

PART 1: GENERAL

- 1-1 DESCRIPTION: The work in this section consists of providing High Density Polyethylene (HDPE) pipe and fittings.
- 1-2 RELATED WORK SPECIFIED ELSEWHERE: Utility Trenching and Backfilling – Section **XXXXX**. Piping Accessories – Section **XXXXX**. Valves – Section **XXXXX**. Disinfection – Section **XXXXX**. Testing – Section **XXXXX**.
- 1-3 QUALITY ASSURANCE: References, American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), Federal Specifications (FS), International Standards Organization (ISO), and manufacturer’s printed recommendations.
- 1-4 SUBMITTALS: Material list naming each product to be used identified by manufacturer and type number, in accordance with Section 01300.
- 1-5 PRODUCT HANDLING: Handle pipe and fittings to insure delivery in a sound undamaged condition.
- 1-6 JOB CONDITIONS: Do not lay pipe when trenches or weather conditions are not suitable for such work.

PART 2: MATERIALS

2-1 PIPE:

- A. Pipe shall be supplied by ISCO Industries, LLC. Pipe shall be manufactured from a pipe resin which meets ASTM D 3350 with a minimum cell classification of 445574C. Pipe shall be manufactured to the dimensions of ASTM F 714. Pipe shall be have a minimum pressure ratings of:

DR 7	336 psi
DR 9	252 psi
DR 11	202 psi
DR 13.5	161 psi
DR 15.5	139 psi
DR 17	126 psi
DR 21	101 psi
DR 26	81 psi

The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material

2-2 FITTINGS:

- A. Butt Fusion Fittings - Fittings shall be made from HDPE pipe resin meeting ASTM D 3350 with a minimum cell classification of 445574C. Molded butt fusion fittings shall have a manufacturing standard of ASTM D 3261. Fabricated fittings must have the same pressure rating as the pipe; a DR less than the pipe shall be used. Fabricated fittings are to be manufactured using a Data Logger to record temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records.
- B. Electrofusion Fittings - Fittings shall be made from resin or pipe meeting ASTM D 3350 with a minimum cell classification of 445574C. Electrofusion Fittings shall meet the manufacturing standard of ASTM F 1055. Fittings shall have the same pressure rating as the pipe or higher unless otherwise specified on the plans.
- C. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be made from materials containing resin that meets ASTM D 3350 with a minimum cell classification of 445574C.

PART 3: EXECUTION

3-1 GENERAL:

- A. Pipe and Fittings: Size as indicated on the plans. Install as shown in accordance with manufacturer's recommendations.

3-2 EXCAVATION AND TRENCHING: Section 02221.

3-3 HAULING, UNLOADING and DISTRIBUTING PIPE: During loading, transportation and unloading, every precaution shall be taken to prevent injury to the pipe. No pipe shall be dropped from cars or trucks, or allowed to roll down slides without proper retaining ropes. During transportation each pipe shall rest on suitable pads, strips, skids or blocks securely wedged or tied in place. Any pipe damaged shall be replaced.

3-4 FUSION:

- A. Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe supplier's recommendations. The butt fusion equipment used in the joining procedures should be capable of

meeting all conditions recommended by the pipe supplier. The butt fusion joining will produce a joint with weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.

- B. Mechanical joining will be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter with a ductile iron back-up ring.
 - C. Hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.
- 3-3 INSPECTION: Inspect the pipe for defects before installation and fusion. Defective, damaged or unsound pipe will be rejected.
- 3-4 TESTING: Pressure testing shall be conducted in accordance with the ASTM F 2164, Field Leak Testing of Polyethylene Pressure Piping Systems Using Hydrostatic Pressure. The HDPE pipe shall be filled with water, raised to test pressure and allowed to stabilize. The test pressure shall be 1.5 times the operating pressure at the lowest point in the system. In accordance with section 9.8, the pipe shall pass if the final pressure is with 5% of the test pressure for 1 hour. For safety reasons, hydrostatic testing only will be used.
- 3-5 DISINFECTION: In accordance with Section XXXXX.
(Required only for drinking water applications.)

PART 4: MEASUREMENT AND PAYMENT

- 4-1 HDPE PIPE, FITTINGS AND ACCESSORIES: Payment will be included under the bid item to which the work relates.

END
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