FRP

Service Pipe:

The service pipe can be filament-wound fiberglass-reinforced epoxy, bell and spigot, designed to withstand up to 200°F. Pipe sizes 2” through 8” may be supplied in 20 Ft. random lengths. Pipe sizes 10” through 16” to be supplied in 40 Ft. lengths. Straight lengths of piping will be supplied with 6” of piping exposed at each end for field joint fabrication.

Insulation:

The insulation shall be a foamed-in-place closed-cell polyurethane that completely fills the annular space between the carrier pipe and the exterior casing. The insulation shall have the following physical properties:

- Minimum Density (lb./cu. ft.) 2.0 ASTM D-1621
- 90-95 % Closed Cell ASTM D-2856
- “K” Factor BTU/Hr. sq. ft. °F/in. 147 ASTM C-177

Exterior Casing: *

The exterior casing shall be
(1) Seamless, extruded white PVC Type 1, Grade 1 Class 12454-B per ASTM D-1784
or
(2) High Density Polyethylene (H.D.P.E.) ASTM D-1248 with the following physical properties:

- ASTM D-3350…Resin Type III, Grade P34
- ASTM D-638…Ultimate Elongation 850%
- ASTM D-638…Tensile Yield Strength 3300 psi
- ASTM D-790…Tangent Flexural Modules 175,000 psi

No polyethylene tape casings will be allowed.

Sub-Assemblies:

Any requirement for thrust blocking is the responsibility of the design engineer. Fittings that do not require restraint blocks should be field insulated. Fittings that require restraint blocks must have blocks designed by the design engineer. FRP pipe should be joined to steel systems with flanges. All steel systems should be anchored within five feet of the connection point to eliminate any thrust, stress, or torque from being transferred to the FRP from the steel.

Field Joints:

After welding and hydrostatic testing, PVC jacketed straight field joints shall be insulated with polyurethane foam to the thickness specified, PVC sleeve, and pressure-sensitive tape. HDPE jackets will use polyurethane foam and a heat-shrinkable sleeve.

Installation:

No Piping shall be installed in standing water. Trenches shall be maintained dry until final field closure is complete. The installation contractor shall handle the piping system in accordance with the directions furnished by the manufacturer and as approved by the architect and engineer. The carrier piping shall be hydrostatically tested as specified in the contract documents. EXERCISE DUE CARE WHEN INSTALLING AND TESTING THE PIPING SYSTEM. DO NOT TEST WITH AIR OR GAS.

Backfill:

A 4-inch layer of sand or fine gravel shall be placed and tamped in the trench to provide stable and uniform bedding for the FRP system. Once the system is in place, the trenches shall be carefully backfilled with similar material and hand tamped in 6” layers until a minimum of 12” above the top of the pre-insulated pipe has been achieved. The remainder of the backfill shall be void of rocks, frozen earth, and foreign material. The trench shall be compacted to comply with H-20 Highway loading.