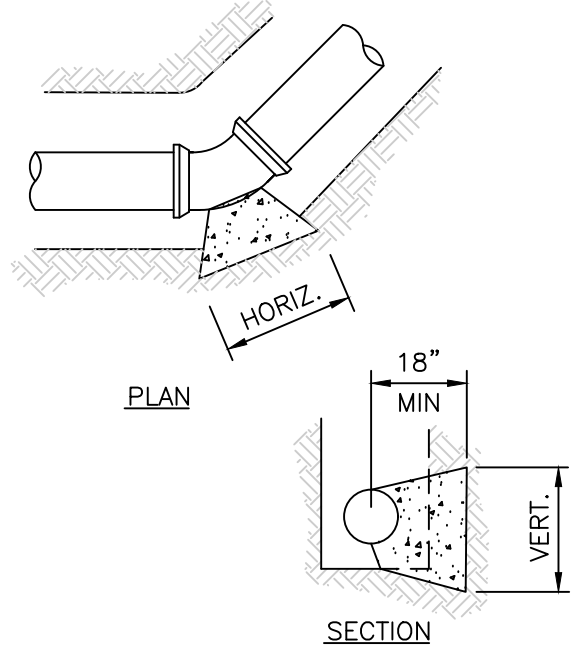
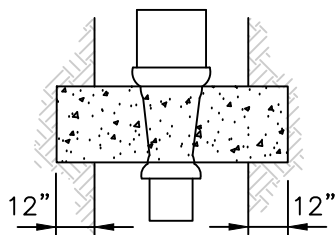


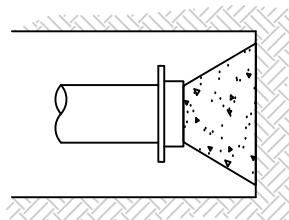
VERTICAL BEND ANCHOR



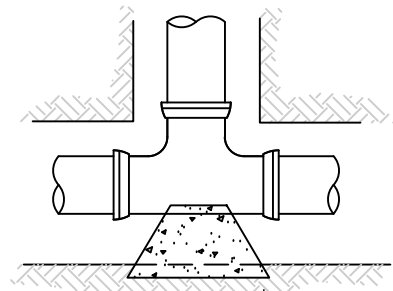
HORIZONTAL BEND



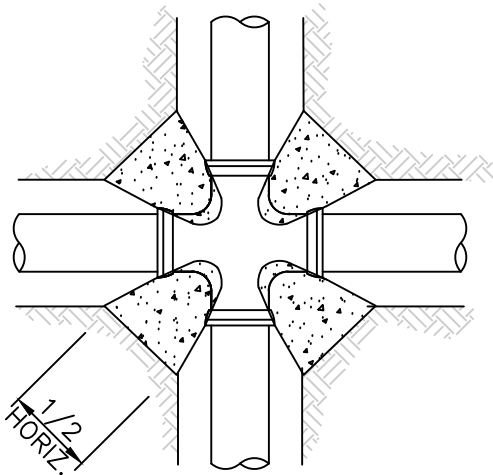
REDUCER



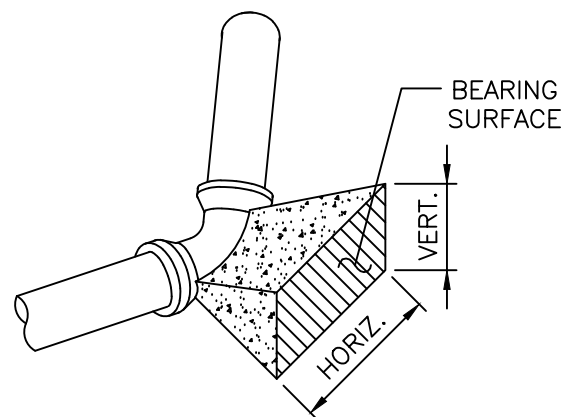
END CAP



TEE OR VALVE



CROSS



TYPICAL BEARING SURFACE

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CITY OF ORANGE WATER DIVISION STANDARDS

THRUST BLOCK DETAILS

OWD STD. DWG.

**OWD-109**

SHEET 1 OF 2

**NOTES:**

1. THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 1500 PSF PRESSURE AND 225 PSI LINE PRESSURE WITH 3'-0" COVER MINIMUM.  
 FOR BEARING = 1000 PSF, 1.5 X AREA SHOWN  
 FOR BEARING = 500 PSF, 3.0 X AREA SHOWN
2. ALL THRUST BLOCKS SHALL BE CLASS 560-C-3250 CONCRETE (CONTAINING NOT LESS THAN FIVE SACKS PER CUBIC YARD) AND PLACED AGAINST UNDISTURBED SOIL.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
4. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE. PIPE AND FITTING JOINTS SHALL BE ACCESSIBLE FOR REPAIR.
5. IN ADDITION TO THRUST BLOCKS, ALL DUCTILE IRON PIPE MECHANICAL JOINT FITTINGS SHALL BE RESTRAINED PER SECTION 209-1.1.2.5 OR 209-4.2.3 OF THE STANDARD SPECS.

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

PIPE	11 1/4° BEND		22 1/2° BEND		45° BEND		90° BEND		TEE		END CAP	
SIZE	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
4"	1'-6"	0'-9"	1'-8"	0'-9"	2'-4"	1'-0"	3'-3"	1'-4"	2'-8"	1'-3"	2'-8"	1'-3"
6"	1'-9"	1'-0"	2'-6"	1'-3"	3'-6"	1'-6"	4'-8"	2'-3"	4'-0"	2'-0"	4'-0"	2'-0"
8"	2'-4"	1'-0"	3'-4"	1'-6"	4'-8"	2'-0"	6'-4"	3'-0"	5'-4"	2'-4"	5'-4"	2'-4"
10"	3'-0"	1'-4"	4'-3"	1'-9"	5'-9"	2'-6"	7'-10"	3'-6"	6'-8"	3'-0"	6'-8"	3'-0"
12"	3'-6"	2'-0"	5'-0"	2'-3"	6'-10"	3'-0"	9'-6"	4'-3"	7'-10"	3'-6"	7'-10"	3'-6"

VERTICAL DEAD LOAD (MIN. CUBIC YARDS)

PIPE SIZE	11 1/4° BEND	22 1/2° BEND	45° BEND
4"	0.3	0.5	0.9
6"	0.5	1.0	2.0
8"	0.9	1.8	3.5
10"	1.4	2.8	5.5
12"	2.0	4.0	7.8

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**CITY OF ORANGE WATER DIVISION STANDARDS**

**THRUST BLOCK DETAILS**

OWD STD. DWG.

**OWD-109**

SHEET 2 OF 2