

**CONSTRUCTION STANDARDS**  
**FOR**  
**PRIVATE SERVICE CONNECTIONS**



**FORT BEND COUNTY WATER CONTROL  
& IMPROVEMENT DISTRICT NO. 2**

**FORT BEND AND HARRIS COUNTIES, TEXAS**

**REVISED**

**MAY 2017**

**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 October 2016. 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 TCEQ 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 be registered with and approved with 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 installation 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 prior to the connection. A sample of the application is shown as Appendix A and may be obtained from the District's offices or online @ [fbwcid2.com](http://fbwcid2.com). Construction of the service line(s) shall not begin until approval 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 the 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. A CSI (Customer Service Inspection) is required prior to permanent water service.
- 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 \$50 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, \$100 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. Multifamily, 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 TCEQ Regulations, Title 30 TAC, Chapter 290, Section 290.44, Subsection h, "Backflow, siphonage". Where an air gap is not feasible, a TCEQ 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 0.25% lead or solders and flux that contains 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 street. Once clear of right-of-way, a U-branch must be installed and a meter is required for each user.
  4. Other. 1 ½ 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. Meters shall not be located in areas enclosed by fences or otherwise deemed inaccessible by the District. Variances may be granted.
  - 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 the 12 inches. For sprinkler heads or shrubs 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 requires 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 system at Multi Family Residential must be separately metered.
  - c. Other Users – Commercial.
    - (1) A one owner lot or tract, with multi units or multi buildings will be served by one potable meter, sized for the units.
  - d. Commercial Irrigation Systems.
    - (1) All commercial irrigation systems shall be metered separately.
    - (2) All irrigation systems shall be installed by a licensed irrigator that is registered with the District. All irrigation systems must be installed per TCEQ Standards found in

30 TAC 344.61. 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 shall be required to have a double check valve assembly (RPZ) 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 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 requires 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 for 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.

**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. All users are subject to requiring District's Pretreatment Program.

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 by the property owner. Within the easement, the District will make the repair. On back lot easements; fences, landscaping, building, 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 construction 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 (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 clean out at its upper terminal. Commercial and multi-family users shall provide cleanouts ever 80 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 80 feet for commercial and multi-family users. Each cleanout shall be installed at final grade 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 runoff.
  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 a grease traps installed. Size of grease trap is to be determined by the owner with minimum size of 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 owner.
- G. Sand/Oil Interceptor. All automotive repair car washes and other facilities which provide these services, shall have a sand/oil interceptor installed. Size of sand/oil interceptor shall be determined by the owner.
- H. Sewer Main Taps.



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.

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.

New service connections to the District's main shall be a water-tight adapter with Stainless Steel Bands designed for the pipe being used. Bank Sand will be used to cover tap assembly and piping, which must be inspected prior to and after bedding and backfill.

- I. Driveway Crossing. 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 waste is not to be discharged into the District's sanitary sewers. Excluded and limited waste is 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.



**FORT BEND COUNTY WC&ID NO. 2**  
 2331 South Main  
 Stafford, Texas 77477

Job#: _____
No. Units: _____

**APPLICATION FOR WATER AND/OR WASTEWATER CONNECTIONS**

1. Applicant: \_\_\_\_\_ New/Addition: \_\_\_\_\_  
 Address: \_\_\_\_\_ E-Mail: \_\_\_\_\_  
 Phone: \_\_\_\_\_
2. Name of Business: \_\_\_\_\_  
 Type of Business: \_\_\_\_\_ No. Units: \_\_\_\_\_  
Residential, Multi-tenant, Apartments, Mobile Home Park, Commercial, Industrial, Manufacturing, Food Services, etc.
3. Service Address: \_\_\_\_\_ Subdivision: \_\_\_\_\_  
 Lot #: \_\_\_ Block #: \_\_\_ Reserve #: \_\_\_\_\_ City: \_\_\_\_\_
4. Has Property Been Platted? \_\_\_\_\_ Name of Plat: \_\_\_\_\_  
Attach copy of plat, if requested.
5. Owner: \_\_\_\_\_ Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
 E-Mail: \_\_\_\_\_
6. Plumbing Co.: \_\_\_\_\_ Contact: \_\_\_\_\_  
Must be licensed & registered with District  
 Address: \_\_\_\_\_ Phone: \_\_\_\_\_
7. **Water Connections:**  
 Size of Tap: Domestic Water: \_\_\_\_\_ Irrigation System: \_\_\_\_\_ Fire Protection: \_\_\_\_\_  
 Size of Water Meter(s): Domestic Meter: \_\_\_\_\_ Irrigation Meter: \_\_\_\_\_
8. **Sanitary Sewer Connection:** Size of Tap: \_\_\_\_\_  
 Connection Charges Paid by: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Inspection Charges Paid by: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_
9. Estimated Water Usage: Office: \_\_\_\_\_ Manufacturing (Process): \_\_\_\_\_
10. Type Waste Generated: Domestic: \_\_\_\_\_ Process: \_\_\_\_\_  
(If Process Waste, an Industrial User Report will be required)  
 Grease Trap (Size Determined by District): \_\_\_\_\_ Sample Well: \_\_\_\_\_
11. Service Deposit Billed To: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_

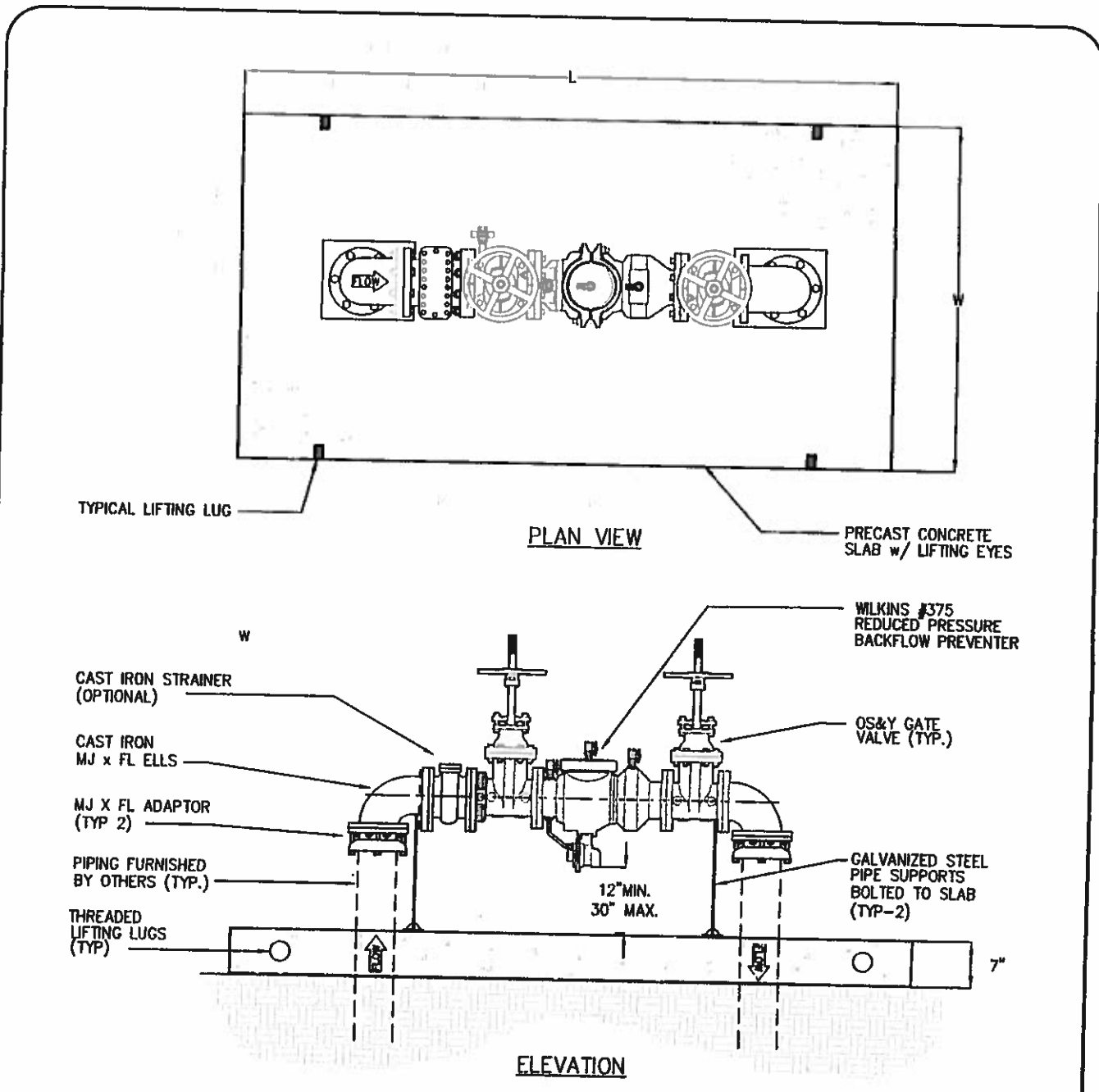
**Acknowledgement of Receipt of District's Construction Standards**

**Application for Connections Approved by District:**

By: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_



**Specifications**

**CONCRETE :** Class 1 concrete with design strength of 4500 PSI at 28 days.  
**REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

**Typical Applications**

RP devices are used to protect against high hazard (toxic) fluids in water services to industrial plants, hospital facilities, morgues, mortuaries, and chemical plants. They are also used in irrigation systems, boiler feed, water lines and other installations requiring maximum protection.

**Engineering Data**

Field excavation and preparation shall be completed prior to delivery of assembly. Use dimensional data as shown. Pipe, valves and fittings of the assembly are approved by one or more of the following associations:

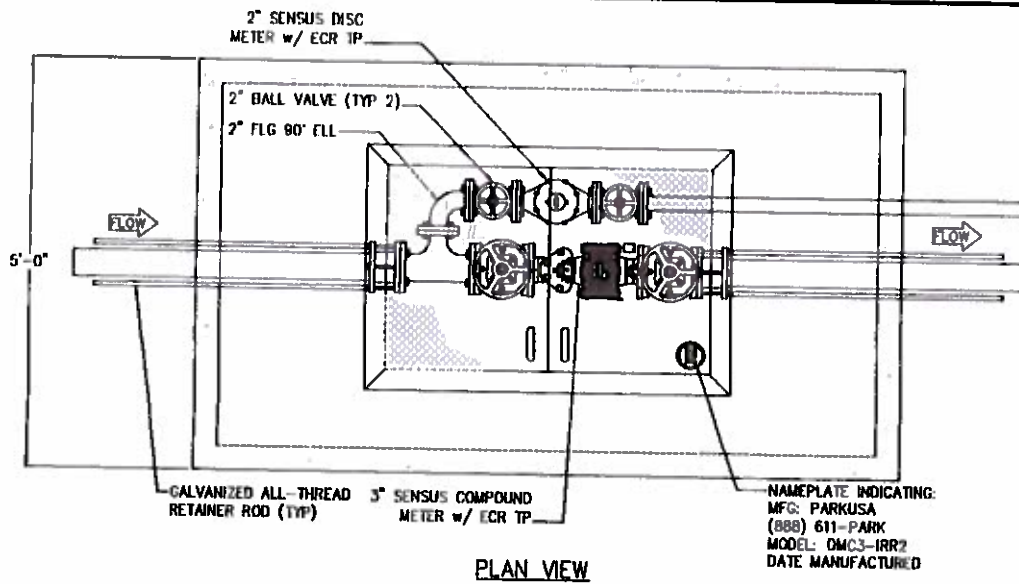


PROJECT : \_\_\_\_\_  
 CUSTOMER : \_\_\_\_\_  
 ARCHITECT : \_\_\_\_\_  
 ENGINEER : \_\_\_\_\_  
 ORDER # : \_\_\_\_\_

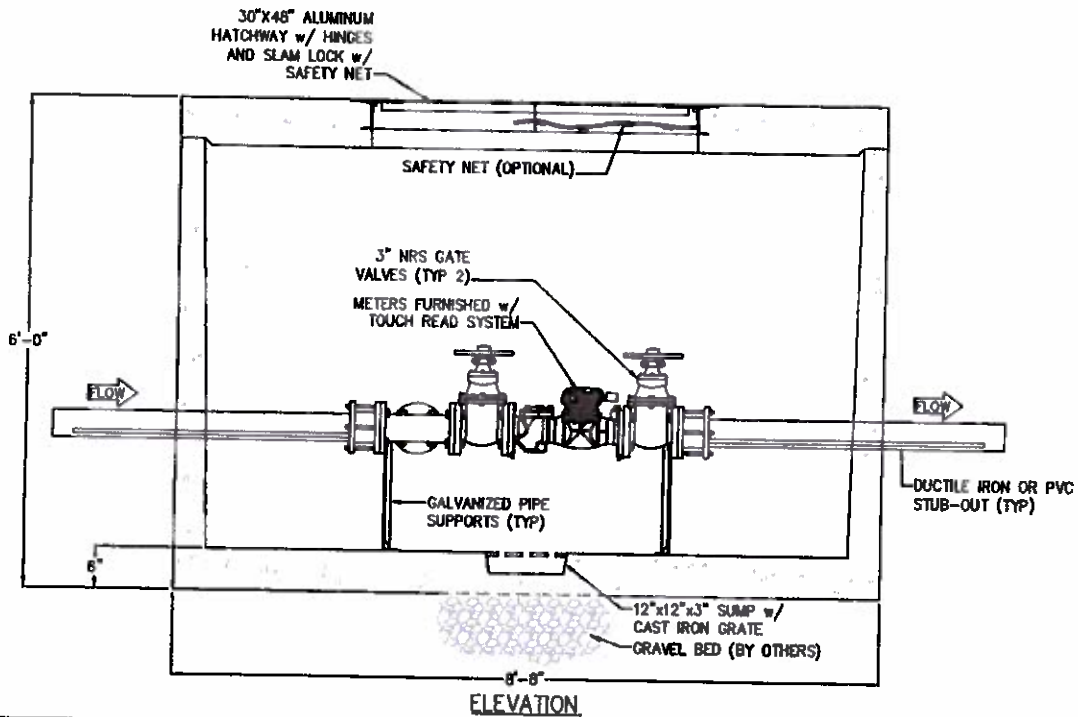
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**REDUCED PRESSURE BACKFLOW PREVENTER  
 ON PRECAST CONCRETE PAD**

SCALE	NONE	DWG. NO.	REV.
DATE	04/08	RPBP-WILKINS-OSY	A



PLAN VIEW



ELEVATION

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**Specifications**

- CONCRETE:** Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 3,000 pounds.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** Aluminum diamond plate cover with extruded aluminum frame furnished with drop handle, open door support and slam lock. (300 P.S.F. live load)

**Engineering Data**

The valve assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

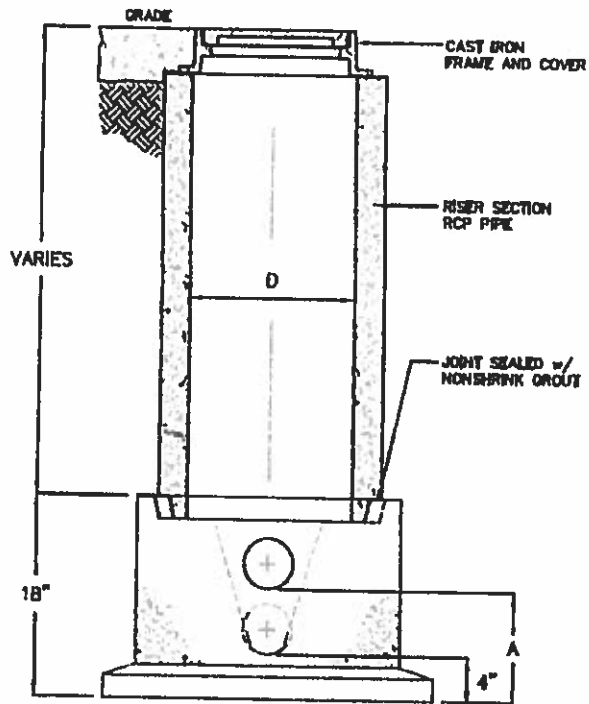


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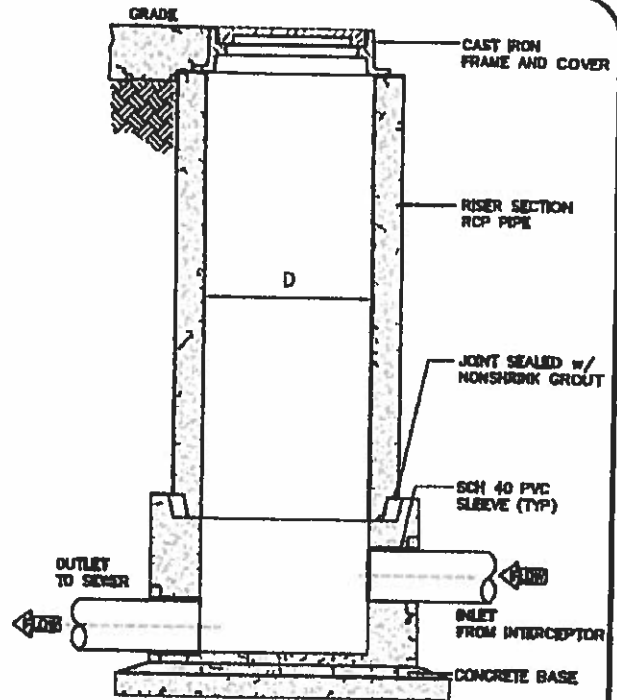
**PARK** U.S.A.  
DESIGN FOR WATER

3" DOMESTIC WATER METER ASSEMBLY  
FORT BEND COUNTY W.C. & I.D. #2

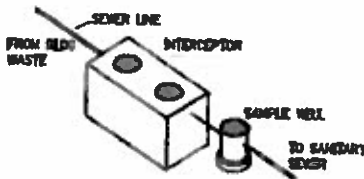
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DATE	07/16		DMC3-FB	A



FRONT VIEW



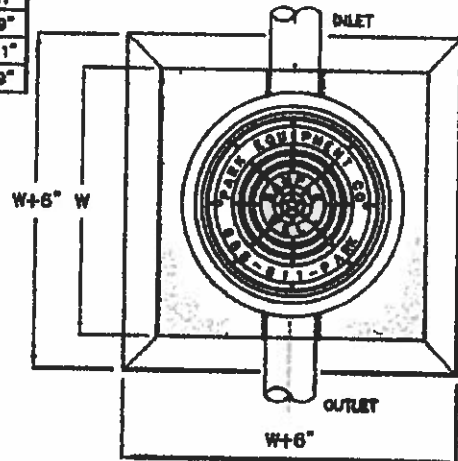
SIDE VIEW



MODEL	DIAMETER "D"	IN & OUT PIPE SIZE	WIDTH "W"	"A"
SWB-154	15"	4"/6"	24"	11"
SWB-156	15"	4"/6"	24"	9"
SWB-184	18"	4"/6"	28"	11"
SWB-186	18"	4"/6"	28"	9"
SWB-244	24"	4"/6"	34"	11"
SWB-246	24"	4"/6"	34"	9"

**NOTES**

- SAMPLING WELL MUST BE INSTALLED UNDER A SEPARATE PLUMBING PERMIT.
- USE 15" T&G R.C.P. FOR INSTALLATION 0'-0" DEEP AND LESS.
- USE 24" T&G R.C.P. FOR INSTALLATION GREATER THAN 0'-0" DEEP. (STD RING AND M.H. COVER REQUIRED).
- SAMPLING WELL MUST BE SET IN A CIRCULAR OR SQUARE CONCRETE PAD (1'-0" GREATER THAN OUTSIDE DIAMETER OF PIPE).
- INSIDE INSTALLATION NOT PERMITTED, WHERE OUTSIDE INSTALLATION IS POSSIBLE.
- INSTALLATION INSIDE BLDG MUST BE POURED IN PLACE (15' MIN) NO CONCRETE PIPE IS PERMITTED, (AIR-TIGHT COVER REQUIRED).
- LAWN INSTALLATION MUST BE 4" ABOVE FINISHED GRADE.
- DRIVE & SIDEWALK INSTALLATION MUST BE BROUGHT TO FINISHED GRADE.
- TO BE INSTALLED ON PRIVATE PROPERTY, IN AN ACCESSIBLE LOCATION TO CITY PERSONNEL.



PLAN VIEW

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**SPECIFICATIONS**

**CONCRETE :** Class II concrete with a design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

**C.I. CASTINGS:** Cast iron frames and grates are manufactured of grey cast iron conforming to ASTM A48-76 Class 30, Heavy-Duty AASHTO H-20



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**SAMPLE WELL BASIN**

SCALE NONE

DWG. NO.

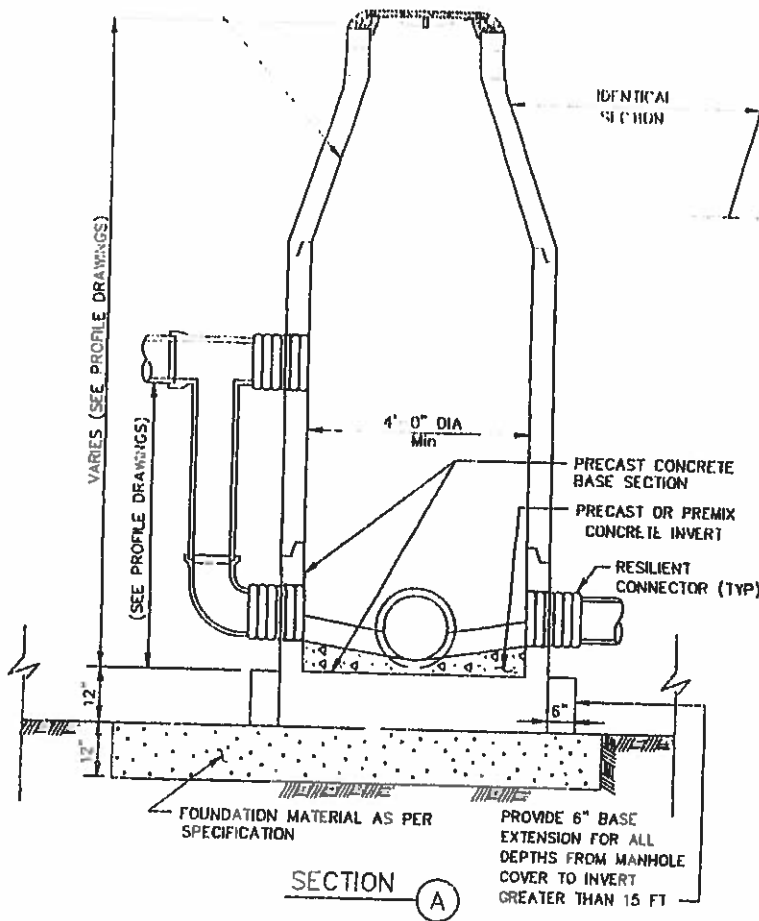
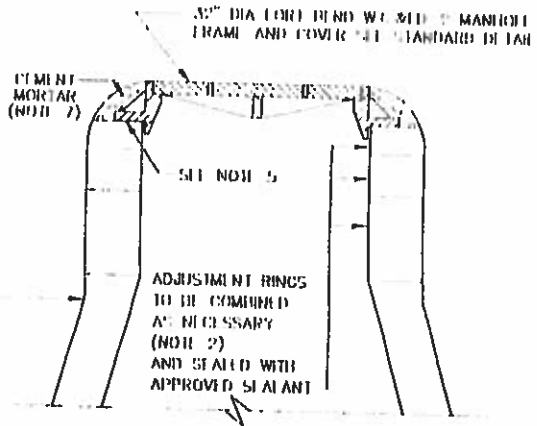
REV.

DATE 2010

SWB-2

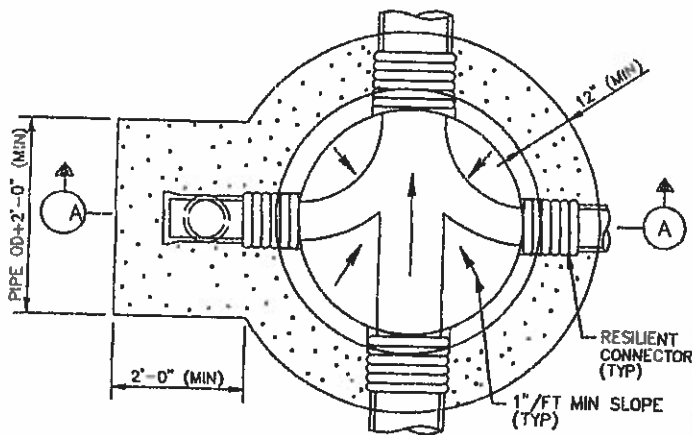
A

ALL INTERIOR SURFACES SHALL BE COATED WITH EPOXY RESIN, EPOXY COATED REINFORCING OR PRE-APPROVED EQUAL, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION (NO MIN. THICKNESS)



## MANHOLE DETAIL

NTS



## FOUNDATION PLAN

NTS

NOTE:

1. Depth of manhole determines sections required.
2. Precast concrete rings shall be provided for a combined adjustment height of at least 12 inches. The total height of the adjustment rings shall not exceed 1'-6".
3. Manhole wall thickness for depth exceeding 12'-0" shall be determined to meet loading conditions. Minimum thickness is 5".
4. Manhole drop and intersecting pipes shall be installed only when called for in plan and profile drawings.
5. Seat manhole frame in sealant per specifications.
6. Eccentric precast manhole may be used only with District approval.
7. Omit cement mortar when manhole is located in paved areas.
8. Min reinforcing in the precast concrete base shall be #5 at 8" E.W.
9. Provide backfill to match adjacent pipe trench backfill per specifications.
10. Provide a minimum of 80 mils of epoxy coating (or preapproved equal) coating for entire interior of manhole.
11. All construction and materials must be in accordance with Fort Bend County W.C.&I.D. No. 2 Construction Standards.
12. All manhole rims to be Min six-inches above final grade, all manholes in pavement will be provided with S.S. inflow protectors.

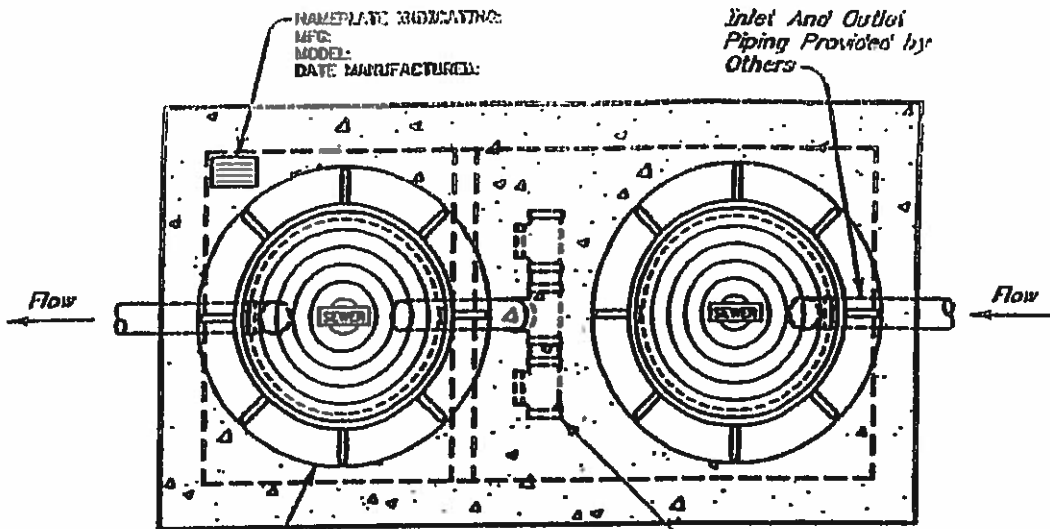


**FORT BEND COUNTY W.C.&I.D. NO. 2  
CONSTRUCTION DETAIL**

## STANDARD SANITARY SEWER MANHOLE

DATE: 02/2013  
2331 S. MAIN, STAFFORD, TX

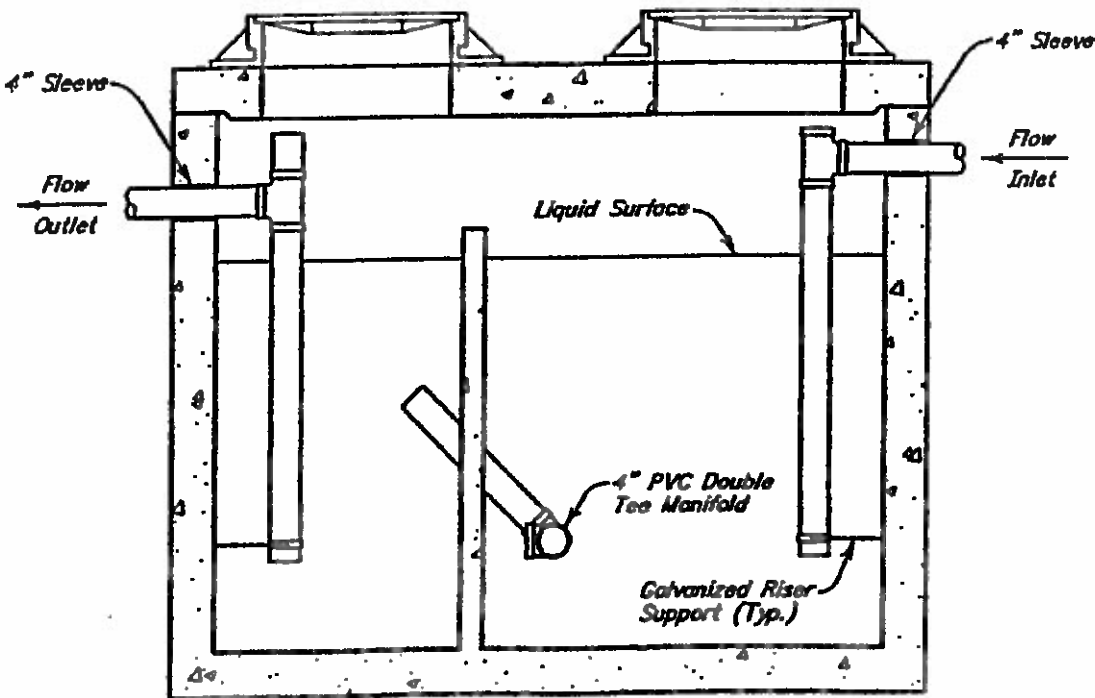
JASON A. KIRBY, P.E.  
DISTRICT ENGINEER



Cast Iron Frame And Cover (Typ. 2 Places)

### PLAN VIEW

4" PVC Double Tee Manifold



### ELEVATION



**JONES & CARTER, INC.**  
Consulting Engineers  
Houston, Texas

DATE: November 1994

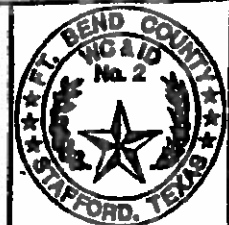
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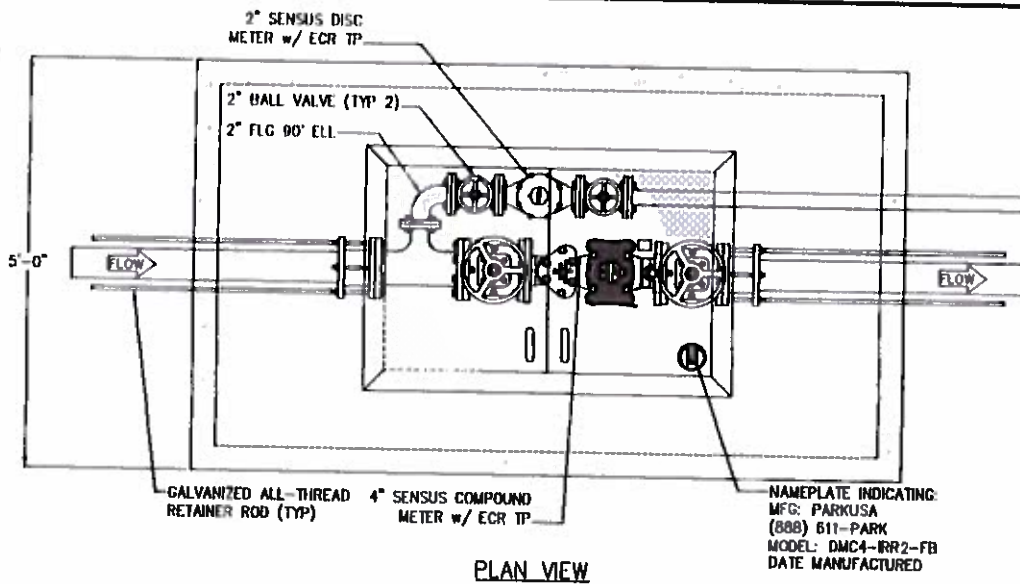
DRAWN BY: JRM

APPROVED BY: MFS

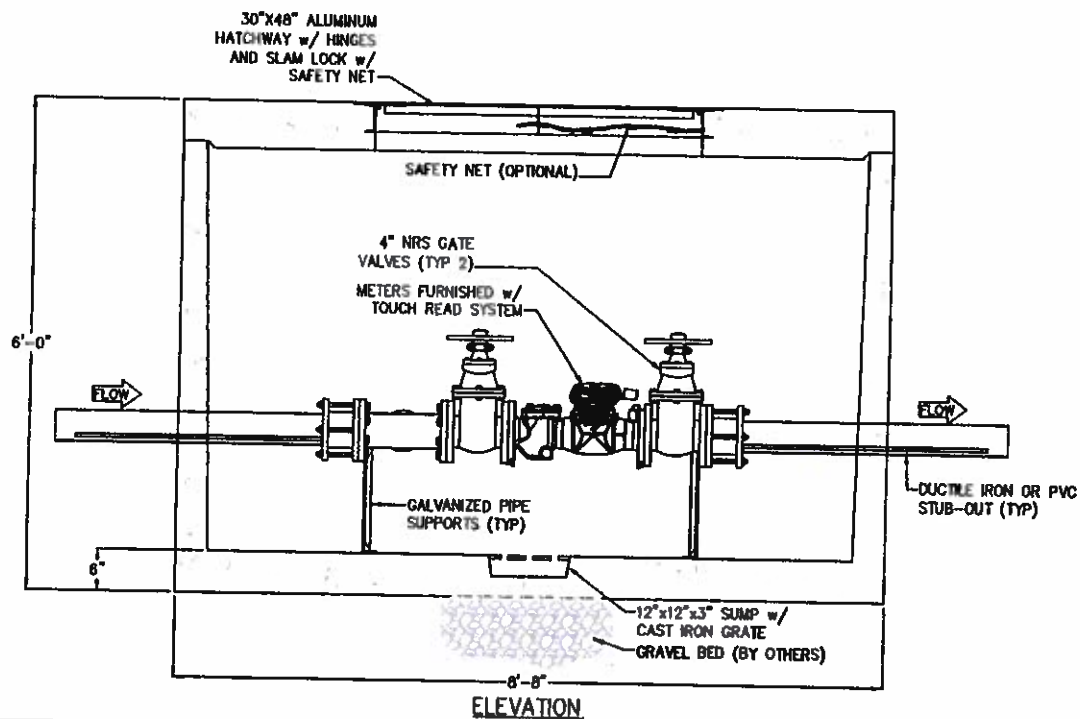
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## GREASE TRAP





PLAN VIEW



ELEVATION

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**Specifications**

- CONCRETE:** Class 1/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 3,000 pounds.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** Aluminum diamond plate cover with extruded aluminum frame furnished with drop handle, open door support and slam lock. (300 P.S.F. live load)

**Engineering Data**

The valve assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

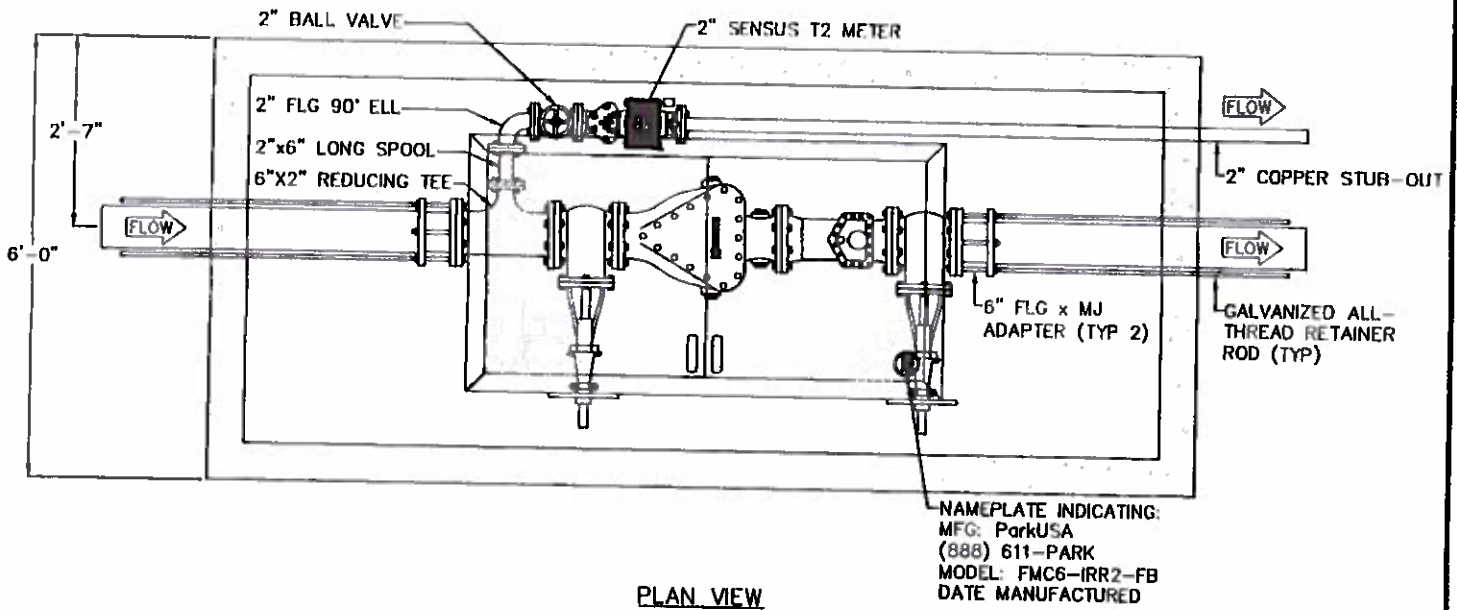
888.611.PARK  
www.park-usa.com

**PARK** U.S.A.  
DESIGN FOR WATER

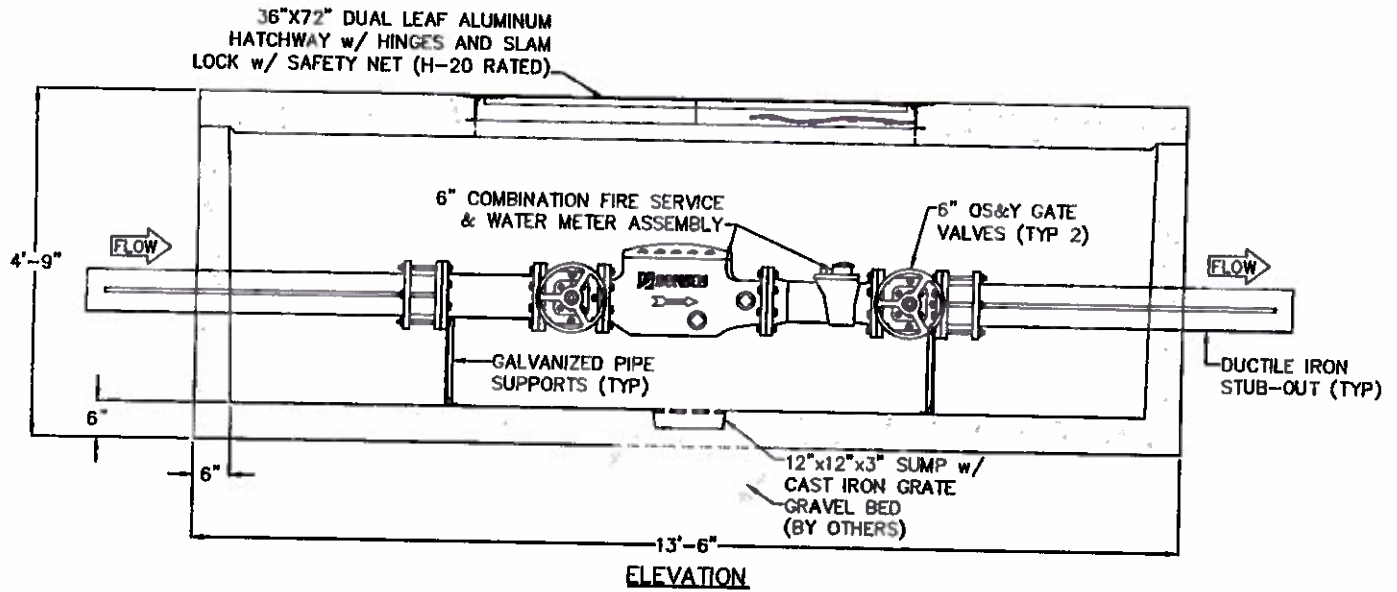
4" DOMESTIC WATER METER ASSEMBLY  
FORT BEND COUNTY W.C. & I.D. #2

PM	DRN	ENG	DWG. NO.	REV.
DATE	07/16		DMC4-FB	A





PLAN VIEW



ELEVATION

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**Specifications**

- CONCRETE:** Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 3,000 pounds.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** Aluminum diamond plate cover with extruded aluminum frame furnished with drop handle, open door support and slam lock. (300 P.S.F. live load)

**Engineering Data**

The valve assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



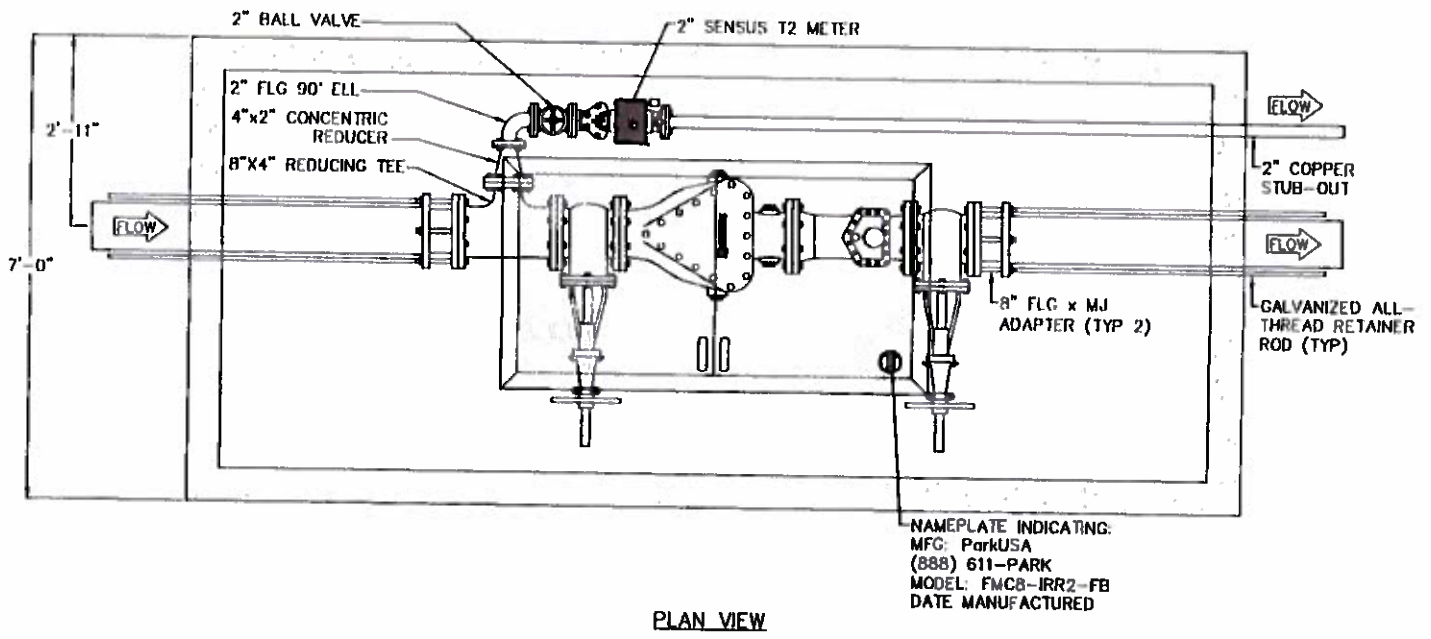
PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

888.611.PARK  
www.park-usa.com

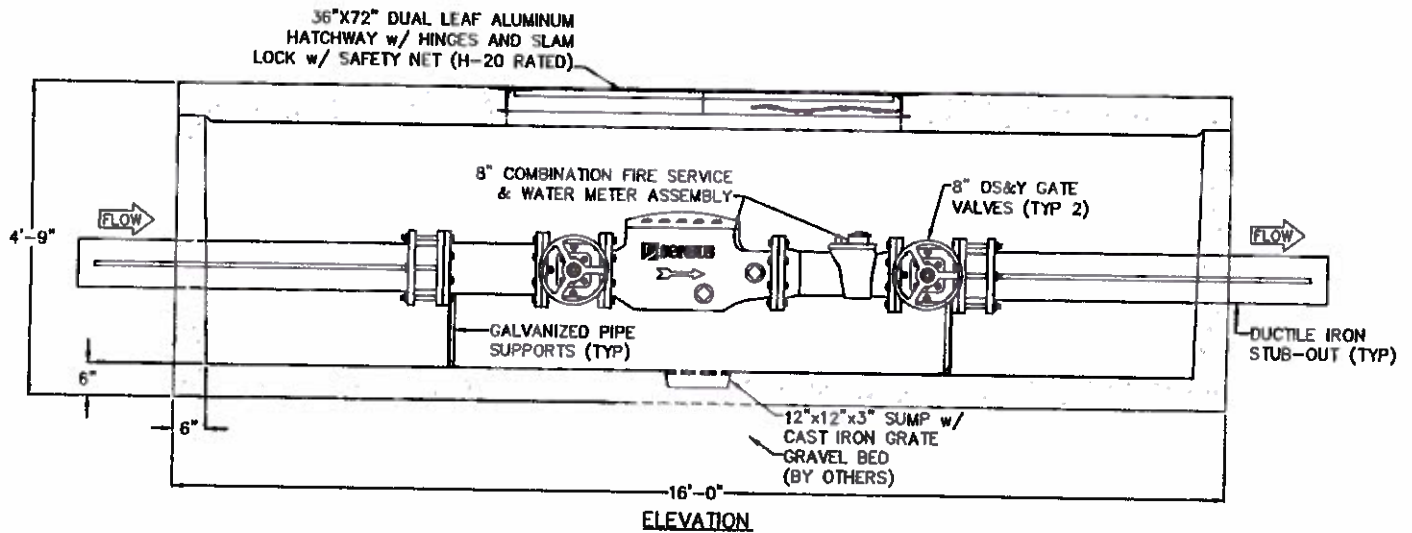
**PARK** USA  
DESIGN FOR WATER

6" COMBINATION WATER METER ASSEMBLY  
FORT BEND COUNTY W.C. & I.D. #2

PM	DRN	ENG	DWG. NO.	REV.
			FMC6-FB	A
DATE 07/16				



PLAN VIEW



ELEVATION

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**Specifications**

- CONCRETE:** Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 3,000 pounds.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** Aluminum diamond plate cover with extruded aluminum frame furnished with drop handle, open door support and slam lock. (300 P.S.F. live load)

**Engineering Data**

The valve assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



PROJECT:
CUSTOMER:
ENGINEER:
ORDER #:
PROJ #:
DATE:

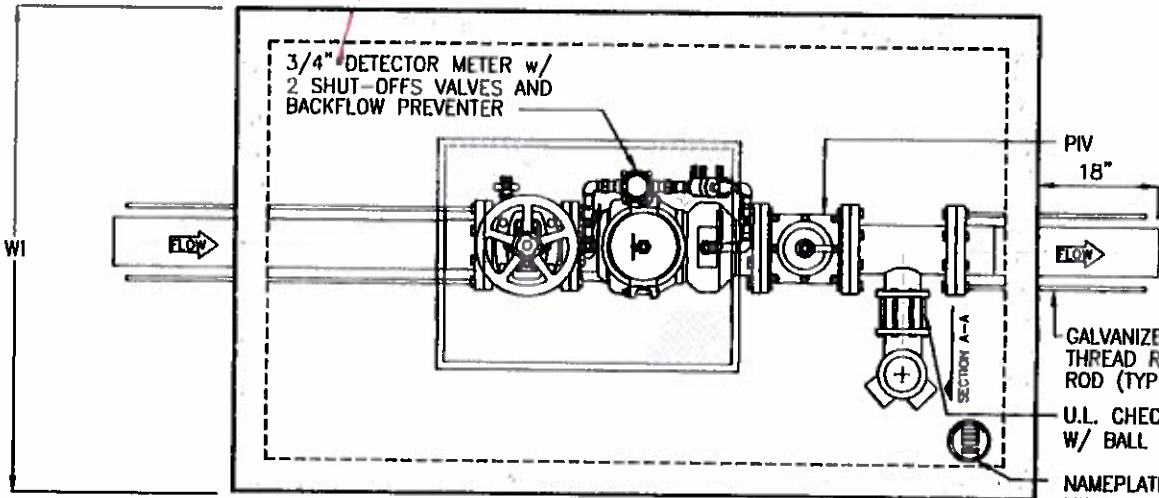


888.611.PARK  
www.park-usa.com

8" COMBINATION WATER METER ASSEMBLY  
FORT BEND COUNTY W.C. & I.D. #2

PM	DRN	ENG	DWG. NO.	REV.
			FMC8-FB	A
DATE			07/16	

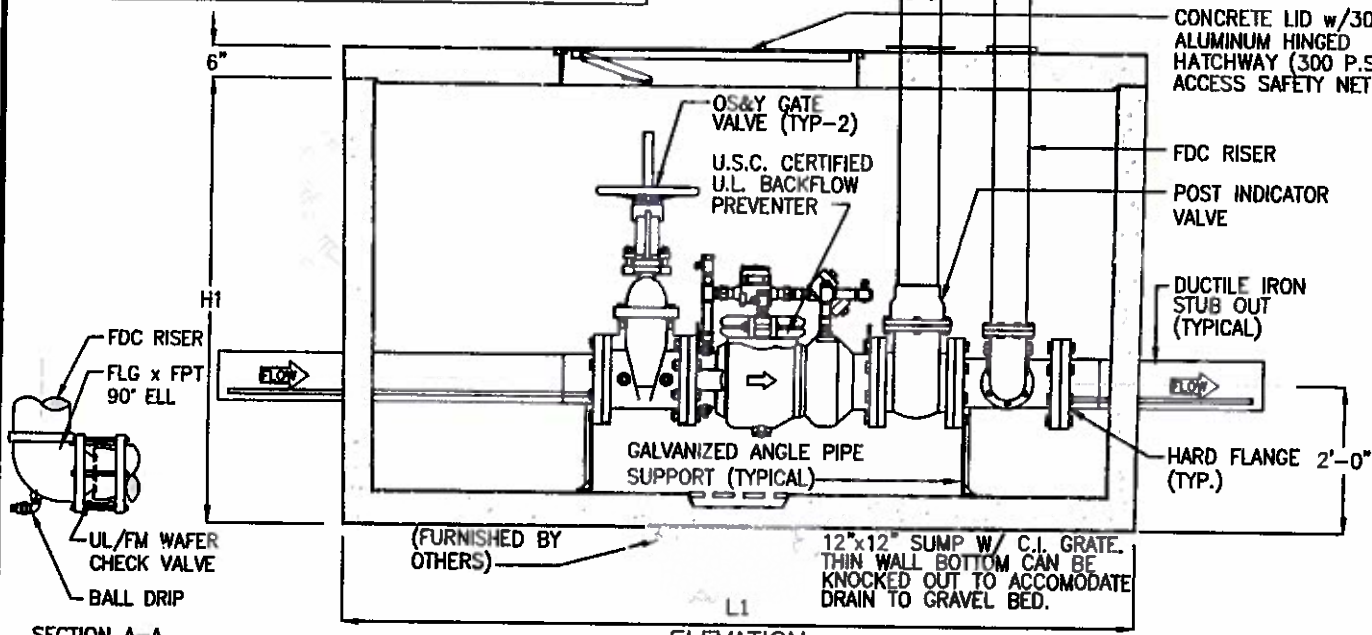
Sensus I Per 1



- GALVANIZED ALL-THREAD RETAINER ROD (TYP)
- U.L. CHECK VALVE W/ BALL DRIP
- NAMEPLATE INDICATING:  
MFG: PARKUSA  
888-611-PARK  
WWW.PARK-USA.COM  
MODEL: DDBPPF-1  
DATE MANUFACTURED
- FIRE DEPARTMENT CONN. (OPTIONAL)
- ADJUSTABLE TYPE INDICATOR POST
- CONCRETE LID w/30"x48" ALUMINUM HINGED HATCHWAY (300 P.S.F.) ACCESS SAFETY NET (OPT.)

MODEL	SIZE	L1	W1	H1	ALUMINUM HATCHWAY	WEIGHT LBS
DDBPPF-3	3"	7'-10"	4'-4"	6'-0"	30"x48"	11,000
DDBPPF-4	4"	7'-10"	4'-4"	6'-0"	30"x48"	11,000
DDBPPF-6	6"	7'-10"	4'-4"	6'-0"	30"x48"	15,000
DDBPPF-8	8"	8'-8"	5'-0"	6'-0"	30"x48"	15,000
DDBPPF-10	10"	9'-0"	6'-0"	7'-0"	36"x60"	18,000
DDBPPF-12	12"	9'-0"	6'-0"	7'-0"	36"x60"	18,000

PLAN VIEW



SECTION A-A

ELEVATION

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**Specifications**

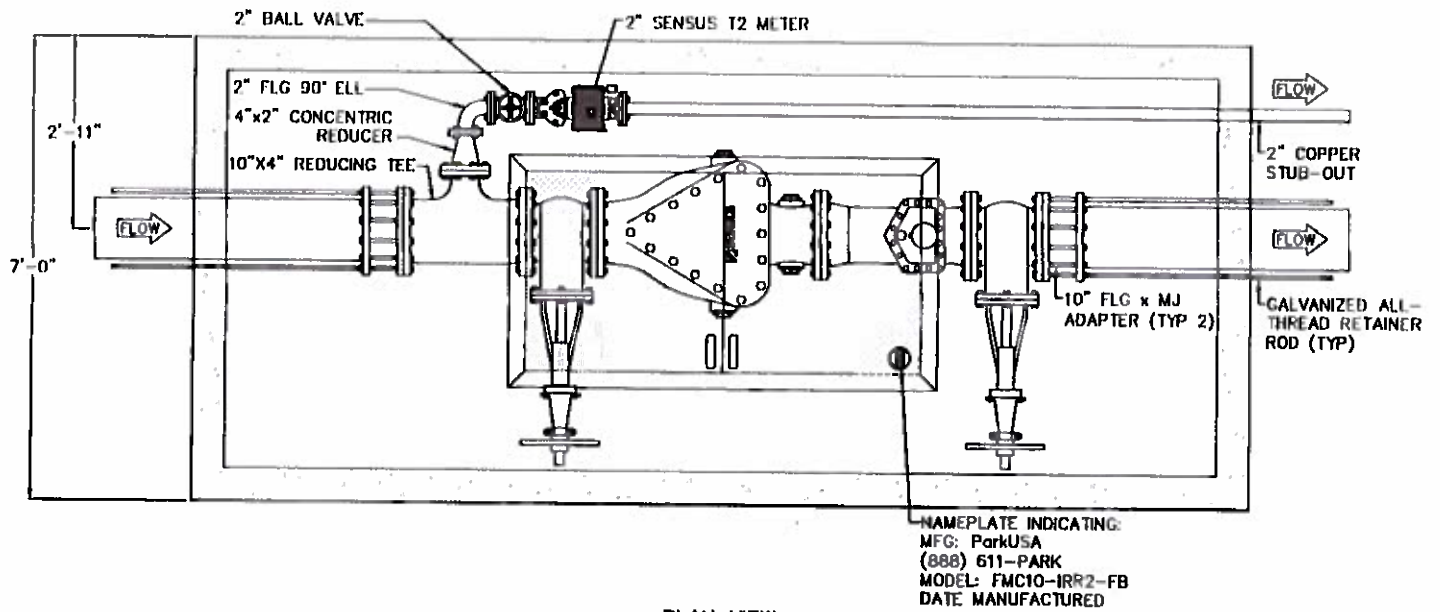
- CONCRETE:** Class 1/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel snap lock & brass hinges.

**Engineering Data**

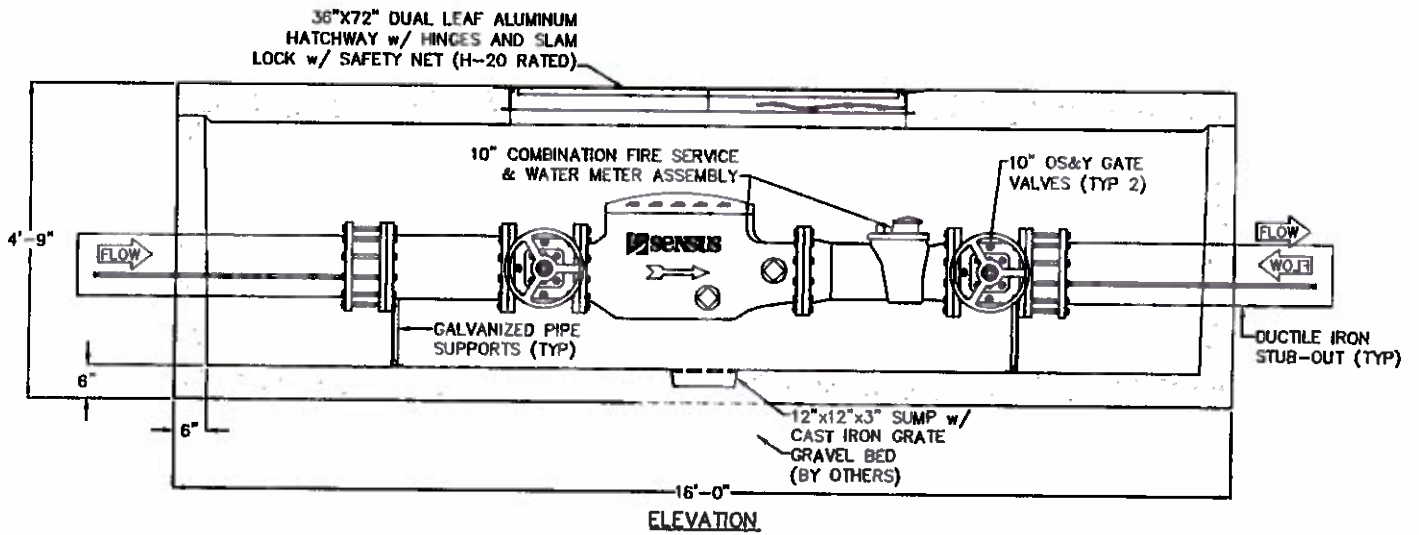
Field excavation and preparation shall be completed prior to delivery of assembly. Use dimensional data as shown. Pipe, valves and fittings of the assembly are approved by one or more of the following associations:



PROJECT:			
CUSTOMER:			
LOCATION:			
ORDER #:			
PROJ #:			
DATE:			
		888.611.PARK www.park-usa.com	
		DESIGN FOR WATER	
3" THRU 12" DOUBLE DETECTOR BACKFLOW PREVENTER ASSEMBLY W/ PIV & FDC			
PM	DRN	ENG	DWG. NO.
DATE 02/16		DDBPPF-1	
			REV. A



PLAN VIEW



ELEVATION

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**Specifications**

- CONCRETE:** Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth. Gross empty weight of approximately 3,000 pounds.
- REINFORCEMENT:** Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.
- HATCHWAY:** Aluminum diamond plate cover with extruded aluminum frame furnished with drop handle, open door support and slam lock. (300 P.S.F. live load)

**Engineering Data**

The valve assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



PROJECT: \_\_\_\_\_  
 CUSTOMER: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 ORDER #: \_\_\_\_\_  
 PROJ #: \_\_\_\_\_  
 DATE: \_\_\_\_\_

888.611.PARK  
[www.park-usa.com](http://www.park-usa.com)

**PARK** USA  
 DESIGN FOR WATER

**10" COMBINATION WATER METER ASSEMBLY**  
 FORT BEND COUNTY W.C. & I.D. #2

PM	DRN	ENG	DWG. NO.	REV.
DATE	07/16		FMC10-FB	A