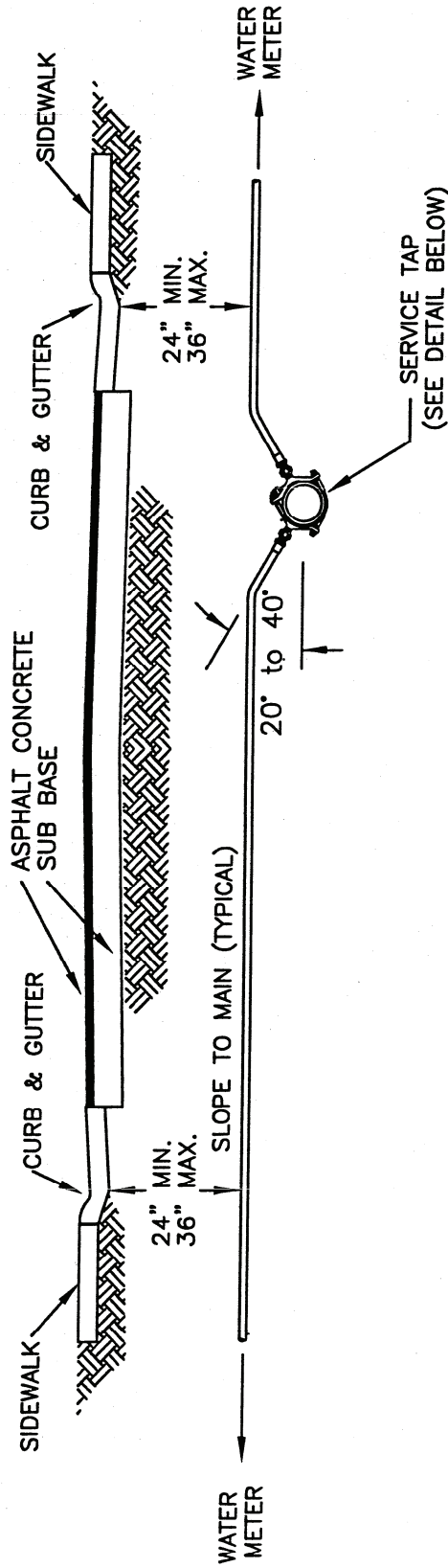
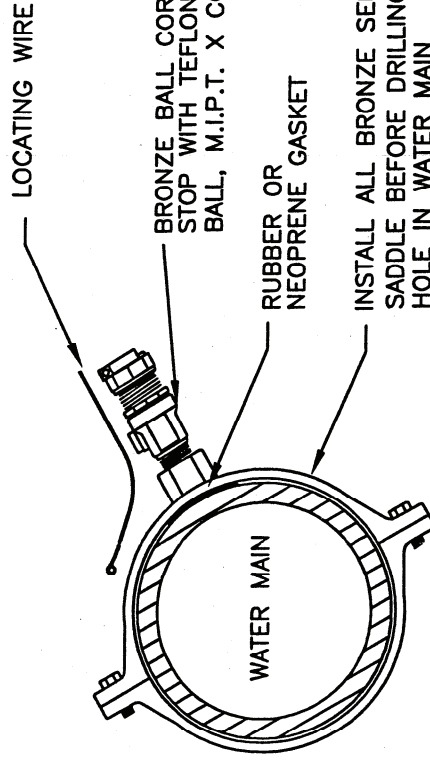


DRAWING NUMBER	TITLE
8-1	1"-2" WATER SERVICE INSTALLATION (12/03)
8-2A	FIRE HYDRANT INSTALLATION WATER MAIN IN STREET (12/03)
8-2B	FIRE HYDRANT INSTALLATION WATER MAIN NOT IN ROADWAY (12/03)
8-3A	THRUST BLOCK BEARING AREA (12/03)
8-3B	PIPE RESTRAINED LENGTH (12/03)
8-4A	LOCATING WIRE FOR WATER MAINS AND SERVICES (12/03)
8-4B	LOCATING WIRE STATION (12/03)
8-5	VALVE BOX INSTALLATION AND OPERATING NUT EXTENSION (12/03)
8-6A	1" RESIDENTIAL METERED WATER SERVICE (3/05)
8-6B	1-1/2" OR 2" COMMERCIAL METERED WATER SERVICE (12/03)
8-6C	3" TO 6" WATER SERVICE & METER INSTALLATION (12/03)
8-6D	1" RESIDENTIAL WATER SERVICE POST MARKER (12/03)
8-7	FIRE PROTECTION DETAIL (12/07)
8-8A	REDUCED PRESSURE BACKFLOW PREVENTER 1" TO 2 (12/03)
8-8B	REDUCED PRESSURE BACKFLOW PREVENTER 3" AND LARGER (12/03)
8-8C	DOUBLE CHECK DETECTOR OR RP PRINCIPLE DETECTOR 6" AND LARGER (12/03)
8-9A	MAXIMUM DEFLECTION FOR DUCTILE IRON PIPE (12/03)
8-9B	MAXIMUM DEFLECTION FOR PVC PIPE (12/03)
8-10	UTILITY CROSSING (12/03)
8-11	UTILITY CROSSING UNDER EXISTING WATER MAIN (12/03)
8-12	TEMPORARY BLOW OFF ASSEMBLY (12/03)
8-13A	4" BLOW OFF ASSEMBLY AT END OF MAIN (12-03)
8-13B	4" BLOW OFF ASSEMBLY AT END OF CUL-DE-SAC (12/03)
8-13C	4" IN-LINE BLOW-OFF ASSEMBLY (12/03)
8-14A	1" COMBINATION AIR/VACUUM VALVE (12/03)
8-14B	2" COMBINATION AIR/VACUUM VALVE (12/03)
8-15	WATER MAIN CUT-IN (12/03)
8-16	RECYCLED WATER SIGN (12/03)
8-17	TRENCH DETAIL (12/03)
8-18	TRANSITION SLEEVE (12/03)
8-19	TYPICAL WELL SITE (12/03)



NOTES:

1. CORPORATION STOP, METER CURB STOP AND WATER SERVICE LINE SHALL BE THE SAME SIZE.
2. SERVICE SADDLES SHALL BE A SINGLE WIDE BRONZE STRAP FOR 1" AND 2" SERVICES. BRONZE 'U' BOLTS MAY BE USED ON CAST IRON AND DUCTILE IRON WATER MAINS.
3. SERVICE SADDLES, CORPORATION STOPS, COUPLING NUTS, BOLTS, AND ALL APPURTENANCES SHALL BE BRONZE.
4. SERVICE TAP SHALL BE MADE BETWEEN 20 DEGREES TO 40 DEGREES ABOVE THE SPRING LINE OF THE PIPE.
5. SERVICE TAPS SHALL BE A MINIMUM OF 18" APART ALONG THE WATER MAIN.
6. INSULATED LOCATING WIRE SHALL BE PROVIDED ON ALL SERVICE LINES, PER DRAWING 8-4. WIRE SHALL BE CONNECTED TO LOCATING WIRE ALONG WATER MAIN FOR CONTINUITY.
7. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.



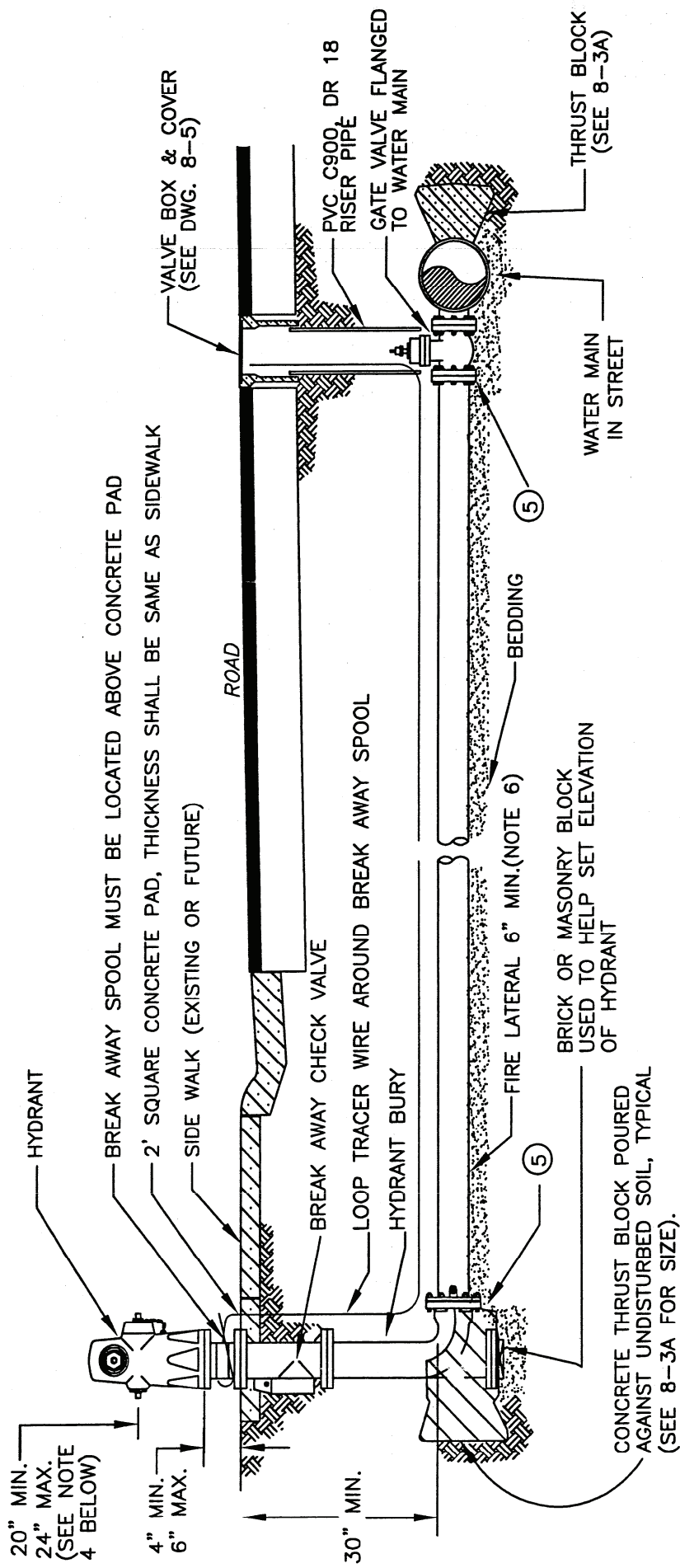
**SERVICE TAP
DETAIL**

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

**1"-2" WATER SERVICE
INSTALLATION**

Leah DeVu
DIRECTOR, DEPARTMENT OF WATER RESOURCES

SCALE: NONE
DATE: 12/03



NOTES:

1. IN COMMERCIAL AREAS OR IF HYDRANTS ARE LESS THAN 4' BEHIND THE CURB, FIRE HYDRANTS SHALL BE PROTECTED FROM VEHICULAR DAMAGE BY BOLLARDS AND 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 20" MIN. TO 24" MAX. ABOVE TOP OF CONCRETE PAD.
5. THESE JOINTS MAY BE FLANGED, OR RESTRAINED MECHANICAL JOINTS WITH SCWA APPROVED RESTRAINING DEVICE.
6. FIRE LATERAL SHALL BE DUCTILE IRON IF LENGTH EXCEEDS 20 FT.
7. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

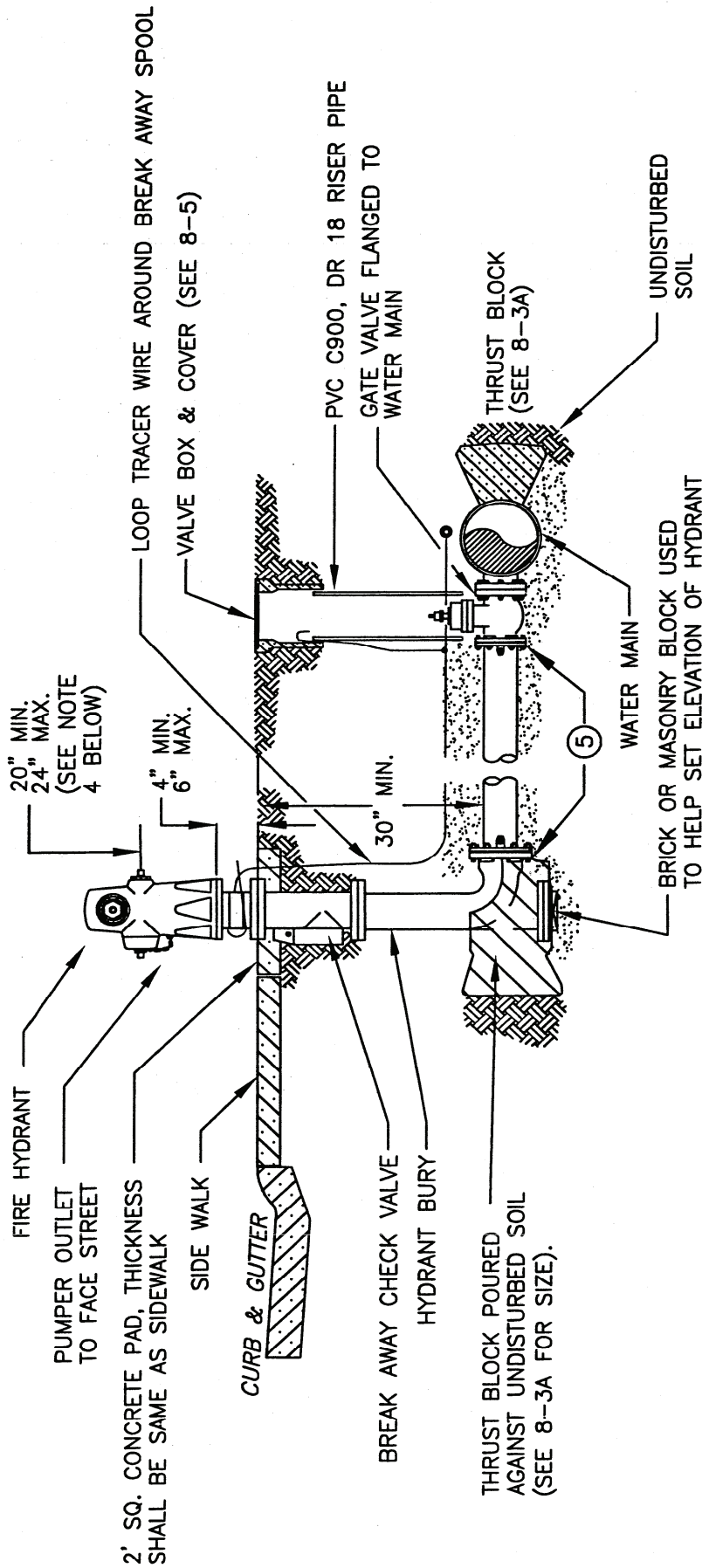
COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY

FIRE HYDRANT INSTALLATION WATER MAIN IN STREET

SCALE: NONE
DATE: 12/03

8-2A

John DeV
DIRECTOR, DEPARTMENT OF WATER RESOURCES



NOTES:

1. IN COMMERCIAL AREAS OR IF HYDRANTS ARE LESS THAN 4' BEHIND THE CURB, FIRE HYDRANTS SHALL BE PROTECTED FROM VEHICULAR DAMAGE BY BOLLARDS AND BE ACCESSIBLE TO FIRE PROTECTION EQUIPMENT.
2. TYPE OF HYDRANT SHOWN IS FOR ILLUSTRATION ONLY.
3. GATE VALVE SHALL BE FLANGED TO THE WATER MAIN.
4. LOWEST CAP NUT ON HYDRANT SHALL BE 20" MIN. TO 24" MAX. ABOVE TOP OF CONCRETE PAD.
5. THESE JOINTS MAY BE FLANGED, OR RESTRAINED MECHANICAL JOINTS WITH SCWA APPROVED RESTRAINING DEVICE.
6. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

**FIRE HYDRANT
INSTALLATION
WATER MAIN NOT IN ROADWAY**

SCALE: NONE
DATE: 12/03

8-2B

Handwritten Signature
DIRECTOR, DEPARTMENT OF WATER RESOURCES

REQUIRED BEARING AREA IN TOTAL SQUARE FEET

TYPE OF FITTING	90° BEND	45° BEND	11-1/4" BEND 22-1/2" BEND	TEE	DEAD END	TEE WITH PLUG	CROSS WITH PLUGS
TYPICAL INSTALLATION							
SIZE OF PIPE	4"	2	1	1	2	2	THRUST BLOCKS NOT ALLOWED. USE RESTRAINED JOINTS WITH RESTRAINED LENGTH PER 8-3B FOR "DEAD END".
	6"	4	2	1	3	3	
	8"	7	4	2	5	5	
	10"	12	6	3	8	8	
	12"	16	10	5	12	12	

SEE NOTE 5

NOTES:

- THRUST BLOCKS SHALL BE CONSTRUCTED OF CLASS "B" CONCRETE.
- BEARING AREAS GIVEN ARE FOR TEST PRESSURES OF 150 PSI IN SOIL WITH MINIMUM 2,000 PSF BEARING CAPACITY. IF TEST PRESSURE IS HIGHER OR SOIL BEARING CAPACITY IS LOWER, THRUST BLOCK SIZE SHALL BE APPROVED BY SCWA.
- THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL. IF THIS CANNOT BE DONE, USE RESTRAINED JOINTS TO RESIST THRUST OVER RESTRAINED LENGTHS APPROVED BY SCWA (FOR A DEAD END, USE RESTRAINED LENGTH PER 8-3B).
- PIPE JOINTS SHALL BE KEPT CLEAR OF CONCRETE.
- FOR DEAD ENDS, INSTALL 2" TEMPORARY BLOW OFF PER 8-12.

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

**THRUST BLOCK
BEARING AREA**

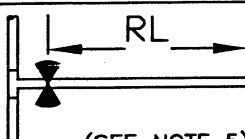
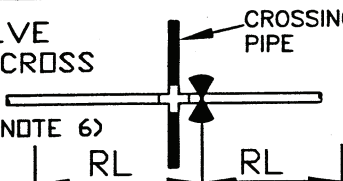
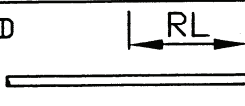
SCALE: NONE
DATE: 12/03

DIRECTOR, DEPARTMENT OF WATER RESOURCES

Handwritten signature

8-3A

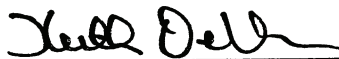
RESTRAINED LENGTH IN FEET

PIPE CONFIGURATION	CROSSING PIPE SIZE	30" COVER AND GREATER								60" COVER AND GREATER							
		6"		8"		10"		12"		6"		8"		10"		12"	
		DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC	DIP	PVC
X = PVC PIPE NOT ALLOWED IN RESTRAINED LENGTH, USE ONLY DUCTILE IRON.																	
IN LINE VALVE 		38	X	45	X	58	X	70	X	17	17	26	X	32	X	41	X
VALVE AT TEE  INTERSECTING PIPE (SEE NOTE 4)	6"	6	6	17	13	37	X	48	X	6	6	12	10	20	19	30	X
	8"	6	6	12	8	27	19	43	X	6	6	6	6	17	15	27	X
	10"	6	6	6	6	19	15	39	X	6	6	6	6	12	11	24	X
	12"	6	6	6	6	14	10	32	X	6	6	6	6	10	8	20	19
TEE W/O THRUST BLOCK  (SEE NOTE 5)		37	X	42	X	56	X	68	X	16	15	23	X	30	X	38	X
VALVE AT CROSS  CROSSING PIPE (SEE NOTE 6)	6"	6	6	18	15	41	X	50	X	6	6	14	12	22	20	32	X
	8"	6	6	16	12	32	20	44	X	6	6	6	6	18	16	29	X
	10"	6	6	6	6	20	17	40	X	6	6	6	6	14	12	26	X
	12"	6	6	6	6	18	14	34	X	6	6	6	6	12	10	22	20
DEAD END W/O THRUST BLOCK  (SEE NOTE 5)		64	X	84	X	100	X	118	X	34	X	44	X	53	X	63	X

RL = RESTRAINED LENGTH

NOTES:

- 1) ALL JOINTS WITHIN THE RESTRAINED LENGTH SHALL BE RESTRAINED.
- 2) RESTRAINING DEVICES FOR MJ'S: FOR DUCTILE IRON USE EBAA MEGALUG 1100, STAR PIPE PRODUCTS STARGRIP 3000, OR SIGMA ONE LOK SLD; FOR PVC PIPE USE EBAA 2000PV, OR STAR PIPE PRODUCTS ALLGRIP 3600.
- 3) RESTRAINING DEVICES FOR PUSH-ON JOINTS: FOR DUCTILE IRON USE U.S. PIPE FIELD LOK GASKETS, U.S. PIPE TR FLEX PIPE, OR APPROVED EQUAL; RESTRAINED PVC PUSH-ON JOINTS NOT ALLOWED, USE DUCTILE IRON PIPE ONLY FOR RESTRAINED PUSH-ON JOINTS.
- 4) IF THRUST BLOCK IS NOT INSTALLED BEHIND TEE, RESTRAINED LENGTH SHALL BE APPROVED BY SCWA.
- 5) THIS CONFIGURATION ALLOWED ONLY IF A THRUST BLOCK CANNOT BE INSTALLED BEHIND THE TEE/DEAD END IN ACCORDANCE WITH 8-3A. IF THRUST BLOCK IS INSTALLED, RESTRAINED LENGTH NOT REQUIRED.
- 6) JOINTS ON CROSSING PIPES SHALL BE RESTRAINED FOR MINIMUM 18 FEET IN EACH DIRECTION.
- 7) RESTRAINED LENGTHS ARE BASED ON 150 PSI PRESSURE. IF HIGHER PRESSURES OR HIGHER SURGES ARE ANTICIPATED, THIS TABLE DOES NOT APPLY AND RESTRAINED LENGTHS SHALL BE APPROVED BY SCWA.

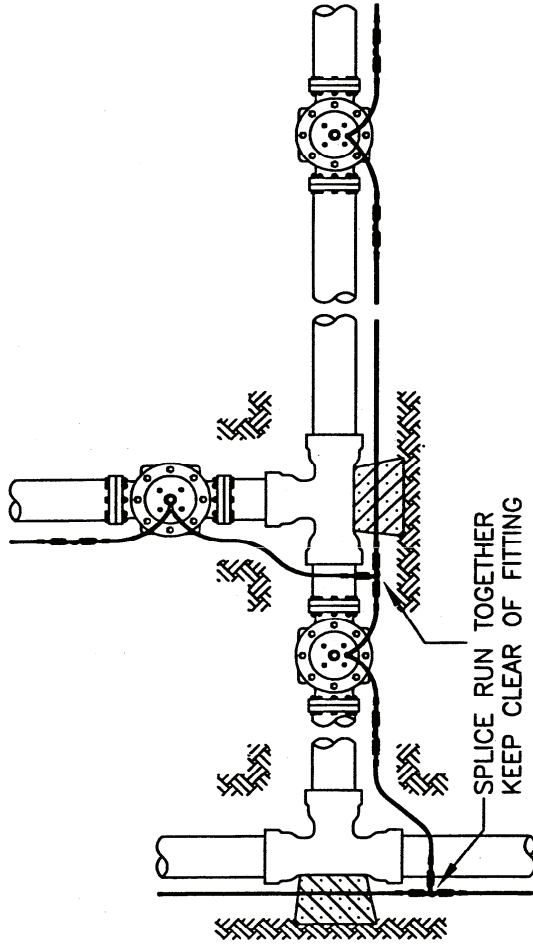

DIRECTOR, DEPARTMENT OF WATER RESOURCES

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

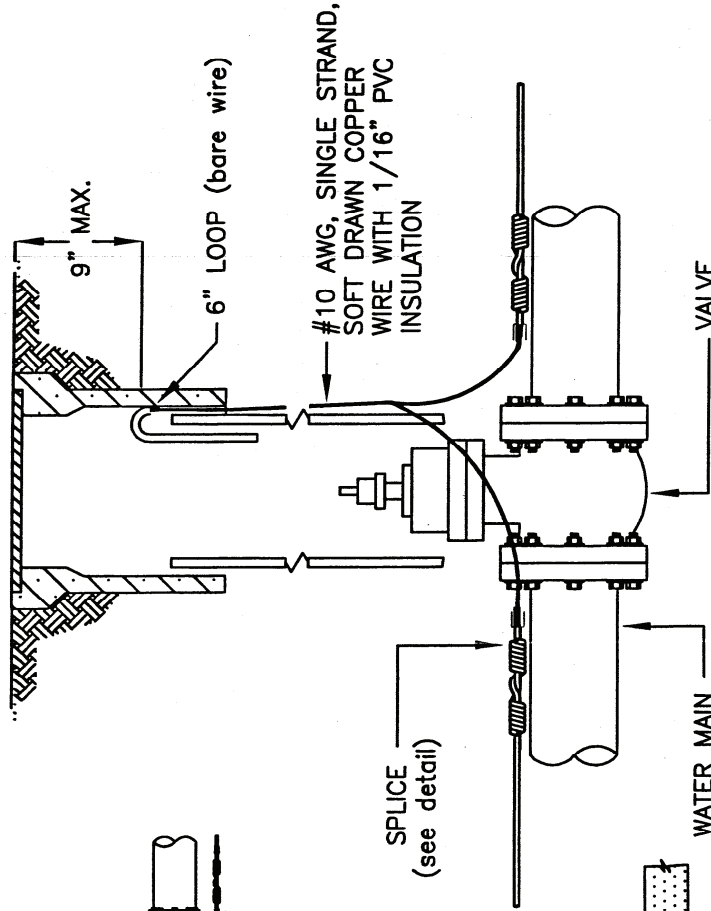
**PIPE RESTRAINED
LENGTH**

SCALE: NONE
DATE: 12/03

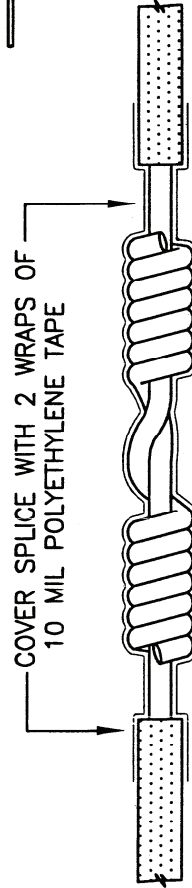
8-3B



TYPICAL LAYOUT



VALVE DETAIL

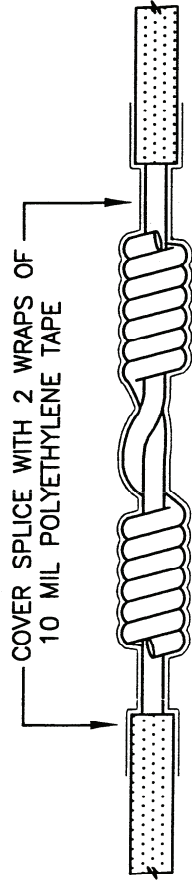


SPLICE DETAIL

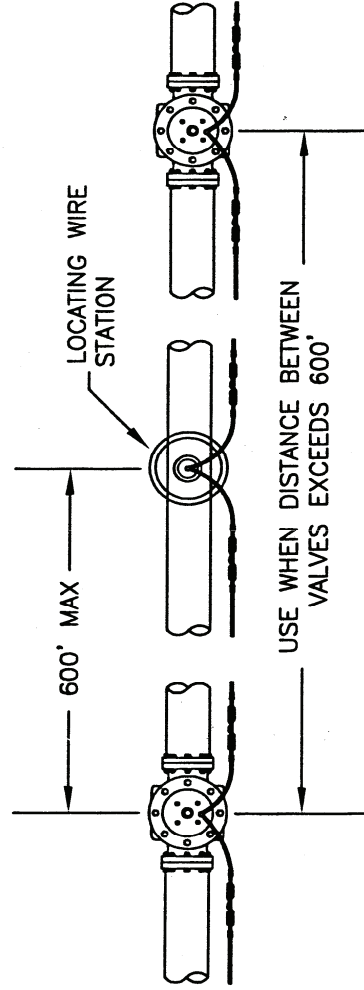
NOTES:

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.

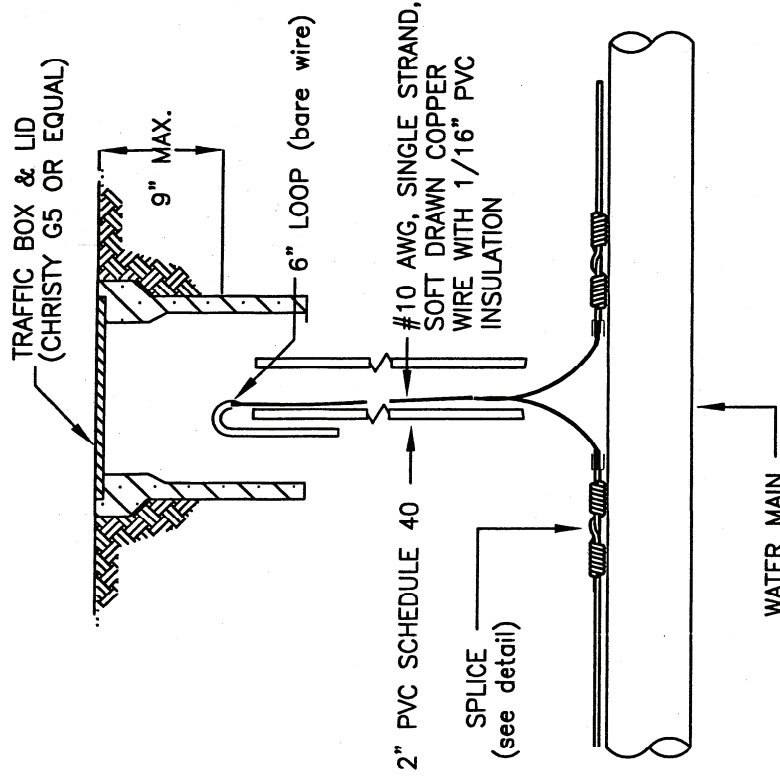
Julio Del
DIRECTOR, DEPARTMENT OF WATER RESOURCES



SPLICE DETAIL



TYPICAL LAYOUT



VALVE DETAIL

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. LIDS SHALL BE LABELED WITH CAST OR BEAD WELDED LETTERS: "WATER" FOR POTABLE, "RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER, "RAW WATER" FOR RAW WATER.

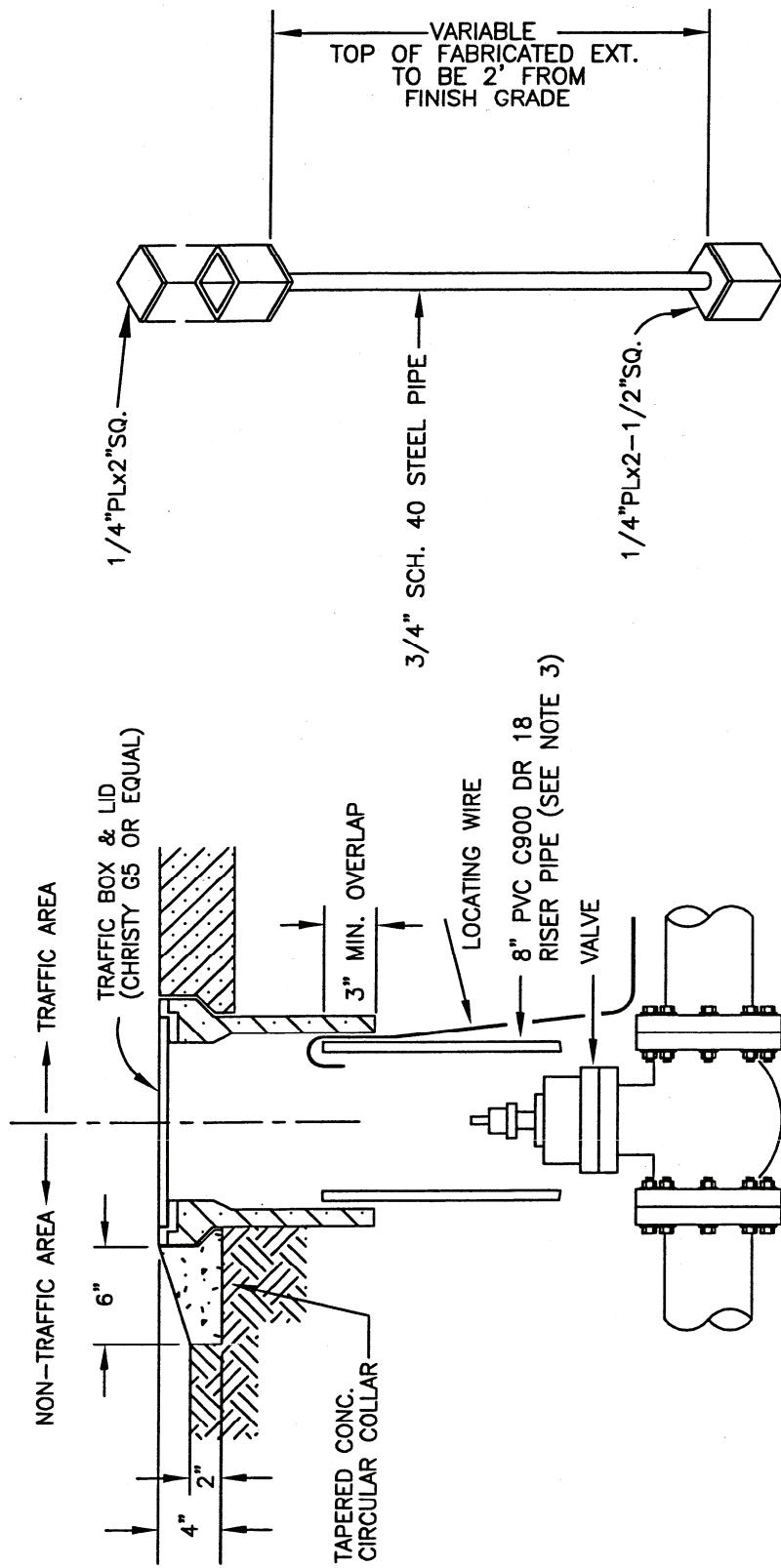
COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

LOCATING WIRE
STATION

SCALE: NONE
DATE: 12/03

8-4B

David DeVu
DIRECTOR, DEPARTMENT OF WATER RESOURCES



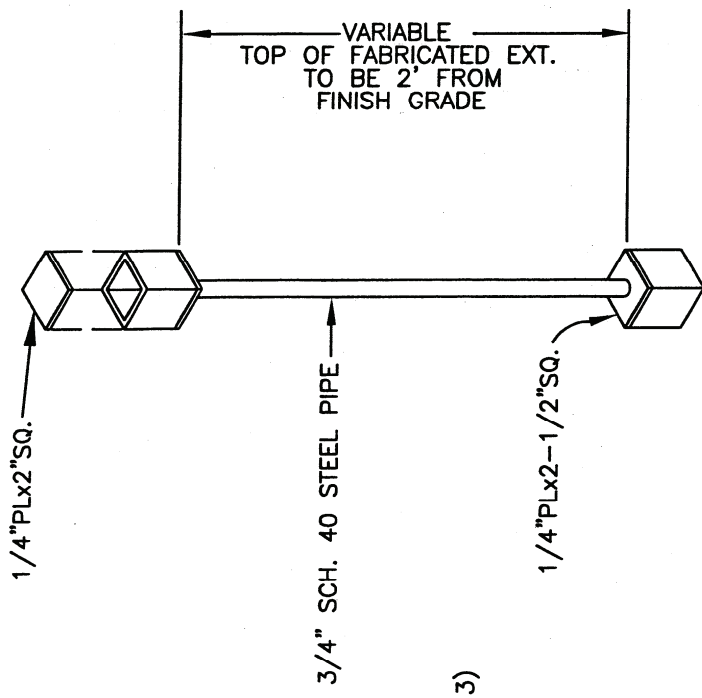
TRAFFIC VALVE BOX

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 WITHIN 1 FOOT OF VALVE BOX. POST SHALL BE 6 FEET IN LENGTH AND BURIED 3 FEET. PAINT POST BLUE FOR POTABLE WATER, PURPLE FOR RECYCLED AND NONPOTABLE WATER, OR GREEN FOR RAW WATER.
3. RISER PIPE SHALL BE BLUE OR WHITE FOR POTABLE WATER, WHITE FOR RAW WATER, OR PURPLE FOR RECYCLED AND NONPOTABLE WATER. RAW WATER ONLY: PAINT BOX INTERIOR & TOP 1 FT. OF RISER GREEN. LIDS SHALL BE LABELED WITH CAST OR BEAD WELDED LETTERS: "WATER" FOR POTABLE, "RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER, "RAW WATER" FOR RAW WATER.
- 4.

VALVE OPERATING NUT EXTENSION

REQUIRED WHERE VALVE NUT IS IN EXCESS OF 10 FEET BELOW FINISH GRADE.



[Signature]
 DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY	
VALVE BOX INSTALLATION AND OPERATING NUT EXTENSION	
SCALE: NONE	8-5
DATE: 12/03	



- NOTE:**

ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

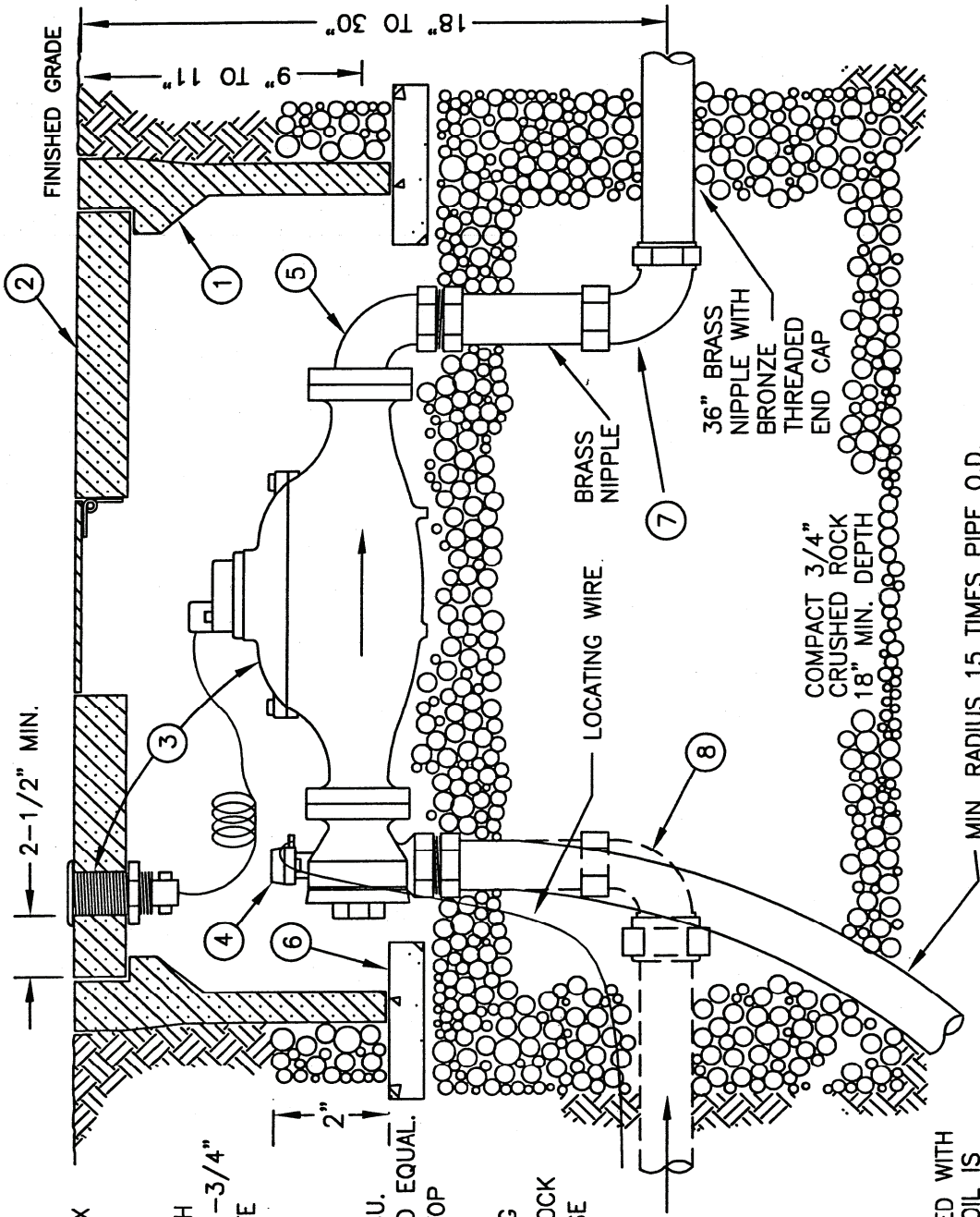
1" RESIDENTIAL METERED WATER SERVICE

SCALE: NONE
DATE: 3/05

DIRECTOR, DEPARTMENT OF WATER RESOURCES

8-6A

THIS DRAWING SUPERCEDES ALL PREVIOUS VERSIONS.



- ① REINFORCED CONCRETE UTILITY BOX (CHRISTY B36 FOR 1-1/2" & 2", B30 FOR 1", OR EQUAL)
- ② REINFORCED CONCRETE COVER WITH A HINGED CAST IRON LID AND A 1-3/4" PRE-CAST HOLE LOCATED OPPOSITE WATER LABEL (Christy B36G cover or equal).
- ③ INVENSYS SR TR/PL WATER METER AND TOUCH READ MODULE (100 CU. FT. REGISTER) OR SCWA APPROVED EQUAL.
- ④ FLANGED WINGED ANGLE METER STOP WITH TEFLON COATED BALL
- ⑤ OVAL FLANGED 90° BRONZE FITTING
- ⑥ 3/4" TO 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 90° ELBOW, THREADED.
- ⑧ BRONZE 90° ELBOW, THREADED OR COMPRESSION.

NOTES:
ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

FOR RECYCLED AND NONPOTABLE SERVICES: METER BOX SHALL HAVE A PURPLE POLYETHYLENE FACE RING. READING LID SHALL BE LABELED "RECYCLED WATER" WITH BEAD WELDED OR ENGRAVED LETTERS.

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

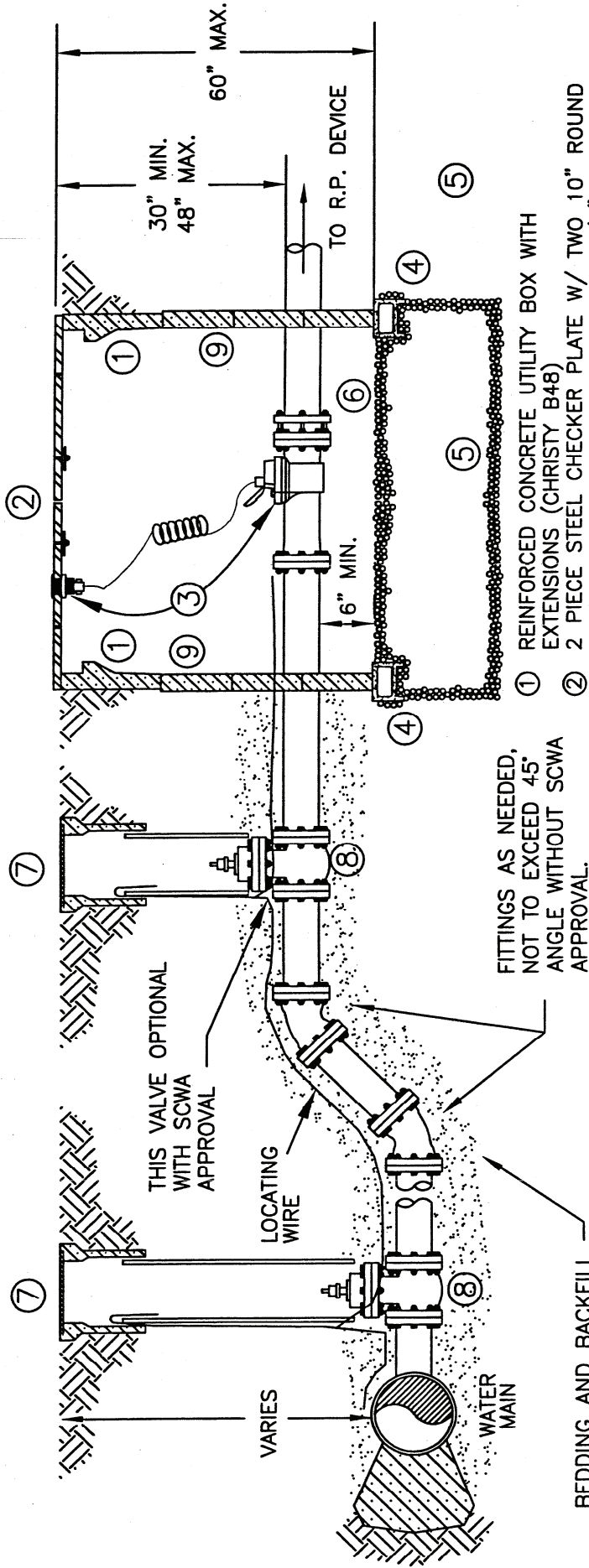
1-1/2" OR 2"
COMMERCIAL METERED
WATER SERVICE

SCALE: NONE
DATE: 12/03

DIRECTOR, DEPARTMENT OF WATER RESOURCES

John Du

8-6B



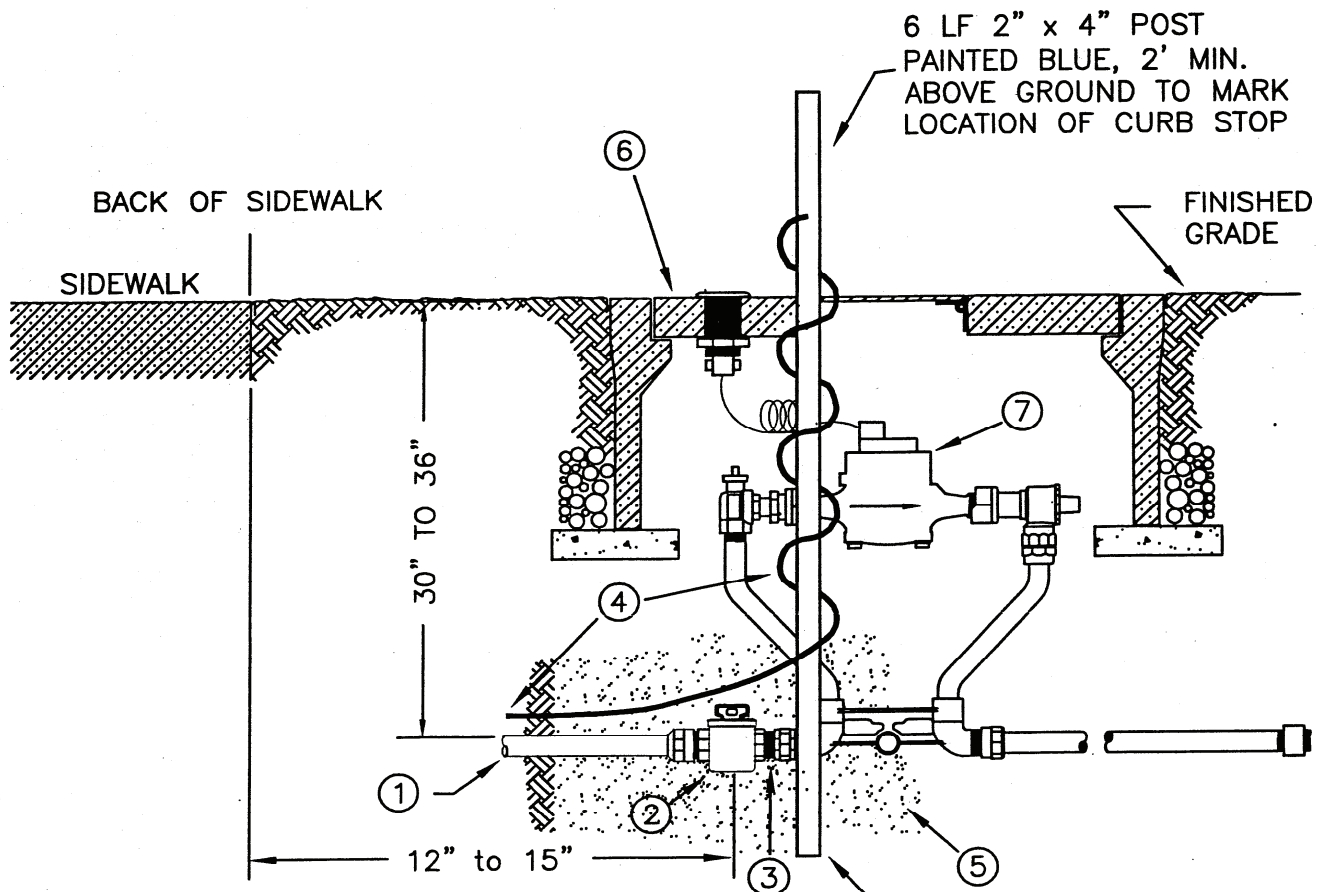
NOTES:

- 4" TO 6" DIA. PIPE BETWEEN WATER MAIN AND METER SHALL BE DUCTILE IRON OR PVC C-900. 3" PIPE SHALL BE TYPE K COPPER OR DUCTILE IRON. JOINTS BETWEEN MAIN AND METER SHALL BE RESTRAINED.
- INSTALL LOCATING WIRE PER 8-4.
- CONCRETE BLOCKS SHALL BE USED TO BLOCK ANY OPENING OR CUT-OUT PORTIONS OF THE METER BOX NOT UTILIZED (MINIMUM 1" THICK BLOCK).
- ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.
- FOR RECYCLED AND NONPOTABLE SERVICES: METER BOX SHALL HAVE A PURPLE POLYETHYLENE FACE RING. COVER SHALL BE LABELED "RECYCLED WATER" WITH BEAD WELDED LETTERS.

- 1 REINFORCED CONCRETE UTILITY BOX WITH EXTENSIONS (CHRISTY B48)
- 2 PIECE STEEL CHECKER PLATE W/ TWO 10" ROUND SELF-CLOSING READING LIDS AND 1-3/4" HOLE FOR TOUCH READ MODULE IN ONE READING LID. (CHRISTY B48-62G COVER)
- 3 INVENSYS COMPOUND METER AND TOUCH READ MODULE (CUBIC FEET REGISTER), OR AS CALLED OUT ON PLANS. IF A TURBO METER IS CALLED OUT ON PLANS, TYPE SHALL BE INVENSYS DRS TR/PL.
- 4 CONCRETE BLOCKS SHALL BE PLACED ALONG THE ENTIRE PERIMETER TO SUPPORT BOX
- 5 3/4" CHRUSHED ROCK SUB-BASE, 12" TO 18" DEEP, COMPACT TO 90% COMPACTION.
- 6 FLANGED COUPLING ADAPTER.
- 7 VALVE BOX AND LID(SEE 8-5).
- 8 GATE VALVE, BOTH ENDS FLANGED
- 9 METER BOX EXTENSION (TYPICAL)

COUNTY OF SACRAMENTO	
MUNICIPAL SERVICES AGENCY	
3" TO 6" WATER SERVICE & METER INSTALLATION	
SCALE: NONE	8-6C
DATE: 12/03	

James D. Dwyer
DIRECTOR, DEPARTMENT OF WATER RESOURCES



- ① 1" WATER SERVICE LINE
 - ② 1" CURB STOP WITH TEFLON COATED BALL (COMP. BY F.I.P.T.)
 - ③ REMOVABLE THREADED BRONZE PLUG
 - ④ LOCATING WIRE - MIN. 3' LENGTH WRAPPED AROUND POST.
 - ⑤ GRADED SAND, 12" THICK.
 - ⑥ REINFORCED CONCRETE UTILITY BOX BY HOME BUILDER
 - ⑦ 1" WATER METER BY HOME BUILDER
- INSTALL LOCATING POST
PRIOR TO BACKFILL

NOTES:

ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

METER BOX, METER, LOCATING WIRE, AND AGGREGATES SHALL BE INSTALLED BY HOME BUILDER IN ACCORDANCE WITH 8-6A.

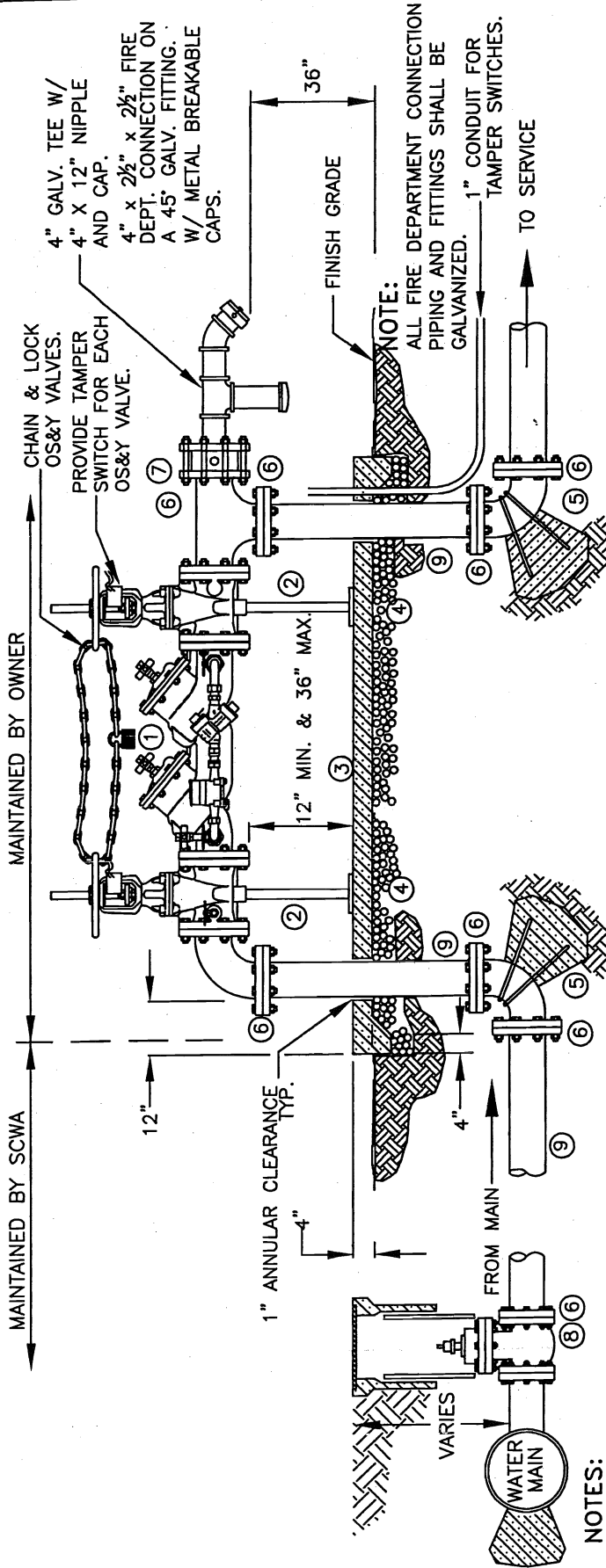
David DeWitt
DIRECTOR, DEPARTMENT OF WATER RESOURCES

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

**1" RESIDENTIAL
WATER SERVICE
POST MARKER**

SCALE: NONE
DATE: 12/03

8-6D



NOTES:
DOUBLE CHECK DETECTOR ASSEMBLY SHALL BE APPROVED BY THE STATE OF CALIFORNIA DEPT. OF HEALTH SERVICES AND BE ON THE MOST RECENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES FOR SERVICE ISOLATION FROM THE USC FOUNDATION.
*(www.dhs.ca.gov/ps/dwem/publications/pubindex.htm)
*(www.usc.edu/dept/fccchr)

PIPE SHALL BE DUCTILE IRON. ABOVE GROUND JOINTS SHALL BE FLANGED. BURIED JOINTS SHALL BE FLANGED OR RESTRAINED MJ. FLANGES SHALL BE CLASS D.

INSTALL LOCATING WIRE PER 8-4.

ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL. POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

① DOUBLE CHECK DETECTOR ASSEMBLY W/ FLANGED OS&Y VALVES.

② PIPE SUPPORT, 2" GALVANIZED SCH 40 AT MINIMUM.

③ 4" CONCRETE SLAB - 24" WIDE WITH VARYING LENGTH.

④ 6" OF CRUSHED AGGREGATE COMPACTED TO 95% COMPACTION

⑤ THRUST BLOCK WITH #5 REBARS. WRAP THE PORTION OF THE REBAR THAT IS NOT EMBEDDED IN THE CONCRETE WITH 20 MIL POLYETHYLENE TAPE. (SEE 8-3A)

⑥ FLANGED CONNECTION ONLY.

⑦ WAFER CHECK VALVE

⑧ GATE VALVE, WITH BOTH ENDS FLANGED.

⑨ DUCTILE IRON PIPE RESTRAINED.

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

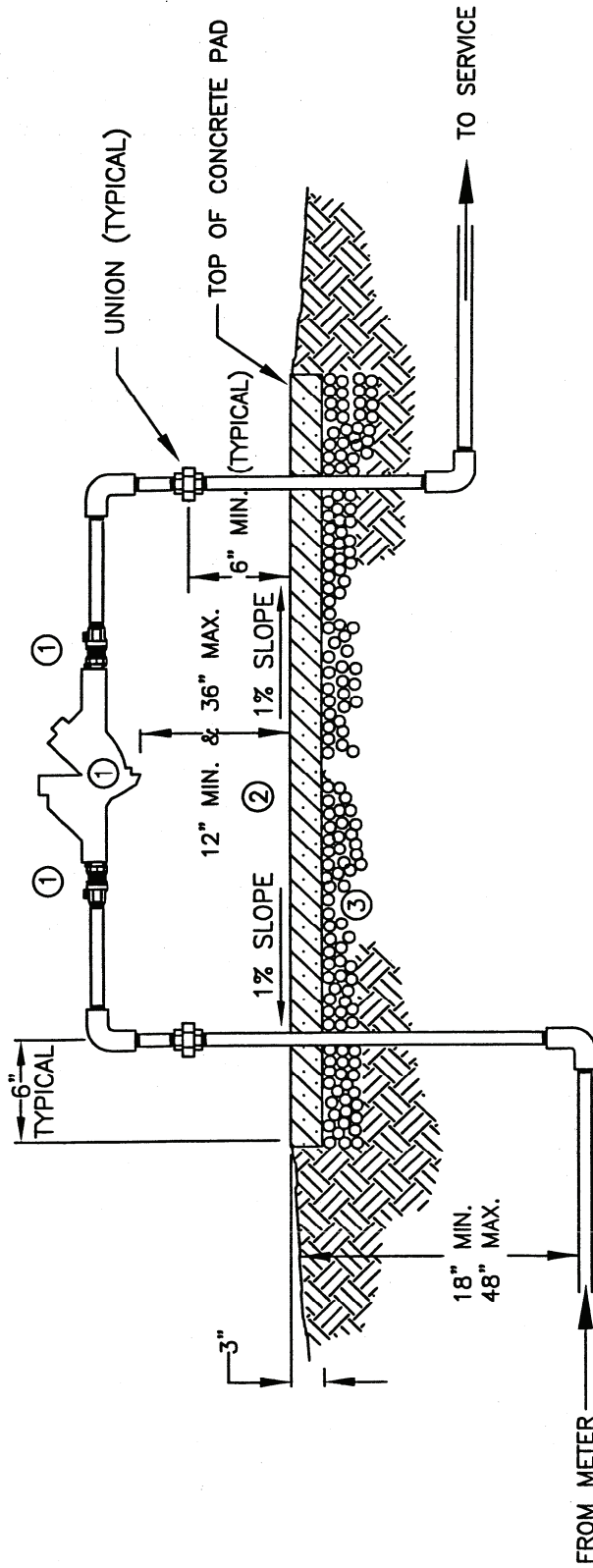
FIRE PROTECTION DETAIL

David D. D.
DIRECTOR, DEPARTMENT OF WATER RESOURCES

SCALE: NONE
DATE:

8-7

THIS DETAIL SUPERCEDES ALL PREVIOUS VERSIONS OF THIS DETAIL.



NOTES:

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL BE ON THE STATE OF CALIFORNIA'S DEPT. OF HEALTH SERVICES MOST RECENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES FOR SERVICE ISOLATION. *(www.dhs.ca.gov/ps/ddwem/publications/pubindex.htm)

ALL PIPES SHALL BE GALVANIZED SCHEDULE 40 STEEL, TYPE K COPPER, OR BRONZE. BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE WRAP OR 10 MIL POLYETHYLENE TAPE SO THAT NO SOIL IS IN CONTACT WITH METAL.

GALVANIZED PIPE SHALL HAVE ANODE BAG PER COUNTY BUILDING INSPECTION REQUIREMENTS CODE. INSTALL DI-ELECTRIC COUPLING OR FITTING BETWEEN DISSIMILAR METALS.

- ① REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, WITH 2 BRONZE RESILIENT SEATED BALL VALVES MINIMUM WORKING PRESSURE 175 PSI.
- ② 3" SLAB - 18" WIDE WITH VARYING LENGTH
- ③ 1/2" OR 3/4" CRUSHED ROCK, 4" MINIMUM THICKNESS, MECHANICALLY COMPACTED TO 95% COMPACTION.

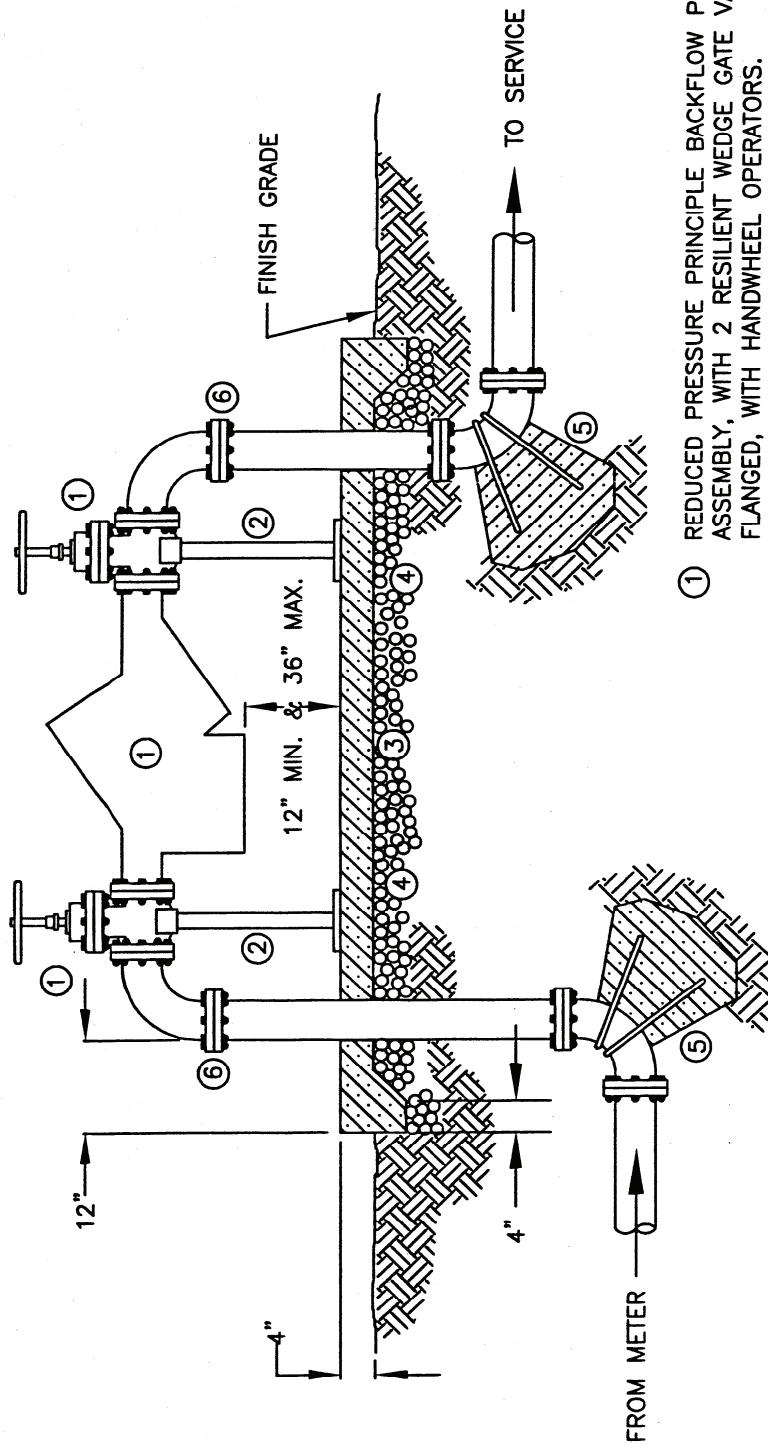
**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

**REDUCED PRESSURE BACKFLOW
PREVENTER 1" TO 2"**

SCALE: NONE
DATE: 12/03

8-8A

John DeV
DIRECTOR, DEPARTMENT OF WATER RESOURCES



- ① REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, WITH 2 RESILIENT WEDGE GATE VALVES, FLANGED, WITH HANDWHEEL OPERATORS.
- ② PIPE SUPPORT, MIN. 2" GALVANIZED SCH 40.
- ③ 4" CONCRETE SLAB - 24" WIDE WITH VARYING LENGTH.
- ④ 6" CRUSHED AGGREGATE COMPACTED TO 95% COMPACTION
- ⑤ THRUST BLOCK WITH #5 REBAR. WRAP THE PORTION OF THE REBAR NOT EMBEDDED IN CONCRETE WITH 20 MIL POLYETHYLENE TAPE (SEE 8-3A).
- ⑥ FLANGE CONNECTION ONLY.

NOTES:

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL BE ON THE STATE OF CALIFORNIA'S DEPT. OF HEALTH SERVICES MOST RECENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES FOR SERVICE ISOLATION. *(www.dhs.ca.gov/ps/ddwem/publications/pubindex.htm)

PIPE SHALL BE DUCTILE IRON. ABOVE GROUND JOINTS SHALL BE FLANGED. BURIED JOINTS SHALL BE FLANGED OR RESTRAINED MJ. FLANGES SHALL BE CLASS D.

INSTALL LOCATING WIRE PER 8-4.

ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL. POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

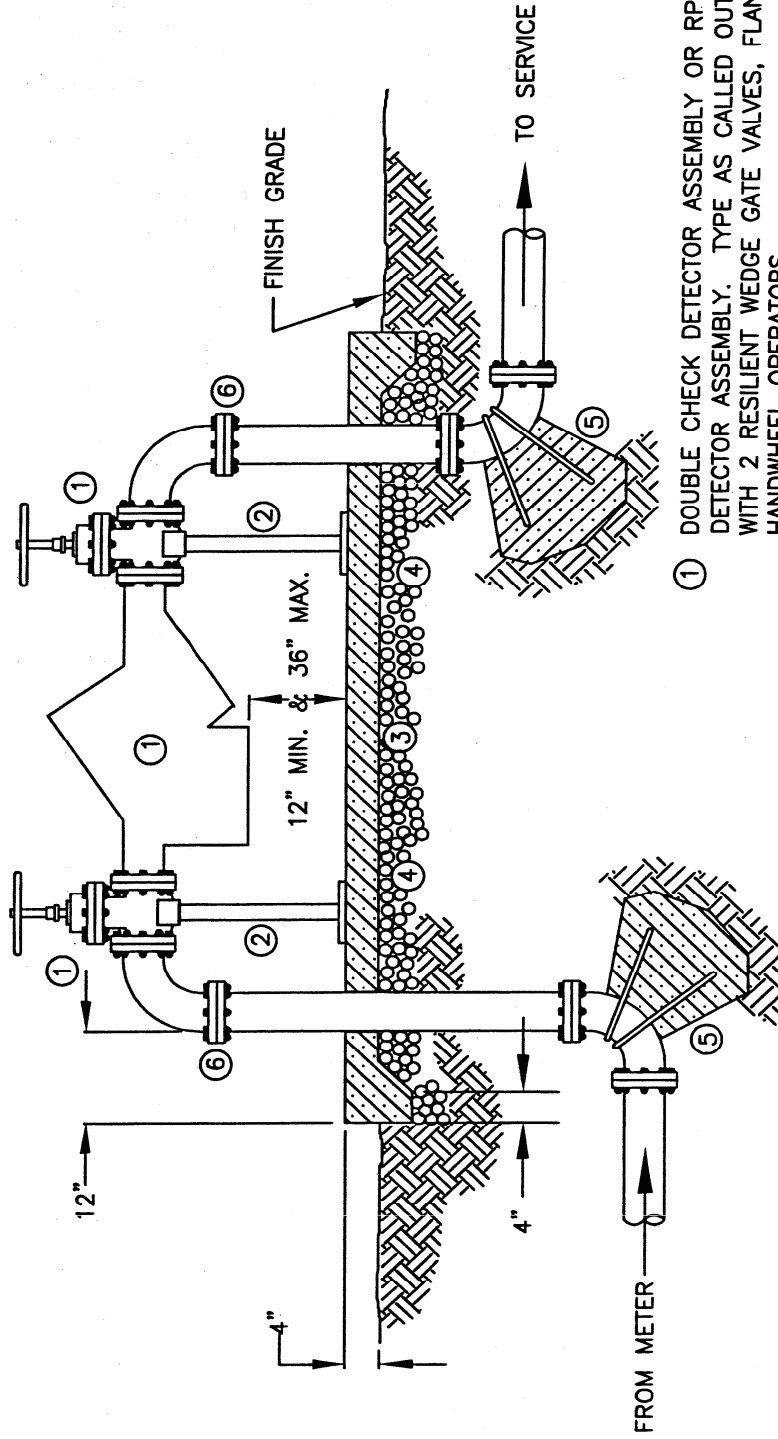
**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

**REDUCED PRESSURE BACKFLOW
PREVENTER 3" AND LARGER**

SCALE: NONE
DATE: 12/03

8-8B

John Della
DIRECTOR, DEPARTMENT OF WATER RESOURCES



NOTES:

DOUBLE CHECK DETECTOR ASSEMBLY AND REDUCED PRESSURE PRINCIPLE DETECTOR ASSEMBLY SHALL BE ON THE STATE OF CALIFORNIA'S DEPT. OF HEALTH SERVICES MOST RECENT LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES FOR SERVICE ISOLATION. [*\(www.dhs.ca.gov/ps/ddwem/publications/pubindex.htm\)](http://www.dhs.ca.gov/ps/ddwem/publications/pubindex.htm)

PIPE SHALL BE DUCTILE IRON. ABOVE GROUND JOINTS SHALL BE FLANGED. BURIED JOINTS SHALL BE FLANGED OR RESTRAINED MJ. FLANGES SHALL BE CLASS D. INSTALL LOCATING WIRE PER 8-4.

ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL. POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

- ① DOUBLE CHECK DETECTOR ASSEMBLY OR RP PRINCIPLE DETECTOR ASSEMBLY. TYPE AS CALLED OUT ON PLANS, WITH 2 RESILIENT WEDGE GATE VALVES, FLANGED, WITH HANDWHEEL OPERATORS.
- ② PIPE SUPPORT, MIN. 2" GALVANIZED SCH 40.
- ③ 4" CONCRETE SLAB - 24" WIDE WITH VARYING LENGTH.
- ④ 6" CRUSHED AGGREGATE COMPACTED TO 95% COMPACTION
- ⑤ THRUST BLOCK WITH #5 REBARS. WRAP THE PORTION OF THE REBAR NOT EMBEDDED IN CONCRETE WITH 20 MIL POLYETHYLENE TAPE (SEE 8-3A).
- ⑥ FLANGE CONNECTION ONLY.

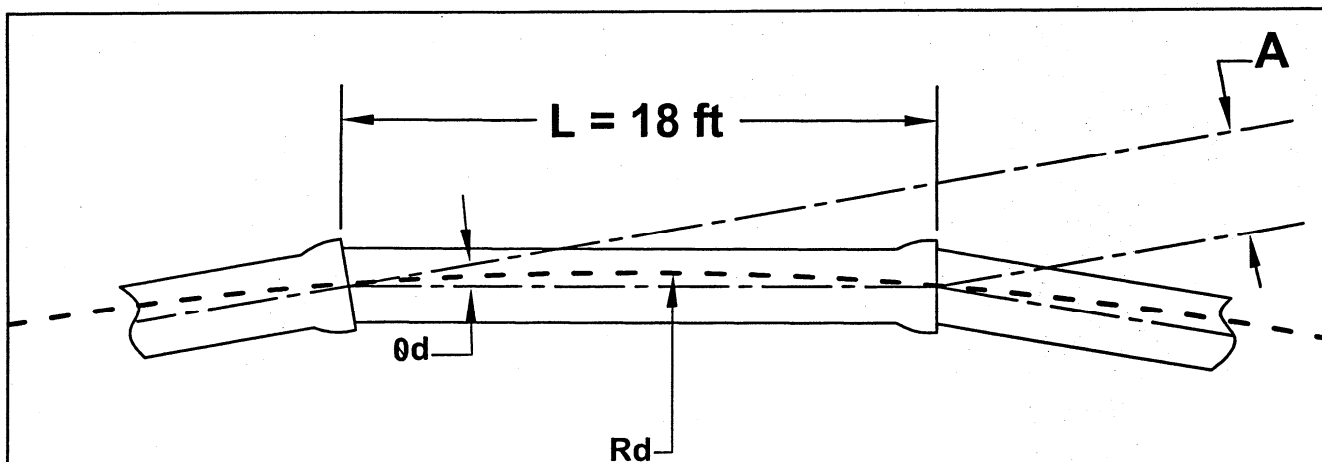
COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

DOUBLE CHECK DETECTOR
OR RP PRINCIPLE DETECTOR
6" AND LARGER

SCALE: NONE
DATE: 12/03

8-8C

David Dell
DIRECTOR, DEPARTMENT OF WATER RESOURCES



θ_d = Maximum joint deflection angle (degrees)

A = Offset at the end of the pipe (inches)

R_d = Minimum radius of curve produced by succession of joints (feet)

MAXIMUM JOINT DEFLECTION FOR DUCTILE IRON PIPE						
Size Of Pipe (inches)	UNRESTRAINED JOINTS			RESTRAINED JOINTS		
	Maximum Deflection Angle, " θ_d " (degrees)	Minimum Radius, " R_d " (feet)	Offset At Free End, " A " (inches)	Maximum Deflection Angle, " θ_d " (degrees)	Minimum Radius, " R_d " (feet)	Offset At Free End, " A " (Inches)
4	2.5	400	10	2.5	400	10
6	2.5	400	10	2.5	400	10
8	2.5	400	10	2.5	400	10
10	2.5	400	10	2.5	400	10
12	2.5	400	10	2.5	400	10
14	2.5	400	10	2.0	500	8
16	2.5	400	10	2.0	500	8
18	2.5	400	10	2.0	500	8
20	2.5	400	10	1.25	800	5
24	2.5	400	10	1.25	800	5
30	2.5	400	10	1.00	1100	4
36	2.5	400	10	0.75	1400	3
42	2.0	500	8	0.25	4000	1

[Signature]

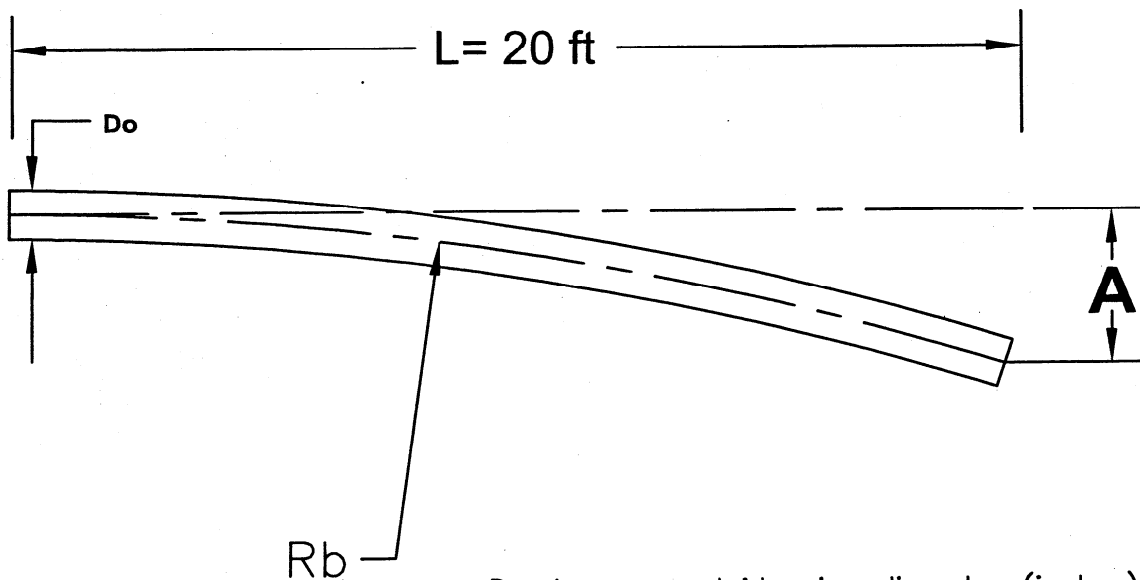
DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

MAXIMUM DEFLECTION
FOR DUCTILE IRON PIPE

SCALE: NONE
DATE: 12/03

8-9A



D_o = Average outside pipe diameter (inches)
 A = Offset at the end of the pipe (inches)
 R_b = Minimum bending radius (feet)

MAXIMUM BENDING DEFLECTION FOR PVC PIPE				
Nominal Pipe Diameter	Average Outside Pipe Diameter "Do"	Minimum Wall Thickness	Minimum Bending Radius "Rb"	Offset at Free End, "A"
(inches)	(inches)	(inches)	(feet)	(inches)
AWWA C900 CLASS 150 DR 18				
4	4.800	0.267	120	20
6	6.900	0.383	185	13
8	9.050	0.503	240	10
10	11.100	0.617	400	6
12	13.200	0.733	800	3
AWWA C905 CLASS 235 DR 18				
14	15.300	0.850	1500	2
16	17.400	0.967	1500	2
18	19.500	1.083	1500	2

JOINT DEFLECTION OF AWWA C900 & C905 PVC PIPE IS PROHIBITED.

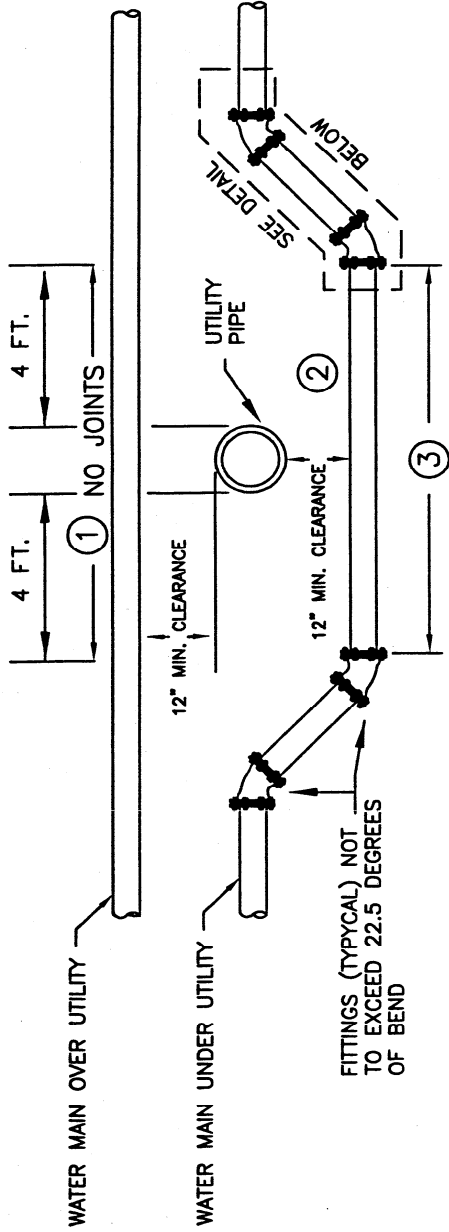
COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

MAXIMUM DEFLECTION
FOR PVC PIPE

[Signature]
DIRECTOR, DEPARTMENT OF WATER RESOURCES

SCALE: NONE
DATE: 12/03

8-9B



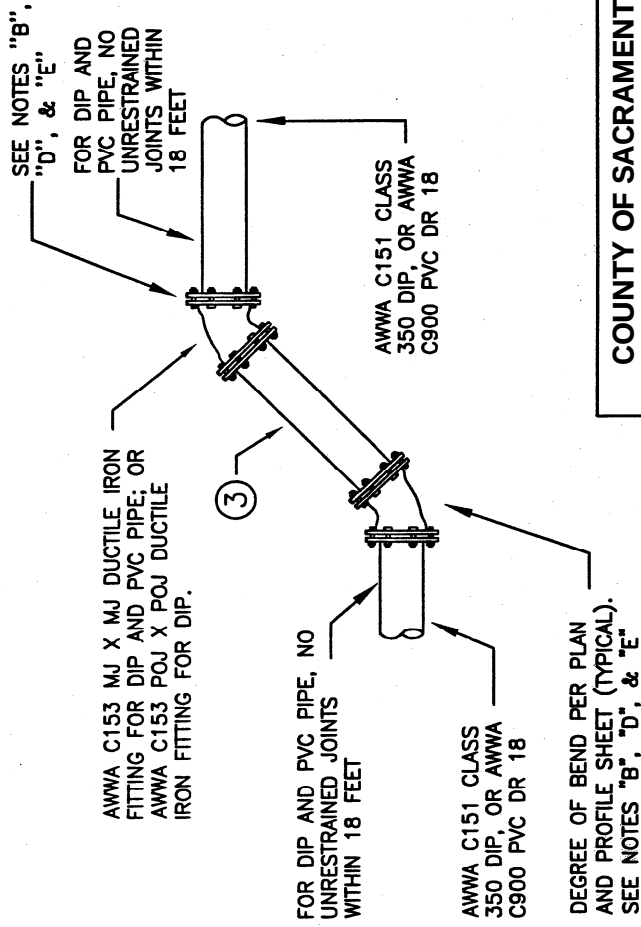
LEGEND

DIP= DUCTILE IRON PIPE
 AWWA= AMERICAN WATER WORKS ASSOC.
 PVC= POLYVINYL CHLORIDE PIPE
 POJ= PUSH ON JOINTS
 SCWA SACRAMENTO COUNTY WATER
 MAINTENANCE DISTRICT

NOTES

- IF DIP IS USED, FITTINGS MAY HAVE BELL ENDS WITH U.S. PIPE FIELD LOK GASKETS FOR RESTRAINING DEVICES OR APPROVED EQUAL BY SCWA. BELL RESTRAINTS FOR PVC PIPE ARE NOT ALLOWED.
- IF BEND IS TO EXCEED 22.5 DEGREES, THE BEND AND THE RESTRAIN LENGTH MUST BE APPROVED BY SCWA
- WRAP ALL DIP AND FITTINGS WITH 8 MIL. POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH AWWA C105.
- RESTRAINING DEVICE FOR DIP: FOR POJs, USE U.S. PIPE FIELD LOK GASKETS OR APPROVED EQUAL; FOR MJ JOINTS USE STAR PIPE PRODUCTS STARGRIP 3000, STAR PIPE PRODUCTS ALLGRIP 3600, EBAA MEALUG 2000/PV SERIES, OR APPROVED EQUAL BY SCWA.
- RESTRAINING DEVICE FOR PVC PIPE: USE MJ FITTINGS WITH STAR PIPE PRODUCTS ALLGRIP 3600, EBAA MEALUG 2000/PV SERIES, OR APPROVED EQUAL BY SCWA.
- SEE PLAN & PROFILE FOR RESTRAINED LENGTH AND DEGREE OF BEND.
- THIS DETAIL IS FOR WATER PIPES 12" IN DIAMETER & SMALLER.

- IF UTILITY BEING CROSSED IS NOT A STORM DRAIN, SEWER, OR OTHER WATER LINE, THEN THE "NO JOINT" REQUIREMENT DOES NOT APPLY
- 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
- NO JOINTS ALLOWED IF LESS THAN 18 FEET, OR LESS THAN 20 FEET IF THE UTILITY BEING CROSSED IS SEWER. ALL JOINTS BETWEEN FITTINGS MUST BE RESTAINED WITH EITHER OF THE METHODS DESCRIBED FOR DIP. BELL RESTRAINTS FOR PVC PIPE ARE NOT ALLOWED.



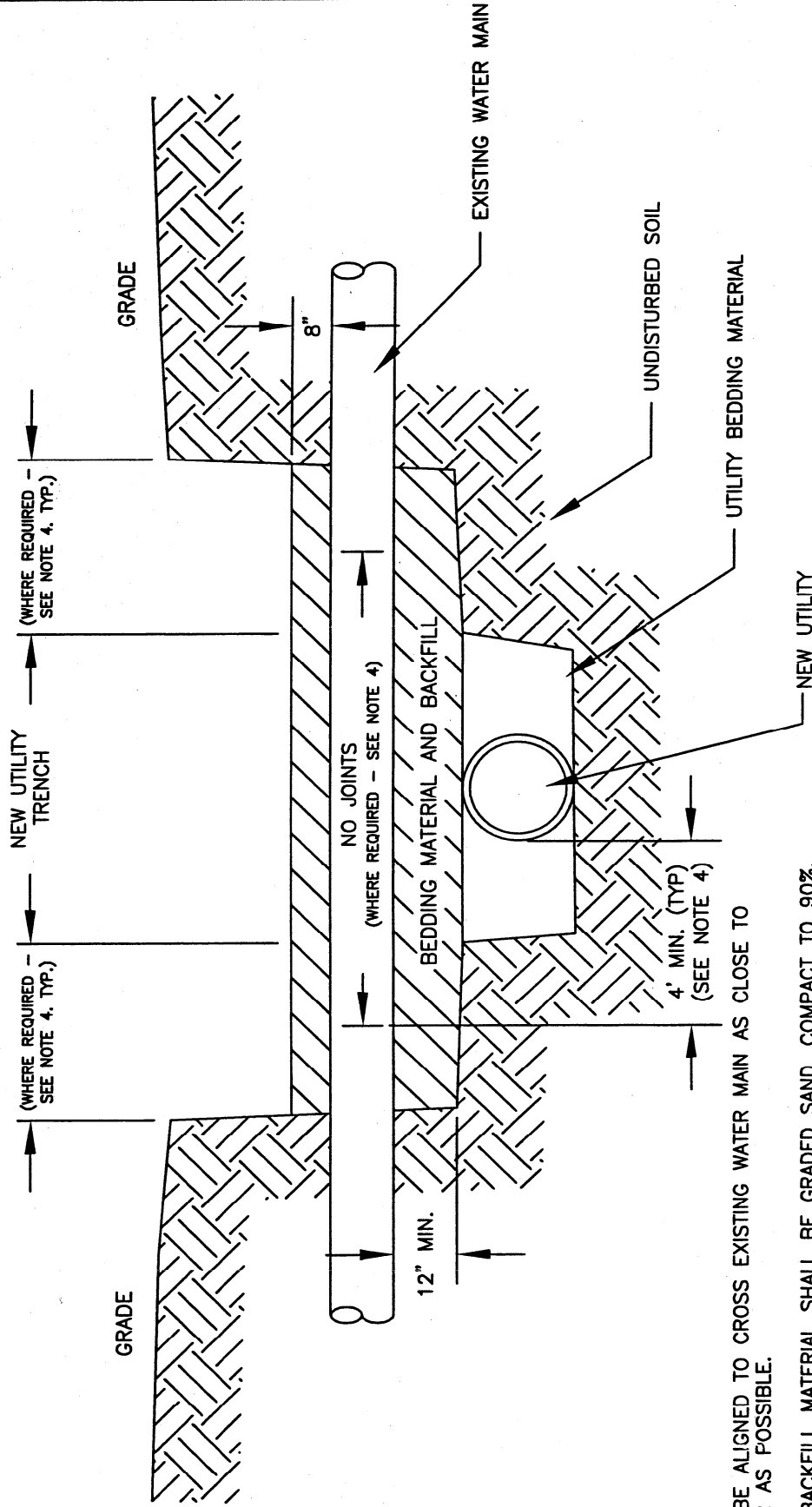
COUNTY OF SACRAMENTO
 MUNICIPAL SERVICES AGENCY

UTILITY CROSSING

SCALE: NONE
 DATE: 12/03

8-10

David D. DeV...
 DIRECTOR, DEPARTMENT OF WATER RESOURCES



NOTES:

- 1) UTILITY SHALL BE ALIGNED TO CROSS EXISTING WATER MAIN AS CLOSE TO PERPENDICULAR AS POSSIBLE.
- 2) BEDDING AND BACKFILL MATERIAL SHALL BE GRADED SAND. COMPACT TO 90%.
- 3) REPAIR OR REPLACE EXISTING LOCATING WIRE, POLYETHYLENE ENCASEMENT, AND UNDERGROUND MARKING TAPE.
- 4) GRAVITY SANITARY SEWER AND STORM DRAIN UNDERCROSSINGS: IF SPECIFIED BY SCWA, THE UNDERCROSSING PIPE SHALL NOT BE PERMITTED WITHIN 4 FT. CLEAR OF EXISTING WATER MAIN JOINTS. IN THIS CASE, UNCOVER EXISTING WATER MAIN SUFFICIENTLY ON EACH SIDE OF PROPOSED ALIGNMENT FOR SCWA INSPECTOR TO VERIFY PRIOR TO INSTALLATION.
- 5) FORCE MAIN AND INDUSTRIAL PIPELINE UNDERCROSSINGS: PIPELINES SHALL BE INSTALLED WITHIN A CONTINUOUS 20 FT. SLEEVE AT THE UNDERCROSSING, CENTERED ON THE WATER MAIN. SLEEVE SHALL BE RATED FOR THE OPERATING PRESSURE OF THE PIPELINE. SLEEVE MATERIAL SHALL BE NON-CORRODING. SLEEVE DESIGN SHALL BE APPROVED BY SCWA.

Julia DeV

DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

UTILITY CROSSING UNDER
EXISTING WATER MAIN

SCALE: NONE
DATE: 12/03

8-11

BOLT DOWN H20 TRAFFIC RATED STEEL COVER. COVER SHALL BE LABELED WITH BEAD WELDED LETTERS: "WATER" FOR POTABLE, "RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER, "RAW WATER" FOR RAW WATER.

BRONZE PLUG W/ 1/2" SQUARE INDENTED NUT

CHRISTY B1017BOX (TRAFFIC BOX 10"x17" W/ H/20 LOADING), BROOKS 3 1/2-PB W/ 10"x17", OR APPROVED EQUAL.

2" BRONZE BALL CURB STOP WITH TEFLON COATED BALL, F.I.P.T. x F.I.P.T. WITH LOCKWING.

2" GALVANIZED SCH 40 STEEL PIPE & 90° ELBOW. WRAP WITH 10 MIL POLYETHYLENE TAPE, DOUBLE WRAP PIPE THREADS (TYPICAL). A STREET 90° ELBOW MAY BE USED IF THE END OF THE MJ CAP/PLUG IS FLAT.

3/4" CRUSHED AGGREGATE
COMPACT TO 95%

WATER MAIN

THRUST BLOCK (12" AND SMALLER MAINS), SIZE FOR "DEAD END" IN ACCORDANCE WITH 8-3A.

UNDISTURBED EARTH

CAP OR MJ PLUG WITH 2" NPT THREADED OPENING

FOR MAINS LARGER THAN 12":
DO NOT INSTALL THRUST BLOCK,
USE RESTRAINED JOINTS OVER
RESTRAINED LENGTH SHOWN ON
PLANS.

NOTE:

A 2" TEMPORARY BLOW OFF IS SHOWN. FOR 3" TEMPORARY BLOW OFF, USE 3" BRONZE BALL VALVE OR 3" AWWA GATE VALVE, WITH 3" BRONZE PLUG, 3" GALVANIZED PIPE & FITTING, 3" THREADED TAP AT MJ CAP/PLUG, AND CHRISTY B1324 TRAFFIC BOX, OR EQUAL.

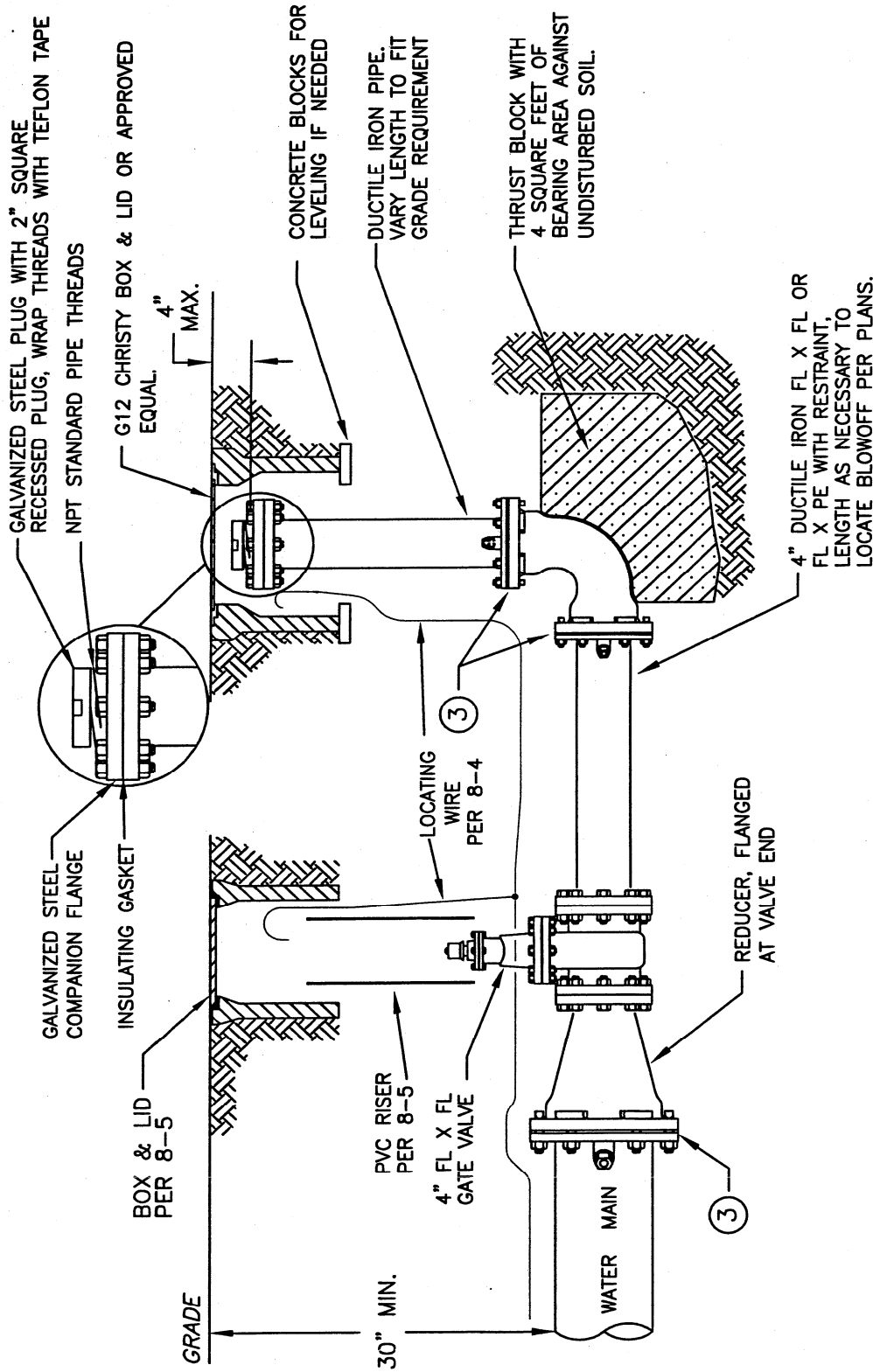
Handwritten Signature
DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

TEMPORARY BLOW OFF ASSEMBLY

SCALE: NONE
DATE: 12/03

8-12



NOTES:

1. FITTINGS SHALL BE DUCTILE IRON, AWWA C110 OR C153.
2. PROVIDE 6 INCHES SAND BEDDING. BACKFILL WITH SAND TO 8 INCHES ABOVE THE TOP OF PIPE. COMPACT TO 90% RELATIVE COMPACTION.
3. THESE JOINTS MAY BE FLANGED, RESTRAINED MECHANICAL JOINT WITH SCWA APPROVED RESTRAINING DEVICES, OR PUSH-ON WITH U.S. PIPE FIELD-LOK GASKETS OR SCWA APPROVED EQUAL.
4. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

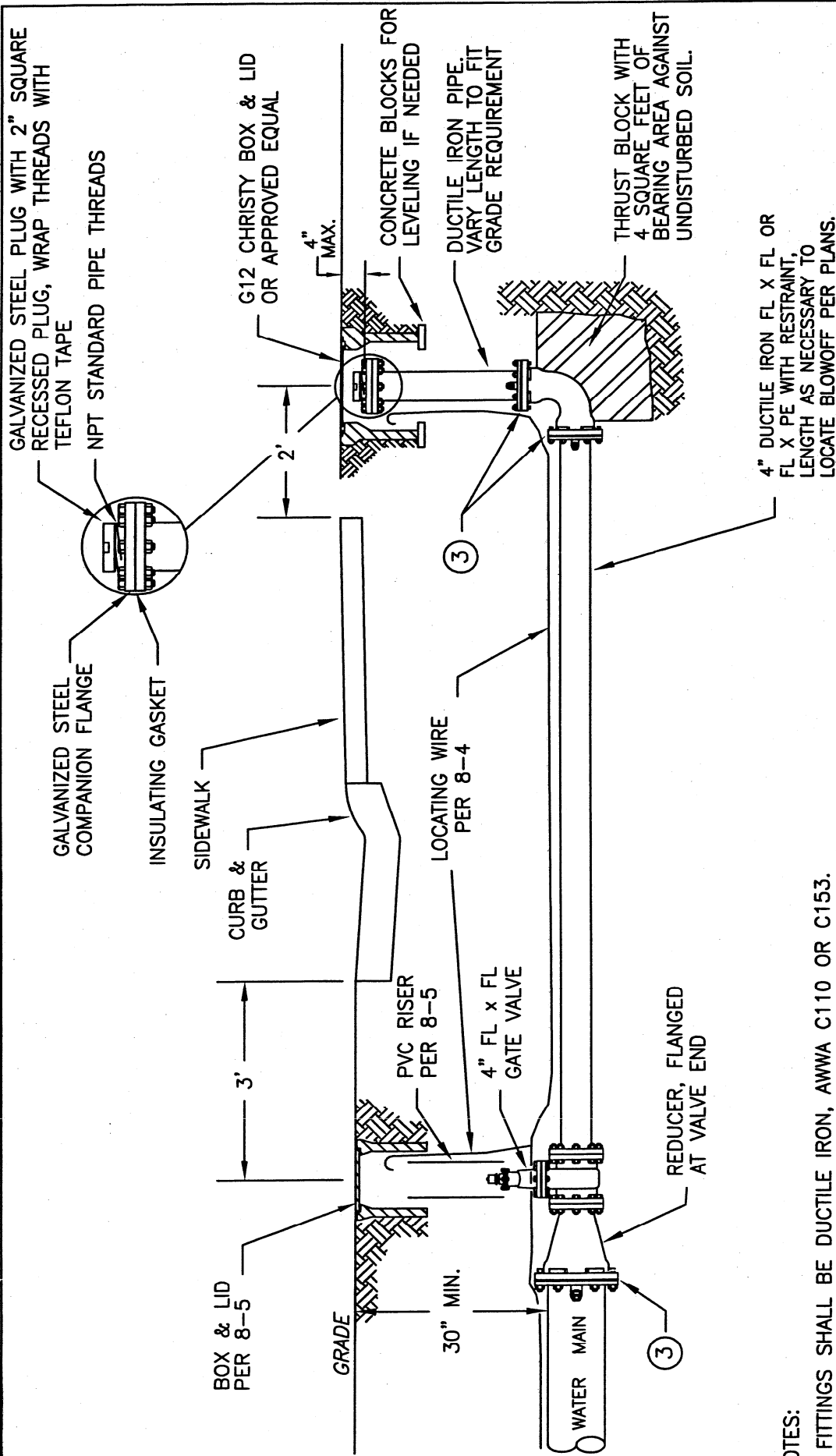
COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

4" BLOW OFF ASSEMBLY AT END OF MAIN

SCALE: NONE
DATE: 12/03

8-13A

[Signature]
DIRECTOR, DEPARTMENT OF WATER RESOURCES



NOTES:

1. FITTINGS SHALL BE DUCTILE IRON, AWWA C110 OR C153.
2. PROVIDE 6 INCHES SAND BEDDING, BACKFILL WITH SAND TO 8 INCHES ABOVE THE TOP OF PIPE. COMPACT TO 90% RELATIVE COMPACTION.
3. THESE JOINTS MAY BE FLANGED, RESTRAINED MECHANICAL JOINT WITH SCWA APPROVED RESTRAINING DEVICES, OR PUSH-ON WITH U.S. PIPE FIELD-LOK GASKETS OR SCWA APPROVED EQUAL.
4. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

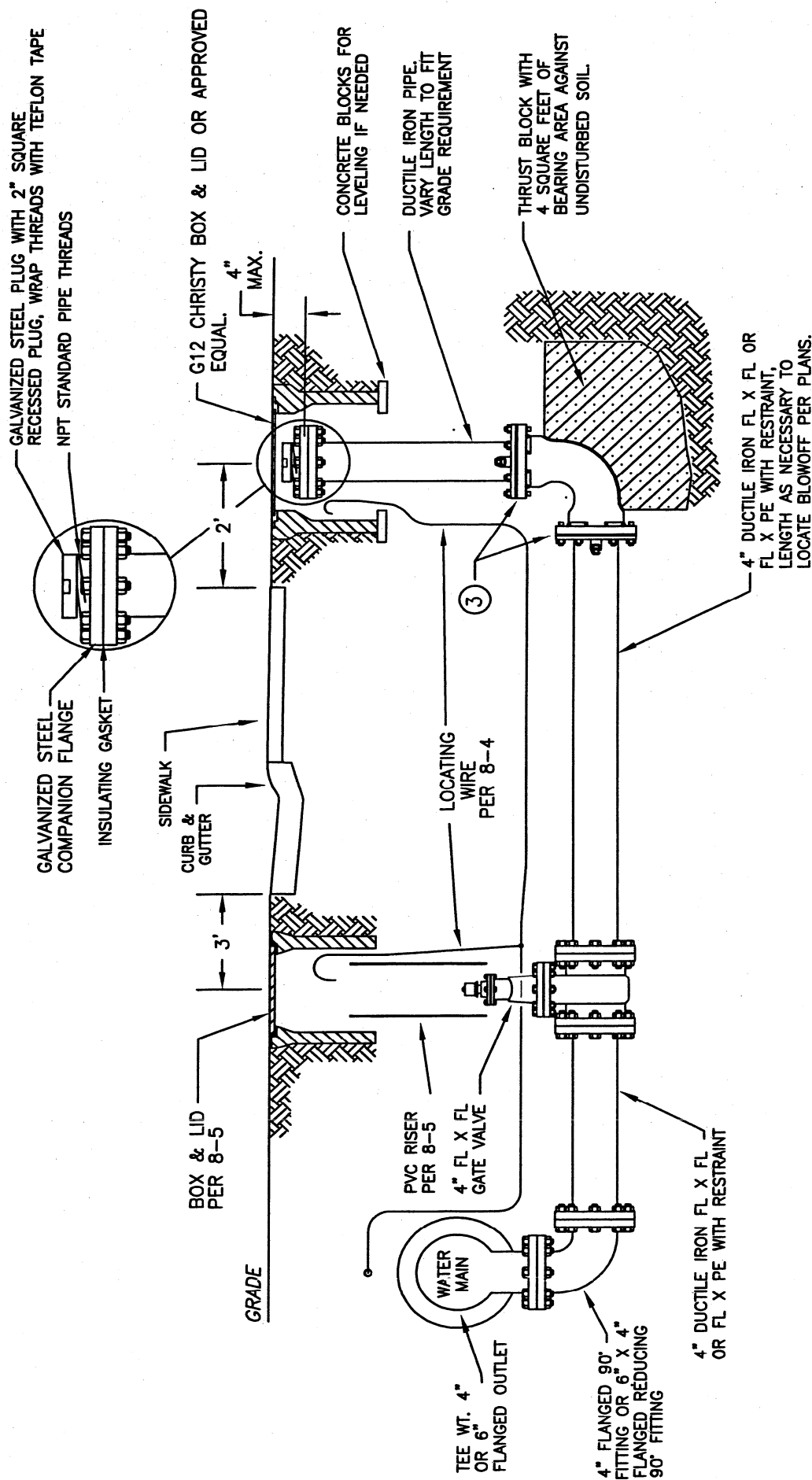
[Signature]
 DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO
 MUNICIPAL SERVICES AGENCY

**4" BLOW OFF ASSEMBLY
 AT END OF CUL-DE-SAC**

SCALE: NONE
 DATE: 12/03

8-13 B



1. FITTINGS SHALL BE DUCTILE IRON, AWWA C110 OR C153.
2. PROVIDE 6 INCHES SAND BEDDING. BACKFILL WITH SAND TO 8 INCHES ABOVE THE TOP OF PIPE. COMPACT TO 90% RELATIVE COMPACTION.
3. THESE JOINTS MAY BE FLANGED, RESTRAINED MECHANICAL JOINT WITH SCWA APPROVED RESTRAINING DEVICES, OR PUSH-ON WITH U.S. PIPE FIELD-LOK GASKETS OR SCWA APPROVED EQUAL.
4. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

SCALE: NONE
DATE: 12/03

8-13C

3/16" STEEL, 6" X 6" SQUARE TUBE 18" HIGH WITH AN 8-1/2" CAP, SPOT WELDED AT THE TOP.

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 W/ TOP OF BOX. CUT 5" X 5" SQUARE HOLE IN TOP OF LID. SQUARE HOLE TO BE CENTERED RELATIVE TO WIDTH OF LID. LID SHALL BE BOLTED TO BOX. LID SHALL BE LABELED WITH BEAD WELDED LETTERS:
"RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER; "RAW WATER" FOR RAW WATER; AND UNLABELED FOR POTABLE WATER. LID & TUBE ASSEMBLY SHALL BE PWAE118M BY PLACER WATERWORKS OR APPROVED EQUAL BY SCWA.

WELD 2 LOCKING NUTS TO LID TO ACCEPT BOLTS.-

1" SCHEDULE 40 GALVANIZED STEEL PIPE W/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 SCWA APPROVED EQUAL

1"- 90° BRONZE FITTING (TYP)

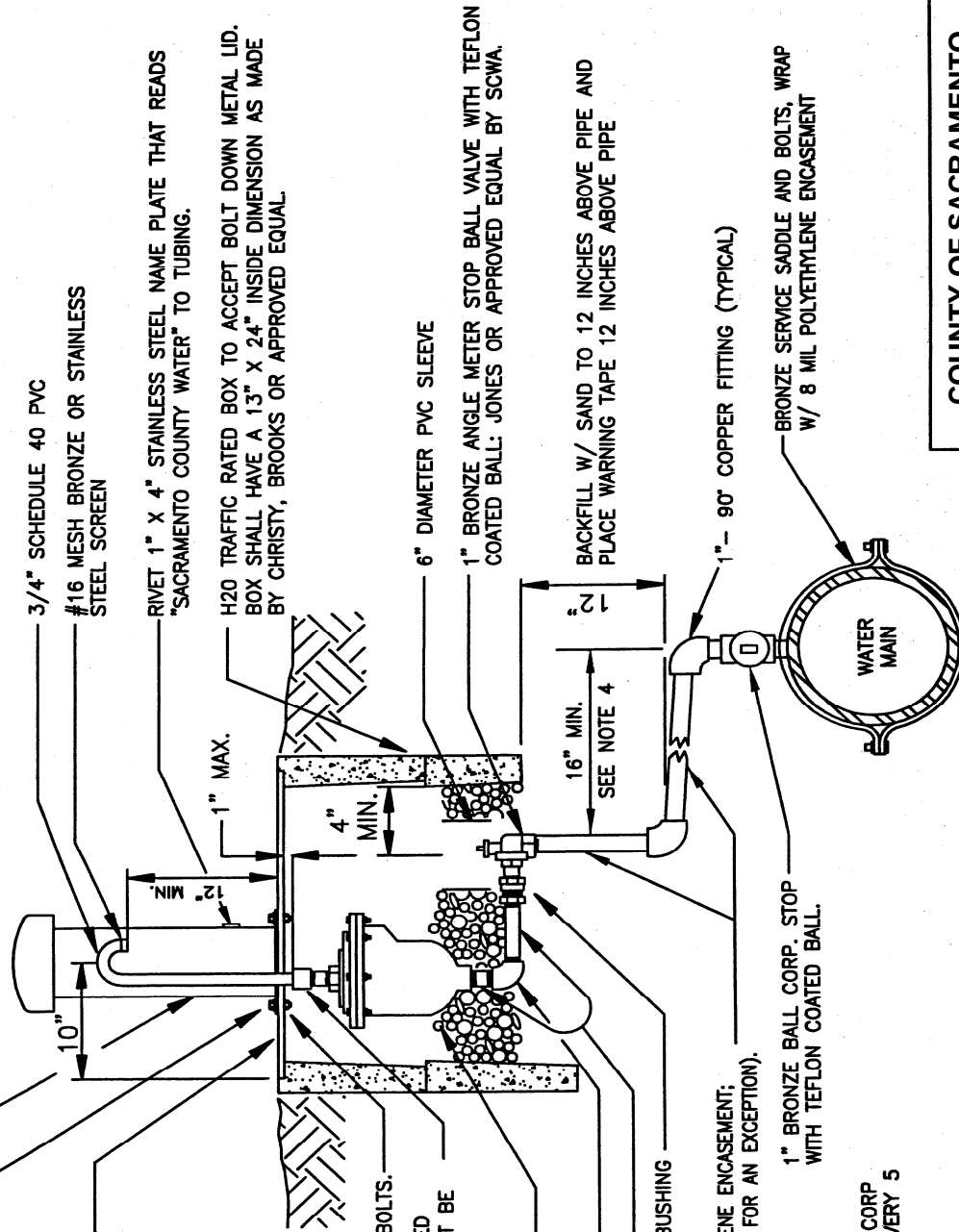
1"- BRASS NIPPLE (TYP)

1 1/4" X 1" BRONZE THREADED BUSHING

COPPER PIPE, TYPE K PER AWWA C800 W/ POLYETHYLENE ENCASEMENT;
CONTINUOUS PIPE. NO JOINTS PERMITTED (SEE NOTE 6 FOR AN EXCEPTION).

NOTES:

1. MAINTAIN A MIN 2% CONTINUOUS UPWARD SLOPE FROM CORP STOP TO AIR VALVE. INSPECTOR SHALL VERIFY SLOPE EVERY 5 FEET OF RUN.
2. FLARE, SOLDER JOINT, OR COMPRESSION FITTINGS ARE ACCEPTABLE.
3. PROVIDE 3' X 3' X 3' OF 1/2" CRUSHED AGGREGATE FOR DRAINAGE AND SUPPORT UNDER VALVE, COMPACT TO 95%.
4. SEE PLAN AND PROFILE SHEETS FOR LOCATION OF VALVE BOX.
5. BOX SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO TRAFFIC.
6. IF IT IS NECESSARY TO RELOCATE AN EXISTING INSTALLATION THAT IS UNDER EXISTING PAVEMENT: NEW COPPER PIPE MAY BE JOINED TO EXISTING COPPER PIPE WITH A MUELLER 110 H-15403 CONNECTOR.



Justin DeVries

DIRECTOR, DEPARTMENT OF WATER RESOURCES

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

1" COMBINATION AIR/ VACUUM VALVE

SCALE: NONE
DATE: 12/03

8-14A

CLEAN INTERIOR AND EXTERIOR SURFACES OF LID AND TUBE WITH DEVPREP 88 OR EQUAL, THEN COAT ALL SURFACES, NUTS AND BOLTS W/ DEVCO BAR-RUST 233H EPOXY UNDERCOAT, 2-3MILS, COLOR GRAY; THEN APPLY 2 COATS OF DEVCO ACRYLIC 1.5 MILS TO 2.0 MILS, EACH. COLOR SHALL BE HUNTER GREEN FOR POTABLE WATER AND RAW WATER; PURPLE FOR RECYCLED AND NONPOTABLE WATER.

3/8" THICK STEEL LID. IF NEEDED, TACK WELD 1/4" THICK BY 1" WIDE STEEL PLATE AROUND PERIMETER OF LID SO TOP OF LID IS FLUSH W/ TOP OF BOX. CUT 5" X 5" SQUARE HOLE IN TOP OF LID. SQUARE HOLE SHALL BE CENTERED RELATIVE TO WIDTH OF LID. LID SHALL BE BOLTED TO BOX. LID SHALL BE LABELED WITH BEAD WELDED LETTERS: "RECYCLED WATER" FOR RECYCLED AND NONPOTABLE WATER; "RAW WATER" FOR RAW WATER; AND UNLABELED FOR POTABLE WATER. LID & TUBE ASSEMBLY SHALL BE PWAE218M BY PLACER WATERWORKS OR APPROVED EQUAL BY SCWA.

WELD 2 LOCKING NUTS TO LID TO ACCEPT BOLTS.

2" SCHEDULE 40 GALVANIZED STEEL PIPE W/STEEL THREADED COUPLING AND 2" TO 1-1/2" PVC ADAPTER. SCWA OPERATOR MUST BE ABLE TO UNSCREW PVC RISER FROM COUPLING.

2" CRISPIN C-20 OR UL-20 COMBINATION AIR RELEASE/VACUUM VALVE OR SCWA APPROVED EQUAL

2"- BRASS NIPPLE (TYP)

COPPER PIPE, TYPE K, PER AWWA C800 W/POLYETHYLENE ENCASMENT; CONTINUOUS PIPE, NO JOINTS PERMITTED (SEE NOTE 6 FOR AN EXCEPTION).

2"- 90° COPPER FITTING (TYP)

2" BRONZE METER FLANGE

2"- 90° BRONZE FITTING (TYP)

NOTES:

1. MAINTAIN A MIN 2% CONTINUOUS UPWARD SLOPE FROM CORP STOP TO AIR VALVE. INSPECTOR SHALL VERIFY SLOPE EVERY 5 FEET OF RUN.
2. FLARE, SOLDER JOINT, OR COMPRESSION FITTINGS ARE ACCEPTABLE.
3. PROVIDE 3' X 3' X 3' OF 1/2" CRUSHED AGGREGATE FOR DRAINAGE AND SUPPORT UNDER VALVE, COMPACT TO 95%.
4. SEE PLAN AND PROFILE SHEETS FOR LOCATION OF VALVE BOX.
5. BOX SHALL NOT BE INSTALLED IN LOCATION SUBJECT TO TRAFFIC.
6. IF IT IS NECESSARY TO RELOCATE AN EXISTING INSTALLATION THAT IS UNDER EXISTING PAVEMENT: NEW COPPER PIPE MAY BE JOINED TO EXISTING COPPER PIPE WITH A MUELLER 110 H-15403 CONNECTOR.

1-1/2" SCHEDULE 40 PVC CAP & WYE.
3/16" STEEL, 6" X 6" SQUARE TUBE 18" HIGH WITH AN 8-1/2" DIAMETER CAP, SPOT WELDED AT THE TOP.
#16 MESH BRONZE OR STAINLESS STEEL SCREEN
1-1/2" SCHEDULE 40 PVC
RIVET 1" X 4" STAINLESS STEEL NAME PLATE THAT READS "SACRAMENTO COUNTY WATER".
2 EA. 3/8" BOLTS, GRADE 3 WITH WASHER.

1/2" COPPER TUBING.

H2O TRAFFIC RATED BOX TO ACCEPT BOLT DOWN METAL LID. BOX SHALL HAVE A MAXIMUM OF 17" X 30" INSIDE DIMENSION AS MADE BY CHRISTY, BROOKS OR APPROVED EQUAL.

6" DIAMETER PVC SLEEVE

2" BRONZE ANGLE METER STOP BALL VALVE WITH TEFLON COATED BALL: JONES OR APPROVED EQUAL BY SCWA.

BACKFILL W/ SAND TO 12 INCHES ABOVE PIPE AND PLACE WARNING TAPE 12 INCHES ABOVE PIPE

BRONZE SERVICE SADDLE AND BOLTS, WRAP W/ 8 MIL POLYETHYLENE ENCASMENT



COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

2" COMBINATION AIR/
VACUUM VALVE

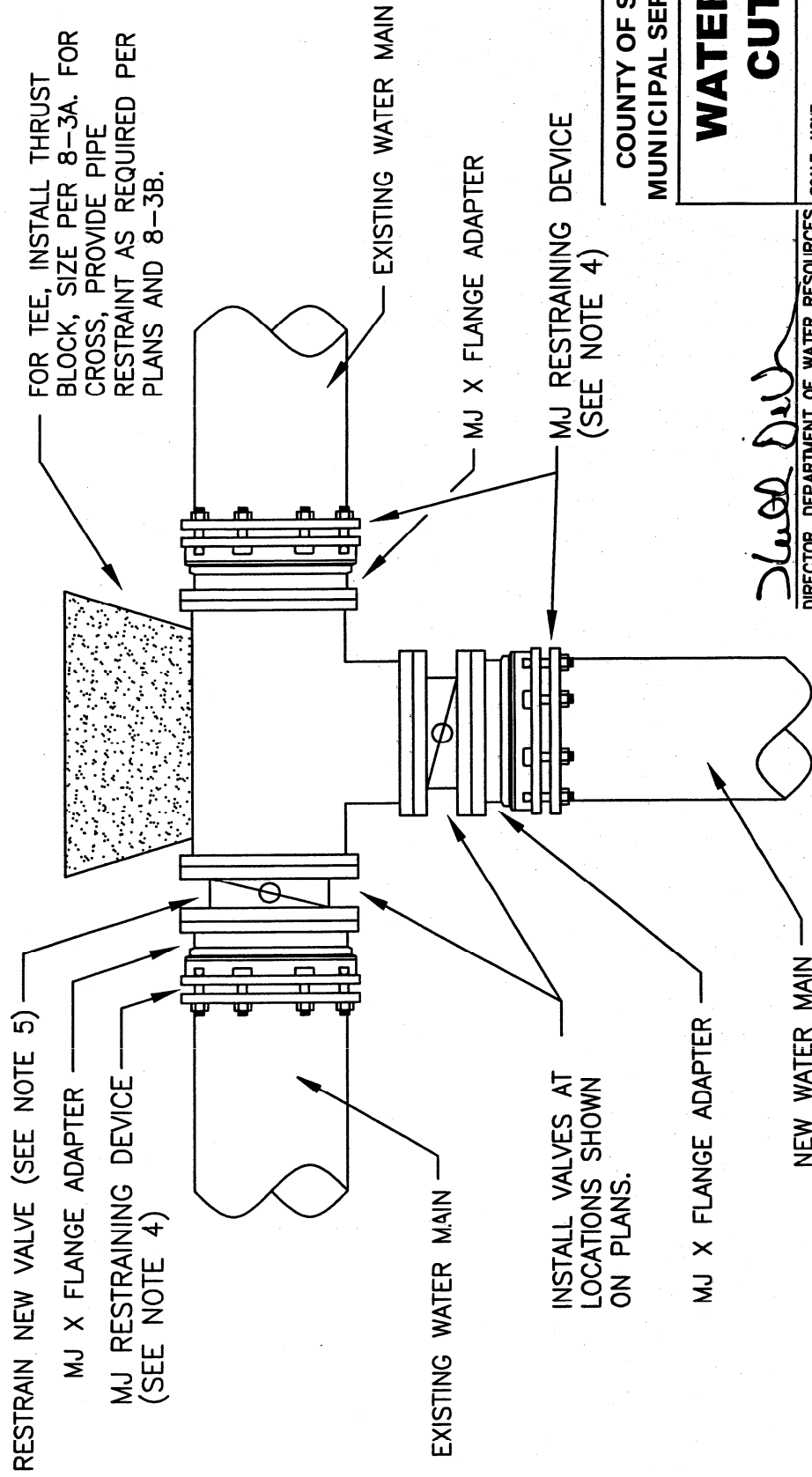
SCALE: NONE
DATE: 12/03

8-14B

Scott DeVu
DIRECTOR, DEPARTMENT OF WATER RESOURCES

NOTES:

1. THIS DETAIL SHALL BE USED WHEN THE PLANS REQUIRE INSTALLATION OF BOTH A NEW CONNECTION AND NEW IN-LINE VALVE IN AN EXISTING MAIN.
2. DIG SUMP UNDER CUT IN LOCATION AND PUMP ALL WATER FROM EXISTING MAIN AWAY FROM CUT IN LOCATION. DO NO ALLOW ANY WATER TO ENTER EXISTING PIPE. SPRAY EXISTING PIPE, ALL FITTINGS AND VALVES WITH A SOLUTION OF SUPER CHLORINATED WATER JUST PRIOR TO INSTALLATION.
3. RESTRAIN NEW AND EXISTING PIPE JOINTS AS REQUIRED BY THE PLANS, THE WATER NOTES, AND 8-3B.
4. RESTRAINING DEVICES FOR MJ'S: FOR DUCTILE IRON USE EBAA MEGALUG 1100, STAR PIPE PRODUCTS STARGRIP 3000, OR SIGMA ONE LOK SLD; FOR PVC PIPE USE EBAA 2000PV, OR STAR PIPE PRODUCTS ALLGRIP 3600.
5. RESTRAIN NEW IN-LINE VALVE: (1) CONCRETE ANCHOR BLOCK PER SCWA APPROVED DESIGN, OR (2) FOR 12" AND SMALLER MAINS, RESTRAIN EXISTING PIPE PER 8-3B.
6. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.



COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

WATER MAIN CUT - IN

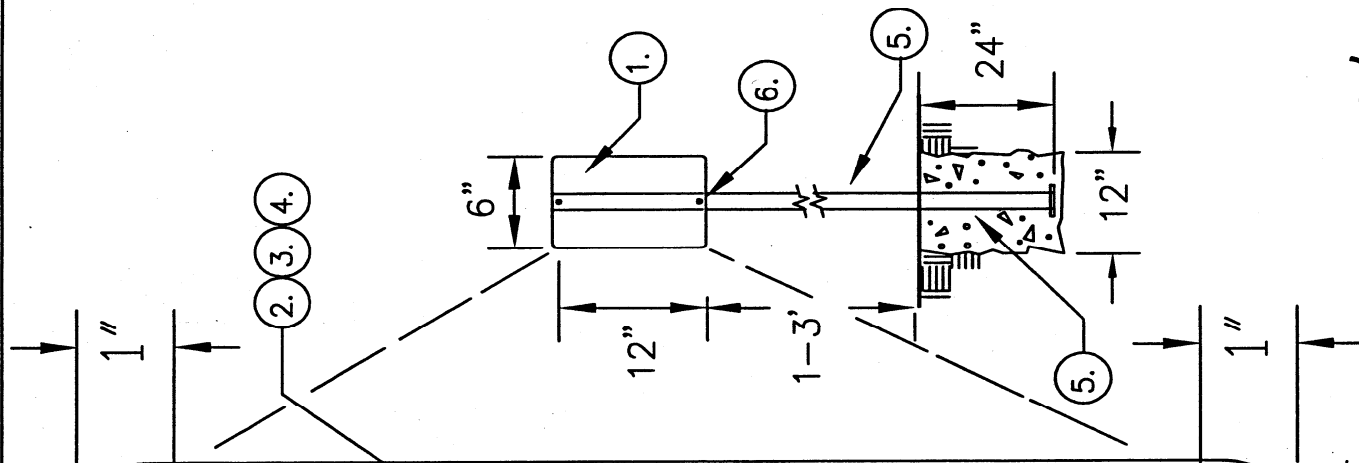
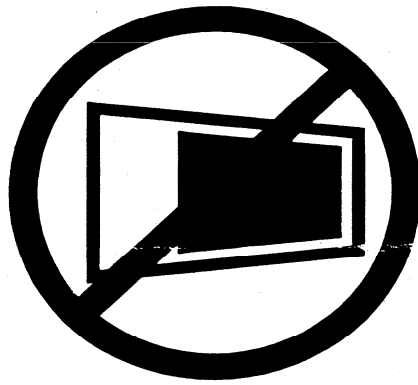
SCALE: NONE
DATE: 12/03

DIRECTOR, DEPARTMENT OF WATER RESOURCES

Shane D. Dyer

8-15

RECYCLED WATER USED ON LANDSCAPE



1. 6" x 12" ALUMINUM SHEET ALLOY 6061-T6
0.080" GAUGE, ROUNDED CORNERS (1" RADIUS).
2. LETTER HEIGHT & SYMBOL SIZE SHALL
BE PROPORTIONAL TO SIGN SIZE.
3. THE BACKGROUND SHALL BE WHITE. THE
LETTERING SHALL BE PURPLE, THE GRASS
GREEN, AND THE WATER BLUE.
4. LETTERING AND SYMBOL SHALL BE PRESSURE
SENSITIVE VINYL. CLEAR COAT ENTIRE SIGN ONCE
LETTERING AND SYMBOLS ARE ATTACHED.
5. 1"x1" SQUARE STEEL POST PAINTED WHITE TO
MATCH SIGN BACKGROUND. CAP OFF POST AND
FINISH CLEAN. PROVIDE REBAR AT END FOR
CONCRETE INSTALLATION AT 24 INCH DEPTH.
6. 5/16"Ø x 4-1/2" ZINC PLATED CARRIAGE BOLT WITH
VANDAL PROOF NUTS. PAINT WHITE TO MATCH SIGN.

WHEN MOUNTING ON WALLS OR CHAIN LINK FENCE, PROVIDE 1/4 INCH HOLES IN ALL FOUR CORNERS.

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 SACRAMENTO COUNTY WATER AGENCY.

**COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY**

RECYCLED WATER SIGN

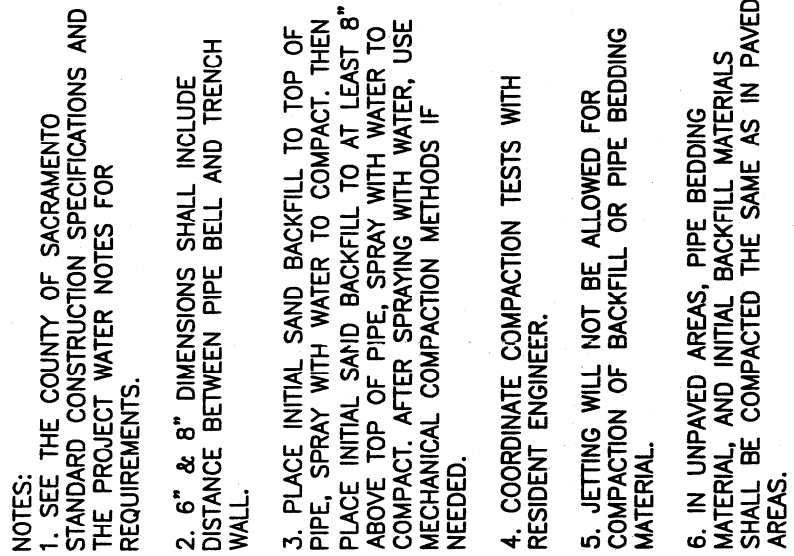
SCALE: NONE
DATE: 12/03

8-16

**SIGN, LETTER HEIGHTS, & SYMBOL SIZE
SHOWN ARE IN REQUIRED PROPORTIONS**

DIRECTOR, DEPARTMENT OF WATER RESOURCES

Chad DeL



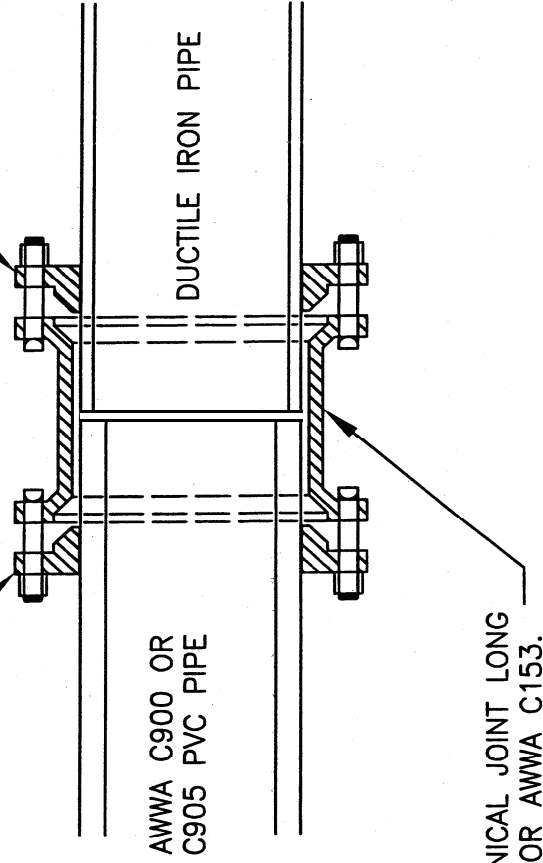
TRENCH DETAIL

SCALE: NONE
DATE: 12/03

8-17

MJ RESTRAINING DEVICE FOR
PVC PIPE (IF REQUIRED),
SEE NOTES

MJ RESTRAINING DEVICE FOR
DUCTILE IRON PIPE (IF REQUIRED),
SEE NOTES



NOTES:

1. THIS DETAIL SHALL BE USED AT ALL TRANSITIONS BETWEEN PVC PIPE AND DUCTILE IRON PIPE.
2. TRANSITIONS SHALL BE LOCATED OUTSIDE OF RESTRAINED AREAS, UNLESS APPROVED BY SCWA.
3. TRANSITIONS LOCATED WITHIN RESTRAINED AREAS SHALL BE RESTRAINED. RESTRAINING DEVICE FOR THE PVC PIPE SIDE SHALL BE EBAA 2000PV OR STAR PIPE PRODUCTS ALLGRIP 3600. RESTRAINING DEVICE FOR THE DUCTILE IRON PIPE SIDE SHALL BE EBAA MEGALUG 1100, STAR PIPE PRODUCTS STARGRIP 3000, OR SIGMA ONE LOK SLD.
4. RESTRAINING DEVICES NOT REQUIRED IF TRANSITION IS NOT IN A RESTRAINED AREA.
5. ALL BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.

Scott D. W.

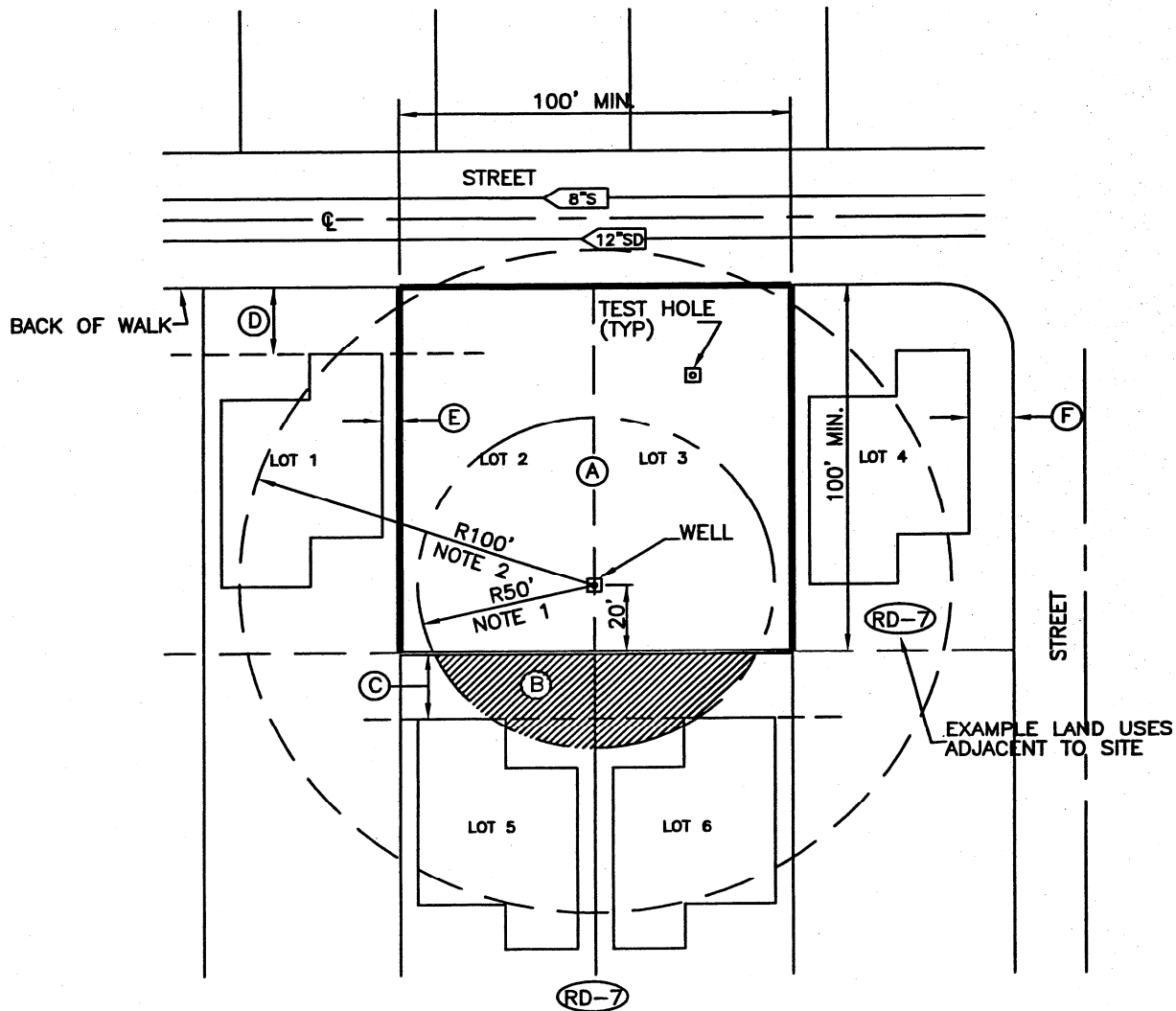
DIRECTOR, DEPARTMENT OF WATER RESOURCES

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

TRANSITION SLEEVE

SCALE: NONE
DATE: 12/03

8-18



NOTES :

- 50' RADIUS PRIMARY DRINKING WATER SOURCE PROTECTION ZONE:
NO SEWER, STORMWATER, OR INDUSTRIAL LINES;
NO LATERAL LINES; NO HOUSE FOUNDATIONS.
- 100' RADIUS SECONDARY DRINKING WATER SOURCE PROTECTION ZONE:
NO SEWER OR STORMWATER MAINS; NO DRAINAGE CHANNELS.
- 200' SETBACK REQUIRED FROM FORCE MAINS (SEWER, STORMWATER, INDUSTRIAL), UNDERGROUND FUEL TANKS, SEPTIC TANKS, LEACH LINES, AND STABLES.
- 500' SETBACK REQUIRED FROM PETROLEUM PIPELINES.
- MINIMUM WELL LOT SIZE IS 100' X 100'.
EXAMPLE RD-7 LOT SIZE TAKEN AS 55' X 100'.
- ANY STRUCTURE(S) PROPOSED WITHIN THE SPECIAL PROVISION AREA ARE SUBJECT TO REVIEW AND APPROVAL BY SCWA FOR COMPLIANCE WITH THE DRINKING WATER SOURCE PROTECTION SETBACKS.
- CONTACT SCWA FOR SPECIFIC INFORMATION ON A CASE-BY-CASE BASIS.

LEGEND :

- (A) WELL SITE IS TWO LOTS (TYPICAL)
- (B) SPECIAL PROVISION AREA
- (C) 20' MINIMUM SETBACK, REAR YARD.
- (D) 20' MINIMUM SETBACK, FRONT YARD.
- (E) 5' MINIMUM SETBACK, SIDE YARD.
- (F) 12.5' MINIMUM SETBACK, SIDE STREET YARD.

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

TYPICAL WELL SITE

Keith DeVries

DIRECTOR, DEPARTMENT OF WATER RESOURCES

SCALE: NONE
DATE: 12/03

8-19

