

**CONSTRUCTION STANDARDS**  
**FOR**  
**PRIVATE SERVICE CONNECTIONS**  
**FORT BEND COUNTY WATER CONTROL**  
**& IMPROVEMENT DISTRICT NO. 2**  
**FORT BEND AND HARRIS COUNTIES, TEXAS**

**REVISED**

**May 6, 1998**

## **I. PURPOSE**

The purpose of these standards is to define the minimum requirements for private water and sanitary sewer construction within the jurisdiction of Fort Bend County WC&ID No. 2.

These standards supersede all prior construction standards and are effective May 6, 1998. The District Rate Order and other orders may contain construction procedures and remain in effect.

## **II. SPECIFICATIONS**

Current City of Houston Standard Specifications with the latest amendments, addenda, and revised drawings are to be followed within the jurisdiction of Fort Bend County WC&ID No. 2, except as noted in these Construction Standards and TNRCC Rules & Regulations for Public Water Systems.

Variations from these Construction Standards will be allowed only with written permission of the District Engineer, the General Manager of the District, or the Board of Directors.

All internal water and sanitary construction shall conform to the latest revision of the Southern Standard Plumbing Code. All licensed plumbers, irrigators and backflow testers must register with and be approved by the District in accordance with the District's Rate Order.

## **III. BONDS**

The City of Missouri City, City of Stafford, and Fort Bend County may require performance or maintenance bonds for work within public rights-of-way or easements. All applicants are directed to consult with Missouri City, Stafford, Sugar Land and Fort Bend County as applicable regarding building permits and bonding requirements before beginning construction.

## **IV. APPLICATION FOR SERVICE WITHIN WATER DISTRICT**

Application for water or sanitary sewer service must be filed prior to construction of the service line. The tap fee must be paid prior to the District making the connection. The District will not make the water tap until visual signs of construction are apparent. For residential taps, the owner/builder must have property lines staked before connection procedure begins. A sample of the application is shown as Appendix A and may be obtained from the District's offices. Construction of the service line(s) shall not begin until authorized by the District in writing.

## V. INSPECTION PROCEDURES

- A. Response Time for Inspection. The District requires a minimum of four (4) hours notice prior to inspection.
- B. Posting of Permit Card. If the Permit Card is not posted on the job site, at the time of a scheduled inspection, the inspection(s) will not be performed and there will be a charge for this trip and any resulting additional trips to the job site.
- C. Water Connection Inspection. All connections to the District's water system, including but not limited to service lines, irrigation systems, and swimming pools shall be made in accordance with applicable provisions of these construction standards. No water connection shall be backfilled in the ground and water service shall not commence until a representative of the District has inspected and approved the connection and service line.
- D. Sewer Connection Inspection. All connections to the District's sanitary sewer system, including sample wells and grease traps shall be made in accordance with the applicable provisions of these Construction Standards. No sewer connection or sewer service line shall be backfilled in the ground and sewer service shall not commence until a representative of the District has inspected and approved the connection and service line.
- E. A fee of \$30 per trip shall be assessed by the District for an inspection and for each subsequent re-inspection required; not to exceed two (2) trips, after which, \$60.00 will be charged for each trip.
- F. Backfilling of the sewer or water service line trench and sewer or water connection excavation must be accomplished within 24 hours of inspection and approval. No debris will be permitted in the trench or connection excavation.
- G. In the event that a water or sewer connection is made or water or sewer service line installed and backfilled without the District's inspection, the District may terminate water and sewer service to the User until the User uncovers the connection or service line at User's expense and the District makes the inspection. See IX. PENALTIES of these Construction Standards.
- H. All connections to the District's water or sanitary sewer system, not constructed by the District, shall be made by the User's plumber or utility contractor only with the District's approval. Said plumber or utility contractor shall also be subject to the approval of the District. See Section 13, L. Approval of Plumbers, in the District's Rate Order.

- I. The contractor/plumber shall comply with all laws applicable to Trench Safety. OSHA standards shall be followed at all times.

## VI. WATER SERVICES

A water service is defined as the water line from the foundation of the building up to and including the corporation stop or the public water main.

Residential, commercial & industrial facilities shall be serviced by a single connection. Multi-family, i.e. apartments, mobile homes parks, and multi-tenant buildings shall be considered a single commercial facility. Variances may be granted for extenuating circumstances.

Water service from the water main, up to and including the master water meter at the right-of-way, will be maintained by the District. Should the User damage or obstruct the water meter, the District will repair the meter or clear the obstruction at the User's expense. The water service from the water meter to the building served will be privately maintained.

All connections to the District's water mains will be in accordance with the most current TNRCC Regulations, Title 30 TAC, Chapter 290, Section 290.44, Subsection h, "Backflow, siphonage". Where an air gap is not feasible, a TNRCC approved testable backflow prevention assembly will be required. See the District's Rate Order, Section 9: Plumbing Regulations, Prohibition Against Cross-Connections and Unacceptable Plumbing Practices; Penalty for Violation, or current revision thereof.

No branches or tees shall be allowed between the meter and the backflow prevention assembly.

- A. Materials. The use of pipes and pipe fittings that contain more than 8.0% lead or solders and flux that contain more than 0.2% lead is prohibited. The following types of pipe and fitting materials are approved for construction of service lines. Pipe and fittings in each individual service line will be identical material.
  1. Polyvinylchloride (PVC) pipe conforming to ASTM D-1785 (Schedule 40). For services greater than 2 inches in diameter, the District recommends thrust blocks on all bends.
  2. Polyethylene (PE) pipe conforming to AWWA C-901, minimum 125

psi pressure rating. (Orangeburg).

3. Copper pipe conforming to AWWA B-88.

B. Minimum Tap Sizes. All connections to the District's water system and the installation of meters for said connections, shall be made by a representative of the District.

1. Epoxy coated saddle, with stainless steel double strap, plus corporation stop and curb stop.

2. Single service. One-inch (1"), no joints under streets.

3. Double service. One-inch (1"), no joints under streets. Once clear of right-of-way, a U-branch must be installed and a meter is required for each user.

4. Other. 1 1/2 and 2-inch, no joints under streets; 3, 4, 6, and 8-inch - Same as for public water mains, see the "Construction Standards for Public Utility Lines and Lift Stations."

C. Meters. All connections to the District's water system must be metered. All water meters shall be supplied by the District. All meters must be Sensus One Touch meters.

1. Meter Location. The Customer shall provide and maintain a location free of expense, and satisfactory to the District for installation, reading and maintenance of the installation.

2. Meter Installation. All meter boxes shall be concrete, or approved equal; plastic boxes are not allowed. Meters shall not be located in areas enclosed by fences or otherwise deemed inaccessible by the District.

a. Single Family Residential User.

(1) Meter boxes are not to be installed below final grade or no higher than 2-inches above final grade. Original installation of meter box shall be maintained at all times.

(2) Residential irrigation systems will be served by a tee on the User's side of the potable meter. An industry approved backflow prevention assembly must be installed on the system, and must be tested upon installation, and every three years thereafter at the

customer's expense. A pressure vacuum breaker (PVB) is allowed with sprinkler heads or shrub risers up to 12 inches. For sprinkler heads or shrub risers over 12 inches, a double check valve assembly will be required. The double check valve assembly may be installed below ground in a concrete meter box. The District requires Schedule 40 pipe up to the backflow assembly, and recommends Schedule 40 pipe up to the control valves. All irrigation systems must be installed by a licensed irrigator who is registered with the District or installed by said property owner. In accordance with the District's water conservation policy, the District recommends the installation of an automatic wet weather shut-down device.

b. Multi Family Residential User.

- (1) One potable meter sized for the entire development.
- (2) Irrigation systems at Multi Family Residential must be separately metered.

c. Other Users - Commercial.

- (1) A one owner lot or tract, with multi units, will be served by one potable meter, sized for the units, with the exception of;
- (2) Commercial/Industrial Business Parks, where there is one developer, but individually owned buildings, each building will be served by a separate potable meter.

d. Commercial Irrigation Systems.

- (1) All commercial irrigation systems must be separately metered.
- (2) All irrigation systems must be installed by a licensed irrigator that is registered with the District. Irrigation or yard sprinkler repair work can be performed by a maintenance person regularly employed by the owner of the premises.

- (3) All commercial irrigation systems will be required to have a double check valve assembly and must be tested upon installation, and annually thereafter, by an approved tester that is registered with the District. In accordance with the District's Rate Order, the dated, signed original Device Test Report shall be provided to the District.
- (4) The double check valve assembly may be installed below ground in a concrete meter box.
- (5) The District requires Schedule 40 pipe up to the backflow assembly, and recommends Schedule 40 pipe up to the control valves.
- (6) In accordance with the District's water conservation policy, the District recommends the installation of an automatic wet weather shut-down device.

D. Meter Vault Assembly.

1. All meter vault assemblies shall be located within a dedicated water meter easement. The easement must be large enough to allow repair of the meter, bypass piping, and potable water meter assembly without affecting surrounding private property. The meter vault assembly shall be large enough to allow adequate access for meter reading, maintenance and repairs.
2. Meters three-inch (3") in diameter and larger shall be located in a vault, with blind flanged connections for bypass. Bypass pipe will be installed by the District on an as needed basis for temporary water supply during meter maintenance.

E. Fire Lines. All fire lines shall be maintained by the property owner. The District will install tap, at the customer's expense; and will maintain tap up to the property line. A double check detector valve assembly will be installed and maintained by the property owner.

## VII. **SANITARY SEWER SERVICES**

A sewer service is defined as the sewer from the foundation of the building to the sewer main line owned by the District.

The portion of the sewer service from the District's main sewer line to the property

line will be structurally repaired or replaced by the District.

Sewer service from the building served to the District's main, including the tap, will be maintained of all blockages by the property owner.

The sewer service from the property line to the building served will be repaired or replaced as by the property owner. [On back lot easements: fences, landscaping, buildings, etc., will be removed by property owner prior to District making repair.]

Only one (1) sewer service connection to the District's sanitary system is permitted for each residential or commercial building. For large commercial developments, variances from this requirement may be granted on a case by case basis.

A. Material. The following types of pipe and fitting materials are approved for constructing service lines. Pipe and fittings in each individual service line will be identical material.

1. Ductile iron pipe conforming to AWWA C-151 with rubber gasket joints and installed according to manufacturer's recommendations. Polyethylene encasement in accordance with AWWA C-105 shall be provided for all buried ductile iron pipe.
2. Polyvinylchloride (PVC) pipe conforming to ASTM Specification D-1785 (Schedule 40) or ASTM Specification D-3034 (non-pressure rated SDR 26), or ASTM specification D-2241 (150 psi pressure rated SDR-26).

B. Minimum Sizes. Minimum sizes of service lines shall be as follows:

1. Residential - four-inches (4") in diameter.
2. Commercial, Industrial, or Multi-Family
  - a. Standard fixture units less than 160 - four-inches (4") in diameter on private property. (See Southern Standard Plumbing Code Table 714.2) Six-inches (6") in diameter from sampling well to sewer main.
  - b. Standard fixture units 160 to 620 - six-inches (6") in diameter.
  - c. Standard fixture units 620 to 1,400 - eight-inches (8") in diameter.

C. Minimum Grades. Minimum grades for service lines shall be as follows:

1. 4-inch Pipe - One-foot (1\_) drop per hundred feet (1%)
2. 6-inch Pipe - Eight-inch (8") drop per hundred feet (0.7%)
3. 8-inch Pipe - Five-inch (5") drop per hundred feet (0.4%)

Construct service lines to true alignment and grade. Warped and sagging lines will not be permitted.

D. Fittings, Cleanouts and Service Lines.

1. All service lines shall have bends of 45 degrees or less installed. If a 90 degree change in sewer line direction is required, two 45 degree bends must be used. They shall be separated by five (5) feet or more of straight sewer line. A cleanout is required on the upstream side of all bends.
2. Each service line shall be provided with a cleanout at its upper terminal. Commercial and multi-family users shall provide cleanouts every 75 feet along their service lines. Residential users shall have cleanouts every 50 feet. The distance from final cleanout to the District's main line shall not exceed 50 feet for residential users or 75 feet for commercial and multi-family users.

Each cleanout shall be installed at final grade and no higher than 2-inches above final grade.

3. Construction of all service lines shall be installed in a straight alignment from house to main. Warped, sagging, bowed, i.e.; will not be permitted. Building connection will be made directly to the stubout with water tight fittings used, no cement grout or rubber adapters are permitted.
4. Sample wells are required for all non-residential service lines. Multi-family services are exempt from the sample well requirement. The sample well shall be brought to the surface adjacent to the property line. The sample well shall be considered a "clean-out" when figuring spacing between cleanouts as described in paragraph 2 above. See Appendix "E" for the sample well detail. Sample wells shall be brought to the surface and constructed to prevent inflow and infiltration of storm run off.
5. Place six-inches (6") of sand bedding above, below and both sides of the service line.

- E. Grease Trap. All restaurants, school cafeterias, church cafeterias, and other facilities where food is served to the public shall have grease traps installed. Size of the grease trap is to be determined by the District; minimum size allowed by the District is 750 gallons. All grease traps must be outside of the building perimeter. No interior grease traps are allowed.
- F. Lint Trap. All washaterias, laundromats, and other facilities with laundry facilities, shall have a lint trap installed. Size of line trap is to be determined by the District.
- G. Sand/Oil Interceptor. All automotive repair, car washes, and other facilities which provides these services, shall have a sand/oil interceptor installed. Size of sand/oil interceptor shall be determined by the District.
- H. Sewer Main Taps.
  - 1. All taps to the District's sanitary sewer system not constructed by the District shall be made by the User's plumber or utility contractor. The plumber or utility contractor shall be subject to approval by the District. See Section 13, L. Approval of Plumbers in the District's Rate Order.
  - 2. Existing service connections (taps) must be used unless an exception is allowed by the District. Taps and/or service connections shall be located by contractor/plumber, prior to construction.
  - 3. New service connections to the District's main shall be a water-tight adapter with Stainless Steel Bands designed for the pipe being used. Cement grout will be used to encase tap assembly, which must be inspected prior to and after bedding and backfill.
- I. Driveway Crossings. Where the District has given prior approval to cross a proposed driveway on private property, the following procedures are recommended:
  - 1. Place 2.0 sack cement stabilized sand from sand bedding to base of proposed pavement.
  - 2. These procedures are recommended to reduce crushing of service lines by heavy machinery before pavement is installed.

## **VIII. EXCLUDED FLOW AND WASTE**

Certain wastes are not to be discharged into the District's sanitary sewers.

Excluded and limited wastes are listed in the District's "Order Establishing Regulations for Business, Commercial, Industrial, and other Waste."

#### **IX. PENALTIES**

Failure to adhere to the preceding construction regulations may result in a fine of up to five thousand dollars (\$5,000.00) per violation per day to be paid to the District.

Water service will not be provided by the District until the requirements herein have been met and the District's representative has approved the installation.

#### **X. VARIANCES**

Whenever the District finds that extraordinary hardships may result from the strict compliance with the regulations, it may vary the regulations so that substantial justice may be done and the public interest secured; provided however, such variations will not have the effect of nullifying the intent purposes of these regulations.

#### **XI. REGULATIONS OF OTHER ENTITIES**

These construction standards are not intended to replace the regulations of other governmental or private entities whose jurisdiction includes new subdivisions within the limits of Fort Bend County WC&ID No. 2.