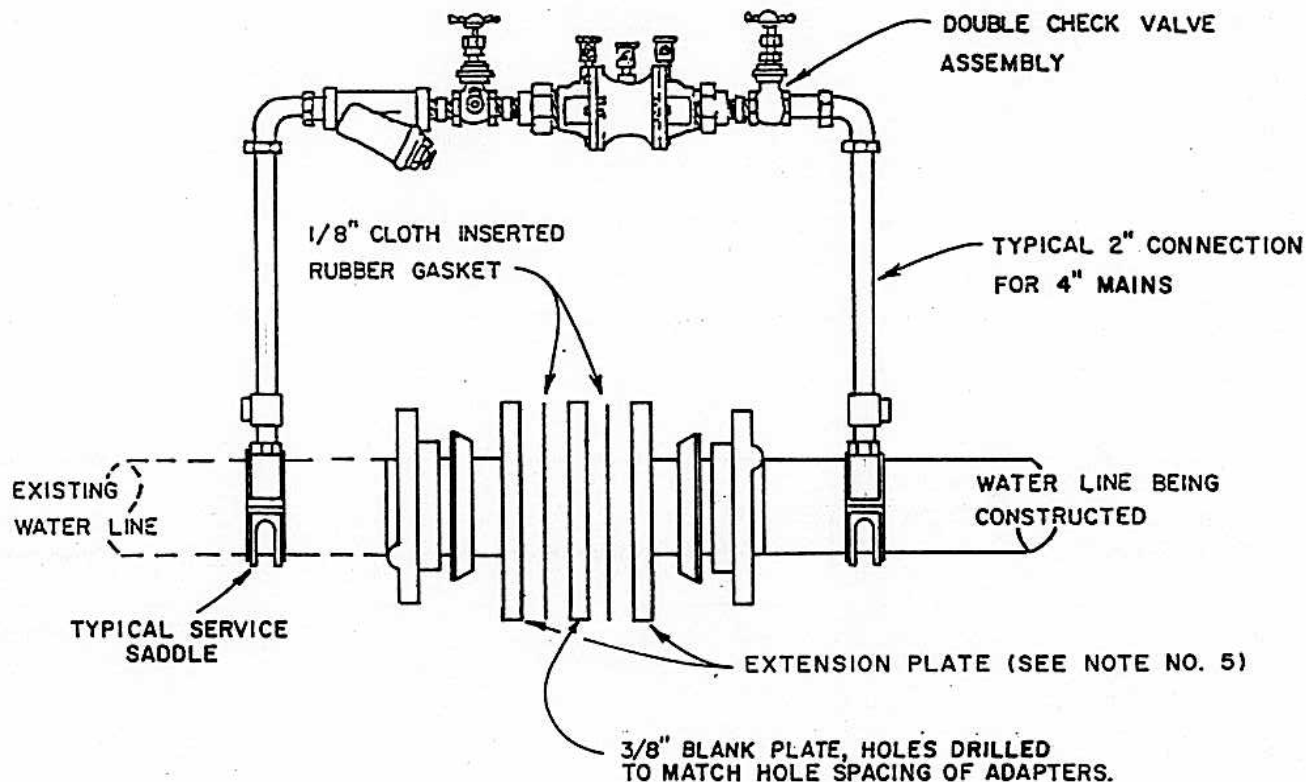


1. THE CITY OF MANTECA WATER MASTER PLAN SHALL BE IN EFFECT AND ANY DESIGN DEVIATION FROM THIS PLAN SHALL BE SUBMITTED IN WRITING TO THE CITY ENGINEER FOR APPROVAL.
2. WATER LINE DESIGN AND CONSTRUCTION SHALL CONFORM TO CALIFORNIA ADMINISTRATION CODE TITLE 22 "CALIFORNIA WATER WORKS STANDARD" AND THE REQUIREMENTS OF THE CALIFORNIA HEALTH DEPARTMENT.
3. WATER LINE SIZING AND ROUTING, IN NEW DEVELOPMENT NOT COVERED BY THE WATER MASTER PLAN, SHALL BE DETERMINED BY THE CITY ENGINEER.
4. WATER LINES IN A CUL-DE-SAC SHALL BE OF THE FOLLOWING SIZES:
 - A) 4 INCH MINIMUM WHEN SERVING RESIDENCES THAT HAVE FIRE PROTECTION FROM ANOTHER LINE.
 - B) 6 INCH MINIMUM WHEN USED IN A LOOPED SYSTEM THAT ALSO SUPPLIES FIRE PROTECTION.
 - C) 8 INCH MINIMUM UP TO THE FIRE HYDRANT TEE ON DEAD END LINES.
5. WATER LINES SHALL HAVE A MINIMUM OF 30 INCHES AND A MAXIMUM OF 36 INCHES OF COVER TO FINISHED GRADE.
6. MINIMUM SEPARATION REQUIREMENTS FOR WATER MAINS FROM SANITARY SEWER AND STORM DRAIN LINES SHALL BE AS FOLLOWS:
 - A) THE PARALLEL HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS AND STORM DRAINS SHALL BE AT LEAST TEN (10) FEET, MEASURED FROM PIPE SIDES.
 - B) SANITARY SEWER AND STORM DRAIN LINES SHALL BE CONSTRUCTED OF DUCTILE IRON CEMENT LINED PIPE FOR A DISTANCE OF TEN (10) FEET IN EACH DIRECTION FROM THE CROSSING OF ANY WATER MAINS UNLESS THE WATER MAIN IS AT LEAST ONE (1) FOOT ABOVE THE SANITARY SEWER OR STORM DRAIN LINE.
 - C) AT SANITARY SEWER OR STORM DRAIN CROSSINGS, THE WATER MAIN SHALL BE CONSTRUCTED SO THAT THE PIPE JOINTS OF THE WATER MAIN WILL BE LOCATED EQUI-DISTANT FROM THE SEWER OR STORM DRAIN LINE.
7. VALVE INSTALLATION REQUIREMENTS SHALL BE AS FOLLOWED:
 - A) MINIMUM OF TWO (2) VALVES AT TEES.
 - B) MINIMUM OF THREE (3) VALVES AT CROSSES.

NO.	REVISED	BY	WATER LINE DESIGN CRITERIA	APPROVED BY:
2	FEB. 1992	JK		
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA				DRAWING NO. W-1
SCALE: NONE				DATE: JAN. 1988

- C) TRANSMISSION MAINS TO RESIDENTIAL AREAS SHALL HAVE A MAXIMUM OF 800 FEET BETWEEN VALVES.
- D) TRANSMISSION MAINS TO COMMERCIAL AREAS SHALL HAVE A MAXIMUM OF 500 FEET BETWEEN VALVES.
- 8. BLOW OFFS SHALL BE INSTALLED AT ALL DEAD END WATER MAINS.
- 9. FIRE HYDRANT LOCATIONS SHALL BE APPROVED BY THE CITY OF MANTECA FIRE DEPARTMENT.
- 10. ALL WATER LINES, VALVES AND OTHER APPURTENANCES SHALL CONFORM TO AWWA AND THE CITY OF MANTECA'S STANDARD PLANS AND SPECIFICATIONS.
- 11. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE PUBLIC WORKS DEPARTMENT TO SHUT OFF ANY CITY WATER VALVES.
- 12. EXISTING VALVES IN WATER MAINS SHALL ONLY BE OPENED OR CLOSED BY AN AUTHORIZED REPRESENTATIVE OF THE CITY ENGINEER.
- 13. ALL WATER METERS AND METER BOXES WILL BE PROVIDED BY THE CITY OF MANTECA. THE INSTALLATION OF ALL WATER METERS AND METER BOXES SHALL BE BY CITY PERSONNEL. (METER READS IN CUBIC FEET).
- 14. ALL WATER SERVICES FOR RESIDENTIAL LOTS SHALL BE A MINIMUM OF ONE (1) INCH IN DIAMETER.
- 15. A LOCATING "TRACE WIRE" IS REQUIRED ON ALL WATER MAINS AND SERVICE LINES. THE "TRACE WIRE" SHALL BE FIRMLY ATTACHED TO THE TOP CENTER OF THE PIPE AT INTERVALS NOT EXCEEDING FIVE (5) FEET. ALL MAIN LINE "TRACE WIRES" SHALL BE INTERCONNECTED TO FORM A GRID. ALL SPLICES SHALL BE MECHANICALLY AND ELECTRICALLY SOUND AND MADE WATERPROOF WITH AN APPROVED COMPOUND. INSTALLATION OF THE "TRACE WIRE" SYSTEM SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO BACKFILL. THE "TRACE WIRE" SYSTEM SHALL BE TESTED BY APPROVED TESTING PERSONNEL AFTER THE TRENCHES HAVE BEEN BACKFILLED AND HYDROSTATIC TESTS HAVE BEEN PERFORMED, BUT BEFORE ANY PAVEMENT HAS BEEN PLACED. THE CITY SHALL PAY THE COST OF THE INITIAL TEST. ANY SUBSEQUENT TESTING COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 16. BACKFLOW PREVENTION DEVICES MAY BE REQUIRED BY THE ENGINEER. CITY STANDARDS FOR BACKFLOW PREVENTION ARE AVAILABLE IN THE PUBLIC WORKS DEPARTMENT.

NO.	REVISED	BY	WATER LINE DESIGN CRITERIA	APPROVED BY:
3	FEB. 1992	JK		
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA				DRAWING NO. W-2
SCALE: NONE				DATE: JAN. 1988



NOTES:

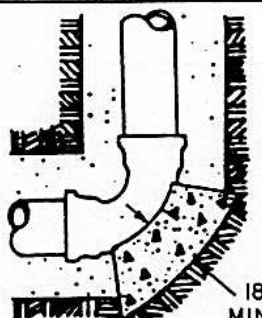
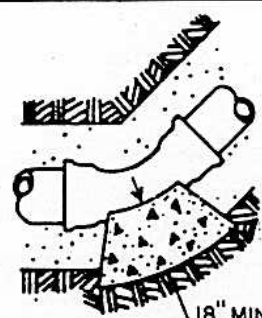

1. ADAPTERS, PLATE AND DOUBLE CHECK VALVE SHALL BE USED ON ALL NEW LINE EXTENSIONS FOR ANY SIZE LINE (PURPOSE: TO REDUCE INTERRUPTION TO EXISTING WATER LINES IN SERVICE AND PREVENT POSSIBLE CONTAMINATION AT TIE-IN POINT FOLLOWING BACTERIOLOGICAL TESTING).
2. ALL AIR IN THE NEW LINE BEING CONSTRUCTED SHALL BE EXPELLED WITH A 1" TAP.
3. WATER TEST SHALL BE CONDUCTED AGAINST THE PLATE AND NEW BUTTERFLY VALVES.
4. ONCE THE LINE HAS BEEN PRESSURED TESTED, BACTERIOLOGICAL TESTED AND APPROVED, THE PLATE SHALL BE REMOVED FROM THE ADAPTERS AND ADAPTERS DRAWN TOGETHER AND CHECKED FOR LEAKS.
5. EXTENSION TESTING PLATE FOR ACP IS A HUB x FLANGE ADAPTER TYLER 5-258 OR APPROVED EQUAL AND FOR C-900 IS A MULTIPLE JOINT x FLANGE ADAPTER TYLER 5-158 OR APPROVED EQUAL.
6. 4" WATER MAINS REQUIRE A 2" JUMPER CONNECTION. 6" OR 8" WATER MAINS REQUIRE A 4" JUMPER CONNECTION. WATER MAINS 10" OR LARGER REQUIRE THE JUMPER CONNECTION SIZE TO BE DETERMINED BY THE CITY ENGINEER.

NO.	REVISED	BY
1	FEB. 1992	JK
DRAWN BY: J. E. HULSEY		
CHECKED BY: J. PODESTA		
SCALE: NONE		

**TEMPORARY CONNECTION
WATER MAIN EXTENSION**

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

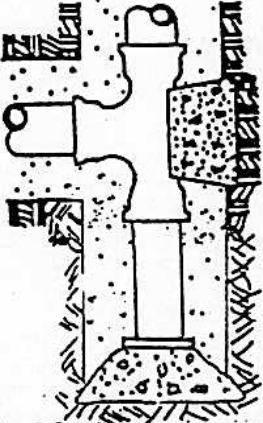
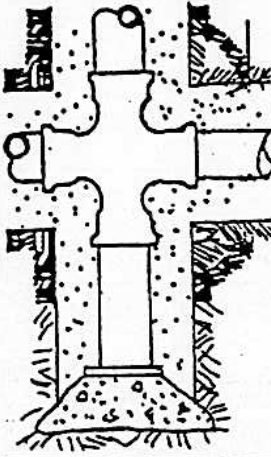

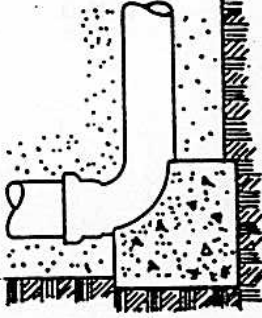
APPROVED BY:	<i>M. Drinton</i>
DIRECTOR OF PUBLIC WORKS	
DRAWING NO.	W-3
DATE: JAN. 1988	

TYPE OF FITTING		90° BEND	45° BEND	11 1/4° OR 22 1/2° BEND
THRUST BLOCK DESCRIPTION				
PIPE SIZE	4" & 6"	4 FT ²	3 FT ²	2 FT ²
	8"	7	4	2
	10"	11	6	3
	12"	15	8	5
	14"	20	11	6
	16"	25	14	8

NOTES:

1. ALL BEARING AREAS SHOWN ARE MINIMUM VALUES FOR A HYDROSTATIC PRESSURE OF 150 PSI, SOIL RESISTANCE OF 2,000 LBS./SQ. FT. AND TWO (2) FOOT MINIMUM COVER.
2. ALL THRUST BLOCKS SHALL BE MADE OF CLASS "B" CONCRETE WITH A MINIMUM CRUSHING STRENGTH OF 2,000 PSI AT 28 DAYS.
3. ALL BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL. THE BLOCKS SHALL BE PLACED SO THAT JOINTS AND FITTINGS WILL BE ACCESSIBLE FOR REPAIRS.
4. FOR VERTICAL BENDS, ALL METALLIC TIE DOWNS SHALL BE ENCASED WITH POLYETHYLENE WRAP (8 MIL. MIN.) AS SPECIFIED IN AWWA C105.
5. ALL THRUST BLOCKS SHALL BE A MINIMUM 18" THICK.

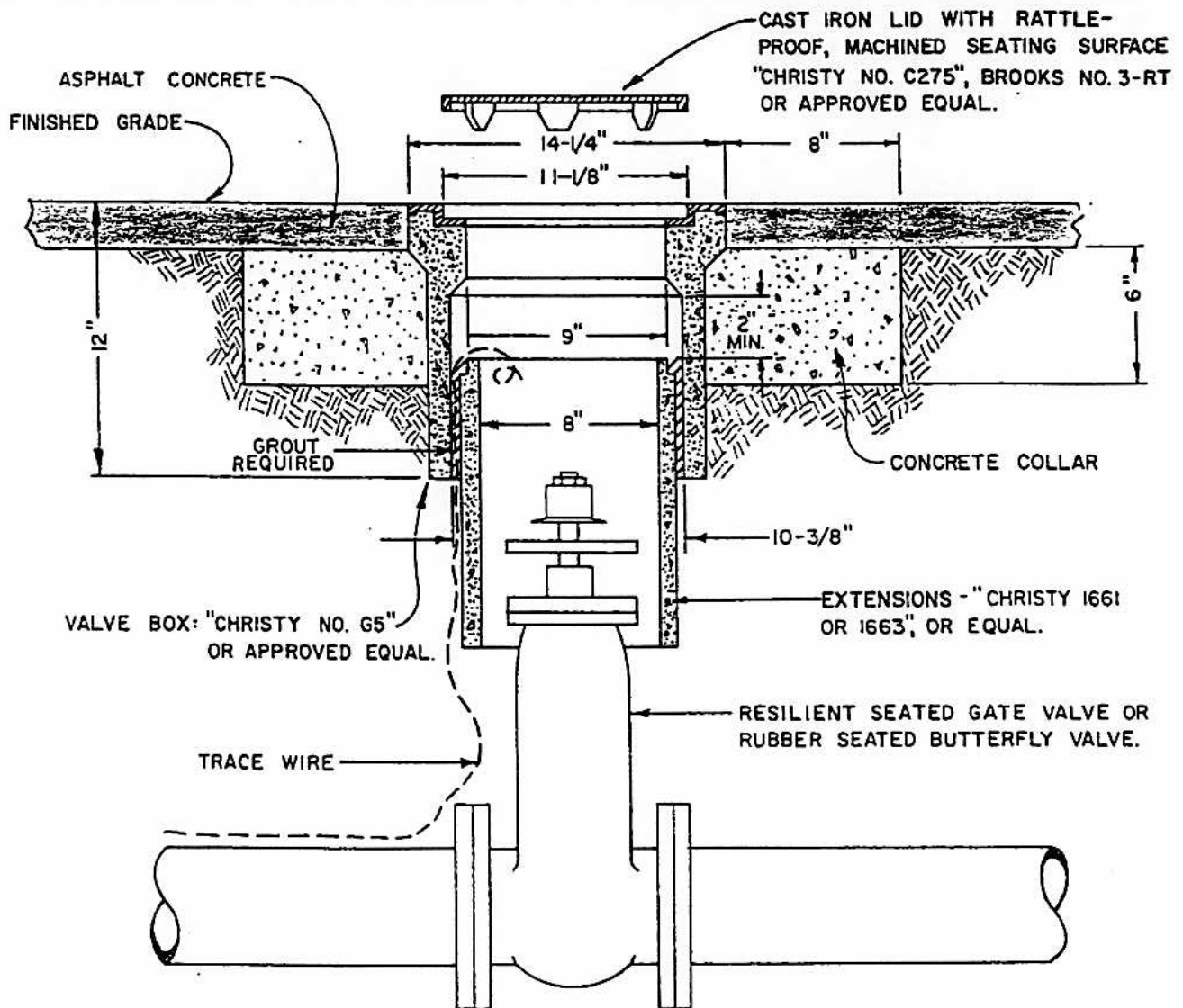
NO.	REVISED	BY	REQUIRED BEARING AREA OF THRUST BLOCK	APPROVED BY:
1	FEB. 1992	JK		
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA				DRAWING NO. W-4
SCALE: NONE				DATE: FEB 1992

TYPE OF FITTING		TEE AND DEAD END	CROSS WITH FUTURE EXTENSION	VERTICAL BEND			FIRE HYDRANT
THRUST BLOCK DESCRIPTION							
		DEGREE OF BEND					
				22 1/2°	45°	90°	
PIPE SIZE	4" & 6"	4 FT ²	4 FT ²	2 FT ²	3 FT ²	5 FT ²	ALL LINES TO FIRE HYDRANTS SHALL BE 6 INCHES AND HAVE A MINIMUM THRUST BLOCK AREA OF 6 SQ. FT.
	8"	7	7	3	5	8	
	10"	11	11	4	7	13	
	12"	15	15	5	10	18	
	14"	20	20	7	13	25	
	16"	25	25	9	18	32	

NOTES:

1. ALL BEARING AREAS SHOWN ARE MINIMUM VALUES FOR A HYDROSTATIC PRESSURE OF 150 PSI, SOIL RESISTANCE OF 2,000 LBS./SQ. FT. AND TWO (2) FOOT MINIMUM COVER.
2. ALL THRUST BLOCKS SHALL BE MADE OF CLASS "B" CONCRETE WITH A MINIMUM CRUSHING STRENGTH OF 2,000 PSI AT 28 DAYS.
3. ALL BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL. THE BLOCKS SHALL BE PLACED SO THAT JOINTS AND FITTINGS WILL BE ACCESSIBLE FOR REPAIRS.
4. FOR VERTICAL BENDS, ALL METALLIC TIE DOWNS SHALL BE ENCASED WITH POLYETHYLENE WRAP (8 MIL. MIN.) AS SPECIFIED IN AWWA C105.
5. ALL THRUST BLOCKS SHALL BE A MINIMUM 18" THICK.
6. THRUST BLOCKS AT FUTURE EXTENSIONS SHALL NOT EXCEED 24".

NO.	REVISED	BY	REQUIRED BEARING AREA OF THRUST BLOCK	APPROVED BY:
1	FEB. 1992	JK		
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA				DRAWING NO. W-5
SCALE: NONE				DATE: FEB 1992



NOTES:

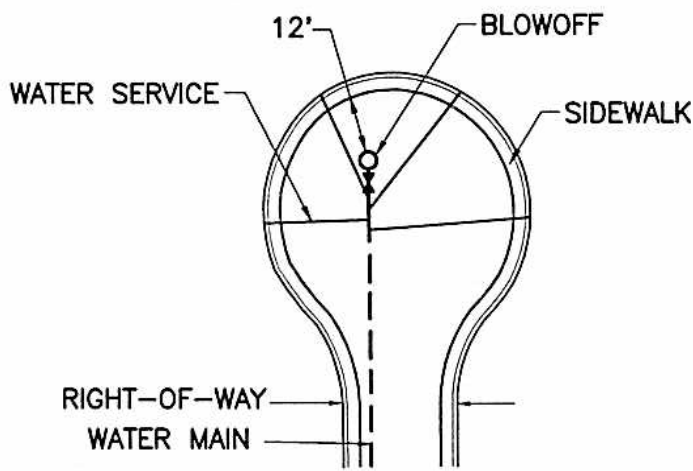
1. VALVE BOX AND LID SHALL BE "CHRISTY NO. G5" AND "CHRISTY NO. C275", BROOKS NO. 3-RT, OR EQUALS.
2. ALL LIDS SHALL HAVE MACHINE SEATING SURFACES.
3. EXTENSIONS SHALL BE AS MANUFACTURED FOR THE VALVE BOX SUPPLIED OR A.C. PIPE OF CORRECT SIZE MAY BE USED.
4. CONCRETE COLLAR SHALL BE OF CLASS "B" CONCRETE AND SHALL BE CONSTRUCTED 2½ INCHES BELOW FINISHED GRADE.
5. RESILIENT SEATED GATE VALVE SHALL BE MUELLER, KENNEDY, AMERICAN AVK CO., OR APPROVED EQUAL.
6. RESILIENT SEATED GATE VALVE SHALL HAVE A NON-RISING STEM AND CONFORM TO A.W.W.A. STANDARD C509 OF LATEST REVISION.
7. RUBBER SEATED BUTTERFLY VALVE SHALL BE DRESSER 450, MUELLER B3211 OR APPROVED EQUAL.
8. RUBBER SEATED BUTTERFLY VALVE SHALL CONFORM TO A.W.W.A. STANDARD C504 OF LATEST REVISION.
9. RUBBER SEATED BUTTERFLY VALVES SHALL BE USED FOR PIPE SIZES LARGER THAN 12 INCHES.

NO.	REVISED	BY
4	OCT. 2003	JH
DRAWN BY: C. SABERTON		
CHECKED BY: J. PODESTA		
SCALE: NONE		

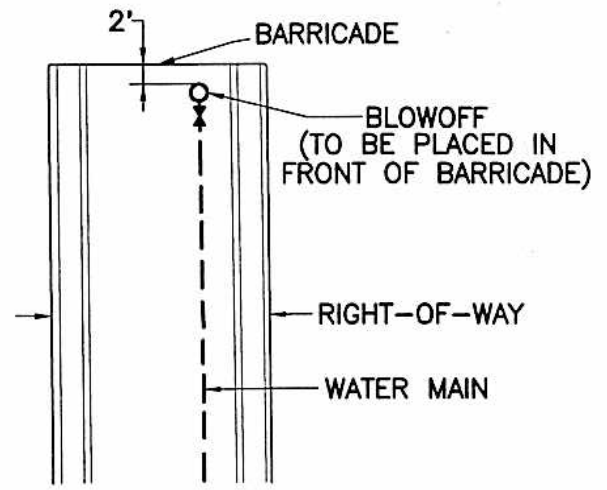
STANDARD VALVE BOX

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

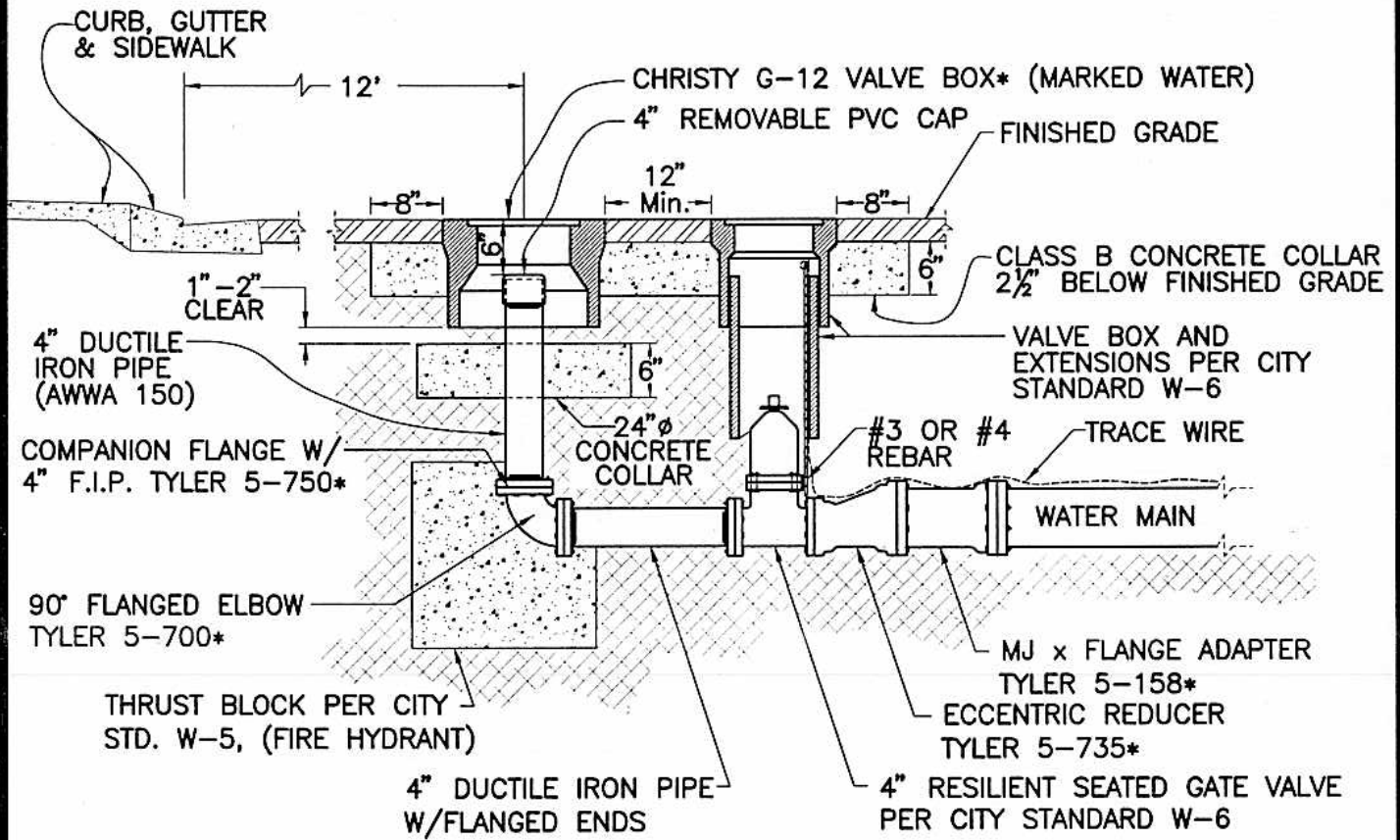
APPROVED BY:	<i>Michael A. Buntin</i>
DIRECTOR OF PUBLIC WORKS	
DRAWING NO.	W-6
DATE:	JAN. 1988



CUL-DE-SAC



STUBBED STREET



*OR APPROVED EQUAL

NO.	REVISED	BY
1	JULY, 1999	JR
DRAWN BY: J. KOESTER		
CHECKED BY: J. PODESTA		
SCALE: NONE		

**BELOW GRADE
WATER LINE BLOW-OFF**

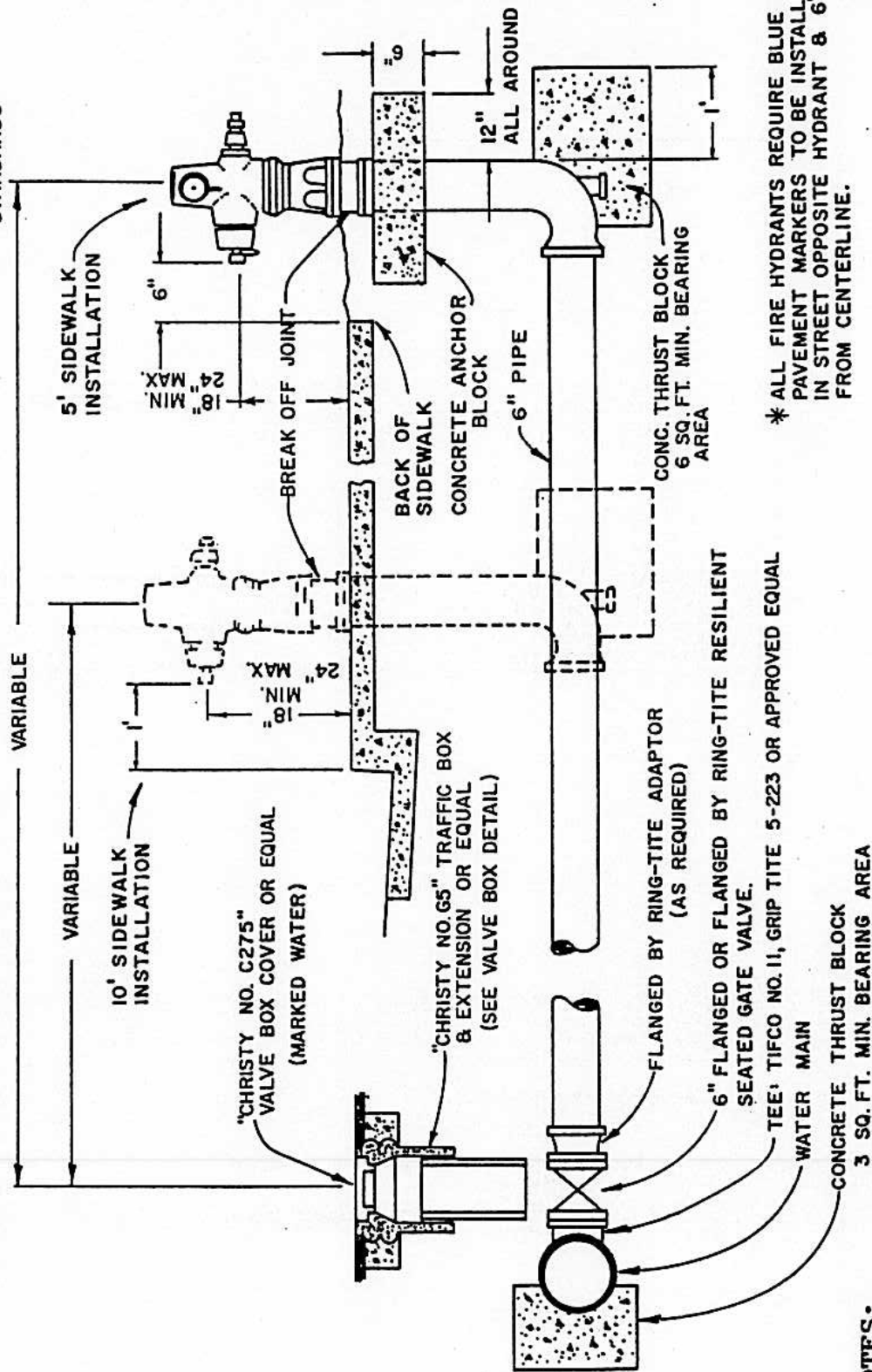
CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
DRAWING NO.	W-7
DATE: JAN, 1988	

RESIDENTIAL FIRE HYDRANT TO BE AS SHOWN ON CITY STANDARD W-8A OR APPROVED EQUAL.

COMMERCIAL FIRE HYDRANT TO BE AS SHOWN ON CITY STANDARD W-8A OR APPROVED EQUAL.

FIRE HYDRANTS TO BE PAINTED YELLOW IN ACCORDANCE WITH MANTECA FIRE DEPT. STANDARDS



NOTES:

1. FIRE HYDRANTS SHALL BE PLACED WITH 4 1/2 INCH OUTLET FACING DIRECTLY TOWARDS THE STREET.
2. FIRE HYDRANTS SHALL BE CLEAN AND FREE OF CONCRETE.
3. FIRE HYDRANTS SHALL CONFORM TO A.W.W.A. C-503
4. FIRE HYDRANTS SHALL HAVE A 3 FOOT CLEARANCE FROM OBSTRUCTIONS ON ALL SIDES.

NO.	REVISED	BY
1	FEB. 1992	JK
DRAWN BY: C. SABERTON		
CHECKED BY: J. PODESTA		
SCALE: NONE		

FIRE HYDRANT

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:
[Signature]
DIRECTOR OF PUBLIC WORKS

DRAWING NO.
DATE: JAN. 1988

W-8

APPROVED FIRE HYDRANTS

RESIDENTIAL: (ONE - 4-1/2" AND ONE - 2-1/2" OUTLETS)

- | | | |
|----|----------------|--------|
| 1) | JAMES JONES | J-4040 |
| 2) | CLOW | 950 |
| 3) | CLOW | 850 |
| 4) | LONG BEACH | 425 |
| 5) | LONG BEACH | 614 |
| 6) | APPROVED EQUAL | |

COMMERCIAL: (ONE - 4-1/2" AND TWO - 2-1/2" OUTLETS)

- | | | |
|----|----------------|--------|
| 1) | JAMES JONES | J-4060 |
| 2) | CLOW/RICH | 960 |
| 3) | CLOW/RICH | 860 |
| 4) | LONG BEACH | 430 |
| 5) | LONG BEACH | 615 |
| 6) | APPROVED EQUAL | |

INDUSTRIAL: (TWO - 4-1/2" AND ONE - 2-1/2" OUTLETS)

- | | | |
|----|----------------|-------------------------|
| 1) | LONG BEACH | 435 |
| 2) | CLOW/RICH | B-2065 (BRONZE 200 PSI) |
| 3) | APPROVED EQUAL | |

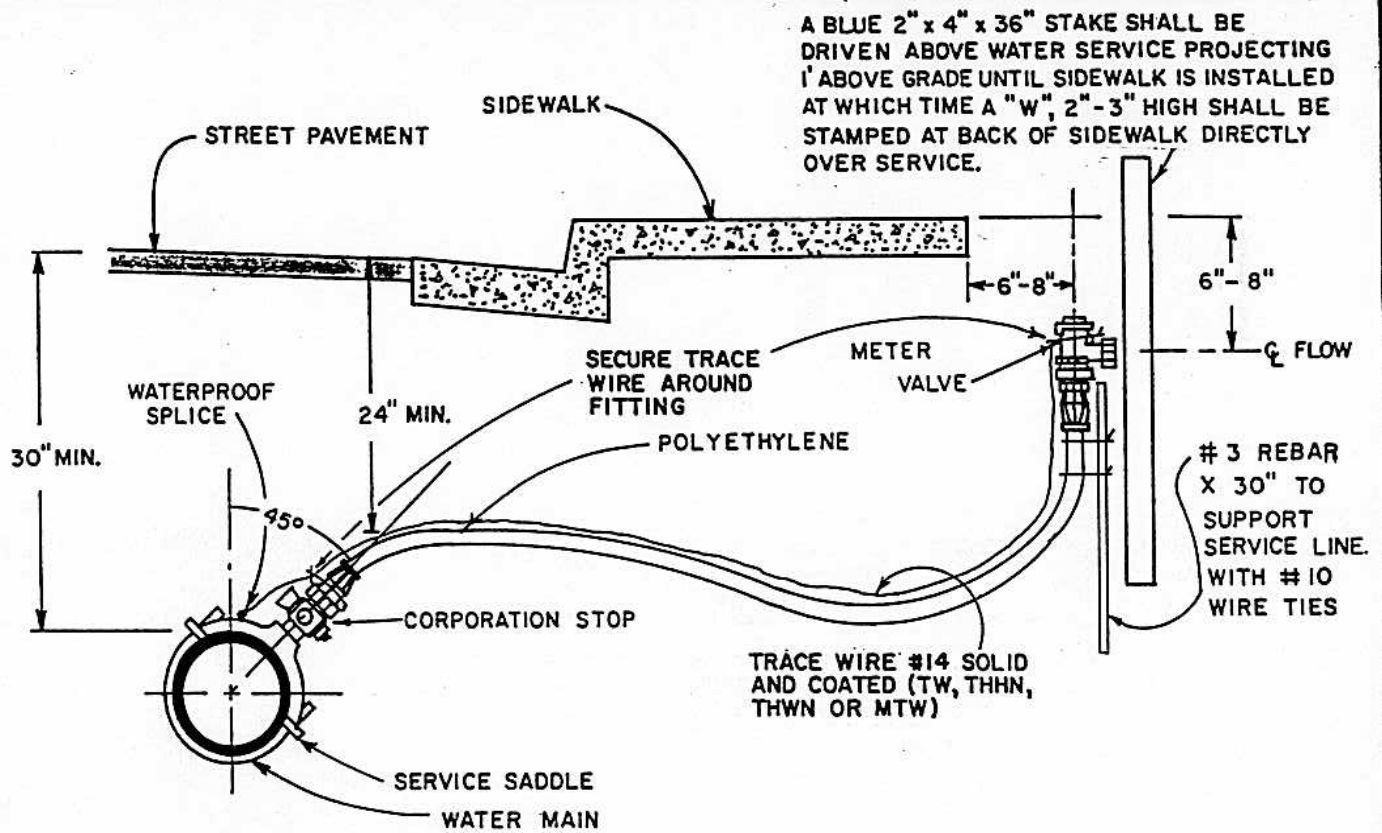
APPROVED BREAK OFF JOINT

- 1) LONG BEACH EXTENSION RISER
- 2) CLOW/RICH BREAKOFF RISER
- 3) APPROVED EQUAL (TYPICALLY 6")

APPROVED FIRE HYDRANT BURY

- 1) LONG BEACH
- 2) CLOW/RICH
- 3) APPROVED EQUAL (TYPICALLY 30")

NO.	REVISED	BY	APPROVED FIRE HYDRANTS	APPROVED BY: 
				DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO. W-8A
CHECKED BY: J. PODESTA				DATE: FEB 1992
SCALE: NONE				

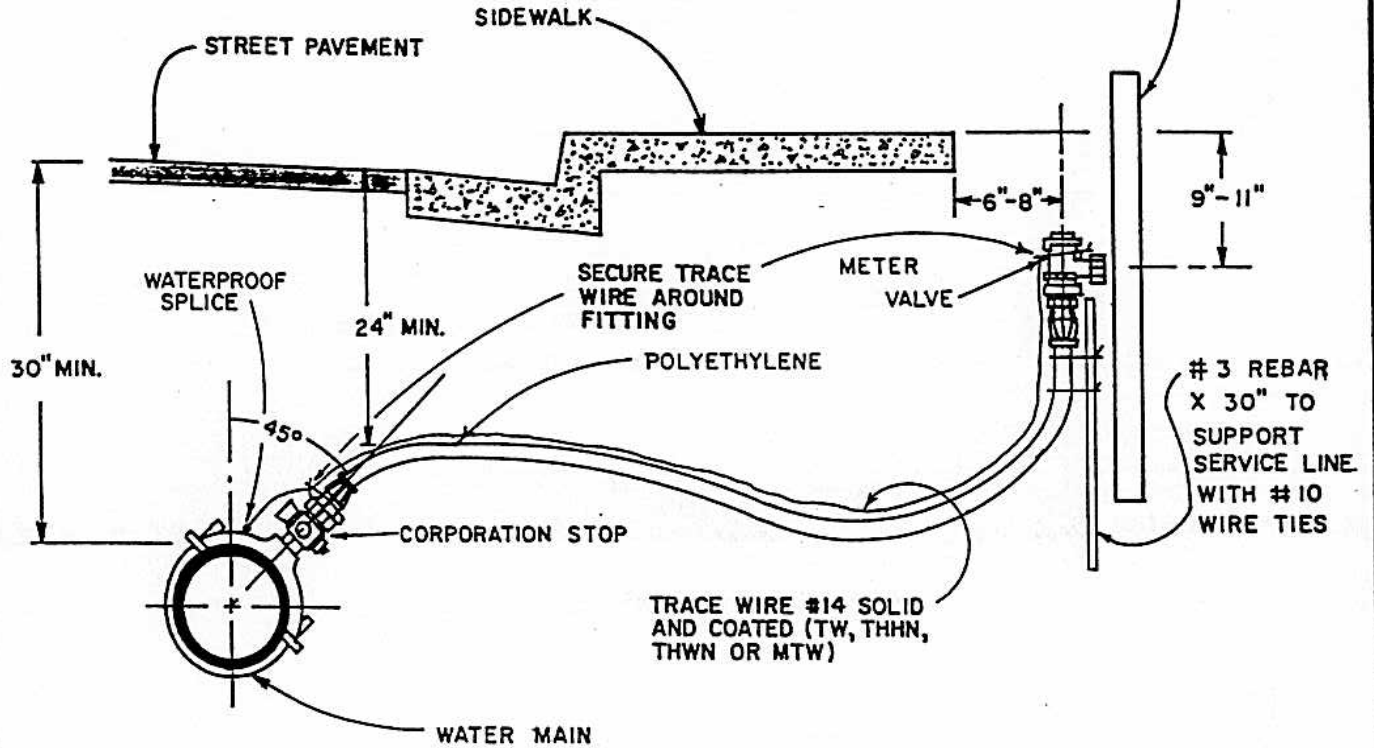


NOTES:

1. A BRONZE SERVICE SADDLE (ROCKWELL 391 WITH CORPORATION COCK THREADS, OR APPROVED EQUAL) WITH STAINLESS STEEL STRAPS SHALL BE REQUIRED FOR ALL TAPS ON C-900 PIPE. (ROCKWELL 321 OR 323, OR APPROVED EQUAL, FOR ACP.)
2. THE SERVICE SADDLE SHALL HAVE CORPORATION COCK THREADS AND STAINLESS STEEL STRAPS.
3. THE SERVICE LINE SHALL BE IN A STRAIGHT LINE PERPENDICULAR TO THE PROPERTY LINE.
4. WATER METER AND METER BOX (CHRISTY B-12 OR APPROVED EQUAL) SHALL BE FURNISHED AND INSTALLED BY CITY PERSONNEL.
5. POLYETHYLENE PIPE SHALL BE ULTRA HIGH MOLECULAR WEIGHT (UHMW) CONFORMING TO ASTM D2239, AS MANUFACTURED BY "DRISCOPIPE", "ORANGEBURG", OR APPROVED EQUAL, WITH A MINIMUM PRESSURE RATING OF 160 PSI.
6. THERE SHALL BE NO JOINTS IN THE PIPE FROM THE CORPORATION STOP ASSEMBLY TO BACK OF SIDEWALK.
7. WATER SERVICE SHALL BE LOCATED AT THE CENTER OF THE RESIDENTIAL LOT. AT A CUL-DE-SAC LOT (45' FRONTAGE), THE WATER SERVICE SHALL BE LOCATED A MINIMUM OF 5' FROM THE PG&E SERVICE AND A MINIMUM OF 2' FROM THE LOT LINE.
8. ANGLE BALL METER VALVE (FORD BA63-444W OR APPROVED EQUAL) SHALL BE LOCATED 2' AWAY FROM THE DRIVEWAY SECTION.
9. WATER AND SEWER LATERALS SHALL BE SEPARATED BY A MINIMUM OF FIVE FEET (5').
10. ALL ANGLE METER VALVES SHALL HAVE LOCKING WINGS AND SWIVEL NUT.

NO.	REVISED	BY	1" PLASTIC WATER SERVICE	APPROVED BY:
3	FEB. 1992	JK		<i>M. Buntan</i>
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA				DRAWING NO. W-9
SCALE: NONE				DATE: JAN. 1988

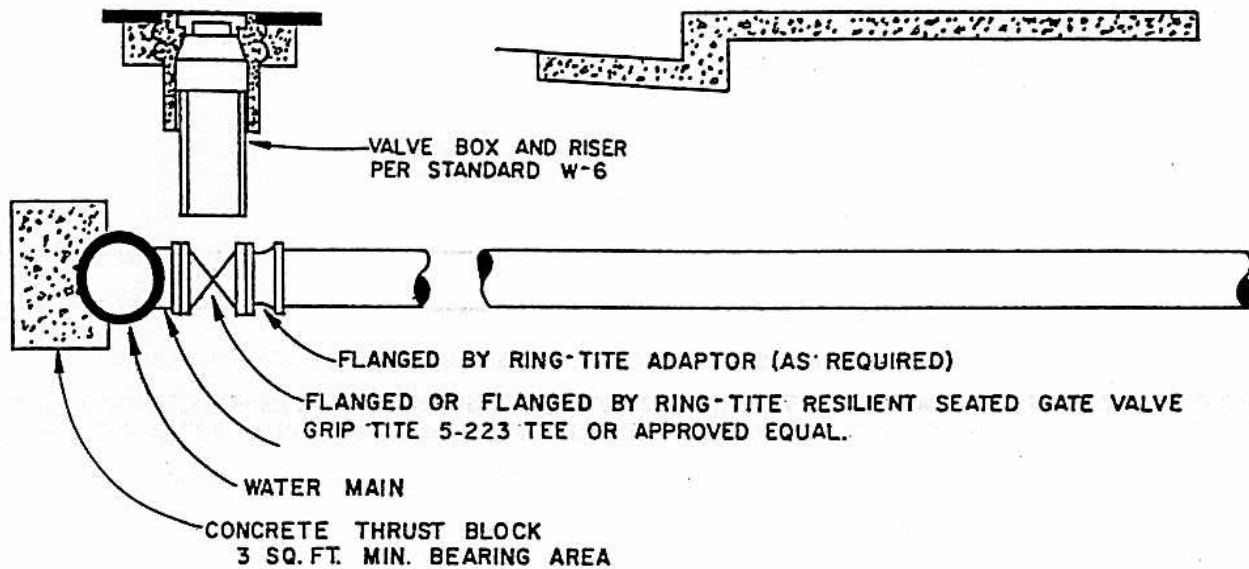
A BLUE 2" x 4" x 36" STAKE SHALL BE DRIVEN ABOVE WATER SERVICE PROJECTING 1' ABOVE GRADE UNTIL SIDEWALK IS INSTALLED AT WHICH TIME A "W", 2"-3" HIGH SHALL BE STAMPED AT BACK OF SIDEWALK DIRECTLY OVER SERVICE.



NOTES:

1. A BRONZE SERVICE SADDLE (ROCKWELL 393 OR APPROVED EQUAL) WITH STAINLESS STEEL STRAPS AND CORPORATION COCK THREADS SHALL BE REQUIRED FOR ALL TAPS.
2. CORPORATION STOP TO BE A JONES J-1937 OR APPROVED EQUAL WITH IRON PIPE SIZE OR COPPER TUBE SIZE OUTLET.
3. SERVICE LINE SHALL BE IN A STRAIGHT LINE PERPENDICULAR TO THE PROPERTY LINE.
4. WATER METER AND METER BOX (CHRISTY B36 WITH REINFORCED CONCRETE LID OR APPROVED EQUAL) SHALL BE FURNISHED AND INSTALLED BY CITY PERSONNEL.
5. POLYETHYLENE PIPE SHALL CONFORM TO AWWA C901-88 AND ASTM 2737, PE 3408 SDR 11, 160 PSI, WITH COMPRESSION TYPE FITTINGS.
6. FLANGED ANGLE METER TO BE A JONES J-4205 WITH LOCKING WINGS OR APPROVED EQUAL WITH IRON PIPE SIZE OR COPPER TUBE SIZE INLET.

NO.	REVISED	BY	1 1/2" AND 2" POLYETHYLENE WATER SERVICE	APPROVED BY:
3	FEB. 1992	JK		<i>M. Breston</i> DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO. W-10
CHECKED BY: J. PODESTA				DATE: JAN. 1988
SCALE: NONE				



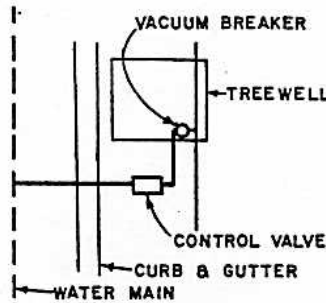
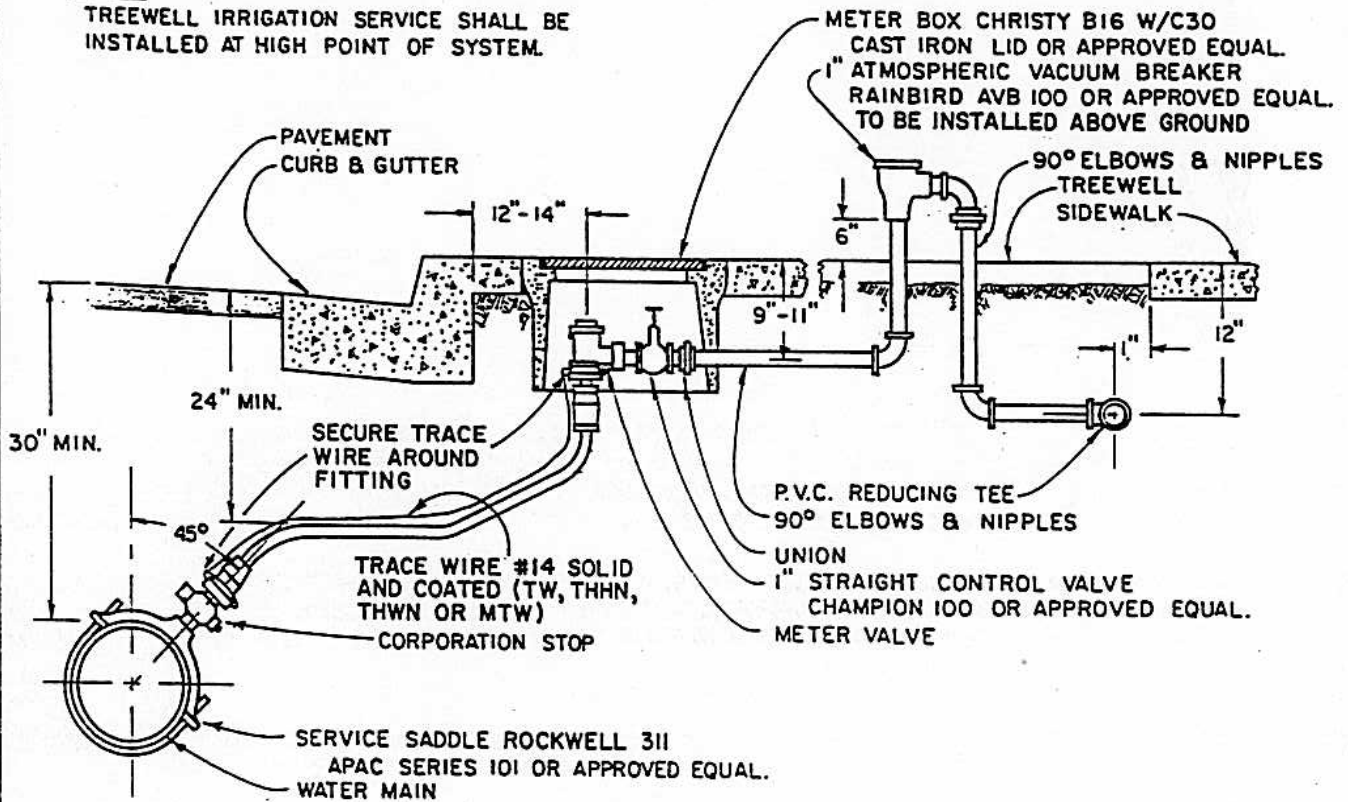
NOTES:

1. WATER METER TO BE INSTALLED ABOVE GROUND IN ACCORDANCE WITH CITY STANDARD W-16. WATER METER WILL BE SUPPLIED AND INSTALLED BY CITY.
2. RESILIENT SEATED GATE VALVES, PER CITY STANDARD W-6, ARE REQUIRED FOR VALVE SIZES 2 THROUGH 12 INCHES.
3. RUBBER SEATED BUTTERFLY VALVES ARE REQUIRED FOR VALVES LARGER THAN 12 INCHES.
4. IF C-900 PIPE IS USED, MECHANICAL JOINTS MUST BE USED.
5. A FIRE SPRINKLER SERVICE INSTALLATION WILL REQUIRE THE INSTALLATION OF A BACKFLOW PREVENTION DEVICE LOCATED ABOVE GROUND, AND A MAXIMUM OF 12 INCHES BEHIND THE PROPERTY LINE. THE BACKFLOW PREVENTER SHALL BE INSTALLED IN ACCORDANCE WITH CITY STANDARDS AVAILABLE IN THE CITY OF MANTECA'S PUBLIC WORKS DEPARTMENT.
6. THE USE OF GALVANIZED PIPE IS NOT PERMITTED.

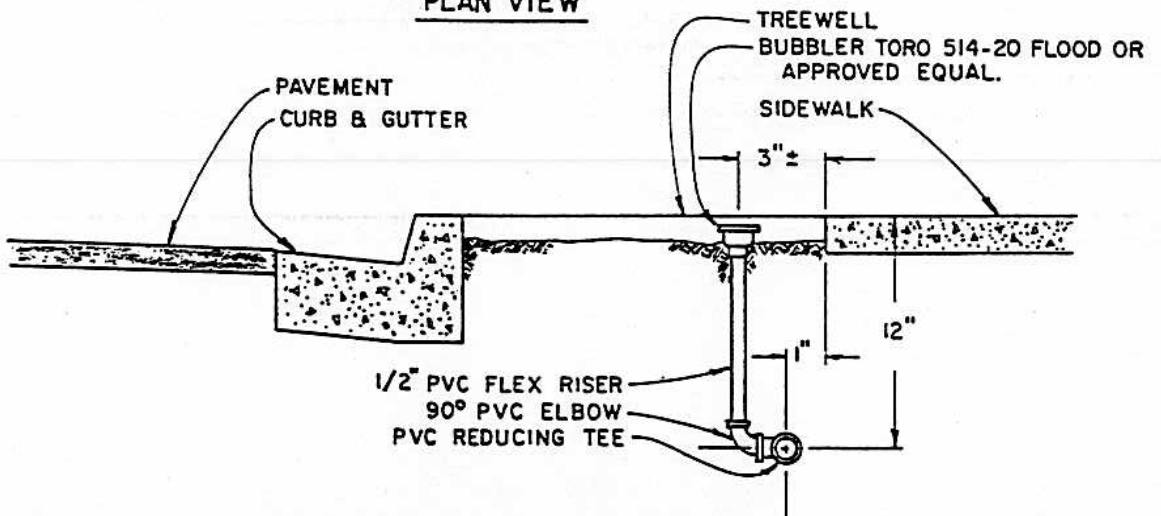
NO.	REVISED	BY	STANDARD WATER SERVICE INSTALLATION 3" & LARGER	APPROVED BY:
2	FEB. 1992	JK		<i>M. Drenton</i> DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO. W-11
CHECKED BY: J. PODESTA				DATE: JAN. 1988
SCALE: NONE				

NOTE

TREEWELL IRRIGATION SERVICE SHALL BE INSTALLED AT HIGH POINT OF SYSTEM.



PLAN VIEW



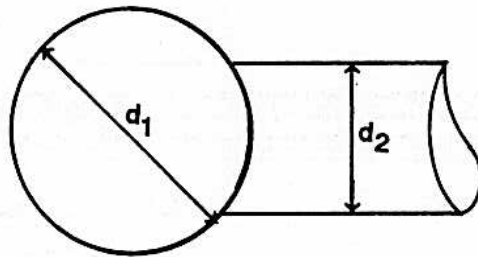
NO.	REVISED	BY
2	FEB. 1992	JK
DRAWN BY: J. HULSEY		
CHECKED BY: J. PODESTA		
SCALE: NONE		

STANDARD TREEWELL IRRIGATION DETAIL

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:
M. Brinton
DIRECTOR OF PUBLIC WORKS

DRAWING NO. **W-12**
DATE: JAN. 1988



d_1 MUST BE A MINIMUM OF TWO SIZES GREATER THAN d_2 .

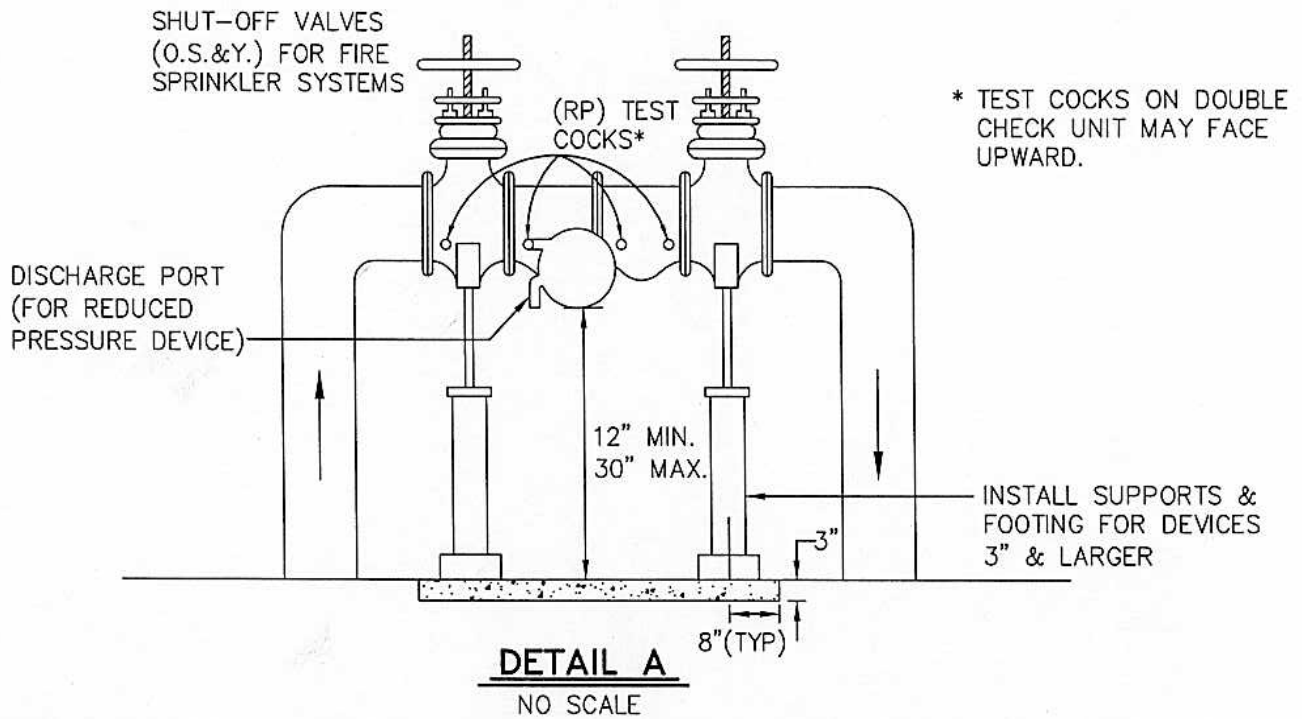
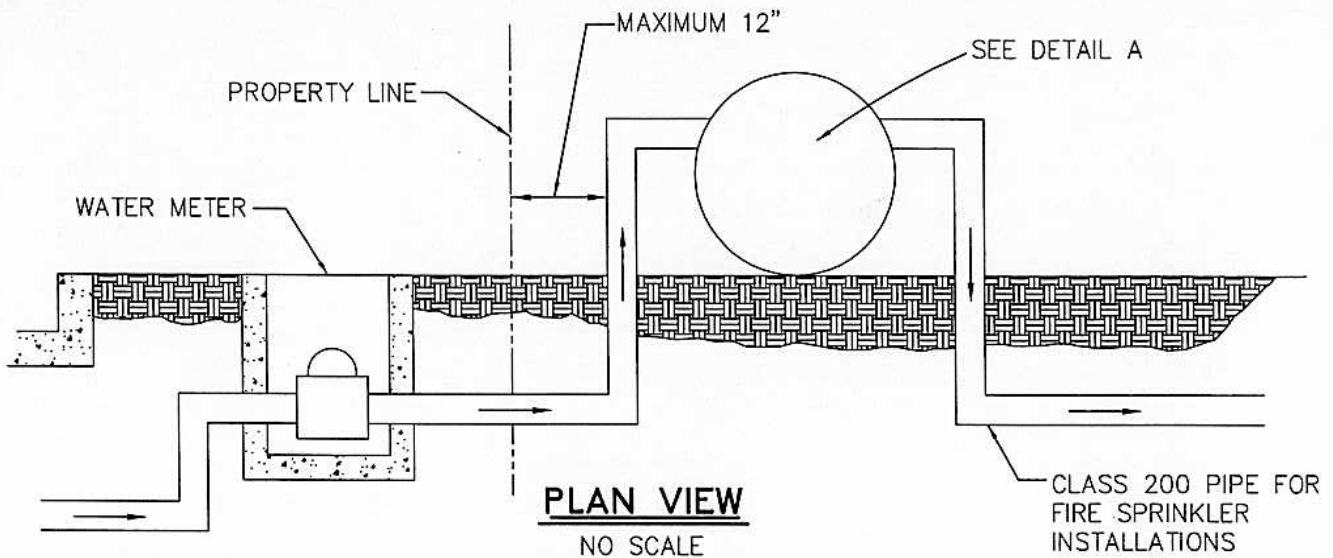
APPROVED TAPPING SLEEVES: (STAINLESS STEEL)

- 1) ROMAC SST
- 2) ROCKWELL 663
- 3) FORD FAST
- 4) APPROVED EQUAL

APPROVED TAPPING VALVES: (MUST BE RESILIENT SEAT)

- 1) AMERICAN DARLING CRS-80
- 2) WATEROUS SERIES 500
- 3) APPROVED EQUAL

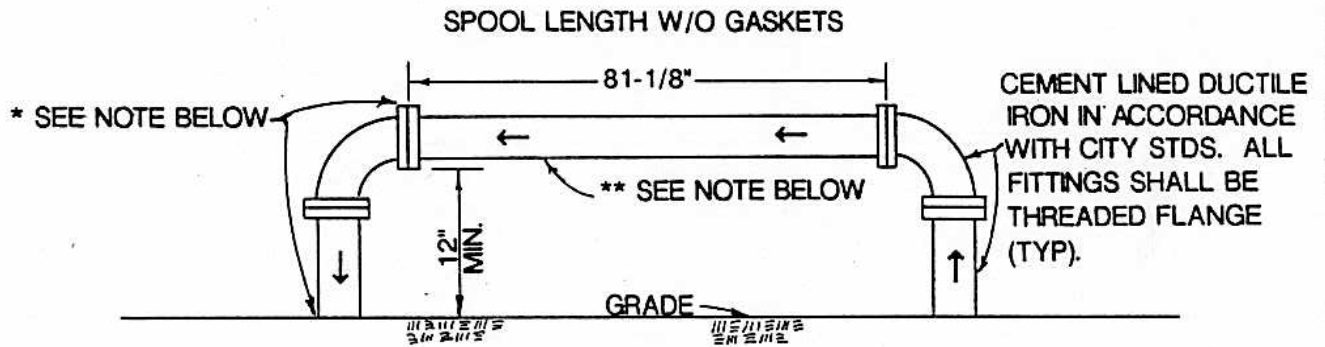
NO.	REVISED	BY	HOT TAPS	APPROVED BY: <i>M. Britton</i>
				DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. KOESTER			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO. W-14
CHECKED BY: J. PODESTA				DATE: FEB 1992
SCALE: NONE				



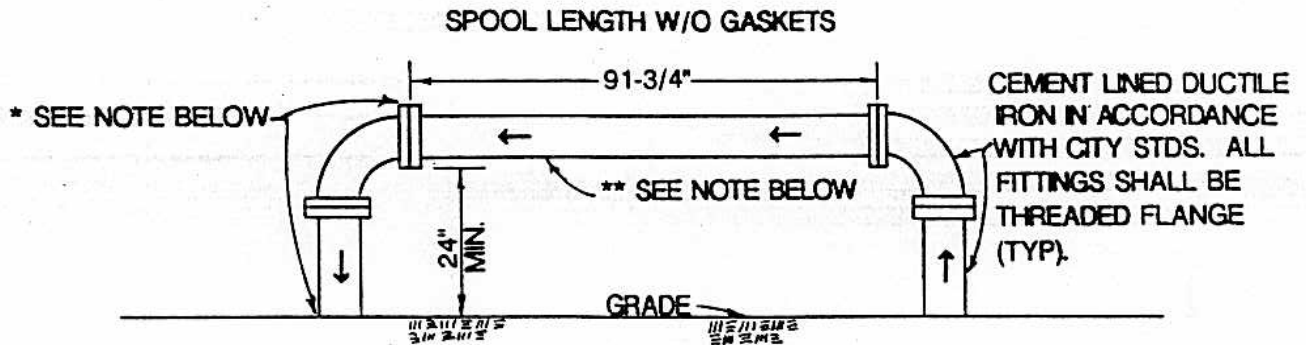
NOTES:

1. ALL BACKFLOW DEVICES INSTALLED IN THE CITY OF MANTECA SHALL BE REDUCED PRESSURE ASSEMBLIES WITH THE EXCEPTION OF THOSE INSTALLED ON FIRE SYSTEMS (WITHOUT AUXILIARY SUPPLY) WHICH SHALL BE DOUBLE CHECK VALVE ASSEMBLIES. ALL DEVICES INSTALLED SHALL BE ON THE CITY'S APPROVED BACKFLOW PREVENTION ASSEMBLIES LIST.
2. DEVICES MUST BE TESTED AND APPROVED BY A CITY APPROVED CERTIFIED TESTER PRIOR TO CITY ACCEPTANCE.
3. TEST COCKS AND SHUT OFF VALVES MUST BE SUPPLIED AS SHOWN.
4. THE DISCHARGE PORT MUST BE KEPT CLEAR OF OBSTRUCTION AT ALL TIMES.
5. BACKFLOW DEVICE SHALL BE VISIBLE FROM THE STREET.
6. DEVIATION FROM THE INSTALLATION SHOWN ABOVE MUST RECEIVE PRIOR CITY APPROVAL.
7. FIRE SPRINKLER SYSTEM BACKFLOW DEVICES SHALL HAVE A WORKING PRESSURE OF 175 PSI.
8. THE CONCRETE FOOTING SHALL BE FINISHED. CONCRETE MUST BE MIXED IN TRANSIT - NO TRAILER HAULED MIX.
9. ONE UNION IS REQUIRED ON ALL NON-FLANGED PLUMBING INSTALLATIONS.

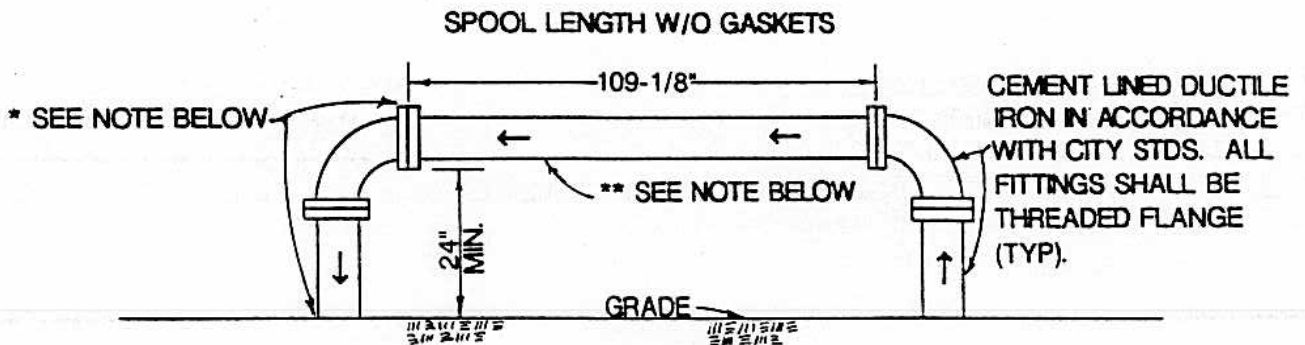
NO.	REVISED	BY	REDUCED PRESSURE/DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICE INSTALLATION	APPROVED BY:
8	APRIL, 2004	JH		<i>Mick F. Brinton</i> DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. KOESTER				DRAWING NO. W-15
CHECKED BY: J. PODESTA			CITY OF MANTECA	DATE: MAY, 1985
SCALE: NONE			DEPARTMENT OF PUBLIC WORKS	



3" METER WITH 2" BYPASS



4" METER WITH 2" BYPASS



6" METER WITH 4" BYPASS

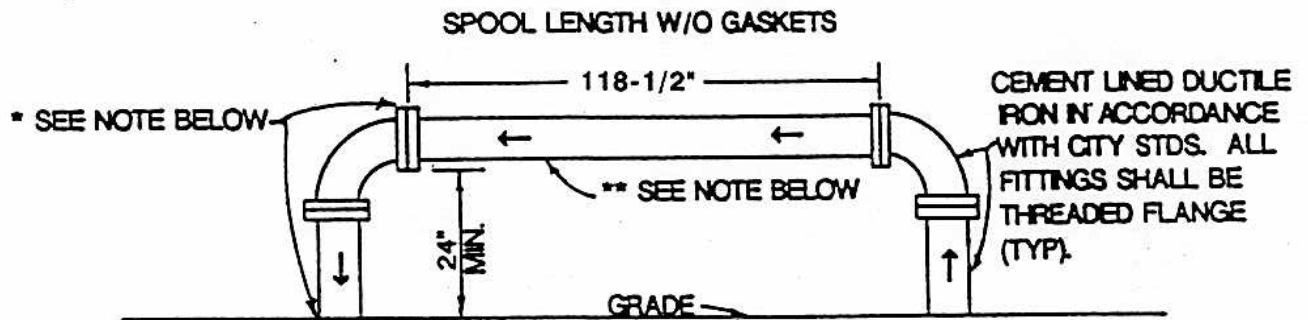
NOTES:

* Spool may be connected directly to backflow assembly thus eliminating vertical riser and 90° elbow at point indicated.

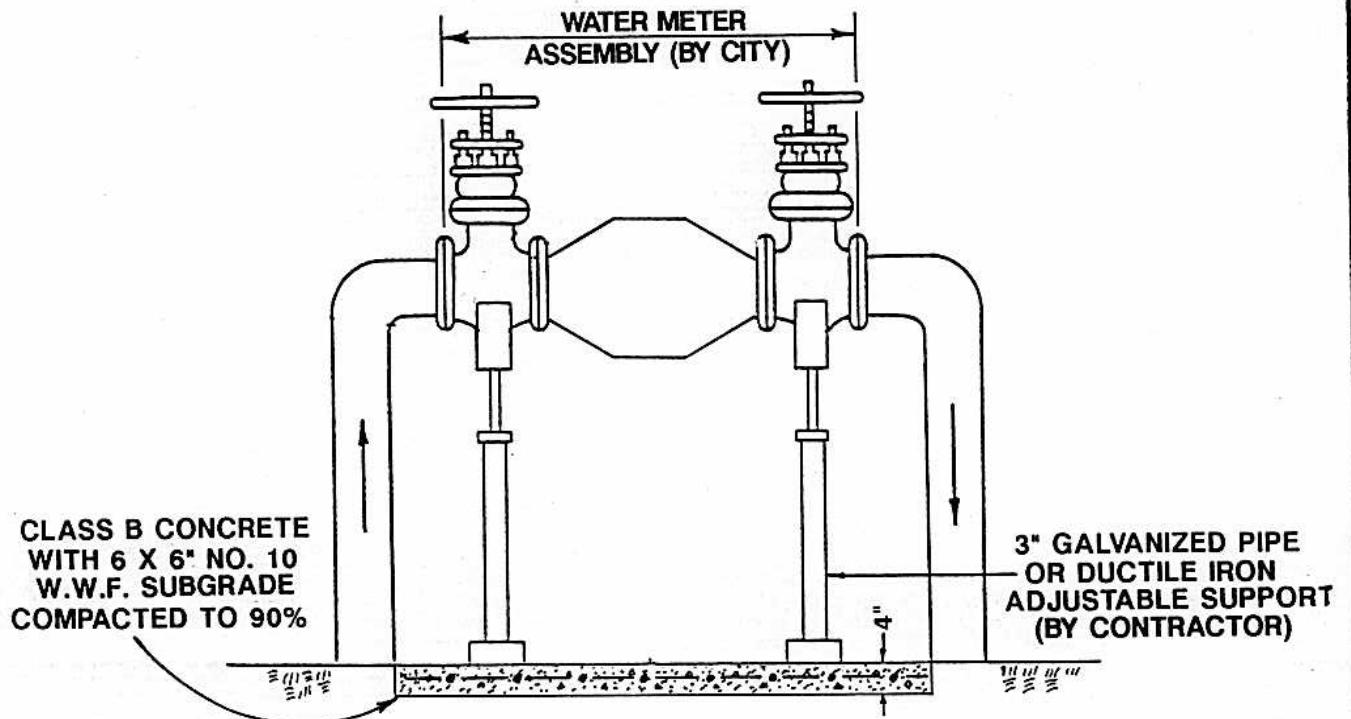
** Temporary spool "only" may be galvanized.

PAGE 1 OF 2

NO.	REVISED	BY	ABOVE GROUND LARGE METER INSTALLATION	APPROVED BY:	<i>M. Buntin</i> DIRECTOR OF PUBLIC WORKS
1	11/91	JK			
DRAWN BY: J. Koester					
CHECKED BY: J. Podesta			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO.	W-16
SCALE: None				DATE: Oct. 1989	



8" METER WITH 6" BYPASS

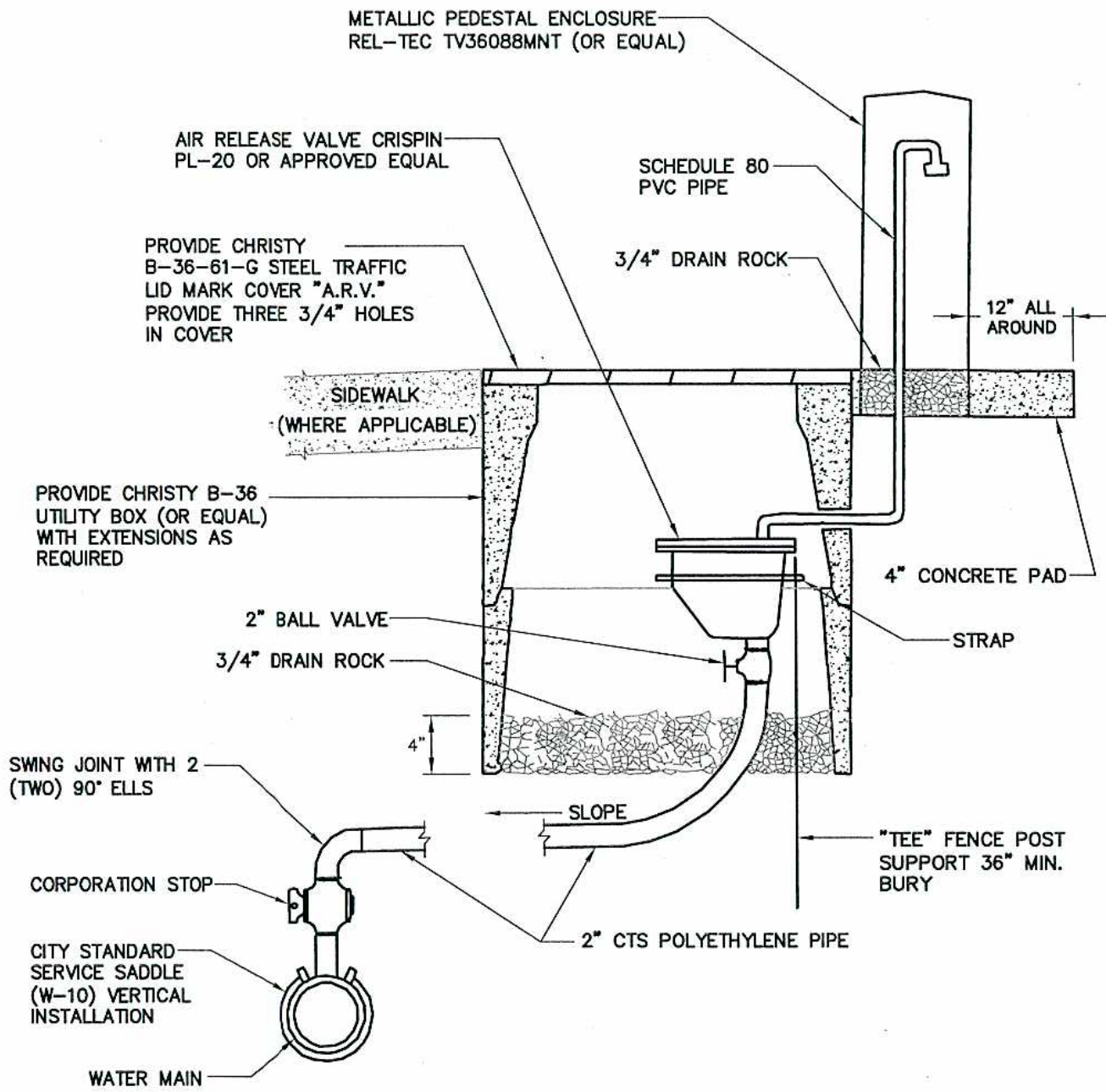


TYPICAL METER ASSEMBLY SUPPORT

NOTES:

- * Spool may be connected directly to backflow assembly thus eliminating vertical riser and 90° elbow at point indicated.
- ** Temporary spool "only" may be galvanized.

NO.	REVISED	BY	ABOVE GROUND LARGE METER INSTALLATION	APPROVED BY:
1	11/91	JK		<i>[Signature]</i> DIRECTOR OF PUBLIC WORKS
DRAWN BY: J. Koester			CITY OF MANTECA DEPARTMENT OF PUBLIC WORKS	DRAWING NO.
CHECKED BY: J. Podesta				DATE: Oct. 1989
SCALE: None				W-17



NOTE:
SADDLES, VALVES, FITTINGS, ETC., SHALL BE BRONZE &
SHALL MATCH COMBINATION AIR RELEASE VALVE SIZE.

NO.	REVISED	BY
2	NOV. 2006	JR
DRAWN BY:		J. ROSS
CHECKED BY:		J. PODESTA
SCALE:		NONE

AIR RELEASE VALVE

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:
Michael A. Brinton
DIRECTOR OF PUBLIC WORKS

DRAWING NO. **W-18**
DATE: JUNE, 1999