

DIVISION II  
TECHNICAL SPECIFICATIONS  
SECTION S-003  
SANITARY SEWER FORCE MAIN SYSTEM

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## **I. DESCRIPTION:**

All “sewer force main” work shall be performed in total conformance with Jefferson Parish standards, requirements, and as per materials manufacturer’s requirements and recommendations.

All work associated with the sewer force main system shall be performed under this section (S-003) and to the lines and grades shown on plans.

This work will include furnishing and constructing the sewer force main and appurtenances as indicated on the drawings and in accordance with the provisions of the Jefferson Parish Department of Engineering and the Specifications herein. Where the word “pipe” and/or “sewer force main” are used it shall refer to pipe, fittings, or appurtenances unless otherwise noted.

The Contractor shall furnish all labor, equipment and materials required to perform all work required for removal of existing sewer force main and for installation of new sewer force mains. Removal and installation, replacement or relocation shall be as indicated on the drawings and specified herein. Damage to any sewer force main by the Contractor, subcontractors, material and equipment suppliers or other persons, prior to acceptance, shall be repaired by the Contractor to the satisfaction of the Engineer and Owner at the expense of the Contractor.

The drawings attempt to indicate the alignment of all known sewer force mains within the limits of the work. However, the Contractor shall be responsible to inspect the entire project to verify all existing sewer force mains and to determine the existence of any additional conflicts with his work. The location of proposed sewer force mains may be field adjusted, with prior approval from the Jefferson Parish Department of Engineering, to avoid conflicts with other utilities.

## **II. COORDINATION:**

Removal and replacement or relocation of sewer force main shall be done in close coordination with the Owner. Removal and replacement or relocation work shall be planned in advance so that inconvenience to the Owner and utility users caused by the disruption of service is minimized. The contractor shall be responsible for immediately notifying the Owner and Engineer of existing conditions that differ from that shown on the plans.

### **III. CONSTRUCTION LAYOUT:**

The Contractor will be responsible for establishing all lines and grades and staking out all “Sewer Force Main” work on this project from controls provided in the construction documents. There shall be no separate payment for construction layout related to the “Sewer Force Main System”.

### **IV. MATERIALS:**

All materials shall be as specified in Jefferson Parish Standard Notes (Appendix “B”) and Drawings and as specified herein. All PVC Sewer Force Mains shall be green. All ductile iron Sewer Force Mains, pipes and fittings, shall have “Protecto 401 Ceramic Epoxy Lining”.

### **V. EXECUTION:**

#### **A. GENERAL**

1. Pipe, fittings, and accessories shall be handled in a manner that will insure installation in sound, undamaged condition. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage the pipe and fittings. Hooks inserted in ends of pipe shall have broad, well-padded contact surfaces.
2. All pipe coatings which have been damaged shall be repaired by the Contractor before installing the pipe. Any such repairs shall be done in total conformance with the manufacturer’s requirements and recommendations and shall require prior approval from the Jefferson Parish Department of Engineering.
3. The sewer force main system installation shall be done with pipe sections and fittings such that pipe cutting is not required. Should pipe cutting be required, cutting shall be done in a neat manner, without damage to the pipe or to the lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners.

4. All cutting of ductile iron pipe shall be done with mechanical pipe cutters except where the use of mechanical cutters would be difficult or impracticable. Ends of ductile iron pipe shall be cut with a saw, abrasive wheel, or oxyacetylene torch. Field cut holes for saddles shall be cut with mechanical cutters; oxyacetylene cutting will not be permitted. The cut end of any ductile iron pipe shall be treated in accordance with the Protecto 401 requirements and procedures.
5. Precautions shall be taken to prevent foreign material from entering the pipe during installation. Debris, tools, clothing, or other materials shall not be placed in or allowed to enter the pipe.
6. A representative of the Jefferson Parish Engineering Department shall be present or be given the chance to inspect all sewer force main items, installed, prior to backfill.

### **B. TRENCHING**

1. Excavation work shall be performed in a safe and proper manner with appropriate precautions being taken against all hazards. As always, Trench Safety shall remain the contractor's responsibility at all times.
2. Excavate and maintain trenches to the indicated or required depth and width. Provide minimum of 12" clearance on both sides of pipe or conduit.
3. Protect excavations, if necessary, by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
4. Notify the Engineer and the Jefferson Parish Department of Engineering of any undesirable, unexpected subsurface conditions and discontinue work in affected area until notification to resume work.
5. Grade excavation top perimeter to prevent surface water run-off into excavation.
6. Hand trim excavation and leave free of loose matter.
7. Correct unauthorized excavation at no cost to Owner.

### **C. BACKFILL**

1. Backfill material shall be Mississippi River "pumped sand", AASHTO A-4 or better having a maximum liquid limit of 25 and a maximum plasticity index of 6. All sands shall be free

of trash, weeds, lumps, humus, pieces of wood or any other deleterious material. Backfill material shall have a group index number not to exceed 6.

2. Support pipe and conduit during placement and compaction of pipe backfill.
3. Document and photograph every fitting, restraint device, valves, etc. prior to backfill.
4. A representative of the Jefferson Parish Engineering Department shall inspect all installed sewer force main items prior to backfill.

#### **D. CONNECTION TO EXISTING PIPING**

1. A representative from the Jefferson Parish Engineering Department must be present during all work being done at the tie-in points.
2. All tie-ins to the existing sewer force main shall be done by the Contractor.
3. All tie-in locations shall be excavated and existing piping shall be investigated (material type, size, outside diameter, condition, photograph, etc.) prior to ordering material and equipment, and especially prior to the cutting of the existing pipe.
4. Connections between new work and existing piping shall be made using fittings suitable for the conditions encountered and as indicated on the drawings.
5. Each connection to an existing pipe shall be made at a time and under conditions which will least interfere with service to customers, and as authorized by the Owner.
6. Facilities shall be provided for proper dewatering and for disposal of all water/sewage removed from the dewatered lines and excavations without damage to adjacent properties.

#### **E. REMOVAL AND DISPOSAL OF EXISTING "AC" SEWER FORCE MAIN**

Removal and disposal of Existing "AC" sewer force mains shall be in accordance with all applicable local and federal regulations and requirements.

#### **F. ABANDONMENT OF EXISTING SEWER FORCE MAINS**

All abandoned pipes shall be filled with Flowable Fill. Flowable fill shall be per DOTD Standard Specifications for Roads and Bridges section 710.

## **G. PIPELINE TESTING**

Except as modified or otherwise provided herein, the pressure and leakage testing of all sewer force mains shall conform to the requirements of Jefferson Parish and AWWA C600.

## **VI. DEVIATION FROM JEFFERSON PARISH STANDARDS**

None

## **VII. MEASUREMENT AND PAYMENT:**

1. **Payment** for this work will be made after receipt of approval from the Jefferson Parish Department of Engineering.

The price and payment shall constitute full compensation for furnishing all labor, materials, and equipment to construct the sewer force main including trenching, bedding, pipe laying, backfill, tie-ins to existing sewer force mains, pressure testing mains and all incidental work necessary for a complete and functional sewer force main system.

2. **Sewer Force Mains** shall be measured along the centerline of pipeline in place, through fittings, and shall be paid for per linear feet. This method of Measurement and Payment shall apply to all sewer force mains despite of the material type; PVC, Ductile Iron, HDPE, etc. and/or installation method; Open Trench, Jack and Bore (J&B), Directional Drill (DD), etc. An alternative for measurement and payment for Directional Drill would be to be measured horizontally. *{[Non Open Trench Item Numbers shall be accompanied with an extension to identify the method of installation (e.g. the item number for an 8" HDPE pipe being installed by Directional Drilling shall be: "SF-308-DD")], [Thickness class 52 Ductile Iron pipe items shall be accompanied with extension "C52"]}*.
3. **Existing AC Sewer Force Mains** which shall be removed and disposed of shall be measured horizontally through fittings and valves along the centerline of pipeline and shall be paid for per linear feet of pipe, for specific size, removed and disposed. In case the contractor encounters AC pipes larger than the size that is in his contract, he shall be compensated 10%, per size, in addition to his bid price for smaller size pipe.

4. **Existing Sewer Force Mains** which shall be abandoned shall be measured horizontally through fittings and valves along the centerline of pipeline and shall be paid for per linear feet of pipe abandoned, regardless of size. There shall be no additional compensation or credit for different size sewer force mains than shown on plans under this item unless otherwise specified.
5. There shall be no direct payment for non-AC pipe removal and disposal unless otherwise specified.
6. **Gate, Plug and Butterfly Valves and Valves Boxes** where shown or required in accordance with Jefferson Parish Standards, shall be measured and paid for per each for specific size.
7. **Ductile Iron Fittings (Fittings)**, to include bends, crosses, tees, reducers and any other required part to make sound and functional connections shall be measured and paid for per pound.
8. **Pipe Restraints** shall be measured and paid for per each joint restrained for specific size. Pipe restraints shall mean any external device or devices that are used to restrain a joint by locking the joint into place so the joint cannot open, move, or turn. A flanged joint shall be considered a restrained joint and shall be measured and paid for as one.
9. **Transitional Couplings** shall be measured and paid for per each for a specific size in place. Measurement and Payment for Transitional Couplings shall be made at the Contract unit price per each and shall include full compensation for providing all labor, materials, equipment, excavation, bedding and backfill, board foundation, etc. and Connection (Tie-in) to Existing Sewer Force Main per all applicable Jefferson Parish and Manufactures Standards.
10. There shall be no direct payment for tie-ins, unless otherwise specified.
11. **Check Valves** where shown or required in accordance with Jefferson Parish Standards (see Appendix “B”), shall be measured and paid for per each for specific size.
12. **Price Brothers Adapters** shall be measured and paid for per each for a specific size in place. Measurement and Payment for Price Brothers Adapters shall be made at the Contract unit price per each and shall include full compensation for providing all labor, materials, equipment, excavation, bedding and backfill, board foundation, etc. and Connection (Tie-in) to Existing Force Main per all applicable Jefferson Parish and Manufacture’s Standards.
13. **Price Brothers Pipe Joint Field Welding** shall be measured and paid for per each, for a specific size of sewer force main, in place. Measurement and Payment for Price Brothers Pipe Joint Field Welding shall be made at the Contract unit price per each and shall include full

compensation for providing all labor, materials, equipment, excavation, bedding and backfill, board foundation, etc. All pipe joints shall receive a full, 360 degrees circumferential weld in accordance with the latest applicable Jefferson Parish, AWWA (AWWA c206, etc.) and Manufacture's Standards, Recommendations, and Requirements.



## VIII. TABULATED GENERAL JEFFERSON PARISH PAY ITEMS

<u>Item No.</u>	<u>Item Description (Pay Item)</u>	<u>Unit of Measure (Pay Unit)</u>
<b>a) 100 SERIES, PVC PIPES</b>		
SF-104	Sewer Force Main (4") (PVC/C-900 Pipe)	Linear Foot
SF-106	Sewer Force Main (6") (PVC/C-900 Pipe)	Linear Foot
SF-108	Sewer Force Main (8") (PVC/C-900 Pipe)	Linear Foot
SF-110	Sewer Force Main (10") (PVC/C-900 Pipe)	Linear Foot
SF-112	Sewer Force Main (12") (PVC/C-900 Pipe)	Linear Foot
SF-114	Sewer Force Main (14") (PVC/C-905 Pipe)	Linear Foot
SF-116	Sewer Force Main (16") (PVC/C-905 Pipe)	Linear Foot
SF-118	Sewer Force Main (18") (PVC/C-905 Pipe)	Linear Foot
SF-120	Sewer Force Main (20") (PVC/C-905 Pipe)	Linear Foot
SF-124	Sewer Force Main (24") (PVC/C-905 Pipe)	Linear Foot
SF-130	Sewer Force Main (30") (PVC/C-905 Pipe)	Linear Foot

<b>b) 200 SERIES, DUCTILE IRON PIPES</b>		
SF-204	Sewer Force Main (4") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-206	Sewer Force Main (6") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-208	Sewer Force Main (8") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-210	Sewer Force Main (10") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-212	Sewer Force Main (12") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-214	Sewer Force Main (14") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-216	Sewer Force Main (16") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-218	Sewer Force Main (18") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-220	Sewer Force Main (20") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-224	Sewer Force Main (24") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-230	Sewer Force Main (30") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-236	Sewer Force Main (36") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-242	Sewer Force Main (42") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-248	Sewer Force Main (48") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-254	Sewer Force Main (54") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-260	Sewer Force Main (60") (Ductile Iron Pipe-Protecto 401)	Linear Foot
SF-264	Sewer Force Main (64") (Ductile Iron Pipe-Protecto 401)	Linear Foot

**c) 300 SERIES, HDPE PIPES**

SF-304	Sewer Force Main (4") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-306	Sewer Force Main (6") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-308	Sewer Force Main (8") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-310	Sewer Force Main (10") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-312	Sewer Force Main (12") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-314	Sewer Force Main (14") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-316	Sewer Force Main (16") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-318	Sewer Force Main (18") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-320	Sewer Force Main (20") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-324	Sewer Force Main (24") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-330	Sewer Force Main (30") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-336	Sewer Force Main (36") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-304-DD	Sewer Force Main (4") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-306-DD	Sewer Force Main (6") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-308-DD	Sewer Force Main (8") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-310-DD	Sewer Force Main (10") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-312-DD	Sewer Force Main (12") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-314-DD	Sewer Force Main (14") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-316-DD	Sewer Force Main (16") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-318-DD	Sewer Force Main (18") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-320-DD	Sewer Force Main (20") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-324-DD	Sewer Force Main (24") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-330-DD	Sewer Force Main (30") (HDPE Pipe) [DR ____ ]	Linear Foot
SF-336-DD	Sewer Force Main (36") (HDPE Pipe) [DR ____ ]	Linear Foot

**d) 400 SERIES, GATE VALVES (DOUBLE DISC)**

SF-404	Gate Valve and Valve Box (4")	Each
SF-406	Gate Valve and Valve Box (6")	Each
SF-408	Gate Valve and Valve Box (8")	Each
SF-410	Gate Valve and Valve Box (10")	Each
SF-412	Gate Valve and Valve Box (12")	Each
SF-414	Gate Valve and Valve Box (14")	Each
SF-416	Gate Valve and Valve Box (16")	Each
SF-418	Gate Valve and Valve Box (18")	Each
SF-420	Gate Valve and Valve Box (20")	Each
SF-424	Gate Valve and Valve Box (24")	Each
SF-430	Gate Valve and Valve Box (30")	Each
SF-436	Gate Valve and Valve Box (36")	Each

SF-442	Gate Valve and Valve Box (42")	Each
SF-448	Gate Valve and Valve Box (48")	Each

**e) 500 SERIES, PLUG VALVES**

SF-504	Plug Valve and Valve Box (4")	Each
SF-506	Plug Valve and Valve Box (6")	Each
SF-508	Plug Valve and Valve Box (8")	Each
SF-510	Plug Valve and Valve Box (10")	Each
SF-512	Plug Valve and Valve Box (12")	Each
SF-514	Plug Valve and Valve Box (14")	Each
SF-516	Plug Valve and Valve Box (16")	Each
SF-518	Plug Valve and Valve Box (18")	Each
SF-520	Plug Valve and Valve Box (20")	Each
SF-524	Plug Valve and Valve Box (24")	Each
SF-530	Plug Valve and Valve Box (30")	Each
SF-536	Plug Valve and Valve Box (36")	Each
SF-542	Plug Valve and Valve Box (42")	Each
SF-548	Plug Valve and Valve Box (48")	Each

**f) 600 SERIES, TAPPING & VALVE ASSEMBLY**

SF-604X4	Tapping Sleeve & Valve Assembly (4"X4")	Each
SF-606X4	Tapping Sleeve & Valve Assembly (6"X4")	Each
SF-606X6	Tapping Sleeve & Valve Assembly (6"X6")	Each
SF-608X4	Tapping Sleeve & Valve Assembly (8"X4")	Each
SF-608X6	Tapping Sleeve & Valve Assembly (8"X6")	Each
SF-608X8	Tapping Sleeve & Valve Assembly (8"X8")	Each
SF-610X4	Tapping Sleeve & Valve Assembly (10"X4")	Each
SF-610X6	Tapping Sleeve & Valve Assembly (10"X6")	Each
SF-610X8	Tapping Sleeve & Valve Assembly (10"X8")	Each
SF-610X10	Tapping Sleeve & Valve Assembly (10"X10")	Each
SF-612X4	Tapping Sleeve & Valve Assembly (12"X4")	Each
SF-612X6	Tapping Sleeve & Valve Assembly (12"X6")	Each
SF-612X8	Tapping Sleeve & Valve Assembly (12"X8")	Each
SF-612X10	Tapping Sleeve & Valve Assembly (12"X10")	Each
SF-612X12	Tapping Sleeve & Valve Assembly (12"X12")	Each
SF-614X4	Tapping Sleeve & Valve Assembly (14"X4")	Each
SF-614X6	Tapping Sleeve & Valve Assembly (14"X6")	Each
SF-614X8	Tapping Sleeve & Valve Assembly (14"X8")	Each
SF-614X10	Tapping Sleeve & Valve Assembly (14"X10")	Each
SF-614X12	Tapping Sleeve & Valve Assembly (14"X12")	Each

SF-616X4	Tapping Sleeve & Valve Assembly (16"X4")	Each
SF-616X6	Tapping Sleeve & Valve Assembly (16"X6")	Each
SF-616X8	Tapping Sleeve & Valve Assembly (16"X8")	Each
SF-616X10	Tapping Sleeve & Valve Assembly (16"X10")	Each
SF-616X12	Tapping Sleeve & Valve Assembly (16"X12")	Each
SF-616X16	Tapping Sleeve & Valve Assembly (16"X16")	Each
SF-618X4	Tapping Sleeve & Valve Assembly (18"X4")	Each
SF-618X6	Tapping Sleeve & Valve Assembly (18"X6")	Each
SF-618X8	Tapping Sleeve & Valve Assembly (18"X8")	Each
SF-618X10	Tapping Sleeve & Valve Assembly (18"X10")	Each
SF-618X12	Tapping Sleeve & Valve Assembly (18"X12")	Each
SF-618X16	Tapping Sleeve & Valve Assembly (18"X16")	Each
SF-620X4	Tapping Sleeve & Valve Assembly (20"X4")	Each
SF-620X6	Tapping Sleeve & Valve Assembly (20"X6")	Each
SF-620X8	Tapping Sleeve & Valve Assembly (20"X8")	Each
SF-620X10	Tapping Sleeve & Valve Assembly (20"X10")	Each
SF-620X12	Tapping Sleeve & Valve Assembly (20"X12")	Each
SF-620X16	Tapping Sleeve & Valve Assembly (20"X16")	Each
SF-624X4	Tapping Sleeve & Valve Assembly (24"X4")	Each
SF-624X6	Tapping Sleeve & Valve Assembly (24"X6")	Each
SF-624X8	Tapping Sleeve & Valve Assembly (24"X8")	Each
SF-624X10	Tapping Sleeve & Valve Assembly (24"X10")	Each
SF-624X12	Tapping Sleeve & Valve Assembly (24"X12")	Each
SF-624X16	Tapping Sleeve & Valve Assembly (24"X16")	Each
SF-630X4	Tapping Sleeve & Valve Assembly (30"X4")	Each
SF-630X6	Tapping Sleeve & Valve Assembly (30"X6")	Each
SF-630X8	Tapping Sleeve & Valve Assembly (30"X8")	Each
SF-630X10	Tapping Sleeve & Valve Assembly (30"X10")	Each
SF-630X12	Tapping Sleeve & Valve Assembly (30"X12")	Each
SF-630X16	Tapping Sleeve & Valve Assembly (30"X16")	Each

**g) 700 SERIES, PIPE RESTRAINTS**

SF-704	Pipe Restraints (4")	Each
SF-706	Pipe Restraints (6")	Each
SF-708	Pipe Restraints (8")	Each
SF-710	Pipe Restraints (10")	Each
SF-712	Pipe Restraints (12")	Each
SF-714	Pipe Restraints (14")	Each
SF-716	Pipe Restraints (16")	Each

SF-718	Pipe Restraints (18")	Each
SF-720	Pipe Restraints (20")	Each
SF-724	Pipe Restraints (24")	Each
SF-730	Pipe Restraints (30")	Each
SF-736	Pipe Restraints (36")	Each
SF-742	Pipe Restraints (42")	Each

#### **h) 800 SERIES, TRANSITIONAL COUPLINGS**

SF-804	Transitional Couplings (4")	Each
SF-806	Transitional Couplings (6")	Each
SF-808	Transitional Couplings (8")	Each
SF-810	Transitional Couplings (10")	Each
SF-812	Transitional Couplings (12")	Each
SF-814	Transitional Couplings (14")	Each
SF-816	Transitional Couplings (16")	Each
SF-818	Transitional Couplings (18")	Each
SF-816-PB	Price Bros. Adaptor Kit (16")	Each
SF-818-PB	Price Bros. Adaptor Kit (18")	Each
SF-820-PB	Price Bros. Adaptor Kit (20")	Each
SF-830-PB	Price Bros. Adaptor Kit (30")	Each
SF-836-PB	Price Bros. Adaptor Kit (36")	Each
SF-842-PB	Price Bros. Adaptor Kit (42")	Each
SF-848-PB	Price Bros. Adaptor Kit (48")	Each
SF-854-PB	Price Bros. Adaptor Kit (54")	Each
SF-860-PB	Price Bros. Adaptor Kit (60")	Each
SF-866-PB	Price Bros. Adaptor Kit (66")	Each
SF-872-PB	Price Bros. Adaptor Kit (72")	Each

#### **i) 900 SERIES, MISCELLANEOUS**

SF-901	Ductile Iron Fittings (Protecto 401)	Pounds
SF-902-1	Combination Air and Vacuum Release Valve (1")	Each
SF-902-2	Combination Air and Vacuum Release Valve (2")	Each
SF-903	Air and Vacuum Release Valve Manhole	Each
SF-904-2	Check Valve (2")	Each
SF-904-4	Check Valve (4")	Each

SF-904-6	Check Valve (6")	Each
SF-904-8	Check Valve (8")	Each
SF-904-10	Check Valve (10")	Each
SF-904-12	Check Valve (12")	Each
SF-904-14	Check Valve (14")	Each
SF-904-16	Check Valve (16")	Each
SF-904-18	Check Valve (18")	Each
SF-904-20	Check Valve (20")	Each
SF-904-24	Check Valve (24")	Each
SF-904-30	Check Valve (30")	Each
SF-904-36	Check Valve (36")	Each
SF-904-42	Check Valve (42")	Each
SF-904-48	Check Valve (48")	Each

SF-907-4	Removal & Disposal of Existing AC Sewer Force Main (4")	Linear Foot
SF-907-6	Removal & Disposal of Existing AC Sewer Force Main (6")	Linear Foot
SF-907-8	Removal & Disposal of Existing AC Sewer Force Main (8")	Linear Foot
SF-907-10	Removal & Disposal of Existing AC Sewer Force Main (10")	Linear Foot
SF-907-12	Removal & Disposal of Existing AC Sewer Force Main (12")	Linear Foot
SF-907-14	Removal & Disposal of Existing AC Sewer Force Main (14")	Linear Foot
SF-907-16	Removal & Disposal of Existing AC Sewer Force Main (16")	Linear Foot
SF-907-18	Removal & Disposal of Existing AC Sewer Force Main (18")	Linear Foot
SF-907-20	Removal & Disposal of Existing AC Sewer Force Main (20")	Linear Foot

SF-908	Abandonment of Existing Sewer Force Main	Linear Foot
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SF-909-16	Price Brothers Pipe Joint Field Welding (16")	Each
SF-909-18	Price Brothers Pipe Joint Field Welding (18")	Each
SF-909-20	Price Brothers Pipe Joint Field Welding (20")	Each
SF-909-24	Price Brothers Pipe Joint Field Welding (24")	Each
SF-909-30	Price Brothers Pipe Joint Field Welding (30")	Each
SF-909-36	Price Brothers Pipe Joint Field Welding (36")	Each
SF-909-42	Price Brothers Pipe Joint Field Welding (42")	Each
SF-909-48	Price Brothers Pipe Joint Field Welding (48")	Each
SF-909-54	Price Brothers Pipe Joint Field Welding (54")	Each
SF-909-60	Price Brothers Pipe Joint Field Welding (60")	Each
SF-909-66	Price Brothers Pipe Joint Field Welding (66")	Each
SF-909-72	Price Brothers Pipe Joint Field Welding (72")	Each