

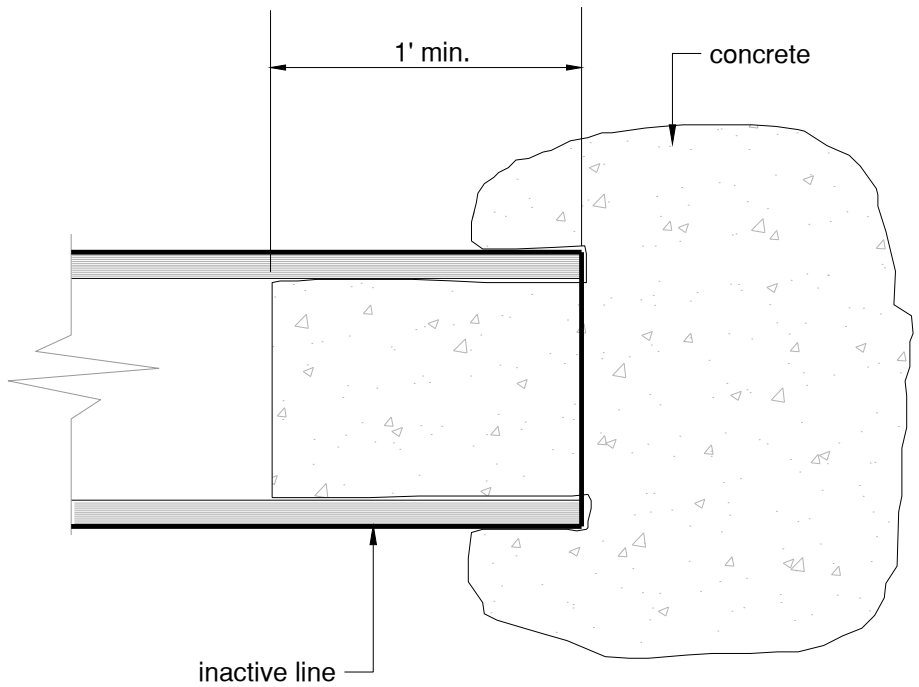
WATER STANDARD DETAILS

FOSTER CITY ESTERO MUNICIPAL IMPROVEMENT DISTRICT



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(not to scale)

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

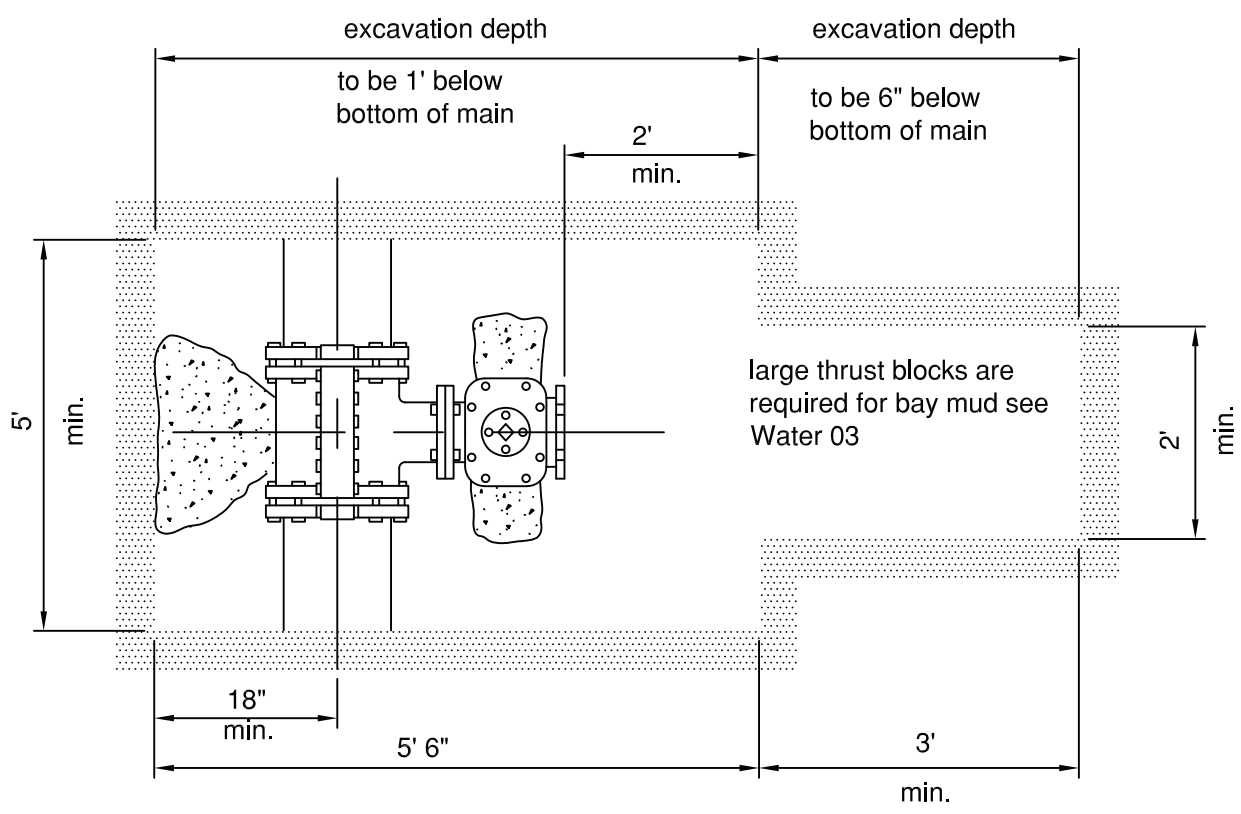
**WATER
CUT AND PLUG INACTIVE LINE**

| Rev | Date | Description |
|------|------|------------------|
| | | |
| DWN: | | Dwg No. Water 01 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



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 if pipe is unrestrained.
3. For bay mud conditions see Water Detail 03A.
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

EXCAVATION FOR TAPPING SLEEVES & VALVES

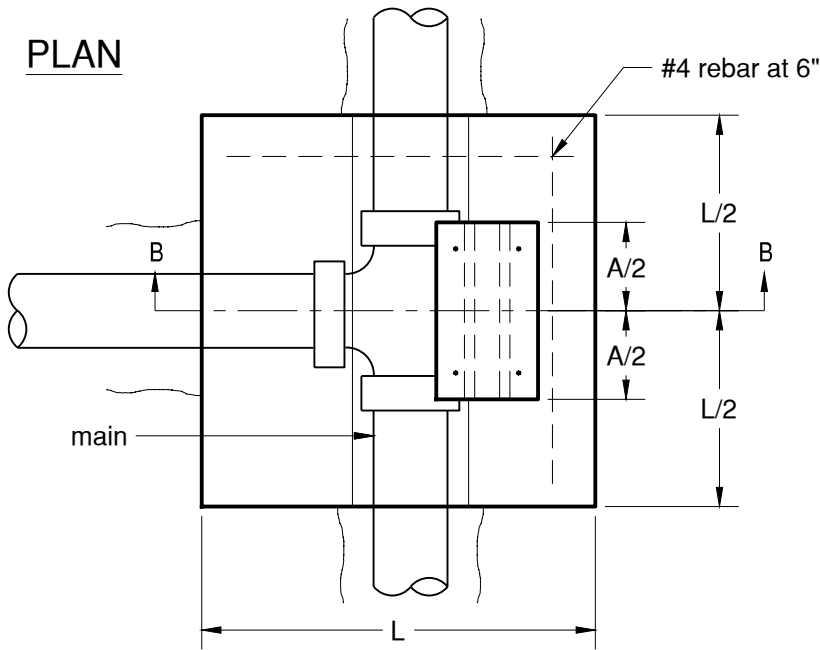
| Rev. | Date | Description |
|------|------|-------------------|
| DWN: | | NO. Water 02 |
| CHK: | | SHT. ____ OF ____ |

APPROVED: _____
CITY/DISTRICT ENGINEER

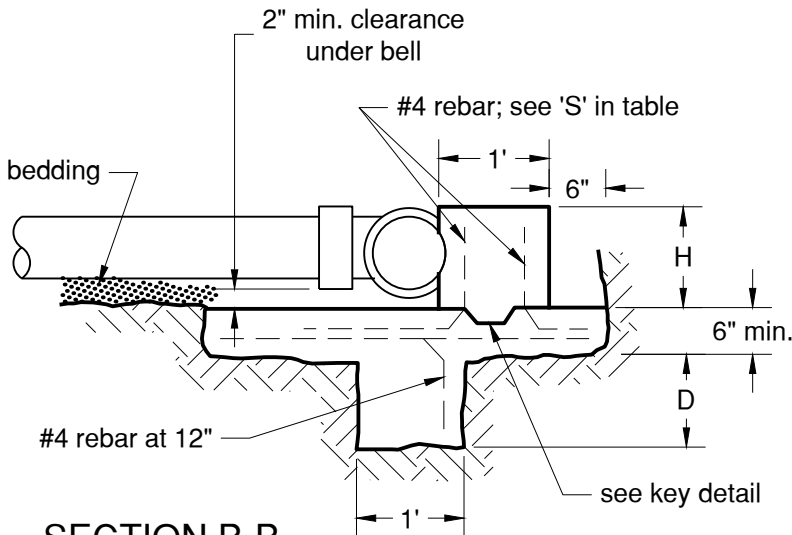
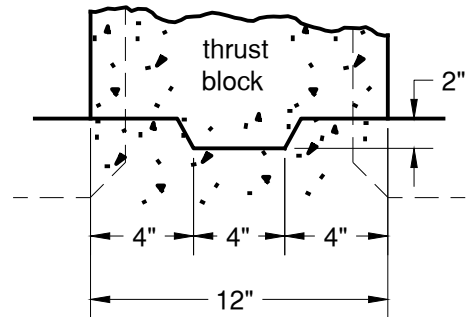
APPROVED: _____
DEPARTMENT SUPERINTENDENT

SCALE: NONE
DATE: Oct. 2007

PLAN



KEY DETAIL



SECTION B-B

NOTES:

1. All fitting joints will be clear of concrete.
2. Concrete shall be Class "A".
3. Use 3' lengths of pipe, one each side of fitting.
4. Fully restrained joints may be used in lieu of thrust blocks. Advanced approval is required by the City Engineer.

DIMENSION TABLE FOR TEE & DEAD ENDS

| PIPE DIAMETER | A | D (DEAD END) | D (TEE) | H | L | REBAR 'S' SIZE |
|---------------|-----|--------------|---------|-----|-----|----------------|
| 6" | 10" | 12" | 6" | 12" | 36" | No. 4 |
| 8" | 13" | 18" | 12" | 14" | 48" | No. 4 |
| 10" | 15" | 24" | 18" | 16" | 60" | No. 5 |
| 12" | 17" | 36" | 28" | 18" | 66" | No. 6 |

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

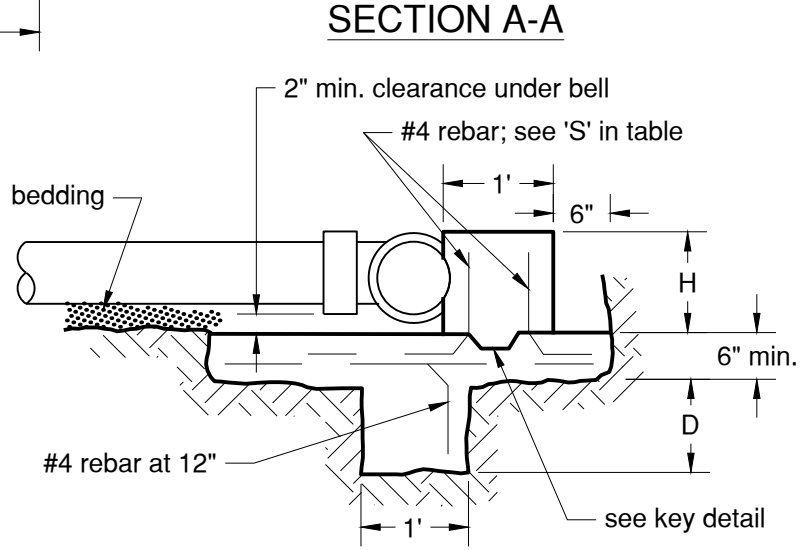
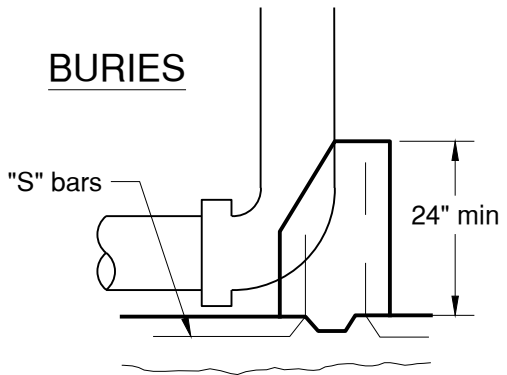
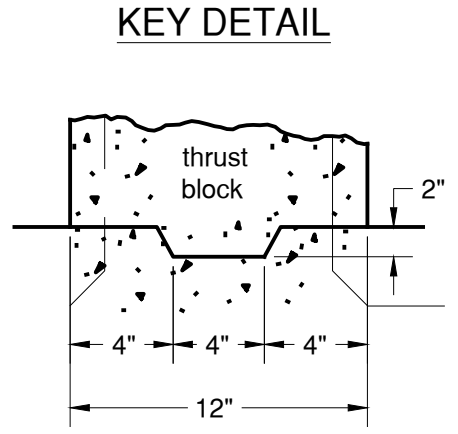
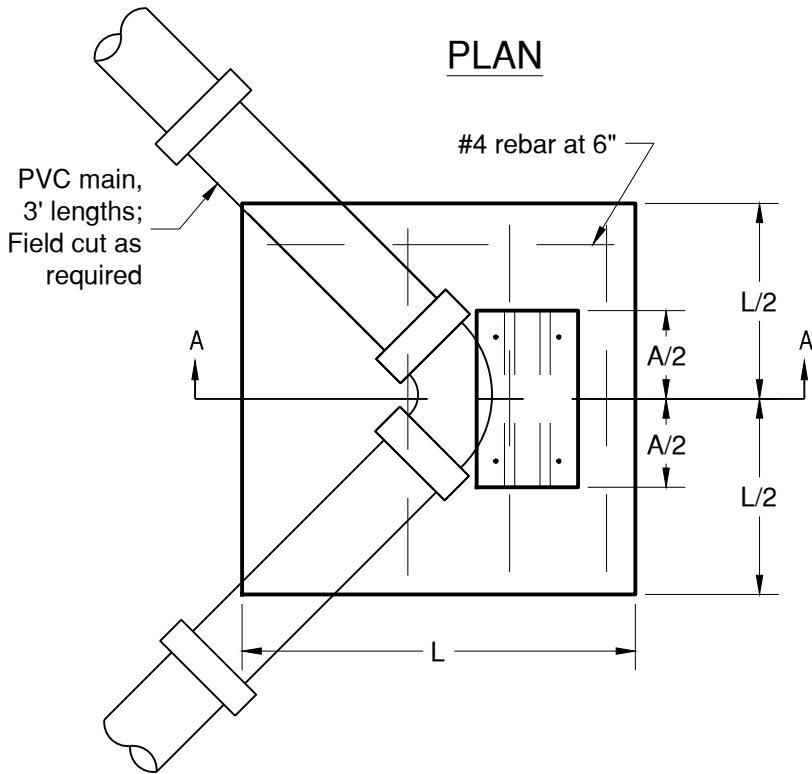
**WATER
THRUST BLOCKS (IN BAY MUD)**

| Rev | Date | Description |
|------|------|-------------------|
| DWN: | | Dwg No. Water 03A |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



DIMENSION TABLE FOR HORIZONTAL BENDS (Inches)

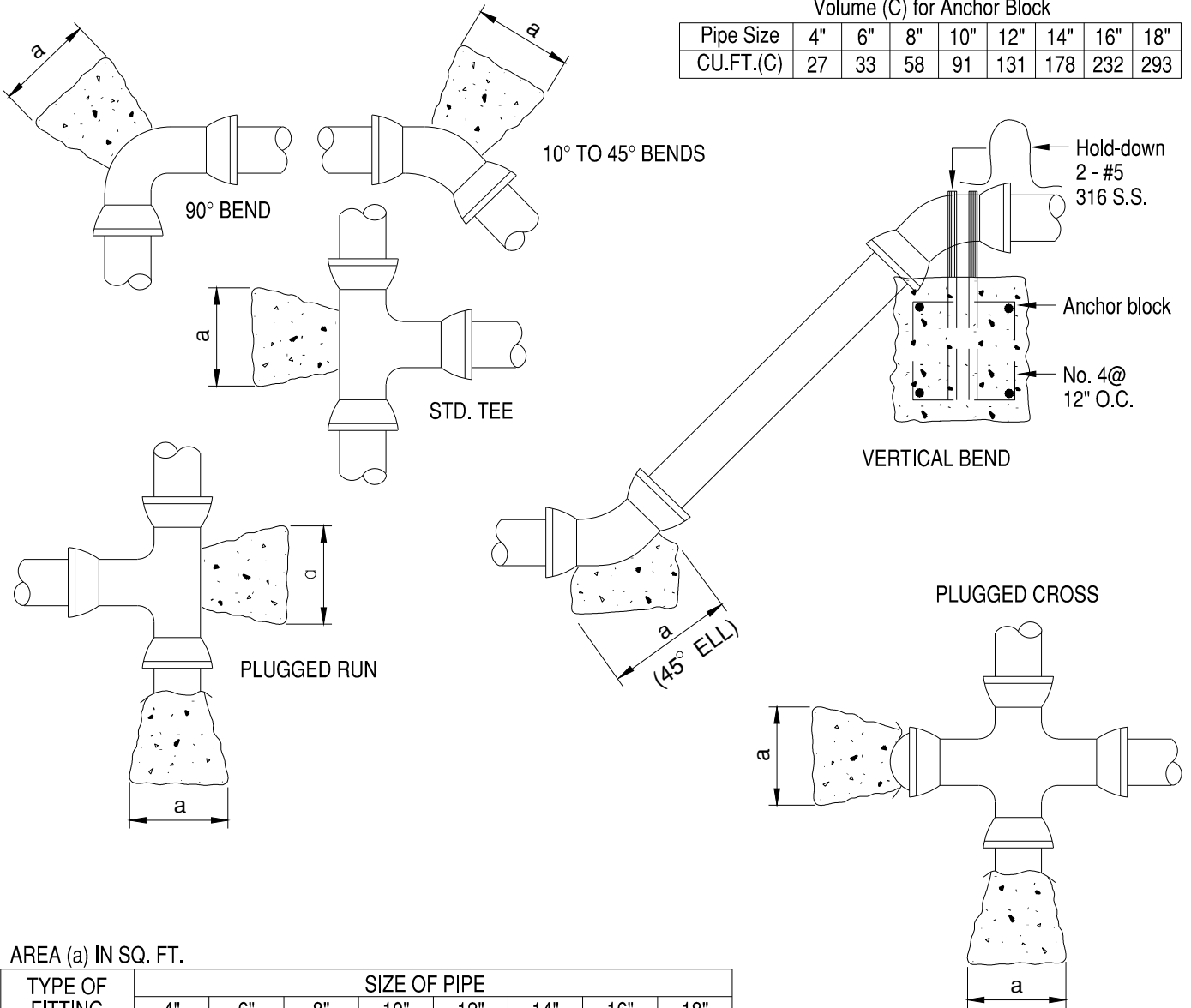
| PIPE SIZE | 90° BEND | | | | | 45° BEND | | | | | 22-1/2° BEND | | | | | 11-1/4° BEND | | | | |
|-----------|----------|----|----|----|-------|----------|----|----|----|-------|--------------|---|----|----|-------|--------------|---|----|----|-------|
| | A | D | H | L | BAR | A | D | H | L | BAR | A | D | H | L | BAR | A | D | H | L | BAR |
| 6" | 10 | 6 | 12 | 36 | No. 4 | 10 | 0 | 12 | 24 | No. 4 | 8 | 0 | 12 | 24 | No. 4 | 7 | 0 | 12 | 24 | No. 4 |
| 8" | 13 | 12 | 14 | 48 | No. 4 | 12 | 6 | 14 | 24 | No. 4 | 9 | 0 | 14 | 24 | No. 4 | 8 | 0 | 14 | 24 | No. 4 |
| 10" | 15 | 18 | 16 | 60 | No. 5 | 13 | 6 | 16 | 36 | No. 5 | 11 | 0 | 16 | 24 | No. 4 | 9 | 0 | 16 | 24 | No. 4 |
| 12" | 17 | 24 | 18 | 66 | No. 6 | 15 | 12 | 18 | 48 | No. 5 | 13 | 6 | 18 | 24 | No. 4 | 10 | 0 | 18 | 24 | No. 4 |

All dimensions are in inches; 'S'-size rebar.
 Based on soil bearing value of 1500 lbs. per sq. ft. and water pressure of 150 psi.
 Fully restrained joints may be used in lieu of thrust blocks. Advanced approval is required by the City Engineer.

| | | | | |
|--------------------------------------------------------------------------|-----------------------|-----------------|------|-------------------|
| ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA | | | | |
| WATER THRUST BLOCKS (IN BAY MUD) | | Rev | Date | Description |
| | | DWN: | | Dwg No. Water 03B |
| | | CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | APPROVED: _____ | Scale: None | | |
| CITY/DISTRICT ENGINEER | DEPARTMENT SUPERVISOR | Date: JUL. 2015 | | |

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 |



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.

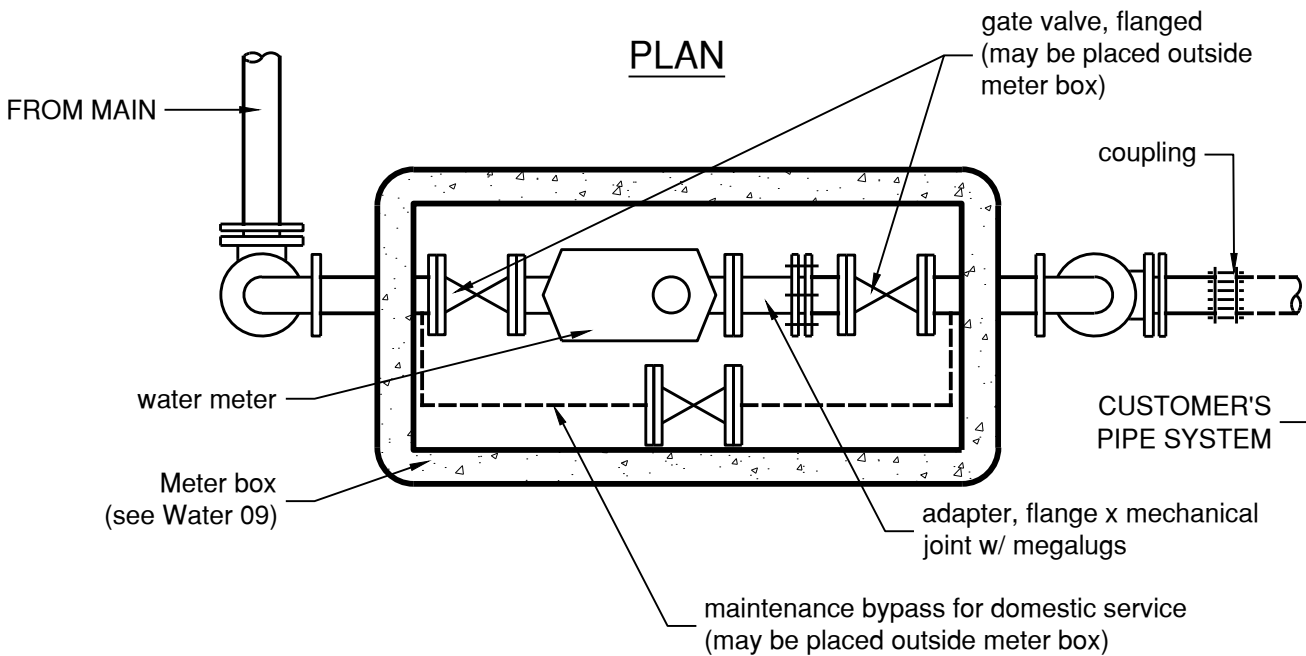
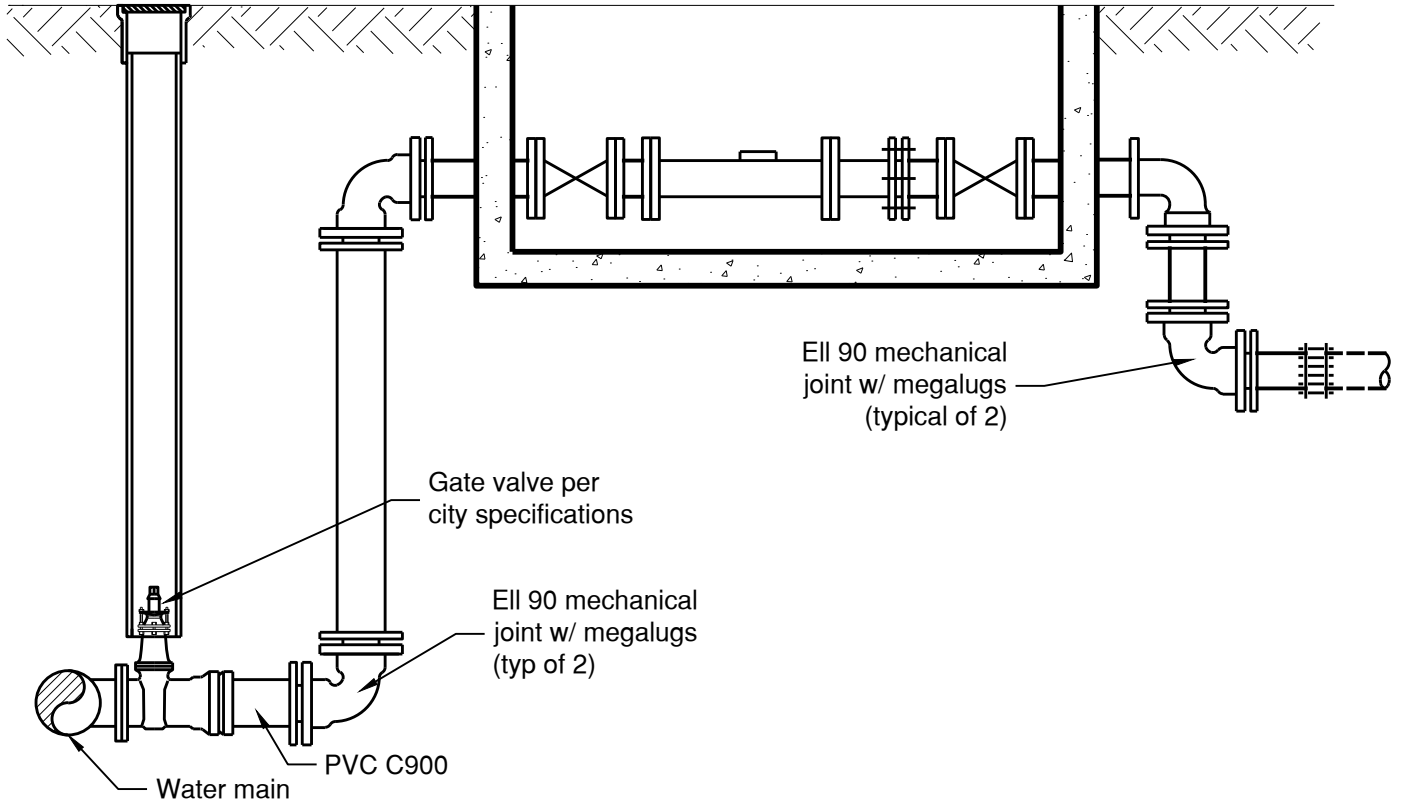
ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
THRUST BLOCKS**

| | | |
|------------------------|------|------------------|
| Rev | Date | Description |
| DWN: | | Dwg No. Water 04 |
| CHK: | | Sheet 1 of 1 |
| APPROVED: | | Scale: None |
| CITY/DISTRICT ENGINEER | | Date: JUL. 2015 |
| APPROVED: | | |
| DEPARTMENT SUPERVISOR | | |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR



NOTE:

- 1. All pipe and fittings shall be restrained.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

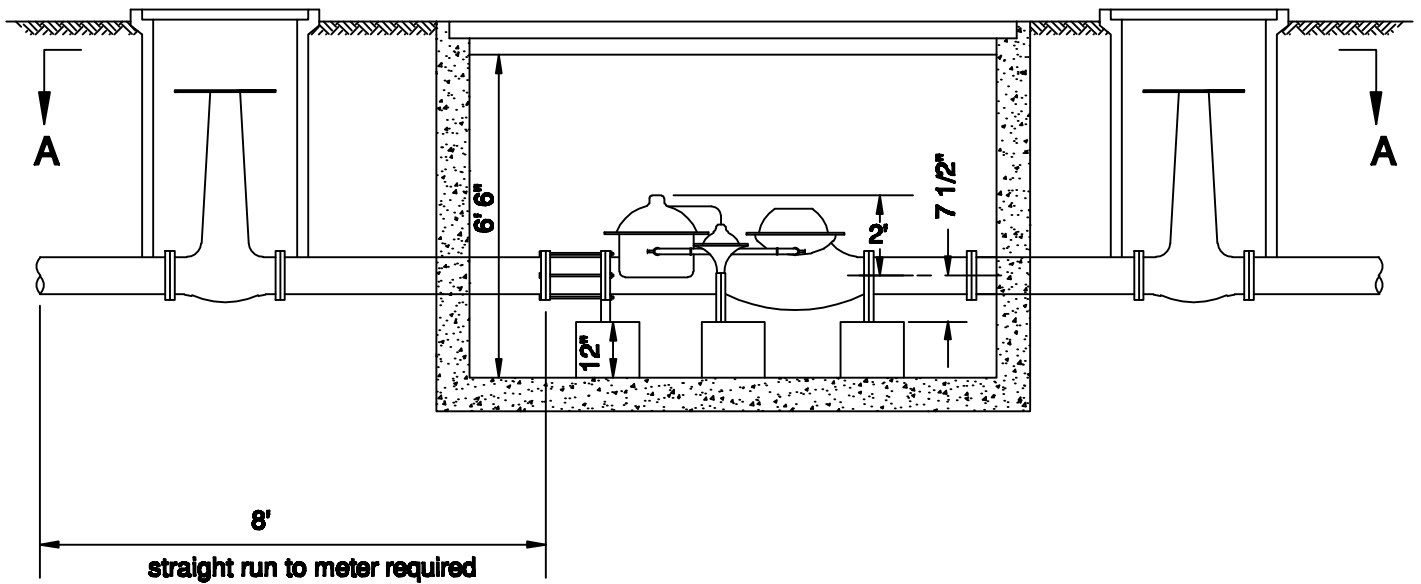
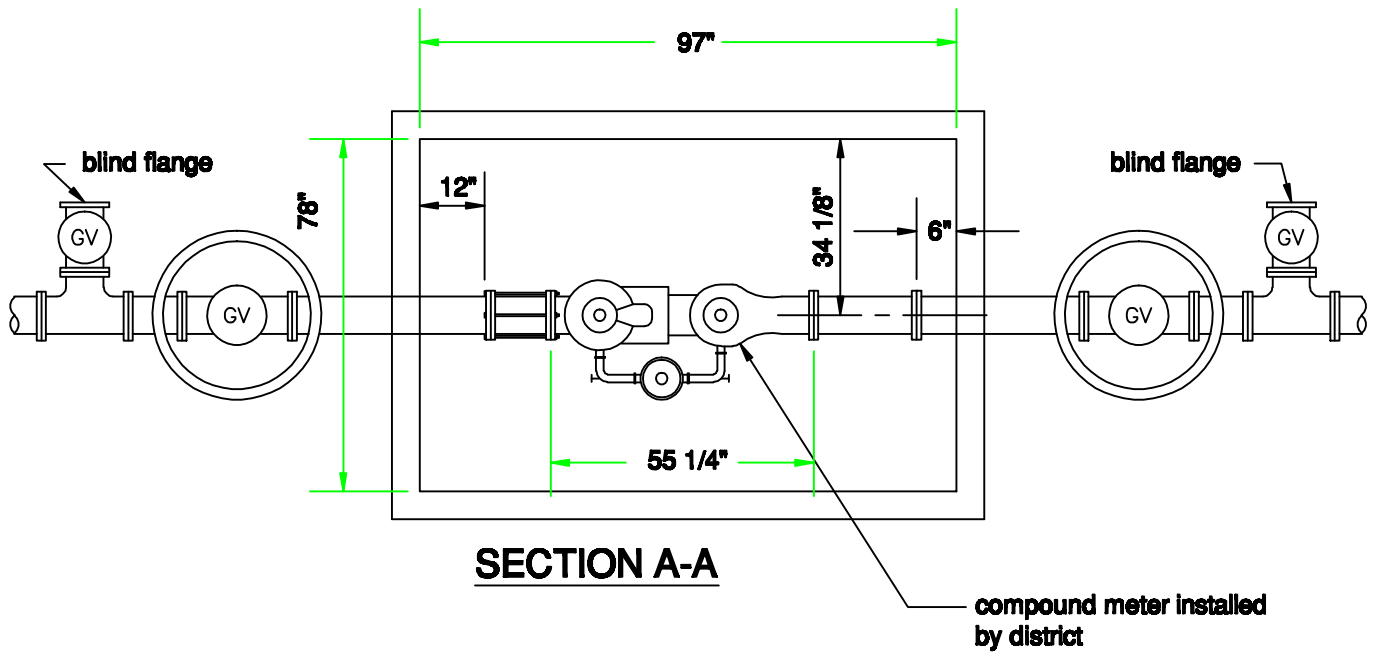
**WATER
WATER SERVICE (3" AND LARGER)**

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 05 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

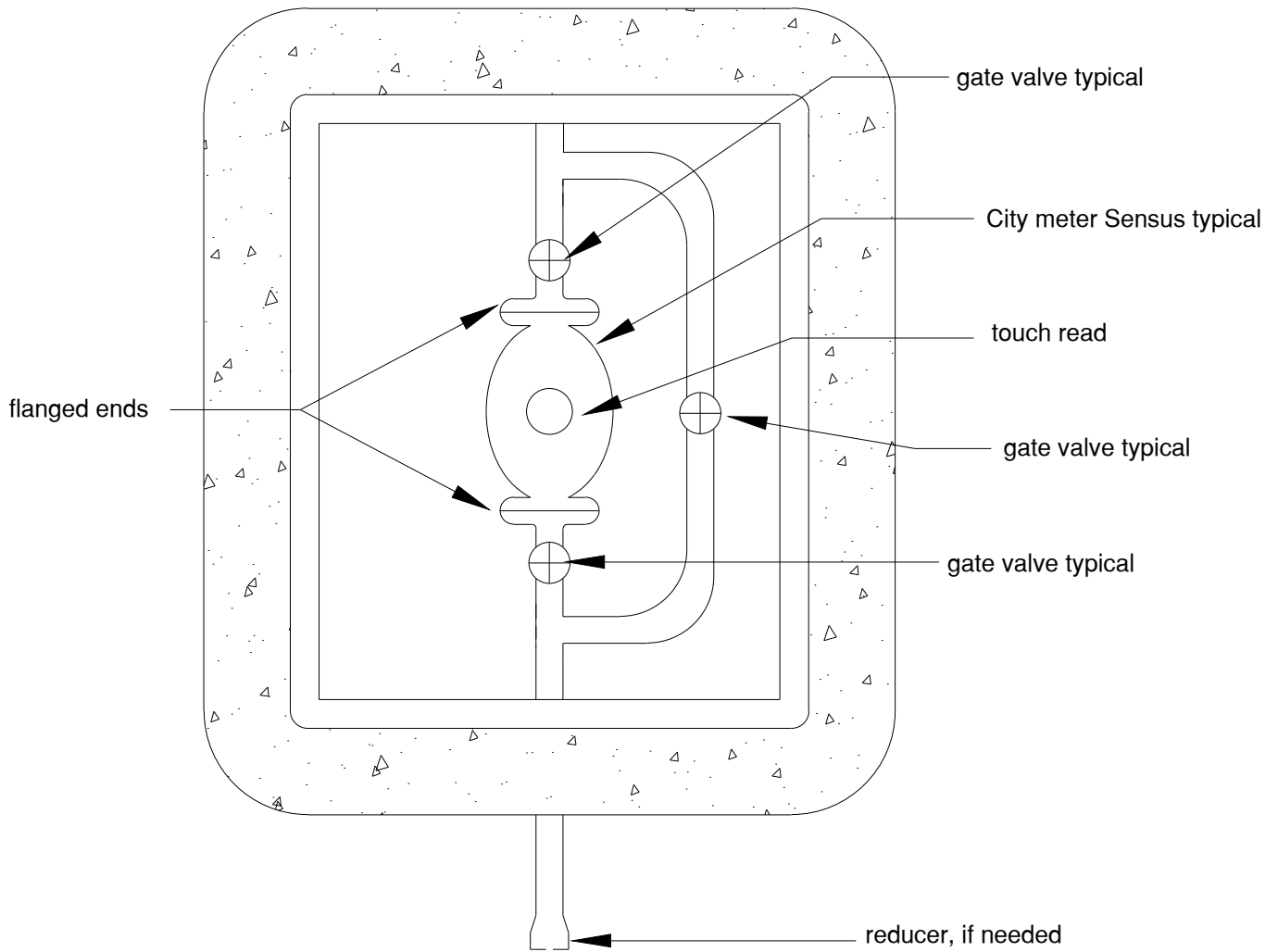
WATER
8" COMPOUND METER ASSEMBLY

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

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERINTENDENT

SCALE: NONE
DATE: Oct. 2007



ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

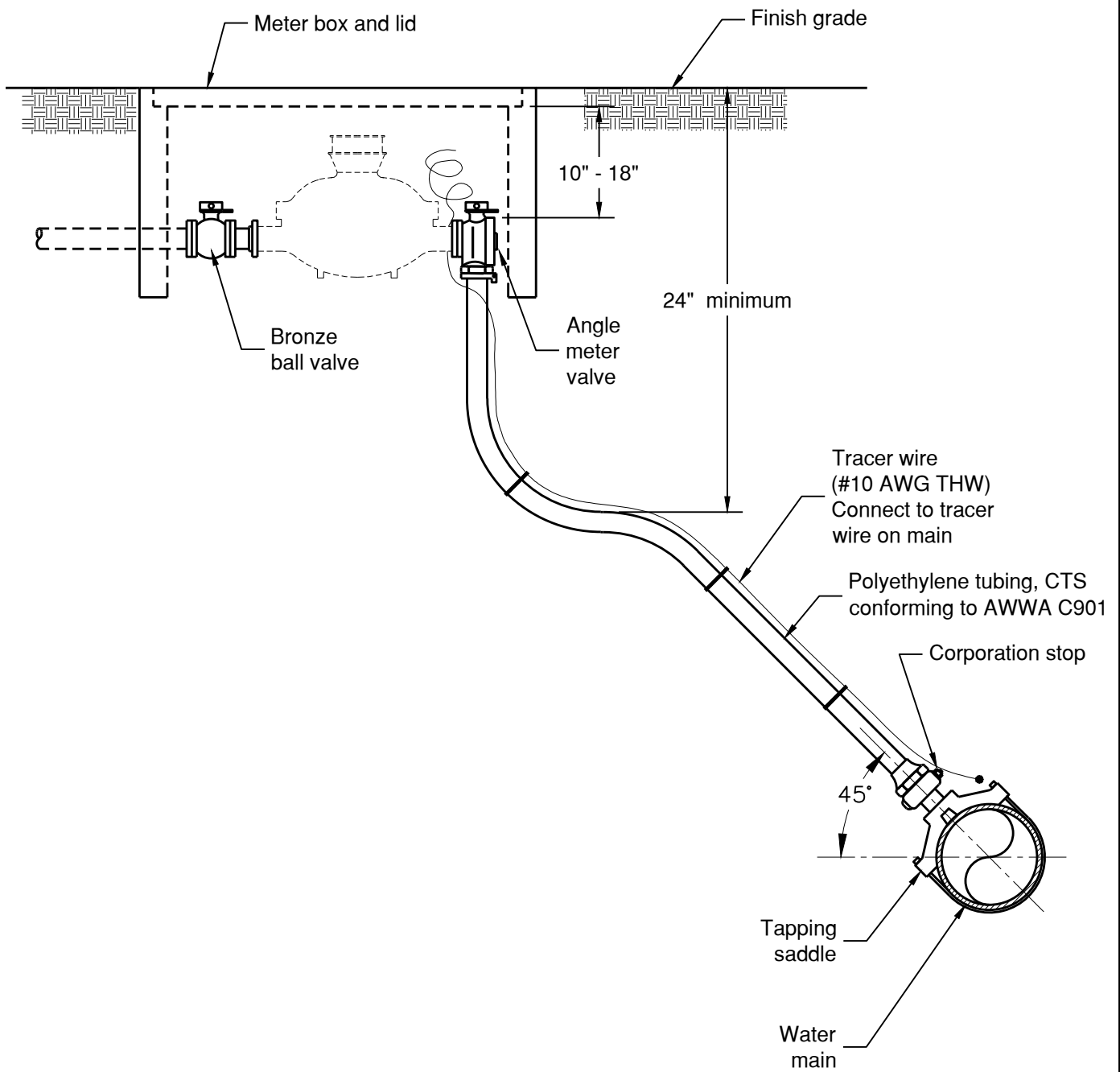
WATER
BY PASS METER (1 1/2" AND 2")

| Rev | Date | Description |
|------|------|------------------|
| | | |
| DWN: | | Dwg No. Water 07 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



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 $1\frac{1}{2}$ " meter, leave $13\frac{1}{4}$ " from flange to flange.
3. See Water 10 for service materials.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
WATER SERVICE CONNECTION**

| Rev | Date | Description |
|------|------|------------------|
| | | |
| DWN: | | Dwg No. Water 08 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

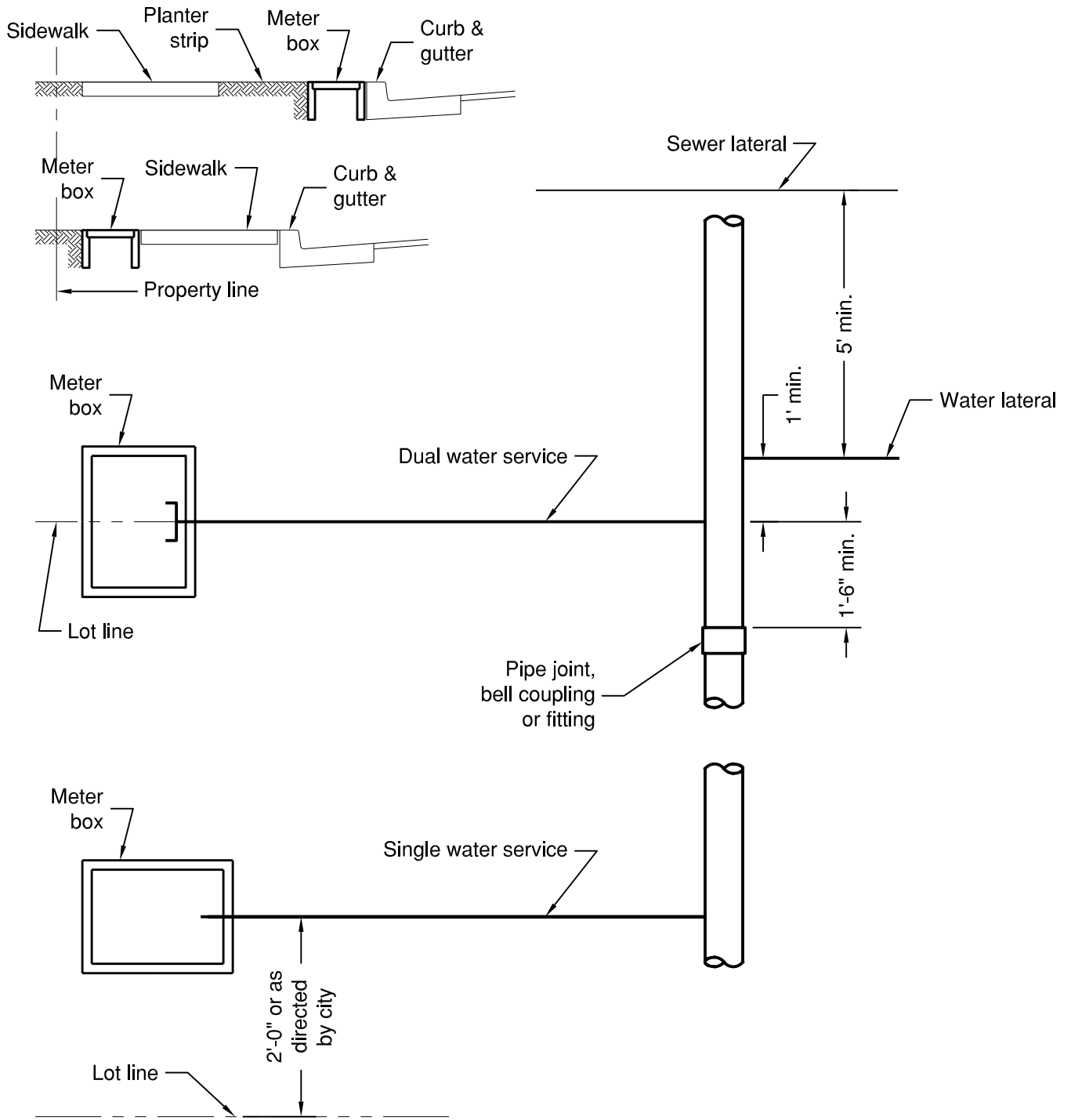
Scale: None
Date: JUL. 2015

| SIZE | SADDLE TYPE | CORP STOP | ANGLE STOP | METER CONNECTION | METER BOX | METER LID | SENSUS TYPE | OPERATING RANGE (gpm) | METER LENGTH |
|------|------------------------------------------------------------|---------------------------------|------------------------------------|------------------|-------------|-----------------|-------------------------------------------------------------------|-----------------------------------------|-------------------|
| ¾" | ACP & DIP - Bronze Double Strap, PVC-Single Band Saddle | Mueller B-2500813, Ford FB1000Q | Mueller B-24258, Ford BA43 -332WQ | Meter Swivel Nut | Christy B12 | Christy B12P | SR11 | 0.5 - 30 | 9" |
| 1" | ACP & DIP - Bronze Double Strap, PVC-Single Band Saddle | Mueller B-2500813, Ford FB1000Q | Mueller B-24258, Ford BA43 -444WQ | Meter Swivel Nut | Christy B16 | Christy B16P | SR11 | 0.75 - 50 | 10 ¾" |
| 1 ½" | ACP & DIP - Bronze Double Strap, PVC-Single Band Saddle | Mueller B-2500813, Ford FB1000Q | Mueller B-24276, Ford BFA43 -666WQ | Flange | Christy B30 | Christy B30P | OMNI C ² OMNI T ² | 0.25 - 200 0.75 - 200 | 13" 13" |
| 2" | ACP & DIP - Bronze Double Strap, PVC-Single Band Saddle | Mueller B-2500813, Ford FB1000Q | Mueller B-24276, Ford BFA43 -777WQ | Flange | Christy B36 | Christy B36P | OMNI C ² OMNI T ² | 0.25 - 200 1.0 - 250 | 15 ¼" 17" |
| 3" | Stainless Steel Tapping Saddle, 316 SS Straps and Hardware | Resilient Wedge Gate - 4" | NA | Flange | Christy B48 | Christy B48M | OMNI C ² OMNI T ² | 0.5 - 500 1.5 - 650 | 17" 19" |
| 4" | Stainless Steel Tapping Saddle, 316 SS Straps and Hardware | Resilient Wedge Gate - 4" | NA | Flange | Christy B48 | Christy B48M2 | OMNI C ² OMNI T ² OMNI F ² | 0.75 - 1000 2.0 - 1250 1.5 - 1000 | 20" 23" 33" |
| 6" | Stainless Steel Tapping Saddle, 316 SS Straps and Hardware | Resilient Wedge Gate - 6" | NA | Flange | Christy B52 | Christy B52-62G | OMNI C ² OMNI F ² | 2.5 - 2500 3.0 - 2000 | 24" 45" |
| 8" | Stainless Steel Tapping Saddle, 316 SS Straps and Hardware | Resilient Wedge Gate - 8" | NA | Flange | Christy B52 | Christy B52-62G | OMNI C ² OMNI F ² | 4.0 - 2700 4.0 - 3500 | 30" 53" |

NOTES:

- Meter box to be provided by contractor.
- For location of water service see improvement plans.
- Single strap bronze saddles shall be required for 1" taps on all mains less than 8" diameter and AC pipe 12" or smaller.
- Double strap bronze saddle shall be required on all taps 1 ½" or larger.
- Double or triple strap saddle shall be used on AC pipe 12" or larger.
- PVC pipe shall use single bolt band type stainless steel saddle.
- All saddles shall be Mueller, Ford, or approved equal.
- Boxes installed in driveways shall have traffic covers.
- Meter assembly for ¾" & 1" meters - for larger meter assembly, see Water 09

| | | | |
|--------------------------------------------------------------------------|-----------------------|------|------------------|
| ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA | Rev | Date | Description |
| | | | |
| WATER METER ASSEMBLY | DWN: | | Dwg No. Water 09 |
| | CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | APPROVED: _____ | | Scale: None |
| CITY/DISTRICT ENGINEER | DEPARTMENT SUPERVISOR | | Date: JUL. 2015 |



NOTE:

1. Install all backflow devices after the meters.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
TYPICAL WATER SERVICE INSTALLATION**

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 10 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015

No longer required

Air release valve, See note 4

U.S.C.-approved shut-off valves. See Note 1. OS&Y shutoff valves as required by local fire department.

ELEVATION

90° d.i. (cl) tee flg x flg x flg or optional d.i. (cl) cross and siamese fire dept. connection (2 1/2" x 2 1/2"). Clearance and orientation as required by the fire department.

Double check detector assembly or reduced pressure backflow assembly as approved by the city.

2-1/2" x 2-1/2" siamese fire dept. connection as required by the fire department.

90° D.I. ell FLG x MJ with megalug restraint

D.I. spool PE with megalug restraint

Galvanized adjustable pipe support shall be Grinell Fig. 264, Elcen Fig. 40 or equal. Support shall be galvanized after fabrication.

90° D.I. ell MJ x MJ w/ megalug restraint

Reinforced concrete pad

Calpico VI-10 protective tape (or equal)

D.I. spool PE w/ megalug restraint

90° D.I. ell MJ x MJ with megalug restraint

Blind flange

PLAN

Length of assembly plus 12" each side

Reinforced concrete pad

Length varies depending on size type of assembly

24" min.

Factory installed detector meter and U.S.C. approved backflow prevention device

NOTES:

1. Backflow prevention assemblies shall be u.s.c. approved assemblies. Entire assemblies including isolation valves, test cocks and detector meter shall be provided as a complete unit.
2. Thrust blocks shall be sized per Std. Plan Water 04, unless restrained.
3. Assemblies on fire service lines shall have OS&Y valves. Hand wheels on OS&Y valves shall be chained and locked. Use galvanized chain, straight link.
4. Backflow preventers 2.5" and larger shall have an air release valve. Valves shall be apco no. 50, 1/2" for 2.5" to 6" service, 3/4" for 8" to 12" service.
5. No connections or tees will be allowed between meter or isolation valve and backflow preventer.
6. Device must be accessible for testing and maintenance. Location shall be approved by city prior to installation.
7. Installations using threaded or soldered fittings shall include one three part union on each side of the assembly. Solder shall be lead free.
8. City shall install Sensus touch read meter, use detail for domestic and fire service line installations. Developer is responsible for the cost of the 3/4" detector meter.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

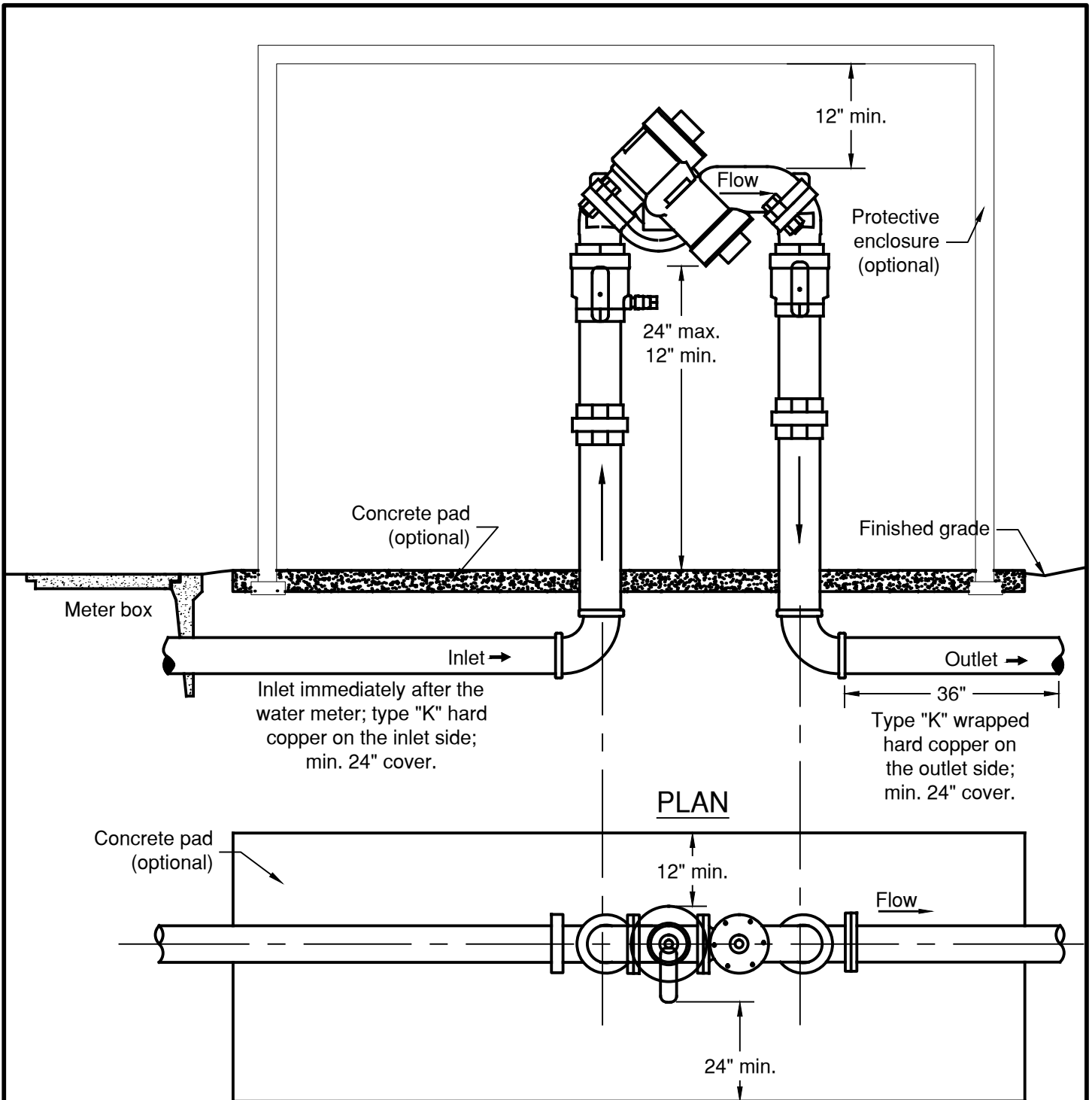
**WATER
DOUBLE CHECK/REDUCED PRESSURE BACKFLOW ASSEMBLY**

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 11 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



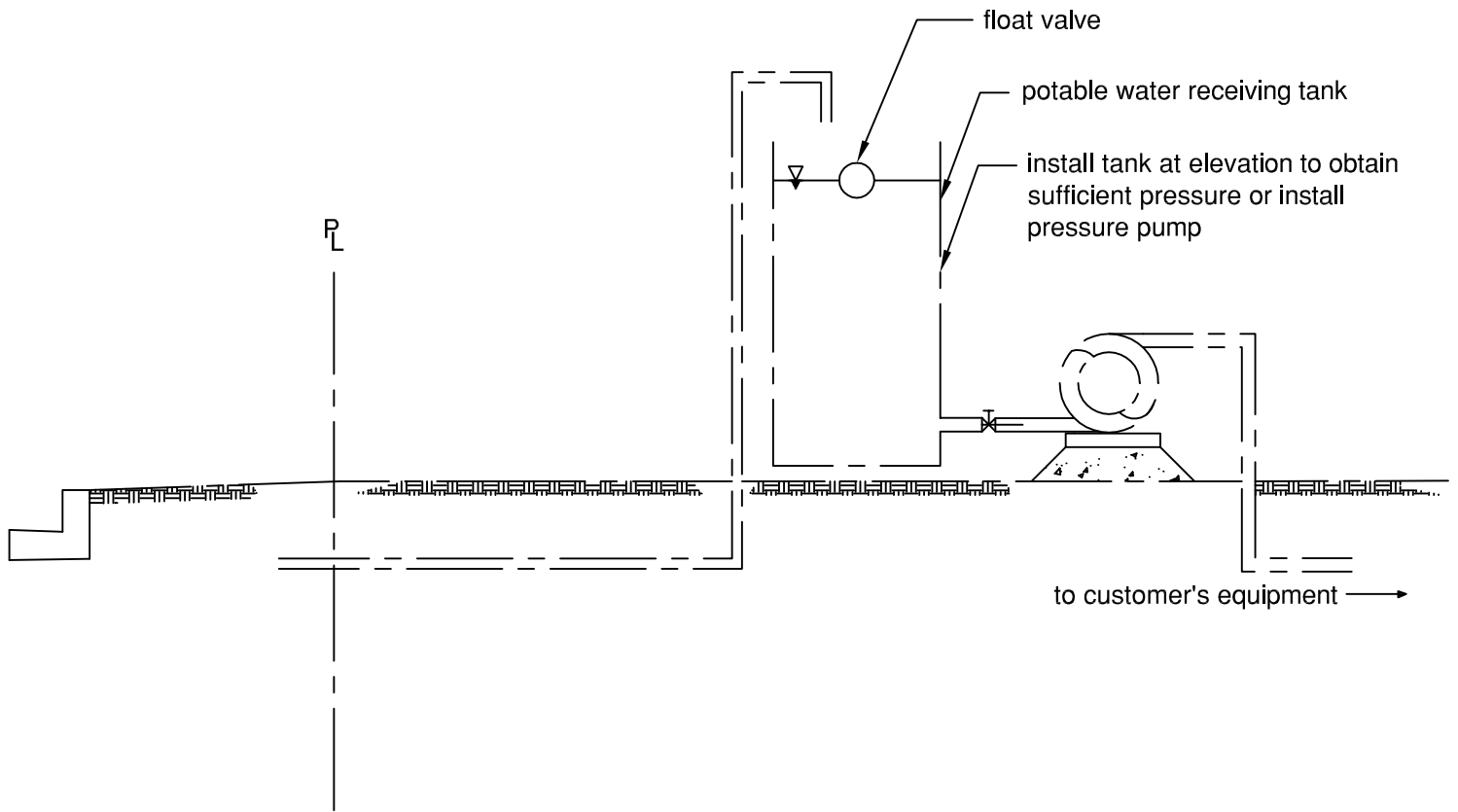
NOTES:

1. No connections shall be made between meter and backflow.
2. Backflow assemblies must be tested at the time of installation & annually by a certified tester.
3. Copper fittings shall be connected with lead free solder joints or approved equal.
4. All nipples to be copper or brass.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
TYPICAL BACKFLOW INSTALLATION**

| Rev | Date | Description |
|------------------------|------|------------------|
| DWN: | | Dwg No. Water 12 |
| CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | | Scale: None |
| CITY/DISTRICT ENGINEER | | Date: JUL. 2015 |
| APPROVED: _____ | | |
| DEPARTMENT SUPERVISOR | | |



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

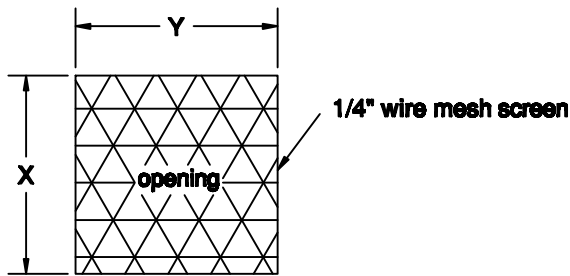
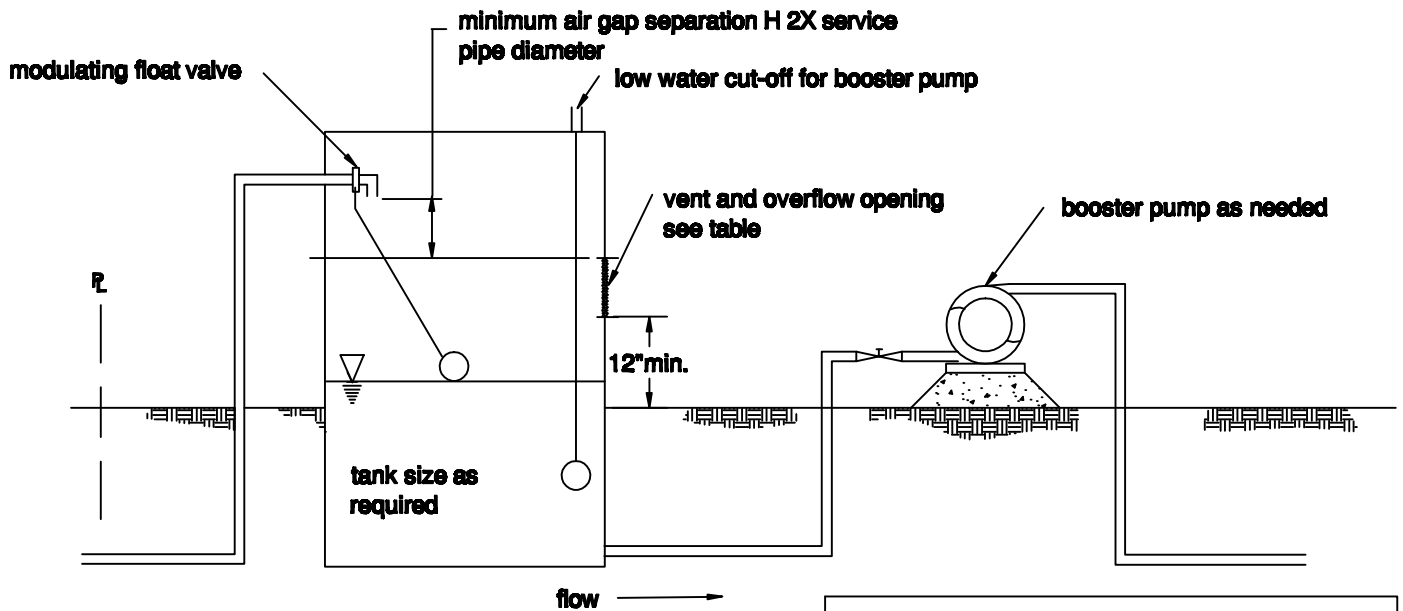
TYPICAL AIR GAP SEPARATION INSTALLATION

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

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERINTENDENT

SCALE: NONE
DATE: Oct. 2007



VENT AND OVERFLOW

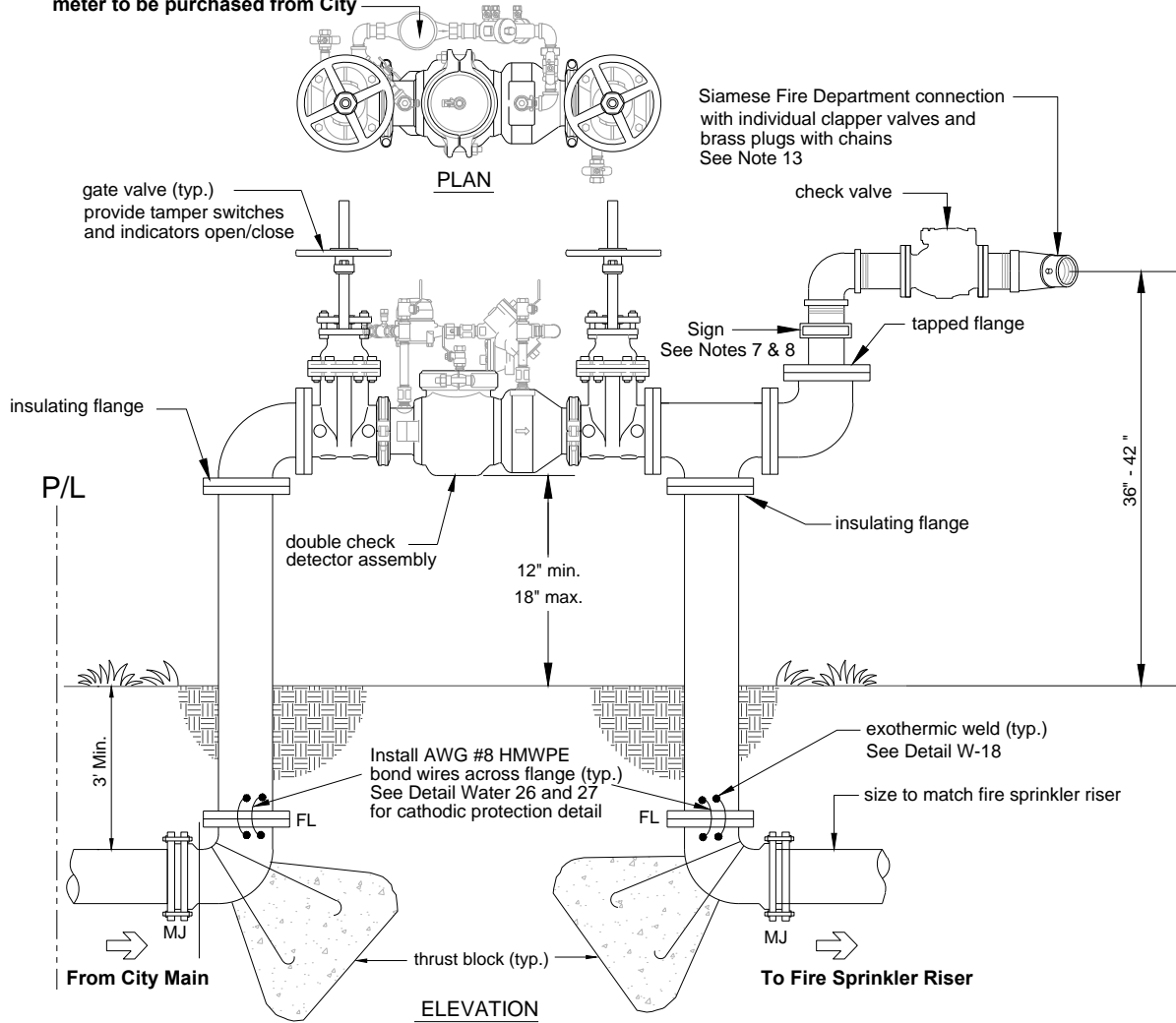
| VENT AND OVERFLOW TABLE | | |
|-------------------------|------------|--------|
| SERVICE PIPE SIZE | DIMENSIONS | |
| | X | Y |
| 3/4" | 4" | 3" |
| 1" | 4" | 4 1/2" |
| 1 1/2" | 5" | 6" |
| 2" | 6" | 7" |
| 3" | 7" | 10" |
| 4" | 7" | 10" |
| 6" | 7" | 15" |

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 |
| ALTERNATIVE AIR GAP SEPARATION INSTALLATION | | DWN: | NO. Water 14 |
| | | CHK: | SHT. ____ OF ____ |
| APPROVED: _____ CITY/DISTRICT ENGINEER | APPROVED: _____ DEPARTMENT SUPERINTENDENT | SCALE: NONE | |
| | | DATE: Oct. 2007 | |

meter to be purchased from City



NOTES:

1. Install thrust blocks per City Standard Detail Water 03A, 03B and 04.
2. Minimum cover shall be 3 feet.
3. Double Check Detector Assembly shall be Wilkins 350ADA or approved equal and listed by the University of Southern California, and approved by the County Health Department or as called on note # 5.
4. Landscape plantings, when fully grown, shall not obscure valve or fire department connection (three feet minimum clearance required on all sides) for operation, testing and maintenance.
5. If the premises are connected to an auxiliary water supply or operates with chemicals, a Reduced Pressure Principle Backflow Prevention Device shall be used.
6. For fire department connections supplying combination sprinkler system - one 2 1/2 inch inlet is required for each 250 GPM of the system demand or fraction thereof.
7. All indicating valves and fire connections shall be identified as to its function and what they serve. The sign shall be aluminum with a minimum thickness of 0.080 inch. The message shall be a minimum of one-inch high black lettering on a white reflective reflective background. All background sheeting and letters used shall be high intensity manufactured by 3M company. The sign shall be mounted by at least two flared leg brackets attached to the riser by stainless steel straps.
8. For systems requiring a fire pump, the inlets of the fire department connections shall have permanent signs stating the pumping pressures needed to overcome the internal water system. Signs shall be constructed and mounted similar to identification signs.
9. All underground bolts, nuts and washers shall be 316 stainless steel.
10. All remaining control valves are to be installed per City Code.
11. All fittings, pipes, and appurtenances sizes are to be determined by the Fire Service System Designer.
12. Provide cathodic protection anode per Std. Details Water 22 through 26.
13. Siamese assembly is optional and any changes shall be approved by the Fire Department and by Engineering.
14. Location shall be coordinated with Fire Department and City Landscape Architect.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
FIRE SERVICE**

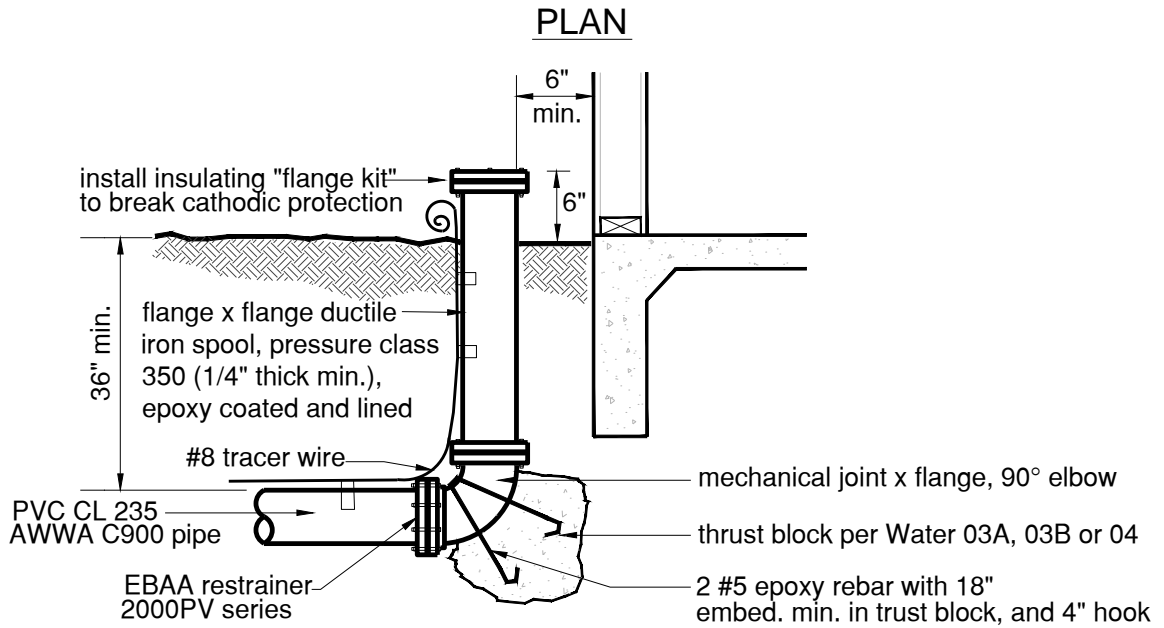
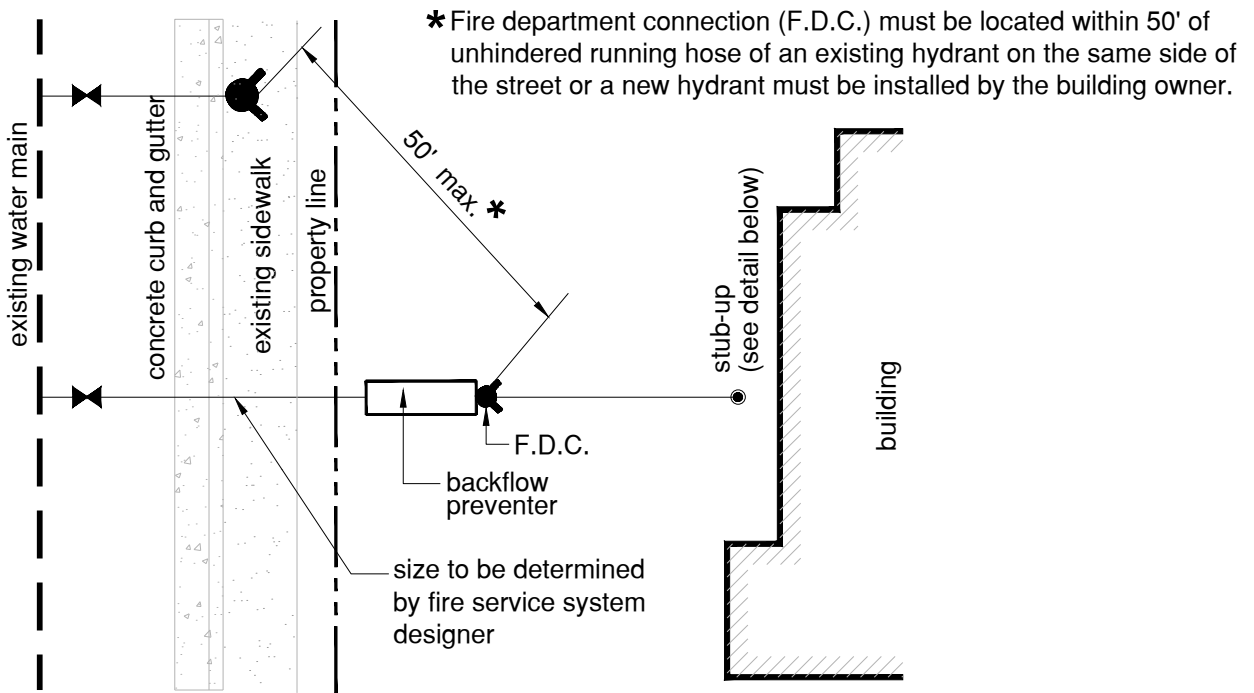
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

| Rev | Date | Description |
|------|------|-------------------|
| DWN: | | Dwg No. Water 15A |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



FIRE SPRINKLER RISER STUB-UP

NOTES:

1. Fire Sprinkler Riser shall have the same size as the Fire Service. See Standard Detail Water 15A.
2. Location shall be coordinated with Fire Department and City Landscape Architect.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

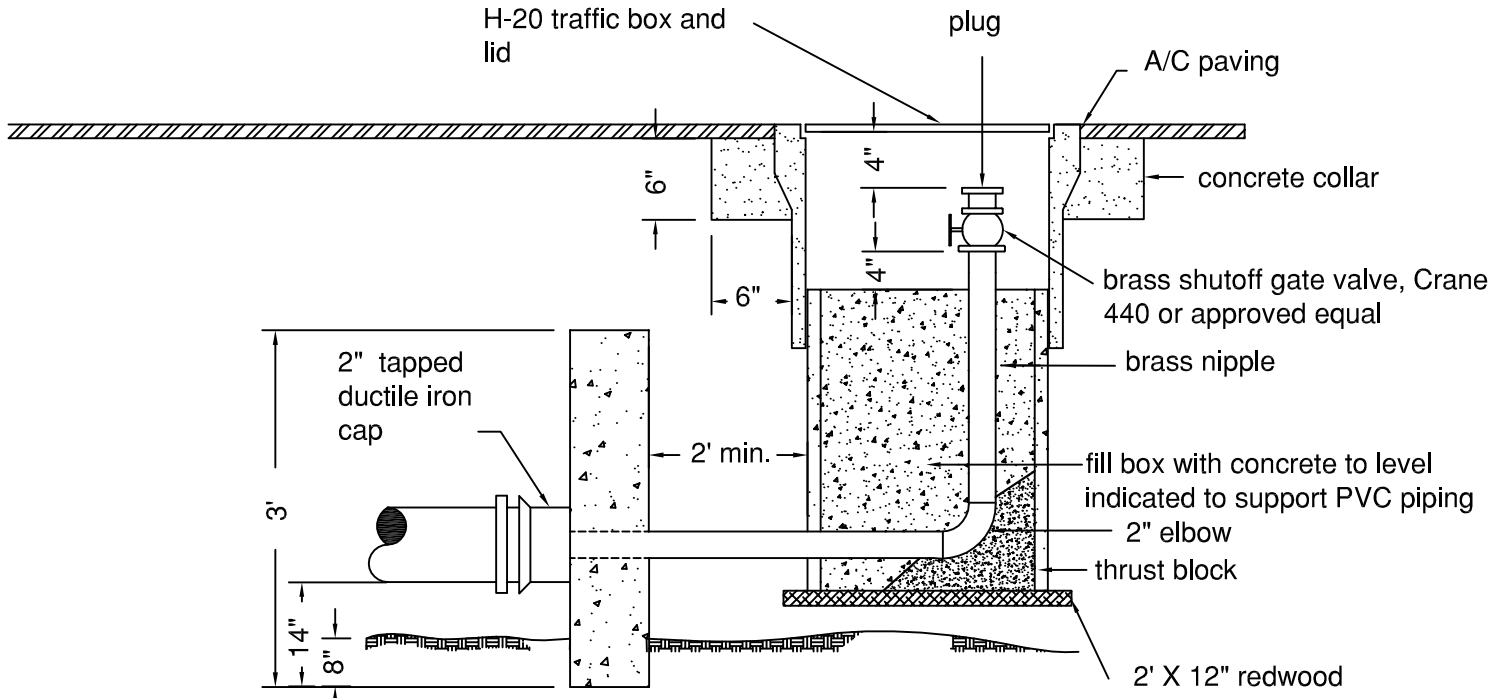
**WATER
FIRE SERVICE SYSTEM LAYOUT**

| Rev | Date | Description |
|------|------|-------------------|
| DWN: | | Dwg No. Water 15B |
| CHK: | | Sheet 1 of 1 |

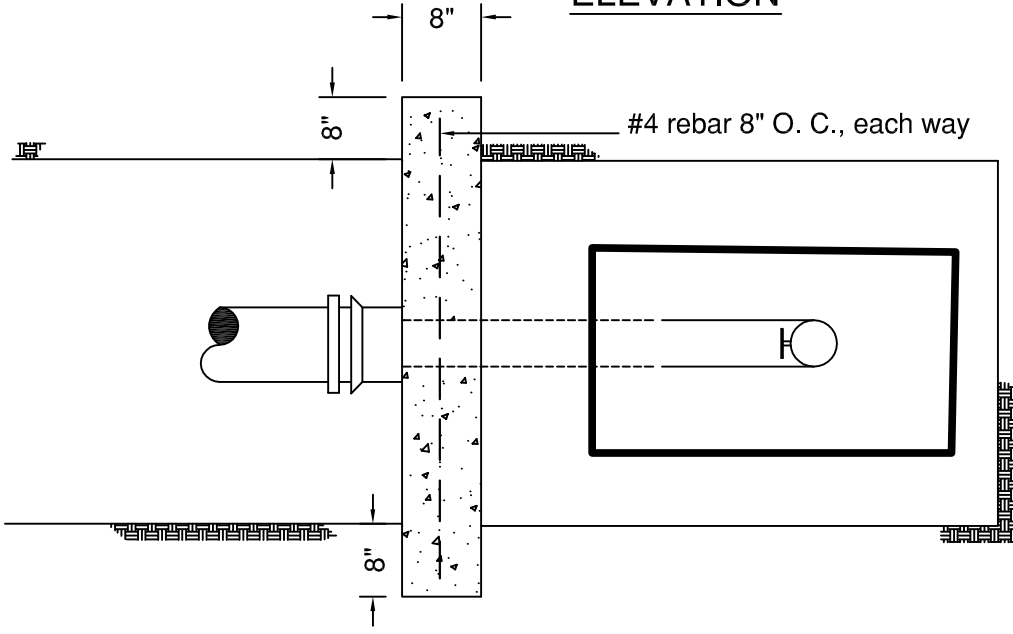
APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015



ELEVATION



PLAN

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

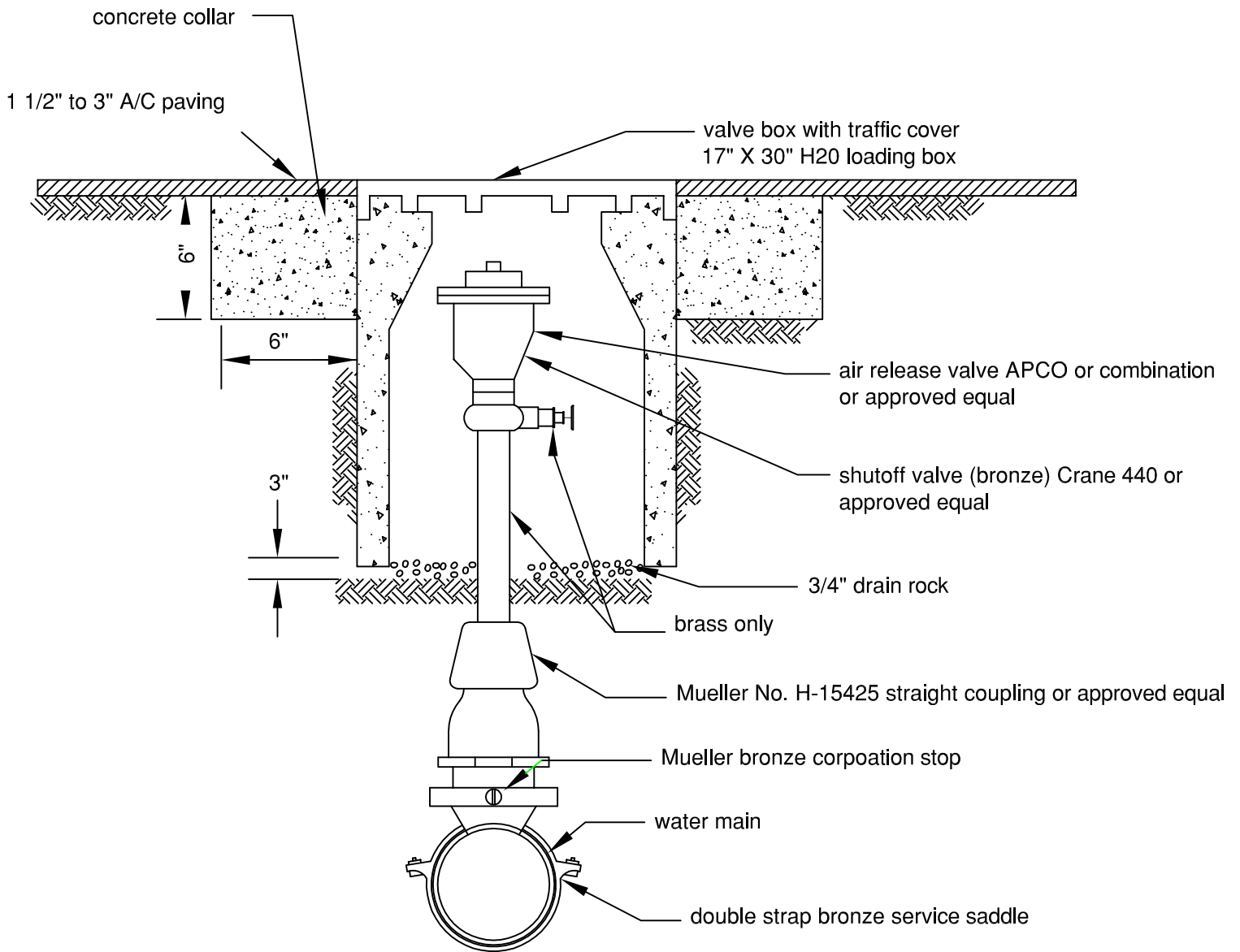
**WATER
2" WATER BLOWOFF**

| 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

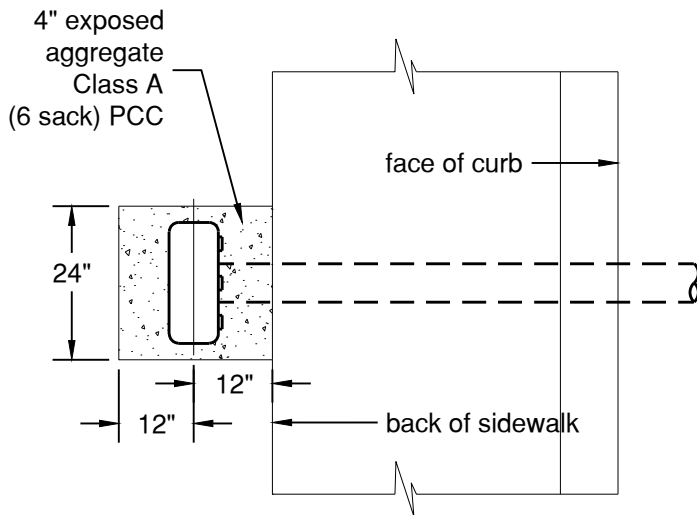
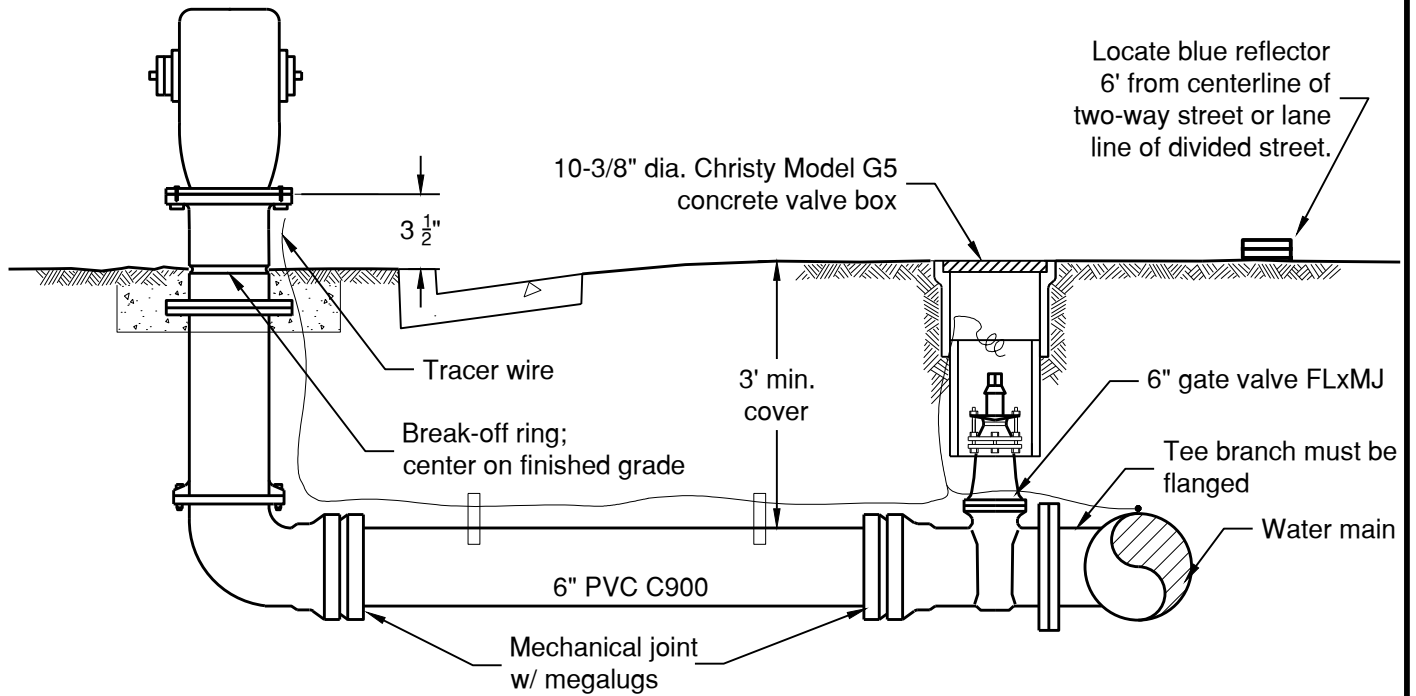
| Rev. | Date | Description |
|------|------|-------------------|
| DWN: | | NO. Water 17 |
| CHK: | | SHT. ____ OF ____ |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERINTENDENT

SCALE: NONE
DATE: Oct. 2007

CLOW 92 LOW PROFILE



SIDEWALK AREA

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: Foster City Fire Hydrant Green (Kelly Moore CF111415497829)
4. Blue markers shall be placed in the center of the travel lane adjacent to the fire hydrant.
5. 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.
6. Hydrant and bury, including 5/8" X 3 1/4" type 316 stainless steel bolts, nuts, washers, and gaskets to be furnished by contractor.
7. Valve and bury to be epoxy lined and coated.
8. Bury shall have slotted holes in order to permit aligning face of hydrant with face of curb.
9. For anode installation, see Cathodic Protection Detail.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

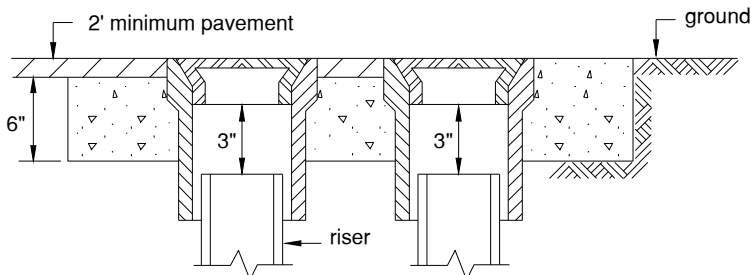
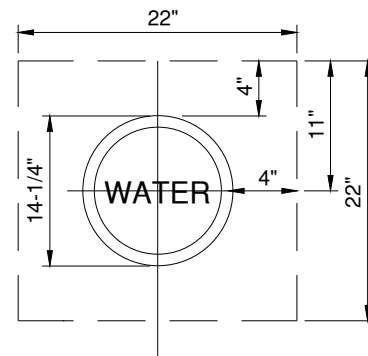
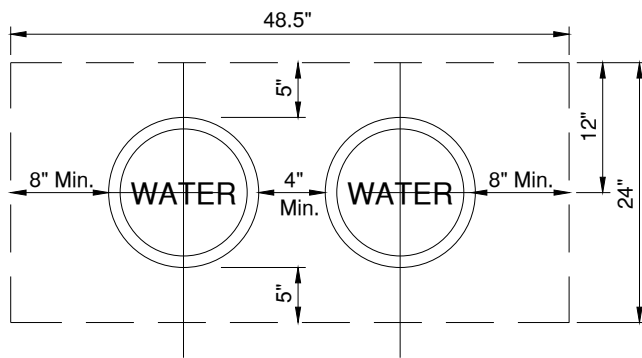
WATER FIRE HYDRANT ASSEMBLY

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 18 |
| CHK: | | Sheet 1 of 1 |

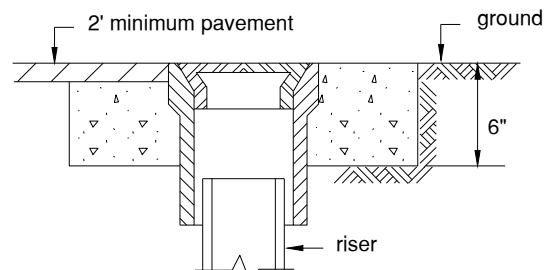
APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

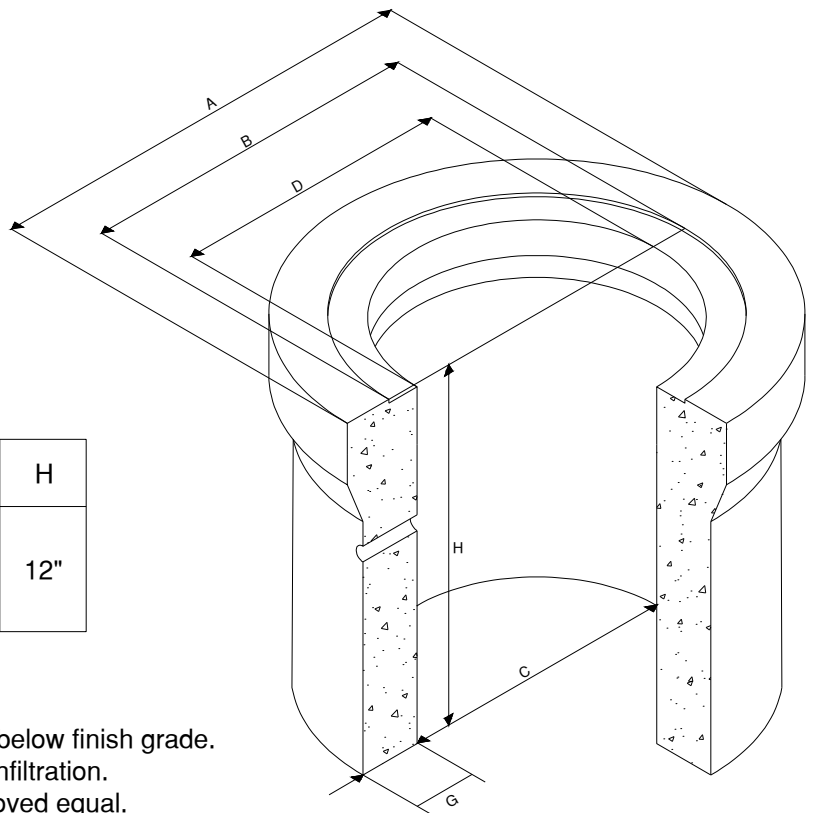
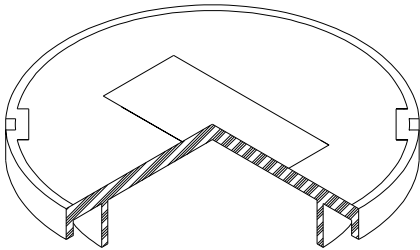
Scale: None
Date: JUL. 2015



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.

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CITY OF FOSTER CITY, CALIFORNIA

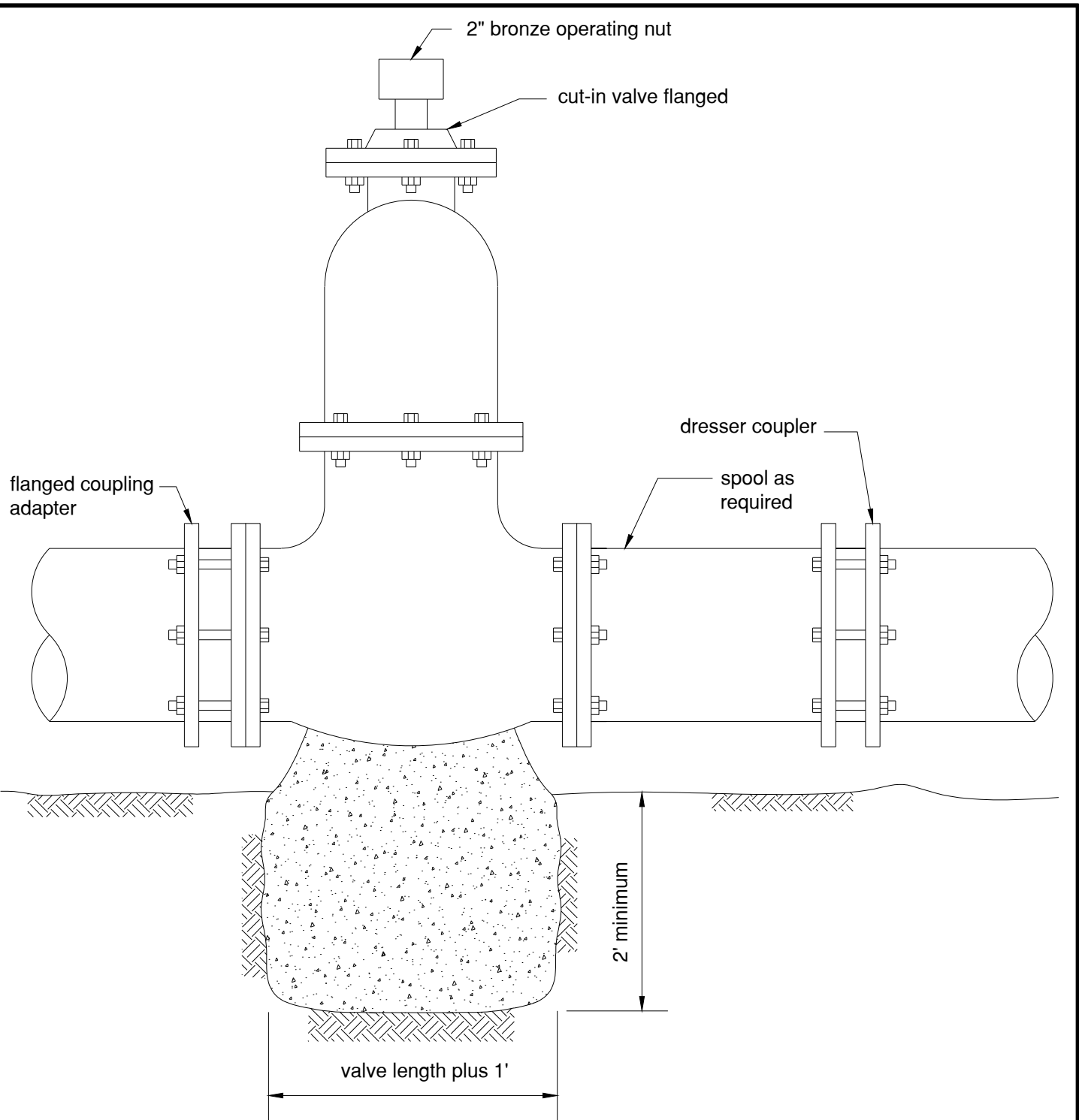
**WATER
VALVE BOX**

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 19 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

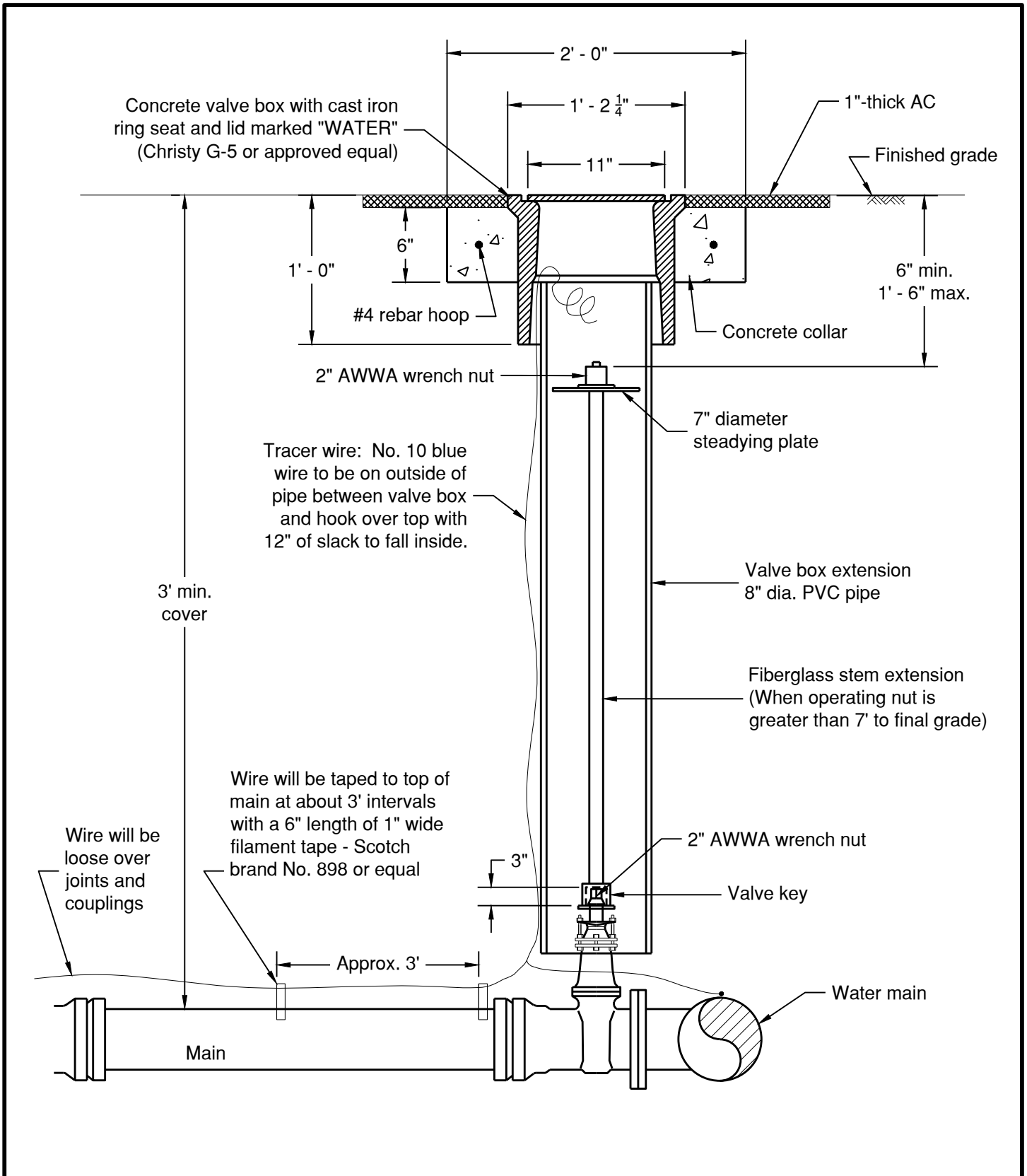
Scale: None
Date: JUL. 2015



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 CUT-IN VALVE | | Rev | Date | Description |
| | | DWN: | | Dwg No. Water 20 |
| | | CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | APPROVED: _____ | | | Scale: None |
| CITY/DISTRICT ENGINEER | DEPARTMENT SUPERVISOR | | | Date: JUL. 2015 |



ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
LOCATOR WIRE INSTALLATION**

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 21 |
| CHK: | | Sheet 1 of 1 |

APPROVED: _____
CITY/DISTRICT ENGINEER

APPROVED: _____
DEPARTMENT SUPERVISOR

Scale: None
Date: JUL. 2015

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.

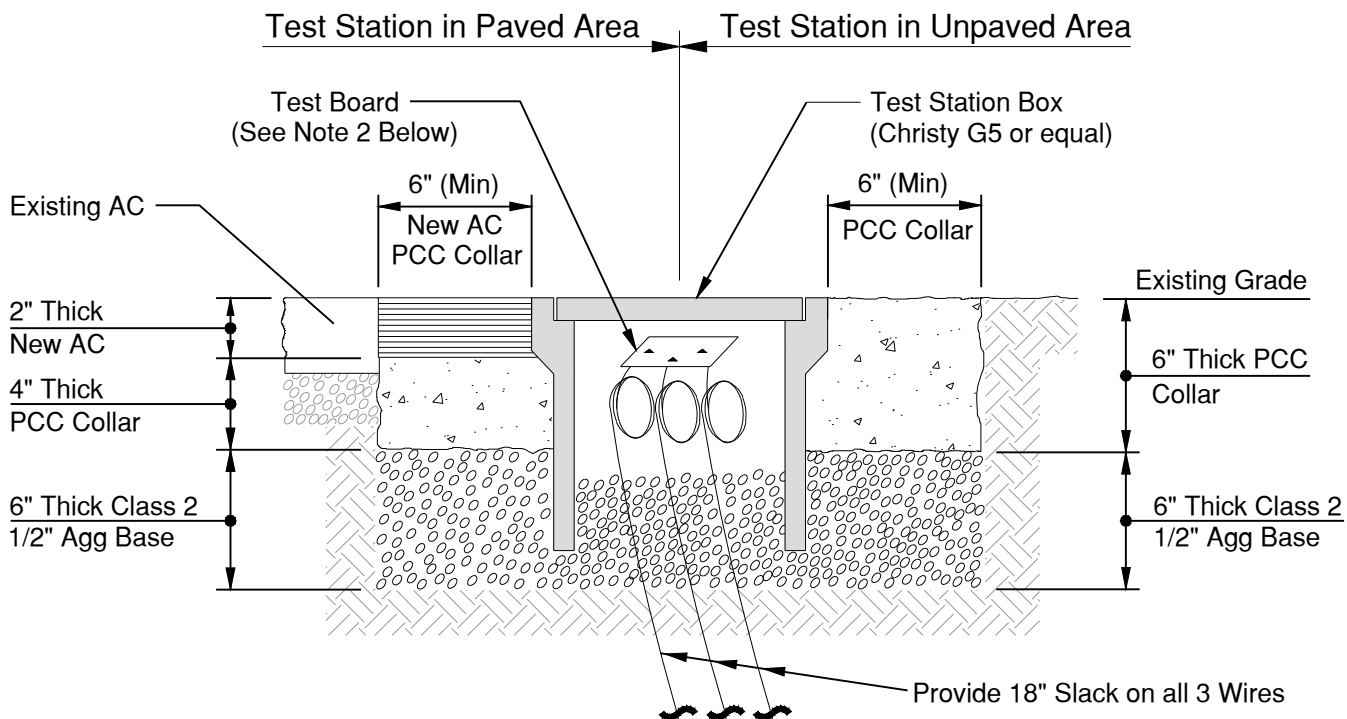
SACRIFICIAL ANODES:

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.

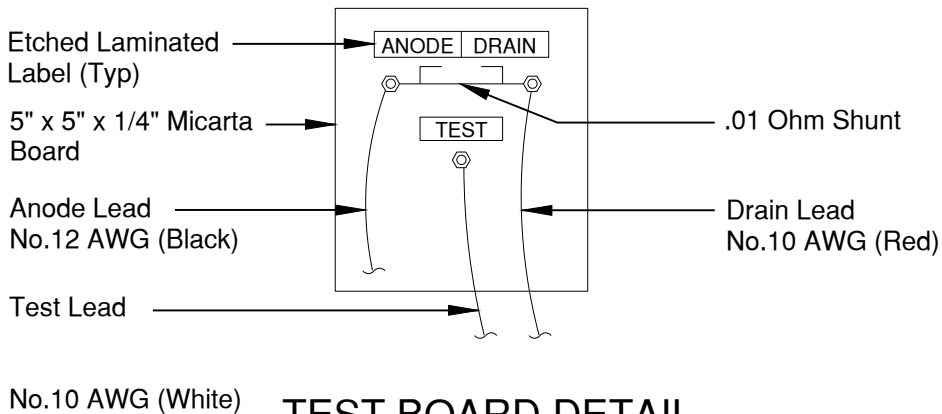
TEST & INSPECTION PROCEDURES:

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 22 |
| | | CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | APPROVED: _____ | Scale: None | | |
| CITY/DISTRICT ENGINEER | DEPARTMENT SUPERVISOR | Date: JUL. 2015 | | |



TEST STATION HOUSING DETAIL



TEST BOARD DETAIL

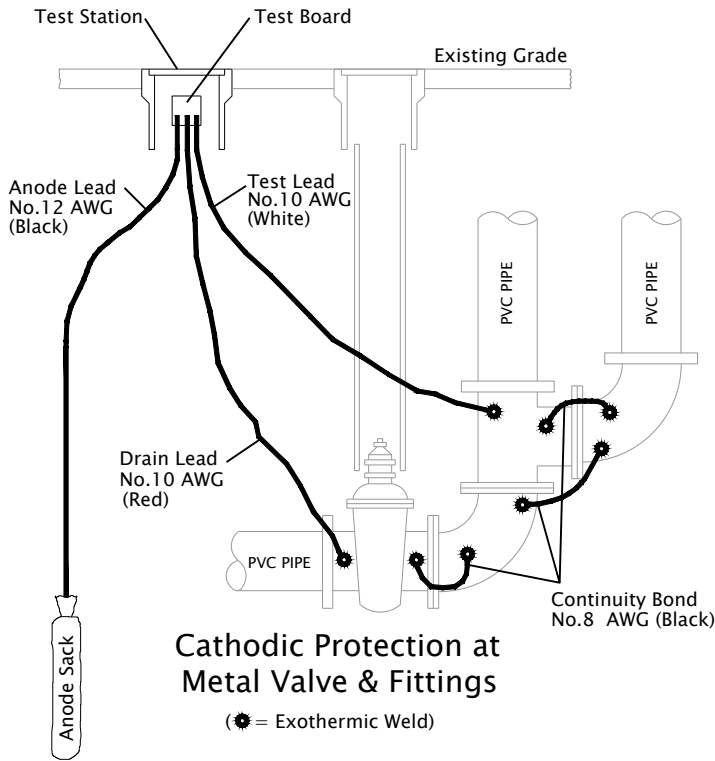
NOTES:

1. For general notes, see Standard Water 22.
2. Test board may be:
 - (a) Micrarta type as shown above
 - (b) "Big Frank" type station or Engineer-approved equal

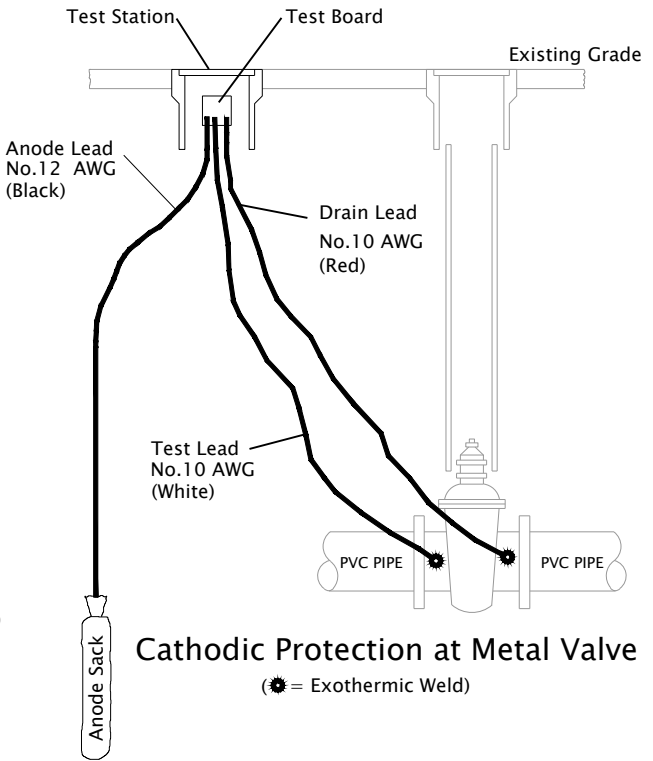
ESTERO MUNICIPAL IMPROVEMENT DISTRICT
CITY OF FOSTER CITY, CALIFORNIA

**WATER
CATHODIC PROTECTION - TEST STATION**

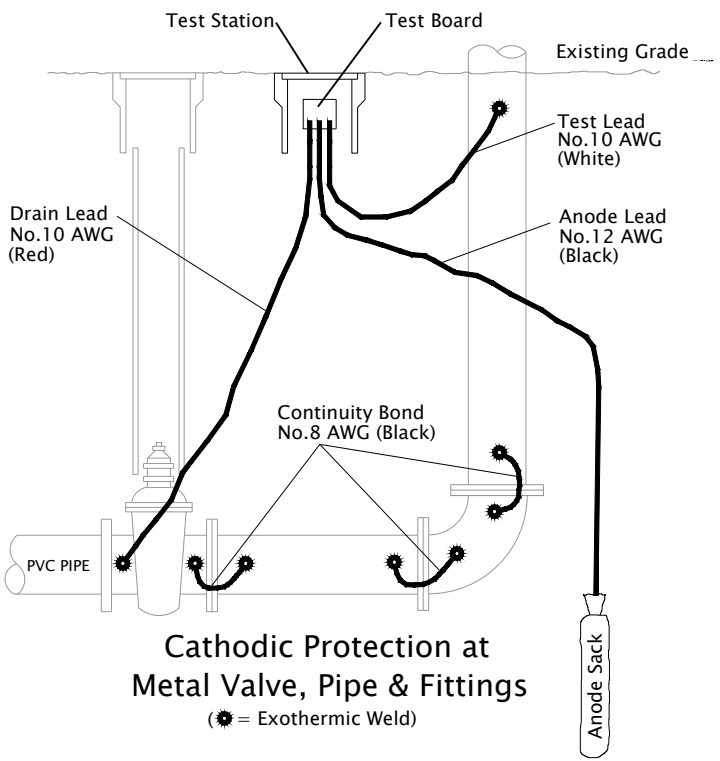
| Rev | Date | Description |
|------------------------|------|------------------|
| DWN: | | Dwg No. Water 23 |
| CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | | Scale: None |
| CITY/DISTRICT ENGINEER | | Date: JUL. 2015 |
| APPROVED: _____ | | |
| DEPARTMENT SUPERVISOR | | |



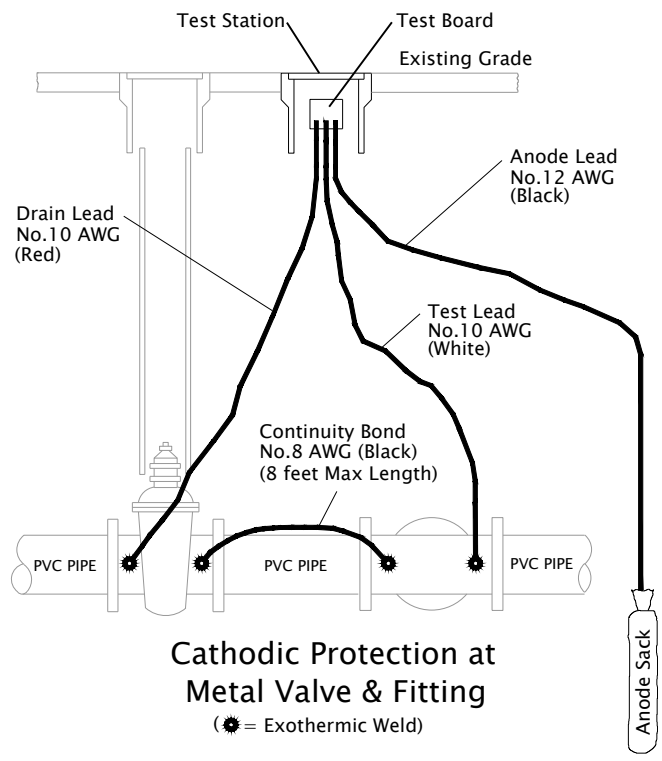
Cathodic Protection at Metal Valve & Fittings
 (★ = Exothermic Weld)



Cathodic Protection at Metal Valve
 (★ = Exothermic Weld)



Cathodic Protection at Metal Valve, Pipe & Fittings
 (★ = Exothermic Weld)



Cathodic Protection at Metal Valve & Fitting
 (★ = Exothermic Weld)

For Notes, see Cathodic Protection Sheet 1, Water 22.

ESTERO MUNICIPAL IMPROVEMENT DISTRICT
 CITY OF FOSTER CITY, CALIFORNIA

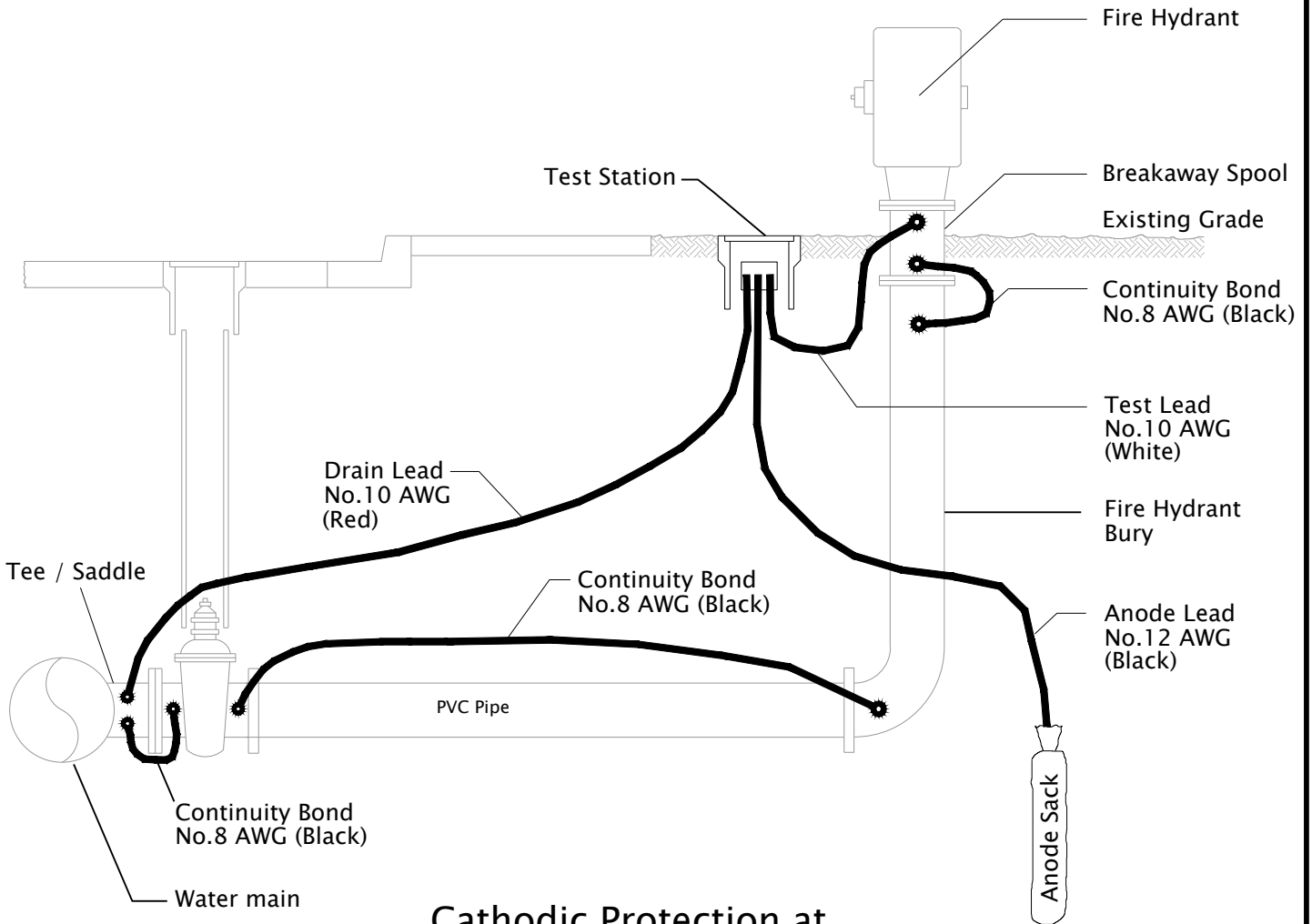
WATER

CATHODIC PROTECTION - LAYOUT AT VALVES & FITTINGS

| Rev | Date | Description |
|------|------|------------------|
| DWN: | | Dwg No. Water 24 |
| CHK: | | Sheet 1 of 1 |
| | | Scale: None |
| | | Date: JUL. 2015 |

APPROVED: _____
 CITY/DISTRICT ENGINEER

APPROVED: _____
 DEPARTMENT SUPERVISOR



Cathodic Protection at Fire Hydrant

(● = Exothermic Weld)

For Notes, see Cathodic Protection Sheet 1, Water 22.

| | | | | |
|--------------------------------------------------------------------------|-----------------------|-------------|------|------------------|
| ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA | | Rev | Date | Description |
| WATER | | DWN: | | Dwg No. Water 25 |
| | | CHK: | | Sheet 1 of 1 |
| APPROVED: _____ | APPROVED: _____ | Scale: None | | Date: JUL. 2015 |
| CITY/DISTRICT ENGINEER | DEPARTMENT SUPERVISOR | | | |

CATHODIC PROTECTION - LAYOUT AT FIRE HYDRANTS

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) |
| TOTAL | 35.7LBS | |

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) |
| TOTAL | 8.4LBS | |

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

For Notes, see Cathodic Protection Sheet 1, Water 22.

| | | | | |
|--------------------------------------------------------------------------|--|-----------------------|------|------------------|
| ESTERO MUNICIPAL IMPROVEMENT DISTRICT CITY OF FOSTER CITY, CALIFORNIA | | | | |
| WATER CATHODIC PROTECTION - ANODE SIZE | | Rev | Date | Description |
| | | DWN: | | Dwg No. Water 26 |
| APPROVED: _____ | | CHK: | | Sheet 1 of 1 |
| CITY/DISTRICT ENGINEER | | DEPARTMENT SUPERVISOR | | Scale: None |
| | | | | Date: JUL. 2015 |