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5.24 SUPPLY OF POLYETHYLENE PIPE**5.24.1 GENERAL**

This specification covers the requirements for the supply of polyethylene pipe by the Contractor.

The work consists of supplying polyethylene pipe of the following types:

- Closed Profile Pipe: a pipe product that has an essentially smooth waterway braced circumferentially or spirally with corrugations that are joined integrally by an essentially smooth outer wall.
- Corrugated Pipe: a single walled pipe where the wall is formed into a series of alternating ridges and grooves.
- Open Profile Pipe: a pipe product that has an essentially smooth waterway braced circumferentially or spirally with outside corrugations.

5.24.2 APPLICABLE SPECIFICATIONS

All references to Standards or Specifications refer to the latest edition at the time of tender.

CAN/CSA B182.6	Profile Polyethylene Sewer Pipe and Fittings
ASTM F405	Corrugated Polyethylene (PE) Tubing and Fittings
ASTM F667	Large Diameter Corrugated Polyethylene Tubing and Fittings
ASTM F894	Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.
ASTM D3350	Specification for Polyethylene Plastic Pipe and Fittings Materials
ASTM D4976	Specification for Polyethylene Plastics Moulding and Extrusion Materials
AASHTO M252	Corrugated Polyethylene Drainage Tubing
AASHTO M294	Corrugated Polyethylene Plastic Pipe

5.24.3 DEFINITIONS

Polyethylene Plastic	-	plastic based on polymers made with ethylene as essentially the sole monomer.
Profile	-	pipe wall construction that presents an essentially smooth surface in the waterway but includes ribs or other shapes, which can be either solid or hollow, that help brace the pipe against diametrical deformation.

5.24.4 MATERIALS

The moulding and extrusion material shall be polyethylene plastic according to the requirements of CAN/CSA B182.6, ASTM F405, ASTM F667, ASTM F894, ASTM D3350, ASTM D4976, AASHTO M252 or AASHTO M294 for the appropriate type of polyethylene plastic pipe.

Previously installed pipe shall not be used.

5.24.4.1 **Markings**

Markings for corrugated, and open-end, closed-profile, polyethylene plastic pipe, tubing and fittings shall be in accordance with the appropriate standard. All pipe supplied shall be clearly marked with the following information at intervals of not more than 3 m.

Pipe Diameter
Pipe Stiffness
Standard Designation
Manufacturer

5.24.4.2 **Certificate**

Upon request, the Contractor shall provide a certificate of compliance from the supplier indicating that the product was produced, tested and conforms to all of the requirements of the appropriate specification.

5.24.5 REQUIREMENTS

The pipe stiffness for all polyethylene plastic pipe or fittings shall be no less than 210 kPa.

The requirements for corrugated polyethylene plastic pipe, tubing and fittings shall be according to ASTM F405, ASTM F667, AASHTO M252 or AASHTO M294.

The requirements for open and closed profile polyethylene plastic pipe and fittings shall be according to CAN/CSA B182.6 or ASTM F894.

5.24.6 JOINTS

Joining systems shall be Bell and Spigot (Gasketed Type), Bell and Spigot (Extrusion Weld Type), Heat Fusion, Plain End Extrusion Weld and shall meet the requirements of the latest version of ASTM F894 and CSA B182.6.

5.24.7 PERFORATED PIPE

Perforated corrugated polyethylene pipe shall be fabricated in accordance with the latest edition of ASTM F405 (currently Section 6.2.4).

5.24.8 HYDRAULICS

The manufacturer will provide the tested Mannings “n” value that will be used to calculate pipe flow capacity.

5.24.9 INSPECTION, SAMPLING AND TESTING

All materials shall be subject to inspection, sampling and quality assurance testing by the Consultant and the Contractor shall provide safe, convenient access, acceptable to the Consultant, for inspection and sampling of the materials, and shall co-operate in the inspection and sampling process when requested to do so.

The Contractor shall contact the Consultant at least 72 hours prior to shipping the materials to co-ordinate any inspection, sampling or testing at the manufacturing location and the delivery site that the Consultant deems necessary.

Any material found unacceptable by the Consultant shall be replaced with acceptable material by the Contractor at his expense.

5.24.10 MEASUREMENT AND PAYMENT

Payment for the supply of polyethylene pipe including joining systems and appurtenances will be included in the unit price bid per metre for "Culverts – Supply and Install" for the applicable type and sizes of pipe specified.