

SCARBOROUGH SANITARY DISTRICT

SCARBOROUGH, MAINE

SEWER STANDARDS



JULY 2021

(REVISED, JUNE 2023)

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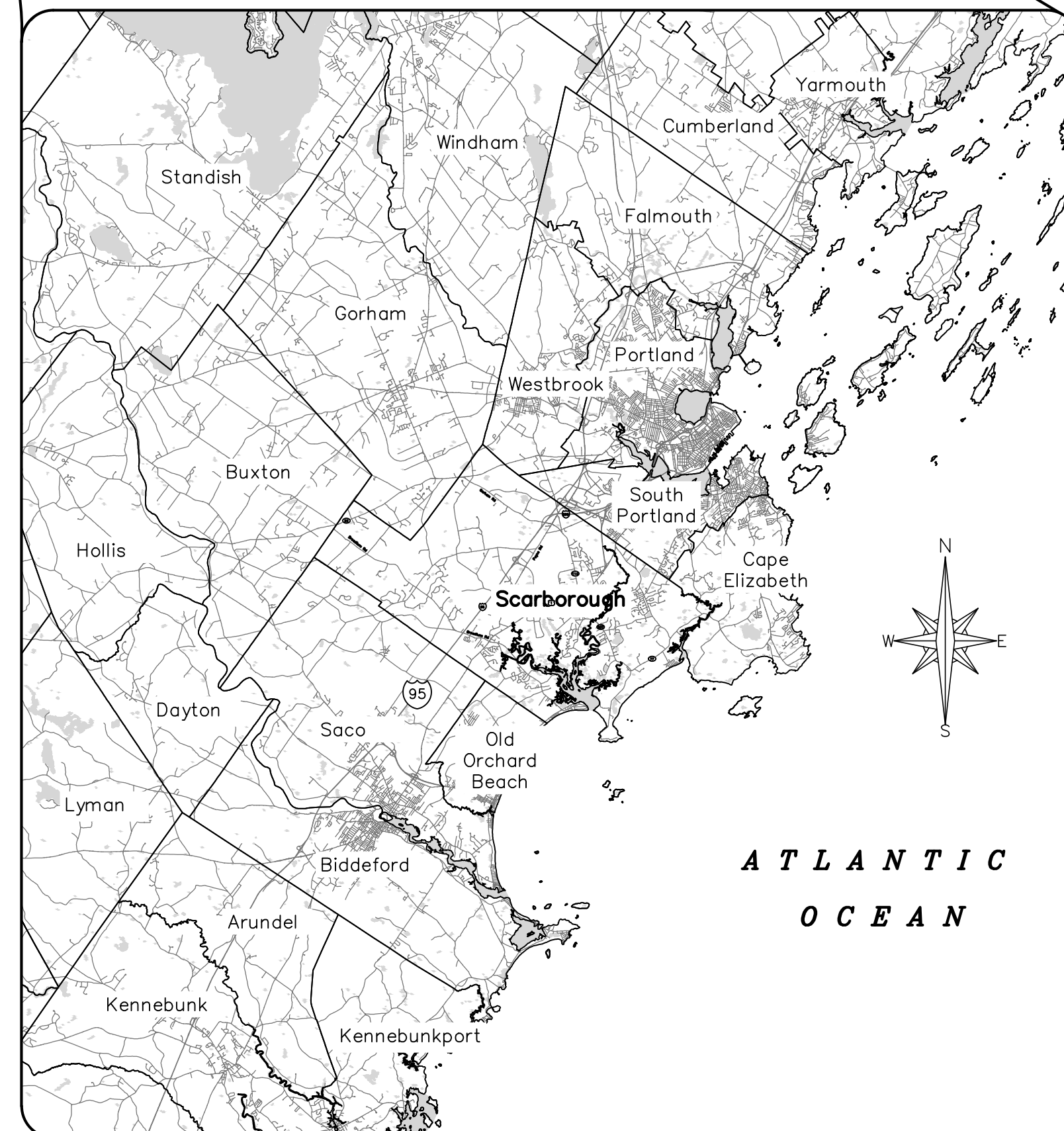
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MAINE

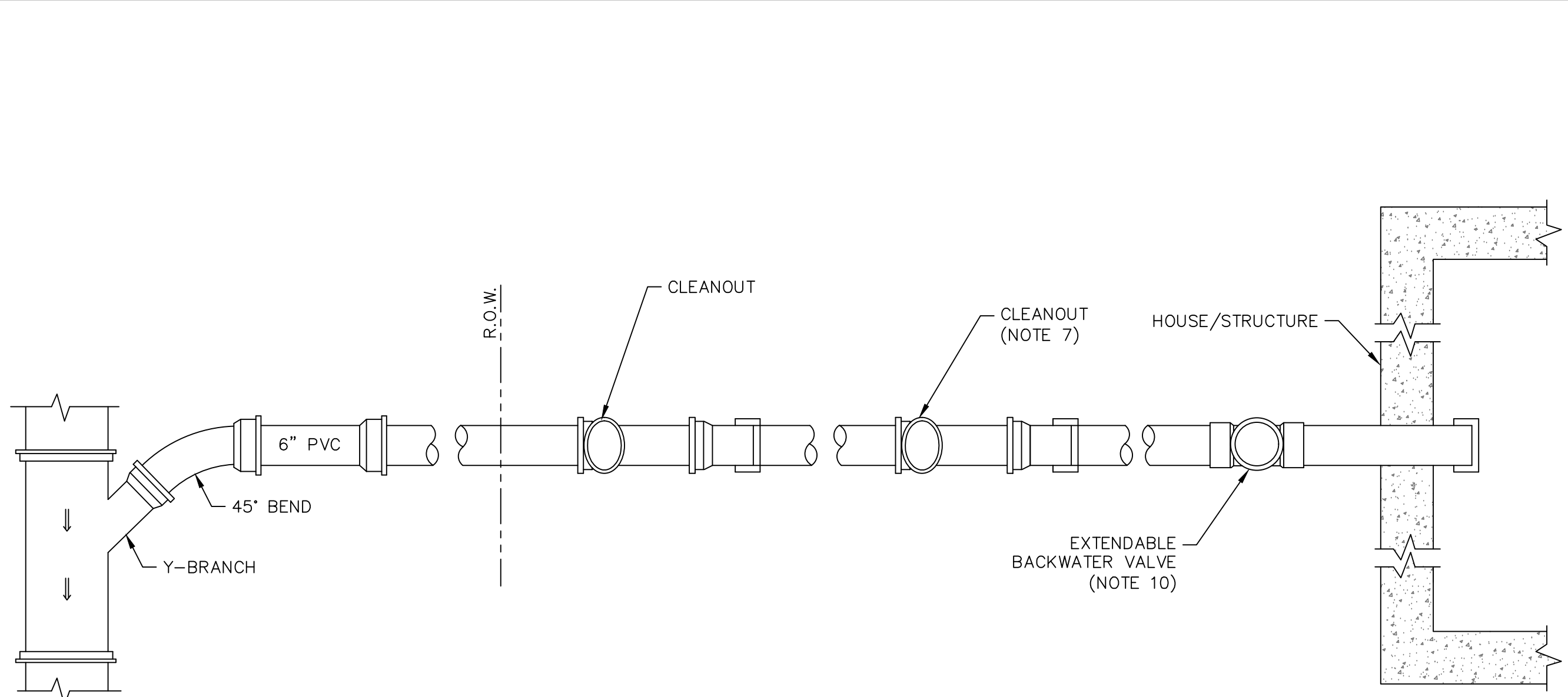
Scarborough

LOCATION PLAN

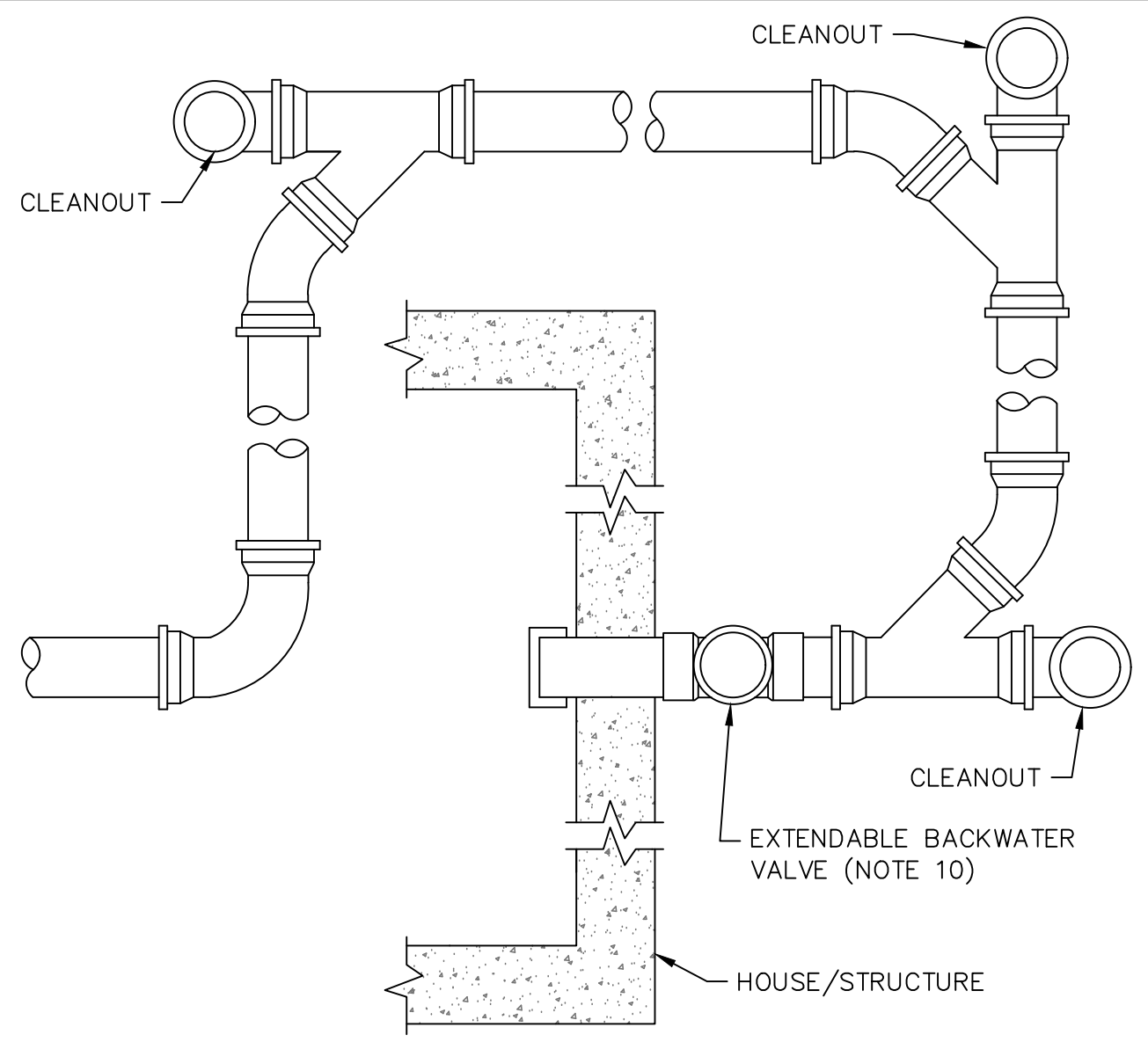


SCARBOROUGH, MAINE





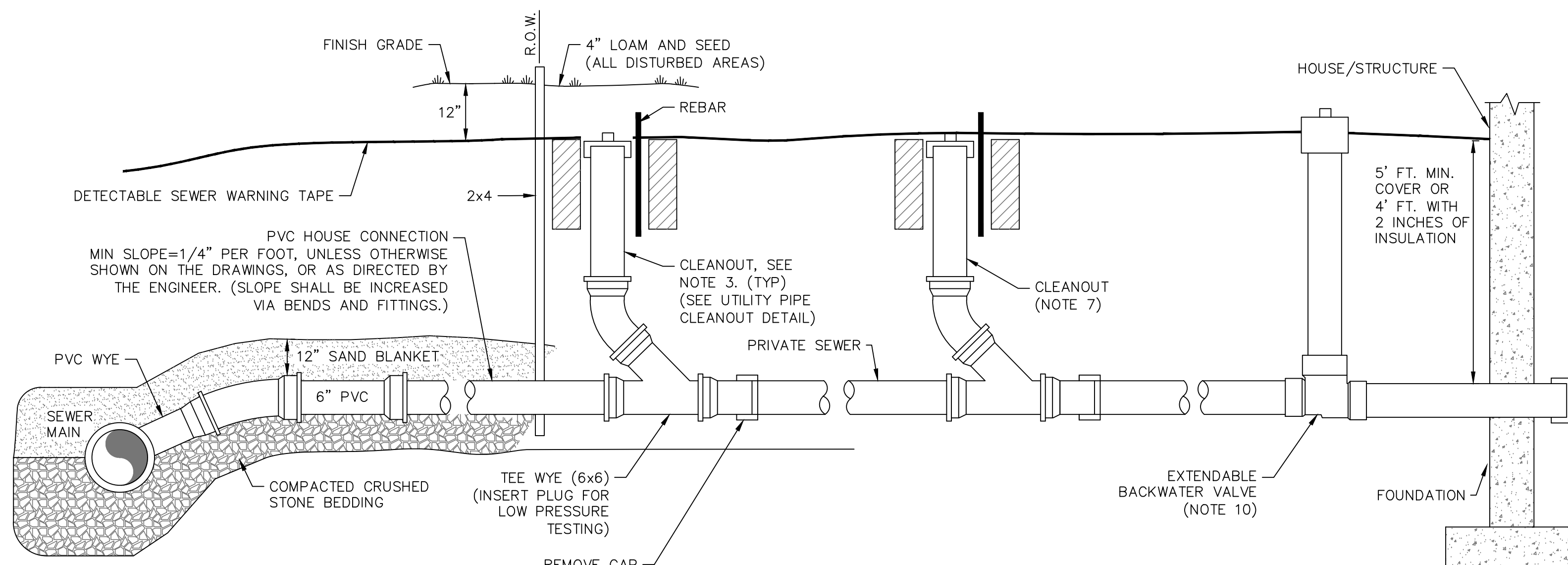
SEWER SERVICE AT FRONT OF BUILDING PLAN



SEWER SERVICE AT BACK OF BUILDING PLAN

SERVICE CONNECTION NOTES:

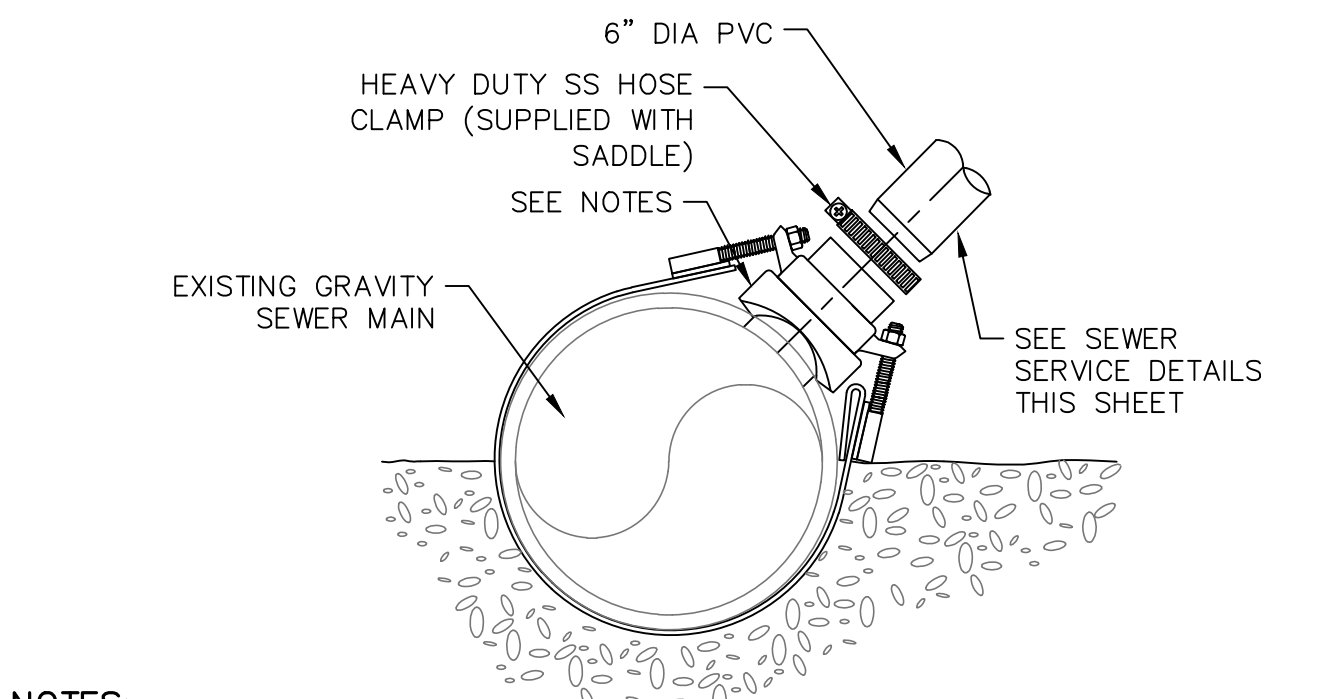
1. SEE DETAILS FOR SERVICE CONNECTION REQUIREMENTS.
2. SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
3. CLEANOUTS SHALL BE INSTALLED AT EACH SERVICE CONNECTION OR WHEN RECONNECTING TO EXISTING SERVICE.
4. REBAR OR 2X4 SHALL BE PLACED AT SIDE OF CLEANOUT.
5. CLEANOUT SHALL BE USED TO PLUG AND TEST EXISTING LATERALS WITH MINIMAL INTERRUPTION TO OPERATION OF HOMEOWNER SANITARY SYSTEM.
6. SERVICES SHALL BE ORIENTED @ 10:30 OR 1:30 (TYP). UNDER NO CIRCUMSTANCES SHALL SERVICES BE LOCATED BETWEEN 3:00 AND 9:00.
7. ADDITIONAL CLEANOUTS REQUIRED EVERY 100 FEET AND AT EACH BEND.
8. MINIMUM SLOPE 6"=1%, 4"=2%.
9. SEWER SERVICE MIN. 6" PVC TO WYE AT PROPERTY LINE. SERVICE BEYOND SIZE AS NECESSARY.
10. EXTENDABLE BACKWATER VALVE BY RECTORSEAL OR SSD APPROVED EQUAL.
11. INSERTA-TEE CONNECTIONS NOT ACCEPTABLE.



SEWER SERVICE SECTION

GRAVITY SEWER SERVICE CONNECTION

NOT TO SCALE



- NOTES:**
1. COORDINATE ALL NEW SERVICES ON EXISTING GRAVITY SEWER WITH THE SSD.
 2. SEE GRAVITY SEWER DETAILS THIS SHEET.
 3. PROVIDE ROMAC INDUSTRIES STYLE "CB" SEWER SADDLE FOR CONNECTIONS TO EXISTING PVC, C900, C.I., D.I., CLAY AND CONCRETE GRAVITY SEWERS. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
 4. CORE NEW TAP CONNECTION ON CENTER OF PIPE TO ALLOW FOR BEST FIT.
 5. FITTINGS GREATER THAN 45 DEG ARE NOT ALLOWED.

SEWER SERVICE CONNECTION TO EXISTING GRAVITY SEWER

NOT TO SCALE

SEWER TESTING FROM FOUNDATION TO DISTRICT CLEANOUT AT PROPERTY LINE:

1. SEE STANDARD NOTES FOR SCARBOROUGH SANITARY DISTRICT REQUIREMENTS.
2. PLUG SERVICE AT WYE AT PROPERTY LINE AND AT FOUNDATION.
3. SERVICE LINE SHALL BE AIR TESTED TO A MINIMUM OF 4 PSI IN THE PRESENCE OF DISTRICT STAFF. SERVICE SHALL HOLD PRESSURE FOR MINIMUM TIME INDICATED ON RESIDENTIAL SEWER SERVICE TEST FORM.

RESIDENTIAL SEWER SERVICE TEST FORM

Property Owner and Address: _____ Date _____
 Contractor: _____

Scarborough Sanitary District Representative: _____

Pipe Material _____ Diameter _____
 Pipe Length _____ Feet

Minimum Time Required for Test _____ Minutes
 See chart below or calculate using formula for lengths greater than that specified for the minimum time.

Diameter (inches)	Minimum Time (Min)	Length for Min. Time (Feet)	Formula for Length Greater than Min.(sec)
4	1:54	597	190L
6	2:50	398	427L
8	3:47	298	760L

Minimum Test Pressure: **4 psi**

Passed _____ Failed _____ Inspector _____

VISUAL INSPECTION

Date _____ Passed _____ Failed _____

Comments:

SEWER SERVICE LATERAL DATA SHEET

Job Title: _____
 Owner: _____
 Contractor: _____
 Street: _____

Lateral to Serve	STA	Length	Size	Material	(LF) from down/up stream manhole #

1. Connection to Main Sewer: Wye _____ Chimney _____ (VF) Other _____
 Sewer Main: _____

2. General Comments: _____

3. Sketch (Location End and Depth Lateral)

Photo

CHECKS AND APPROVED

Owner's Representative _____ Contractor's Representative _____

STANDARD SEWER NOTES

- THE FOLLOWING SEWER NOTES ARE REQUIRED ON DRAWINGS:
1. ALL SERVICE CONNECTIONS SHALL BE COORDINATED WITH THE SANITARY DISTRICT. PRIOR TO THE SSD ALLOWING CONNECTION TO THE SEWER, THE APPLICANT IS REQUIRED TO SUBMIT AN APPLICATION TO CONNECT TO THE SEWER AND TO PAY ALL FEES FOR THE PROPERTY (LOTS) TO BE SERVED.
 2. NO CONSTRUCTION OF THE SEWER SHALL TAKE PLACE UNTIL THE FOLLOWING HAS BEEN MET:
 - a. PRE-CONSTRUCTION MEETING WITH THE SANITARY DISTRICT OR THEIR REPRESENTATIVE.
 - b. TWO (2) FULL SETS OF FINAL PLANS APPROVED BY THE PLANNING BOARD ARE PROVIDED TO THE SANITARY DISTRICT.
 - c. SHOP DRAWINGS OF SEWERAGE COMPONENTS SUBMITTED AND APPROVED BY THE SANITARY DISTRICT.
 - d. EXECUTED SEWER PERMITS AND SEWER EXTENSION PERMITS IF APPLICABLE.
 - e. PAYMENT OF ALL DISTRICT FEES.
 3. ALL SEWERAGE FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SCARBOROUGH SANITARY DISTRICT (SSD) SEWER REGULATIONS.
 4. MINIMUM OF COVER IS 5- FEET, OR 4--FEET WITH 2--INCHES OF INSULATION.
 5. ALL SEWERS (GRAVITY SEWER/FORCE MAIN) SHALL HAVE DETECTABLE UNDERGROUND UTILITY MARKING TAPE AND ALL PUBLIC SEWERS SHALL HAVE TRACER WIRE IN ACCORDANCE WITH DISTRICT STANDARDS.
 6. SEWER INSTALLATION SHALL BE OBSERVED BY THE SANITARY DISTRICT OR THEIR REPRESENTATIVE.
 7. PROVIDE MINIMUM 48-HOUR NOTICE TO THE SANITARY DISTRICT PRIOR TO ANY SEWER WORK.
 8. NO FOUNDATION DRAINS, ROOF DRAINS OR OTHER GROUNDWATER OR STORM WATER DRAINAGE CONNECTIONS SHALL BE MADE TO THE SEWER.
 9. GRAVITY SEWER. LEAKAGE TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
 10. MANHOLE LEAKAGE TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
 11. SEWER DEFLECTION TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
 12. A CCTV INSPECTION OF THE INSTALLED SEWER IS REQUIRED AT THE COMPLETION OF THE PROJECT.
 13. RECORD DRAWINGS SHALL BE PROVIDED TO THE SANITARY DISTRICT UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH DISTRICT STANDARDS.
 14. SEWER SERVICE TIE SHEETS SHALL BE PROVIDED FOR EACH SERVICE CONNECTION UPON COMPLETION OF THE CONSTRUCTION.

RESIDENTIAL SERVICE CONNECTION

1. NOTES 1, 3, 4-9 AND 14 APPLY TO INDIVIDUAL SEWER SERVICE CONNECTIONS.

ADOPTED	By
Date	Date
REVISION	By
Date	Date
APP'D	REVISIONS
NO.	NO.
Drawn/Chk	DESIGNED
DESIGNED	CHECKED
CHECKED	APPROVED
APPROVED	DATE
DATE	JULY 2021

SCARBOROUGH SANITARY DISTRICT

RESIDENTIAL SEWER DETAILS

SEWER STANDARDS

SCARBOROUGH SANITARY DISTRICT

415 BLACK PNT RD, SCARBOROUGH, ME 04074

RS1

STANDARD SEWER NOTES

THE FOLLOWING SEWER NOTES ARE REQUIRED ON DRAWINGS:

- ALL SERVICE CONNECTIONS SHALL BE COORDINATED WITH THE SANITARY DISTRICT. PRIOR TO THE SSD ALLOWING CONNECTION TO THE SEWER, THE APPLICANT IS REQUIRED TO SUBMIT AN APPLICATION TO CONNECT TO THE SEWER AND TO PAY ALL FEES FOR THE PROPERTY (LOTS) TO BE SERVED.
- NO CONSTRUCTION OF THE SEWER SHALL TAKE PLACE UNTIL THE FOLLOWING HAS BEEN MET:
 - PRE-CONSTRUCTION MEETING WITH THE SANITARY DISTRICT OR THEIR REPRESENTATIVE.
 - TWO (2) FULL SETS OF FINAL PLANS APPROVED BY THE PLANNING BOARD ARE PROVIDED TO THE SANITARY DISTRICT.
 - SHOP DRAWINGS OF SEWERAGE COMPONENTS SUBMITTED AND APPROVED BY THE SANITARY DISTRICT.
 - EXECUTED SEWER PERMITS AND SEWER EXTENSION PERMITS IF APPLICABLE.
 - PAYMENT OF ALL DISTRICT FEES.
- ALL SEWERAGE FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SCARBOROUGH SANITARY DISTRICT (SSD) SEWER REGULATIONS.
- MINIMUM OF COVER IS 5- FEET, OR 4- FEET WITH 2-INCHES OF INSULATION.
- ALL SEWERS (GRAVITY SEWER/FORCE MAIN) SHALL HAVE DETECTABLE UNDERGROUND UTILITY MARKING TAPE AND ALL PUBLIC SEWERS SHALL HAVE TRACER WIRE IN ACCORDANCE WITH DISTRICT STANDARDS.
- SEWER INSTALLATION SHALL BE OBSERVED BY THE SANITARY DISTRICT OR THEIR REPRESENTATIVE.
- PROVIDE MINIMUM 48-HOUR NOTICE TO THE SANITARY DISTRICT PRIOR TO ANY SEWER WORK.
- NO FOUNDATION DRAINS, ROOF DRAINS OR OTHER GROUNDWATER OR STORM WATER DRAINAGE CONNECTIONS SHALL BE MADE TO THE SEWER.
- GRAVITY SEWER. LEAKAGE TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
- MANHOLE LEAKAGE TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
- SEWER DEFLECTION TESTING IS REQUIRED IN ACCORDANCE WITH THE SANITARY DISTRICT REQUIREMENTS.
- A CCTV INSPECTION OF THE INSTALLED SEWER IS REQUIRED AT THE COMPLETION OF THE PROJECT.
- RECORD DRAWINGS SHALL BE PROVIDED TO THE SANITARY DISTRICT UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH DISTRICT STANDARDS.
- SEWER SERVICE TIE SHEETS SHALL BE PROVIDED FOR EACH SERVICE CONNECTION UPON COMPLETION OF THE CONSTRUCTION.

BASIS OF DESIGN FLOWS

THE FOLLOWING SHALL BE USED TO DETERMINE DESIGN FLOWS:

RETAIL USE	8.5 GAL/DAY/100 SQ.FT. FLOOR AREA
OFFICE/SERVICE	4.0 GAL/DAY/100 SQ.FT. FLOOR AREA
MANUFACTURING *	3.5 GAL/DAY/100 SQ.FT. FLOOR AREA
RESIDENTIAL	200 GAL/DAY DWELLING UNIT
INDUSTRIAL & OTHER USES	TO BE DETERMINED BY ENGINEERING EVALUATION
INFILTRATION	500 GAL/INCH OF PIPE DIAMETER/MILES/DAY

* IT IS NOTED THAT MANUFACTURING IS DEFINED AS LIGHT INDUSTRY THAT DOES NOT GENERATE SIGNIFICANT VOLUMES OF PROCESS WATER AND WHOSE WASTEWATER CHARACTERISTICS ARE SIMILAR TO DOMESTIC WASTEWATER, I.E., NO HIGH ORGANIC LOADS OR TOXIC MATERIALS.

STANDARD MANHOLE NOTES:

- IT IS THE INTENTION: THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH, AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (MDEP) FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE, AND TO PROVIDE A WATER TIGHT SEAL CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE.
- BARRELS AND CONE SECTIONS:** SHALL BE PRECAST REINFORCED CONCRETE.
- PRECAST CONCRETE:** BARREL SECTIONS, CONES, GRADE ADJUSTMENT RING AND BASES SHALL CONFORM TO ASTM C478.
- VACUUM TEST:** SHALL BE PERFORMED IN ACCORDANCE WITH DISTRICT REQUIREMENTS.
- INVERTS AND SHELVES:** SHALL BE EPOXY COATED PRECAST CONCRETE INVERTS.
- FRAMES AND COVERS:** MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN, AND PROVIDE A 24-INCH CLEAR OPENING. 3-INCH LETTERING WITH "SCARBOROUGH SANITARY DISTRICT" FOR PUBLIC SEWERS OR "SEWER" FOR PRIVATE SEWERS FOR SEWERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
- BEDDING:** SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.

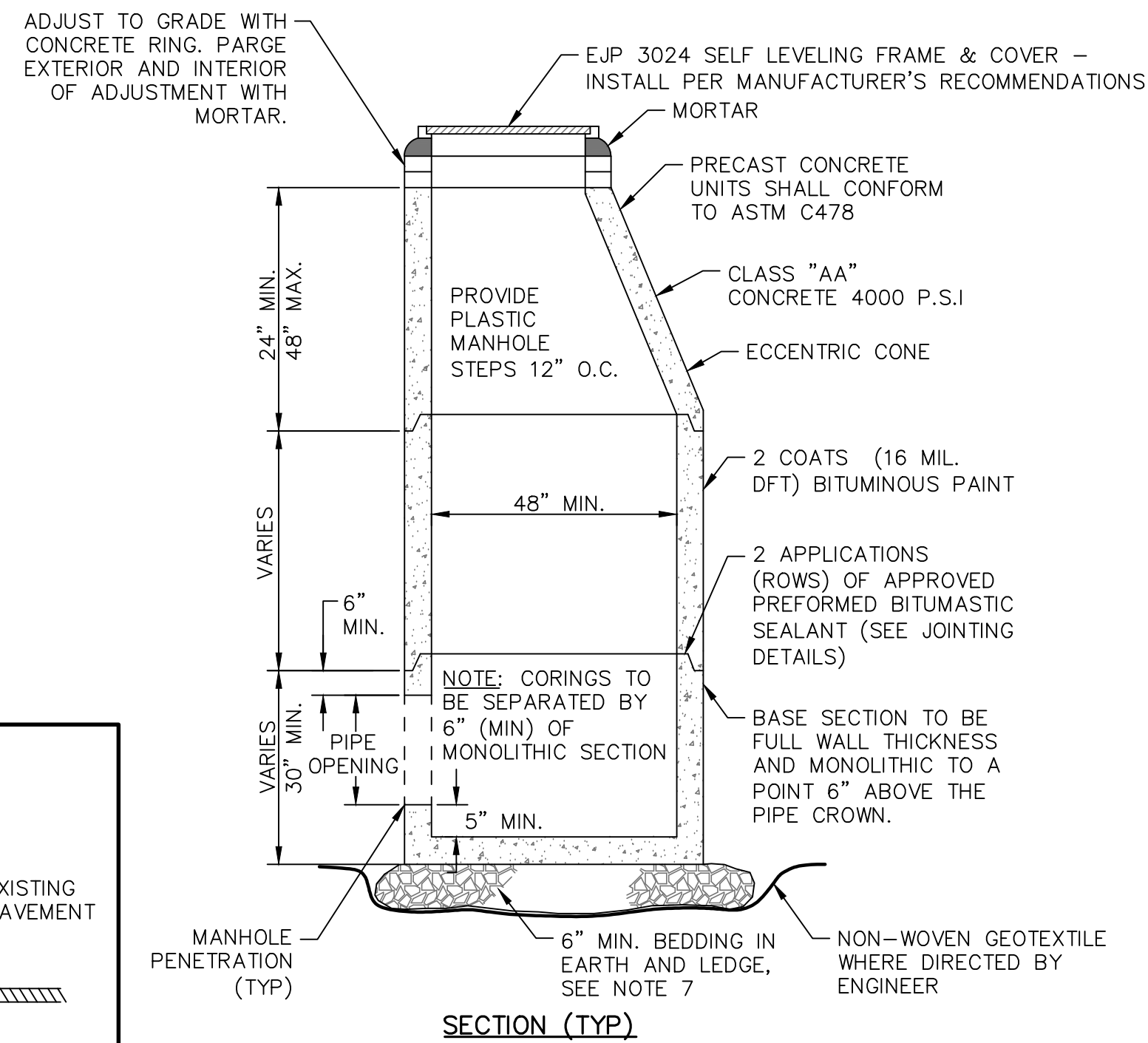
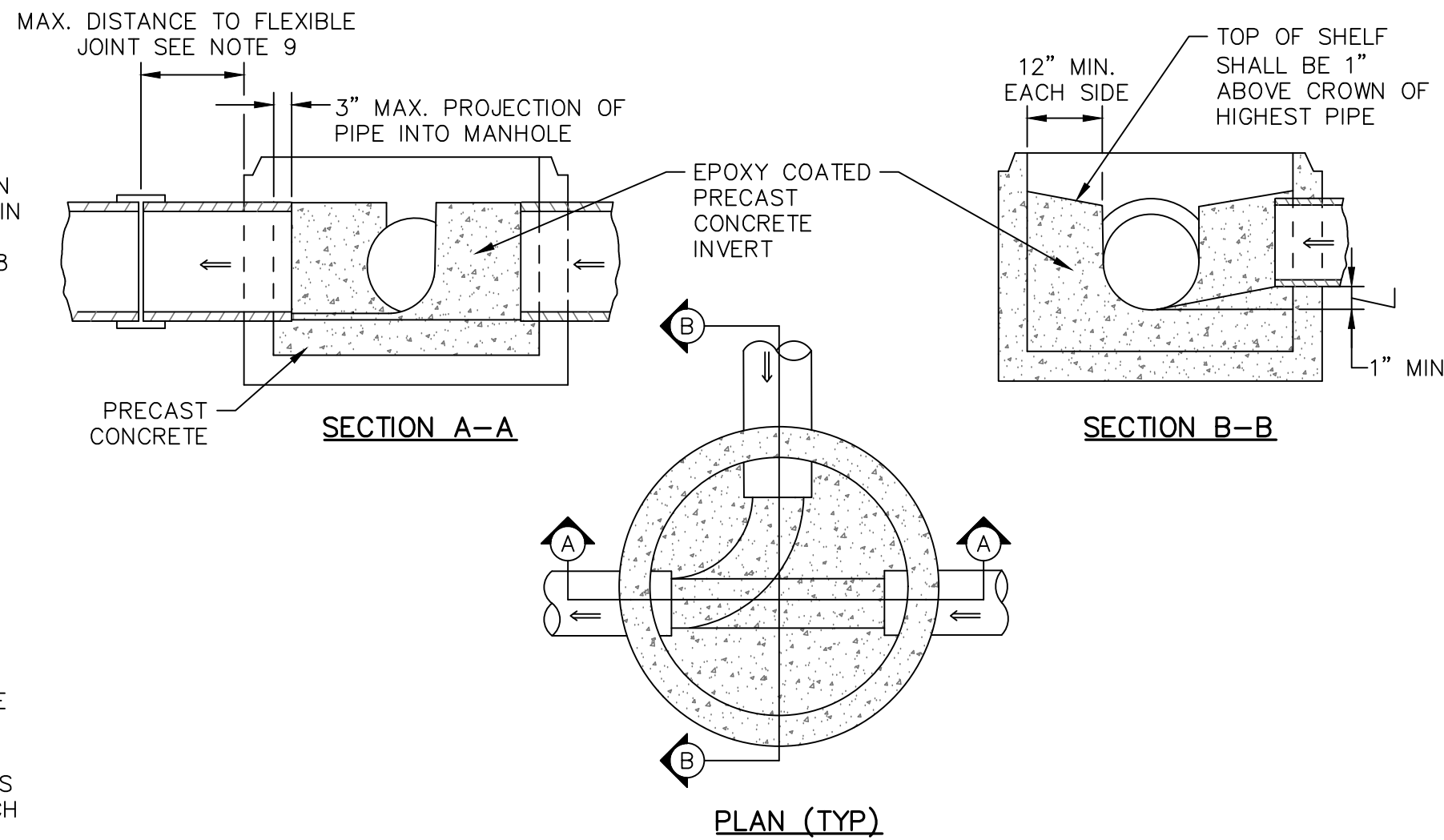
PERCENT PASSING	SCREEN SIZE
100%	1 INCH
90 -100%	3/4 INCH
20 - 55%	3/8 INCH
0 - 10%	#4 SIEVE
0 - 5%	#8 SIEVE

WHERE ORDERED BY THE ENGINEER, FOR STRUCTURES UNDER 6' OR TO STABILIZE THE BASE, SCREENED GRAVEL OR 1-1/2 INCH CRUSHED STONE MAY BE USED.

- SHALLOW MANHOLE:** IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H-20 LOADS MAY BE USED.

- FLEXIBLE JOINT:** A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

DI PIPE - NONE REQUIRED	
PVC (ASTM 3034) - UP THROUGH 15" DIA. - NONE REQUIRED	
PVC (ASTM F679) - LARGER THAN 15" DIA. - 48" TO 60"	
RCP PIPE - 48"	
HDPE - SAME AS PVC	

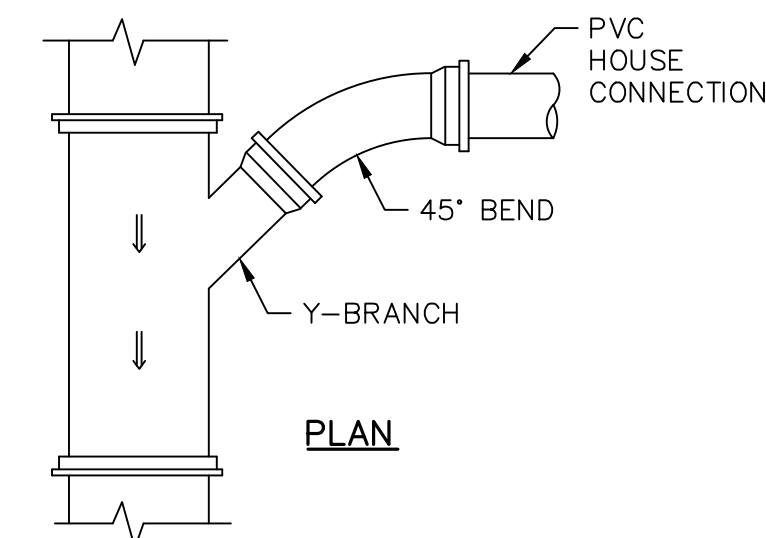


STANDARD MANHOLE DETAILS

NOT TO SCALE

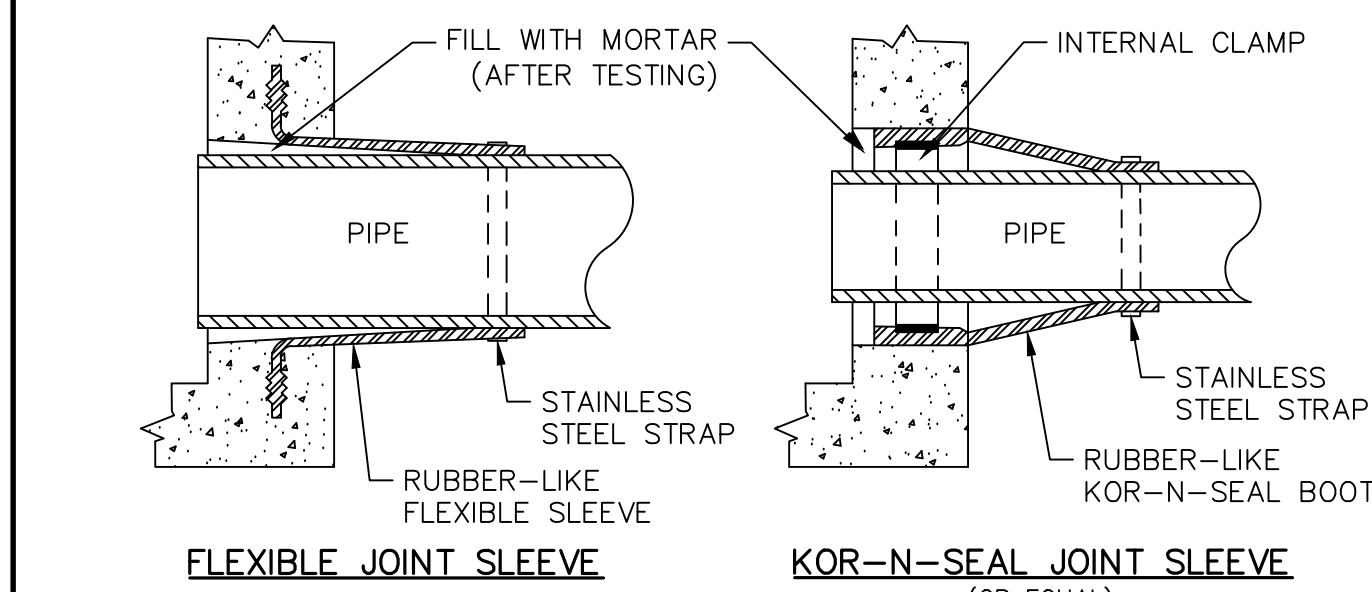
SERVICE CONNECTION NOTES:

- SEE DETAILS FOR SERVICE CONNECTION REQUIREMENTS.
- SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
- CLEANOUTS SHALL BE INSTALLED AT EACH SERVICE CONNECTION OR WHEN RECONNECTING TO EXISTING SERVICE.
- REBAR OR 2X4 SHALL BE PLACED AT SIDE OF CLEANOUT.
- CLEANOUT SHALL BE USED TO PLUG AND TEST EXISTING LATERALS WITH MINIMAL INTERRUPTION TO OPERATION OF HOMEOWNER SANITARY SYSTEM.
- SERVICES SHALL BE ORIENTED @ 10:30 OR 1:30 (TYP). UNDER NO CIRCUMSTANCES SHALL SERVICES BE LOCATED BETWEEN 3:00 AND 9:00.
- SEE RS1 FOR RESIDENTIAL SEWER CONNECTION REQUIREMENTS.
- SEE SEWER SERVICE LATERAL TIE SHEET THIS SHEET.
- INSERTA-TEE CONNECTIONS NOT ACCEPTABLE.



GRAVITY SEWER SERVICE CONNECTION

NOT TO SCALE

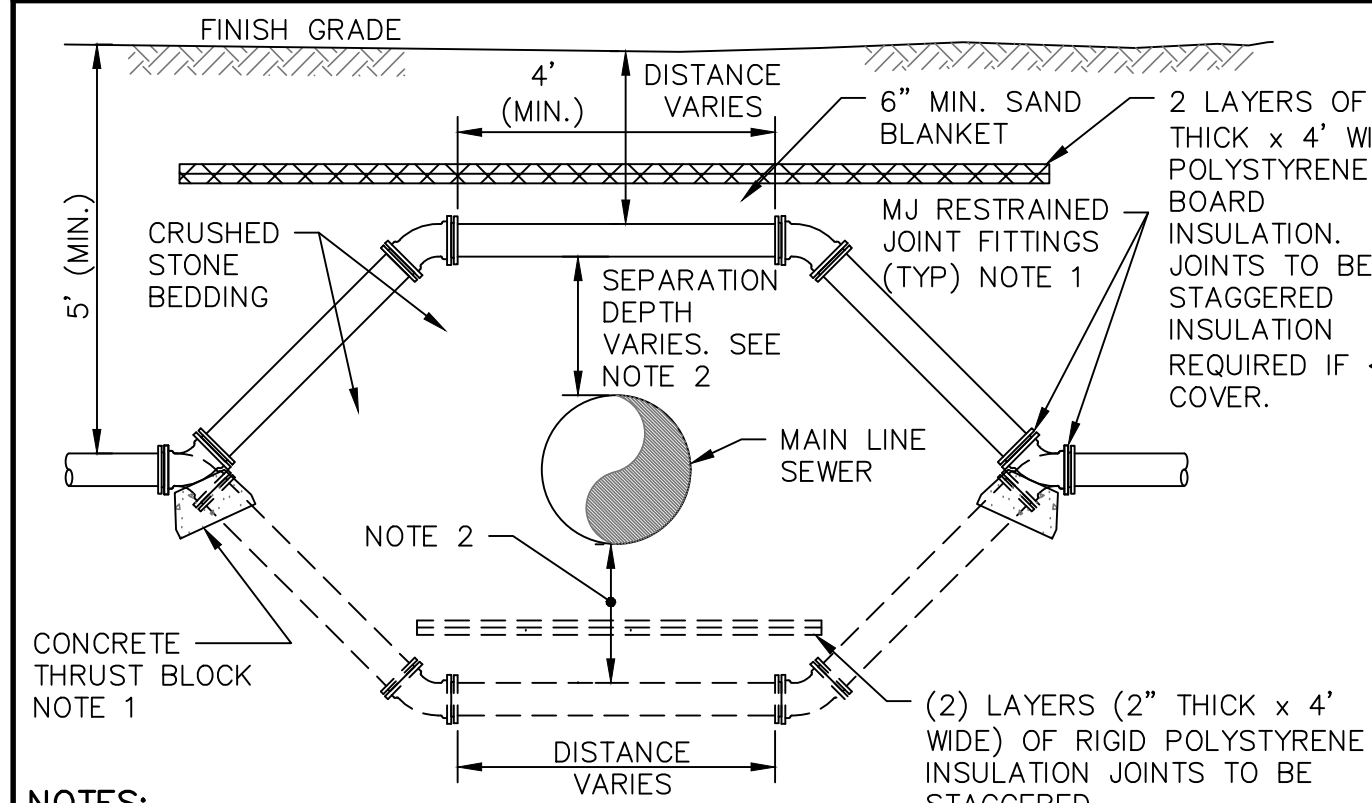


JOINTING AND SEALANT NOTES:

- PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND UPON AN ELASTOMERIC SEALANT FOR WATERTIGHTNESS.
- FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS:
 - RAM-NEK
 - E Z
 - KENT SEAL NO.2
- ALL GASKETS, SEALANTS, MORTAR, ETC., SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

JOINTING DETAILS

NOT TO SCALE



- NOTES:**
- AVOID ABRUPT CHANGES IN DEPTH. INSTALL (4) FOUR 45° MJ BENDS WITH RESTRAINED JOINT FITTINGS OR THRUST RESTRAINT WHERE ABRUPT CHANGES IN DEPTH ARE NECESSARY.
 - SEPARATION DEPTH BETWEEN WATER AND SEWER SHALL BE 18" (MIN.). WHERE SEPARATION DEPTH IS LESS THAN 18" IN ORDER TO HAVE 4'-0" (MIN.) COVER OVER WATER MAIN, THEN SEWER SHALL BE PRESSURE PIPE, WHERE INDICATED ON DRAWINGS. PROVIDE 12" SEPARATION AT ALL DRAIN/WATER CROSSINGS UNLESS DIRECTED OTHERWISE.

WATER MAIN CROSSING DETAIL (SEWER MAIN LINE CROSSING)

NOT TO SCALE

SEWER SERVICE LATERAL DATA SHEET

Job Title: _____
 Owner: _____
 Contractor: _____
 Street: _____

Lateral to Serve: _____
 STA: _____ Length: _____
 Size: _____ Material: _____
 (LF) from down/up stream manhole # _____

1. Connection to Main Sewer: Wye _____ Chimney _____ (VF) Other _____
 Sewer Main: _____

2. General Comments: _____

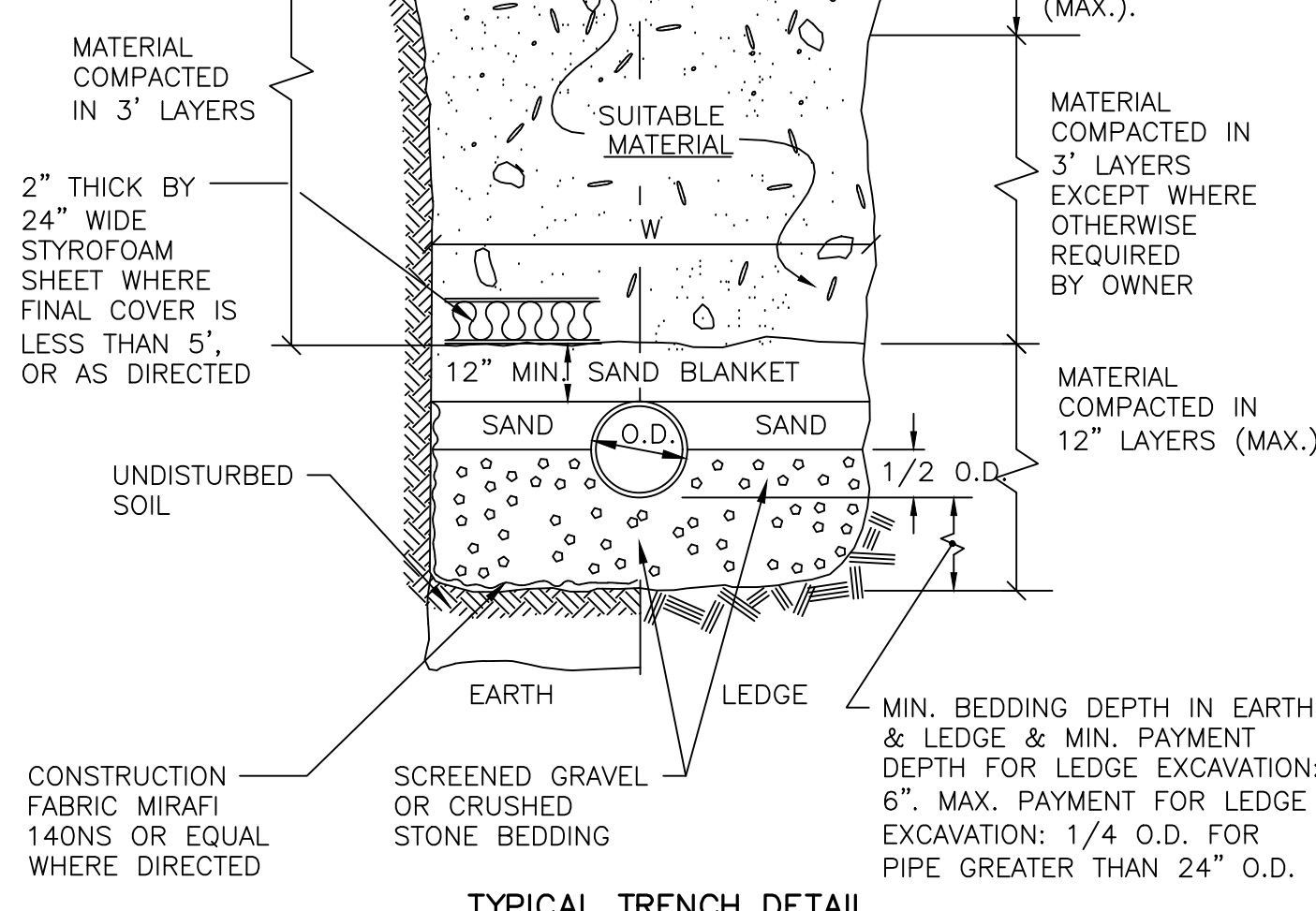
3. Sketch (Location End and Depth Lateral)

Photo: _____

CHECKS AND APPROVED: _____
 Owner's Representative _____
 Contractor's Representative _____

SEWER SERVICE LATERAL TIE SHEET

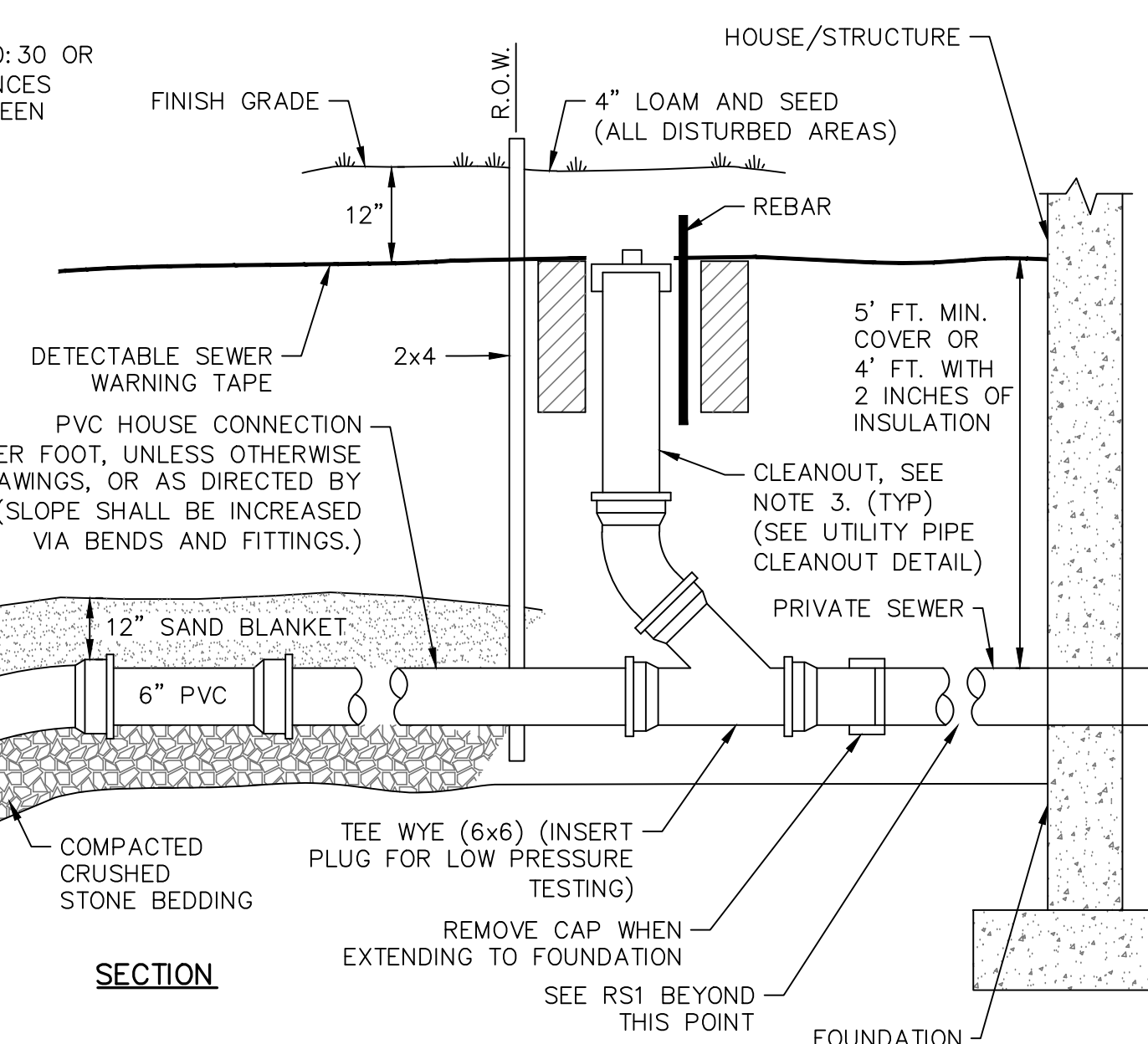
NOT TO SCALE



- NOTES:**
- ALL GRAVITY SEWERS SHALL HAVE DETECTABLE UNDERGROUND UTILITY MARKING TAPE AND TRACER WIRE IN ACCORDANCE WITH DISTRICT STANDARDS.
 - ALL HDPE SEWER PIPE SHALL BE MARKED WITH A GREEN STRIPE.

STANDARD TRENCH SECTION FOR UTILITY PIPES

NOT TO SCALE



SEWER DETAILS 1

ADOPTED By _____ Date _____

REVISION By _____ Date _____

APPROVED By _____ Date _____

DESIGNED By _____ Date _____

CHECKED By _____ Date _____

DATE: JULY 2021

SCARBOROUGH SANITARY DISTRICT

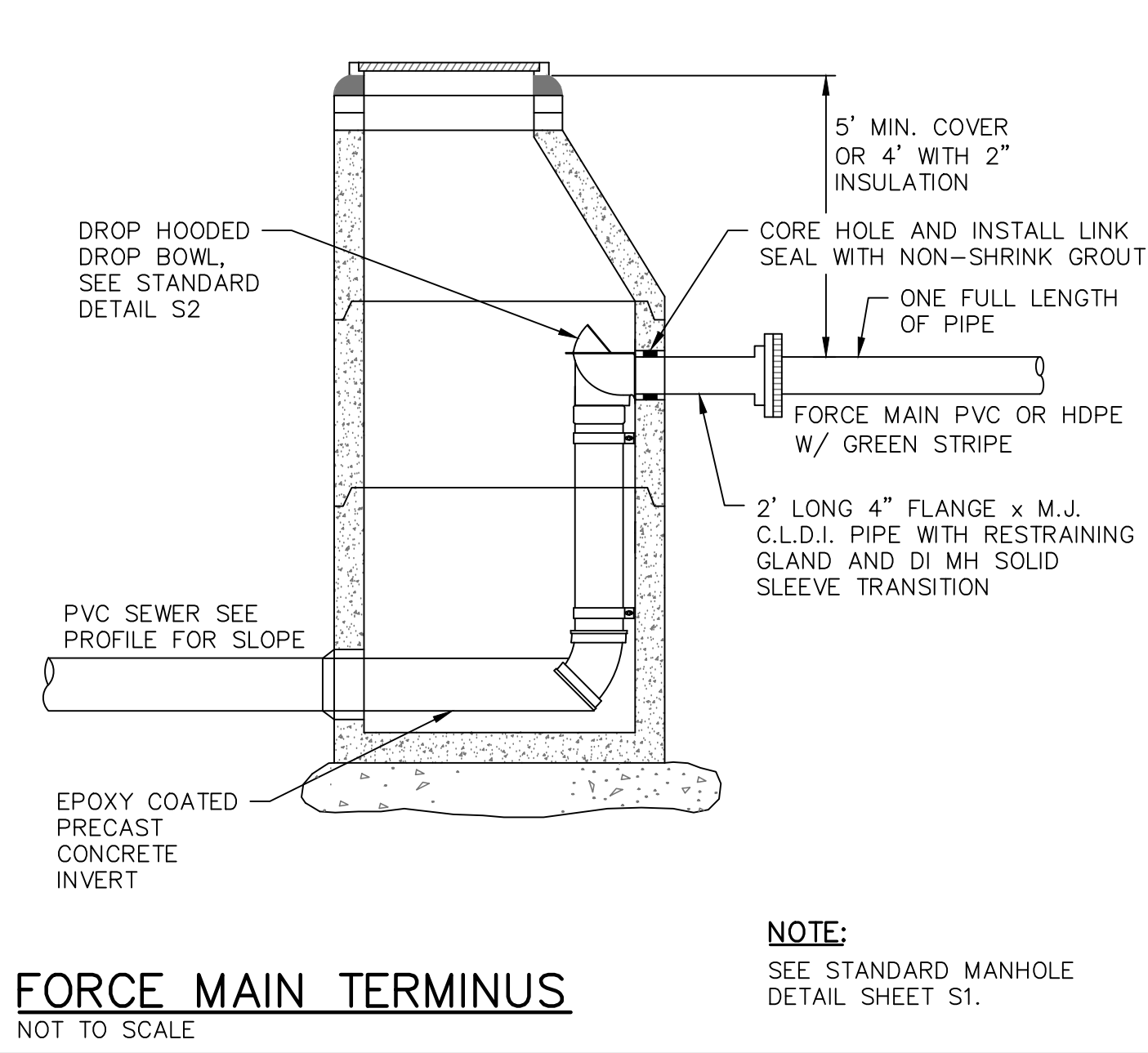
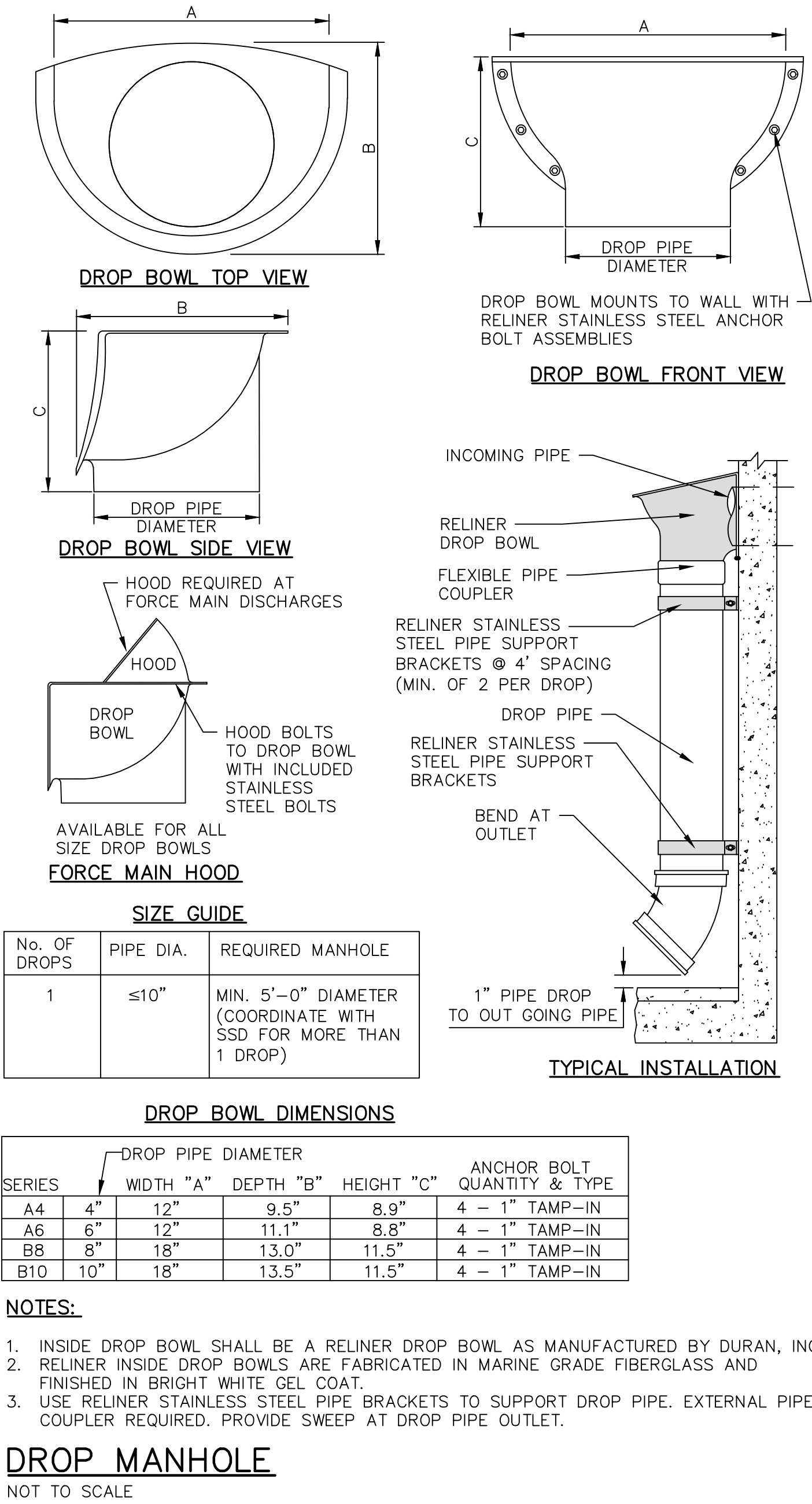
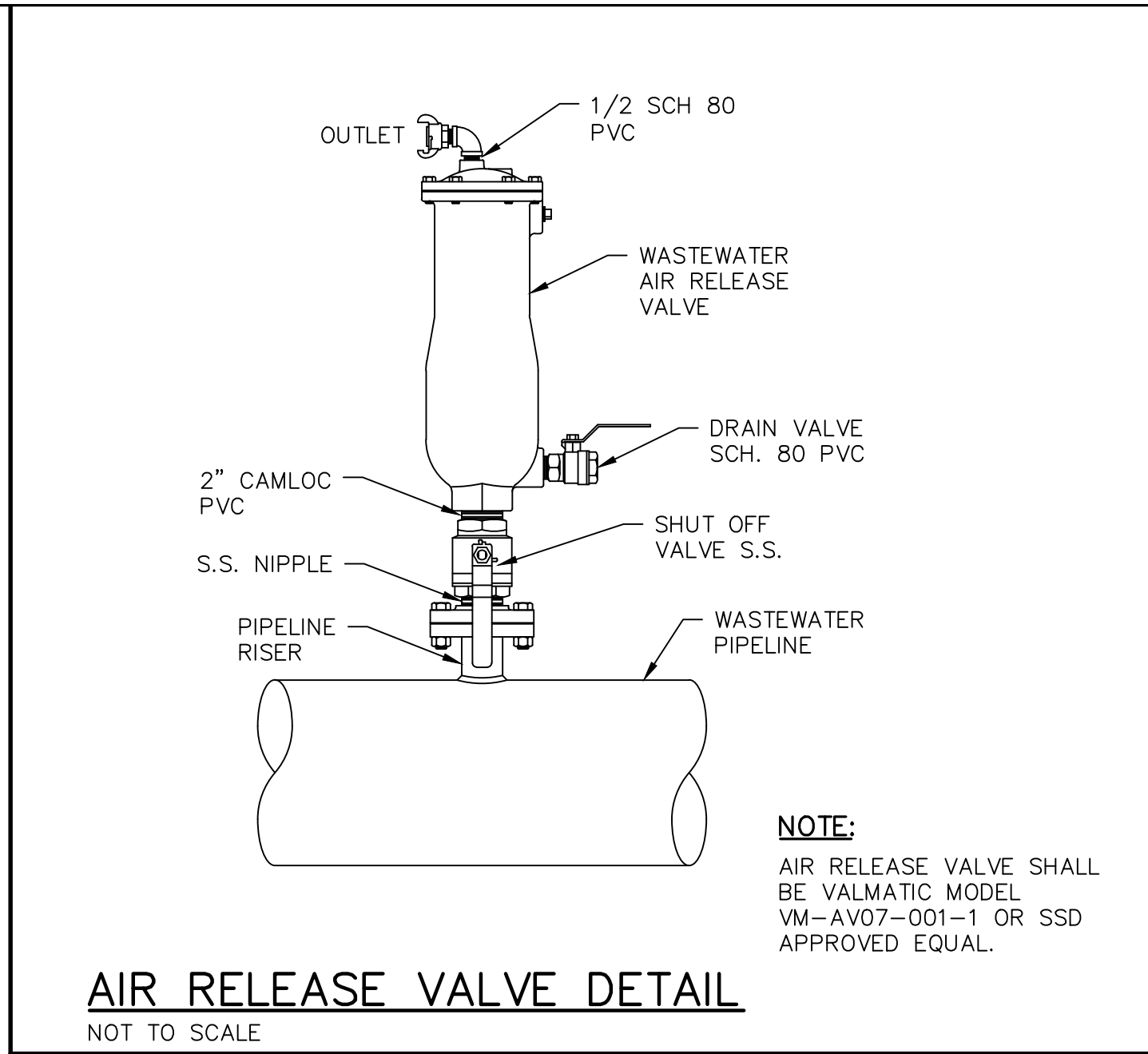
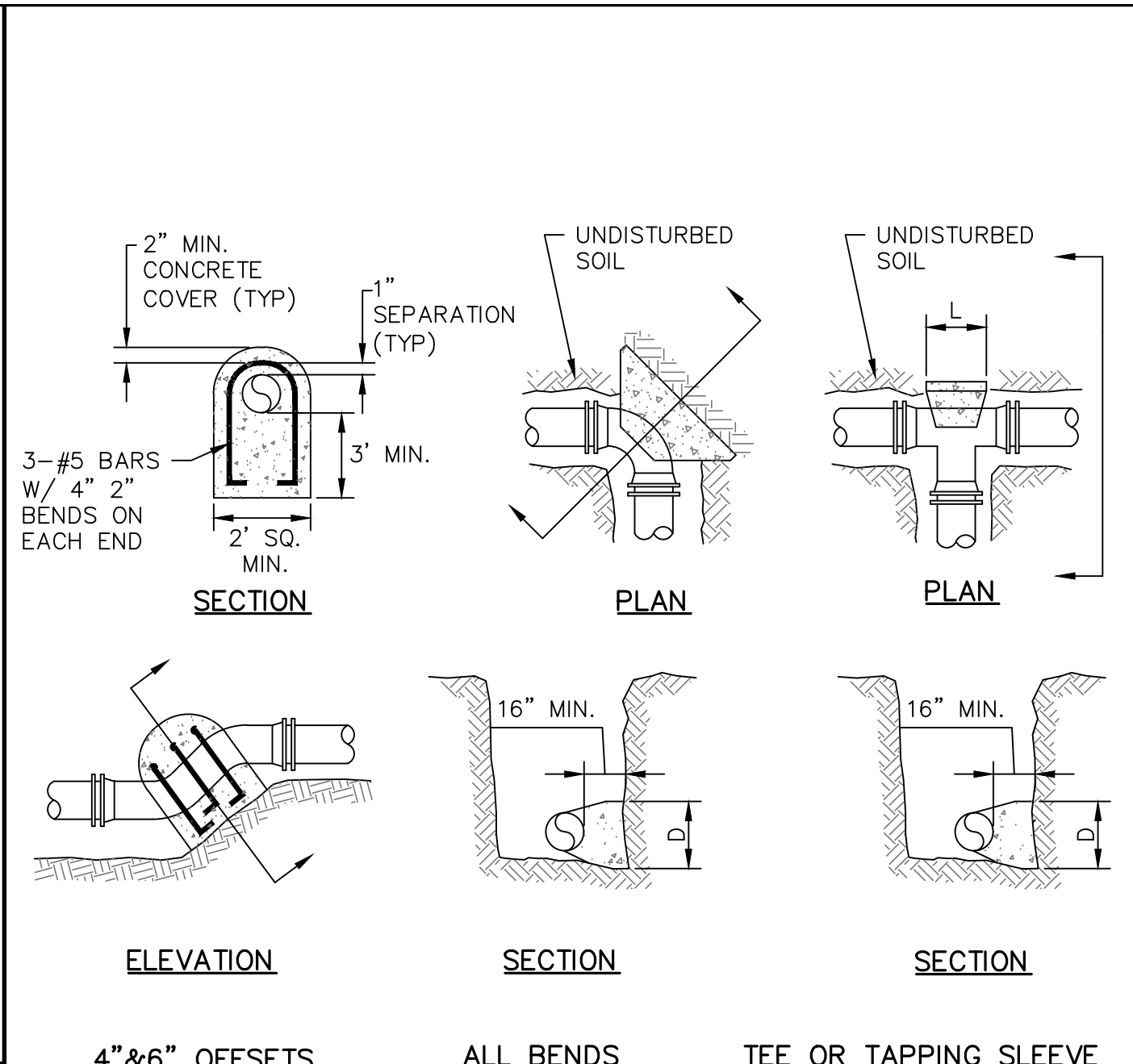
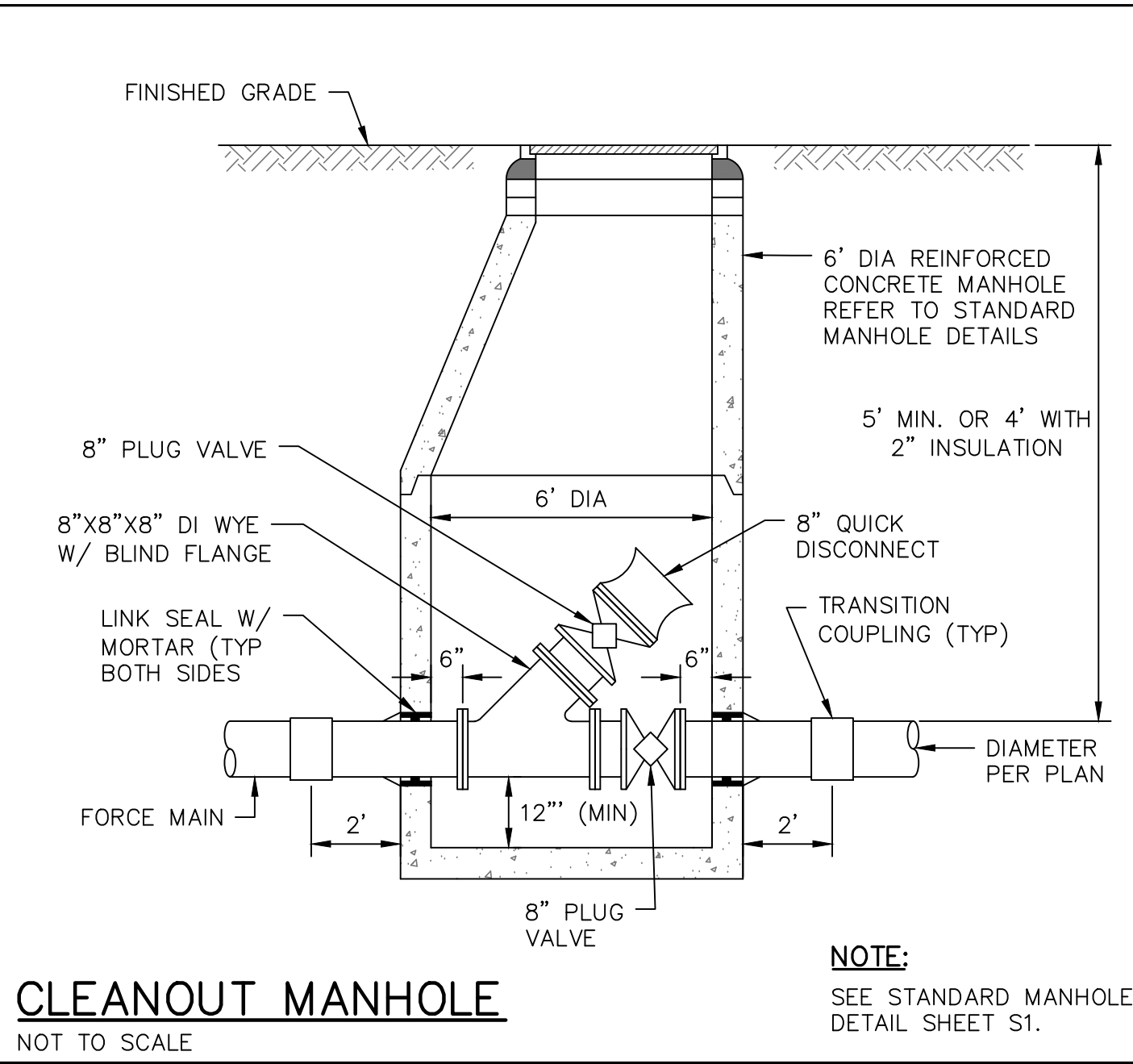
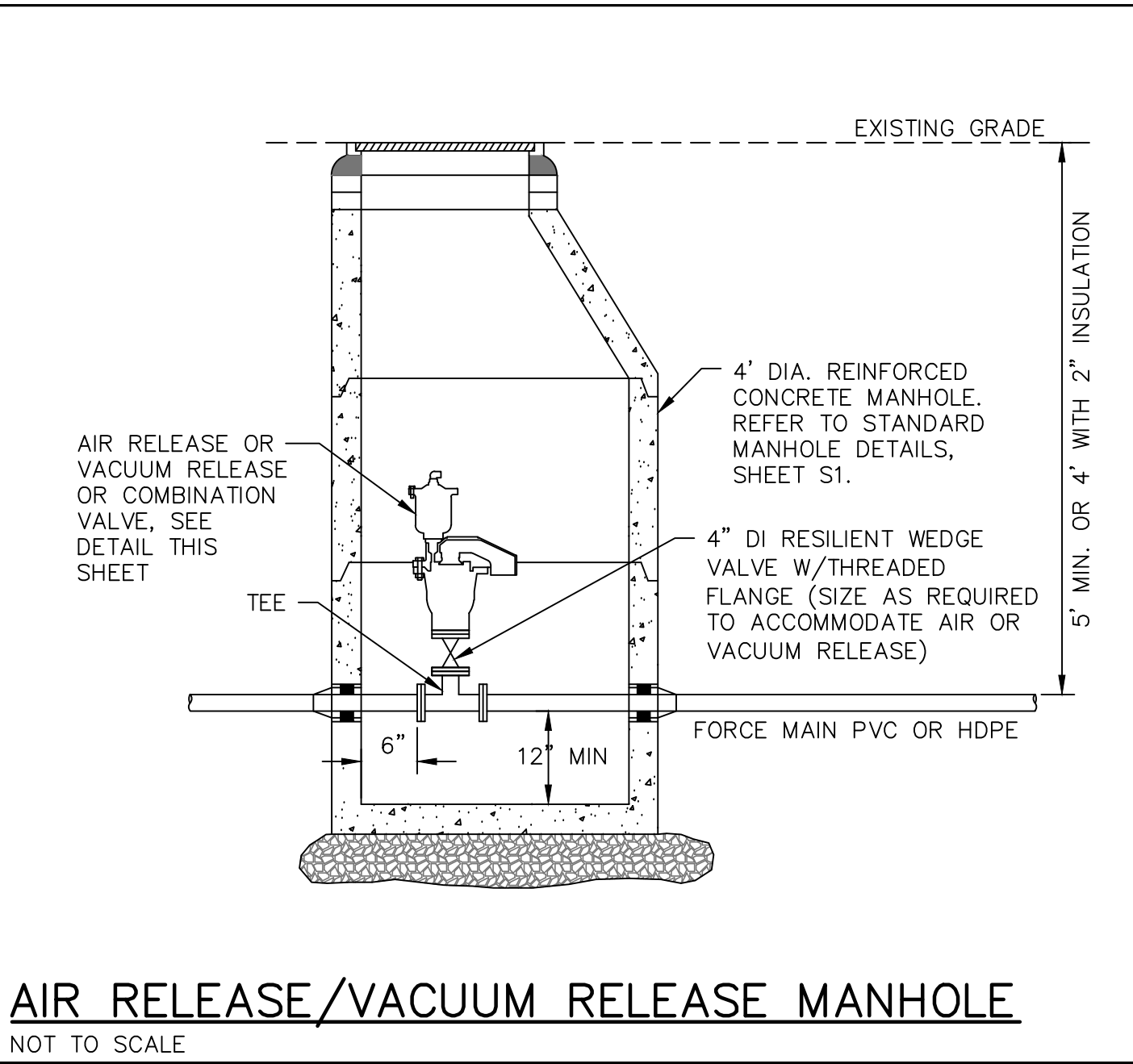
SEWER STANDARDS

SCARBOROUGH SANITARY DISTRICT

415 BLACK PNT RD, SCARBOROUGH, ME 04074

S1

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THRUST BLOCK SCHEDULE
MINIMUM BEARING AREA (SQUARE FEET)

Nominal Dia. (in)	PIPE SIZE							
	4	6	8	10	12	16	20	24
Tees, Caps, Plugs, & Tapping Sleeves	1.05	2.32	4.15	6.37	9.15	16.23	25.44	36.58
90 Degree Bends	1.48	3.29	5.86	9.01	12.93	22.96	35.97	51.73
45 Degree Bends	0.80	1.78	3.17	4.88	7.00	12.42	19.47	28.00
22½ Degree Bends	0.41	0.91	1.62	2.49	3.57	6.33	9.92	14.27
11¼ Degree Bends	0.21	0.46	0.81	1.25	1.79	3.18	4.99	7.17

System Pressure: 100 psi
Safety Factor: 1.5
Soil Bearing Capacity: 2,000 psf

- THRUST BLOCK NOTES:**
- THE MINIMUM BEARING AREAS SHOWN ABOVE ARE BASED ON A SYSTEM PRESSURE OF 100 psi. IF THE SYSTEM PRESSURE IS ABOVE 100 psi, INCREASE THE NOTED AREAS PROPORTIONAL TO THE ACTUAL SYSTEM PRESSURE. FOR EXAMPLE, IF THE ACTUAL SYSTEM PRESSURE IS 160 psi, MULTIPLY THE ABOVE VALUES BY 160%.
 - PLACE THRUST BLOCKS SUCH THAT THE LENGTH (L) OF THE BLOCK IS APPROX. TWICE AS LONG AS THE DEPTH (D).
 - PLACE THRUST BLOCKS AGAINST UNDISTURBED SOIL.
 - PLACE THRUST BLOCKS ALONG THE FULL LENGTH OF THE FITTING TO MAXIMIZE BEARING AREA.
 - PLACE 2 LAYERS OF POLYETHYLENE OR ROOFING PAPER AROUND FITTINGS PRIOR TO PLACEMENT OF THE CONCRETE TO CREATE A BOND BREAK & PROTECT THE BOLTS.
 - PLACE A SOLID CONCRETE BLOCK BETWEEN CAP/PLUGS AND THRUST BLOCKS.
 - PLACE A 12" LONG STEEL HORSESHOE-SHAPED PICKUP HOOK IN ALL PLUG AND CAP THRUST BLOCKS. DIAMETER OF HOOK SHALL BE A MINIMUM OF 5/8".
 - USE OF THRUST BLOCKS DOES NOT ELIMINATE THE REQUIREMENT OF RETAINER GLANDS.
 - THRUST BLOCKS ARE REQUIRED ON ALL FITTINGS.
 - COAT ALL THREADED RODS, NUTS, AND BOLTS WITH BITUMINOUS PAINT.
 - ALL THRUST BLOCKS SHALL BE CAST-IN-PLACE CONCRETE UNLESS NOTED OTHERWISE.
- TYPICAL THRUST BLOCK DETAILS**
NOT TO SCALE

SEWER DETAILS 2

SEWER STANDARDS
SCARBOROUGH SANITARY DISTRICT
415 BLACK PNT RD, SCARBOROUGH, ME 04074

S2

ADOPTED By _____ Date _____
REVISION By _____ Date _____
APPD _____
REVISIONS _____
NO. _____

Drawn/Chk _____
Designed _____
Checked _____
Approved _____
Date _____ JULY 2021

GENERAL NOTES:

1. CONTRACTOR IS REQUIRED TO CONDUCT TESTING IN ACCORDANCE WITH THESE REQUIREMENTS.
2. OBTAIN TESTING FORMS FROM THE SCARBOROUGH SANITARY DISTRICT.
3. SEE STANDARD NOTES ON SHEET S1.

MANHOLE TESTING:

1. PERFORM EITHER A VACUUM TEST OR A COMBINATION OF THE EXFILTRATION AND INFILTRATION TESTS ON ALL MANHOLES.
2. ALL TESTING MUST BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
3. SUITABLY PLUG ALL PIPES ENTERING EACH MANHOLE AND BRACE PLUGS TO PREVENT BLOW OUT.

VACUUM TESTING:

1. THE MANHOLE SHALL BE TESTED BY A VACUUM TEST AFTER ASSEMBLY OF THE MANHOLE, CONNECTION PIPING AND BACKFILLING. VACUUM TESTING TO BE CONDUCTED PRIOR TO CONSTRUCTION OF INVERT CHANNELS.
2. PLUG ALL LIFTING HOLES COMPLETELY WITH NON-SHRINK GROUT.
3. PROPERLY TIGHTEN ALL BOOT CLAMPS AND BRACE ALL PLUGS TO PREVENT THEM FROM BEING SUCKED INTO THE MANHOLE.
4. INSTALL THE TESTING EQUIPMENT ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
5. A VACUUM OF 10 INCHES OF HG SHALL BE DRAWN ON THE MANHOLE AND THE LOSS OF 1 INCH OF HG VACUUM TIMED. THE MANHOLE SHALL BE CONSIDERED TO HAVE PASSED THE TEST IF THE TIME FOR THE LOSS OF 1 INCH OF HG VACUUM IS:
 - A. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10--FEET DEEP.
 - B. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15--FEET DEEP.
 - C. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15--FEET DEEP.
6. IF THE MANHOLE FAILS THE INITIAL TEST, THE CONTRACTOR SHALL LOCATE THE LEAK(S) AND MAKE REPAIRS. THE MANHOLE SHALL BE RETESTED UNTIL A SATISFACTORY TEST RESULT IS OBTAINED.

MANHOLE REPAIRS:

1. CORRECT LEAKAGE BY RECONSTRUCTION, REPLACEMENT OF GASKETS AND/OR OTHER METHODS AS APPROVED BY THE ENGINEER.
2. THE USE OF LEAD-WOOL OR EXPANDING MORTAR WILL NOT BE PERMITTED.
3. AFTER THE MANHOLES HAVE BEEN BACKFILLED AND PRIOR TO FINAL ACCEPTANCE, ANY SIGNS OF LEAKS OR WEEPING VISIBLE INSIDE THE MANHOLES SHALL BE REPAIRED AND THE MANHOLE MADE WATERTIGHT.

SEWER MANHOLE TEST FORM

Date: _____
 Project Name: _____

SMH # _____ Manhole Height to Top of Cone _____ feet

A. **Vacuum Test** Date _____

Manholes 0' - 10'	2 Minutes
Manholes 10' - 15'	2.5 Minutes
Manholes 15' - 25'	3 Minutes

Inches Hg Start _____ Inches Hg Stop _____
 Time _____ minutes Inches Hg Stop _____

Passed _____ Failed _____ (Sign)

B. **Retest** Date _____

Type of Failure & Repairs Made: _____

Passed _____ Failed _____ (Sign)

Comments: _____

MANHOLE TESTING

FORCE MAIN (PRESSURE TEST):

1. PERFORM HYDROSTATIC PRESSURE AND LEAKAGE TESTING IN ACCORDANCE WITH SECTION 5 OF AWWA STANDARD C600, LATEST EDITION. TEST PRESSURE FOR THE COMBINED PRESSURE AND LEAKAGE TEST SHALL BE 150 PSI OR 150% OF THE NORMAL OPERATING PRESSURE, WHICHEVER IS GREATER.
2. THE SECTION OF PIPE TO BE TESTED SHALL BE FILLED WITH WATER OF APPROVED QUALITY, AND ALL AIR SHALL BE EXPELLED FROM THE PIPE. IF BLOWOFFS ARE NOT AVAILABLE AT HIGH POINTS FOR RELEASING AIR THE CONTRACTOR SHALL MAKE THE NECESSARY EXCAVATIONS, BACKFILLING AND TAPS AT SUCH POINTS AND SHALL PLUG SAID HOLES AFTER COMPLETION OF THE TEST.
3. THE SECTION UNDER TEST SHALL BE MAINTAINED FULL OF WATER FOR A PERIOD OF 24 HOURS PRIOR TO THE COMBINED PRESSURE AND LEAKAGE TEST BEING APPLIED. PERFORM A PRESSURE TEST FOR ALL OTHER PIPING SYSTEMS AT 1 1/2 TIMES MAXIMUM SYSTEM PRESSURE, OR AT THE MAXIMUM WORKING PRESSURE OF THE PIPING SYSTEM, OR AT A PRESSURE INDICATED IN THE APPROPRIATE SECTIONS OF THIS SPECIFICATION.
4. WHILE MAINTAINING THIS PRESSURE, THE CONTRACTOR SHALL MAKE A LEAKAGE TEST BY METERING THE FLOW OF WATER INTO THE PIPE. IF THE AVERAGE LEAKAGE DURING A TWO-HOUR PERIOD ON BURIED PIPELINES EXCEEDS A RATE OF 10 GALLONS PER INCH OF DIAMETER PER 24 HOURS PER MILE OF PIPELINE THE SECTION SHALL BE CONSIDERED AS HAVING FAILED THE TEST. ALL JOINTS WITHIN STRUCTURES AND CHAMBERS AND ALL FLANGED JOINTS SHALL BE NO VISIBLE LEAKAGE.
5. IF THE SECTION FAILS TO PASS THE PRESSURE AND LEAKAGE TEST, THE CONTRACTOR SHALL DO EVERYTHING NECESSARY TO LOCATE, UNCOVER, AND REPAIR OR REPLACE THE DEFECTIVE PIPE, FITTING, OR JOINT, ALL AT HIS OWN EXPENSE AND WITHOUT EXTENSION OF TIME FOR COMPLETION OF THE WORK. ADDITIONAL TESTS AND REPAIRS SHALL BE MADE UNTIL THE SECTION PASSES THE SPECIFIED TEST.
6. TESTS SHALL BE HYDROSTATIC.

FORCE MAIN TESTING

ADOPTED		By		REVISION		By		APPD
	Date		Date		Date		Date	
							REVISED FORCE MAIN PRESSURE TEST NOTE 1	
							REVISIONS	
△	△	△	△	△	△	△	NO.	NO.
Drawn/Chk	Designed	Checked	Approved	Date	JULY 2021	NO.	NO.	NO.
MANHOLE AND SEWER TESTING 1 SEWER STANDARDS SCARBOROUGH SANITARY DISTRICT 415 BLACK PNT RD, SCARBOROUGH, ME 04074								
S3								

GRAVITY SEWER TESTING:

A. GENERAL:

1. THOROUGHLY CLEAN AND/OR FLUSH ALL SEWER LINES TO BE TESTED, IN A MANNER AND TO THE EXTENT ACCEPTABLE TO THE ENGINEER, PRIOR TO INITIATING TEST PROCEDURES.
2. PERFORM ALL TESTS AND INSPECTIONS ONLY UNDER THE DIRECT OBSERVATION OF THE ENGINEER AND THE PLUMBING OR BUILDING INSPECTOR AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AND STATE PLUMBING CODES.
3. PRIOR TO CONSTRUCTION, INFORM THE ENGINEER OF THE PLANNED SEWER TESTING PATTERN. TEST PATTERNS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
4. REMEDIAL WORK:
 - A. PERFORM ALL WORK NECESSARY TO CORRECT DEFICIENCIES DISCOVERED AS A RESULT OF TESTING AND/OR INSPECTIONS.
 - B. COMPLETELY RETEST ALL PORTIONS OF THE ORIGINAL CONSTRUCTION ON WHICH REMEDIAL WORK HAS BEEN PERFORMED.
 - C. PERFORM ALL REMEDIAL WORK AND RETESTING IN A MANNER AND AT A TIME APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

B. LINE ACCEPTANCE TESTS (GRAVITY SEWERS WITH NO ACTIVE SERVICE CONNECTIONS):

1. TEST ALL GRAVITY SEWER LINES FOR LEAKAGE BY CONDUCTING A LOW PRESSURE AIR TEST CONFORMING TO ASTM F1417 OR UNI-B-6. CONDUCT ALL TESTS AFTER THE TEES OR SADDLES AND SERVICE CONNECTIONS HAVE BEEN INSTALLED TO THE LIMIT INDICATED ON THE CONTRACT DRAWINGS. CONDUCT ALL TESTS AFTER BACKFILLING THE SEWER LINE TRENCHES.
2. EQUIPMENT:
 - A. PNEUMATIC PLUGS SHALL HAVE A SEALING LENGTH EQUAL TO OR GREATER THAN THE DIAMETER OF THE PIPE TO BE INSPECTED.
 - B. PNEUMATIC PLUGS SHALL RESIST INTERNAL TEST PRESSURES WITHOUT REQUIRING EXTERNAL BRACING OR BLOCKING.
 - C. ALL AIR USED SHALL PASS THROUGH A SINGLE CENTRAL PANEL
 - D. CONNECT 3 INDIVIDUAL HOSES:
 - (1) FROM THE CONTROL PANEL TO THE PNEUMATIC PLUGS FOR INFLATION,
 - (2) FROM THE CONTROL PANEL TO THE SEALED SEWER LINE FOR INTRODUCING THE LOW PRESSURE AIR.
 - (3) FROM THE SEALED SEWER LINE TO THE CONTROL PANEL FOR CONTINUALLY MONITORING THE AIR PRESSURE RISE IN THE SEALED LINE.

3. GROUNDWATER CONDITIONS:

- A. IN AREAS WHERE GROUNDWATER EXISTS, AND AT THE TIME OF INSTALLING THE SEWER LINE, INSTALL A 1/2 INCH DIAMETER CAPPED PIPE NIPPLE, APPROXIMATELY 10 INCHES LONG, THROUGH THE MANHOLE WALL ON TOP OF ONE OF THE SEWER LINES ENTERING THE MANHOLE.
- B. IMMEDIATELY PRIOR TO PERFORMING THE LINE ACCEPTANCE TEST, DETERMINE THE HEIGHT OF GROUNDWATER BY REMOVING THE GROUNDWATER TEST PIPE CAP, BLOWING AIR THROUGH THE PIPE NIPPLE INTO THE GROUND TO CLEAR IT, AND THEN CONNECTING A CLEAR PLASTIC TUBE TO THE NIPPLE.
- C. HOLD THE TUBE VERTICALLY AND MEASURE THE HEIGHT IN FEET. DIVIDE THIS HEIGHT BY 2.3 TO ESTABLISH THE POUNDS OF GROUNDWATER PRESSURE TO BE ADDED TO THE AIR PRESSURE TEST READINGS. (EXAMPLE: HEIGHT OF WATER IS 11 1/2 FEET, ADDED GROUNDWATER PRESSURE IS 5 PSIG, MINIMUM AIR PRESSURE IS 3.5 PSIG; THEREFORE, THE TOTAL MINIMUM ACCEPTABLE PRESSURE IS 8.5 PSIG.)

4. TESTING PNEUMATIC PLUGS:

- A. SEAL TEST ALL PNEUMATIC PLUGS PRIOR TO USING THEM IN THE ACTUAL TEST.
- B. LAY ONE LENGTH OF PIPE ON THE GROUND AND SEAL BOTH ENDS WITH THE PNEUMATIC PLUGS TO THE TESTED.
- C. PRESSURIZE THE SEALED PIPE TO 5 PSIG.
- D. THE PNEUMATIC PLUGS ARE ACCEPTABLE IF THEY REMAIN IN PLACE WITHOUT BRACING.

5. TESTING SEWER PIPELINE:

- A. AFTER THE SEWER PIPE HAS BEEN CLEANED AND THE PNEUMATIC PLUGS CHECKED, PLACE THE PLUGS IN THE SEWER LINE AT EACH MANHOLE AND INFLATE THEM.
- B. INTRODUCE LOW PRESSURE AIR INTO THE SEALED SEWER PIPELINE UNTIL THE AIR PRESSURE REACHES 4 PSIG GREATER THAN THE AVERAGE GROUNDWATER PRESSURE.
- C. ALLOW A MINIMUM OF 2 MINUTES FOR THE AIR PRESSURE TO STABILIZE TO A MINIMUM OF 3.5 PSIG GREATER THAN THE GROUNDWATER PRESSURE. GROUNDWATER IS ASSUMED TO BE AT GROUND SURFACE UNLESS THE CONTRACTOR CAN PROVE BY OTHERWISE BY TEST PITTING.
- D. AFTER THE STABILIZATION PERIOD, DISCONNECT THE AIR HOSE FROM THE CONTROL PANEL TO THE AIR SUPPLY.
- E. THE PIPELINE WILL BE ACCEPTABLE IF THE PRESSURE DECREASE IS NOT GREATER THAN 1/2 PSIG IN THE TIME STATED IN THE FOLLOWING TABLE.

PIPE DIAMETER (INCHES)	MINIMUM TIME (MIN/SEC)	LENGTH FOR MINIMUM TIME	TIME FOR LONGER LENGTHS
4	1:53	597	0.190L
6	2:50	398	0.427L
8	3:47	298	0.760L
10	4:43	239	1.187L
12	5:50	199	1.709L
15	7:05	156	2.671L
18	8:30	133	3.846L
21	9:55	114	5.235L
24	11:20	99	6.837L
27	12:45	88	8.653L
30	14:10	80	10.683L
33	15:35	72	12.926L
36	17:00	66	15.384L

*APPLIES TO PIPE RUNS GREATER THAN THOSE LISTED IN COLUMN 3.
L = ACTUAL LENGTH OF PIPE BEING TESTED.

6. TEST RESULTS

- A. IF THE INSTALLATION FAILS THE LOW PRESSURE AIR TEST, DETERMINE THE SOURCE OF LEAKAGE.
- B. REPLACE ALL DEFECTIVE MATERIALS AND/OR WORKMANSHIP AND REPEAT LOW PRESSURE TEST AT NO ADDITIONAL COST TO THE OWNER.
- C. REPAIRS SHALL ONLY BE MADE WITH PRIOR APPROVAL OF THE ENGINEER IN ACCORDANCE WITH A METHOD ACCEPTABLE TO THE ENGINEER.

C. LINE ACCEPTANCE TESTS (GRAVITY SEWERS WITH ACTIVE SERVICES):

1. TEST ALL NEW GRAVITY SEWER LINES WITH ACTIVE SERVICES BY CONDUCTING A LOW-PRESSURE AIR TEST ON ALL JOINTS USING A PACKER AFTER ALL SERVICES HAVE BEEN CONNECTED OR CAPPED AT THE PROPERTY LINE AND ALL TRENCHES BACKFILLED BUT BEFORE THE SURFACE COURSE OF PERMANENT PAVEMENT IS INSTALLED.

2. EQUIPMENT:

- A. CLOSED-CIRCUIT TELEVISION SYSTEM.
- B. TESTING DEVICES.
 - CAPABLE OF ISOLATING INDIVIDUAL JOINTS BY CREATING A SEALED VOID SPACE AROUND THE JOINT BEING TESTED.
 - CONSTRUCTED SUCH THAT LOW PRESSURE AIR CAN BE ADMITTED INTO THE VOID AREA.
 - SHALL CONTAIN A PRESSURE GAUGE ACCURATE TO ONE TENTH (0.1) PSI IN-LINE WITH THE FEED LINE TO MONITOR THE VOID PRESSURE.
 - CAPABLE OF PERFORMING IN SEWER LINES WHERE FLOWS DO NOT EXCEED 1/4 OF THE PIPE DIAMETER WITHOUT RESORTING TO ANY METHOD OF FLOW CONTROL.

3. TESTING SEWER PIPELINE JOINTS:

- A. TEST ALL JOINTS EXCEPT THOSE WITH VISIBLE INFILTRATION.
- B. PROCEDURE
 - (1) PULL TELEVISION CAMERA THROUGH SEWER LINE IN FRONT OF THE PACKER.
 - (2) POSITION THE PACKER ON EACH JOINT TO BE TESTED.
 - (3) INFLATE THE SLEEVES ON EACH END OF THE PACKER.
 - (4) APPLY FOUR (4.0) PSI PRESSURE ABOVE THE EXISTING HYDROSTATIC PRESSURE ON THE OUTSIDE OF THE JOINT TO THE VOID AREA CREATED AROUND THE INSIDE PERIMETER OF THE JOINT.
 - (5) SHUT OFF THE SUPPLY OF AIR ONCE THE PRESSURE HAS STABILIZED AT THE REQUIRED AMOUNT.
 - (6) MONITOR THE VOID PRESSURE FOR THIRTY (30) SECONDS
 - (7) REPAIR THE JOINT IF THE PRESSURE DROPS MORE THAN ONE HALF (1/2) PSI IN THE THIRTY (30) SECONDS.
- C. WATER OR CHEMICAL PRESSURE TESTING MAY BE USED IN LIEU OF AIR TESTING IF REVIEWED AND ACCEPTED BY THE ENGINEER.
- D. RE-CLEAN AND RE-INSPECT ALL LINES NOT APPROVED BY THE ENGINEER.
- E. REPAIRING JOINTS
 - (1) WHEN A JOINT FAILS THE PRESSURE TEST, EXCAVATE AND REPAIR THE FAILED JOINT. REPAIRING JOINTS WITH CHEMICAL GROUT WILL NOT BE PERMITTED.
- F. THE ENGINEER MAY REQUEST CHECKING OF THE TESTING EQUIPMENT FOR ACCURACY.
 - (1) PERFORM STANDARD AIR TEST ON A CLEAN CONTINUOUS SECTION OF PIPE.
 - (2) REPAIR THE EQUIPMENT IF THE VOID PRESSURE DROPS.
- G. TESTING OPERATION INSPECTION
 - (1) RESET EACH JOINT, AS SPECIFIED HEREIN, PRIOR TO ACCEPTANCE AND FINAL PAYMENT FOR JOINT TESTING. RETEST ALL JOINTS THAT FAIL UNTIL THE TEST REQUIREMENTS ARE MET.
- H. THE CONTRACTOR SHALL SUPPLY A BLACK AND WHITE PHOTOGRAPH OF EVERY JOINT THAT FAILS THE PRESSURE TEST.

TELEVISION INSPECTION REPORT AND VIDEO

1. TELEVISION INSPECTION OF THE GRAVITY SEWER SHALL BE CONDUCTED WITHIN THE ONE-YEAR WARRANTY AT A DATE AND TIME ACCEPTABLE TO THE ENGINEER, FOLLOWING THE COMPLETION OF THE SEWER INSTALLATION.
2. SEWER LINES SHALL BE CLEANED AND FLUSHED PRIOR TO TELEVISION INSPECTION.
3. NO STANDING WATER SHALL BE ALLOWED. THE PRESENCE OF STANDING WATER MAY BE CAUSE FOR REJECTION OF THAT PIPE.=
4. A WRITTEN REPORT SHALL BE PROVIDED. CONDITION OF THE SEWER SHALL BE DOCUMENTED AND A VIDEO SHALL BE PROVIDED ON A THUMB DRIVE. DOCUMENTATION SHALL INCLUDE THE FOLLOWING:
 - LENGTH OF SEWER
 - SEWER MATERIAL AND SIZE
 - DISTANCE MANHOLE TO MANHOLE
 - DISTANCE FROM MANHOLE TO LATERALS

GRAVITY SEWER TEST FORM

SMH No. _____ To SMH No. _____ Date _____

Pipe Material _____ Diameter _____

Pipe Length _____ Feet

Minimum Time Required for Test _____ Minutes
See chart below or calculate using formula for lengths greater than that specified for the minimum time.

Diameter (inches)	Minimum Time (Min)	Length for Min. Time (Feet)	Formula for Length Greater than Min.(sec)	Diameter (inches)	Minimum Time (Min)	Length for Min. Time (Feet)	Formula for Length Greater than Min.(sec)
4	1:54	597	.190L	21	9:55	114	5.235L
6	2:50	398	.427L	24	11:20	99	6.837L
8	3:47	298	.760L	27	12:45	88	8.653L
10	4:43	239	1.187L	30	14:10	80	10.683L
12	5:50	199	1.709L	33	15:35	72	12.926L
15	7:05	156	2.671L	36	17:00	66	15.384L
18	8:30	133	3.846L				

Height of Water Above Invert of Pipe _____ Feet

Minimum Test Pressure: { _____ Hgt H₂O x 0.431 + 3.5 } = _____

Passed _____ Failed _____ Inspector _____

DEFLECTION TEST

Date _____ Passed _____ Failed _____

VISUAL INSPECTION

Date _____ Passed _____ Failed _____

Comments:

ADOPTED	By	Date	REVISION	By	Date	APPD
<	<	<	<	<	<	NO.
Drawn/Chk	Designed	Checked	Approved	Date	JULY 2021	REVISIONS
MANHOLE AND SEWER TESTING 2 SEWER STANDARDS SCARBOROUGH SANITARY DISTRICT 415 BLACK PNT RD, SCARBOROUGH, ME 04074						
S4						

STANDARD MANHOLE NOTES:

1. IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH, AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (MDEP) FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H=20 LOADING) WITHOUT FAILURE, AND TO PROVIDE A WATER TIGHT SEAL CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE.

2. BARRELS AND CONE SECTIONS: SHALL BE PRECAST REINFORCED CONCRETE.

3. PRECAST CONCRETE: BARREL SECTIONS, CONES, GRADE ADJUSTMENT RING AND BASES SHALL CONFORM TO ASTM C478.

4. VACUUM TEST: SHALL BE PERFORMED IN ACCORDANCE WITH DISTRICT REQUIREMENTS.

5. INVERTS AND SHELVES: SHALL BE EPOXY COATED PRECAST CONCRETE INVERTS.

6. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN, AND PROVIDE A 24-INCH CLEAR OPENING. 3-INCH LETTERING WITH "SCARBOROUGH SANITARY DISTRICT" FOR PUBLIC SEWERS OR "SEWER" FOR PRIVATE SEWERS FOR SEWERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.

7. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.

PERCENT PASSING	SCREEN SIZE
100%	1 INCH
90 - 100%	3/4 INCH
20 - 55%	3/8 INCH
0 - 10%	#4 SIEVE
0 - 5%	#8 SIEVE

WHERE ORDERED BY THE ENGINEER, FOR STRUCTURES UNDER 6' OR TO STABILIZE THE BASE, SCREENED GRAVEL OR 1-1/2 INCH CRUSHED STONE MAY BE USED.

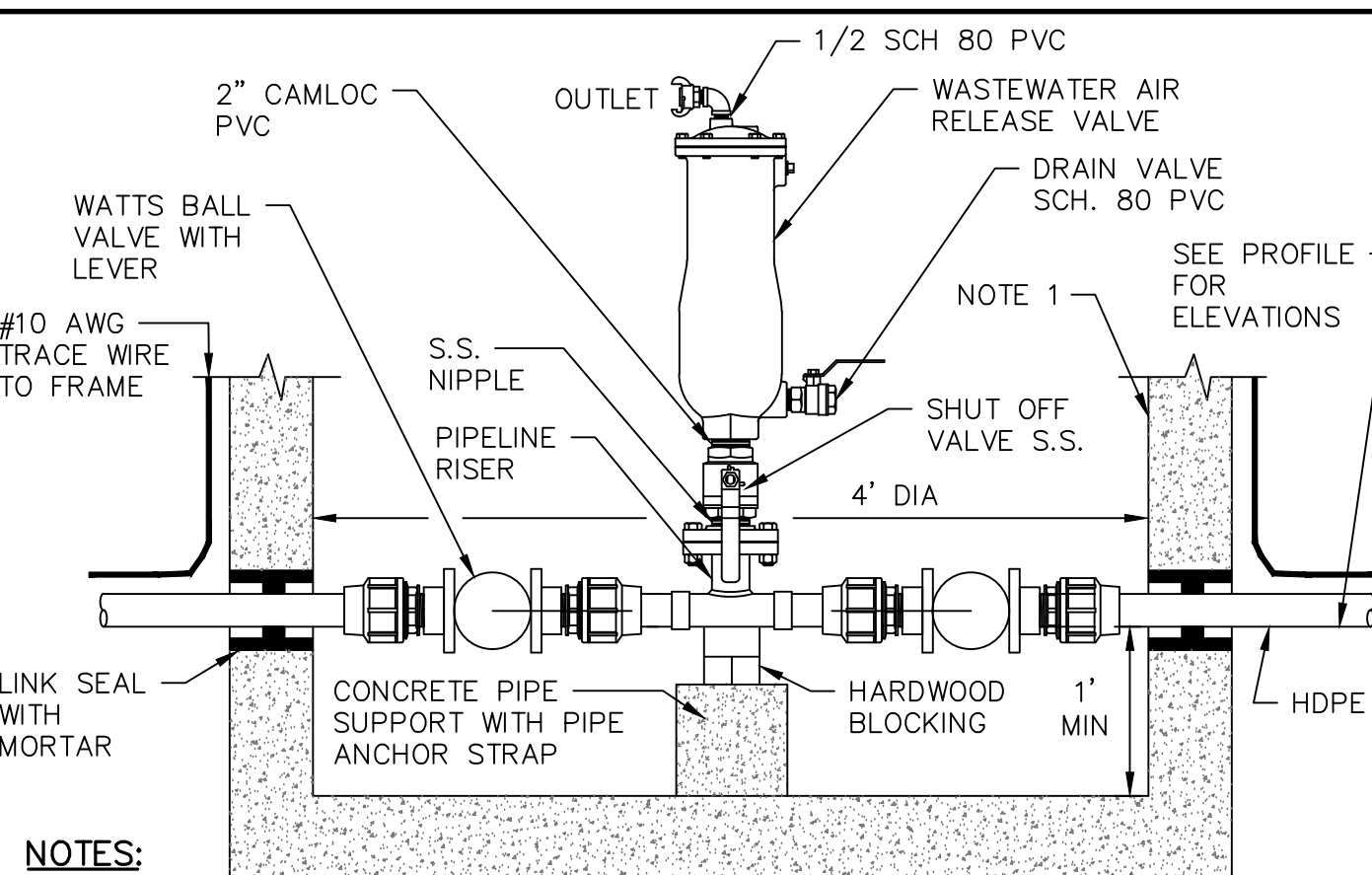
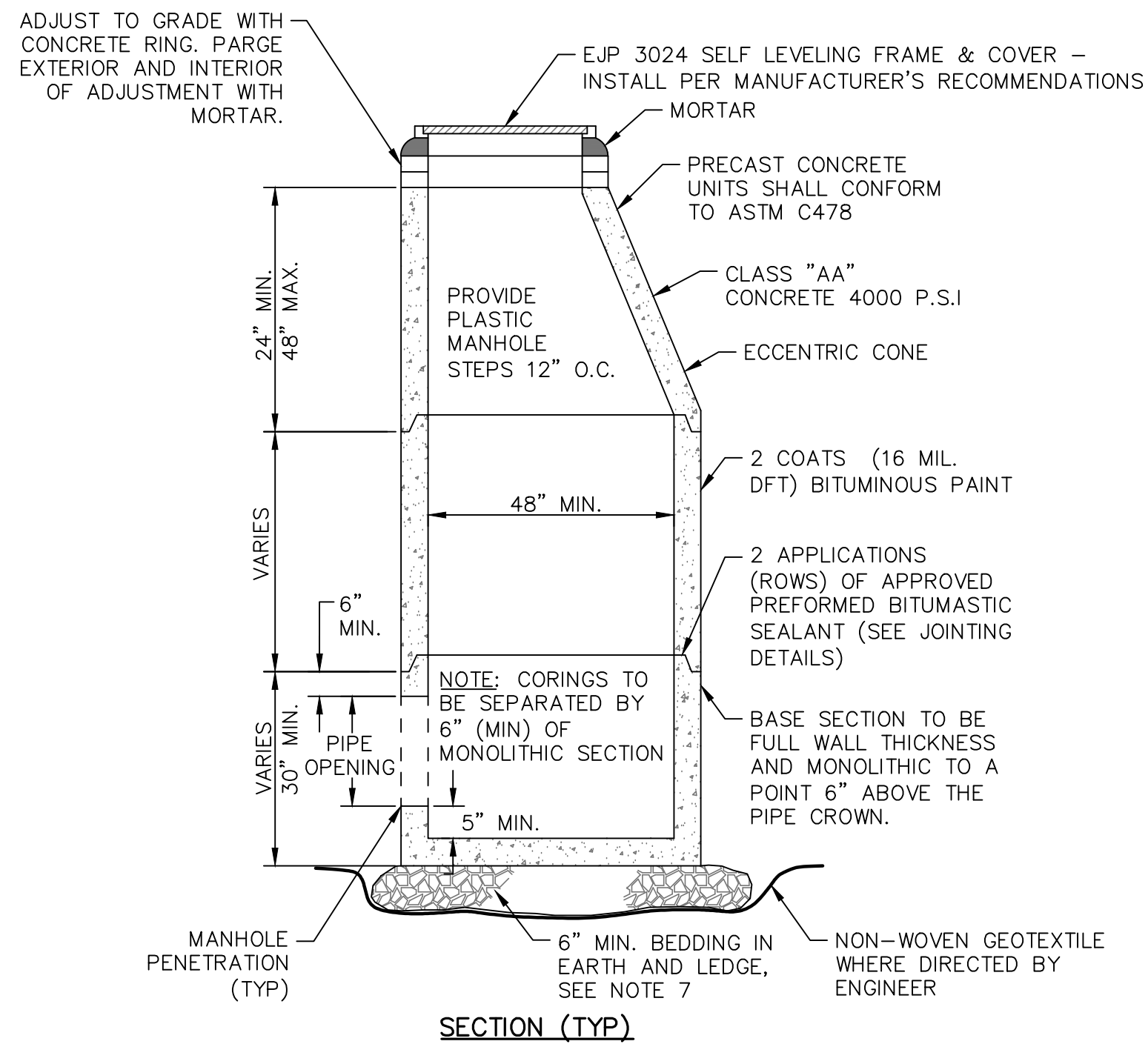
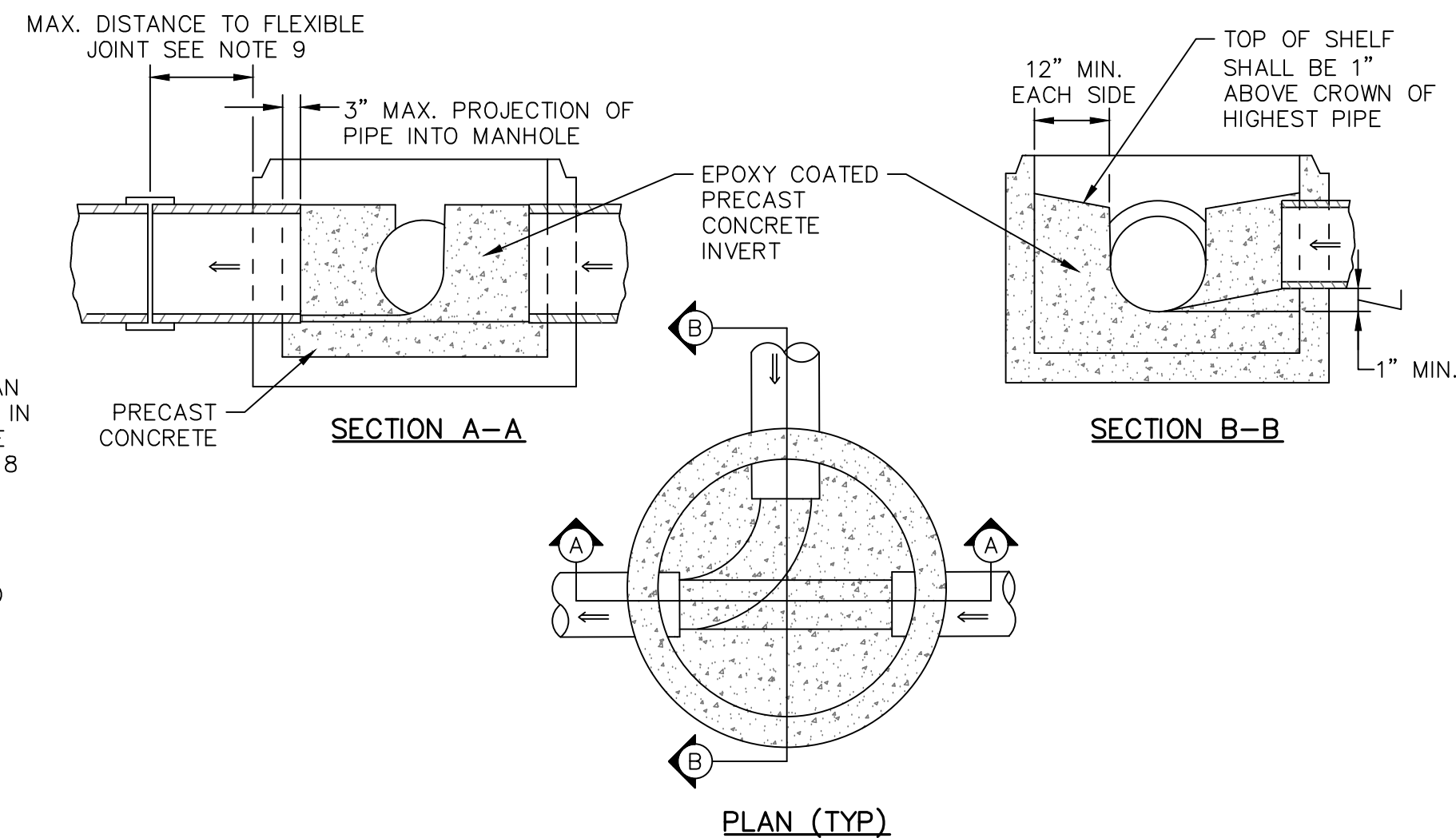
8. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H-20 LOADS MAY BE USED.

9. FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

DI PIPE - NONE REQUIRED	
PVC (ASTM 3034) - UP THROUGH 15" DIA. - NONE REQUIRED	
PVC (ASTM F679) - LARGER THAN 15" DIA. - 48" TO 60"	
RCP PIPE - 48"	
HDPE - SAME AS PVC	

STANDARD MANHOLE DETAILS

NOT TO SCALE

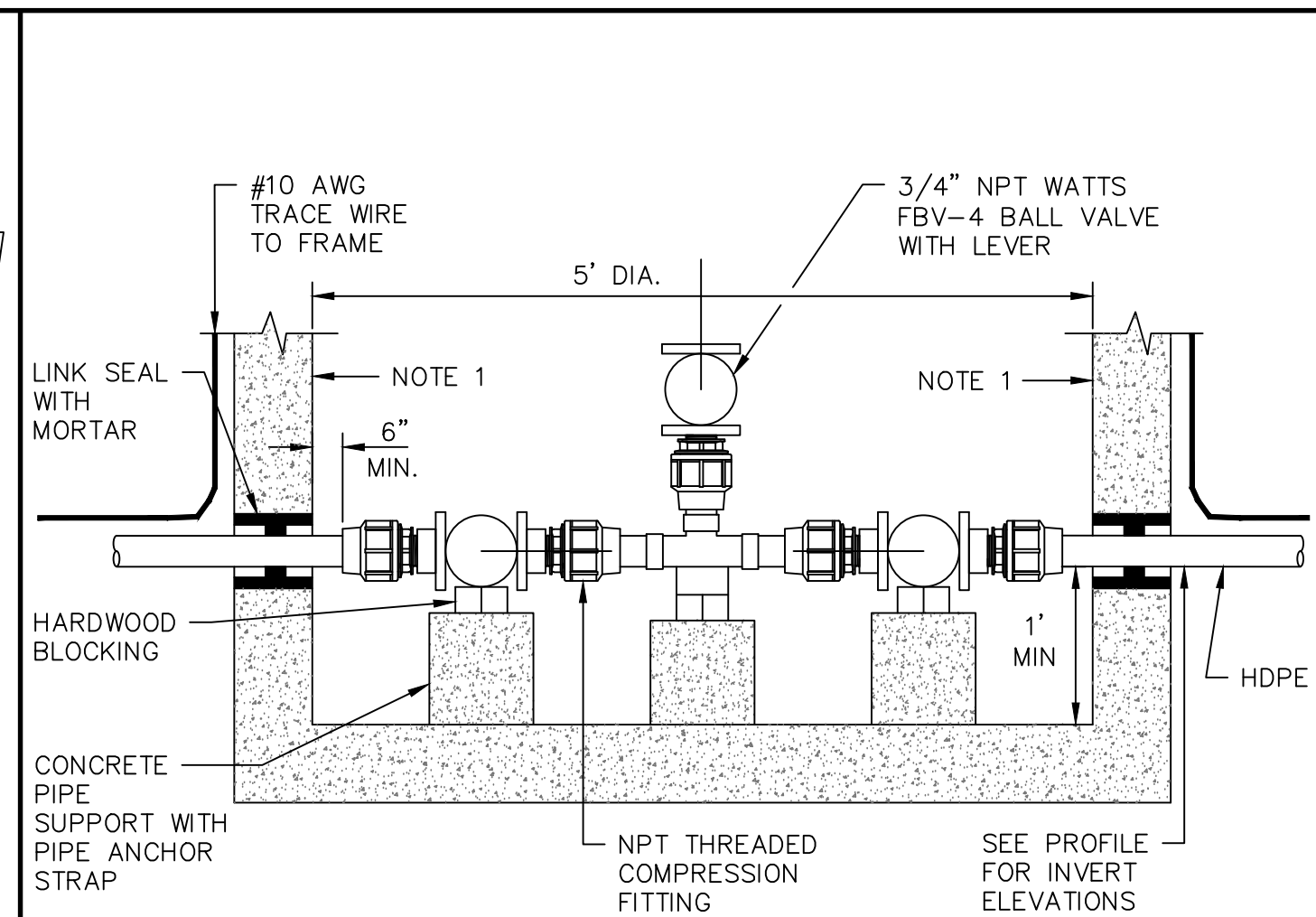


AIR RELEASE MANHOLE

- NOTES:
- SEE STANDARD MANHOLE DETAIL THIS SHEET.
 - USE STACKED CINDER BLOCKS WITH HARDWOOD WEDGES OR PIPE SUPPORT BRACED AGAINST THE INSIDE WALL OF THE PRECAST STRUCTURE TO PROVIDE THRUST RESTRAINT FOR COMPRESSION STYLE CAPS LOCATED WITHIN INTERSECTION MANHOLES AND AIR RELEASE MANHOLES.
 - AIR RELEASE VALVE SHALL BE VALMATIC MODEL VM-AV07-001-1 OR SSD APPROVED EQUAL.

AIR RELEASE MANHOLE

NOT TO SCALE

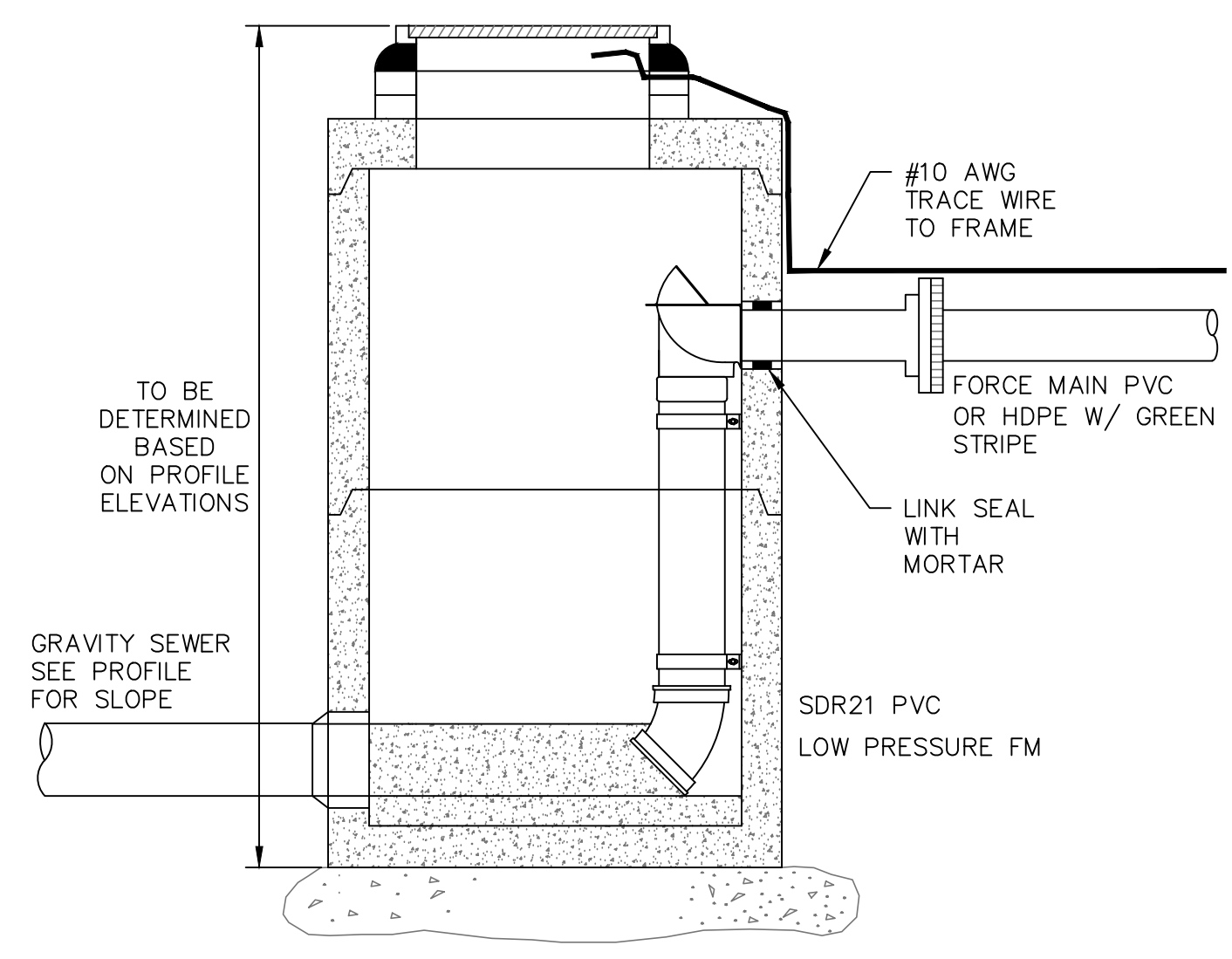


IN-LINE BLOW-OFF/CLEANOUT MANHOLE

NOTE: SEE STANDARD MANHOLE DETAIL THIS SHEET.

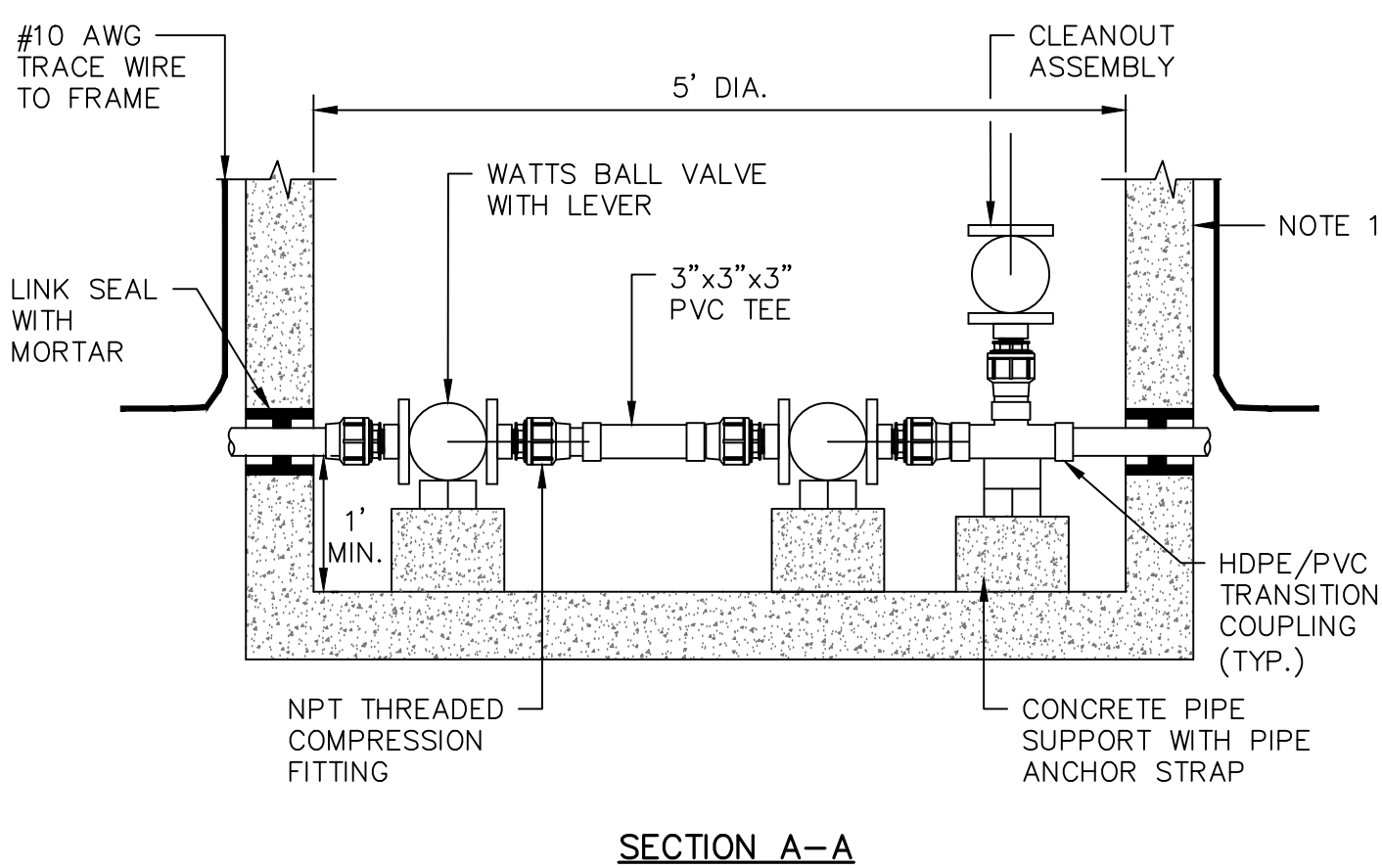
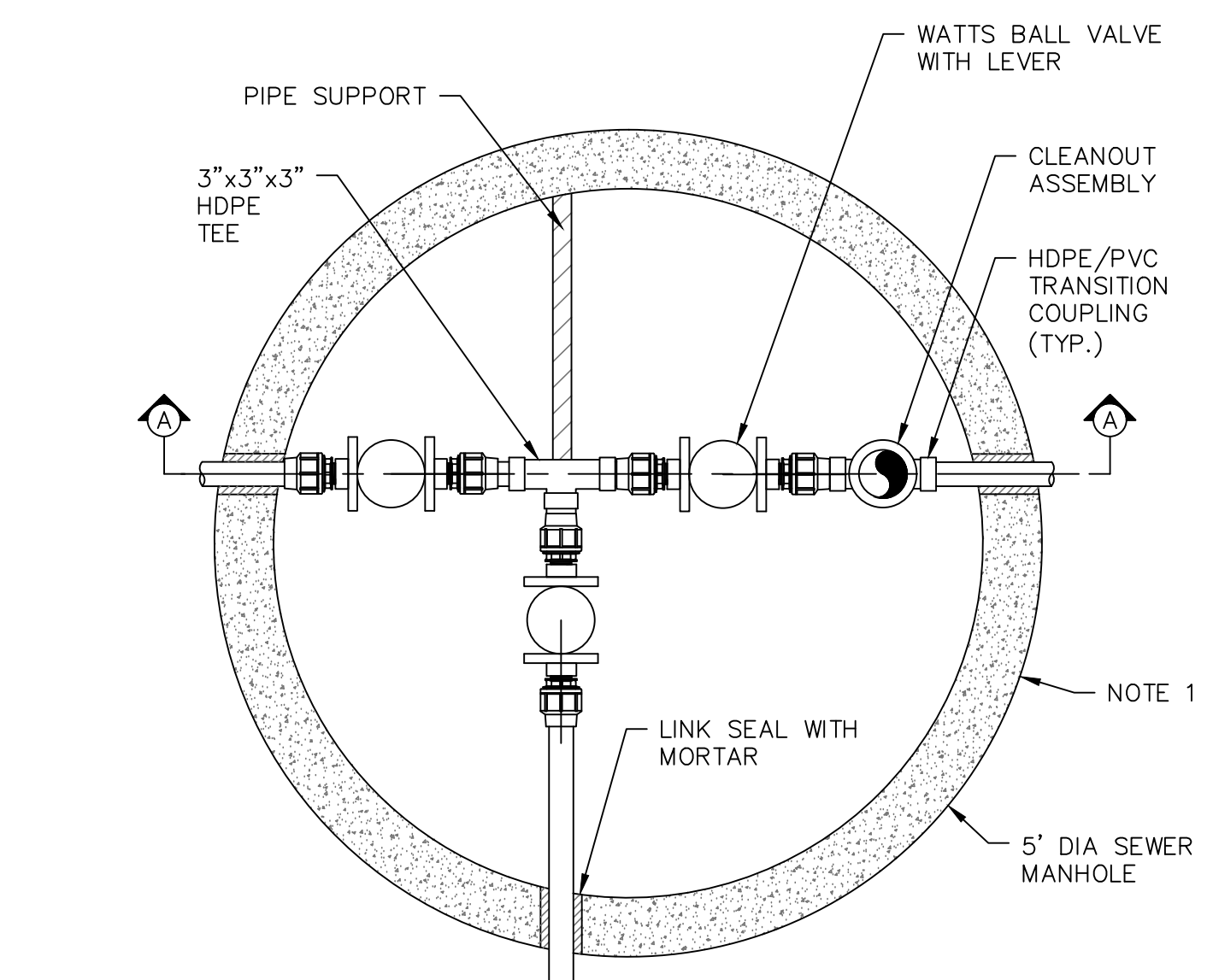
IN-LINE BLOW-OFF/CLEANOUT MANHOLE

NOT TO SCALE



LOW PRESSURE SEWER TERMINUS MANHOLE CONNECTION

NOT TO SCALE

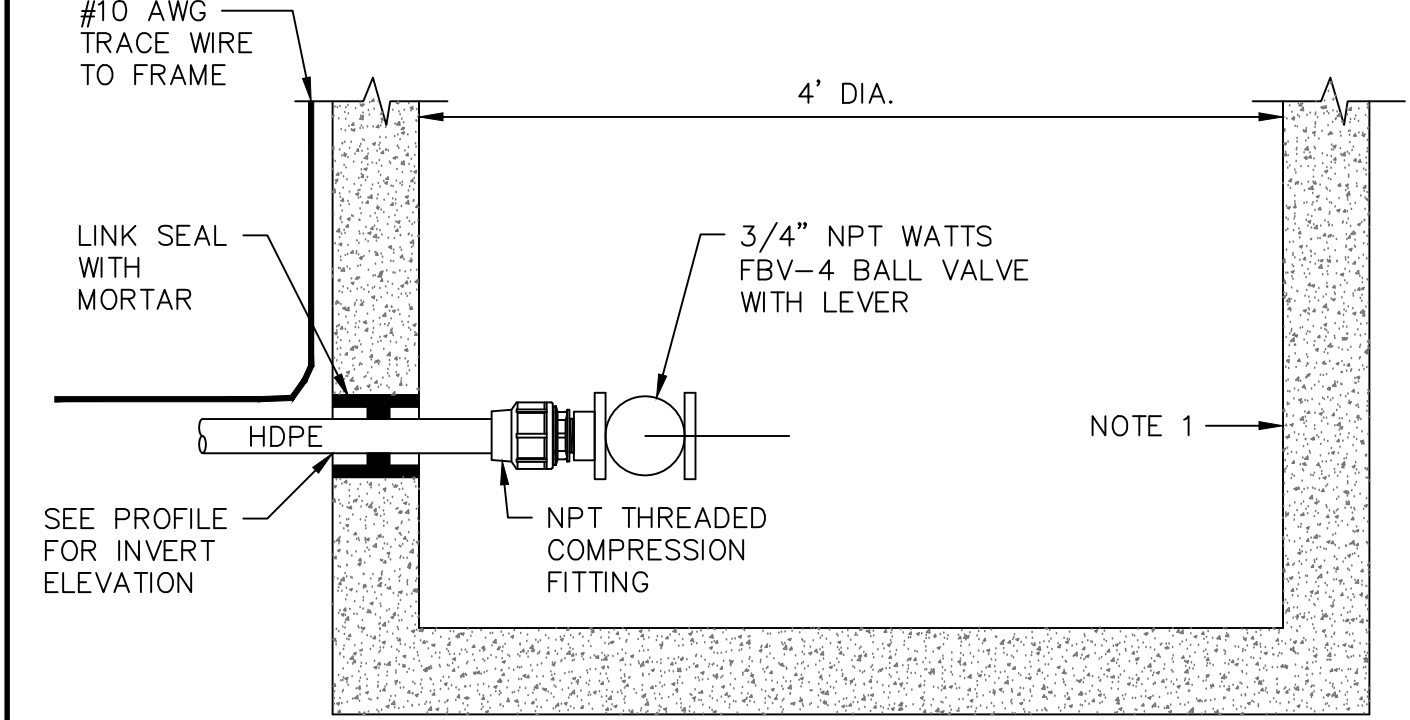


5' DIA LPS INTERSECTION MH CONFIGURATION

- NOTES:
- SEE STANDARD MANHOLE DETAIL THIS SHEET.
 - USE STACKED CINDER BLOCKS WITH HARDWOOD WEDGES OR PIPE SUPPORT BRACED AGAINST THE INSIDE WALL OF THE PRECAST STRUCTURE TO PROVIDE THRUST RESTRAINT FOR COMPRESSION STYLE CAPS LOCATED WITHIN INTERSECTION MANHOLES AND AIR RELEASE MANHOLES.

5' DIA LPS INTERSECTION MH CONFIGURATION

NOT TO SCALE

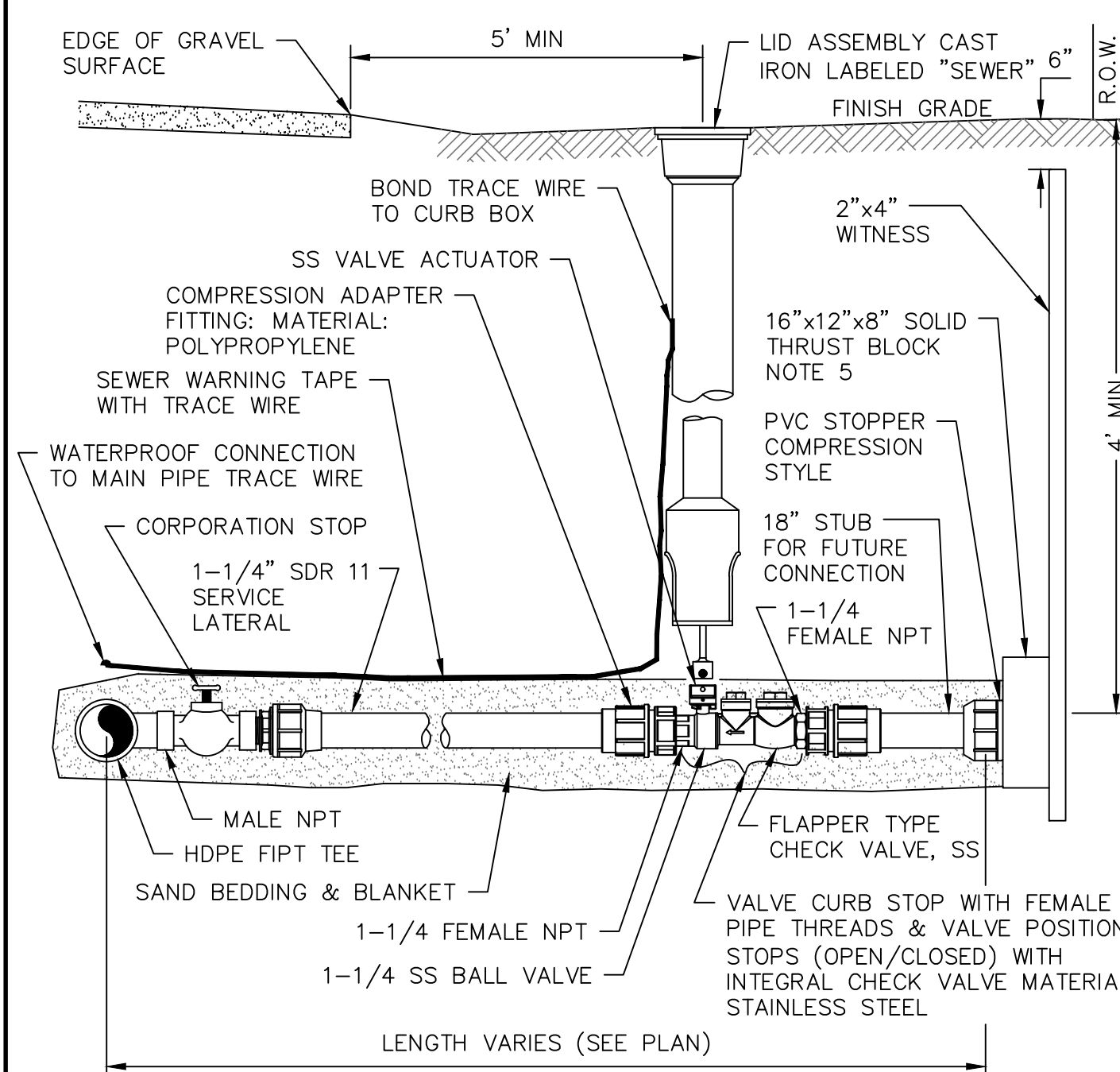


NOTE:

SEE STANDARD MANHOLE DETAIL THIS SHEET.

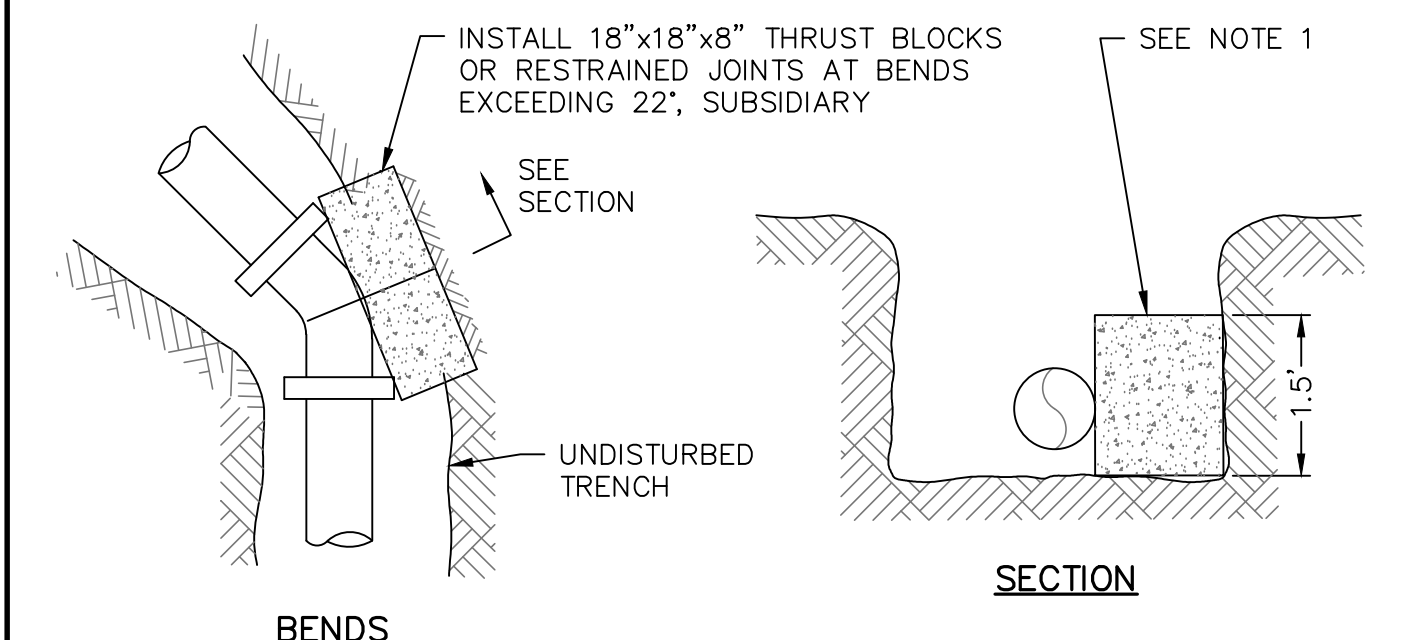
DEAD END CLEAN-OUT MANHOLE

NOT TO SCALE



TYPICAL SERVICE CONNECTION LOW PRESSURE FORCEMAIN

NOT TO SCALE



NOTES:

- INSTALL THRUST RESTRAINT (MIN. 130 LBS) AGAINST UNDISTURBED TRENCH AT ALL BENDS GREATER THAN 22', AND TERMINAL SERVICE LOCATIONS.

LOW PRESSURE FORCEMAIN-THRUST BLOCK

NOT TO SCALE

ADOPTED	By	Date	REVISION	By	Date

REVISIONS	NO.	APP'D

Drawn/Chk	
Designed	
Checked	
Approved	
Date	JULY 2021



LOW PRESSURE SEWER DETAILS 1

SEWER STANDARDS

SCARBOROUGH SANITARY DISTRICT

415 BLACK PNT RD, SCARBOROUGH, ME 04074

LPS1

