

Section 02512

WATER TAP AND SERVICE LINE INSTALLATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tapping existing mains and furnishing and installing new service lines for water.
- B. Relocation of existing small water meters.
- C. Specifications identify requirements for both small-diameter (less than or equal to 20 inches) water lines and large-diameter (greater than 20 inches) water lines. When specifications for large-diameter water lines differ from those for small-diameter water lines, paragraphs for large-diameter water lines will govern for large-diameter pipe.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for water taps and poly service lines: ¾ inch through 2 inch is on unit price basis for each installation.
 - 2. Payment for water taps and service lines 12 inch through 2 inch is on unit price basis for each installation.
 - 3. Payment for installation includes locating water line, tap installation and connection to meter and restoring site.
 - 4. Payment for each small meter includes labor, materials, and equipment to relocate existing small meter.
 - 5. No additional payment will be made for bedding, backfill, compaction, push under pavement, etc.
 - 6. Refer to Section 01270 - Measurement and Payment for unit price procedures
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 REFERENCES

- A. AWWA C 800 - Standard for Underground Service Line Valves and Fittings.

2. AWWA C 900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in., for Water Distribution.

1.04 DEFINITIONS

- A. Short Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on same side of street.
- B. Long Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on opposite side of street or from center of streets where supply line is located in street center such as boulevards and streets with esplanades. Distance not to exceed 60 linear feet (at right angles to water line).
3. Extra Long Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on opposite side of street or from center of streets where supply line is located in street center such as boulevards and streets with esplanades. Distance greater than or equal to 60 linear feet (at right angles to water line).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Copper Tubing: In accordance with Section 02503 - Copper Tubing. Polybutylene tubing is not permitted.
- B. Corporation Stops: AWWA C 800 as modified in this Section:
 1. Inlet End: AWWA standard thread
 2. Valve Body: Tapered plug type, O-ring seat ball type, or rubber seat ball type
 3. Outlet End: Flared-copper connection for use with Type K, soft copper or compression type fitting
- C. Provide taps for water line types and sizes in accordance with pipe tapping schedule located at end of this Section.
- D. Dual Strap Saddles: Red brass body and straps; ductile-iron; vinyl-coated body and straps; or ductile-iron, vinyl-coated body and stainless-steel straps.
- E. Taps for PVC Water Lines: Use dual-strap or single, wide-band strap saddles which provide full support around circumference of pipe and bearing area of sufficient width along axis of pipe, 2 inches minimum, ensuring that pipe will not be distorted when saddle is tightened. Romac Series 101N wide-band, stainless steel tapping saddle with AWWA standard thread (Mueller thread), or approved equal.

- F. Taps for Steel Pipe: Not allowed, unless specifically approved by City Engineer. Use saddle only when tap is approved on steel pipe.
- G. Curb Stops and Brass Fittings: AWWA C 800 as modified in this Section.
 - 1. Inlet End: Flared copper connection or compression-type fitting
 - 2. Valve Body: Straight-through or angled, meter-stop design equipped with following:
 - a. O-ring seal straight plug type
 - b. Rubber seat ball type
 - 3. Outlet End: Female, iron-pipe thread or swivel-nut, meter-spud thread on 1/2-inch and 1-inch stops and 2-hole flange on 12 and 2-inch sizes.
 - 4. Fittings: Mueller or approved equal. Use same size open-end wrenches and tapping machines as used with respective Mueller fittings.
 - 5. Factory Testing of Brass Fittings:
 - a. Submerge in water for 10 seconds at 85 psi with stop in both closed and open positions.
 - b. Reject fitting that shows air leakage. City Engineer may confirm tests locally. Entire lot from which samples were taken will be rejected when random sampling discloses unsatisfactory fittings.
- H. Angle Stops: In accordance with AWWA C 800; ground-key, stop type with bronze lock-wing head stop cap; inlet and outlet threads conform to application tables of AWWA C 800; and inlets flared connection or Mueller 110 compression.
 - 1. Outlet for 1/2-inch and 1-inch size: Meter swivel nut with saddle support.
 - 2. Outlet for 12-inch through 2-inch size: O-ring sealed meter flange, iron pipe threads.
- I. Fittings: In accordance with AWWA C 800 and following:
 - 1. Castings: Smooth, free from burrs, scales, blisters, sand holes, and defects which would make them unfit for intended use.
 - 2. Nuts: Smooth cast and have symmetrical hexagonal wrench flats.
 - 3. Flare-Joint Fittings: Smooth cast. Machine seating surfaces for metal-to-metal seal to proper taper or curve, free from pits or protrusions.

4. Thread fittings, of all types, shall have N.P.T. or AWWA threads, and protect male threaded ends in shipment by plastic coating, or approved equal.
5. Compression tube fittings shall have Buna-N beveled gasket.
6. Stamp of manufacturer's name or trademark and of fitting size on body.

PART 3 EXECUTION

3.01 GENERAL

- A. For service lines and lateral connections larger than those allowed in Pipe Tapping Schedule, branch connections and multiple taps may be used. Space corporation stops minimum of 2 feet apart.
- B. Tapped collars of appropriate sizes: Approved in new construction only provided they are set at right angles to proposed meter location.
- C. Use tapping machine manufactured for pressure tapping purposes for 2-inch and smaller service taps on pressurized water lines.
- D. Locate water meters one foot inside street right-of-way, or when this is not feasible, one foot on curb side of sidewalk. Contact City Engineer when major landscaping or trees conflict with service line and meter box location. No additional payment will be made for work on customer side of meter.
- E. New location and installation of existing small meter shall conform to requirements of this Section.

3.02 SERVICE INSTALLATION

- A. Set service taps at right angles to proposed meter location and locate taps in upper pipe segment within 45 degrees of pipe spring line.
2. Install service lines in open-cut trench in accordance with Section 02317 - Excavation and Backfill for Utilities. Install service lines under paved roadways, other paved areas and areas indicated on Drawings in bored hole in accordance with Paragraph 3.01G.
- C. Lay service lines with minimum of 30 inches of cover as measured from top of curb or, in absence of curbs, from centerline elevation of crowned streets or roads. Provide minimum of 18 inches of cover below flow line of ditches to service lines.
- D. Service lines across existing street (push-unders): Pull service line through prepared hole under paving. Use only full lengths of tubing. Take care not to damage copper tubing when pulling it through hole. Compression-type union is only permitted when span underneath

pavement cannot be accomplished with a full standard length of tubing. Use one compression-type union for each full length of tubing.

- E. Maintain service lines free of dirt and foreign matter.
- F. Install service lines so that top of meter will be 4 to 6 inches below finished grade.
- 7. Anticipate existing sanitary sewers to have cement stabilized sand backfill to bottom of pavement. Include cost of such crossings in unit price for services.

3.03 CURB STOP INSTALLATION

- A. Set curb stops or angle stops at outer end of service line inside of meter box. Secure opening in curb stop to prevent unwanted material from entering. In close quarters, make S-curve in field. Do not flatten tube. In 1/2-inch and 1-inch services, install meter coupling, swivel-nut, or curb stop ahead of meter. Install straight meter coupling on outlet end of meter.

3.04 SEQUENCE OF OPERATIONS

- A. Open trench for proposed service line in accordance with Section 02317 - Excavation and Backfill for Utilities.
- B. Install curb stop on meter end of service line.
- C. With curb stop open and prior to connecting service line to meter in slack position, open corporation stop and flush service line thoroughly. Close curb stop, leaving corporation stop in full-open position.
- D. Check service line for apparent leaks. Repair leaks before proceeding.
- E. Schedule inspection with City Engineer prior to backfilling. After inspection, backfill in accordance with Section 02317 - Excavation and Backfill for Utilities.
- F. Install meter box centered over meter with top of lid flush with finished grade. Meter box: Refer to Section 02085 - Valve Boxes, Meter Boxes, and Meter Vaults.

END OF SECTION

Table 02512-1

PIPE TAPPING SCHEDULE				
WATERLINE TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1-1/2"	2"
4" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
4" Asbestos Cement	WBSS	WBSS	DSS, WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Asbestos Cement	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" Asbestos Cement	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
16" and Up Cast Iron or Ductile Iron	DWBSS	DWBSS	DWBSS	DWBSS
16" and Up Asbestos Cement	DWBSS	DWBSS	DWBSS	DWBSS
16" and Up PVC (AWWA C900)	DWBSS	DWBSS	DWBSS	DWBSS

DSS - DUAL STRAP SADDLES

WBSS - WIDE BAND STRAP SADDLES

DWBSS - DUAL WIDE BAND STRAP SADDLES