Part 1 General

1.1 RELATED SECTIONS

.1 Section 21 05 00 Common Work Results for Mechanical

.2 Section 23 08 02 Cleaning and Start-Up of Mechanical Piping Systems

.3 Section 23 25 00 Water Treatment Systems

1.2 REFERENCES

.1 American Society of Mechanical Engineers (ASME).

.1 ASME B16.3-98, Malleable Iron Threaded Fittings.

.2 ASME B16.5-03, Pipe Flanges and Flanged Fittings.

.3 ASME B16.9-01, Factory-Made Wrought Buttwelding Fittings.

.4 ASME B18.2.1-03, Square and Hex Bolts and Screws (Inch Series).

.5 ASME B18.2.2-87(R1999), Square and Hex Nuts (Inch Series).

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM A53/A53M-02, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless.

.2 ASTM A536-84(1999)e1, Standard Specification for Ductile Iron Castings.

.3 American Water Works Association (AWWA).

.1 AWWA C111-00, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

.4 Canadian Standards Association (CSA International).

.1 CSA B242-M1980(R1998), Groove and Shoulder Type Mechanical Pipe Couplings.

.2 CAN/CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in cooperation with the Canadian Welding Bureau).

.5 Manufacturer's Standardization of the Valve and Fittings Industry (MSS).

.1 MSS-SP-67-025, Butterfly Valves.

.2 MSS-SP-70-98, Cast Iron Gate Valves, Flanged and Threaded Ends.

.3 MSS-SP-71-97, Cast Iron Swing Check Valves Flanged and Threaded Ends.

.4 MSS-SP-80-03, Bronze Gate, Globe, Angle and Check Valves.

.5 MSS-SP-85-02, Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

1.3 SUBMITTALS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Closeout Submittals.

.1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

.1 Health and Safety.

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal.

.1 Separate waste materials in accordance with Section01 74 21 - Construction/Demolition Waste Management And Disposal.

1.6 MAINTENANCE

.1 Extra Materials.

.1 Provide following spare parts:

.1 Valve seats: one for every ten valves, each size. Minimum one.

.2 Discs: one for every ten valves, each size. Minimum one.

.3 Stem packing: one for every ten valves, each size. Minimum one.

.4 Valve handles: two of each size.

.5 Gaskets for flanges: one for every ten flanges.

Part 2 Products

2.1 PIPE

.1 Steel pipe: to ASTM A53/A53M, Grade B, as follows:

.1 To NPS6: schedule 40 seamless

2.2 PIPE JOINTS

.1 NPS2 and under: screwed fittings with PTFE tape or lead-free pipe dope.

.2 NPS2-1/2 and over: welding fittings and flanges to CAN/CSA W48.

.3 Flanges: plain or raised face, slip-on weld neck to AWWA C111.

.4 Orifice flanges: slip-on raised face, 2100 kPa.

.5 Flange gaskets: to AWWA C111.

.6 Pipe thread: taper.

.7 Bolts and nuts: to ASME B18.2.1 and ASME B18.2.2.

.8 Roll grooved coupling gaskets: type EPDM.

2.3 FITTINGS

.1 Screwed fittings: malleable iron, to ASME B16.3, Class 150.

.2 Pipe flanges and flanged fittings:

.1 Cast iron: to ASME B16.1, Class 125.

.2 Steel: to ASME B16.5.

.3 Butt-welding fittings: steel, to ASME B16.9.

.4 Unions: malleable iron, to ASTM A47/A47M and ASME B16.3.

.5 Fittings for roll grooved piping: malleable iron to ASTM A47/A47M ductile iron to ASTM A536.

2.4 VALVES

.1 Connections:

.1 NPS2 and smaller: screwed ends.

.2 NPS2.1/2 and larger: Flanged ends.

.2 Gate valves: to MSS-SP-70 to MSS-SP-80 Application: Isolating equipment, control valves and pipelines:

.1 NPS2 and under:

.1 Class 125, rising stem, wedge disc.

.2 NPS21/2 and over:

.1 Rising stem, wedge disc, bronze trim,

.3 Butterfly valves: to MSS-SP-67 Application: Isolating cells or section of multiple component equipment

.1 NPS21/2 and over: Lug type

.4 Globe valves: to MSS-SP-85 Application: Throttling, flow control and emergency bypass:

.1 NPS2 and under:

.1 Globe, with composition disc.

.2 NPS21/2 and over:

.1 With composition bronze disc, lead free bronze trim.

.5 Balancing, for TAB:

.1 Sizes: Calibrated balancing valves, as specified this section.

.2 NPS2 and under:

.1 Globe, with plug disc.

.6 Drain valves: Gate, Class 125, non-rising stem, solid wedge disc.

.7 Bypass valves on gate valves.

.8 Swing check valves: to MSS-SP-71.

.1 NPS2 and under:

.1 Class 125, swing, with composition disc.

.2 NPS21/2 and over:

.1 Flanged ends.

.9 Silent check valves:

.1 NPS21/2 and over:

.1 Flanged ends.

.10 Ball valves:

.1 Flanged ends.

.11 Lubricated Plug Valves

.1 Flanged ends.

Part 3 Execution

3.1 PIPING INSTALLATION

.1 Install pipework as indicated.

END OF SECTION