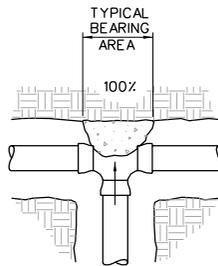
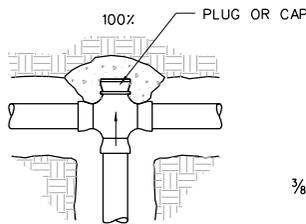


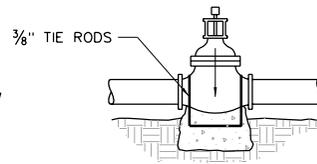
DEAD END PLAN VIEW



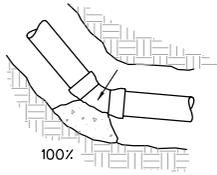
TEE PLAN VIEW



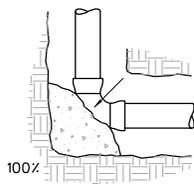
CROSS W/PLUG PLAN VIEW



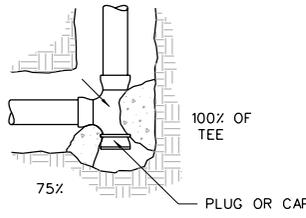
VALVE ELEVATION VIEW



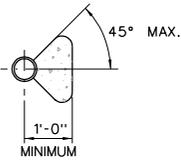
ELBOW PLAN VIEW



ELBOW PLAN VIEW



TEE W/PLUG PLAN VIEW



TYPICAL SECTION THRU THRUST BLOCK

2 * 5 REBAR WRAPPED AROUND ELBOW AND COMPLETELY ENCASED IN CONCRETE

WEIGHT OF CONCRETE TO RESIST 100% OF TOTAL THRUST

GRAVITY THRUST BLOCK ELEVATION VIEW

NOTES:

1. THE FIGURE (100%) AT THE THRUST BLOCK INDICATES PER CENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.
2. THE ARROW (—) INDICATES THRUST DIRECTION.
3. CONCRETE FOR THRUST BLOCKS TO BE 3000 P.S.I..
4. ALL MJ AND FLANGED FITTINGS TO BE WRAPPED WITH 12 MIL POLYETHYLENE PRIOR TO PLACING CONCRETE THRUST BLOCK
5. WHERE SUFFICIENT BEARING SURFACE IS NOT AVAILABLE FOR THRUST BLOCK, MEGALUG THRUST RESTRAINING GLANDS MAY BE USED. MEGALUG THRUST RESTRAINING GLANDS SHALL BE INSTALLED PER MANUFACTURER'S RECOMENDATION INCLUDING ANY JOINT RESTRAINT. ANY USE OF MEGALUG OR CHANGE TO THE THRUST BEARING CHART MUST BE REVIEWED BY THE ENGINEER.

TABLE 1

Use when line pressure and soil bearing strength are known.

Line Pressure: _____ psi
 Test Pressure (Sf = 1.5): _____ psi
 Soil Bearing Strength: _____ psf
 (Soil Bearing Strength determined from a geotechnical investigation.)

Side Thrust (lbs.) per 1 psi line pressure

| Pipe Size (") | Pipe Area* (sq. in.) | Dead End or Tee (lbs.) | 90° Bend (lbs.) | 45° Bend (lbs.) | 22.5° Bend (lbs.) | 11.25° Bend (lbs.) |
|---------------|----------------------|------------------------|-----------------|-----------------|-------------------|--------------------|
| 4 | 14.39 | 22 | 31 | 17 | 9 | 5 |
| 6 | 32.17 | 49 | 69 | 37 | 19 | 10 |
| 8 | 56.88 | 86 | 121 | 66 | 34 | 17 |
| 10 | 86.92 | 131 | 185 | 100 | 51 | 26 |
| 12 | 124.29 | 187 | 264 | 143 | 73 | 37 |
| 14 | 168.33 | 253 | 358 | 194 | 99 | 50 |
| 16 | 219.56 | 330 | 466 | 253 | 129 | 65 |
| 18 | 277.59 | 417 | 589 | 319 | 163 | 82 |
| 20 | 342.41 | 514 | 727 | 394 | 201 | 101 |
| 24 | 490.09 | 736 | 1,040 | 563 | 287 | 145 |
| 30 | 757.69 | 1,137 | 1,608 | 870 | 444 | 223 |

Example for Table 1:

8-inch 90° bend

Line Pressure = 100 psi

From Table: Thrust per 1 psi = 121 lbs.

Calculate Total Thrust: 100 psi x 121 lbs/psi = 12,100 lbs

Soil Bearing Strength = 2,000 psf

Area of bearing required for thrust block is 6.1 sq. ft. (12,100 lbs / 2,000 psf = 6.1 sq. ft.)

* Pipe area is based on largest actual inside diameter of ductile iron pipe.

TABLE 2

Use when line pressure and soil bearing strength are not known.

Line Pressure: 120 psi
 Test Pressure (Sf = 1.5): 180 psi
 Soil Bearing Strength: 1,500 psf

Area of Bearing Required (sq. ft.)

| Pipe Size (") | Pipe Area* (sq. in.) | Dead End or Tee (sq. ft.) | 90° Bend (sq. ft.) | 45° Bend (sq. ft.) | 22.5° Bend (sq. ft.) | 11.25° Bend (sq. ft.) |
|---------------|----------------------|---------------------------|--------------------|--------------------|----------------------|-----------------------|
| 4 | 14.39 | 1.7 | 2.4 | 1.3 | 0.7 | 0.3 |
| 6 | 32.17 | 3.9 | 5.5 | 3.0 | 1.5 | 0.8 |
| 8 | 56.88 | 6.8 | 9.7 | 5.2 | 2.7 | 1.3 |
| 10 | 86.92 | 10.4 | 14.8 | 8.0 | 4.1 | 2.0 |
| 12 | 124.29 | 14.9 | 21.1 | 11.4 | 5.8 | 2.9 |
| 14 | 168.33 | 20.2 | 28.6 | 15.5 | 7.9 | 4.0 |
| 16 | 219.56 | 26.3 | 37.3 | 20.2 | 10.3 | 5.2 |
| 18 | 277.59 | 33.3 | 47.1 | 25.5 | 13.0 | 6.5 |
| 20 | 342.41 | 41.1 | 58.1 | 31.4 | 16.0 | 8.1 |
| 24 | 490.09 | 58.8 | 83.2 | 45.0 | 22.9 | 11.5 |
| 30 | 757.69 | 90.9 | 128.6 | 69.6 | 35.5 | 17.8 |



STATEMENT OF USE

THIS DOCUMENT AND ANY ILLUSTRATIONS HEREON ARE PROVIDED AS STANDARD CONSTRUCTION DETAILS WITHIN LINDON CITY. DEVIATION FROM THIS DOCUMENT REQUIRES APPROVAL OF LINDON CITY, LINDON CITY CORPORATION AND J-U-B ENGINEERS CAN NOT BE HELD LIABLE FOR MISUSE OR CHANGES REGARDING THIS DOCUMENT.

REVISION



THRUST BLOCK DETAILS

LINDON CITY
 100 NORTH STATE

STANDARD DRAWING NUMBER:

15

CAD DWG: LC_Std0wgs.dgn
 PLOT SCALE: 1:000
 DRAWN BY: MJU
 DESIGN BY: DCT
 CHECKED BY:
 ADOPTED DATE: 5 MAY 98

| NO. | DESCRIPTION | BY | APR. | DATE |
|-----|-------------|----|------|------|
| | | | | |