STANDARD DRAWINGS

I N D E X

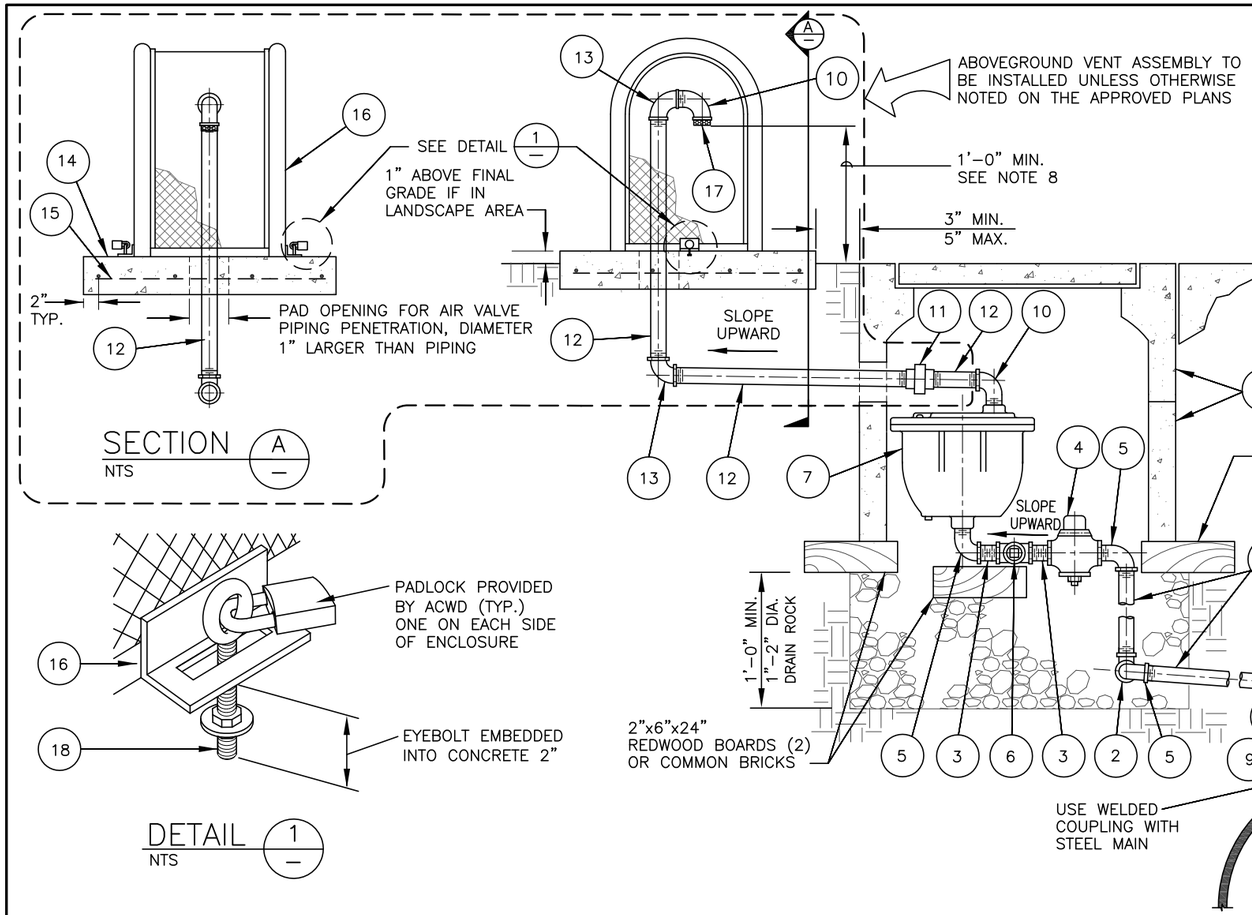
DISTRICT STANDARD DRAWINGS
INSTALLATION DETAILS

Drawing No.	Description
AV-1-08	1" and 2" Air Valve
BP-1-08	Backflow Prevention Assembly, Reduced Pressure Assembly, 2” and Smaller Service
BP-2-08	Backflow Prevention Assembly, Reduced Pressure Assembly, 3” and Larger Domestic Service
BP-3-08	Backflow Prevention Assembly, Reduced Pressure Assembly, 3” and Larger Fire Service
BP-4-25	Backflow Prevention Assembly, Double Check Valve Assembly, 3” and Larger Residential Fire Service
CL-1-08	Clearance Requirements for Water Mains from Other Utilities and Structures
CL-2-08	Horizontal and Vertical Clearance Requirements between Water Mains and Sanitary Sewers
CL-3-08	Horizontal and Vertical Clearance Requirements between Water Mains and Storm Drains
CL-4-08	Clearance Requirements for Water Mains, Services and Other Facilities
CL-5-08	Clearance Requirements for Meter, Vault and Other Facility Installations
ET-0-08	Electrolysis Test Station General Notes
ET-1-08	Electrolysis Test Station Bonding Wire and Test Lead Connections for Steel Pipe
ET-2-08	Electrolysis Test Station Steel Pipe Calibration Span
ET-3-08	Electrolysis Test Station Marker Post Installation Details Undeveloped Areas
ET-4-08	Electrolysis Test Station Developed Areas
ET-5-08	Electrolysis Test Station Steel Pipe Encasement Test Station
ET-6-08	Electrolysis Test Station Insulating Joint Test Station, Non-insulating Joint Bonding and Flanged Joint Bonding on Steel Pipelines
ET-7-08	Electrolysis Test Station Anode Connection
FH-1-08	Fire Hydrants
FH-2-08	Fire Hydrant Locations
FH-3-26	Fire Hydrant with Break-Off Check Valve
JP-1-08	New Main Jumper Piping
MP-1-08	Marker Post and Curb Markings

I N D E X

DISTRICT STANDARD DRAWINGS
INSTALLATION DETAILS

Drawing No.	Description
S-1-08	1" Service Line for 3/4" and 1" Meters without Fire Sprinkler Connections
S-2-08	1-1/2" and 2" Service Lines, 1-1/2” and 2” Meters without Fire Sprinkler Connections
S-3-08	1” Service Line, 3/4" and 1" Meters without Fire Sprinkler Connections
S-4-08	1-1/2" Service Line and Meter in Dual Meter Box for Residences with Fire Sprinklers
S-5-08	1-1/2" Service Line and 1" Meter in Dual Meter Box for Residences with Fire Sprinklers
S-6-08	1-1/2" Service Line and 1" Meter in Single Meter Box for Residences with Fire Sprinklers
S-7-08	1" Service Line and Meter in Dual Meter Box for Residences with Fire Sprinklers
S-8-08	1" Service Line and Meter in Single Meter Box for Residences with Fire Sprinklers
S-9-08	Typical Steel Service Lateral
S-10-08	2” Service Line and Detector Check Valve
S-11-08	Address Labels and Markings for 1” through 2” Service Lines
SP-1-08	Water Quality Sampling Pipe Assembly (Temporary - for Water System Construction)
TB-1-08	Thrust Blocking for PVC Pipe Valve Clusters
TB-2-08	Thrust Blocking for PVC Pipe Horizontal Fittings
TB-3-08	Standard Blowoff for 6" and 8" PVC Mains
TB-4-08	Standard Blowoff for 10" and 12" PVC Mains
TW-1-08	Tracer Wire for Mains and Valves
TW-2-08	Tracer Wire for Service Lines
V-1-08	Line Butterfly Valve
V-2-08	Line Gate Valve
VB-1-08	Valve Box
WSP-1-08	Steel Pipe Welded Joints
WSP-2-08	Welded Steel Offset on PVC Pipe



SECTION A
NTS

DETAIL 1
NTS

UTILITY BOXES FOR AIR VALVES		
A.V. SIZE	CHRISTY OR APPROVED EQUAL METER BOX	LID
1" A.V.	B24BOX (BOX) W/ B24BOX (EXTENSION)	B24D
2" A.V.	B36BOX (BOX) W/ B36x12 (EXTENSION)	B36D

ITEM	DESCRIPTION
1	CORPORATION STOP**
2	90° STRAIGHT ELBOW (RED BRASS)** (2)
3	RED BRASS PIPE** (4)
4	CURB STOP**
5	90° STREET ELBOW (RED BRASS)** (4)
6	FIPTxFIPTxFIPT BRASS TEE WITH BRASS PLUG**
7	AIR VALVE
8	UTILITY BOXES. SEE TABLE
9	NYLON BUSHING (STEEL MAIN ONLY)**
10	90° STREET ELBOW (GALVANIZED)** (2). SEE NOTE 9
11	UNION (GALVANIZED)**
12	GALVANIZED STEEL PIPE** (3). SEE NOTE 9
13	90° STRAIGHT ELBOW (GALVANIZED)** (2). SEE NOTE 9
14	CONCRETE BASE 20"Wx20"Lx3"D. SEE NOTE 2
15	6"/6"x#10/10 WELDED WIRE MESH
16	ENCLOSURE BPDI GS-.5 OR APPROVED EQUAL. COLOR SHALL BE BLACK
17	STAINLESS STEEL MESH INSECT SCREEN CAP**
18	THREADED EYEBOLT (GALVANIZED) WITH 7/16" MIN. I.D. (2)

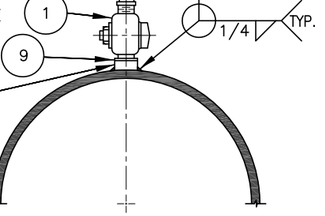
** SIZED 1" FOR 1" AIR VALVE AND 2" FOR 2" AIR VALVE

TYPICAL AIR VALVE LOCATION
NTS

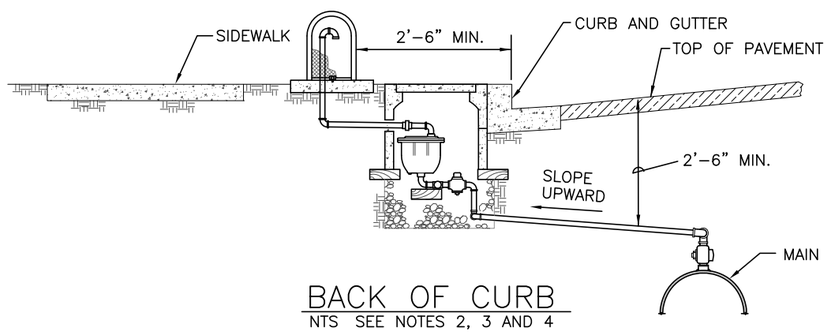
NOTES:

1. MAINTAIN AN UPWARD SLOPE TO PIPE FROM CORPORATION STOP AT MAIN TO AIR VALVE VENT.
2. IF AIR VALVE LOCATION IS AT AN INTEGRAL CURB AND SIDEWALK OF OVER 10'-0" WIDE (COMMERCIAL AREAS, ETC.), INSTALL AIR VALVE BACK OF CURB. IF INSTALLED IN FURNISHINGS ZONE OF SIDEWALK, VENT ASSEMBLY SHALL BE INSTALLED PRIOR TO SIDEWALK CONSTRUCTION, CONCRETE PAD SHALL BE OMITTED AND VENT ENCLOSURE SHALL BE ATTACHED TO SIDEWALK (EMBEDDED EYEBOLTS AND AIR VENT PIPE OPENING SHALL BE INSTALLED IN THE FURNISHINGS ZONE OF THE SIDEWALK).
3. IF AIR VALVE LOCATION IS IN AN AREA WITHOUT CURBS, INSTALL AT LOCATION AS DIRECTED BY DISTRICT.
4. WHERE APPROVED OR REQUIRED BY THE DISTRICT, THE AIR VALVE AND VENT ASSEMBLY MAY BE INSTALLED UP TO 18" BEHIND PROPERTY LINE (INSIDE PRIVATE PROPERTY) PROVIDED MINIMUM COVER, SLOPE AND CLEARANCE REQUIREMENTS ARE MAINTAINED. SEE NOTE 7.
5. CURB STOP TO BE EXPOSED IN METER BOX AND ACCESSIBLE TO OPERATE.
6. FOR DESIGNATION ON CURB OR MARKER POST SEE NOTES ON STANDARD DRAWING MP-1-08.
7. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR ADDITIONAL LOCATION AND CLEARANCE REQUIREMENTS.
8. OUTLET SHALL BE A MINIMUM 1'-0" ABOVE FINISHED GRADE OR 1'-0" ABOVE THE CALCULATED 100-YEAR FLOOD WATER LEVEL OR HIGHEST RECORDED WATER LEVEL, WHICHEVER IS HIGHER.
9. GALVANIZED AIR VALVE PIPING ABOVE GRADE SHALL BE COATED WITH TWO COATS OF RUST-OLEUM PAINT COLORED TO MATCH ENCLOSURE COLOR.

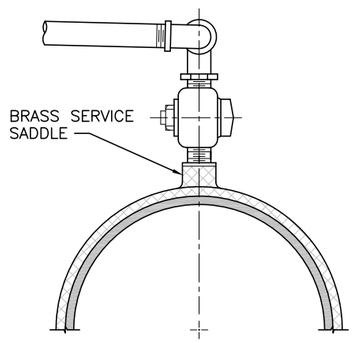
APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE



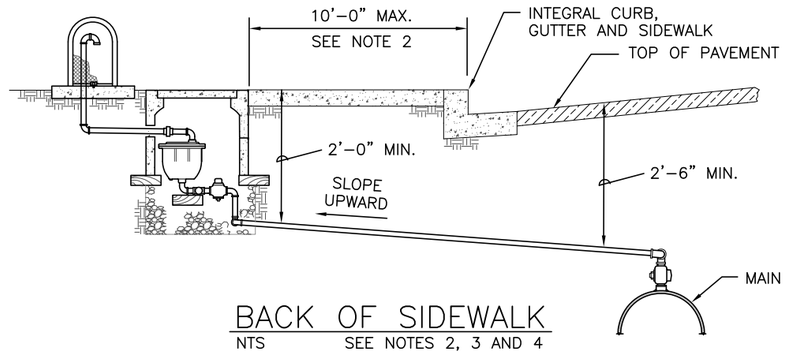
STEEL MAIN
NTS



BACK OF CURB
NTS SEE NOTES 2, 3 AND 4



PVC MAIN
NTS



BACK OF SIDEWALK
NTS SEE NOTES 2, 3 AND 4

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. V-3	RMF	LJA

DESIGNED ACWD
DRAWN RMF
CHECKED LJA
DIV. MGR. EHS

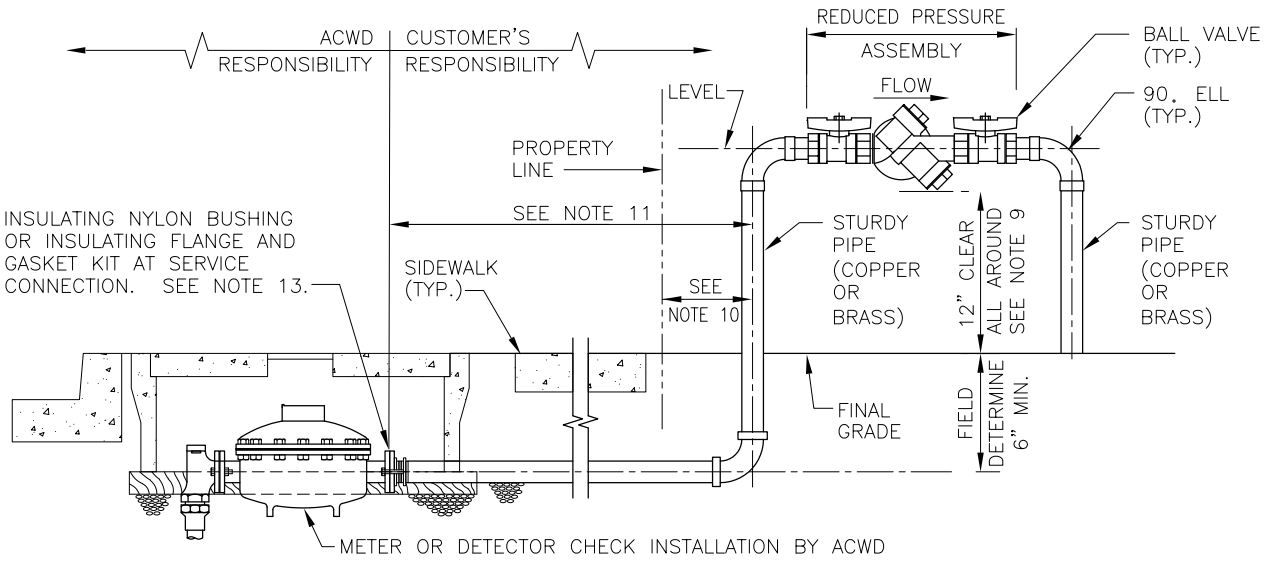
ACWD
ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1" AND 2" AIR VALVE

DATE: DEC. 2008
SCALE: NONE
DWG. NO. AV-1-08
REV. 0



REDUCED PRESSURE ASSEMBLY

NTS

NOTES:

1. REDUCED PRESSURE (R.P.) ASSEMBLY MANUFACTURER AND MODEL TYPE SHALL BE ON ACWD'S APPROVED MATERIAL LIST, AND THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC FCCCHR) LIST OF APPROVED BACKFLOW DEVICES. APPROPRIATE TEST COCKS SHALL BE INTEGRAL PARTS WITH THE ASSEMBLY.
2. INSTALLATION AND OPERATION SHALL COMPLY WITH ACWD ORDINANCE NO. 2025-01 SETTING FORTH REQUIREMENTS FOR THE PROTECTION OF PUBLIC WATER SYSTEM BY PREVENTING BACKFLOW AND ESTABLISHING PENALTIES FOR VIOLATIONS.
3. UPON INITIAL INSTALLATION THE METER WILL BE LOCKED OFF UNTIL THE R.P. ASSEMBLY IS INSPECTED AND/OR TESTED BY ACWD.
4. R.P. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
5. NO CONNECTIONS WILL BE ALLOWED BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY, INCLUDING SHUT-OFF VALVES, STRAINERS OR PRESSURE REGULATORS.
6. IF THE R.P. ASSEMBLY CANNOT BE INSTALLED IN A PROTECTED AREA THE CUSTOMER SHALL FURNISH AND INSTALL PROTECTION FOR THE R.P. ASSEMBLY SUCH AS CHAIN LINK FENCING, BOLLARDS, PIPE SUPPORTS, CAGES, CURB, ETC.
7. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.
8. IN NO CASE SHALL THE R.P. ASSEMBLY BE INSTALLED BELOW GRADE.
9. ACWD RECOMMENDS 18-INCHES OF CLEARANCE FROM BOTTOM OF R.P. ASSEMBLY TO FINAL GRADE TO MAINTAIN 12" MINIMUM CLEARANCE.
10. THE R.P. ASSEMBLY SHALL BE AS CLOSE AS PRACTICAL TO THE SERVICE CONNECTION. IF THE SERVICE CONNECTION IS LOCATED OUTSIDE THE PROPERTY, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18" BEHIND THE PROPERTY LINE.
11. IF THE SERVICE CONNECTION IS LOCATED BEHIND THE PROPERTY LINE, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18-INCHES BEHIND THE SERVICE CONNECTION.
12. AT ACWD DISCRETION, ADDITIONAL UNDERGROUND PROTECTION BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY MAY BE REQUIRED, INCLUDING SLEEVES AND/OR SLURRY BACKFILL.
13. INSULATING JOINT CONNECTION SHALL BE INSTALLED AT SERVICE CONNECTION BY CUSTOMER WHEN CONNECTING METALLIC PIPING ON CUSTOMER SIDE OF SERVICE CONNECTION.
14. ANY QUESTIONS REGARDING THE ABOVE REQUIREMENTS SHOULD BE DIRECTED TO ACWD CROSS-CONNECTION CONTROL PERSONNEL AT (510) 668-6504.

APPROVED _____ 07/01/2025
DIRECTOR OF ENGINEERING AND TECHNOLOGY /DATE

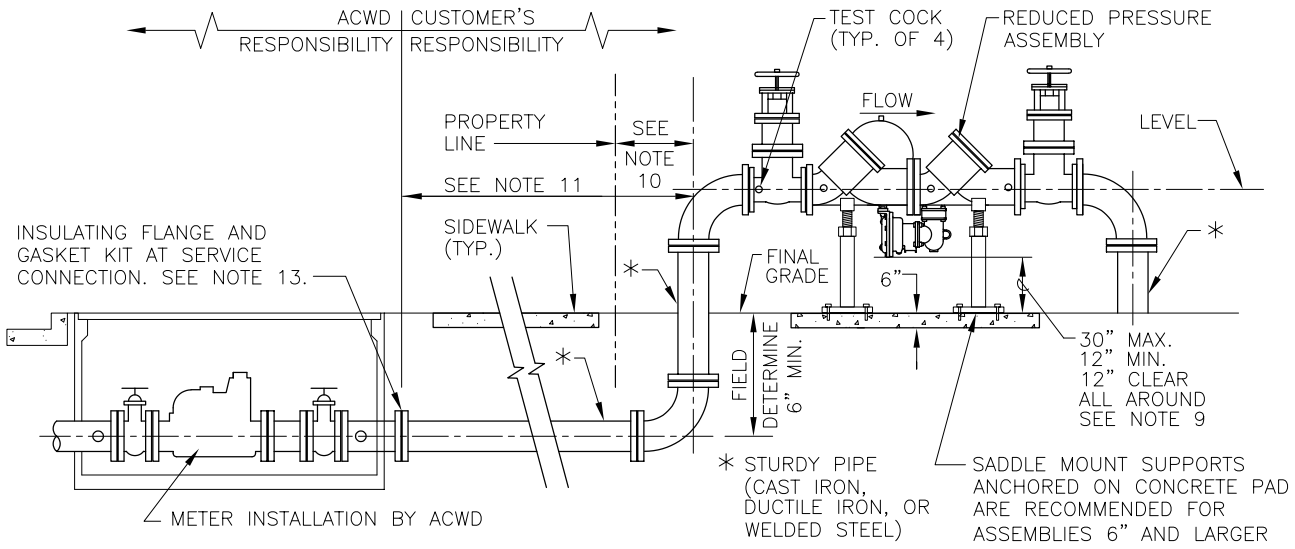
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

BACKFLOW PREVENTION ASSEMBLY
REDUCED PRESSURE ASSEMBLY
2" AND SMALLER SERVICE

NO.	DATE	REVISION	BY	APP.
1	07-25	UPDATES TO NOTES AND DETAIL	NA	SRO
0	12-08	REPLACES STD. DWG. BP-5	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. BP-1-08	REV. 1
DIV. MGR.	EHS		



REDUCED PRESSURE ASSEMBLY – DOMESTIC SERVICE

NTS

NOTES:

1. REDUCED PRESSURE (R.P.) ASSEMBLY MANUFACTURER AND MODEL TYPE SHALL BE ON ACWD'S APPROVED MATERIAL LIST, AND THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS–CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC FCCCHR) LIST OF APPROVED BACKFLOW DEVICES. APPROPRIATE TEST COCKS SHALL BE INTEGRAL PARTS WITH THE ASSEMBLY.
2. INSTALLATION AND OPERATION SHALL COMPLY WITH ACWD ORDINANCE NO. 2025–01 SETTING FORTH REQUIREMENTS FOR THE PROTECTION OF PUBLIC WATER SYSTEM BY PREVENTING BACKFLOW AND ESTABLISHING PENALTIES FOR VIOLATIONS.
3. UPON INITIAL INSTALLATION THE METER WILL BE LOCKED OFF UNTIL THE R.P. ASSEMBLY IS INSPECTED AND/OR TESTED BY ACWD.
4. R.P. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
5. NO CONNECTIONS WILL BE ALLOWED BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY, INCLUDING SHUT–OFF VALVES, STRAINERS, OR PRESSURE REGULATORS.
6. IF THE R.P. ASSEMBLY CANNOT BE INSTALLED IN A PROTECTED AREA THE CUSTOMER SHALL FURNISH AND INSTALL PROTECTION FOR THE R.P. ASSEMBLY SUCH AS CHAIN LINK FENCING, BOLLARDS, PIPE SUPPORTS, CAGES, CURB, ETC.
7. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.
8. IN NO CASE SHALL THE R.P. ASSEMBLY BE INSTALLED BELOW GRADE.
9. ACWD RECOMMENDS 18–INCHES OF CLEARANCE FROM BOTTOM OF R.P. ASSEMBLY TO FINAL GRADE TO MAINTAIN 12" MINIMUM CLEARANCE.
10. THE R.P. ASSEMBLY SHALL BE AS CLOSE AS PRACTICAL TO THE SERVICE CONNECTION. IF THE SERVICE CONNECTION IS LOCATED OUTSIDE THE PROPERTY, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18" BEHIND THE PROPERTY LINE.
11. IF THE SERVICE CONNECTION IS LOCATED BEHIND THE PROPERTY LINE, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18–INCHES BEHIND THE SERVICE CONNECTION.
12. AT ACWD DISCRETION, ADDITIONAL UNDERGROUND PROTECTION BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY MAY BE REQUIRED, INCLUDING SLEEVES AND/OR SLURRY BACKFILL.
13. INSULATING JOINT CONNECTION SHALL BE INSTALLED AT SERVICE CONNECTION BY CUSTOMER WHEN CONNECTING METALLIC PIPING ON CUSTOMER SIDE OF SERVICE CONNECTION.
14. ANY QUESTIONS REGARDING THE ABOVE REQUIREMENTS SHOULD BE DIRECTED TO ACWD CROSS–CONNECTION CONTROL PERSONNEL AT (510) 668–6504.

APPROVED _____ 07/01/2025
DIRECTOR OF ENGINEERING AND TECHNOLOGY /DATE

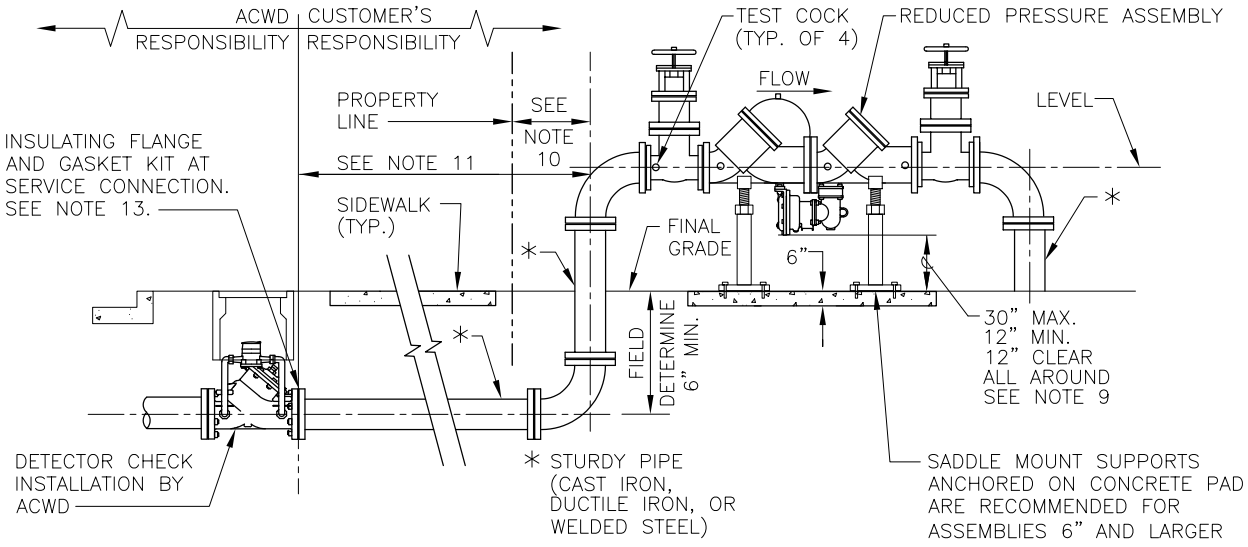
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

BACKFLOW PREVENTION ASSEMBLY REDUCED PRESSURE ASSEMBLY 3" AND LARGER DOMESTIC SERVICE

NO.	DATE	REVISION	BY	APP.
1	07–25	UPDATES TO NOTES AND DETAIL	NA	SRO
0	12–08	REPLACES STD. DWG. BP–6	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. BP-2-08	REV. 1
DIV. MGR.	EHS		



REDUCED PRESSURE ASSEMBLY – FIRE SERVICE

NTS

NOTES:

1. REDUCED PRESSURE (R.P.) ASSEMBLY MANUFACTURER AND MODEL TYPE SHALL BE ON ACWD'S APPROVED MATERIAL LIST, AND THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC FCCCHR) LIST OF APPROVED BACKFLOW DEVICES. APPROPRIATE TEST COCKS SHALL BE INTEGRAL PARTS WITH THE ASSEMBLY.
2. INSTALLATION AND OPERATION SHALL COMPLY WITH ACWD ORDINANCE NO. 2025-01 SETTING FORTH REQUIREMENTS FOR THE PROTECTION OF PUBLIC WATER SYSTEM BY PREVENTING BACKFLOW AND ESTABLISHING PENALTIES FOR VIOLATIONS.
3. UPON INITIAL INSTALLATION THE METER WILL BE LOCKED OFF UNTIL THE R.P. ASSEMBLY IS INSPECTED AND/OR TESTED BY ACWD.
4. R.P. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
5. NO CONNECTIONS WILL BE ALLOWED BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY, INCLUDING SHUT-OFF VALVES, STRAINERS, OR PRESSURE REGULATORS.
6. IF THE R.P. ASSEMBLY CANNOT BE INSTALLED IN A PROTECTED AREA THE CUSTOMER SHALL FURNISH AND INSTALL PROTECTION FOR THE R.P. ASSEMBLY SUCH AS CHAIN LINK FENCING, BOLLARDS, PIPE SUPPORTS, CAGES, CURB, ETC.
7. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.
8. IN NO CASE SHALL THE R.P. ASSEMBLY BE INSTALLED BELOW GRADE.
9. ACWD RECOMMENDS 18-INCHES OF CLEARANCE FROM BOTTOM OF R.P. ASSEMBLY TO FINAL GRADE TO MAINTAIN 12" MINIMUM CLEARANCE.
10. THE R.P. ASSEMBLY SHALL BE AS CLOSE AS PRACTICAL TO THE SERVICE CONNECTION. IF THE SERVICE CONNECTION IS LOCATED OUTSIDE THE PROPERTY, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18" BEHIND THE PROPERTY LINE.
11. IF THE SERVICE CONNECTION IS LOCATED BEHIND THE PROPERTY LINE, THE R.P. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18-INCHES BEHIND THE SERVICE CONNECTION.
12. AT ACWD DISCRETION, ADDITIONAL UNDERGROUND PROTECTION BETWEEN SERVICE CONNECTION AND R.P. ASSEMBLY MAY BE REQUIRED, INCLUDING SLEEVES AND/OR SLURRY BACKFILL.
13. INSULATING JOINT CONNECTION SHALL BE INSTALLED AT SERVICE CONNECTION BY CUSTOMER WHEN CONNECTING METALLIC PIPING ON CUSTOMER SIDE OF SERVICE CONNECTION.
14. ANY QUESTIONS REGARDING THE ABOVE REQUIREMENTS SHOULD BE DIRECTED TO ACWD CROSS-CONNECTION CONTROL PERSONNEL AT (510) 668-6504.

APPROVED _____ 07/01/2025
DIRECTOR OF ENGINEERING AND TECHNOLOGY /DATE

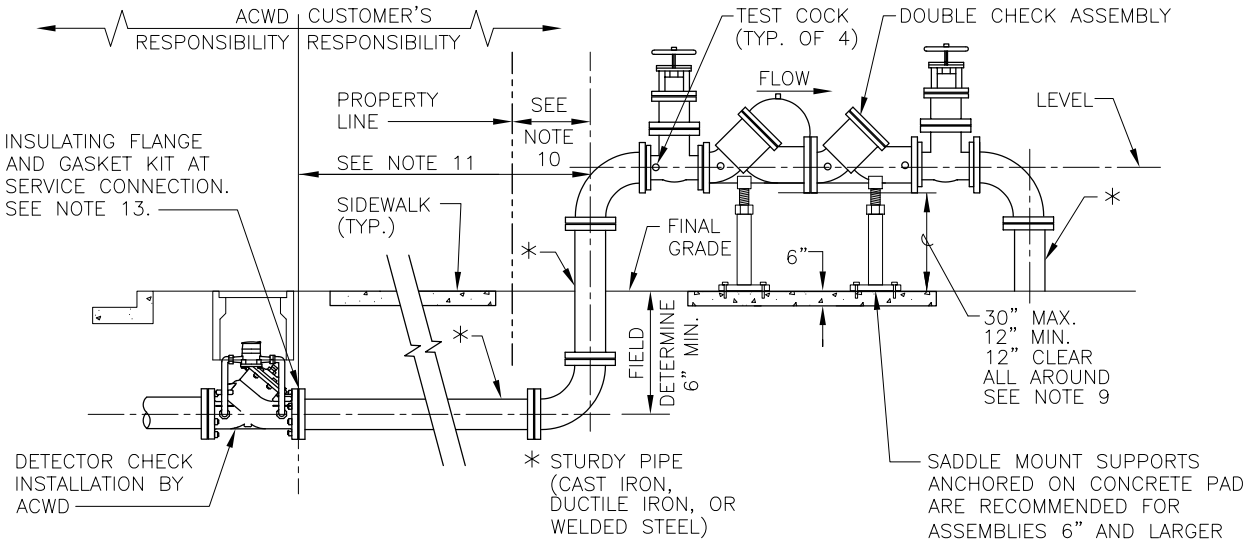
ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

BACKFLOW PREVENTION ASSEMBLY REDUCED PRESSURE ASSEMBLY 3" AND LARGER FIRE SERVICE

NO.	DATE	REVISION	BY	APP.
1	07-25	UPDATES TO NOTES AND DETAIL	NA	SRO
0	12-08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. BP-3-08	REV. 1
DIV. MGR.	EHS		



DOUBLE CHECK ASSEMBLY – RESIDENTIAL FIRE SERVICE

NTS

NOTES:

1. DOUBLE CHECK (D.C.) ASSEMBLY MANUFACTURER AND MODEL TYPE SHALL BE ON ACWD'S APPROVED MATERIAL LIST, AND THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS–CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC FCCCHR) LIST OF APPROVED BACKFLOW DEVICES. APPROPRIATE TEST COCKS SHALL BE INTEGRAL PARTS WITH THE ASSEMBLY.
2. INSTALLATION AND OPERATION SHALL COMPLY WITH ACWD ORDINANCE NO. 2025–01 SETTING FORTH REQUIREMENTS FOR THE PROTECTION OF PUBLIC WATER SYSTEM BY PREVENTING BACKFLOW AND ESTABLISHING PENALTIES FOR VIOLATIONS.
3. UPON INITIAL INSTALLATION THE METER WILL BE LOCKED OFF UNTIL THE D.C. ASSEMBLY IS INSPECTED AND/OR TESTED BY ACWD.
4. D.C. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
5. NO CONNECTIONS WILL BE ALLOWED BETWEEN SERVICE CONNECTION AND D.C. ASSEMBLY, INCLUDING SHUT–OFF VALVES, STRAINERS, OR PRESSURE REGULATORS.
6. IF THE D.C. ASSEMBLY CANNOT BE INSTALLED IN A PROTECTED AREA THE CUSTOMER SHALL FURNISH AND INSTALL PROTECTION FOR THE D.C. ASSEMBLY SUCH AS CHAIN LINK FENCING, BOLLARDS, PIPE SUPPORTS, CAGES, CURB, ETC.
7. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.
8. IN NO CASE SHALL THE D.C. ASSEMBLY BE INSTALLED BELOW GRADE.
9. ACWD RECOMMENDS 18–INCHES OF CLEARANCE FROM BOTTOM OF D.C. ASSEMBLY TO FINAL GRADE TO MAINTAIN 12" MINIMUM CLEARANCE.
10. THE D.C. ASSEMBLY SHALL BE AS CLOSE AS PRACTICAL TO THE SERVICE CONNECTION. IF THE SERVICE CONNECTION IS LOCATED OUTSIDE THE PROPERTY, THE D.C. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18" BEHIND THE PROPERTY LINE.
11. IF THE SERVICE CONNECTION IS LOCATED BEHIND THE PROPERTY LINE, THE D.C. ASSEMBLY SHALL BE LOCATED NO GREATER THAN 18–INCHES BEHIND THE SERVICE CONNECTION.
12. AT ACWD DISCRETION, ADDITIONAL UNDERGROUND PROTECTION BETWEEN SERVICE CONNECTION AND D.C. ASSEMBLY MAY BE REQUIRED, INCLUDING SLEEVES AND/OR SLURRY BACKFILL.
13. INSULATING JOINT CONNECTION SHALL BE INSTALLED AT SERVICE CONNECTION BY CUSTOMER WHEN CONNECTING METALLIC PIPING ON CUSTOMER SIDE OF SERVICE CONNECTION.
14. ANY QUESTIONS REGARDING THE ABOVE REQUIREMENTS SHOULD BE DIRECTED TO ACWD CROSS–CONNECTION CONTROL PERSONNEL AT (510) 668–6504.

APPROVED _____ 07/01/2025
DIRECTOR OF ENGINEERING AND TECHNOLOGY /DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

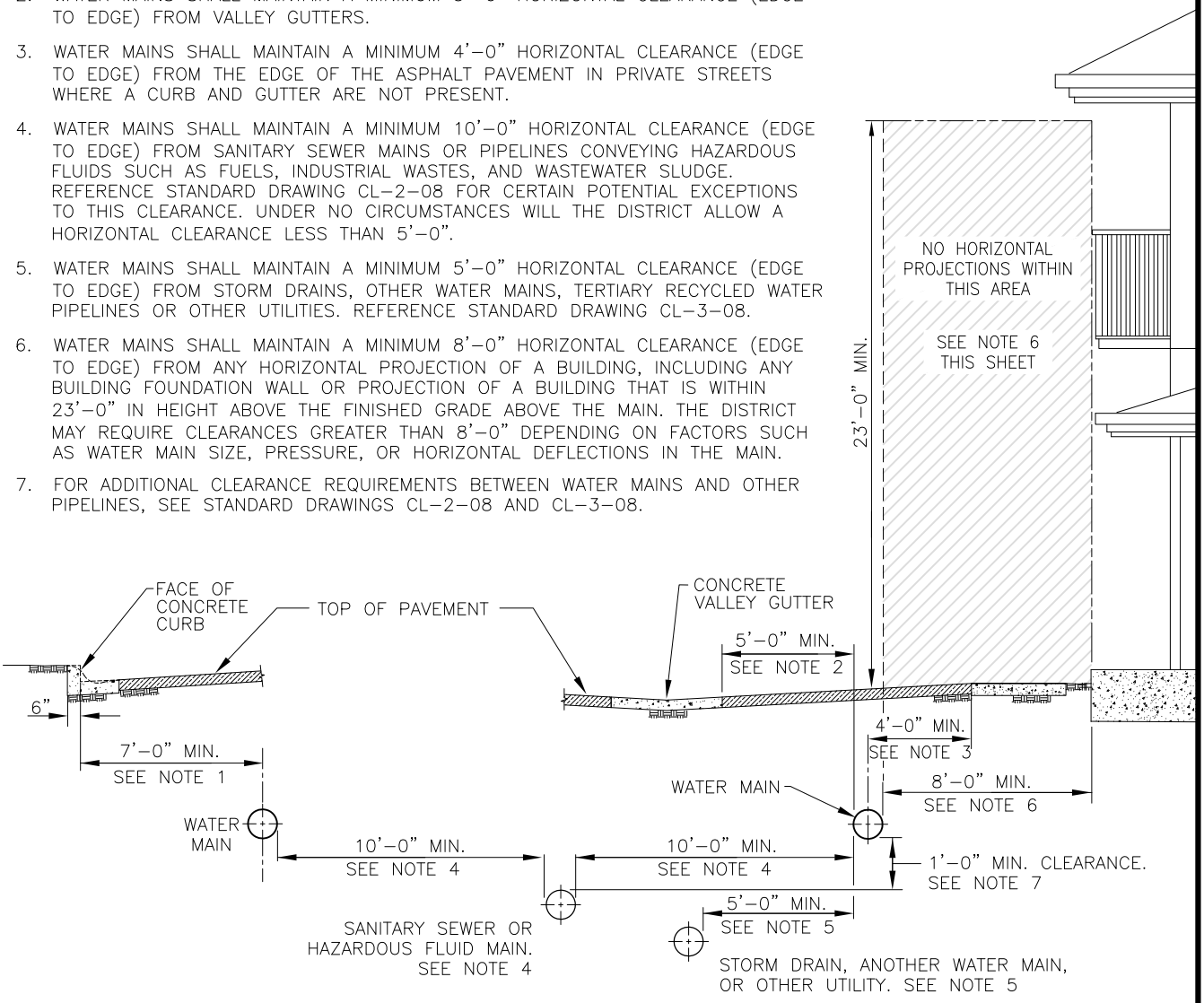
BACKFLOW PREVENTION ASSEMBLY
DOUBLE CHECK ASSEMBLY
3" AND LARGER RESIDENTIAL FIRE SERVICE

NO.	DATE	REVISION	BY	APP.
0	07–25	NEW STANDARD DRAWING	NA	SRO

DESIGNED	ACWD	DATE: JULY 2025	
DRAWN	NA	SCALE: NONE	
CHECKED	SRO	DWG. NO. BP-4-25	REV. 0
DIV. MGR.	SRO		

NOTES:

1. WHERE A WATER MAIN SHALL BE INSTALLED IN THE SAME SIDE OF THE STREET AS ON-STREET PARKING, THE WATER MAIN SHALL BE 7'-0" FROM THE FACE OF CURB. ON STREETS WITHOUT ON-STREET PARKING, THE WATER MAIN SHALL BE AT LEAST 5'-0" FROM THE FACE OF CURB, AS MEASURED FROM THE FACE OF CURB TO THE CENTERLINE OF THE MAIN.
2. WATER MAINS SHALL MAINTAIN A MINIMUM 5'-0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM VALLEY GUTTERS.
3. WATER MAINS SHALL MAINTAIN A MINIMUM 4'-0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE EDGE OF THE ASPHALT PAVEMENT IN PRIVATE STREETS WHERE A CURB AND GUTTER ARE NOT PRESENT.
4. WATER MAINS SHALL MAINTAIN A MINIMUM 10'-0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM SANITARY SEWER MAINS OR PIPELINES CONVEYING HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE. REFERENCE STANDARD DRAWING CL-2-08 FOR CERTAIN POTENTIAL EXCEPTIONS TO THIS CLEARANCE. UNDER NO CIRCUMSTANCES WILL THE DISTRICT ALLOW A HORIZONTAL CLEARANCE LESS THAN 5'-0".
5. WATER MAINS SHALL MAINTAIN A MINIMUM 5'-0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM STORM DRAINS, OTHER WATER MAINS, TERTIARY RECYCLED WATER PIPELINES OR OTHER UTILITIES. REFERENCE STANDARD DRAWING CL-3-08.
6. WATER MAINS SHALL MAINTAIN A MINIMUM 8'-0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM ANY HORIZONTAL PROJECTION OF A BUILDING, INCLUDING ANY BUILDING FOUNDATION WALL OR PROJECTION OF A BUILDING THAT IS WITHIN 23'-0" IN HEIGHT ABOVE THE FINISHED GRADE ABOVE THE MAIN. THE DISTRICT MAY REQUIRE CLEARANCES GREATER THAN 8'-0" DEPENDING ON FACTORS SUCH AS WATER MAIN SIZE, PRESSURE, OR HORIZONTAL DEFLECTIONS IN THE MAIN.
7. FOR ADDITIONAL CLEARANCE REQUIREMENTS BETWEEN WATER MAINS AND OTHER PIPELINES, SEE STANDARD DRAWINGS CL-2-08 AND CL-3-08.



ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

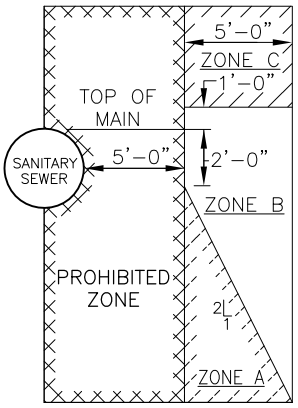
CLEARANCE REQUIREMENTS FOR WATER MAINS FROM OTHER UTILITIES AND STRUCTURES

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

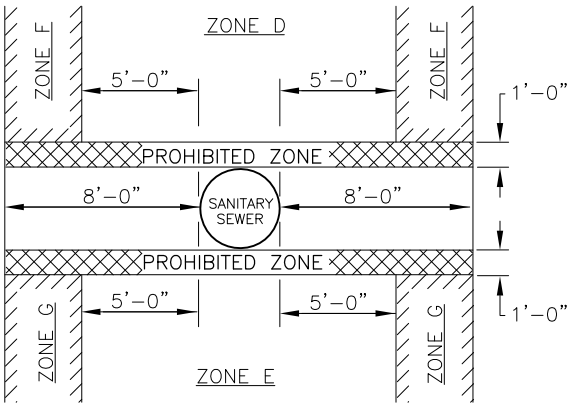
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. CL-1-08	REV. 0
DIV. MGR.	EHS		

NEW WATER MAIN INSTALLATION WITHIN TEN (10) FEET OF THE EDGE OF A SANITARY SEWER MAIN



PARALLEL CONSTRUCTION

NTS



CROSSING CONSTRUCTION

NTS

NOTES:

1. FOR THE PURPOSES OF THIS STANDARD DRAWING, REFERENCES TO SANITARY SEWER MAINS SHALL APPLY TO ALL PIPELINES OF SPECIAL CONCERN SUCH AS PIPELINES CONVEYING ANY OF THE FOLLOWING:
   A) UNTREATED SEWAGE;
   B) PRIMARY OR SECONDARY TREATED SEWAGE;
   C) DISINFECTED SECONDARY–2.2 RECYCLED WATER AND DISINFECTED SECONDARY–23 RECYCLED WATER;
   D) HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE; AND SHALL ALSO APPLY TO SANITARY SEWER LATERAL CONNECTIONS WHICH CROSS ABOVE THE WATER MAIN; PER CALIFORNIA DEPARTMENT OF PUBLIC HEALTH GUIDANCE MEMO NO. 2003–02 AND CALIFORNIA CODE OF REGULATIONS SECTION 64572.
2. ALL WATER MAINS SHALL MAINTAIN A 10'–0" CLEARANCE (EDGE TO EDGE) FROM SEWER FORCE MAINS. NO CLEARANCE EXCEPTIONS SHALL BE MADE FOR SEWER FORCE MAINS.
3. ALL WATER MAINS REQUIRED TO BE CONSTRUCTED OF SPECIAL PIPE MATERIAL SHALL BE CONSTRUCTED OF EITHER CEMENT MORTAR LINED AND TAPE–WRAPPED MINIMUM 1/4" THICK WELDED STEEL PIPE OR AWWA C900 DR14 PVC PIPE. THE CHOICE OF PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
4. DIMENSIONS ARE FROM THE OUTSIDE OF WATER MAIN TO THE OUTSIDE OF THE OTHER PIPELINE, MANHOLE, OR SLEEVE.
5. WATER MAIN CROSSING SHALL BE AS PERPENDICULAR AS POSSIBLE, AND NO LESS THAN 45° TO THE SANITARY SEWER.
6. WITH DISTRICT APPROVAL, THE ONLY JOINTS PERMITTED WITHIN ZONES F AND G SHALL BE JOINTS FOR ELBOW FITTINGS USED TO PROVIDE TRANSITION FROM A CROSSING CONSTRUCTION TO A PARALLEL CONSTRUCTION WHEN PARALLEL CONSTRUCTION HAS BEEN APPROVED FOR ZONES A, B, OR C.

ZONE — SPECIAL CONSTRUCTION REQUIREMENTS FOR WATER MAIN

A. NO WATER MAIN PARALLEL TO SANITARY SEWER MAIN SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH AND FROM THE DISTRICT
B. NO WATER MAIN PARALLEL TO SANITARY SEWER MAINS SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE DISTRICT. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL. SEE NOTE 3
C. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL. SEE NOTE 3
D. NO JOINTS OR SERVICE CONNECTIONS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE
E. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL, SEE NOTE 3. NO JOINTS OR SERVICE CONNECTIONS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE
F. NO JOINTS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE
G. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL, SEE NOTE 3. NO JOINTS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE

APPROVED _____ 12/15/2008
ENGINEERING MANAGER — DATE

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

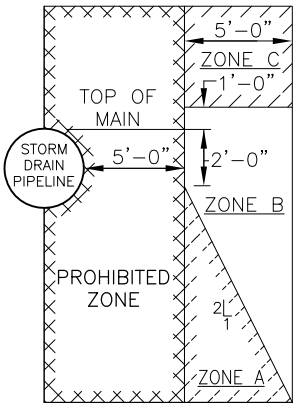
STANDARD DRAWING

HORIZONTAL AND VERTICAL CLEARANCE REQUIREMENTS BETWEEN WATER MAINS AND SANITARY SEWERS

NO.	DATE	REVISION	BY	APP.
0	12–08	NEW STD. DWG.	RMF	LJA

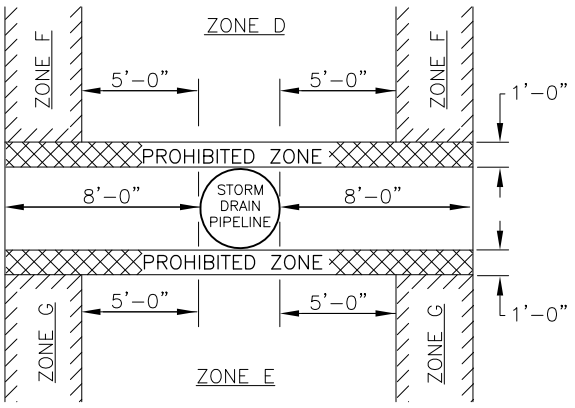
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. CL-2-08	REV. 0
DIV. MGR.	EHS		

NEW WATER MAIN INSTALLATION WITHIN TEN (10) FEET OF THE EDGE OF A STORM DRAIN PIPELINE



PARALLEL CONSTRUCTION

NTS



CROSSING CONSTRUCTION

NTS

NOTES:

1. FOR THE PURPOSES OF THIS STANDARD DRAWING, REFERENCES TO STORM DRAIN PIPELINE SHALL APPLY TO ALL PIPELINES CONVEYING ANY OF THE FOLLOWING:
   A) DISINFECTED TERTIARY RECYCLED WATER;
   B) STORM DRAINAGE: PER CALIFORNIA DEPARTMENT OF PUBLIC HEALTH GUIDANCE MEMO NO. 2003–02 AND CALIFORNIA CODE OF REGULATIONS SECTION 64572.
2. ALL WATER MAINS REQUIRED TO BE CONSTRUCTED OF SPECIAL PIPE MATERIAL SHALL BE CONSTRUCTED OF EITHER CEMENT MORTAR LINED AND TAPE–WRAPPED MINIMUM 1/4" THICK WELDED STEEL PIPE OR AWWA C900 DR14 PVC PIPE. THE CHOICE OF PIPE MATERIALS SHALL BE APPROVED BY THE DISTRICT.
3. DIMENSIONS ARE FROM THE OUTSIDE OF WATER MAIN TO THE OUTSIDE OF THE OTHER PIPELINE, MANHOLE, OR SLEEVE.
4. WATER MAIN CROSSING SHALL BE AS PERPENDICULAR AS POSSIBLE, AND NO LESS THAN 45° TO THE STORM DRAIN PIPELINE.
5. WITH DISTRICT APPROVAL, THE ONLY JOINTS PERMITTED WITHIN ZONES F AND G SHALL BE JOINTS FOR ELBOW FITTINGS USED TO PROVIDE TRANSITION FROM A CROSSING CONSTRUCTION TO A PARALLEL CONSTRUCTION WHEN PARALLEL CONSTRUCTION HAS BEEN FOR ZONES A, B, OR C.

ZONE — SPECIAL CONSTRUCTION REQUIREMENTS FOR WATER MAIN

A. NO WATER MAIN PARALLEL TO STORM DRAIN PIPELINE SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH AND FROM THE DISTRICT
B. NO WATER MAIN PARALLEL TO STORM DRAIN PIPELINE SHALL BE CONSTRUCTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE DISTRICT
C. NO SPECIAL CONSTRUCTION REQUIREMENTS IN THIS ZONE
D. NO JOINTS OR SERVICE CONNECTIONS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE.
E. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL, SEE NOTE 2. NO JOINTS OR SERVICE CONNECTIONS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE
F. NO JOINTS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE
G. WATER MAIN SHALL BE CONSTRUCTED OF SPECIAL PIPE MATERIAL, SEE NOTE 2. NO JOINTS PERMITTED IN THE WATER MAIN WITHIN THIS ZONE

APPROVED _____ 12/15/2008
ENGINEERING MANAGER — DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT

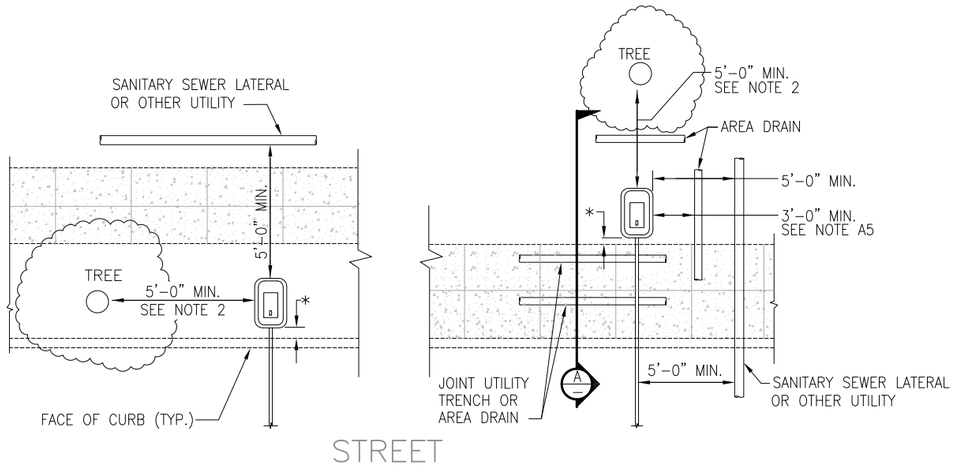
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

HORIZONTAL AND VERTICAL CLEARANCE REQUIREMENTS BETWEEN WATER MAINS AND STORM DRAINS

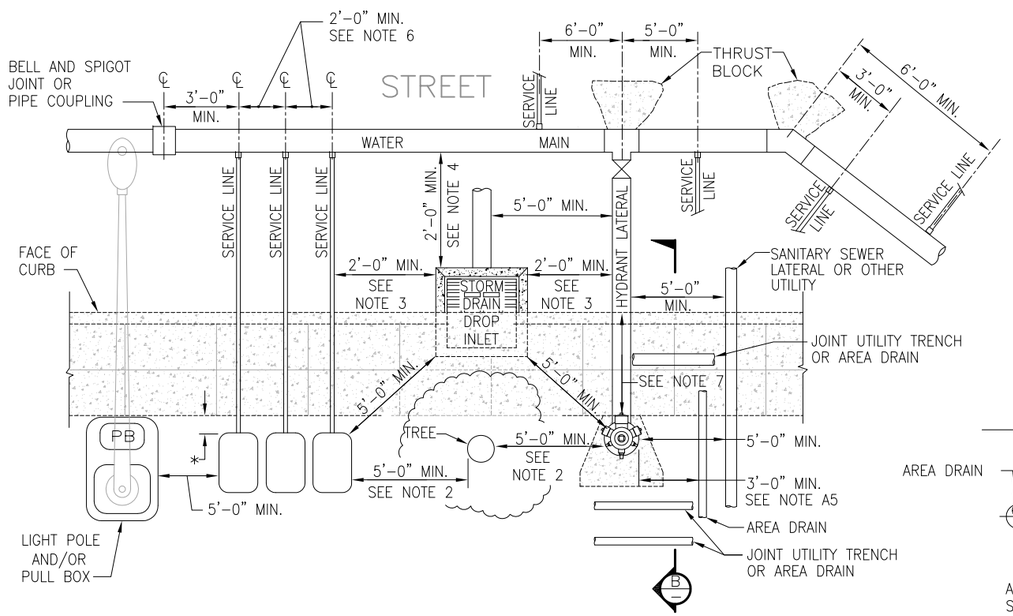
NO.	DATE	REVISION	BY	APP.
0	12–08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. CL-3-08	REV. 0
DIV. MGR.	EHS		



SERVICE LINE AND METER CLEARANCES

NTS



SERVICE LINE, METER AND APPURTENANCE CLEARANCES

NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NOTES:

1. UNLESS OTHERWISE NOTED HEREON, A MINIMUM 5'–0" HORIZONTAL CLEARANCE (EDGE TO EDGE) IS REQUIRED FROM EDGE OF WATER FACILITY TO OTHER UTILITY, INCLUDING BUT NOT LIMITED TO SANITARY SEWER LATERALS, STORM DRAINS, ELECTRICAL CONDUITS, LIGHT POLES, AND UTILITY BOXES.
2. A MINIMUM 5'–0" HORIZONTAL CLEARANCE IS REQUIRED FROM EDGE OF WATER FACILITY TO EDGE OF TREE TRUNK. A MINIMUM 3'–0" HORIZONTAL CLEARANCE IS REQUIRED FROM EDGE OF WATER FACILITY TO EDGE OF ANY PLANT THAT WILL OBSCURE OR LIMIT ACCESS TO THE FACILITY.
3. IF THERE IS NO REASONABLE ALTERNATIVE LOCATION, WATER SERVICE LINES AND FIRE HYDRANT LATERALS SHALL HAVE A MINIMUM 2'–0" HORIZONTAL CLEARANCE FROM THE NEAREST EDGE OF A STORM DRAIN DROP INLET STRUCTURE OR OTHER EQUIVALENT SMALL STORM DRAIN STRUCTURE WHERE THE LIMITS OF THE INSUFFICIENT CLEARANCE (SEE NOTE 1) IS NOT LONGER THAN 6'–0".
4. A MINIMUM 2'–0" HORIZONTAL CLEARANCE IS REQUIRED BETWEEN THE EDGE OF A WATER MAIN AND THE EDGE OF A STORM DRAIN DROP INLET STRUCTURE OR OTHER EQUIVALENT SMALL STORM DRAIN STRUCTURE WHERE THE LIMITS OF THE INSUFFICIENT CLEARANCE (SEE NOTE 1) IS NOT LONGER THAN 6'–0". SEE STANDARD DRAWING CL–1–08 FOR REQUIRED CLEARANCES BETWEEN WATER MAINS AND BUILDINGS, PARALLEL UTILITIES AND OTHER IMPROVEMENTS.
5. JOINT UTILITY TRENCH AND AREA DRAINS MAY CROSS SERVICE LINES AT PERPENDICULAR ANGLES AND SHALL MAINTAIN A MINIMUM 1'–0" VERTICAL CLEARANCE (EDGE TO EDGE) AND A MINIMUM 6" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE SERVICE LINE.
6. SERVICE LINE CONNECTIONS (2" OR SMALLER DIAMETER) SHALL BE SPACED A MINIMUM 2'–0" APART.
7. FOR PROPER LOCATION OF FIRE HYDRANTS RELATIVE TO CURB AND/OR SIDEWALKS, SEE STANDARD DRAWING FH–2–08.
8. THE CLEARANCES AND LOCATIONS OF AIR VALVE LINES AND BOXES SHALL CONFORM TO CLEARANCES AND LOCATIONS OF SERVICE LINES AND METER BOXES SHOWN HEREON.
9. THE CLEARANCES OF STEEL SERVICE LINES (GREATER THAN 2" DIAMETER) SHALL CONFORM TO CLEARANCES OF FIRE HYDRANT LATERALS SHOWN HEREON.

*FOR METER BOX LOCATION RELATIVE TO CURB AND SERVICE LINES, SEE STANDARD DRAWINGS S–1–08 THROUGH S–8–08 AND S–10–08.

AREA DRAIN NOTES:

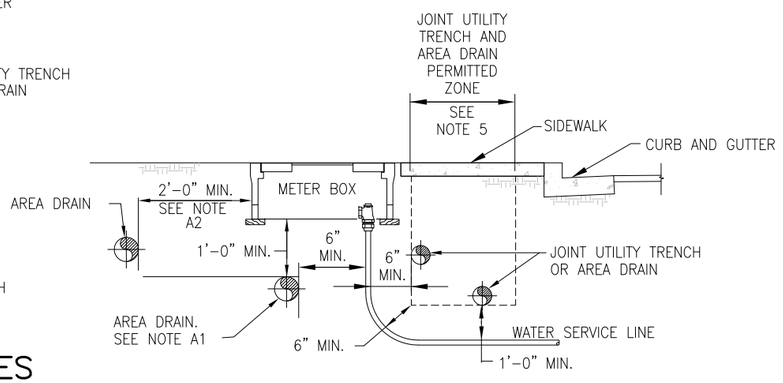
A1. AREA DRAINS LOCATED DIRECTLY BENEATH THE METER BOX OR LESS THAN 2'–0" HORIZONTALLY BEHIND THE METER BOX SHALL MAINTAIN A MINIMUM 1'–0" VERTICAL CLEARANCE (EDGE TO EDGE) FROM THE BOTTOM OF THE METER BOX AND A MINIMUM 6" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE SERVICE LINE.

A2. AREA DRAINS LOCATED BEHIND THE WATER METER BOX SHALL MAINTAIN A MINIMUM 2'–0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE METER BOX.

A3. AREA DRAINS OR JOINT UTILITY TRENCH MAY CROSS HYDRANT LATERALS AT PERPENDICULAR ANGLES AND SHALL MAINTAIN A MINIMUM 1'–0" VERTICAL CLEARANCE (EDGE TO EDGE) ABOVE THE HYDRANT LATERAL AND A MINIMUM 2'–0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE HYDRANT BURY.

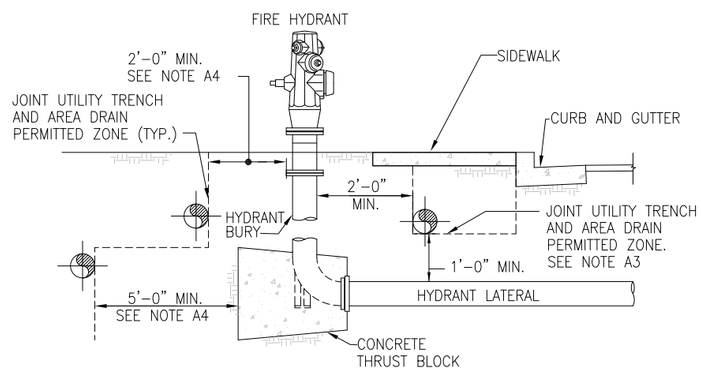
A4. AREA DRAINS OR JOINT UTILITY TRENCH LOCATED BEHIND THE HYDRANT SHALL MAINTAIN A MINIMUM 2'–0" CLEARANCE (EDGE TO EDGE) FROM THE HYDRANT BURY. WHEN AREA DRAINS ARE LOCATED AT OR BELOW THE DEPTH OF THE HYDRANT BURY THRUST BLOCK, A MINIMUM 5'–0" CLEARANCE (EDGE TO EDGE) FROM THE BACK OF THE HYDRANT BURY THRUST BLOCK SHALL BE MAINTAINED.

A5. AREA DRAINS LOCATED PARALLEL TO SERVICE LINES OR HYDRANT LATERALS SHALL MAINTAIN A MINIMUM 3'–0" HORIZONTAL CLEARANCE (EDGE TO EDGE) FROM THE NEAREST EDGE OF THE SERVICE LINE, METER BOX, OR FIRE HYDRANT.



SECTION A

NTS



SECTION B

NTS

NO.	DATE	REVISION	BY	APP.
0	12–08	NEW STD. DWG.	RMF	LJA

DESIGNED ACWD
DRAWN RMF
CHECKED LJA
DIV. MGR. EHS

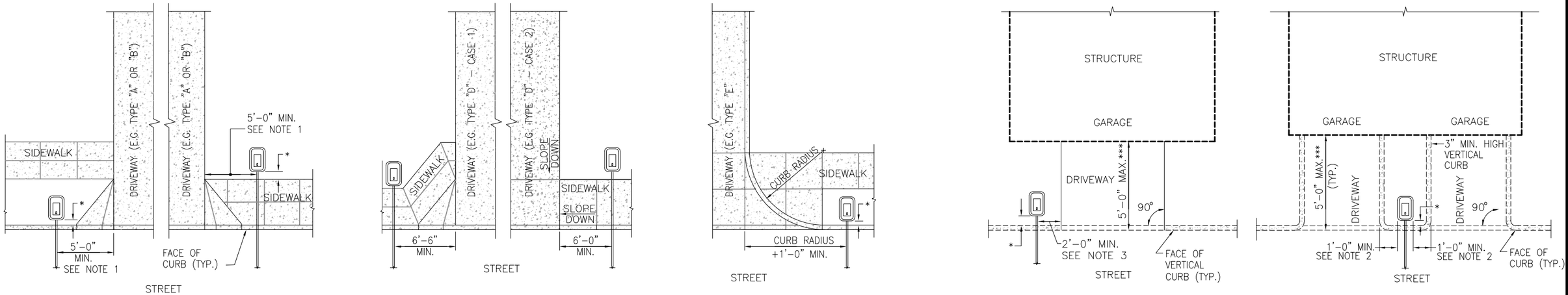
ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

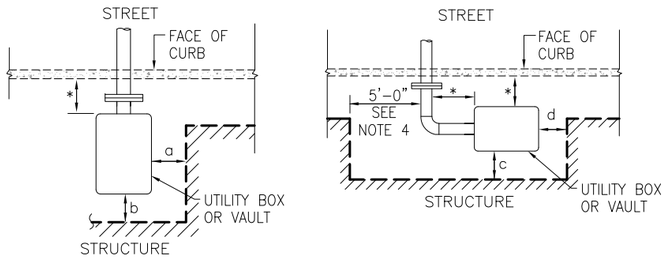
CLEARANCE REQUIREMENTS
FOR WATER MAINS, SERVICES AND OTHER FACILITIES

DATE: DEC. 2008
SCALE: NONE
DWG. NO. CL-4-08
REV. 0



MINIMUM SERVICE LINE AND METER BOX CLEARANCES FROM DRIVEWAYS

NTS



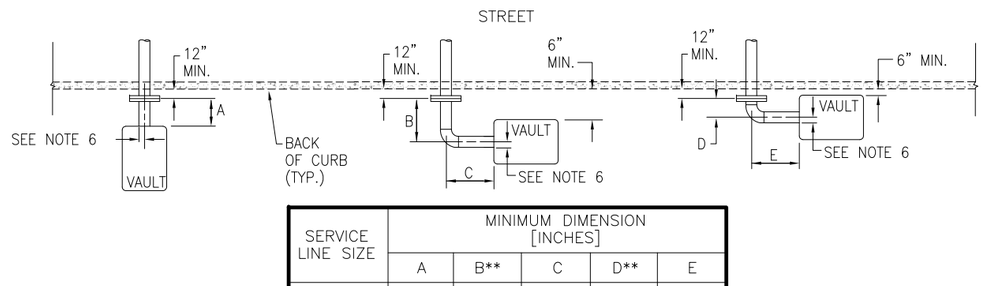
DISTRICT FACILITY	MINIMUM CLEARANCE [FEET]			
	a	b	c	d
BOX FOR METER, DETECTOR CHECK VALVE, OR AIR VALVE 2" IN DIAMETER OR SMALLER	1.0	1.0	1.0	1.0
VAULT FOR A METER, DETECTOR CHECK VALVE, OR AIR VALVE GREATER THAN 2" IN DIAMETER	2.0	4.0	2.0	4.0

THE DIMENSIONS DO NOT ACCOUNT FOR ANY DOWNSTREAM DEVICES SUCH AS BACKFLOW PREVENTION DEVICES, FIRE LINE POST INDICATORS, ETC. ADDITIONAL SPACE MAY BE REQUIRED FOR THESE DEVICES.

MINIMUM CLEARANCES BETWEEN METER BOXES/VAULTS AND ANY HORIZONTAL PROJECTION OF A STRUCTURE (INCLUDING ANY FOUNDATION, WALL OR PROJECTION) THAT IS WITHIN 23'-0" IN HEIGHT ABOVE FINISHED GRADE AT THE UTILITY BOX OR VAULT

METER AND VAULT MINIMUM CLEARANCES FROM STRUCTURES

NTS



SERVICE LINE SIZE	MINIMUM DIMENSION [INCHES]				
	A	B**	C	D**	E
4	27	29	16	6	33
6	31	35	21	9	40
8	34	40	24	12	46
10	38	46	28	15	53
12	41	51	32	18	59

[SEGMENTS A, B, AND E INCLUDE VERTICAL OFFSETS]

MINIMUM DIMENSIONS FOR VAULT INSTALLATIONS

NTS

NOTES:

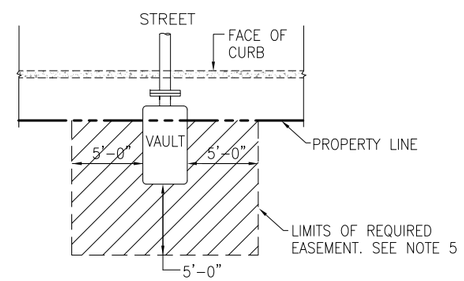
1. DISTRICT REQUIRES A MINIMUM 5'-0" CLEARANCE FROM THE EDGE OF DISTRICT APPURTENANCES (SUCH AS FIRE HYDRANTS, SERVICE LINES, DETECTOR CHECKS, VAULTS, BLOWOFF ASSEMBLIES AND AIR VALVE LINES) AND THE EDGE OF DRIVEWAYS EXCEPT WHERE OTHERWISE NOTED HEREON. CLEARANCE SHALL BE FROM CENTERLINE OF SERVICE LINE FOR SERVICE LINES 2" IN DIAMETER OR SMALLER AND FROM THE EDGE OF SERVICE LINE FOR SERVICE LINES GREATER THAN 2" IN DIAMETER.
2. IN MULTIFAMILY RESIDENTIAL DEVELOPMENTS WITH THE DRIVEWAY CONFIGURATION SHOWN, WATER SERVICE LINES UP TO 2" IN DIAMETER MAY BE LOCATED SO THAT THE METER BOX IS 1'-0" CLEAR FROM THE EDGE OF DRIVEWAY. METER BOX MUST BE PROTECTED BY A RAISED CURB AS SHOWN.
3. IN MULTIFAMILY RESIDENTIAL DEVELOPMENTS WITH 6" VERTICAL CURB AND THE DRIVEWAY CONFIGURATION SHOWN, THE CENTERLINE OF WATER SERVICE LINES UP TO 2" IN DIAMETER MAY BE LOCATED NO LESS THAN MINIMUM 2'-0" FROM THE EDGE OF THE DRIVEWAY.
4. A MINIMUM 5'-0" HORIZONTAL CLEARANCE IS REQUIRED BETWEEN SERVICE LINES AND ANY HORIZONTAL PROJECTION OF A STRUCTURE (INCLUDING ANY FOUNDATION, WALL OR PROJECTION) THAT IS WITHIN 23'-0" IN HEIGHT ABOVE FINISHED GRADE AT THE SERVICE LINE.
5. A 5'-0" EASEMENT IS REQUIRED AROUND ANY PART OF A DISTRICT FACILITY WHICH IS LOCATED OUTSIDE THE PUBLIC RIGHT-OF-WAY OR OUTSIDE OF A PUBLIC UTILITY EASEMENT ABUTTING THE PUBLIC RIGHT-OF-WAY. THIS EASEMENT AREA SHALL BE FREE OF CONFLICTING UTILITIES AND TREES.
6. CENTERLINE OF VAULT FOR FIRE SERVICE IS IN LINE WITH THE SERVICE LINE CENTERLINE. CENTERLINE OF VAULT FOR DOMESTIC WATER SERVICE IS OFFSET 1'-0" FROM THE SERVICE LINE CENTERLINE.
7. THE CLEARANCES AND LOCATIONS OF AIR RELEASE AND AIR AND VACUUM RELEASE VALVE LINES AND BOXES SHALL CONFORM TO CLEARANCES AND LOCATIONS OF SERVICE LINES AND METER BOXES/VAULTS SHOWN HEREON.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

* FOR METER BOX LOCATION RELATIVE TO CURB AND SIDEWALK, SEE STANDARD DRAWINGS S-1-08 THROUGH S-8-08 AND S-10-08. FOR VAULT LOCATION RELATIVE TO CURB AND SERVICE LINES, SEE "MINIMUM DIMENSIONS FOR VAULT INSTALLATIONS" DETAIL ON THIS DRAWING.

** DEPENDING ON VAULT SIZE AND OFFSET, DIMENSIONS 'B' OR 'D' MAY NEED TO BE LARGER TO ACCOMMODATE A MINIMUM 6" CLEARANCE BETWEEN THE EDGE OF VAULT AND THE BACK OF CURB.

*** THE METER LOCATION SHOWN IN THIS DETAIL APPLIES ONLY WHEN THE METER IS ADJACENT TO A DRIVEWAY NO LONGER THAN 5'-0".



CLEARANCE AND EASEMENT REQUIREMENTS

NTS

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

DESIGNED ACWD
DRAWN RMF
CHECKED LJA
DIV. MGR. EHS

ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

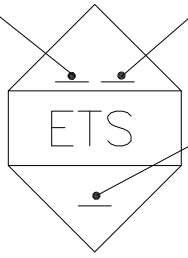
STANDARD DRAWING

CLEARANCE REQUIREMENTS FOR METER, VAULT AND OTHER FACILITY INSTALLATIONS

DATE: DEC. 2008
SCALE: NONE
DWG. NO. CL-5-08
REV. 0

LEGEND OF ELECTROLYSIS CONTROL SYMBOLS

NUMBER OF WIRES
GOING TO THE SURFACE
(DARKEN IF NUMBER = 0)



LOCATION OF TEST STATION:
U = UNDEVELOPED (NO CURB PRESENT)
D = DEVELOPED (CURB PRESENT)

TYPE OF UNDERGROUND INSTALLATION:
CS = CALIBRATED TEST SPAN
E = ENCASEMENT
IC = INSULATING COUPLING
NC = NON-INSULATING COUPLING
IF = INSULATING FLANGE
NF = NON-INSULATING FLANGE
AC = ANODE CONNECTION
(DARKEN IF NOT APPLICABLE)

SYMBOLS	DESCRIPTION	STD. DWG.
4 _ / ETS / CS	CALIBRATED ELECTROLYSIS TEST SPAN	ET-2-08
4U / ETS / _ _	FOUR-WIRE TEST STATION IN UNDEVELOPED AREAS	ET-3-08
2U / ETS	TWO-WIRE TEST STATION IN UNDEVELOPED AREAS	ET-3-08
2D / ETS	TWO-WIRE TEST STATION IN DEVELOPED AREAS	ET-4-08
4D / ETS / _ _	FOUR-WIRE TEST STATION IN DEVELOPED AREAS	ET-4-08
4 _ / ETS / E	FOUR-WIRE ENCASEMENT TEST STATION	ET-5-08
4 _ / ETS / IC	INSULATING FLEXIBLE COUPLING	ET-6-08
ETS / NC	NON-INSULATING COUPLING	ET-6-08
4 _ / ETS / IF	INSULATING FLANGE	ET-6-08
ETS / NF	NON-INSULATING FLANGE	ET-6-08
ETS / AC	ANODE CONNECTION WITHOUT TEST STATION	ET-7-08
3 _ / ETS / AC	ANODE CONNECTION WITH TWO-WIRE TEST STATION	ET-7-08

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

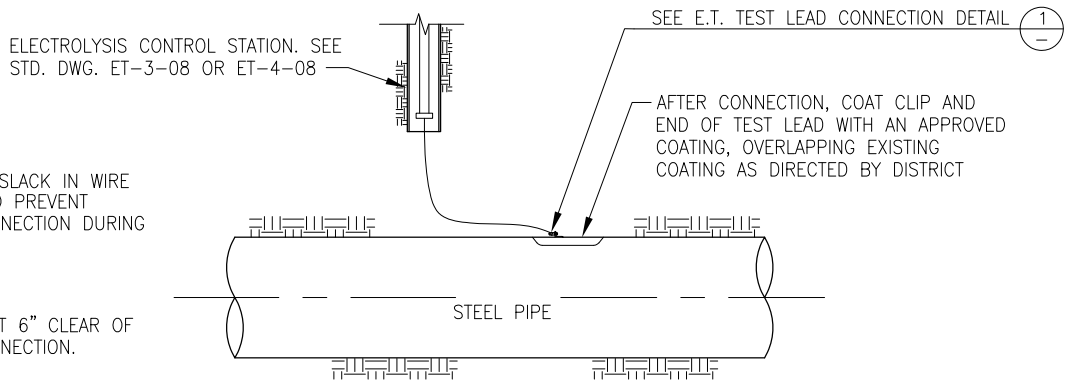
ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

ELECTROLYSIS TEST STATION GENERAL NOTES

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

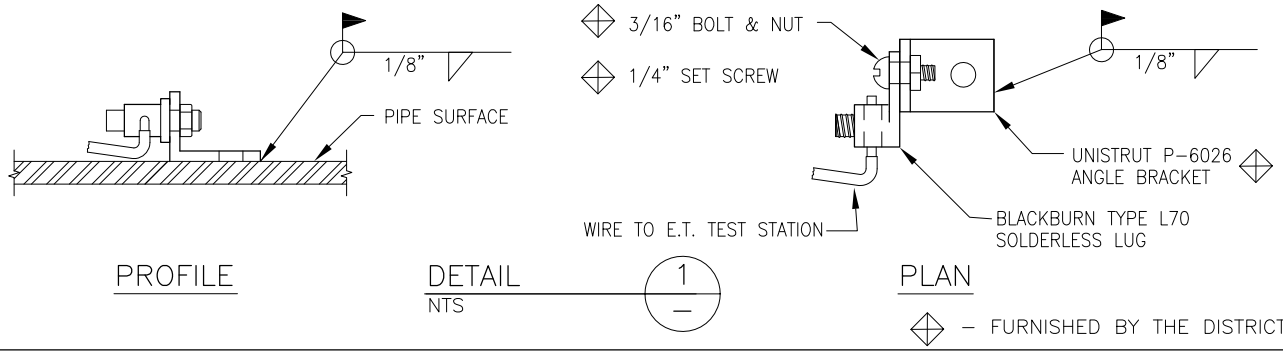
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-0-08	REV. 0
DIV. MGR.	EHS		



NOTE:

1. LEAVE SUFFICIENT SLACK IN WIRE AT CONNECTION TO PREVENT BREAKAGE OF CONNECTION DURING BACKFILLING.

-HALL BE AT LEAST 6" CLEAR OF NEAREST CLIP CONNECTION.

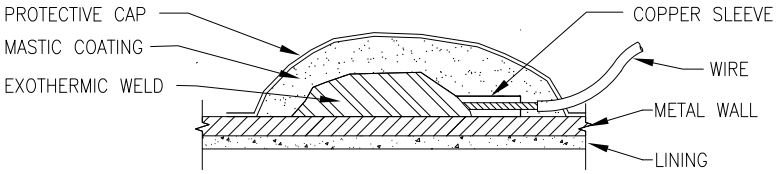


PROFILE

DETAIL 1 — NTS

PLAN

◈ – FURNISHED BY THE DISTRICT



NOTES:

1. REMOVE ONLY ENOUGH WIRE INSULTION TO WELD.
2. CLEAN AND FILE AREA TO BE WELDED TO BRIGHT METAL.
3. AFTER EXOTHERMIC WELD HAS COOLED AND BEEN TESTED, COAT EXOTHERMIC WELD AND FILED AREA WITH MASTIC.
4. COVER WITH PROTECTIVE PLASTIC CAP.
5. EXOTHERMIC WELD MATERIAL SHALL MATCH THE MATING SURFACE (E.G. WELDS TO DUCTILE IRON SHALL USE EXOTHERMIC MATERIAL FOR DUCTILE IRON).
6. EXOTHERMIC WELD MOLD SHALL BE FOR THE SIZE OF THE MATING PIPE OR FITTING AND FOR THE ORIENTATION OF WELD (E.G. HORIZONTAL OR VERTICAL).
7. EXOTHERMIC WELD CONNECTIONS ARE APPROVED FOR ANODE CONNECTIONS TO IRON FITTINGS OR FOR BONDING WIRE CONNECTIONS. OTHER APPLICATIONS OF EXOTHERMIC WELD CONNECTIONS MAY ONLY BE USED WITH DISTRICT APPROVAL.
8. EACH EXOTHERMIC WELD SHALL CONTAIN NO MORE THAN 1 WIRE END. EXOTHERMIC WELDS SHALL BE AT LEAST 6" CLEAR OF NEAREST EXOTHERMIC WELD.
9. FOR APPROVED MATERIALS, SEE APPROVED MATERIALS LIST.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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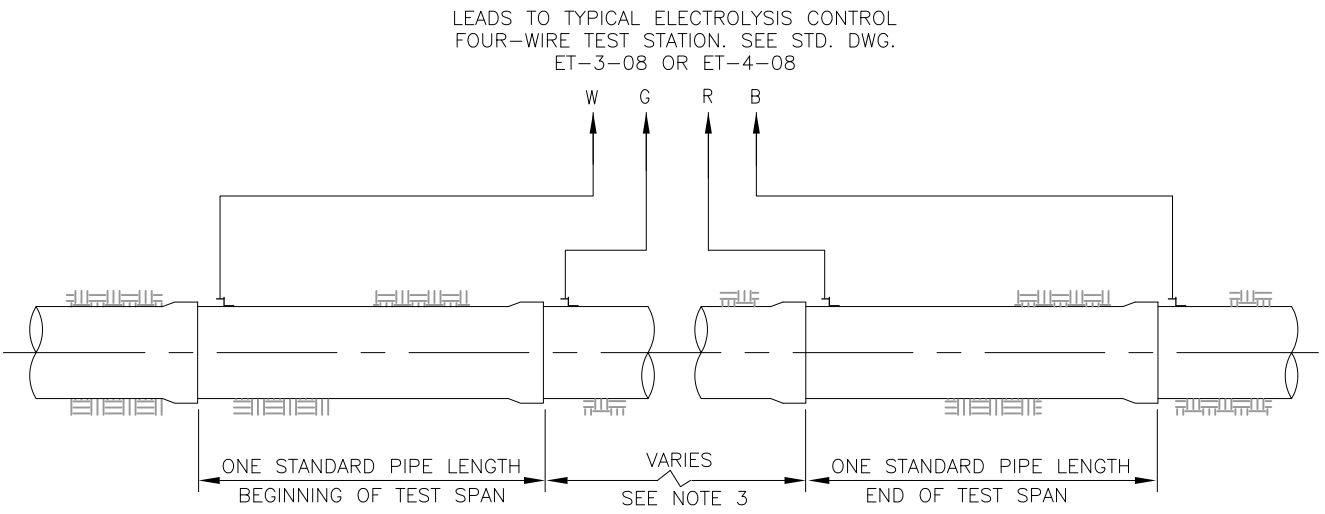
STANDARD DRAWING

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. ET-1	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-1-08	REV.
DIV. MGR.	EHS		



CALIBRATED ELECTROLYSIS TEST SPAN

NTS

4_
ETS
CS
(SYMBOL)

NOTES:

1. ELECTROLYSIS TEST LEADS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED:

TYPE:	STRANDED COPPER
STYLE:	T.H.W.N. OR U.S.E. RATED INSULATION
MIN. SIZE:	A.W.G. NO. 10
COLOR CODE:	B – BLACK W – WHITE G – GREEN R – RED

2. ELECTROLYSIS TEST LEADS SHALL BE ATTACHED TO THE PIPE IN ACCORDANCE WITH STANDARD DRAWING ET–1–08.
3. DISTANCE AS SHOWN ON PROJECT DRAWINGS.
4. SUFFICIENT SLACK SHALL BE LEFT IN LEADS NEAR CONNECTIONS TO PIPES TO PREVENT BREAKAGE OF CONNECTION DURING BACKFILLING.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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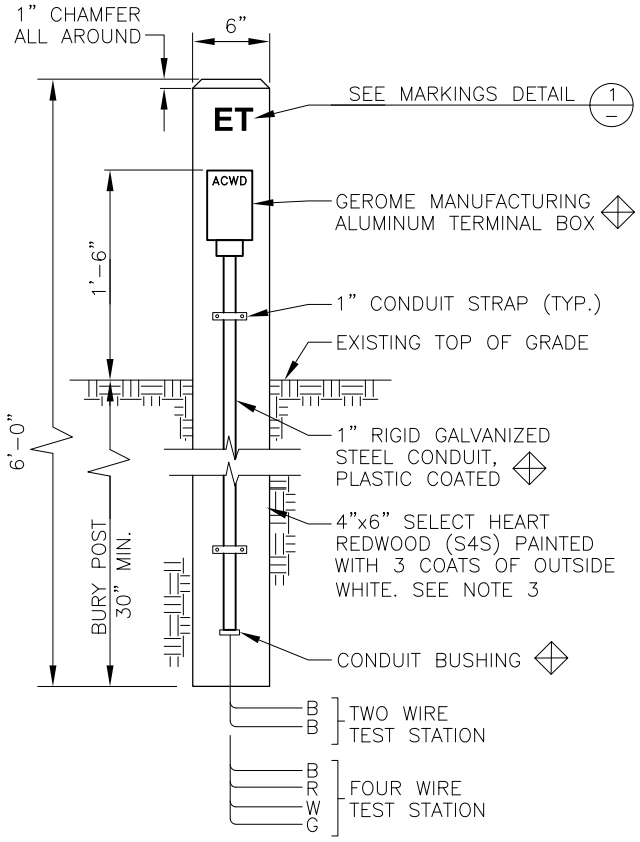
STANDARD DRAWING

ELECTROLYSIS TEST STATION
STEEL PIPE CALIBRATION SPAN

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. ET–2	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-2-08	REV. 0
DIV. MGR.	EHS		



MARKER POST INSTALLATION

NTS

NOTES:

1. ELECTROLYSIS TEST LEADS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED:

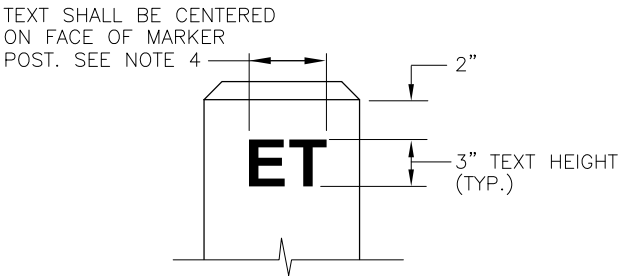
STYLE:	STRANDED COPPER
TYPE:	T.H.W.N. OR U.S.E. RATED INSULATION
MIN. SIZE:	A.W.G. NO. 10
COLOR CODE:	B – BLACK
	W – WHITE
	G – GREEN
	R – RED

2. ELECTROLYSIS TEST LEADS SHALL BE ATTACHED TO THE PIPE IN ACCORDANCE WITH STANDARD DRAWING ET-1-08.

3. PLACEMENT OF MARKER POST:
   A. SET POSTS VERTICALLY TRUE AND FACING WATER MAIN.
   B. MARKER POSTS SHALL NOT BE SET IN TRAVELLED WAY.
   C. DO NOT SET POSTS ON PRIVATE PROPERTY WITHOUT EASEMENT.

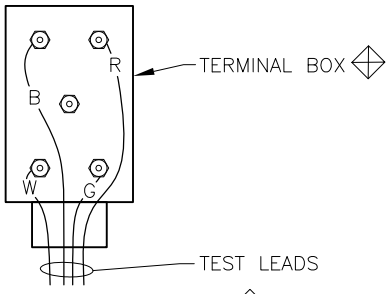
4. REFERENCE LETTERS SHALL BE INCISED OR CHISELED ON WOOD AND PAINTED RED.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

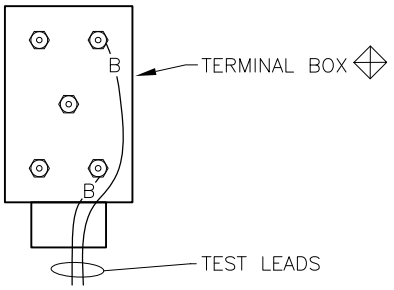


MARKINGS DETAIL 1

NTS



FOUR WIRE TEST STATION 4U ETS (SYMBOL)



TWO WIRE TEST STATION 2U ETS (SYMBOL)

ELECTROLYSIS WIRING

NTS

◈ – FURNISHED BY THE DISTRICT

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43885 SOUTH GRIMMER BOULEVARD
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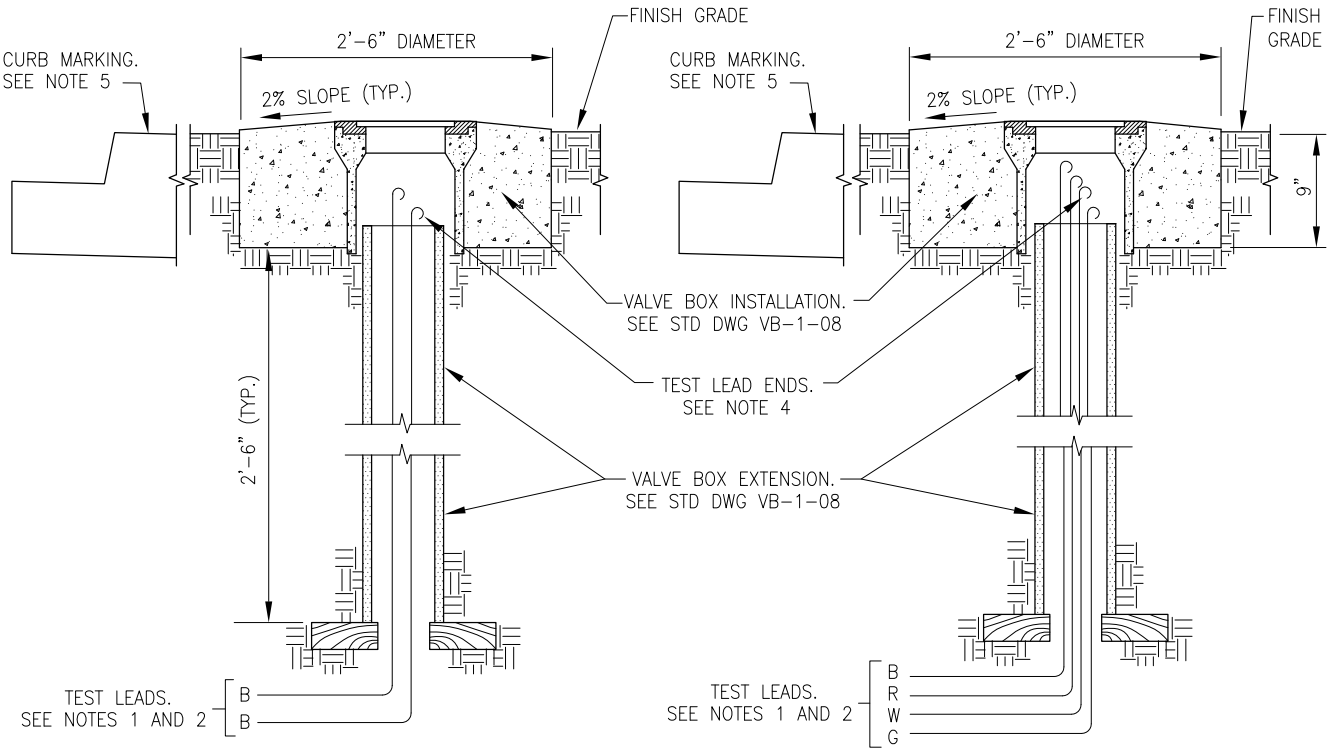
STANDARD DRAWING

ELECTROLYSIS TEST STATION MARKER POST INSTALLATION UNDEVELOPED AREAS

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. ET-3	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-3-08	REV. 0
DIV. MGR.	EHS		



TWO WIRE TEST STATION (SHOWN BEHIND CURB) — 2D ETS — (SYMBOL)

FOUR WIRE TEST STATION (SHOWN BEHIND CURB) — 4D ETS — (SYMBOL)

NOTES:

1. ELECTROLYSIS TEST LEADS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED:
   - TYPE: STRANDED COPPER
   - STYLE: T.H.W.N. OR U.S.E. RATED INSULATION
   - MIN. SIZE: A.W.G. NO. 10
   - COLOR CODE: B – BLACK; W – WHITE; G – GREEN; R – RED
2. ELECTROLYSIS TEST LEADS SHALL BE ATTACHED TO THE PIPE IN ACCORDANCE WITH STANDARD DRAWING ET-1-08.
3. ET STATION VALVE BOX LOCATION IS TO BE BACK OF CURB FOR ALL INSTALLATIONS UNLESS OTHERWISE NOTED OR DIRECTED BY THE DISTRICT.
4. TEST LEAD WIRES SHALL EXTEND A MINIMUM OF 1'-0" ABOVE FINISH GRADE TO ALLOW FOR TEST CONNECTIONS. CONTRACTOR SHALL COIL EXCESS WIRE IN VALVE BOX.
5. ALL ELECTROLYSIS TEST STATIONS IN DEVELOPED AREAS SHALL HAVE CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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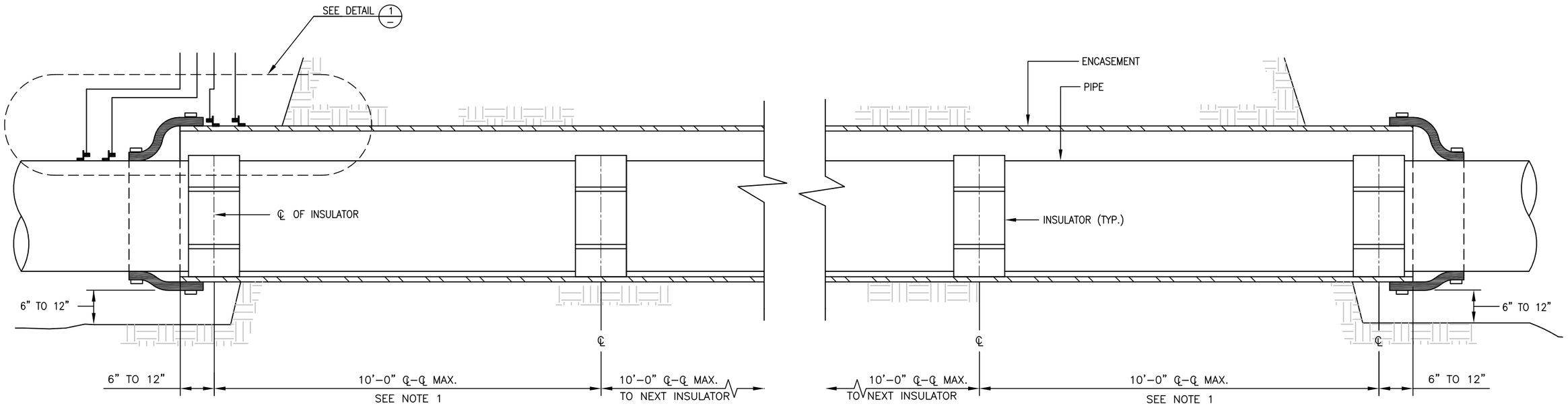
STANDARD DRAWING

ELECTROLYSIS TEST STATION DEVELOPED AREAS

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. ET-4	RMF	LJA

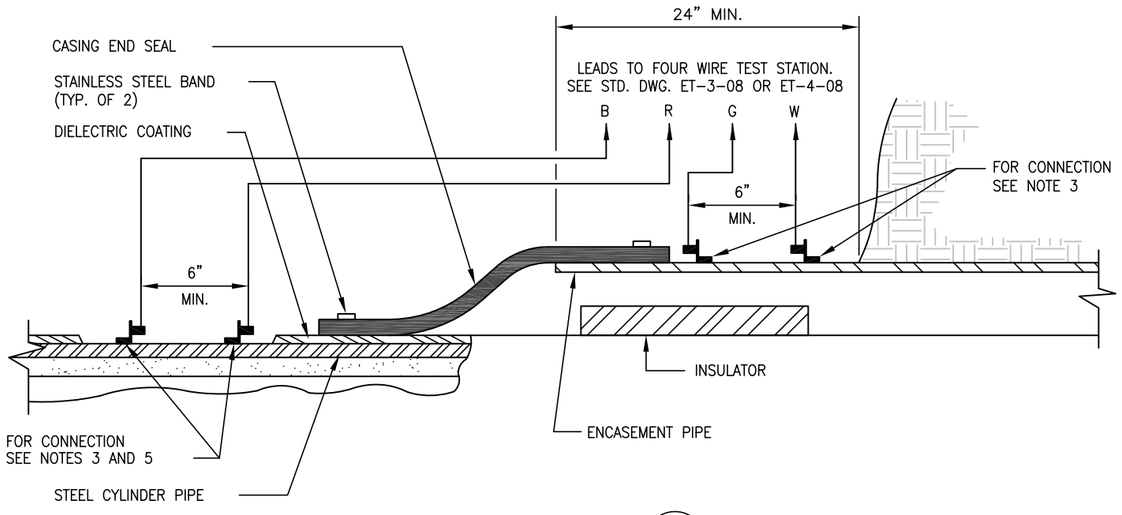
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-4-08	REV. 0
DIV. MGR.	EHS		



STEEL CYLINDER PIPE AND ENCASEMENT SECTION SYMBOL

4 / ETS / E

NTS



DETAIL 1

NTS

NOTES:

1. DISTANCE BETWEEN THE TWO STEEL CYLINDER PIPE INSULATORS NEAREST THE ENCASEMENT PIPE EXIT AND ENTRANCE MAY BE VARIABLE BUT NOT GREATER THAN 10'–0" CENTER TO CENTER. INSULATOR SPACING MAY VARY DEPENDING ON CARRIER PIPE SIZE, MATERIAL, ETC. CONSULT MANUFACTURER SPECIFICATIONS.

2. ELECTROLYSIS TEST LEADS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED:

TYPE:	STRANDED COPPER
STYLE:	T.H.W.N. OR U.S.E. RATED INSULATION
MIN. SIZE:	A.W.G. NO. 10
COLOR CODE:	B – BLACK W – WHITE G – GREEN R – RED

3. ELECTROLYSIS TEST LEADS SHALL BE CONNECTED TO THE PIPE IN ACCORDANCE WITH STANDARD DRAWING ET–1–08.

4. SUFFICIENT SLACK SHALL BE LEFT IN LEADS NEAR CONNECTIONS TO PIPES TO PREVENT BREAKAGE OF CONNECTION DURING BACKFILL.

5. AFTER INSTALLATION, CLIP AND END OF WIRE SHALL BE COATED WITH AN APPROVED COATING OVERLAPPING EXISTING COATING.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. ET–5	RMF	LJA

DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT

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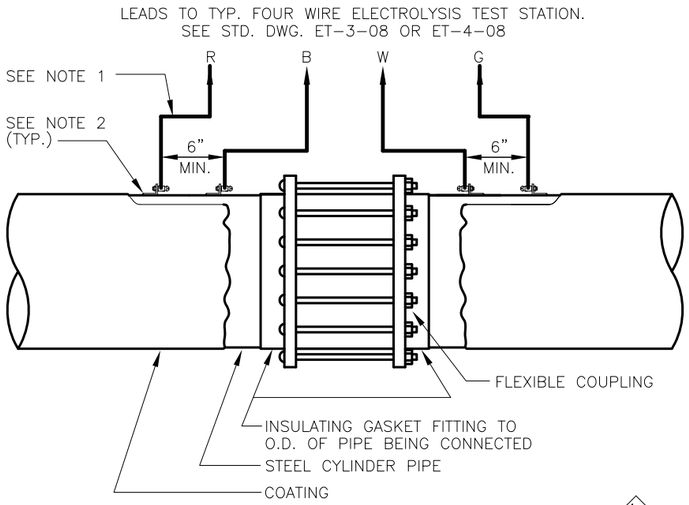
STANDARD DRAWING

ELECTROLYSIS TEST STATION
STEEL PIPE ENCASEMENT TEST STATION

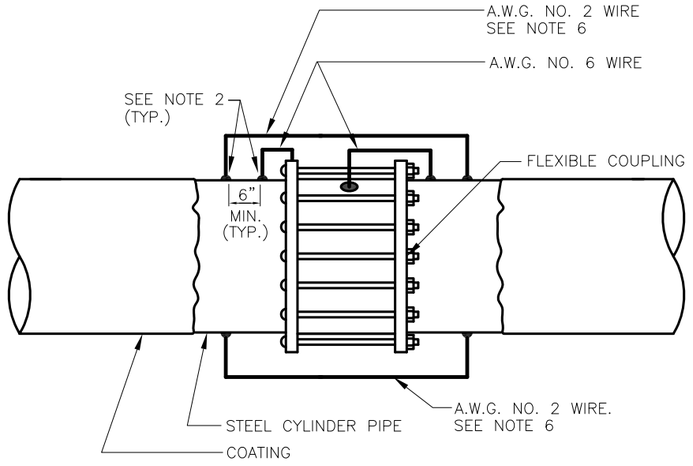
DATE: DEC. 2008
SCALE: NONE
DWG. NO. ET-5-08
REV. 0



INSULATING FLEXIBLE COUPLING

(SYMBOL)

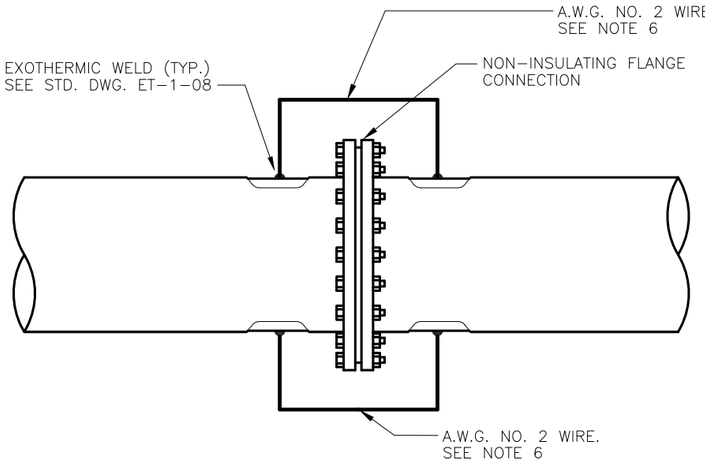
NTS



NON–INSULATING COUPLING

(SYMBOL)

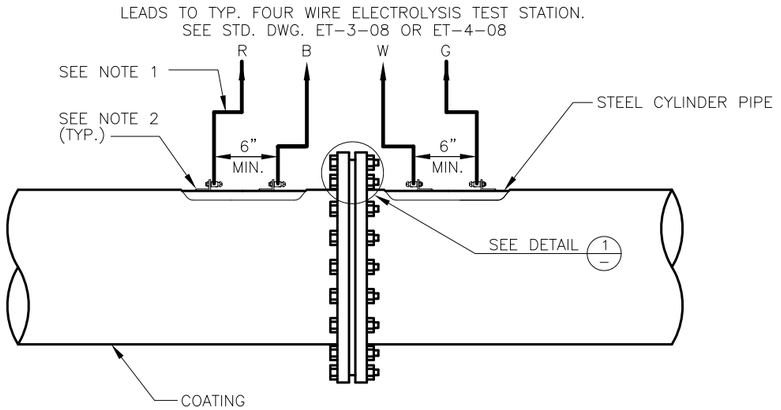
NTS



NON–INSULATING FLANGE

(SYMBOL)

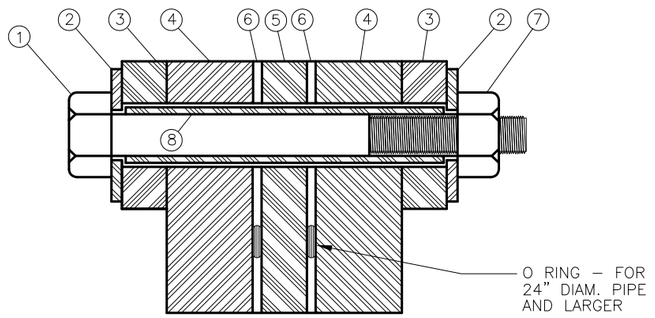
NTS



INSULATING FLANGE

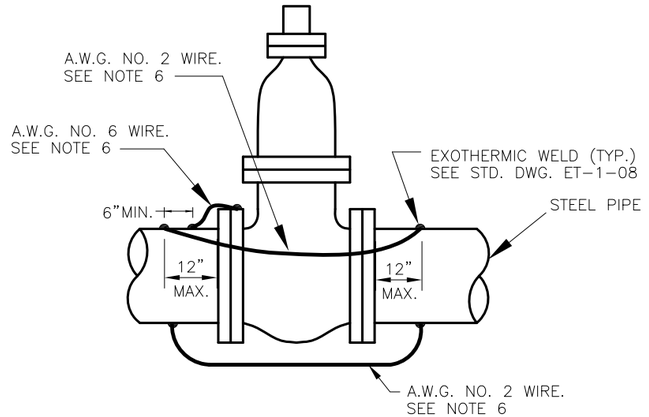
(SYMBOL) SEE NOTE 4

NTS



DETAIL 1

NTS



BONDING JUMPER FOR IN–LINE VALVES IN STEEL PIPELINES

NTS

NOTES:

1. ELECTROLYSIS TEST LEADS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED:
   TYPE: STRANDED COPPER
   STYLE: T.H.W.N. OR U.S.E. RATED INSULATION
   MIN. SIZE: A.W.G. NO. 10
   COLOR CODE: B – BLACK
   G – GREEN
   W – WHITE
   R – RED

2. ELECTROLYSIS TEST LEADS AND BONDING WIRES SHALL BE ATTACHED TO THE PIPE IN ACCORDANCE WITH STANDARD DRAWING ET–1–08.

3. SUFFICIENT SLACK SHALL BE LEFT IN LEADS NEAR CONNECTIONS TO PIPES TO PREVENT BREAKAGE OF CONNECTION DURING BACKFILLING.

4. FOR INSULATING FLANGES INSTALLED AT VALVES, ATTACH THE WHITE WIRE TO THE VALVE BODY AND THE GREEN WIRE TO THE PIPE 12" FROM THE NON–INSULATED FLANGE.

5. BONDING WIRES SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SPECIFIED:
   TYPE: STRANDED COPPER
   STYLE: HMWPE OR XLPE INSULATION
   MIN. SIZE: AS SHOWN
   COLOR CODE: B – BLACK

6. REDUNDANT BONDING WIRES ARE REQUIRED WHEN CONNECTING STEEL PIPE CYLINDERS USING NON–WELDED, NON–INSULATING JOINTS.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

DETAIL 1 MATERIALS LIST

ITEM	MATERIAL DESCRIPTION. SEE NOTES
1	STEEL BOLT
2	STEEL WASHER
3	1/8" THICK ROUND INSULATING WASHER
4	STEEL FLANGE
5	1/8" THICK, FULL FACE, TYPE E INSULATING GASKET
6	O–RING SEALING GASKET (FOR 24" DIAMETER PIPE AND LARGER)
7	STEEL HEXAGON NUT
8	INSULATING SLEEVE

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. ET–6	RMF	LJA

DESIGNED ACWD
DRAWN RMF
CHECKED LJA
DIV. MGR. EHS

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43885 SOUTH GRIMMER BOULEVARD
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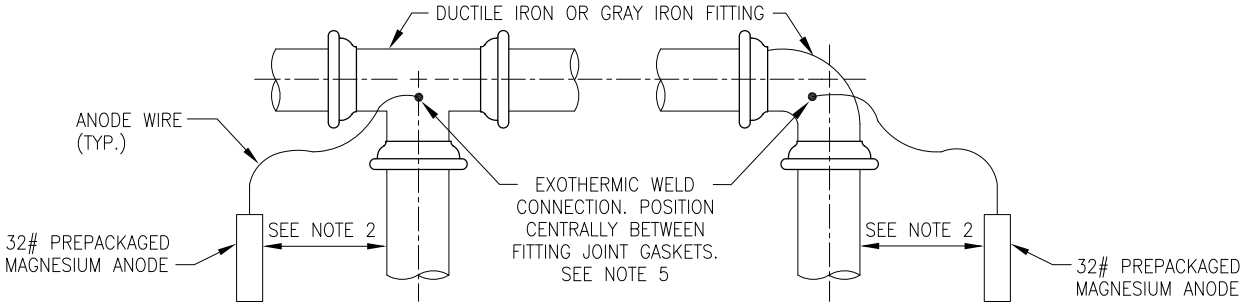
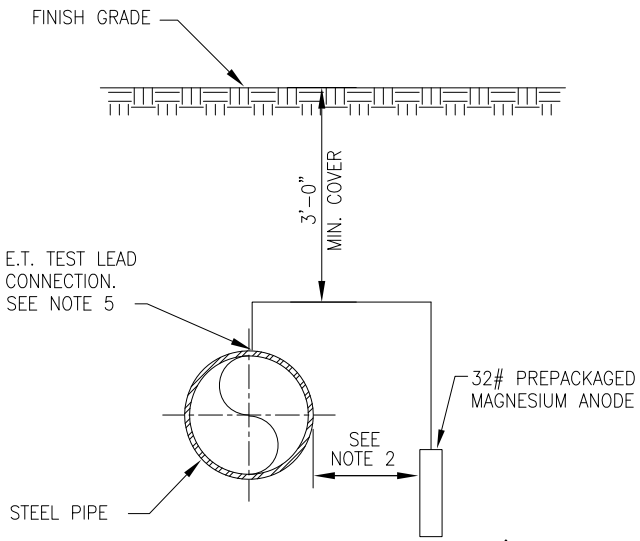
STANDARD DRAWING

ELECTROLYSIS TEST STATION
INSULATING JOINT TEST STATION, NON-INSULATING JOINT
BONDING AND FLANGED JOINT BONDING ON STEEL PIPELINES

DATE: DEC. 2008
SCALE: NONE
DWG. NO. ET-6-08
REV. 0

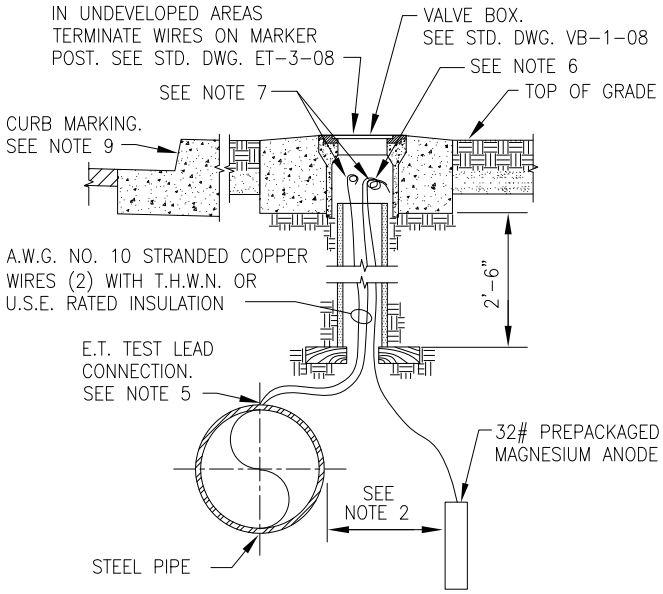


ANODE CONNECTION TO IRON FITTINGS
PIPELINE PLAN VIEW NTS



ANODE CONNECTION NO. 1
(WITHOUT TEST STATION) NTS

ETS / AC (SYMBOL)



ANODE CONNECTION NO. 2
(WITH TEST STATION) NTS

3_ / ETS / AC (SYMBOL)

NOTES:

1. PLACE TOP OF ANODE AT PIPE SPRINGLINE OR BELOW.
2. ANODE SHALL BE PLACED A MINIMUM OF 2 PIPE DIAMETERS FROM THE PIPE.
3. REMOVE ALL PLASTIC WRAPPING FROM THE ANODE.
4. TAMP SOIL WELL AROUND THE ANODE, WATER MAY BE USED.
5. SEE STANDARD DRAWING ET-1-08.
6. CONNECT ANODE WIRE TO PIPELINE WIRE USING A BARREL CRIMP CONNECTOR AND WRAP WITH ELECTRICAL TAPE.
7. LEAVE APPROXIMATELY 1'-0" OF SLACK PER WIRE IN VALVE BOX.
8. ANODES FOR DUCTILE IRON FITTINGS ARE ONLY REQUIRED WHEN NOTED ON PROJECT DRAWINGS.
9. ALL ELECTROLYSIS TEST STATIONS IN DEVELOPED AREAS SHALL HAVE CURB MARKINGS. SEE STANDARD DRAWING MP-1-08. ALL ELECTROLYSIS TEST STATIONS IN UNDEVELOPED AREAS SHALL HAVE MARKER POSTS. SEE STANDARD DRAWING ET-3-08.
10. TEST STATION BOXES SHALL BE INSTALLED IN LANDSCAPE AREAS BEHIND CURB OR SIDEWALK WITHIN THE P.U.E. UNLESS OTHERWISE APPROVED BY THE DISTRICT.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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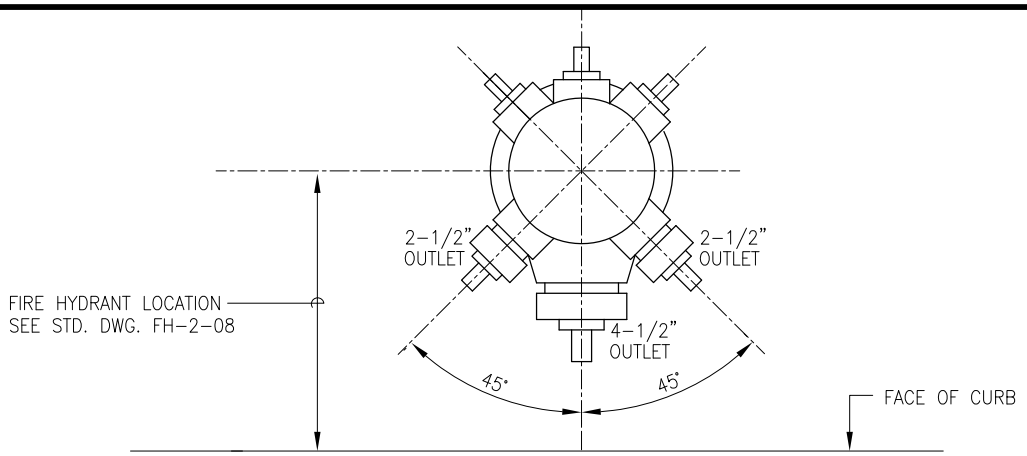
STANDARD DRAWING

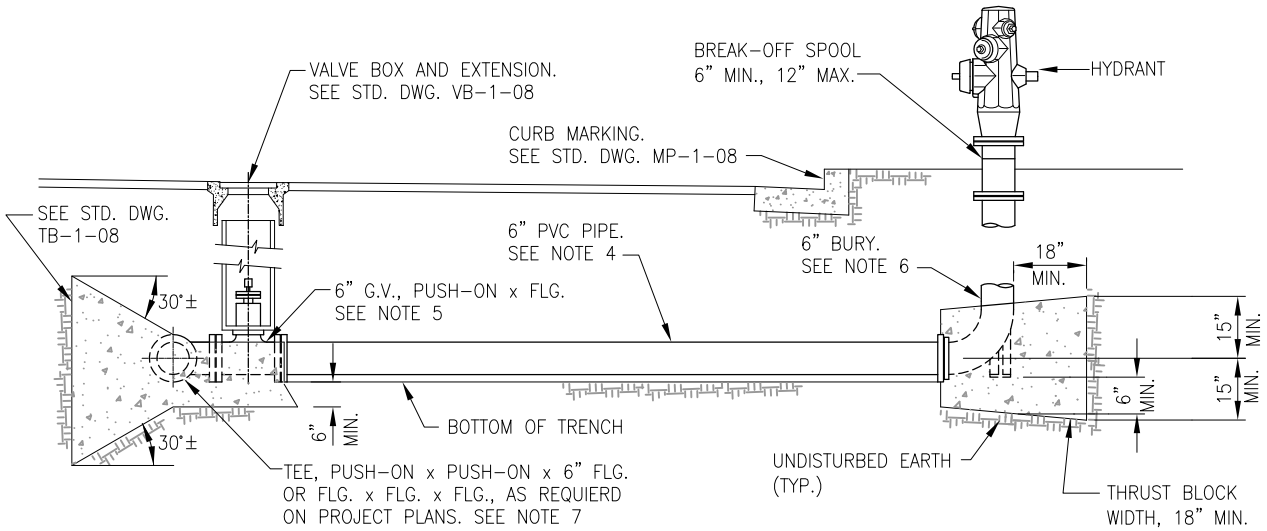
ELECTROLYSIS TEST STATION ANODE CONNECTION

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. ET-7	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. ET-7-08	REV. 0
DIV. MGR.	EHS		



HYDRANT POSITION ON BURY
PLAN VIEW



HYDRANT INSTALLATION
NTS

NOTES:

1. COAT ALL FERROUS METAL PRIOR TO PLACEMENT IN TRENCH IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
2. FOR FIRE HYDRANT MANUFACTURER, TYPE AND PAINT COLOR, SEE APPROVED MATERIALS LIST.
3. CAST CONCRETE AGAINST UNDISTURBED EARTH.
4. LARGER PIPE DIAMETER AND/OR ALTERNATIVE LATERAL PIPE MATERIALS, SUCH AS SCHEDULE 40 STEEL, MAY BE REQUIRED BY THE DISTRICT.
5. GATE VALVES SHALL BE INSTALLED PER STANDARD DRAWING V-2-08. FOR STEEL HYDRANT LATERALS, USE FLANGED CONNECTION BETWEEN VALVE AND LATERAL.
6. FOR STEEL HYDRANT LATERALS, USE FLANGED OR WELDED CONNECTION BETWEEN LATERAL AND BURY IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
7. FOR STEEL PIPE, USE WELDED TEE WITH FLANGED CONNECTION (THRUST BLOCK NOT REQUIRED FOR WELDED TEE ON STEEL MAINS).
8. FOR PVC HYDRANT LATERALS, INSTALL TRACER WIRE. SEE STANDARD DRAWING TW-1-08.

APPROVED _____ 12/15/2008
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STANDARD DRAWING

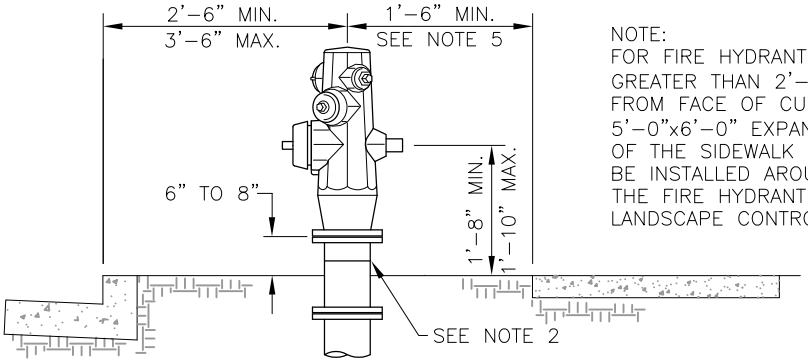
FIRE HYDRANTS

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. FH-1	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. FH-1-08	REV. 0
DIV. MGR.	EHS		

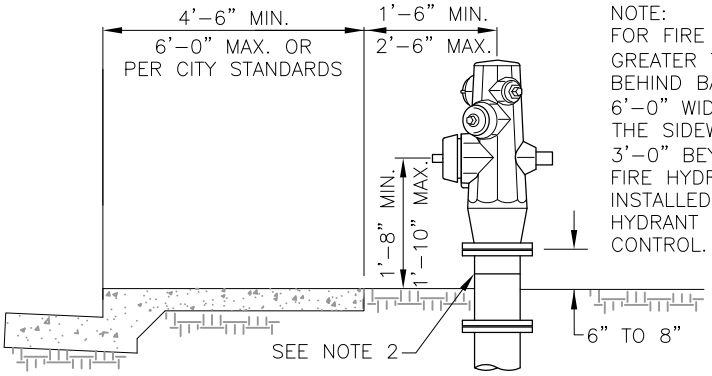
NOTES

1. INCISE STANDARD CURB MARKING FOR FIRE HYDRANT GATE VALVE ON FACE OF CURB DIRECTLY IN FRONT OF HYDRANT. SEE STANDARD DRAWING MP-1-08 FOR STANDARD CURB MARKINGS.
2. GROOVE IN BREAK-OFF SPOOL TO BE AT OR ABOVE FINISHED GRADE.
3. BOTTOM FLANGE OF BREAK-OFF SPOOL TO BE BELOW FINISHED GRADE.
4. SEE STANDARD DRAWING FH-1-08 FOR FIRE HYDRANT INSTALLATION DETAILS.
5. PROVIDE 2'-0" MINIMUM CLEARANCE TO SIDEWALK FOR MEANDERING SIDEWALK.



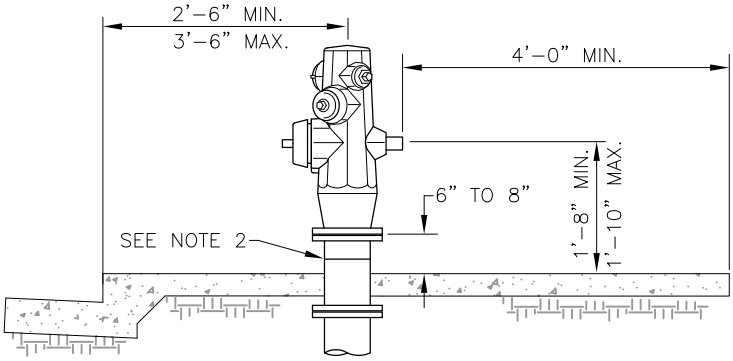
NOTE:
FOR FIRE HYDRANTS SET GREATER THAN 2'-6" FROM FACE OF CURB, A 5'-0"x6'-0" EXPANSION OF THE SIDEWALK SHALL BE INSTALLED AROUND THE FIRE HYDRANT FOR LANDSCAPE CONTROL.

INSTALLATION IN LANDSCAPE STRIP BETWEEN CURB AND SIDEWALK



NOTE:
FOR FIRE HYDRANTS SET GREATER THAN 1'-6" BEHIND BACK OF WALK, A 6'-0" WIDE EXPANSION OF THE SIDEWALK EXTENDING 3'-0" BEYOND BACK OF FIRE HYDRANT SHALL BE INSTALLED AROUND FIRE HYDRANT FOR LANDSCAPE CONTROL.

INSTALLATION IN LANDSCAPE STRIP BEHIND CURB AND SIDEWALK



INSTALLATION IN FURNISHINGS ZONE FOR MONOLITHIC SIDEWALK

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

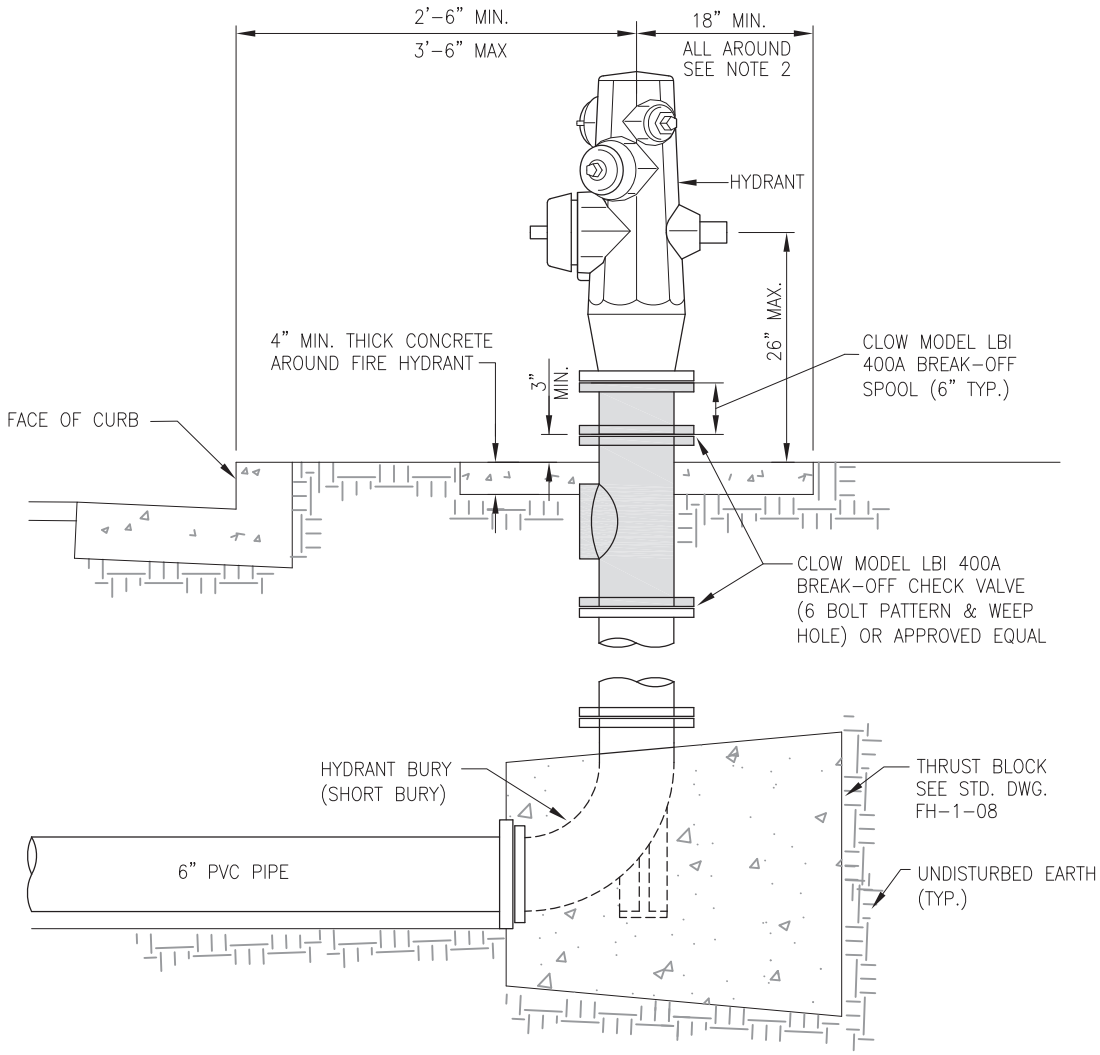
STANDARD DRAWING

FIRE HYDRANT LOCATIONS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. FH-2	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. FH-2-08	REV. 0
DIV. MGR.	EHS		



FIRE HYDRANT BREAK-OFF CHECK VALVE INSTALLATION

NTS

NOTES:

1. BREAK-OFF CHECK VALVE SHALL BE CLOW MODEL LBI 400A OR APPROVED EQUAL.
2. FOR NON-MONOLITHIC CURB, USE 36" X 36" SQUARE, 4" THICK CONCRETE COLLAR AROUND BREAK-OFF CHECK VALVE ASSEMBLY.
3. FOR MONOLITHIC CURB, PROVIDE 48" OF CLEARANCE BEHIND OR IN FRONT OF THE FIRE HYDRANT. SEE STANDARD DETAIL FH-2-08.
4. FOR ALL OTHER FIRE HYDRANT SPECIFICATIONS, SEE STANDARD DETAIL FH-01-08 AND FH-02-08.

APPROVED _____ 02/26/26
DIRECTOR OF ENGINEERING AND TECHNOLOGY — DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT

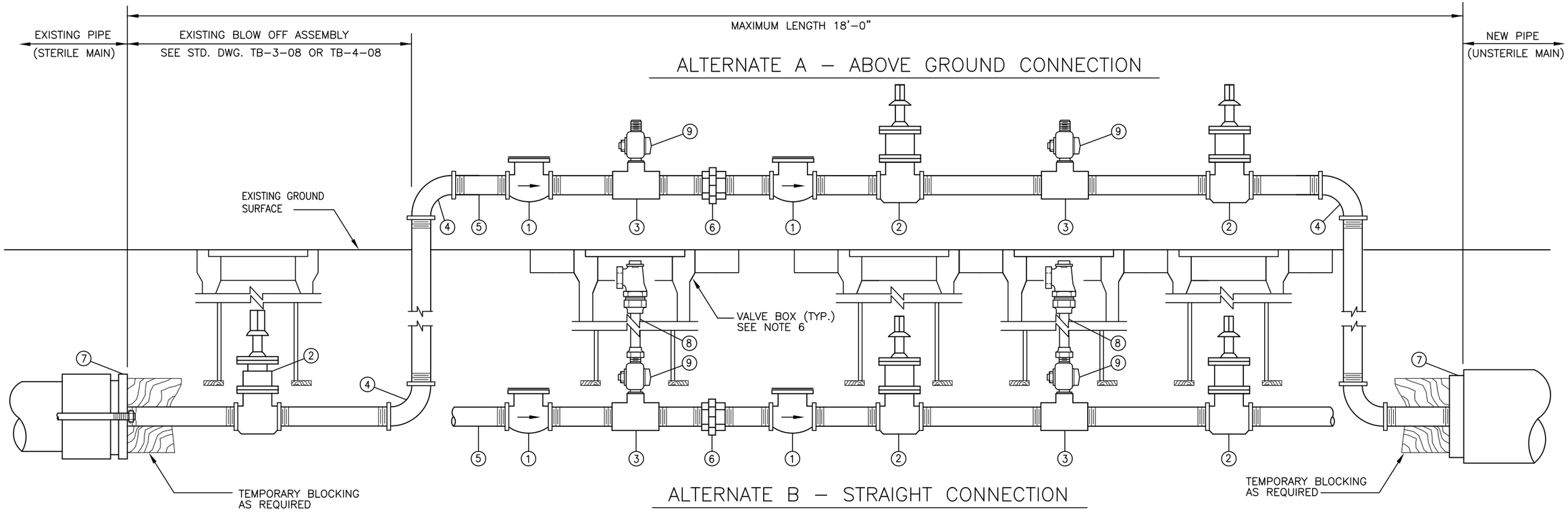
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

FIRE HYDRANT WITH BREAK-OFF CHECK VALVE

NO.	DATE	REVISION	BY	APP.
0	02-26	NEW STANDARD DRAWING	NA	SRO

DESIGNED	ACWD	DATE: FEB 2026	
DRAWN	NA	SCALE: NONE	
CHECKED	SRO	DWG. NO. FH-3-26	REV. 0
DIV. MGR.	SRO		



PROFILE OF JUMPER PIPING

NOTES

1. JUMPER PIPING AND MATERIALS TO BE THOROUGHLY CLEANED AND DISINFECTED WITH 5% HYPOCHLORITE SOLUTION PRIOR TO INSTALLATION.
2. JUMPER CONSTRUCTION OTHER THAN SHOWN AND SPECIFIED WILL NOT BE ALLOWED WITHOUT PERMISSION OF DISTRICT.
3.

MAIN SIZE	MINIMUM JUMPER PIPE SIZE
6" AND 8"	2"
10" AND 12"	4"
14" AND 16"	6"
18" OR LARGER	8"

   JUMPER PIPE SIZE MUST CORRESPOND WITH LARGEST DIAMETER SIZED PIPE ON PROJECT.
4. JUMPER PIPING MAY BE INSTALLED EITHER ABOVE GROUND OR IN A DIRECT ALIGNMENT, AS INDICATED ABOVE ON PROFILE.
5. JUMPER PIPING MATERIAL SHALL BE STEEL (OR IRON) UNLESS OTHERWISE NOTED.
6. FOR VALVE BOX INSTALLATION, SEE STANDARD DRAWING VB-1-08.
7. JUMPER PIPING SHOWN WITH THREADED CONNECTIONS, HOWEVER, FLANGED CONNECTIONS ARE ALSO ACCEPTABLE.

ITEM	MATERIAL DESCRIPTION. SEE NOTES
1	CHECK VALVE
2	GATE VALVE
3	TEE
4	90° ELL
5	PIPE
6	UNION OR FLEX COUPLING
7	TAPPED PLUG OR CAP
8	1" COPPER TUBING WITH 1" BRASS ANGLE METER STOP
9	1" BRASS CORP STOP

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

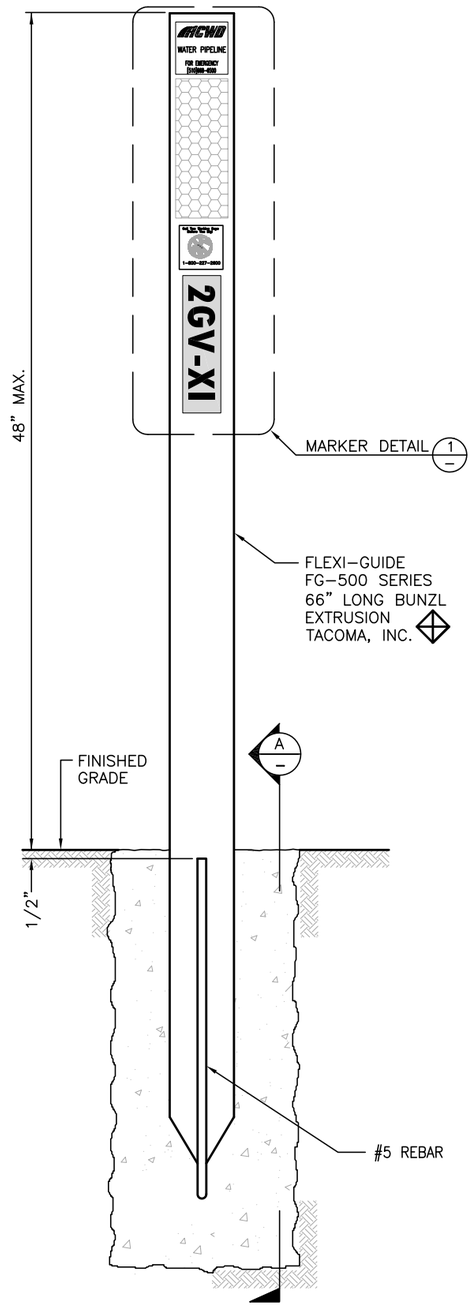
DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

NEW MAIN JUMPER PIPING

DATE: DEC. 2008
SCALE: NONE
DWG. NO. JP-1-08
REV. 0

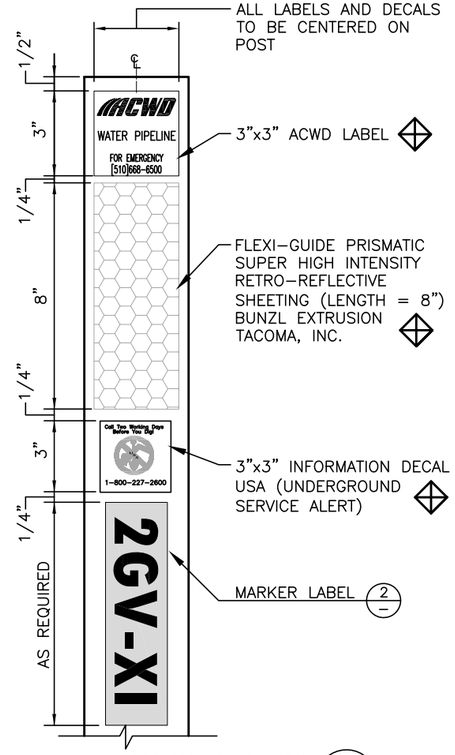


STANDARD MARKER POST

NTS

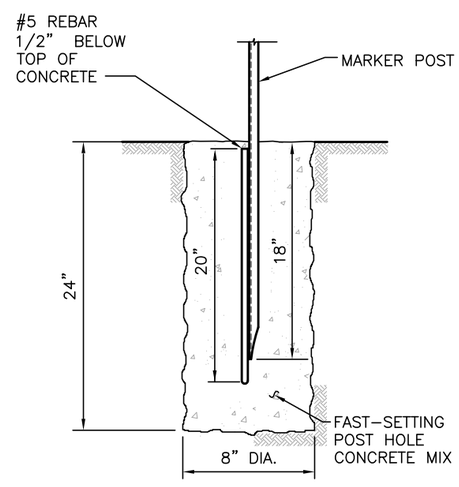
APPROVED _____ 12/15/2008

ENGINEERING MANAGER DATE



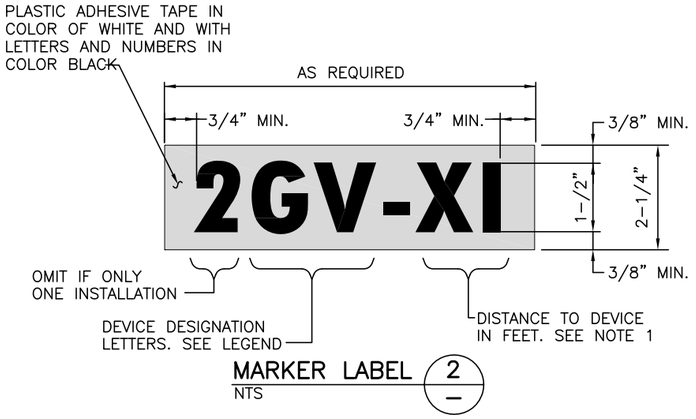
MARKER DETAIL 1

NTS



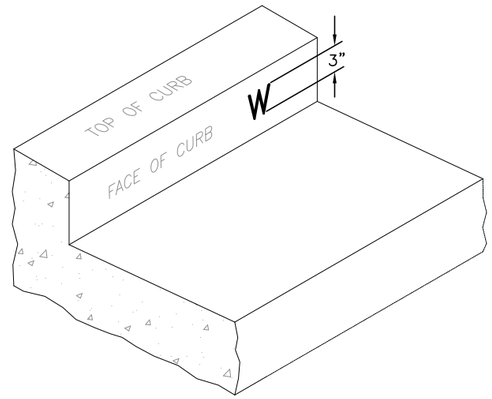
SECTION A

NTS

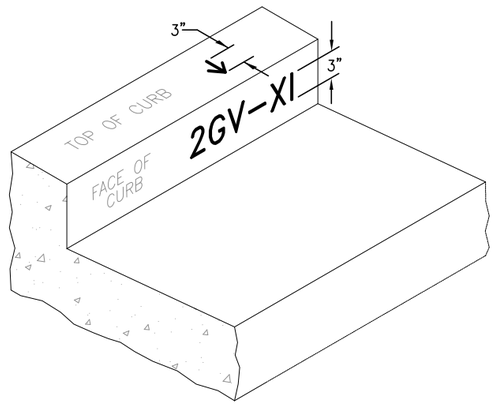


MARKER LABEL 2

NTS



STANDARD CURB MARKER
FOR WATER SERVICE LINES NTS 3



STANDARD CURB MARKER
FOR APPURTENANCES NTS 4

NOTES:

1. ARABIC NUMERALS INDICATE NUMBER OF DEVICE INSTALLATIONS. ROMAN NUMERALS INDICATE PERPENDICULAR DISTANCE, TO NEAREST FOOT, FROM MARKER TO DEVICE.
2. MARKER POSTS ARE NOT REQUIRED WHERE REFERENCES CAN BE INCISED INTO PERMANENT FACE OF CURB. SEE DETAILS 3 AND 4. CURB MARKINGS (DIRECTIONAL ARROW, REFERENCE LETTERS AND NUMERALS) SHALL BE CHISELED OR GROUND INTO CONCRETE OR CAST INTO WET CONCRETE ON FACE AND TOP OF NEAREST VERTICAL CURB AS SHOWN ON DETAIL 4 AND SHALL BE PAINTED RED. MARKINGS SHALL BE TO A MINIMUM OF 1/8" DEPTH. WHERE THE PERMANENT CURB HAS NO VERTICAL CURB FACE, CONTACT DISTRICT'S ENGINEERING DEPARTMENT FOR SPECIFIC MARKING REQUIREMENTS.
3. CURB MARKINGS FOR HYDRANT GATE VALVES SHALL BE CHISELED OR GROUND INTO OR CAST INTO THE CURB DIRECTLY IN FRONT OF THE HYDRANT. DIRECTIONAL ARROWS SHALL POINT TO THE LOCATION OF THE HYDRANT GATE VALVE, REGARDLESS OF THE GATE VALVE LOCATION RELATIVE TO THE HYDRANT.
4. FOR CURBS PAINTED RED, CURB MARKINGS SHALL BE PAINTED WHITE.
5. DIRECTIONAL ARROWS ARE REQUIRED ON TOP OF CURB FOR ALL APPURTENANCES OTHER THAN WATER SERVICE LINES. ARROWS SHALL POINT IN THE DIRECTION OF THE DEVICE.
6. PLACEMENT OF MARKER POST:
   A. SET POSTS VERTICALLY TRUE AND FACING THE INSTALLATION.
   B. MARKER POSTS SHALL NOT BE SET IN TRAVELED WAY.
   C. DO NOT SET POSTS ON PRIVATE PROPERTY WITHOUT EASEMENT.
7. CURB MARKINGS FOR REMOVED APPURTENANCES OR SERVICES SHALL BE FILLED WITH EPOXY OR GROUT AND THEN PAINTED OVER WITH GRAY PAINT TO MATCH CURB CONCRETE.
8. MARKER POSTS FOR MONITORING WELL INSTALLATIONS SHALL BE AS REQUIRED BY DISTRICT. CONTACT DISTRICT'S ENGINEERING DEPARTMENT/GROUNDWATER DIVISION FOR SPECIFIC MATERIALS AND INSTALLATION REQUIREMENTS.
9. ELECTROLYSIS TEST STATIONS IN UNDEVELOPED AREAS REQUIRE A REDWOOD MARKER POST. SEE STANDARD DRAWING ET-3-08.
10. WATER SERVICE LINE MARKINGS DO NOT REQUIRE DIRECTIONAL ARROWS OR DISTANCE NUMERALS AND SHALL BE LOCATED NO GREATER THAN 12" MEASURED HORIZONTALLY FROM THE SERVICE LINE CROSSING UNDER THE CURB.

LEGEND

W – WATER SERVICE LINE. SEE NOTE 10
AV – AIR VALVE
BO – BLOWOFF OUTLET AND BLOWOFF GATE VALVE
BP – BY-PASS GATE VALVE
BV – BUTTERFLY VALVE
DC – DETECTOR CHECK
ET – ELECTROLYSIS TEST STATION. SEE NOTE 9
GV – GATE VALVE
TW – TRACER WIRE
CTS – CALIBRATED TEST SPAN LEAD
◈ – DISTRICT FURNISHED ITEM

ARABIC NUMERAL	ROMAN NUMERALS
1	I
4	IV
5	V
6	VI
9	IX
10	X
50	L
100	C

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. MP-1	RMF	LJA

DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

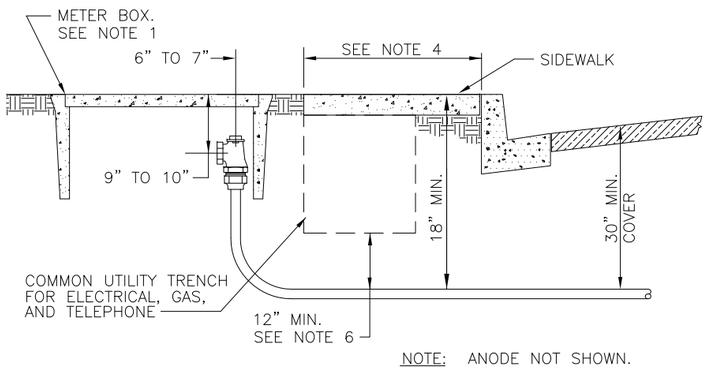
MARKER POST AND CURB MARKINGS

DATE: DEC. 2008

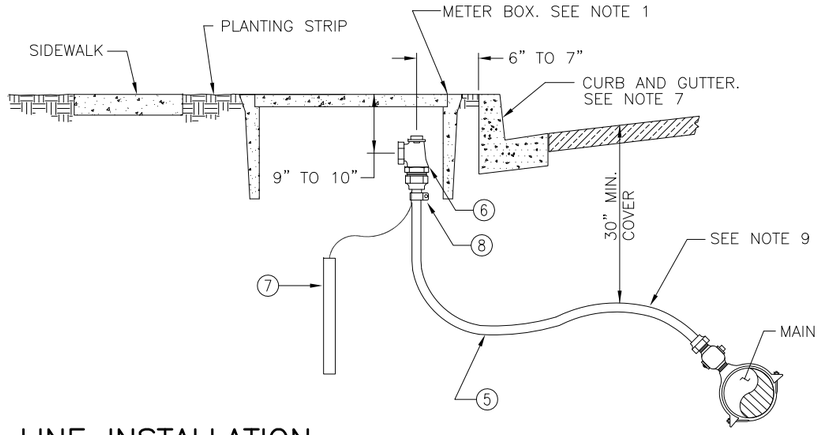
SCALE: NONE

DWG. NO. MP-1-08

REV. 0



NOTE: ANODE NOT SHOWN.



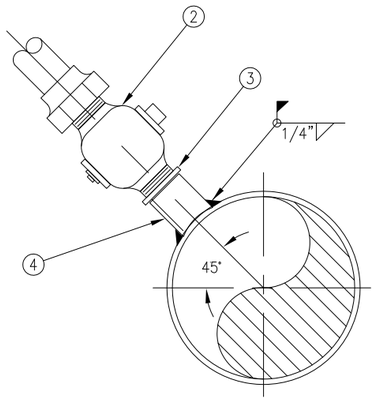
TYPICAL 1" SERVICE LINE INSTALLATION

NTS

ITEM	SIZE	DESCRIPTION
1	–	BRASS/BRONZE SERVICE SADDLE FOR PVC PIPE. SEE NOTE 2
2	1"x1"	CORPORATION STOP, I.P.T. x FLARE
3	1–1/4"x1"	NYLON BUSHING
4	1–1/4"	STEEL PIPE COUPLING. SEE NOTE 3
5	1"	TYPE "K" COPPER TUBING
6	1"	ANGLE METER STOP WITH LOCK WINGS, FLARED VALVE INLET
7	1"x1–1/4"x24"	PREPACKAGED ZINC ANODE. SEE NOTE 8
8	1"	BRASS GROUNDING CLAMP WITH BRASS BOLTS AND BRASS SET SCREW

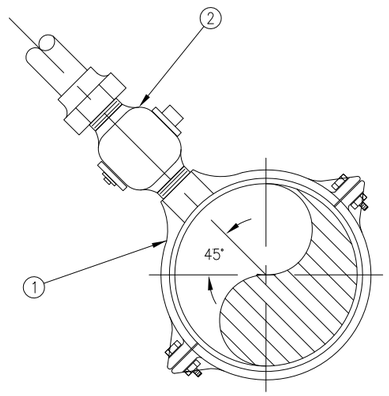
NOTES:

1. FOR METER BOX AND IDLER (JUMPER) INSTALLATION, SEE STANDARD DRAWINGS S–3–08, S–7–08 OR S–8–08.
2. SEE STANDARD DRAWINGS CL–4–08 AND CL–5–08 FOR CLEARANCE REQUIREMENTS BETWEEN SERVICE SADDLE TAP AND ANOTHER SERVICE SADDLE TAP, PIPE COLLAR, JOINT OR FITTING.
3. COAT WELDED COUPLING ON STEEL MAIN WITH SAME PROTECTIVE COATING AS ON MAIN, OR AS SPECIFIED BY THE DISTRICT.
4. IF SERVICE LINE LOCATION IS AT AN INTEGRAL CURB AND SIDEWALK OVER 10'–0" WIDE, INSTALL ANGLE METER STOP 6" TO 7" BEHIND CURB, UNLESS OTHERWISE SHOWN ON THE PROJECT DRAWINGS OR APPROVED BY DISTRICT.
5. SERVICE LINE SHALL BE LOCATED 5'–0" MIN. FROM DRIVEWAY AND FROM SANITARY SEWER HOUSE LATERAL. SEE STANDARD DRAWINGS CL–4–08 AND CL–5–08 FOR ADDITIONAL CLEARANCE REQUIREMENTS.
6. WHERE A COMMON UTILITY TRENCH FOR ELECTRIC, GAS, AND TELEPHONE IS PROVIDED, THE SERVICE LINE SHALL BE LOCATED 12" BELOW TRENCH BOTTOM AND 6" CLEAR OF SIDE OF UTILITY TRENCH. SEE STANDARD DRAWINGS CL–4–08 AND CL–5–08 FOR ADDITIONAL CLEARANCE REQUIREMENTS.
7. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP–1–08.
8. PLACE PREPACKAGED ZINC ANODE AGAINST TRENCH WALL SO AS TO MAXIMIZE HORIZONTAL DISTANCE BETWEEN THE COPPER AND THE ANODE. ANODES SHALL BE HIGH PURITY ZINC MEETING ASTM B418, TYPE II.
9. A GOOSENECK IS REQUIRED BETWEEN THE CORPORATION STOP AND THE SERVICE PIPE. GOOSENECK RADIUS SHALL BE LARGE ENOUGH TO NOT KINK COPPER TUBING. THE MINIMUM RADIUS FOR BENDS IN TUBING IS NO LESS THAN THE NATURAL COIL RADIUS (20").
10. SERVICE LINES SHALL NOT BE INSTALLED WITHIN ANY PLASTIC FILM OR ENCASEMENT.
11. SPLICES SHALL NOT BE PERMITTED ON COPPER TUBING.
12. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.



WELDED COUPLING – STEEL MAIN

NTS



SERVICE SADDLE – PVC MAIN

NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. S–1	RMF	LJA

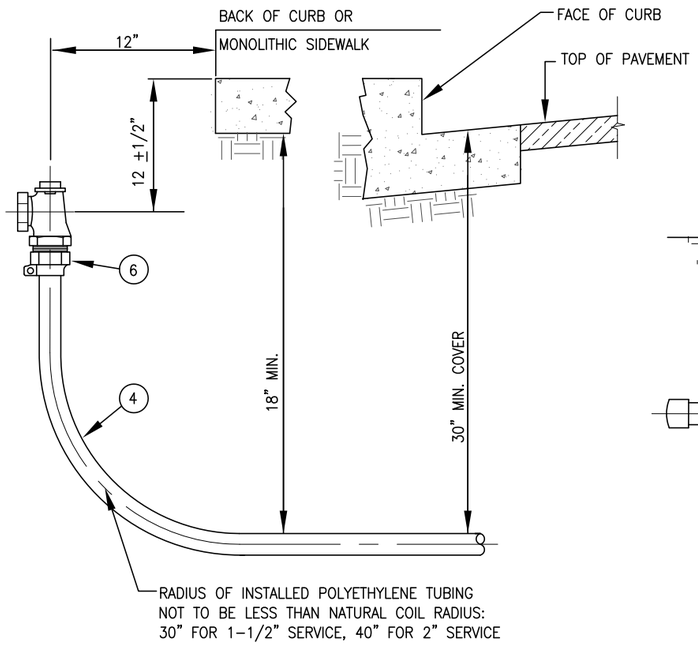
DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

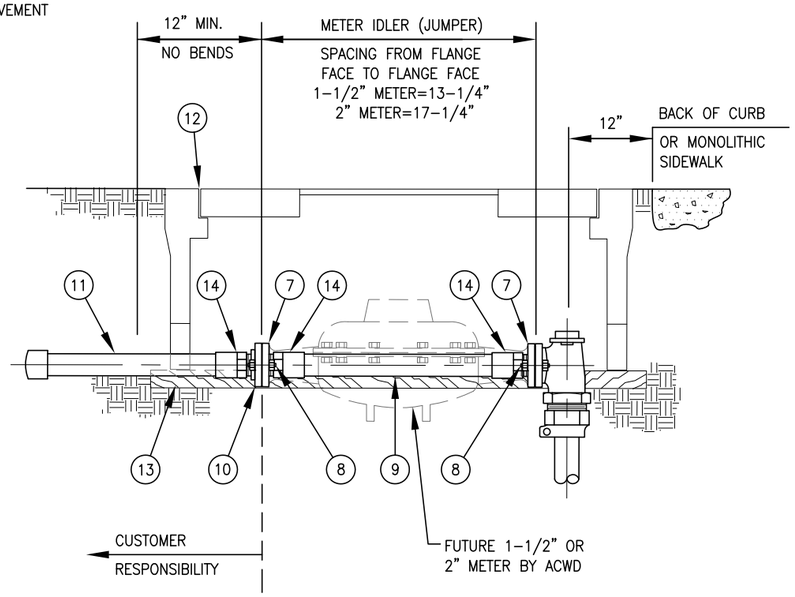
1" SERVICE LINE
FOR 3/4" AND 1" METERS
WITHOUT FIRE SPRINKLER CONNECTIONS

DATE: DEC. 2008
SCALE: NONE
DWG. NO. S-1-08
REV. 0



1-1/2" OR 2" SERVICE LINE

NTS



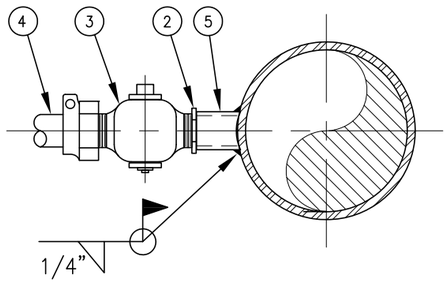
METER INSTALLATION
(WITHOUT RESIDENTIAL FIRE SPRINKLER CONNECTION)

NTS SEE NOTE 10

ITEM	SIZE		DESCRIPTION
	1-1/2" SERVICE	2" SERVICE	
1	6" AND OVER	–	BRASS/BRONZE SERVICE SADDLE FOR PVC PIPE. SEE NOTE 1
2	2"x1-1/2"	2-1/2"x2"	NYLON INSULATING BUSHING. SEE NOTE 2
3	1-1/2"	2"	CORPORATION STOP, I.P.T. x COMPRESSION. SEE NOTE 3
4	1-1/2"	2"	POLYETHYLENE TUBING
5	2"	2-1/2"	STEEL PIPE COUPLING TO BE COATED WITH SAME PROTECTIVE COATING USED ON MAIN, OR AS SPECIFIED BY DISTRICT
6	1-1/2"	2"	ANGLE METER STOP WITH LOCK WINGS, COMPRESSION TYPE VALVE INLET, DRILLED FOR 1-1/2" OR 2" FLANGED CONNECTION.
7	1-1/2" (#6) TAPPED 1-1/2"	2" (#7) TAPPED 2"	BRASS OR PLASTIC METER FLANGE WITH FLANGE GASKET
8	5/8"x2-1/4"	3/4"x2-1/2"	BRASS BOLTS AND NUTS (4) (THREAD END TOWARDS CURB)
9	1-1/2"	2"	SCHEDULE 40 PVC PIPE
10			BRASS METER FLANGE
11	1-1/2"x18"	2"x18"	SCHEDULE 40 PVC WITH CAP
12	N30BOX WITH FL30G LID	B36BOX WITH FL36 LID	CHRISTY METER BOX WITH LID (OR APPROVED EQUAL) FOR TYPICAL METER INSTALLATION. SEE NOTE 10
13	2"x4"x36"	2"x4"x36"	REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (2)
14	1-1/2"	2"	SLIPxMIPT ADAPTERS (3)

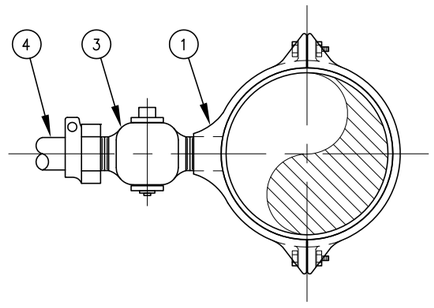
NOTES:

1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR CLEARANCE REQUIREMENTS BETWEEN SERVICE SADDLE TAP AND ANOTHER SERVICE SADDLE TAP, PIPE COLLAR, JOINT OR FITTING.
2. NYLON BUSHING TO BE USED ONLY IF CORPORATION STOP CONNECTION IS TO A FERROUS METAL MAIN.
3. COMPRESSION FITTINGS SHALL BE EITHER PACKJOINT TYPE WITH SILICON BRONZE CLAMP SCREW (E.G. CAMBRIDGE BRASS "CAMPAK" OR A.Y. McDONALD "MAC-PAK") OR COMPRESSION NUT TYPE (E.G. CAMBRIDGE BRASS "CB" OR A.Y. McDONALD "T"). ALL COMPRESSION JOINTS REQUIRE A STAINLESS STEEL TUBING INSERT.
4. IF SERVICE LINE LOCATION IS AT AN INTEGRAL CURB AND SIDEWALK OVER 10'-0" WIDE, INSTALL ANGLE METER STOP 12" BEHIND CURB, UNLESS OTHERWISE SHOWN ON THE PROJECT DRAWINGS OR APPROVED BY DISTRICT.
5. SERVICE LINE SHALL BE LOCATED 5' MIN. FROM DRIVEWAY AND FROM SANITARY SEWER HOUSE LATERAL. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR ADDITIONAL CLEARANCE REQUIREMENTS.
6. WHERE A COMMON UTILITY TRENCH FOR ELECTRIC, GAS, AND TELEPHONE IS PROVIDED, THE SERVICE LINE SHALL BE LOCATED 12" BELOW TRENCH BOTTOM AND 6" CLEAR OF SIDE OF UTILITY TRENCH. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR ADDITIONAL CLEARANCE REQUIREMENTS.
7. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
8. SPLICES ARE NOT PERMITTED ON POLYETHYLENE TUBING.
9. ALL NONMETALLIC SERVICE LINES SHALL HAVE TRACER WIRE INSTALLED. SEE STANDARD DRAWING TW-2-08.
10. METER BOX AND LID VARY WITH APPLICATION. FOR 1-1/2" SERVICE AND 1" METER FOR RESIDENCES WITH FIRE SPRINKLERS, SEE STANDARD DRAWINGS S-5-08 AND S-6-08. FOR 1-1/2" SERVICE AND 1-1/2" METER FOR RESIDENCES WITH FIRE SPRINKLERS, SEE STANDARD DRAWING S-4-08. FOR 2" DETECTOR CHECK VALVES, SEE STANDARD DRAWING S-10-08.
11. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
12. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
13. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.



WELDED COUPLING – STEEL MAIN

NTS



SERVICE SADDLE – PVC MAIN

NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-2	RMF	LJA

DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

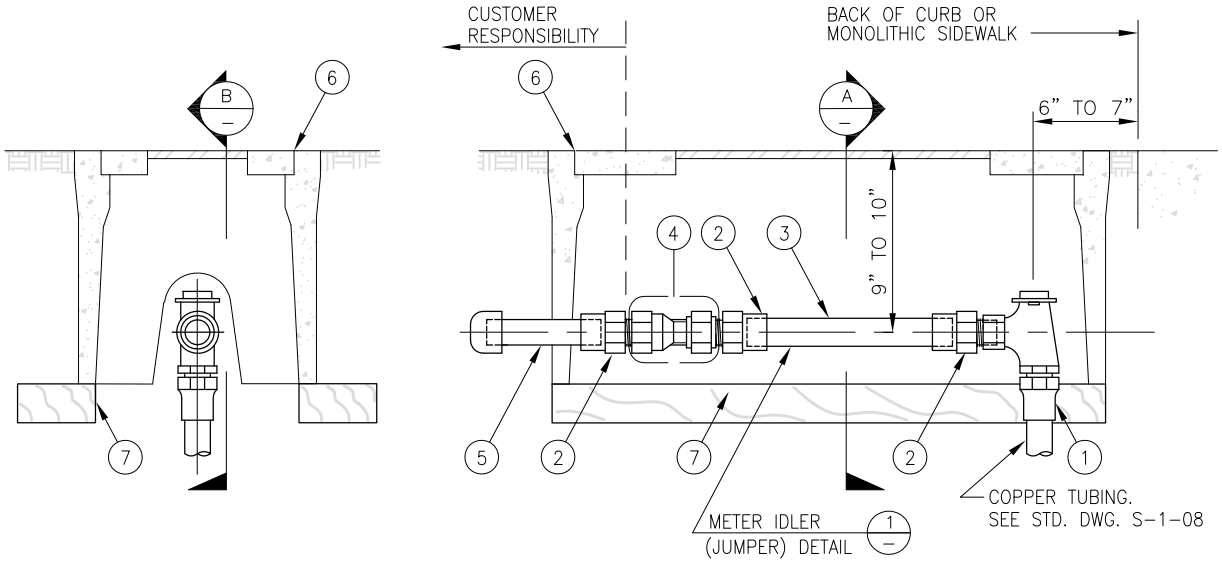
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1-1/2" AND 2" SERVICE LINES
1-1/2" AND 2" METERS WITHOUT FIRE SPRINKLER CONNECTIONS

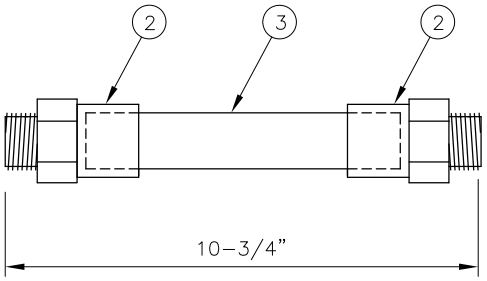
DATE: DEC. 2008
SCALE: NONE
DWG. NO. S-2-08
REV. 0

ITEM	DESCRIPTION
1	1" ANGLE METER STOP WITH LOCK WINGS AND FLARE TYPE VALVE INLET
2	1-1/4" SLIPxMIPT PVC ADAPTER
3	1-1/4" SCH. 40 PVC PIPE
4	1" STRAIGHT METER COUPLING WITH 1-1/4" FEMALE IRON PIPE THREADS
5	1-1/4"x16" SCH. 40 PVC WITH CAP
6	CHRISTY B16 METER BOX WITH B16G LID OR APPROVED EQUAL
7	2"x4"x36" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (2)



SECTION A
NTS

SECTION B
NTS



METER IDLER (JUMPER) DETAIL 1
NTS

NOTES:

1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOX SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER WASHERS.
7. DISTRICT WILL SET 3/4" METERS WITH 3/4" AND 1" COUPLING ADAPTERS.
8. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1" SERVICE LINE 3/4" AND 1" METERS WITHOUT FIRE SPRINKLER CONNECTIONS

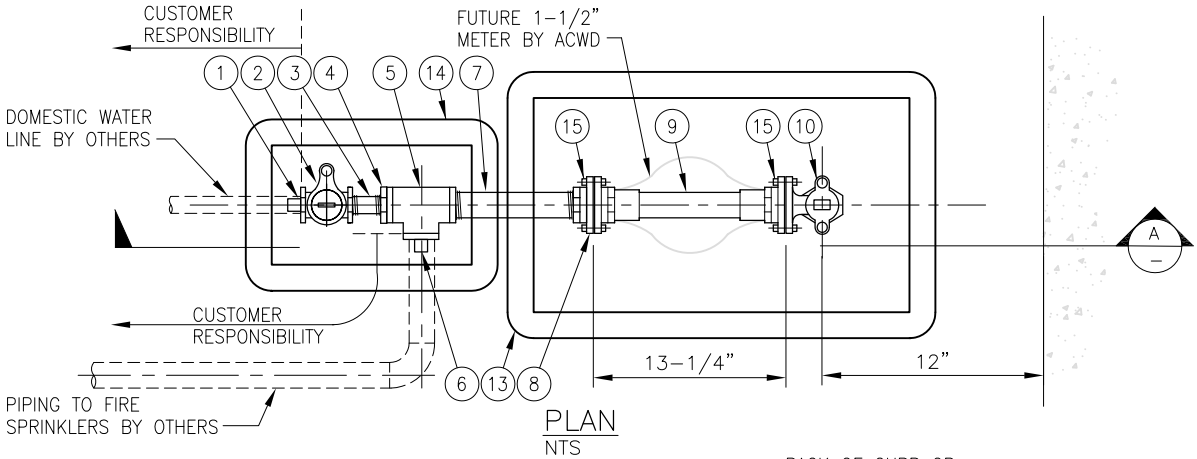
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-3	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-3-08	REV. 0
DIV. MGR.	EHS		

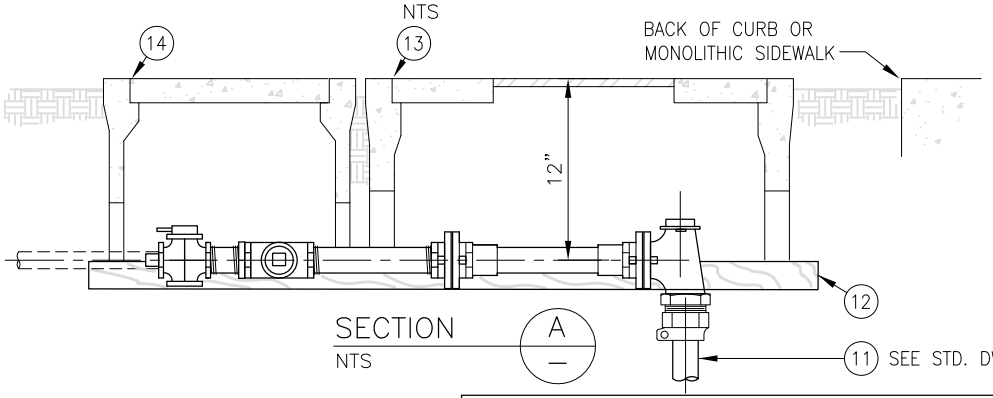
ITEM	DESCRIPTION
1	1" BRASS PLUG
2	1" CURB STOP WITH LOCK WINGS
3	1"x3" BRASS NIPPLE
4	1-1/2"x1" BRASS BUSHING
5	1-1/2" BRASS TEE
6	1-1/2" BRASS PLUG
7	1-1/2"x12" BRASS NIPPLE
8	1-1/2" BRASS METER FLANGE TAPPED 1-1/2" FIPT
9	1-1/2" PVC IDLER (JUMPER) WITH 1-1/2" PLASTIC OR BRASS METER FLANGES
10	1-1/2" ANGLE METER STOP WITH LOCK WINGS, COMPRESSION x FLANGE
11	1-1/2" POLYETHYLENE SERVICE LINE
12	2"x4"x36" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (4)
13	CHRISTY N30BOX METER BOX WITH FL30G LID (OR APPROVED EQUAL)
14	CHRISTY B9 METER BOX WITH B9D LID (OR APPROVED EQUAL)
15	5/8"x2-1/4" BRASS BOLTS AND NUTS (THREAD END TOWARD CURB)

NOTES:

1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOXES SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER FLANGE GASKETS.
7. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.



PLAN
NTS



ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1-1/2" SERVICE LINE AND METER IN DUAL METER BOX FOR RESIDENCES WITH FIRE SPRINKLERS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

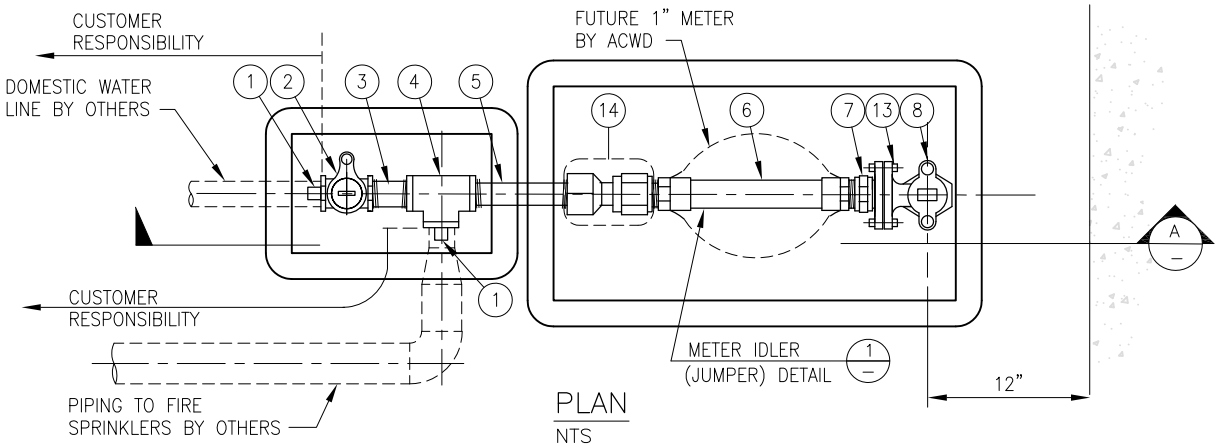
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-4	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-4-08	REV. 0
DIV. MGR.	EHS		

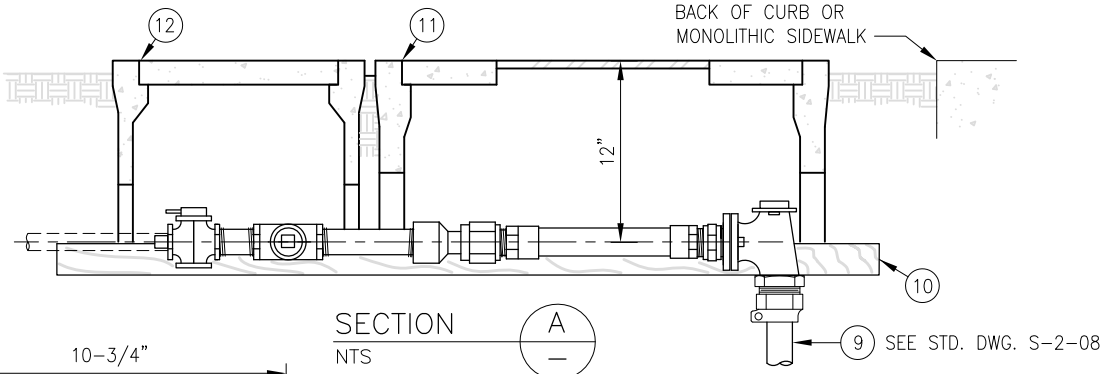
ITEM	DESCRIPTION
1	1" BRASS PLUG (2)
2	1" CURB STOP WITH LOCK WINGS
3	1" x 3" BRASS NIPPLE
4	1" BRASS TEE
5	1" x 12" BRASS NIPPLE
6	1-1/4" PVC IDLER (JUMPER). SEE METER IDLER (JUMPER) DETAIL BELOW
7	1-1/2"x1" METER ADAPTER
8	1-1/2" ANGLE METER STOP WITH LOCK WINGS, COMPRESSION x FLANGE
9	1-1/2" POLYETHYLENE SERVICE LINE
10	2"x4"x30" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (4)
11	CHRISTY B16 METER BOX WITH B16G LID (OR APPROVED EQUAL)
12	CHRISTY B9 METER BOX WITH B9D LID (OR APPROVED EQUAL)
13	5/8"x2-1/4" BRASS BOLTS WITH NUTS (2) (THREAD END TOWARD CURB)
14	1" STRAIGHT METER COUPLING WITH 1" FEMALE IRON PIPE THREADS (FIPT)
15	1-1/4" SCHED. 40 PVC PIPE
16	1-1/4" SLIPxMIPT PVC ADAPTOR

NOTES:

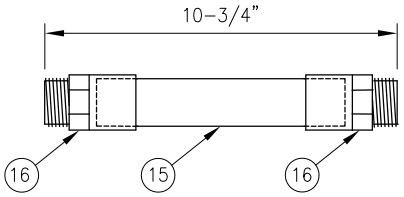
1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOXES SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER WASHERS.
7. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.



PLAN
NTS



SECTION A
NTS



METER IDLER (JUMPER) DETAIL 1
NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1-1/2" SERVICE LINE AND 1" METER IN DUAL METER BOX FOR RESIDENCES WITH FIRE SPRINKLERS

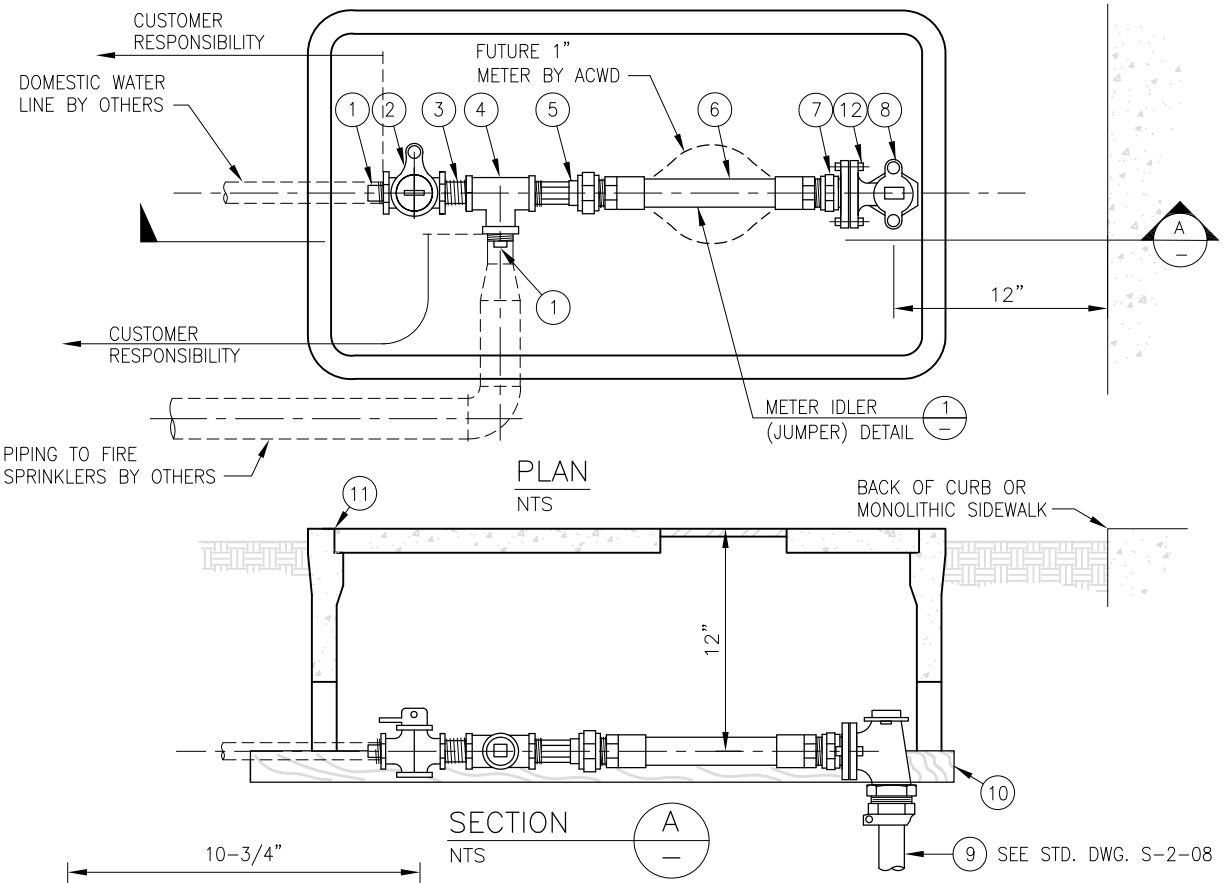
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-5	RMF	LJA

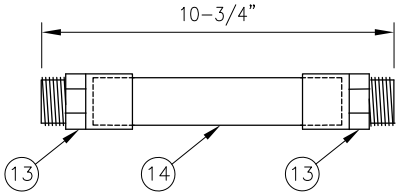
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-5-08	REV. 0
DIV. MGR.	EHS		

ITEM	DESCRIPTION
1	1" BRASS PLUG (2)
2	1" CURB STOP WITH LOCK WINGS
3	1" CLOSE BRASS NIPPLE
4	1" BRASS TEE
5	1"x2-5/8" STRAIGHT METER COUPLING WITH 1" MIPT
6	1-1/4" PVC IDLER (JUMPER). SEE METER IDLER (JUMPER) DETAIL BELOW
7	1-1/2"x1" METER ADAPTER
8	1-1/2" ANGLE METER STOP WITH LOCK WINGS, COMPRESSION x FLANGE
9	1-1/2" POLYETHYLENE SERVICE LINE
10	2"x4"x36" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (2)
11	CHRISTY B36 METER BOX WITH FL36GUC107 LID (OR APPROVED EQUAL)
12	5/8"x2-1/4" BRASS BOLTS AND NUTS (2) (THREAD END TOWARD CURB)
13	1-1/4" SLIPxMIPT PVC ADAPTER
14	1-1/4" SCHEDULE 40 PVC PIPE

NOTES:

1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOX SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER WASHERS.
7. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.





METER IDLER (JUMPER) DETAIL 1
NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1-1/2" SERVICE LINE AND 1" METER IN SINGLE METER BOX FOR RESIDENCES WITH FIRE SPRINKLERS

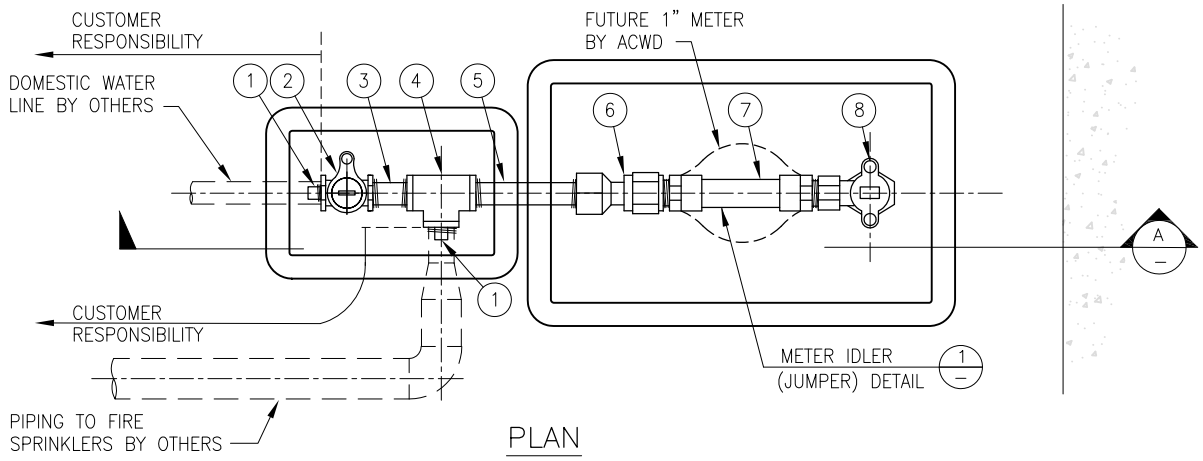
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-6	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-6-08	REV. 0
DIV. MGR.	EHS		

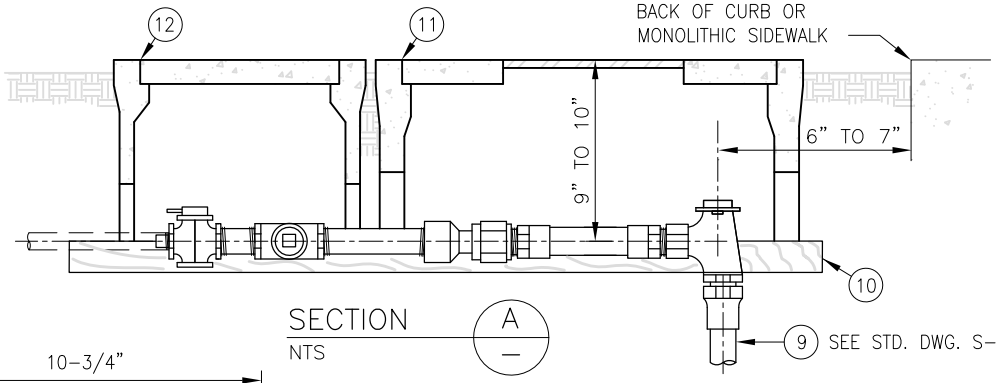
ITEM	DESCRIPTION
1	1" BRASS PLUG (2)
2	1" CURB STOP WITH LOCK WINGS
3	1"x3" BRASS NIPPLE
4	1" BRASS TEE
5	1"x12" BRASS NIPPLE
6	1" STRAIGHT METER COUPLING WITH 1" FEMALE IRON PIPE THREADS (FIPT)
7	1-1/4" PVC IDLER (JUMPER). SEE METER IDLER (JUMPER) DETAIL BELOW
8	1"x1" ANGLE METER STOP WITH LOCK WINGS, FLARE x FIPT
9	1" COPPER SERVICE LINE
10	2"x4"x30" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (4)
11	CHRISTY B16 METER BOX WITH B16G LID (OR APPROVED EQUAL)
12	CHRISTY B9 METER BOX WITH B9D LID (OR APPROVED EQUAL)
13	1-1/4" SCHED. 40 PVC PIPE
14	1-1/4" SLIPxMIPT PVC ADAPTOR

NOTES:

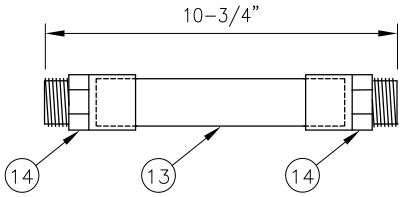
1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOXES SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER WASHERS.
7. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER IDLER.



PLAN
NTS



SECTION A
NTS



METER IDLER (JUMPER) DETAIL 1
NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1" SERVICE LINE AND METER IN DUAL METER BOX FOR RESIDENCES WITH FIRE SPRINKLERS

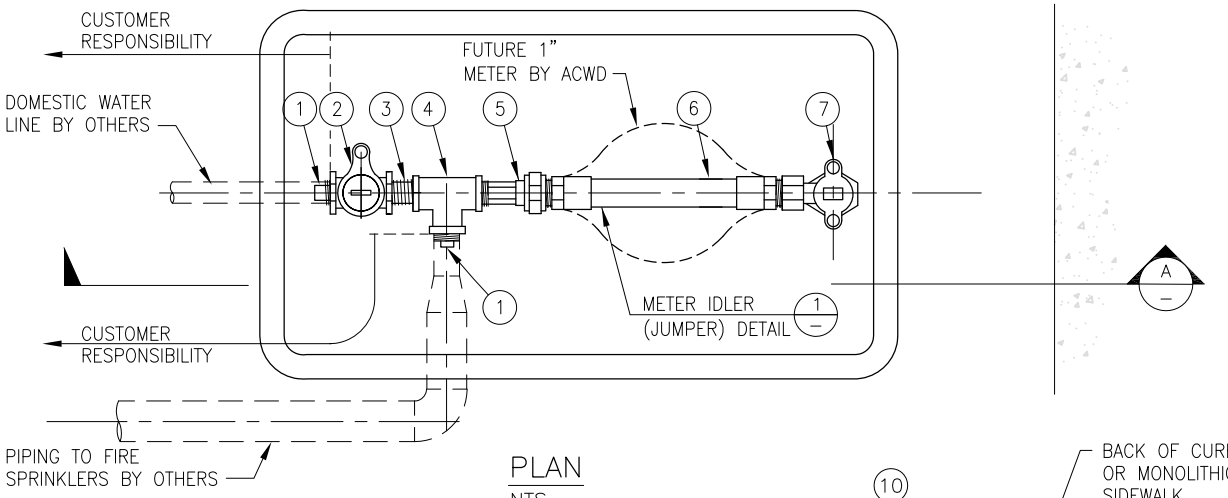
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-7	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-7-08	REV. 0
DIV. MGR.	EHS		

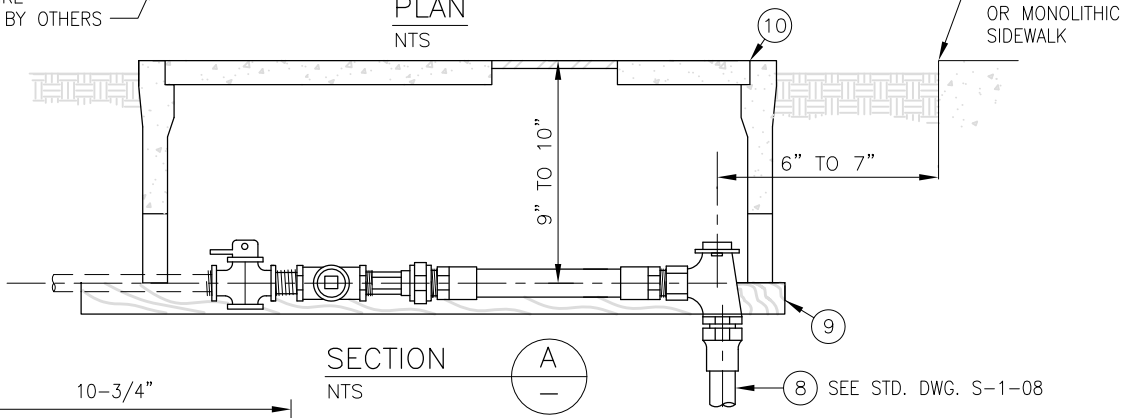
ITEM	DESCRIPTION
1	1" BRASS PLUG (2)
2	1" CURB STOP WITH LOCK WINGS
3	1" CLOSE BRASS NIPPLE
4	1" BRASS TEE
5	1"x2-5/8" STRAIGHT METER COUPLING WITH 1" MIPT
6	1-1/4" PVC IDLER (JUMPER). SEE METER IDLER (JUMPER) DETAIL BELOW
7	1" ANGLE METER STOP WITH LOCK WINGS, FLARExFIPT
8	1" COPPER SERVICE LINE
9	2"x4"x36" REDWOOD OR PRESSURE-TREATED WOOD METER BOARDS (2)
10	CHRISTY B36 METER BOX WITH FL36GUC107 LID (OR APPROVED EQUAL)
11	1-1/4" SLIPxMIPT PVC ADAPTER
12	1-1/4" SCHEDULE 40 PVC PIPE

NOTES:

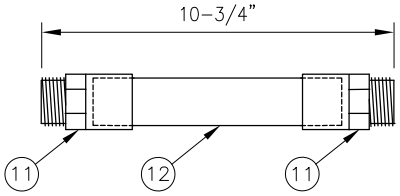
1. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
3. ALL SERVICES SHALL HAVE "W" CURB MARKINGS. SEE STANDARD DRAWING MP-1-08.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOX SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. IDLER (JUMPER) SHALL BE INSTALLED WITH TWO METER WASHERS.
7. METER BOX SHALL BE LOCATED SUCH THAT CENTER OF READING LID OPENING IS DIRECTLY ABOVE CENTER OF METER BOX IDLER.



PLAN
NTS



SECTION A
NTS



METER IDLER (JUMPER) DETAIL 1
NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

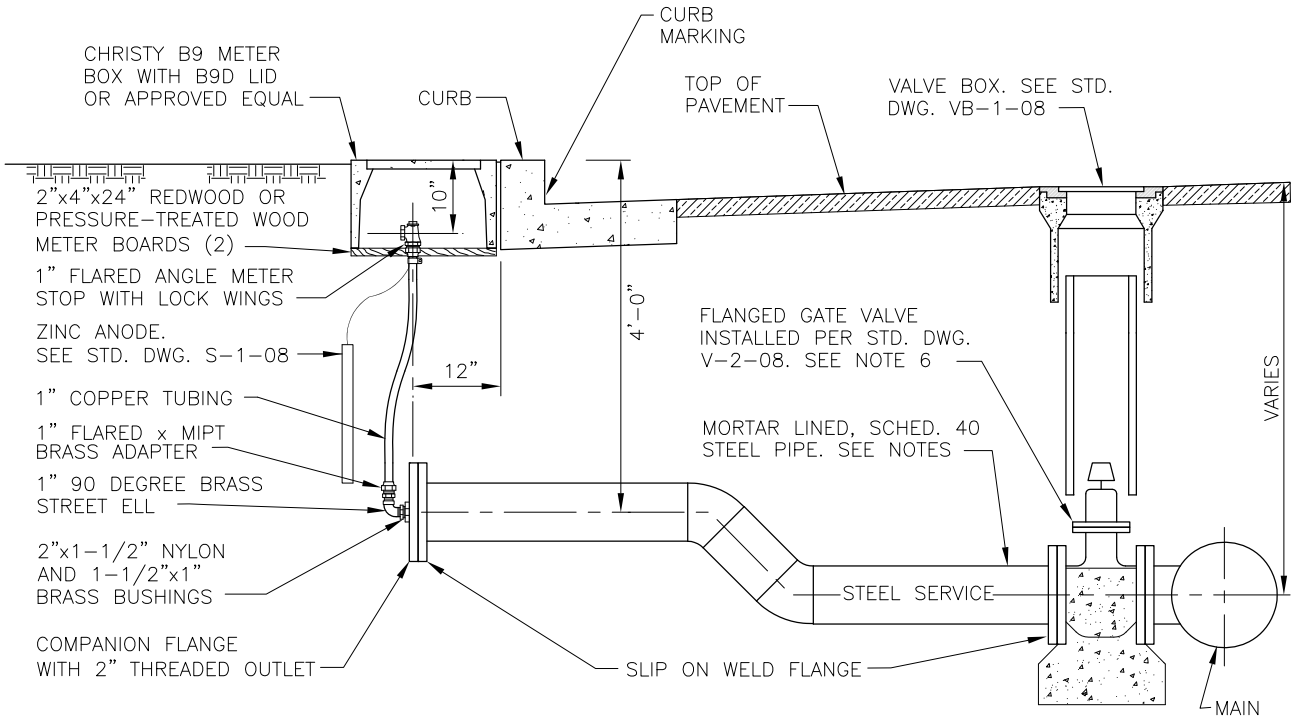
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

1" SERVICE LINE AND METER IN SINGLE METER BOX FOR RESIDENCES WITH FIRE SPRINKLERS

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-8	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-8-08	REV. 0
DIV. MGR.	EHS		



STEEL WATER SERVICE DETAIL

NTS

NOTES:

1. SEE STANDARD DRAWING CL-4-08 AND CL-5-08 FOR ADDITIONAL SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
2. STEEL SERVICE MORTAR LINING SHALL BE 1/4" NOMINAL THICKNESS ±1/16".
3. DOUBLE WRAP STEEL SERVICE WITH DIELECTRIC TAPE. EACH WRAP SHALL OVERLAP THE PRECEDING WRAP BY 5/8 x WIDTH.
4. ALL SERVICES SHALL HAVE CURB MARKINGS IN ACCORDANCE WITH STANDARD DRAWING MP-1-08.
5. METER BOX SHALL BE INSTALLED ON COMPACTED MATERIAL.
6. BONDING WIRES SHALL BE INSTALLED ON STEEL SERVICES CONNECTED TO STEEL MAINS IN ACCORDANCE WITH STANDARD DRAWING ET-6-08.
7. ANODES SHALL BE INSTALLED ON STEEL SERVICES CONNECTED TO PVC MAINS. SEE STANDARD DRAWING ET-7-08 FOR ANODE INSTALLATION REQUIREMENTS.
8. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

TYPICAL STEEL SERVICE LATERAL

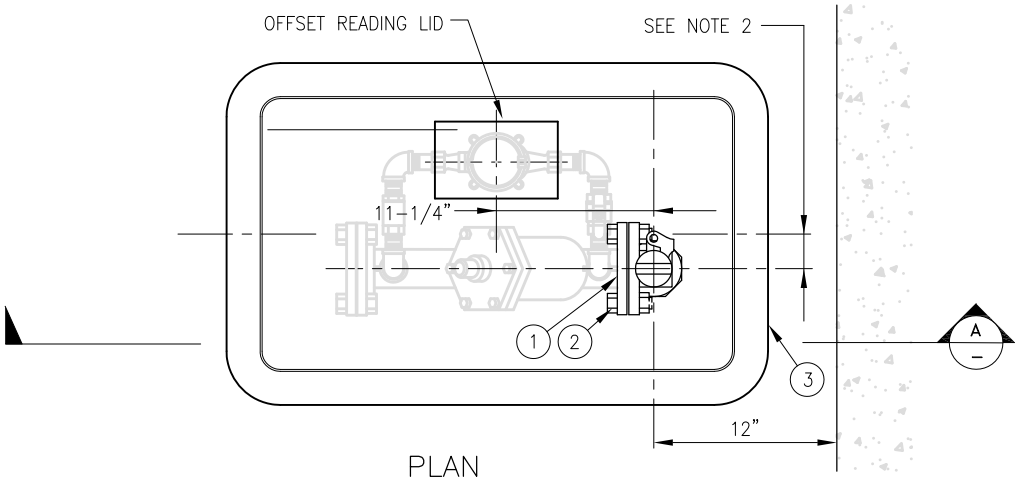
NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. S-9	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-9-08	REV. 0
DIV. MGR.	EHS		

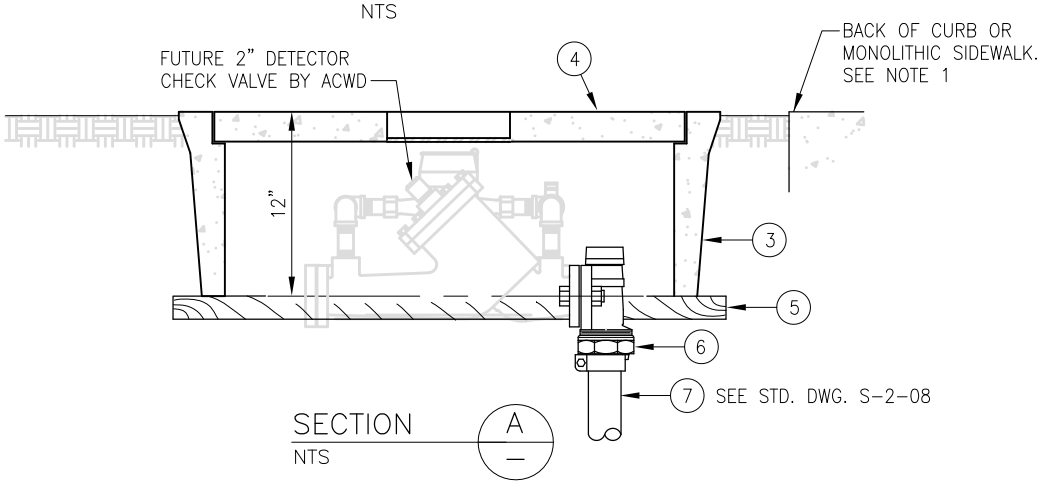
ITEM	DESCRIPTION
1	2" BRASS BLIND METER FLANGE
2	3/4"x2-1/2" BRASS BOLTS WITH NUTS (2) (THREAD END TOWARD CURB)
3	CHRISTY B36 METER BOX (OR APPROVED EQUAL)
4	CHRISTY FL36GOC207 FIBRELYTE LID (OR APPROVED EQUAL)
5	2"x4"x36" REDWOOD OR PRESSURE-TREATED WOOD BOARDS (2)
6	2" ANGLE METER STOP WITH LOCK WINGS, COMPRESSION x FLANGE
7	2" POLYETHYLENE SERVICE LINE

NOTES:

1. WHERE MONOLITHIC SIDEWALK IS MORE THAN 10'-0" WIDE, ANGLE METER STOP SHALL BE 12" BEHIND BACK OF CURB, UNLESS OTHERWISE SHOWN ON THE PROJECT DRAWINGS OR APPROVED BY THE DISTRICT.
2. CENTERLINE OF METER BOX SHALL BE OFFSET 2-1/4" FROM CENTERLINE OF ANGLE METER STOP.
3. SEE STANDARD DRAWINGS CL-4-08 AND CL-5-08 FOR ADDITIONAL LOCATION AND CLEARANCE REQUIREMENTS.
4. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.
5. METER BOX SHALL BE INSTALLED ON COMPACTED MATERIAL.



PLAN
NTS



SECTION A—
NTS

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

2" SERVICE LINE AND DETECTOR CHECK VALVE

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

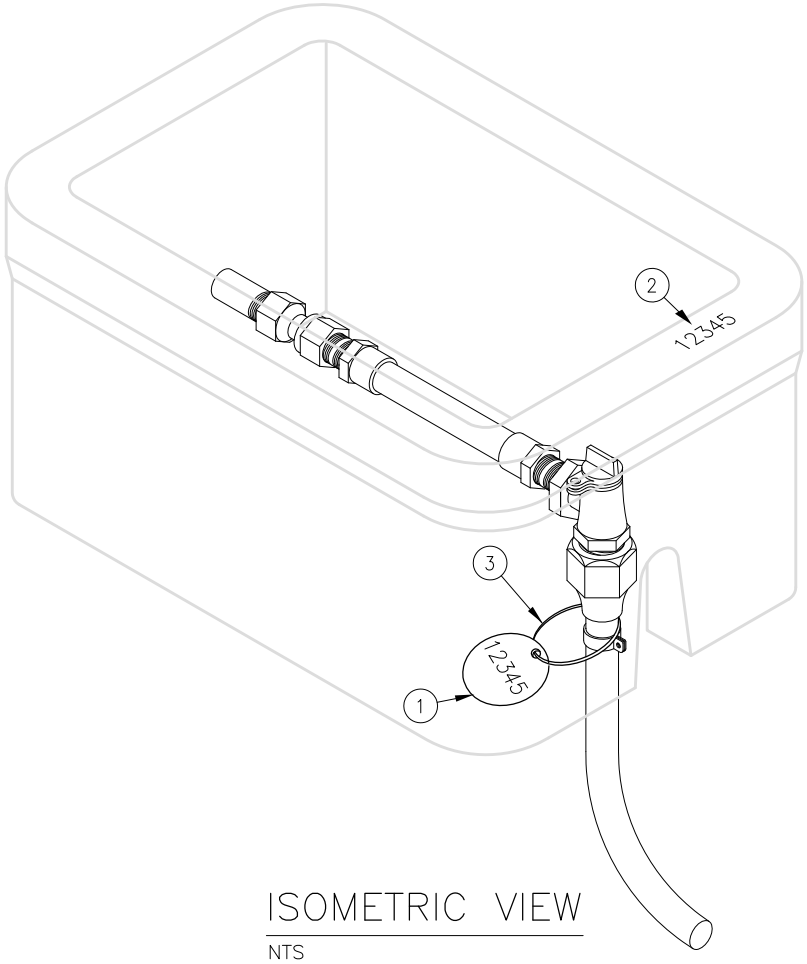
NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	DBB	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-10-08	REV. 0
DIV. MGR.	EHS		

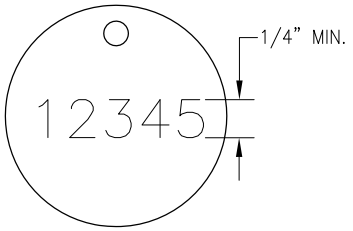
ITEM	DESCRIPTION
1	METAL TAG. SEE NOTE 1
2	ADDRESS MARKING. SEE NOTE 2
3	SELF–LOCKING WIRE OR CABLE TIE FASTENED AROUND ANGLE STOP AT CONNECTION TO SERVICE LINE

NOTES:

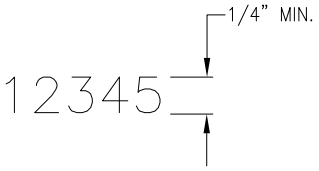
1. METAL TAG SHALL BE BRASS OR STAINLESS STEEL PLATE WITH MINIMUM 0.015" THICKNESS PRESTAMPED WITH 1/4"–HIGH NUMBERS OF THE ADDRESS OF THE UNIT WHICH IS SERVED BY THE METER. SEE DETAIL 1. METAL TAG SHALL HAVE A HOLE FOR SELF–LOCKING WIRE OR CABLE SEAL TIE.
2. LOWER RIGHT CORNER OF METER BOX RIM POLYETHYLENE FACE SHALL BE SANDED DOWN SMOOTH AND STAMPED WITH 1/4"–HIGH NUMBERS OF THE ADDRESS OF THE UNIT WHICH IS SERVED BY THE METER. SEE DETAIL 2.
3. ADDRESS LABELS AND MARKINGS ARE REQUIRED FOR ALL METERS AND DETECTOR CHECK VALVES THROUGH 2" (EXCEPT IRRIGATION METERS) THAT ARE LOCATED SUCH THAT THE BUILDING OR UNIT THE METER OR DETECTOR CHECK SERVES IS NOT READILY APPARENT, WHEN SERVICES ARE BANKED, AND AS OTHERWISE DIRECTED BY THE DISTRICT.
4. SEE STANDARD DRAWINGS S–1–08 THROUGH S–8–08 FOR METER AND METER BOX INSTALLATION DETAILS. SEE STANDARD DRAWING S–10–08 FOR DETECTOR CHECK AND METER BOX INSTALLATION DETAILS.
5. SEE STANDARD DRAWINGS CL–4–08 AND CL–5–08 FOR ADDITIONAL METER AND SERVICE LINE LOCATION AND CLEARANCE REQUIREMENTS.
6. ALL ITEMS LISTED TO BE INSTALLED BY WATER MAIN CONTRACTOR.
7. ANY SEALS OR LOCKS PLACED ON A CLOSED ANGLE METER STOP OR CURB STOP SHALL NOT BE REMOVED EXCEPT BY ACWD.



ISOMETRIC VIEW
NTS



METAL TAG 1
NTS



ADDRESS MARKING 2
NTS

ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

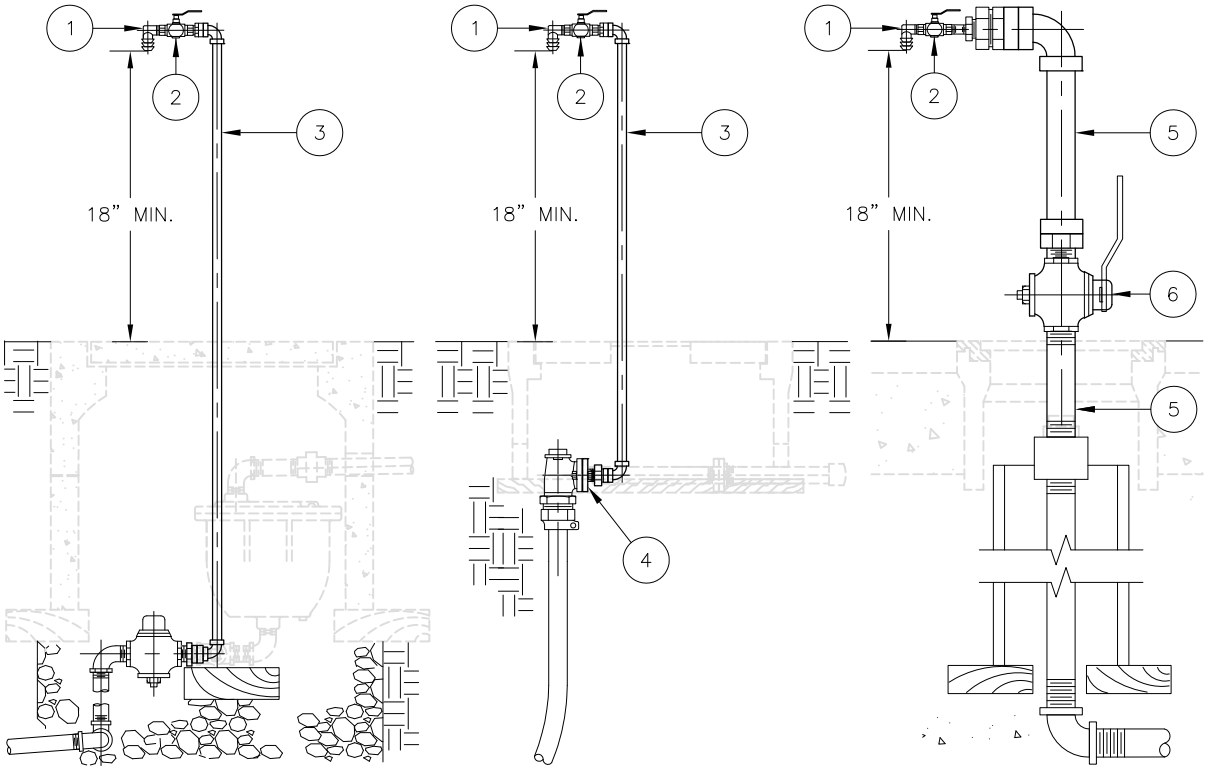
STANDARD DRAWING

ADDRESS LABELS AND MARKINGS FOR 1" THROUGH 2" SERVICE LINES

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12–08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. S-11-08	REV. 0
DIV. MGR.	EHS		



SAMPLING ASSEMBLY AT AIR VALVE INSTALLATION

SAMPLING ASSEMBLY AT SERVICE LINE INSTALLATION

SAMPLING ASSEMBLY AT BLOWOFF INSTALLATION

NOTES:

1. SAMPLING ASSEMBLY SHALL BE CONSTRUCTED OF NEW MATERIALS. NO USED MATERIALS SHALL BE ALLOWED.
2. SAMPLING ASSEMBLY SHALL CONSIST OF PIPE (PVC, TYPE L COPPER, RED BRASS OR GALVANIZED STEEL PIPE), A 3/4" FULL PORT BALL VALVE AND A BARBED BRASS OUTLET.
3. SAMPLING ASSEMBLY SHALL NOT BE ASSEMBLED UNTIL DISTRICT HAS INSPECTED ALL PARTS.
4. ALL PARTS SHALL BE CLEANED AND DISINFECTED IN A 5% SOLUTION OF SODIUM HYPOCHLORITE PRIOR TO ASSEMBLY.
5. ONCE ASSEMBLED, THE ASSEMBLY SHALL BE REDISINFECTED PRIOR TO INSTALLATION UNDER DISTRICT INSPECTION.
6. THE CONNECTION POINT (I.E., SERVICE LINE, BLOWOFF, ETC.) SHALL BE THOROUGHLY CLEANED AND DISINFECTED PRIOR TO INSTALLATION OF THE SAMPLING ASSEMBLY.
7. THE SAMPLING ASSEMBLY DISCHARGE OUTLET INSTALLED ON THE TOP OF THE RISER PIPE SHALL BE A MINIMUM OF 18" ABOVE GRADE. ONCE INSTALLED, THE SAMPLING ASSEMBLY SHALL BE THOROUGHLY FLUSHED. THE VALVE AND OUTLET SHALL BE BAGGED WITH A NEW, UNUSED, HEAVY-DUTY PLASTIC BAG AND SEALED TO PROTECT AGAINST ENTRANCE OF DUST OR DEBRIS. THE BAG SHALL BE REMOVED ONLY IMMEDIATELY PRIOR TO FLUSHING OR SAMPLING BY THE DISTRICT. THE BAG SHALL BE REPLACED IMMEDIATELY FOLLOWING FLUSHING OR SAMPLING BY THE DISTRICT.
8. NO CONNECTION SHALL BE MADE TO THE SAMPLING ASSEMBLY AT ANY TIME FOR ANY REASON.
9. THE SAMPLING ASSEMBLY SHALL NOT BE REMOVED BETWEEN SAMPLES WITHOUT SPECIFIC AUTHORIZATION BY THE DISTRICT. IF REMOVED, THE SAMPLING ASSEMBLY SHALL ONLY BE REASSEMBLED UNDER DISTRICT INSPECTION.

ITEM	DESCRIPTION
1	3/4" 90 DEGREE MIPT x BARBED BRASS ELBOW
2	3/4" FIPT x FIPT FULL PORT BALL VALVE
3	3/4" PIPING ("RISER")
4	METER COUPLING x 3/4" ADAPTER
5	2" PIPING ("RISER")
6	2" BALL VALVE (OPTIONAL)

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT

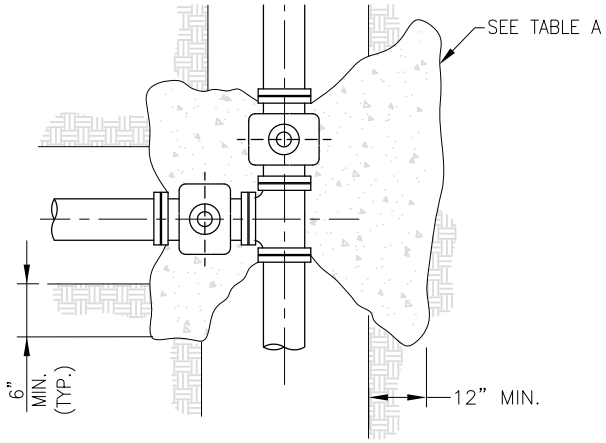
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

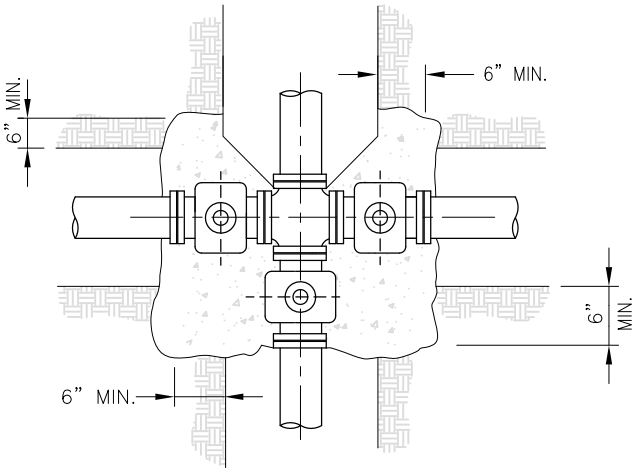
WATER QUALITY SAMPLING PIPE ASSEMBLY (TEMPORARY - FOR WATER SYSTEM CONSTRUCTION)

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

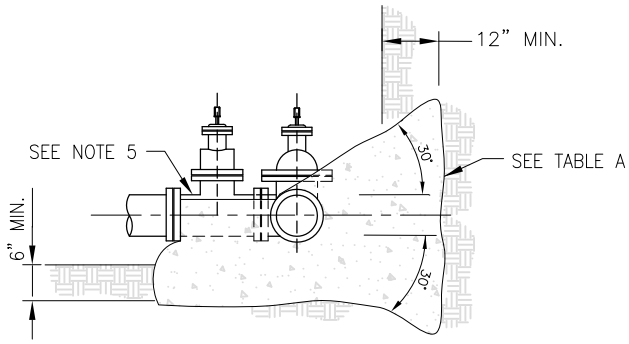
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. SP-1-08	REV. 0
DIV. MGR.	EHS		



PLAN

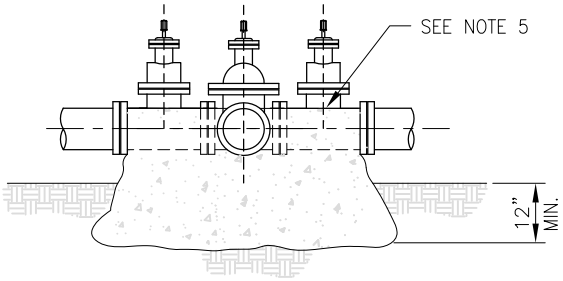


PLAN



PROFILE

TEE INSTALLATION DETAIL 1
NTS



PROFILE

CROSS INSTALLATION DETAIL 2
NTS

NOTES:

1. DETAILS BASED ON 150 P.S.I. WATER MAIN PRESSURE, 1,000 P.S.F. SOIL BEARING. USE 6 SACK 3/4" AGGREGATE MAX. CONCRETE MIX.
2. COAT FITTINGS AND VALVES PRIOR TO PLACEMENT IN TRENCH PER SPECIFICATIONS.
3. CAST CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH.
4. CONCRETE SHALL NOT BE CAST AGAINST PVC PIPE.
5. MAINTAIN CLEARANCE FOR BONNET BOLT REMOVAL.

TABLE A

REQUIRED BEARING AREA	
PIPE DIAM.	SQ. FT.
6"	5
8"	8
10"	12
12"	17

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

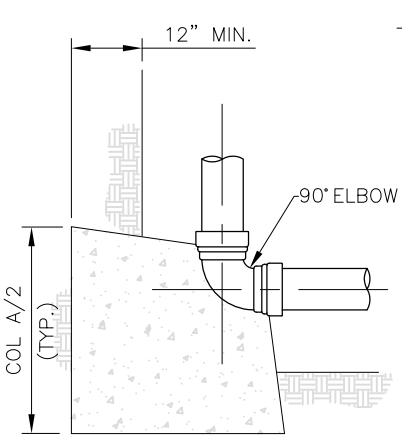
STANDARD DRAWING

THRUST BLOCKING FOR PVC PIPE VALVE CLUSTERS

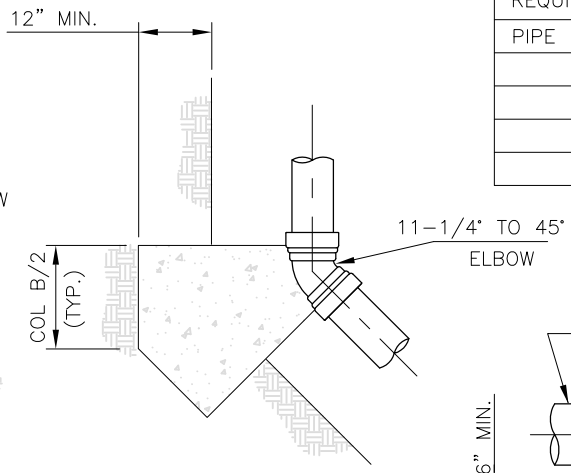
NO.	DATE	REVISION	BY	APP.
1	01-09	CORRECTED TRENCH LIMIT LINES	RMF	LJA
0	12-08	REPLACES STD. DWG. TB-1	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. TB-1-08	REV. 1
DIV. MGR.	EHS		

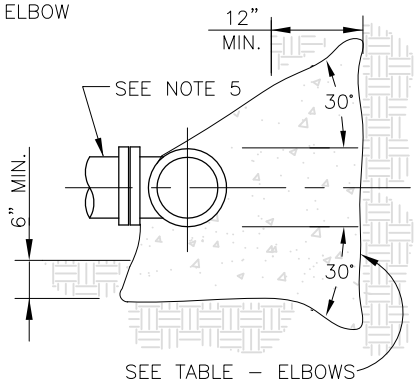
TABLE – ELBOWS		
REQUIRED BEARING AREAS – SQ. FT.		
PIPE DIAMETER	A	B
6"	6	4
8"	11	6
10"	17	9
12"	24	13



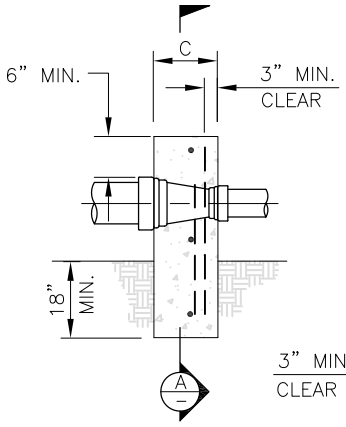
90° ELBOW PLAN VIEW NTS — 1

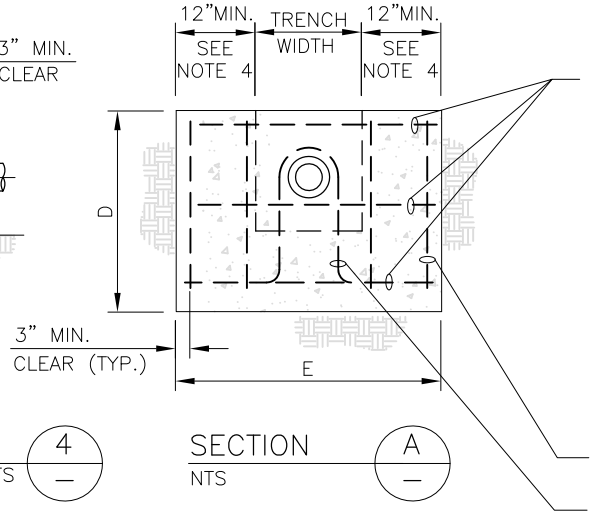


11–1/4° TO 45° ELBOW PLAN VIEW NTS — 2



ELBOWS PROFILE VIEW NTS — 3





REDUCER PROFILE VIEW NTS — 4

SECTION NTS — A

TABLE – REDUCERS			
REDUCER SIZE	DIMENSION		
	C	D	E
8" x 6"	9"	2'–6"	4'–0"
12" x 6"	12"	3'–6"	5'–0"
12" x 8"	12"	3'–0"	5'–0"
14" x 8"	14"	4'–6"	5'–0"
14" x 12"	14"	3'–0"	5'–0"

NOTES:

1. DETAILS BASED ON 150 P.S.I. PRESSURE, 1,000 P.S.F. SOIL BEARING. USE 6 SACK 3/4" AGGREGATE MAX. CONCRETE MIX.
2. COAT FITTING PER SPECIFICATIONS PRIOR TO PLACEMENT IN TRENCH.
3. CAST CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH.
4. THRUST BLOCKS TO EXTEND INTO UNDISTURBED EARTH EQUAL DISTANCES ON EACH SIDE OF THE MAIN.
5. CONCRETE SHALL NOT BE CAST AGAINST PVC PIPE.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT

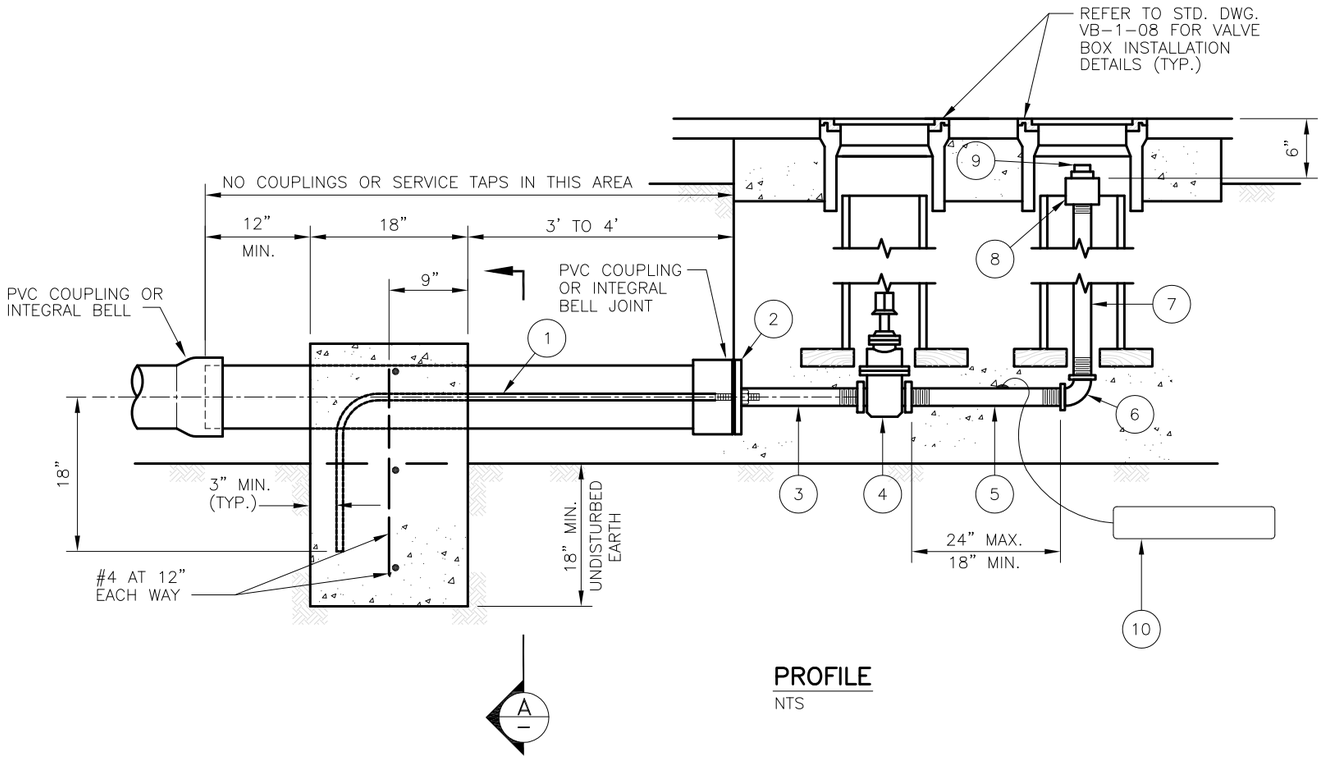
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537–5110
(510) 668–4200

STANDARD DRAWING

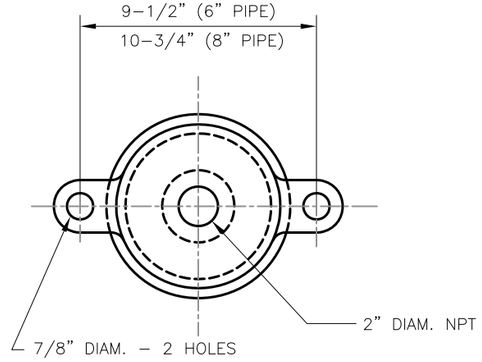
THRUST BLOCKING FOR PVC PIPE HORIZONTAL FITTINGS

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. TB–2	RMF	LJA

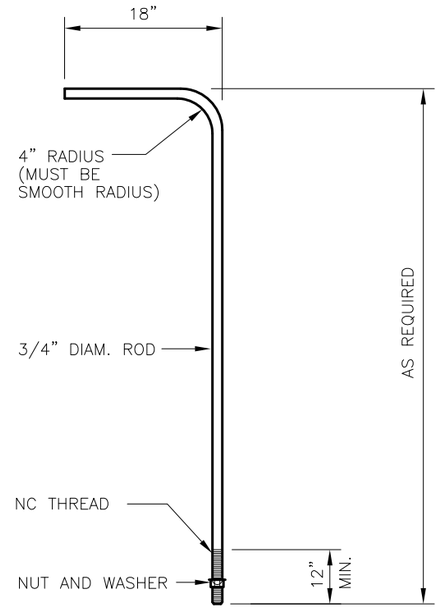
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. TB-2-08	REV. 0
DIV. MGR.	EHS		



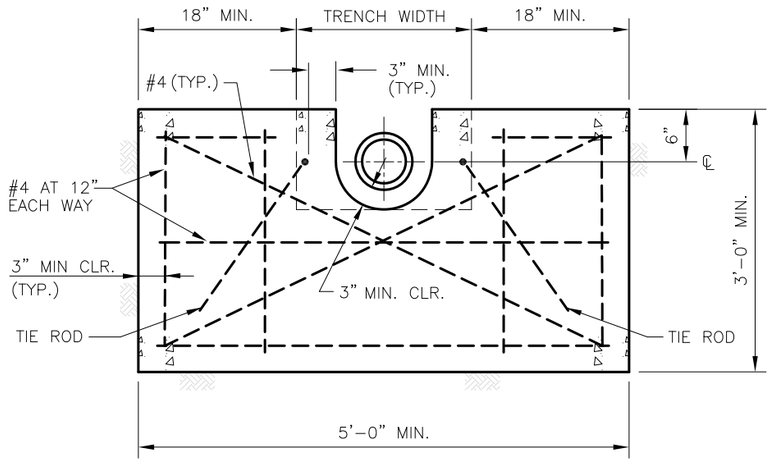
PROFILE
NTS



END PLUG/CAP DETAIL 2
NTS



TIE ROD DETAIL 1
NTS



SECTION A
NTS

MATERIAL LIST

ITEM	DESCRIPTION
1	TIE ROD (2). SEE DETAIL 1
2	2" NPT TAPPED GRAY OR DUCTILE IRON PLUG OR CAP WITH EARS. SEE DETAIL 2
3	2"X12" GALVANIZED NIPPLE, THREADED
4	2" SCREWED GATE VALVE N.R.S. WITH 2" SQUARE OPERATING NUT
5	2" GALVANIZED NIPPLE, THREADED
6	2" 90° GALVANIZED ELBOW, THREADED
7	2" GALVANIZED NIPPLE, THREADED
8	2" GALVANIZED COUPLING, THREADED
9	2" GALVANIZED PLUG, THREADED (HAND TIGHT)
10	PREPACKAGED ZINC ANODE. SEE NOTE 6

NOTES:

1. CLEAN AND COAT ALL FERROUS METAL AS SPECIFIED.
2. PORTION OF TIE RODS IMBEDDED IN CONCRETE ARE NOT TO BE COATED.
3. CONCRETE TO BE 6 SACK 3/4" MIX.
4. ALL BLOWOFFS SHALL HAVE CURB MARKINGS OR MARKER POSTS. SEE STANDARD DRAWING MP-1-08.
5. FOR ANODE CONNECTION, SEE STANDARD DRAWING ET-1-08.
6. PLACE PREPACKAGED ZINC ANODE IN TRENCH SO AS TO MAXIMIZE DISTANCE BETWEEN GALVANIZED PIPE AND ANODE. ANODES SHALL BE HIGH PURITY ZINC MEETING ASTM B418, TYPE II.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. TB-3	RMF	LJA

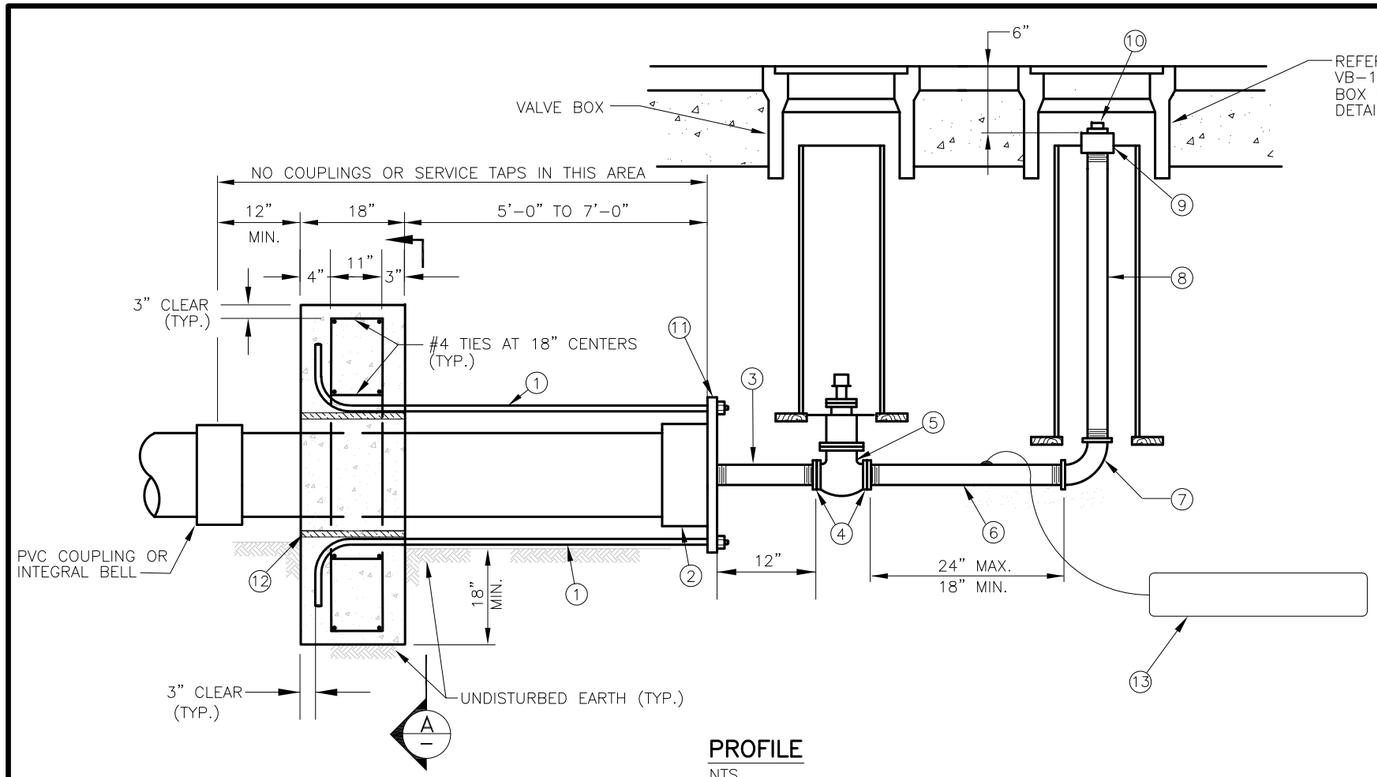
DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

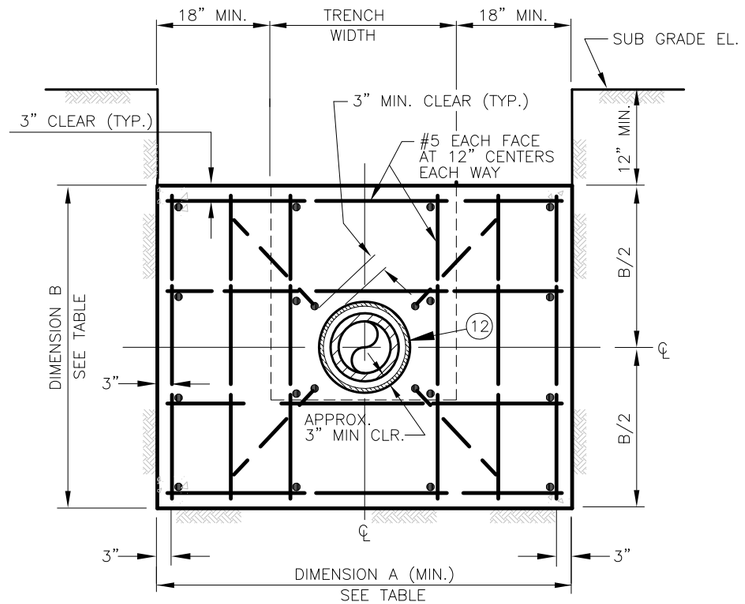
STANDARD DRAWING

STANDARD BLOWOFF FOR 6" AND 8" PVC MAINS

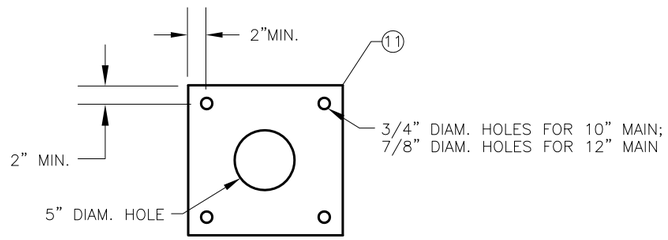
DATE: DEC. 2008
SCALE: NONE
DWG. NO. TB-3-08
REV. 0



PROFILE
NTS



SECTION A — A
NTS



STEEL PLATE DETAIL FOR STANDARD BLOWOFF — 2 / —
NTS

NOTES:

1. CLEAN AND COAT ALL FERROUS METAL AS SPECIFIED.
2. PORTION OF TIE RODS IMBEDDED IN CONCRETE ARE NOT TO BE COATED.
3. CONCRETE TO BE 6 SACK 3/4" MIX.
4. ALL BLOWOFFS SHALL HAVE CURB MARKINGS OR MARKER POSTS. SEE STANDARD DRAWING MP-1-08.
5. FOR ANODE CONNECTION, SEE STANDARD DRAWING ET-1-08.
6. PLACE PREPACKAGED ZINC ANODE IN TRENCH SO AS TO MAXIMIZE DISTANCE BETWEEN GALVANIZED PIPE AND ANODE. ANODES SHALL BE HIGH PURITY ZINC MEETING ASTM B418, TYPE II.

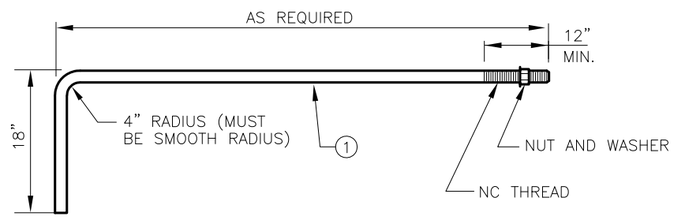
APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

MATERIAL LIST

ITEM	QTY	FOR MAIN SIZE 10"	FOR MAIN SIZE 12"	DESCRIPTION
1	4	5/8" DIAM.	3/4" DIAM.	TIE ROD. SEE DETAIL 1
2	1	10"x4"	12"x4"	DUCTILE OR GRAY IRON END CAP OR PLUG FOR PVC PIPE, WITH THREADED TAP
3	1	4"	4"	GALVANIZED NIPPLE, THREADED ENDS
4	2	4"	4"	THREADED FLANGE
5	1	4"	4"	FLG. GATE VALVE, N.R.S. WITH 2" OPERATING NUT
6	1	4"	4"	GALVANIZED NIPPLE, THREADED ENDS
7	1	4"	4"	90° GALVANIZED THREADED ELL
8	1	4"	4"	GALVANIZED NIPPLE, THREADED
9	1	4"	4"	GALVANIZED COUPLING, THREADED
10	1	4"	4"	GALVANIZED BAR TYPE PLUG, THREADED (HAND TIGHT)
11	1	20"x20"x1/2"	22"x22"x5/8"	STEEL PLATE DRILLED FOR ANCHOR RODS. SEE DETAIL 2
12	1	VARIES	VARIES	PIPE SLEEVE (CYLINDRICAL CONCRETE FORM OR APPROVED PIPING MATERIAL)
13	1	—	—	PREPACKAGED ZINC ANODE. SEE NOTE 6

TABLE
DIMENSIONS FOR REVERSE ANCHOR

SIZE MAIN	DIMENSION A	DIMENSION B
10"	5'-0"	4'-0"
12"	5'-6"	5'-0"



TIE ROD DETAIL — 1 / —
NTS

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. TB-4	RMF	LJA

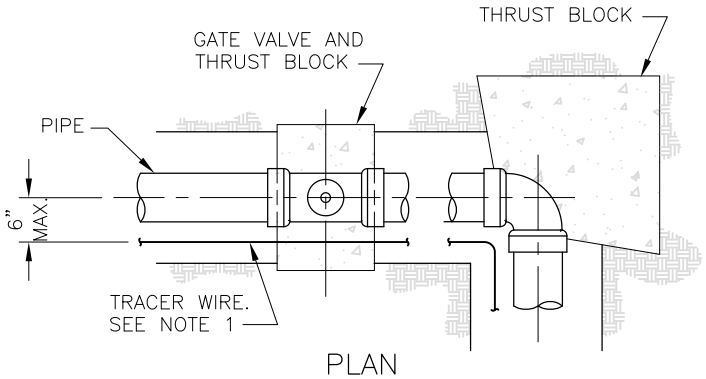
DESIGNED ACWD
DRAWN RMF
CHECKED LJA
DIV. MGR. EHS

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

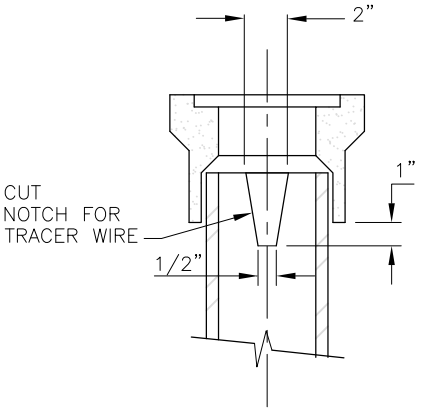
STANDARD DRAWING

STANDARD BLOWOFF FOR 10" AND 12" PVC MAINS

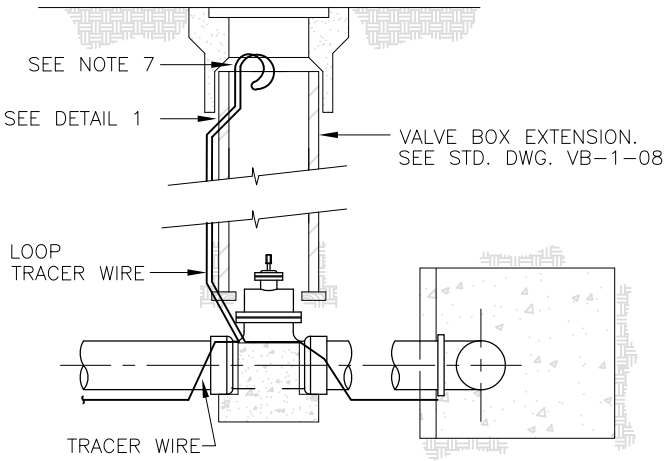
DATE: DEC. 2008
SCALE: NONE
DWG. NO. TB-4-08
REV. 0



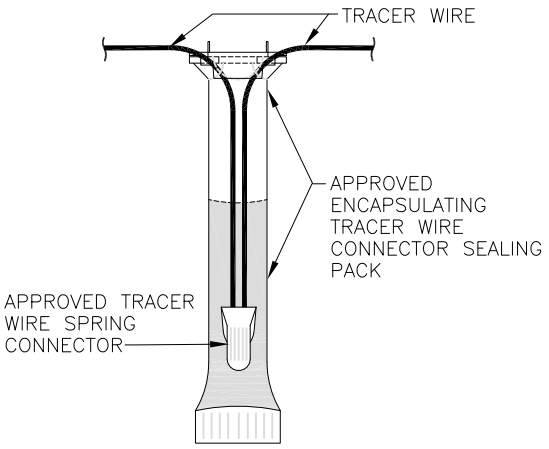
PLAN
NTS



DETAIL 1
NTS



PROFILE
NTS



SPLICE KIT DETAIL 2
NTS

NOTES:

1. CONTRACTOR SHALL USE CARE TO PREVENT DAMAGE TO TRACER WIRE WHEN PLACING CONCRETE.
2. ALL TRACER WIRES SHALL BE STRANDED COPPER, A.W.G. NO. 10 WITH U.S.E. RATED INSULATION, COLOR BLACK.
3. TRACER WIRE SPLICES SHALL BE MADE WITH APPROVED CONNECTORS AND ENCAPSULATED IN APPROVED TRACER WIRE CONNECTOR SEALING PACKS OR APPROVED SPLICE KITS. SEE DETAIL 2.
4. TRACER WIRE SHALL BE INTER-CONNECTED AT PIPE TEES AND CROSSES.
5. CONTINUITY TEST SHALL BE CONDUCTED AS DIRECTED BY THE DISTRICT.
6. TRACER WIRE REQUIRED ON ALL NON-METALLIC MAINS AND SERVICE LINES.
7. LEAVE 2'-0" MIN. EXCESS WIRE.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

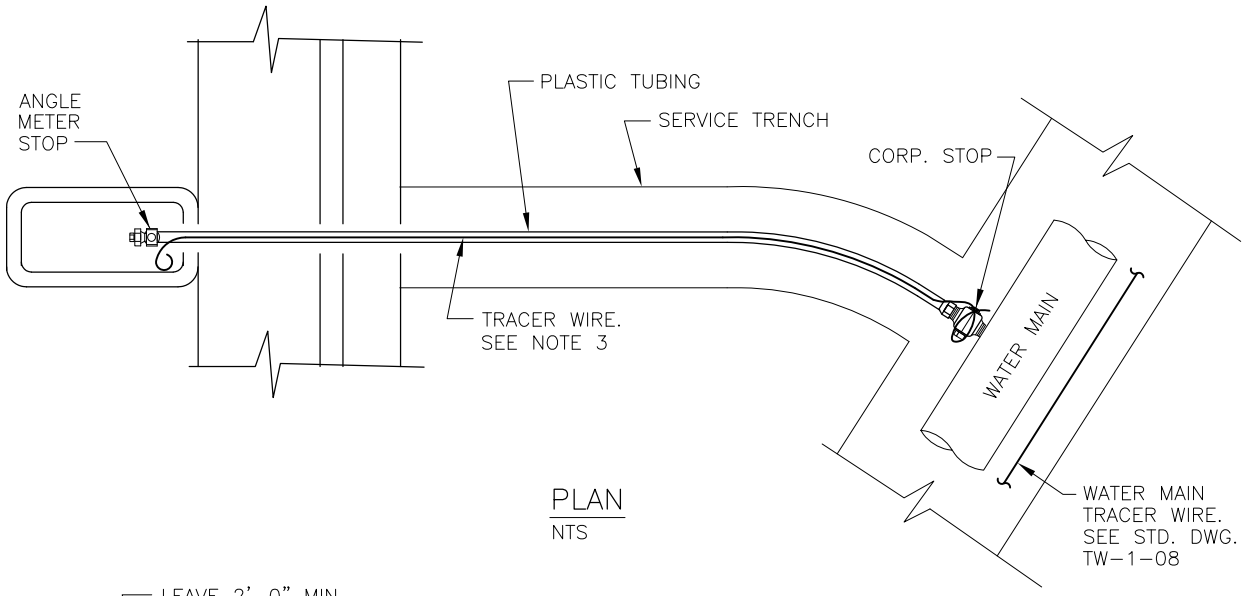
ACWD
ALAMEDA COUNTY WATER DISTRICT
ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
P.O. BOX 5110
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

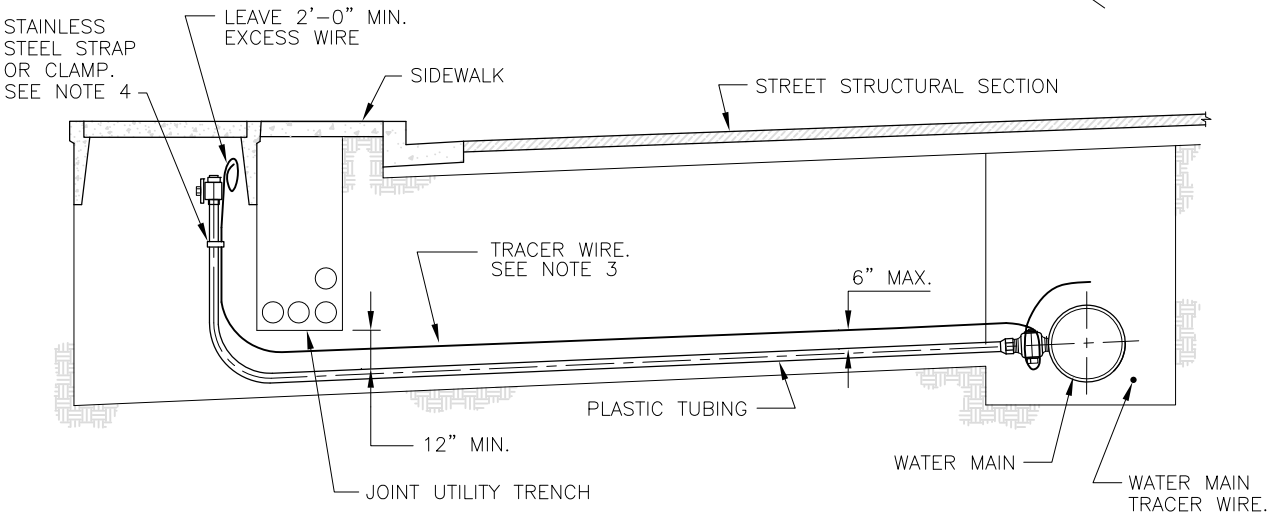
TRACER WIRE FOR MAINS AND VALVES

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. TW-1	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. TW-1-08	REV. 0
DIV. MGR.	EHS		



PLAN
NTS



PROFILE
NTS

NOTES:

1. TIE OFF TRACER WIRE TO SERVICE CORPORATION STOP. DO NOT CONNECT TO WATER MAIN TRACER WIRE.
2. TRACER WIRE SHALL BE INSTALLED ON ALL NON-METALLIC SERVICE LINES.
3. TRACER WIRE SHALL BE STRANDED COPPER, A.W.G. NO. 10 WITH U.S.E. RATED INSULATION, COLOR BLACK.
4. TRACER WIRE SHALL BE ATTACHED TO VERTICAL PORTION OF SERVICE LINE WITH STAINLESS STEEL STRAP OR CLAMP.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ACWD
ALAMEDA COUNTY WATER DISTRICT

ALAMEDA COUNTY WATER DISTRICT
43885 SOUTH GRIMMER BOULEVARD
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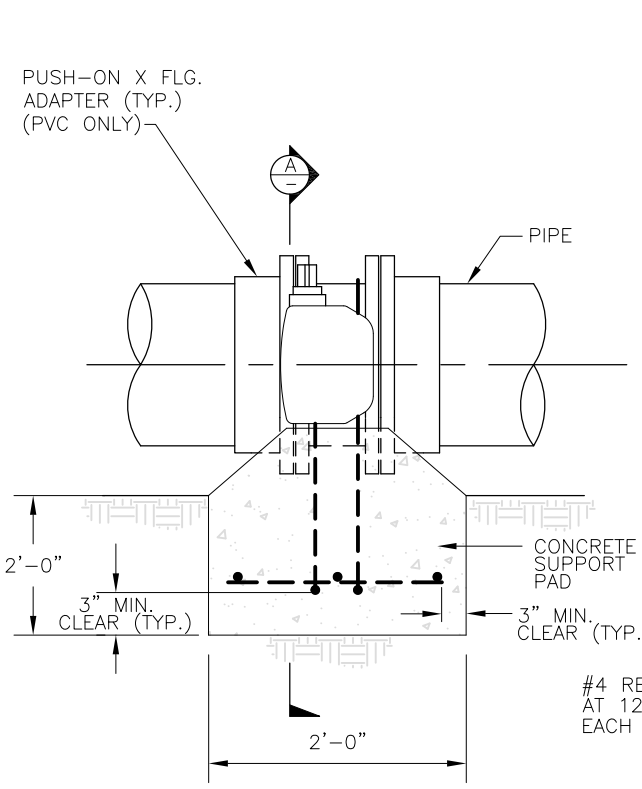
FREMONT, CA 94537-5110
(510) 668-4200

STANDARD DRAWING

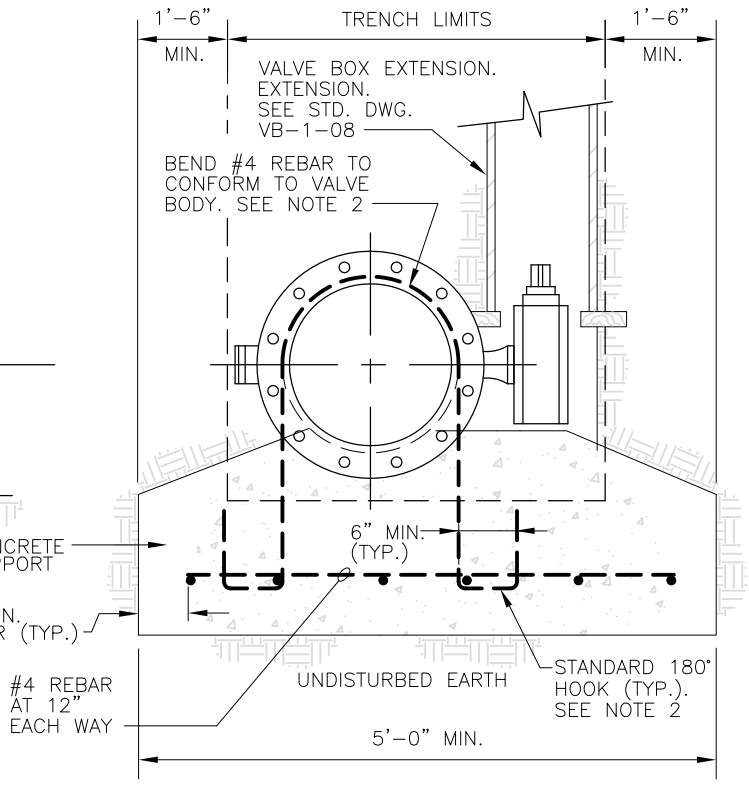
TRACER WIRE FOR SERVICE LINES

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. TW-2	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. TW-2-08	REV. 0
DIV. MGR.	EHS		



PROFILE
NTS



SECTION A–A
NTS

BUTTERFLY VALVE INSTALLATION

NOTES:

1. COAT VALVE AND MISCELLANEOUS FERROUS METAL PRIOR TO PLACEMENT IN TRENCH IN ACCORDANCE WITH SPECIFICATIONS.
2. THE BENT REBARS ARE NOT REQUIRED FOR INSTALLATION OF FLANGED VALVES ON STEEL PIPE, EXCEPT WHEN SPECIFIED BY DISTRICT.
3. ALL BUTTERFLY VALVES SHALL HAVE CURB MARKINGS OR MARKER POSTS. SEE STANDARD DRAWING MP–1–08.
4. BONDING WIRES REQUIRED FOR VALVE INSTALLATIONS ON STEEL PIPE. SEE STANDARD DRAWING ET–6–08.
5. AFTER PAVING, RAISE VALVE BOX TO PERMANENT GRADE, CAST CONCRETE COLLAR AND REPAIR PAVEMENT. SEE STANDARD DRAWING VB–1–08.
6. OPERATING NUT SHALL BE LOCATED ON SIDE OF MAIN OPPOSITE THE NEAREST CURB.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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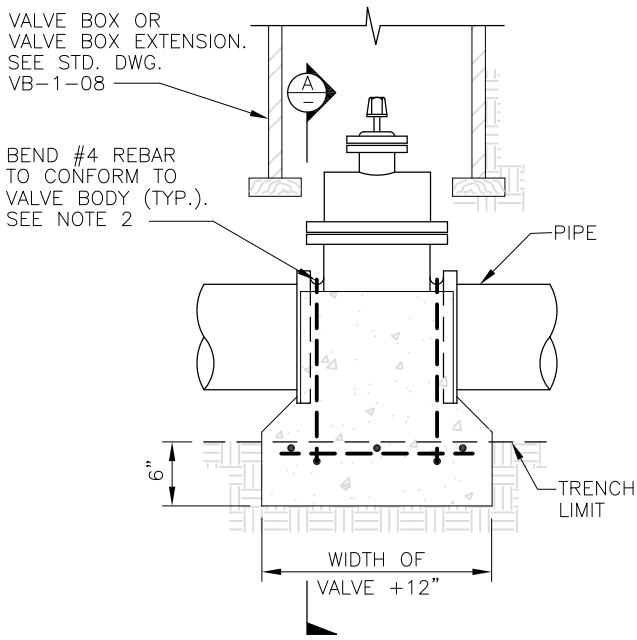
STANDARD DRAWING

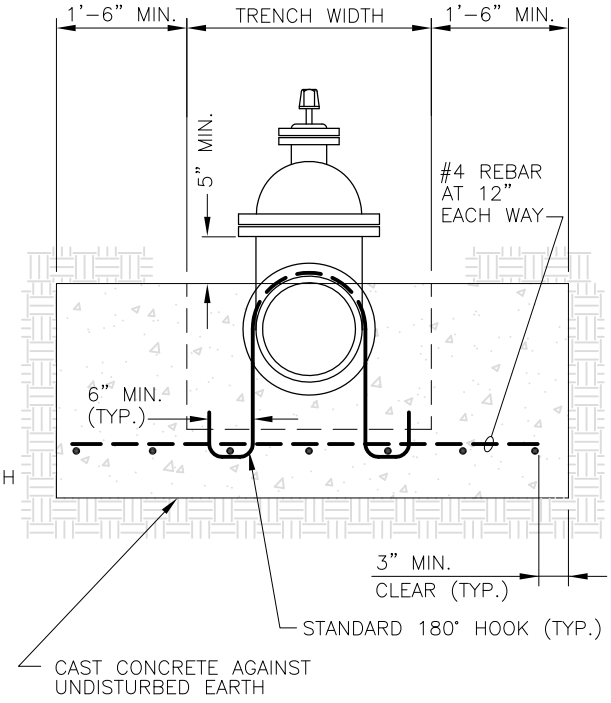
LINE BUTTERFLY VALVE

NO.	DATE	REVISION	BY	APP.
0	12–08	REPLACES STD. DWG. V–1	RMF	LJA

DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. V-1-08	REV. 0
DIV. MGR.	EHS		



PROFILE
NTS



SECTION A—
NTS

GATE VALVE INSTALLATION

NOTES:

1. COAT VALVE AND MISCELLANEOUS FERROUS METAL PRIOR TO PLACEMENT IN TRENCH IN ACCORDANCE WITH SPECIFICATIONS.
2. THE BENT REBARS ARE NOT REQUIRED FOR INSTALLATION OF FLANGED VALVES ON STEEL PIPE, EXCEPT WHEN SPECIFIED BY DISTRICT.
3. UNLESS OTHERWISE REQUIRED BY THE DISTRICT, VALVES INSTALLED ON STEEL PIPE REQUIRE ONLY A CONCRETE SUPPORT PAD EXTENDING INTO UNDISTURBED EARTH 12" MINIMUM DEPTH.
4. ALL GATE VALVES SHALL HAVE CURB MARKINGS OR MARKER POSTS. SEE STANDARD DRAWING MP-1-08.
5. BONDING WIRES REQUIRED FOR VALVE INSTALLATIONS ON STEEL PIPE. SEE STANDARD DRAWING ET-6-08.
6. AFTER PAVING, RAISE VALVE BOX TO PERMANENT GRADE, CAST CONCRETE COLLAR AND REPAIR PAVEMENT. SEE STANDARD DRAWING VB-1-08.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

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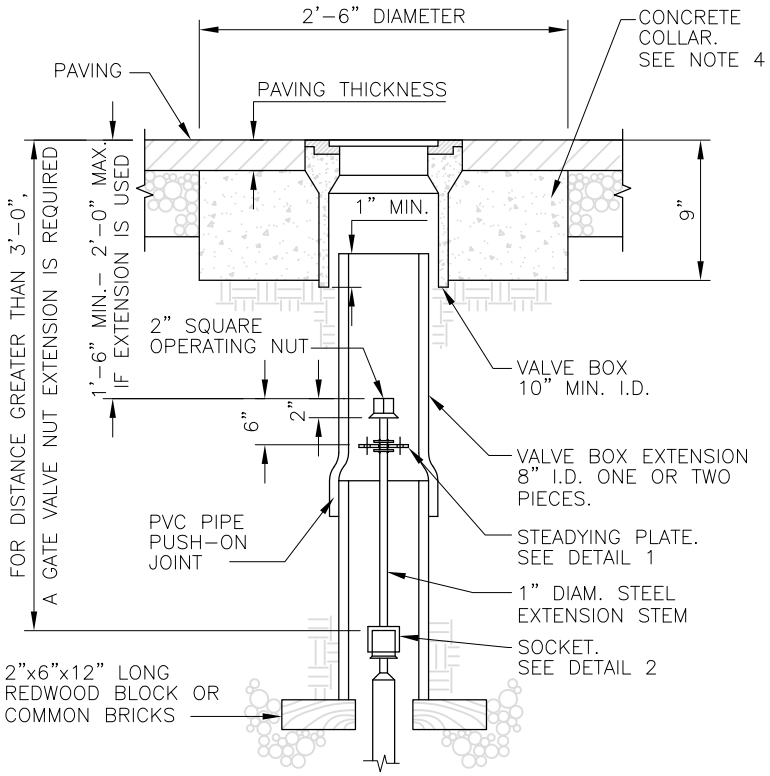
STANDARD DRAWING

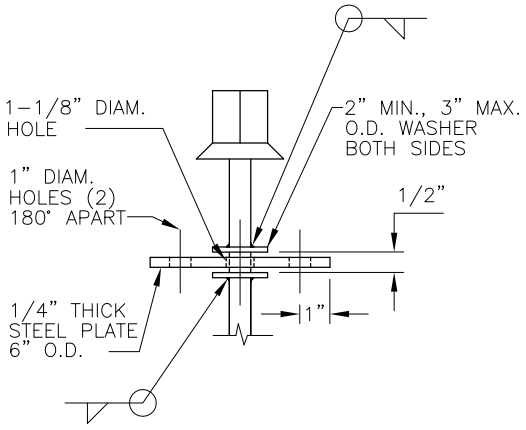
LINE GATE VALVE

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. V-2	RMF	LJA

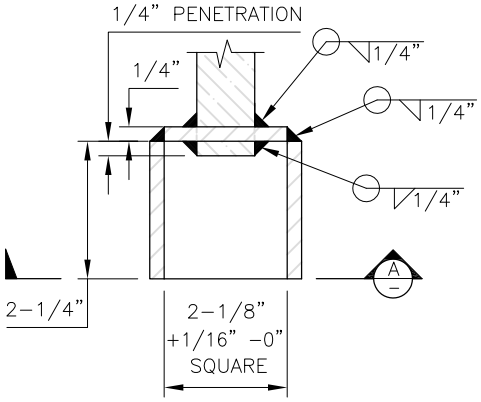
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. V-2-08	REV. 0
DIV. MGR.	EHS		



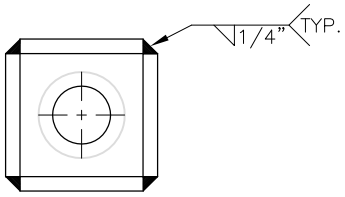
VALVE BOX
NTS



STEADYING PLATE DETAIL 1
NTS



SOCKET DETAIL 2
NTS



SECTION A
NTS

NOTES:

1. CONCRETE SHALL BE 6 SACK 3/4" MAXIMUM AGGREGATE SIZE.
2. AFTER PAVING, RAISE VALVE BOX TO PERMANENT GRADE, CAST CONCRETE COLLAR AND REPAIR PAVEMENT.
3. AFTER FABRICATION OF VALVE STEM EXTENSION ASSEMBLY COAT ENTIRE ASSEMBLY WITH TWO COATS OF RUST-OLEUM PRIMER OR APPROVED EQUAL.
4. IN UNPAVED AREAS, CONCRETE COLLAR TO BE INSTALLED FLUSH WITH VALVE BOX LID. THE SURFACE OF THE CONCRETE COLLAR SHALL SLOPE AWAY FROM THE VALVE BOX LID WITH 2% SLOPE ON FINISHED CONCRETE SURFACE. GRADE OF VALVE BOX LID TO BE DETERMINED BY DISTRICT.
5. ANY TRACER WIRES PRESENT SHALL BE INSTALLED IN THE VALVE BOX IN ACCORDANCE WITH STANDARD DRAWING TW-1-08.
6. FOR DESIGNATION ON CURB OR MARKER POST, SEE STANDARD DRAWING MP-1-08.

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

ALAMEDA COUNTY WATER DISTRICT
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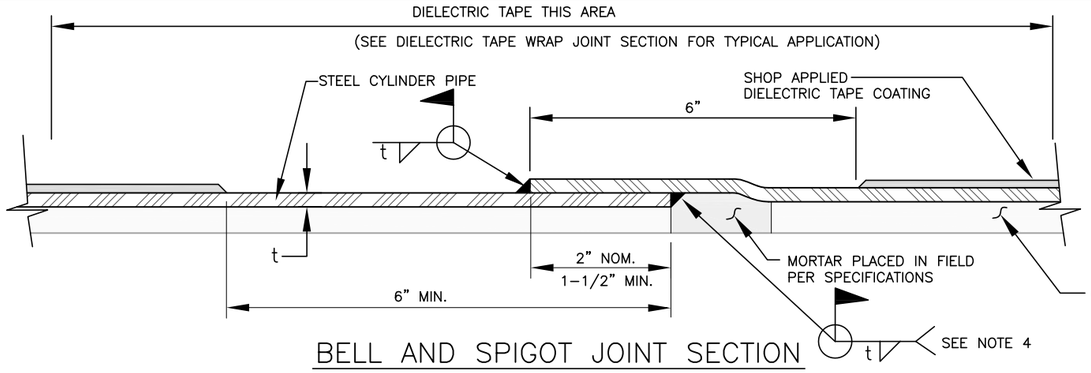
(510) 668-4200

STANDARD DRAWING

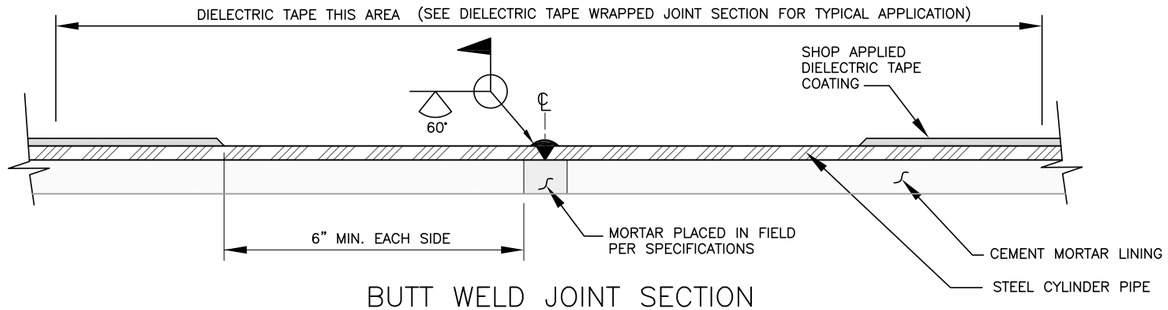
VALVE BOX

NO.	DATE	REVISION	BY	APP.
0	12-08	REPLACES STD. DWG. VB-1	RMF	LJA

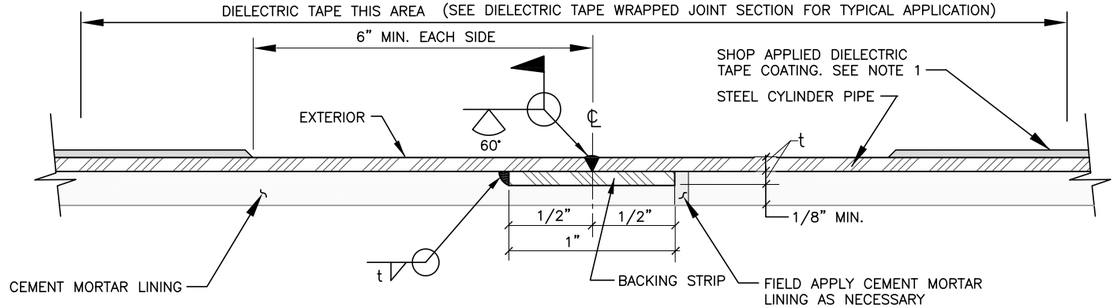
DESIGNED	ACWD	DATE: DEC. 2008	
DRAWN	RMF	SCALE: NONE	
CHECKED	LJA	DWG. NO. VB-1-08	REV. 0
DIV. MGR.	EHS		



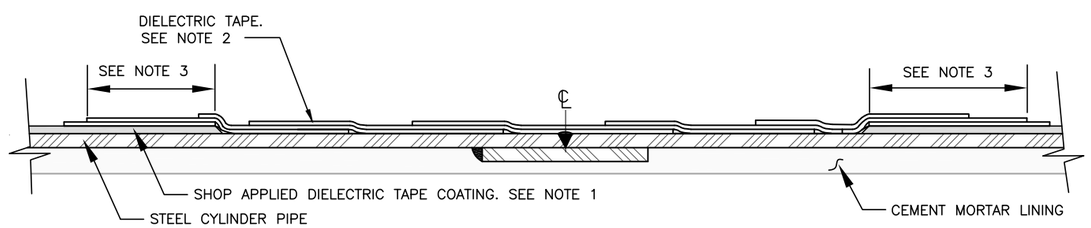
BELL AND SPIGOT JOINT SECTION



BUTT WELD JOINT SECTION

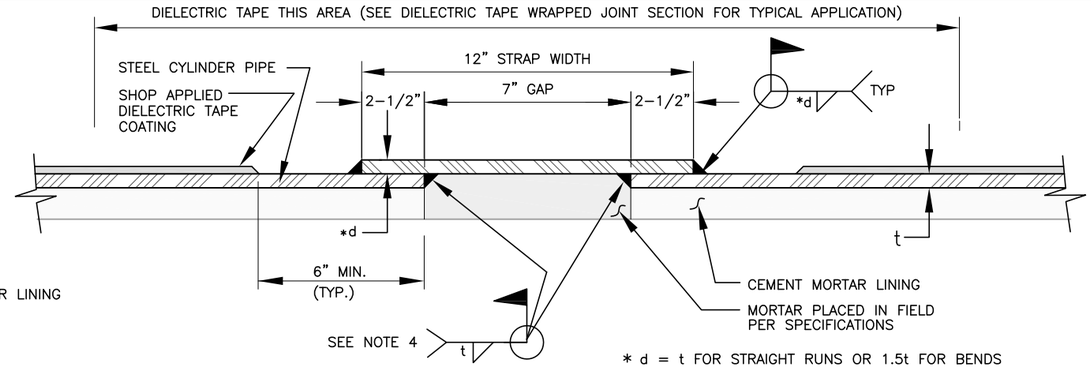


FULL PENETRATION BUTT WELD JOINT WITH BACKING STRIP



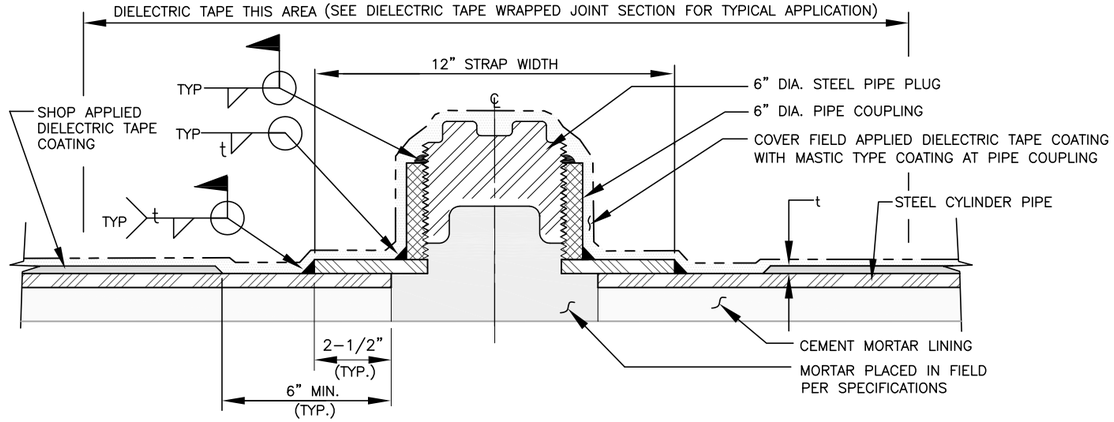
DIELECTRIC TAPE WRAPPED JOINT SECTION

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

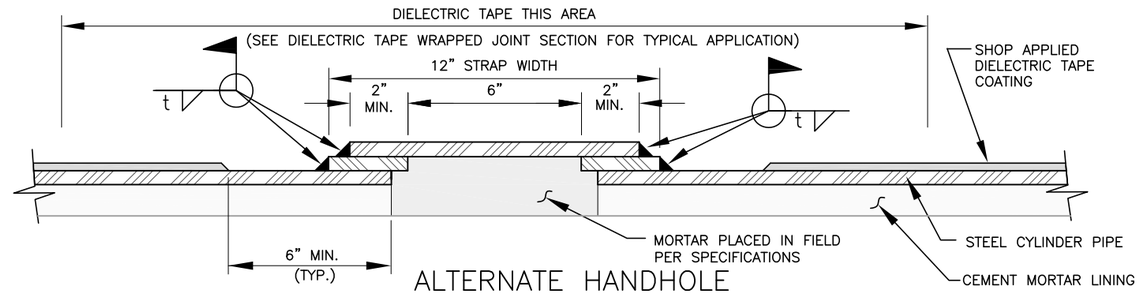


* d = t FOR STRAIGHT RUNS OR 1.5t FOR BENDS

BUTT STRAP JOINT SECTION



BUTT STRAP JOINT SECTION WITH HANDHOLE



ALTERNATE HANDHOLE

NOTES:

1. MINIMUM THICKNESS OF DIELECTRIC TAPE COATING SHALL BE AS STATED IN SPECIFICATIONS.
2. EACH WRAP OF DIELECTRIC TAPE SHALL OVERLAP THE PRECEDING WRAP BY 5/8 x TAPE WIDTH.
3. A DOUBLE WRAP OF DIELECTRIC TAPE SHALL EXTEND A MINIMUM OF 4" BEYOND THE POINT WHERE DIELECTRIC TAPE COATING IS SPECIFIED THICKNESS. TYPICAL ALL FIELD WRAPPED JOINTS.
4. OPTIONAL INSIDE WELD FOR PIPE 36" DIAMETER AND LARGER WITH ADEQUATE VENTILATION.
5. THICKNESS OF BUTT STRAP AND MORTAR ACCESS PLATE TO BE SAME OR THICKER THAN CYLINDER PIPE USED ON.

NO.	DATE	REVISION	BY	APP.
0	12-08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

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43885 SOUTH GRIMMER BOULEVARD
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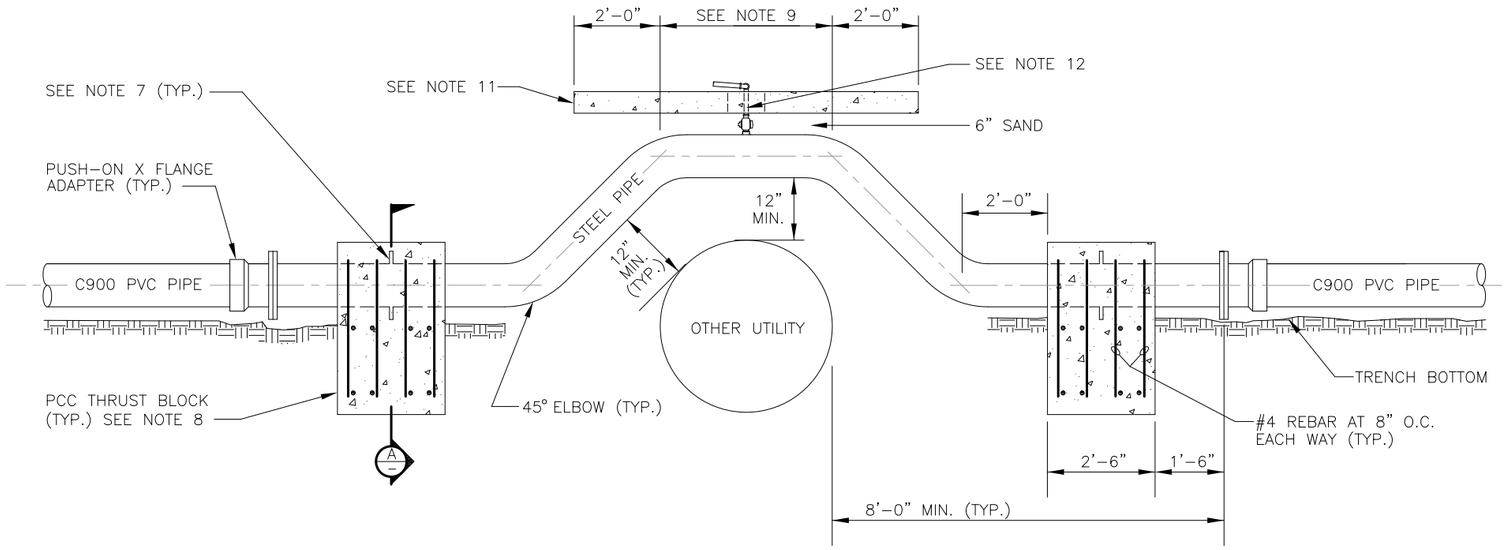
STANDARD DRAWING

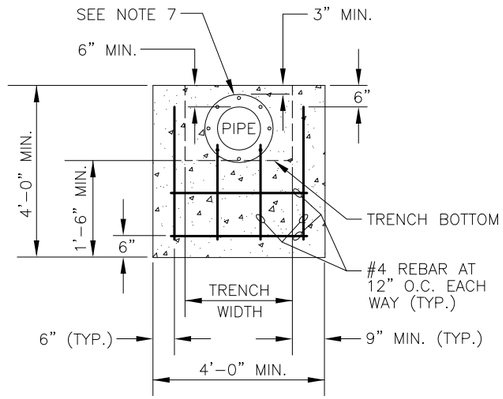
STEEL PIPE WELDED JOINTS

DATE: DEC. 2008
SCALE: NONE
DWG. NO. WSP-1-08
REV. 0



PROFILE

NTS

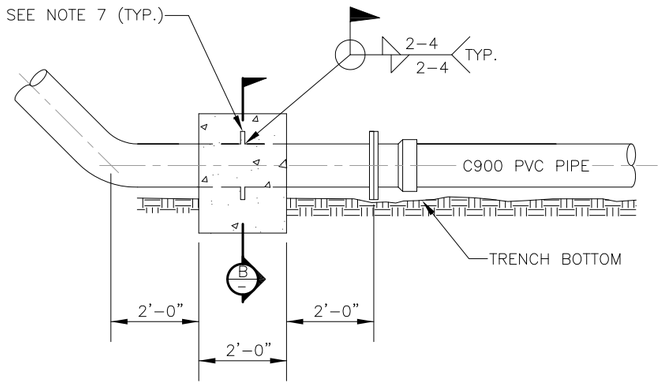


SECTION A–A

NTS

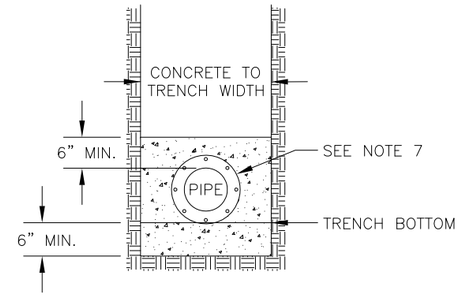
NOTES:

1. SAME DIMENSIONS APPLY FOR CROSSINGS UNDER AND OVER OTHER UTILITIES.
2. 6" AND 8" STEEL PIPE SHALL BE SCHEDULE 40 WITH 1/4" MORTAR LINING. 12" STEEL PIPE SHALL BE STANDARD STEEL WITH 5/16" MORTAR LINING.
3. STEEL PIPE SHALL BE FACTORY PRIMED AND DOUBLE TAPE WRAPPED PER STANDARD SPECIFICATIONS.
4. ALL STEEL PIPE JOINTS SHALL BE FULLY WELDED.
5. MAGNESIUM ANODE(S) REQUIRED PER STANDARD SPECIFICATIONS. CONNECT ANODE WIRE(S) TO PIPE IN ACCORDANCE WITH STANDARD DRAWING ET–1–08.
6. CLEARANCE BETWEEN WATER MAIN AND OTHER UTILITY SHALL BE 12" MINIMUM ON ALL SIDES.
7. WELD A SLIP–ON WELD FLANGE ON THE PIPE AT THE CENTERLINE OF EACH THRUST BLOCK. FLANGES EMBEDDED IN THRUST BLOCKS TO BE UNCOATED (BARE STEEL), AWWA CLASS B HUB TYPE OR RING TYPE FLANGES.
8. FOR 6" DIAMETER AND 8" DIAMETER OFFSETS OF LESS THAN THREE VERTICAL FEET, USE CONCRETE THRUST BLOCK PER DETAIL 1.
9. LENGTH VARIES ACCORDING TO DIAMETER OF OTHER UTILITY.
10. NO PORTION OF ANY STEEL OFFSET CONSTRUCTED WITHIN THE LIMITS OF STREET RIGHT–OF–WAY SHALL HAVE LESS THAN MINIMUM PIPE COVER.
11. IF A PCC CAP IS REQUIRED, A PCC SHALL BE 6" THICK AND 4'–0" WIDE OR 1'–0" WIDER THAN TRENCH WIDTH, WHICHEVER IS GREATER, WITH #4 REBAR AT 12" O.C. EACH WAY.
12. IF AN AIR VALVE IS REQUIRED IN AN AREA COVERED BY A PCC CAP, A RED BRASS NIPPLE SHALL BE INSTALLED ABOVE THE CORPORATION STOP SO THAT THE AIR VALVE LATERAL EXTENDS ABOVE THE PCC CAP. HOLD BACK CONCRETE FROM CORPORATION STOP AND NIPPLE 3" ALL AROUND. AIR VALVE SHALL BE INSTALLED PER STANDARD DRAWING AV–1–08.
13. ALL PIPE WELDS TO BE BUTT WELDS IN ACCORDANCE WITH STANDARD DRAWING WSP–1–08.
14. A PCC CAP IS REQUIRED OVER ANY PORTION OF A STEEL OFFSET CONSTRUCTED OUTSIDE THE LIMITS OF STREET RIGHT–OF–WAY THAT IS LESS THAN MINIMUM COVER.



DETAIL 1

NTS



SECTION B–B

NTS

APPROVED _____ 12/15/2008
ENGINEERING MANAGER DATE

NO.	DATE	REVISION	BY	APP.
0	12–08	NEW STD. DWG.	RMF	LJA

DESIGNED	ACWD
DRAWN	RMF
CHECKED	LJA
DIV. MGR.	EHS

ALAMEDA COUNTY WATER DISTRICT

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STANDARD DRAWING

WELDED STEEL OFFSET ON PVC PIPE

DATE: DEC. 2008
SCALE: NONE
DWG. NO. WSP-2-08
REV. 0