SECTON 21 11 00 - FACILITY FIRE-SUPPRESSION WATER-SERVICE PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water pipe.
B. Valves.
C. Fire department connections.
D. Private fire hydrants.
E. Bedding and cover materials.
F. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete.
B. Section 21 13 00 - Fire-Suppression Sprinkler Systems.
C. Section 31 23 16 - Excavation.
D. Section 31 23 16.13 - Trenching.
E. Section 31 23 23 - Fill.
F. Section 33 05 13 - Manholes and Structures.
G. Section 33 14 16 - Site Water Utility Distribution Piping.

1.03 REFERENCE STANDARDS

B. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250 2016.
L. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution 2016.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data:
   1. Include data on pipe materials, pipe fittings, valves, and accessories.
   2. Provide manufacturer's catalog information.
   3. Indicate valve data and ratings.
   4. Show grooved joint couplings, fittings, valves, and specialties on drawings and product submittals, specifically identified with the manufacturer's style or series designation.

PART 2 PRODUCTS

2.01 WATER PIPE

   2. Joints: AWWA C111/A21.11, styrene butadiene rubber (SBR) or vulcanized SBR rubber gasket with 3/4 inch (19 mm) diameter rods.

B. PVC Pipe: Listed, AWWA C900 Class 100:
   1. Fittings: AWWA C111/A21.11, cast iron.

2.02 VALVES

A. Valves: Manufacturer's name and pressure rating marked on valve body.
B. Water Pressure Reducing Valves:
   1. 1-1/2 NPS (40 DN) up to and including 8 NPS (200 DN):
a. Function: Reduce higher inlet pressure to an adjustable, constant lower outlet pressure independent of flow rate fluctuations.

b. Pilot-Operated Type: External pilot control.

C. Double Check Detector Valve Assembly, Flanged End:

1. 2-1/2 NPS (65 DN) up to and including 10 NPS (250 DN):

   a. Construction:
      1) Listed.
      2) Body: 300 Series stainless steel, ASTM A536 Grade 65-45-12 ductile iron or [______].
      3) Two independently operating, spring-loaded, check valves.
      4) Two OSY resilient seated gate valves.
      5) Bypass Assembly:
         (a) Bypass Line: Hydraulically sized to accurately measure low flow.
         (b) Double check including shut-off valves, and required cocks.
         (c) Meter with [_____] gallon ([_____] cu ft) readout.
      6) Cam-Check:
         (a) Internally loaded providing positive, drip-tight closure against reverse flow.
         (b) Stainless steel cam arm and spring, rubber faced disc, and replaceable, thermoplastic seat.
      7) Valve Cover:
         (a) Provides access to all internal parts.
         (b) Held in place through the use of a single grooved style two-bolt coupling.

2.03 FIRE DEPARTMENT CONNECTIONS:

A. Free-Standing Inlet:

   1. Construction:
      a. Listed.
      b. Type: Free standing type, ASTM B584 poured brass alloy.
c. Inlets: Two way, 2-1/2 inch (65 DN) female inlets, thread size compatible with fire department hardware.

d. Rated Working Pressure: 175 psi (1200 kPa).

e. Double clapper-valves, rocker-lug caps and chain, and cast-in function-identifying lettering.


g. Label: Sprinkler - Fire Department Connection.

2.04 PRIVATE FIRE HYDRANTS

A. Dry-Barrel:

1. Construction:

   a. Listed, AWWA C502 and [_______].


   c. Compression type, opening against system pressure and closing with system pressure.

   d. Traffic breakaway type.

2. Hydrant Cap and Stuffing Box: One piece design with water-tight cavity, sealed from contact with water.

3. Operating Nut: One-Piece, bronze construction with protective weather seal, shield or [______].

4. Nozzles: Tamper resistant, 1/4 turn type with O-ring seals including retaining/locking screws, other suitable nozzle lock or [_________] to prevent inadvertent removal.

5. Main Valve: Provide reinforced, synthetic rubber, completely encapsulated with EPDM or [____________________].

6. Seat: Provide O-rings to seal drain-way and barrel from water leakage into shoe.

7. Drains to momentarily flush outward when opened to remove debris and complete draining upon closing of the main valve.

2.05 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type specified in Section 03 30 00.

B. Tracer Wire:
1. Provide magnetic, detectable conductor with clear plastic covering and imprinted with "Water Service" in large letters.

2. Conductor to be of sufficient length to be continuous over each separate run of nonmetallic pipe.

END OF SECTION  21 11 00