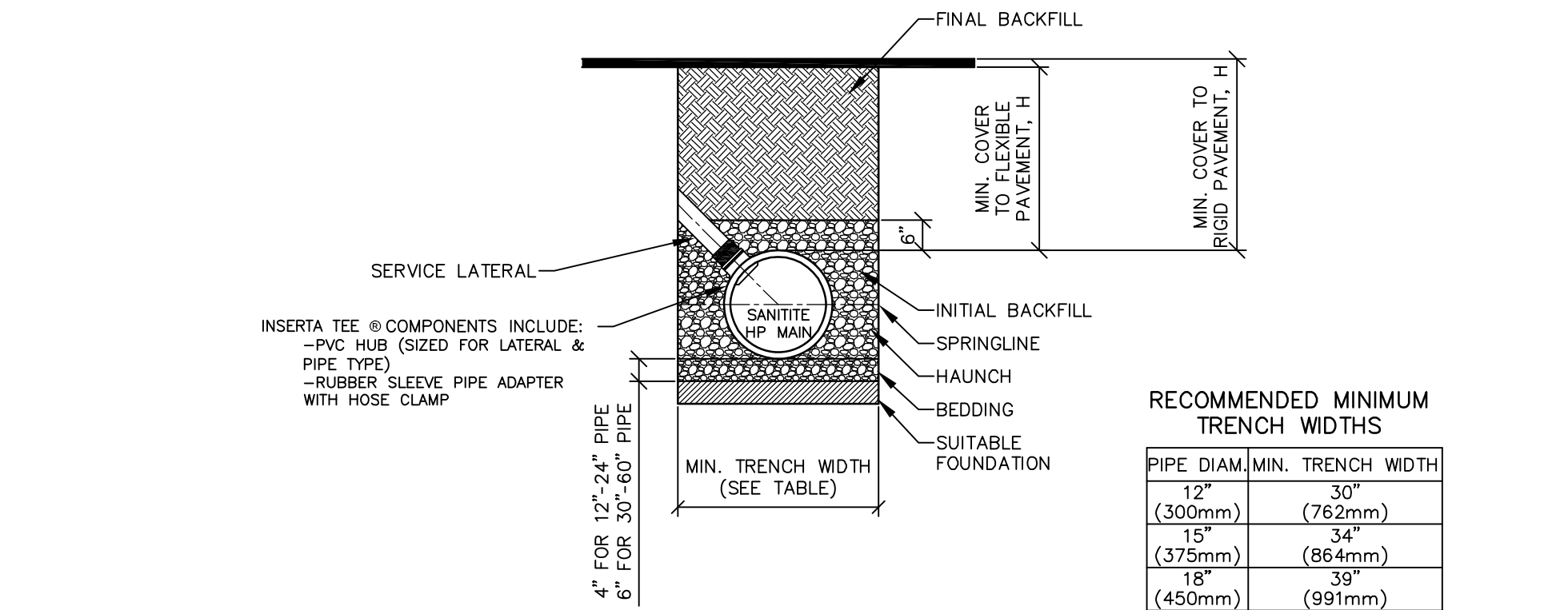


- NOTES:**
- PIPE TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. SEE STD-101.
 - ANCHORS SHALL BE PLACED EVERY JOINT.
 - VELOCITY REDUCTION METHODS SHALL BE TAKEN WHEN SLOPE CREATES VELOCITY GREATER THAN 20 FPS.

CONCRETE ANCHORS FOR STEEPLY SLOPED PIPES INSTALLATION
NOT TO SCALE

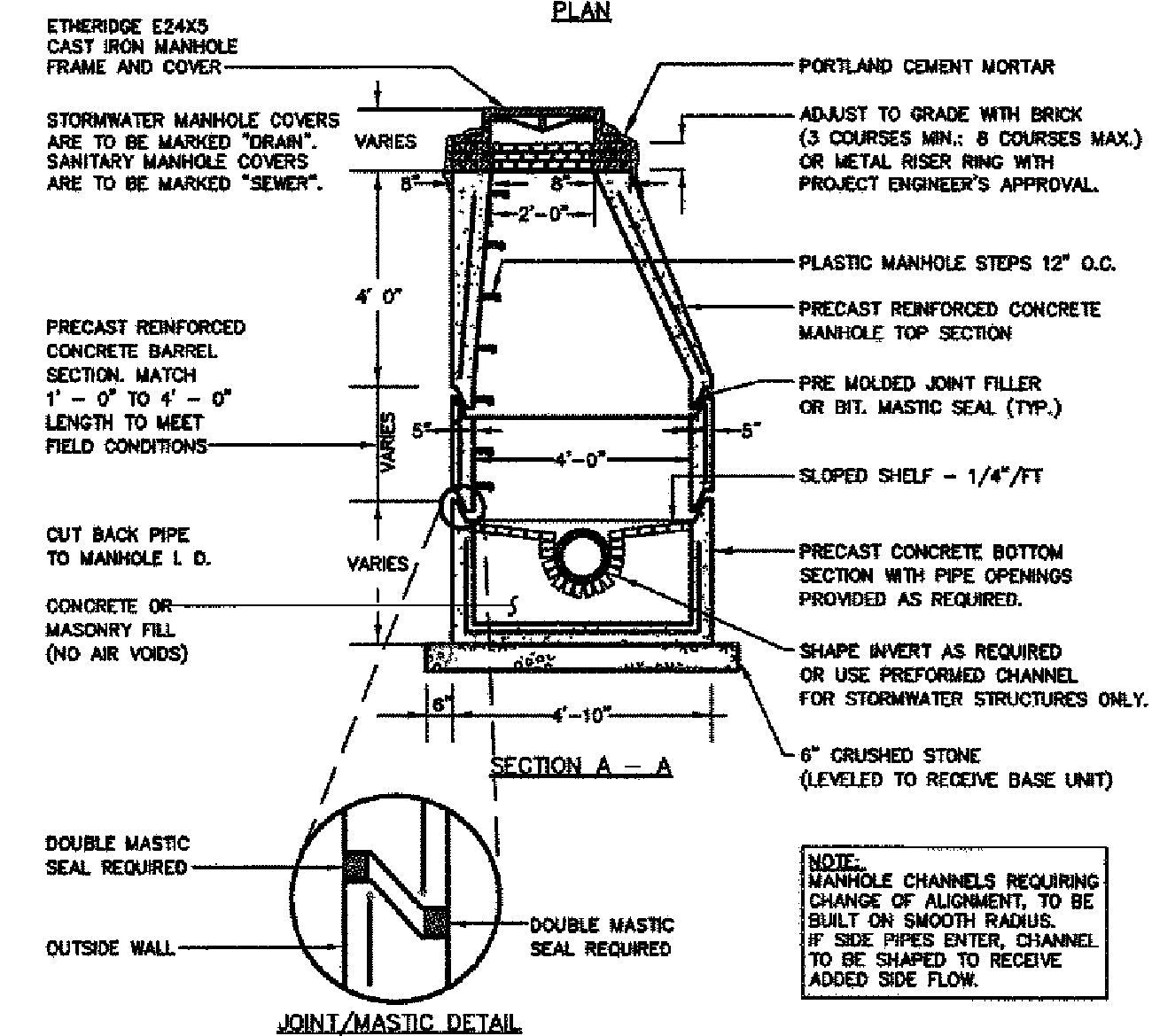
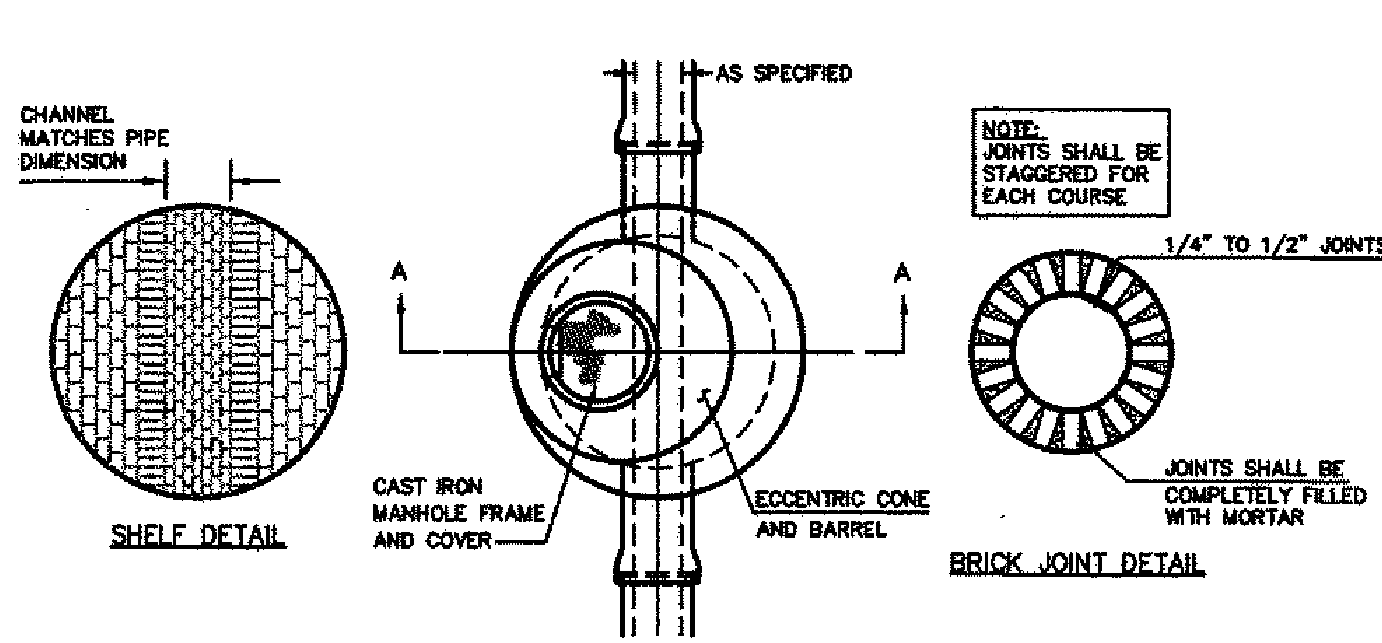


RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12"	30"
15"	34"
18"	38"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"
66"	104"
72"	112"
78"	120"
84"	128"
90"	136"
96"	144"
102"	152"
108"	160"
114"	168"
120"	176"
126"	184"
132"	192"
138"	200"
144"	208"
150"	216"

- NOTES:**
- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
 - MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
 - THE INSERTA TEE CONNECTION SHOULD NOT BE PLACED AT AN ANGLE EXCEEDING 45° FROM THE SPRINGLINE. GREATER ANGLES ARE SUBJECT TO DESIGN ENGINEER APPROVAL AND MAY REQUIRE PREMIUM BACKFILL.
 - FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
 - BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-1500mm).
 - INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6' ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
 - MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

INSERTA TEE DETAIL
NOT TO SCALE

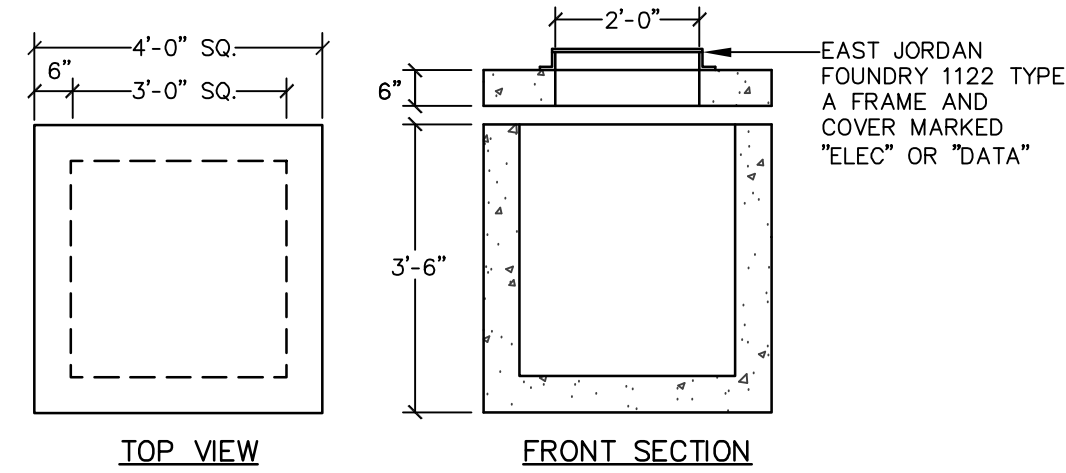


PRECAST CONCRETE SEWER MANHOLE
NOT TO SCALE

NOTES:

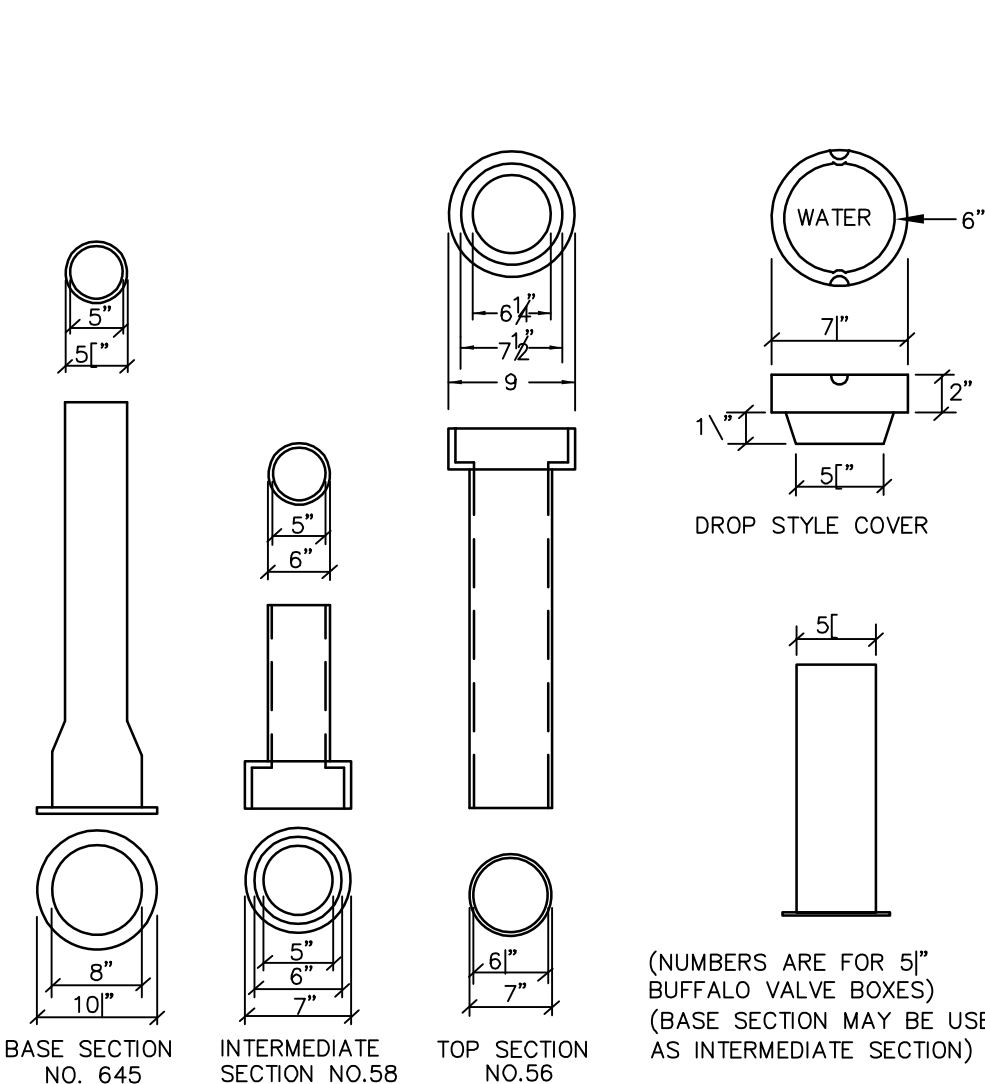
- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION. WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321, CLASS I/II MATERIALS (Mn, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-1500mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
- FOR ADDITIONAL INFORMATION SEE TECHNICAL NOTE 2.04.

TRENCH INSTALLATION DETAIL
NOT TO SCALE



- NOTES:**
- STRUCTURE SHALL BE 3" SQ UTILITY BOX WITH 6" WALLS AS MANUFACTURED BY PRECAST CONCRETE PRODUCTS OF MAINE, INC. (ITEM #B-14) OR APPROVED EQUAL.
 - CONCRETE 4000 PSI AT 28 DAYS.
 - STRUCTURE TO BE H-20 LOADED.
 - OPENINGS AS NEEDED.

UTILITY PULL BOX
NOT TO SCALE



VALVE BOX & COVER
NOT TO SCALE

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

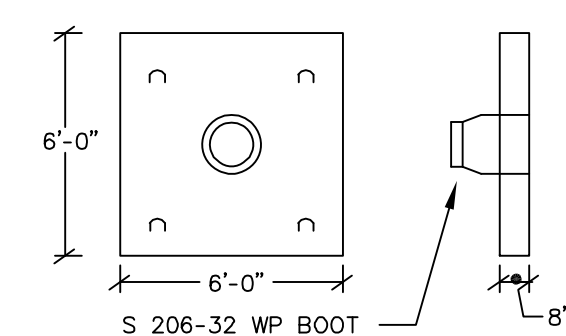
PIPE DIAM.	MIN. TRENCH WIDTH
12"	30"
15"	34"
18"	38"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"
66"	104"
72"	112"
78"	120"
84"	128"
90"	136"
96"	144"
102"	152"
108"	160"
114"	168"
120"	176"
126"	184"
132"	192"
138"	200"
144"	208"
150"	216"

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION		
	H-25	HEAVY CONSTRUCTION (25T AXLE LOAD)	90K
12" - 48" (300mm - 1200mm)	12" (305mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	24" (610mm)	60" (1524mm)

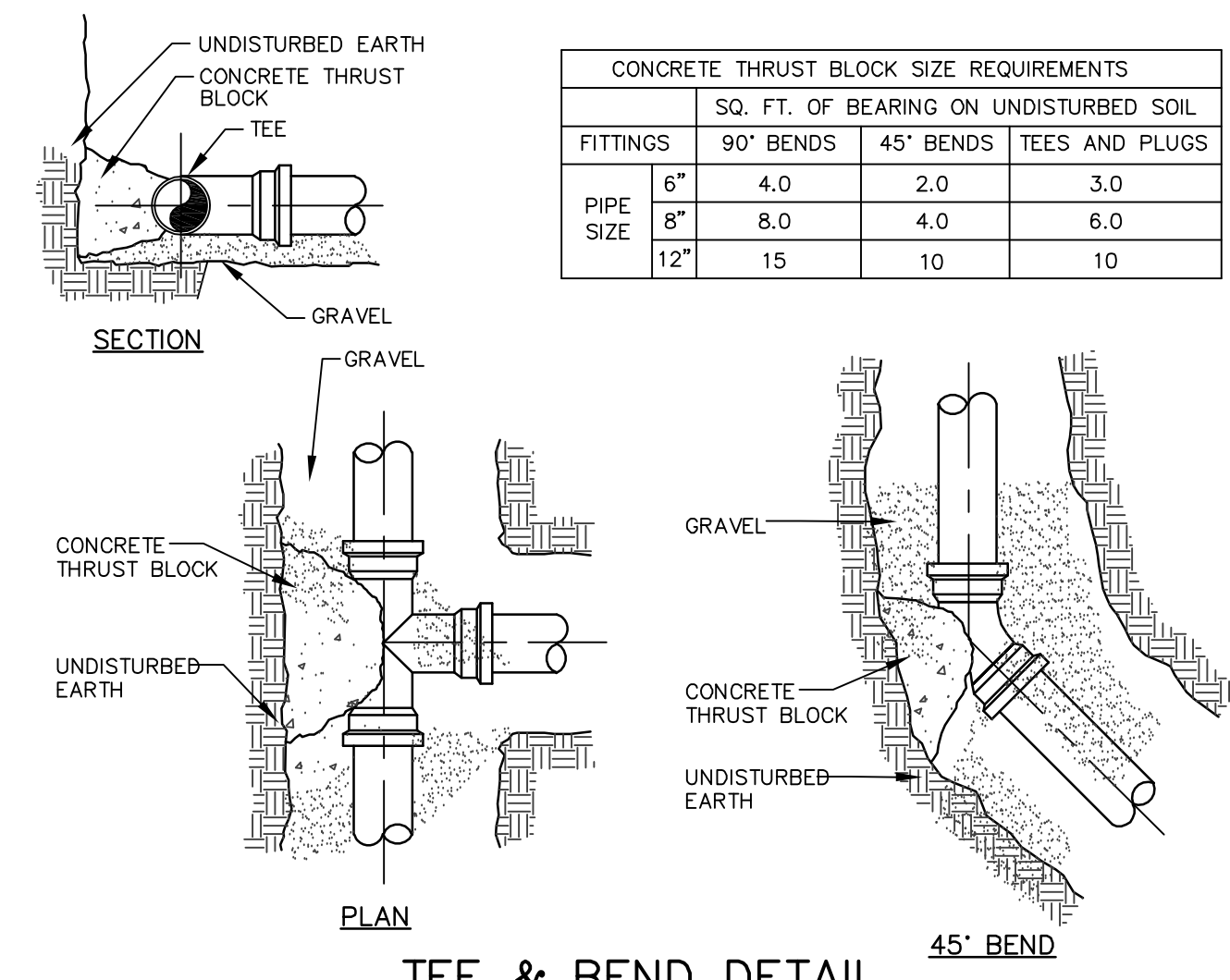
TABLE 3, MAXIMUM COVER FOR ADS HP STORM PIPE, ft

PIPE DIA	CLASS I			CLASS II			CLASS III			CLASS IV		
	95%	90%	85%	95%	90%	85%	95%	90%	85%	95%	90%	85%
12"	41	28	21	16	20	16	16	16	16	16	16	16
15"	42	29	21	16	21	16	16	16	16	16	16	16
18"	44	30	21	16	22	17	16	16	16	16	16	16
24"	37	26	18	14	19	14	14	14	14	14	14	14
30"	39	27	19	14	19	15	14	14	14	14	14	14
36"	28	20	14	10	14	11	10	10	10	10	10	10
42"	30	21	14	10	15	11	10	10	10	10	10	10
48"	29	20	14	9	14	10	10	10	10	10	10	10
60"	29	20	14	9	14	10	9	9	9	9	9	9



ANTI-SEEP COLLAR
NOT TO SCALE

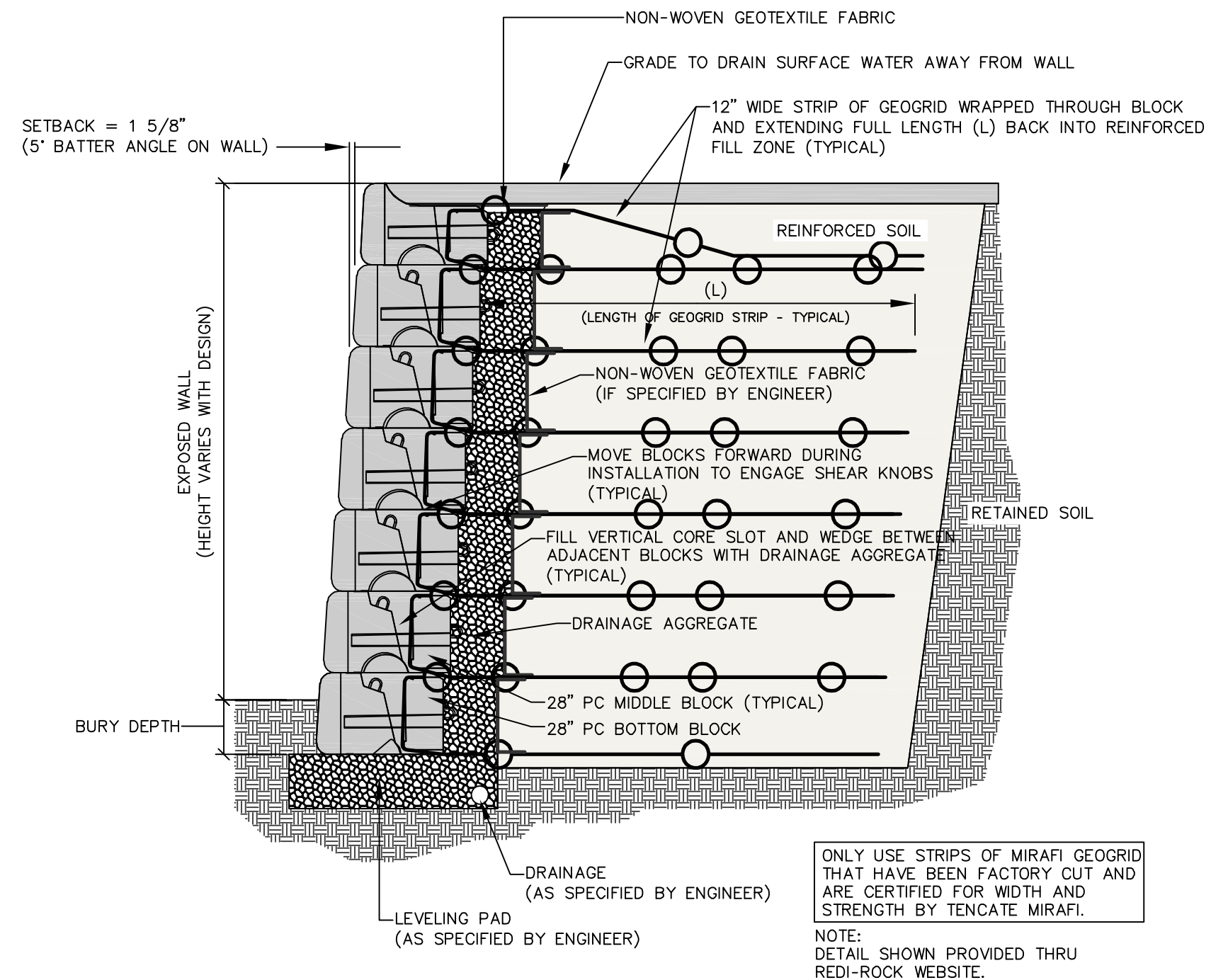
- NOTES:**
- HOPE MANUFACTURED ANTI-SEEP COLLARS ARE AN APPROVED EQUAL.



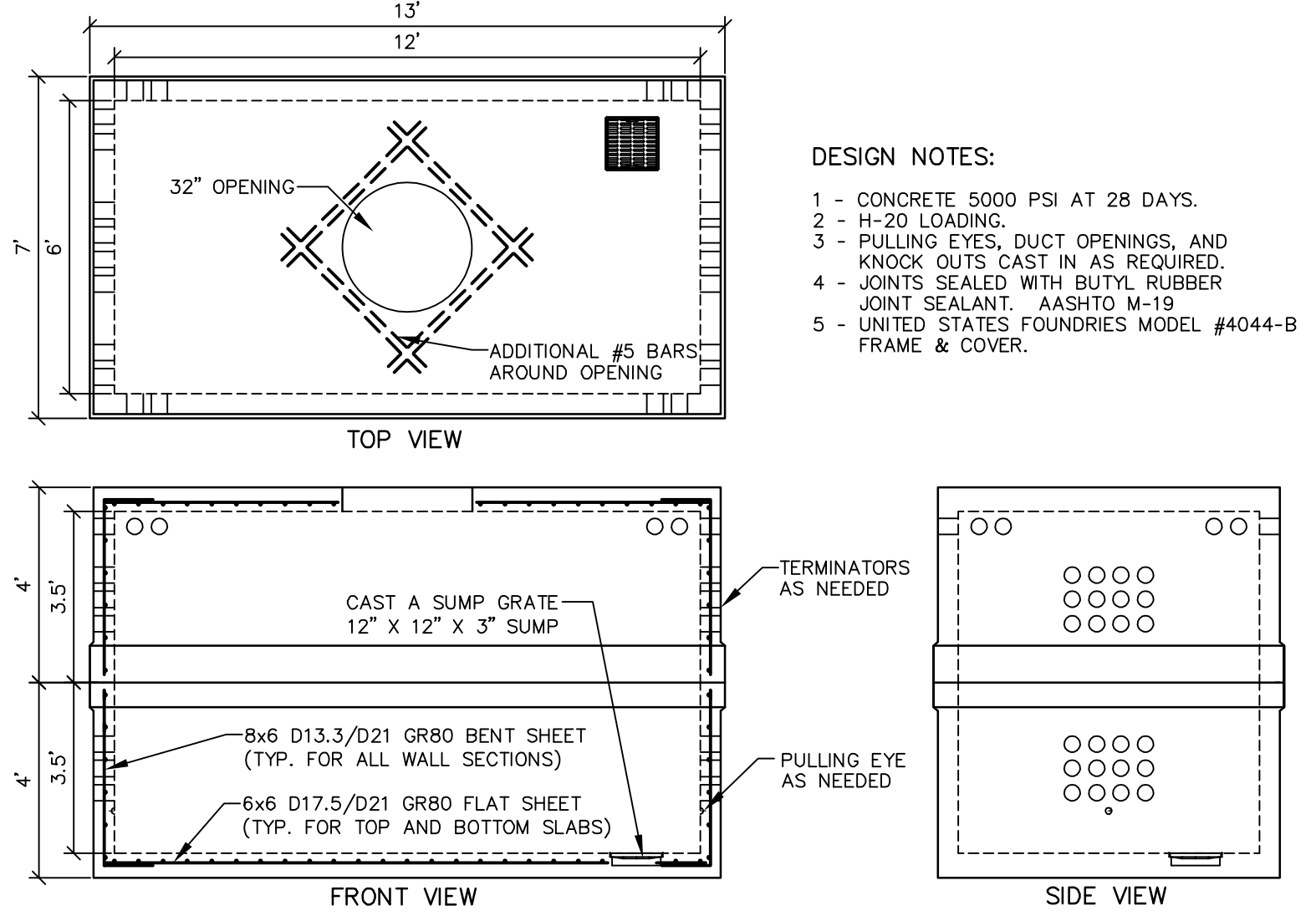
TEE & BEND DETAIL
NOT TO SCALE

CONCRETE THRUST BLOCK SIZE REQUIREMENTS

FITTINGS	SQ. FT. OF BEARING ON UNDISTURBED SOIL			
	90° BENDS	45° BENDS	TEES AND PLUGS	
PIPE SIZE	4.0	2.0	3.0	
6"	8.0	4.0	6.0	
8"	15	10	10	



TYPICAL REINFORCED WALL SECTION
NOT TO SCALE



ELECTRICAL UTILITY VAULT DETAIL
NOT TO SCALE

DESIGNED BY: KDG
CHECKED BY: SMF

CITY SUBMITTAL NO. 6
CITY SUBMITTAL NO. 7
CITY SUBMITTAL NO. 1

DATE: 12/15/16
STATUS:

WWW.SEBAGOTECHNICS.COM
250 South Portland Rd.
South Portland, ME 04106
Tel: 207-782-2100

218-220 WASHINGTON AVENUE
PORTLAND, MAINE

218-220 WASHINGTON AVENUE LLC
199 ELDERBERRY ROAD
SOUTH PORTLAND, MAINE 04106

PROJECT NO: 06172
SCALE: 1" = 1'

SHEET 12 OF 12