

PART E
SPECIFICATIONS

PART E - SPECIFICATIONS

E1. GENERAL

E1.1 These Specifications shall apply to the Work.

E2. MATERIAL

E2.1 Reference Standards

E2.1.1 The pipe shall meet the following reference standards:

- (a) ASTM F714: Standard specification for polyethylene (PE) plastic pipe (SDR-PR) based on outside diameter.
- (b) ASTM D3035: Standard specification for polyethylene (PE) plastic pipe (DR-PR) based on controlled outside diameter.
- (c) ASTM D2837: Standard method for obtaining hydrostatic design basis for thermoplastic pipe materials.
- (d) ASTM D1248: Standard specification for polyethylene plastic molding and extrusion materials.
- (e) ASTM D3350: Standard specification for polyethylene plastic pipe and fittings materials.
- (f) ASTM D2657: Standard practice for heat joining polyolefin pipe and fittings.
- (g) ISO 9002-94: Quality systems - model for quality assurance in final inspection and test.
- (h) CAN-Z299.3: Quality Assurance Program - Category 3.
- (i) AWWA C906-99: Polyethylene pressure pipe and fittings 4" through 63" for water distribution.
- (j) NSF: National Sanitation Foundation accreditation.
- (k) PPI: Plastics Pipe Institute resin listed manufacturer.

E2.2 PIPE MATERIAL

E2.2.1 The pipe shall be made from polyethylene resin compound qualified as Type III, Category 5, Class C, Grade P34 in ASTM D1248-02. This material shall have a long term hydrostatic strength of 1600 psi, when tested and analyzed by ASTM D2837.

E2.2.2 The raw material shall contain carbon black, well dispersed, with a minimum of two percent.

E2.2.3 The pipe shall contain no recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material supplier.

E2.2.4 Compliance with the requirements of this paragraph shall be certified in writing by the pipe manufacturer or supplier upon a request, within two (2) Business Days by the Contract Administrator.

E2.2.5 The cell classification shall be PE 345464C for PE 3408 materials per ASTM D3350/F714-88.

E2.2.6 The Manufacturer shall, within two (2) Business Days of a request by the Contract Administrator, provide information that they are ISO 9002 certified.

E2.3 Pipe Diameter and Design

E2.3.1 Pipe shall be iron pipe size 24 inch diameter DR11 suitable for butt fusion or electrofusion.

E2.3.2 The pipe shall be suitable for installation by Directional Drilling.

E2.4 Pipe Marking

E2.4.1 The following shall be continuously indent printed on the pipe, or spaced at intervals not exceeding five feet.

- (a) Name and/or trademark of the pipe.
- (b) Nominal pipe size.
- (c) Pressure rating and/or DR number.
- (d) The letters "PE" followed by the polyethylene type and category, as specified by ASTM D-1248, followed by the hydrostatic design basis.
- (e) Manufactured standard design basis.
- (f) A production code from which the date and place of manufacturer can be determined.

E2.5 Electrofusion Fittings

E2.5.1 Electrofusion fittings are to be manufactured in compliance with ASTM F-1055 standard for electrofusion type polyethylene fittings for outside diameter controlled polyethylene pipe and tubing.

E2.5.2 Fittings are tested in compliance with ASTM D-2513; ASTM F-1055.

E2.5.3 Fittings are available tested to AWWA C906 Standard.

E2.5.4 Resin is to be a PE 3408 virgin material that complies with ASTM D-1248; ASTM D-3350. The resin to have an NSF Standard 14 listing and a Plastic Pipe Institute (PPI) rating.

E2.5.5 Electrofusion fittings must be pressure-rated for a minimum operating pressure of 165 psi.

E2.5.6 The fittings shall be manufactured with an integral identification resistor/bar code that automatically reads the fusion time on the electrofusion processor.

E2.5.7 The Bidder shall, within two (2) Business Days of a request by the Contract Administrator, provide the long term hydrostatic pressure test results.

E2.6 High Density Polyethylene EDR Elbows

E2.6.1 EDR elbows shall be manufactured from the same type and grade of polyethylene resin as the pipe in clause E2.2.1.

E2.6.2 The EDR elbows shall be constructed of polyethylene pipe with a wall thickness 25% greater than the system design.

E2.6.3 If elbows are to be butt-fused, have a 45 degree bend and each end of the elbow must be the same thickness as the pipe to which the elbow is being fused.

E2.7 General Requirements

E2.7.1 The Manufacturer shall, within two (2) Business Days of a request by the Contract Administrator, provide a list that they are a member of PPI (Plastic Pipe Institute).

E2.7.2 The Manufacturer's facility must be NSF certified, and will supply that information to the Contract Administrator within two (2) Business Days of a request.

E2.8 Metal Flanges

E2.8.1 Metal flanges shall be ductile iron drilled to ANSI B16.1/B16.5 Class 125/150 bolt circles. Flanges shall be epoxy coated.

E2.9 Fasteners

- E2.9.1 The Manufacturer or the Bidder shall ensure that all fasteners shall be type 316 stainless steel.

E3. DELIVERY

- E3.1 Goods shall be available for pick up from the Contractors storage compound by the City of Winnipeg or its designated Contractor within thirty-five (35) Calendar days after the award of Contract.
- E3.2 Goods shall be available for pick up between 8:30 a.m. and 4:30 p.m. on Business Days.
- E3.3 The Contractor shall provide the Contract Administrator, notice when the goods have arrived and the location at which they are available for pickup.