

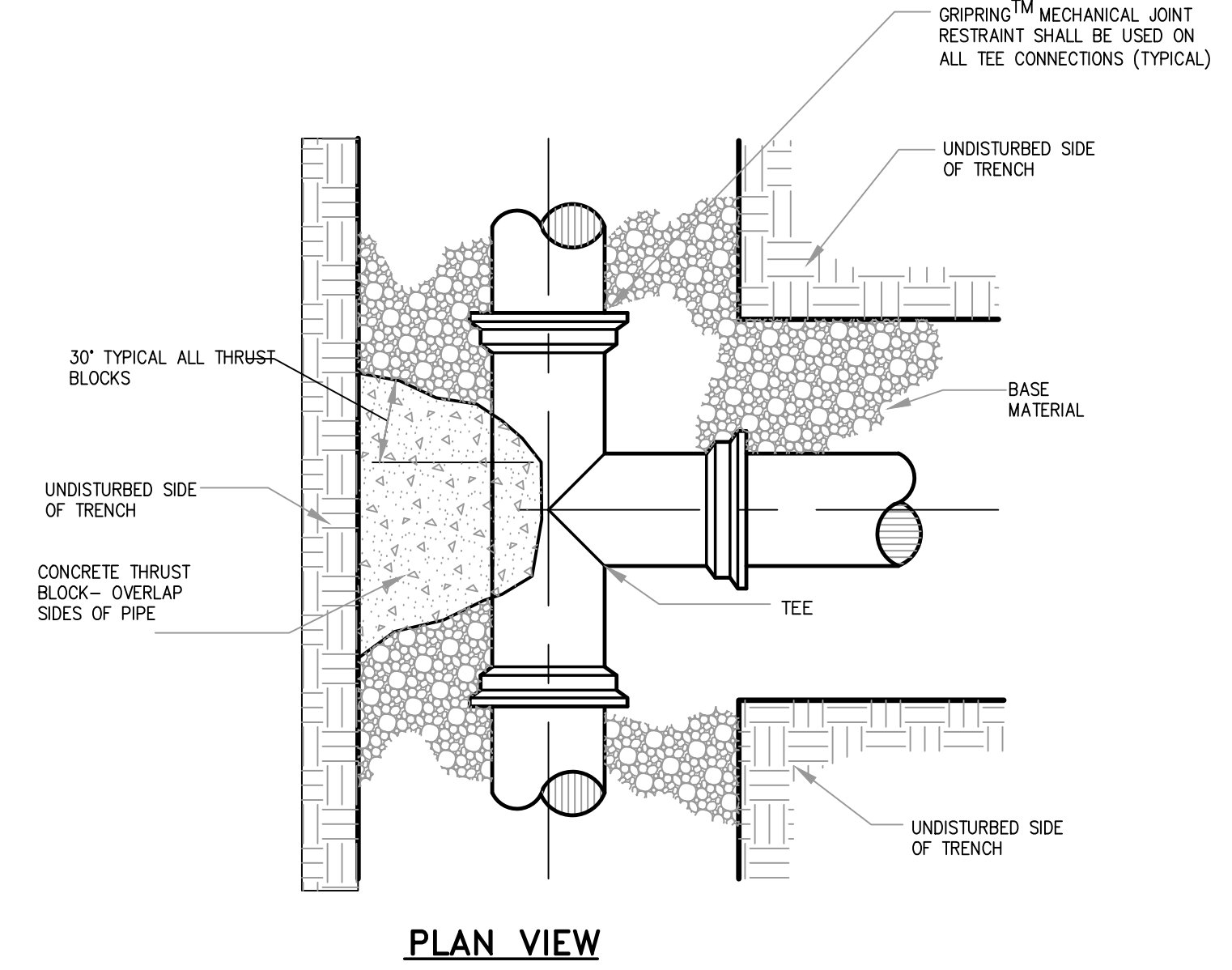
NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

THRUST/RETAINER GLAND SCHEDULE		
1/4 BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
1/8 BEND	(45°)	THRUST BLOCK w/ GRIPRING™
1/16 BEND	(22 1/2°)	THRUST BLOCK w/ GRIPRING™
1/32 BEND	(11 1/4°)	THRUST BLOCK w/ GRIPRING™

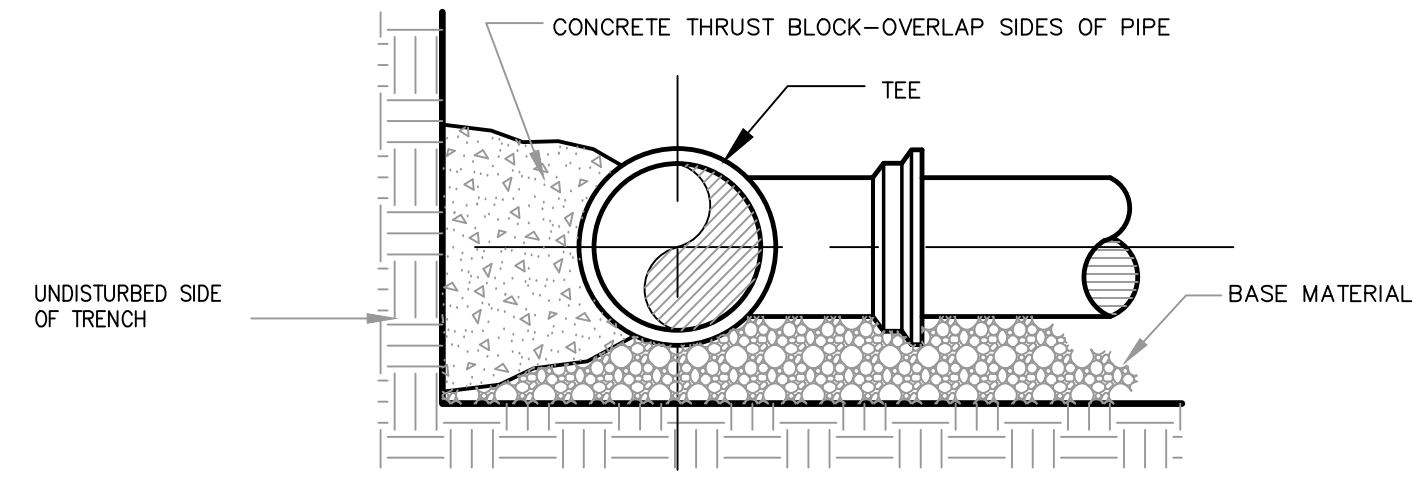
THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

- NOTES:
- 1.) THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
  - 2.) REFER TO PORTLAND WATER DISTRICT SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
  - 3.) ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
  - 4.) SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

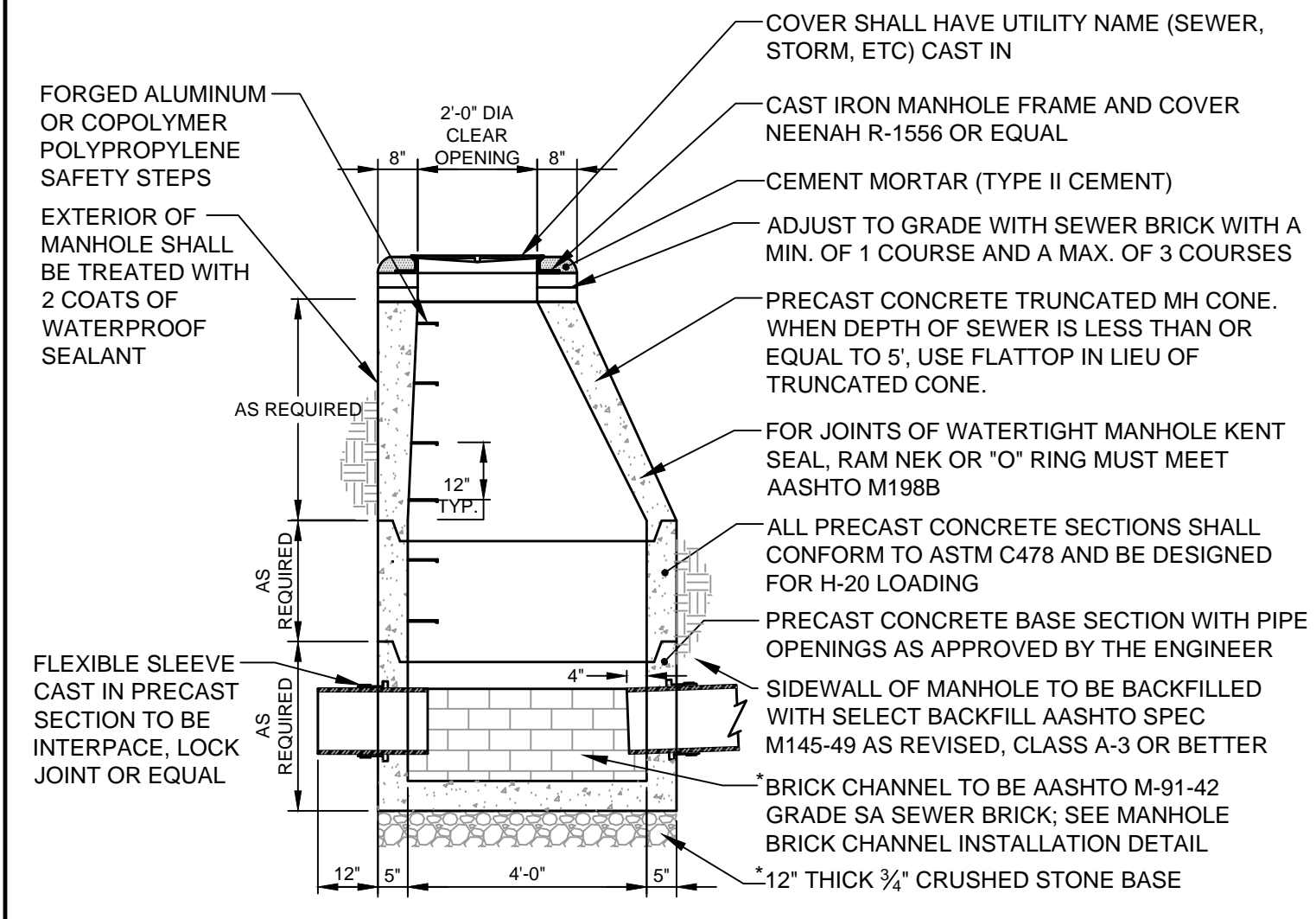
**A** TYPICAL THRUST BLOCK PLACEMENT BENDS  
N.T.S.



NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS



**C** TYPICAL THRUST BLOCK PLACEMENT ON TEES  
N.T.S.



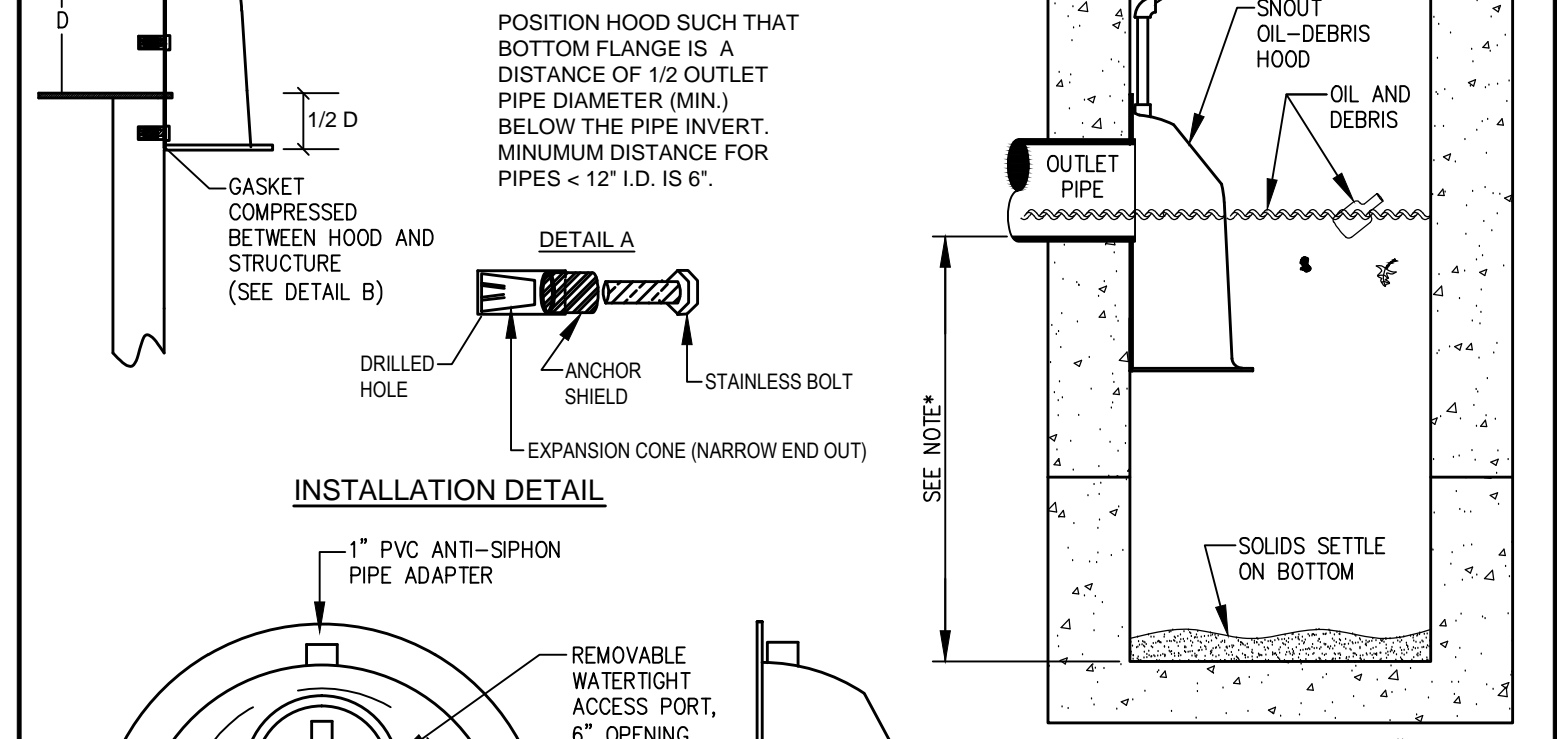
NOTE: CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL

**E** 4"-0" PRECAST SANITARY SEWER AND STORM DRAIN MANHOLE  
N.T.S.

- NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY BEST MANAGEMENT PRODUCTS, INC. TOLL FREE: (800) 504-8008 OR (888) 354-7585 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL.
  2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
  3. ALL HOODS SHALL BE EQUIPPED WITH A WATER TIGHT ACCESS PORT, A MOUNTING FLANGE, & AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
  4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE IN ACCORDANCE WITH THE FOLLOWING TABLE:

STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.5" O.D. OR LESS	12" F or R
12.0"-17.9" O.D.	18" F or R
18.0"-23.9" O.D.	24" F or R
24.0"-29.9" O.D.	30" F or R
30.0"-47.9" O.D.	48" F
48.0"-95.9" O.D.	96" F

5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT, WHICH INCLUDES:
  - A. INSTALLATION INSTRUCTIONS
  - B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
  - C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
  - D. 3/8" STAINLESS STEEL BOLTS
  - E. ANCHOR SHIELDS



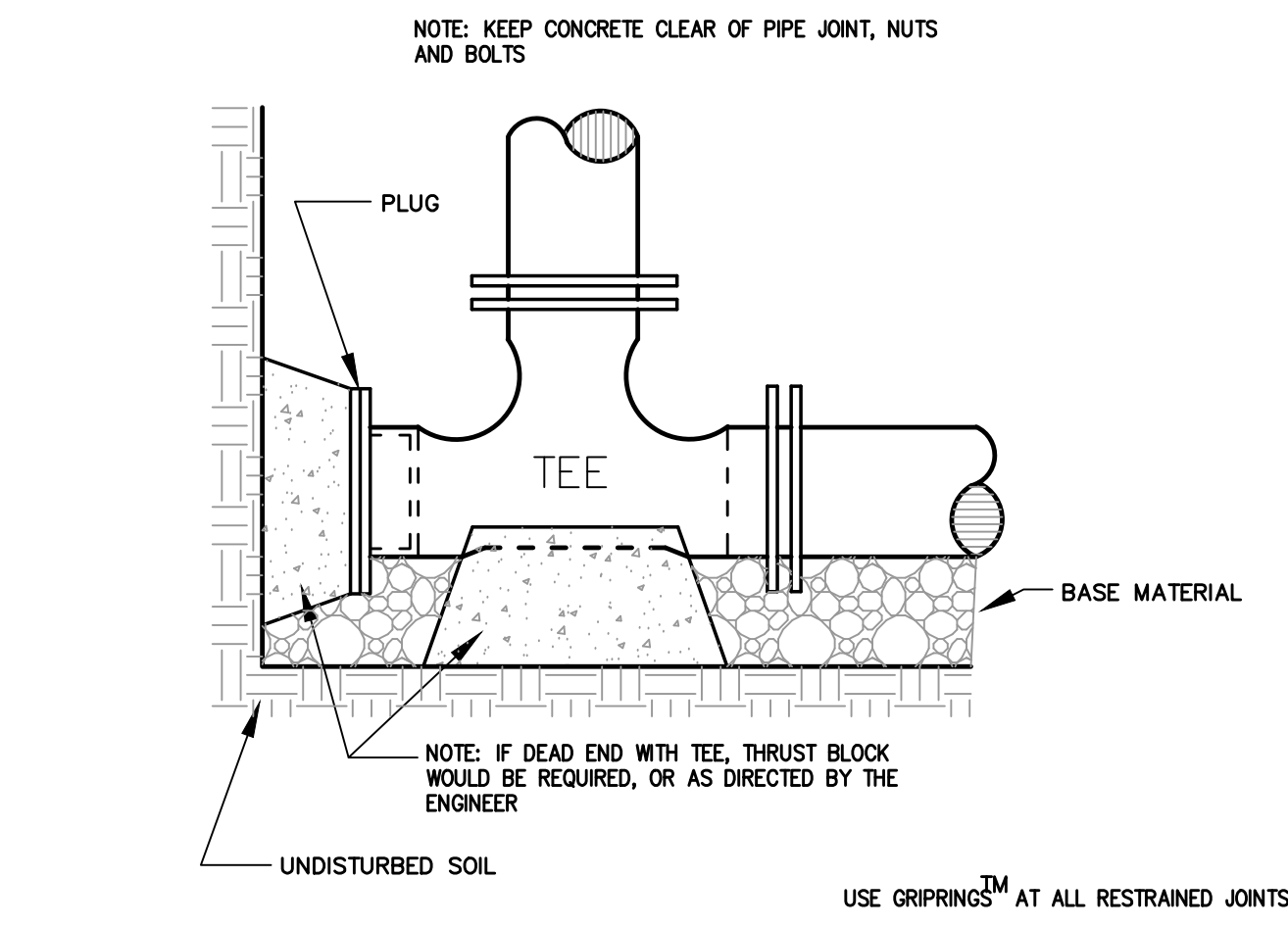
NOTE: SUMP DEPTH OF 36" MIN. FOR < OR = 12" DIAM. OUTLET. FOR OUTLETS > OR = 15", DEPTH = 2.5-3X DIAM.

**G** SNOUT OIL-WATER-DEBRIS SEPARATOR DETAIL  
N.T.S.

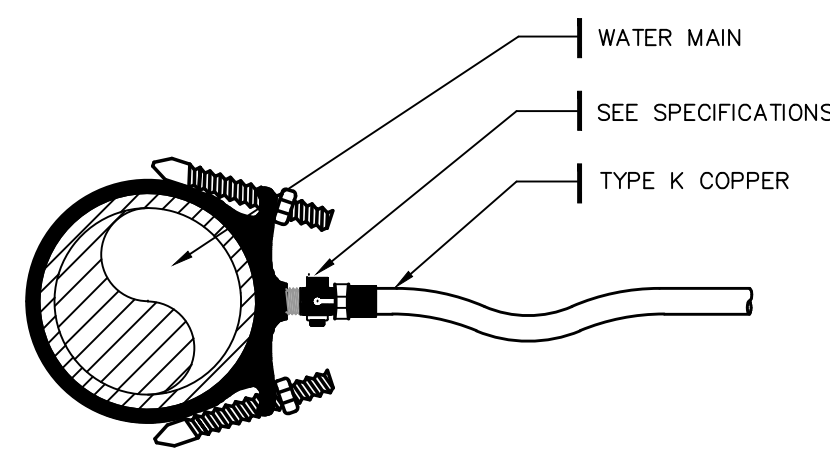
1. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
2. ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
3. ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS
4. ALL RESTRAINED JOINTS MUST HAVE GRIPRING™

PIPE SIZE	BEARING SURFACE REQUIRED IN SQUARE FEET				
	1/32 BEND	1/16 BEND	1/8 BEND	1/4 BEND	TEES/CAPS
6"/8"	5.0	5.0	5.0	6.5	5.0
12"	11.5	11.5	11.5	20.0	22.0

**B** THRUST BLOCK NOTES  
N.T.S.

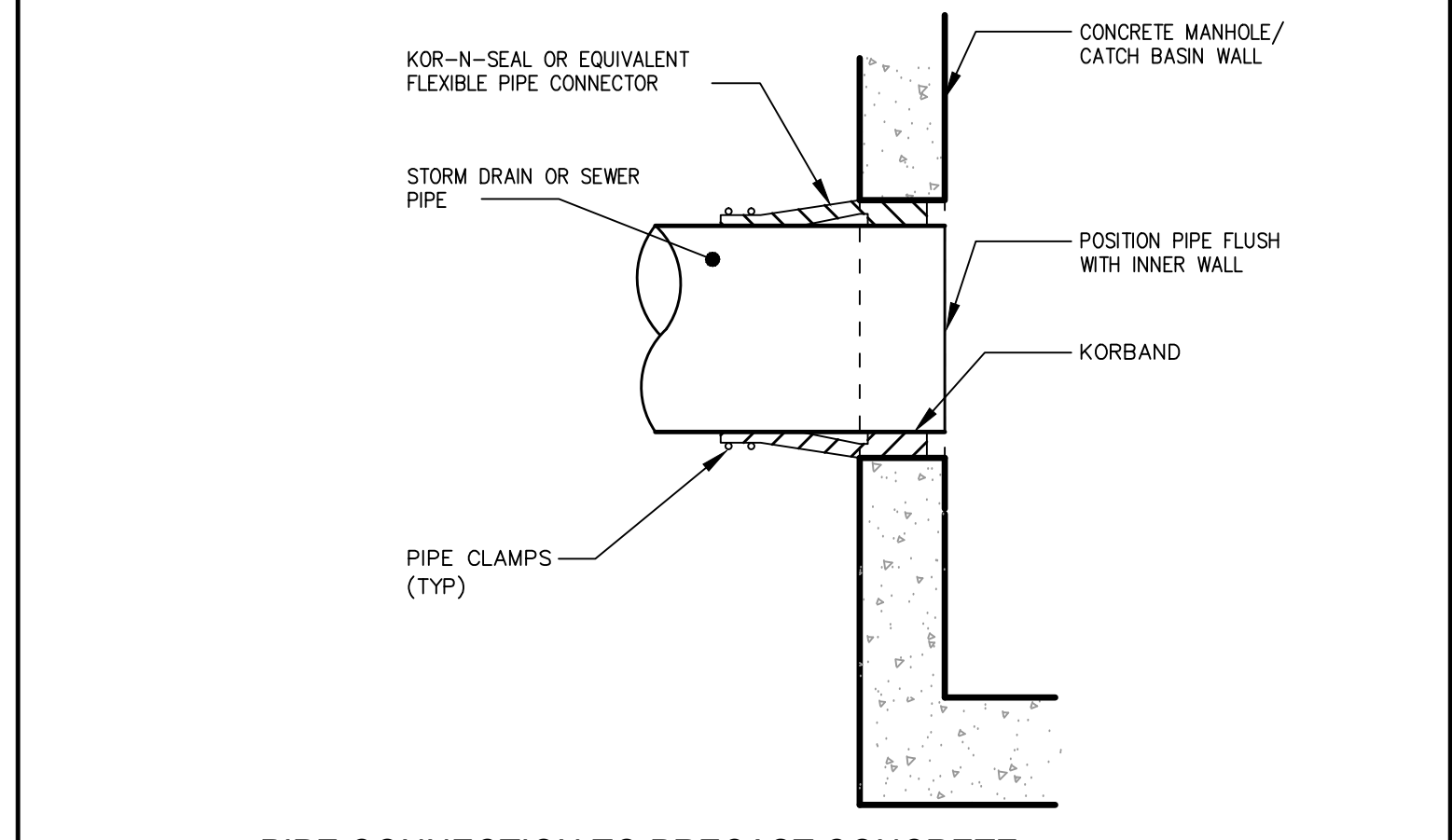


**D** STANDARD TEE BLOCKING  
N.T.S.  
SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL **B**



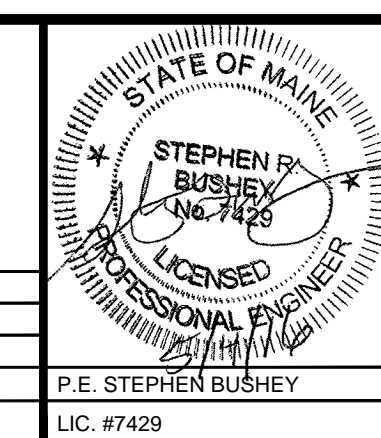
NOTE: SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR 'GOOSENECK' IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND 'GIVE' TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSION AND/OR CONTRACTION.

**F** WATER SERVICE  
N.T.S.



**H** PIPE CONNECTION TO PRECAST CONCRETE SANITARY SEWER AND STORM DRAINAGE STRUCTURE  
N.T.S.

REV	DATE	DESCRIPTION
3	05.04.16	SUBMITTED FOR FINAL APPROVAL
2	04.14.16	REVISED SUBMISSION TO CITY OF PORTLAND
1	02.25.16	AMENDED SITE PLAN SUBMISSION



PROJECT  
SECOND TEE CONDOMINIUM ASSOCIATION  
BUSINESS PARK EXPANSION - UNIT 2

SHEET TITLE  
**UTILITY DETAILS**

CLIENT  
**1039 RIVERSIDE LLC**

**STANTEC CONSULTING SERVICES INC.**  
482 PAYNE ROAD  
SCARBOROUGH, ME 04074  
WWW.STANTEC.COM

DRAWN: DED DATE: FEB 2016  
DESIGNED: SRB SCALE: AS NOTED  
CHECKED: SRB JOB NO. 195350348  
FILE NAME: SP-M168 DETAILS  
SHEET **C-7**