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.
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.

WATER LINE
DESIGN CRITERIA

City of Manteca
Department of Public Works

Approved by:
Director of Public Works

J. Koester
J. Podesta

Date: Jan. 1986
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.
### Type of Fitting Table

<table>
<thead>
<tr>
<th>Thrust Block Description</th>
<th>90° Bend</th>
<th>45° Bend</th>
<th>11 1/4° or 22 1/2° Bend</th>
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</thead>
<tbody>
<tr>
<td>4' &amp; 6'</td>
<td>4 FT²</td>
<td>3 FT²</td>
<td>2 FT²</td>
</tr>
<tr>
<td>8'</td>
<td>7</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>10'</td>
<td>11</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>12'</td>
<td>15</td>
<td>8</td>
<td>5</td>
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<tr>
<td>14'</td>
<td>20</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>16'</td>
<td>25</td>
<td>14</td>
<td>8</td>
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</tbody>
</table>

#### 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.
<table>
<thead>
<tr>
<th>Type of Fitting</th>
<th>Tee and Dead End</th>
<th>Cross with Future Extension</th>
<th>Vertical Bend</th>
<th>Fire Hydrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrust Block Description</td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Pipe Size</td>
<td>4&quot; x 6&quot;</td>
<td>4 FT²</td>
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<td>7</td>
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</tr>
<tr>
<td>16&quot;</td>
<td>25</td>
<td>25</td>
<td>9</td>
<td>16</td>
</tr>
</tbody>
</table>

**Degree of Bend**

- 22 1/2°
- 45°
- 90°

**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".

**Required Bearing Area of Thrust Block**

City of Manteca

Department of Public Works

Drawing No.: W-5

Approved by: [Signature]

Director of Public Works

Date: Feb 1992
CAST IRON LID WITH RATTLE-PROOF, MACHINED SEATING SURFACE "CHRISTY NO. C275", BROOKS NO. 3-RT OR APPROVED EQUAL.

ASPHALT CONCRETE
FINISHED GRADE

14-1/4"
11-1/8"
8"

10-3/8"

VALVE BOX: "CHRISTY NO. G5" OR APPROVED EQUAL.

EXTENSIONS "CHRISTY 1661 OR 1663", OR EQUAL.

CONCRETE COLLAR

TRACE WIRE

RESILIENT SEATED GATE VALVE OR RUBBER SEATED BUTTERFLY VALVE.

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 2-1/2 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.
BLOWOFF
WATER SERVICE
SIDEWALK
RIGHT-OF-WAY
WATER MAIN

CUL-DE-SAC

STUBBED STREET

BARRICADE
BLOWOFF
(TO BE PLACED IN FRONT OF BARRICADE)

RIGHT-OF-WAY
WATER MAIN

CURB, GUTTER & SIDEWALK
12'

CHRISTY G-12 VALVE BOX* (MARKED WATER)
4" REMOVABLE PVC CAP
FINISHED GRADE

CLASS B CONCRETE COLLAR
2½ BELOW FINISHED GRADE

VALVE BOX AND EXTENSIONS PER CITY STANDARD W-6

#3 OR #4 REBAR
TRACE WIRE

WATER MAIN

4" DUCTILE IRON PIPE
AWWA 150

COMPANION FLANGE W/ 4" F.I.P. TYLER 5-750*

90° FLANGED ELBOW TYLER 5-700*

THRUXT BLOCK PER CITY STD. W-5, (FIRE HYDRANT)

4" DUCTILE IRON PIPE W/FLANGED ENDS

MJ x FLANGE ADAPTER TYLER 5-158 *
ECCENTRIC REDUCER TYLER 5-735 *

4" RESILIENT SEATED GATE VALVE PER CITY STANDARD W-6

*OR APPROVED EQUAL

BELOW GRADE
WATER LINE BLOW-OFF
CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

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

APPROVED BY:
DIRECTOR/DPW
DATE: JAN, 1988
DRAWING NO. W-7
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.
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")
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.
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.
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.
\[ d_1 \text{ MUST BE A MINIMUM OF TWO SIZES GREATER THAN } d_2. \]

**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
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.
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.
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.
METALLIC PEDESTAL ENCLOSURE
REL-TEC TV36088MNT (OR EQUAL)

AIR RELEASE VALVE CRISPIN
PL-20 OR APPROVED EQUAL

PROVIDE CHRISTY
B-36-61-G STEEL TRAFFIC
LID MARK COVER "A.R.V."
PROVIDE THREE 3/4" HOLES
IN COVER

SCHEDULE 80
PVC PIPE

3/4" DRAIN ROCK

12" ALL AROUND

SIDEWALK
(WHERE APPLICABLE)

PROVIDE CHRISTY B-36
UTILITY BOX (OR EQUAL)
WITH EXTENSIONS AS
REQUIRED

2" BALL VALVE

3/4" DRAIN ROCK

2" CTS POLYETHYLENE PIPE

"TEE" FENCE POST
SUPPORT 36" MIN.
bury

SWING JOINT WITH 2
(TWO) 90° ELLS

CORPORATION STOP

CITY STANDARD
SERVICE SADDLE
(W-10) VERTICAL
INSTALLATION

WATER MAIN

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

AIR RELEASE VALVE
CITY OF MANTeca
DEPARTMENT OF PUBLIC WORKS

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

APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS

DRAWING NO. DATE: JUNE, 1999