



WASTEWATER STANDARD DRAWINGS

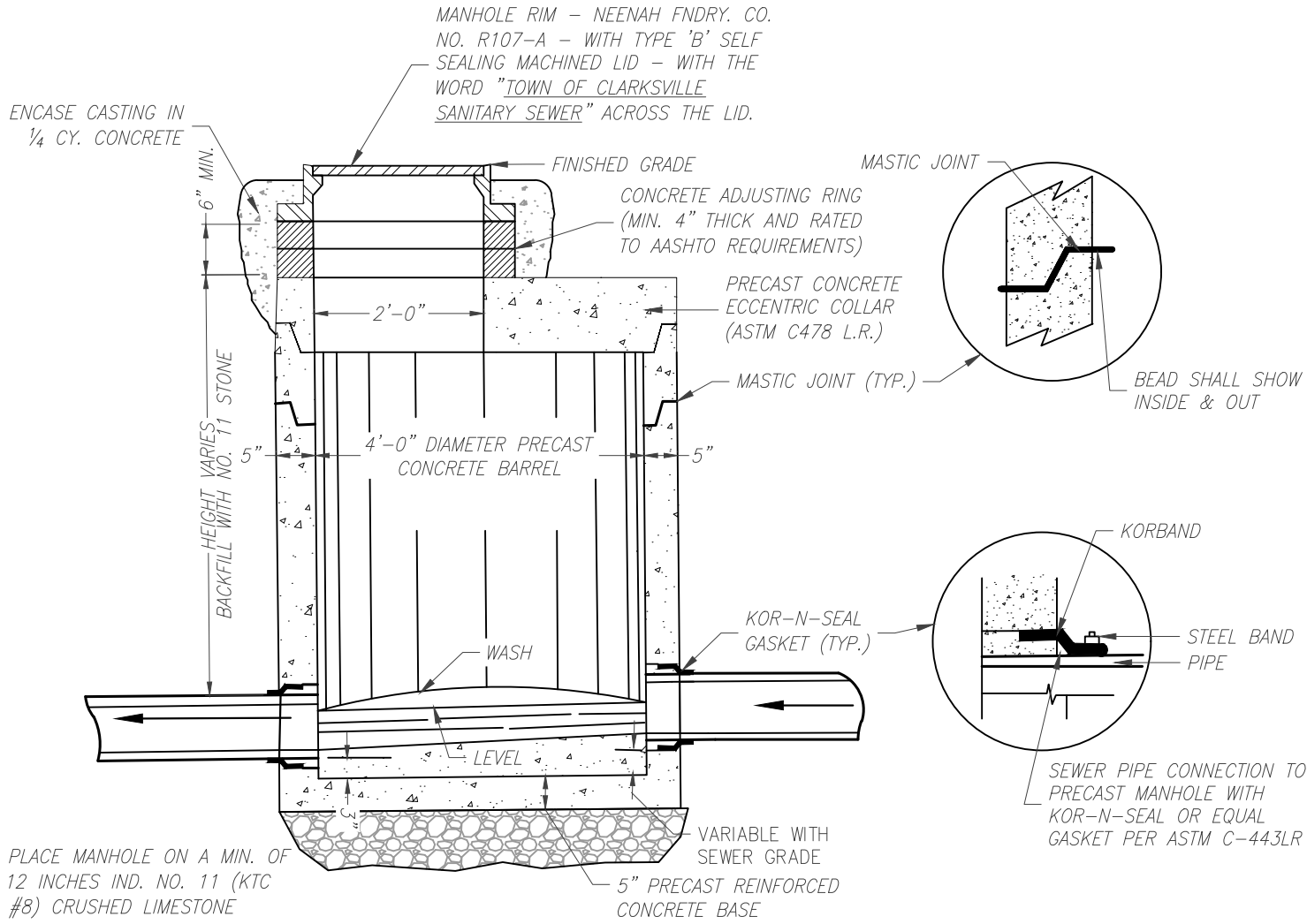
Clarksville Indiana
2000 Broadway Street
Clarksville, Indiana 47129

WASTEWATER STANDARD DRAWINGS

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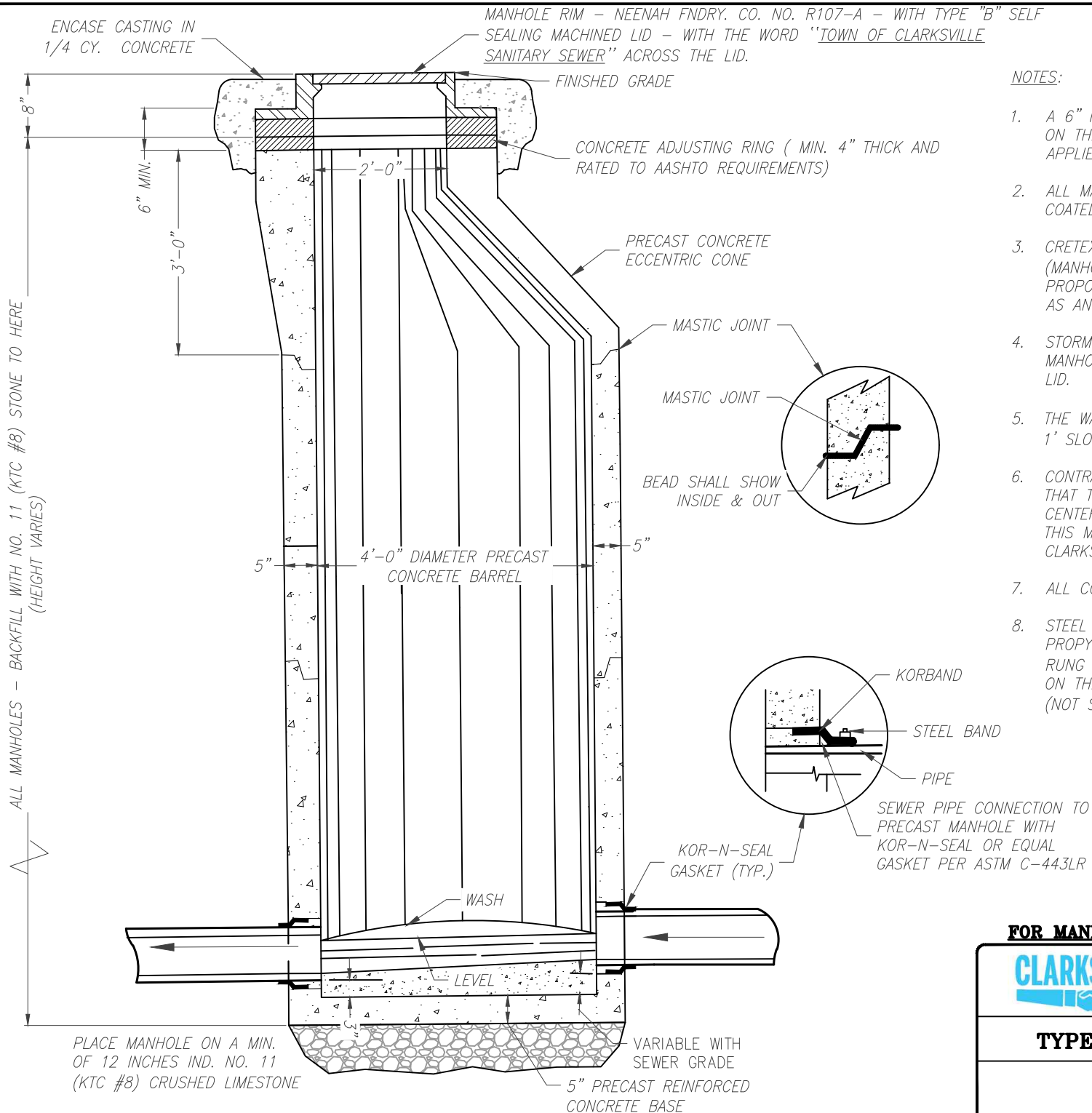


NOTES:

1. A 6" MINIMUM WIDTH OF BUTYL RUBBER COATING ON THE EXTERIOR OF THE MANHOLE SHALL BE APPLIED AT EACH JOINT TO PREVENT LEAKAGE.
2. ALL MANHOLES MUST BE CONSTRUCTED OF, OR COATED IN BIO-SAN C500 OR APPROVED EQUAL.
3. CRETEX CHIMNEY SEALS AND DRIP PANS (MANHOLE DISH) SHALL BE ADDED ON ALL PROPOSED SANITARY SEWER MANHOLES AS WELL AS ANY MANHOLES THAT ARE DISTURBED.
4. STORM MANHOLES SHALL REFERENCE THE SEWER MANHOLE DETAIL UTILIZING A STORM MANHOLE LID.
5. THE WASH SLOPE MUST HAVE A MINIMUM 1" PER 1' SLOPE.
6. CONTRACTOR SHALL INSTALL MANHOLE IN A WAY THAT THE MANHOLE ACCESS IS ALIGNED WITH THE CENTER OF THE FLOWLINE. ANY DEVIATION FROM THIS MUST BE APPROVED BY THE TOWN OF CLARKSVILLE.
7. ALL CONCRETE SHALL BE 3000 PSI.
8. STEEL ENCASED WITH COPOLYMER POLY PROPYLENE PLASTIC MANHOLE STEPS SHALL BE RUNG TYPE ONLY AND STAGGERED AT 12" O.C. ON THE VERTICAL SIDE OF CONE AND BARREL (NOT SHOWN).

FOR MANHOLES LESS THAN 7.5' DEEP


	<p>1.0</p>
<p>TYPE " C " SEWER MANHOLE</p>	



NOTES:

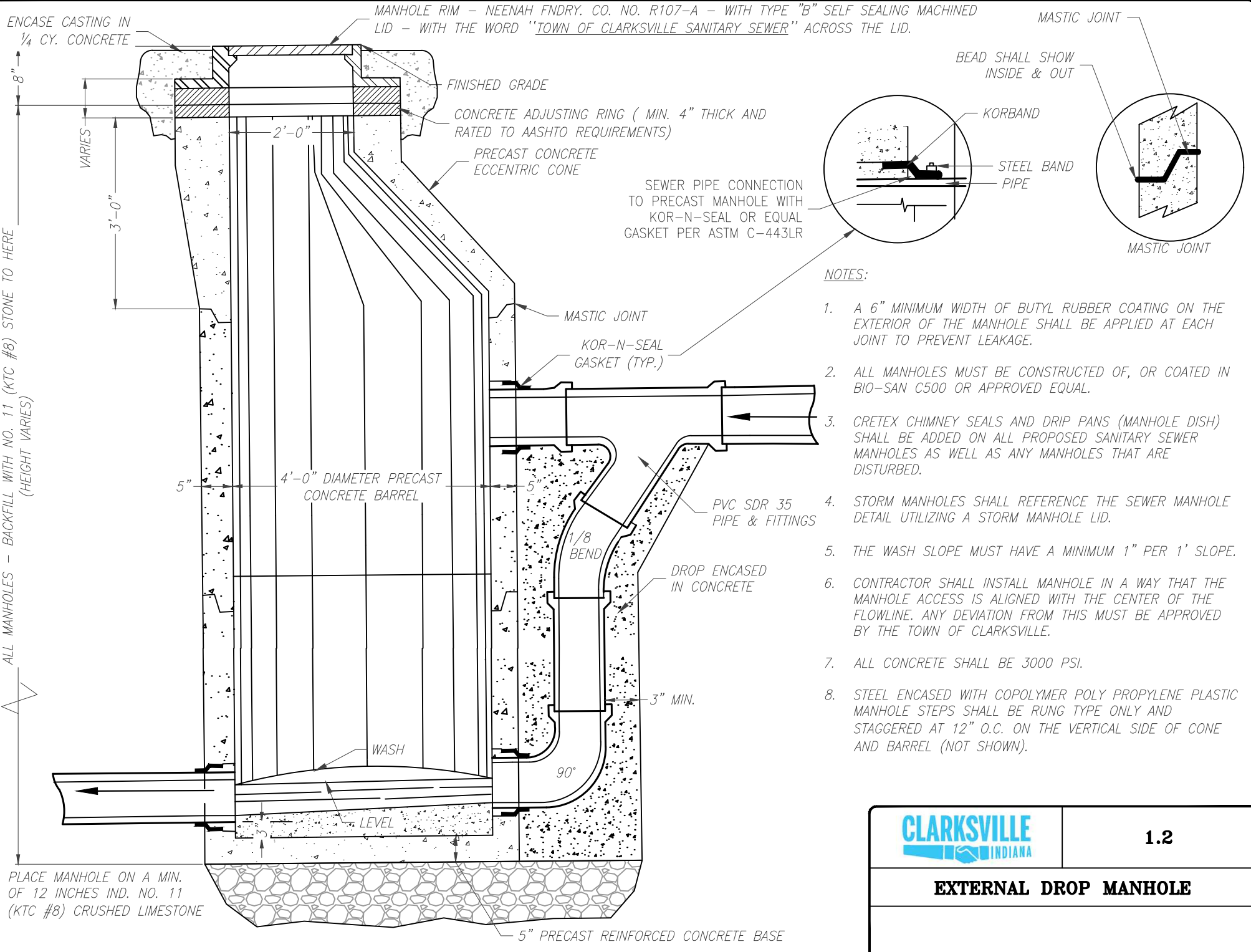
1. A 6" MINIMUM WIDTH OF BUTYL RUBBER COATING ON THE EXTERIOR OF THE MANHOLE SHALL BE APPLIED AT EACH JOINT TO PREVENT LEAKAGE.
2. ALL MANHOLES MUST BE CONSTRUCTED OF, OR COATED, IN BIO-SAN C500 OR APPROVED EQUAL.
3. CRETEX CHIMNEY SEALS AND DRIP PANS (MANHOLE DISH) SHALL BE ADDED ON ALL PROPOSED SANITARY SEWER MANHOLES AS WELL AS ANY MANHOLES THAT ARE DISTURBED.
4. STORM MANHOLES SHALL REFERENCE THE SEWER MANHOLE DETAIL UTILIZING A STORM MANHOLE LID.
5. THE WASH SLOPE MUST HAVE A MINIMUM 1" PER 1' SLOPE.
6. CONTRACTOR SHALL INSTALL MANHOLE IN A WAY THAT THE MANHOLE ACCESS IS ALIGNED WITH THE CENTER OF THE FLOWLINE. ANY DEVIATION FROM THIS MUST BE APPROVED BY THE TOWN OF CLARKSVILLE.
7. ALL CONCRETE SHALL BE 3000 PSI.
8. STEEL ENCASED WITH COPOLYMER POLY PROPYLENE PLASTIC MANHOLE STEPS SHALL BE RUNG TYPE ONLY AND STAGGERED AT 12" O.C. ON THE VERTICAL SIDE OF CONE AND BARREL (NOT SHOWN).

FOR MANHOLES GREATER THAN 7.5' DEEP

	<p>1.1</p>
<p>TYPE " B " SEWER MANHOLE</p>	

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ALL MANHOLES - BACKFILL WITH NO. 11 (KTC #8) STONE TO HERE (HEIGHT VARIES)

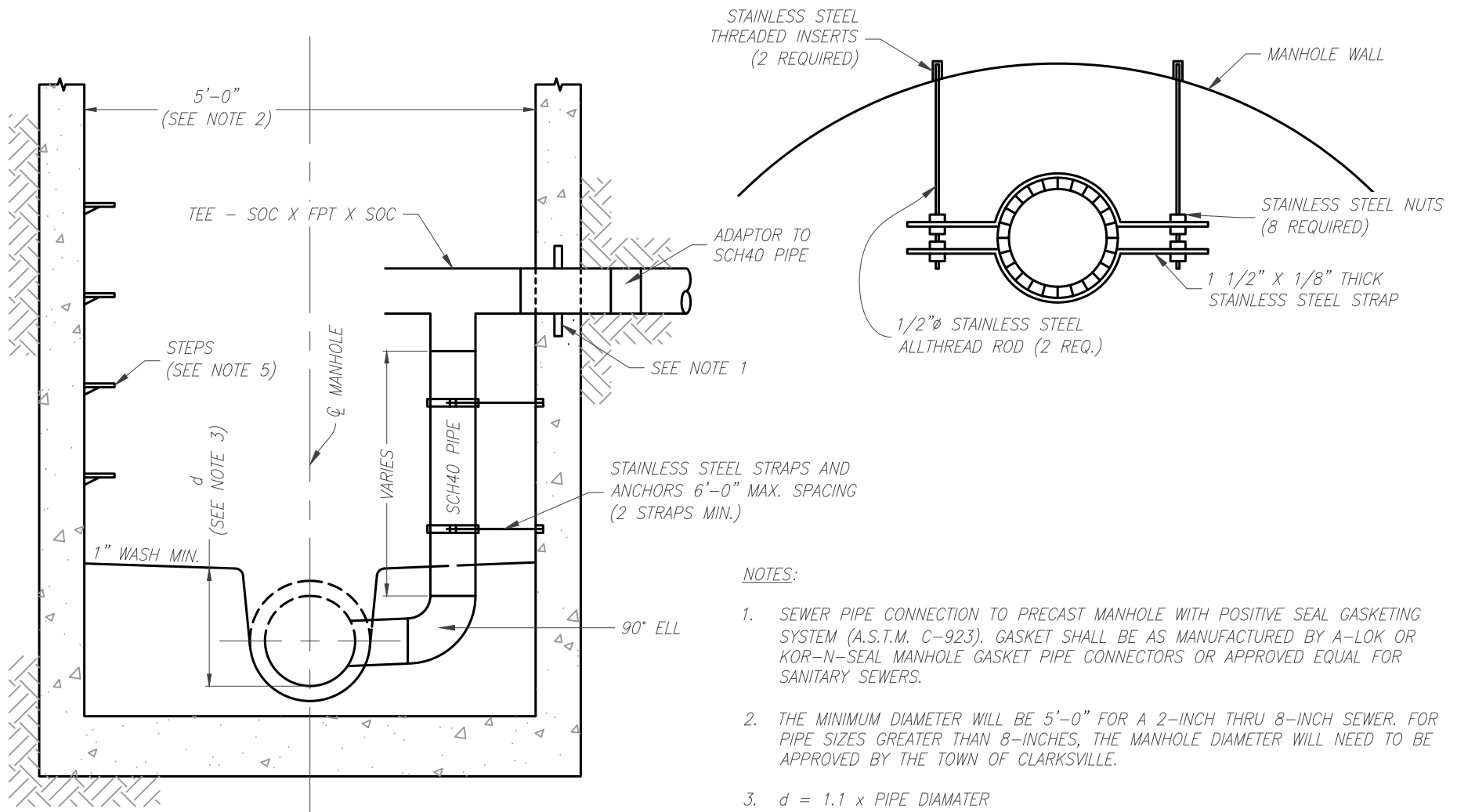


NOTES:

1. A 6" MINIMUM WIDTH OF BUTYL RUBBER COATING ON THE EXTERIOR OF THE MANHOLE SHALL BE APPLIED AT EACH JOINT TO PREVENT LEAKAGE.
2. ALL MANHOLES MUST BE CONSTRUCTED OF, OR COATED IN BIO-SAN C500 OR APPROVED EQUAL.
3. CRETEX CHIMNEY SEALS AND DRIP PANS (MANHOLE DISH) SHALL BE ADDED ON ALL PROPOSED SANITARY SEWER MANHOLES AS WELL AS ANY MANHOLES THAT ARE DISTURBED.
4. STORM MANHOLES SHALL REFERENCE THE SEWER MANHOLE DETAIL UTILIZING A STORM MANHOLE LID.
5. THE WASH SLOPE MUST HAVE A MINIMUM 1" PER 1' SLOPE.
6. CONTRACTOR SHALL INSTALL MANHOLE IN A WAY THAT THE MANHOLE ACCESS IS ALIGNED WITH THE CENTER OF THE FLOWLINE. ANY DEVIATION FROM THIS MUST BE APPROVED BY THE TOWN OF CLARKSVILLE.
7. ALL CONCRETE SHALL BE 3000 PSI.
8. STEEL ENCASED WITH COPOLYMER POLY PROPYLENE PLASTIC MANHOLE STEPS SHALL BE RUNG TYPE ONLY AND STAGGERED AT 12" O.C. ON THE VERTICAL SIDE OF CONE AND BARREL (NOT SHOWN).


PLACE MANHOLE ON A MIN. OF 12 INCHES IND. NO. 11 (KTC #8) CRUSHED LIMESTONE

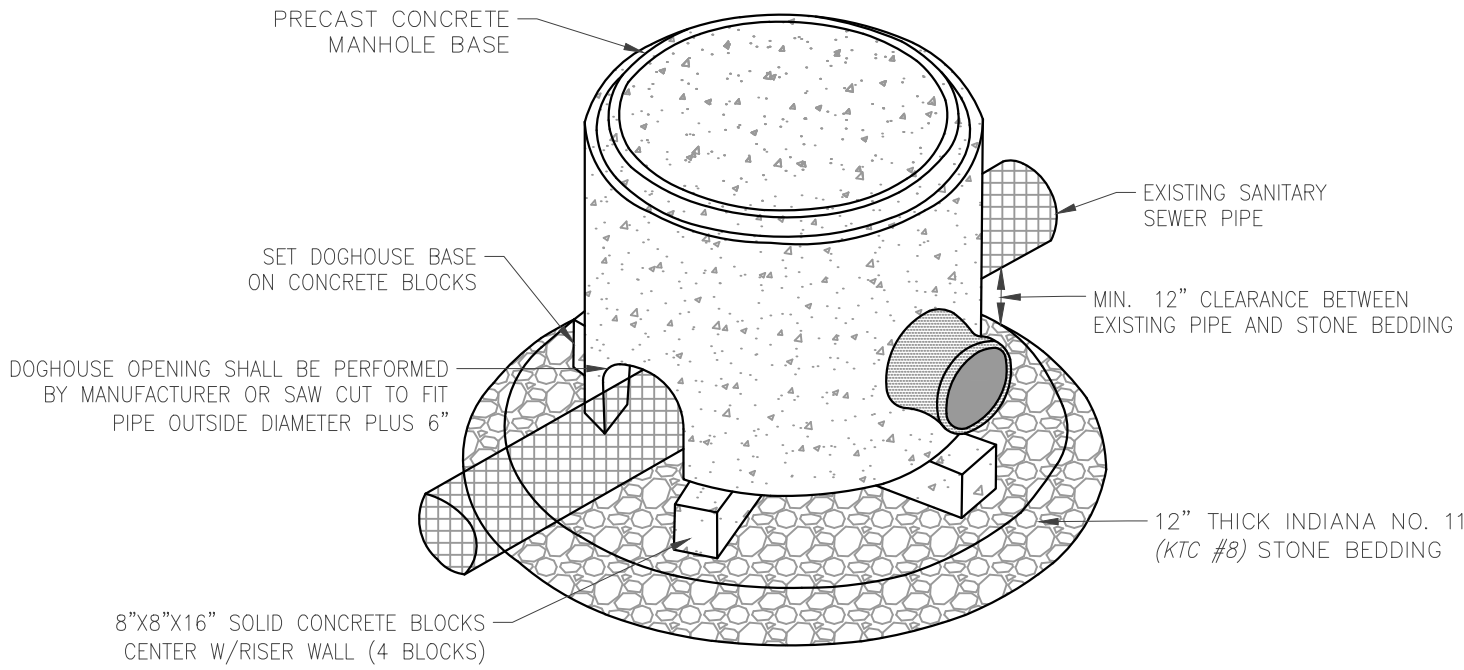
	<p>1.2</p>
<p>EXTERNAL DROP MANHOLE</p>	



NOTES:

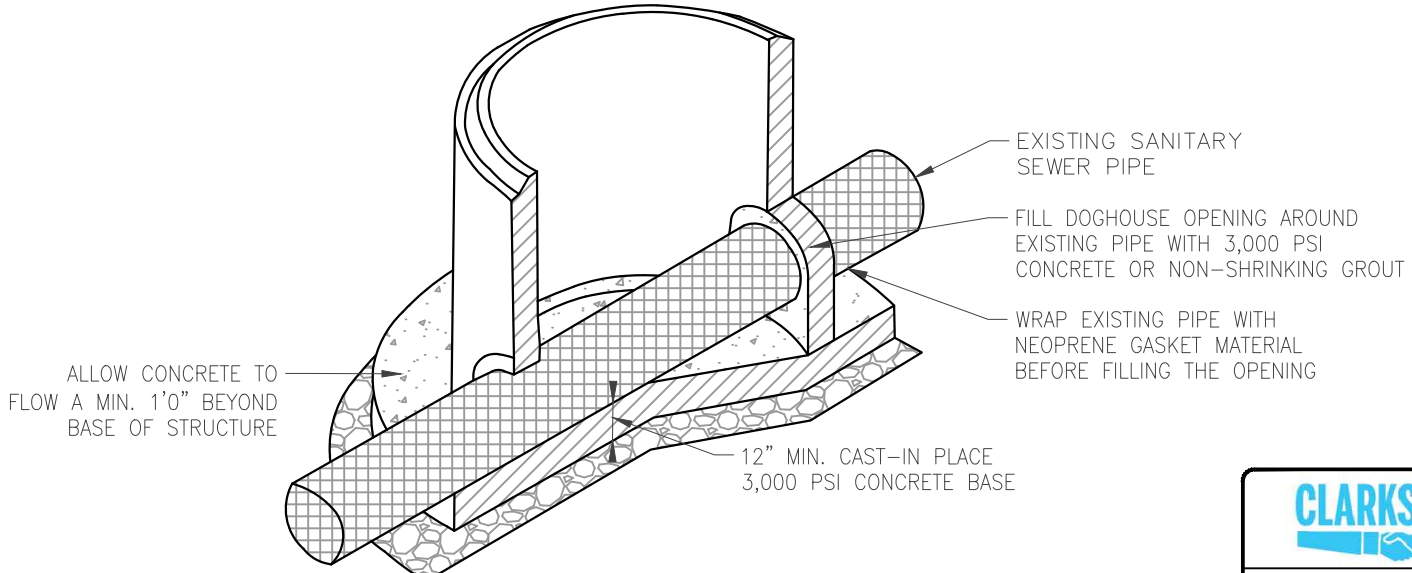
1. SEWER PIPE CONNECTION TO PRECAST MANHOLE WITH POSITIVE SEAL GASKETING SYSTEM (A.S.T.M. C-923). GASKET SHALL BE AS MANUFACTURED BY A-LOK OR KOR-N-SEAL MANHOLE GASKET PIPE CONNECTORS OR APPROVED EQUAL FOR SANITARY SEWERS.
2. THE MINIMUM DIAMETER WILL BE 5'-0" FOR A 2-INCH THRU 8-INCH SEWER. FOR PIPE SIZES GREATER THAN 8-INCHES, THE MANHOLE DIAMETER WILL NEED TO BE APPROVED BY THE TOWN OF CLARKSVILLE.
3. $d = 1.1 \times \text{PIPE DIAMETER}$
4. MANHOLE ABOVE BASE SHALL BE CONSTRUCTED AS SHOWN ON STANDARD MANHOLE DETAIL.
5. STEEL ENCASED WITH COPOLYMER POLY PROPYLENE PLASTIC MANHOLE STEPS SHALL BE RUNG TYPE ONLY AND STAGGERED AT 12" O.C. ON THE VERTICAL SIDE OF CONE AND BARREL (NOT SHOWN).

	<p>1.3</p>
<p>FORCE MAIN TO MANHOLE & INTERNAL DROP MANHOLE</p>	



DOGHOUSE MANHOLE BASE

NOT TO SCALE



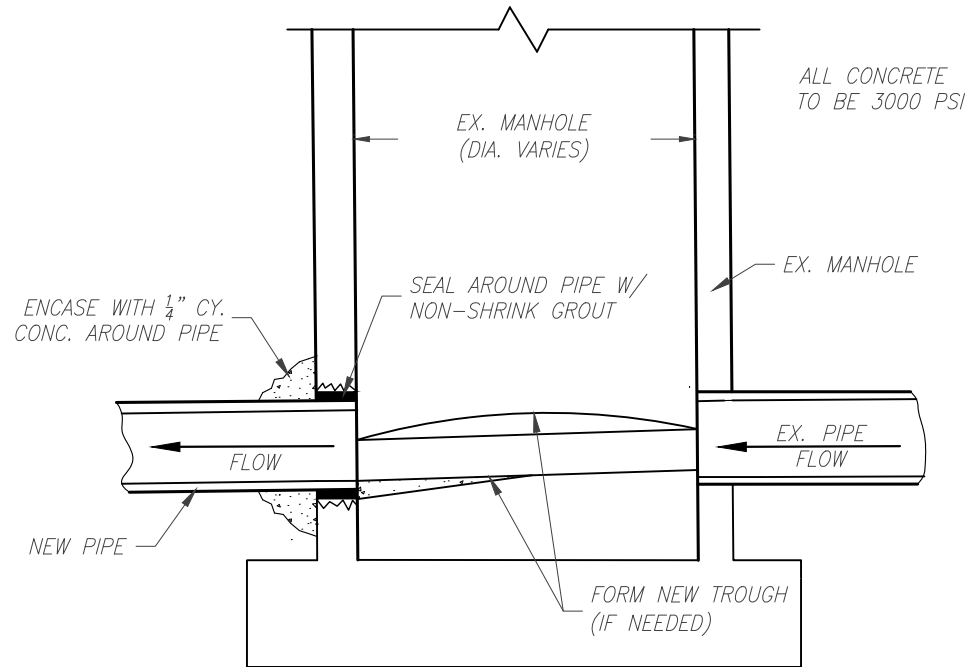
FOUNDATION SECTION VIEW

NOT TO SCALE

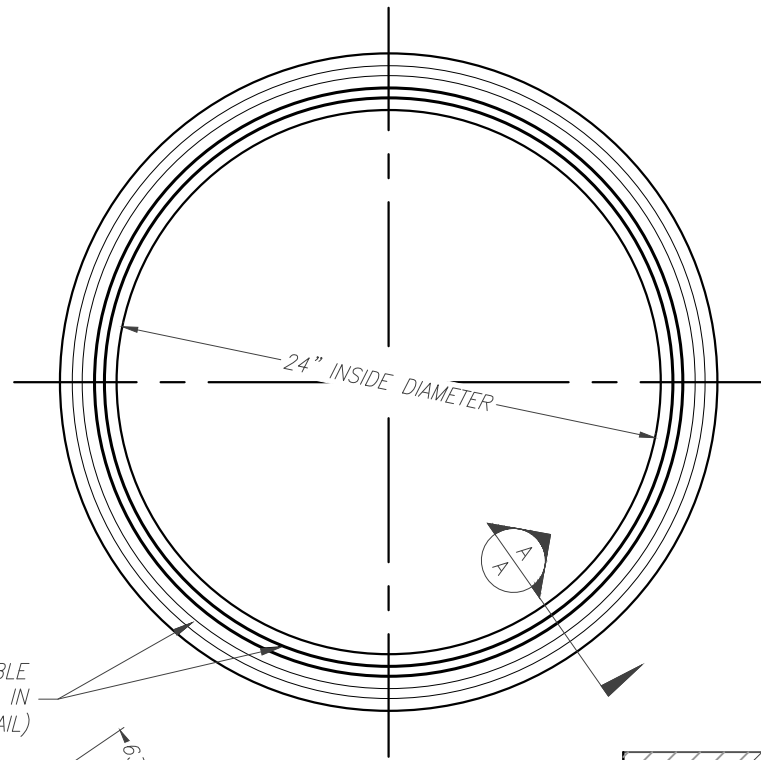
NOTES:

1. DOGHOUSE MANHOLES MAY HAVE EITHER A PRE-CAST CONCRETE BASE OR A CAST-IN-PLACE CONCRETE BASE WITH REINFORCEMENT.
2. POUR A SHELF TO THE LOWER HALF OF THE EXISTING PIPE.
3. CUT AND REMOVE THE TOP HALF OF EXISTING PIPE TO WITHIN 6" OF THE MANHOLE WALLS AFTER THE INVERT AND SHELF HAVE BEEN FORMED, AND THE MANHOLE HAS BEEN FULLY TESTED IN ACCORDANCE WITH THESE SPECIFICATIONS.
4. MANHOLE ABOVE BASE SHALL BE CONSTRUCTED AS SHOWN ON STANDARD MANHOLE DETAIL

	<p>1.4</p>
<p>DOG HOUSE MANHOLE</p>	



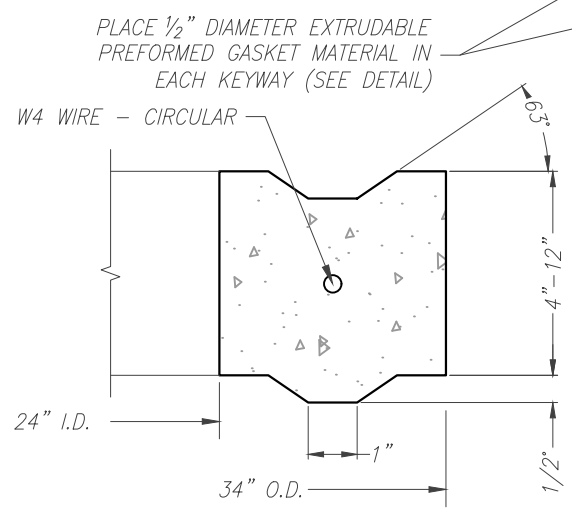
	1.5
CONNECT NEW PIPE TO EXISTING SEWER MANHOLE	



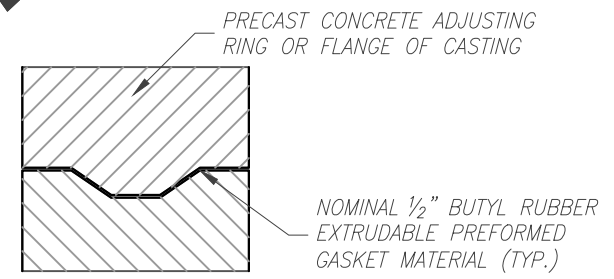
PLAN VIEW

NOTES:

1. CONCRETE STRENGTH-4500 PSI @ 28 DAYS
2. REINFORCEMENT-ASTM A-615 & ASTM A-615M (LATEST REVISION) GRADE 60.
3. DESIGN LOAD-ASTM C478 & ASTM C478M (LATEST REVISION) ON MANHOLE ONLY.
4. COLLAR THICKNESS- 4", 6", 9" & 12".
5. MAXIMUM COMBINED HEIGHT OF THE ADJUSTING RING IS 12".



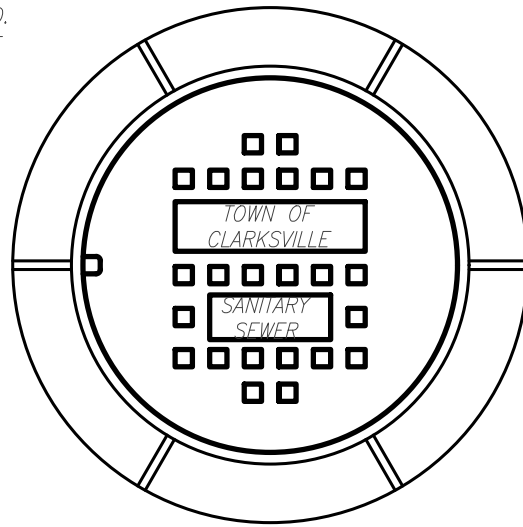
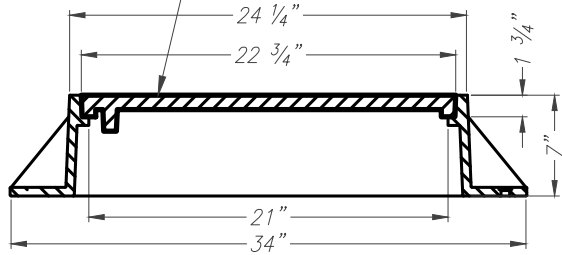
SECTION A-A



GASKET DETAIL

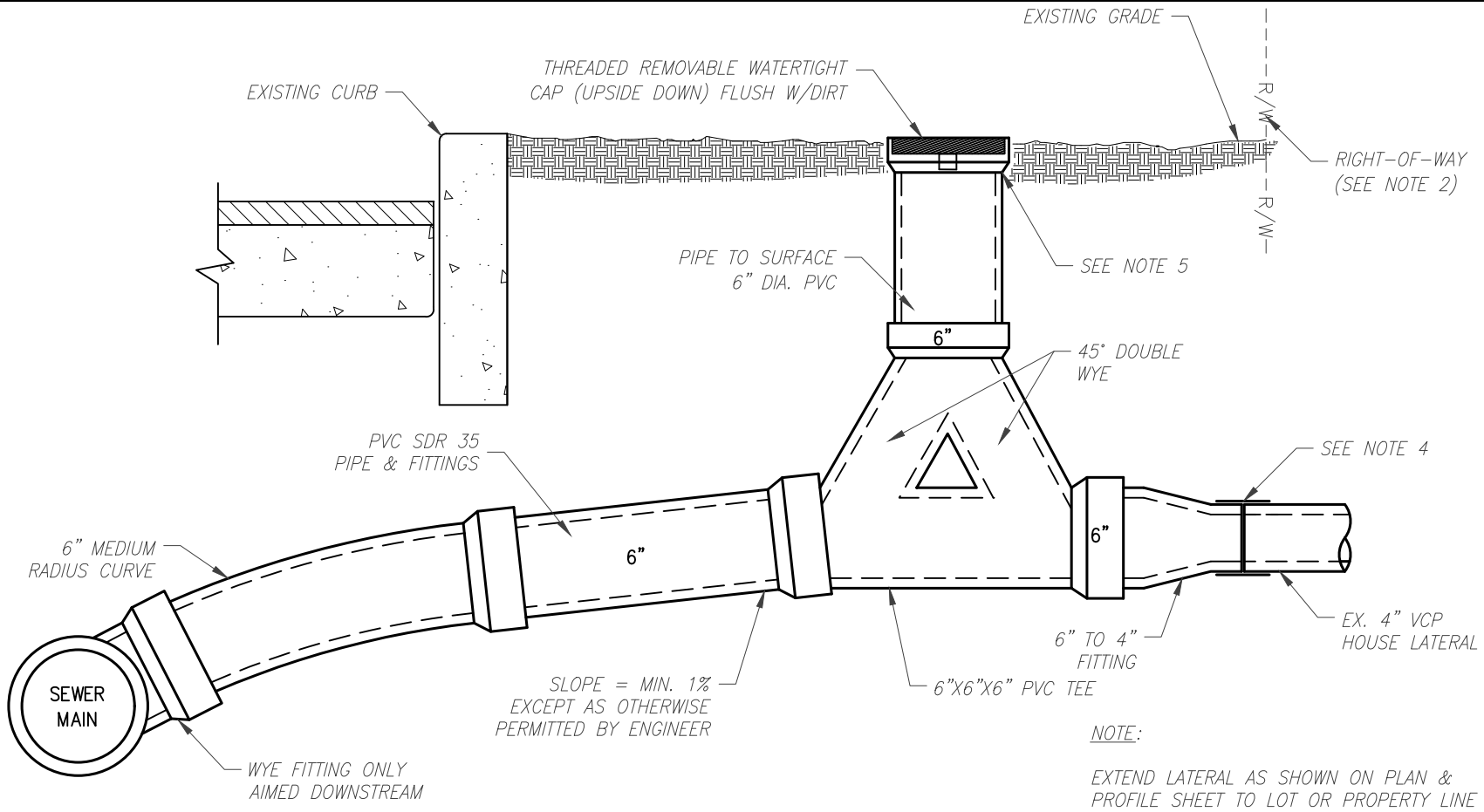
	<p>1.6</p>
<p>ADJUSTING RING DETAIL</p>	

MANHOLE RIM - NEENAH FNDRY. CO.
NO. R107-A - WITH TYPE "B" SELF
SEALING MACHINED LID - WITH THE
WORD "TOWN OF CLARKSVILLE
SANITARY SEWER" ACROSS THE LID.



	1.7
SEWER MANHOLE FRAME SOLID LID	


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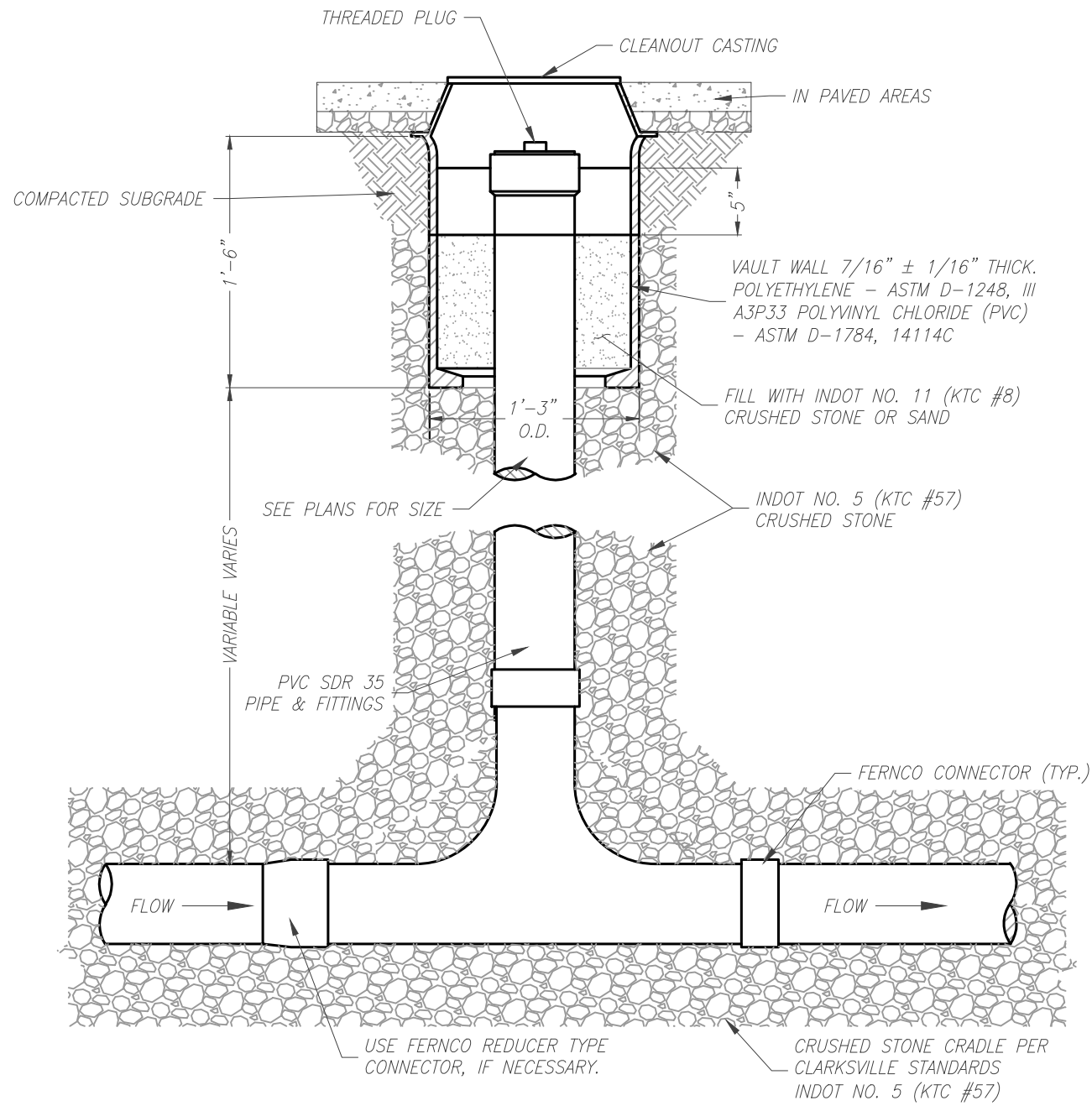


NOTES:

1. PROPERTY SERVICE CONNECTIONS CROSSING UNDER (OVER) THE STORM DRAIN OR UTILITY CONDUIT PROPOSED OR EXISTING WITH LESS THAN (2) FEET OF CLEARANCE SHALL BE CAPPED (CRADLED) WITH 6" CLASS "B" CONCRETE IN ACCORDANCE WITH THE TYPICAL CONCRETE CAP (CONCRETE CRADLE) DETAIL. THE MINIMUM CLEARANCE IS 6-INCHES FOR ALL UTILITIES AND STORM DRAINS AND 18-INCHES FOR WATER LINES.
2. A CLEANOUT SHALL BE ADDED TO ALL LATERALS THAT ARE BEING TRANSFERRED TO NEW/PROPOSED SANITARY LINE. THE CLEANOUT SHALL BE CONSTRUCTED ON THE RIGHT OF WAY LINE.
3. SOLID/HARD WATERTIGHT CONNECTOR OR FERNCO COUPLING WITH STAINLESS STEEL HARDWARE.
4. WHERE NECESSARY THE CONTRACTOR TO UTILIZE THE STACKING DETAIL FOR THE CONNECTION TO THE SEWER MAIN.
5. CLEANOUTS LOCATED IN DRIVEWAYS AND SIDEWALKS SHALL REFER TO CLEANOUT IN DRIVEWAYS AND SIDEWALKS DETAIL.

NOTE:
 EXTEND LATERAL AS SHOWN ON PLAN & PROFILE SHEET TO LOT OR PROPERTY LINE

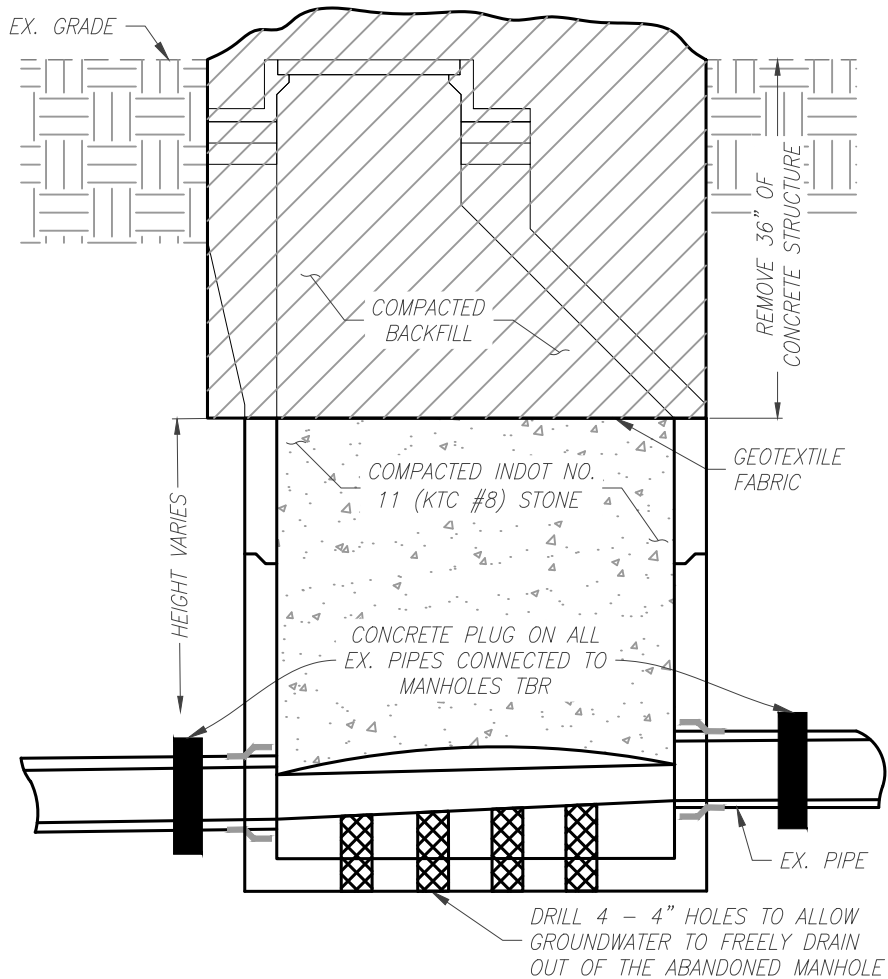
	2.1
LATERAL WITH CLEANOUT	



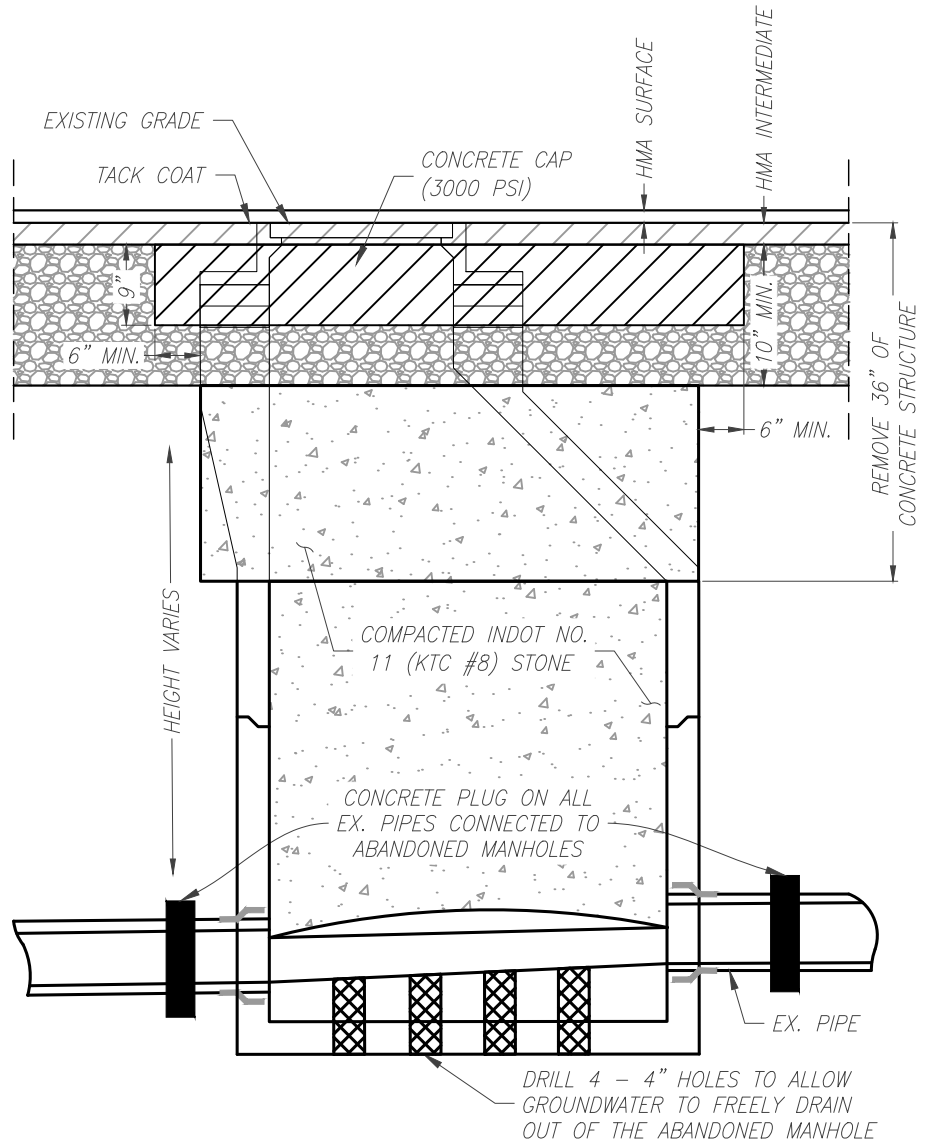
NOTES:

1. CLEANOUT LOCATED IN GRAVEL SHALL HAVE 6 INCH WIDE BY 6 INCH THICK CONCRETE COLLAR POURED AROUND CLEANOUT VALVE VAULT. COLLAR SHOULD NOT INTERFERE WITH ACCESSING CLEAN OUT.
2. CLEAN OUTS LOCATED IN PAVED/CONCRETE AREAS SHOULD HAVE VAULT VALVE RATED FOR TRAFFIC, AND BE LEVEL WITH EXISTING GRADE.

	<p>2.2</p>
<p>CLEANOUT IN SIDEWALKS & DRIVEWAYS</p>	



EARTH AREAS

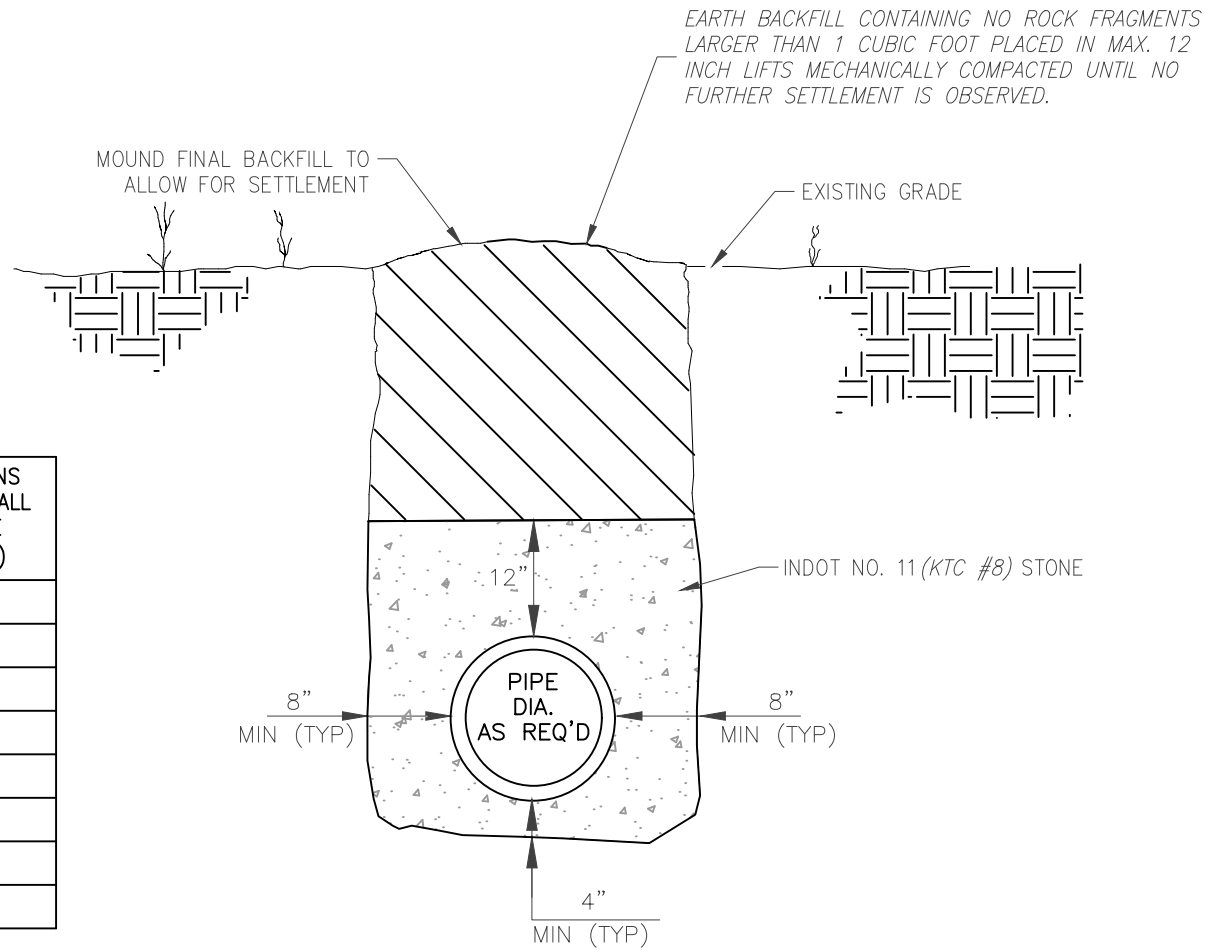


PAVED AREAS

	<p>3.0</p>
<p>SEWER MANHOLE TO BE REMOVED</p>	

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PIPE DIAMETER (INCHES)	DIMENSIONS TRENCH WALL TO PIPE (INCHES)
4" - 15"	8"
18"	8.5"
24"	9.5"
30"	10.5"
36"	11"
48"	13"
60"	14.5"
72"	16"

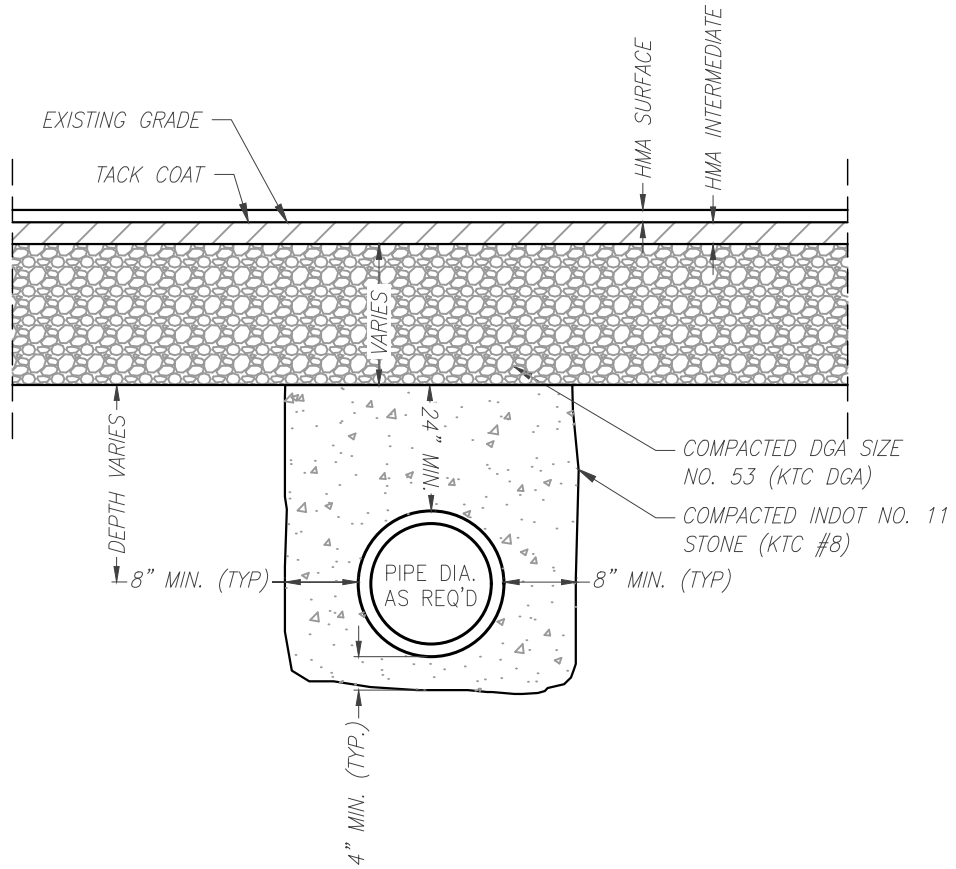


NOTES:

1. SEE PLANS AND SPECIFICATIONS FOR SEED MIXTURE TYPE.

	4.0
PIPE BEDDING & TRENCH BACKFILL (EARTH AREAS)	

PIPE DIAMETER (INCHES)	DIMENSIONS TRENCH WALL TO PIPE (INCHES)
4" - 15"	8"
18"	8.5"
24"	9.5"
30"	10.5"
36"	11"
48"	13"
60"	14.5"
72"	16"

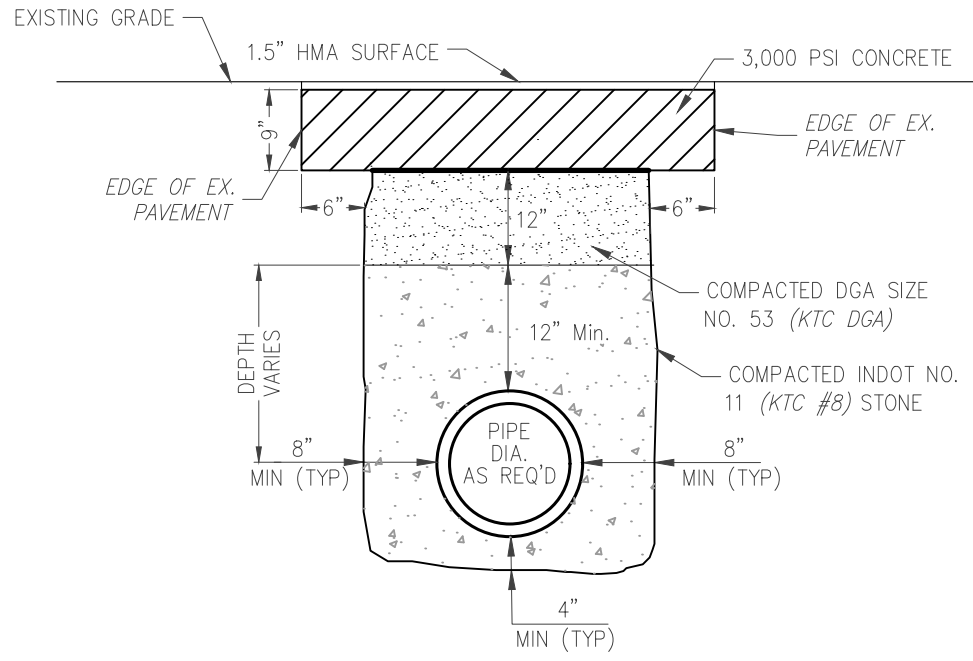


NOTES:

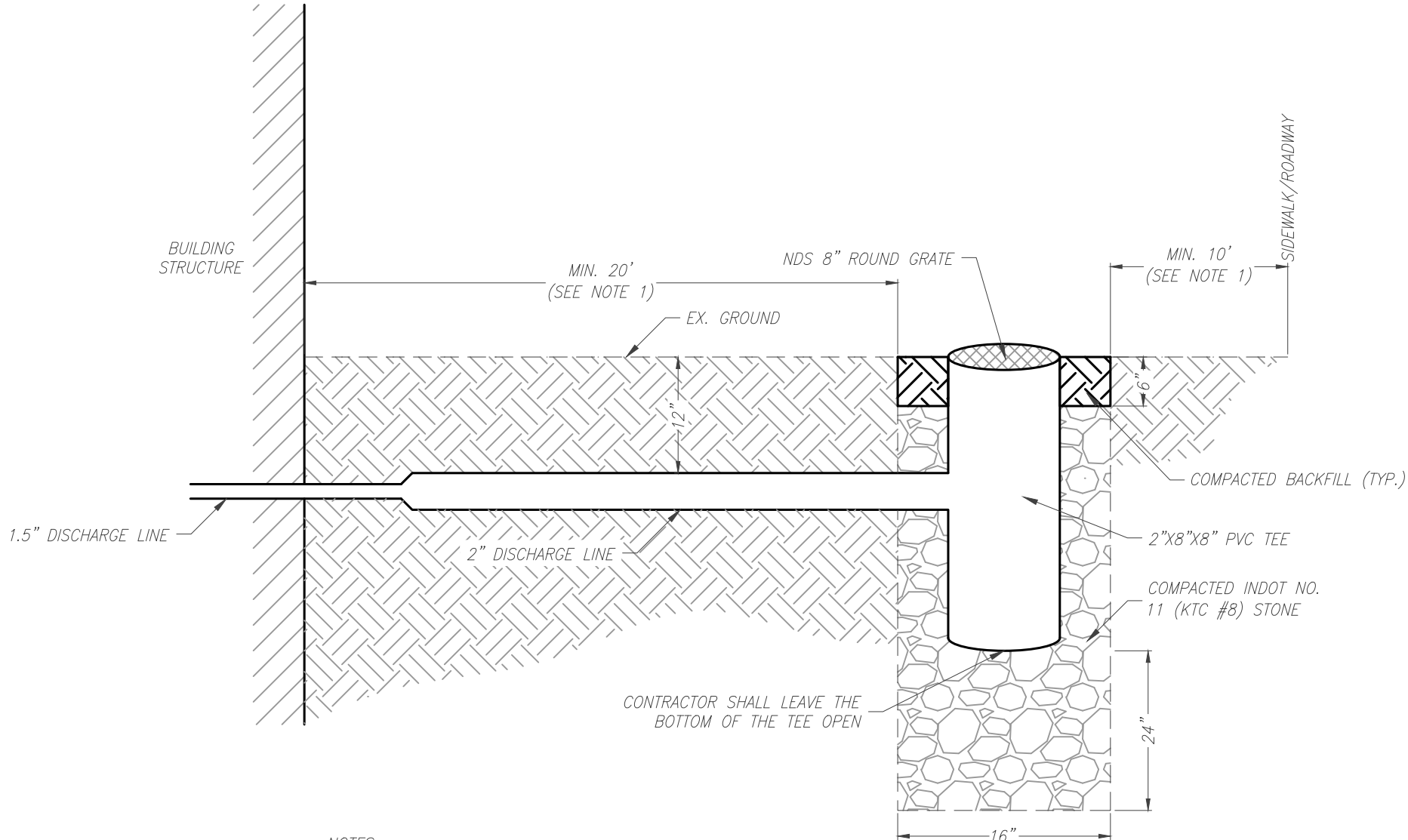
1. PAVEMENT JOINTS SHALL BE SEALED WITH AN APPROVED JOINT SEALANT AFTER PLACEMENT OF ASPHALT SURFACE.
2. CONTRACTOR SHALL CONFIRM DGA AND HMA SECTION DEPTH WITH ENGINEER.

	<p>4.1</p>
<p>PIPE BEDDING & TRENCH BACKFILL (NEW ROADWAY)</p>	

PIPE DIAMETER (INCHES)	DIMENSIONS TRENCH WALL TO PIPE (INCHES)
4" - 15"	8"
18"	8.5"
24"	9.5"
30"	10.5"
36"	11"
48"	13"
60"	14.5"
72"	16"




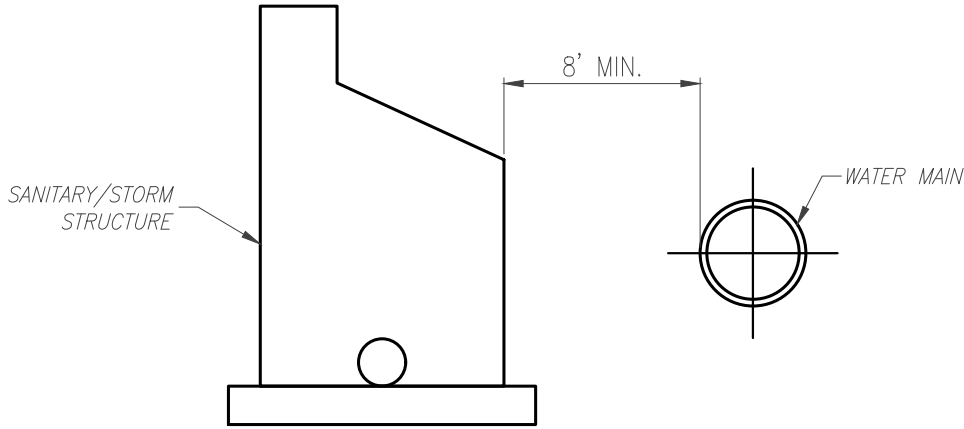
	4.2
PIPE BEDDING & TRENCH BACKFILL (EXISTING ROADWAY)	



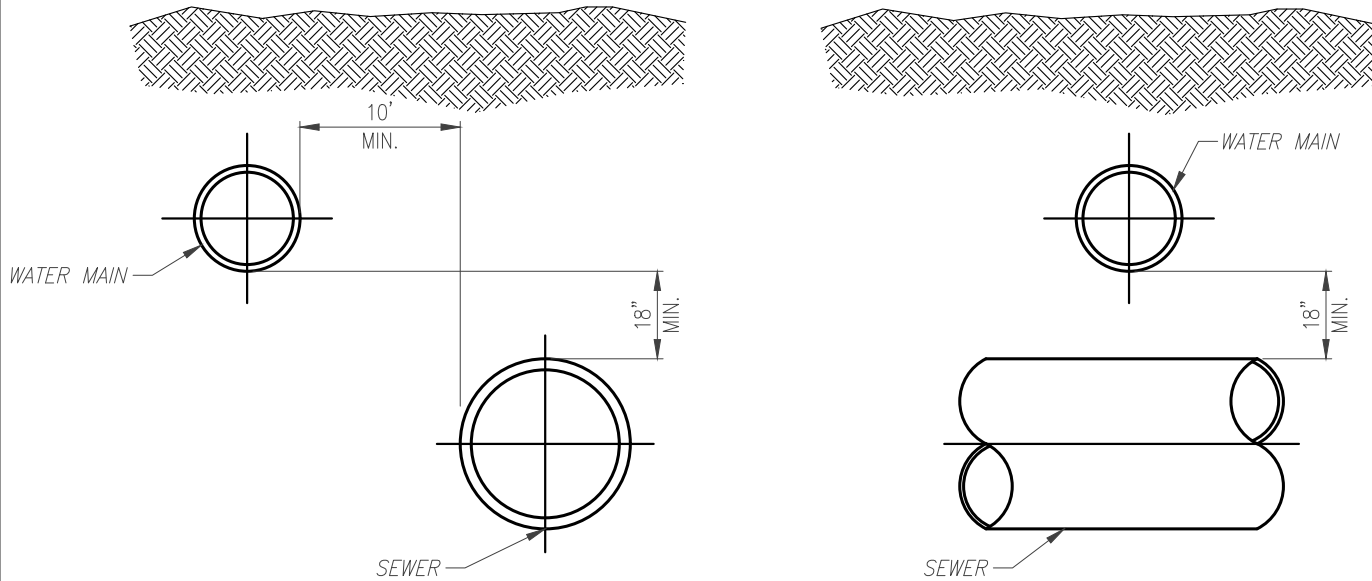
NOTES:

1. THE SUMP PUMP DISCHARGE OUTLET SHALL BE A MINIMUM 20' AWAY FROM THE BUILDING STRUCTURE AND A MINIMUM 10' AWAY FROM THE SIDEWALK/ROADWAY/DRIVEWAY. EXCEPTIONS TO THIS MAY BE GRANTED ON A CASE-BY-CASE BASIS WITH APPROVAL BY THE TOWN OF CLARKVILLE.
2. THE SUMP PUMP DISCHARGE LINE CAN BE INSTALLED IN A WAY TO DAYLIGHT AT THE GROUNDS SURFACE IF THE GROUND IS SLOPING AWAY FROM THE BUILDING STRUCTURE. THE DISCHARGE OUTLET SHALL MEET ALL REQUIREMENTS IN NOTE 1.

	<p>5.0</p>
<p>SUMP PUMP DISCHARGE OUTLET</p>	



HORIZONTAL OFFSET REQUIREMENTS
FOR SEWER STRUCTURES



HORIZONTAL OFFSET REQUIREMENTS

VERTICAL OFFSET REQUIREMENTS

BASIC SEPARATION REQUIREMENTS:

1. WATER MAINS AND SEWERS SHOULD BE SEPARATED AS FAR AS IS REASONABLE IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS. THE STANDARD DEPTH OF COVER REQUIREMENTS PER COUNTY, AS SPECIFIED IN 327 IAC 8, SHALL BE MAINTAINED FOR ALL WATER MAIN CROSSINGS.
2. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE WATER MAINS AND SEWERS SHALL BE AT LEAST 10 FEET
3. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST 18" ABOVE SANITARY/STORM SEWERS WHERE THESE LINES MUST CROSS.