SECTION 15017 - FIBERGLASS REINFORCED PIPE

City of San Diego, CWP Guidelines

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

A. The WORK of this Section includes providing fiberglass reinforced piping systems with fiberglass reinforced fittings, complete.

1.2 RELATED SECTIONS

A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

1. Section 15000 Piping Components

1.3 SPECIFICATIONS AND STANDARDS

A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

1.	ASTM D 2310	Classification for Machine-Made Reinforced Thermosetting Resin Pipe
2.	ASTM D 2992	Method for Obtaining Hydrostatic Design Basis for Reinforced Thermosetting Resin Pipe and Fittings
3.	ASTM D 2996	Specification for Filament-Wound Reinforced Thermosetting Resin Pipe.

1.4 SHOP DRAWINGS AND SAMPLES

A. The following shall be submitted in compliance with Section 01300:

1. Detailed information on pipe manufacturing process, including resin, filament winding, and dimensions.

2. Information on joint adhesive.

3. Information and dimensions of pipe fittings.

1.5 SERVICES OF MANUFACTURER

A. **Inspection, Startup, and Field Adjustment**: An authorized representative of the manufacturer shall visit the site to instruct the CONTRACTOR'S employees on handling, installing, and supporting the pipe and assembling joints.

PART 2 - PRODUCTS

2.1 GENERAL

A. **Manufacturing Method**: Fiberglass reinforced pipe (FRP) shall be machine-made, reinforced, thermosetting resin, pressure pipe, manufactured by the filament winding process, conforming to ASTM D 2996 or ASTM D 2310, suitable for exposed or buried service. The pipe shall be made of epoxy resin or vinylester, best suited for the individual application, with continuous glass filaments wound over a resin-rich reinforced liner, with fittings made of the same material.

B. **Design Criteria**:

1.	Size range (inches)	- 1 through 16
2.	Min. liner thickness (in)	- 0.020
3.	Laying length (ft)	- 18 to 30
4.	Temperature rating (degrees F)	- 200 max.
5.	Working pressure rating at 200 degrees F according to ASTM D2992 (psi)	- 150 min.

C. **Joints**: The pipes shall have bell by spigot ends for quick-set adhesive bonded joints, or flanged ends drilled to match ANSI B16.5 drillings. All flanged joints shall have stainless steel bolts and nuts in accordance with Section 05500.

D. **Fittings**: All pipe fittings shall be of fiberglass reinforced, strong, filament-wound construction suitable for adhesive bonded or flanged joints.

2.2 MANUFACTURERS

A. Products of the type indicated shall be manufactured by one of the following (or equal):

1. Bondstrand (Harrington Industrial Plastics, Inc.)

2. Smith Fiberglass (Ryan Herco Industrial Plastics)

PART 3 - EXECUTION

3.1 INSTALLATION

A. **General**: Fiberglass reinforced plastic pipes and fittings shall be installed in accordance with the manufacturer's written instructions.

B. **Expansion**: Sufficient allowance must be made for expansion and contraction, due to the high coefficient of thermal expansion of fiberglass reinforced pipe.

C. **Supports**: Care shall be taken to provide sufficient pipe supports, anchors, and guides to eliminate excessive stress on the piping. Supports shall be installed on each side of valves, strainers, and any other heavy equipment in the pipeline.

D. **Adhesive**: Pipe ends must be shaved clean before applying epoxy adhesive for joints. All adhesive must be fresh to ensure joint integrity.

E. **Tracer**: All buried fiberglass pipes shall be installed with metallic tracer tape attached to the pipe, to facilitate locating the pipe.

F. Any exposed glass fibers due to cutting or drilling of the pipe must be covered with a coat of epoxy. Pipes or fittings with damaged surfaces or exposed glass fibers shall be rejected and replaced.

3.2 FIELD TESTING

A. Unless otherwise indicated, all fiberglass reinforced pipes shall be field tested after installation and before concealment or burying, with a hydraulic test to 150 percent of the maximum working pressure for a period of 4 hours. Any apparent leaks must be corrected and the pipe retested until no further leaks appear.

** END OF SECTION **