be transferred to the EMCS archiving station (data historian).
- .2 The Bidder shall verify compatibility of the existing EMCS platforms with the Bidder’s proposed metering products and, if selected, will provide all necessary means to interface metering equipment with the EMCS platforms. NRC and DND do not guarantee or imply compatibility of any of the existing EMCS with the Bidder’s solution.

**Part 2 Products**

**2.01 NOT USED**

- .1 Not Used.

<b>Part 3</b>	<b>Execution</b>
<b>3.01</b>	<b>NOT USED</b>
.1	Not Used.

**END OF SECTION**

**Part 1            General**

**1.01            INSTRUCTIONS FOR COMPLETING THIS FORM**

- .1        The following proposal form must be completed in order to allow the Bid Review Team to properly assess the products and services proposed by the Bidder.
- .2        When responding to this form, the Bidder must attach any additional documentation and/or information requested in the form to support his claim. Documentation specific to products to be from official manufacturer published data such as technical documentation, specifications sheet, product bulletins, etc.
- .3        For each stipulated requirement in the form:
  - .1        **A component in BOLD identifies a MANDATORY REQUIREMENT for the project.**
  - .2        *Additional components identified in ITALIC are requested for clarification purposes and may be used to corroborate a Bidder's claim.*
- .4        It is mandatory that all fields in the form be completed. If an item deemed critical to meet the system's performance or design requirements is left incomplete on the form, or cannot be substantiated through manufacturer published data/information, the Bid Review Team may render the item noncompliant, which can lead to the rejection of the Bidder's submission.
- .5        Additional Information: some of the information requested in the form may not have an associated mandatory criterion listed, but may be used by the Bid Review Team to better understand the Bidder's products and overall solution.
- .6        Information to Append: the asterisk (\*) is used in this section to denote additional information or documents to provide in appendix.

**Part 2 Proposed Products**

**2.01 MANDATORY REQUIREMENTS**

- .1 In order to receive consideration, proposals must respond to the **Mandatory Requirements indicated in BOLD** and must include the documents/information requested. Any proposal that fails to indicate clearly that all mandatory requirements have been met will receive no further consideration.

**2.02 STEAM METERING**

- .1 Reference: Section 23 09 23.13 – Energy Meters.
- .2 Identify the main equipment forming part of the proposed steam metering solution. Include the equipment which perform the following functions: flow measurement, temperature measurement, energy calculations, data logging and communications.

<u>Description/Function</u>	<u>Manufacturer and Model Number</u>

- .3 Flow measurement:

<p><b>The proposed flow measuring element is Vortex type and is designed for measurement of saturated steam.</b></p> <p><b>The flow meter includes an optional integrated temperature measurement.</b></p> <p><b>The flow measuring element can provide a maximum measurement error of 2% and measure flow rates down to 5% of design flow.</b></p> <p><b>Typical straight run requirements to maintain accuracy: 15 x DN at inlet and 5 x DN at outlet.</b></p> <p><i>Indicate modified straight run requirements at the inlet with the use of a flow conditioner: _____ x DN</i></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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- .4 Process Connection:

<p><b>The proposed flow measuring element can be rated for Class 150 or Class 300 and includes steel flanges to ASME B16.5.</b></p> <p><b>The flow meter can be provided with reducers for direct connection to process piping.</b></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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<p><i>Indicate if piping reducers are integrated to the flow meter (single flange connection per side) or external piping reducers are fabricated and mounted to the flow meter by the manufacturer (two flange connections per side).</i></p> <p><input type="checkbox"/> <i>Integrated reducers</i>                      <input type="checkbox"/> <i>External mounted reducers</i></p>	
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.5 Temperature measurement:

<p><b>The proposed metering solution accepts the connection of an external temperature sensor for performing steam calculations?</b></p>	<p><input type="checkbox"/> Yes</p>
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.6 Measurement and Calculations of Values:

<p><b>The proposed solution includes measurement/calculations of the following data: power, volume, mass flow.</b></p> <p><b>The proposed solution includes counters for totalizing energy.</b></p> <p><i>Identify which equipment performs the measurement and calculations:</i></p> <p>_____</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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.7 Real-time Clock:

<p><b>The proposed solution includes a real-time clock for performing time stamping of events and data logs.</b></p>	<p><input type="checkbox"/> Yes</p>
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.8 Outputs:

<p><b>The proposed solution provides at least one current output (4-20 mA) configurable to provide data on power (mass flow).</b></p> <p><b>The proposed solution provides at least one binary output configurable to provide a pulse output for energy totalization.</b></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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.9 Communications:

<p><b>The proposed solution includes a communication interface which provides access to all measured and calculated values indicated above.</b></p> <p><b>The communication interface is provided in accordance with at least one of the following protocols: BACnet MSTP, BACnet IP, Modbus RS485 or Modbus TCP.</b></p> <p><i>Indicate which communication protocols are supported:</i></p> <p><input type="checkbox"/> <i>BACnet MSTP</i>                      <input type="checkbox"/> <i>Modbus RS485</i></p> <p><input type="checkbox"/> <i>BACnet IP</i>                              <input type="checkbox"/> <i>Modbus TCP</i></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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<p><i>Does the solution provide native support for all the protocols selected above or does the solution only support one protocol at once?</i></p> <p><input type="checkbox"/> <i>Native support for multiple protocols</i>      <input type="checkbox"/> <i>Support for single protocol</i></p> <p><i>Identify which equipment performs data communications:</i></p> <p>_____</p>	
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.10 Data Logging:

<p><b>The proposed solution includes data logging capabilities which can store events, alarms and metering data on non-volatile memory.</b></p> <p><b>The data logger can store 30 days of basic power and energy data in the event of communication failure with the EMCS.</b></p> <p><b>The proposed solution can export data logger values to an external file in CSV or MS excel format.</b></p> <p><i>Identify which equipment performs data logging:</i></p> <p>_____</p> <p><i>In the event of a communication failure with the EMCS, indicate the method(s) available for retrieving data logger values (e.g. Ethernet connection, USB, web interface):</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Indicate the accessories required for interfacing with the data logger (e.g. connector, software, handheld device, etc.) and whether any software licenses are required in the solution:</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> <i>Software Licenses Required</i></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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- .11 *\*Technical Data:* for each equipment proposed, provide in appendix (A-1) manufacturer datasheets and/or brochures describing the performance, functionalities and options. Clearly identify on datasheets all claims of conformity with the requirements listed above.
- .1 As required, provide under the appendix (A-1a), any additional manufacturer literature required to demonstrate conformance of equipment with mandatory requirements.
  - .2 Provide a connection diagram showing how the equipment proposed will be interconnected to provide the steam metering solution.
  - .3 Provide datasheets of hardware/software required to export data logging values independently from the EMCS.

**2.03 HEATING WATER METERING**

- .1 Reference: Section 23 09 23.13 – Energy Meters.
- .2 Identify the main equipment forming part of the proposed heating water metering solution. Include the equipment which perform the following functions: flow measurement, temperature measurement, energy calculations, data logging and communications.

<u>Description/Function</u>	<u>Manufacturer and Model Number</u>

- .3 Flow measurement:

<b>The proposed flow measuring element is Ultrasonic type, clamp-on, and is designed for non-invasive measurement of liquid.</b>	<input type="checkbox"/> Yes
<b>The flow measuring element can provide a maximum measurement error of 1.5% and measure flow rates down to 1% of design flow.</b>	<input type="checkbox"/> Yes
<b>The flow meter includes compensation for temperature, viscosity and density and is suitable for use on glycol systems.</b>	<input type="checkbox"/> Yes
<b>Typical straight run requirements to maintain accuracy: 10 x DN at inlet and 5 x DN at outlet.</b>	<input type="checkbox"/> Yes
<b>Capability to use an additional pair of flow transducers to measure flow in limited straight run applications.</b>	<input type="checkbox"/> Yes
<i>Indicate modified straight run requirements at the inlet with the use of additional flow transducers: _____ x DN</i>	

- .4 Calibration:

<b>The proposed flow meter is factory-calibrated and does not require field calibration. NIST traceable calibration is provided with each system.</b>	<input type="checkbox"/> Yes
<b>All flow transducers include multi-point flow calibration certificates. All calibration and transducer data resides on non-volatile memory.</b>	<input type="checkbox"/> Yes

.5 Temperature measurement:

<b>The proposed metering solution accepts the connection of temperature sensors for measuring delta-temperature and heat flow (BTU metering)?</b>	<input type="checkbox"/> Yes
<b>The solution includes matched pair temperature sensors, calibrated with no greater difference than 0.03 °C.</b>	<input type="checkbox"/> Yes

.6 Measurement and Calculations of Values:

<b>The proposed solution includes measurement/calculations of the following data: flow rate, flow velocity, mass flow, total flow, media temperature, delta-T, heat quantity, heat flow totalizer (energy).</b>	<input type="checkbox"/> Yes
<b>The proposed solution includes counters for totalizing heat energy.</b>	<input type="checkbox"/> Yes
<i>Identify which equipment performs the measurement and calculations:</i> _____	

.7 Real-time Clock:

<b>The proposed solution includes a real-time clock for performing time stamping of events and data logs.</b>	<input type="checkbox"/> Yes
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.8 Outputs:

<b>The proposed solution provides at least one current output (4-20 mA) configurable to provide data on power (heat flow).</b>	<input type="checkbox"/> Yes
<b>The proposed solution provides at least one binary output configurable to provide a pulse output for energy totalization.</b>	<input type="checkbox"/> Yes

.9 Communications:

<b>The proposed solution includes a communication interface which provides access to all measured and calculated values indicated above.</b>	<input type="checkbox"/> Yes
<b>The communication interface is provided in accordance with at least one of the following protocols: BACnet MSTP, BACnet IP, Modbus RS485 or Modbus TCP.</b>	<input type="checkbox"/> Yes
<i>Indicate which communication protocols are supported:</i>	
<input type="checkbox"/> BACnet MSTP <input type="checkbox"/> Modbus RS485	
<input type="checkbox"/> BACnet IP <input type="checkbox"/> Modbus TCP	
<i>Does the solution provide native support for all the protocols selected above or does the solution only support one protocol at once?</i>	
<input type="checkbox"/> Native support for multiple protocols <input type="checkbox"/> Support for single protocol	
<i>Identify which equipment performs data communications:</i> _____	

.10 Data Logging:

<p><b>The proposed solution includes data logging capabilities which can store events, alarms and metering data on non-volatile memory.</b></p> <p><b>The data logger can store 30 days of basic power and energy data in the event of communication failure with the EMCS.</b></p> <p><b>The proposed solution can export data logger values to an external file in CSV or MS excel format.</b></p> <p><i>Identify which equipment performs data logging:</i></p> <p>_____</p> <p><i>In the event of a communication failure with the EMCS, indicate the method(s) available for retrieving data logger values (e.g. Ethernet connection, USB, web interface):</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Indicate the accessories required for interfacing with the data logger (e.g. connector, software, handheld device, etc.) and whether any software licenses are required in the solution:</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> <i>Software Licenses Required</i></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Yes</p>
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.11 *\*Technical Data:* for each equipment proposed, provide in appendix (A-2) manufacturer datasheets and/or brochures describing the performance, functionalities and options. Clearly identify on datasheets all claims of conformity with the requirements listed above.

- .1 As required, provide under the appendix (A-2a), any additional manufacturer literature required to demonstrate conformance of equipment with mandatory requirements.
- .2 Provide a connection diagram showing how the equipment proposed will be interconnected to provide the heating water metering solution.
- .3 Provide datasheets of hardware/software required to export data logging values independently from the EMCS.

2.04 ELECTRICAL METERING

- .1 Reference: Section 26 09 23.01 – Metering and Switchboard Instruments.
- .2 Identify the proposed electric power monitoring equipment.

.1 Digital Meters:

Manufacturer	
Model/Series	

.2 Current Transformers (CTs):

Manufacturer	
Model/Series	

.3 Potential Transformers (PTs):

Manufacturer	
Model/Series	

.3 Measurement and Calculations:

<b>The proposed electric metering system provides measures the voltage and current on all three phases in addition to measuring the neutral current.</b>	<input type="checkbox"/> Yes
<b>Measurements/calculations include voltage, current, kW, kVAR, kVA and power factors on a per phase and three-phase basis.</b>	<input type="checkbox"/> Yes
<b>Energy readings can be totalized for kWh, KVARh and kVAh as net and total readings</b>	<input type="checkbox"/> Yes
<b>Demand readings of phases and 3-phase average can be displayed in real time or for peak values.</b>	<input type="checkbox"/> Yes
<b>The solution provides true RMS measurement with PTs and CTs.</b>	<input type="checkbox"/> Yes

.4 Certifications:

<b>The proposed electric monitoring equipment is CSA approved and cUL Listed.</b>	<input type="checkbox"/> Yes
<b>Current Transformers (CTs) proposed are revenue grade.</b>	<input type="checkbox"/> Yes





<p><i>Indicate the accessories required for interfacing with the data logger (e.g. connector, software, handheld device, etc.) and whether any software licenses are required in the solution:</i></p> <hr/> <hr/> <hr/> <p><input type="checkbox"/> <i>Software Licenses Required</i></p>	
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- .9 *\*Technical Data:* for each equipment proposed, provide in appendix (A-3) manufacturer datasheets and/or brochures describing the performance, functionalities and options. Clearly identify on datasheets all claims of conformity with the requirements listed above.
- .1 As required, provide under the appendix (A-3a), any additional manufacturer literature required to demonstrate conformance of equipment with mandatory requirements.
  - .2 Provide datasheets of hardware/software required to export data logging values independently from the EMCS.

**Part 3 Proposed Services**

**3.01 GENERAL INFORMATION – PRIME CONTRACTOR**

.1 Name of Company:

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.2 \*Health and Safety Documents:

- .1 Submit in appendix (B-1), a copy of the following mandatory Health & Safety documents that will govern the Health & Safety practices of the employees of the Contractor and the employees of their subcontractors:
  - .1 Signed and dated:
    - .1 Health & Safety policy statement
    - .2 The project specific Health & Safety program that supports the policy
    - .3 Violence and harassment policies
    - .4 “Right to Refuse Work” procedures
  - .2 Trade qualifications and applicable certificates (worker/supervisor H&S training and awareness).
  - .3 Hazard Assessment/Analysis template (task, hazard, control measure).
  - .4 Signed and dated acknowledgement that the Bidder understands the site work will be completed in DND buildings, which may require the submission of additional Health and Safety related documentation, depending on the building location and type of occupancy.

**3.02 HVAC SERVICES**

.1 List of Subcontractors: indicate the names of all HVAC subcontractors

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.2 \*Subcontractor Qualifications: provide in appendix (B-2) the following information:

- .1 Welders: welding qualifications and certificates.
- .2 Energy Metering Installer(s):
  - .1 List of 5 successfully completed projects of similar type.
  - .2 Proof of training on the products/systems proposed.

**3.03 EMCS SERVICES**

- .1 *\*Designated Contractors:* provide in appendix (B-3) a letter confirming that the following Designated Contractors have been retained for all work related to the EMCS, in accordance with the Contract Requirements.
  - .1 Digicon Building Control Solutions Ltd.
  - .2 VCI Controls Inc.

**3.04 ELECTRICAL SERVICES**

- .1 List of Subcontractors: indicate the names of all Electrical subcontractors
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- .2 *\*Subcontractor Qualifications:* provide in appendix (B-4) the following information:
  - .1 Electricians: proof as a licensed electrician.
  - .2 Metering Installation: letter stating manufacturer involvement.

**3.05 SECURITY CLEARANCES**

- .1 *\*Proof of Security Clearances:* provide in appendix (B-5) the following.
  - .1 Submit proof of reliability status security clearance for all employees of the Bidder and employees of the Bidder's subcontractors who will work on this project.
  - .2 Submit a valid Designated Organization Screening (DOS) for the Bidder's organization and all of the Bidder's subcontractors.
  - .3 Submit a letter stating the Bidder complies with the provisions of:
    - .1 The Security Requirements Check List (SRCL) and security classification guide (if applicable).
    - .2 Specification Section 01 35 15 - Industrial Security.

**3.06 SCHEDULE**

- .1 *\*Compliance with Schedule Requirements:* provide in appendix (B-6) a letter confirming the following:
  - .1 The Bidder has adequate staff available for the duration of the Contract to ensure all work is complete and issues resolved in such a way that:
    - .1 All meters and related hardware are received on site by DND staff on or before March 15<sup>th</sup>, 2019.
    - .2 All meters and related hardware are installed, configured, integrated with the EMCS and commissioned on or before June 28<sup>th</sup>, 2019.

**END OF FORM**

**Part 1            General**

**1.01            INSTRUCTIONS FOR COMPLETING THIS FORM**

- .1            Pricing forms must be completed by providing the total cost before taxes.
- .2            The Bidder must provide all prices requested in the form. In the event that a component has no associated cost, the Bidder must indicate 0\$.
- .3            Equipment and accessories used for pricing must be as per these specifications. The Bidder must use the products proposed in Form A - Proposed Products and Services.
- .4            Unit Pricing:
  - .1            Unit prices are requested for the installation of conduits and cables to establish a base pricing for the Contract (i.e. providing a stipulated price).
  - .2            Quantities requested in the pricing form are estimated.
  - .3            These quantities will be adjusted through the course of the Work using Measurement for Payment procedures. Unit prices submitted by the Bidder will apply to adjust pricing for additional work (extra) or to remove work (credit) for the duration of the Contract.

**Part 2 Unit Price Form**

**2.01 ELECTRICAL – CONDUITS AND CABLES**

- .1 Unit prices must include all costs related to execute the work including materials, equipment, labour, project management, inspections, administration, overhead and profits.
- .2 Work Included and Installation Conditions:
  - .1 Instrumentation Cabling:
    - .1 This includes conduit and cabling runs to connect metering instrumentation to metering panels (typically wall mounted).
    - .2 Cost per hundred linear feet (100 ft) to include:
      - .1 Four runs of liquid tight flexible metal conduit (up to 5 feet) for final connection of instruments, including pull boxes.
      - .2 Connectors, elbows, pull boxes, strapping and support.
      - .3 EMT conduit dimension: 21 mm.
      - .4 Cables and pulling costs: RTD or multi conductor twisted-shielded pair, in accordance with Section 23 09 23.13 – Energy Meters.
      - .5 Conduit identification.
  - .2 Power Circuits:
    - .1 This includes conduit and cabling runs to provide power from local distribution panels to energy metering panels (typically wall mounted).
    - .2 Cost per hundred linear feet (100 ft) to include:
      - .1 Connectors, elbows, pull boxes, strapping and support.
      - .2 EMT conduit dimension: 21 mm.
      - .3 Cables and pulling costs.
      - .4 Conduit identification.
  - .3 Metering – EMCS Communication:
    - .1 This includes conduit and cabling runs to connect HVAC metering panels and electrical meters to the EMCS.
    - .2 Cost per hundred linear feet (100 ft) to include:
      - .1 Connectors, elbows, pull boxes, strapping and support.
      - .2 EMT conduit dimension: 21 mm.
      - .3 Cables and pulling costs: CAT-5E wiring.
      - .4 Conduit identification.

2.02 UNIT PRICING SCHEDULE

ITEM	Unit Cost (\$ per 100 ft)	Quantity (ft)	Total Costs
Instrumentation Cabling		550	\$
Power Circuits		675	\$
Metering – EMCS Communication		1,150	\$
TOTAL COST*			\$

\*Note: this total cost must be reported on the Lump Sum Price Schedule in the item  
“ELECTRICAL – CONDUITS AND CABLES”

**Part 3 Lump Sum Price for the Work**

**3.01 Lump Sum Price Schedule**

- .1 Complete the schedule below providing an all-inclusive lump sum price for the Work as described in this Request for Proposal.
  - .1 All costs required by the Bidder to complete the Work shall be included in the price below.
  - .2 Provide values in accordance with the Project’s staging requirements (Stages 1 to 4), as indicated in Section 01 00 10 – General Instructions.

DESCRIPTION	VALUE			
	Stages 1 and 2	Stage 3	Stage 4	Total
HVAC	\$	\$	\$	\$
EMCS – VCI	\$	\$	\$	\$
EMCS – Digicon	\$	\$	\$	\$
Electrical	\$	\$	\$	\$
Electrical Conduits and Cables		\$		\$
<b>TOTAL</b>				<b>\$</b>

**END OF FORM**

**Part 1 General**

**1.01 SUMMARY OF WORK**

- .1 Work of this Contract comprises the installation of energy metering equipment for HVAC and electrical services and the integration of metering equipment and data to the existing EMCS in nine buildings forming part of DND's Halifax area portfolio including:
  - .1 Shearwater (SH): eight buildings.
  - .2 Willow Park (WL): one building.
- .2 Work Sequence: perform work in accordance with the following staging requirements.
  - .1 Stage 1: Pre-installation Work
    - .1 Perform pre-installation review in accordance with the requirements of Section 02 22 00 – Existing Conditions Assessment and submit report.
    - .2 Perform selection of energy metering equipment and submit detailed shop drawings of proposed equipment, components and accessories.
  - .2 Stage 2: Equipment Purchasing and Coordination of Work
    - .1 Purchase and deliver metering equipment and components on site within the time for completion stated below.
    - .2 Coordinate and perform security clearance requirements for all staff scheduled to work on site.
    - .3 Submit schedules and work plan for performing work and required shutdowns of building services.
  - .3 Stage 3: Metering Installation
    - .1 Perform installation, verification and calibration of energy meters.
    - .2 Integrate energy metering data to each building's EMCS.
    - .3 Perform final commissioning of new systems.
  - .4 Stage 4: Project Closeout
    - .1 Submit closeout documentation.
    - .2 Provide training and demonstration.
- .3 Time for Completion: initiate work within 5 days of receipt of notice of contract award and perform the work listed in each stage indicated in the Work Sequence above, within the time stated in the following table.

Stage	Time for Completion
Stage 1 – Pre-installation Work	Within 10 days of receipt of notice of contract award
Stage 2 – Equipment Purchasing and Coordination of Work	March 15 <sup>th</sup> 2019
Stage 3 – Metering Installation	June 14 <sup>th</sup> 2019
Stage 4 – Project Closeout	June 28 <sup>th</sup> 2019



**1.02 TURNKEY SOLUTION**

- .1 The successful Bidder shall provide a turnkey metering solution that includes the supply, installation and commissioning of energy metering systems, including all required interfaces and programming to enable the transfer of energy meter data logs to the existing EMCS platforms for archiving.
- .2 Refer to PART 2 – GENERAL DESIGN/PERFORMANCE CRITERIA OF THE METERING SOLUTION for requirements related to the overall metering solution.

**1.03 CODES AND STANDARDS**

- .1 Perform work in accordance with National Building Code of Canada (NBC) 2015 and other applicable code of provincial or local application including amendments up to project tender closing date provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Quality of materials and work must meet or exceed requirements of specified standards, codes and referenced documents. All materials shall be new.

**1.04 TAXES**

- .1 Pay taxes properly levied by law (including Federal, Provincial and Municipal).

**1.05 FEES, PERMITS AND CERTIFICATES**

- .1 Obtain and pay for building permit, certificates, licenses and other permits as required by municipal, provincial and federal authorities.
- .2 Provide authorities with plans and information for acceptance certificates.
- .3 Provide inspection certificates as evidence that Work conforms to requirements of authority having jurisdiction.
- .4 Submit to Departmental Representative, copy of application submissions and approval documents received for authority having jurisdiction.

**1.06 EXISTING SERVICES**

- .1 Where Work involves the necessary interruption of mechanical or electrical service, notify and obtain required permission from Departmental Representative.
- .2 Submit schedule to and obtain approval from Departmental Representative in accordance with PART 1 – SCHEDULING for any shutdown of active service including power and steam services. Adhere to approved schedule and provide notice to affected parties.
- .3 Sequence for Work requiring shutdowns:
  - .1 Submit proposed sequence for performing Work that will require a shutdown of existing services in buildings and indicate methods and procedures included to carry out work and minimize downtime.

**1.07 DESIGNATED EMCS CONTRACTORS**

- .1 DND requires that their current standing offer holders for EMCS related work must be used as a subcontractor for integration services in this project.
- .2 Coordination: coordinate all material/equipment selections with the Designated EMCS Contractors (VCI and Digicon) to ensure all meters and related hardware can be integrated

with the existing EMCS platforms and the energy data trends can be transferred to the EMCS archiving station.

**1.08 WORK COORDINATION**

- .1 Designate one person as Project Manager to be responsible for review of contract documents, submittals and planning and managing coordination of Work.
- .2 Site Access: Project Manager to coordinate site access with DND's local building authority, and provide all documentation required for access, in accordance with the policies and procedures defined by that authority.
- .3 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.
  - .1 Provide each subcontractor with complete specifications for Contract, to assist them in planning and carrying out their respective work.
  - .2 Facilitate meeting and review shop drawings to ensure proper coordination. Ensure subcontractors agree and sign-off on shop drawings.
- .4 Submit shop drawings and order equipment and components only after coordination meeting for such items has taken place.
- .5 Work Cooperation: ensure cooperation between trades in order to facilitate general progress of Work and ensure installation or equipment complies with other trade's Work
- .6 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.
  - .1 Resolve disputes between subcontractors.

**1.09 PROJECT MEETINGS**

- .1 Schedule and administer project meetings throughout the progress of the work.
- .2 Organize and host meetings via video conference using WebEx.
- .3 Notify parties in writing minimum 3 days prior to meetings.
  - .1 Ensure attendance of Subcontractors.
  - .2 Departmental Representative will provide list of other attendees to be notified.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Representatives of the Contractor, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.
- .6 Preconstruction Meeting:
  - .1 Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
  - .2 Agenda to include:
    - .1 Appointment of official representative of participants in the Work – i.e. Project Manager.
    - .2 Schedule of Work.
    - .3 Pre-installation review activities in accordance with Section 02 22 00 – Existing Conditions Assessment.

- .4 Submission of shop drawings.
  - .5 Delivery lead times of specified equipment.
  - .6 Security requirements.
  - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative.
  - .8 Record drawings, maintenance manuals, acceptance and warranties.
  - .9 Monthly progress claims, administrative procedures, hold backs.
- .7 Progress Meetings:
- .1 During course of Work, schedule weekly progress meetings.
  - .2 Submit an updated schedule 2 days prior to meeting, as described in PART 1 – SCHEDULING.
  - .3 Agenda to include:
    - .1 Review of Work progress since previous meeting.
    - .2 Field observations, problems, conflicts.
    - .3 Problems which impede construction schedule.
    - .4 Corrective measures and procedures to regain projected schedule.
    - .5 Revision to construction schedule.
    - .6 Other business.

#### **1.10 SCHEDULING**

- .1 Submit to Departmental Representative within 5 days of award of Contract, a construction schedule (Gantt chart format) and detailed work plan indicating progress stages.
  - .1 Show breakdown by building and sub-tasks for installation, testing and integration with their anticipated completion dates.
  - .2 When schedule has been reviewed by Departmental Representative, take necessary measures to complete work within scheduled time.
- .2 Submit schedule updates weekly, prior to progress meetings. Provide a narrative explanation of necessary changes and schedule revisions at each update.
- .3 Unless otherwise noted, carry out work during "regular hour" Monday to Friday from 07:30 to 15:30 hours.
- .4 Carry out work requiring any power interruptions or shutdown of existing services during "off hours" Monday to Friday from 16:00 to 07:30 hours and on Saturdays, Sundays, and statutory holidays.
- .5 Notify Departmental Representative at least 2 weeks in advance for work to be carried out during "off hours" and for coordinating shutdown of existing services. Indicate planned shutdowns on construction schedule.

#### **1.11 SECURITY CLEARANCE**

- .1 Security requirements: in accordance with Section 01 35 15 – Industrial Security.
- .2 Contractor to hold, at all times though the duration of the Contract, a valid Designated Organization Screening (DOS), issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).

- .1 All personnel, including subcontractors, requiring access to the work site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by CISD/PWGSC.
- .2 Comply with the provisions of the:
  - .1 Security Requirements Check List (SRCL) and security classification guide (if applicable);
  - .2 Section 01 35 15 – Industrial Security.

**1.12 SECURITY ESCORTS**

- .1 All personnel employed on this project shall be escorted while on site. Escorts will be paid for by DND.
- .2 Submit an escort request to Departmental Representative at least 72 hours before the service is needed. For requests submitted within the time mentioned above, the Departmental Representative will pay for the costs of the security escort. The cost incurred by a late request will be charged to the Contractor. Escort requests at least 72 hours before service is needed is subject to escort availability.
- .3 Any escort request may be cancelled free of charge if notification of cancellation is given at least 24 hours before the scheduled time of the escort. The cost incurred by a late cancellation will be charged to the Contractor.
- .4 The calculation of costs will be based on the average hourly rate of a security officer for a minimum of eight hours per day for a late service request and of four hours for late cancellations.

**1.13 HEALTH AND SAFETY**

- .1 Perform in accordance with Section 01 70 12 – Health and Safety Requirements.
- .2 Before commencing site work, host a Health and Safety start-up meeting at all sites with the DND on-site representative and subcontractors. The meeting shall meet the requirements of the Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.

**1.14 DESIGNATED SUBSTANCES**

- .1 Buildings SH251, SH330, SH342 (X), SH343 (Y), SH344 (Z) and WL57:
  - .1 Based on the age of these buildings, hazardous building materials are not expected.
- .2 Buildings SH14, SH57 and SH100:
  - .1 A Designated Substance Survey (DSS) has been conducted in these buildings, which identified presence of asbestos in wall/ceiling plaster and drywall, pipe insulation, pipe wrap and elbow parging.
  - .2 Contractor is to conduct assessment of work area with Departmental Representative to verify if the work to execute will affect building components and piping sections not yet remediated (i.e. affect existing asbestos still present).
  - .3 Conduct assessment during pre-installation review in accordance with Section 02 22 00 – Existing Conditions Assessment. Based on this assessment, Departmental Representative will generate a project-specific DSS report and provide results to Contractor.
  - .4 Asbestos Removal Work: based on the assessment and project-specific DSS report, Departmental Representative will perform asbestos removal on piping sections prior to metering installation.

- .3 Painted surfaces contain metals at varying concentrations but are not leachate-toxic. Workers impacting paints in all buildings must wear proper respiratory protection (minimum half-face P-100 respirator) and have appropriate fit-test and training.

**1.15 INSPECTION AND TESTING**

- .1 Tests on materials and equipment, as specified within sections, is responsibility of Contractor except where specified.
- .2 Provide necessary instruments, equipment and qualified personnel to perform tests.
- .3 Where tests or inspections reveal work not in accordance with Contract, bear cost of tests and additional tests as Departmental Representative requires to verify acceptability of corrected work.
- .4 Pay costs for uncovering and making good work that is covered before inspection or testing is completed and approved by Departmental Representative.

**1.16 EXAMINATION**

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.

**1.17 CLEAN UP**

- .1 Clean up work area as work progresses. At end of each work period, remove debris from site, neatly stack material for use, and clean up generally.
- .2 Clean areas under contract to condition at least equal to that previously existing and to approval of Departmental Representative.

**1.18 REMOVED MATERIALS**

- .1 Unless otherwise specified, materials for removal become Contractor's property. Remove materials promptly from site.

**1.19 SUBMITTALS**

- .1 Product Data: submit product data during bid submission in accordance with Section 00 42 00 – Proposal Forms.
- .2 Shop Drawings:
  - .1 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
  - .2 Review is for sole purpose of ascertaining conformance with general concept and does not mean approval of design details inherent in shop drawings, responsibility for which remains with Contractor.
  - .3 Departmental Representative's review does not relieve Contractor of responsibility for errors or omissions in shop drawings or of Contractor's responsibility for meeting requirements of construction and Contract Documents.
  - .4 Do not commence manufacture or order materials before shop drawings are reviewed.

**1.20 CLOSEOUT SUBMITTALS**

- .1 Submit project record documents and operating and maintenance manuals.
- .2 Two weeks prior to training, submit to the Departmental Representative one hard copy of project record documents and operating and maintenance manuals, compiled as follows:
  - .1 Bind data in vinyl hard cover 3 "D" ring type loose leaf binders for 212 x 275 mm size paper.
  - .2 Enclose title sheet labelled "Operation Data and Maintenance Manual," project name, date and list of contents. Project name must appear on binder face and spine.
  - .3 Organize contents into applicable sections of work to parallel project specifications breakdown. Provide tabbed fly leaf for each separate product and system, with typed description of product.
- .3 Following the Departmental Representative review, provide two hard copies of the corrected closeout submittals and include an electronic copy in pdf format.
- .4 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual. Include:
  - .1 Product data and manufacturer's installation and maintenance instructions for each product/system used on this Project.
  - .2 Final shop drawings reviewed during submittals.
  - .3 Certifications:
    - .1 Instrumentation calibration certificates.
    - .2 Inspection certificates from authorities having jurisdiction.
  - .4 Manufacturer's field reports.
  - .5 EMCS commissioning reports.
  - .6 Warranty information.
- .5 Record Documentation:
  - .1 As work progresses, maintain accurate records to show deviations from Contract.
  - .2 As-built Drawings:
    - .1 Submit schematic as-built drawings identifying the location of each metering system and their components.
    - .2 Identify each system with an identification number, room number and building number.
  - .3 Meter Schedules:
    - .1 Submit detailed meter schedules.
    - .2 Cross-reference meter schedules with as-built drawings.
  - .4 EMCS as-built documentation in accordance with Section 25 05 01 – EMCS: General Requirements.

**1.21 GUARANTEES AND WARRANTIES**

- .1 Before completion of work collect manufacturer's guarantees and warranties and deliver to Departmental Representative.

**Part 2 Products**

**2.01 GENERAL DESIGN/PERFORMANCE CRITERIA OF THE METERING SOLUTION**

- .1 Main objective of this project is to deploy energy metering systems to support the future installation of a Building Energy Management Software (BEMS), a software platform for performing building data analytics and fault detection and diagnostics.
- .2 Design Criteria:
  - .1 Data Quality: the metering solution must provide assurance over data quality by:
    - .1 Using metering equipment designed for industrial applications and based on measurement technologies specified in the technical specifications.
    - .2 Selecting and sizing metering equipment to optimize the measurement accuracy while maintaining a high turndown ratio.
    - .3 Providing energy metering with integrated energy/flow computers which have been designed and tested specifically for performing energy/power calculations and outputting complete energy metering data.
  - .2 Use of existing EMCS for data integration: the metering solution must provide all additional hardware/software required to transfer energy metering data from the meters to the current EMCS to perform the following:
    - .1 Trend and archive energy metering data using the EMCS platform.
    - .2 Display energy metering data on the EMCS graphical user interface for the O&M team.
    - .3 Allow energy metering data to be readily-available at the EMCS for future integration with a BEMS platform.
  - .3 Data Integrity: to maintain a high level of data integrity, the metering solution must include the following:
    - .1 Meters with integrated data logging capabilities, which prevent data loss in case of a communication failure with the EMCS.
    - .2 Alarm notifications at the EMCS for faulty meters and in the case of a loss of communication – compromised data flow.
    - .3 Capacity to export data logs from meters locally (without the use of the EMCS) in case of extended communication downtime.
    - .4 Meters equipped with data communication interfaces and memory registers to transfer measured/calculated values directly to the EMCS – eliminating the risk of control signal interpretation errors.
  - .4 Data Availability: the metering solution must provide flexibility for outputting energy metering data by:
    - .1 Supporting both a data communication port and signal outputs (analog, binary) for providing data outputs.
    - .2 Supporting industry standard communication protocols and prioritizing, to the best extent possible, the BACnet communication standard and IP technology.
- .3 Performance Criteria for Data Logging:
  - .1 The metering solution must have the capability to trend and archive at the EMCS all metering data requested in Section 25 05 01 – EMCS: General Requirements for a minimum of one year, using a 15 minutes sampling rate.

- .2 Meters provided with the metering solution must have the capability to record basic power and energy data logs for a minimum of 30 days.

**2.02 DATA LOGGING COMPUTER**

- .1 Provide a portable computer (laptop) to host the necessary software and licenses to interface locally with the energy metering systems and export data logs.
- .2 Minimum Requirements:
  - .1 CPU and memory performance: to meet minimum requirements of software to install.
  - .2 Interfaces: USB and serial, as required to connect with metering interfaces.
  - .3 Software: latest Windows operating system, Web Browser, MS-Word and MS-Excel.
- .3 Accessories: power cord and laptop bag to store meter interface connectors and cables.

**Part 3 Execution**

**3.01 DEMONSTRATION AND TRAINING**

- .1 Provide and arrange for all necessary training of facility managers and O&M staff to ensure the proper operation of the solution and to impart the necessary skills to operate the systems efficiently.
- .2 Demonstration and training activities to include:
  - .1 Overview of new EMCS graphics showing energy metering data and trends.
  - .2 Review of alarm notifications related to faulty meters.
  - .3 Special considerations for working around meters and regular maintenance and verification activities.
  - .4 Performing data logging exports: for each type of metering system, review connection procedures, user interface features and navigation and process for exporting data.

**END OF SECTION**



**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        **Precedence** - Division 1 sections take precedence over technical specifications in other Divisions of this project manual.

**1.2                REFERENCES**

- .1        Definitions:
  - .1        Canadian Industrial Security Directorate (CISD) - A government agency that developed the Industrial Security Manual.
  - .2        Company Security Officer (CSO) – The CSO is the organization's official point of contact with the Industrial Security Program (ISP). He or she is responsible for monitoring the organization's security profile, addressing security issues, and is accountable to the ISP and to the organization's designated Key Senior Official on all industrial security matters.
  - .3        Contractor CSO- The employee of the Contractor's company who is the CSO.
  - .4        Industrial Security Manual(ISM) – The ISM is a ready and simple reference which tells Company Security Officers what they must know about Canadian government security standards and procedures and how to ensure that their organization meets these security requirements.
  - .5        Industrial Security Program (ISP) - The Industrial Security Program (ISP) helps industry to participate in Government of Canada and foreign government contracts. CISD provide security screening services needed for contractors before their employees can work with Protected and Classified information and assets
  - .6        Positive Control – refers to measures which guarantee that persons without appropriate clearance will not be left unattended to access DND/CAF information, assets, resources, or locations.
  - .7        Request for Visit (RFV) - Is a form that is required to be filled out by an individual who requires access to sensitive DND property, personnel, information, assets and resources because they must be security screened at the appropriate level before commencement of their duties.
  - .8        Restricted - Refers to a situation where authorized persons only, are allowed access to an area or information.
  - .9        Security Implementation Plan - A detailed document which outlines the company's strategy and process to meet contract security requirements.
  - .10       Security Requirements Check List (SRCL) - The Security Requirements Check List (SRCL) is a Treasury Board Secretariat (TBS) form used to define the security requirements for a contract. The SRCL represents an evaluation of security threats and risks that may arise through the contracting process.
  - .11       Sensitive - Records that are sensitive contain information that can cause different degrees of injury to an individual, a company, or the country if the information were disclosed in an unauthorized manner.

- .2 Reference Sites:
  - .1 Defence Construction Canada (DCC)
    - .1 [http://www.dcc-cdc.gc.ca/english/contractors\\_consultants.html](http://www.dcc-cdc.gc.ca/english/contractors_consultants.html)
  - .2 Public Services and Procurement Canada (PSPC) Industrial Security
    - .1 <http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>

### 1.3 GENERAL

- .1 Security requirements must form part of the contract between DCC and industry when defined by a Security Requirement Check List (SRCL).
- .2 These security requirements apply but are not limited to:
  - .1 construction and material objects,
  - .2 contractual arrangements,
  - .3 professional service contracts,
  - .4 facility maintenance contracts, and
  - .5 environmental and UXO contracts.
- .3 A Security Requirement Check List (SRCL) is a form that is used to define the security requirements associated with all contracts. The SRCL ensures that the appropriate security clauses are identified so they may be incorporated into the contract, thereby legally binding the parties to meet the contract's security requirements. **The SRCL must accompany all contract documents including subcontracts that contain security requirements.**
- .4 If multiple levels of screening are required, a Security Classification Guide may have been provided along with the SRCL as a contractual document. This document will provide further information related to security requirements when dealing with multiple levels of clearances within the contract.

### 1.4 PRIVATE SECTOR ORGANIZATION SCREENING AND CLEARANCES

- .1 Companies who will need access to or who will retain controlled goods, protected or classified property, information, assets or resources must be cleared as follows:
  - .1 Companies must be cleared to safeguard the highest level of information and asset to be retained, meaning:
    - .1 Designated Organization Screening (DOS) is required for contracts involving access to information at the protected level and/or secure worksites (Reliability status);
    - .2 Facility Security Clearance (FSC) is required for contracts involving access to information at the protected and/or classified levels and/or secure worksites (Secret status);
    - .3 Document Safeguarding Capability (DSC) is required to work on protected and/or classified information at their own worksite; and
    - .4 Companies who will electronically process protected or classified information must have IT media clearance and processing capability commensurate with the security classification level of the information to

be processed and must be cleared to the level commensurate with the information or asset to be accessed.

#### **1.5 PERSONNEL SECURITY SCREENING**

- .1 Individuals requiring access to information and/or site must have their personnel security screening completed prior to submitting an RFV. As a part of the screening process it is now a requirement for individuals to undergo a law enforcement inquiry through the RCMP, for electronic finger printing. Please refer to PSPC website for more information.

#### **1.6 VISIT CLEARANCE REQUESTS (VCR) APPROVAL**

- .1 All individuals (including subcontractors) who will have access to sensitive DND or CAF property, personnel, information, assets, and resources, must be security screened at the appropriate level before the commencement of their duties in relation to the contract.
- .2 Access to Operations Zones: security screening is not required for certain personnel if positive control of those individuals is maintained throughout their visit. Positive control measures must be outlined in the Security Implementation Plan. Positive control can be used for the following personnel:
  - .1 Logistics activities – material drop-off, waste removal, snow removal;
  - .2 Transit through an operations zone (no work); and
  - .3 Authorities having jurisdiction.
- .3 The VCR process verifies that those who are permitted access onto DND property have the required clearance level as outlined within the Security Requirement Checklist (SRCL) for the contract.

#### **1.7 POST AWARD PROCESS OVERVIEW**

- .1 The Contractor's Company Security Officer (CSO) is provided a blank Request for Visit (RFV) form by the DCC Representative in order to obtain a VCR approval.
- .2 All employees of the successful bidder who will be working on the contract require a VCR. The Contractor's CSO must forward the completed form to the DCC Representative for processing.
- .3 It is the responsibility of the Prime Contractor to submit and receive an approved SRCL for each subcontract containing security requirements. This responsibility extends to all subcontracts held by subcontractors.
  - .1 Instructions on this process are in the Industrial Security Manual located at <http://ssi-iss.tpsgc-pwgsc.gc.ca/ssi-iss-services/ss-eng.html>.
  - .2 Contractors shall allow 45 business days (from the date on which a complete and correct SRCL is received by CISD) for approval of an SRCL by CISD.
  - .3 All security related pre-construction activities shall proceed immediately after award.
- .4 For subcontracts, the RFV shall not be submitted until after the subcontract SRCL has been approved and permission to award the contract is granted by CISD.
  - .1 Contractor to allow a minimum of 15 business days for VCR processing.

- .5 Personnel not meeting the required security clearances will not be allowed access to the site or any information pertaining to the contract, except as permitted in 1.6.2.
- .6 Approved VCRs are valid for the duration of the contract **or** one year less one day, whichever is less.

**1.8 SUBMITTALS**

- .1 Submit to the DCC Representative copies of the following documents, including updates issued:
  - .1 Security Implementation Plan
  - .2 Approved sub-SRCLs
  - .3 Completed Request for Visit forms for all personnel working under the contract
  - .4 Incident reports within (1) working day
  - .5 Submit other data, information and documentation upon request by the DCC Representative.

**1.9 RESPONSIBILITY**

- .1 It is the responsibility of the Contractor to have no security breaches while undertaking the work for this contract.

**1.10 MEETINGS**

- .1 Prior to commencement of work, the Contractor will attend a pre-commencement meeting conducted by the DCC Representative. Ensure, as minimum, attendance by Contractors' site superintendent.
  - .1 The DCC Representative will advise of time, date and location of the meeting and will be responsible for recording and distributing the minutes.
  - .2 If requested by the DCC Representative, the Contractor's Corporate Security Officer (CSO) will be required to participate in the pre-commencement meeting.
- .2 Conduct site specific security meetings as required to ensure the management of security is in accordance with the contract.
  - .1 Record and post minutes of all meetings as allowed by the security requirements of the contract.

**1.11 SECURITY IMPLEMENTATION PLAN**

- .1 Contractors are required to have in place a contract specific Security Implementation Plan that addresses the security requirements outlined in the contract.
- .2 Provide one copy of the Security Implementation Plan to the DCC Representative prior to the commencement of work.
- .3 At a minimum, the plan shall contain details addressing:
  - .1 Company Security Officer (CSO) name and contact information
  - .2 Schedule for SRCLs and RFVs

- .3 Site Access and Control Monitoring including verification that all people entering secure areas on site have approved VCRs in accordance with contractual security requirements, or any planned positive control measures
- .4 Security Education (i.e. Restrictions on photographs)
- .5 Security Incident Reporting
- .4 The DCC Representative will coordinate review of the Security Implementation Plan by the DND Project Manager to be completed within 10 business days of receipt following which the DCC Representative shall confirm DND's acceptance or rejection with comments.

#### **1.12 INCIDENT REPORTING**

- .1 Investigate and report any security incidents immediately to the DCC Representative.
  - .1 Immediately provide a copy of the incident/investigation reports to the DCC Representative.
  - .2 Refer to <http://ssi-iss.tpsgc-pwgsc.gc.ca/ssi-iss-services/incidents-eng.html> for more information.
- .2 For the purpose of this contract, immediately notify the DCC Representative of incidents that involve a security breach from the identified clauses on the SRCL or an interruption to adjacent and/or integral infrastructure operations with potential loss implications.
- .3 In the investigation and reporting of incidents, the Contractor is required to respond in a timely fashion (within 5 working days) to correct the action that was deemed to have caused the incident and advise in writing on the action taken to prevent a re-occurrence of the incident.

#### **Part 2 Products**

##### **2.1 NOT USED**

- .1 Not Used.

#### **Part 3 Execution**

##### **3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 CONSTRUCTION FIRE SAFETY**

- .1 The Contractor shall provide construction fire safety in accordance with the National Fire Code of Canada.

**1.2 FIRE DEPARTMENT BRIEFING**

- .1 DCC Representative will co-ordinate arrangements for Pre-Commencement Meeting following contract award. Contractors will be briefed on Fire Safety by the Fire Chief or his designated representative before work starts.

**1.3 REPORTING FIRES**

- .1 The Contractor shall inform the DCC representative and Fire Chief of all fire incidents at the construction site, regardless of size.
- .2 Know location of nearest fire alarm pull station and telephone, including emergency phone number.
- .3 Report immediately fire incidents to Fire Department as follows:
  - .1 Activate nearest fire alarm pull station.
  - .2 Telephone.
- .4 Person activating fire alarm pull station will remain at the front entrance to direct Fire Department to scene of fire.
- .5 When reporting fire by telephone, give location of fire, name or number of building and be prepared to verify location.

**1.4 FIRE SAFETY PLAN**

- .1 Submit a fire safety plan for the construction site prior to commencement of construction work. The fire safety plan shall conform to the National Fire Code of Canada.
- .2 The fire safety plan shall be submitted to the DCC representative for review by local fire department. Any comments by local fire department shall be implemented by the Contractor.
- .3 The fire safety plan shall be limited to the area of construction only. Contractor is not responsible for amending fire safety plans in existing buildings.
- .4 Post the fire safety plan at the entrance to the construction site or near the construction site's health and safety board.
- .5 The fire safety plan shall conform to the National Fire Code of Canada, and shall contain, at minimum:
  - .1 Emergency procedures to be used in case of fire, including
    - .1 Sounding the fire alarm;

- .2 Notifying the fire department;
  - .3 Instructing occupants on procedures to be followed when the fire alarm sounds;
  - .4 Evacuating occupants, including special provisions for persons requiring assistance; and
  - .5 Confining, controlling and extinguishing fires.
- .2 The appointment and organization of designated supervisory staff to carry out fire safety duties.
  - .3 The training of supervisory staff and other occupants in their responsibilities for fire safety.
  - .4 Documents including diagrams, showing the type, location and operation of building fire emergency systems.
  - .5 The holding of fire drills (where applicable).
  - .6 The control of fire hazards in the building.
  - .7 The inspection and maintenance of building facilities provided for the safety of occupants.

#### **1.5 FIRE WARNING SYSTEM**

- .1 A fire warning shall be provided to notify construction personnel of a fire emergency in the construction area.
- .2 The system used shall be capable of being heard throughout the building.

#### **1.6 INTERIOR AND EXTERIOR FIRE PROTECTION AND ALARM SYSTEMS**

- .1 Fire protection and alarm system will not be:
  - .1 Obstructed.
  - .2 Shut-off.
  - .3 Left inactive at end of working day or shift without prior written authorization from the Fire Chief.
- .2 Do not use Fire hydrants, standpipes or hose systems for other than fire-fighting purposes unless authorized by the Fire Chief.

#### **1.7 FIRE PROTECTION SYSTEM IMPAIRMENT**

- .1 Notify the DCC Representative and the Fire Chief 48 hours prior to shutting down any active fire protection system, including water supply, fire suppression, fire detection and life safety systems.
- .2 Where a fire protection system that provides fire alarm monitoring is impaired in an existing building, a fire watch may be required at the discretion of the Fire Chief.
- .3 Implement all fire protection system impairments in accordance with the National Fire Code of Canada and Base Fire Orders. Fire Orders will be provided at the Pre-Commencement Meeting.

## **1.8 FIRE EXTINGUISHERS**

- .1 In addition to other requirements of this specification, supply fire extinguishers, as scaled by the Fire Chief, necessary to protect work in progress and contractor's physical plant on site.
- .2 Fire extinguishers may be required in the following areas as directed by the Fire Chief
  - .1 Adjacent to hot works;
  - .2 In areas where combustibles are stored;
  - .3 Near or on any internal combustion engines;
  - .4 Adjacent to areas where flammable liquids or gases are stored or handled;
  - .5 Adjacent to temporary oil fired or gas fired equipment; and
  - .6 Adjacent to bitumen heating equipment.
- .3 Extinguishers shall be sized as 4-A:40-B:C (20 lbs) unless otherwise directed by the Fire Chief.
- .4 Extinguishers shall be of the dry chemical type unless otherwise required by the hazard being protected.
- .5 The Contractor may assume the quantity of extinguishers based on a maximum travel distance between extinguishers of 75 feet.

## **1.9 INSTALLATION OR REPAIR OF ROOFS**

- .1 Notify the Fire Chief of location of asphalt kettles and dates that kettles will be in use. Ensure personnel use and take precautions as follows:
  - .1 Use kettles equipped with thermometers or gauges in good working order.
  - .2 Locate kettles in safe place outside of building or, if approved by the Fire Chief, on non-combustible roof. Locate to avoid danger of igniting combustible material below.
  - .3 Maintain continuous supervision while kettles are in operation and provide metal covers for kettles to smother flames in case of fire. Provide fire extinguishers as required in 1.8.
  - .4 Prior to start of work, demonstrate container capacities to the Fire Chief.
  - .5 Use only glass fibre roofing mops.
  - .6 Do not leave used roofing mops unattended on roof. Store mops away from building and combustible materials.
  - .7 Store roofing materials no closer than 3.0 m from structures.

## **1.10 ACCESS FOR FIRE FIGHTING**

- .1 Access for firefighting shall be provided in accordance with the National Fire Code of Canada.
- .2 Advise the Fire Chief of work that would impede fire apparatus response. This includes violation of minimum horizontal and overhead clearance, as prescribed by the Fire Chief, erecting of barricades and digging of trenches.



- .3 Minimum horizontal clearance: clear width of not less than 5m, or as defined by the Fire Chief.
- .4 Minimum vertical clearance: overhead height of not less than 6m, or as defined by the Fire Chief.

#### **1.11 SMOKING PRECAUTIONS**

- .1 Smoking is prohibited in all buildings. Observe posted smoking restrictions near existing buildings.

#### **1.12 RUBBISH AND WASTE MATERIALS**

- .1 Keep rubbish and waste materials at minimum quantities.
- .2 Burning of rubbish is prohibited.
- .3 Remove rubbish from work site at end of work day or shift or as directed.
- .4 Storage:
  - .1 Store oily waste in approved receptacles to ensure maximum cleanliness and safety.
  - .2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove specified.

#### **1.13 FLAMMABLE AND COMBUSTIBLE LIQUIDS**

- .1 Handle, store and use of flammable and combustible liquids in accordance with the National Fire Code of Canada.
- .2 Keep flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Obtain written authorization from Fire Chief for storage of quantities of flammable and combustible liquids exceeding 45 litres.
- .3 Do not transfer flammable or combustible liquids inside buildings or on jetties.
- .4 Do not transfer flammable or combustible liquids in vicinity of open flames or any type of heat-producing devices.
- .5 Do not use flammable liquids having flash point below 38 degrees C such as naphtha or gasoline as solvents or cleaning agents.
- .6 Store flammable and combustible waste liquids, for disposal, in approved containers located in safe ventilated area. Keep quantities to a minimum and notify Fire Chief when disposal is required.

#### **1.14 HOT WORKS**

- .1 The Contractor shall implement a hot works program in accordance with the National Fire Code of Canada and NFPA 51 Standard for Fire Prevention during Welding, Cutting and Other Hot Work.
- .2 The Contractor shall obtain from the Fire Chief a "Hot Work" permit for all hot works in the construction area. Frequency of renewal for hot works permits is at the discretion of the Fire Chief.
- .3 When Work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of the Fire Chief.
- .4 Provide fire watch service for work on scale established and in conjunction with the Fire Chief as defined in the Fire Department Briefing. Fire watchers shall be trained in the use of fire extinguishing equipment.
- .5 Area of hot works
  - .1 Hot works shall be carried out in an area free of combustible and flammable content.
  - .2 Where 1.14.5.1 is not possible,
    - .1 All flammable and combustible materials within 15m of the hot works shall be protected in accordance with the National Fire Code of Canada;
    - .2 A fire watch shall be provided during the hot work and for a period of not less than 60 minutes unless otherwise directed by the Fire Chief;
    - .3 A final inspection of the hot work area shall be conducted not less than 4 hours after the completion of hot works unless otherwise directed by the Fire Chief.
  - .3 Where there is a possibility of sparks leaking onto combustible materials in areas adjacent to the areas where the hot work is carried out
    - .1 Openings in walls, floors or ceilings shall be covered or closed to prevent the passage of sparks to such adjacent areas, or
    - .2 Sentence 1.14.5.2 shall apply for those areas.
- .6 Protection of flammable and combustible materials
  - .1 Any combustible or flammable material, dust or residue shall be
    - .1 Removed from the area where hot works is carried out; or
    - .2 Protected from ignition by non combustible materials.
- .7 Fire extinguisher
  - .1 A fire extinguisher shall be provided within 3 m of all hot works. Minimum size shall be 20lbs ABC unless otherwise directed by Fire Chief.

#### **1.15 HAZARDOUS SUBSTANCES**

- .1 Work entailing use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety or health, shall be in accordance with National Fire Code of Canada.

- .2 Provide ventilation where flammable liquids, such as lacquers or urethanes are used. Eliminate all sources of ignition. Inform the Fire Chief prior to and at completion of such work.

#### **1.16 PARTIAL OCCUPANCY**

- .1 Implement partial occupancy procedures as defined in the drawings and specifications. Partial occupancy is where construction occurs adjacent to work areas occupied by Departmental or Canadian Forces personnel. This includes:
  - .1 Phased new construction.
  - .2 Early or partial occupancy of new construction.
  - .3 New construction being added onto an existing building.
  - .4 Renovation or recapitalization of an existing building.
  - .5 Phased renovation or recapitalization of an existing building.
- .2 Where partial occupancy occurs, Contractor shall implement requirements as found in the drawings and specifications. This may include construction of a rated fire separation between occupied and construction areas as required by the National Fire Code.
- .3 A watch, with tours at intervals of not less than one hour, shall be provided throughout demolition sites when there are occupants in the portion of the building not being demolished.
- .4 Except where a building is provided with a fire alarm system or similar equipment, a watch, with tours at intervals of not more than one hour, shall be provided when a portion of the building is occupied while construction operations are taking place.

#### **1.17 QUESTIONS AND/OR CLARIFICATION**

- .1 Direct questions or clarification on Fire Safety in addition to above requirements to the DCC Representative.
- .2 DCC is responsible to obtain clarifications from the Fire Chief. The Contractor is not to liaise directly with the Fire Chief for notification, authorization or any requests unless the situation constitutes an immediate emergency.

#### **1.18 FIRE INSPECTION**

- .1 Co-ordinate site inspections by the Fire Chief through DCC Representative.
- .2 Allow the Fire Chief unrestricted access to work site.
- .3 Co-operate with the Fire Chief during routine fire safety inspection of work site.
- .4 Immediately remedy unsafe fire situations observed by the Fire Chief.

**Part 2            Products**

**2.1            NOT USED**

.1      Not Used.

**Part 3            Execution**

**3.1            NOT USED**

.1      Not Used.

PART 1 - GENERAL

- 1.1 Related Sections .1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- 1.2 Definitions .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- 1.3 Submittals .1 Submittals: in accordance with Submittal Procedures.
- .2 Within 7 working days of contract award, submit Environmental Protection Plan for review and approval by DCC Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during the project.
- .3 Address topics below at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan: include:  
.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.  
.2 Names and qualifications of persons

responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel. Person responsible for training must be considered competent person as defined by the Nova Scotia Occupational Health and Safety Act.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measure are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials to be contained on site.

.7 Traffic control plans.

.8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas.

.9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.10 Non-Hazardous and hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.

.12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Historical, archaeological, cultural resources, biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological,

cultural resources, biological resources and wetlands.

- .5 Environmental protection and mitigation measures must reflect the need to comply with Section 36(3) of the Fisheries Act and Section 5.1(1) of the Migratory Bird Convention Act.

1.4 Emergency Notification

- .1 The actions noted in this Article must be taken when an accidental release of any of the following occurs:
  - .1 Flammable, poisonous or caustic gas;
  - .2 Flammable, poisonous or caustic liquid;
  - .3 Bio-hazardous/infections substances;
  - .4 PCB;
  - .5 Sewage;
  - .6 Contaminated water; or
  - .7 Asbestos.
- .2 An environmental incident has occurred when there has been an uncontrolled or unintended release of a hazardous waste, hazardous liquid, hazardous gas and/or dangerous good.
- .3 Take the following action when any of the above have occurred:
  - .1 Control the release, if possible;
  - .2 Contact DND Fire Hall or 911;
  - .3 Contact DCC Representative. DCC representative will inform DND PM and MARLANT Safety and Environment.

1.5 Fires

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

1.6 Disposal of Wastes

- .1 Do not bury Construction and Demolition C&D Debris, rubbish and waste materials on site. C&D Debris means materials which are normally used in the construction of buildings, structures, roadways, walls and other landscaping material, and includes, but is not limited to, soil, asphalt, brick, mortar, drywall, plaster, cellulose, fiberglass, fibres, gyproc, lumber, wood, asphalt shingles, and metals;
- .2 Do not dispose of waste or volatile materials,

such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

#### 1.7 Dust Control

- .1 The application of clean water is the preferred method of dust suppression and must be considered for use by Contractor wherever economical and practical to use.
- .2 If either calcium chloride or magnesium chloride is considered for use as a dust suppressant, it must only be used in accordance with guidance offered in the Environment Canada report entitled, Best Practices for the Use and Storage of Chloride-Based Dust Suppressants at:  
<http://www.ec.gc.ca/nopp/roadsalt/reports/chlorideBP/en/toc.cfm>

#### 1.8 Pollution Control

- .1 Control emissions from equipment and plant to local authorities' emission requirements.
- .2 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
- .3 Provide petroleum spill kits at the work site to quickly cleanup and contain petroleum spills from plant, should they occur. Ensure site personnel are familiar with and trained in the use of site petroleum spill kits.

#### 1.9 Work Near Water Bodies

- .1 Filling, dredging or the use of explosives in the work must not be allowed.
- .2 Carry out work in a manner that does not result in the deposit of toxic or deleterious substances (e.g. sediment, uncured concrete, fuel, lubricants, etc.) into water frequented by fish.
- .3 Equipment must at no time enter the water.
- .4 Waste construction materials must not enter



the water.

1.10 Environmental Management

- .1 Any vehicles and equipment present in the project areas, when not in use, are not to be left idling.

1.11 Environmental Incident or Emergency

- .1 In the event of an environmental incident or emergency such as:
  - .1 Chemical spill or petroleum spill.
  - .2 Poisonous or caustic gas emission.
  - .3 Biological or chemical explosion.
  - .4 Hazardous material spill.
  - .5 Sewage spill.
  - .6 Release of contaminated water into waterways.
- .2 The Contractor or his employees must:
  - .1 Notify the Contractor's job superintendent.
  - .2 Notify DCC Representative and give type of emergency.
- .3 The Contractor is to submit to DCC Representative a copy of Environmental Protection Plan, and Spill Response Plan for approval within 7 days of contract award.

1.12 Vehicle Refueling

- .1 Refueling of equipment to be performed in locations as directed by DCC Representative.
- .2 Do not refuel equipment within 30 metres of any watercourse or storm water catch basin unless protection against spills is in place and location is approved by DCC Representative.
- .3 Contractors to have drip pans sized for amounts of product to be recovered and customized to fit under pieces of equipment to perform routine maintenance to equipment while maintaining equipment on property. Drip pans to be used whenever leaving equipment on site or parking overnight when not in use.
- .4 Parking of equipment on site to be in locations away from watercourses and as approved by DCC Representative. Equipment with

leaks or poor mechanical repair to be removed from site when so ordered by DCC Representative.

- .5 Use petroleum containers approved for products with no spill fill spouts, equipped with a self closing valve, for dispensing fuels. Prevent any flow of fuel until the nozzle is inserted into the receiving container. On removal from the receiving container the slide valve should close to eliminate any fuel spill. The nozzle to be equipped with an automatic vent, eliminating the need for the user to open or close air inlets on the pouring container.
- .6 Nozzle to support the weight of the pouring container. Nozzles to automatically stop the flow when the receiving container becomes full. The nozzle to be such that it reduces evaporation losses of volatile organic compounds during the fuel transfer.
- .7 All spills of hydrocarbon based products such as gasoline, kerosene, naphtha, lubricating oils, engine oils, greases and de-icing fluids or antifreeze be reported immediately to DCC Representative.

### 1.13 Spills

- .1 The Contractor is to submit a copy of its Spill Response Plan for approval to DCC Representative within 7 working days of Contract award.
- .2 Disposal of spilled materials to be off property and at approved locations for materials to be disposed of.
- .3 When parking of equipment on site, the equipment is to be secured from entry and inspected for fluid leaks.
- .4 Contractor to protect all wells, catch basins, dry wells, drains and water courses from contamination in the event of a spill.
- .5 All equipment to be used for the Work of the Contract will be free of fluid leaks and in good working order. Equipment will be inspected for fluid leaks before each use and

at regular intervals during use. Equipment not in good repair to be immediately removed from use.

- .6 All spills regardless of size must be reported to the DCC Representative. The DCC Representative will be responsibly to report the spill to MARL SE. For example but not limited to:
  - .1 POL products.
  - .2 glycol, hydraulic oil, concrete form oil.
  - .3 Battery acid spill.
  - .4 Any other hazardous/deleterious substance.
  - .5 Any release of halocarbons, including releases from refrigerators, chillers, air conditioners (vehicles and building).
  - .6 Any spill that enters a drain, ditch or water body regardless of amount.
- .7 For spills occurring, the Contractor is to immediately remove as much or all of the contaminated soils created by the spill as possible.
- .8 Contaminated soils/materials to be placed in leak proof containers compatible with the contaminates spilled and must be covered to prevent ingress of weather.
- .9 Any remaining clean-up to be performed at no extra cost to DCC. Clean-ups to be completed to the DCC Representative's satisfaction.
- .10 Report any spills of petroleum or other hazardous materials to the Base /Wing Fire Hall and the DCC Representative.

1.14 Spill Control Kits

- .1 Contractor to have at the work site a spill control kit consisting of the following equipment, at a minimum:
  - .1 A spaded shovel.
  - .2 A stable broom.
  - .3 A broad nose shovel.
  - .4 Container(s) suitable, compatible to and of sufficient size to contain petroleum products being used with equipment.
  - .5 Absorbents.
  - .6 Rags.
  - .7 Metal container for soiled rags.

.8 Booms when working next to a water course.

.2 Spill control kit to be inspected and approved by DCC Representative prior to start of work. Spill control kits to be available to Contractor employees at all areas where Work is being performed and until completion of the Work.

.3 Contractor employees to be trained in the use of spill control kits and the equipment they contain.

#### 1.15 Notification

.1 DCC Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform DCC Representative of proposed corrective action and take such action for approval by DCC Representative.

.3 DCC Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

.5 Any changes in the plans must be reported to the DCC Representative who will report to the DND PM who will report to MARLANT Safety and Environment who will report to the appropriate authority having jurisdiction, prior to the commencement of any work.

#### 1.16 Halocarbon Management

.1 If work activities are to take place on equipment or infrastructure containing halocarbons:

.1 The contractor is to ensure that all works adhere to the 2003 Federal Halocarbon Regulations (FHR) and other applicable federal, provincial, and municipal

- legislature.
- .2 The contractor is to complete MARLANT's Halocarbon Management Information Form and provide a copy of the Form to the DCC Representative within 48 hours of the completion of these work activities. The DCC Representative will provide form to contractor after project award.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

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END

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### **PART 1 GENERAL**

#### **1.1 SUBMITTALS**

- .1 Submit to the DCC Representative copies of the following documents, including updates issued **within 7 working days of award of contract** for **review** prior to commencement of work on the work site:
  - .1 Health and Safety Program as indicated in paragraph 1.9,
  - .2 Electronic or hard copy of Health and Safety Manual
  - .3 A copy of the “Letter of Good Standing” from a WCB approved service provider in the province of Nova Scotia. DCC will not accept any “In Progress” or “Audit Pending” Letters from any of the service providers.
  - .4 Reports or directions issued by authorities having jurisdiction, immediately upon issuance from that authority.
  - .5 Accident or Incident Reports, within 24 hrs of occurrence.
  - .6 Unless otherwise noted, all Health and Safety data, information and documentation is to be submitted within 7 working days of contract for review prior to commencement of work on the work site.”
- .2 Submit other data, information and documentation upon request by the DCC Representative as stipulated elsewhere in this section.

#### **1.2 COMPLIANCE REQUIREMENTS**

- .1 Comply with the latest edition of the Nova Scotia Occupational Health and Safety Act, and the Regulations made pursuant to the Act.
- .2 Observe and enforce construction safety measures required by:
  - .1 National Building Code of Canada (latest edition).
  - .2 Nova Scotia Provincial Worker’s Compensation Board.
  - .3 Halifax Regional Municipal statutes and ordinances.
- .3 In event of conflict between any provisions of above authorities the most stringent provision shall apply.
- .4 Provide and maintain Worker’s Compensation Board coverage for all employees for the duration of the contract. Prior to commencement of the work, at the time of Interim Completion and prior to final payment, provide to the DCC Representative a Certificate of Clearance from the Workers’ Compensation Board indicating that the Contractor’s account is in good standing.

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### **1.3 RESPONSIBILITY**

- .1 The Contractor is responsible for safety of persons and property on the work site and for protection of federal employees and the general public circulating adjacent to work site operations to extent that they may be affected by conduct of work.
- .2 The Contractor is to enforce compliance by workers and other persons granted access to work site with safety requirements of Contract Documents, applicable federal, provincial, and local statues, regulations, and ordinances, and with the Contractor's Health and Safety Program.
- .3 Should an unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise the DCC Representative verbally and in writing of the hazard or condition.

### **1.4 SITE CONTROL AND ACCESS**

- .1 Control all work site access points and work site activities. Delineate and isolate the work site from adjacent and surrounding areas by use of appropriate means to maintain control of all work site access points. The contractor is advised that 1.6 Meter high modular fencing with a lockable gate is the acceptable form of delineation and isolation. The modular fencing has be weighted down or pinned to asphalt.
- .2 Make provisions for granting permission to access onto work site to all persons who require access. Procedures for granting permission to access are to be in accordance with the Nova Scotia Occupational Health and Safety Act, and the Regulations made pursuant to the Act and the Contractor's Health and Safety Program.
- .3 Ensure persons granted access to the work site are in possession of and wear the minimum personal protective equipment (PPE) designated by the Contractor's Health and Safety Program. Ensure persons granted access to the work site are provided with, trained in the use of, and wear, appropriate PPE that are required above and beyond the designated minimums previously noted and as specifically related to the work site activity that they are involved in. Be responsible for the efficacy of the PPE that is provided above and beyond the designated minimums.
- .5 Erect signage at access points and at other strategic locations around the work site clearly identifying the work site area(s) as being "off-limits" to non-authorized persons. Signage must be professionally made with well understood graphic symbols and is not to be used as advertising but for the specific use as related to site safety and key contact information.
  - .1 Information to be provided on the signage is as follows:
    - Project Name/Description:
    - Contractor Company Name:
    - Project Superintendent's Name/Phone No.:
    - DCC Point of Contact Name/Phone No.:

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- .6 Secure the work site at all times to protect against un-authorized access.

### 1.5 FILING OF NOTICE

The province of Nova Scotia does not require any contractor to complete filing of a Notice of Project with the Provincial Health and Safety Authority. CFB Halifax, DCC Halifax Site Office will provide a letter to the provincial/territorial authority advising them of the project and request any inspection or any order issued.

### 1.6 PERMITS

- .1 Obtain permits, licenses and compliance certificates at appropriate times and frequencies as required by the authorities having jurisdiction.

**.2 Obtain RPOS (A) Dig Permit from the DCC Representative for any work involving any excavation:**

.1 The RPOS (A) Dig Permit is to be maintained on site at all times. The site superintendent is to have the RPOS (A) Dig Permit and all utility locates at the location where the excavating is taking place. **Example:** If five separate excavations or trenching is underway, then the requirement is to have five individual copies of the dig permit on site.

.2 The size, depth and location of existing utilities and structures as indicated on the dig permit is for guidance only. Completeness and accuracy are not guaranteed and DCC will not be held liable for any damages resulting from the inaccuracy of the dig permit. **The contractor is to secure and pay for an independent locate to verify the underground DND utilities on the RPOS (A) Dig Permit. All utility locates are to be documented and submitted to the DCC Representative prior to any excavating begins.**

**.3 The contractor is to confirm locations of all buried utilities by HYDRO Vac means only.**

- .4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated.

.1 Individual Utility locates are a mandatory requirement prior to any excavation occurring. All utility locates are required to be submitted to the DCC Representative. Locates are to be obtained from Halifax Regional Municipality, Halifax Water Commissioning, Bell Aliant, Eastlink Nova Scotia Power and Heritage Gas. These are an example of which utilities are to be identified and located. The list is not to be considered final. If other utilities known, locates are required and they must be obtained. ALL FEES INCURRED FOR INDIVIDUAL LOCATES ARE THE RESPONSIBILITY OF THE CONTRACTOR and DCC nor DND will not be liable for any costs associated with obtaining locates.



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- .2 Copies of all Individual Utility locates and all are to be provided to the DCC Representative prior to any excavation occurring.
- .3 Obtain from the Halifax Regional Municipality, all street closure permits. Copies of the permits are to be provided to the DCC Representative.
- .4 The latest edition of the Nova Scotia Transportation and Infrastructure Renewal, Temporary Workplace Signing Manual shall be followed. All Planning and Preparation checklists shall be provided to the DCC Representative 24 hours in advance of any traffic control set up.
- .2 Post all permits, licenses and compliance certificates on work site and provide copies to the DCC Representative.

### 1.7 PROJECT/SITE CONDITIONS

- .1 The following are the known hazardous substances and/or hazardous conditions at the work site which shall be considered as health or environmental hazards and shall be properly managed should they be encountered as part of the work and the following items also outline site conditions and requirements that the contractor shall ensure compliance to.
  - .1 There will be requirements for the contractor to have DND, RPOS (A), DCC, CF Members, consultants and other third party contractors on site during this project. The contractor shall ensure that all third party contractors granted access to this work site follow health and safety guidelines established by this contract. The contractor shall ensure that orientations are put into place for all these third party contractors; the third party contractors are to follow all site health and safety policies and procedures.
  - .2 The contractor is advised that precautions shall be taken to minimize dust and exposure to dust containing lead, asbestos, mercury and silica during demolition and installation of materials for the scope of work. This PPE requirement includes the entire duration of the demolition contract. Workers shall wear appropriate protective clothing in the form of rubber boots, tyvec suits, rubber gloves and respiratory equipment to minimize the exposure to all dusts. As well, actions shall be taken to eliminate the spread of dust to areas outside the work area.
  - .3 All disturbance and removal of asbestos containing materials will be completed in accordance with the province of Nova Scotia's Code of Practice-Asbestos in the Workplace: A Guide to Removal of Friable Asbestos Containing Material, revised November 21, 2013, other provincial asbestos legislation, and the Department of National Defence Canadian Forces Asbestos Management Directive, March 2007.
  - .4 The contractor will submit a detailed Hazardous Materials Abatement Work Plan to the DCC Representative within 7 days of contract award. The Work Plan will detail the site and project specific procedures the contractor will utilize to disturb the hazardous materials at the project site as well as a detailed schedule to allow the DCC Representative to communicate abatement activities to stakeholders and to

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- arrange for inspections, air testing, and Clearance events. The schedule will be revised throughout the project as required.
- .5 Work Plan and Schedule for Disturbance of Hazardous Materials: If the contractor requires disturbance of hazardous materials to complete the requirements contained within the contract specification, seven (7) days prior to starting onsite work activities, the contractor is to provide the DCC Representative a detailed Work Plan and Schedule describing the locations of the hazardous materials that will be disturbed and the Mitigative/abatement measures that will be utilized to prevent exposing workers, building occupants, and other areas of the building to these hazardous materials.
  - .6 The contractor shall provide proof of certification (DOP testing) for all NAU's and all HEPA Vacuums that will be used on site. The certification shall be no later than 30 calendar days prior to the time the equipment is brought to the site.
  - .7 The contractor is required to have independent locates to verify any and all in slab utilities prior to any core drilling, saw cutting, water blasting and drilling into the concrete slab. The contractor shall be responsible and accountable to pay for all costs associated with the independent locates. These costs will not be passed on to DND/DCC.
  - .8 The contractor is advised that a site isolation fence of 1.6 meters high shall be installed to isolate and delineate the worksite from the rest of public operations. The contractor shall review drawings and specifications to obtain required details for fencing around the perimeter of the active construction site.
  - .9 The contractor shall be required to have operational fire extinguishers on site at all times as outlined by the DND Fire Department.
  - .10 The contractor shall leave all roadways passable for the Emergency Fire Services. There are dedicated roadways to be established for this project.
  - .11 The contractor is advised that they will be required to submit a detailed and dedicated traffic plan to ensure plan has taken all areas under consideration. The plan will be approved by both DCC and DND prior to the contractor setting up the traffic control on site.
  - .12 The contractor is advised that MSDS's for all controlled products shall be on site at all times. The contractor shall provide copies to the DND Fire Services when bring the products in the area.
  - .13 Work on the project will be at a height greater than 2.80 meters in which the contractor shall ensure that a fall protection program is implemented from commencement to completion of project. The employees must be fully trained in fall protection and have the correct fall protection equipment based on the hazard assessment and the fall distance to the nearest safe surface.
  - .14 The contractor is advised that a hot work permit process will be created, implemented, monitored by the General Contractor and all sub-contractors will be

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- using this process. The contractor shall ensure that the DND Fire Services are to be engaged to determine if the Base Hot Work permit Process will be used.
- .15 The contractor is advised that for all emergencies on site, they must contact the DND Fire Services emergency services by calling [902-427-3333](tel:902-427-3333) and provide location of construction site.
  - .16 The contractor is advised that certification is required for all mobile cranes and boom trucks used on site. The contractor shall provide to DCC, copies of the annual engineer certification of mobile crane or boom truck. The contractor must also provide copies of mobile crane or boom truck operator certifications for class of equipment used on site.
  - .17 The contractor is required to provide a written Lock out Tag Out procedures for all electrical work on site. This includes all electrical disconnections, and removal at electrical sources from the distribution as 100 % isolation is a requirement.
  - .18 The contractor shall ensure that all traffic flow in and around the construction area have the appropriate traffic control in accordance with the Nova Scotia Transportation and Infrastructure renewal Temporary Workplace Traffic Control Manual.
  - .19 The above lists shall not be construed as being complete and inclusive of all safety and health hazards encountered as a result of Contractor's operations during the course of work. Include above items into the hazard assessment program specified herein.
  - .20 THE CONTRACTOR IS ADVISED THAT ALL ROOF ANCHORS ON ANY OF the facilities ARE OUT OF BOUNDS AND CAN'T BE USED. THE CONTRACTOR SHALL CREATE A DETAILED FALL PROTECTION PLAN AND PROCEDURE FOR ALL ROOF WORK.
  - .21 THE CONTRACTOR IS ADVISED THAT ALL SCAFFOLDING ON SITE MUST BE DESIGNED BY A PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL SUPPLY A DESIGN DRAWING PRIOR TO ERECTION AND A LETTER AFTER ERECTION THAT THE SCAFFOLDING IS ERECTED ACCORDANCE TO DESIGN.
  - .22 THE CONTRACTOR IS ALSO ADVISED THAT WHEN THE DESIGN ENGINEER COMPLETES THE DRAWING FOR THE SCAFFOLDING, HE MUST VISIT SITE TO DETERMINE IF THE BASE IS ADEQUATE TO SUPPORT THE LOAD OF THE SCAFFOLDING. IN ADDITION, THE CONTRACTOR IS ADVISED THAT THE DESIGN ENGINEER MUST NOT NOTE ON THE DRAWINGS THAT IT IS THE RESPONSIBILITY OF DND/DCC TO ENSURE THAT THE SCAFFOLDING LOAD PLACED ON THE BASE WILL SUPPORT IT.
  - .23 THE CONTRACTOR SHALL HAVE THE SCAFFOLDING ERECTED BY A QUALIFIED SCAFFOLDING CONTRACTOR AND THE SCAFFOLDING

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SHALL BE INSPECTED DAILY PRIOR TO USE BY THE SCAFFOLDING CONTRACTOR, NOT A LABOURER/MASON/FORMAN ON SITE.

- .24 The contractor is advised that the project MAY be carried out in designated confined spaces. The contractor shall visit the site prior to tender closing to verify the confined space work locations. If any of the scope of work is carried out in designated confined spaces, they shall follow the process outlined within this specification. The contractor will not be permitted to down grade the classification of the space at all during the project. The designated confined space requires fresh air supplied through fans and supply hoses at all times. The confined space requires proper ventilation at all times and local ventilation during welding processes. The confined space requires one hundred percent air monitoring of the space from start of project to the end of project when employees are entering and inside the confined space.
- .1 The contractor shall conform to both the provincial and federal regulations governing confined space entry. Where the regulations conflict, the more stringent requirements shall apply. The contractor shall have a minimum of two certified, Confined Space Rescuers and all necessary rescue equipment available outside the confined space during any entry. Under presently accepted practices the Confined Space Rescuers must be able to enter the space to initiate rescue within fifteen (15) minutes of an emergency being declared. The contractor is not permitted to rely on DND Fire Services or Halifax Fire to provide confined space rescue. The Confined Space Attendant is not permitted to enter the confined space as a rescuer. The Confined Space Attendant must remain at the confined space entry point as long as personnel are in the space or when the space is empty and accessible (not sealed).
  - .2 In the case where the work may occur in more than one confined space at the same time, a Confined Space Attendant will be required at each confined space entry point. The contractor may rely on one Confined Space Rescue Team, to support multiple confined spaces, as long the above response time is possible for each confined space. If this approach is taken, all confined spaces must be evacuated when an emergency is declared in any one of the confined spaces.
  - .3 The contractor is advised that they must submit their Contractor's written Confined Space Code of Practice including the Confined Space Entry Permit to the DCC Representative.
  - .4 The contractor is advised that they must submit their Contractor's Confined Space Emergency Response Plan to the DCC Representative. The DCC Representative will review the plan with DND Fire Services and provide feedback to the contractor.
  - .5 For all emergencies on site, the contractor shall call DND Fire Services at (902-427-3333).
  - .6 The contractor is advised they must ensure that the DND Fire Services are notified daily at (902-427-3500) prior to each confined space entry and at the end of the day when no more entries are to be carried out. The Contractor's Designated Representative will be the sole person in charge of communicating with the DND Fire Services on a daily bases. This

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- requirement is to ensure the exact locations and information is communicated to the DND Fire Services.
- .7 The contractor is advised that they must submit their Contractor's written Confined Space Entry Hazard Assessment for each, separate, Confined Space entry carried out.
  - .8 The contractor is advised that they must submit their Contractor's Confined Space Entry training records for all employees on site including the Confined Space Entry Site Supervisor, who must remain on site during every entry.
  - .9 The contractor is advised that they must submit their Contractor's Confined Space gas detector Calibration Certificate. The Contractor will be required to ensure 100% monitoring of the atmospheric conditions throughout the scope of work.
  - .10 The contractor is advised that they must submit their Contractor's Confined Space rescue equipment certifications.
  - .11 The contractor is advised that they must submit their Contractor's Confined Space Toolbox Talk for each Confined Space entry.
  - .12 The contractor is advised that all employees entering the confined space areas must have a five (5) minute emergency escape bottle with them at all times. All employees must have fit testing for the emergency escape bottles. The escape bottles acceptable are Scott SKAPAK or similar.

### 1.8 MEETINGS

- .1 Prior to commencement of work attend a pre-commencement meeting conducted by the DCC Representative. Ensure minimum attendance by contractor's site superintendent. The DCC Representative will advise of time, date and location of the meeting and will be responsible for recording and distributing the minutes.
- .2 Conduct site specific occupational health and safety meetings as required by the Nova Scotia Occupational Health and Safety Act, and the Regulations made pursuant to the Act.
- .3 Record and post minutes of all meetings in plain view on the work site. Make copies available to the DCC Representative upon request.

### 1.9 HEALTH AND SAFETY PROGRAM

- .1 Contractors are required under Nova Scotia Occupational Health and Safety Act, and the Regulations made pursuant to the Act to have in place a Health and Safety Program. Compliance requirements for the content, detail and implementation of the program resides with the provincial/territorial authority. **For the purpose of this contract the Health and Safety Program shall include a site-specific Health and Safety Plan that acknowledges, assesses and addresses the hazardous substances and/or hazardous conditions known and identified in paragraph 1.7**

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## HEALTH AND SAFETY REQUIREMENTS

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**National Defence**  
**Meter Installation: SH251, Hangars XYZ,**  
**WL57, SH330, SH100, SH57 and SH14**

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**above, and on-going hazard assessments performed during the progress of work identifying and documenting new or potential health risks and safety hazards not previously known and identified.**

- .2 Provide one copy of the Health and Safety Program to the DCC Representative prior to commencement of work on the work site. The copy provided to the DCC Representative is for the purpose of review against the contract requirements related to the known hazardous substances and/or hazardous conditions. The review is not to be construed to imply approval by the DCC Representative that the program is complete, accurate and legislatively compliant with the Nova Scotia Occupational Health and Safety Act, and the Regulations made pursuant to the Act, and shall not relieve the Contractor of their legal obligations under such legislation.

### **1.10 ACCIDENT REPORTING**

- .1 Investigate and report incidents and accidents as required by Nova Scotia Occupational Safety and Health Act, and the Regulations made pursuant to the Act.
- .2 For the purpose of this contract immediately investigate and provide a report to the DCC Representative on incidents and accidents that involve:
  - .1 A resulting injury that may or may not require medical aid but involves lost time at work by the injured person(s).
  - .2 Exposure to toxic chemicals or substances.
  - .3 Property damage.
  - .4 Interruption to adjacent and/or integral infrastructure operations with potential loss implications.
- .3 In the investigation and reporting of incidents and accidents, the Contractor is required to respond in a timely fashion to correct the action that was deemed to have caused the incident and/or accident and advise in writing on the action taken to prevent a re-occurrence of the incident and/or accident.

### **1.11 RECORDS ON SITE**

- .1 Maintain on site a copy of the safety documentation as specified in this section and any other safety related reports and documents issued to or received from the authorities having jurisdiction.
  - .1 Hazard Assessments
  - .2 Tool Box Talks
  - .3 LOTO processes and policies
  - .4 JOHS Committee Meeting minutes
  - .5 Incident Reports
  - .6 Accident reports
  - .7 Training Records
  - .8 Site Inspection Records
  - .9 Equipment Certifications

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**HEALTH AND SAFETY REQUIREMENTS**

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**National Defence  
Meter Installation: SH251, Hangars XYZ,  
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- .10 Crane Certifications
  - .11 Crane Operator Certifications
  - .12 Utility Locates
  - .13 Disciplinary Records
  - .14 WCB Letter of Clearance for all contractors on site
  - .15 Inspections by Authorities having Jurisdiction
  - .16 Asbestos Awareness Training
  - .17 Lead Awareness Training
  - .18 Confined Space rescue training
- .2 Upon request, make copies available to the DCC Representative.

END OF SECTION

PART 1 - GENERAL

1.1 Definitions

- .1 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .2 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .3 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .4 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from remodeling projects, before demolition stage, for resale, reuse on current project.
  - .2 Returning reusable items including pallets or unused products to vendors.
- .5 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .6 Separate Condition: refers to waste sorted into individual types.
- .7 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .8 Waste Management Co-ordinator (WMC): Contractor representative responsible for supervising waste management activities.



- 1.2 Storage, Handling and Protection
- .1 Store, materials to be reused, recycled and salvaged in locations as directed by DCC Representative.
  - .2 Unless specified otherwise, materials for removal become Contractor's property.
  - .3 Protect, stockpile, store and catalogue salvaged items.
  - .4 Protect surface drainage, mechanical and electrical from damage and blockage.
  - .5 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
    - .1 On-site source separation is recommended.
    - .2 Remove co-mingled materials to off-site processing facility for separation.
    - .3 Provide waybills for separated materials.
  - .6 Do not store waste and debris on site for excessive time periods. Remove waste from site at regular intervals.

- 1.3 Submittals
- .1 Submittals: in accordance with Submittal Procedures.
  - .2 Within 7 working days of contract award, submit Waste Reduction Plan and Waste Audit Worksheet for review and approval by DCC Representative. Waste Reduction Plan describes the general management of waste and is to include but not be limited to:
    - .1 Destinations of materials listed.
    - .2 Deconstruction/disassembly techniques and sequencing.
    - .3 Schedule for deconstruction/disassembly.
    - .4 Location.
    - .5 Security.
    - .6 Protection.
    - .7 Clear labeling of storage areas.
    - .8 Details on materials handling and removal procedures.
    - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
    - .10 Letters from receiving facilities confirming acceptance of project

materials

- .11 Frequency of waste removals.
- .12 Municipal demolition permit if building demolition is a component of the project.

1.4 Disposal of Wastes

- .1 Do not bury asphalt, C&D Debris, rubbish or waste materials on-site.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil or paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.
  - .3 Total tonnage generated.
  - .4 Tonnage reused or recycled.
  - .5 Reused or recycled waste destination.
- .4 Dispose of waste materials in accordance with HRM By-Law S-600 and L-200
- .5 Submit copies of all weigh bills from waste Disposal facilities to DCC Representative as work advances.

1.5 Scheduling

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 - PRODUCTS

2.1 Not Used

- .1 Not Used.

PART 3 - EXECUTION

3.1 Application

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 Cleaning

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be

reused/recycled into specified sort areas.

- 3.3 Diversion of Materials
- .1 Separate materials being diverted from general waste stream and stockpile in separate piles or containers, as reviewed by DCC Representative, and consistent with applicable fire regulations.
    - .1 Mark containers or stockpile areas.
    - .2 Provide instruction on disposal practices.
  - .2 On-site sale of materials is not permitted.
  - .3 Processing of C&D Debris and Waste is only permitted at the source site or at HRM approved C&D Recycling/processing facilities in accordance with HRM By-Law L-200.
  - .4 Alternatives to approved disposal/C&D recycling facilities is acceptable if it can be verified that the material is offered for or promptly packaged for resale to meet a realistic market demand; and/or the product is directly transferred to and is reused wholly at the site in an ongoing industrial, manufacturing, or industrial process and does not involve combustion or land application. Site (facility) and contractor must provide written confirmation
- 3.4 Waste Reduction Plan/Waste Audit Worksheet
- .1 Complete the Waste Reduction Plan/Waste Audit Worksheet for all waste materials.
  - .2 Submit and update Waste Reduction Plan/Waste Audit Worksheet to DCC Representative at regular intervals and to satisfaction of DCC Representative.

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END OF SECTION

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**Project Name:**  
**Prime Contractor Name:**  
**DCC Project Number:**

**Contact Person:**  
**Telephone:**  
**Fax:**

Material Category	Re-use		Recycling		Landfill		Material Destination Provide company name, address, contact person and phone number	Responsible Sub-Contractor
	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)		
Metal Fabrications								
Misc. Metals								
<b>Division 6 - Wood, Plastics and Composites</b>								
Lumber:								
Untreated								
Treated								
Plywood:								
Untreated								
Treated								
Trim, Moulding								
Cabinets/Counters								
Plastic Laminates								
Misc. Wood								
Misc. Plastics								
Misc. Composites								
<b>Division 7 - Thermal and Moisture Protection</b>								
Insulation:								
Fibreglass Batt								
Rigid								
Asbestos Containing								
Roofing Materials:								
Shingles								
Membrane								
Felt & Gravel								
Asbestos Containing								
Siding:								
Regular								
Asbestos Containing								

**Project Name:**  
**Prime Contractor Name:**  
**DCC Project Number:**

**Contact Person:**  
**Telephone:**  
**Fax:**

Material Category	Re-use		Recycling		Landfill		Material Destination Provide company name, address, contact person and phone number	Responsible Sub-Contractor
	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)		
Flashing/Trim:								
Regular								
Asbestos Containing								
Other								
<b>Division 8 - Openings</b>								
Steel Doors & Frames								
Aluminum Doors & Frames								
Overhead Doors								
Door Hardware								
Windows								
Glazing								
Louvers and Vents								
Other								
<b>Division 9 - Finishes</b>								
Ceramic Tile								
Quarry Tile								
Acoustical Tile								
Wood Flooring								
Carpet								
Resilient Flooring								
Vinyl Flooring								
Acoustical Suspension								
Gypsum Board								
Plaster/Lath								
Wood Panelling								
Metal Ceilings								
Asbestos Containing Finishes								
Lead Containing Finishes								
Other								

**Project Name:**  
**Prime Contractor Name:**  
**DCC Project Number:**

**Contact Person:**  
**Telephone:**  
**Fax:**

Material Category	Re-use		Recycling		Landfill		Material Destination Provide company name, address, contact person and phone number	Responsible Sub-Contractor
	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)		
<b>Division 10 - Specialties</b>								
Chalkboards								
Toilet Partitions								
Toilet Accessories								
Metal Lockers								
Metal Shelving								
Other								
<b>Division 11 - Equipment</b>								
Food Service Equipment								
Parking Control Equipment								
Other								
<b>Division 12 - Furnishings</b>								
Desks								
Chairs								
Tables								
Bookcases								
Filing Cabinets								
Horizontal Blinds								
Other								
<b>Division 14 - Conveying Systems</b>								
Elevators								
Wheelchair Lifts								
Other								





**Project Name:**  
**Prime Contractor Name:**  
**DCC Project Number:**

**Contact Person:**  
**Telephone:**  
**Fax:**

Material Category	Re-use		Recycling		Landfill		Material Destination Provide company name, address, contact person and phone number	Responsible Sub-Contractor
	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)	Estimated (tonnes)	Actual (tonnes)		
Smoke Detectors								
Misc. Electrical Controls								
Other								
<b>Division 27 - Communications</b>								
Communication Equipment:								
Regular								
PCB Containing								
Other								
<b>Division 33 - Utilities</b>								
Manhole Structures								
Catchbasin Structures								
Site Water Distribution Piping								
Public Sanitary Utility Sewerage Piping								
Septic Tanks								
Storm Utility Drainage Piping								
Above Ground Fuel Storage Tanks								
Underground Fuel Storage Tanks								
Other								

**Part 1            General**

**1.01            SUMMARY**

- .1 This Section includes Contractor's responsibilities to review existing site conditions and affected equipment and services in conjunction with the technical specifications to:
  - .1 Coordinate exact location of metering equipment and accessories.
  - .2 Validate sizing and selection of HVAC and electrical metering systems before submitting shop drawings.
  - .3 Review electrical requirements for connecting energy metering equipment and integration to EMCS.
  - .4 Coordinate requirements for integration of meters to the EMCS.
  - .5 Assess requirements for asbestos removal.
- .2 Pre-installation Review Report: complete site verification and submit report.

**1.02            RELATED REQUIREMENTS**

- .1 Section 23 09 23.13 – Energy Meters.
- .2 Section 25 05 01 – EMCS: General Requirements.
- .3 Section 26 09 23.01 – Metering and Switchboard Instruments.

**1.03            ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination:
  - .1 Arrange for a pre-construction meeting with affected Subcontractors and suppliers to discuss project's requirements and coordinate equipment interfaces and electrical requirements.
  - .2 Conduct a site visit of each building with Departmental Representative and affected Subcontractors to examine existing site conditions and equipment.
- .2 Sequencing:
  - .1 Perform pre-installation review within the time stated in Section 01 00 10 – General Instructions.
  - .2 Ensure pre-installation review precedes the selection of energy metering equipment and shop drawings submittals of Section 23 09 23.13 – Energy Meters and Section 26 09 23.01 – Metering and Switchboard Instruments.

**1.04            QUALIFICATIONS**

- .1 Subcontractors: only qualified personnel with a minimum of five years' experience and well-rounded knowledge of building systems and applicable building codes are to review the current site conditions.
- .2 Energy Metering Review: qualified personnel familiar with the products to install and manufacturer's installation requirements.
- .3 EMCS Contractors: qualified personnel familiar with the site and the current EMCS products currently installed.

**1.05 SUBMITTALS**

- .1 Submit pre-installation review report stating conditions observed on site and documenting results of verification activities described in PART 3 – PRE-INSTALLATION REVIEW.

**Part 2 Products**

**2.01 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.01 EXAMINATION**

- .1 Conduct a site visit in each affected building to examine existing site conditions.

**3.02 PRE-INSTALLATION REVIEW**

- .1 Identify and confirm any discrepancies between site conditions and design criteria of metering equipment indicated in the technical specifications.
- .2 Assess any on-site unknown conditions observed through site walk-through and exploratory reviews and discuss with Departmental Representative should design criteria for metering equipment require modifications.
- .3 Notify Departmental Representative should any extra work beyond the scope of work under this Contract be required, due to hidden and unknown conditions observed upon Contractor site observation.
  - .1 Do not proceed with any extra work without obtaining Departmental Representative written approval.
- .4 Pre-installation review to include the following verification:
  - .1 HVAC Services:
    - .1 Coordinate exact location on process piping for installing primary flow measuring elements and temperature sensors.
      - .1 Ensure location complies with manufacturer's requirements and recommendations to maintain proper accuracy measurement.
      - .2 Verify requirements for using flow conditioner upstream.
    - .2 Confirm process piping details: piping material, wall thickness and nominal pipe size; construction class and requirements for piping reducers.
      - .1 Remove insulation materials, as required to perform verifications. Re-instate piping insulation after completing review.
    - .3 Work requiring shutdown: verify existing isolation valves and procedures for performing shutdowns and isolation of process to perform work.
    - .4 Existing flow meters to reuse: validate existing installation and requirements for adding a flow conditioner.
    - .5 Coordinate location of wall-mounted components (panels, displays) of energy metering systems.

- .2 Electrical Switchboards:
  - .1 Inspect switchboard cabinets and confirm space available to install current transformers and other accessories and mount the digital meter.
  - .2 Confirm switchboard ratings.
  - .3 Recently installed switchboards with face-mounted digital meters (Hangars XYZ): existing current transformers and wiring may be evaluated for reuse. Confirm intent to reuse wiring or components and demonstrate compatibility with new digital meter in report.
  - .4 Existing digital meters to retain: verify proper interfaces are included and operational.
- .3 EMCS:
  - .1 Confirm connection requirements for integrating metering equipment to EMCS.
  - .2 Confirm additional building controllers and/or networking equipment to perform integration.
  - .3 Digital meters scheduled to be retained: confirm EMCS can connect and communicate with existing meters.
- .4 Electrical Installation:
  - .1 Power Supply: confirm location of local distribution panels and availability of dedicated circuit for energy metering equipment. Prioritize the use of emergency power.
  - .2 Conduits and Wiring: confirm requirements between energy metering components, between energy metering systems and the EMCS and for power supplies.
- .5 Designated Substances: conduct assessment of work area in Buildings SH14, SH57 and SH100 with Departmental Representative in accordance with Section 01 00 10 – General Instructions.
  - .1 Show the exact location of energy metering equipment and instrumentation which were coordinated on site.
    - .1 Identify with spray paint or indelible markers, the sections of piping insulation to remove to perform installation, testing and calibration of flow metering elements, temperature sensors and accessories.
    - .2 Identify location of wall-mounted equipment (e.g. panels, displays).
    - .3 Identify walls and ceilings where EMT conduit runs will be fastened.

**END OF SECTION**

**Part 1 General**

**1.01 SUMMARY**

- .1 This Section includes common requirements for performing work related to HVAC systems and the installation of energy meters including pipe welding, piping installation and thermal insulation.

**1.02 RELATED REQUIREMENTS**

- .1 Section 02 22 00 – Existing Conditions Assessment.
- .2 Section 23 09 23.13 – Energy Meters.

**1.03 REFERENCE STANDARDS**

- .1 American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME)
  - .1 ANSI/ASME B16.5-1996, Pipe Flanges and Flanged Fittings.
  - .2 ANSI/ASME B31.1-2007, Power Piping.
  - .3 ANSI/ASME B31.3-2006, Process Piping.
  - .4 ANSI/ASME Boiler and Pressure Vessel Code-2007.
- .2 ASTM International (ASTM)
  - .1 ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
  - .2 ASTM C921-03a, Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.53-95, Poly (Vinyl Chloride) Jacketting Sheet, for Insulated Pipes, Vessels and Round Ducts
- .4 CSA Group (CSA)
  - .1 CSA B51-03(R2007), Boiler, Pressure Vessel and Pressure Piping Code.
  - .2 CSA W178.2-2008, Certification of Welding Inspectors.
- .5 Manufacturer's Trade Associations
  - .1 Thermal Insulation Association of Canada (TIAC): National Insulation Standards (Revised 2004).
- .6 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-03, Surface Burning Characteristics of Building Materials and Assemblies.
  - .2 CAN/ULC-S702-1997, Thermal Insulation, Mineral Fibre, for Buildings.

**1.04 PRE-INSTALLATION REVIEW**

- .1 Perform pre-installation review related to HVAC systems and energy meters in accordance with Section 02 22 00 – Existing Conditions Assessment.

**1.05 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Permits: make arrangements with and obtain permits from authorities having jurisdiction to perform alterations to high pressure steam piping systems and install energy meters and accessories.
  - .1 Prepare and submit application to authorities having jurisdiction and pay fees required to obtain permit.
- .2 Welding Certificates: submit welder's qualifications and certificates to Departmental Representative.

**1.06 QUALITY ASSURANCE**

- .1 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial regulations.
- .2 Inspections: costs for inspection to be covered by Contractor.
- .3 Qualifications:
  - .1 Welders:
    - .1 Welding qualifications in accordance with CSA B51.
    - .2 Use qualified and licensed welders possessing certificate for each procedure performed from authority having jurisdiction.
    - .3 Each welder to possess identification symbol issued by authorities having jurisdiction.
  - .2 Welding Inspectors: qualified to CSA W178.2.
  - .3 Thermal Insulation Installer: specialist in performing thermal insulation work, qualified to standards of TIAC.

**1.07 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.

**Part 2 Products**

**2.01 HIGH PRESSURE STEAM (275 TO 1034 KPA)**

- .1 Piping:
  - .1 To ASTM A53/A53M, Grade B.
  - .2 NPS 2 to 10: Schedule 40-ERW, bevel ends.
  - .3 Condensate return: Schedule 80, ERW, screwed or plain ends.

- .2 Flanges:
  - .1 NPS 2 and over: Class 150\300, full faced, slip-on, bored to suit pipe, to ASME B16.5.
  - .2 Complete with alloy steel heavy hex bolts and steel flex gasket, rated for temperature and pressure of system.

## **2.02 HVAC PIPING INSULATION**

- .1 Fire and smoke rating: in accordance with CAN/ULC-S102. Maximum flame spread rating of 25 and maximum smoke developed rating of 50.
- .2 TIAC Code A-1: rigid moulded mineral fibre without factory applied vapour retarder jacket.
  - .1 Mineral fibre: to CAN/ULC-S702.
  - .2 Maximum “k” factor: to CAN/ULC-S702.
- .3 Jackets: to match existing adjacent finish.
  - .1 Polyvinyl Chloride (PVC): One-piece moulded type to CAN/CGSB-51.53 with pre-formed shapes as required.
  - .2 Canvas: 220 gm/m<sup>2</sup> cotton, plain weave, treated with dilute fire retardant lagging adhesive to ASTM C921.

## **2.03 REMOVABLE PRE-FABRICATED INSULATION**

- .1 Application: at primary flow measuring elements for energy meters.
- .2 Design: to permit periodic removal and reinstatement of insulation without damage to adjacent permanent insulation.
- .3 Insulation type: as per piping insulation schedule.

## **Part 3 Execution**

### **3.01 PREPARATION**

- .1 Review exact location proposed for the installation of energy meters and their accessories in coordination with Section 23 09 23.13 – Energy Meters.
- .2 Steam Metering: remove required lengths of existing insulation to permit the installation of primary flow measuring elements, flow conditioners, associated flanges and thermowells.
- .3 Heating Water Metering: remove required lengths of existing insulation to permit the installation of primary flow measuring elements and surface mounted temperature sensors.

### **3.02 PIPING INSTALLATION**

- .1 Installation to be performed by certified steam fitters.
- .2 Coordinate the installation of energy meters and accessories with Section 23 09 23.13 – Energy Meters.
- .3 Flanges: tighten bolts evenly with torque wrench.
- .4 Welding: in accordance with ANSI/ASME B31.1, ANSI/ASME Boiler and Pressure Vessel Code and applicable requirements of provincial authority having jurisdiction.
  - .1 Identify each weld with welder's identification symbol.

- .5 Hot Work Permits: obtain hot work permits from Departmental Representative as required.

**3.03 INSULATION**

- .1 Pre-installation Requirement:
  - .1 Inspection of new piping and welds to be completed, witnessed and certified.
  - .2 Verification and calibration of energy meters to be completed.
  - .3 Surfaces clean, dry and free from foreign materials.
- .2 Installation:
  - .1 Install in accordance with TIAC National Standards.
  - .2 Apply materials in accordance with manufacturer's instructions.
  - .3 Coordinate installation around energy meters and accessories with Section 23 09 23.13 – Energy Meters.
- .3 Piping Insulation Schedule:
  - .1 Provide new thermal insulation on piping lengths where metering instrumentation was installed.
  - .2 Thickness of insulation as listed in the following table.

Application	TIAC code	Pipe sizes (NPS) and insulation thickness (mm)			
		1 ¼ to 2	2 ½ to 4	5 to 6	8 & over
Steam, Saturated	A-1	65	75	90	90
Hot Water or Glycol Heating	A-1	38	38	38	38

**3.04 WELDING INSPECTIONS**

- .1 Do not conceal welds until they have been inspected, tested and approved by inspector.
- .2 Specialist Examinations and Tests:
  - .1 Perform examinations and tests by specialist qualified to CSA W178.2.
  - .2 Perform to ANSI/ASME Boiler and Pressure Vessels Code, Section V, CSA B51 and requirements of authority having jurisdiction.
  - .3 Inspect and test welds by non-destructive visual examination and full gamma ray radiographic (hereinafter referred to as "radiography") tests as required.
- .3 Pay costs for inspections.
- .4 Re-inspect repaired or re-worked welds at Contractor's expense.

**3.05 SYSTEM START-UP**

- .1 Start-up systems after written approval of installation from Departmental Representative.
- .2 Provide 3 days written notice to Departmental Representative of intention to start-up, and commission systems



- .3 Timing: after piping and welding inspection is completed.
- .4 Provide continuous supervision during start-up.

**3.06 CLEANING**

- .1 Progress Cleaning: leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

**3.07 PROTECTION**

- .1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

**END OF SECTION**

**Part 1           General**

**1.01           SUMMARY**

- .1       This Section includes materials and components for metering steam and hot water networks and requirements for the installation, verification and calibration of metering instrumentation and the integration of metering data to the building's EMCS.
- .2       Energy Meter Schedule: provided at the end of this Section.

**1.02           RELATED REQUIREMENTS**

- .1       Section 02 22 00 – Existing Conditions Assessment.
- .2       Section 23 05 00 – Common Work Results for HVAC.
- .3       Section 25 05 01 – EMCS: General Requirements.
- .4       Section 26 05 00 – Common Work Requirements for Electrical.

**1.03           PRE-INSTALLATION REVIEW**

- .1       Assist in the pre-installation review in accordance with Section 02 22 00 – Existing Conditions Assessment.
  - .1       Perform final selection of energy metering components and accessories.
  - .2       Coordinate exact location of energy meter components, accessories, panels and requirements for power and controls wiring.
  - .3       Coordinate requirements for integration to EMCS in each building.
  - .4       Verify existing metering equipment scheduled to be reused.

**1.04           ACTION AND INFORMATIONAL SUBMITTALS**

- .1       Qualification Statements: submit contractor qualification statements and certificates demonstrating compliance with the qualification requirements of this Section, as described in PART 1 – QUALITY ASSURANCE, when submitting bid in accordance with Section 00 42 00 – Proposal Forms.
- .2       Product Data: submit product data when submitting bid in accordance with Section 00 42 00 – Proposal Forms.
- .3       Shop Drawings: submit shop drawings in accordance with Section 01 00 10 – General Instructions and include the following:
  - .1       Additional product data: submit manufacturer's printed product literature, specifications and datasheet of additional meter equipment and components found to be required following the pre-installation review.
  - .2       Energy Meter Schedule: submit a detailed schedule of all metering equipment and accessories proposed for installation and showing all relevant design/performance data including: model number, nominal pipe size of flowmeter and connections, flow and temperature range, service conditions, accuracy at min/max flows, design pressure, construction materials and ratings.
  - .3       Wiring Diagrams: submit wiring diagrams for power, signal and control connections of energy meters.

**1.05 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 00 10 – General Instructions.
- .2 Operation and Maintenance Data: submit operation and maintenance data for energy meters, primary flow measuring elements, temperature sensors and operator interfaces, for incorporation into manual.
  - .1 Operation data to include:
    - .1 Description of systems and their controls.
    - .2 Operation instruction for systems and component.
    - .3 Description of actions to be taken in event of equipment failure.
  - .2 Maintenance data to include:
    - .1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
    - .2 Data to include schedules of tasks, frequency, tools required and task time.
  - .3 Certificates:
    - .1 Calibration certificates of instrumentation.
    - .2 Field report of configuration and parameters set during installation.

**1.06 QUALITY ASSURANCE**

- .1 Qualifications:
  - .1 Contractor specializing in selection, installation and calibration of instrumentation, approved by manufacturer. Submit a list of 5 previously completed projects of similar type and scale.
  - .2 Training: workers to have completed manufacturer training on the products/systems installed as part of this Section. Submit proof of training.
- .2 Perform all instrument hook-ups, calibrations and verifications with qualified instrument technicians who are familiar with the products installed.
- .3 Perform all controls wiring installation and connections with licensed and qualified journeyman electricians in accordance with Section 26 05 00 – Common Work Results for Electrical.

**1.07 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 23 05 00 – Common Work Results for HVAC.

**Part 2 Products**

**2.01 STEAM METERING**

- .1 Type of metering: mass flow – temperature compensated.
- .2 Design/Performance Criteria:
  - .1 100% Design flow rate: as shown on Energy Meter schedule.
  - .2 Minimum measurable flow rate: 5% of maximum design flow rate.
  - .3 Maximum measuring error of complete meter at 70% of design mass flow rate: plus or minus 2%.

- .4 Minimum straight run requirements for maintaining accuracy: 15 times the nominal pipe size at the inlet and 5 times the nominal pipe size at the outlet, without flow obstruction.
  - .1 Capability to reduce minimum inlet straight run requirement through the use of a flow conditioner.
- .3 Primary flow measuring element:
  - .1 Vortex flowmeter, specifically designed for measurement of saturated steam with integrated temperature measurement.
  - .2 Media temperature range: -40 to 240 °C.
  - .3 Sensor construction: 316L stainless steel and 316L stainless steel measuring tube.
  - .4 Process connection: Class 150 or 300, 316L stainless steel flanges to ASME B16.5, nominal pipe size as shown on Energy Meter schedule.
    - .1 Provide integrated nominal diameter reducer for flowmeters requiring connection to process piping of larger diameter.
  - .5 Flow conditioner: provide as indicated in Energy Meter schedule.
    - .1 Class 150 or 300, 316L stainless steel, specifically designed perforated plate with flanged connections to ASME B16.5.
  - .6 No maintenance, no moving parts and no zero-point drift.
  - .7 Transmitter:
    - .1 Built-in flow computer providing integrated calculations of steam mass flow values using the internal temperature measurement.
    - .2 Housing: compact, die-cast aluminum, direct-mounted, IP66/67 rating with NPT threaded cable entry.
    - .3 Local operator display: LCD digital display with push-buttons.
    - .4 All inputs and outputs: electrically isolated from one another.
    - .5 Inputs:
      - .1 One analog signal: 4-20 mA with signal converter to measure an external temperature or pressure.
    - .6 Outputs:
      - .1 One analog signal: 4-20 mA, configurable to provide data on one of the following measurement/calculation: volume flow, mass flow, temperature (internal sensor), flow velocity.
      - .2 One binary output: configurable to provide a pulse output for energy totalization.
    - .7 Power Supply: 18 – 36 VDC.
  - .8 Certification: CRN approval.
- .4 External temperature sensors: for steam mass flow calculations.
  - .1 RTD assembly in thermowell with spring-loaded insert and enclosure.
  - .2 Sensor: Pt100, class A, 3-wire, -50 to 240 °C.
  - .3 Thermowell: stepped shape, NPT screwed, 316SS construction.
  - .4 Extension: 100mm nipple-union-nipple, steel construction.
  - .5 Enclosure: die-cast aluminum, IP67 rated, NPT cable entry.
  - .6 NIST calibration certificate.

- .5 Steam Calculator: consists of an energy calculator and data logger, which may form part of the primary flow measuring element or provided as a separate panel.
  - .1 Meter designed to record steam mass and energy flow in saturated steam systems based on measurement of process volume flow and temperature using internally programmed steam tables.
  - .2 Calculated values to include: power, volume and mass.
  - .3 Integrated counters for: volume, mass and energy.
  - .4 Operator interface: LCD display with pushbuttons.
  - .5 Real-time clock.
  - .6 Data logging and event logbook:
    - .1 Storing of all parameter changes, off-limit conditions, alarms and other events with timestamp.
    - .2 Sufficient non-volatile memory to store events and basic power and energy data for 30 days in the event of a communication failure with the EMCS.
    - .3 Capability to export data logs.
  - .7 Housing: reinforced plastic with display suitable for flush panel mounting.
  - .8 Inputs:
    - .1 One current input: 4-20 mA for flow measurement.
    - .2 One RTD input: for temperature measurement.
  - .9 Outputs:
    - .1 One current output: 4-20 mA configurable to provide data on power measurement.
    - .2 One binary output: configurable to provide a pulse output for energy totalization.
  - .10 Power Supply: 100-230 VAC or 24 VDC.
  - .11 Communication Interface: selection of one of the following interface in coordination with Section 25 05 01 – EMCS: General Requirements: Modbus RS485, Modbus TCP, BACnet MSTP or BACnet IP.
- .6 Accessories:
  - .1 Metering Panel: provide a control panel to house power supply and conditioning equipment and terminate instrumentation wiring.
    - .1 Cabinet-type, wall-mounted, with lockable front door mounted on concealed hinges.
    - .2 All metering accessories including transformers, power supply equipment to be installed inside the panel. Steam calculator display to be mounted on the panel's front door.
    - .3 Wiring: all wiring to be terminated on clearly identified terminal blocks inside the panel. Wiring to be neatly organized inside the panel.
    - .4 Main disconnect switch: provide a main disconnect switch inside the panel.
  - .2 Power Supply and Conditioning Equipment: provide all DC power supplies as required for instrument circuits.
    - .1 Power supplies complete with over-voltage protection module and sized for two times the connected load.

- .3 Instrumentation Cables: provide instrumentation cables in accordance with manufacturer's recommendations for connection of flow and temperature transmitters.
  - .1 Copper conductors, stranded, minimum #18 AWG, PVC insulated for 600V, 100% coverage aluminum foil or tape shield, separate bare stranded copper drain wire, overall flame retardant PVC jacket to CSA-C22.2.

## **2.02 HEATING WATER METERING**

- .1 Type of metering: thermal power (i.e demand), thermal energy consumption, supply and return temperature, compensated for specific gravity.
- .2 Design/Performance Criteria:
  - .1 100% Design flow rate: as shown on Energy Meter schedule.
  - .2 Minimum measurable flow rate: 1% of maximum design flow rate.
  - .3 Maximum measuring error of complete meter at 70% of design mass flow rate: plus or minus 1.5%.
  - .4 Minimum straight run requirements for maintaining accuracy: 10 times the nominal pipe size at the inlet and 5 times the nominal pipe size at the outlet, without flow obstruction.
    - .1 Capability to reduce minimum inlet straight run requirement through the use of an additional pair of flow transducers.
- .3 Primary flow measuring element:
  - .1 Ultrasonic flowmeter, specifically designed for measurement of liquid, clamp-on design, with no liquid contact that mounts externally on the pipe.
  - .2 Non-invasive measurement technology, suitable for bi-directional flow measurement.
  - .3 Transit-time flow measurement technique, employing the use of two microprocessors with the ability to monitor two independent flow and temperature channels simultaneously.
  - .4 Panel:
    - .1 Flow computer providing integrated calculations liquid velocity, flow and media temperature.
    - .2 Housing: wall-mounting, NEMA-4X rating with NPT threaded cable entry.
    - .3 Local operator display: LCD digital display with push-buttons.
    - .4 Real-time clock.
  - .5 Flow Transducers:
    - .1 Transducers provided with multi-point flow calibration certificate with an accuracy of better than 1%. All calibration and transducer data must reside in a non-volatile memory.
    - .2 In limited straight run applications, the meter must be capable of simultaneously averaging two independent ultrasonic paths from two separate sets of flow transducers. These two separate readings will then be averaged by the flow computer and seamlessly outputs a single, accurate flow reading.
    - .3 Built in RTDs for measuring the transducer block temperature and automatically compensating for the effect that temperature change has on the transducer refraction angle and calibration.
  - .6 No zero calibration: the zero calibration must be factory pre-set automatic without the need for zero check/calibration after installation.

- .1 NIST traceable flow calibration certification provided with each system.
- .7 Meter to indicate: flow rate, flow velocity, mass flow, total flow, media temperature, temperature differential, heat quantity, heat flow totalizer (energy).
  - .1 The meter must also provide automatic Reynolds number, liquid sonic velocity compensation, and have built in liquid tables for automatic sound velocity, viscosity, and density settings.
  - .2 The meter must have the ability to have dynamic (automatic) compensation for changes in temperature, viscosity and density that can be caused by additives such as glycol.
- .8 Inputs: RTD inputs for differential temperature measurement.
- .9 Outputs:
  - .1 One current output: 4-20 mA configurable to provide data on power measurement.
  - .2 One binary output: configurable to provide a pulse output for energy totalization (BTU meter).
- .10 Temperature sensors: clamp-on, matched pair and calibrated with no greater difference than 0.03 °C.
- .11 Data logging and event logbook:
  - .1 Storing of all parameter changes, off-limit conditions, alarms and flow diagnostics with timestamp.
  - .2 Sufficient non-volatile memory to store events and basic power and energy data for 30 days in the event of a communication failure with the EMCS.
  - .3 Capability to export data logs.
- .12 Power Supply: 115-230 VAC or 11-30 VDC.
- .13 Communication Interface: selection of one of the following interface in coordination with Section 25 05 01 – EMCS: General Requirements: Modbus RS485, Modbus TCP, BACnet MSTP or BACnet IP.
- .14 Instrumentation Cables: provide instrumentation cables in accordance with manufacturer’s recommendations for connection of flow transducers and temperature sensors.

**2.03 ACCESSORIES FOR DATA LOGS**

- .1 Provide any special accessories required to connect to energy meters and export data logs to a CSV or MS-Excel format including: cables, connectors and software.
- .2 Software Installation Requirements: install and configure any specialized software required on a portable computer in accordance with Section 01 00 10 – General Instructions.

**Part 3 Execution**

**3.01 MANUFACTURER’S INSTRUCTIONS**

- .1 Comply with manufacturer’s written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.02 INSTALLATION**

- .1 Install equipment, components so that manufacturer's and certification labels are visible and legible after installation is complete.
- .2 Locate panels to provide a minimum clearance of 1000mm in front of panel.
- .3 Wiring: in accordance with manufacturer's instruction and Section 26 05 00 – Common Work Requirements for Electrical.
- .4 Configuration and Calibration:
  - .1 Instrumentation to be factory-calibrated and calibration to be verified in place after installation.
  - .2 Instrumentation to be setup and adjusted by instrument technician trained on the products.
  - .3 Configure transmitters, flow computers and energy calculators to acquire and compute data accurately.
    - .1 Configure data and event logging of energy meters under the direction of the Departmental Representative.
    - .2 Provide field report of parameters configured on site.
- .5 Systems Integration: provide assistance to integrate energy metering data with each building EMCS.
  - .1 Submit relevant manufacturer literature and instructions to integrate data from energy meters.
  - .2 Configure communication interfaces in coordination with the EMCS Contractor to allow transfer of data to the EMCS.

**3.03 EXISTING FLOWMETERS TO REUSE**

- .1 Refer to Energy Meter Schedule.
- .2 WL57-STM:
  - .1 The current installation includes a vortex flow measuring element to reuse.
  - .2 Provide a steam calculator/data logger to interface with the existing flow meter and to perform data integration with EMCS.

**3.04 DEMONSTRATION AND TRAINING**

- .1 Demonstrate operation and data logging features of energy meters to Departmental Representative in accordance with Section 01 00 10 – General Instructions.

**END OF SECTION**



# ENERGY METER SCHEDULE

(See specification Section 23 09 23.13)

IDENTIFICATION	DESCRIPTION	LOCATION	PROCESS DETAILS			FLOW METER			REMARKS
			SERVICE	PROCESS PIPE SIZE (in)	PROCESS PIPE TYPE	TYPE	DESIGN FLOW	DESIGN PRESSURE	
SH14-HTW	SH14 - Heating Boiler Plant	SH14 - Bsmt Mech Room	LTW	NPS-4	Copper	US	7.5 L/s	-	DTTR
SH57-MSTM	SH57- Main Steam Entrance	SH57 - Bsmt Mech Room	STM	NPS-6	Steel CI-150	VOR	2,400 kg/h	60 psi	
SH100-MSTM	SH100 - Main Steam Entrance	SH100 - Bsmt Mech Room	STM	NPS-6	Steel CI-300	VOR	3,650 kg/h	65 psi	
SH251-HXW	SH251 - Heat Exchanger Water	SH251 - Bsmt Mech Room	LTW	NPS-3	Steel Sch-40	US	5 L/s	-	DTTR
SH251-HXG	SH251 - Heat Exchanger Glycol	SH251 - Bsmt Mech Room	LTW	NPS-3	Steel Sch-40	US	7 L/s	-	DTTR, GLY
SH330-MSTM	SH330 - Main Steam Entrance	SH330 - Bsmt Mech Room	STM	NPS-3	Steel CI-300	VOR	4,015 kg/h	125 psi	FCR
SH57-SBLR	SH57 - Steam Boiler	SH57 - Ext. Mech Room	STM	-	-	VOR	400 kg/h	15 psi	
SH100-SBLR	SH100 - Steam Boiler	SH100 - Bsmt Mech Room	STM	NPS-6	Steel CI-300	VOR	1,600 kg/h	15 psi	
SH330-SBLR	SH330 - Steam Boiler	SH330 - Bsmt Mech Room	STM	NPS-4	Steel CI-150	VOR	800 kg/h	15 psi	

## NOTES:

### SERVICES:

CHW = CHILLED WATER  
 LTW = LOW TEMPERATURE HEATING WATER  
 MTW = MEDIUM TEMPERATURE HEATING WATER  
 SCD = STEAM CONDENSATE  
 STM = STEAM

### METER TYPES:

AP = AVERAGING PITOT  
 MAG = MAGNETIC  
 ND = NUTATING DISC  
 TUR = TURBINE  
 US = ULTRASONIC  
 VOR = VORTEX

### REMARKS:

DTTR = DELTA-T TRANSMITTERS REQUIRED  
 EMR = EXISTING METER TO REUSE  
 FCR = FLOW CONDITIONER REQUIRED  
 GLY = GLYCOL  
 LSR = LIMITED STRAIGHT RUN

# ENERGY METER SCHEDULE

(See specification Section 23 09 23.13)

IDENTIFICATION	DESCRIPTION	LOCATION	PROCESS DETAILS			FLOW METER			REMARKS
			SERVICE	PROCESS PIPE SIZE (in)	PROCESS PIPE TYPE	TYPE	DESIGN FLOW	DESIGN PRESSURE	
SH342-HX	SH342 - Heat Exchanger	SH342 - Main Mech Room	LTW	NPS-6	Steel Sch-40	US	18 L/s	-	LSR, GLY, DTTR
SH343-HX1	SH343 - Heat Exchanger 1	SH343 - Main Mech Room	LTW	NPS-4	Steel Sch-40	US	17.5 L/s	-	LSR, GLY, DTTR
SH343-HX2	SH343 - Heat Exchanger 1	SH343 - Main Mech Room	LTW	NPS-4	Steel Sch-40	US	17.5 L/s	-	LSR, GLY, DTTR
SH344-HX	SH344 - Heat Exchanger	SH344 - Main Mech Room	LTW	NPS-6	Steel Sch-40	US	37.5 L/s	-	GLY, DTTR
WL57-MSTM	WL57 - Main Steam Entrance	WL57 - Bsmt Mech Room	STM	-	-	VOR	2,800 kg/h	-	EMR

**NOTES:**

SERVICES:

- CHW = CHILLED WATER
- LTW = LOW TEMPERATURE HEATING WATER
- MTW = MEDIUM TEMPERATURE HEATING WATER
- SCD = STEAM CONDENSATE
- STM = STEAM

METER TYPES:

- AP = AVERAGING PITOT
- MAG = MAGNETIC
- ND = NUTATING DISC
- TUR = TURBINE
- US = ULTRASONIC
- VOR = VORTEX

REMARKS:

- DTTR = DELTA-T TRANSMITTERS REQUIRED
- EMR = EXISTING METER TO REUSE
- FCR = FLOW CONDITIONER REQUIRED
- GLY = GLYCOL
- LSR = LIMITED STRAIGHT RUN

**Part 1           General**

**1.01           SUMMARY**

- .1     Work of this Section consists of modifications to the existing EMCS in each affected building to integrate new HVAC and electrical metering systems, acquire/display metering data and perform data archiving on the existing EMCS platforms.
- .2     This Section includes:
  - .1     Requirements for connecting meters to EMCS.
  - .2     EMCS programming and database modifications to perform meter integration, including points mapping, graphic generation and configuration of data logging.
  - .3     Additional software/hardware required to integrate meters.
  - .4     Equipment interface coordination.
  - .5     Acceptance tests and commissioning of new installation with full documentation.
  - .6     Project record documentation.
  - .7     Training of personnel.

**1.02           RELATED REQUIREMENTS**

- .1     Section 02 22 00 – Existing Conditions Assessment.
- .2     Section 23 09 23.13 – Energy Meters.
- .3     Section 26 05 00 – Common Work Requirements for Electrical.
- .4     Section 26 09 23.01 – Metering and Switchboard Instruments.

**1.03           DESIGNATED CONTRACTORS**

- .1     Hangars – Buildings SH342 (X), SH343 (Y) and SH344 (Z):
  - .1     Hire the services of **Digicon Building Control Solutions Ltd.** or its authorized representative to complete the work related to this Section in Hangars XYZ.
- .2     Other Buildings:
  - .1     Hire the services of **VCI Controls Inc.** or its authorized representative to complete the work related to this Section in Buildings SH14, SH57, SH100, SH251, SH330 and WL57.

**1.04           ACRONYMS AND ABBREVIATIONS**

- .1     Acronyms used in EMCS:
  - .1     AI - Analog Input.
  - .2     AO - Analog Output.
  - .3     BACnet - Building Automation and Control Network.
  - .4     COSV - Change of State or Value.
  - .5     DI - Digital Input.
  - .6     DO - Digital Output.
  - .7     EMCS - Energy Monitoring and Control System.

- .8 HVAC - Heating, Ventilation, Air Conditioning.
- .9 I/O - Input/Output.
- .10 LAN - Local Area Network.
- .11 O&M - Operation and Maintenance.

**1.05 PRE-INSTALLATION REVIEW**

- .1 Perform pre-installation review related to EMCS in accordance with Section 02 22 00 – Existing Conditions Assessment.
- .2 Coordination of meter interfaces:
  - .1 Before submitting shop drawings, coordinate interface details with 23 09 23.13 – Energy Meters and Section 26 09 23.01 – Metering and Switchboard Instruments, including the following:
    - .1 Type of communication interface.
    - .2 Data available for integration.
    - .3 Wiring requirements.
    - .4 Communication speed.
    - .5 Network accessories required.
  - .2 Purpose of coordination is to ensure there are no unresolved issues regarding the integration of metering systems to the EMCS.

**1.06 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Shop Drawings: submit shop drawings in accordance with Section 01 00 10 – General Instructions and include the following:
  - .1 Complete bill of materials indicating quantity, manufacturer and model number of equipment.
  - .2 List and description of additional software/hardware provided.
  - .3 Detailed network architecture showing DDC controllers, integrated meter systems, components of the centralized management system (server, OWS), communication interfaces, control networks, communication protocols used and cable types.
  - .4 Points List of meter data points being integrated.

**1.07 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 00 10 – General Instructions.
- .2 Project Record Documents: submit the following:
  - .1 Corrected and updated version of shop drawings.
  - .2 Floor plans showing location of metering equipment and new EMCS equipment added as part of this Contract.
  - .3 Integration details: network address and configuration of metering systems.
  - .4 List of all data points setup for trending, organized by metering system and including data configuration details: sampling rate, COSV, etc.
  - .5 Commissioning report showing certified test results.

**1.08 QUALITY ASSURANCE**

- .1 Installation: have trained and experienced personnel to perform the work described in this Section.
- .2 Integration Work: have integration specialists perform programming work to integrate metering equipment to EMCS.
  - .1 Integration specialists to be experienced with communication protocols and methods used to perform the integration.
- .3 Ensure qualified supervisory personnel continuously direct and monitor Work and attend progress meetings.

**1.09 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

**1.10 EXISTING CONDITIONS - CONTROL COMPONENTS**

- .1 Submit written request for permission to disconnect controls and to obtain equipment downtime before proceeding with Work.
- .2 Assume responsibility for controls to be incorporated into EMCS. Be responsible for repair costs due to negligence or abuse of equipment.

**Part 2 Products**

**2.01 SYSTEM DESCRIPTION**

- .1 Provide DDC control units, gateways, communication interfaces, software and other EMCS components and accessories required to integrate and archive HVAC and electrical metering data in accordance with the requirements of this Section.

**2.02 DESIGN/PERFORMANCE CRITERIA**

- .1 Trending and Archiving:
  - .1 Provide the capacity at the EMCS to archive all metering data points for a period of one year using a sampling rate of 15 minutes.

**2.03 MATERIALS/EQUIPMENT**

- .1 Hangars – Buildings SH342 (X), SH343 (Y) and SH344 (Z):
  - .1 There is an existing **ANDOVER/DIGICON CONTROLS** system presently installed in the hangars. All materials/equipment must be selected to ensure full compatibility with the existing **ANDOVER/DIGICON CONTROLS** system.
- .2 Buildings SH14, SH57, SH100, SH251, SH330 and WL57:
  - .1 There is an existing **ALERTON/VCI CONTROLS** system presently installed in these buildings. All materials/equipment must be selected to ensure full compatibility with the existing **ALERTON/VCI CONTROLS** system.

**Part 3 Execution**

**3.01 PREPARATION**

- .1 Review exact location proposed for the installation of energy meters and their accessories in coordination with Section 23 09 23.13 – Energy Meters.
- .2 Review location of EMCS panels with Section 26 05 00 – Common Work Results for Electrical.

**3.02 INSTALLATION**

- .1 All EMCS components and software shall be installed, adjusted and configured by specialized technicians, regularly employed by the EMCS Contractor. All costs related to adjustments form part of the Contract.
- .2 Electrical Installation:
  - .1 Complete installation in accordance with Section 26 05 00 – Common Work Requirements for Electrical.
  - .2 Terminate wires with screw terminal connectors suitable for wire size, and number of terminations.

**3.03 PROGRAMMING**

- .1 Provide programming required to setup systems integration, trends and graphic user interfaces as described below.
- .2 Systems Integration: the following lists for each typical system, the minimum points required to integrate for data acquisition and display at the EMCS.
  - .1 Electrical Meter:
    - .1 Voltage, Line-to-Line.
    - .2 Amps, Average Current.
    - .3 Amps, Current Neutral.
    - .4 Frequency.
    - .5 Real Power (kW).
    - .6 Reactive Power (kVAR).
    - .7 Apparent Power (kVA).
    - .8 Power Factor.
    - .9 Minimum Real Power.
    - .10 Maximum Real Power (Peak Demand).
    - .11 Reset Peak Demand.
    - .12 Consumption (kWh).
    - .13 Consumption (kVAh).
    - .14 Consumption (kVARh).
  - .2 Steam Meter:
    - .1 Mass Flow.
    - .2 Energy Totalizer.
    - .3 Process Temperature.
    - .4 Device Status.

- .5 Alarms.
- .3 Heating Water Meter:
  - .1 Flow Rate.
  - .2 Temperature Hot Side.
  - .3 Temperature Cold Side.
  - .4 Temperature Difference.
  - .5 Heat Quantity (Thermal Power)
  - .6 Heat Flow Totalizer (Thermal Energy).
  - .7 Device Status.
  - .8 Alarms.
- .3 Trends: the following lists for each typical system, the minimum points required to be configured and archived at the EMCS.
  - .1 Electrical Meter:
    - .1 Voltage, Line-to-Line.
    - .2 Amps, Average Current.
    - .3 Real Power (kW).
    - .4 Power Factor.
    - .5 Maximum Real Power (Peak Demand).
    - .6 Consumption (kWh).
  - .2 Steam Meter:
    - .1 Mass Flow.
    - .2 Energy Totalizer.
    - .3 Process Temperature.
    - .4 Device Status.
    - .5 Alarms.
  - .3 Heating Water Meter:
    - .1 Flow Rate.
    - .2 Temperature Difference.
    - .3 Heat Quantity (Thermal Power)
    - .4 Heat Flow Totalizer (Thermal Energy).
    - .5 Device Status.
    - .6 Alarms.
- .4 Graphical User Interface:
  - .1 For each affected building, program new graphics at the OWS displaying the data acquired from metering systems integration.
  - .2 Configuration of graphics to be executed in collaboration with Departmental Representative.

### 3.04 IDENTIFICATION

- .1 Identify new EMCS components (e.g. panels, wiring, field devices, etc.) in accordance with identification standards currently enforced on site.
- .2 Provide new and corrected Points List and wiring diagrams inside panels.

- .3 Metering Equipment Identification:
  - .1 Identify new metering components connected to EMCS with nameplates: plastic encased cards attached by plastic tie.
  - .2 Nameplates data to include: Device name, Device ID, device address.
  - .3 Coordinate nameplate data with project record documents.

**3.05 TESTING AND COMMISSIONING**

- .1 Commission integrated systems using procedures prescribed by Departmental Representative.
- .2 Include following activities:
  - .1 Test data acquisition programs and verify that metering data integrated at the EMCS matches the data displayed locally at meter.
  - .2 Test operating functions such as reset of peak demand values.
  - .3 Simulate alarm conditions at metering systems and verify reception of alarms at the EMCS.
  - .4 Debug software.
  - .5 Provide point verification list in table format including point identifier and point description. Include space on commissioning sheet for technician to sign and certify the test results.

**3.06 CLEANING**

- .1 Progress Cleaning: leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

**3.07 DEMONSTRATION AND TRAINING**

- .1 Demonstrate operation of new EMCS graphics and data logging features to Departmental Representative in accordance with Section 01 00 10 – General Instructions.

**END OF SECTION**



**Part 1            General**

**1.01            SUMMARY**

- .1        This Section includes common requirements for providing electrical work related to HVAC energy metering, electrical metering and connection of metering equipment to each building's EMCS.

**1.02            RELATED REQUIREMENTS**

- .1        Section 02 22 00 – Existing Conditions Assessment.
- .2        Section 23 09 23.13 – Energy Meters.
- .3        Section 25 05 01 – EMCS: General Requirements.
- .4        Section 26 09 23.01 – Metering and Switchboard Instruments.

**1.03            PRICE AND PAYMENT PROCEDURES**

- .1        Installation of conduits and cables: measurement for payment for this work will be on a meter basis according to unit prices submitted by the Contractor as part of his bid in accordance with the forms of Section 00 42 00 – Proposal Forms.

**1.04            REFERENCE STANDARDS**

- .1        CSA Group
  - .1        CSA C22.1-12, Canadian Electrical Code, Part 1 (22nd Edition), Safety Standard for Electrical Installations.

**1.05            PRE-INSTALLATION REVIEW**

- .1        Perform pre-installation review related to electrical systems and metering in accordance with Section 02 22 00 – Existing Conditions Assessment.

**1.06            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Permits and fees: in accordance with Section 01 00 10 – General Instructions.
- .2        Certificates: provide CSA certified equipment and material.
- .3        Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

**1.07            QUALITY ASSURANCE**

- .1        Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial regulations.
- .2        Qualifications:
  - .1        Electricians: qualified, licensed electricians or apprentices in accordance with Provincial Act respecting manpower vocational training and qualifications.
  - .2        Apprentices: employees registered in provincial apprentices program permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.

**1.08 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.

**Part 2 Products**

**2.01 MATERIALS AND EQUIPMENT**

- .1 Material and equipment to be CSA certified.
- .2 Conduits: to CSA C22.2.
  - .1 Electric metallic tubing (EMT) with couplings.
  - .2 Flexible metal conduit: liquid-tight flexible metal for connection to equipment and metering devices.

**2.02 WIRING**

- .1 Power Wiring:
  - .1 Circuit wiring: minimum 12 AWG, copper conductors.
  - .2 For low voltage: minimum 18 AWG, copper conductors.
  - .3 Grounding conductors: green insulated copper conductors.
- .2 Instrumentation Cables:
  - .1 Twisted pair shielded cables or RTD cables in accordance with Section 23 09 23.13 – Energy Meters.
- .3 Communications Wiring:
  - .1 Ethernet wiring: CAT5E, in accordance with EIA/TIA-568.
  - .2 RS485 wiring: twisted pair or shielded cable, low-capacitance, selected in coordination with the requirements of Section 25 05 01 – EMCS: General Requirements.

**Part 3 Execution**

**3.01 PREPARATION**

- .1 Review exact location proposed for the installation of energy meters and their accessories in coordination with Section 23 09 23.13 – Energy Meters.
- .2 Review location of EMCS panels in coordination with Section 25 05 01 – EMCS: General Requirements.

**3.02 INSTALLATION**

- .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Fire stopping: provide fire stopping around conduits at wall penetrations to maintain fire integrity.
- .3 In each affected building, provide power to metering equipment from local distribution panels using dedicated circuit breakers.
- .4 Provide conduits and cables required for:
  - .1 Connection between energy metering instrumentation, components and panels.
  - .2 Connection of HVAC and electrical metering systems to EMCS.
- .5 Conduits:
  - .1 Run all wiring in electrical metallic tubing (EMT). Run parallel or perpendicular to building lines.
  - .2 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
  - .3 Use liquid tight flexible metal conduit for final connection (maximum 1.5 meter) to instrumentation installed on HVAC piping.
  - .4 Support conduit boxes independently of connecting conduits.
- .6 Cable Installation:
  - .1 Verify installation and coordination responsibilities related to energy meter equipment and components.
  - .2 Terminate all cables on screw-type terminals.
  - .3 Lace or clip groups of cables at control panels and termination points.
- .7 Grounding:
  - .1 Provide grounding conductors and connections to energy metering equipment and components in accordance with manufacturer's recommendations.
  - .2 Coordinate grounding requirements with Section 23 09 23.13 – Energy Meters.
- .8 Coordination of Protective Devices: ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

**3.03 IDENTIFICATION**

- .1 Conduit Identification:
  - .1 Colour code conduits and boxes with plastic tape or paint using the building colour coding standard. Confirm colour coding scheme with Departmental Representative.
- .2 Wiring Identification:
  - .1 Identify wiring with permanent indelible identifying markings, numbered, on both ends of conductors.
- .3 Equipment Identification:
  - .1 Disconnects: indicate voltage and source.
  - .2 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.
  - .3 Modify panel schedules to identify circuit breakers used.

**3.04 CLEANING**

- .1 Progress Cleaning: leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

**END OF SECTION**

**Part 1           General**

**1.01           SUMMARY**

- .1       This Section includes electric power monitoring equipment for performing switchboard energy/power metering and requirements for integrating data to the building's EMCS.

**1.02           RELATED REQUIREMENTS**

- .1       Section 02 22 00 – Existing Conditions Assessment.
- .2       Section 25 05 01 – EMCS: General Requirements.
- .3       Section 26 05 00 – Common Work Requirements for Electrical.

**1.03           PRE-INSTALLATION REVIEW**

- .1       Assist in the pre-installation review in accordance with Section 02 22 00 – Existing Conditions Assessment.
  - .1       Perform final selection of digital metering components and accessories.
  - .2       Coordinate requirements for integration to EMCS in each building.
  - .3       Verify existing metering equipment scheduled to be reused.

**1.04           ACTION AND INFORMATIONAL SUBMITTALS**

- .1       Product Data: submit product data when submitting bid in accordance with Section 00 42 00 – Proposal Forms.
- .2       Shop Drawings: submit shop drawings in accordance with Section 01 00 10 – General Instructions and include the following:
  - .1       Additional product data: submit manufacturer's printed product literature, specifications and datasheet of additional meter equipment and components found to be required following the pre-installation review.
  - .2       Metering Schedule: submit a detailed schedule of all digital metering equipment and accessories proposed for installation and showing all relevant design/performance data including: model number, ratings, communication interface and current/potential transformers ratings.
  - .3       Wiring Diagrams: submit wiring diagrams detailing power, signal, and control systems, clearly identifying field-installed wiring.
- .3       Manufacturer's Field Reports: submit manufacturer's written reports, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

**1.05           CLOSEOUT SUBMITTALS**

- .1       Submit in accordance with Section 01 00 10 – General Instructions.
- .2       Operation and Maintenance Data: submit operation and maintenance data for digital meters and accessories for incorporation into manual.

**1.06 QUALITY ASSURANCE**

- .1 Manufacturer Site Visits: as part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, upon completion of meter installation and prior to performing integration to EMCS.

**Part 2 Products**

**2.01 DIGITAL METER**

- .1 Digital AC instrumentation package for measuring, calculating and displaying the following information:
  - .1 Voltage: line-to-neutral and line-to-line per phase and three phase average.
  - .2 Voltage percent unbalanced.
  - .3 Current: per phase, neutral (measured) and three phase average.
  - .4 Current percent unbalanced.
  - .5 Real Power (kW): per phase and three-phase total.
  - .6 Reactive Power (kVAR): per phase and three-phase total.
  - .7 Apparent Power (kVA): per phase and three-phase total.
  - .8 Power Factor: true/displacement, per phase and three-phase total.
  - .9 Frequency.
  - .10 THD, thd, TDD: for each current and voltage input.
  - .11 Individual harmonics up to the order of 15<sup>th</sup>.
  - .12 Energy Readings:
    - .1 Accumulated Energy: real kWh, reactive KVARh, and apparent KVAh.
    - .2 Energy consumption: net and total readings.
  - .13 Demand Readings:
    - .1 Demand current calculations: per phase, three-phase average, neutral.
    - .2 Present and peak calculations.
- .2 Instrumentation package to provide true RMS measurement and include the following:
  - .1 Direct connection to Potential Transformers (PTs) and Current Transformers (CTs).
    - .1 Provide current input overrange options from 125% to 1000%.
    - .2 Four current inputs for measurement of neutral current.
  - .2 Real-time clock with battery backup.
  - .3 Non-volatile memory for storing the following:
    - .1 Cumulative quantities for real, reactive and apparent energies.
    - .2 Logging and alarm/event data.
    - .3 All setup parameters.
  - .4 Logging: onboard data logging with timestamping of the following:
    - .1 Data logs.
    - .2 Min/Max log files of selected parameter values.
    - .3 Alarm logs for each user-defined alarm.
    - .4 Provide sufficient memory to store 60 days of basic power and energy data at 15 minutes interval in the event of communication failure with the EMCS.

- .5 Display: backlit LCD display, anti-glare and scratch resistant.
  - .1 Capability to view four values simultaneously and local navigation.
- .6 Output: one digital output configurable as a pulse output for energy usage (kWh).
- .7 Communications:
  - .1 Provide communications port for interfacing digital meter to EMCS. Communication interface to provide access to all measured and calculated values of the digital meter.
  - .2 Communications port: select interface on a building to building basis in coordination with Section 25 05 01 – EMCS: General Requirements.
  - .3 Acceptable communication interfaces:
    - .1 Modbus: RS-485 or TCP.
    - .2 BACnet: RS-485 or TCP.
- .3 Design/Performance Criteria:
  - .1 Compliance with the following standards:
    - .1 cUL Listed (UL61010-1).
    - .2 CSA approved.
  - .2 Measurement Accuracy:
    - .1 Active Energy (kWh):  $\pm 0.2\%$ .
    - .2 Reactive Energy (kVARh):  $\pm 2\%$ .
    - .3 Active Power (kW):  $\pm 0.2\%$ .
    - .4 Reactive Power (kVAR):  $\pm 1\%$ .
    - .5 Apparent Power (kVA):  $\pm 0.5\%$ .
    - .6 Current (per phase):  $\pm 0.15\%$ .
    - .7 Voltage (line-neutral):  $\pm 0.1\%$ .
    - .8 Frequency:  $\pm 0.05\%$ .
- .4 Accessories for Exporting Data Logs:
  - .1 Provide any special accessories required to connect to electrical meters and export data logs to a CSV or MS-Excel format including: cables, connectors and software.
  - .2 Software Installation Requirements: install and configure any specialized software required on a portable computer in accordance with Section 01 00 10 – General Instructions.

**2.02 CURRENT TRANSFORMERS**

- .1 Provide 4 current transformers (CTs) for each digital meter: one per phase and one on neutral.
- .2 Design/Performance Criteria:
  - .1 Voltage Class: 600 V.
  - .2 Primary current: to suit ampacity indicated in PART 3 – METERING SCHEDULE.
  - .3 Secondary current: 5A.
  - .4 Revenue-grade.

**2.03 POTENTIAL TRANSFORMERS**

- .1 Provide 3 potential transformers (PTs) per digital meter: open type, protected by current limiting fuses, with disconnect.
- .2 Accuracy: 0.6% or better.

**Part 3 Execution**

**3.01 MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.02 METER INSTALLATION**

- .1 Remove existing digital meters, components and wiring in switchgear before installing new electric metering equipment.
- .2 Existing meters to reuse:
  - .1 Provide connection to EMCS for integration.
  - .2 Provide configuration and assist EMCS Contractor with systems integration.
- .3 Install meters current and potential transformers in switchgear.
- .4 Make connections in accordance with manufacturer's diagrams.
- .5 Configuration and Calibration:
  - .1 Instrumentation to be setup and calibrated by technician trained on the products.
  - .2 Configure data logging system and parameters under the direction of the Departmental Representative.
  - .3 Provide field report of parameters configured on site.
- .6 Systems Integration: provide assistance to integrate meter data with each building EMCS.
  - .1 Submit relevant manufacturer literature and instructions to integrate data from digital metering systems.
  - .2 Configure systems under the direction of the EMCS contractor to allow transfer of data to the EMCS.

**3.03 FIELD QUALITY CONTROL**

- .1 Verify correctness of connections, polarities of meters, instruments, potential and current transformers, transducers, signal sources and electrical supplies.
- .2 Perform tests to obtain correct calibration. Do not dismantle meters and instruments.
- .3 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing and configuring product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of inspection of product installation and configuration/calibration in accordance with manufacturer's instructions.
  - .3 Schedule manufacturer site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.



**3.04 METERING SCHEDULE**

- .1 The following metering schedule lists meter requirements by building.
  - .1 Existing switchboard manufacturer and model numbers are provided in the schedule for information purposes only.
  - .2 Existing switchboards are also currently equipped with digital meters. The meter manufacturer and model number are provided for information purposes only.
  - .3 Existing Metering Equipment to Reuse: the metering schedule includes a number of metering system to reuse. These systems are expected to be “plug-in ready” for the EMCS integration work and will be verified for compliance as part of the existing conditions assessment described in PART 1 – PRE-INSTALLATION REVIEW.

METERING SCHEDULE						
Building	Rated Voltage (V)	System	Main Amperage (Amps)	Switchboard Manufacturer / Model #	Existing Meter Manuf./Model #	Notes
SH14	347/600	3 Ph / 4W 60 Hz	400	Westinghouse CMP-A1	Westinghouse IQ Data Plus II	
SH57	347/600	3 Ph / 4W 60 Hz	800	Westinghouse CMP-A2	Westinghouse IQ Data Plus II	
SH100	347/600	3 Ph / 4W 60 Hz	1000	Westinghouse CMP-A2	Westinghouse IQ Data Plus II	
SH251	347/600	3 Ph / 4W 60 Hz	600	Siemens	Siemens 4700	
SH330	347/600	3 Ph / 4W 60 Hz	4000	Eaton Custom	Schneider ION 7550	See Note 1 See Note 2
SH342 (X)	347/600	3 Ph / 4W 60 Hz	2500	Square D QED	Schneider ION 7330	
SH343 (Y)	347/600	3 Ph / 4W 60 Hz	2000	Square D QED	Schneider ION 7330	
SH344 (Z)	347/600	3 Ph / 4W 60 Hz	3000	Square D QED	Schneider ION 7330	
WL57	347/600	3 Ph / 4W 60 Hz	1000	Siemens FC1	Siemens Sentron PAC4200	See Note 3

**NOTES:**

- 1. Existing electrical meter to reuse.
- 2. In addition to metering the main switchboard, the existing meter operates as a gateway and connects to a sub-metering network with 10 additional electrical meters (Schneider ION 6200). EMCS integration work to include data acquisition of these 10 sub-meters.
- 3. Existing electrical meter to reuse.

**3.05 DEMONSTRATION AND TRAINING**

- .1 Demonstrate operation and data logging features of electric meters to Departmental Representative in accordance with Section 01 00 10 – General Instructions.

**END OF SECTION**



<b>ID</b>	<b>2010B</b>
<b>Title</b>	<b>General Conditions Services (Medium Complexity</b>
<b>Date</b>	<b>2010-08-16</b>
<b>Status</b>	<b>Active</b>

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- 27 No Bribe or Conflict
- 28 Contingency Fees
- 29 International Sanctions
- 30 Harassment in the Workplace
- 31 Entire Agreement



### **2010B 01 (2008-05-12) Interpretation**

In the Contract, unless the context otherwise requires:

"Articles of Agreement" means the clauses and conditions incorporated in full text to form the body of the Contract; it does not include these general conditions, any supplemental general conditions, annexes, the Contractor's bid or any other document;

"Contract" means the Articles of Agreement, these general conditions, any supplemental general conditions, annexes and any other document specified or referred to as forming part of the Contract, all as amended by agreement of the Parties from time to time;

"Canada", "Crown", "Her Majesty" or "the Government" means Her Majesty the Queen in right of Canada as represented by the National Research Council of Canada and any other person duly authorized to act on behalf of the National Research Council Canada.

Contract, or by notice to the Contractor, to act as Canada's representative to manage the Contract;

"Contractor" means the person, entity or entities named in the Contract to supply goods, services or both to Canada;

"Contract Price" means the amount stated in the Contract to be payable to the Contractor for the Work, exclusive of Goods and Services Tax and Harmonized Sales Tax;

"Government Property" means anything supplied to the Contractor by or on behalf of Canada for the purposes of performing the Contract and anything acquired by the Contractor in any manner in connection with the Work, the cost of which is paid by Canada under the Contract;

"Party" means Canada, the Contractor, or any other signatory to the Contract and "Parties" means all of them;

"Work" means all the activities, services, goods, equipment, matters and things required to be done, delivered or performed by the Contractor under the Contract.

### **2010B 02 (2008-05-12) Powers of Canada**

All rights, remedies, powers and discretions granted or acquired by Canada under the Contract or by law are cumulative, not exclusive.

### **2010B 03 (2008-05-12) Status of the Contractor**

The Contractor is an independent contractor engaged by Canada to perform the Work. Nothing in the Contract is intended to create a partnership, a joint venture or an agency between Canada and the other Party or Parties. The Contractor must not represent itself as an agent or representative of Canada to anyone. Neither the Contractor nor any of its personnel is engaged as an employee or agent of Canada. The Contractor is responsible for all deductions and remittances required by law in relation to its employees.



**2010B 04 (2008-05-12) Conduct of the Work**

1. The Contractor represents and warrants that:
  - (a) it is competent to perform the Work;
  - (b) it has everything necessary to perform the Work, including the resources, facilities, labour, technology, equipment, and materials; and
  - (c) it has the necessary qualifications, including knowledge, skill, know-how and experience, and the ability to use them effectively to perform the Work.
2. The Contractor must:
  - (a) perform the Work diligently and efficiently;
  - (b) except for Government Property, supply everything necessary to perform the Work;
  - (c) use, as a minimum, quality assurance procedures, inspections and controls generally used and recognized by the industry to ensure the degree of quality required by the Contract;
  - (d) select and employ a sufficient number of qualified people;
  - (e) perform the Work in accordance with standards of quality acceptable to Canada and in full conformity with the specifications and all the requirements of the Contract;
  - (f) provide effective and efficient supervision to ensure that the quality of workmanship meets the requirements of the Contract.
3. The Work must not be performed by any person who, in the opinion of Canada, is incompetent, unsuitable or has been conducting himself/herself improperly.

**2010B 05 (2008-05-12) Subcontracts**

1. The Contractor may subcontract the supply of goods or services that are customarily subcontracted by the Contractor. In any other instance, the Contractor must obtain the prior consent in writing of the Contracting Authority. The Contracting Authority may require the Contractor to provide such particulars of the proposed subcontract as he considers necessary.
2. Subcontracting does not relieve the Contractor from any of its obligations under the Contract or impose any liability upon Canada to a subcontractor.
3. In any subcontract, the Contractor agrees to bind the subcontractor by the same conditions by which the Contractor is bound under the Contract, unless the Contracting Authority requires or agrees otherwise.

**2010B 06 (2008-05-12) Time of the Essence**

It is essential that the Work be performed within or at the time stated in the Contract.



**2010B 07 (2008-05-12) Excusable Delay**

1. A delay in the performance by the Contractor of any obligation under the Contract that is caused by an event that:

- (a) is beyond the reasonable control of the Contractor;
- (b) could not reasonably have been foreseen;
- (c) could not reasonably have been prevented by means reasonably available to the Contractor; and
- (d) occurred without the fault or neglect of the Contractor,

will be considered an "Excusable Delay" if the Contractor advises the Contracting Authority of the occurrence of the delay or of the likelihood of the delay as soon as the Contractor becomes aware of it. The Contractor must also advise the Contracting Authority, within fifteen (15) working days, of all the circumstances relating to the delay and provide to the Contracting Authority for approval a clear work around plan explaining in detail the steps that the Contractor proposes to take in order to minimize the impact of the event causing the delay.

2. Any delivery date or other date that is directly affected by an Excusable Delay will be postponed for a reasonable time that will not exceed the duration of the Excusable Delay.
3. However, if an Excusable Delay has continued for thirty (30) days or more, the Contracting Authority may, by giving notice in writing to the Contractor, terminate the Contract. In such a case, the Parties agree that neither will make any claim against the other for damages, costs, expected profits or any other loss arising out of the termination or the event that contributed to the Excusable Delay. The Contractor agrees to repay immediately to Canada the portion of any advance payment that is unliquidated at the date of the termination.
4. Unless Canada has caused the delay by failing to meet an obligation under the Contract, Canada will not be responsible for any costs incurred by the Contractor or any of its subcontractors or agents as a result of an Excusable Delay.

**2010B 08 (2008-05-12) Inspection and Acceptance of the Work**

All the Work is subject to inspection and acceptance by Canada. Inspection and acceptance of the Work by Canada do not relieve the Contractor of its responsibility for defects or other failures to meet the requirements of the Contract. Canada will have the right to reject any work that is not in accordance with the requirements of the Contract and require its correction or replacement at the Contractor's expense.

**2010B 09 (2008-05-12) Invoice Submission**

1. Invoices must be submitted in the Contractor's name. The Contractor must submit invoices for each delivery or shipment; invoices must only apply to the Contract. Each invoice must indicate whether it covers partial or final delivery.



2. Invoices must show:
  - (a) the date, the name and address of the client, item or reference numbers, deliverable and/or description of the Work, contract number, Contract Number, Procurement Business Number (PBN) or GST/HST number;
  - (b) details of expenditures in accordance with the Basis of Payment, exclusive of Goods and Services Tax (GST) or Harmonized Sales Tax (HST) (such as item, quantity, unit of issue, unit price, fixed time labour rates and level of effort, subcontracts, as applicable);
  - (c) deduction for holdback, if applicable;
  - (d) the extension of the totals, if applicable; and
  - (e) if applicable, the method of shipment together with date, case numbers and part or reference numbers, shipment charges and any other additional charges.
3. If applicable, the GST or HST must be specified on all invoices as a separate item. All items that are zero-rated, exempt or to which the GST or HST does not apply, must be identified as such on all invoices.
4. By submitting an invoice, the Contractor certifies that the invoice is consistent with the Work delivered and is in accordance with the Contract.

#### **2010B 10 (2010-08-16) Taxes**

1. Municipal Taxes  
Municipal Taxes do not apply.
2. Provincial Taxes
  - (a) Excluding legislated exceptions, federal government departments and agencies are not required to pay any sales tax payable to the province in which the taxable goods or services are delivered. This exemption has been provided to federal government departments and agencies under the authority of one of the following:
    - (i) Provincial Sales Tax (PST) Exemption Licence Numbers, for the provinces of:  
  
Prince Edward Island OP-10000-250  
Manitoba 390-516-0
    - (ii) for Quebec, Saskatchewan, the Yukon Territory, the Northwest Territories and Nunavut, an Exemption Certification, which certifies that the goods or services purchased are not subject to the provincial/territorial sales and consumption taxes because they are purchased by the federal government with Canada funds for the use of the federal government.
  - (b) Currently, in Alberta, the Yukon Territory, the Northwest Territories and Nunavut, there is no general PST. However, if a PST is introduced in Alberta, the Yukon Territory, the Northwest Territories or Nunavut, the sales tax exemption certificate would be required on the purchasing document.
  - (c) Federal departments must pay the HST in the participating provinces of Newfoundland and Labrador, Nova Scotia, New Brunswick, Ontario and British Columbia.



- (d) The Contractor is not exempt from paying PST under the above Exemption Licence Numbers or Exemption Certification. The Contractor must pay the PST on taxable goods or services used or consumed in the performance of the Contract (in accordance with applicable provincial legislation), including material incorporated into real property.

3. Changes to Taxes and Duties

If there is any change to any tax or duty payable to any level of government in Canada after the bid submission date that affects the costs of the Work to the Contractor, the Contract Price will be adjusted to reflect the increase or decrease in the cost to the Contractor. However, there will be no adjustment for any change that increases the cost of the Work to the Contractor if public notice of the change was given before bid submission date in sufficient detail to have permitted the Contractor to calculate the effect of the change on its cost. There will be no adjustment if the change takes effect after the date required by the Contract for delivery of the Work.

4. GST or HST

The estimated GST or HST, if applicable, is included in the total estimated cost on page 1 of the Contract. The GST or HST is not included in the Contract Price but will be paid by Canada as provided in the Invoice Submission section above. The Contractor agrees to remit to Canada Revenue Agency any amounts of GST and HST paid or due.

5. Tax Withholding of 15 Percent

Pursuant to the *Income Tax Act*, 1985, c. 1 (5th Supp.) and the *Income Tax Regulations*, Canada must withhold 15 percent of the amount to be paid to the Contractor in respect of services provided in Canada if the Contractor is a non-resident unless the Contractor obtains a valid waiver. The amount withheld will be held on account for the Contractor in respect to any tax liability which may be owed to Canada.

**2010B 11 (2010-01-11) Transportation Costs**

If transportation costs are payable by Canada under the Contract and the Contractor makes the transportation arrangements, shipments must be made by the most direct and economical means consistent with normal shipping practice. The costs must be shown as a separate item on the invoice.

**2010B 12 (2010-01-11) Transportation Carriers' Liability**

The federal government's policy of underwriting its own risks precludes payment of insurance or valuation charges for transportation beyond the point at which ownership of goods passes to the federal government (determined by the FOB point or Incoterms). Where increased carrier liability is available without charge, the Contractor must obtain the increased liability for shipment.

**2010B 13 (2008-05-12) Payment Period**

1. Canada's standard payment period is thirty (30) days. The payment period is measured from the date an invoice in acceptable form and content is received in accordance with the Contract or the date the Work is delivered in acceptable condition as required in the Contract, whichever is later. A payment is considered overdue on the 31st day following that date and interest will be paid automatically in accordance with the section 14.





2. If the content of the invoice and its substantiating documentation are not in accordance with the Contract or the Work is not in acceptable condition, Canada will notify the Contractor within fifteen (15) days of receipt. The 30-day payment period begins upon receipt of the revised invoice or the replacement or corrected Work. Failure by Canada to notify the Contractor within fifteen (15) days will only result in the date specified in subsection 1 to apply for the sole purpose of calculating interest on overdue accounts.

**2010B 14 (2008-12-12) Interest on Overdue Accounts**

1. For the purpose of this section:

"Average Rate" means the simple arithmetic mean of the Bank Rates in effect at 4:00 p.m. Eastern Time each day during the calendar month immediately before the calendar month in which payment is made;

"Bank Rate" means the rate of interest established from time to time by the Bank of Canada as the minimum rate at which the Bank of Canada makes short term advances to members of the Canadian Payments Association;

"date of payment" means the date of the negotiable instrument drawn by the Receiver General for Canada to pay any amount under the Contract;

an amount becomes "overdue" when it is unpaid on the first day following the day on which it is due and payable according to the Contract.

2. Canada will pay to the Contractor simple interest at the Average Rate plus 3 percent per year on any amount that is overdue, from the date that amount becomes overdue until the day before the date of payment, inclusive. The Contractor is not required to provide notice to Canada for interest to be payable.
3. Canada will pay interest in accordance with this section only if Canada is responsible for the delay in paying the Contractor. Canada will not pay interest on overdue advance payments.

**2010B 15 (2008-05-12) Audit**

The amount claimed under the Contract is subject to government audit both before and after payment is made. The Contractor must keep proper accounts and records of the cost of performing the Work and keep all documents relating to such cost for six (6) years after it receives the final payment under the Contract.

**2010B 16 (2008-05-12) Compliance with Applicable Laws**

1. The Contractor must comply with all laws applicable to the performance of the Contract. The Contractor must provide evidence of compliance with such laws to Canada at such times as Canada may reasonably request.
2. The Contractor must obtain and maintain at its own cost all permits, licenses, regulatory approvals and certificates required to perform the Work. If requested by the Contracting Authority, the Contractor must provide a copy of any required permit, license, regulatory approvals or certificate to Canada.



**2010B 17 (2008-05-12) Confidentiality**

1. The Contractor must keep confidential all information provided to the Contractor by or on behalf of Canada in connection with the Work and all information conceived, developed or produced by the Contractor as part of the Work. Information provided to the Contractor by or on behalf of Canada must be used solely for the purpose of the Contract and remains the property of Canada.
2. Subject to the *Access to Information Act*, R.S.C. 1985, c. A-1, and to any right of Canada under the Contract to release or disclose, Canada agrees not to release or disclose outside the Government of Canada any information delivered to Canada under the Contract that is proprietary to the Contractor or a subcontractor.
3. The obligations of the Parties set out in this section do not apply to any information where the same information:
  - (a) is publicly available from a source other than the other Party; or
  - (b) is or becomes known to a Party from a source other than the other Party, except any source that is known to be under an obligation to the other Party not to disclose the information, or
  - (c) is developed by a Party without use of the information of the other Party.
4. The Contractor consents in the case of a contract that has a value in excess of \$10,000.00 to the public disclosure of information – other than information described in any of paragraphs 20(1)a) to (d) of the *Access to Information Act* – relating to the contract.

**2010B 18 (2008-05-12) Copyright**

1. Anything that is created or developed by the Contractor as part of the Work under the Contract in which copyright subsists belongs to Canada. The Contractor must incorporate the copyright symbol and either of the following notices, as appropriate: © Her Majesty the Queen in right of Canada (year) or © Sa Majesté la Reine du chef du Canada (année).
2. At the request of the Contracting Authority, the Contractor must provide to Canada, at the completion of the Work or at such other time as the Contracting Authority may require, a written permanent waiver of moral rights as defined in the *Copyright Act*, R.S., 1985, c. C-42, in a form acceptable to the Contracting Authority, from every author that contributed to the Work. If the Contractor is an author, the Contractor permanently waives the Contractor's moral rights.

**2010B 19 (2008-05-12) Government Property**

The Contractor must take reasonable and proper care of all Government Property while it is in its possession or subject to its control. The Contractor is responsible for any loss or damage resulting from its failure to do so other than loss or damage caused by ordinary wear and tear.

**2010B 20 (2008-05-12) Amendment**

To be effective, any amendment to the Contract must be done in writing by the Contracting Authority and the authorized representative of the Contractor.



**2010B 21 (2008-05-12) Assignment**

1. The Contractor must not assign the Contract without first obtaining the written consent of the Contracting Authority. Any assignment made without that consent is void and will have no effect. The assignment will be effective upon execution of an assignment agreement signed by the Parties and the assignee.
2. Assignment of the Contract does not relieve the Contractor from any obligation under the Contract and it does not impose any liability upon Canada.

**2010B 22 (2008-05-12) Suspension of the Work**

The Contracting Authority may at any time, by written notice, order the Contractor to suspend or stop the Work or part of the Work under the Contract. The Contractor must immediately comply with any such order in a way that minimizes the cost of doing so.

**2010B 23 (2008-05-12) Default by the Contractor**

1. If the Contractor is in default in carrying out any of its obligations under the Contract, the Contracting Authority may, by giving written notice to the Contractor, terminate for default the Contract or part of the Contract. The termination will take effect immediately or at the expiration of a cure period specified in the notice, if the Contractor has not cured the default to the satisfaction of the Contracting Authority within that cure period.
2. If the Contractor becomes bankrupt or insolvent, makes an assignment for the benefit of creditors, or takes the benefit of any statute relating to bankrupt or insolvent debtors, or if a receiver is appointed under a debt instrument or a receiving order is made against the Contractor, or an order is made or a resolution passed for the dissolution, liquidation or winding-up of the Contractor, the Contracting Authority may, to the extent permitted by the laws of Canada, by giving written notice to the Contractor, immediately terminate for default the Contract or part of the Contract.
3. If Canada gives notice under subsection 1 or 2, the Contractor will have no claim for further payment except as provided in this section. The Contractor will be liable to Canada for all losses and damages suffered by Canada because of the default or occurrence upon which the notice was based, including any increase in the cost incurred by Canada in procuring the Work from another source. The Contractor agrees to repay immediately to Canada the portion of any advance payment that is unliquidated at the date of the termination.

**2010B 24 (2008-05-12) Termination for Convenience**

1. At any time before the completion of the Work, the Contracting Authority may, by giving notice in writing to the Contractor, terminate for convenience the Contract or part of the Contract. Once such a notice of termination for convenience is given, the Contractor must comply with the requirements of the termination notice. If the Contract is terminated in part only, the Contractor must proceed to complete any part of the Work that is not affected by the termination notice. The termination will take effect immediately or, as the case may be, at the time specified in the termination notice.
2. If a termination notice is given pursuant to subsection 1, the Contractor will be entitled to be paid, for costs that have been reasonably and properly incurred to perform the Contract to the extent that the Contractor has not already been paid or reimbursed by Canada. The Contractor will be paid:



- (a) on the basis of the Contract Price, for all completed work that is inspected and accepted in accordance with the Contract, whether completed before, or after the termination in accordance with the instructions contained in the termination notice;
  - (b) the Cost to the Contractor plus a fair and reasonable profit for all work terminated by the termination notice before completion; and
  - (c) all costs incidental to the termination of the Work incurred by the Contractor but not including the cost of severance payments or damages to employees whose services are no longer required, except wages that the Contractor is obligated by statute to pay.
3. Canada may reduce the payment in respect of any part of the Work, if upon inspection, it does not meet the requirements of the Contract.
  4. The total of the amounts, to which the Contractor is entitled to be paid under this section, together with any amounts paid, due or becoming due to the Contractor must not exceed the Contract Price. The Contractor will have no claim for damages, compensation, loss of profit, allowance arising out of any termination notice given by Canada under this section except to the extent that this section expressly provides. The Contractor agrees to repay immediately to Canada the portion of any advance payment that is unliquidated at the date of the termination.

**2010B 25 (2008-05-12) Right of Set-off**

Without restricting any right of set-off given by law, Canada may set-off against any amount payable to the Contractor under the Contract, any amount payable to Canada by the Contractor under the Contract or under any other current contract. Canada may, when making a payment pursuant to the Contract, deduct from the amount payable to the Contractor any such amount payable to Canada by the Contractor which, by virtue of the right of set-off, may be retained by Canada.

**2010B 26 (2008-05-12) Conflict of Interest and Values and Ethics Codes for the Public Service**

The Contractor acknowledges that individuals who are subject to the provisions of the *Conflict of Interest Act*, 2006, c. 9, s. 2, the Conflict of Interest Code for Members of the House of Commons, the Values and Ethics Code for the Public Service or all other codes of values and ethics applicable within specific organizations cannot derive any direct benefit resulting from the Contract.

**2010B 27 (2008-05-12) No Bribe or Conflict**

1. The Contractor declares that no bribe, gift, benefit, or other inducement has been or will be paid, given, promised or offered directly or indirectly to any official or employee of Canada or to a member of the family of such a person, with a view to influencing the entry into the Contract or the administration of the Contract.
2. The Contractor must not influence, seek to influence or otherwise take part in a decision of Canada knowing that the decision might further its private interest. The Contractor must have no financial interest in the business of a third party that causes or would appear to cause a conflict of interest in connection with the performance of its obligations under the Contract. If such a financial interest is acquired during the period of the Contract, the Contractor must immediately declare it to the Contracting Authority.



3. The Contractor warrants that, to the best of its knowledge after making diligent inquiry, no conflict exists or is likely to arise in the performance of the Contract. In the event the Contractor becomes aware of any matter that causes or is likely to cause a conflict in relation to the Contractor's performance under the Contract, the Contractor must immediately disclose such matter to the Contracting Authority in writing.
4. If the Contracting Authority is of the opinion that a conflict exists as a result of the Contractor's disclosure or as a result of any other information brought to the Contracting Authority's attention, the Contracting Authority may require the Contractor to take steps to resolve or otherwise deal with the conflict or, at its entire discretion, terminate the Contract for default. Conflict means any matter, circumstance, interest, or activity affecting the Contractor, its personnel or subcontractors, which may or may appear to impair the ability of the Contractor to perform the Work diligently and independently.

#### **2010B 28 (2008-12-12) Contingency Fees**

The Contractor certifies that it has not, directly or indirectly, paid or agreed to pay and agrees that it will not, directly or indirectly, pay a contingency fee for the solicitation, negotiation or obtaining of the Contract to any person, other than an employee of the Contractor acting in the normal course of the employee's duties. In this section, "contingency fee" means any payment or other compensation that depends or is calculated based on a degree of success in soliciting, negotiating or obtaining the Contract and "person" includes any individual who is required to file a return with the registrar pursuant to section 5 of the *Lobbying Act*, 1985, c. 44 (4th Supplement).

#### **2010B 29 (2010-01-11) International Sanctions**

1. Persons in Canada, and Canadians outside of Canada, are bound by economic sanctions imposed by Canada. As a result, the Government of Canada cannot accept delivery of goods or services that originate, either directly or indirectly, from the countries or persons subject to [economic sanctions](#).
2. The Contractor must not supply to the Government of Canada any goods or services which are subject to economic sanctions.
3. The Contractor must comply with changes to the regulations imposed during the period of the Contract. The Contractor must immediately advise Canada if it is unable to perform the Work as a result of the imposition of economic sanctions against a country or person or the addition of a good or service to the list of sanctioned goods or services. If the Parties cannot agree on a work around plan, the Contract will be terminated for the convenience of Canada in accordance with section 24.

#### **2010B 30 (2008-05-12) Harassment in the Workplace**

1. The Contractor acknowledges the responsibility of Canada to ensure, for its employees, a healthy work environment, free of harassment. A copy of the [Policy on the Prevention and Resolution of Harassment in the Workplace](#), which is also applicable to the Contractor, is available on the Treasury Board Web site.
2. The Contractor must not, either as an individual, or as a corporate or unincorporated entity, through its employees or subcontractors, harass, abuse, threaten, discriminate against or intimidate any employee, contractor or other individual employed by, or under contract with Canada. The Contractor will be advised in writing of any complaint and will have the right to respond in writing. Upon receipt of the Contractor's response, the Contracting Authority will,



at its entire discretion, determine if the complaint is founded and decide on any action to be taken.

**2010B 31 (2008-05-12) Entire Agreement**

The Contract constitutes the entire and only agreement between the Parties and supersedes all previous negotiations, communications and other agreements, whether written or oral, unless they are incorporated by reference in the Contract. There are no terms, covenants, representations, statements or conditions binding on the Parties other than those contained in the Contract.

**STANDARD INSTRUCTIONS AND CONDITIONS:**

**(APPLICABLE TO BID SOLICITATION)**

**1. Submission of Bids**

1.1 It is the Bidder's responsibility to:

- (a) return a signed original of the bid solicitation, duly completed, IN THE FORMAT REQUESTED;
- (b) direct its bid ONLY to the Bid Receiving address specified;
- (c) ensure that the Bidder's name, the bid solicitation reference number, and bid solicitation closing date and time are clearly visible;
- (d) provide a comprehensive and sufficiently detailed bid, including all requested pricing details, that will permit a complete evaluation in accordance with the criteria set out in the bid solicitation.

**Timely and correct delivery of bids to the specified bid delivery address is the sole responsibility of the Bidder. The National Research Council Canada (NRC) will not assume or have transferred to it those responsibilities. All risks and consequences of incorrect delivery of bids are the responsibility of the Bidder.**

1.2 Bids may be accepted in whole or in part. The lowest or any bid will not necessarily be accepted. In the case of error in the extension of prices, the unit price will govern. NRC may enter into contract without negotiation.

1.3 Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the terms and conditions of the resulting contract.

1.4 Bids will remain open for acceptance for a period of not less than sixty (60) days from the closing date of the bid solicitation, unless otherwise indicated by NRC in such bid solicitation.

1.5 While NRC may enter into contract without negotiation, Canada reserves the right to negotiate with bidders on any procurement.

1.6 Notwithstanding the bid validity period stipulated in this solicitation, Canada reserves the right to seek an extension from all responsive bidders, within a minimum of three (3) days prior to the end of such period. Bidders shall have the option to either accept or reject the extension.

1.7 If the extension referred to above is accepted, in writing, by all those who submitted responsive bids, then Canada shall continue immediately with the evaluation of the bids and its approval processes.

1.8 If the extension referred to above is not accepted, in writing, by all those who submitted responsive bids then Canada shall, at its sole discretion: either continue to evaluate the responsive bids of those who have accepted the extension and seek the necessary approvals; or cancel the solicitation; or cancel and reissue the solicitation.

## 2. Late Bids

2.1 It is NRC policy to return, unopened, bids delivered after the stipulated bid solicitation closing date and time, unless they qualify as a delayed bid as described below.

## 3. Delayed Bids

3.1 A bid delivered to the specified Bid Receiving area after the closing date and time but before the contract award date may be considered, provided the delay can be proven to have been due solely to a delay in delivery that can be attributed to the Canada Post Corporation (CPC) (or national equivalent of a foreign country). The only pieces of evidence relating to a delay in the CPC system that are acceptable to NRC are:

- (a) CPC cancellation date stamp;
- (b) a CPC Priority Courier Bill of Lading; and
- (c) a CPC Xpresspost Label,

that clearly indicate that the bid was mailed prior to the bid closing date.

Example: If the bid closing date was May 15, 1995, then the CPC cancellation date stamp should read no later than May 14, 1995, to be accepted.

3.2 Please request the postal employee to date-stamp your envelope.

3.3 For bids transmitted by facsimile or commercial telegram, only the date and the time of receipt recorded by NRC at the Bid Receiving number stated in the bid solicitation will be accepted as evidence of a delayed bid.

3.4 Misrouting, traffic volume, weather disturbances, or any other causes for the late delivery of bids are not acceptable reasons for the bid to be accepted by NRC.

## 4. Postage Meters

4.1 Postage meter imprints, whether imprinted by the Supplier, the CPC or the postal authority outside Canada, are not acceptable as proof of timely mailing. It should be noted that CPC does not normally apply a cancellation date stamp to metered mail; this is usually done only when postage stamps are used.

## 5. Customs Clearance

6.1 It is the responsibility of the Bidder to allow sufficient time to obtain customs clearance, where required, before the scheduled bid closing date and time. Delays related to the



obtaining of customs clearance cannot be construed as "undue delay in the mail" and will not be accepted under the Late Bids Policy.

For further information, please contact the Contracting Authority identified in the bid solicitation.

bid instructions\_rfp.doc



3105-5-18-1872 (Industrial Security)

21 November, 2018

Ahmed Zaki  
CFB Halifax  
PO Box 99000 Stn Forces  
Halifax, NS  
B3K 5X5

SECURITY REQUIREMENTS CHECK LIST (SRCL)  
FOR CD 201756A101219602

References: A. SRCL 201756A101219602, 16 November 2018  
B. National Defence Security Orders and Directives, Chapter 8

1. The SRCL at ref A has been reviewed, and the applicable departmental security guide has been attached for your consideration. The guide outlines the appropriate departmental security instructions necessary for the protection of Classified/Protected information/assets that are related to this contract.
2. The original SRCL must be attached as ANNEX A to the PWGSC/DND contract document. On page one, paragraph one of the contract documents, reference is to be made to the SRCL. **No changes** to the SRCL are permitted without prior consultation with Director Defence Security Operations – Industrial Security.
3. Additional inquiries regarding the SRCL may be directed to my Contract Security Analyst, Sasa Medjovic, 613-996-0286.

D. Murray  
SRCL Team Leader  
Director Defence Security Operation  
613-996-0274

Enclosure(s): 1



Government of Canada / Gouvernement du Canada

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Security Classification / Classification de sécurité UNCLASSIFIED

**SECURITY REQUIREMENTS CHECK LIST (SRCL)  
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)**

<b>PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE</b>		
1 Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine Department of National Defense	2 Branch or Directorate / Direction générale ou Direction CFB Halifax, Real Property Operations Section (Halifax)	
3 a) Subcontract Number / Numéro du contrat de sous-traitance	3 b) Name and Address of Subcontractor / Nom et adresse du sous-traitant	
4 Brief Description of Work / Brève description du travail Design, procurement and installation of network connected utility meters (electricity, steam) in nine buildings at CFB Halifax and 12 Wg Shearwater. The buildings are SHHGR342, SH343, SHHGR344, SH330, SH100, SH251, SH14, SH57, WL57.		
5 a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?	<input checked="" type="checkbox"/> No / Non <input type="checkbox"/> Yes / Oui	
5 b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?	<input checked="" type="checkbox"/> No / Non <input type="checkbox"/> Yes / Oui	
6 Indicate the type of access required / Indiquer le type d'accès requis		
6 a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7 c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7 c)	<input checked="" type="checkbox"/> No / Non <input type="checkbox"/> Yes / Oui	
6 b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.	<input type="checkbox"/> No / Non <input checked="" type="checkbox"/> Yes / Oui	
6 c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit?	<input checked="" type="checkbox"/> No / Non <input type="checkbox"/> Yes / Oui	
7 a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès		
Canada <input type="checkbox"/>	NATO / OTAN <input type="checkbox"/>	Foreign / Étranger <input type="checkbox"/>
7 b) Release restrictions / Restrictions relatives à la diffusion		
No release restrictions / Aucune restriction relative à la diffusion <input type="checkbox"/>	All NATO countries / Tous les pays de l'OTAN <input type="checkbox"/>	No release restrictions / Aucune restriction relative à la diffusion <input type="checkbox"/>
Not releasable / À ne pas diffuser <input type="checkbox"/>		
Restricted to / Limité à <input type="checkbox"/>	Restricted to / Limité à <input type="checkbox"/>	Restricted to / Limité à <input type="checkbox"/>
Specify country(ies) / Préciser le(s) pays :	Specify country(ies) / Préciser le(s) pays :	Specify country(ies) / Préciser le(s) pays :
7 c) Level of information / Niveau d'information		
PROTECTED A / PROTÉGÉ A <input type="checkbox"/>	NATO UNCLASSIFIED / NATO NON CLASSIFIÉ <input type="checkbox"/>	PROTECTED A / PROTÉGÉ A <input type="checkbox"/>
PROTECTED B / PROTÉGÉ B <input type="checkbox"/>	NATO RESTRICTED / NATO DIFFUSION RESTREINTE <input type="checkbox"/>	PROTECTED B / PROTÉGÉ B <input type="checkbox"/>
PROTECTED C / PROTÉGÉ C <input type="checkbox"/>	NATO CONFIDENTIAL / NATO CONFIDENTIEL <input type="checkbox"/>	PROTECTED C / PROTÉGÉ C <input type="checkbox"/>
CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/>	NATO SECRET / NATO SECRET <input type="checkbox"/>	CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/>
SECRET / SECRET <input type="checkbox"/>	COSMIC TOP SECRET / COSMIC TRÈS SECRET <input type="checkbox"/>	SECRET / SECRET <input type="checkbox"/>
TOP SECRET / TRÈS SECRET <input type="checkbox"/>		TOP SECRET / TRÈS SECRET <input type="checkbox"/>
TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT) <input type="checkbox"/>		TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT) <input type="checkbox"/>



**PART A (continued) / PARTIE A (suite)**

8 Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?  
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?  No / Non  Yes / Oui  
If Yes indicate the level of sensitivity  
Dans l'affirmative, indiquer le niveau de sensibilité

9 Will the supplier require access to extremely sensitive INFOSEC information or assets?  
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?  No / Non  Yes / Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel  
Document Number / Numéro du document

**PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)**

10 a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

- |   |   |   |  |
|---|---|---|--|
| <input checked="" type="checkbox"/> RELIABILITY STATUS<br>COTE DE FIABILITÉ | <input type="checkbox"/> CONFIDENTIAL<br>CONFIDENTIEL           | <input type="checkbox"/> SECRET<br>SECRET           | <input type="checkbox"/> TOP SECRET<br>TRÈS SECRET               |
| <input type="checkbox"/> TOP SECRET - SIGINT<br>TRÈS SECRET - SIGINT        | <input type="checkbox"/> NATO CONFIDENTIAL<br>NATO CONFIDENTIEL | <input type="checkbox"/> NATO SECRET<br>NATO SECRET | <input type="checkbox"/> COSMIC TOP SECRET<br>COSMIC TRÈS SECRET |
| <input type="checkbox"/> SITE ACCESS<br>ACCÈS AUX EMPLACEMENTS              |   |   |  |

Special comments / Commentaires spéciaux ACE (Access Control Escort) to be used as required by site access control protocols

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided  
REMARQUE: Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni

10 b) May unscreened personnel be used for portions of the work?  
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?  No / Non  Yes / Oui  
If Yes, will unscreened personnel be escorted? *On DND premises unscreened pers. may only access public/reception zone*  No / Non  Yes / Oui

**PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)**

**INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS**

11 a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?  
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?  No / Non  Yes / Oui

11 b) Will the supplier be required to safeguard COMSEC information or assets?  
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?  No / Non  Yes / Oui

**PRODUCTION**

11 c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?  
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?  No / Non  Yes / Oui

**INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)**

11 d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?  
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?  No / Non  Yes / Oui

11 e) Will there be an electronic link between the supplier's IT systems and the government department or agency?  
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?  No / Non  Yes / Oui



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**PART C - (continued) / PARTIE C - (suite)**

For users completing the form manually use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises  
Les utilisateurs qui remplissent le formulaire manuellement doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur

For users completing the form online (via the Internet), the summary chart is automatically populated by your responses to previous questions  
Dans le cas des utilisateurs qui remplissent le formulaire en ligne (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif

**SUMMARY CHART / TABLEAU RÉCAPITULATIF**

Category / Catégorie	PROTECTED / PROTÉGÉ			CLASSIFIED / CLASSIFIÉ			NATO				COMSEC					
	A	B	C	CONFIDENTIAL	SECRET	TOP SECRET	NATO RESTRICTED	NATO CONFIDENTIAL	NATO SECRET	COMSEC TOP SECRET	PROTECTED / PROTÉGÉ			CONFIDENTIAL	SECRET	TOP SECRET
				CONFIDENTIEL		TRES SECRET	NATO DIFFUSION RESTRICTED	NATO CONFIDENTIEL		A	B	C	CONFIDENTIEL		TRES SECRET	
Information / Assets / Renseignements / Biens / Production																
IT Media / Support TI																
IT Link / Lien électronique																

12 a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?  
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?  No / Non  Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".  
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12 b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?  
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?  No / Non  Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).  
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquez qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).





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Security Classification / Classification de sécurité UNCLASSIFIED

**PART D - AUTHORIZATION / PARTIE D - AUTORISATION**

13 Organization Project Authority / Chargé de projet de l'organisme			
Name (print) - Nom (en lettres moulées) Ahmed Zaki		Title - Titre CFB Halifax RPOS(H) - Project Manager	Signature 
Telephone No. - N° de téléphone 902-449-9650	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel ahmed.zaki@forces.gc.ca	Date 14/11/2018
14 Organization Security Authority / Responsable de la sécurité de l'organisme			
Name (print) - Nom (en lettres moulées) Sasa Medjovic Senior Security Analyst		Title - Titre DSSC Industrial Security	Signature 
Telephone No. - N° de téléphone Tel: 613-993-0431	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel E-mail: sasa.medjovic@forces.gc.ca	Date 2018 Nov 21 sm
15 Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached? Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?			<input type="checkbox"/> No / Non <input checked="" type="checkbox"/> Yes / Oui
16 Procurement Officer / Agent d'approvisionnement			
Name (print) - Nom (en lettres moulées) Collin Long		Title - Titre Procurement Officer	Signature 
Telephone No. - N° de téléphone 613-993-0431	Facsimile No. - N° de télécopieur 613-991-3297	E-mail address - Adresse courriel collin.long@nrc-cnrc.gc.ca	Date Dec. 6, 2018
17 Contracting Security Authority / Autorité contractante en matière de sécurité			
Name (print) - Nom (en lettres moulées)		Title - Titre	Signature
Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date

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**Security Guide To 201756A101219602**

- The only Security Requirement for this contract is that personnel working on this procurement require, as a minimum, a **RELIABILITY STATUS** before access to a secure site is granted. Contractor personnel working on DND sites shall abide by the National Defence Security Orders and Directives as well as any Information Technology publications that may apply. DND Unit Security Supervisors are responsible to brief Contractor employees on these policies and any other security instructions/policies as required. Foreign Contractors will abide by their Governments' national security regulations and/or bilateral agreements MOU.
- Prior to allowing access to secure premises, confirmation of Contractor personnel's security clearances must be forwarded on a Visit Clearance Request through the International Industrial Security Division (IISD) of Public Works & Government Services Canada (PWGSC) for approval and bear the name of this contract/project/program/contract number and the Project Officer.
- At no time will the contractor personnel be allowed to have any access to **CLASSIFIED/PROTECTED** data/documentation/systems and assets.
- Subcontracts containing security requirements are prohibited without the prior written authority of CISD/PWGSC.

**DND Personnel:**

DDSO-Industrial Security, is the contact person for information pertaining to security concerns identified in this procurement.

**Industrial Personnel:**

The Company Security Officer (CSO) or alternate may contact CISD/PWGSC for information pertaining to security concerns identified in this procurement. Foreign Suppliers shall direct security related inquiries to their responsible National Security Authority/Designated Security Authority (NSA/DSA), and shall adhere to instructions issued by their responsible NSA/DSA.

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