MUNICIPALITY OF THE COUNTY OF CUMBERLAND

PARRSBORO – VARIOUS WATERMAINS

TENDER NO. T-MCC-1905

Addendum No. 1

August 13, 2019

To be added to and made part of the Tender Documents.
This Addendum must be acknowledged in the Tender Form
The following changes or modifications shall be made to the Tender Documents:

TO THE SPECIFICATIONS

SECTION 01 10 00 – GENERAL REQUIREMENTS

Page 1 of the Supplementary Specifications, within the supplements to Section 01 10 00 – General Requirements, add the following as subsection 1.1.2:

.2 The design is based on open trench, HDD would be an acceptable alternative however no geotechnical work has been done to confirm if this method is feasible. If the contractor selects HDD and it does not work they will be required to install it by the open trench method at no additional cost to the Contract. The HDD method is only acceptable for the Work on Hawks Road.

SECTION 31 71 10 – HDD PIPE INSTALLATION

Add new Section 31 71 10 – HDD Pipe Installation, dated August 13, 2019, attached.

Andrew Doyle, P.Eng.
CBCL Limited
August 13, 2019

PART 1 - GENERAL

1.1 WORK INCLUDED

.1 This section specifies requirements for providing materials, labour, tools and equipment, and performing operations necessary to complete the installation of water main by the Horizontal Directional Drilling (HDD) method where shown on the drawings.

1.2 RELATED WORK

.1 Earthworks: Section 31 20 00

.2 Reinstatement: Section 32 98 00

.3 Water Mains: Section 33 11 00

1.3 REFERENCE MATERIAL

.1 ASTM F1962-2011, Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles.

.2 ASTM D3261-16, Standard Specification for Butt Heat Fusion Polyethylene Plastic Fittings for Polyethylene Plastic Pipe and Fittings.

1.4 QUALIFICATIONS

.1 Provide upon request three (3) examples of similar projects successfully completed in the last five (5) years in Atlantic Canada, complete with contact information for references for review by the Engineer.

1.5 SUBMISSIONS AND DESIGN REQUIREMENTS

.1 Provide shop drawings in accordance with Section 01 10 00. Shop drawings to show dimensions including open cut entry and exit pits, details of pipes including material for carrier pipe (and casing pipe if used complete with straps, skids, blocks or manufactured casing spacers and end seals, pumped unshrinkable fill if required), jointing method.

1.6 ALTERNATES

.1 Alternate pipe and jointing may be considered. Submit alternates for review and approval by the Engineer.

1.7 TRANSPORTING, UNLOADING, STORING AND HANDLING MATERIALS

.1 Transport, unload, store and handle all materials in accordance with the manufacturer's handling and storage written recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Casing Pipe Seals, if required: non-corroding, non-rotting seals between casing pipe and carrier pipe to be placed at either end of casing pipe if used. Shop drawings required.

.2 Water Main: 100mm dia. HDPE, to Section 33 11 00.

.3 Annular space Material: non-hazardous unshrinkable fill.
.1 Acceptable Product: MasterCell 30 by BASF.

.4 Pipe/Casing Spacers, if required: corrosion and rot-proof. Acceptable product: RACI HDPE, spacing interval to suit but not less than 1.0m.

.5 Temporary Wood Skids, if required: pressure treated hardwood timber skids, size as required.

2.2 DIRECTIONAL DRILLING EQUIPMENT

.1 General:
.1 The directional drilling equipment to consist of a directional drilling rig and a drilling fluid mixing and delivery system of sufficient capacity to successfully complete the product installation without exceeding the maximum tensile strength of the product being installed.

.2 Directional drilling rig to consist of a leak

free hydraulically powered boring system to rotate, push, and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill head.
.1 Contain a guidance system to accurately guide boring operations.
.2 Be anchored to the ground to withstand the rotating, pushing, and pulling forces required to complete the product installation.
.3 Be grounded during all operations unless otherwise specified by the drilling rig manufacturer.

.3 Drill Head:
.1 Drill head to be steerable by changing its rotation, be equipped with the necessary cutting surfaces and drilling fluid jets, and be of the type for the anticipated soil conditions.

.4 Guidance System:
.1 Guidance system to be setup, installed, and operated by trained and experience personnel. The operator must be aware of any magnetic or electromagnetic anomalies and must consider such influences in the operation of the guidance system when a magnetic or electromagnetic system is used.

.5 Drilling Fluid Mixing System:
.1 Drilling fluid mixing system to be of sufficient size to thoroughly and uniformly mix the required drilling fluid.

.6 Drilling Fluid Delivery System:
.1 Delivery system to have sufficient flow capacity to ensure that all slurry volumes are adequate for the length and diameter of the final bore and the anticipated soil conditions. Connections between the delivery pump and drill pipe must be leak-free.

PART 3 - EXECUTION

3.1 SITE PREPARATION

.1 Grade or fill the work site to provide a level working area for the drilling rig. Do not make

any alterations beyond what is required for HDD operations. Confine activities to designated work areas.

3.2 TRENCHING, BACKFILLING AND COMPACTING

.1 Conduct trenching, backfilling and compacting for entry and exit points or other locations along the bore in accordance with Section 31 20 00 – Earthworks.

3.3 TRENCH PROTECTION

.1 Where the stability, safety, or function of an existing roadway, railway, watercourse, other works, or proposed works may be impaired due to the method of operation, provide protection. Protection may include sheathing, shoring, and piles where necessary to prevent damage to such works or proposed works.

3.4 PILOT BORE

.1 Drill the pilot bore along the bore path in accordance with the grade, alignment, show on the Project Drawings. In the event the pilot bore does deviate, notify the Engineer. The Engineer may require the Contractor to pullback and re-drill from the location along the bore path before the deviation. In the event of a drilling fluid fracture, inadvertent returns, or loss of circulation occurs during pilot bore drilling operations, advise the Engineer of the event and of the action taken.

.2 If a drill hole beneath a road must be abandoned, backfill the hole with grout or bentonite to prevent future subsidence.

3.5 REAMING

.1 When necessary, ream the bore using the appropriate tools to a diameter 50% greater than the outside diameter of the product to a maximum of 300mm beyond the product diameter.

.2 The drilling mud of the annular region should not be removed after installation, but permitted to solidify and provide support for the pipe and surrounding soil.

3.6 PULLBACK

.1 After successfully reaming the bore to the required diameter, pull the product through the bore path. Once the pullback operation has commenced, continue without interruption until the product is completely pulled into bore unless otherwise approved by the Engineer.

.2 Use a swivel between the reamer and the product being installed to prevent rotational forces from being transferred to the product. Use a weak link or breakaway connector to prevent excess pulling force from damaging the product.

.3 Inspect the product for damage where visible at excavation pits and where it exits and bore. Rectify any damage noted to the satisfaction of the Engineer.

3.7 TRENCHLESS PIPE INSTALLATION

.1 Joint the product according to the manufacturer's written recommendations. Where space permit, joint the length of the product to be pulled as one length before commencement of the pulling operation.

.2 Protect the product from damage during the pullback operation.

.3 The minimum allowable bending radius for the product must not be exceeded at the entry point, exit point, or any other location along the bore path.

.4 Allow the product to recover before connections to new or existing facility are made. Product recovery time to be according to manufacturer's recommendations.

.5 Perform Work at such times and in such manner as the Engineer may direct.

.6 Install the trenchless carrier pipe, and casing pipe if used, within the right of way avoiding conflict with utility poles, traffic signals and associated controls. The exact horizontal location and depth of installation can be adjusted depending on site conditions. Have any change in location agreed by the Engineer prior

to commencement of the trenchless installation. Maintain the minimum depth of cover at all times.

.7 The soil formation at the depth through which the trenchless installation is to be performed is considered to be representative of material commonly found throughout much of the area. No Geotechnical investigation has been conducted.

.8 Where a casing pipe is used, place carrier pipe inside casing pipe using approved blocking methods to guide carrier pipe in true alignment.

.9 Confine the limit of the installation as shown on the drawings and keep construction activity for the trenchless installation at either end of the installation.

.10 The installation method used shall not cause heave, future settlement, or in any way disturb existing structures and services. The direction of installation will be agreed with the Engineer.

.11 Carry out Work in accordance with health and safety regulations, including stabilization of entry and exit pits, de-watering, and fencing. Cuttings from the trenchless installation will be removed from site on a daily basis and the site will be cleaned and made safe during off hours.

END