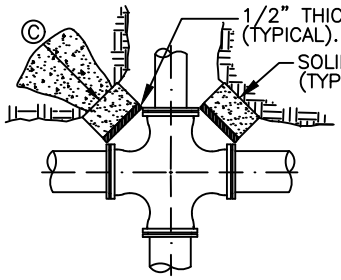
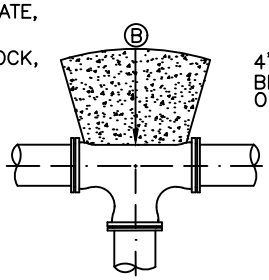
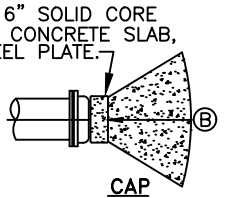


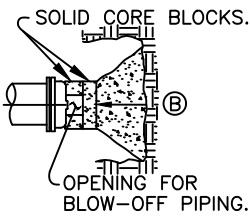

UNBALANCED CROSS



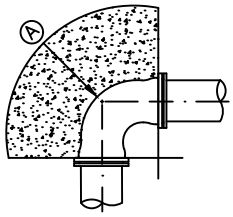

TEE



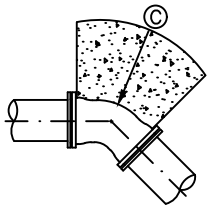

CAP



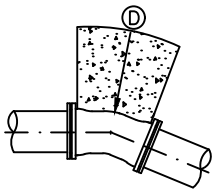

TAPPED CAP/PLUG



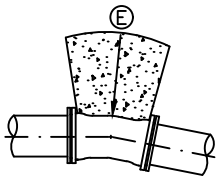

90° BEND




45° BEND




22½° BEND




11¼° BEND

## THRUST BLOCK SIZING FOR 250 PSI PRESSURE

MIN. BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET.

| PIPE SIZE | Ⓐ | Ⓑ | Ⓒ | Ⓓ | Ⓔ |
|---|---|---|---|---|---|
| 4" | 3/(2) | 2/(1) | 2/(1) | 1/(1) | 1/(1) |
| 6" | 6/(4) | 4/(3) | 3/(2) | 2/(1) | 1/(1) |
| 8" | 10/(7) | 7/(5) | 5/(4) | 3/(2) | 2/(1) |
| 10" | 15/(10) | 11/(7) | 8/(5) | 4/(3) | 2/(2) |
| 12" | 22/(14) | 15/(10) | 12/(8) | 6/(4) | 3/(2) |
| 14" | 29/(20) | 21/(14) | 16/(11) | 8/(5) | 4/(3) |
| 16" | 38/(26) | 27/(18) | 21/(14) | 11/(7) | 5/(4) |
| 18" | 48/(32) | 34/(23) | 26/(18) | 13/(9) | 7/(5) |
| 20" | 60/(40) | 42/(28) | 32/(22) | 17/(11) | 8/(6) |
| 24" | 86/(58) | 61/(41) | 47/(31) | 24/(16) | 12/(8) |

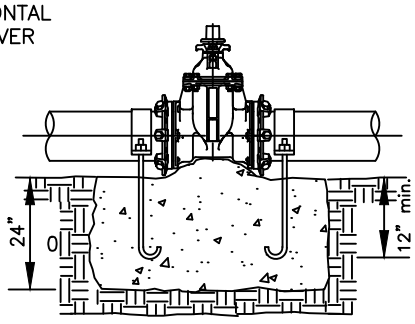
SAFE BEARING LOADS IN LBS./SQ. FT.

THE SAFE BEARING LOADS GIVEN IN THE FOLLOWING TABLE ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

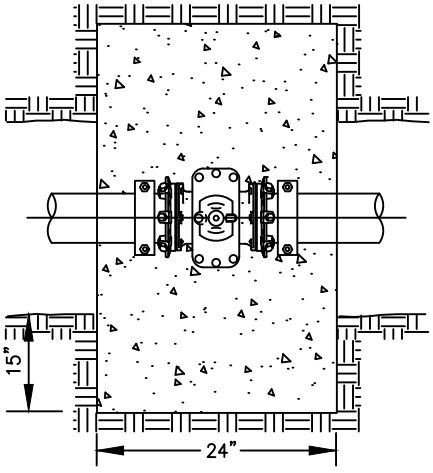
| SOIL | SAFE SOIL BEARING LOAD |
|---|---|
| *MUCK, PEAT, ETC. | SEE GENERAL NOTE #7 |
| SOFT CLAY | 1,000 |
| SAND | 2,000 |
| SAND AND GRAVEL | 3,000 |
| SAND AND GRAVEL CEMENTED W/CLAY | 4,000 |
| HARD SHALE | 10,000 |

## GENERAL NOTES:

1. CONCRETE THRUST BLOCK AREA BASED UPON A SAFE SOIL BEARING LOAD OF 2,000/(3,000) LBS. PER SQ. FT (SAND/(SAND GRAVEL)).
2. AREAS MUST BE ADJUSTED FOR OTHER SIZE PIPE, PRESSURES AND SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST-IN-PLACE AND HAVE MINIMUM OF 1/2 SQUARE FOOT CONTACT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT. INSTALL 8 MIL. PLASTIC SHEETING BETWEEN FITTING AND BLOCK.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. POLYETHYLENE WRAP NOT SHOWN FOR CLARITY.
7. IN MUCK OR PEAT, PIPE AND FITTING RESTRAINT SHALL BE AS DIRECTED BY THE DISTRICT.




INLINE VALVE – PROFILE




INLINE VALVE – PLAN

NOTES:

1. CONCRETE BLOCKING AREA IS BASED ON 250 PSI WATER PRESSURE AND 2500 PSI CONCRETE STRENGTH.
2. HARDWARE NOT EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY.
3. IN-LINE VALVE SHALL BE M.J.xM.J. AND BE RESTRAINED WITH MEGA-LUGS, OR EQUAL.
4. RESTRAINING HARDWARE SHALL BE PER NUD STANDARD WATER DETAIL #2 FOR VERTICAL BLOCKING.

# CONCRETE BLOCKING - HORIZONTAL

NOT TO SCALE

**DETAIL APPROVALS**

**EDITOR** *TDC*

**MANAGER** *DPK*

## NORTHSHORE UTILITY DISTRICT

2022 STANDARD WATER DETAILS

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LAST UPDATED FEBRUARY 2018