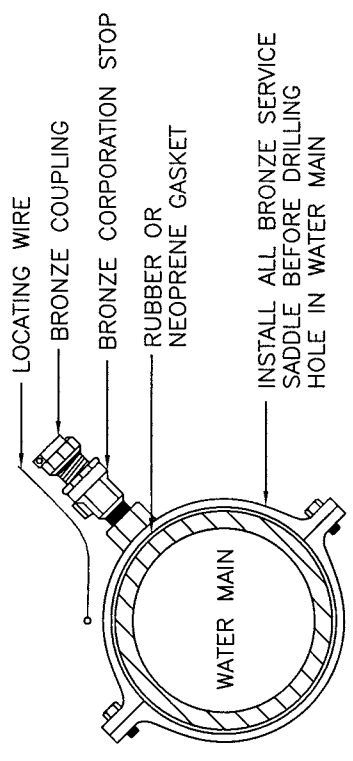
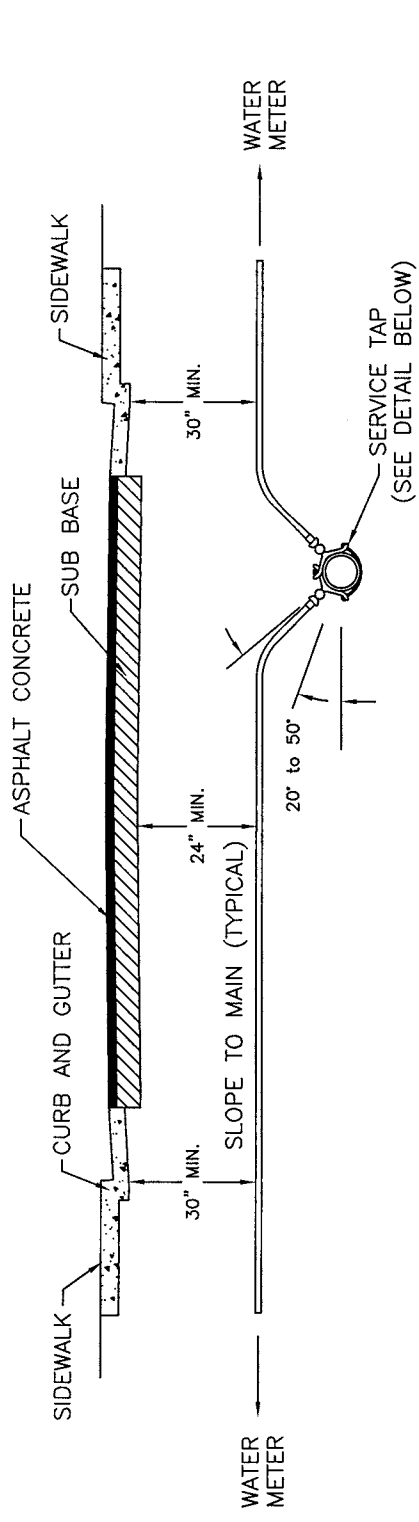


<b>Standard Drawings</b>		
<b>Section 8 – Water Systems</b>		
<b>Drawing</b>	<b>Sheets</b>	<b>Description</b>
8-1	1	Water Service Installation
8-2	1	Fire Hydrant Installation Water Main in Street
8-3	1 of 2	Thrust Block Bearing Area
8-3	2 of 2	Pipe Restrained Length
8-4	1	Locating Wire for Water Mains and Services
8-5	1	Valve Box Installation and Operating Nut Extension
8-6	1 of 2	1-1/2" & 2" Metered Water Service
8-6	2 of 2	3" to 6" Meter Installation
8-7	1 of 2	Fire Sprinkler Service - Residential
8-7	2 of 2	Fire Sprinkler Service - Commercial
8-8	1 of 2	Pressure Reducing Backflow Preventer 1" to 3"
8-8	2 of 2	Pressure Reducing Backflow Preventer 4" and larger
8-9	1	Maximum Deflection for PVC Pipe
8-10	1	Utility Crossing
8-11	1	Utility Crossing under Existing Water Main
8-12	1	2" Temporary Blow Off Assembly
8-13	1	4" Blow Off Assembly at End of Main
8-14	1	Combination Air/Vacuum Valve
8-15	1	Cut-in
8-16	1	Non-Potable Recycled Water Warning Sign



SERVICE TAP DETAIL

**NOTES:**

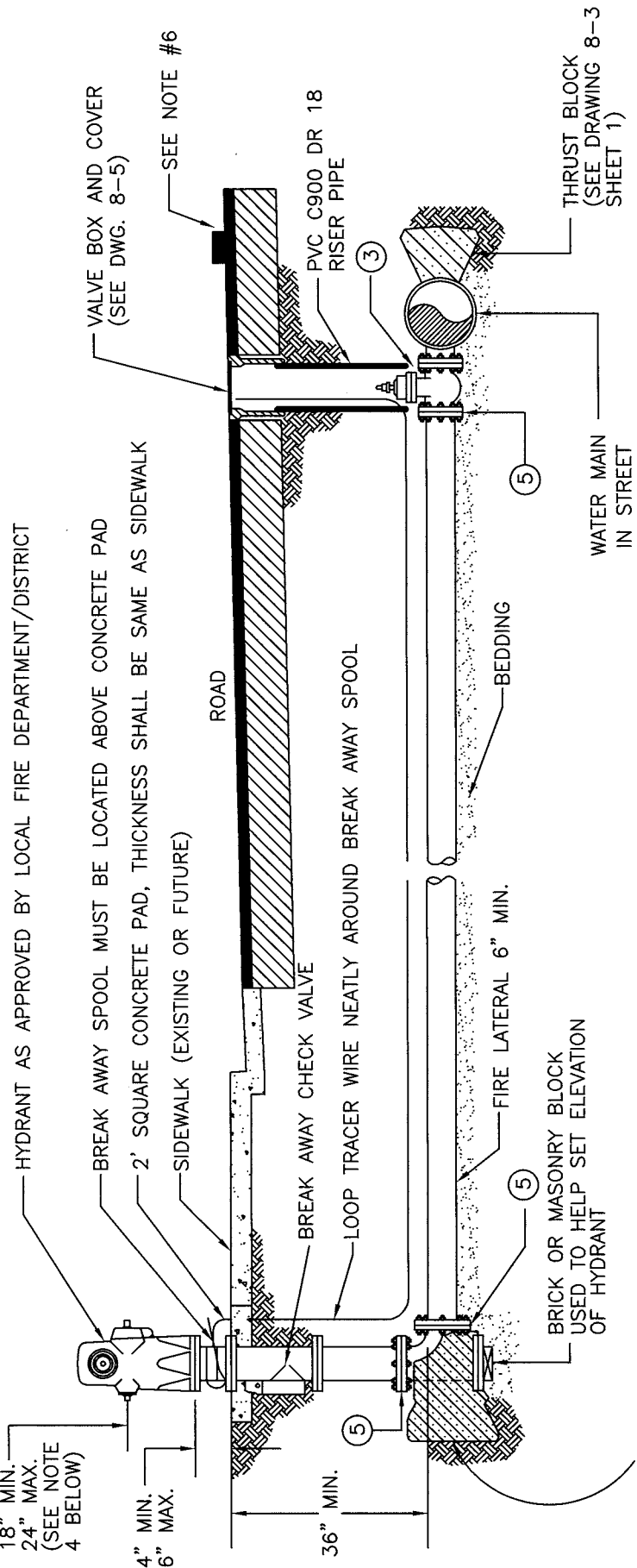
1. CORPORATION STOP, METER CURB STOP AND WATER SERVICE LINE ARE TO BE THE SAME SIZES.
2. SERVICE SADDLES SHALL HAVE A SINGLE WIDE BRONZE STRAP FOR 1" AND 2" SERVICES. DOUBLE STRAPS, FLATTENED TO PROVIDE A WIDE BEARING SURFACE AGAINST THE PIPE, SHALL BE USED FOR SERVICE SADDLE SIZES LARGER THAN 2 INCHES. BRONZE 'U' BOLTS (NOT FLATTENED) MAY BE PLACED ON PVC AND DUCTILE IRON WATER MAINS.
3. SERVICE SADDLES, CORPORATION STOPS, COUPLING NUTS, BOLTS, AND ALL APPURTENANCES SHALL BE BRONZE.
4. SERVICE TAP MUST BE MADE BETWEEN 20 DEGREES TO 50 DEGREES ABOVE THE SPRINGLINE OF THE PIPE.
5. SERVICE TAPS SHALL BE A MINIMUM OF 18" APART ALONG THE WATER MAIN.
6. INSULATED LOCATING WIRE REQUIRED ON ALL SERVICE LINES, SEE DRAWING 8-4. WIRE SHALL BE CONNECTED TO LOCATING WIRE ALONG WATER MAIN FOR CONTINUITY.

DATE:	08/05/08
SHEET #	1 OF 1
DRAWING #:	8-1
NOT TO SCALE	
COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	
WATER SERVICE INSTALLATION	
<i>Paros</i> COUNTY ENGINEER No. C42401	<i>28 Aug-08</i> APPROVAL DATE

18" MIN.  
24" MAX.  
(SEE NOTE  
4 BELOW)

4" MIN.  
6" MAX.

36" MIN.



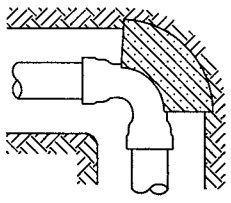
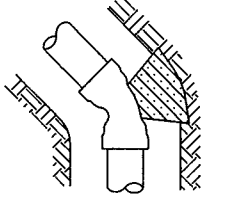
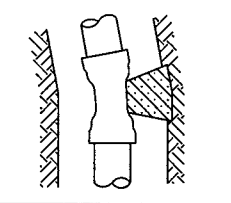
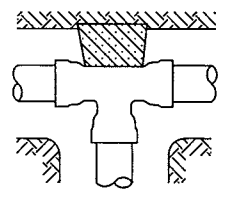
CONCRETE THRUST BLOCK  
POURED AGAINST UNDISTURBED  
SOIL, TYPICAL (SEE DRAWING 8-3 SHEET 1 FOR SIZE)

**NOTES:**

1. IN COMMERCIAL AREAS, FIRE HYDRANTS SHALL BE PROTECTED FROM VEHICULAR DAMAGE BY BOLLARDS AND SHALL BE ACCESSIBLE TO FIRE PROTECTION EQUIPMENT.
2. TYPE OF FIRE HYDRANT SHOWN IS FOR ILLUSTRATION ONLY.
3. GATE VALVE SHALL BE FLANGED TO THE WATER MAIN.
4. LOWEST CAP NUT ON HYDRANT SHALL BE 18" MIN. TO 24" MAX. ABOVE TOP OF CONCRETE PAD.
5. THESE JOINTS MAY BE FLANGED, OR RESTRAINED MECHANICAL JOINTS WITH COUNTY APPROVED RESTRAINING DEVICE.
6. 2-WAY BLUE REFLECTIVE MARKER TO BE PLACED 6" FROM STREET CENTERLINE ON THE SIDE TOWARDS THE HYDRANT.
7. WRAP ALL DUCTILE IRON PIPE AND FITTINGS IN 4-MIL HDPE.
8. FOR STREETS WITH PLANTER STRIPS, HYDRANTS SHALL BE LOCATED ON THE STREET SIDE OF THE SIDEWALK.

PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
FIRE HYDRANT INSTALLATION WATER MAIN IN STREET	SHEET # 1 OF 1
<i>James Kalkas</i> COUNTY ENGINEER No. C42401	DRAWING #: <b>8-2</b> NOT TO SCALE
COUNTY OF YOLO APPROVAL DATE	28 Aug. 08

## REQUIRED BEARING AREA IN TOTAL SQUARE FEET

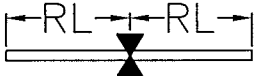

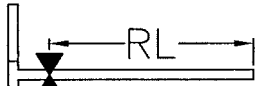
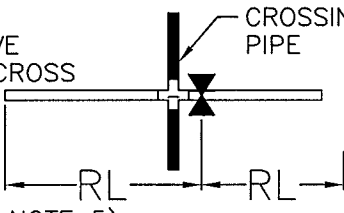
TYPE OF FITTING	90° BEND	45° BEND	11-1/4" BEND 22-1/2" BEND	TEE OR DEAD END	TEE WITH PLUG	CROSS WITH PLUG	CROSS WITH PLUGS
TYPICAL INSTALLATION							
	4	2	1	3			
	7	4	2	5			
	12	6	3	8			
6"	16	10	5	12			
8"							
10"							
12"							
SIZE OF PIPE							
					THRUST BLOCKS NOT ALLOWED, SEE DRAWING 8-3 SHEET 2		

**NOTES:**

1. THRUST BLOCKS ARE TO BE CONSTRUCTED OF CLASS "B" CONCRETE.
2. BEARING AREAS GIVEN ARE FOR CLASS 150 PIPE AT TEST PRESSURE OF 150 PSI IN SOIL WITH 2,000 PSF BEARING CAPACITY. INSTALLATIONS USING DIFFERENT PIPE, TEST PRESSURES, SOIL TYPES SHOULD ADJUST AREAS ACCORDINGLY, SUBJECT TO APPROVAL.
3. THRUST BLOCKS ARE TO BE POURED AGAINST UNDISTURBED SOIL.
4. PIPE JOINTS ARE TO BE KEPT CLEAR OF CONCRETE.
5. 6" PIPE FOR HYDRANTS ONLY.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
THRUST BLOCK BEARING AREA	SHEET # 1 OF 2
<i>James Kappas</i> COUNTY ENGINEER No. C42401	DRAWING #: <b>8-3</b> NOT TO SCALE
<i>28 Aug. 08</i> APPROVAL DATE	

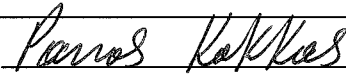
# RESTRAIN LENGTH IN FEET

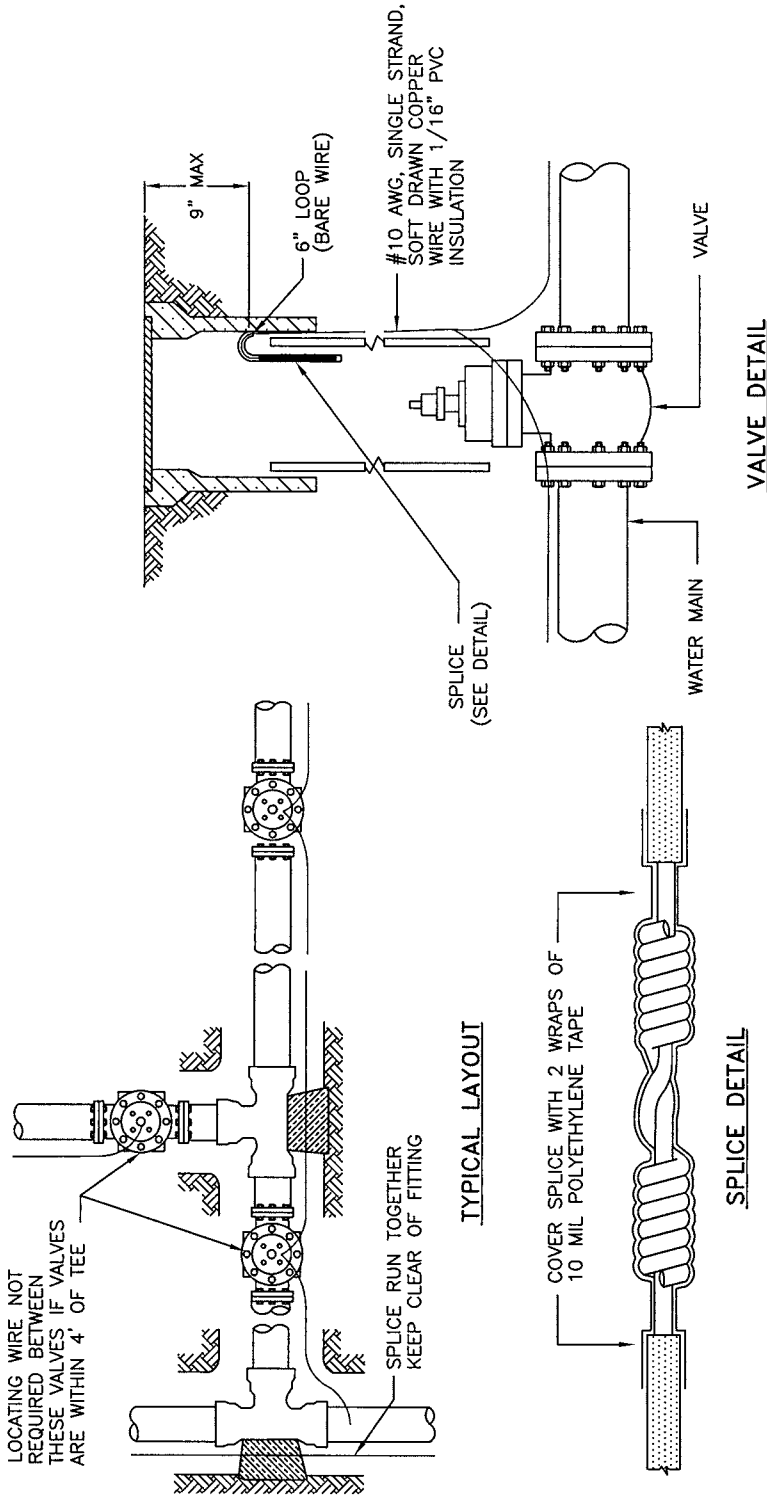
PIPE CONFIGURATION	CROSSING PIPE SIZE	DEPTH OF 36"								DEPTH OF 60"							
		6"		8"		10"		12"		6"		8"		10"		12"	
		DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC
IN LINE VALVE 		38	24	45	31	58	38	70	46	17	17	26	24	32	30	41	38
VALVE AT TEE  (SEE NOTE 3)	6	3	2	17	13	37	24	48	33	3	2	12	10	20	19	30	26
	8	2	2	12	8	27	19	43	30	2	2	6	5	17	15	27	24
	10	2	2	4	3	19	15	39	28	2	2	2	2	12	11	24	21
	12	2	2	2	2	14	10	32	24	2	2	2	2	10	8	20	19
 (SEE NOTE 4)	6	2	2	18	15	41	26	50	34	2	2	14	12	22	20	32	28
	8	2	2	16	12	32	20	44	32	2	2	6	4	18	16	29	26
	10	2	2	4	4	20	17	40	32	2	2	2	2	14	12	26	24
	12	2	2	3	2	18	14	34	26	2	2	2	2	12	10	22	20
VALVE AT CROSS  (SEE NOTE 5)																	

RL = RESTRAINED LENGTH

**NOTES:**

1. ALL JOINTS WITHIN THE RESTRAIN LENGTH MUST BE RESTRAINED.
2. IF RESTRAIN LENGTH IS GREATER THAN 20', DUCTILE IRON PIPE WITH THE BELL RESTRAINING DEVICES INSIDE MUST BE USED FOR THE ENTIRE RESTRAINED LENGTH.
3. RESTRAIN LENGTH FOR THE TEE DESCRIBED, ASSUMES A THRUST BLOCK IS INSTALLED AT LOCATIONS SHOWN ABOVE. IF THRUST BLOCK IS NOT INSTALLED RESTRAIN LENGTH MUST BE APPROVED BY THE COUNTY ENGINEER.
4. THIS CONFIGURATION IS ONLY TO BE USED IF A THRUST BLOCK CAN NOT BE POURED BEHIND THE TEE AND AGAINST UNDISTURBED SOIL.
5. JOINTS ON PIPES PERPENDICULAR (CROSSING PIPES) TO RESTRAIN LENGTH RUN, MUST BE RESTRAINED FOR A MIN. OF 4 FEET.
6. THE RESTRAIN LENGTHS ARE BASED ON A WATER PRESSURE OF 150 PSI. IF HIGHER PRESSURE OR HIGHER SURGE PRESSURES ARE ANTICIPATED, THEN THIS TABLE DOES NOT APPLY AND RESTRAIN LENGTH MUST BE APPROVED BY THE COUNTY ENGINEER.

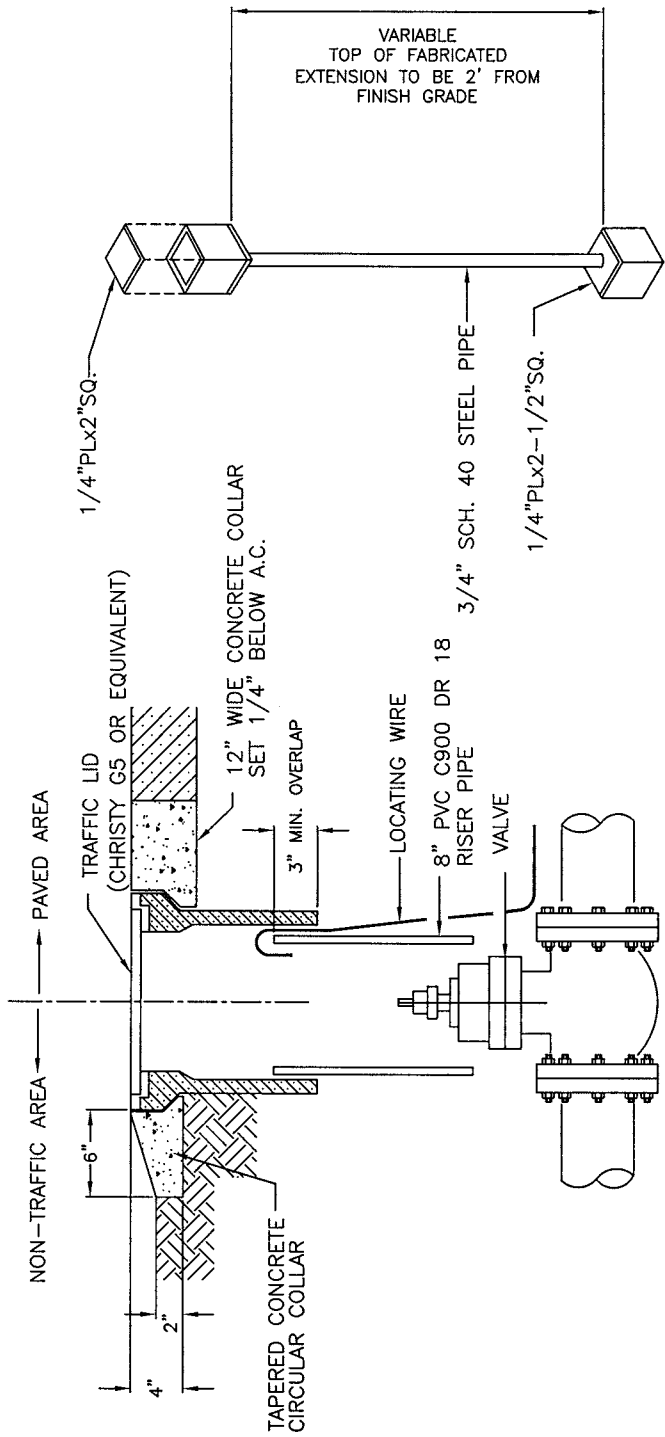
<b>COUNTY OF YOLO</b> PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
<b>PIPE RESTRAINED LENGTH</b>	SHEET # 2 OF 2
 COUNTY ENGINEER No. C42401	28 AUG 08 APPROVAL DATE
DRAWING #: 8-3 NOT TO SCALE	



**NOTES:**

1. WIRE SHALL BE CONTINUOUS BETWEEN VALVE BOXES, EXCEPT AS NOTED.
2. LOCATING WIRE SHALL BE LAID ON TOP OF THE WATER MAIN, AND SHALL BE TAPED TO IT OR THE POLYETHYLENE ENCASEMENT (IF THE PIPE IS DUCTILE IRON) AT 10' INTERVALS AND TAPED AT ALL FITTINGS. TAPE SHALL BE 10 MIL POLYETHYLENE.
3. CONTRACTOR SHALL CONDUCT A CONTINUITY TEST ON ALL LOCATING WIRE SPLICES.
4. ALL SPLICES SHALL BE SOLDERED.
5. WRAP ALL FITTINGS AND DUCTILE IRON PIPE IN CLEAR 4-MIL HDPE.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
LOCATING WIRE FOR WATER MAINS AND SERVICES	SHEET # 1 OF 1
<i>Panos Kalkas</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-4 NOT TO SCALE
APPROVAL DATE 28 AUG. 08	



TRAFFIC VALVE BOX

VALVE OPERATING NUT EXTENSION

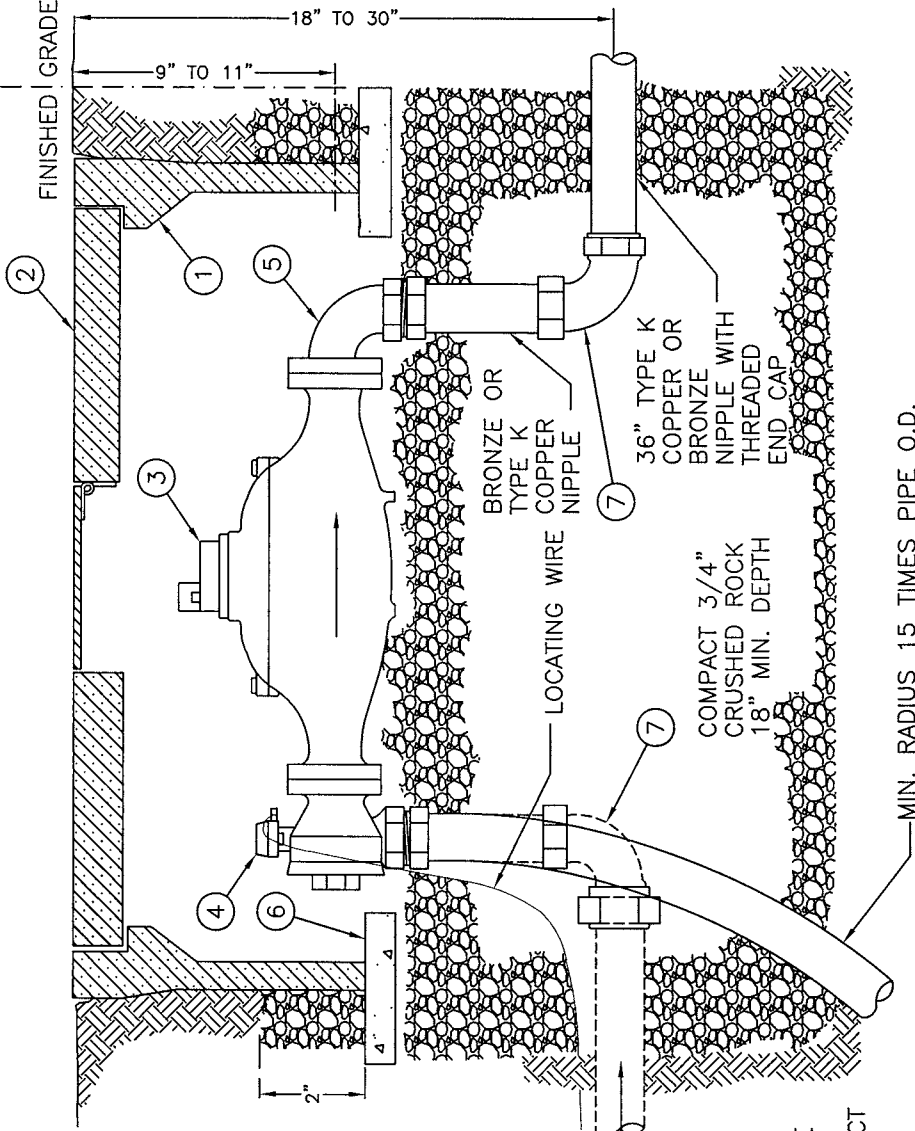
(REQUIRED WHERE VALVE NUT IS IN EXCESS OF 4 FEET BELOW FINISH GRADE)

NOTES:

1. VALVE BOX AND RISER SHALL BE SET PLUMB AND CENTERED OVER WATER VALVE NUT.
2. SET VALVE BOX TO FINAL FINISH GRADE. IN AREAS WHERE THE FINISH GRADE HAS NOT BEEN DEFINED, PLACE 4"x4" LOCATING POST PAINTED BLUE WITHIN 1 FOOT OF VALVE BOX. POST SHALL BE 6 FEET IN LENGTH AND BURIED 3 FEET.
3. WRAP ALL FITTINGS AND DUCTILE IRON PIPE IN CLEAR 4-MIL HDPE.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
VALVE BOX INSTALLATION AND OPERATING NUT EXTENSION	SHEET # 1 OF 1
<i>Parnes Koffas</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-5 NOT TO SCALE
APPROVAL DATE 28 AUG 08	

PUBLIC PRIVATE

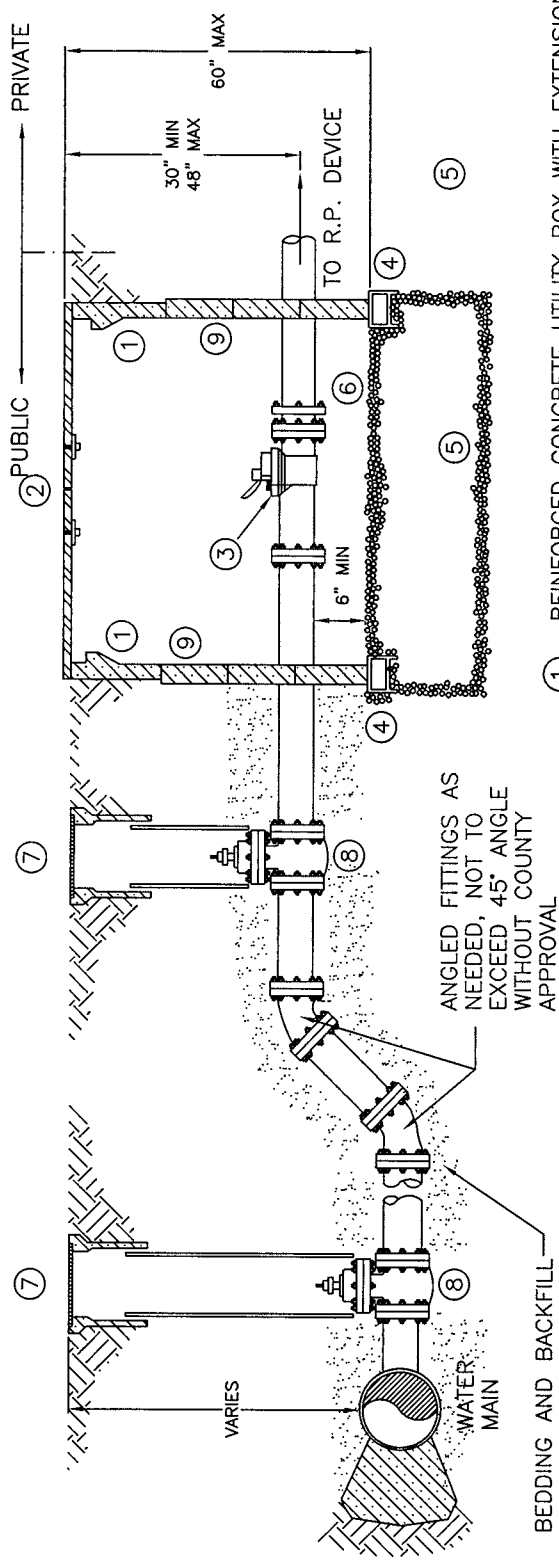


**NOTES:**

- ① REINFORCED CONCRETE UTILITY BOX. (CHRISTY B36 BOX, OR EQUIVALENT)
- ② REINFORCED CONCRETE COVER WITH A HINGED CAST IRON LID AND WATER LABEL. (CHRISTY B36G COVER OR EQUIVALENT)
- ③ AMCO C700 WATER METER WITH "INSIDER" TRANSMITTER OR COUNTY APPROVED EQUIVALENT.
- ④ FLANGED WINGED ANGLE METER STOP WITH TEFLON COATED BALL.
- ⑤ OVAL FLANGED 90° BRONZE FITTING.
- ⑥ 1"X4"X16" CONCRETE BLOCK TO HELP SUPPORT VALVE BOX, USE ONE BLOCK ON ALL FOUR SIDES OF METER BOX. COVER ANY OPENINGS OR HOLES IN THE SIDE OF THE UTILITY BOX WITH CONCRETE BLOCK.
- ⑦ BRONZE COMPRESSION BY THREADED 90° FITTING.
- ⑧ ALL METAL PIPES AND FITTING THAT ARE BURIED SHALL BE ENCASED WITH 6 MIL PLASTIC SO THAT NO SOIL IS IN CONTACT WITH THE PIPES AND FITTINGS.
- ⑨ METER BOXES SHALL NOT BE INSTALLED IN SIDE YARD SWALES OR AREAS SUBJECT TO PONDING.
- ⑩ MARK ALL METER BOXES WITH A 2" HIGH "W" WET STAMPED ON FACE OF CURB.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
1-1/2" OR 2" METERED WATER SERVICE	SHEET # 1 OF 2
<i>Paros</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-6 NOT TO SCALE
28 AUG-08 APPROVAL DATE	





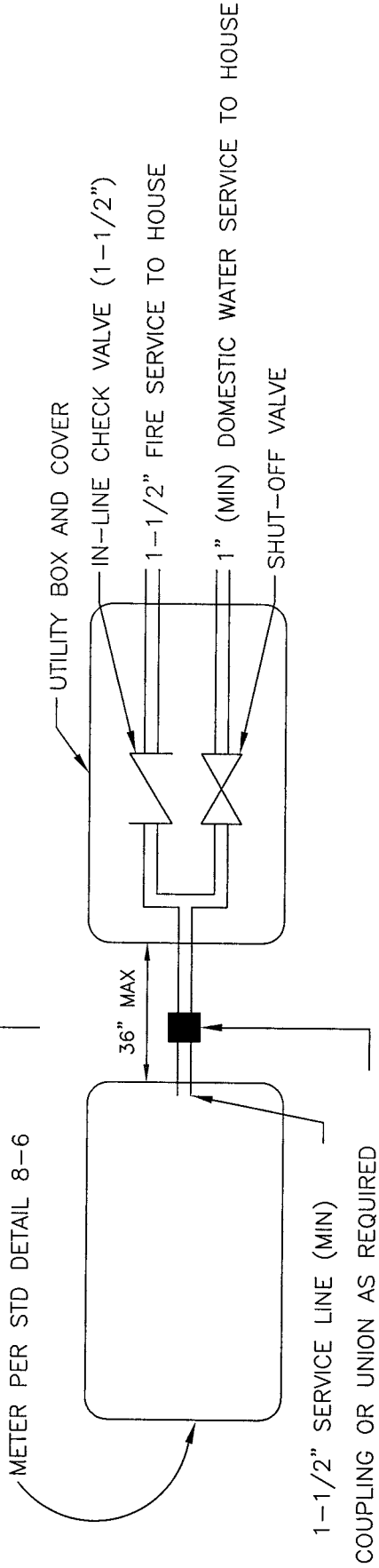
**NOTES:**

1. WHEN NEEDED CONCRETE BLOCKS SHALL BE USED TO BLOCK ANY OPENING OR CUT OUT PORTIONS OF THE METER BOX NOT UTILIZED. (MINIMUM OF 1" THICK BLOCK ARE REQUIRED)
2. ALL 4" TO 6" DIA. PIPE BETWEEN THE WATER MAIN AND THE METER SHALL BE DUCTILE IRON WITH POLYETHYLENE ENCASMENT AND 6--INCHES OF SAND BACKFILL AND 6--INCHES OF SAND BEDDING. JOINTS BETWEEN MAIN AND METER SHALL BE RESTRAINED.
3. 3" PIPE SHALL BE TYPE K COPPER OR BRONZE WRAPPED WITH 6 MIL PLASTIC AND HAVE SAND BEDDING AND BACKFILL. VALVES ON 3 INCH DIAMETER PIPE SHALL HAVE BRONZE CORPORATION AND CURB VALVES WITH TEFLON COATED BALLS.
4. VALVES ATTACHED TO THE MAIN MUST HAVE FLANGED ENDS.
5. INSTALL LOCATING WIRE PER 8-4.
6. METER BOXES SHALL NOT BE INSTALLED IN SIDYARD SWALES OR AREAS SUBJECT TO PONDING. METER BOXES SHALL BE INSTALLED BEHIND SIDEWALK.
7. WRAP ALL FITTINGS AND DUCTILE IRON PIPE IN CLEAR 4-MIL HDPE.

- ① REINFORCED CONCRETE UTILITY BOX WITH EXTENSIONS. (CHRISTY B4B)
- ② PIECE STEEL CHECKER PLATE WITH TWO 10" ROUND SELF-CLOSING READING LIDS. (CHRISTY B48-62G COVER, OR EQUIVALENT.)
- ③ ELSTER AMCO TS4000 WATER METER OR COUNTY APPROVED EQUIVALENT, WITH AUTOMATIC METER READING CAPABILITY. CONCRETE BLOCKS SHALL BE PLACED UNDER THE ENTIRE PERIMETER TO SUPPORT BOX.
- ④ 3/4" CRUSHED ROCK SUB-BASE, 12" TO 18" DEEP, COMPACT TO 90% RELATIVE COMPACTION.
- ⑤ FLANGED COUPLING ADAPTER.
- ⑥ VALVE BOX AND LID. (SEE 8-5)
- ⑦ GATE VALVE, WITH BOTH ENDS FLANGED.
- ⑧ METER BOX EXTENSION. (TYPICAL)

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
3" TO 6" METER INSTALLATION	SHEET # 2 OF 2
<i>Parnes Kollas</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-6 NOT TO SCALE
APPROVAL DATE <i>28 Aug 08</i>	

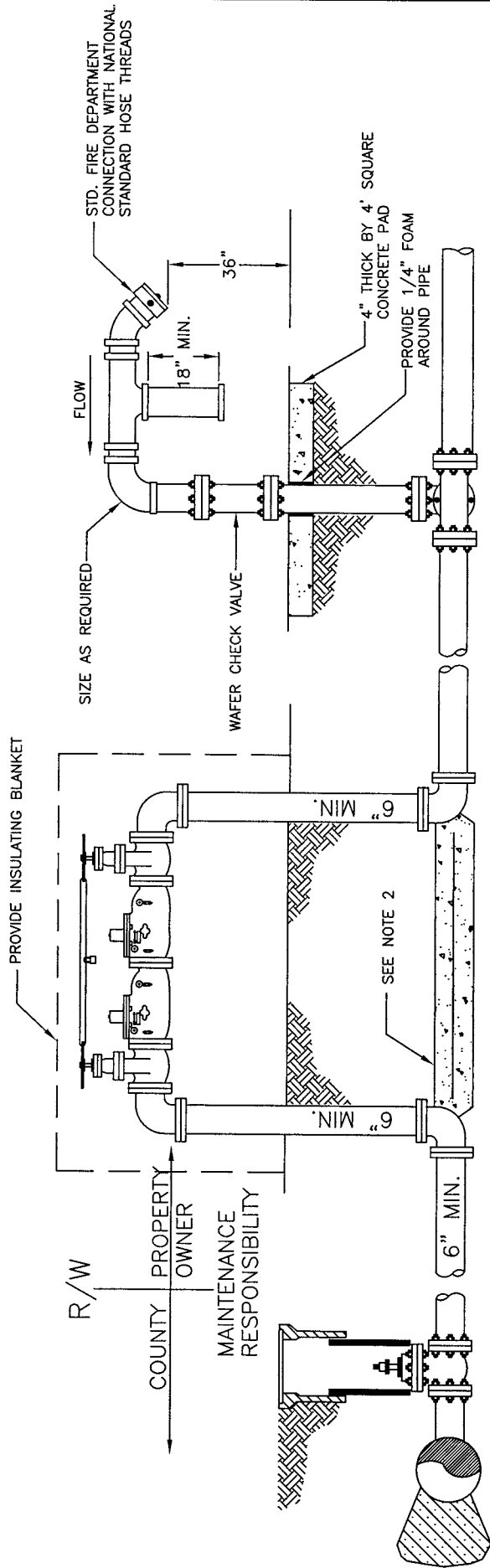
COUNTY MAINTENANCE RESPONSIBILITY | HOMEOWNER MAINTENANCE RESPONSIBILITY



**NOTES:**

1. THE RESIDENTIAL SERVICE DETAILS ARE APPLICABLE ON SINGLE-FAMILY RESIDENTIAL SERVICES ONLY. ALL OTHERS SHALL USE THE COMMERCIAL STANDARDS.
2. FIRE SERVICE IMPROVEMENTS SHALL BE INSTALLED CONCURRENTLY WITH HOUSE CONSTRUCTION.
3. ALL IMPROVEMENTS SUBJECT TO COUNTY BUILDING PERMIT AND FIRE DISTRICT INSPECTION AND APPROVAL.
4. ALL CONNECTIONS SHALL BE THREADED OR GLUE JOINT ONLY.

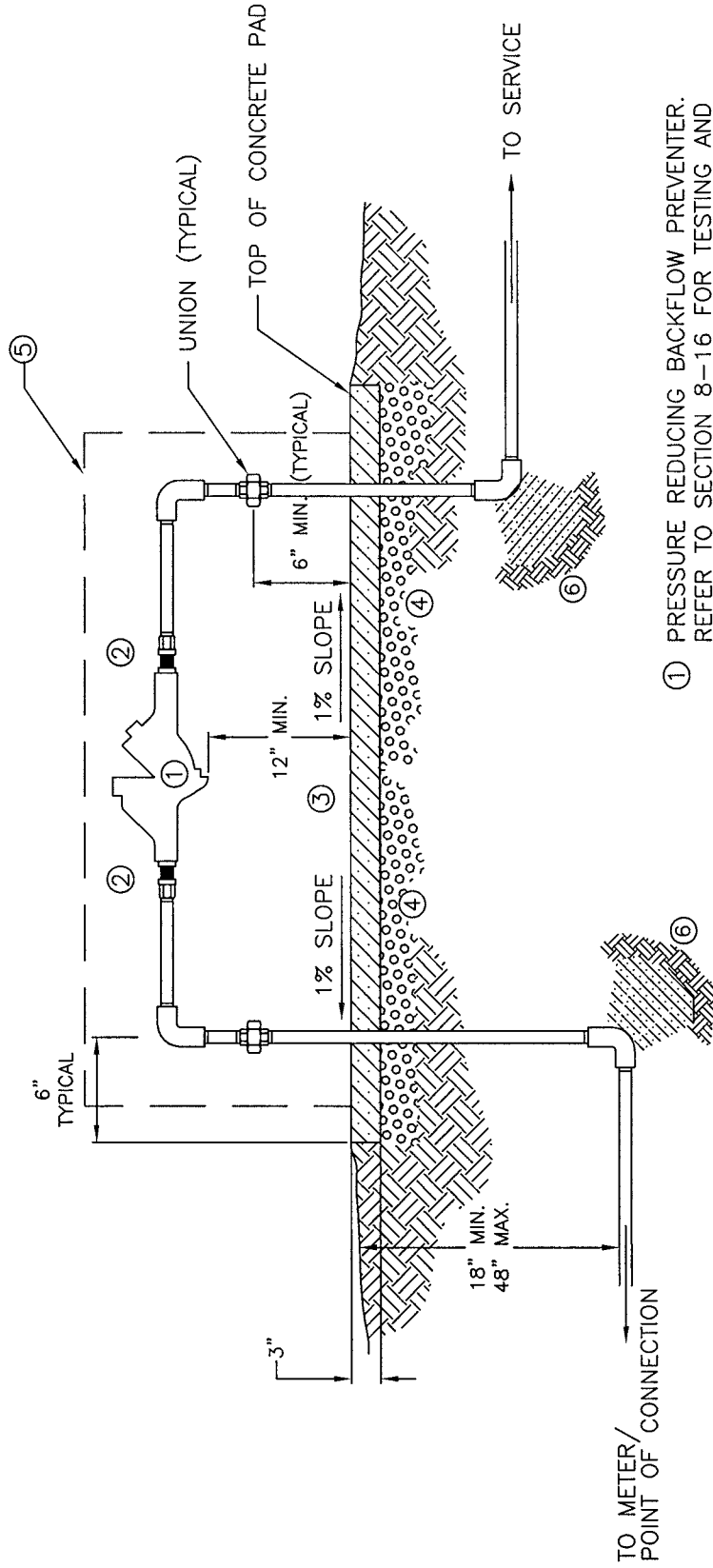
COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT		DATE: 08/05/08
FIRE SPRINKLER SERVICE - RESIDENTIAL		SHEET # 1 OF 2
<i>Pavlos Kalkas</i> COUNTY ENGINEER No. C42401		DRAWING #: 8-7 NOT TO SCALE
APPROVAL DATE 28 AUG 08		



**NOTES:**

1. ALL JOINTS TO BE FULLY RESTRAINED. ALL PIPE & FITTINGS SHALL BE DUCTILE IRON.
2. CONCRETE THRUST BLOCK WITH ONE PIECE OF #4 REBAR.
3. DOUBLE DETECTOR CHECK VALVE ASSEMBLY (AMES OR APPROVED EQUIVALENT), REDUCED PRESSURE TYPE, WITH OS&Y RESILIENT WEDGE GATE VALVES, REFER TO CURRENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES PUBLISHED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES. OS&Y VALVES TO BE LOCKED WITH FIRE DEPARTMENT APPROVED PADLOCK AND FITTED WITH TAMPER SWITCHES AS REQUIRED ON FIRE SYSTEM APPLICATION.
4. CHECK VALVE AND PIPE SHALL BE U.L.-F.M. APPROVED. REFER TO SECTION 8-16 FOR TESTING AND CERTIFICATION REPORT REQUIREMENTS.
5. INSTALLATION MAY VARY WITH FIELD CONDITIONS AND FIRE DEPARTMENT REQUIREMENTS.
6. WRAP BURIED DUCTILE IRON PIPE AND FITTINGS IN CLEAR 4-MIL HDPE.

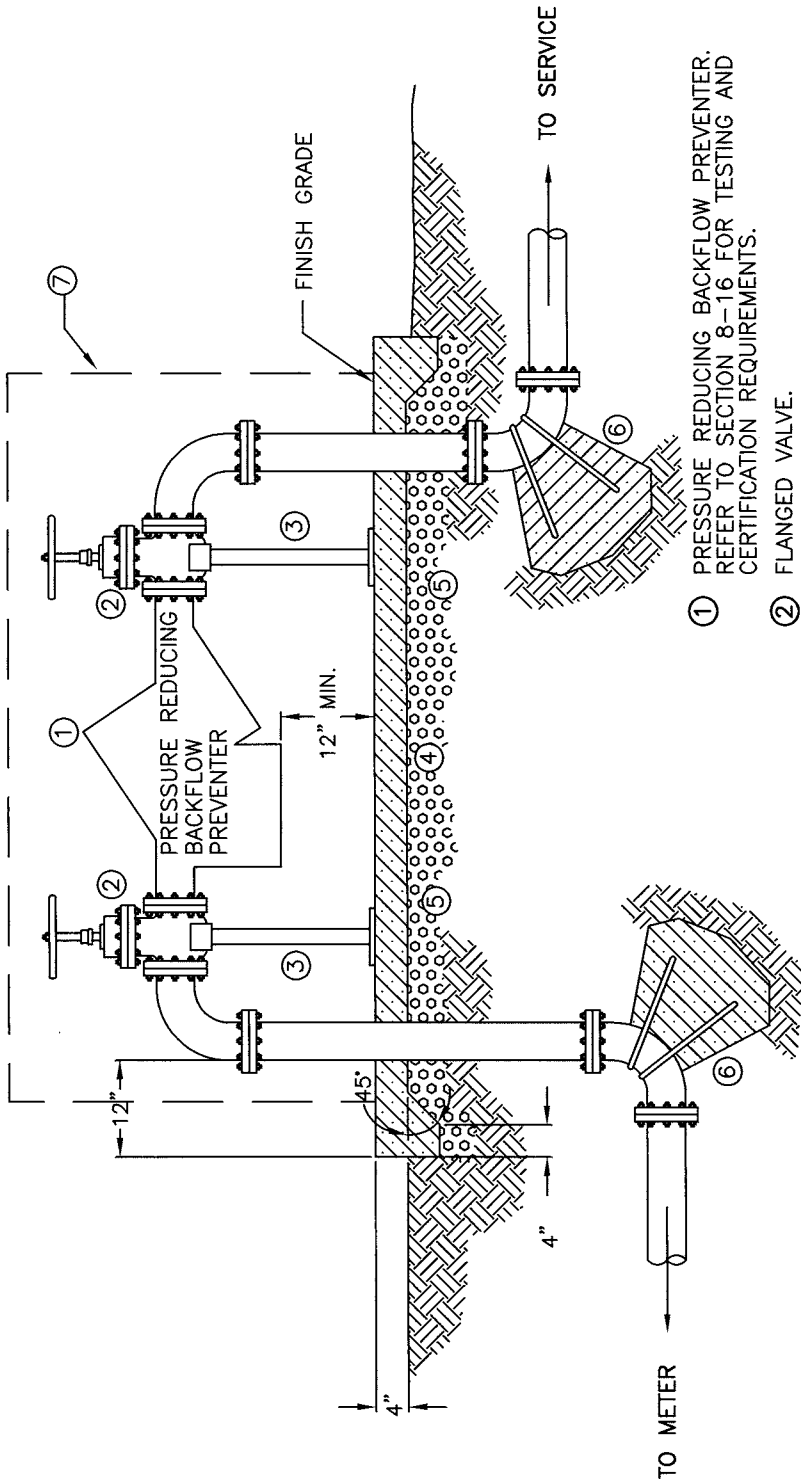
COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
FIRE SPRINKLER SERVICE - COMMERCIAL	SHEET # 2 OF 2
<i>Parnes Hopkins</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-7 NOT TO SCALE
APPROVAL DATE 28 Aug. 08	



- NOTES:**
1. PRESSURE REDUCING BACKFLOW PREVENTER. REFER TO SECTION 8-16 FOR TESTING AND CERTIFICATION REQUIREMENTS.
  2. BRONZE BODY, RESILIENT SEATED BALL VALVE MINIMUM WORKING PRESSURE OF 175 PSI.
  3. 3" SLAB - 24" WIDE WITH VARYING LENGTH.
  4. 1/2" OR 3/4" CRUSHED ROCK, 4" MINIMUM THICKNESS, MECHANICALLY COMPACTED TO 95% COMPACTION.
  5. PROVIDE LOCKABLE PROTECTIVE ENCLOSURE AND INSULATED BLANKET FOR PRESSURE REDUCING BACKFLOW ASSEMBLY. REFER TO SECTION 8-16.
  6. THRUST BLOCK

1. PRESSURE REDUCING BACKFLOW PREVENTER VALVES SHALL BE LISTED ON THE STATE OF CALIFORNIA'S DEPARTMENT OF HEALTH SERVICES MOST RECENT LIST OF APPROVED REDUCED PRESSURE BACKFLOW PREVENTERS.
2. ALL PIPES SHALL BE GALVANIZED SCHEDULE 40 STEEL, TYPE K COPPER, OR BRONZE. ALL BURIED PIPES SHALL BE WRAPPED WITH 6 MIL. POLYETHYLENE ENCASUREMENT OR 10 MIL POLYETHYLENE TAPE.
3. GALVANIZED PIPE SHALL HAVE ANODE BAG PER COUNTY BUILDING INSPECTION REQUIREMENTS CODE.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
PRESSURE REDUCING BACKFLOW PREVENTER 1" TO 3"	SHEET # 1 OF 2
<i>Panos</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-8
<i>28 AUG 08</i> APPROVAL DATE	NOT TO SCALE

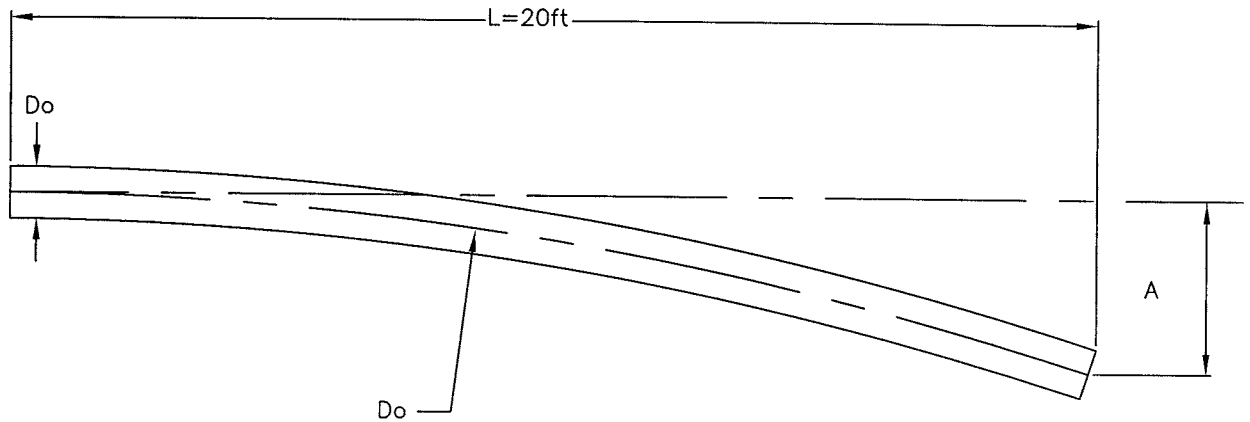


**NOTES:**

1. PRESSURE REDUCING BACKFLOW PREVENTER VALVES SHALL BE LISTED ON THE STATE OF CALIFORNIA'S DEPARTMENT OF HEALTH SERVICES MOST RECENT LIST OF APPROVED REDUCED PRESSURE BACKFLOW PREVENTERS.
2. INSTALL LOCATING WIRE PER DRAWING 8-4.
3. ALL PIPE SHALL BE CEMENT LINED DUCTILE IRON, CLASS 350 MEETING THE REQUIREMENTS OF AWWA C151 AND C115 ALL JOINTS SHALL BE FLANGED. FLANGES SHALL CONFORM TO AWWA C207, CLASS D REQUIREMENTS.
4. BURIED PIPE SHALL BE WRAPPED WITH 8 MILS OF POLYETHYLENE ENCASEMENT WITH SAND BEDDING AND BACKFILL.

- ① PRESSURE REDUCING BACKFLOW PREVENTER. REFER TO SECTION 8-16 FOR TESTING AND CERTIFICATION REQUIREMENTS.
- ② FLANGED VALVE.
- ③ PIPE SUPPORT, 2" GALVANIZED SCHEDULE 40 MINIMUM.
- ④ 4" CONCRETE SLAB - 24" WIDE WITH VARYING LENGTH.
- ⑤ 6" OF CRUSHED AGGREGATE COMPACTED TO 95% COMPACTION.
- ⑥ THRUST BLOCK WITH #5 REBARS. WRAP THE PORTION OF THE REBAR THAT IS NOT EMBEDDED IN THE CONCRETE WITH 20 MIL POLYETHYLENE TAPE. SEE DRAWING 8-3 FOR SIZING.
- ⑦ PROVIDE LOCKABLE PROTECTIVE ENCLOSURE AND INSULATED BLANKET FOR PRESSURE REDUCING BACKFLOW ASSEMBLY.

<b>COUNTY OF YOLO</b>	DATE: 08/05/08
PLANNING AND PUBLIC WORKS DEPARTMENT	SHEET # 2 OF 2
PRESSURE REDUCING-BACKFLOW PREVENTER 4" AND LARGER	DRAWING #: 8-8 NOT TO SCALE
<i>Ramos Koplos</i> COUNTY ENGINEER No. C42401	APPROVAL DATE 28 AUG 08



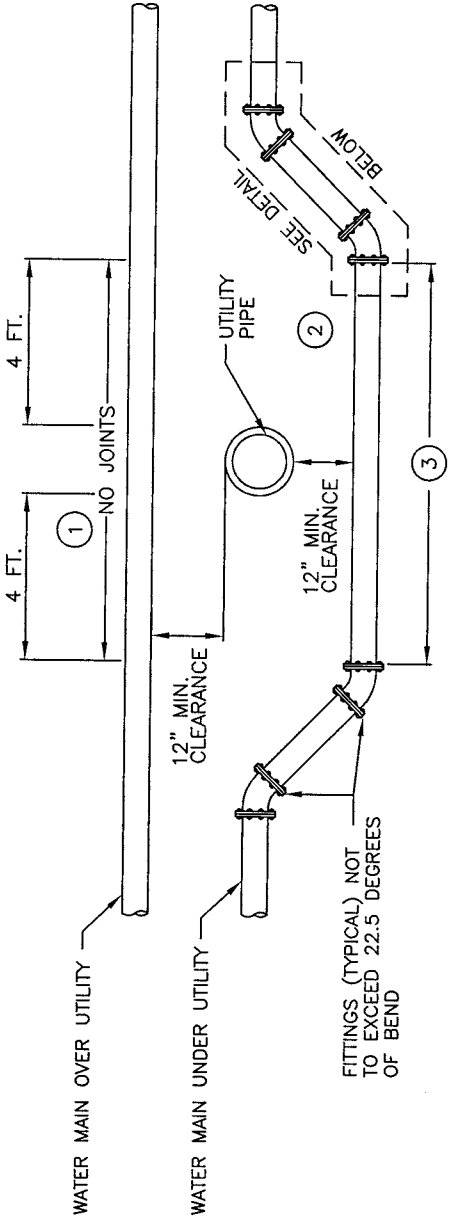
$Do$  = AVERAGE OUTSIDE PIPE DIAMETER (INCHES)  
 $A$  = OFFSET AT THE END OF PIPE (INCHES)  
 $Rb$  = MINIMUM BENDING RADIUS (FEET)

MAX. DEFLECTION FOR PVC PIPE, AWWA C900 CLASS 200			
Normal Pipe Diameter	Average Outside Pipe Diameter, $Do$	Minimum Wall Thickness	Minimum Bending Radius, $Rb$
(inches)	(inches)	(inches)	(feet)
6	6.900	0.493	204
8	9.050	0.646	266
10	11.100	0.793	329
12	13.200	0.943	385

**NOTE:**

1. JOINT DEFLECTION OF AWWA C900 PVC PIPE IS PROHIBITED.

COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT		DATE: 08/05/08
MAXIMUM DEFLECTION FOR PVC PIPE		SHEET # 1 OF 1
<i>Panos Kakkas</i> COUNTY ENGINEER No. C42401	28 AUG. 08 APPROVAL DATE	DRAWING #: 8-9 NOT TO SCALE



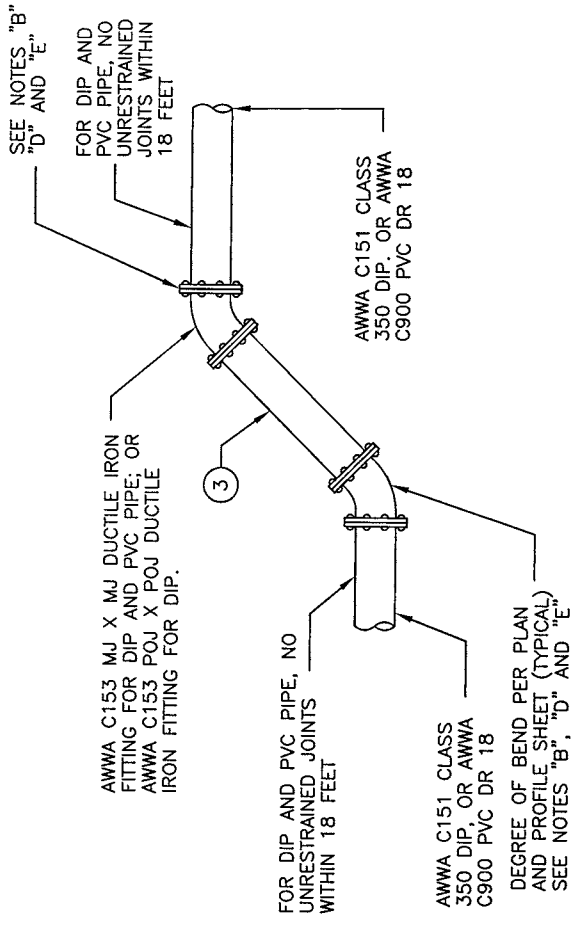
- ① IF UTILITY BEING CROSSED IS NOT A STORM DRAIN, SEWER, OR OTHER WATER LINE, THEN THE "NO JOINT" REQUIREMENT DOES NOT APPLY.
- ② IF THE UTILITY BEING CROSSED IS A SEWER, STORM DRAIN OR OTHER WATER LINE, THE TYPE OF PIPE MUST BE DUCTILE IRON OR AWWA C900 DR 14 PVC PIPE.
- ③ NO JOINTS ALLOWED IF LESS THAN 18 FEET. ALL JOINTS BETWEEN FITTINGS MUST BE RESTRAINED WITH EITHER OF THE METHODS DESCRIBED FOR DIP. BELL RESTRAINTS FOR PVC PIPE ARE NOT ALLOWED.

**LEGEND**

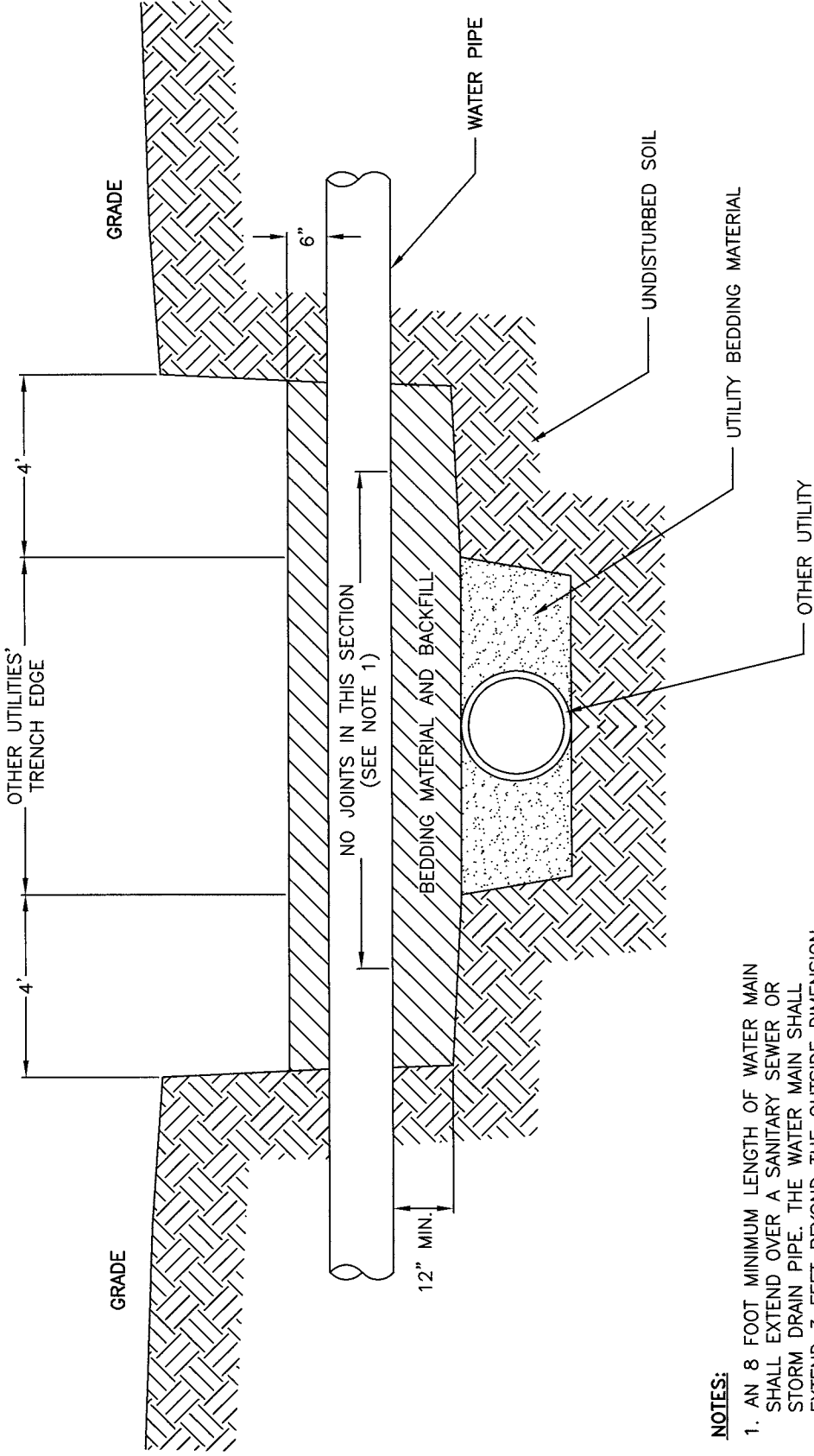
DIP=DUCTILE IRON PIPE  
 AWWA=AMERICAN WATER WORKS ASSOCIATION  
 PVC=POLYVINYL CHLORIDE PIPE  
 POJ=PUSH ON JOINTS

**NOTES:**

- A. IF DIP IS USED, FITTINGS MAY HAVE BELL ENDS WITH U.S. PIPE FIELD LOK GASKETS FOR RESTRAINING DEVICES OR APPROVED EQUIVALENT. BELL RESTRAINTS FOR PVC PIPE ARE NOT ALLOWED.
- B. IF BEND IS TO EXCEED 22.5 DEGREES, THE BEND AND THE RESTRAIN LENGTH MUST BE APPROVED BY THE COUNTY.
- C. WRAP ALL DIP AND FITTINGS WITH 8 MIL. POLYETHYLENE ENCASUREMENT IN ACCORDANCE WITH AWWA C105.
- D. RESTRAINING DEVICE FOR DIP: FOR POJ's USE U.S. PIPE FIELD LOK GASKETS OR APPROVED EQUIVALENT, FOR MJ JOINTS USE STAR PIPE PRODUCTS STARGRIP 3000, STAR PIPE PRODUCTS ALLGRIP 3600, EBAA MEGALUG 2000PV SERIES, OR APPROVED EQUIVALENT.
- E. RESTRAINING DEVICE FOR PVC PIPE: USE MJ FITTINGS WITH STAR PIPE PRODUCTS ALLGRIP 3600, EBAA MEGALUG 2000PV SERIES, OR APPROVED EQUIVALENT.
- F. SEE PLAN AND PROFILE FOR RESTRAINED LENGTH AND DEGREE OF BEND.
- G. THIS DETAIL IS FOR WATER PIPES 12" IN DIAMETER AND SMALLER.



COUNTY OF YOLO		DATE: 08/05/08
PLANNING AND PUBLIC WORKS DEPARTMENT		SHEET # 1 OF 1
UTILITY CROSSING		DRAWING #: 8-10
<i>Panos Kollas</i> COUNTY ENGINEER No. C42401		APPROVAL DATE 28 AUG 08 NOT TO SCALE

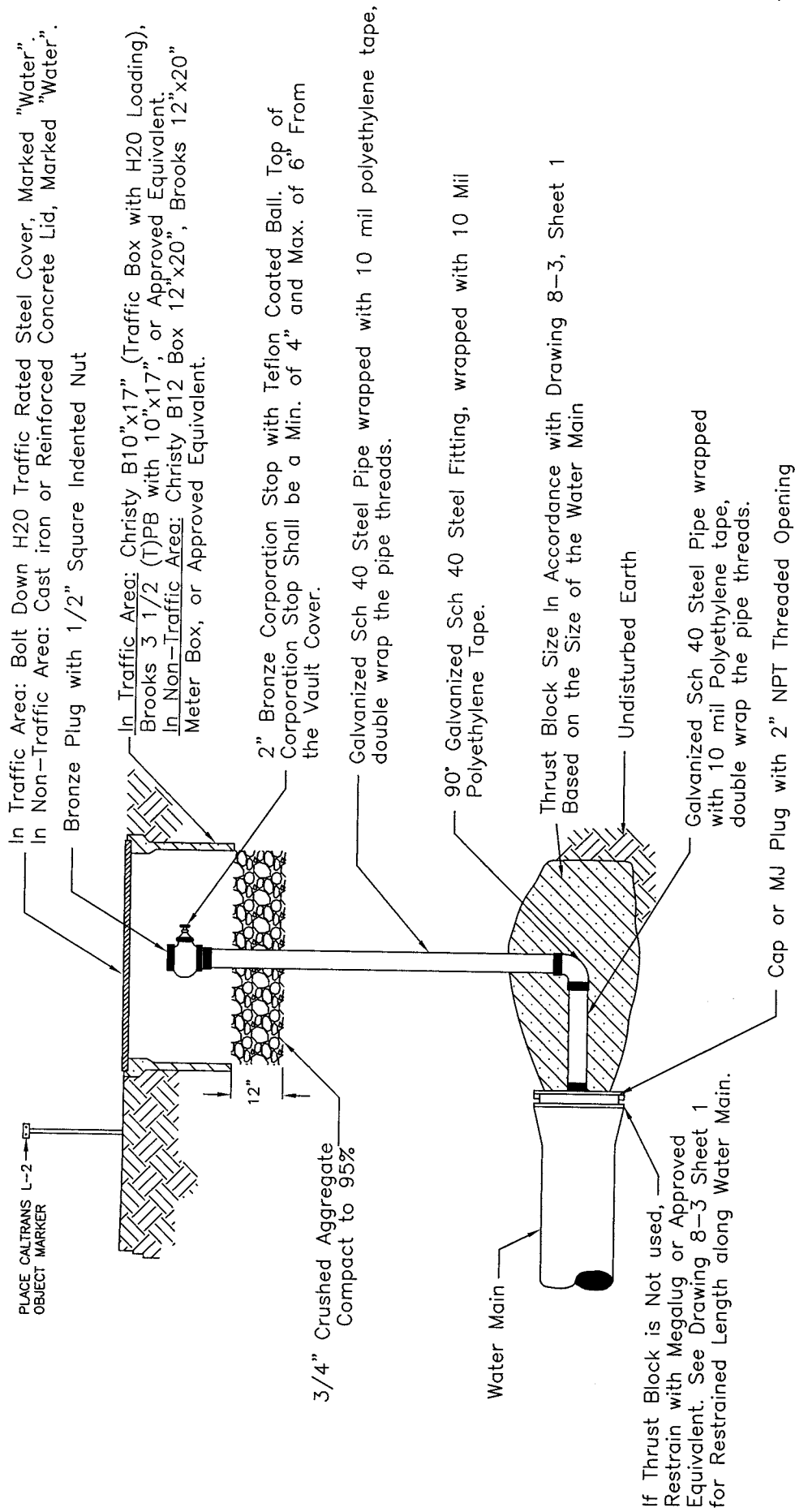


**NOTES:**

1. AN 8 FOOT MINIMUM LENGTH OF WATER MAIN SHALL EXTEND OVER A SANITARY SEWER OR STORM DRAIN PIPE. THE WATER MAIN SHALL EXTEND 3 FEET BEYOND THE OUTSIDE DIMENSION OF ALL OTHER UTILITIES, OR AS REQUIRED BY THE CALIFORNIA DEPARTMENT OF HEALTH.
2. USE 1/2" CRUSHED AGGREGATE FOR PVC WATER PIPE. USE SAND FOR DUCTILE IRON WATER PIPE. COMPACT BEDDING AND BACKFILL MATERIAL TO 90% RELATIVE COMPACTION.

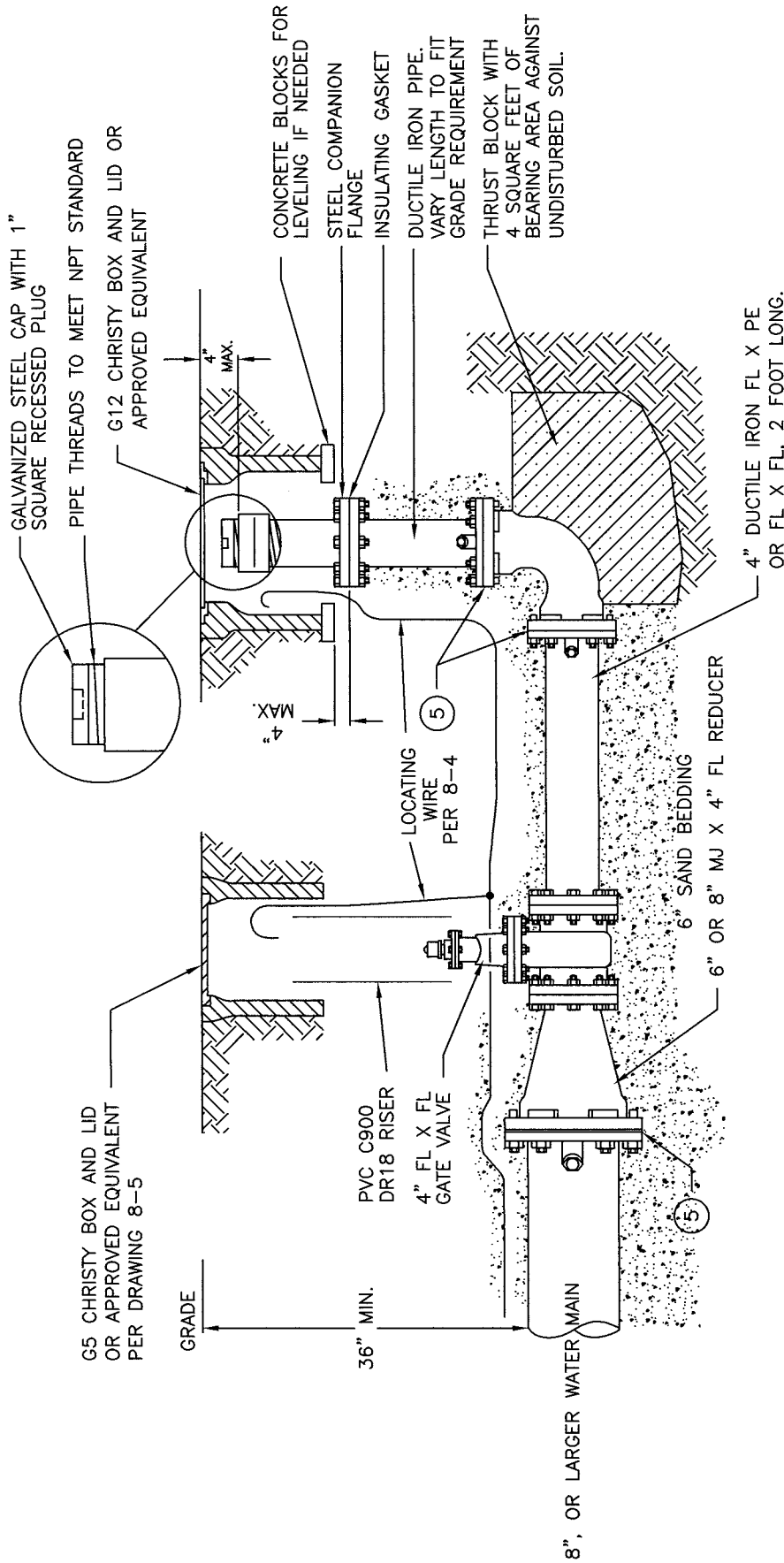
DATE: 08/05/08	COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT
SHEET # 1 OF 1	UTILITY CROSSING UNDER EXISTING WATER MAIN
DRAWING #: 8-11 NOT TO SCALE	<i>Panos</i> COUNTY ENGINEER No. C42401 28 AUG. 08 APPROVAL DATE





PLANNING AND PUBLIC WORKS DEPARTMENT	COUNTY OF YOLO	DATE:	08/05/08
2" TEMPORARY BLOW OFF ASSEMBLY		SHEET #	1 OF 1
<i>James Kelkas</i> COUNTY ENGINEER No. C42401	28 AUG. 08	DRAWING #:	8-12
	APPROVAL DATE		NOT TO SCALE

**NOTE:**  
Backfill with Native Material and Compact to 90% Compaction. In traffic areas the backfill and compaction requirements for the road shall govern.



**NOTES:**

1. WRAP 4" GATE VALVE AND ALL METAL FITTINGS AND PIPE WITH 8 MIL POLYETHYLENE ENCASEMENT PER AWWA C105.
2. ALL FITTINGS SHALL HAVE A MINIMUM PRESSURE CLASS OF 200 PSI AND MEET AWWA C110 OR AWWA C153 STANDARDS.
3. PROVIDE 6 INCHES OF SAND BEDDING AND BACKFILL WITH SAND TO 6 INCHES ABOVE THE TOP OF PIPE AND FITTINGS. COMPACT TO 90% RELATIVE COMPACTION.
4. GALVANIZED STEEL PIPE NOT ALLOWED.
5. THESE JOINTS MUST BE RESTRAINED. TYPES OF RESTRAINED JOINTS MAY BE: (1) FLANGE, (2) MJ WITH APPROVED RESTRAINING DEVICES (EBAA OR STAR PIPE PRODUCTS). OR (3) FOR D.I.P., PUSH ON JOINTS WITH U.S. PIPE FIELD-LOK GASKET OR APPROVED EQUIVALENT.

<b>COUNTY OF YOLO</b>		DATE:	08/05/08
PLANNING AND PUBLIC WORKS DEPARTMENT		SHEET #	1 OF 1
4" BLOW OFF ASSEMBLY AT END OF MAIN		DRAWING #:	8-13
<i>Parras</i>		APPROVAL DATE	28 AUG. 08
COUNTY ENGINEER No. C42401		NOT TO SCALE	

3/16" steel, 6" x 6" rectangular tube 18" high with an 8-1/2" cap, spot welded at the top. Clean interior and exterior of steel with a water based cleaner. Devprep 88 or equivalent. Factory apply 1 coat, at 2.0 mils, of Inmec series 135 epoxy primer, then 1 coat, at 2.0 mils of Inmec series 28 acrylic to the cap, tube, and top of the lid of the utility box. Color to be Hunter Green or approved equivalent.

2-3/8" Bolts, Grade 3 with washer

1/4" thick steel lid. Tack Weld 1/4" thick by 1" wide steel plate around perimeter of lid so top of lid is flush with top of box. Cut 5"x5" square hole in top of lid. Square hole to be centered relative to width of lid. Lid and tube assembly shall be PWAE118M or approved equivalent. Lid shall be bolted to box.

Weld 2 locking nuts to lid to accept bolts.

1" schedule 40 Galvanized steel pipe with steel threaded coupling and 1" to 3/4" PVC adapter. Operator must be able to unscrew PVC Riser from coupling.

1" Crispin UL-10 Combination Air Release/ Vacuum Valve or Approved Equivalent

1"-90° bronze fitting (Typ)

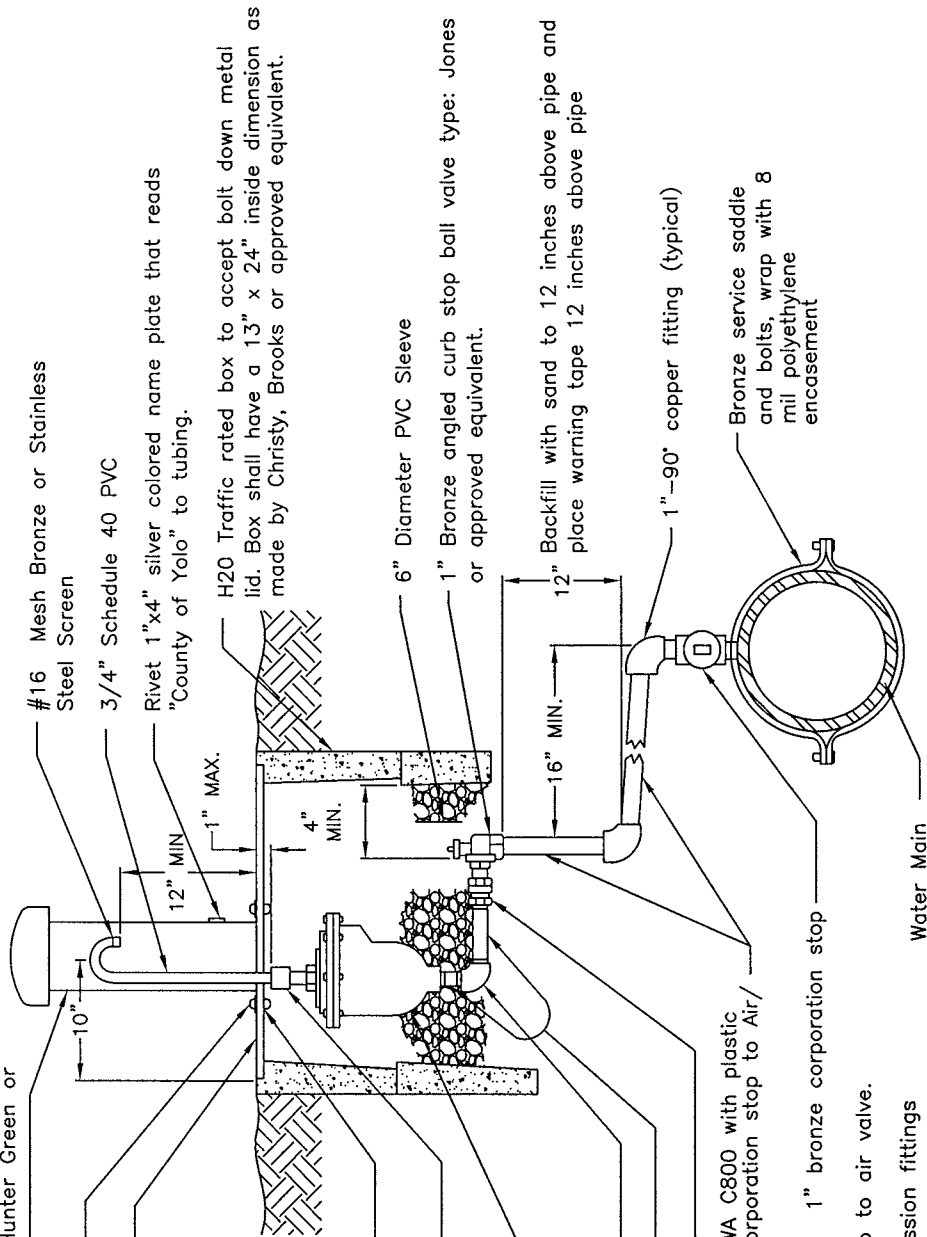
1"-bronze nipple (Typ)

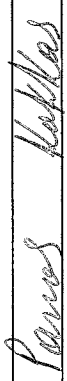
1 1/4" x 1" Bronze threaded union

Copper pipe (0.182" wall thickness) per AWWA C800 with plastic encasement; maintain upward grade from corporation stop to Air/Vacuum Combination valve

**NOTES:**

1. Maintain a grade upward from corp. stop to air valve.
2. Flare or solder joint fittings and compression fittings are acceptable.
3. Provide 3'x3'x3' of 1/2" crushed aggregate for drainage and support under valve, compact to 95%.
4. Detail not for use in roadways.

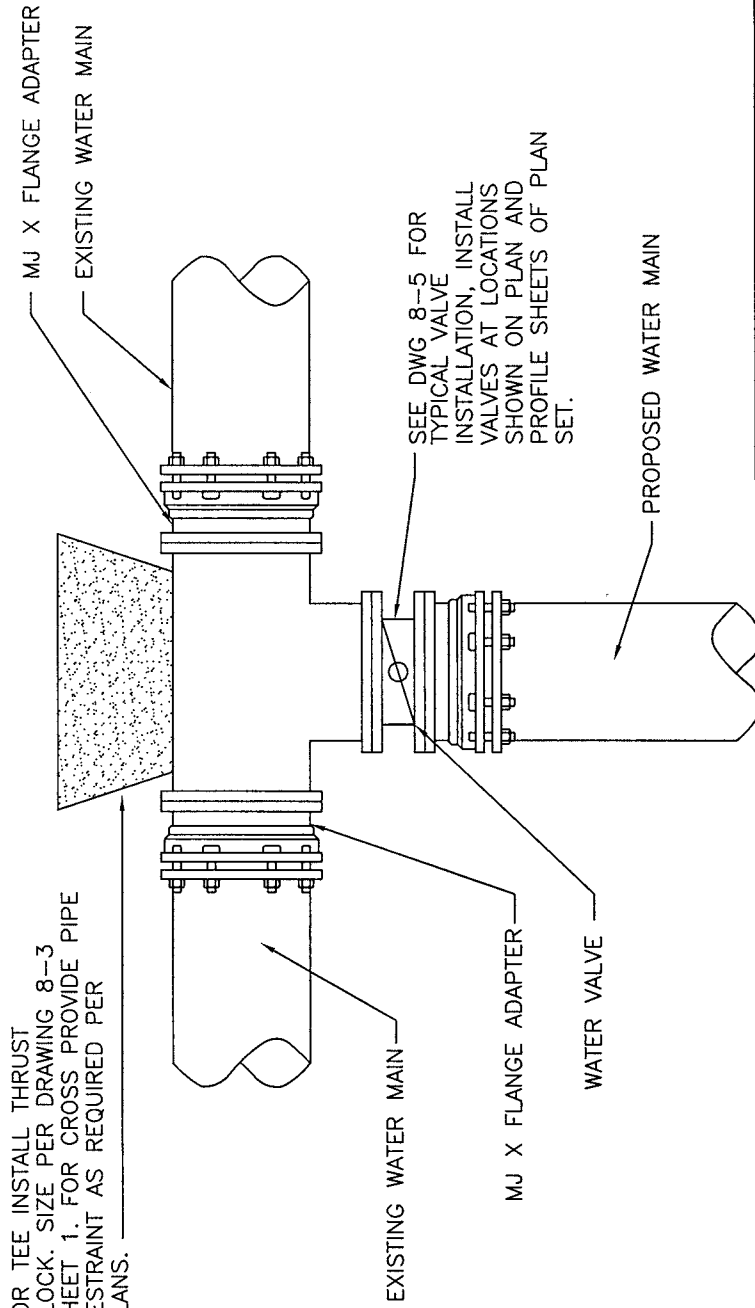


COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT		DATE: 08/05/08
COMBINATION AIR/VACUUM VALVE		SHEET # 1 OF 1
 COUNTY ENGINEER No. C42401		DRAWING #: <b>8-14</b> NOT TO SCALE
		APPROVAL DATE

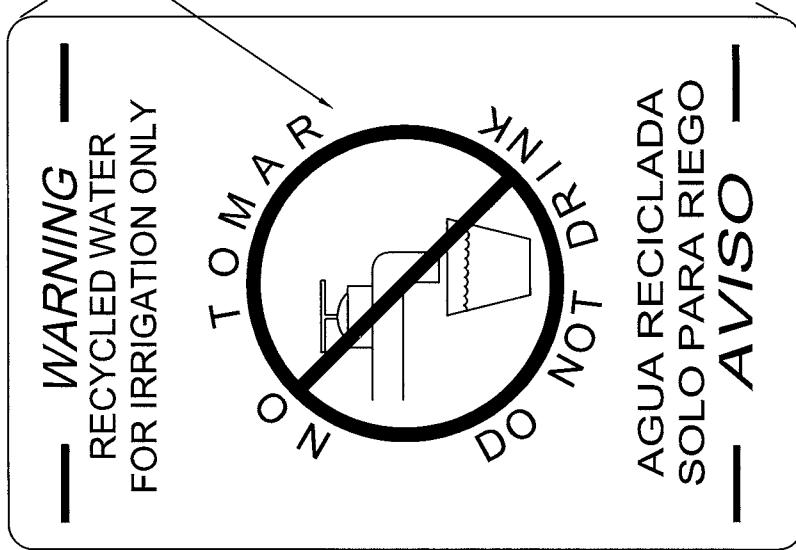
**NOTES:**

1. TEE AND MJ X FLANGE ADAPTER SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE ENCASUREMENT
2. DIG SUMP UNDER CUT IN LOCATION AND PUMP ALL WATER FROM EXISTING MAIN AWAY FROM CUT IN LOCATION. DO NOT ALLOW ANY WATER TO ENTER EXISTING PIPE. ADHERE CHLORINE TABLETS TO TEE OR CROSS. THE NUMBER OF TABLETS SHALL BE IN ACCORDANCE OF THE COUNTY STANDARDS. SPRAY EXISTING PIPE, ALL FITTINGS AND VALVES WITH A SOLUTION OF SUPER CHLORINATED WATER JUST PRIOR TO INSTALLATION.
3. PROVIDE RESTRAINT OF PIPE JOINT AS REQUIRED BY PLANS AND DRAWING 8-3 SHEET 1.

FOR TEE INSTALL THRUST BLOCK. SIZE PER DRAWING 8-3 SHEET 1. FOR CROSS PROVIDE PIPE RESTRAINT AS REQUIRED PER PLANS.

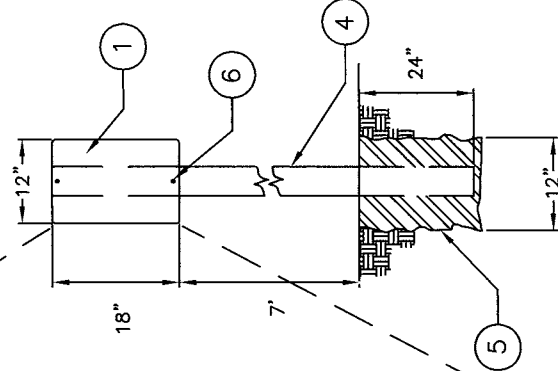


COUNTY OF YOLO PLANNING AND PUBLIC WORKS DEPARTMENT	DATE: 08/05/08
CUT IN	SHEET # 1 OF 1
<i>Panas Kalkas</i> COUNTY ENGINEER No. C42401	DRAWING #: 8-15 NOT TO SCALE
28Aug.08 APPROVAL DATE	



**NOTES:**

1. 12" x 18" ALUMINUM STEEL ALLOY 6061-T6 0.080" GAUGE, ROUNDED CORNERS (1" RADIUS).
2. LETTER HEIGHT AND SYMBOL SIZE SHALL BE PROPORTIONAL TO SIGN SIZE.
3. LETTER AND SYMBOL SHALL BE WHITE IN COLOR. THE BACKGROUND SHALL BE PURPLE (PANTONE 241) IN COLOR.
4. 4"x4" POST SHALL BE TREATED DOUGLAS FIR (STATE OF CALIFORNIA SPECIFICATION NO. 56-2.02B).
5. FOOTING SHALL BE 24" IN DEPTH WITH COMPACTED EARTH IN 4" LIFTS OR CONCRETE.
6. 5/16"Ø x 4-1/2" ZINC PLATED STEEL BOLT WITH VANDAL PROOF NUTS.
7. ALL SIGNS SHALL CONFORM TO THE STANDARD SPECIFICATIONS. A DIRECT OR PRESSURE SENSITIVE DECAL INK SCREENING PROCESS REQUIRED.
8. 3" x 4-1/2" PRESSURE SENSITIVE DECALS ARE REQUIRED FOR IRRIGATION CONTROLLERS AND OTHER ABOVE GROUND FACILITIES REQUIRING A WARNING SIGN. WHEN CONDITIONS AND/OR FACILITY CHARACTERISTICS RENDER THESE SPECIFICATIONS INAPPROPRIATE, ALTERNATIVE SIGNING MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE COUNTY ENGINEER.



SIGN, LETTER HEIGHTS, AND SYMBOL SIZE SHOWN ARE IN REQUIRED PROPORTIONS

PLANNING AND PUBLIC WORKS DEPARTMENT	COUNTY OF YOLO	DATE: 08/05/08
NONPOTABLE RECYCLED WATER WARNING SIGN		SHEET # 1 OF 1
<i>Parras Kallas</i> COUNTY ENGINEER No. C42401	28 AUG 08 APPROVAL DATE	DRAWING #: 8-16 NOT TO SCALE