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B3J 1T3

Halifax

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SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise
indicated, all other terms and conditions of the Solicitation
remain the same.

Ce document est par la présente révisé; sauf indication contraire,
les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

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Title - Sujet BIO Secondary Access Road Construct	
Solicitation No. - N° de l'invitation EB144-180972/A	Amendment No. - N° modif. 003
Client Reference No. - N° de référence du client EB144-18-0972	Date 2017-09-19
GETS Reference No. - N° de référence de SEAG PW-\$PWA-122-5643	
File No. - N° de dossier PWA-7-78059 (122)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-09-26	Time Zone Fuseau horaire Atlantic Daylight Saving Time ADT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Chinye (PWA), Chukwudi	Buyer Id - Id de l'acheteur pwa122
Telephone No. - N° de téléphone (902) 496-5476 ()	FAX No. - N° de FAX (902) 496-5016
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

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Amendment 003 is raised to incorporate the following changes to Appendix 1-Combined price form, and respond to questions posed. This amendment is also raised to incorporate changes to the specification and drawings.

APPENDIX 1 - COMBINED PRICE FORM

DELETE IN ITS ENTIRTY

INSERT AS FOLLOWS

- 1) The prices per unit will govern in establishing the Total Extended Amount. Any arithmetical errors in this Appendix will be corrected by Canada.
- 2) Canada may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.

LUMP SUM

The Lump Sum Amount designates Work to which a Lump Sum Arrangement applies.

- (a) Work included in the Lump Sum Amount represents all work not included in the unit price table.

LUMP SUM AMOUNT (LSA) Excluding applicable tax(es)	\$ _____
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UNIT PRICE TABLE

The Unit Price Table designates Work to which a Unit Price Arrangement applies.

- (a) Work included in each item is as described in the referenced specification section.
- (b) The Price per Unit shall not include any amounts for Work that is not included in that unit price Item.

	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit applicable tax(es) extra (PU)	Extended amount (EQ x PU) applicable tax(es) extra
Removals and Site Preparation						
1	02 41 13.14	Asphalt Removal – Full Depth	m ²	9929	\$ _____	\$ _____
2	02 41 13.14	Asphalt Milling (50mm Depth)	m ²	129	\$ _____	\$ _____
3	02 41 13	Curb Removal	m	350	\$ _____	\$ _____
4	02 41 13	Sidewalk Removal	m ²	129	\$ _____	\$ _____
5	02 41 13	Storm Manhole or Catchbasin Removal	each	4	\$ _____	\$ _____
6	02 41 13	Culvert Removal	m	146	\$ _____	\$ _____
7	02 41 13	Fence Removal	m	335	\$ _____	\$ _____
8	02 41 13	Guiderail Removal	m	120	\$ _____	\$ _____
9	02 41 13	Hydrant Removal	each	2	\$ _____	\$ _____
Earthworks						
10	31 11 00	Clearing and Grubbing	m ²	6660	\$ _____	\$ _____
11	31 23 33.01	Mass Excavation and Embankment – Common	m ³	32270	\$ _____	\$ _____
12	31 23 16.26	Mass Excavation and Embankment – Rock	m ³	4312	\$ _____	\$ _____
13	31 2316.26	Trench Excavation - Rock	m ³	2050	\$ _____	\$ _____
14	31 23 33.01	Select Backfill Material (Borrow)	m ³	3840	\$ _____	\$ _____

	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit applicable tax(es) extra (PU)	Extended amount (EQ x PU) applicable tax(es) extra
Storm Sewer Infrastructure						
15	33 05 16	Concrete Storm Manhole - 1200mm Diameter	each	22	\$	\$
16a	33 41 00	Concrete Pipe - 300mm Diameter	m	655	\$	\$
16b	33 41 00	Concrete Pipe - 375mm Diameter	m	7	\$	\$
16c	33 11 16	PVC DR18 – 400 mm Diameter	m	58	\$	\$
16d	33 41 00	Concrete Pipe - 450mm Diameter	m	95	\$	\$
16e	33 41 00	Concrete Pipe - 525mm Diameter	m	40	\$	\$
16f	33 41 00	Concrete Pipe - 750mm Diameter	m	60	\$	\$
17a	33 05 16	Concrete Catchbasin - 1050mm Diameter Single Frame and Gutter	each	40	\$	\$
17b	33 05 16	Concrete Catchbasin – 1050mm Diameter Double Frame and Gutter	each	2	\$	\$
18	33 41 00	Catchbasin Leads - 250mm Diameter	m	250	\$	\$
19	33 05 16	Connection to Existing	each	7	\$	\$
Sanitary Sewer Infrastructure						
20	33 05 16	Concrete Sanitary Manhole - 1200mm Diameter	each	7	\$	\$
21a	33 31 13	PVC Gravity Pipe - 300mm Diameter	m	50	\$	\$
21b	33 31 13	PVC Gravity Pipe - 250mm Diameter	m	365	\$	\$
22	33 31 13	Connection to Existing	each	1	\$	\$
Water Infrastructure						
23a	33 11 16	Watermain - 200mm Diameter	m	97	\$	\$
23b	33 11 16	Watermain - 250mm Diameter	m	9	\$	\$
23c	33 11 16	Watermain - 400mm Diameter	m	689	\$	\$
24a	33 11 16	400mm Butterfly Valve	each	12	\$	\$
24b	33 11 16	200mm Gate Valve	each	11	\$	\$
24c	33 11 16	250mm Gate Valve	each	4	\$	\$
25	33 11 16	Hydrant c/w Gate Valve and Lead	each	15	\$	\$

	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit applicable tax(es) extra (PU)	Extended amount (EQ x PU) applicable tax(es) extra
26	33 11 16	Connect Hydrant to Existing	each	8	\$ _____	\$ _____
27a	-	400 mm Metering Station	each	1	\$ _____	\$ _____
27b	33 11 16	200 mm Metering Station	each	1	\$ _____	\$ _____
28	33 11 16	Connection to Existing	each	5	\$ _____	\$ _____
29	33 11 16	PVC DR18 600mm Dia. Carrier Pipe	m	12	\$ _____	\$ _____
30	33 11 16	PRV & Chamber	each	1	\$ _____	\$ _____
31	33 11 16	ARV & Chamber	each	2	\$ _____	\$ _____
Street Construction						
32a	31 23 33.01	Type 2 Gravel – 400mm Thick	m ²	13774	\$ _____	\$ _____
32b	31 23 33.01	Type 1 Gravel – 150mm Thick	m ²	13774	\$ _____	\$ _____
33a	32 12 16.01	Asphalt Paving - Type B Base Course – 75mm	m ²	13774	\$ _____	\$ _____
33b	32 12 16.01	Asphalt Paving - Type C Surface Course - 50mm	m ²	13905	\$ _____	\$ _____
34	32 16 15	Concrete Curb and Gutter	m	1995	\$ _____	\$ _____
35	32 16 15	Concrete Sidewalk – 100mm Thick	m ²	2714	\$ _____	\$ _____
36	34 71 13.25	Guide Rail	m	150	\$ _____	\$ _____
37	32 17 23	Tactile Strip (Allowance)	each	16	\$ _____	\$ _____
48	10 14 53	Traffic Signs	each	11	\$ _____	\$ _____
Landscaping and Environmental Protection						
39	32 92 23	Topsoil and Sod – 100mm	m ²	4106	\$ _____	\$ _____
40	-	Trees	each	98	\$ _____	\$ _____
41	32 92 19.16	Topsoil and Hydroseed 135mm	m ²	2300	\$ _____	\$ _____
TOTAL EXTENDED AMOUNT (TEA) Excluding applicable tax(es)						\$ _____
TOTAL BID AMOUNT (LSA +TEA) Excluding applicable tax(es)					\$ _____	

Question 1: Please clarify who is responsible to engage and pay for Independent Inspection and Testing Agencies and what is covered by the contractor and owner. There seems to be some overlap between sections 01 29 83 and 01 45 00.

Answer to Question 1: Departmental Representative will engage and pay for service of independent inspection and testing agencies for purpose of inspecting and testing portions of Work, except as specified in Section 01 45 00, 1.3.1. Refer to Addendum revision to Specification Section 01 29 83 – Payment Procedures for Testing Laboratory Services.

Question 2: On Drawing C2, Notes 10, 14 and 38, it states that the trenches shall be backfilled with Type 2 Gravel. This is not a typical requirement for backfilling trenches in the HRM area. Please accept select backfill material as shown on trench detail on DWG C23.

Answer to Question 2: Select Backfill Material is acceptable. Refer to Addendum revision to Drawing C2.

Question 3: Please provide a specification for item 51. "Trees" of the tender form.

Answer to Question 3: Information added to drawings. Refer to Addendum revision to Drawing C2.

Question 4: Please add an item in the tender for the Air Release Chambers for the water system.

Answer to Question 4: Item added. Refer to revision to Specification Appendix 1 above – Combined Price Form.

Question 5: Please clarify the limits for the sidewalk on both sides of the road. DWG C22 shows sidewalk on both sides from sta. 0+340 to 0+880. DWG C13 shows the sidewalk on both sides ending at sta. 0+620.

Answer to Question 5: Refer to Note 1 in Typical Section – STA. 0+340 to 0+880 on Dwg C22.

Question 6: Items 21 and 22 in the Tender Form are identical. I'm assuming item 22 is supposed to be **double** frame and grate?

Answer to Question 6: Correct. Refer to revision to Appendix 1 above – Combined Price Form.

Question 7: In the tender form, please clarify item 14 "Fill". What is the intent of this item?

Answer to Question 7: The intention of this item is as 'borrow' material for roadway construction. Refer to Addendum revisions for Specification Section 01 29 00 – Measurement and Payment and Appendix 1 – Combined Price Form.

Question 8: Please provide more details on the section of 400mm waterline shown on DWG C13, on Baffin BLVD at sta. 4+040. It is not clear what is being proposed? The lines seem to end with no connections.

Answer to Question 8: This is a drawing error. Refer to Addendum revision to Drawing C13.

Question 9: Please provide details on the measurement and payment for the tender items. I could not find anything in the specs that tells the contractor how the items are being measured and what each item includes. This information should be typical information provided with the tender.

Answer to Question 9: Refer to Addendum revision for Specification Section 01 29 00 – Measurement and Payment.

Question 10: Provide details on the asphalt and gravel structure for the parking expansion as shown on DWG C21. How will we be getting paid for this work?

Answer to Question 10: Pavement structure detail provided. Quantities will be paid under existing gravel and asphalt paving unit price items. Refer to Addendum revision to Drawing C23 for detail, as well as Specification Section 01 29 00 – Measurement and Payment.

Question 11: In the tender form, item 48 “Tactile Strip (Allowance)”, should this be a number provided in the tender form for the contractor to carry? Please clarify if the owner will provide this number.

Answer to Question 11: Included quantity as indicated in revised Appendix 1-Combined Price Form Above.

Question 12: Please provide details on the size and type of materials required for the two metering stations as shown on DWG C18. A list of fittings was provided for the PRV Chamber on DWG C24 but was not provide for the Metering Stations.

Answer to Question 12: Materials and sizes clarified. Refer to Addendum revision to Drawing C18.

Question 13: As per Note 2 on Drawing C18, please confirm that the contractor is paying for the water meter provided by Halifax Water. If so, provide a contact for Halifax Water for material pricing.

Answer to Question 13: Water meters will be paid for and provided by Halifax Water. The strainer shall be paid for by the Contractor, but provided by Halifax Water. Contact Halifax Water customer service (902-420-9287) for additional information. Refer to Addendum revision to Specification Section 01 29 00 – Measurement and Payment.

Question 14: Please provide clarification on the requirements for the existing waterline that is being replaced. On the removal plans C4 and C5, there are hundreds of metres of pipe with the “removal line type” as per the legend. Please provide clarification if all abandoned pipes are to be removed or left in place.

Answer to Question 14: Remove pipes indicated as such, unless noted otherwise.

Question 15: In sections 01 35 29.06 and 31 23 16.26, it states that “blasting and use of explosives is not permitted”. We are requesting that the owner permits blasting as per HRM laws and regulations.

Answer to Question 15: Blasting will be permitted in select locations in accordance with revised specifications. Refer to Addendum revision to Specification Section 31 23 26.16 – Rock Removal.

Question 16: As per drawing C18, please provide specifications and details for the insulated cover required for the meter stations.

Answer to Question 16: Specification added. Refer to Addendum revision to Specification Section 33 11 16 – Site Water Utility Distribution Piping.

Question 17: Drawing E1 – “Trace and identify power and control source” “see note 2” (Contractor to run/terminate new power and control wiring from source of supply to new access gate junction box via new pull pit and conduits). Could you provide details on the power wire size and control wire requirements? Also, could you clarify the source of the feeds?

Answer to Question 17: Match existing wiring and control wire sizes. Source is to be traced by contractor. Refer to Addendum revision to Drawing E1.

Question 18: Drawing E2 – Note 2 – Light fixtures according to hrm standard – Could you clarify the desired davit arm length for the light fixture?

Answer to Question 18:

Davit arm details clarified. Refer to Addendum revision to Drawing E2 and Specification Appendix A.

Question 19: Drawing E4 – Electric Heater: Could you clarify the size of the heater?

Answer to Question 19: Contractor to provide heater to maintain indicated temperature. Coordinate with meter station enclosure manufacturer. Refer to Addendum revision to Specification Section 33 11 16 - Site Water Utility Distribution Piping and Drawing E4.

Question 20: Drawing E4 - Service Rated Panel Board: Could you clarify the amperage of the panel board?

Answer to Question 20: Minimum 100A. Refer to Addendum revision to Drawing E4.

Question 21: Drawing E4 – Note 8 – Outdoor rated LED Fixture: Could you provide more details, or will any LED fixture that maintains 50 Lux acceptable?

Answer to Question 21: Contractor to provide fixture that will give 50 Lux minimum maintained at working level. Refer to Addendum revision to Drawing E4.

Question 22: Drawing E4 – Outdoor Rated Receptacle / Outdoor Rated Light Switch: Drawing E4 – Outdoor Rated Receptacle / Outdoor Rated Light Switch. Could you provide more details on the requirements?

Answer to Question 22: Specification added. Refer to Addendum revision to Section 26 27 26 – Wiring Devices.

Question 23: Spec Division 01-51-00 page 2 – Temporary Power: Could you please clarify what, if any, temporary lighting or power provisions are required for this project?

Answer to Question 23: Contractor to determine requirements for temporary power.

Question 24: On drawing C13, near NCB26A, there is a 400mm water main that appears to be in the wrong location on the drawing. Our assumption is that this water main should run between the meter chamber & the existing 400mm water main. Please confirm exact location & connections.

Answer to Question 24: This is a drawing error. Refer to Addendum revision to Drawing C13.

Question 25: Can you clarify pole sizes? As drawings E2 & E3 have different notes & details that do not match.

Answer to Question: 25 Pole sizes are clarified. Refer to Addendum revision to Drawing E3.

Question 26 Can you please provide more information on electrical connections to Pine side & cliff side building connections? The notes do not provide enough information in regards to what we are responsible for.

Answer to Question 26: As per Note 14 on Drawing E2, the contractor is responsible for the underground duct bank and is to co-ordinate with NSPI for location. All wiring from UP-4 to Housing is done by NSPI.

The tender specifications and drawings shall be amended and new clauses and sections added and/or revised to become part of the contract documents as follows:

TO THE SPECIFICATIONS

.1 Reference Specification Section 00 01 11 – List of Contents

- .1 ADD "Section 26 27 26 – Wiring Devices".
- .2 List of Drawings – ADD the following:

"C25 – PRV CHAMBER SECTIONS AND DETAILS – SHEET 1
C26 – PRV CHAMBER SECTIONS AND DETAILS – SHEET 2
E4 – METERING STATION LAYOUT, SINGLE LINE DIAGRAM, POLE AND INSTALLATION DETAILS"

.2 Reference Specification Section 01 10 00 – General Instructions

- .1 Item 1.10 – ADD the following:

".7 Portions of the Work on the project shall be completed in a phased, specific order, with select scheduling restrictions as indicated. Work scheduling information is as follows:
 - .1 Contractor is required to start construction with Phase 1 (Hudson Way STA 0+000 to 0+280) and complete all work items, other than those noted below, prior to March 31, 2018. The excluded work items in Phase 1 include:
 - .1 Asphalt pavement removal along Buoy Road to Limit of Work, as well as at entrance to Discovery Drive, as indicated on Drawing C3.
 - .2 Various removals in and adjacent 'Overflow Parking Lot – Paved', located west of existing Buoy Road alignment (e.g. fence, boulders and wheel stops, existing access gate) as indicated on Drawing C3.
 - .3 Existing utility and light pole removal between and adjacent STA 0+140 to 0+280, as indicated on Drawing C3 and E2.
 - .4 Buried storm pipe construction within Hudson Way between STA 0+240 to 0+280, to allow for maintenance of existing overhead power lines.
 - .5 Buoy Road construction between STA 2+040 to 2+113, including buried services and ditching, as indicated on Drawing C16.
 - .6 Asphalt pavement construction between STA 0+000 to 0+280, as indicated on Drawings C10 and C11.
 - .7 New utility poles and overhead cables between and adjacent STA 0+140 to 0+280, as indicated on Drawing E2."

.3 ADD the following Section to the specification:

- .1 Section 01 29 00 – Measurement and Payment (attached).

.4 Reference Specification Section 01 29 83 – Payment Procedures for Testing Laboratory Services

- .1 Item 1.2.1 - REMOVE the existing text and REPLACE with the following:

".1 Departmental Representative will appoint and pay for services of testing laboratory for all specified tests, except as follows:"

.5 Reference Specification Section 01 71 00 – Examination and Preparation

- .1 Item 1.2.1 – REMOVE the existing text and REPLACE with the following:

“.1 Qualified registered land surveyor, licensed to practice in the Province of Nova Scotia, acceptable to Departmental Representative.”

.6 Reference Specification Section 01 78 00 – Closeout Submittals

- .1 Item 1.7.3 – DELETE in its entirety.

.7 ADD the following Section to the specification:

- .1 Section 26 27 26 – Wiring Devices (attached).

.8 Reference Specification Section 26 05 00 – Common Work Results for Electrical

- .1 Item 1.18.1 – REMOVE the existing text and REPLACE with the following:

“.1 Qualifications: electrical Work to be carried out by qualified, licensed high voltage linemen and high voltage apprentice who hold valid Electrical Contractor license or apprentices as per the conditions of the Provincial Act respecting manpower vocational training and qualification.

.1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.

.2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.”

.9 Reference Specification Section 32 16 15 – Concrete Walks Curbs and Gutters

- .1 Item 2.1.7 - ADD the following:

“.7 Tactile Strips: Tactile and colour contrasting surface to delineate path of travel.

.1 Surface to be slip resistant.

.2 Tactile strip is required on all ramps with a slope greater than 5%, including all street crossings.”

.10 Reference Specification Section 31 23 26.16 – Rock Removal

- .1 DELETE its entirety and REPLACE with the latest revision (attached).

.11 Reference Specification Section 32 92 19.16 – Hydraulic Seeding

- .1 Item 2.1.2.7 – DELETE in its entirety.
- .2 Item 3.2.1 – REMOVE the existing text and REPLACE with the following:

“.1 Use installers members in Good Standing with Landscape Nova Scotia.”

.12 Reference Specification Section 33 11 16 – Site Water Utility Distribution Piping

- .1 ADD item 1.3.2.9 as follows:

“.2 ASTM International

.9 ASTM B209-14, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.”

- .2 ADD item 1.3.10 as follows:

“.10 American Society of Sanitary Engineering (ASSE)
.1 ASSE 10160, Performance Requirements for Outdoor Enclosures for Fluid Conveying Components (2017 Edition).”

- .3 ADD sub-section '2.14 – Meter Station Enclosure' as follows:

“2.14 METER STATION ENCLOSURE

.1 Designed and pre-manufactured outdoor, above ground enclosure to ASSE 1060, Class I freeze protection.

.1 Roof, walls, and drain panel: marine grade aluminium, mill finish, to ASTM B209.

.2 Dimensions and clearances as indicated.

.3 Site constructed structure shall be:

.1 Weatherproof.

.2 Secure, c/w lockable access door.

.3 Inclusive of drainage for backflow prevention devices.

.4 Insulated and heated to maintain temperature as indicated.

.5 Inclusive of all electrical requirements as indicated, to the requirements of Section 26
27 26 – Wiring Devices.

.2 Submit shop drawing, stamped and signed by professional engineer registered or licensed in Province of Nova Scotia, showing inclusion of all specified and indicated components.”

- .4 ADD sub-section '2.15 – Pressure Gauge' as follows:

“2.15 PRESSURE GAUGE

.1 Pressure gauges shall have increments of no more than 14 kPa (2psi); a minimum of 100 mm faced diameter, liquid filled, graduated in psi and kPa and have an accuracy of 3% at maximum reading. Stainless steel nipple and ball valve to be provided between water main and pressure gauge.

.1 Acceptable products:

.1 Ametek P545.

.2 Ashcroft Duralife 35-1009AWL-2L.

.3 Marsh P0154P.

.4 Winters Part No. P606.”

.13 Reference Specification Appendix A:

- .1 Appendix A Cover Page – Standard Drawings – Halifax Water Standard Drawings – ADD the following to the List:

“HWSD – 1050 Asphalt Apron Detail”

- .2 Appendix A Cover Page – Standard Drawings – Halifax Regional Municipality Standard Details – ADD the following to the List:

“HRM 101 – Elliptical Davit Arm – 3000mm”

- .2 ADD the following Drawings to Appendix A:

“HWSD – 1050 Asphalt Apron Detail” (attached)

“HRM 101 – Elliptical Davit Arm – 3000mm” (attached)

TO THE DRAWINGS

.1 Reference Drawing C2 – Legend and General Notes

- .1 REPLACE Revision C04 with Revision C05
- .2 Notes 10, 14 and 38 - REMOVE references to 'Type 2 Gravel' and REPLACE with 'Select Backfill Material'.
- .3 Note 42. b. - REMOVE the existing text and REPLACE with the following:

"42. b. Provide 'Medium Growing Deciduous' trees in accordance with Halifax Municipal Design Guidelines and Halifax Standard Detail HRM 66. Exact locations to be determined on site."

.2 Reference Drawing C10 – Hudson Way Plan & Profile Sheet 1

- .1 REPLACE Revision C04 with Revision C05.
- .2 Profile - Air Release Valve Chamber at approx. STA. 0+041 – ADD text to the end of the existing leader note as follows:

"...and 3 m long, 100 mm PVC drain to adjacent water main bedding gravels."

.3 Reference Drawing C11 – Hudson Way Plan & Profile Sheet 2

- .1 REPLACE Revision C04 with Revision C05.

.4 Reference Drawing C12 – Hudson Way Plan & Profile Sheet 3

- .1 REPLACE Revision C04 with Revision C05.
- .2 Profile - Air Release Valve Chamber at approx. STA. 0+417 – ADD text to the end of the existing leader note as follows:

"...and 3 m long, 100 mm PVC drain to adjacent water main bedding gravels."

.5 Reference Drawing C13 – Hudson Way Plan & Profile Sheet 4

- .1 REPLACE Revision C04 with Revision C05.

.6 Reference Drawing C14 – Hudson Way Plan & Profile Sheet 5

- .1 REPLACE Revision C04 with Revision C05.

.7 Reference Drawing C15 – Hudson Way Plan & Profile Sheet 6

- .1 REPLACE Revision C04 with Revision C05.
- .2 DELETE requirement for PVC DR 18 carrier pipe on new water main from approx. STA. 1+078 to STA. 1+106.
- .3 REVISE storm sewer pipe material to 'NEW 400 PVC DR 18' between NSTMH21 and NCBMH22 (approx. STA. 1+042 to STA. 1+108).

.8 Reference Drawing C16 – Miscellaneous Profiles

- .1 REPLACE Revision C04 with Revision C05.

.9 Reference Drawing C18 – Meter Box Location Plans and Profiles Sheet 1

- .1 Detail 1 - ADD Notes 4 and 5 as follows:
 - "4. All piping to be ductile iron, Class 52.
 5. All internal piping, fittings and valve sizing shall be consistent with the incoming and outgoing piping size at the respective meter box locations. Piping greater than 400 mm diam. shall require butterfly valves where indicated."

.10 Reference Drawing C23 – Construction Details

- .1 ADD 'Detail 11 – Asphalt Structure Parking Lot' on CSK-08 (attached).

.11 Reference Drawing C24 – PRV Chamber Plan and Sections

- .1 REPLACE Revision C02 with Revision C03.

.12 ADD the following Drawings to the Tender Documents:

- .1 C25 – PRV Chamber Sections and Details – Sheet 1 (Revision C01).
- .2 C26 – PRV Chamber Sections and Details – Sheet 2 (Revision C01).

.13 Reference Drawing E1 – Hudson Way Electrical Site Plan

- .1 'Enlarged Plan – Access Gate Relocation' – REMOVE and REPLACE first line of existing leader note located right-most in viewport as follows:

"Existing gate to be salvaged and relocated."
- .2 REPLACE Note 2 with the following:

"2. Contractor to run/terminate new power and control wiring from source of supply to new access gate junction box via new pull pit and conduits. Wire size to match existing."

.14 Reference Drawing E2 – Hudson Way Electrical Site Plan

- .1 Note 2 – ADD the following text to the end of the existing note as follows:

"2. Davit arm to be in accordance with Halifax Standard Drawing HRM 101."

.15 Reference Drawing E3 – Hudson Way Electrical Site Plan and Details

- .1 'Detail 3 – Detail – Lighting Pole' - REVISE pole height above finished grade from '15.2 m' to '10.5 m'.
- .2 REMOVE and REPLACE Note 2 with the following:

"2. Light pole layout based on fixture ATB0 20BLEDE70 R2 5K according to HRM guidelines."

.3 ADD Notes 4 and 5 as follows:

"4. Contractor to coordinate with NSPI to obtain closest location tie in point to secondary power for new street lighting.

5. Contractor to coordinate with HRM for a unique identifier for each light fixture."

.4 'Plan' - ADD leader note at location of LP#1 as follows:

"See Note 4."

.16 Reference Drawing E4 – Metering Station Layout, Single Line Diagram, Pole and Installation Details

.1 'Detail 4 – Electrical Meter Details' - REMOVE and REPLACE existing leader note for panelboard as follows:

"Service rated panelboard, CSA 3R minimum 100Amp, 12 CCT, 240/120 VAC"

.2 Note 8 – REMOVE and REPLACE as follows:

"8. Provide Weatherproof LED fixture, CSA, IP66, LED driver integral to the fixture, 120VAC to maintain a minimum 50 Lux at working level. LED outdoor area luminaires shall be completed with surge protection devices."

ATTACHMENTS

1. Section 01 29 00 – Measurement and Payment
2. Section 26 27 26 – Wiring Devices
3. Section 31 23 26.16 – Rock Removal
4. HWSD 1050 – Asphalt Apron Detail
5. Halifax Standard Drawing HRM 101
6. CSK-08 – Asphalt Structure Detail Addendum 2

All Other Terms and Conditions Remain the Same.

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- .1 The submitted tender prices will be inclusive of all costs for the complete supply and installation of all materials, labour and equipment required to complete the work. No separate payment will be made for any engineering, design testing, inspections and approvals required by Contractor.
- .2 Payment shall be calculated as follows:
 - .1 The quantity for each pay item on which actual work has been performed shall be measured.
 - .2 For the lump sum item, multiply the percent complete by the value of the lump sum item.

1.2 LUMP SUM ITEM

- .1 No separate measurement for payment shall be made for any work completed under the lump sum item.
- .2 The work of the lump sum item shall include all work which is required for completion of the project, exclusive of those covered by the unit price items.
- .3 All and any items not specifically included in the unit price items are considered incidental to the work and are to be included in the lump sum portion of the work.

1.3 UNIT PRICE ITEMS

- .1 For each item, include all of the following as required where individual quantities are not provided in the Tender Form: common excavation, shoring, dewatering, bedding, surround, backfilling, compaction, materials testing quality control, disposal of surplus materials, joint restraints and thrust blocks, insulation, polyethylene encasement, protective coatings, flushing, pressure, vacuum and mandrel testing, disinfection, cleaning, video inspection at Substantial Performance of the Work and at the end of the Warranty Period, all electrical wiring, reinstatement of all surfaces with matching materials and thicknesses as indicated and all incidentals.
- .2 Asphalt Removal – Full Depth:
 - .1 Unit of Measurement: square metre (m2)
 - .2 Method of Measurement: slope measure
 - .3 This item includes: removal and disposal of existing asphalt within roadbed for areas indicated for full depth reconstruction.

- .3 Asphalt Milling (50mm Depth):
 - .1 Unit of Measurement: square metre (m2)
 - .2 Method of Measurement: horizontal surface area subject to cold planning to required depth, rounded to one decimal place.
 - .3 This item includes: supply of labor, material and equipment to complete cold planning to the indicated depth, sweep the planed surface, full depth saw cut of adjacent asphalt surfaces to remain and removal of milled material offside for disposal and recycling.
- .4 Curb Removal:
 - .1 Unit of Measurement: metre (m)
 - .2 Method of Measurement: along top face of curb.
 - .3 This item includes: removal of existing concrete curb as indicated.
- .5 Sidewalk Removal:
 - .1 Unit of Measurement: square metre (m2)
 - .2 Method of Measurement: slope measure of indicated area.
 - .3 This item includes: removal of existing sidewalk as indicated.
- .6 Storm Manhole or Catchbasin Removal:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: the removal of existing structure, capping and survey of existing/abandoned leads, all excavation, gravel, backfill or site generated material or required gravels and compaction.
- .7 Culvert Removal:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of culvert.
 - .3 This item includes: removal of existing culvert structure.
- .8 Fence Removal:
 - .1 Unit of Measurement: metre (m)
 - .2 Method of Measurement: along top of fence through posts and gates.
 - .3 This item includes: removal of existing fence, posts, rails, gates, footings, fittings and accessories.
- .9 Guiderail Removal:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along top of rail through posts
 - .3 This item includes: removal of existing posts, rail and all accessories.
- .10 Hydrant Removal:
 - .1 Unit of Measurement: each (ea).

- .2 This item includes: removal of existing fire hydrant complete with all associated appurtenances.
- .11 Clearing and Grubbing:
 - .1 Unit of Measurement: square metre (m2).
 - .2 This item includes: cutting and disposal of all trees and brush from areas indicated, as well as, removal and disposal of all stumps, roots, downed timber, embedded logs, rootmat, humus, and topsoil from areas indicated.
- .12 Mass Excavation and Embankment – Common:
 - .1 Unit of Measurement: cubic metre (m3).
 - .2 Method of Measurement: topographical survey taken after grubbing or topsoil removal and lines and elevations indicated.
 - .3 This item includes: excavation, placement and compaction to lines and elevations indicated, and disposal of surplus or unsuitable material.
- .13 Mass Excavation and Embankment – Rock:
 - .1 Unit of Measurement: cubic metre (m3).
 - .2 Method of Measurement: topographical survey after rock is exposed and lines and elevations indicated. Boulders greater than one cubic metre will be classified as rock. Boulders removed from the excavation shall be measured along the three maximum perpendicular axes.
 - .3 This item includes: excavation, placement and compaction to lines and elevations indicated, and disposal of surplus or unsuitable material.
- .14 Trench Excavation - Rock:
 - .1 Unit of Measurement: cubic metre (m3).
 - .2 Method of Measurement: topographical survey between changes in rock cross section. Dimensions used to calculate end areas shall be theoretical trench width as indicated on drawings, and depth from surface of rock as exposed on sides of trench after excavation to bottom of specified bedding for each pipe in trench.
 - .3 Boulders larger than one-quarter cubic metre, any portion of which is within theoretical trench, will be classified as rock.
- .15 Select Backfill Material (Borrow):
 - .1 Unit of Measurement: cubic metre (m3).
 - .2 Method of Measurement: topographical survey taken before placement of fill and lines and elevations indicated.
 - .3 This item includes: supply, placement and compaction.
- .16 Storm Manhole:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: manholes, frame, cover, grout and grade adjustment.

- .17 Storm Pipe:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of pipe through manholes.
 - .3 This item includes: pipe complete with all fittings.
- .18 Catchbasin:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: manholes, frame, cover, grout and grade adjustment.
- .19 Catchbasin Leads:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of pipe from centre of catchbasin to centre of main sewer, centre of manhole, or termination point indicated.
 - .3 This item includes: pipe complete with all fittings.
- .20 Connection to Existing - Storm:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: locating existing line or structure and supply and installation of all fittings, catchbasin, or manhole as indicated.
- .21 Sanitary Manhole:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: manholes, frame, cover, grout and grade adjustment.
- .22 Gravity Sanitary Pipe:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of pipe through manholes.
 - .3 This item includes: pipe complete with all fittings.
- .23 Connection to Existing - Sanitary:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: locating existing line or structure and supply and installation of all fittings or manhole as indicated.
- .24 Water Main:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of pipe through fittings, valves and valve chambers.
 - .3 This item includes: pipe complete with all fittings, polyethylene encasement, zinc anodes, and insulation as required.
- .25 Valve:

- .1 Unit of Measurement: each (ea).
- .2 This item includes: direct buried valves complete with polyethylene encasement, valve boxes and appurtenances, including zinc anode.
- .26 Hydrant:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: hydrant complete with appurtenances, complete with flow testing following construction.
- .27 Connection to Existing Hydrant:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: locating existing hydrant or structure and supply and installation of all pipe and fittings as indicated, as well as flow testing following construction.
- .28 Metering Station:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: chamber as indicated, including piped by-pass, valves, auxiliary piping, drains, insulation, miscellaneous metals and other incidentals to meet electrical and all other indicated requirements. Water main will be paid under Item 24 Water main.
 - .3 Water meter shall be paid for and provided by Halifax Water. Strainer shall be paid for by the Contractor and provided by Halifax Water.
- .29 Connection to Existing - Water:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: locating existing main and supply and installation of all pipe, nipples, valves, fittings and incidentals.
- .30 Carrier Pipe:
 - .1 Unit of Measurement: metre (m).
 - .2 Method of Measurement: along centreline of pipe through fittings.
 - .3 This item includes: pipe complete with all fittings.
- .31 PRV & Chamber:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: valve chamber as indicated, including all auxiliary piping, valves, drains, insulation, grouting, miscellaneous metals and other incidentals.
- .32 ARV & Chamber:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: valve chamber as indicated, including all auxiliary piping, valves, drains, insulation, grouting, miscellaneous metals and other

incidentals.

.33 Gravels:

- .1 Unit of Measurement: square metre (m2).
- .2 Method of Measurement: slope measure of indicated area at mean depth.
- .3 This item includes: supply, placement and compaction of gravel as indicated.

.34 Asphalt Paving:

- .1 Unit of Measurement: square metre (m2).
- .2 Method of Measurement: slope measure of indicated area at mean depth.
- .3 This item includes: supply, placement and compaction as indicated including tack coat.

.35 Concrete Curb and Gutter:

- .1 Unit of Measurement: metre (m).
- .2 Method of Measurement: along top face of curb.
- .3 This item includes: supply of concrete curb and gutter as indicated including gravel supply and gravel work with compaction, forming and placement.

.36 Concrete Sidewalk:

- .1 Unit of Measurement: square metre (m2).
- .2 Method of Measurement: slope measure of indicated area.
- .3 This item includes: concrete sidewalk, including supply and placing of base gravels and backfill as indicated.

.37 Guide Rail:

- .1 Unit of Measurement: metre (m).
- .2 Method of Measurement: along the top of rail through posts.
- .3 This item includes: excavation, supply and placing posts, rail, accessories, and surface reinstatement.

.38 Tactile Strip:

- .1 Unit of Measurement: each (ea).
- .2 This item includes: supply and installation of tactile strip, including all preparation, accessories and incidentals.

.39 Traffic Signs:

- .1 Unit of Measurement: each (ea).
- .2 This item includes: supply and installation of traffic signs as indicated, complete with new posts.

.40 Topsoil and Sod:

- .1 Unit of Measurement: square metre (m2).
- .2 Method of Measurement: slope measure of indicated area at mean depth.
- .3 This item includes: supply and placing of topsoil, lime and fertilizer, sod, required accessories and maintenance.

- .41 Trees:
 - .1 Unit of Measurement: each (ea).
 - .2 This item includes: supply and placing of trees, planting mixture, mulch, lime and fertilizer, tree supports and accessories and maintenance.

- .42 Topsoil and Hydroseed:
 - .1 Unit of Measurement: square metre (m2).
 - .2 Method of Measurement: slope measure of indicated area at mean depth.
 - .3 This item includes: supply and placing of topsoil, lime, fertilizer, mulch, erosion control agent, seed, and maintenance.

PART 2 - PRODUCTS

2.1 NOT APPLICABLE

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT APPLICABLE

- .1 Not Used.

END

PART 1 - GENERAL

1.1 REFERENCES

- .1 CSA International
 - .1 CSA C22.2 No.42-10, General Use Receptacles, Attachment Plugs and Similar Devices.
 - .2 CAN/CSA C22.2 No.42.1-13, Cover Plates for Flush-Mounted Wiring Devices (Bi-national standard, with UL 514D).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wiring devices and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 10 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for wiring devices for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Product Requirements and 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 off ground indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect wiring devices from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan on accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 SWITCHES

- .1 20 A, 120 V, single pole switch to: CSA C22.2 No.55 and CSA C22.2 No.111.
- .2 Manually-operated general purpose AC switches with following features:
 - .1 Terminal holes approved for No. 10 AWG wire.
 - .2 Silver alloy contacts.
 - .3 Urea or melamine moulding for parts subject to carbon tracking.
 - .4 Suitable for back and side wiring.
 - .5 Ivory toggle.
- .3 Toggle operated fully rated for tungsten filament and fluorescent lamps, and up to 80% of rated capacity of motor loads and heating loads.

2.2 RECEPTACLES

- .1 Duplex receptacles, CSA type 5-20R, 125 V, 20 A, U ground, to: CSA C22.2 No.42 with following features:
 - .1 White urea moulded housing.
 - .2 Suitable for No. 10 AWG for back and side wiring.
 - .3 Break-off links for use as split receptacles.
 - .4 Eight back wired entrances, four side wiring screws.
 - .5 Triple wipe contacts and rivetted grounding contacts.

2.3 COVER PLATES

- .1 Cover plates for wiring devices to: CSA C22.2 No.42.1.
- .2 Cast cover plates for wiring devices mounted in surface-mounted FS or FD type conduit boxes.
- .3 Weatherproof cover plates shall be: one piece box and cover, heavy duty aluminum construction, install without removing electrical device, accepts standard receptacle configurations, factory installed cord opening gasket to keep water and insects out, approved for outdoor wet location.
- .4 Weatherproof cover plates shall be marked "Wet Location" after installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wiring devices installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.

- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Switches:
 - .1 Mount toggle switches at height in accordance with Section 26 05 00 - Common Work Results for Electrical unless indicated otherwise.
- .2 Receptacles:
 - .1 Mount receptacles at height in accordance with Section 26 05 00 - Common Work Results for Electrical unless indicated otherwise.
 - .2 Install GFI type receptacles as indicated.
- .3 Cover plates:
 - .1 Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.

3.3 WIRING

- .1 Connect wiring devices and switches to power circuit.
- .2 Utilize an individual, dedicated neutral conductor for each power circuit. Common or shared neutrals are not permitted.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 – Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 – Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
-

- .2 Protect stainless steel cover plate finish with paper or plastic film until painting and other work is finished.
- .3 Repair damage to adjacent materials caused by wiring device installation.

END

PART 1 - GENERAL

1.1 REFERENCES

- .1 Definitions:
 - .1 Rock: any solid material in excess of 0.25 m³ and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m³ bucket. Frozen material not classified as rock.
 - .2 PPV: peak particle velocity.
 - .3 Controlled Blasting: the controlled use of explosives and blasting accessories in carefully spaced and aligned drill holes, to produce a free surface, or shear plane, in the rock along the specified backslope. Controlled blasting techniques include line drilling, cushion (or trim), pre-shearing and smooth-wall blasting techniques.
 - .4 Rock hammering: the controlled demolition of rock through use of heavy duty mechanical excavating equipment equipped with hydraulic rock breakers sized to suit rock conditions encountered.
- .2 Reference Standards:
 - .1 Canada Labour Code.
 - .2 Blasting Safety Regulations made under Section 82 of the Occupational Health and Safety Act S.N.S. 1996, c. 7 O.I.C. 2008-65 (February 26, 2008, effective April 1, 2008), N.S. Reg. 89/2008.
 - .3 Halifax Regional Municipality By-Law Number B-600 Respecting Blasting.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Blasting Submittals: submit for approval, written proposal of operations for removal of rock by blasting to local authorities having jurisdiction as required. Contractor is solely responsible for all damage related to rock removal and is therefore required to submit a Rock Removal Plan that clearly details the methodology and operations for removal of rock.
 - .1 Submit this plan to the Departmental Representative for record purposes only (i.e. the Departmental Representative will not issue approval of the plan). Contractor is solely responsible for the preparation and execution of the Rock Removal Plan. This plan is to be written and executed to prevent any damage whatsoever to nearby structures. Rock Removal Plan is to include a response plan should any damage inadvertently occur to nearby structures.
 - .2 Indicate proposed method of carrying out work, types and quantities of explosives to be used, loading charts and drill hole patterns, type of caps, blasting techniques, blast protection measures for items such as flying rock, vibration, dust and noise control. Include details on protective measures, time of blasting and other pertinent details.

- .3 Include proofing methodology to allow for determination of maximum safe charge size to be used in blasting activities.
 - .4 Submit records to Departmental Representative at end of each shift. Maintain complete and accurate record of drilling and blasting operations.
 - .5 Submit Rock Removal Plan two (2) weeks prior to any removal activity.
 - .6 Have Rock Removal Plan stamped and signed by professional engineer registered or licensed in Province of Nova Scotia.
- .3 Sustainable Standards Certification:
- .1 Construction Waste Management: submit copy of Waste Management Plan for project highlighting recycling and salvage requirements
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 50 of construction wastes were recycled or salvaged.
 - .3 Erosion and Sedimentation Control: submit copy of Erosion and Sedimentation Control Plan for project highlighting implementation measures.

1.3 GENERAL

- .1 Removal of rock by way of blasting shall be limited to the area of work on and adjacent Hudson Way between STA. 0+000 to 0+280.
- .2 Inclusive of constraints noted above, assess rock conditions and determine most effective rock removal methodology.
- .3 Remove rock using means to suit existing native rock conditions including breaking by hammering, blasting and/or a combination of both.
- .4 Responsibility for Blasting Quality Control, and Safety and Protection of surrounding infrastructure from damage rests solely with the Contractor.
- .5 Perform blasting operations in accordance with the follow requirements. In the case of conflict, the more stringent shall apply:
 - .1 Section 82 of the Nova Scotia Occupational Health and Safety Act - Blasting Safety Regulations.
 - .2 HRM By-Law Number B-600 Respecting Blasting.
 - .3 This specification.
 - .4 Submitted Rock Removal Plan.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Packaging Waste Management: remove for reuse and return to manufacturer of pallets, crates, padding, and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
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- .1 Materials and Resources Credit MRc2.1 Construction Waste Management: Divert 50% From Landfill: prepare Construction Waste Management plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal, and 01 78 00 - Closeout Submittals.

1.5 CONTROL OF EXPLOSIVES

- .1 Transportation, handling, storage, and use of explosives will be subject to the Occupational Health and Safety Act and related Provincial and Federal Regulations. Provide such reasonable and adequate protective facilities as are necessary to prevent loss or theft of explosives. Overnight storage of explosives and detonators on site is not permitted.

1.6 BLASTING WARNING PROCEDURES

- .1 General:
.1 Erect proper, durable signs of adequate size stating the blasting operations are being carried out in the area. Post signs at points clearly visible to all traffic approaching the area. Establish a system of reliable, audible warnings by the Contractor, subject to the approval to the Departmental Representative, to ensure proper warning to all personnel in the area of an impending detonation.
- .2 Special:
.1 Be cognizant of the possible need to schedule blasting during periods when delicate operations are not performed (i.e., medical activity). In the event that the Departmental Representative states that blasting cannot be performed at certain times because of negative effects, reschedule blasting as no additional charge to the Contractor. Propose reschedule times for approval by the Departmental Representative and update the Rock Removal Plan accordingly.
- .3 Radio Transmitters:
.1 Radio transmitters will not be permitted in the immediate area of blasting operations, unless properly locked and sealed. Be responsible for the effect due to any stray currents and the radio communication systems within the area of the site. Furnish with any necessary data pertaining to radio systems and any other available data upon receipt of a written request. Mutually agreeable administrative procedures will be developed between the Contractor and the Departmental Representative for the supervision of activities to control the use of any equipment (including mobile transmitters and radios), that emits electromagnetic radiation, within the construction area during blasting operations.

1.7 SAFETY SENTRIES

- .1 Post safety sentries during blasting operations at the following minimum locations:
.1 Alexander Murray MacKay Bridge: Dartmouth Abutment and adjacent piers.
-

- .2 All Ocean Breeze Estates buildings (i.e. those located along Princess Margaret Boulevard) within the Scaled Distance.
- .3 All site access points.

1.8 NOISE CONTROL

- .1 Include noise as a factor in planning blasting operations. In the event the predicted noise emission is to be excessive for a particular period, discuss this problem with the Departmental Representative and authorities having jurisdiction to determine mitigation efforts to be implemented before the commencement of the Work.

1.9 AIR BLAST CONTROLS

- .1 Design blast rounds in order to minimize air blast overpressures. If detonating code is used, cover with sand to minimize air blasts. Consider postponement of blasting operations when a heavy low-level cloud cover exists. Blasting operations to take into account wind direction and possibility of focusing.

1.10 BLAST POWER

- .1 Design blast rounds to minimize ground acceleration low frequency shock waves and peak particle velocity (PPV).
- .2 Blasting and Vibration Control:
 - .1 Control ground vibrations frequencies to prevent damage to properties, structures, infrastructures or remaining rock mass.
 - .2 Ground acceleration of any blast is not to exceed those specified in HRM By-Law B-600.
 - .3 Notwithstanding HRM By-Law B-600, PPV is not to exceed 1mm/sec at a distance of 450m from the explosive charge location.

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.1 QUALITY CONTROL – GENERAL

- .1 Quality Control Pre-construction Condition Survey:
 - .1 Provide a Preconstruction Condition Survey on properties, structures and infrastructure within a radius as recommended by the Contractor's insurers, but not less than the greater of: area indicated on drawings; or to the distance as specified in HRM By-Law B-600. Submit report to Departmental Representative two (2) weeks before blasting is scheduled to commence. Have the report prepared by a recognized firm specializing in such work.

- .2 Obtain all necessary permits required prior to conducting blasting

.2 Quality Control Post-construction Condition Survey:

- .1 Provide a Postconstruction Condition Survey on properties, structures and infrastructure within a radius as recommended by the Contractor's insurers, but not less than the greater of: area indicated on drawings; or to the distance as specified in HRM By-Law B-600. Submit report to Departmental Representative within one (1) week of conclusion of blasting operations. Have the report prepared by a recognized firm specializing in such work.

3.2 QUALITY CONTROL – MACKAY BRIDGE

.1 Quality Control Preconstruction Condition Survey:

- .1 Provide a Preconstruction Conditions Survey on MacKay Bridge as recommended by the Contractor's insurers, by not less than:
- .1 Pre-blast survey photos and report for Dartmouth Abutment and adjacent piers.
- .2 Submit report to Departmental Representative two (2) weeks before blasting is scheduled to commence. Have the report prepared by a recognized firm specializing in such work.
- .2 Obtain all necessary permits required prior to conducting blasting activities. Bear all costs for obtaining such permits.
- .3 Install dedicated accelerometers at the Dartmouth Abutment and adjacent piers, with positions to approval of Halifax Harbor Bridges Representative.
- .4 Quality Control Postconstruction Condition Survey:
- .1 Provide a Postconstruction Condition Survey on MacKay Bridge as recommended by the Contractor's insurers, but not less than:
- .1 Post survey photos and report for Dartmouth Abutment and adjacent piers.
- .2 Submit report to Departmental Representative within one (1) week of conclusions of blasting operations. Have the report prepared by a recognized firm specializing in such work.

3.3 NOTICE TO BLAST

- .1 Provide 24 hours notice of planned blasting activities to Departmental Representative. Do not proceed with blasting schedule without approval of Departmental Representative.

3.4 PREPARATION

- .1 Unless otherwise permitted by the Departmental Representative, completely remove all overburden soil, loose or decomposed rock and foreign objects along the top of the excavation, to a distance as indicated on the Rock Removal Plan, of the production hole drilling limits, or to the end of the cut, before drilling the controlled blasting holes. Remove potential dangerous material located beyond the excavation limits.

3.5 FLYROCK SAFETY

- .1 Before the firing of any blast, encase the rock to be blasted with blasting mats. Place mats for every blast over the entire loaded area. Mats will restrict all flyrock from leaving the site. If blasted rock escapes the blasting mats, all blast-related activities, including drilling operations, will cease. Prepare a report describing why rock was allowed to be ejected, and how such events will be prevented in the future. Submit report to the Departmental Representative. In order to proceed with any further blast-related activity, obtain written permission from the Departmental Representative. These provisions do not relieve the Contractor from all responsibility for the safety of his own personnel, the safety of the general public, damage to structures, or responsibility under the Occupational Health and Safety Act.

3.6 TRIAL BLASTING

- .1 Perform trial blasting consisting of a maximum of one-half of the maximum safe charge strength.
- .2 Review performance of trial blast and accelerometer data measurements.
- .3 Provide assessment of trial blast performance and adjust Rock Removal Plan as necessary to allow for efficient and safe removal operations. Provide assessment to Departmental Representative for record.
- .4 Conduct as many trial blasts as necessary, increasing in charge strength incrementally to ensure QMP and safety issues are addressed during rock removal operations.

3.7 ROCK REMOVAL

- .1 Perform excavation in accordance with Erosion and Sedimentation Control Plan.
- .2 Co-ordinate this Section with Section 01 35 29.06 - Health and Safety Requirements .
- .3 Remove rock to alignments, profiles and cross sections as indicated.
- .4 Perform rock hammering to extents indicated in submitted Rock Removal Plan.
- .5 Explosive controlled blasting is only permitted within construction boundary.
 - .1 The best modern practice of controlled blasting methods shall be employed. Acceptable controlled perimeter techniques include the so-called smooth wall, cushion, pre-splitting or line drilling blasting. Control use of explosives and blasting accessories, in carefully spaced and aligned drill holes to produce uniform free surfaces or shear planes in the rock along the required

backslope.

- .2 Do blasting operations in accordance with local and provincial codes and requirements of authority having jurisdictions.
- .6 Use rock removal procedures to produce uniform and stable excavation surfaces. Minimize overbreak and avoid damage to adjacent structures.
- .7 Remove blast muck from rock face immediately following each shot. Make good exposed rock face to satisfaction of Departmental Representative.
- .8 Excavate rock to horizontal surfaces with slope not to exceed 5%.
- .9 Shatter rock remaining beneath Access Road to eliminate pockets and to prevent formation of ponding water in road structure.
- .10 Prepare rock surfaces which are to bond to concrete, by scaling, pressure washing and broom cleaning surfaces.
- .11 Excavate trenches to lines and grades below applicable pipe invert indicated. Provided recesses for bell and spigot pipe to ensure bearing will occur uniformly along barrel of pipe.
- .12 Cut trenches to widths as indicated.
- .11 Remove boulders and fragments which may slide or roll into excavated areas.
- .13 Correct unauthorized rock removal at no extra cost, in accordance with Section 31 32 10 – Excavating, Trenching and Backfilling.

3.8 BLAST MONITORING

- .1 Carry out a seismic survey for each blast to monitor and aid in the control of the intensity of vibrations and sound pressure levels resulting from the use of explosives.
 - .1 The seismographs for monitoring ground vibrations will be three component (vertical, transverse and longitudinal) with a magnification of at least 50. Provide the Departmental Representative with a film record of each seismographic measurement. Carry out blasting so that ground particle velocities are kept low enough to prevent damage to adjacent infrastructure, but in no instance exceed 12mm/second at the nearest structure.
 - .2 Use minimum of six (6) blast monitors (accelerometers). Their number, type and location shall be approved by the Departmental Representative. Align in two (2) linear arrays, perpendicular to one another. For each linear instrument array, a wide range of instrument distances shall be used. The far position must be at least one hundred times farther from the blast than the closest. Established spaced instrument position in log distance increments, and span over three (3) logarithmic units (1000 units). Bear all costs involved in the seismic

surveys by covering costs in the unit prices.

.3 In addition to linear arrays, provide blast monitors (ground accelerometer) at Dartmouth Abutment and adjacent piers., MacKay Bridge as indicated in sub-section 3.2.

3.9 USE OF ROCK

- .1 Incorporate rock into construction in accordance with Sections 31 22 13 – Rough Grading and 31 23 33.01 – Excavating, Trenching and Backfilling.

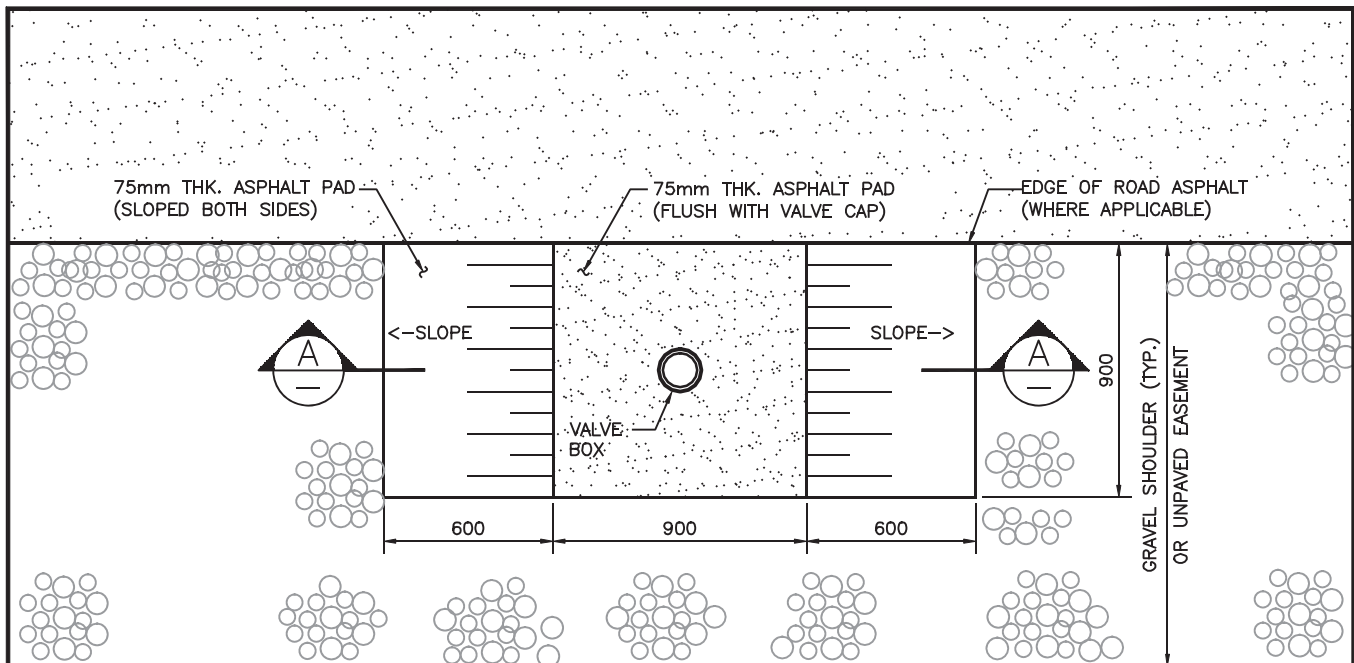
3.10 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Rock Disposal:
 - .1 Dispose of surplus removed rock in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Do not dispose removed rock into landfill. Send all material to appropriate locations as approved by Departmental Representative.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

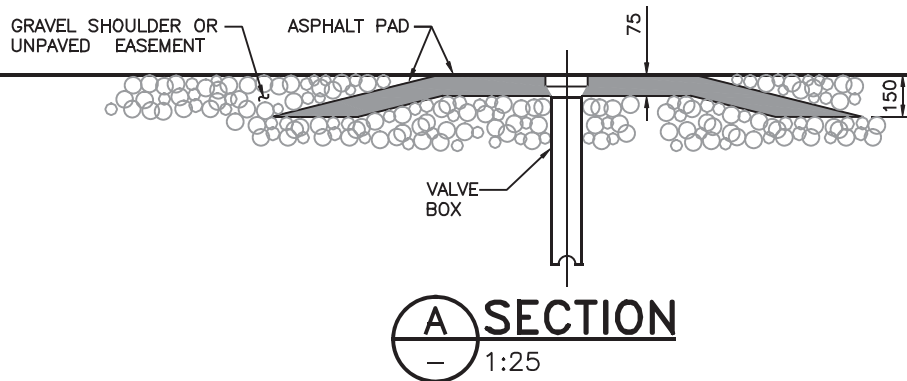
3.11 PROTECTION

- .1 Prevent damage to surroundings and injury to persons in accordance with Section 01 50 00 – Temporary Facilities. Post sentries, place traffic barriers and sound warnings, and display signs when blasting to take place.

END



PLAN
1:25



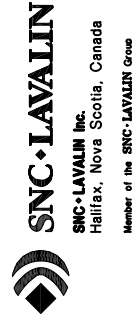
SCALE PLOTTED: 1=1 DATE PLOTTED: 4/29/2008 NOTES:

4	GENERAL REVISIONS FOR 2009	09 06 09	ML	
3	TITLE BLOCK CLEANUP	03 04 08	BC	
2	NOTES REVISED	01 01 10	MC	
1	NEW DETAIL FOR 2000 SPEC.	00 03 31	MC	
No.	DESCRIPTION	DATE	BY	CHKD



ENGINEERING DEPARTMENT

PROJECT	
ASPHALT APRON DETAIL	
DRAWN M.C.	SCALE (PLAN) 1:25
CHECKED S.S.	SCALE (PROFILE) N/A
APPROVED R.C.	DATE 00/03/30
PROJECT No.	
DWG. No.	HWSD - 1050

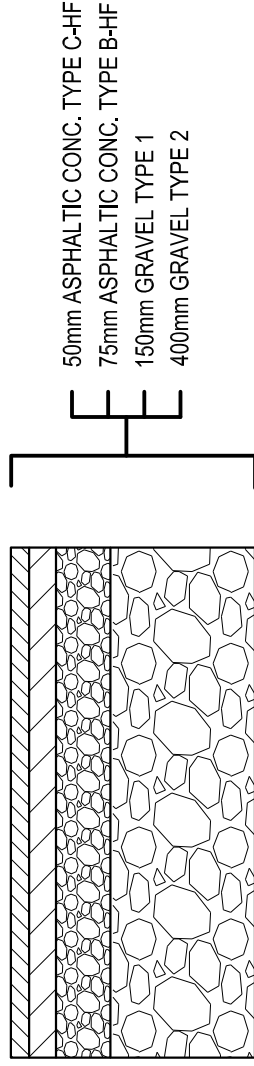


	Public Works and Government Services Canada	Travaux publics et Services gouvernementaux Canada
Tender	Soumission	
PWGSC Project Manager		Administrateur de projets TPSGC

project	project
BEDFORD INSTITUTE OF OCEANOGRAPHY	ASPHALT STRUCTURE DETAIL ADDENDUM 2
SECOND ACCESS ROAD	

Drawing title	Titre du dessin	
ASPHALT STRUCTURE DETAIL ADDENDUM 2		
project number	no. du projet	no. du dessin
R.073592.001		CSK-08
designed M.E.	conçu	date
drawn D.B.	dessiné	date
approved	approuvé	date

REFER TO DWG. C21 & C23



ASPHALT STRUCTURE PARKING LOT

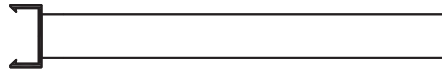
11
C23

SCALE : N.T.S.

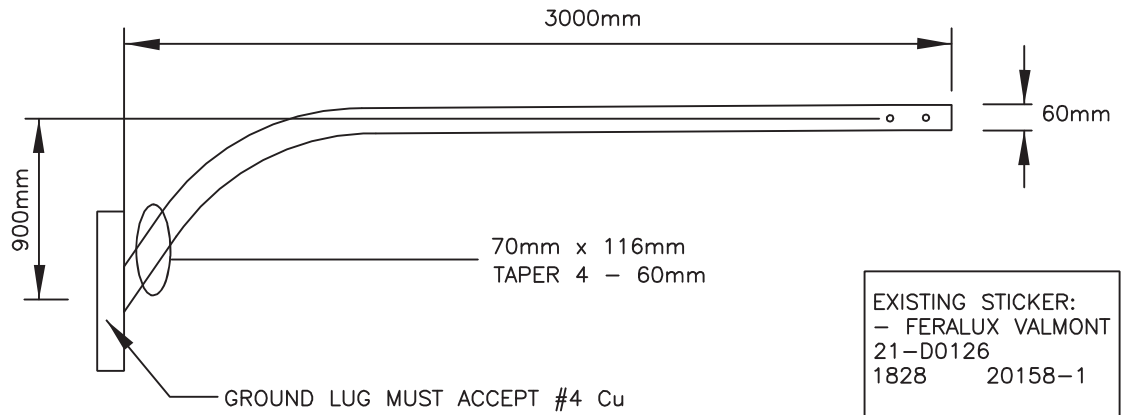
NOTE:

1. BASE AND SUBBASE TO BE COMPACTED TO 98% STPD
2. SUBGRADE OF PARKING STRUCTURE TO BE APPROVED BY A GEOTECHNICAL ENGINEER

TOP VIEW

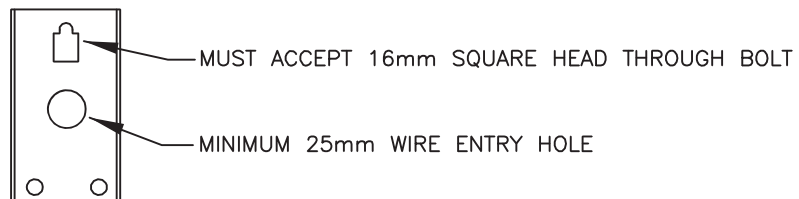


SIDE VIEW



MANUFACTURER: ALL-STRUCT
CAT # RE10LA

BRACKET



HALIFAX
REGIONAL MUNICIPALITY

STANDARD DETAIL

ELLIPTICAL
DAVIT ARM - 3000mm

DATE: 2013

REFERENCE

APPROVED

SCALE: NTS

FIG. NO.
HRM 101