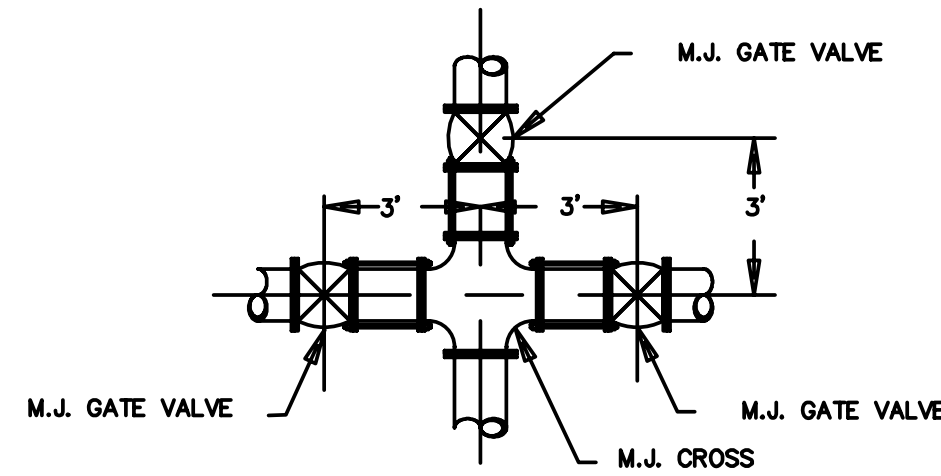
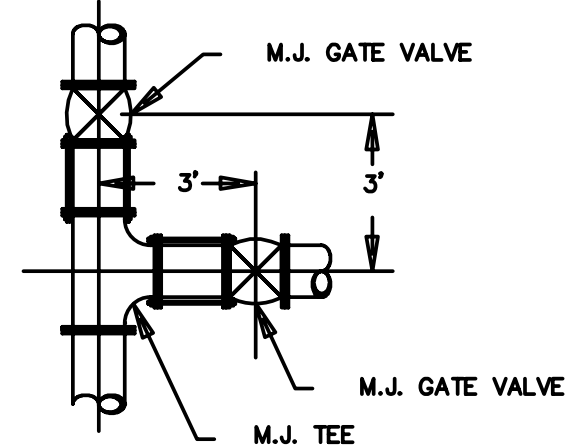


Revision 3/10/99: As an alternate "SwivelX" or approved equal fitting may be used provided the indicated dimensions are maintained.



VALVE LOCATIONS @ A CROSS

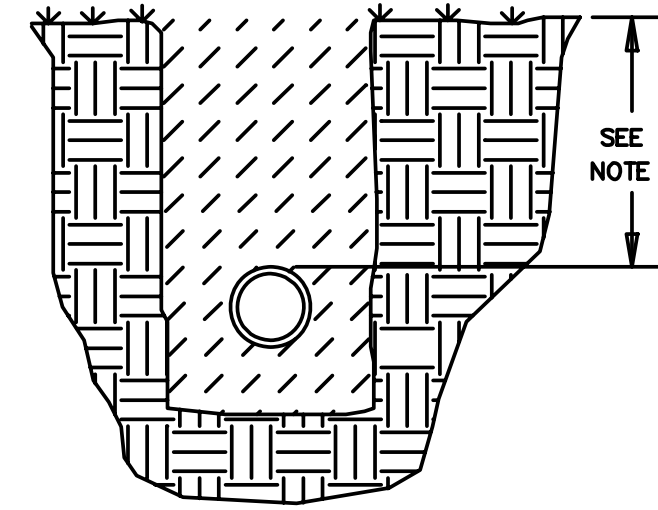
NOTE: In locations where the valve or valve and cap are likely to be disturbed or are for a temporary "dead end" the use of "all thread" as shown in the Fire Hydrant detail will be required by the City of Maryville.



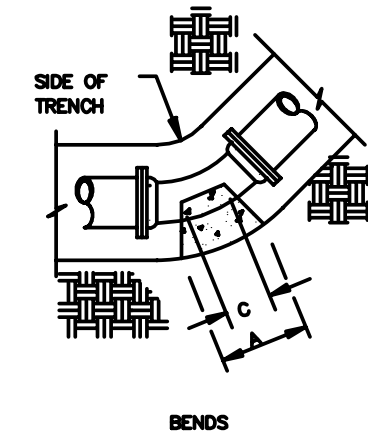
VALVE LOCATIONS @ A TEE

PIPE BEDDING - A continuous and uniform bedding shall be provided in the trench for all buried pipe.

PIPE COVER - All distributor mains shall be provided with sufficient earth or other suitable cover to prevent freezing and provide protection to the pipe. The cover shall not be less than 36 inches for 6-inch and 8-inch pipe and 42-inches for 10-inch and 12-inch pipe measured above the top of the pipe. Reference the minimum depth notes "Water System Special Notes"



MLDI WATER LINE TRENCH DETAILS

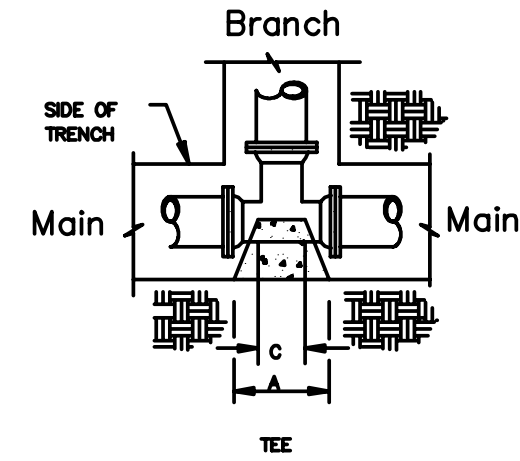


90 degree BENDS

| SIZE | 2" | 4"  | 6"  | 8"  | 10" | 12" | 18" |
|------|----|-----|-----|-----|-----|-----|-----|
| A    | 9" | 18" | 24" | 32" | 40" | 46" | 68" |
| B    | 9" | 18" | 24" | 32" | 40" | 46" | 68" |
| C    | 9" | 9"  | 12" | 12" | 15" | 16" | 22" |
| D    | 8" | 8"  | 12" | 16" | 20" | 25" | 24" |

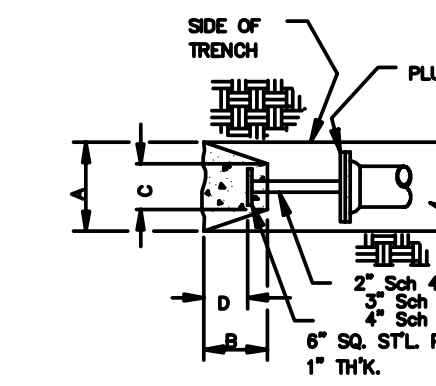
22 1/2 degree BENDS

| SIZE | 2" | 4" | 6"  | 8"  | 10" | 12" | 18" |
|------|----|----|-----|-----|-----|-----|-----|
| A    | 9" | 9" | 13" | 18" | 21" | 24" | 36" |
| B    | 9" | 9" | 13" | 18" | 21" | 24" | 36" |
| C    | 8" | 8" | 10" | 12" | 14" | 16" | 15" |
| D    | 4" | 4" | 6"  | 9"  | 11" | 13" | 16" |



TEE

| MAIN   | 2"-6" | 8"-12" | 8"-10" | 12"   | 12"    | 12" | 18"     |
|--------|-------|--------|--------|-------|--------|-----|---------|
| BRANCH | 2"-6" | 2"-6"  | 8"-10" | 2"-6" | 8"-10" | 12" | 16"-18" |
| A      | 20"   | 20"    | 33"    | 20"   | 33"    | 30" | 57"     |
| B      | 20"   | 20"    | 33"    | 20"   | 33"    | 30" | 57"     |
| C      | 12"   | 12"    | 12"    | 12"   | 12"    | 12" | 30"     |
| D      | 13"   | 13"    | 21"    | 13"   | 21"    | 26" | 24"     |



PLUG

| SIZE | 2"  | 4"  | 6"  | 8"  | 10" | 12" | 18" |
|------|-----|-----|-----|-----|-----|-----|-----|
| A    | 12" | 14" | 20" | 27" | 33" | 36" | 56" |
| B    | 12" | 14" | 20" | 27" | 33" | 36" | 56" |
| C    | 12" | 12" | 12" | 12" | 12" | 12" | 30" |
| D    | 11" | 11" | 11" | 15" | 22" | 32" | 32" |

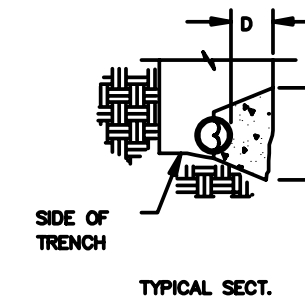
PLUG Thrust blocks for plugs shall be the wider of 1. the dimension shown above or 2. the width of the trench plus 2 inches measured at the soil bearing surface.

45 degree BENDS

| SIZE | 2" | 4"  | 6"  | 8"  | 10" | 12" | 18" |
|------|----|-----|-----|-----|-----|-----|-----|
| A    | 9" | 13" | 18" | 24" | 29" | 34" | 50" |
| B    | 9" | 13" | 18" | 24" | 29" | 34" | 50" |
| C    | 8" | 8"  | 10" | 12" | 14" | 16" | 14" |
| D    | 6" | 6"  | 9"  | 12" | 15" | 18" | 18" |

11 1/4 degree BENDS

| SIZE | 2" | 4" | 6"  | 8"  | 10" | 12" | 18" |
|------|----|----|-----|-----|-----|-----|-----|
| A    | 9" | 9" | 9"  | 12" | 15" | 18" | 26" |
| B    | 9" | 9" | 9"  | 12" | 15" | 18" | 26" |
| C    | 8" | 8" | 10" | 12" | 14" | 16" | 15" |
| D    | 4" | 4" | 5"  | 6"  | 8"  | 9"  | 16" |



The minimum thrust block dimensions in contact with the bearing soil shall be 9 inches by 9 inches

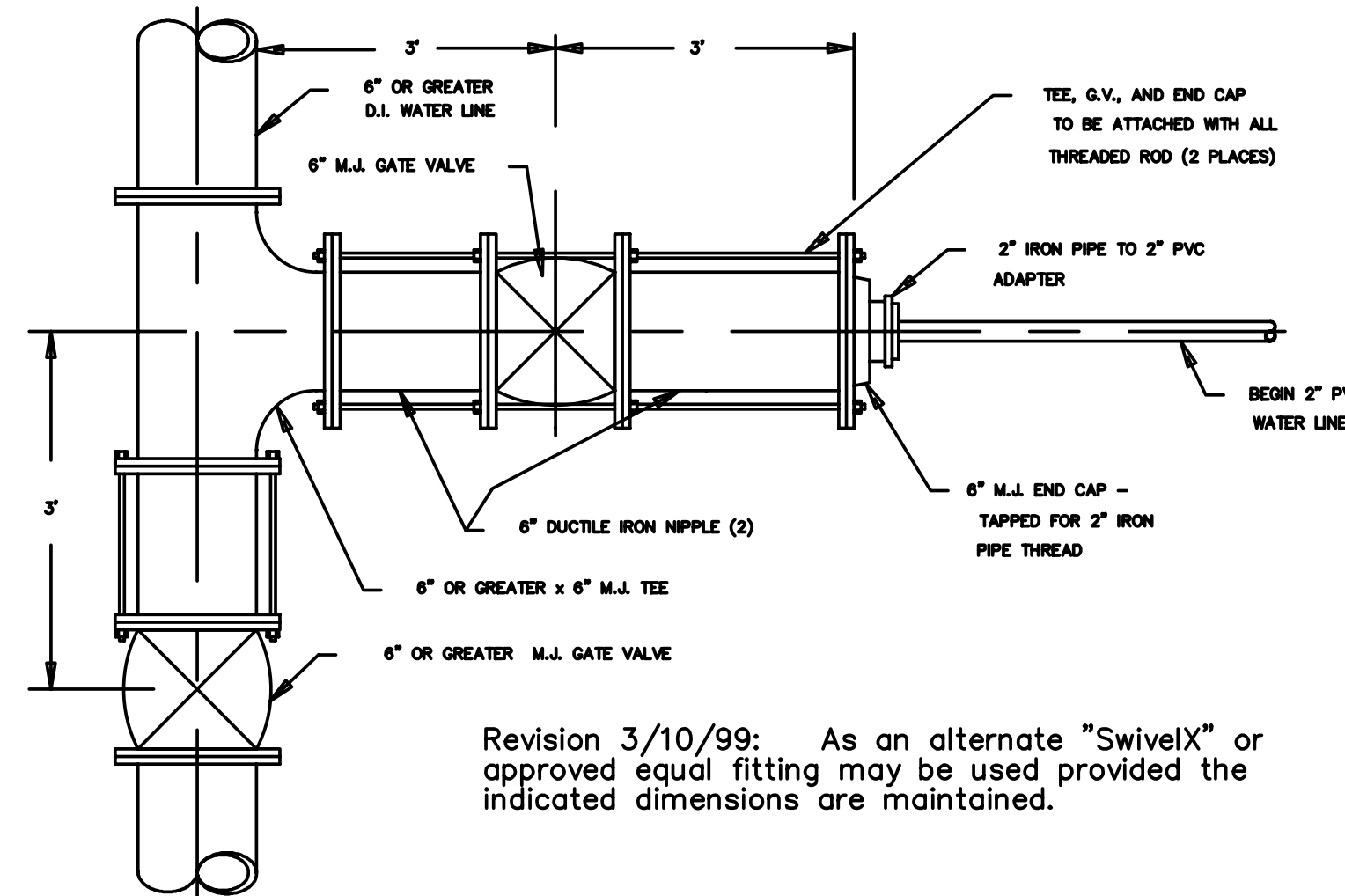
These dimensions are minimums based on 100 psi working line pressures and 2000 psi soil bearing capacity. For other working pressure and/or different soil bearing capacity the dimensions shall be recalculated by the engineer.

THRUST BLOCK DETAILS

Where a two inch water meter is to be installed --

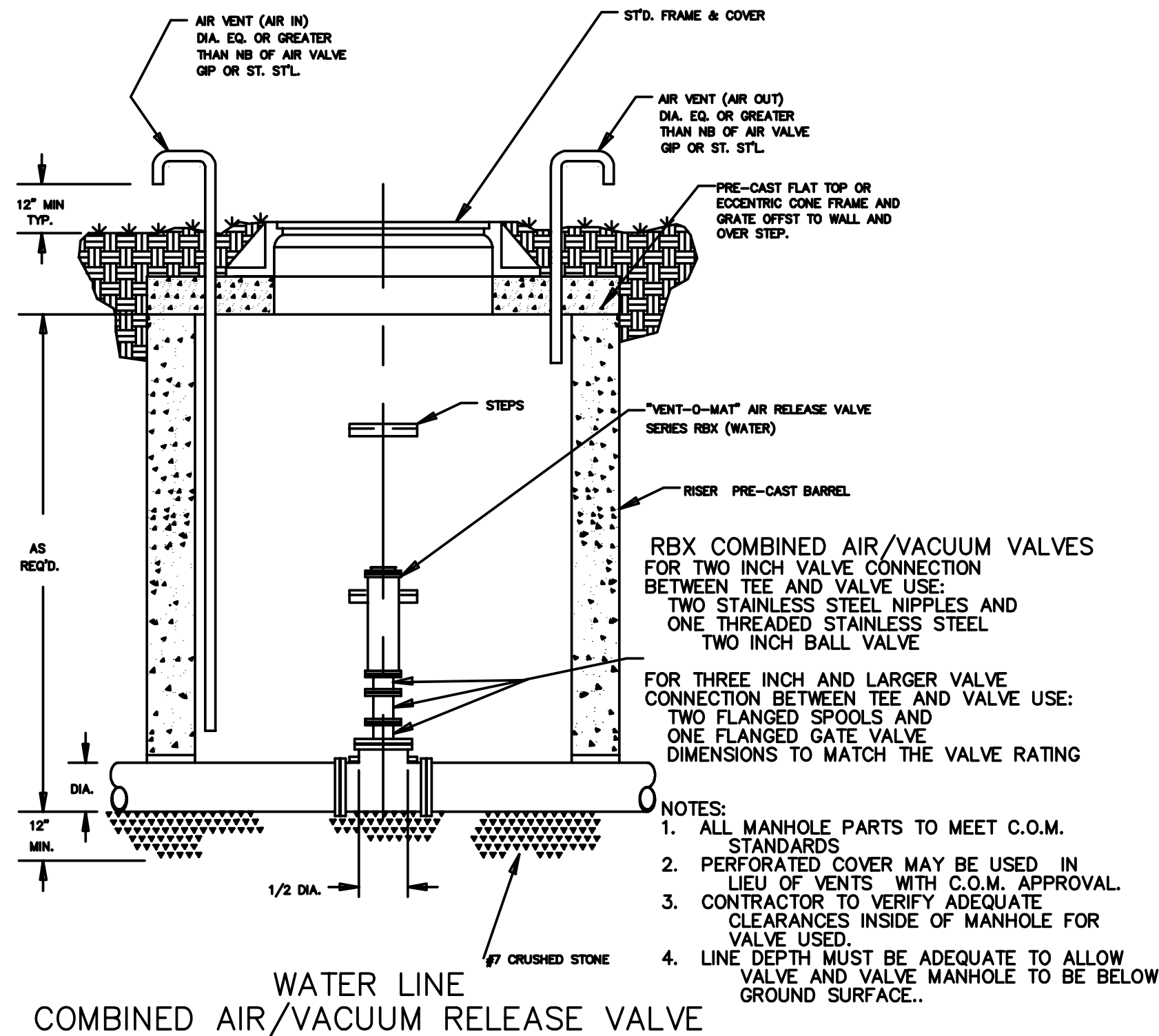
- Use :
1. The appropriate sized tee.
  2. The six inch gate valves may be eliminated and the tapped end cap (plug) placed directly on the tee.
  3. A twelve inch brass nipple - the nipple shall be installed level.
  4. A two inch wheel valve
  5. The two meter valve shall be installed in either a valve box or meter box.

The City of Maryville will provide the twelve inch brass nipple and the two inch wheel valve.



Revision 3/10/99: As an alternate "SwivelX" or approved equal fitting may be used provided the indicated dimensions are maintained.

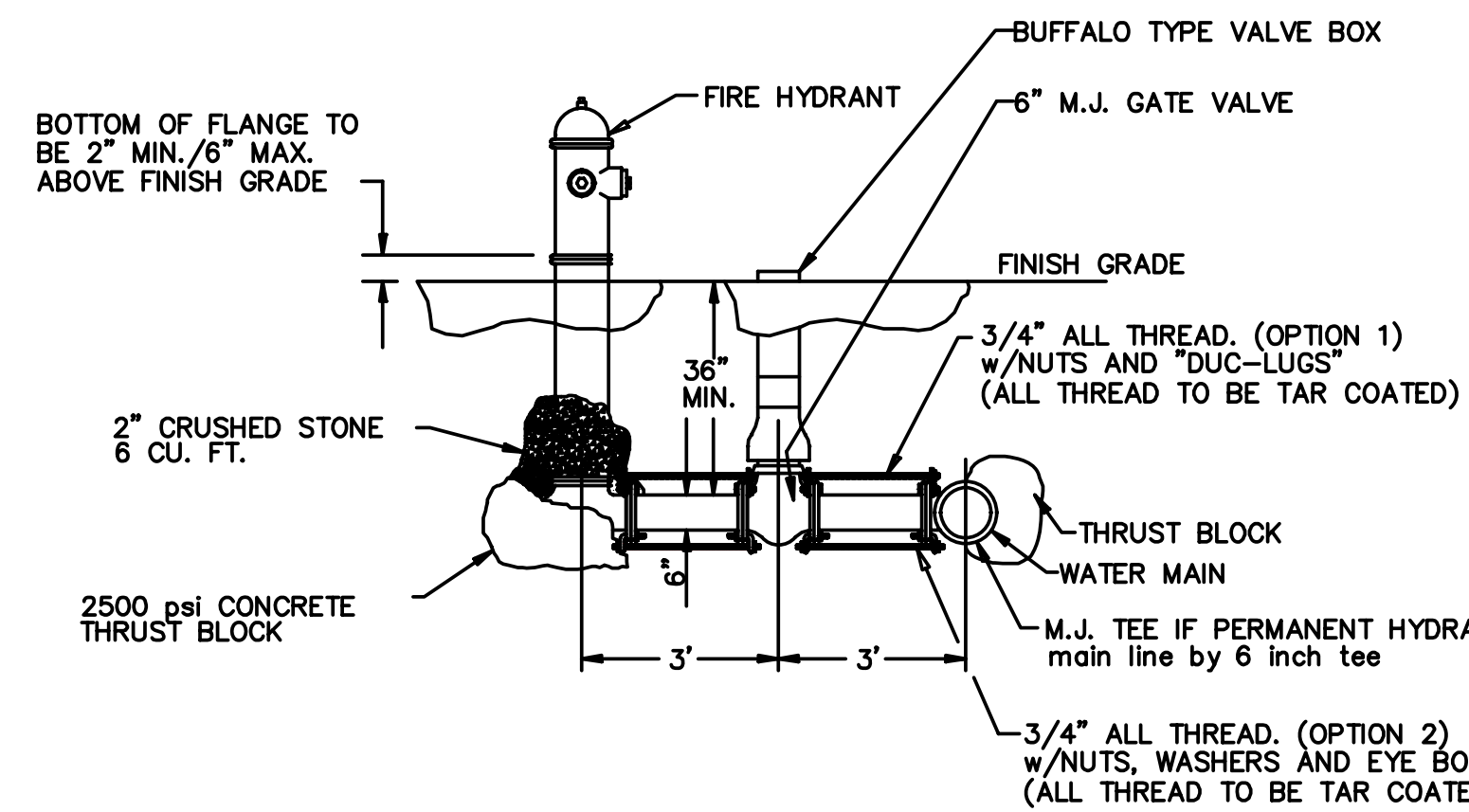
TIE-IN FOR 2" PVC WATER LINE TO 6" OR LARGER MAIN WATER LINE



- NOTES:
1. ALL MANHOLE PARTS TO MEET C.O.M. STANDARDS
  2. PERFORATED COVER MAY BE USED IN LIEU OF VENTS WITH C.O.M. APPROVAL.
  3. CONTRACTOR TO VERIFY ADEQUATE CLEARANCES INSIDE OF MANHOLE FOR VALVE USED.
  4. LINE DEPTH MUST BE ADEQUATE TO ALLOW VALVE AND VALVE MANHOLE TO BE BELOW GROUND SURFACE.

WATER LINE COMBINED AIR/VACUUM RELEASE VALVE

Revision 3/10/99: As an alternate "SwivelX" or approved equal fitting may be used provided the indicated dimensions are maintained.



NOTE: The valve shall be connected to the tee and hydrant using one of the two alternatives shown. A minimum of two (2) three quarter inch (3/4) diameter rods shall be used for each tee to valve or tee to hydrant attachment.

FIRE HYDRANT DETAIL (TYP.)  
TYPICAL FIRE HYDRANT INSTALLATION

CITY OF MARYVILLE WATER SYSTEM SPECIAL NOTES:

Depth - All water lines shall be installed a sufficient depth to provide for minimum cover of not less than 36 inches for 8" and 8" diameter pipes, 42 inches for 10", 12" and 14" pipe. COVER IS TO BE MEASURED FROM THE SUBGRADE ELEVATION AT THE CURB LINE OF THE ROAD ADJACENT TO THE PIPE LINE OR THE EXISTING GROUND AT THE TIME OF CONSTRUCTION OR THE FINISH GRADE DIRECTLY OVER THE PIPE, WHICHEVER IS LOWER. No pipe is to be laid so that a driveway will create a situation that will violate the minimum cover requirements.

MATERIALS - All materials used in the project shall be acceptable to the COM, Water Quality Control Department. All water lines greater than 2 inches in diameter shall be class 51 cement mortar lined ductile iron.

PRESSURE AND FLOW CONTROL - Pressure and flow reducing valves shall be installed in each house or at each connection to a structure to maintain domestic pressure at or below 80 psi unless the pipe system has been specifically designed to handle pressures in excess of 80 psi and permission is obtained from the COM, Water Quality Control Department.

CITY OF MARYVILLE GENERAL UTILITY NOTES:

All sewer and water extensions shall be built in accordance with the RULES, REGULATIONS, RATES, AND POLICIES of the City of Maryville, Water Quality Control Department, Maryville, Tennessee (copies are available from the City of Maryville (COM) and on file with the Tennessee State Department of Health and Environment).

In cases of conflict the City of Maryville (COM) regulations shall rule.

It shall be the developers and contractors responsibility to obtain and follow the regulations of the City of Maryville.

Easements shall exist as per the subdivision plat or recorded easement documents. If the necessary easements are not in place the developer shall obtain and furnish the City of Maryville with easements for the portions or utility lines that cross private property. The easement documents shall be reviewed by the City of Maryville for acceptability prior to signatures. All easement documents shall be recorded prior to construction of the utility line(s).

All water and sewer lines shall be laid in undisturbed native soil whenever practical.

At the junction of all undisturbed soil and fill sections of the pipe trench the backfill material shall be divided by an impermeable section of fill (e.g. compacted clay) around the installed pipe to prevent piping of water through the pipe bedding.

Utilities crossing under other utilities shall be back filled with compacted No. 7 stone to the spring line of the upper utility to prevent settling of the utility. Any utility trench within the roadway line zone shall be totally backfilled with compacted stone as per the COM requirements.

WATER AND SEWER systems shall not be granted final approval by the City of Maryville until "AS BUILT" drawings have been completed and are acceptable to the City of Maryville.

|                                       |                              |             |  |  |
|---------------------------------------|------------------------------|-------------|--|--|
| C:\WQC 2005\New City LOGO\NEWLOGO.JPG |                              |             | WATER QUALITY CONTROL<br>CITY OF MARYVILLE<br>MARYVILLE, TENNESSEE |  |
| DRAWN BY: _____                       | TITLE: STANDARD DETAIL DWGS. | SCALE: NONE | SHEET 1 of 1   |  |
| APP'D BY: JG                          | DATE: 1-27-97                | WATER       |  |  |
| 6/16/98                               |                              |             |  |  |
| DESCRIPTION:                          |                              |             |  |  |