SECTION 15053

LIFT STATION PIPING

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A Piping for lift station wet well and valve vault, as shown on the Drawings.

1.02 REFERENCES

A ANSI A21.10, AWWA C110 - Ductile Iron Fittings 3 in. through 48 in., for water and other liquid.

B ANSI B36 - Stainless Steel Pipe.

C AWWA C151 - Ductile Iron Pipe, centrifugally cast in metal molds or sand-lined molds for water or other liquids.

D ANSI A21.15, AWWA C115 - Flanged Ductile Iron Pipe with Threaded Flanges.

E ANSI B16.1 Ductile Iron Pipe Flanges and Flanged Fittings.

F AWWA C111, ANSI A21.11 - Rubber Gasket Joints.

G AWWA C600 - Hydrostatic Testing.

H AWWA C606 - Grooved and Shouldered Joints.

I ANSI B1.1 Screw Threads.

J ASTM A193 - Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

K ASTM A194 - Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service.

1.03 SUBMITTALS

A Submit detailed drawings on pipe, joints, gaskets, fittings, flange coupling adapters, and appurtenances.

B Submit shop drawings indicating dimensions, layout of piping, elevations, intersections, connections, support system, etc.

C Submit manufacturer's Certification of Compliance with ANSI, AWWA and other Standards listed herein.

D Submit description of proposed testing methods, procedures and apparatus and test reports for each system.

1.04 QUALITY ASSURANCE

A Manufacturer's Qualifications

1. Piping and appurtenances provided under this Section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service for at least 5 years.
2. Insofar as possible all piping and appurtenances of the same specific type shall be the product of one (1) manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

A Have products delivered, stored and protected under provisions of Section 01600 Material and Equipment.

PART 2 P R O D U C T S

1.01 MATERIALS

A Ductile Iron Pipe: AWWA C151, Class 53 minimum.

1. Fittings: AWWA C110

2. Joints: Smooth faced ductile iron flanges, AWWA C115 drilled for NASI BIG.1, Class 125 dimension, with threaded flanges and 1/8" thick rubber gaskets.

3. Bolts, studs and nuts: ASTM A-316 stainless steel.

4. Flanges: Same material as pipe and screwed onto the pipe in accordance with ANSI B16.1. Use screwed-on flanges attached to the pipe by the pipe manufacturer or pipe manufacturer's authorized fabricator.

5. After flange attachment, have flange and pipe re-faced so that the end of the pipe is even with the face of the flange and both are perpendicular to the axis of the pipe.

6. All flanged joints shall be hydrostatically tested after fabrication to a pressure rating of 300 psi minimum. All flanged joints shall be marked (Tested at 300 psi) and notarized certification papers supplied to the purchaser.

7. Align bolt holes on both flanges at the end of each piece of pipe.

8. Where cap screws or stud bolts are required, incorporate tapped holes for such cap screws or stud bolts in the flanges.

9. Interior Lining: Coat pipe in accordance with Section 02629 Polyurethane Coatings on Steel or Ductile Iron Pipe. See Table following.

10. Exterior Coating: Coat pipe in accordance with Section 02629 Polyurethane Coatings on Steel or Ductile Iron Pipe. See Table following.

All piping in wet well to be sand blasted and painted according to this Paint Schedule. Color: Forrest Green	Submerged Metals
	Surface Preparation: SSPC-SP-5 White Metal Blast 1st Coat: Amercoat 395 Epoxy*; 5-6 mils. 2nd Coat: Amercoat 395 Epoxy*; 5-6 mils. 3rd Coat: Amercoat 395 Epoxy*; 5-6 mils
All piping in valve pit (gate/plug, check valves, etc.) to be painted according to the Paint Schedule. Color: Brilliant Blue	Non Submerged Metals
	Surface Preparation: SSPC-SP-10 Near White Blast 1st Coat: Dimetcote 21-5 Inorganic Zinc; 3 mils.* 2nd Coat: Amercoat 385 Epoxy; 4 mils.* 3rd Coat: Amershield Urethane; 3 mils.* Min. DFT 10 mils
This also applies to concrete walls in valve pit to be blasted and painted according to paint schedule. Color: Light Buff (Ivory)	Interior Concrete Wet Well Liner
	Surface Preparation: SSPC-SP- 7 Sweep Blast* RAVEN 405 spray applied. 125 mils Min. DFT 100 mils

* or approved equal

11. Performance: Use pipes and fittings designed for an internal working pressure range of -10 to +150 psi.

B Wall Pipes: Ductile iron flanged with water stop collar.
1. Ductile iron water stop collar to be welded on the wall pipe prior to installation of the interior lining.
2. Interior Lining: As specified for pipe in paragraph 2.01A.9.
3. Bolts, studs and nuts: Type 316 stainless steel.

C Flanged Coupling Adapter:
1. Type: Ductile iron; Romac Industries, Style FCA501, Dresser Style 128, or approved equal.
2. Interior Lining: As specified for pipe in paragraph 2.01A.9, or heat-fused epoxy coating complying with AWWA C213.
3. Bolts, studs and nuts: Type 316 stainless steel.

D Grooved Couplings: Grooved couplings conforming to AWWA C606 may be used for exposed piping outside of the wet well.

1. Manufacturers: Gustin-Bacon, Victualic Style 31 (flexible or rigid).
2. Bolts and Nuts: Type 316 Stainless Steel.
3. Gaskets: Flush seal type, compatible with the fluid, according to the manufacturer's recommendations.
4. Pipe Wall Thickness: Wall thickness of grooved piping shall conform to the coupling manufacturer's recommendations to suit the highest expected pressure.
5. Equipment Connections: Equipment connections shall be rigid-type grooved couplings unless thrust restraint is provided by other means.
6. Require the manufacturer to verify correct choice and installation of couplings, gaskets, and workmanship to assure correct installation.

E Air Release Piping: Schedule 40, ANSI B36 stainless steel with ANSI B1.20.1 threaded joints.

E X E C U T I O N

1.02 INSTALLATION

A Check dimensions shown on the Drawings prior to installation of Work. Notify the Owner’s Representative promptly of any conflicts or errors.

B Run pipe lines straight and true in alignment, grade and location as shown on the Drawings.

C Install piping through walls and floors as shown on the Drawings.

1.03 PIPE IDENTIFICATION LABELS

A Label piping as follows:

1. Identify all piping with plastic sleeve snap-on markers equivalent to Seton Name Plate "Setmark" or approved equal with 3/4-inch letters on pipe sizes to 4-inch and 2-inch letters on pipe sizes 5-inches and larger, or approved equal.
2. Locate at each valve, each branch take-off, and at each side of floor or wall through which pipe passes.
3. Not more than one label is required every 12 feet if adjacent label is visible.
4. Place labels on all lines.

1.04 TESTING

A Flush pipes clean. Tighten connections to stop any visible leaks.

B Test piping in accordance with Section 4-Hydrostatic Testing, AWWA C600.

C Test piping to a pressure of 150 percent of the maximum possible discharge pressure of the pumps.

END OF SECTION