

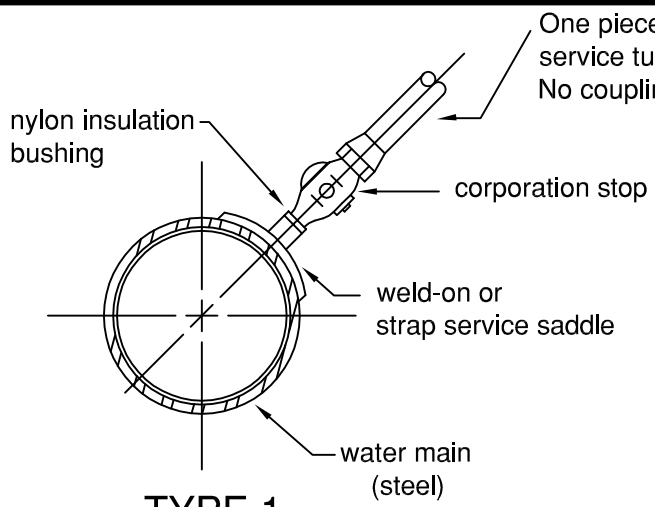
**Water**

# CITY/EMID STANDARD DETAILS

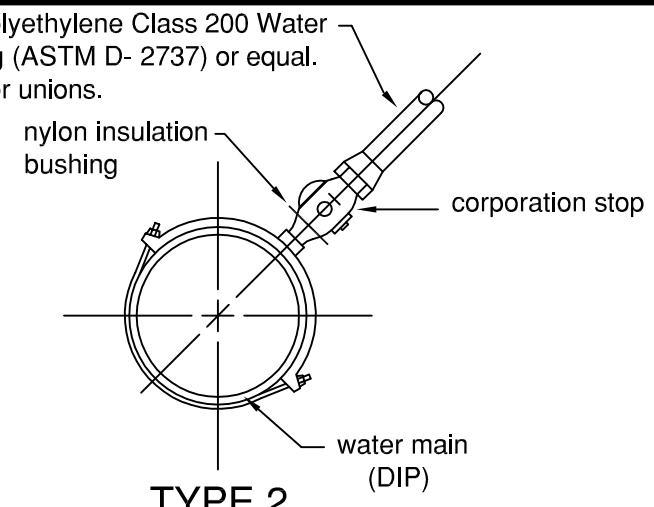
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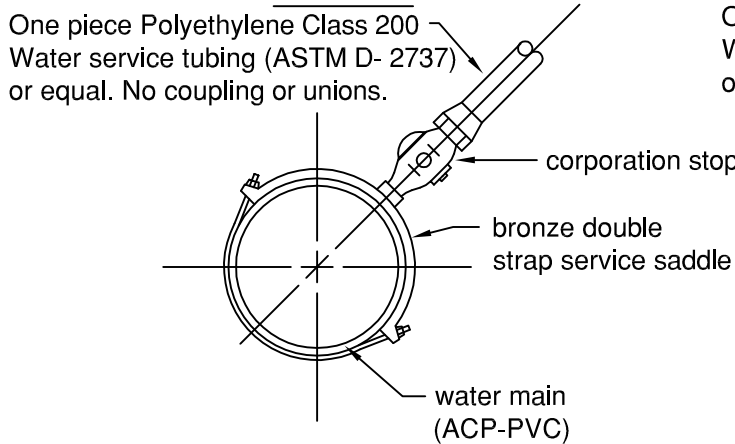
CONNECTION TYPE FOR 3/4" - 2" SERVICE TAPS .....	Water 01
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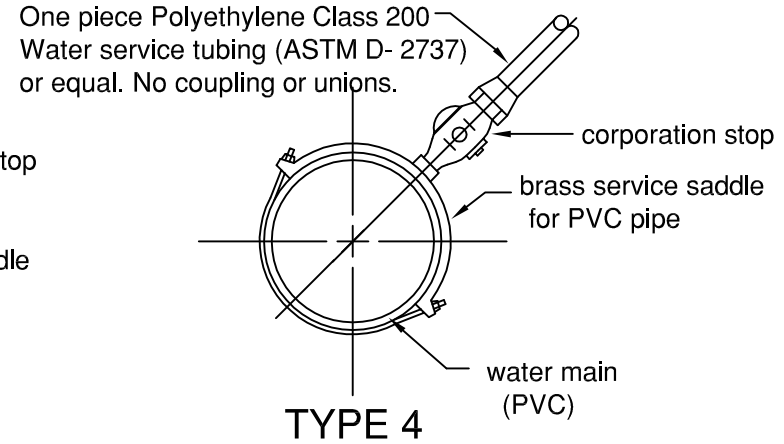
**TYPE 1**



**TYPE 2**



**TYPE 3**



**TYPE 4**

One piece Polyethylene Class 200 Water service tubing (ASTM D- 2737) or equal. No coupling or unions.

One piece Polyethylene Class 200 Water service tubing (ASTM D- 2737) or equal. No coupling or unions.

One piece Polyethylene Class 200 Water service tubing (ASTM D- 2737) or equal. No coupling or unions.

SERVICE CONNECTION SCHEDULE					
Service Size	WATER MAIN MATERIAL				
	STEEL	D.I.P.	A.C.P.	PVC	PVC
3/4"	Type 1	Type 2	Type 3	Type 3	Type 4
1"	"	"	"	"	"
1 1/2"	"	"	"	"	"
2"	"	"	"	"	"

CORP STOP	TYPE 1 & 2	TYPE 3 & 4
FORD	F1100G	F1000G
MUELLER	H15024	H15006

**NOTES:**

1. Type 1 install anode as shown in standard detail.
2. Type 1 and 2 wrap corporation stop and 5' of copper tubing with 10 mil PVC tape 1/2 lapped.
3. Type 1 if water main is coated, replace coating on main and insulating brush with 1/4" minimum coat of same material or 10 mil tape.
4. Type 2 if main is polywrapped, repair and extend polywrap to cover corporation stop.
5. All brass corporation stops and brass saddles shall have cc threds.
6. One Piece Polyethylene Class 200 Water service tubing (ASTM D- 2737) or equal. No coupling or unions.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER

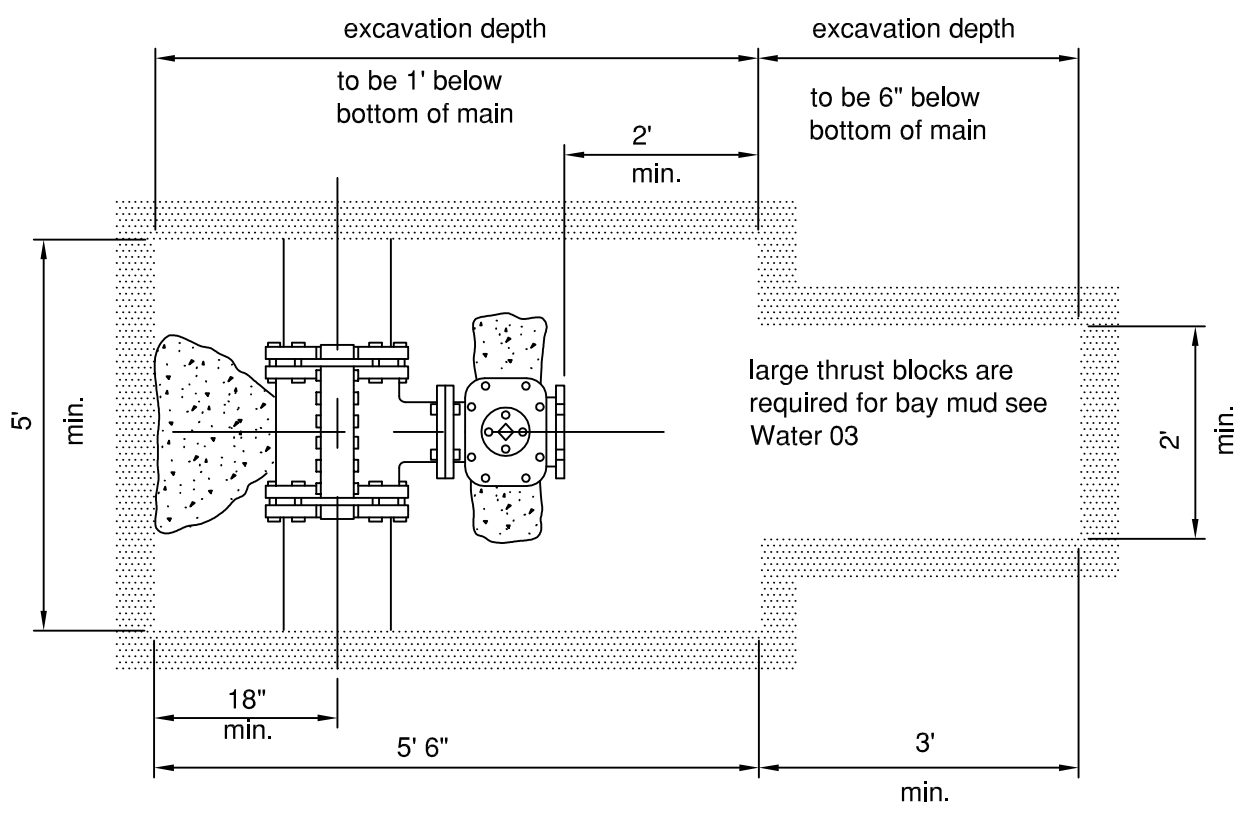
**CONNECTION TYPE FOR 3/4"-2" SERVICE TAPS**

Rev. Date	Description
DWN:	NO. Water 01
CHK:	SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERVISOR

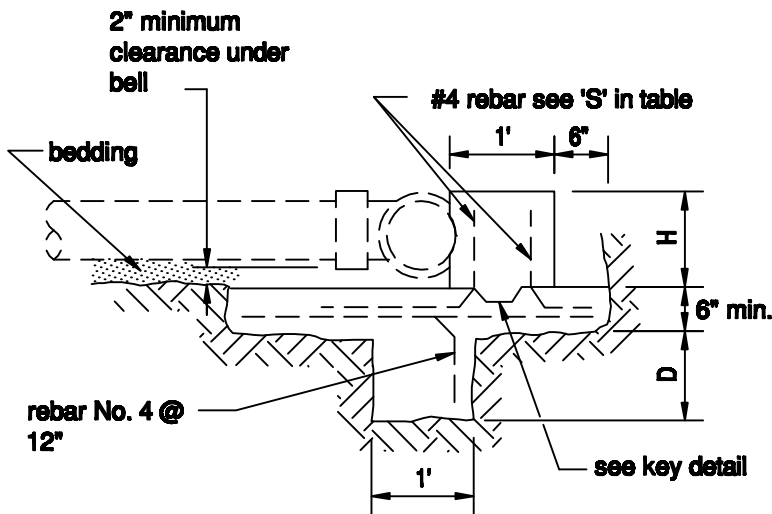
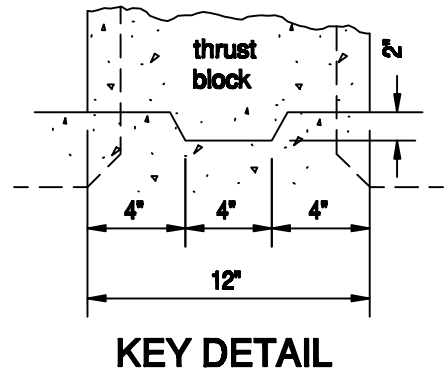
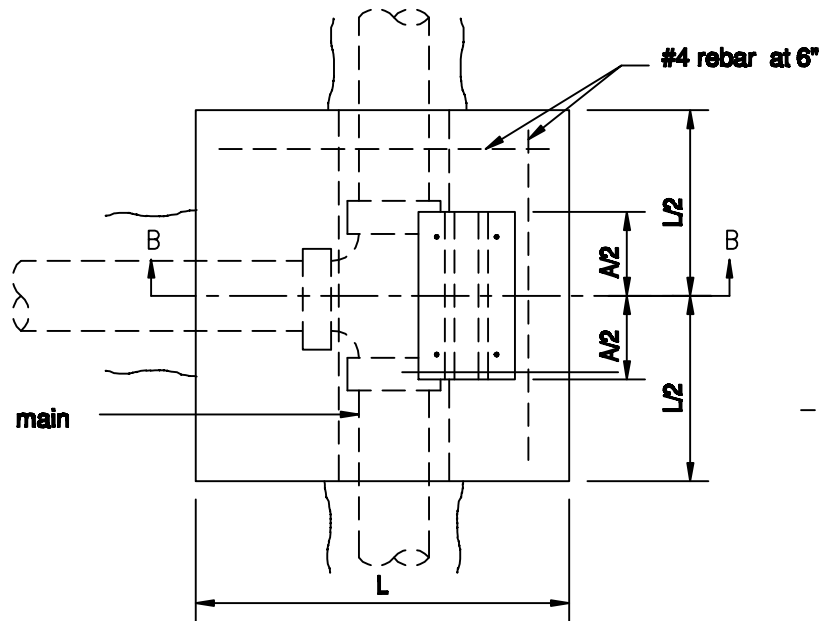
SCALE: NONE  
DATE: Oct. 2007



**NOTES:**

1. No tap to be made within 3 feet of a joint, coupling, or fitting.
2. Contractor to install thrust blocks behind and under valve tapping sleeve.
3. For bay mud conditions see Water Detail 03.
4. Tapping sleeve and trim shall be 316 stainless steel or equal.
5. The contractor supplies the material and makes the wet tap.
6. A permit from the City Engineer is needed.
7. Cathodic protection shall be in place.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA					
WATER		Rev. Date	Description		
<b>EXCAVATION FOR TAPPING SLEEVES &amp; VALVES</b>		DWN:	NO. Water 02		
APPROVED: _____		CHK:	SHT. ____ OF ____		
CITY/DISTRICT ENGINEER		APPROVED: _____ DEPARTMENT SUPERINTENDENT			SCALE: NONE
					DATE: Oct. 2007



**SECTION B-B**

**DIMENSION TABLE FOR TEE & DEAD ENDS**

PIPE DIAMETER	TEE A	DEAD END A	D	H	L	REBAR 'S' SIZE
6"	16"	8"	12"	12"	4'	No. 4
8"	18"	10"	12"	14"	4'	No. 4
10"	22"	12"	24"	16"	4'	No. 5
12"	24"	14"	36"	18"	5'	No. 6

**NOTE:**

1. All fitting joints will be clear of concrete.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**THRUST BLOCKS (IN BAY MUD)**

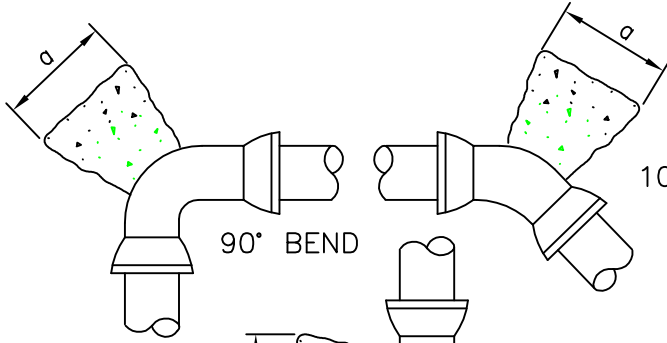
APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

Rev. Date	Description
DWN:	NO. Water 03
CHK:	SHT. ____ OF ____
SCALE: NONE	
DATE: Oct. 2007	

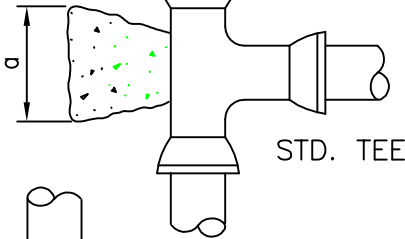
Volume (C) for Anchor Block

Pipe Size	4"	6"	8"	10"	12"	14"	16"	18"
CU.FT.(C)	27	33	58	91	131	178	232	293

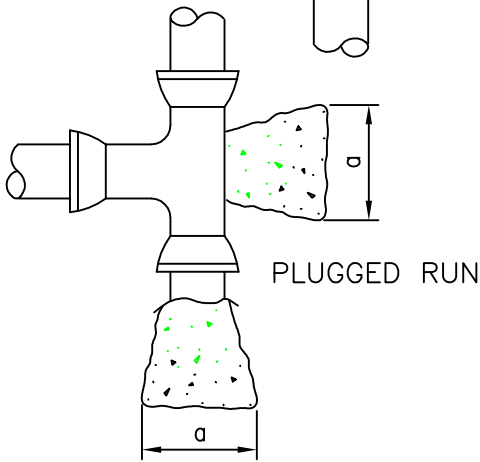


90° BEND

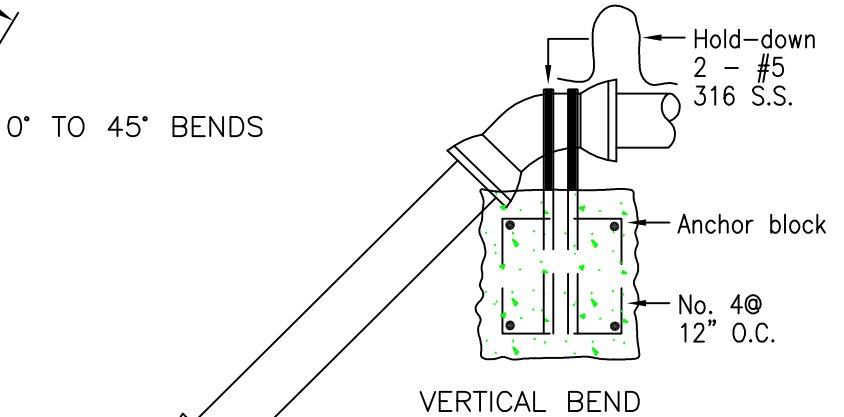
10° TO 45° BENDS



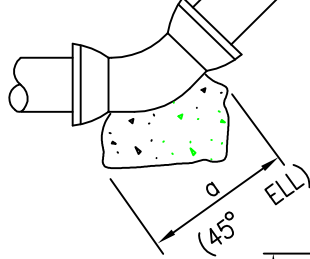
STD. TEE



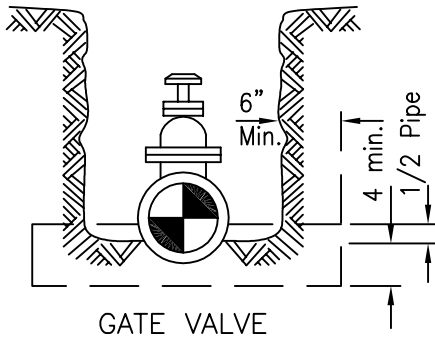
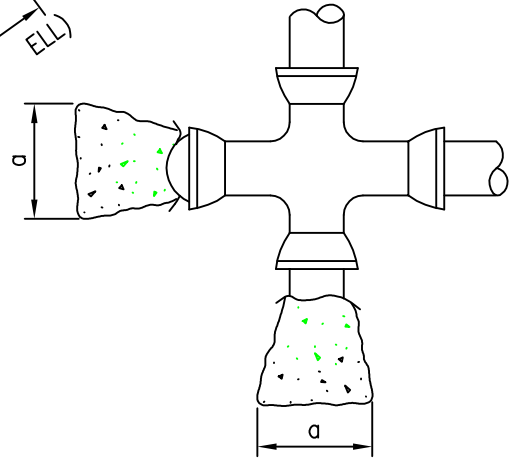
PLUGGED RUN



VERTICAL BEND



PLUGGED CROSS



GATE VALVE

AREA (a) IN SQ. FT.

TYPE OF FITTING	SIZE OF PIPE							
	4"	6"	8"	10"	12"	14"	16"	18"
90° ELL	2	5	8	13	18	25	32	41
45° ELL	1	3	5	7	10	14	18	22
22 1/2° ELL	1	2	3	4	5	7	9	12
11 1/4° ELL	1	1	2	2	3	4	5	6
PLUG/TEE	1.5	4	6	9	13	18	23	29

Based on Soil bearing value of 2000 lbs. per sq. ft. and water pressure of 225 psi.

Notes:

1. All thrust blocks must bear against undisturbed earth.
2. 22 1/2 degree vertical bend requires 1/2 the volume concrete as 45 degree bend.
3. Form as required to keep concrete off of mechanical joint or flange bolts.

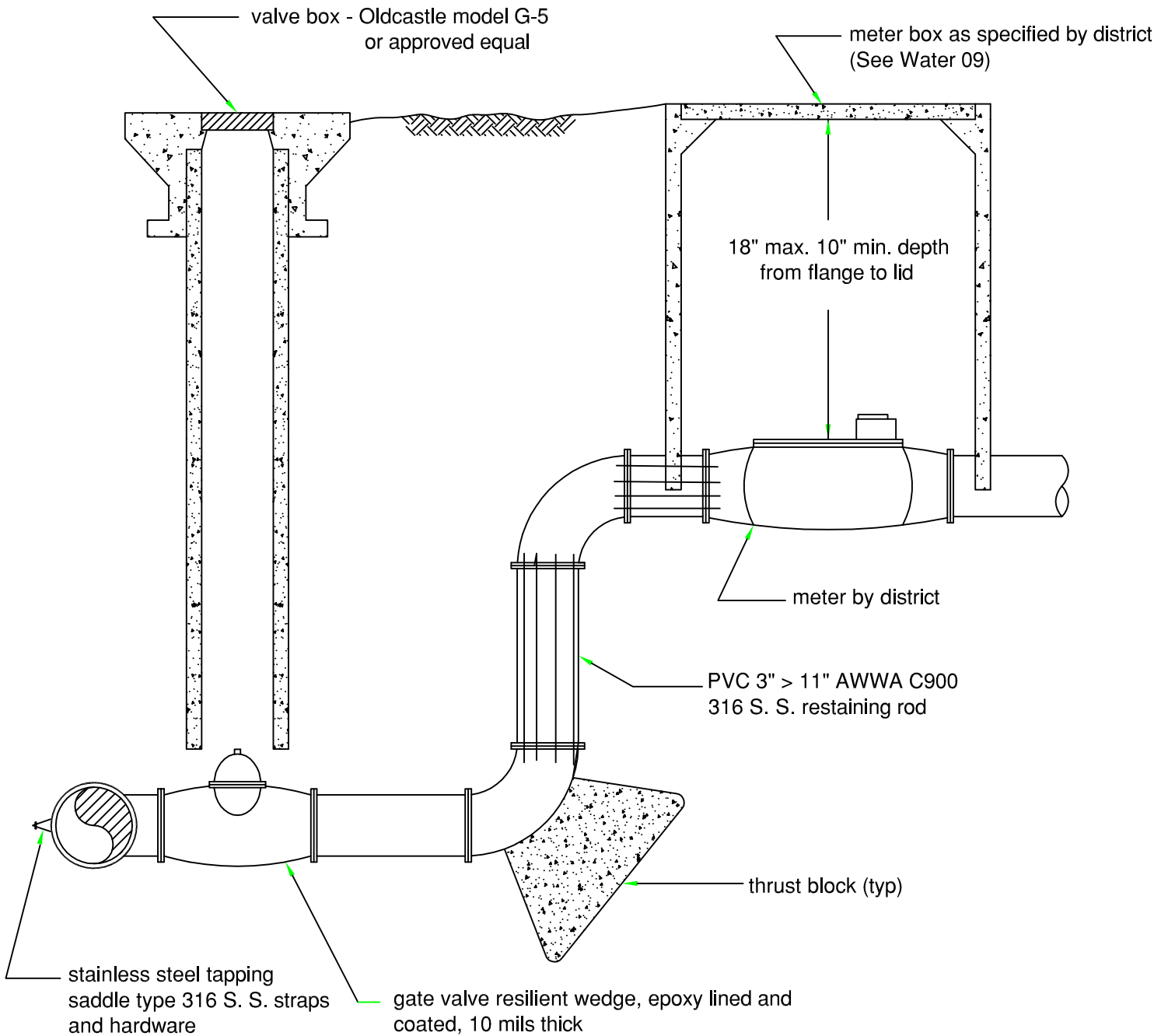
ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**THRUST BLOCKS**

Rev. Date	Description
DWN:	NO. WATER 04
CHK:	SHT. ____ OF ____
	SCALE: NONE
	DATE: Oct. 2007

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERVISOR



ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

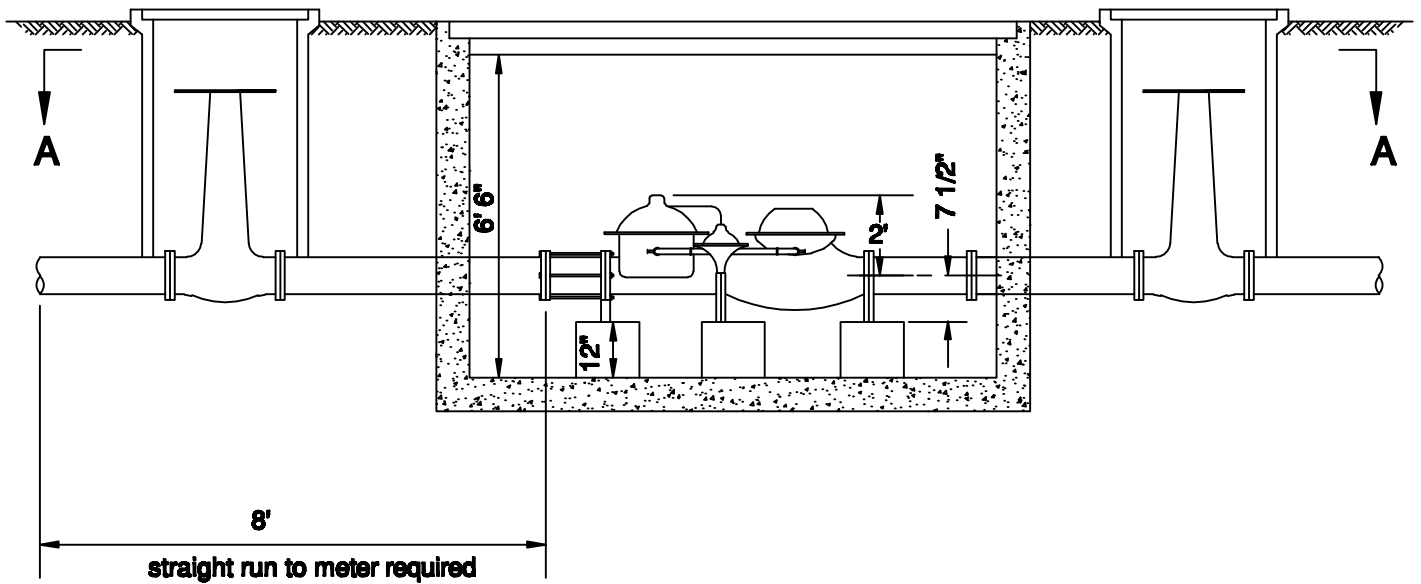
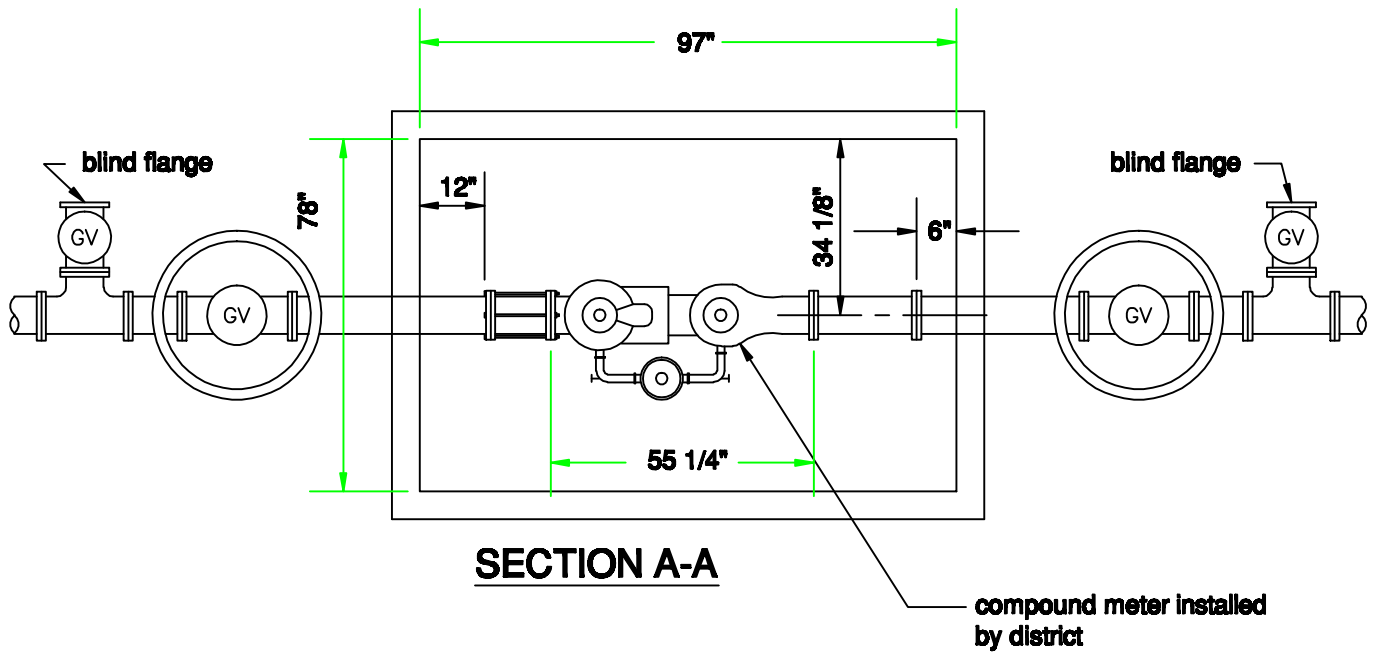
WATER SYSTEM  
**WATER SERVICE (3" AND LARGER)**

Rev.	Date	Description
DWN:		NO. Water 05
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**8" COMPOUND METER ASSEMBLY**

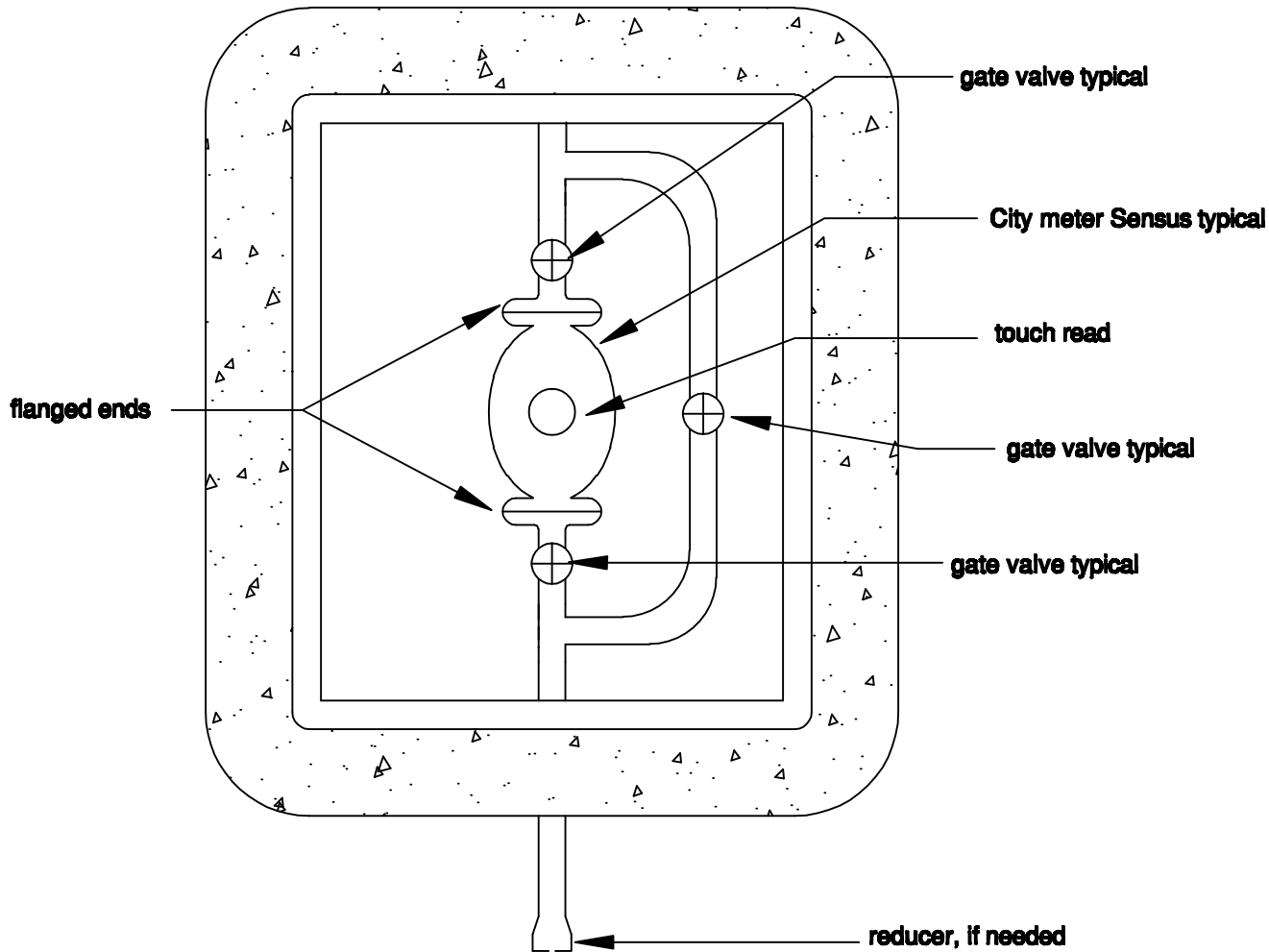
Rev.	Date	Description
DWN:		NO. Water 06
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007





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CITY OF FOSTER CITY, CALIFORNIA

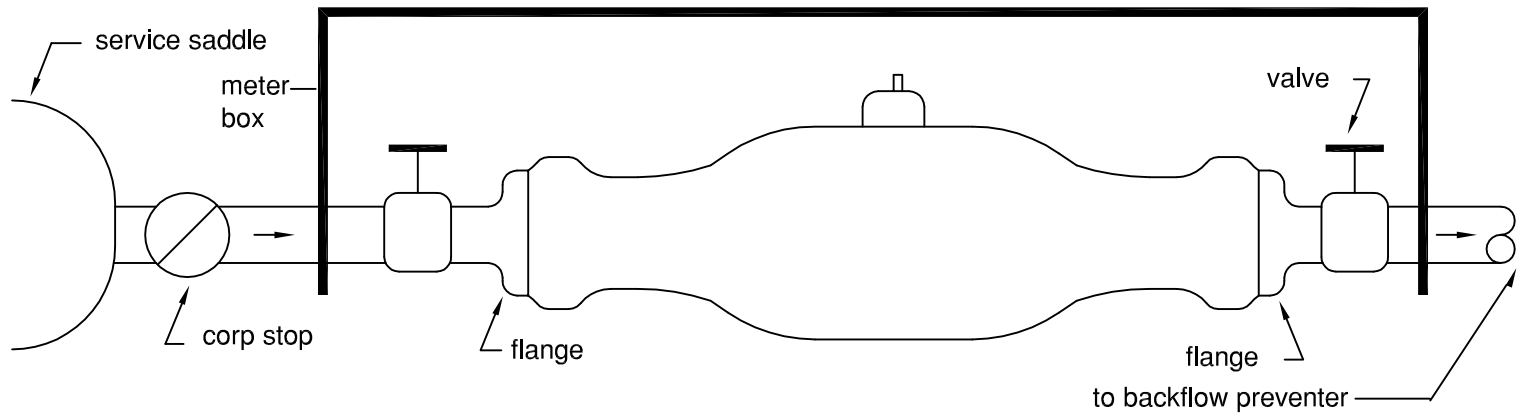
WATER  
**BY PASS METER**

Rev.	Date	Description
DWN:		NO. Water 07
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



<u>Sensus Type</u>	<u>Size</u>	<u>Operating Range (gpm)</u>	<u>Meter Length</u>	<u>End Type</u>
SR II	$\frac{3}{4}$ "	$\frac{1}{2}$ - 30	9"	threaded
	1"	$\frac{3}{4}$ - 50	10 $\frac{3}{4}$ "	threaded
OMNI C <sup>2</sup>	1 $\frac{1}{2}$ "	$\frac{1}{4}$ - 200	13"	flanged
	2"	$\frac{1}{4}$ - 200	15 $\frac{1}{4}$ "	flanged
	3"	$\frac{1}{2}$ - 500	17"	flanged
	4"	$\frac{3}{4}$ - 1000	20"	flanged
	6"	2 $\frac{1}{2}$ - 2500	24"	flanged
OMNI T <sup>2</sup>	1 $\frac{1}{2}$ "	$\frac{3}{4}$ - 200	13"	flanged
	2"	1 - 250	17"	flanged
	3"	1 $\frac{1}{2}$ - 650	19"	flanged
	4"	2 - 1250	23"	flanged
OMNI F <sup>2</sup>	4"	1 $\frac{1}{2}$ - 1000	33"	flanged
	6"	3 - 2000	45"	flanged

**NOTES:**

1. All meters shall have a minimum 10" and a maximum 18" space from the top of the angle stop or flange to the bottom of the meter box lid.
2. Installation: Add  $\frac{1}{4}$ " extra spacing to the meter length to allow for two  $\frac{1}{8}$ " thick gaskets. For example, on a 13" long 1  $\frac{1}{2}$ " Omni C<sup>2</sup> meter, leave 13  $\frac{1}{4}$ " from flange to flange.
3. For  $\frac{3}{4}$ " and 1" meter assembly, see Water 10.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**METER ASSEMBLY**

Rev. Date	Description
DWN:	NO. Water 08
CHK:	SHT. ____ OF ____

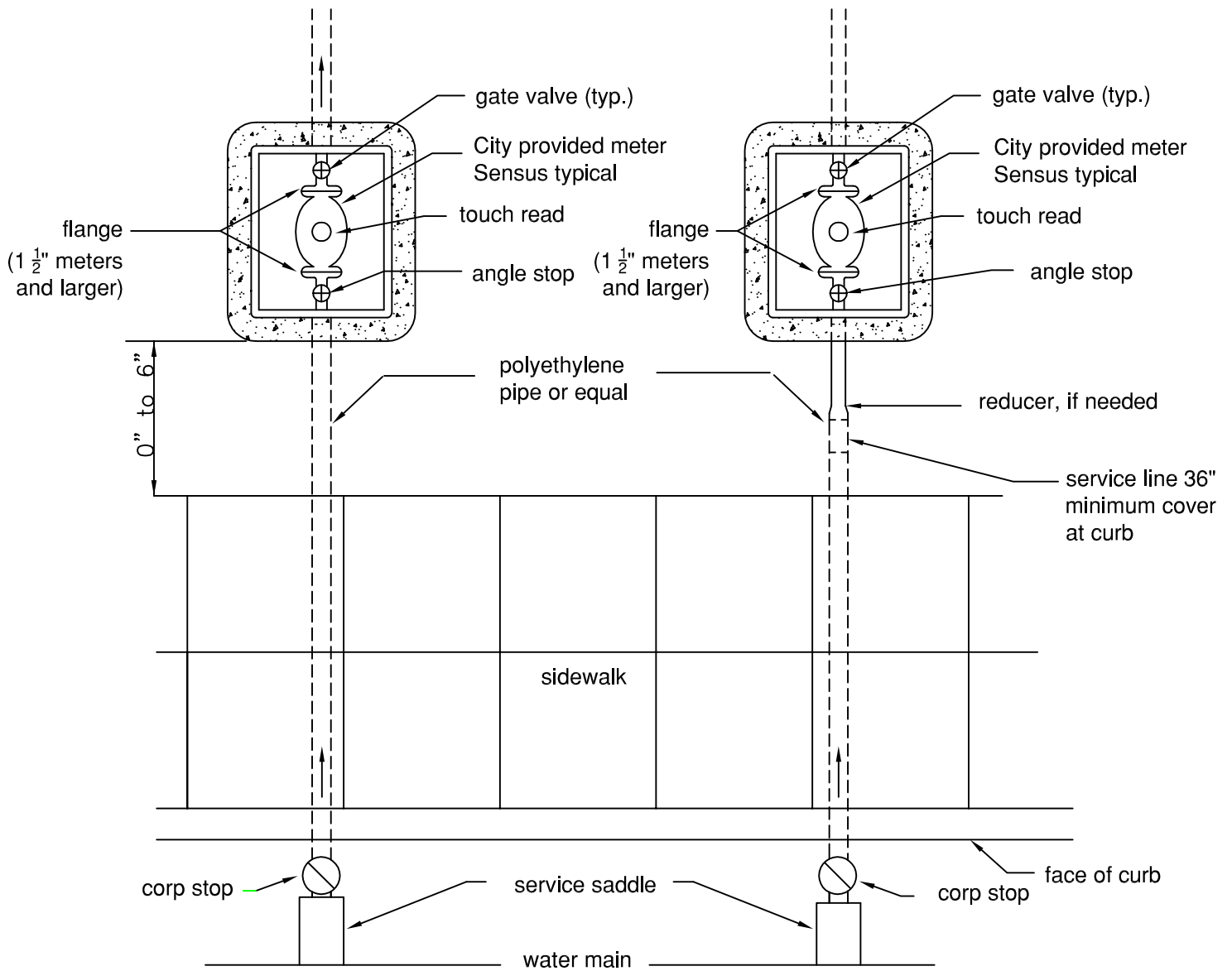
APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: July 2010

## IRRIGATION

## DOMESTIC



METER	BOX	LID
3/4"	B12	B12P
1"	B16	B16P
1 1/2"	B30	B30P
2"	B36	B36P
3"	B48	B48M
4"	B48	B48M2 (2PC lid) w/read lids
6" and up	vault	R-37 pit R37 - 54H lid w/ read lid

### NOTE:

1. Install all backflow devices after the meters.
2. 3/4" & 1" meters -- brass meter coupling provided by contractor (no flange connections)

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER

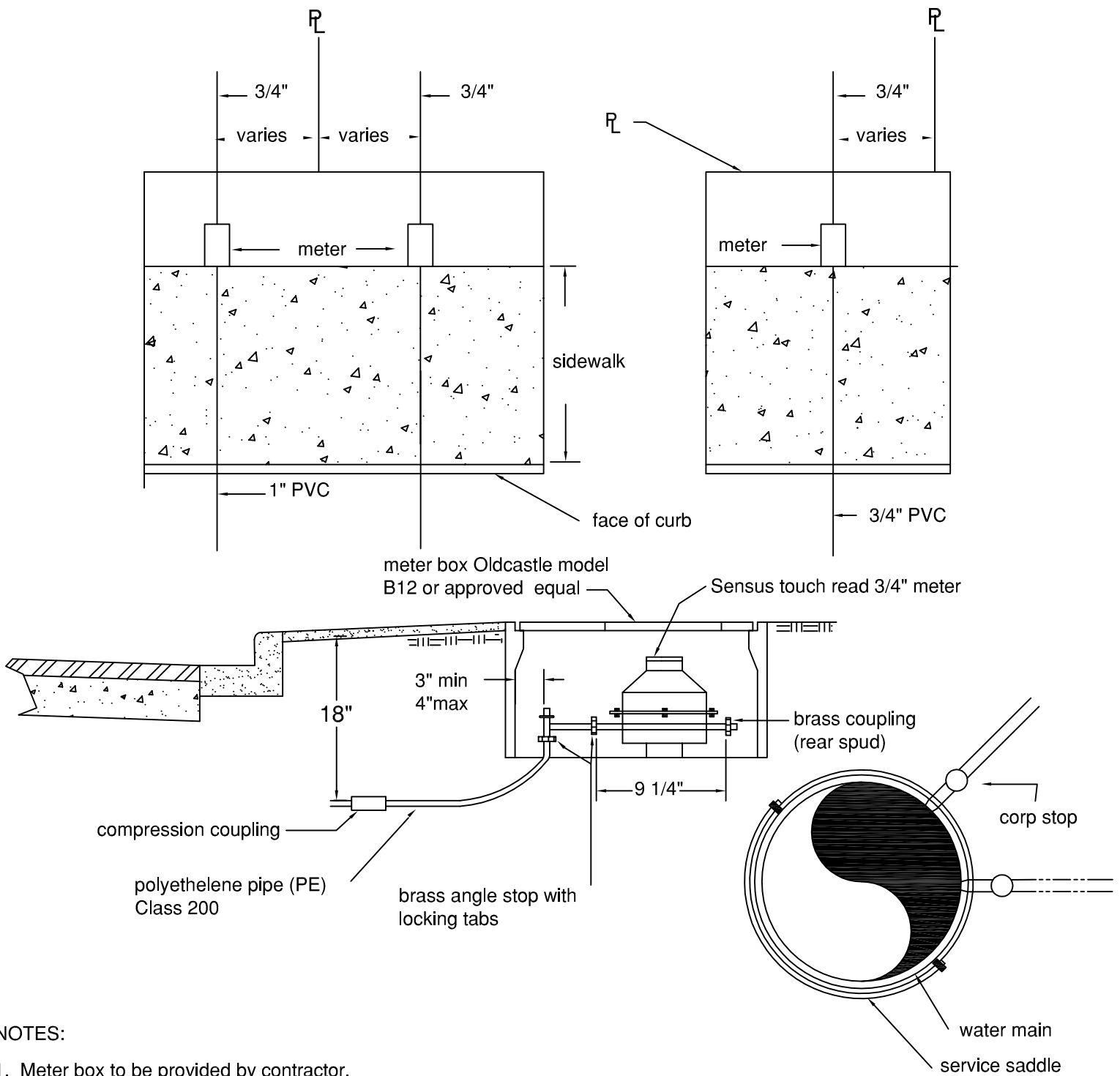
### DOMESTIC & IRRIGATION METER ASSEMBLY

Rev.	Date	Description
DWN:		NO. Water 09
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**NOTES:**

1. Meter box to be provided by contractor.
2. For location of water service see improvement plans.
3. Single strap bronze saddles shall be required for 1" taps on all mains less than 8" diameter and AC pipe 12" or smaller.
4. Double strap bronze saddle shall be required on all taps 1 1/2" or larger.
5. Double or triple strap saddle shall be used on AC pipe 12" or larger.
6. PVC pipe shall use single bolt band type stainless steel saddle.
7. All saddles shall be Mueller, Ford, or approved equal.
8. Boxes installed in driveways shall have traffic covers.
9. Meter assembly for 3/4" & 1" meters - for larger meter assembly, see Water 09

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

**TYPICAL WATER SERVICE INSTALLATION**

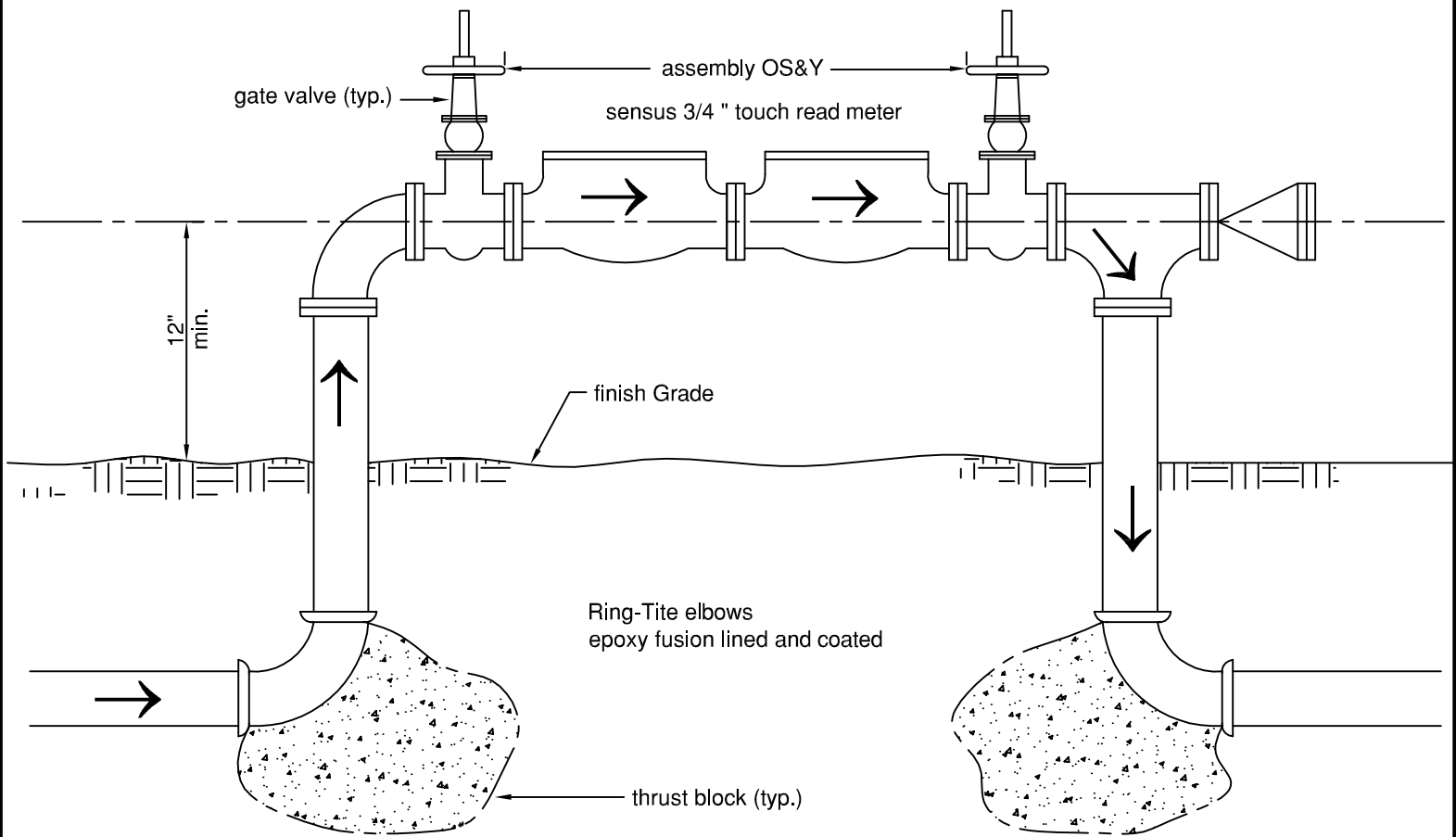
WATER

Rev. Date	Description
DWN:	NO. Water 10
CHK:	SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**NOTES:**

1. Double Check-Valve Assembly must be approved by the State of California Department of Health Approved Backflow Assemblies Guide.
2. City to install Sensus touch read meter, use detail for domestic and fire service line installations.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**DOUBLE CHECK-VALVE ASSEMBLY**

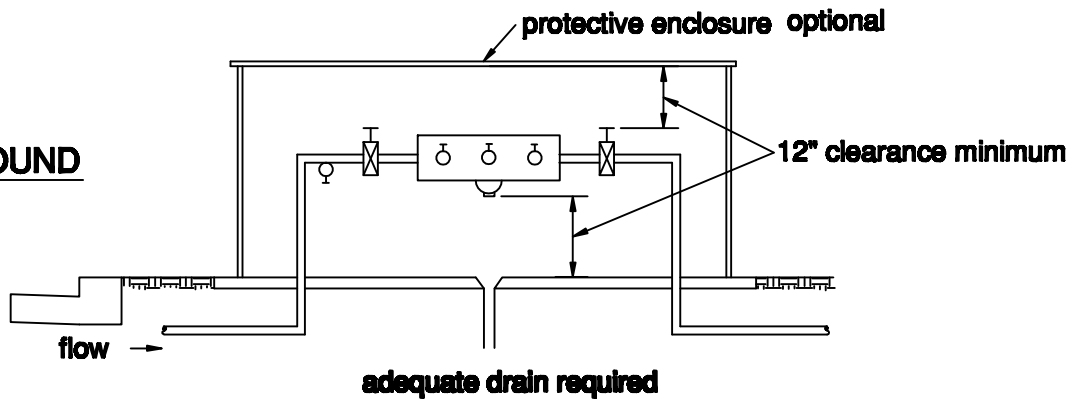
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DWN:		NO. Water 11
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

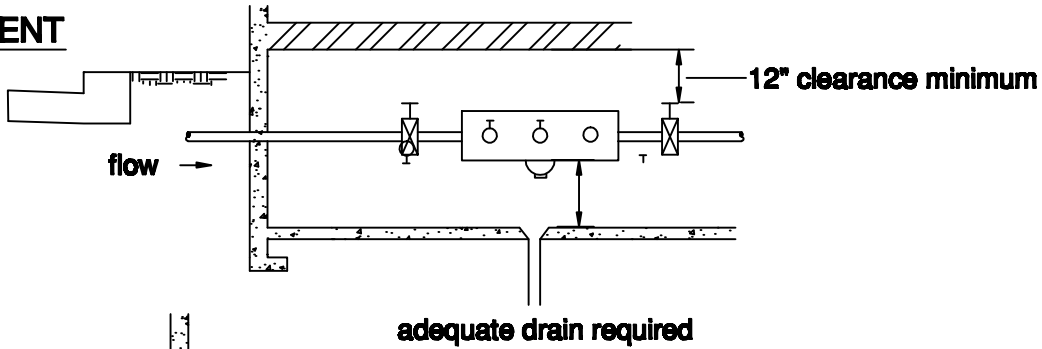
APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007

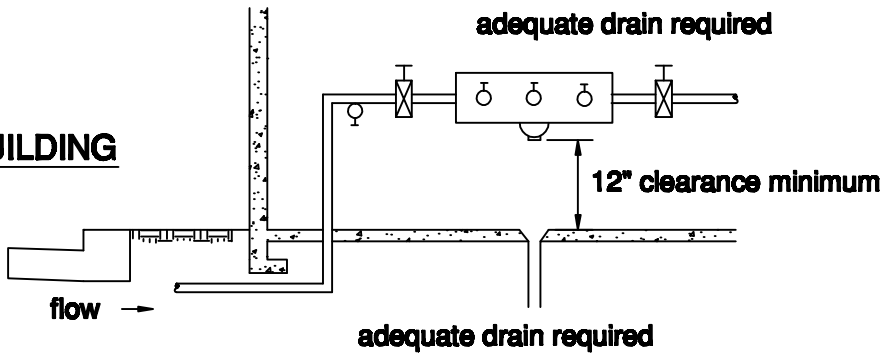
**ABOVE GROUND**



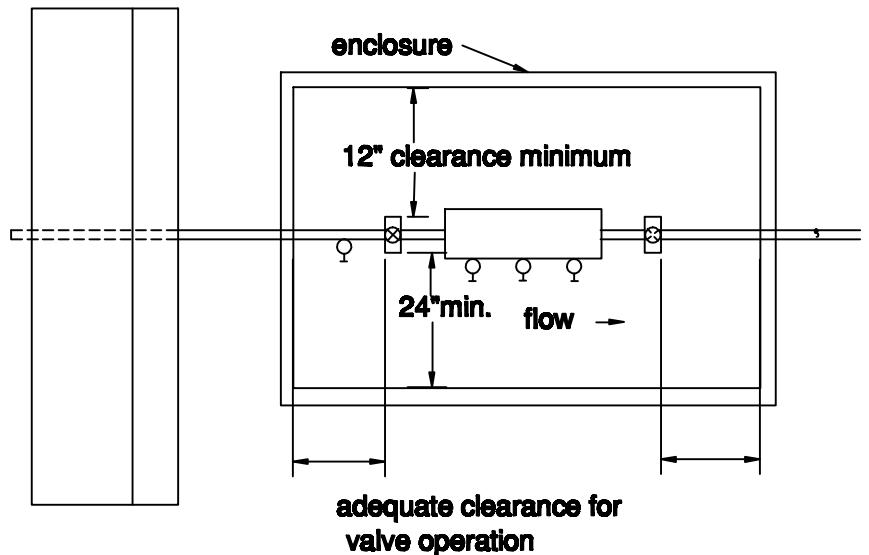
**IN BASEMENT**



**IN BUILDING**



**PLAN VIEW**



**NOTES:**

1. Design, fabrication, installation, and operation must comply with standards of the AWWA and all federal, state, and local laws, rules, regulations, orders, codes, and ordinances.
2. No connections shall be made between meter and backflow.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

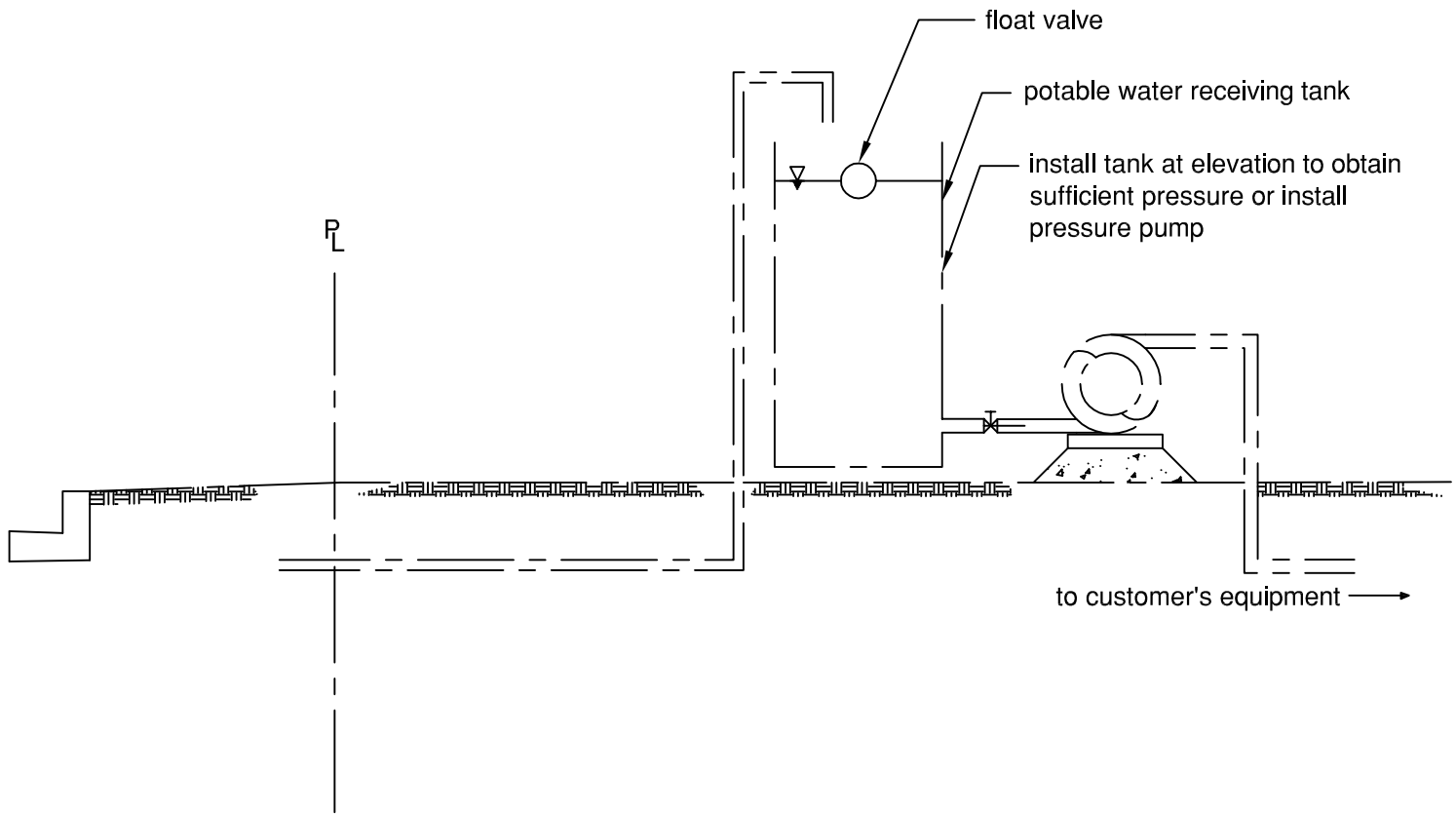
WATER  
**TYPICAL RP INSTALLATION**

Rev.	Date	Description
DWN:		NO. Water 12
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**NOTES:**

1. All metal material lower than 12" above ground must be epoxy lined and coated.
2. Tank shall be of substantial construction and of a kind and size to suit consumer's needs.
3. Tank may be situated at ground level, but must have a pump to provide adequate pressure.
4. Design, fabrication, installation, and operation must comply with the standards of the AWWA and all federal, state, and local laws, rules, regulations, orders, codes, and ordinances.
5. No connections shall be between the meter and the receiving vessel.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER

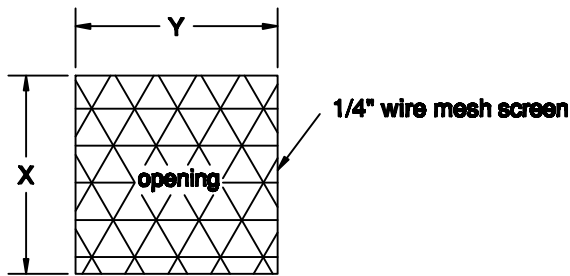
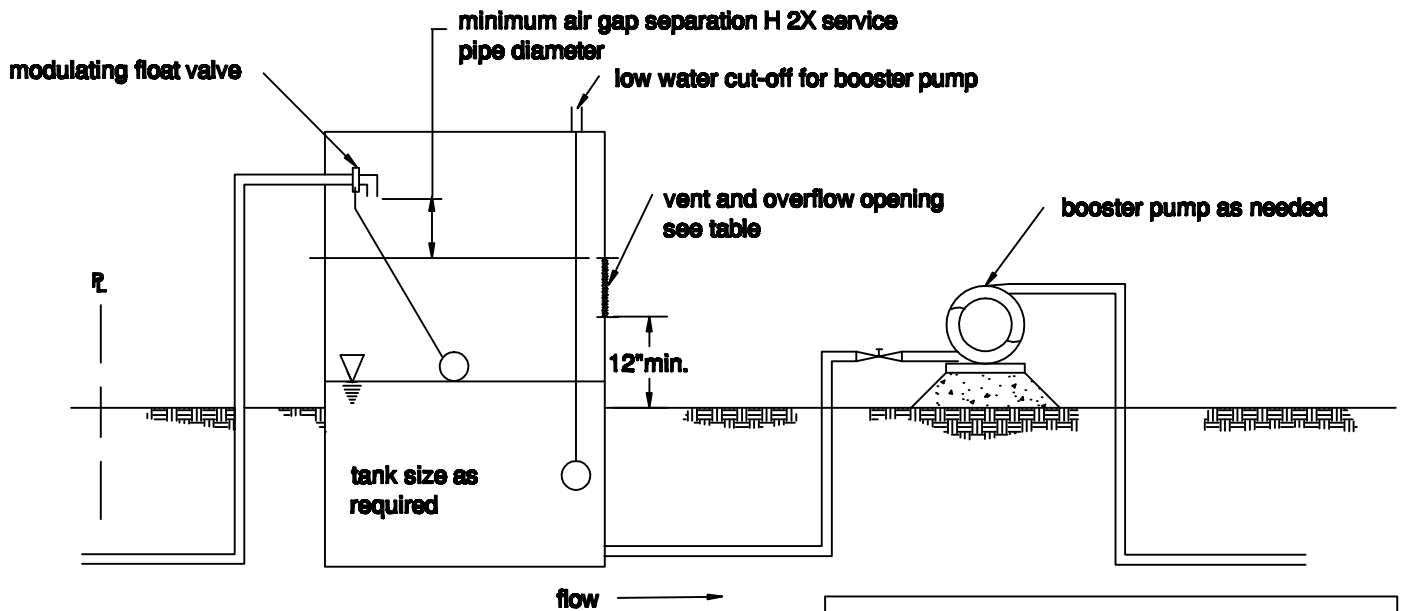
**TYPICAL AIR GAP SEPARATION INSTALLATION**

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

Rev.	Date	Description
DWN:		NO. Water 13
CHK:		SHT. ____ OF ____

SCALE: NONE  
DATE: Oct. 2007



**VENT AND OVERFLOW**

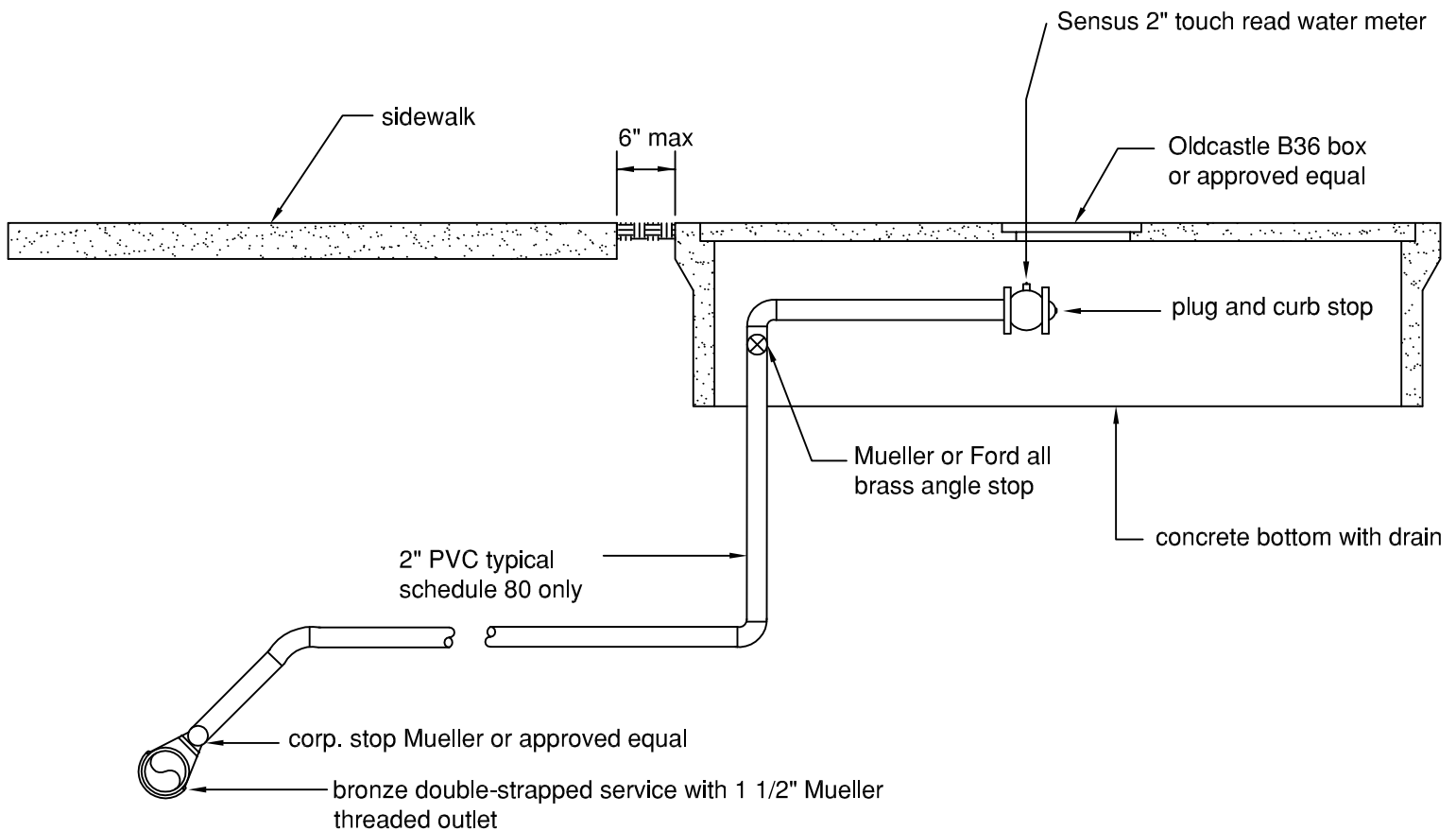
VENT AND OVERFLOW TABLE		
SERVICE PIPE SIZE	DIMENSIONS	
	X	Y
3/4"	4"	3"
1"	4"	4 1/2"
1 1/2"	5"	6"
2"	6"	7"
3"	7"	10"
4"	7"	10"
6"	7"	15"

**NOTES:**

1. Design, fabrication, installation, and operation must comply with standards of the AWWA and all federal, state, and local laws, rules, regulations, orders, codes, and ordinances.
2. No connections shall be made between the meter and the receiving vessels.
3. The overflow opening and screen size shall be as shown hereon or greater capacity as required to maintain the specified air gap separation.
4. All metal materials lower than 12" above ground level must be epoxy lined and coated.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA			
WATER		Rev. Date	Description
<b>ALTERNATIVE AIR GAP SEPARATION INSTALLATION</b>		DWN:	NO. Water 14
		CHK:	SHT. ____ OF ____
APPROVED: _____ CITY/DISTRICT ENGINEER	APPROVED: _____ DEPARTMENT SUPERINTENDENT	SCALE: NONE DATE: Oct. 2007	





**NOTES:**

1. On AC pipe 12" and smaller, the service saddle shall be Rockwell No. 315, single strap type, Mueller, Ford, or approved equal.
2. On AC pipe larger than 12", the service saddle shall be Rockwell Nos. 362 or 366, double or triple strapped type, Mueller, Ford, or approved equal.
3. On PVC pipe the service saddle shall be Rockwell No. 371, single bolt band type, Mueller, Ford, or approved equal.
4. Center outlet 14" below grade.
5. Boxes installed in driveways shall have traffic covers.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

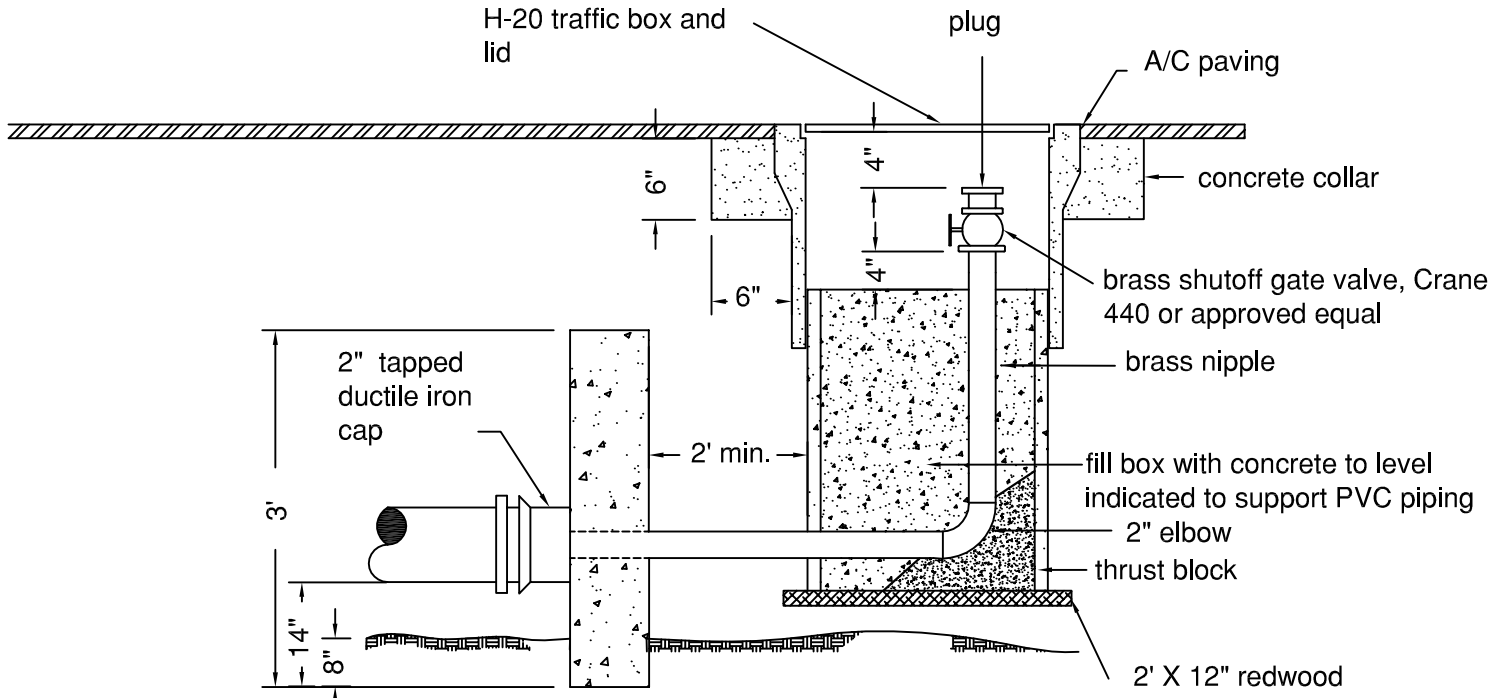
WATER  
**2" WATER METER INSTALLATION**

Rev.	Date	Description
DWN:		NO. Water 15
CHK:		SHT. ____ OF ____

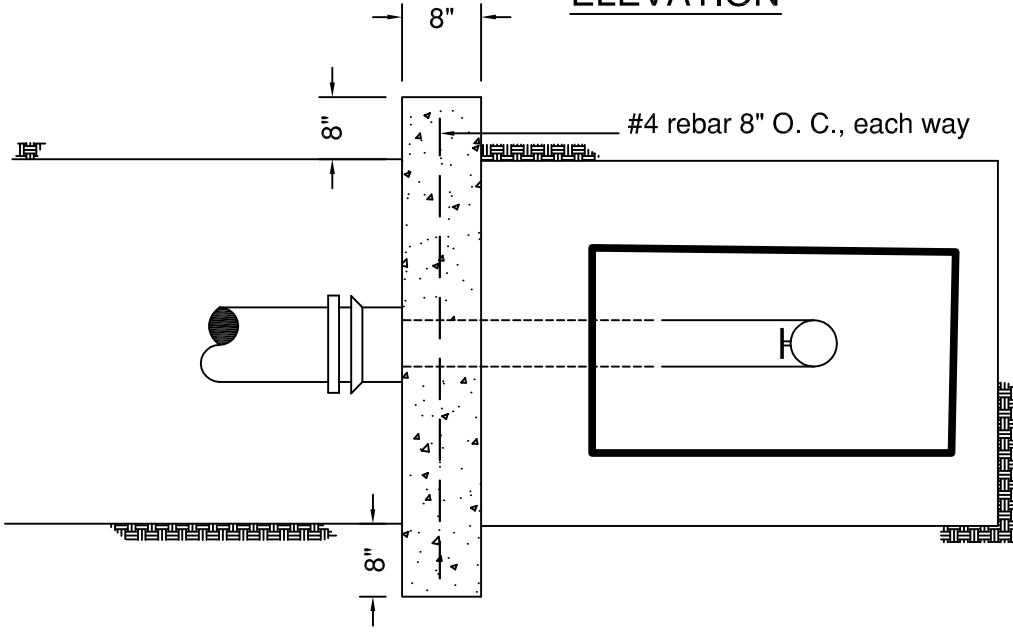
APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**ELEVATION**



**PLAN**

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

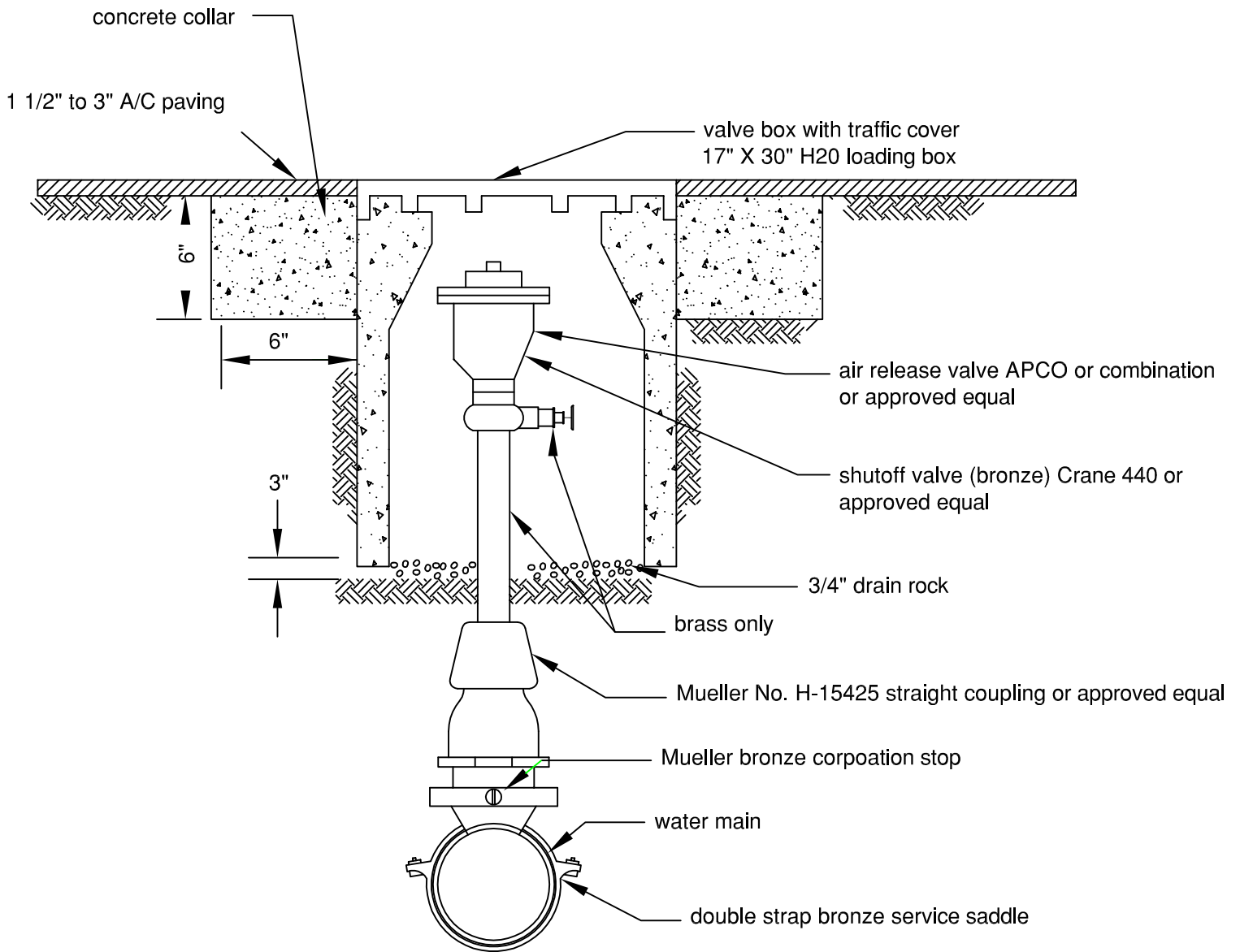
**WATER  
2" WATER BLOWOFF**

Rev. Date	Description
DWN:	NO. Water 16
CHK:	SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**NOTES:**

1. Valves and boxes are to be located directly over the pipe.
2. Double strap bronze service saddles (Mueller, Ford, or approved equal) shall be required on all water main pipes.
3. Air release valves are to be factory fusion epoxy lined and coated.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

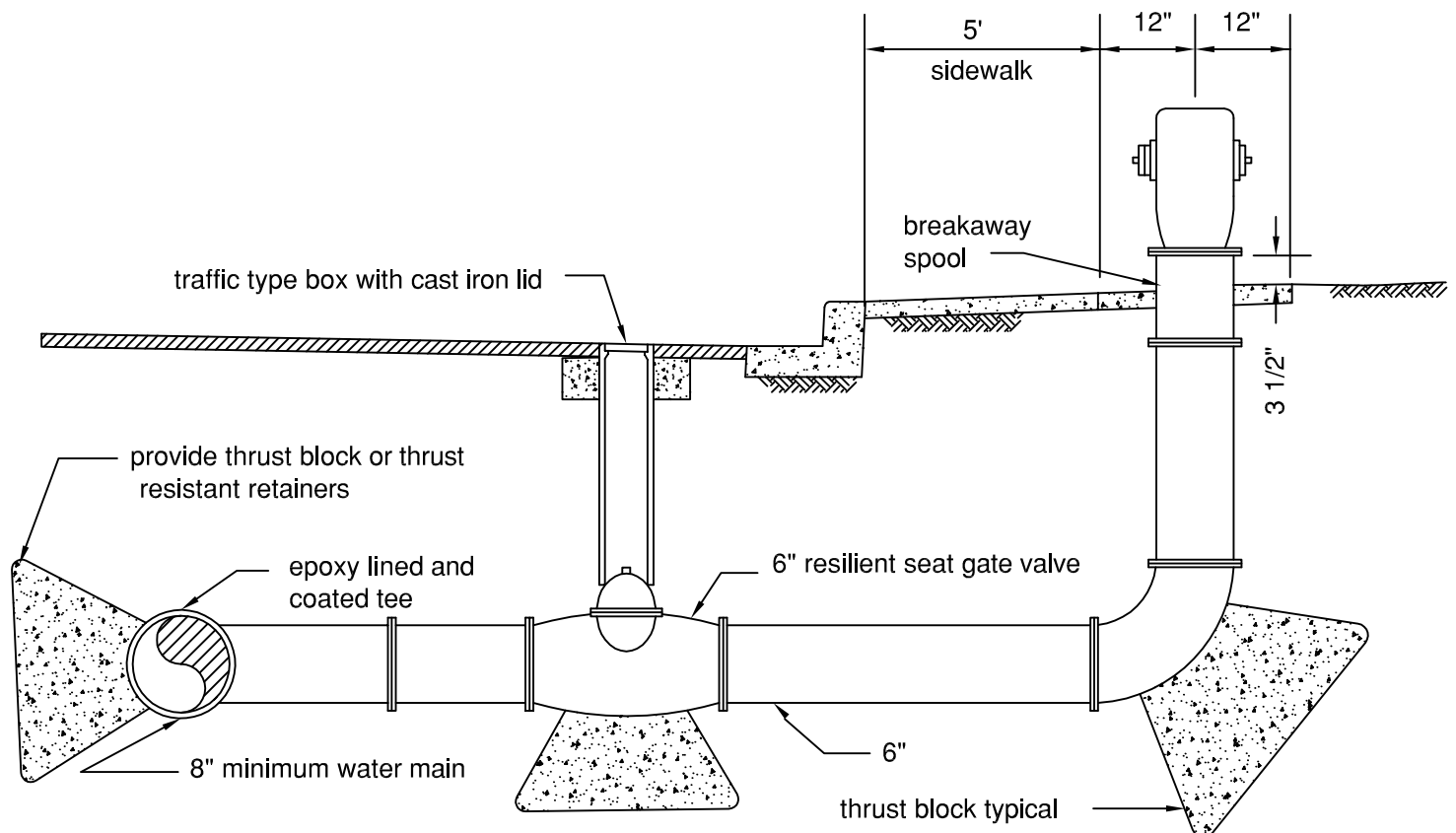
WATER  
**AIR RELEASE VALVE ASSEMBLY**

Rev. Date	Description
DWN:	NO. Water 17
CHK:	SHT. ____ OF ____

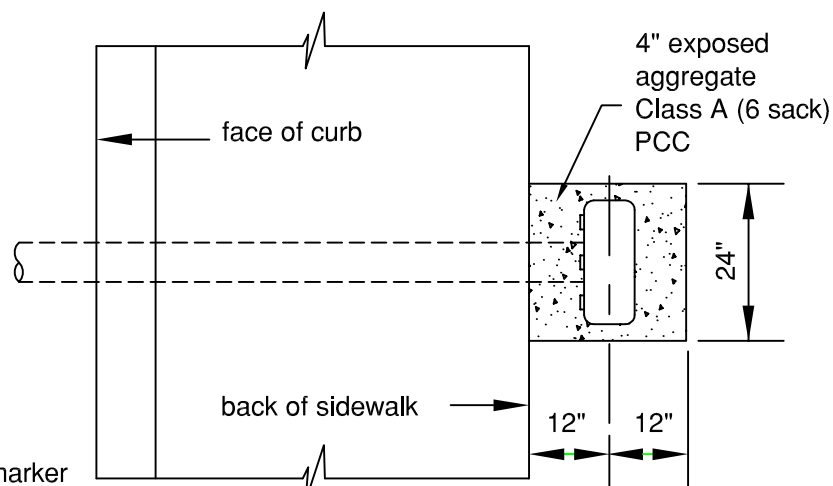
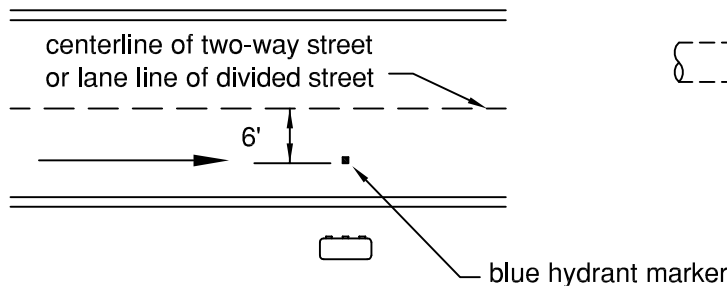
APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007



**MARKER LOCATION**



**PLAN**

**NOTES:**

1. Blue markers shall be placed in the center of the travel lane adjacent to the fire hydrant.
2. Blue markers shall be Stimsonite #88 (reflective both ends) or approved equal, and shall be attached to pavement per California Standard Specification, section 95-2.04.
3. Hydrant and bury, including 5/8" X 3 1/4" type 316 stainless steel bolts, nuts, washers, and gaskets to be furnished by contractor.
4. Valve and bury to be epoxy lined and coated as specified in section 15060.
5. Bury shall have slotted holes in order to permit aligning face of hydrant with face of curb.
6. For anode installation, see Cathodic Protection Detail.

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CITY OF FOSTER CITY, CALIFORNIA

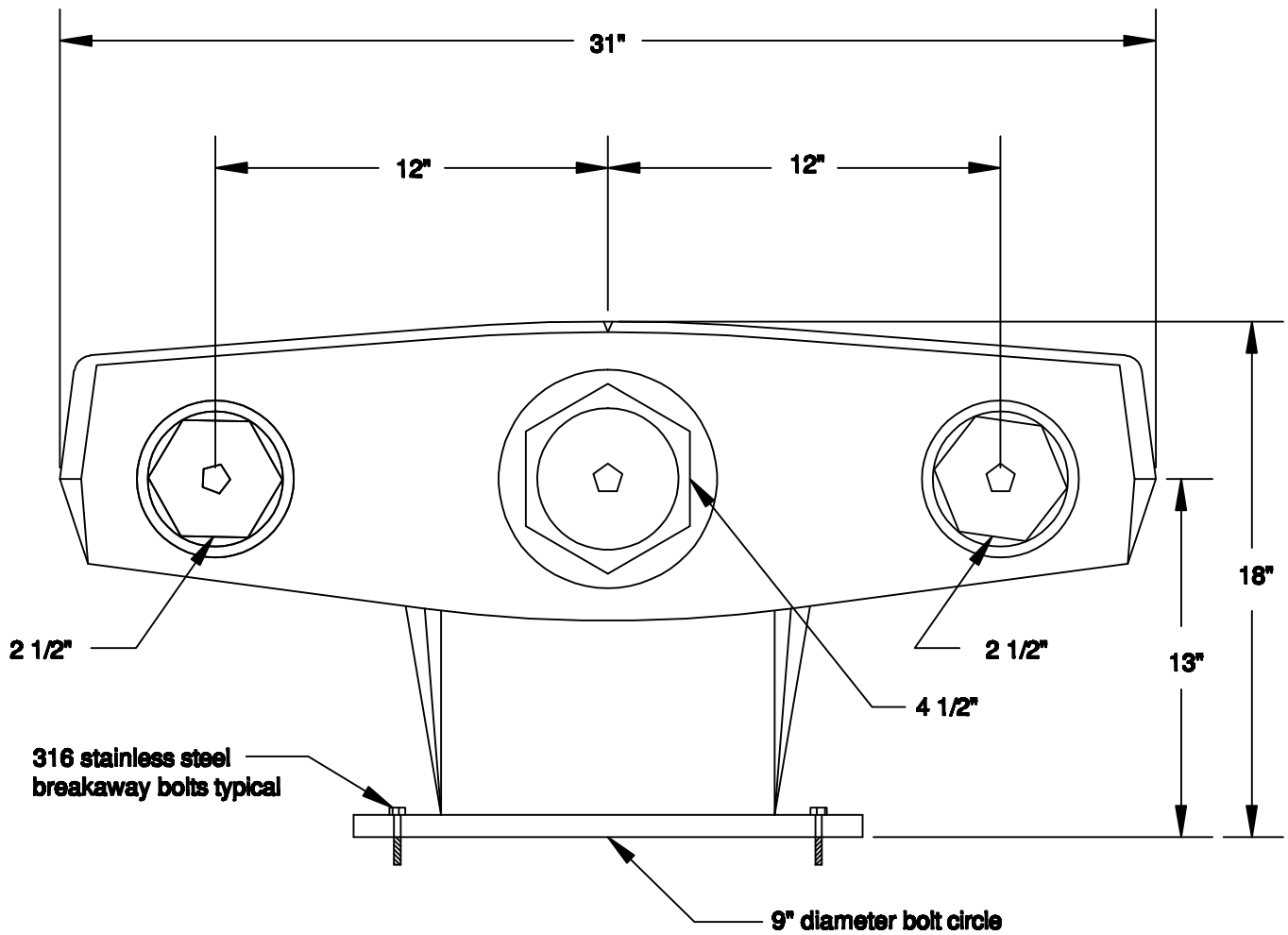
WATER SYSTEM  
**FIRE HYDRANT ASSEMBLY**

Rev.	Date	Description
DWN:		NO. Water 18
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007

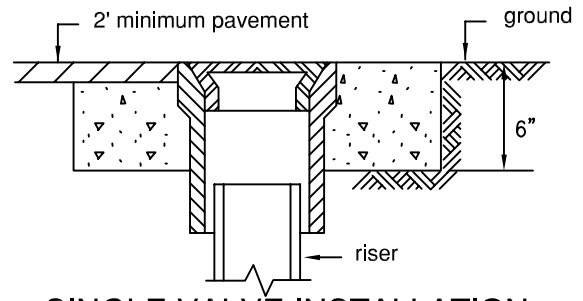
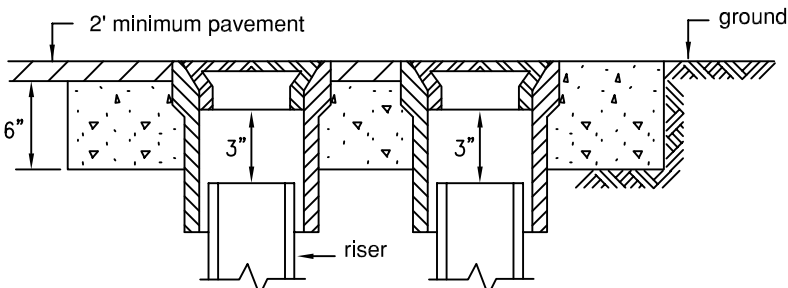
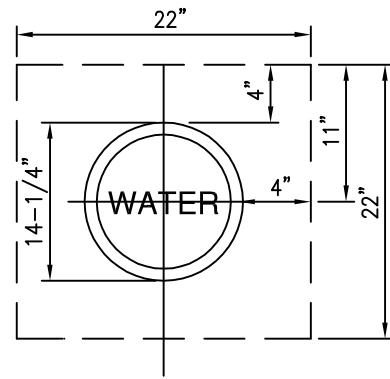
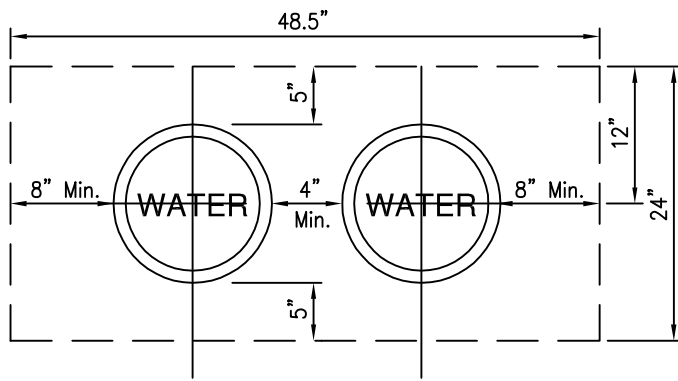


**CLOW 92 LOW PROFILE**

**NOTES:**

1. Fire hydrant shall be Model 92, Foster City type, manufactured by Clow Co.
2. Entire assembly shall be fusion epoxy lined and coated.
3. All hydrants shall be one color: Kelly-Moore 1700-333 Deep Tint Base Fire Hydrant Green.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA				
WATER <b>FIRE HYDRANT</b>		Rev.	Date	Description
APPROVED: _____ CITY/DISTRICT ENGINEER		DWN:		NO. Water 19
APPROVED: _____ DEPARTMENT SUPERINTENDENT		CHK:		SHT. ____ OF ____
				SCALE: NONE
				DATE: Oct. 2007



**DOUBLE VALVE INSTALLATION**

**SINGLE VALVE INSTALLATION**

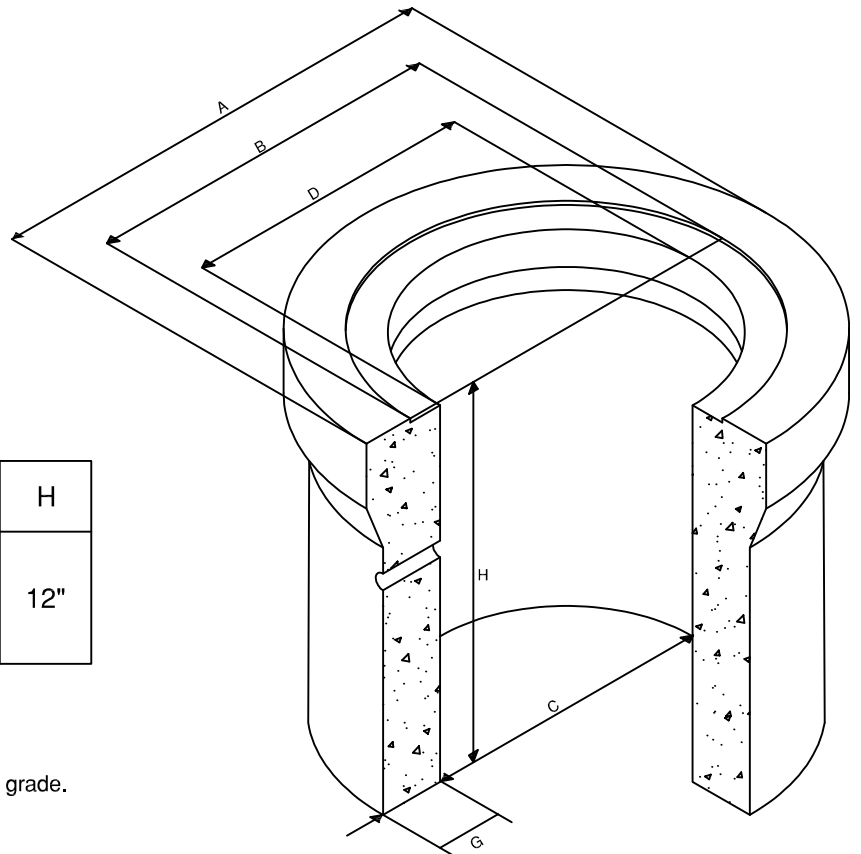
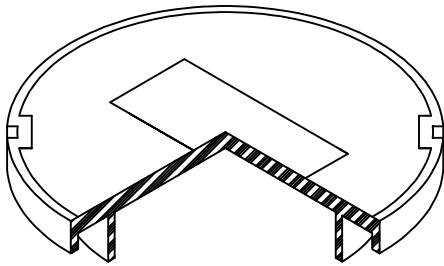


TABLE OF DIMENSIONS	A	B	C	D	G	H
	14 1/4"	11 1/2"	10 1/8"	9"	1"	12"

**NOTES:**

1. Contractor shall bring riser stem 18" maximum below finish grade.
2. Grout between box and valve body to prevent infiltration.
3. Oldcastle G5 concrete traffic valve box or approved equal.
4. Cathodic protection wires shall be attached to the outside of the riser and extend into the valve box.
5. Wires shall be tested for continuity and connect to a Holloway shunt board.

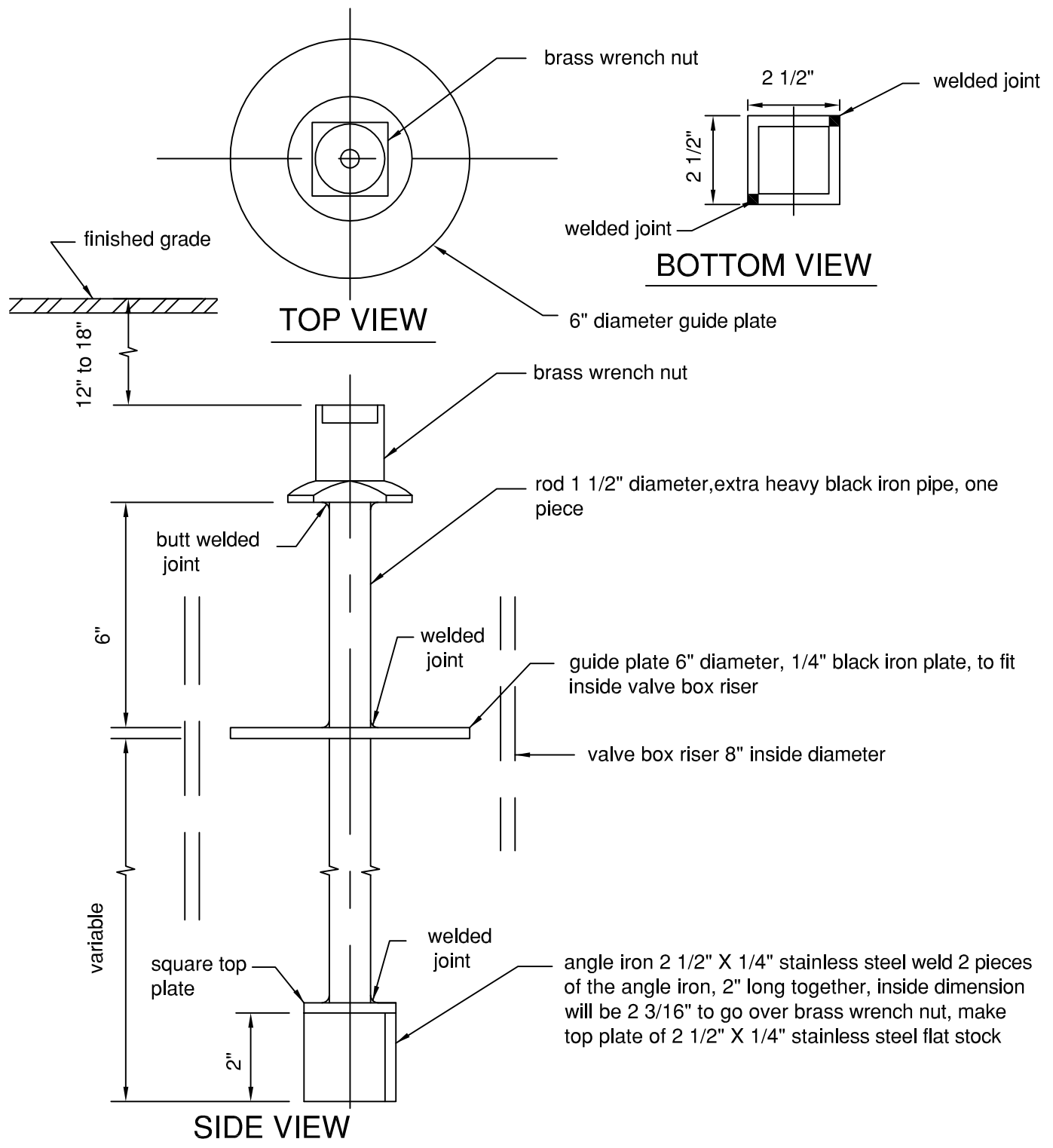
ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

**WATER  
VALVE BOX**

Rev. Date	Description
DWN:	NO. Water 20
CHK:	SHT. ____ OF ____
SCALE: NONE	
DATE: Oct. 2007	

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT



**NOTES:**

1. Extensions are required for valves with nuts more than 3' below the surface.
2. After assembly the valve stem shall be fusion epoxy coated per standard specifications.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

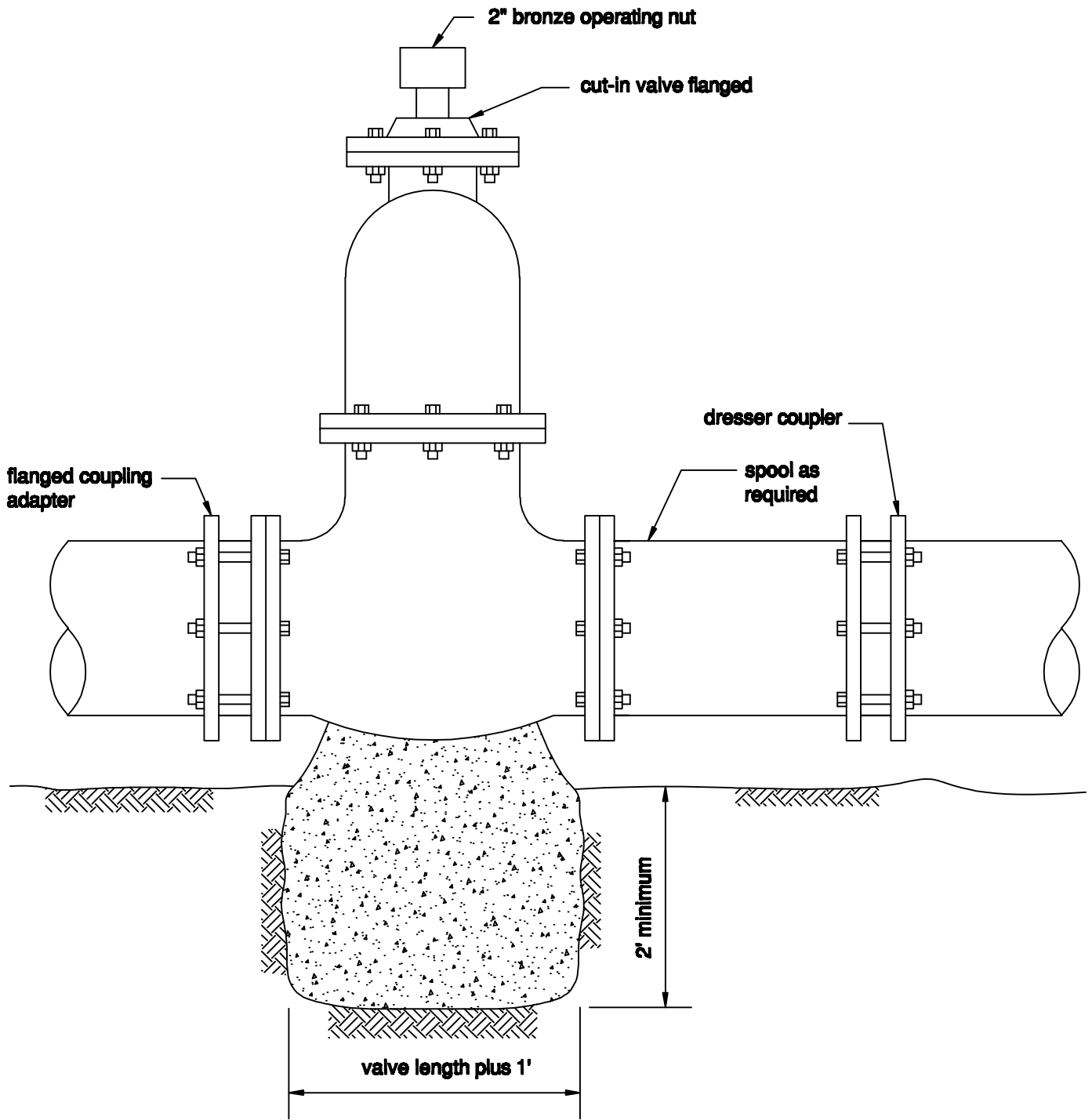
WATER  
**OPERATING NUT EXTENSION**

Rev.	Date	Description
DWN:		NO. Water 21
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007

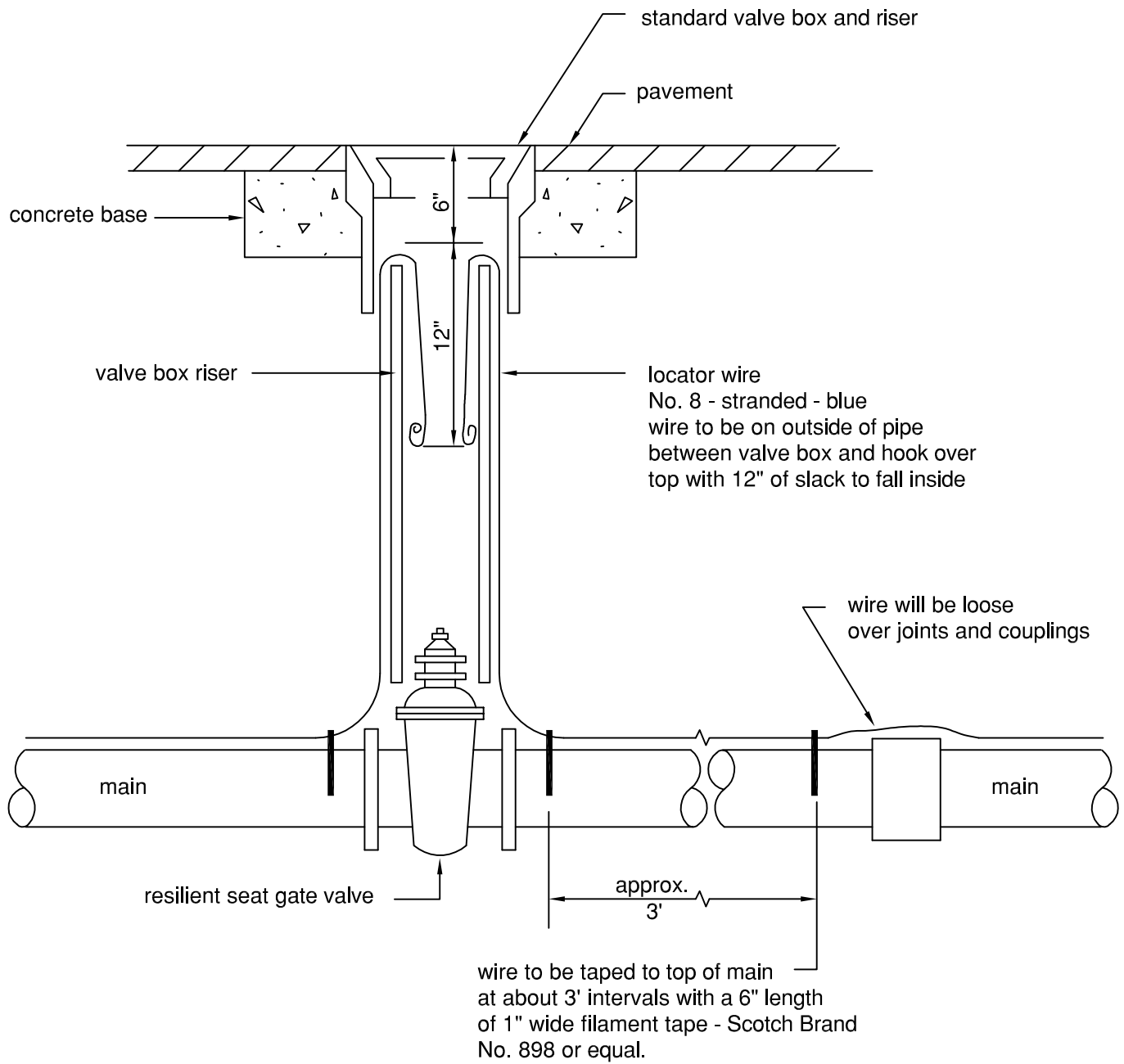


**NOTES:**

1. Block to be constructed of Class B concrete. Block shall be width of trench.
2. All valves to be factory hot dipped epoxy lined and coated (10 mil thick).
3. All bolts, nuts, and washers to be 316 stainless steel.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA				
WATER		Rev. Date	Description	
<b>CUT-IN VALVE</b>		DWN:	NO. Water 22	
		CHK:	SHT. ____ OF ____	
APPROVED: _____ CITY/DISTRICT ENGINEER	APPROVED: _____ DEPARTMENT SUPERINTENDENT	SCALE: NONE		
		DATE: Oct. 2007		





ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
**LOCATOR WIRE INSTALLATION**

Rev.	Date	Description
DWN:		NO. Water 23
CHK:		SHT. ____ OF ____

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERINTENDENT

SCALE: NONE  
DATE: Oct. 2007

# CATHODIC PROTECTION NOTES

## GENERAL

1. All buried ferrous metallic pipe, valves, fittings etc. shall be cathodically protected.

## WELDS:

1. Wire connections to pipes, valves, fittings etc. shall be made using EXOTHERMIC weld kits.
2. Epoxy Coating shall be removed from the surface of the pipe, valve, fitting etc. over an area just sufficient to make the weld.
3. Exothermic welds shall be covered with a molded plastic dome filled with corrosion resistant compound (Handy Cap or equal) and secured with 10 mil tape.
4. All areas where the epoxy coating has been removed shall be repaired with liquid epoxy.
5. Exothermic welds shall not touch each other.

## WIRE:

1. Wire for test stations shall be solid single conductor copper wire No. 10 or No. 12 AWG as shown.
2. Wire for Continuity bonds shall be stranded single conductor copper wire No. 8 AWG.
3. All wires shall have a minimum of 24" cover, be free of joints and splices and have at least 18" slack left in the test station.
4. Continuity Bond shall be a maximum length of 10 feet.

## TEST STATION:

1. Test Station shall be installed per standard drawing "Cathodic Protection -- Test Station"
2. Test Stations shall have the legend "ANODE" cast on the lid.

## SACRIFICIAL ANODES:

1. Sacrificial anodes shall be zinc or magnesium anodes.
2. Bare Anode weight per installation shall be 30lbs minimum
3. See Cathodic Protection -- Anode Size (Sheet 5) for Anode Weight
4. Anode shall be placed a minimum of 3 feet from closest metal object.
5. Anode shall be drenched with water prior to backfilling trench.

## TEST & INSPECTION PROCEDURES:

1. City shall test cathodic protection assembly for continuity prior to backfilling of trench.
2. Contractor shall provide the City with test data indicating that cathodic protection assembly is operating at an acceptable potential.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

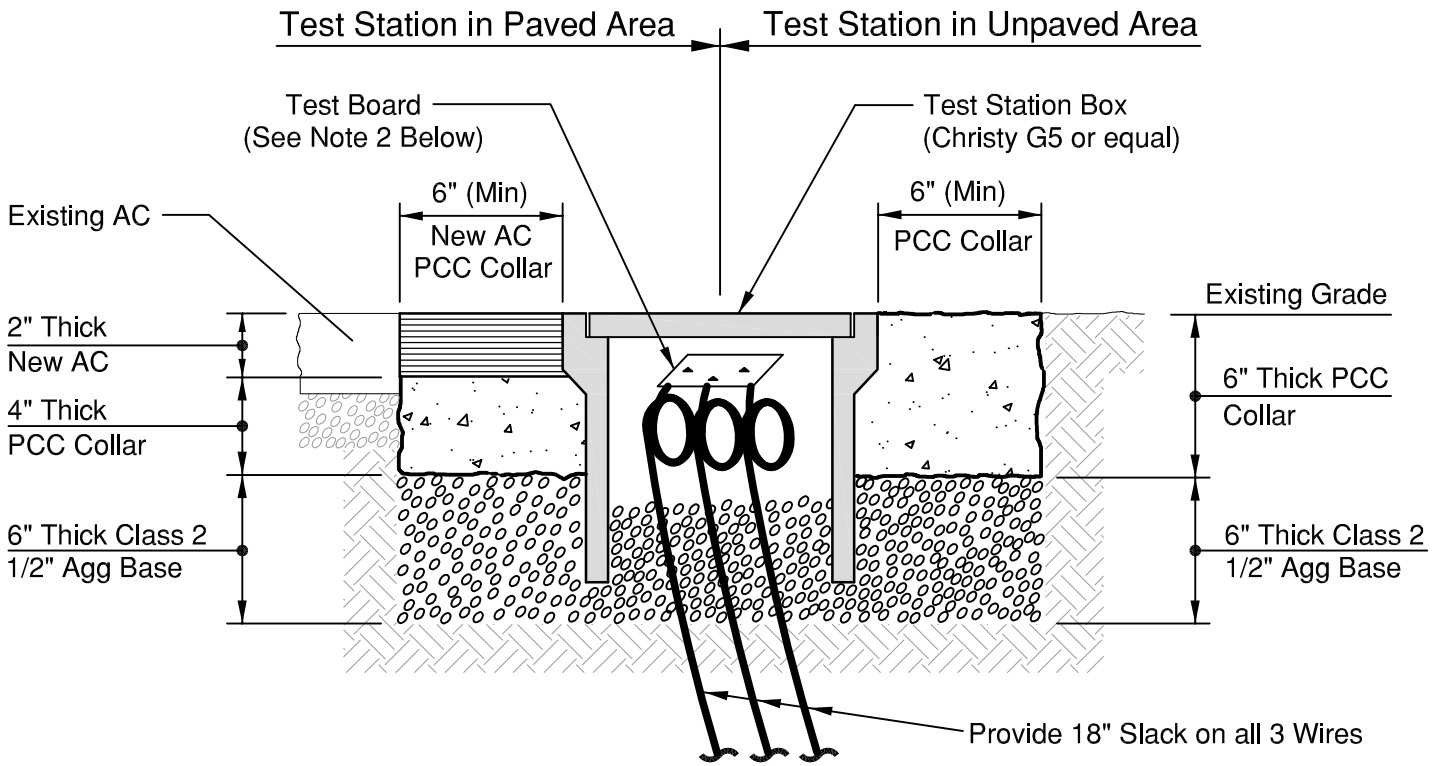
WATER  
**CATHODIC PROTECTION -- NOTES**

Rev	Date	Description
DWN:		Dwg No. Water 24
CHK:		Sheet 1 of 5

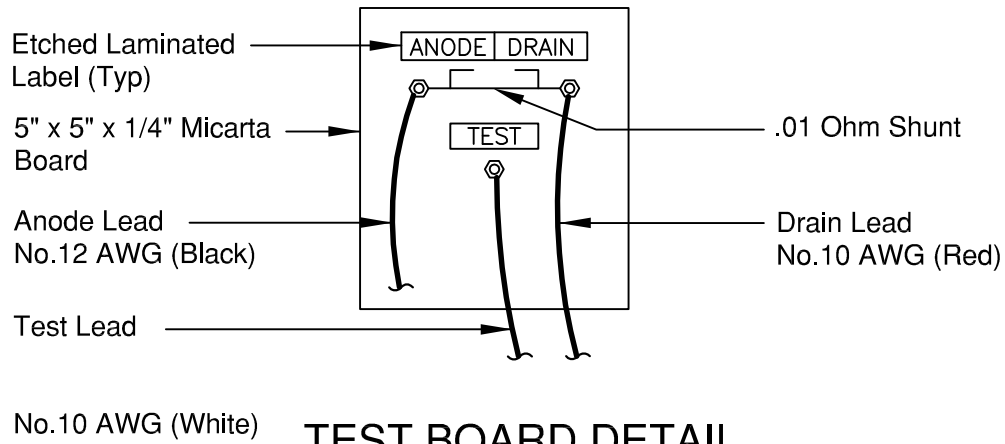
APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERVISOR

Scale: None  
Date:



**TEST STATION HOUSING DETAIL**



**TEST BOARD DETAIL**

**NOTES:**

1. FOR GENERAL NOTES SEE CATHODIC PROTECTION SHEET 1
2. TEST BOARD MAY BE:
  - (a) MICARTA TYPE AS SHOWN ABOVE.
  - (b) "BIG FINK" TYPE STATION OR ENGINEER APPROVED EQUAL.

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CITY OF FOSTER CITY, CALIFORNIA

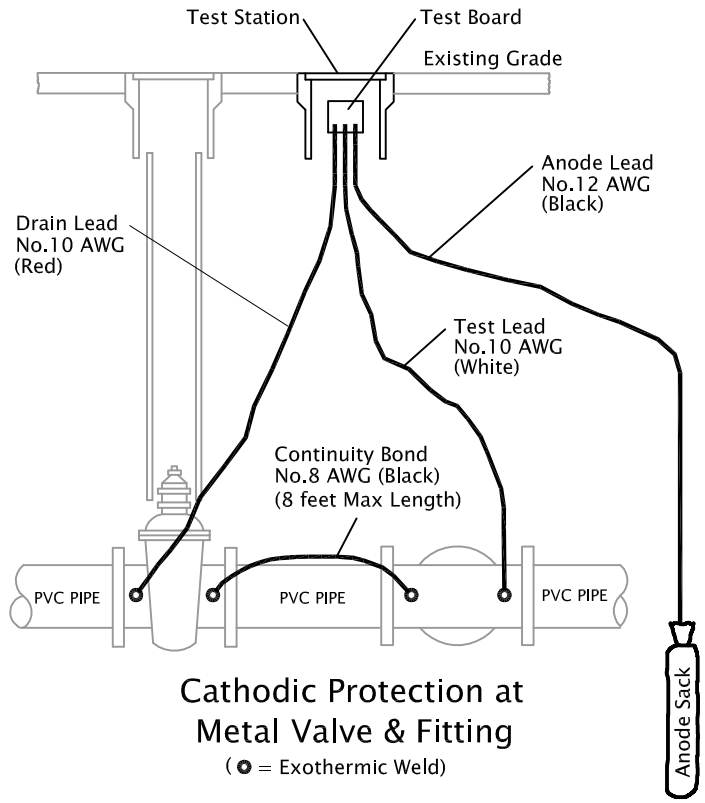
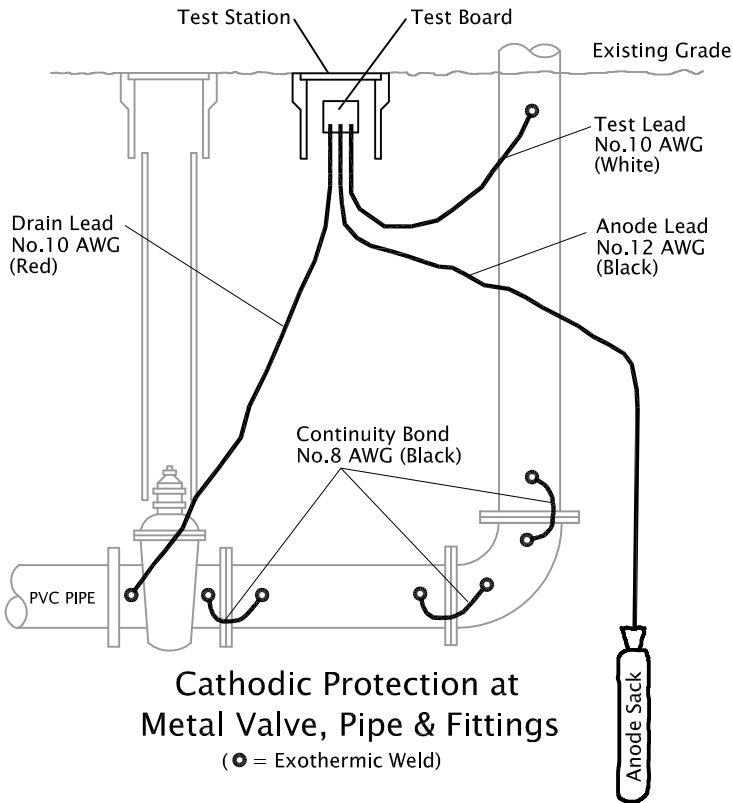
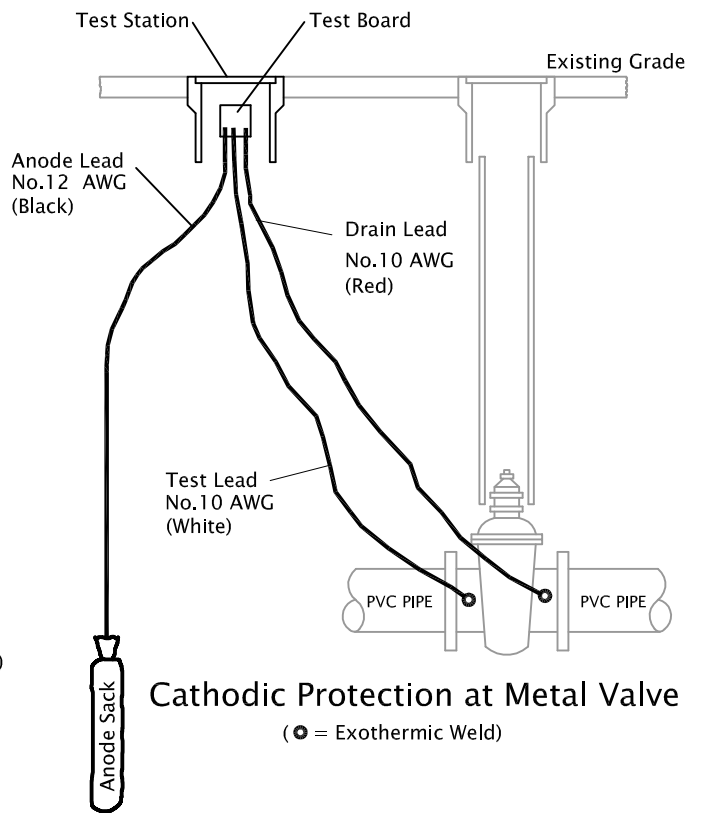
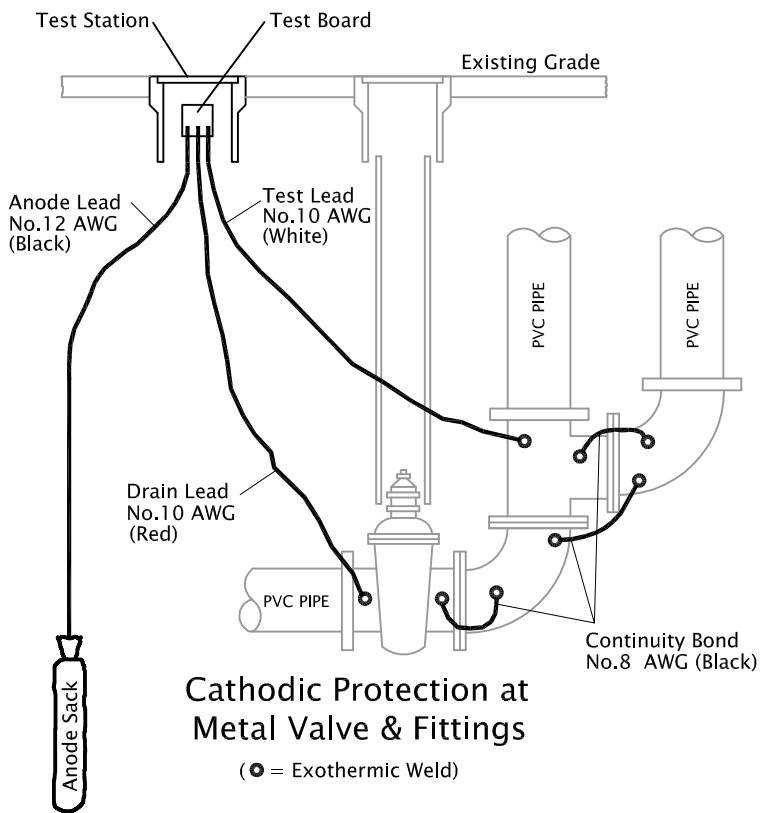
WATER  
**CATHODIC PROTECTION -- TEST STATION**

Rev	Date	Description
DWN:		Dwg No. Water 25
CHK:		Sheet 2 of 5

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERVISOR

Scale: None  
Date: \_\_\_\_\_



FOR NOTES SEE CATHODIC PROTECTION SHEET 1

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
 CITY OF FOSTER CITY, CALIFORNIA

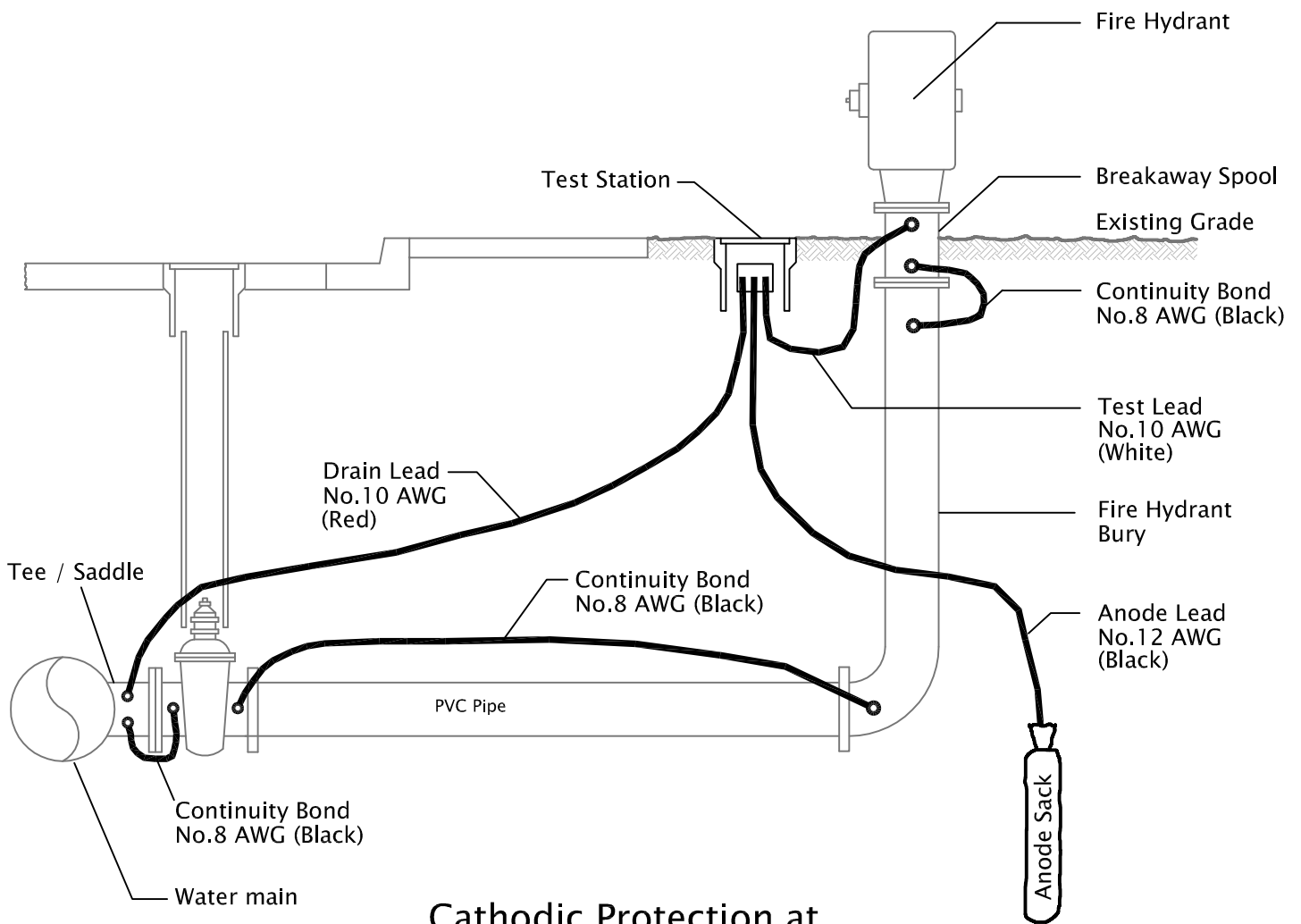
WATER  
**CATHODIC PROTECTION -- LAYOUT AT VALVES & FITTINGS**

Rev	Date	Description
DWN:		Dwg No. Water 26
CHK:		Sheet 3 of 5

APPROVED: \_\_\_\_\_  
 CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
 DEPARTMENT SUPERVISOR

Scale: None  
 Date: \_\_\_\_\_



### Cathodic Protection at Fire Hydrant

(● = Exothermic Weld)

FOR NOTES SEE CATHODIC PROTECTION SHEET 1

ESTERO MUNICIPAL IMPROVEMENT DISTRICT  
CITY OF FOSTER CITY, CALIFORNIA

WATER  
CATHODIC PROTECTION -- LAYOUT AT FIRE HYDRANTS

Rev	Date	Description
DWN:		Dwg No. Water 27
CHK:		Sheet 4 of 5

APPROVED: \_\_\_\_\_  
CITY/DISTRICT ENGINEER

APPROVED: \_\_\_\_\_  
DEPARTMENT SUPERVISOR

Scale: None  
Date: \_\_\_\_\_

**TABLE 1** (Anode weight in lbs for pipe and fittings)

PIPE SIZE	VALVE	CROSS *	TEE *	ELBOW	RT. X FLG ADAPTER	FIRE HYDRANT AND BURY	EACH 36" OF SPOOL LENGTH
4"	1.2	1.5	1.2	1	0.5	-	1
6"	1.8	2.3	1.8	1.5	0.5	3	1.5
8"	2.4	3	2.4	2	0.5	-	2
10"	3	3.8	3	2.5	0.5	-	2.5
12"	3.6	4.5	3.6	3	0.5	-	3
14"	4.2	5.3	4.2	3.5	0.5	-	3.5
16"	4.8	6.0	4.8	4.0	0.5	-	4.0

\* Base Weight Required on Largest Outlet

**NOTES:**

1. Bare anode weight per installation shall be 30lbs minimum
2. Table 1 indicates the anode weight (lbs) for pipe and fittings
3. Weight of Anode shall be rounder UP in 5lb increments

Anode Weight Example 'A'

A configuration contains:	4 -- 12" valves	= 14.4lbs	(4 x 3.6lbs)
	3 -- 12" tee's	= 10.8lbs	(3 x 3.6lbs)
	1 -- 12" cross	= 4.5lbs	(1 x 4.5lbs)
	2 -- 12" elbows	= 6.0lbs	(2 x 3lbs)
	<b>TOTAL</b>	<b>35.7LBS</b>	

Example 'A' indicates that the minimum weight of the anode shall be 40lbs

Anode Weight Example 'B'

A configuration contains:	2 -- 6" valves	= 3.6lbs	(2 x 1.8lbs)
	1 -- 6" tee	= 1.8lbs	(1 x 1.8lbs)
	2 -- 6" elbows	= 3.0lbs	(2 x 1.5lbs)
	<b>TOTAL</b>	<b>8.4LBS</b>	

Example 'B' indicates that the minimum weight of the anode shall be 30lbs

FOR NOTES SEE CATHODIC PROTECTION SHEET 1

ESTERO MUNICIPAL IMPROVEMENT DISTRICT				
CITY OF FOSTER CITY, CALIFORNIA				
WATER <b>CATHODIC PROTECTION -- ANODE SIZE</b>		Rev	Date	Description
		DWN:		Dwg No. Water 28
		CHK:		Sheet 5 of 5
APPROVED:	APPROVED:	Scale: None		
CITY/DISTRICT ENGINEER	DEPARTMENT SUPERVISOR	Date:		