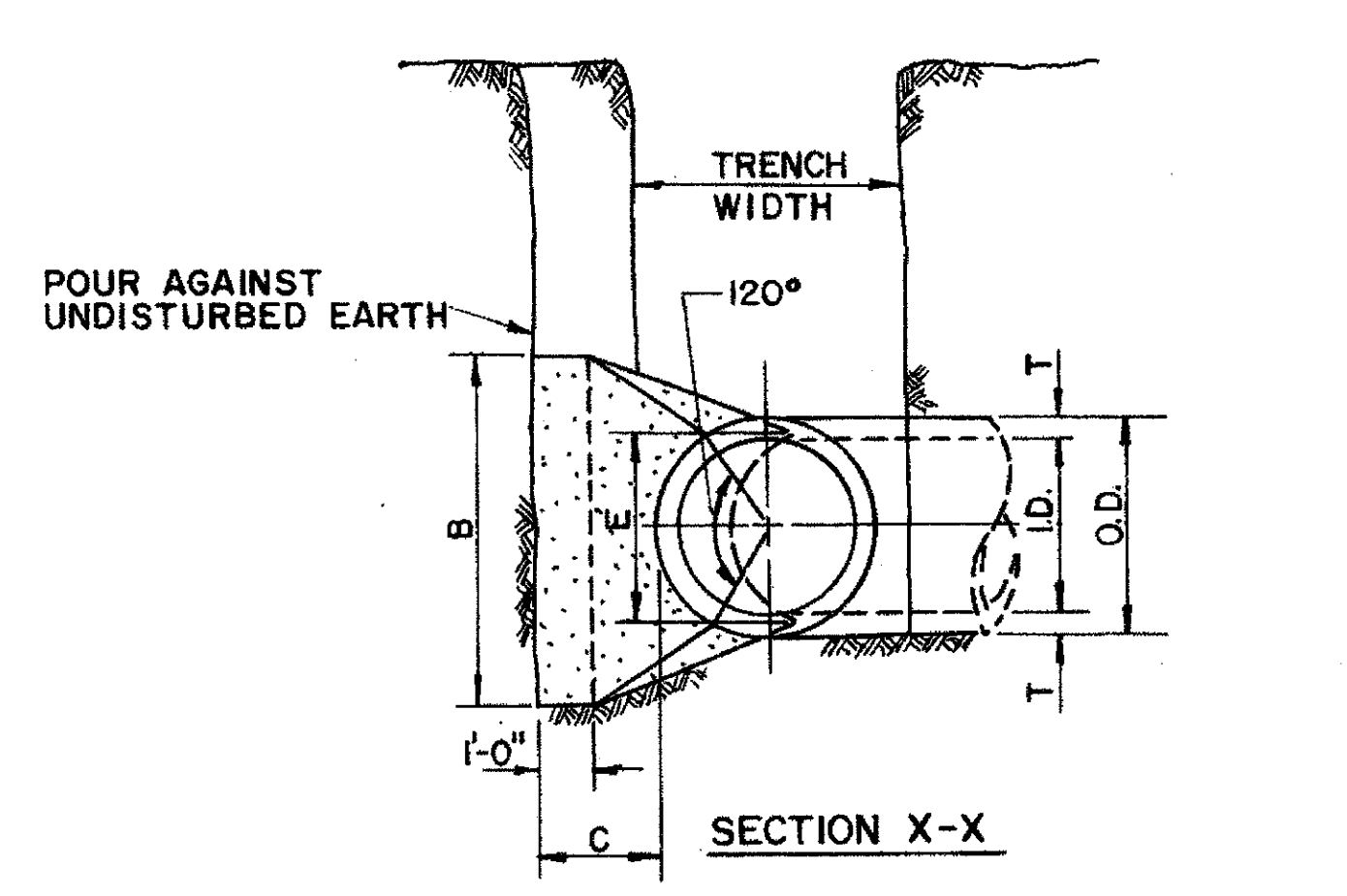
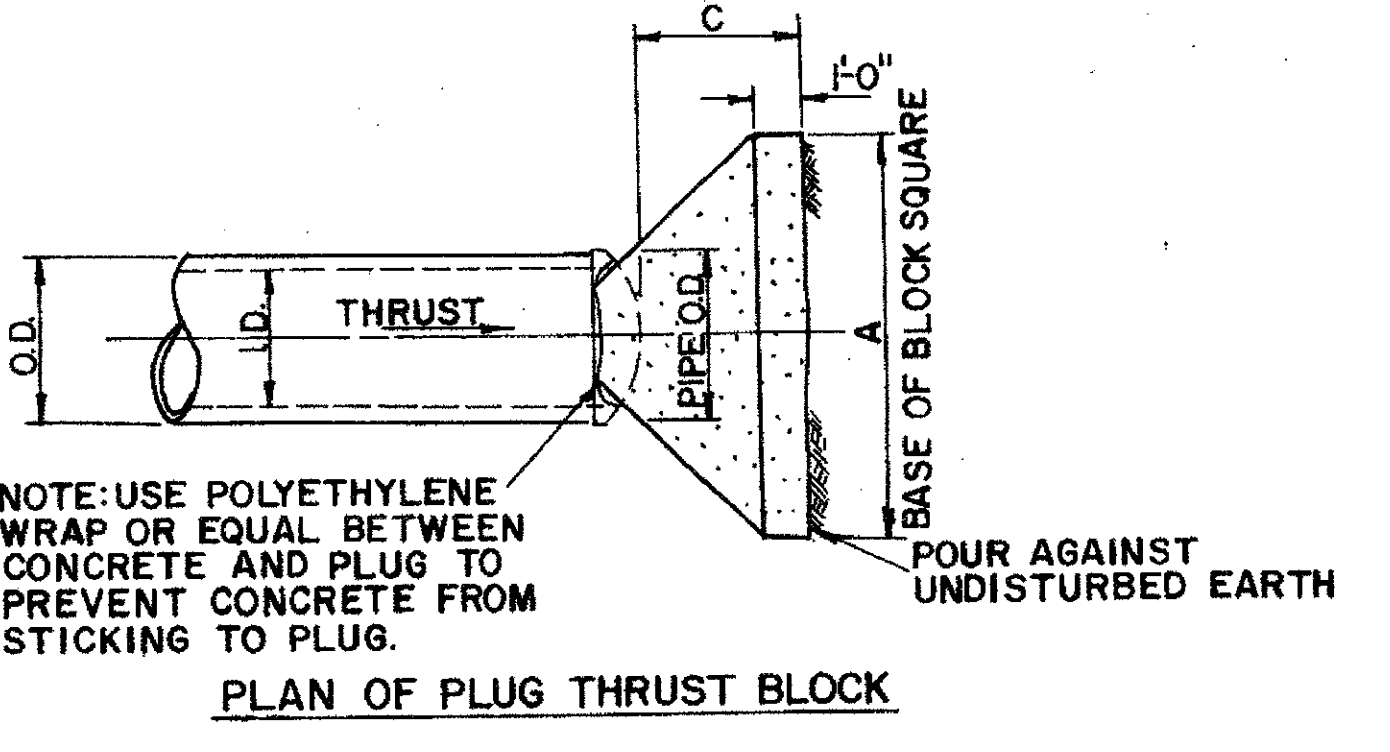
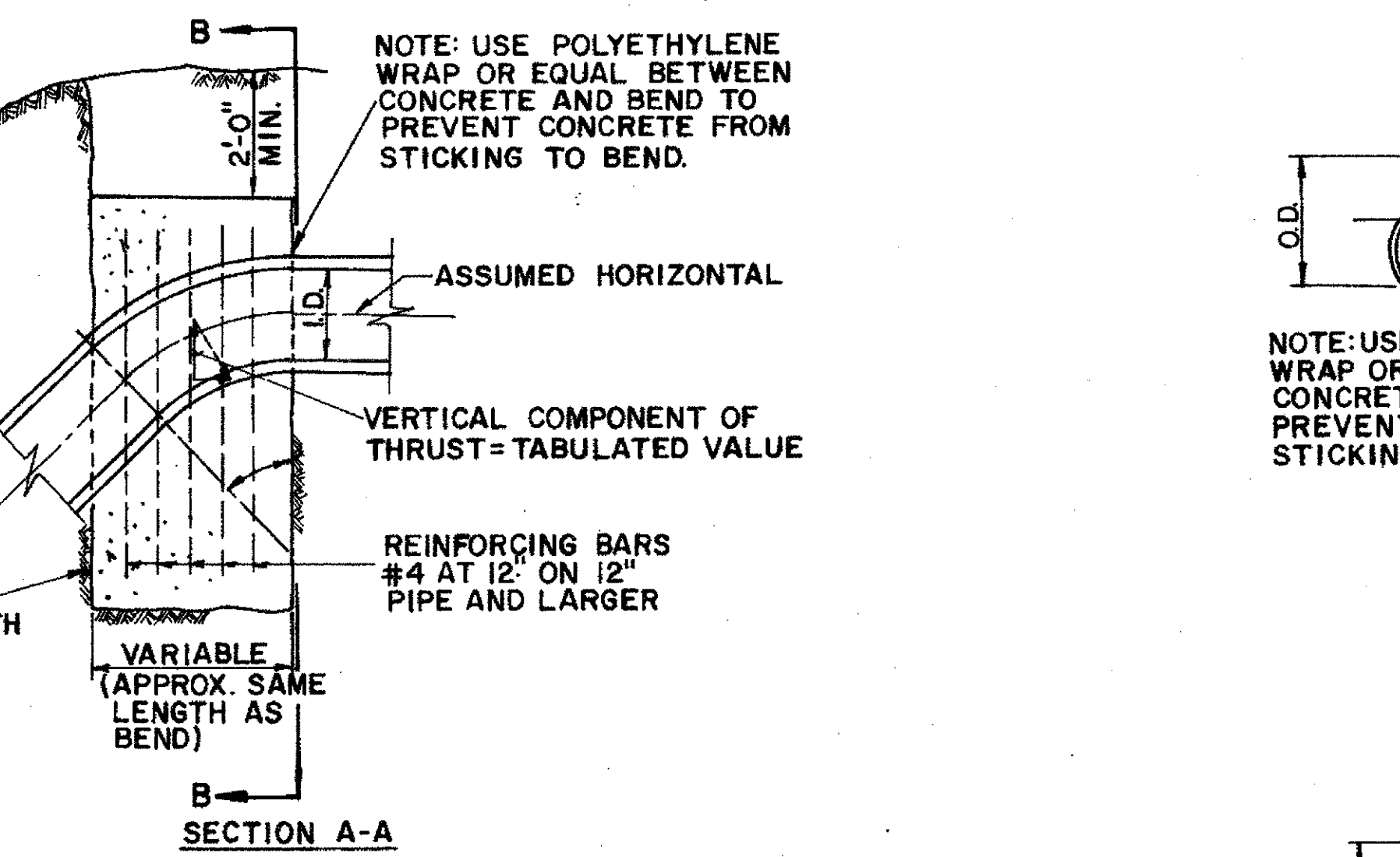
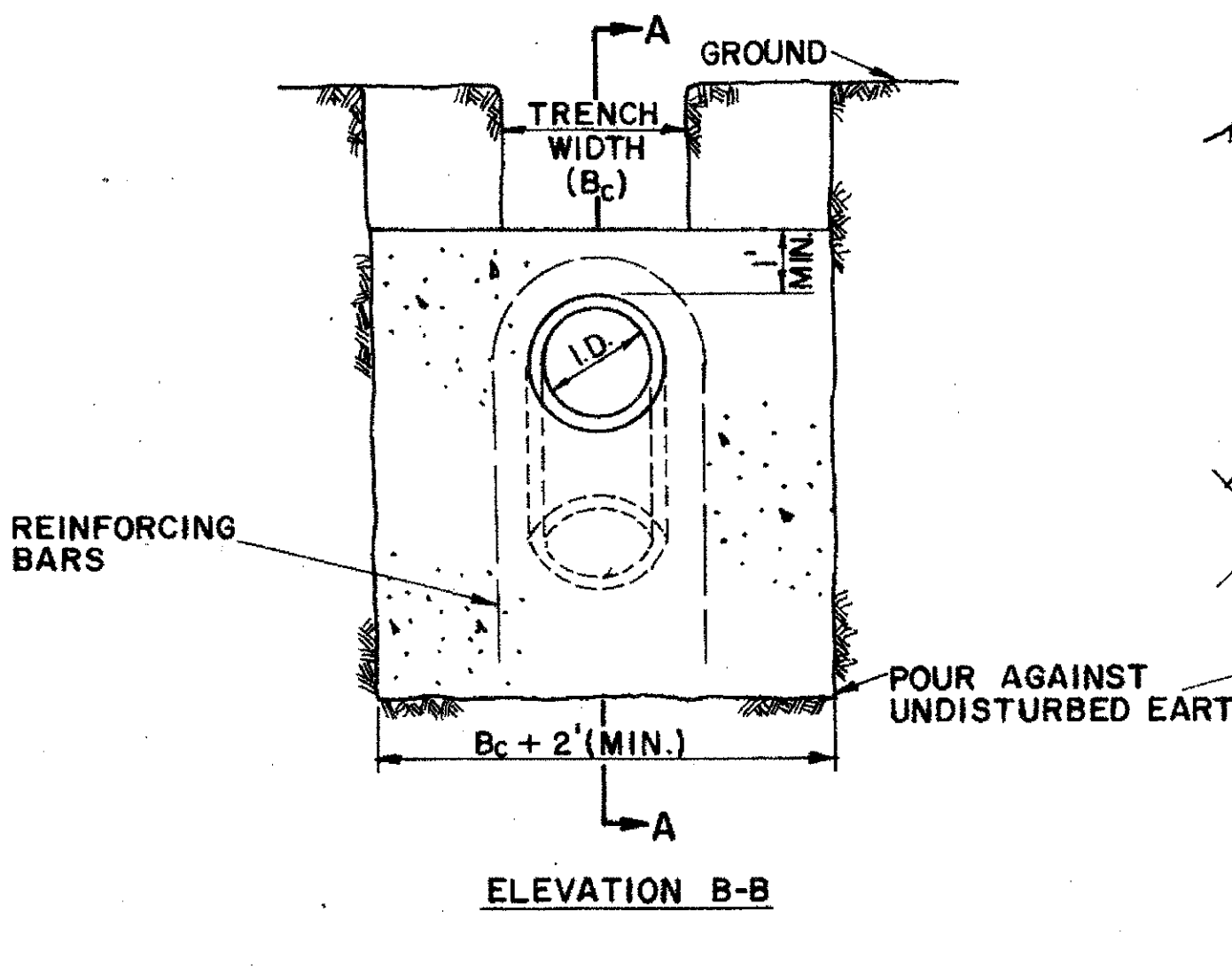


| I.D. (IN.) | T (IN.) | 11.25° | | 22.50° | | E (FT.) |
|------------|---------|---------|---------|---------|---------|---------|
| | | C (FT.) | G (FT.) | C (FT.) | G (FT.) | |
| 4.6, 8 | 0.4 | 1.5 | 1.5 | 1.5 | 0.9 | |
| 10, 12 | 0.5 | 1.5 | 1.5 | 1.5 | 1.2 | |
| 16, 18 | 0.6 | 1.5 | 1.5 | 1.5 | 1.6 | |
| 20 | 0.7 | 1.5 | 1.5 | 1.5 | 1.8 | |
| 24 | 0.9 | 1.5 | 1.5 | 1.5 | 2.1 | |
| 30 | 2.9 | 1.5 | 1.9 | 2.1 | 2.6 | |
| 36 | 4.5 | 1.5 | 2.3 | 3.3 | 3.6 | |
| 42 | 5.0 | 1.8 | 2.6 | 3.8 | 4.2 | |
| 48 | 5.5 | 2.0 | 3.0 | 4.3 | 4.8 | |
| 54 | 6.0 | 2.3 | 3.4 | 4.8 | 5.4 | |
| 60 | 6.5 | 2.5 | 3.8 | 5.3 | 6.0 | |
| 66 | 6.8 | 2.8 | 4.1 | 5.7 | 6.6 | |
| 72 | 7.5 | 3.0 | 4.5 | 6.3 | 7.2 | |
| 78 | 7.5 | 3.3 | 4.9 | 6.7 | 7.8 | |
| 84 | 8.0 | 3.5 | 5.3 | 7.2 | 8.4 | |
| 90 | 8.5 | 3.8 | 5.6 | 7.7 | 9.0 | |
| 96 | 9.0 | 4.0 | 6.0 | 8.2 | 9.6 | |



| I.D. (IN.) | G (FT.) | THRUST (TONS) | EARTH | | ROCK | | I.D. (IN.) | G (FT.) | THRUST (TONS) | EARTH | | ROCK | | | | | |
|------------|---------|---------------|---------|---------|---------|---------|------------|---------|---------------|---------|---------|------|------|------|------|------|------|
| | | | A (FT.) | B (FT.) | A (FT.) | B (FT.) | | | | A (FT.) | B (FT.) | | | | | | |
| 4.6, 8 | 0.4 | 1.0 | 1.0 | 1.5 | 0.1 | 1.0 | 1.0 | 0.1 | 4.6, 8 | 0.8 | 2.0 | 1.5 | 0.1 | 1.0 | 1.0 | 0.1 | |
| 10, 12 | 0.6 | 2.2 | 1.5 | 1.5 | 0.1 | 1.0 | 1.5 | 0.1 | 10, 12 | 1.1 | 4.4 | 2.0 | 2.5 | 0.3 | 1.5 | 1.5 | 0.1 |
| 16, 18 | 0.8 | 5.0 | 2.0 | 2.5 | 0.3 | 1.5 | 2.0 | 0.2 | 16, 18 | 1.8 | 9.9 | 3.0 | 3.5 | 0.7 | 2.0 | 3.5 | 0.4 |
| 20 | 0.9 | 6.2 | 2.0 | 3.5 | 0.4 | 1.5 | 3.0 | 0.3 | 20 | 1.8 | 12.3 | 3.5 | 3.5 | 0.7 | 2.0 | 3.5 | 0.4 |
| 24 | 1.1 | 8.9 | 3.0 | 3.0 | 0.5 | 1.5 | 3.0 | 0.3 | 24 | 2.2 | 17.7 | 4.0 | 4.5 | 1.0 | 3.0 | 3.0 | 0.5 |
| 30 | 1.4 | 10.4 | 3.0 | 3.5 | 0.6 | 2.0 | 3.5 | 0.4 | 30 | 2.7 | 20.7 | 5.0 | 4.5 | 1.5 | 3.0 | 4.0 | 0.8 |
| 36 | 1.7 | 15.0 | 3.5 | 4.5 | 0.9 | 2.0 | 4.0 | 0.5 | 36 | 3.3 | 29.8 | 5.5 | 5.5 | 2.3 | 4.0 | 4.0 | 1.3 |
| 42 | 1.9 | 20.4 | 4.5 | 5.0 | 1.5 | 2.5 | 5.0 | 0.8 | 42 | 3.8 | 40.5 | 7.0 | 6.0 | 3.9 | 4.5 | 5.0 | 2.1 |
| 48 | 2.2 | 26.6 | 4.5 | 6.0 | 2.0 | 2.5 | 6.0 | 1.1 | 48 | 4.4 | 52.9 | 8.0 | 7.0 | 5.7 | 4.8 | 6.0 | 2.8 |
| 54 | 2.5 | 33.7 | 6.0 | 6.0 | 3.0 | 3.0 | 6.0 | 1.4 | 54 | 4.9 | 67.0 | 9.0 | 8.0 | 8.0 | 6.0 | 6.0 | 4.1 |
| 60 | 2.7 | 41.6 | 6.0 | 7.0 | 3.8 | 3.0 | 7.0 | 1.8 | 60 | 5.5 | 82.7 | 9.5 | 9.0 | 10.6 | 6.0 | 7.0 | 5.3 |
| 66 | 3.0 | 50.3 | 6.5 | 8.0 | 5.1 | 3.5 | 8.0 | 2.7 | 66 | 6.0 | 100.1 | 10.5 | 10.0 | 14.1 | 6.5 | 8.0 | 7.2 |
| 72 | 3.3 | 59.9 | 7.5 | 8.0 | 6.3 | 4.0 | 8.0 | 3.3 | 72 | 6.6 | 119.1 | 11.0 | 11.0 | 17.6 | 7.5 | 8.0 | 9.1 |
| 78 | 3.6 | 70.2 | 8.0 | 9.0 | 8.1 | 4.0 | 9.0 | 3.9 | 78 | 7.1 | 139.8 | 12.0 | 12.0 | 22.5 | 8.0 | 9.0 | 11.7 |
| 84 | 3.8 | 81.5 | 8.5 | 10.0 | 10.3 | 4.5 | 10.0 | 5.3 | 84 | 7.6 | 162.1 | 13.0 | 12.5 | 27.2 | 8.5 | 10.0 | 14.8 |
| 90 | 4.1 | 93.5 | 9.5 | 10.0 | 12.2 | 5.0 | 10.0 | 6.3 | 90 | 8.2 | 186.1 | 14.0 | 13.5 | 33.7 | 9.5 | 10.0 | 17.7 |
| 96 | 4.4 | 106.4 | 10.0 | 11.0 | 15.0 | 5.0 | 11.0 | 7.4 | 96 | 8.7 | 211.7 | 15.0 | 14.5 | 41.2 | 10.0 | 11.0 | 21.8 |

HORIZONTAL BEND THRUST BLOCK



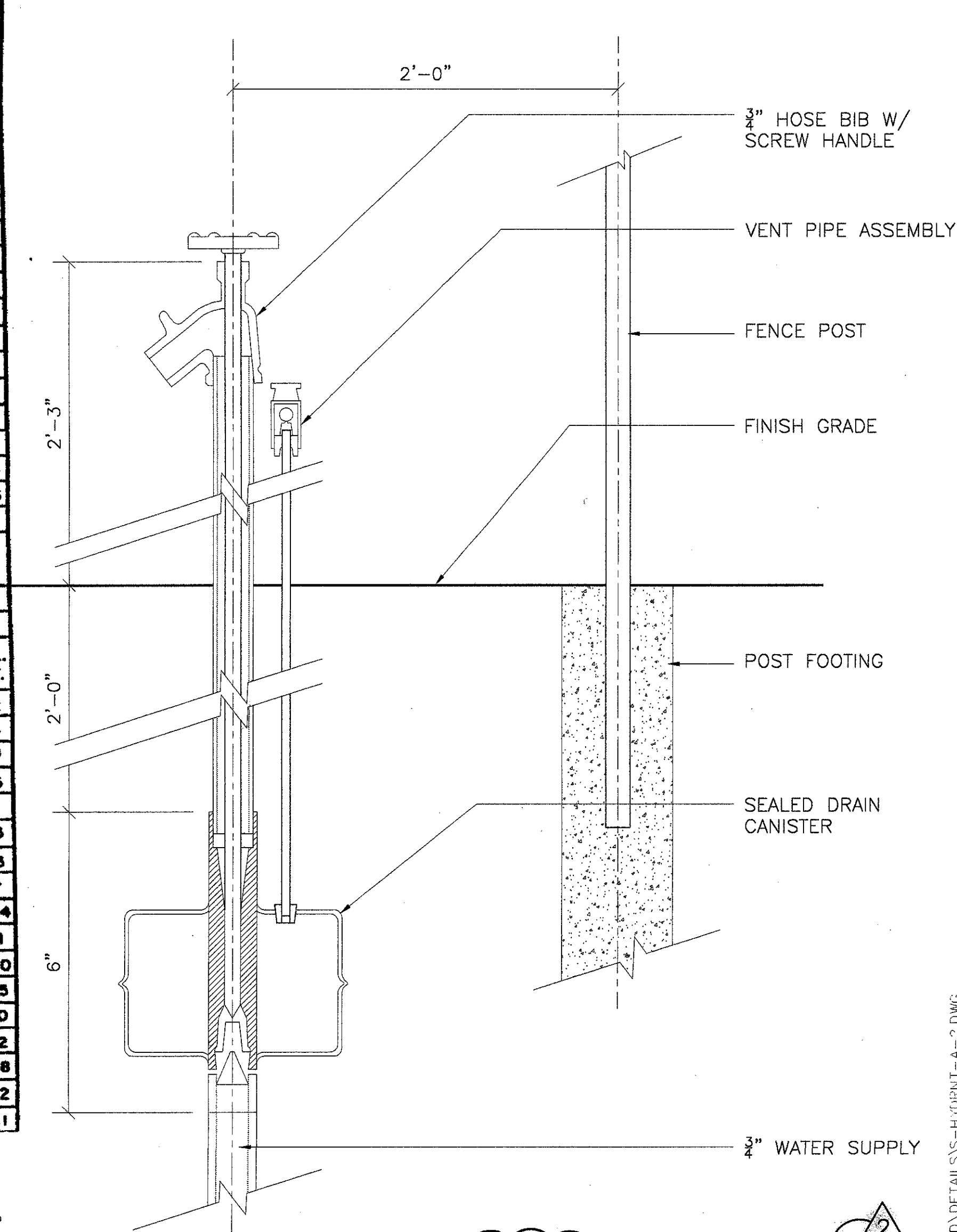
| I.D. (IN.) | THRUST (TONS) | VOL. (C.Y.) | 11.25° | | 22.50° | | 30° | | 45° | | 67.50° | | 90° | | I.D. (IN.) |
|------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|------------|
| | | | THRUST (TONS) | VOL. (C.Y.) | THRUST (TONS) | VOL. (C.Y.) | THRUST (TONS) | VOL. (C.Y.) | THRUST (TONS) | VOL. (C.Y.) | THRUST (TONS) | VOL. (C.Y.) | THRUST (TONS) | VOL. (C.Y.) | |
| 4.6, 8 | 1.0 | 0.5 | 2.0 | 1.0 | 2.5 | 1.3 | 3.6 | 1.8 | 4.6 | 2.3 | 5.0 | 2.5 | 4.6, 8 | | |
| 10, 12 | 2.2 | 1.1 | 4.3 | 2.2 | 5.7 | 2.8 | 8.0 | 4.0 | 10.5 | 5.2 | 11.3 | 5.7 | 10, 12 | | |
| 16, 18 | 5.0 | 2.5 | 9.7 | 4.9 | 12.7 | 6.4 | 18.0 | 9.0 | 23.5 | 11.8 | 25.5 | 12.7 | 16, 18 | | |
| 20 | 6.1 | 3.1 | 12.0 | 6.0 | 15.7 | 7.9 | 22.2 | 11.1 | 29.2 | 14.5 | 31.4 | 15.7 | 20 | | |
| 24 | 8.2 | 4.4 | 17.3 | 8.7 | 22.6 | 11.3 | 32.0 | 16.0 | 41.8 | 20.9 | 45.2 | 22.6 | 24 | | |
| 30 | 10.5 | 5.2 | 20.3 | 10.1 | 26.5 | 13.3 | 37.5 | 18.8 | 49.0 | 24.5 | 53.1 | 26.5 | 30 | | |
| 36 | 14.9 | 7.5 | 29.2 | 14.6 | 38.2 | 19.1 | 54.0 | 27.0 | 70.5 | 35.3 | 76.4 | 38.2 | 36 | | |
| 42 | 20.3 | 10.1 | 39.8 | 19.9 | 52.0 | 26.0 | 73.5 | 36.7 | 96.0 | 48.0 | 104.0 | 52.0 | 42 | | |
| 48 | 26.5 | 13.2 | 51.9 | 26.0 | 67.9 | 33.9 | 96.0 | 48.0 | 126.0 | 62.7 | 136.0 | 67.9 | 48 | | |
| 54 | 33.5 | 16.8 | 65.7 | 32.9 | 85.9 | 42.9 | 122.0 | 60.7 | 159.0 | 79.4 | 172.0 | 85.9 | 54 | | |
| 60 | 41.4 | 20.7 | 81.2 | 40.6 | 106.0 | 53.0 | 150.0 | 75.0 | 196.0 | 98.0 | 212.0 | 106.0 | 60 | | |
| 66 | 50.1 | 25.0 | 98.2 | 49.1 | 128.0 | 64.2 | 182.0 | 90.7 | 237.0 | 119.0 | 257.0 | 128.0 | 66 | | |
| 72 | 59.6 | 29.8 | 117.0 | 58.4 | 153.0 | 76.3 | 216.0 | 108.0 | 282.0 | 141.0 | 305.0 | 153.0 | 72 | | |
| 78 | 69.9 | 35.0 | 137.0 | 68.6 | 179.0 | 90.0 | 254.0 | 127.0 | 331.0 | 166.0 | 358.0 | 179.0 | 78 | | |
| 84 | 81.1 | 40.5 | 159.0 | 79.5 | 208.0 | 104.0 | 294.0 | 147.0 | 384.0 | 192.0 | 416.0 | 208.0 | 84 | | |
| 90 | 93.1 | 46.5 | 183.0 | 91.3 | 239.0 | 119.0 | 337.0 | 169.0 | 441.0 | 221.0 | 477.0 | 239.0 | 90 | | |
| 96 | 106.0 | 53.0 | 208.0 | 104.0 | 272.0 | 136.0 | 384.0 | 192.0 | 502.0 | 251.0 | 543.0 | 272.0 | 96 | | |

GENERAL NOTES - FOR ALL THRUST BLOCKS
 1. All Calculations Are Based On Internal Pressure Of 200 P.S.I. For 24" I.D. Pipe And Smaller And 150 P.S.I. On 30" I.D. And Larger.
 2. Volumes Of Vertical Bend Thrust Blocks Are Net Volumes Of Concrete To Be Furnished. The Corresponding Weight Of The Concrete (Class F) Is Equal To Or Greater Than The Vertical Component Of Thrust On The Vertical Bend.
 3. Wall Thickness (T) Assumed Here For Estimating Purposes Only.
 4. Concrete For Blocking Shall Be Class B Concrete.
 5. Dimensions May Be Varied As Required By Field Conditions Where And As Directed By The Engineer. The Volume Of Concrete Blocking Shall Not Be Less Than Shown Here.

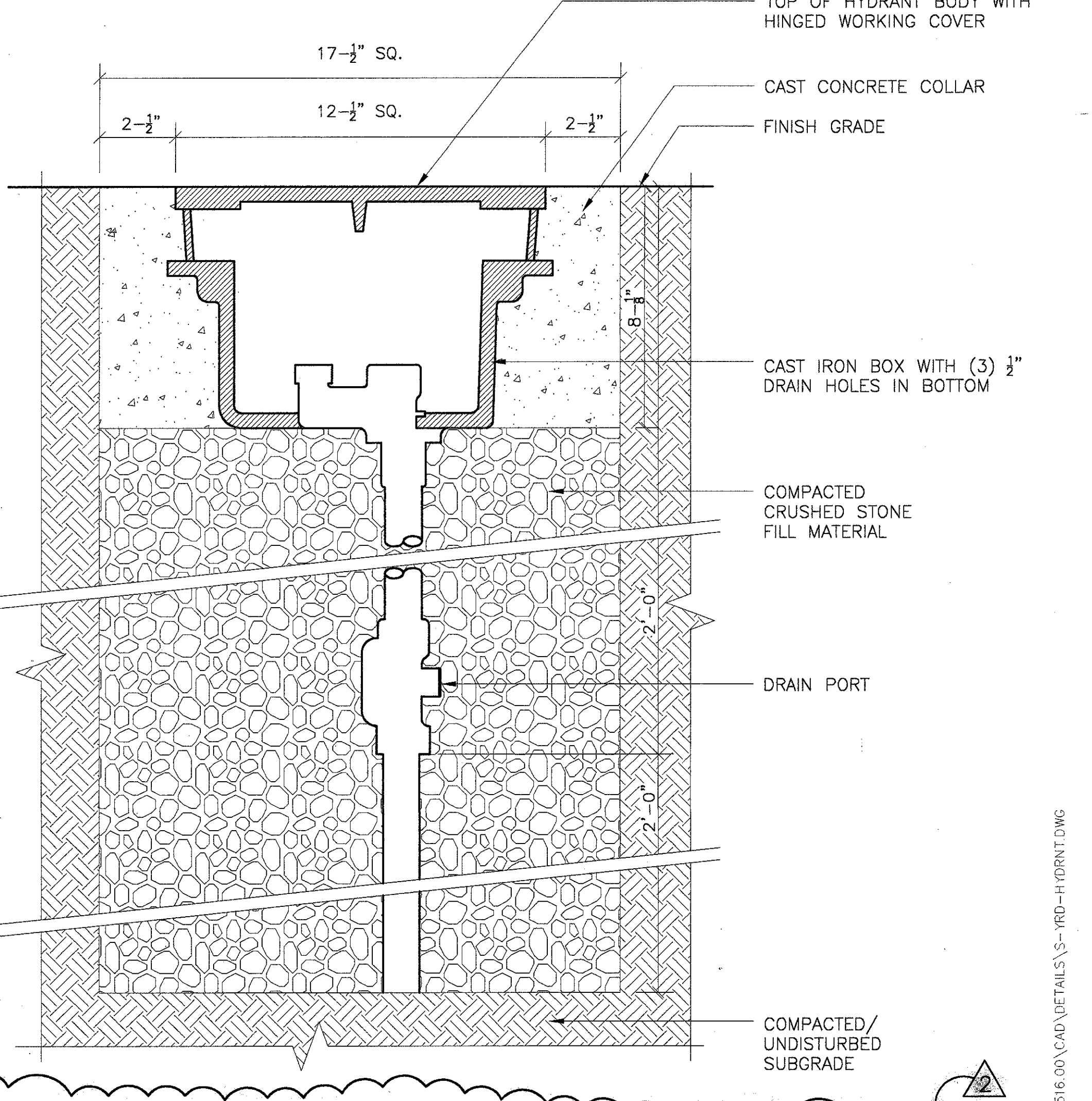
VERTICAL BEND THRUST BLOCK

| I.D. (IN.) | THRUST (TONS) | C (FT.) | EARTH | | ROCK | |
|------------|---------------|---------|---------|---------|---------|---------|
| | | | A (FT.) | B (FT.) | A (FT.) | B (FT.) |
| 4.6, 8 | 5.1 | 1.5 | 2.5 | 0.3 | 2.0 | 0.2 |
| 10, 12 | 11.3 | 1.5 | 3.5 | 0.6 | 2.5 | 0.3 |
| 16, 18 | 25.5 | 2.0 | 5.5 | 1.6 | 4.0 | 0.9 |
| 20 | 31.5 | 2.0 | 6.0 | 1.9 | 4.0 | 0.9 |
| 24 | 45.2 | 2.5 | 7.0 | 3.1 | 5.0 | 1.7 |
| 30 | 53.0 | 3.0 | 7.5 | 4.1 | 5.5 | 2.4 |
| 36 | 76.3 | 4.0 | 9.0 | 7.3 | 6.5 | 4.2 |
| 42 | 104.0 | 4.5 | 10.5 | 11.0 | 7.5 | 6.2 |
| 48 | 136.0 | 5.0 | 12.0 | 15.6 | 8.5 | 6.2 |
| 54 | 172.0 | 5.5 | 13.5 | 21.4 | 9.5 | 11.9 |
| 60 | 212.0 | 6.0 | 15.0 | 28.4 | 10.5 | 15.7 |
| 66 | 257.0 | 6.5 | 16.5 | 36.8 | 11.5 | 20.5 |
| 72 | 305.0 | 7.0 | 18.0 | 47.2 | 12.5 | 27.2 |
| 78 | 358.0 | 8.0 | 19.0 | 58.9 | 13.5 | 33.7 |
| 84 | 416.0 | 8.5 | 20.5 | 72.3 | 14.5 | 41.2 |
| 90 | 477.0 | 9.0 | 22.0 | 87.7 | 15.5 | 49.7 |
| 96 | 543.0 | 9.5 | 23.5 | 104.8 | 16.5 | 61.0 |

PLUG & TEE THRUST BLOCK



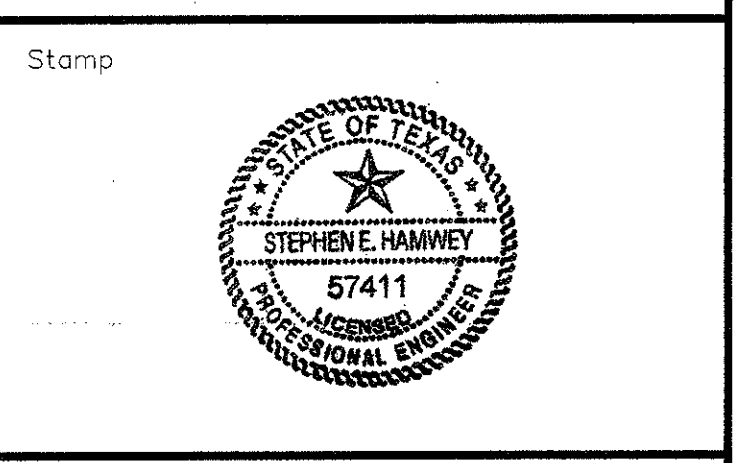
2 YARD HYDRANT TYPE A SECTION
N.T.S.



1 YARD HYDRANT - TYPE B SECTION
N.T.S.



| | |
|-------------------------|----------|
| BULLETIN #1 | 12-30-02 |
| ISSUED FOR CONSTRUCTION | 11-26-02 |
| ADDENDUM #2 | 10-21-02 |
| ISSUED FOR CONSTRUCTION | 09-30-02 |
| No. Description | Date |



Project Title:
ADDISON ARTS & EVENTS DISTRICT
 ADDISON, TEXAS

Drawing Title:
SITE DETAILS
 WATER

Project No. 14516.00 Scale: AS NOTED
 Drawn By: SJM
 Checked By: TC
 Approved By: SEH
 Date: September 30, 2002

Drawing No. **C8-5**