

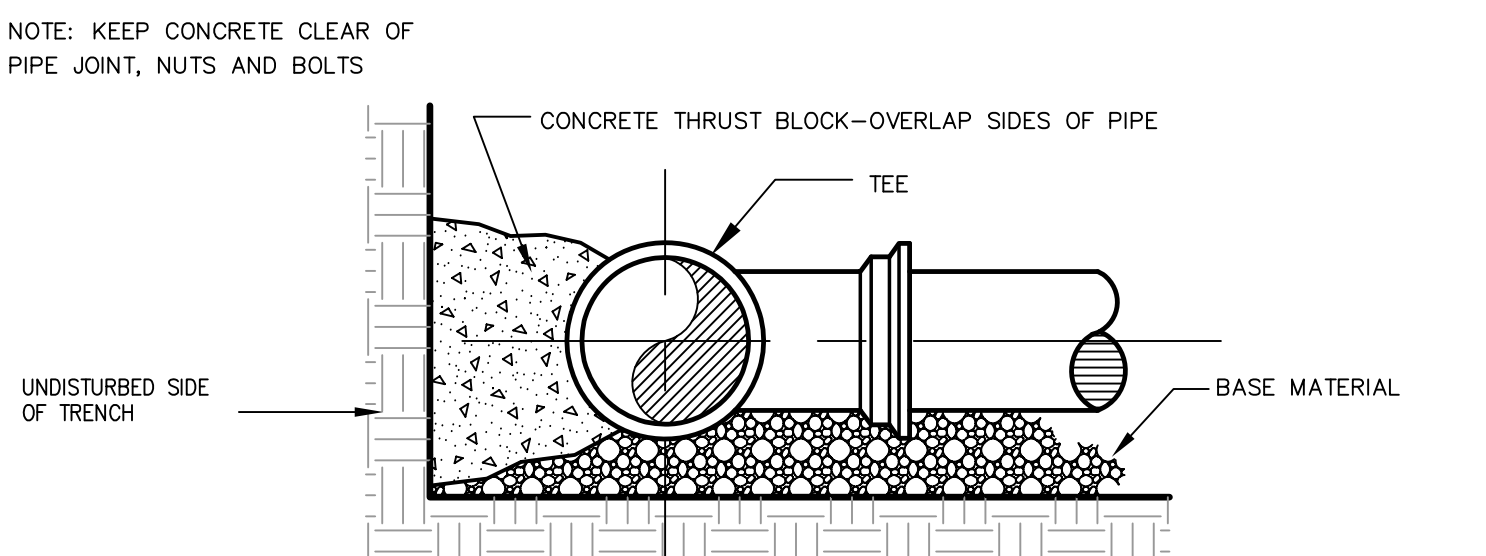
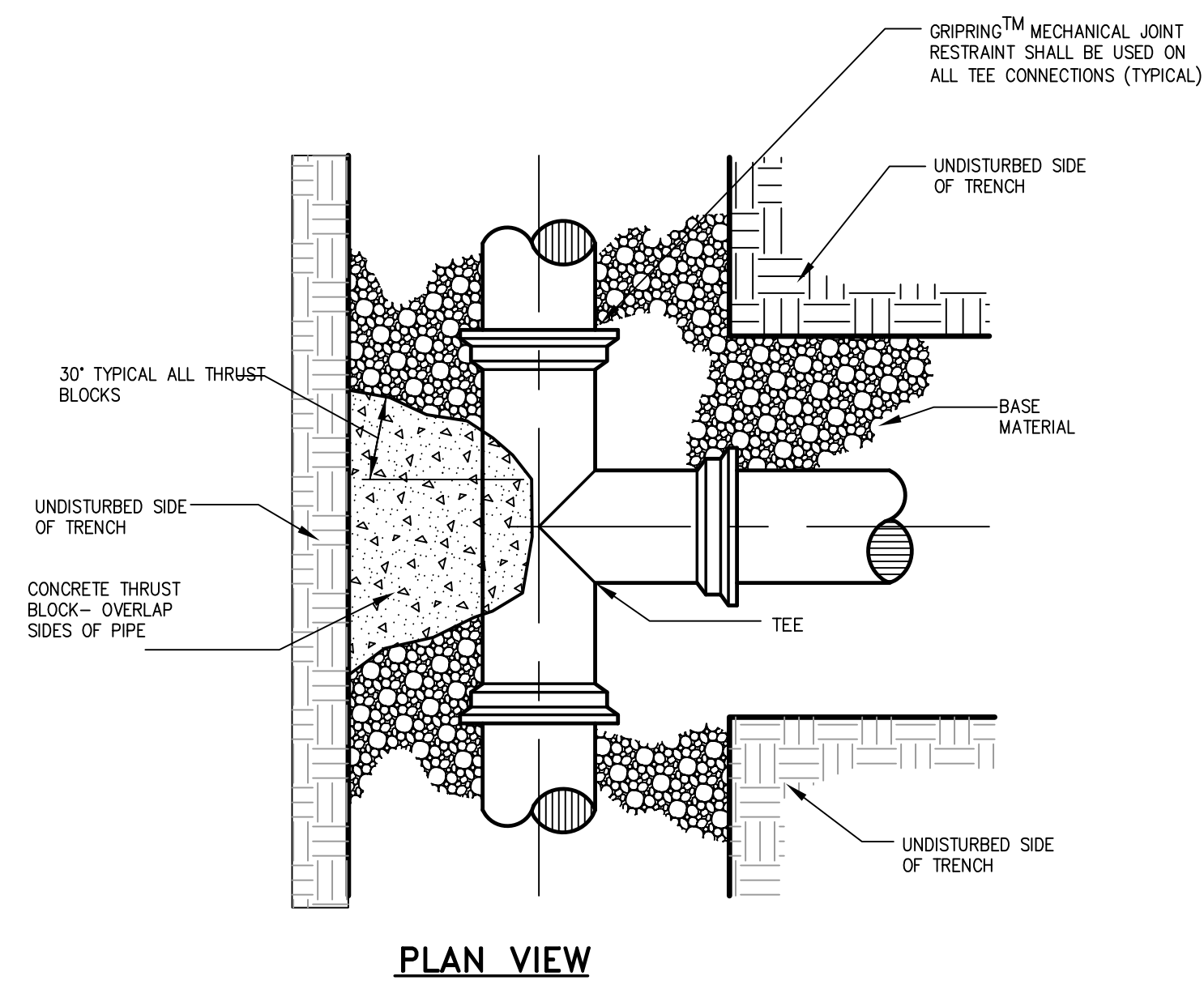
**THRUST/RETAINER GLAND SCHEDULE**

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.



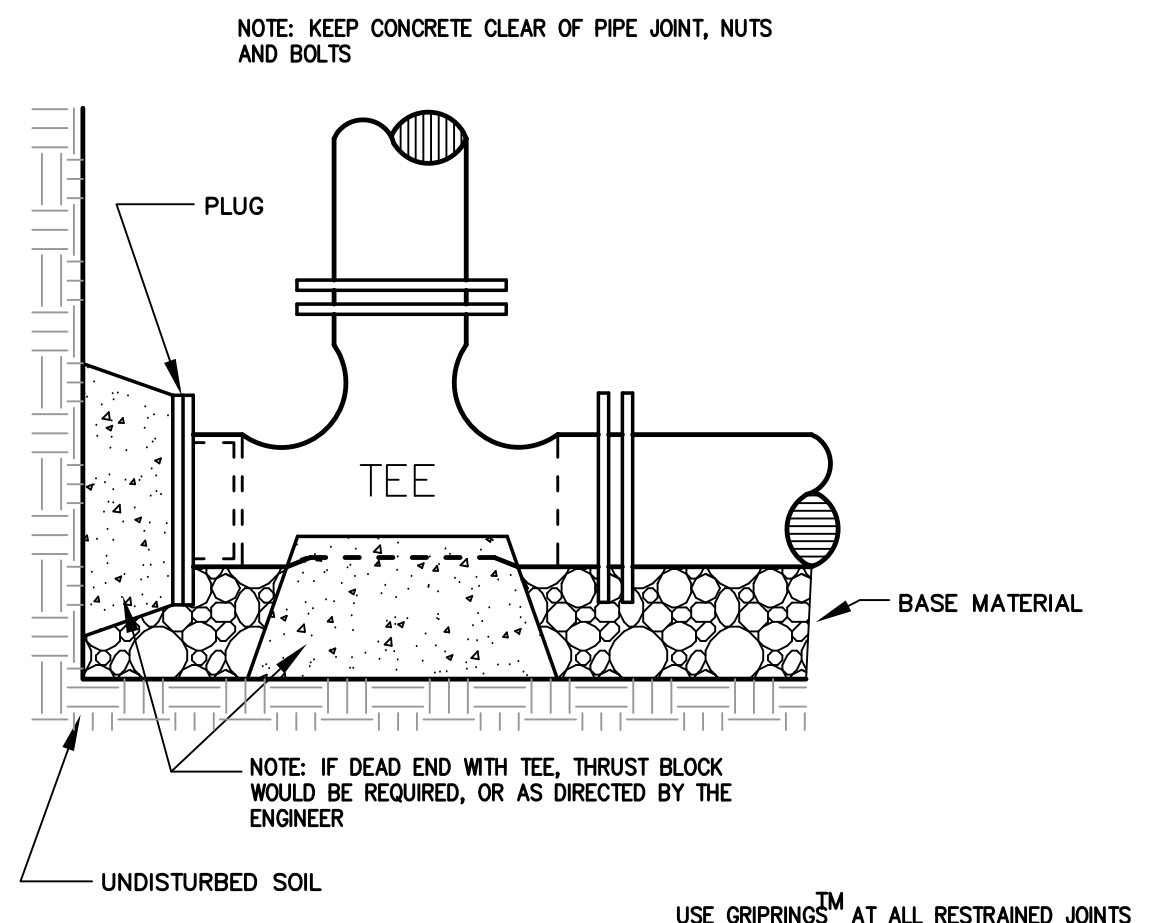
**C** TYPICAL THRUST BLOCK PLACEMENT ON TEES  
N.T.S.

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™

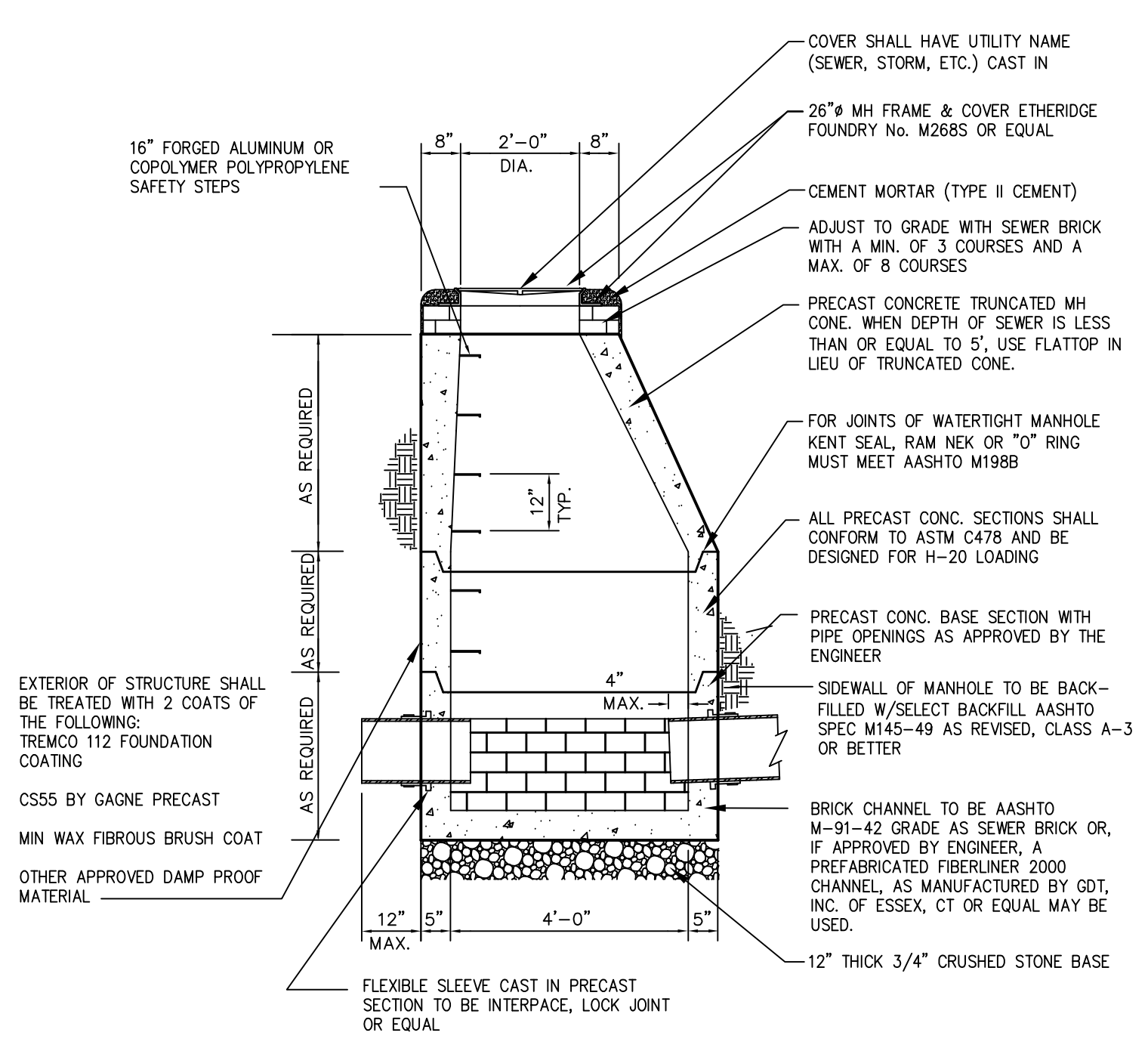
BEARING SURFACE REQUIRED IN SQUARE FEET

PIPE SIZE	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.

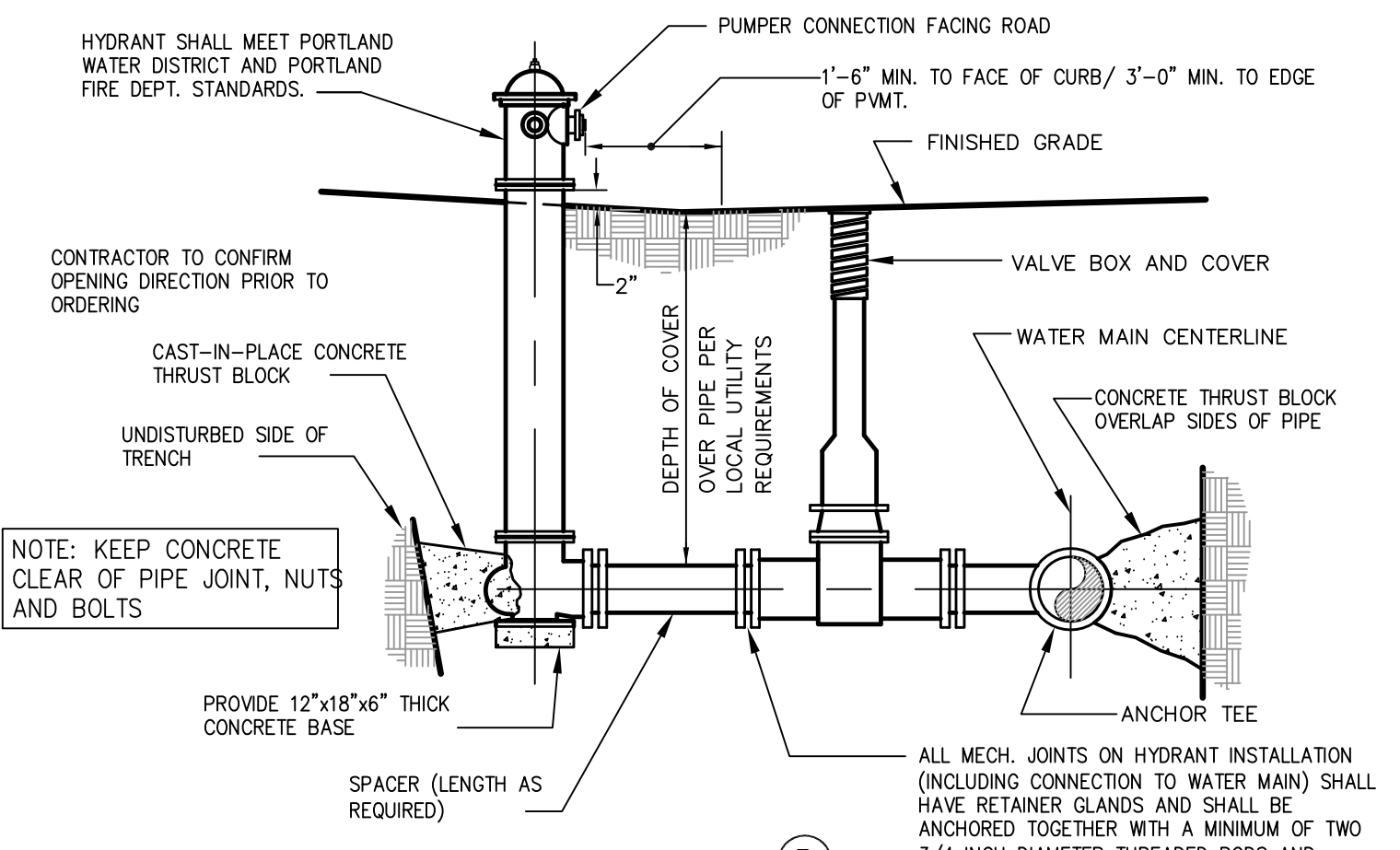


**D** STANDARD TEE BLOCKING  
N.T.S.  
SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL **B**

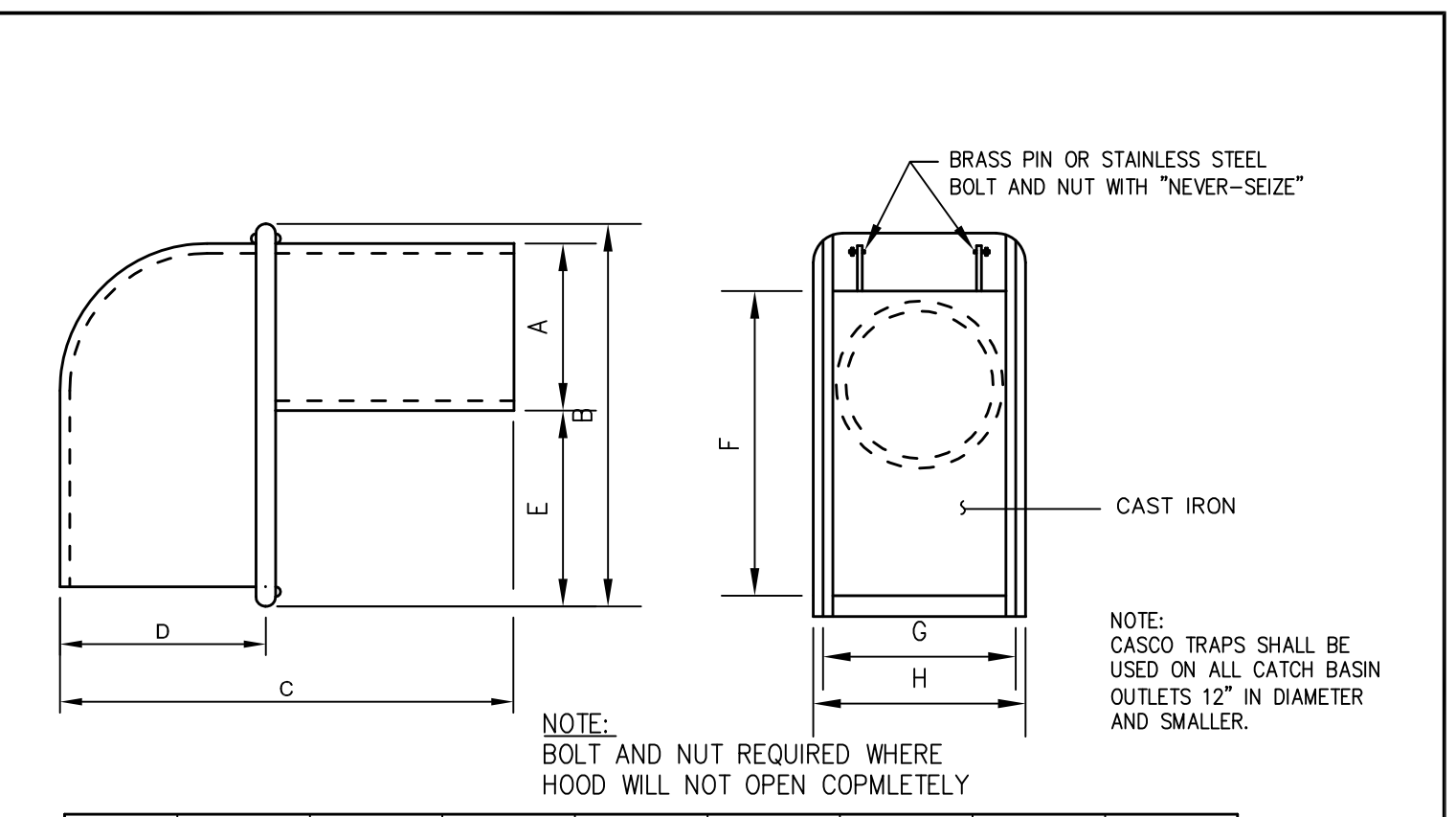
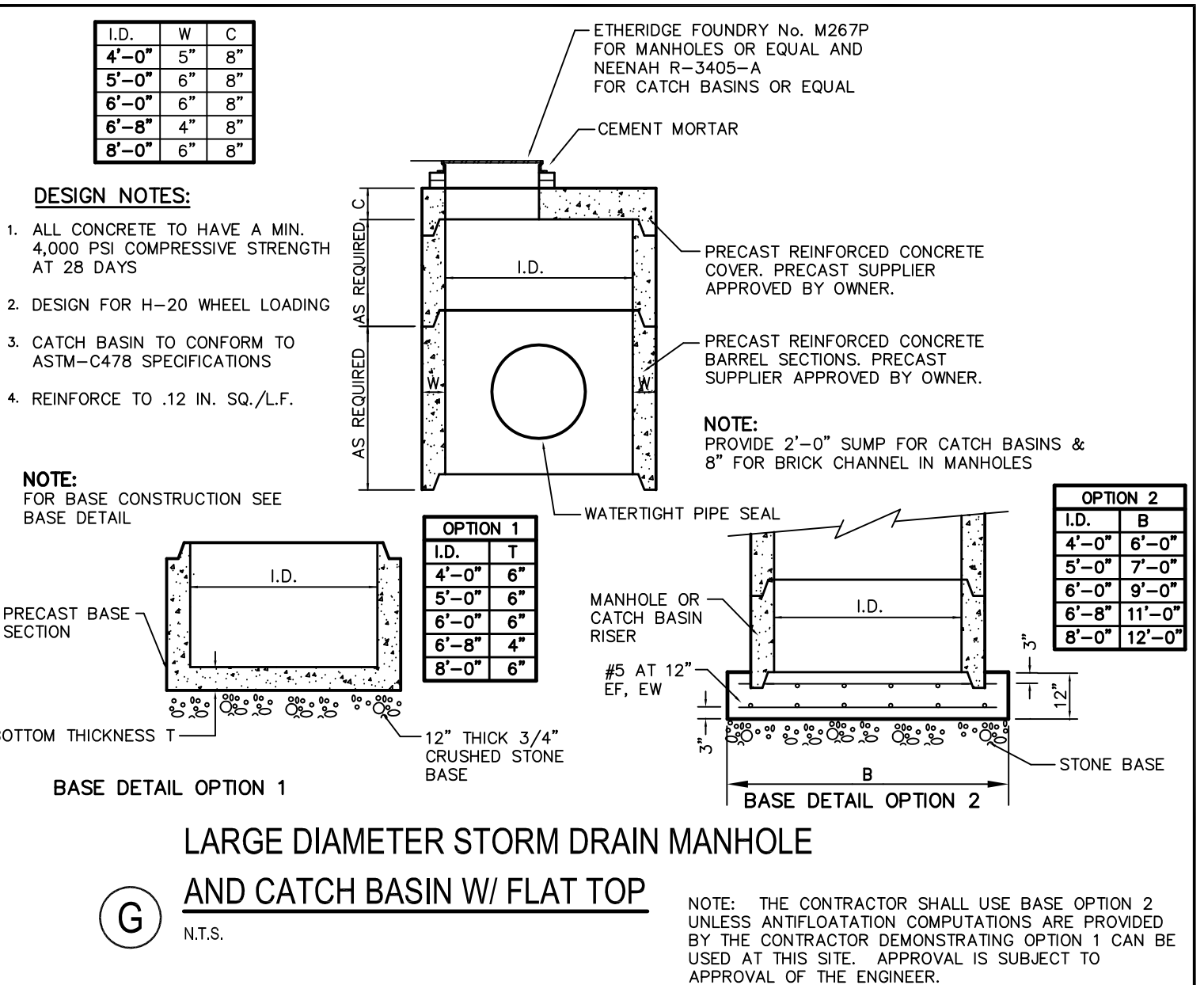


- NOTES:
- 1.) THE HEIGHT OF THE TRUNCATED CONE SHALL BE 2'-0"
  - 2.) A POLYFROST BARRIER CONSISTING OF A MINIMUM OF 4 LAYERS, (EACH 6 MIL) SHALL BE PLACED AROUND THE STRUCTURE FROM THE SURFACE TO 5'-) MIN. BELOW GRADE.
  - 3.) THE BACKFILL AROUND THE MANHOLE SHALL BE COMPACTED GRAVEL, A MINIMUM OF 24" OUTSIDE THE STRUCTURE.
  - 4.) THE CASTING SHALL BE GASKETED.

**E** 4'-0" PRECAST SANITARY SEWER & STORM DRAIN MANHOLE  
N.T.S.

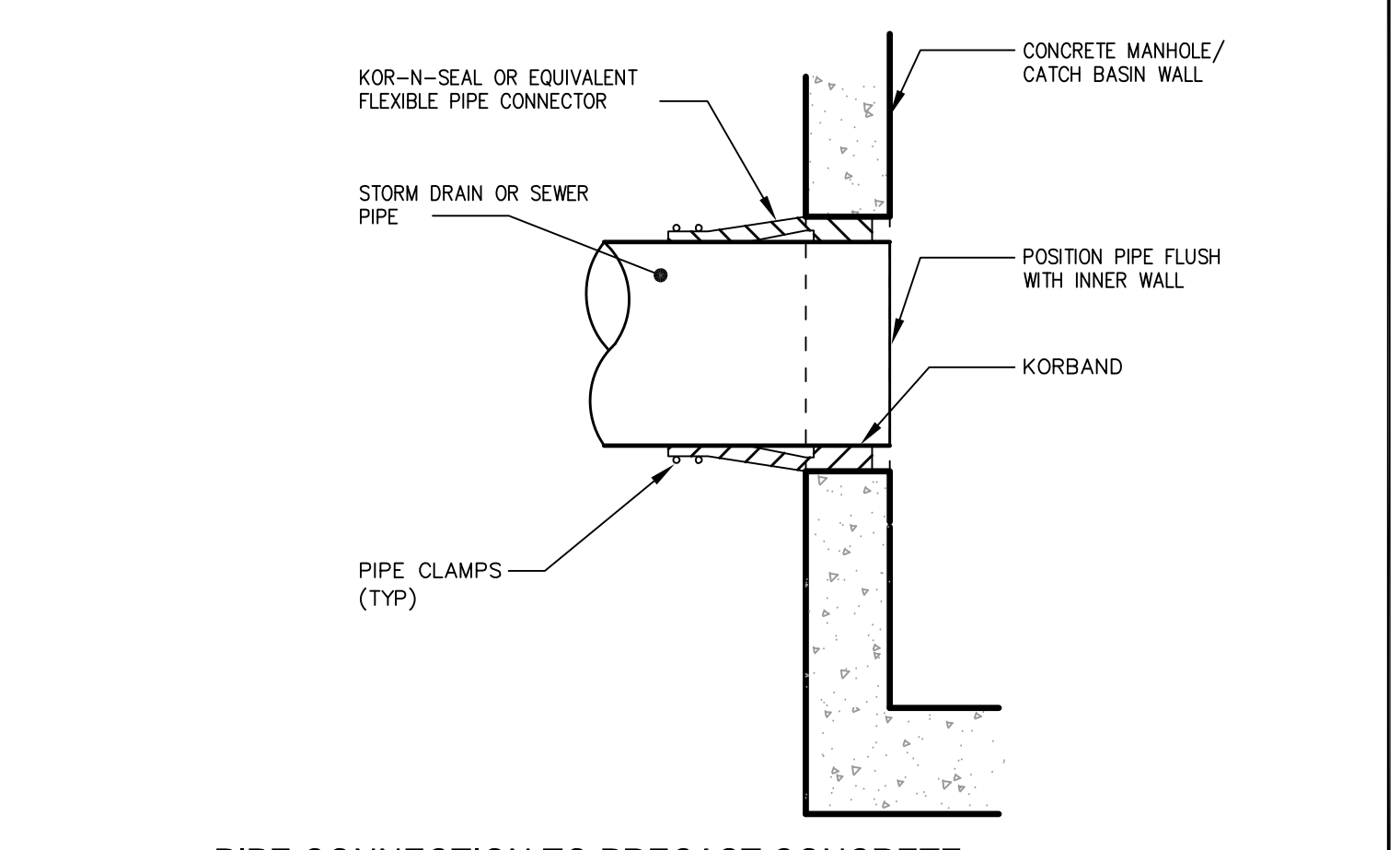


**F** FIRE HYDRANT INSTALLATION DETAIL  
N.T.S.



SIZE	A	B	C	D	E	F	G	H
6 in.	5 1/2"	13 3/8"	13 3/4"	5 3/8"	5 7/8"	11 5/8"	6 1/2"	7 1/4"
8 in.	7 1/2"	15"	15 3/8"	5 1/2"	5 3/8"	13 3/4"	8 3/4"	9 3/8"
10 in.	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12 in.	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"

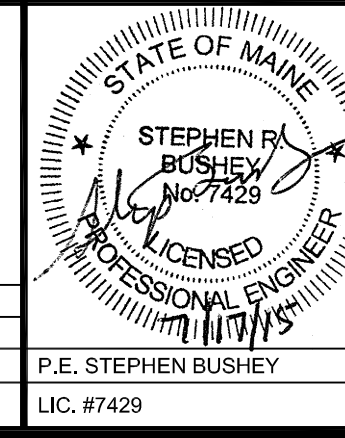
**H** CASCO TRAP DETAIL  
N.T.S.



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

PRELIMINARY - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	REVISIONS
2	07.17.15	REVISED SUBMISSION TO CITY	
1	06.12.15	AMENDED SITE PLAN SUBMISSION	



PROJECT	SECOND TEE CONDOMINIUM ASSOCIATION BUSINESS PARK EXPANSION
SHEET TITLE	UTILITY DETAILS
CLIENT	1039 RIVERSIDE LLC

<b>FAY, SPOFFORD &amp; THORNDIKE</b> ENGINEERS - PLANNERS - SCIENTISTS 778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106	DRAWN: DED DESIGNED: SRB CHECKED: SRB FILE NAME: SP-M168 DETAILS SHEET: C-8	DATE: MAY 2015 SCALE: AS NOTED JOB NO: SP-M164
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