

COUNTY	STATE	PROJECT NUMBER	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
SEDGWICK	KANSAS			1	

SEDGWICK COUNTY PUBLIC WORKS

4MC-080



SANITARY SEWER CONSTRUCTION FOR CLARK ESTATES

ALL UTILITIES AS SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AT THIS TIME. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES, TO CONTACT EACH UTILITY PRIOR TO BEGINNING ANY EXCAVATION OR CONSTRUCTION AND TO COORDINATE ANY ADJUSTMENTS AND RELOCATIONS NECESSARY.

THE CONTRACTOR SHALL PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

KANSAS ONE-CALL 1-800-344-7233 (STATE WIDE)
687-2470 (WICHITA)

PLANS PREPARED BY:

SEDGWICK COUNTY PUBLIC WORKS
SEWER DEPARTMENT

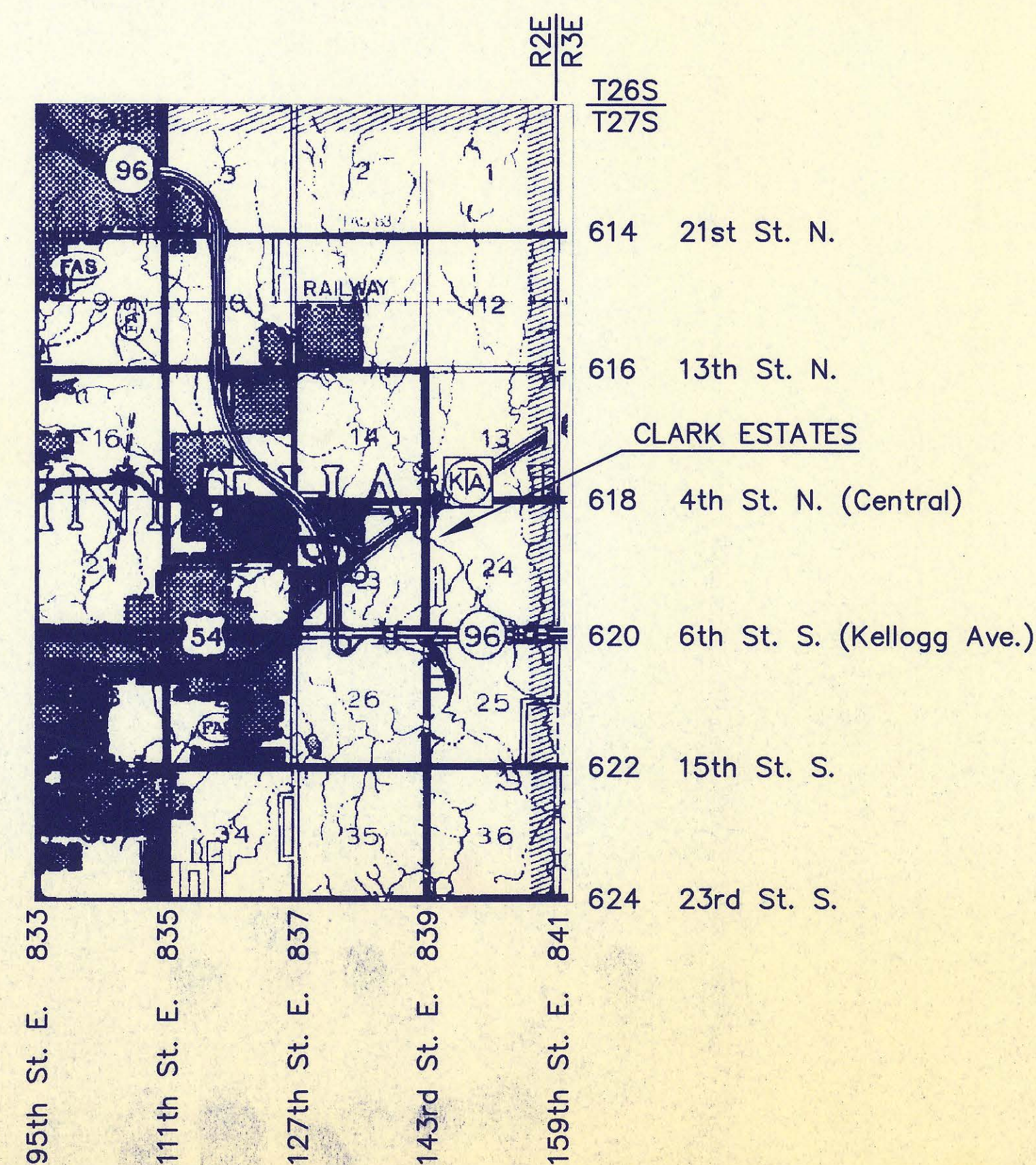
APPROVED:

David C. Spears
DAVID C. SPEARS, P.E.
DIRECTOR OF PUBLIC WORKS/COUNTY ENGINEER
DATE: 5/6/99

APPROVED:

Bill Hannah
CHAIRMAN, BOARD OF COUNTY COMMISSIONERS
DATE: 5-11-99

FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK
James Alford
COUNTY CLERK
DATE: 5-11-99



CONVENTIONAL SIGNS

- TELEPHONE POLE
- POWER POLE
- COMB. POWER & TELEPHONE
- WIRE FENCE
- RAILROADS
- SURVEY LINE
- RIGHT OF WAY
- TOWNSHIP LINE
- CONSTRUCTION LIMITS
- GUARD FENCE
- HEDGE ROW
- TREES

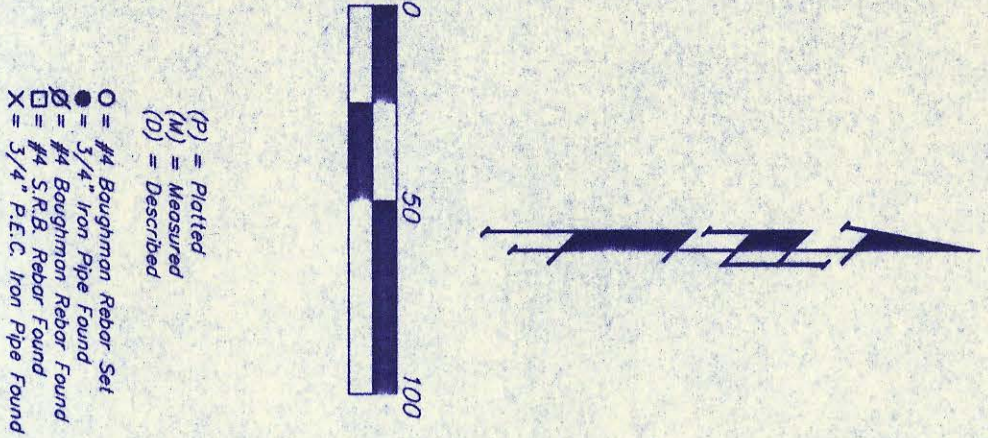
Clark Estates

4MC-080

0120-sub-04-995

CLARK ESTATES

SEDGWICK COUNTY, KANSAS

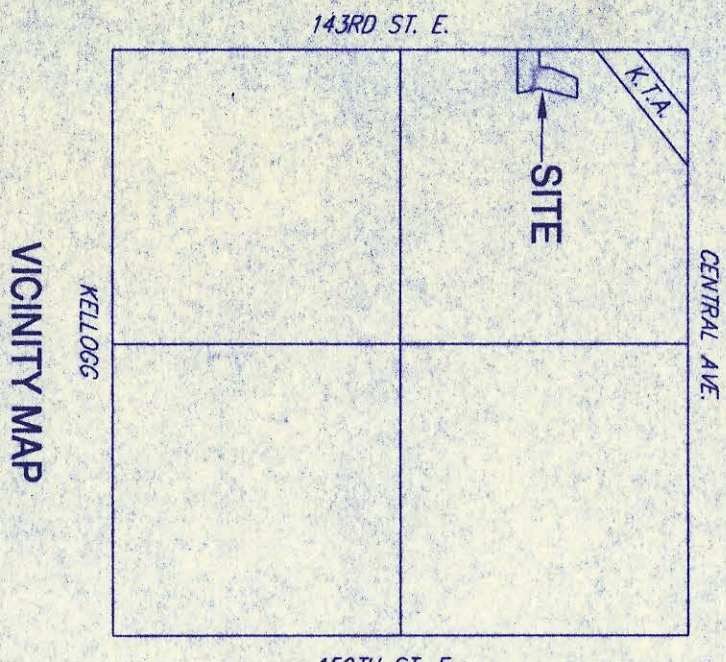


BENCHMARK: Top of Curb North
side of Stakes at Stakes Court.
Elevation = 1322.59

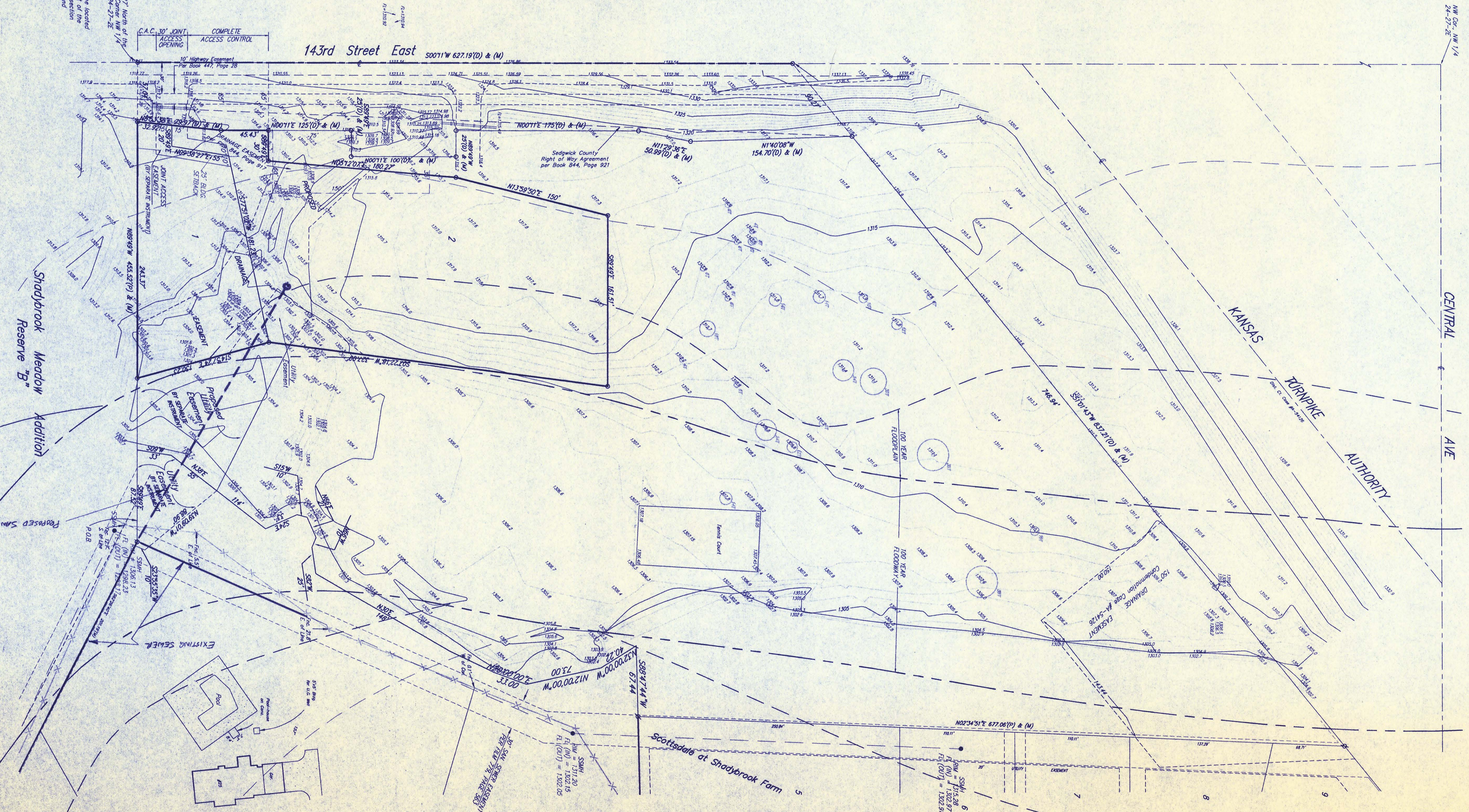
OWNER:
CARY AND CHUDY CLARK
7500 E. KELLCOG
MCHTIA, KANSAS 67207
(316) 694-0051

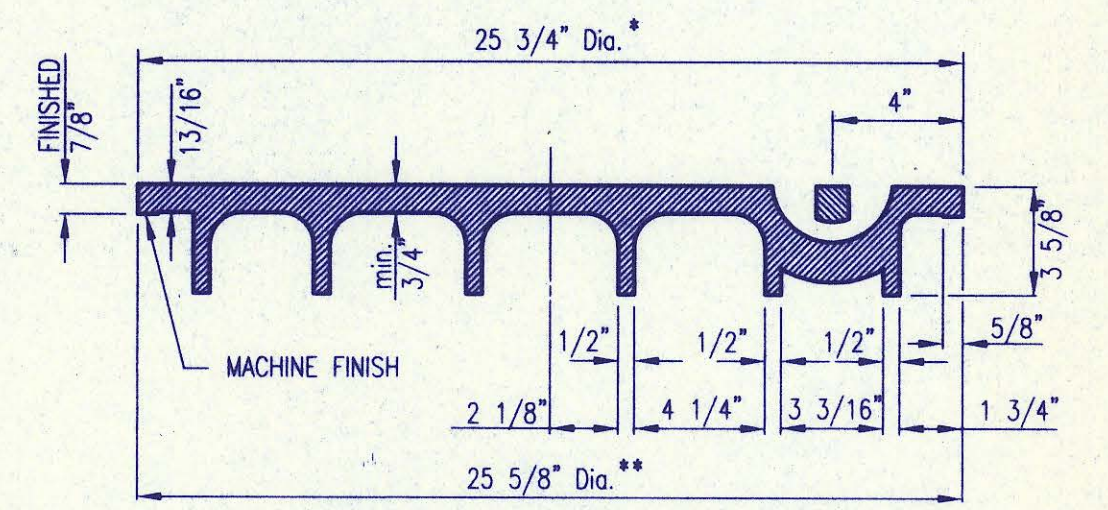
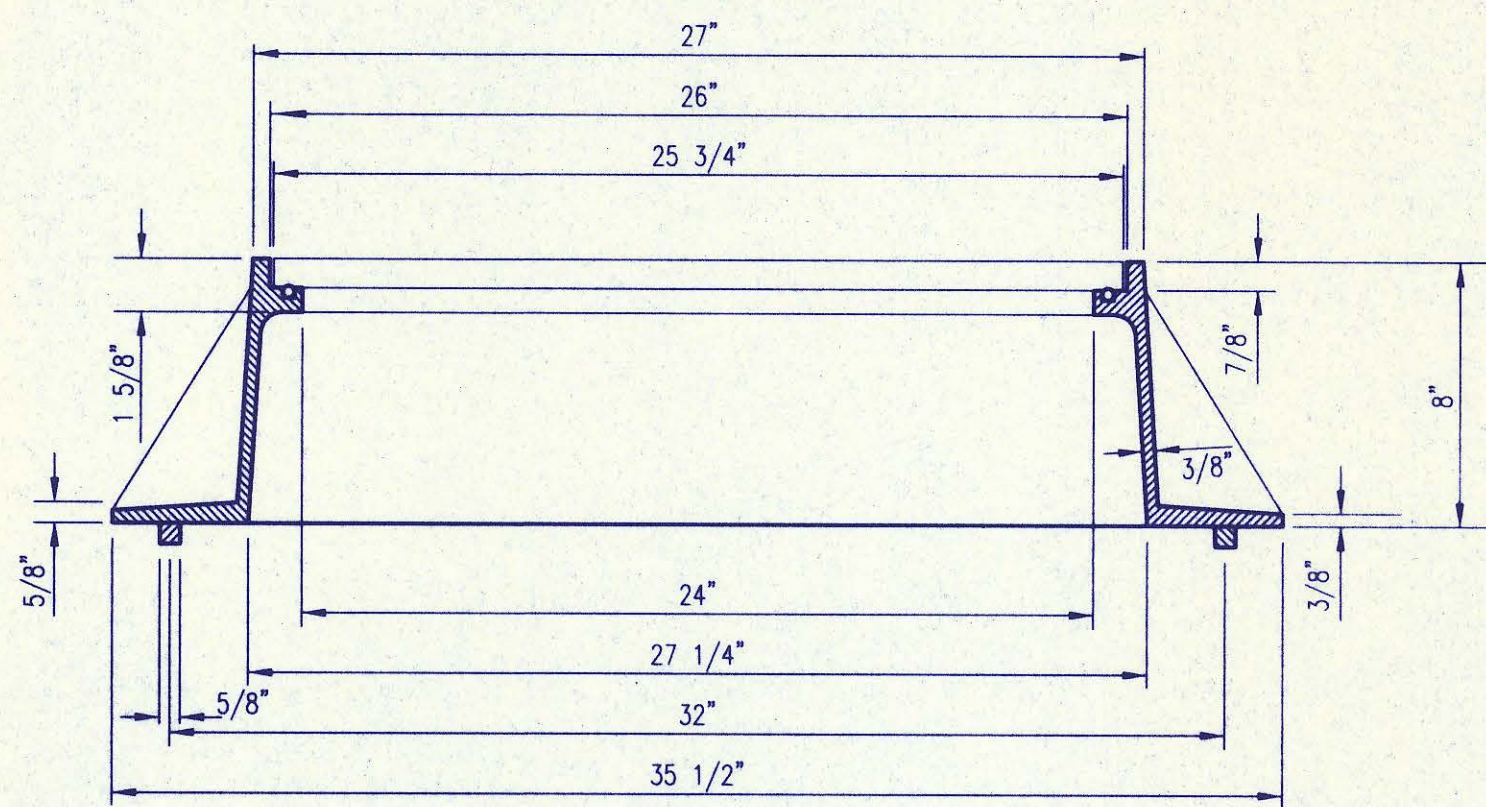
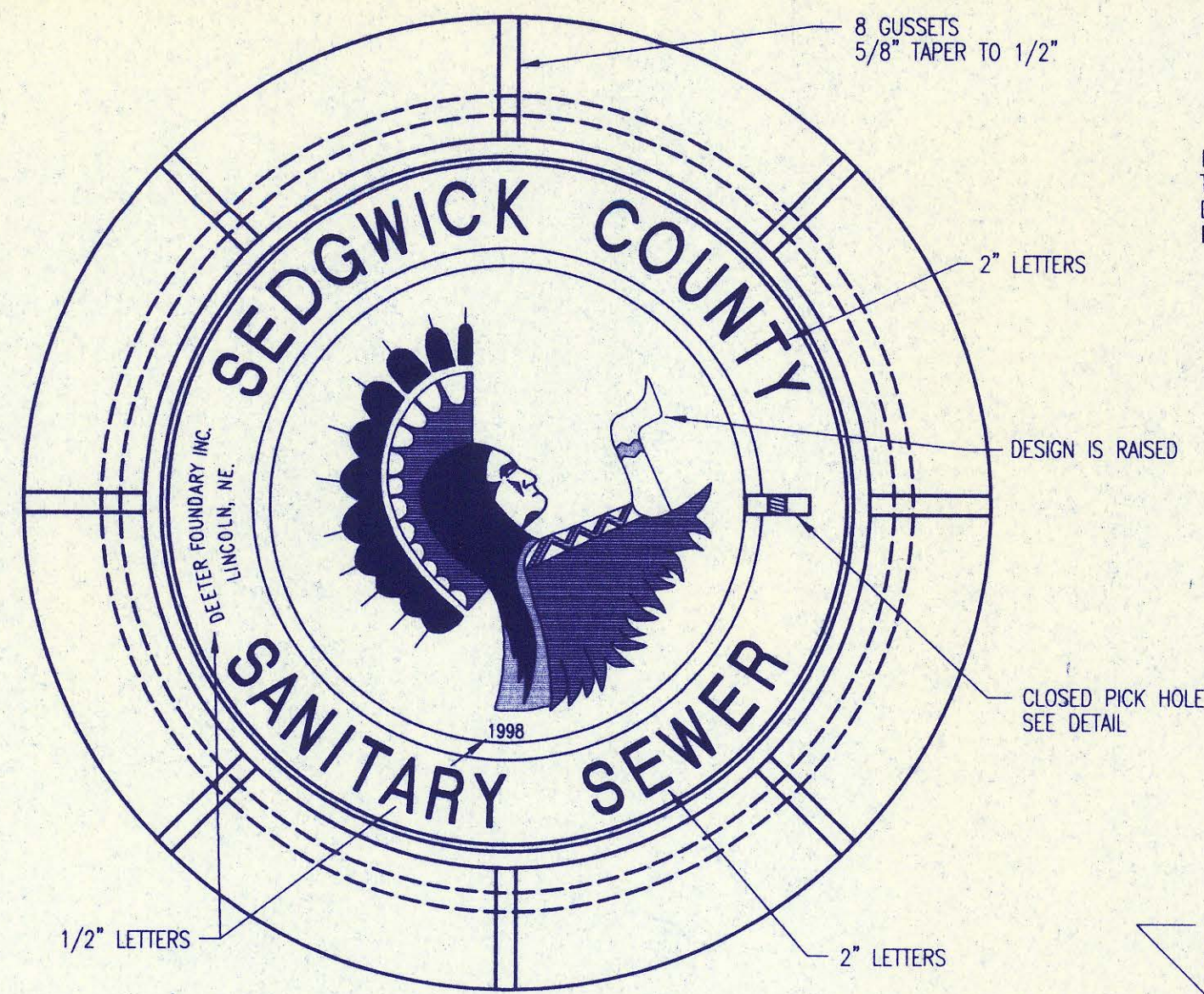
LEGAL DESCRIPTION:

That part of the NW 1/4 of Sec. 24, Twp. 27-S, R-2-E of the 6th P.M., Sedgwick County, Kansas described as commencing at the SW corner of said NW 1/4, thence N001°00' E along the west line of said NW 1/4, 133.27 feet to the intersection of the north line of Shadybrook Meadows, an addition to Sedgwick County, Kansas, as extended eastward for a point of beginning, thence S89°49'00" E along the east line of said Shadybrook Meadows, 127.00 feet, thence N89°42'00" W 157.25 feet, thence S13°50'57" W 150 feet, thence S08°12'07" W 180.27 feet, thence N89°39'07" W 94.23 feet to a point on the west line of said NW 1/4, 125 feet to the point of beginning, subject to road rights-of-way and encroachments of record.



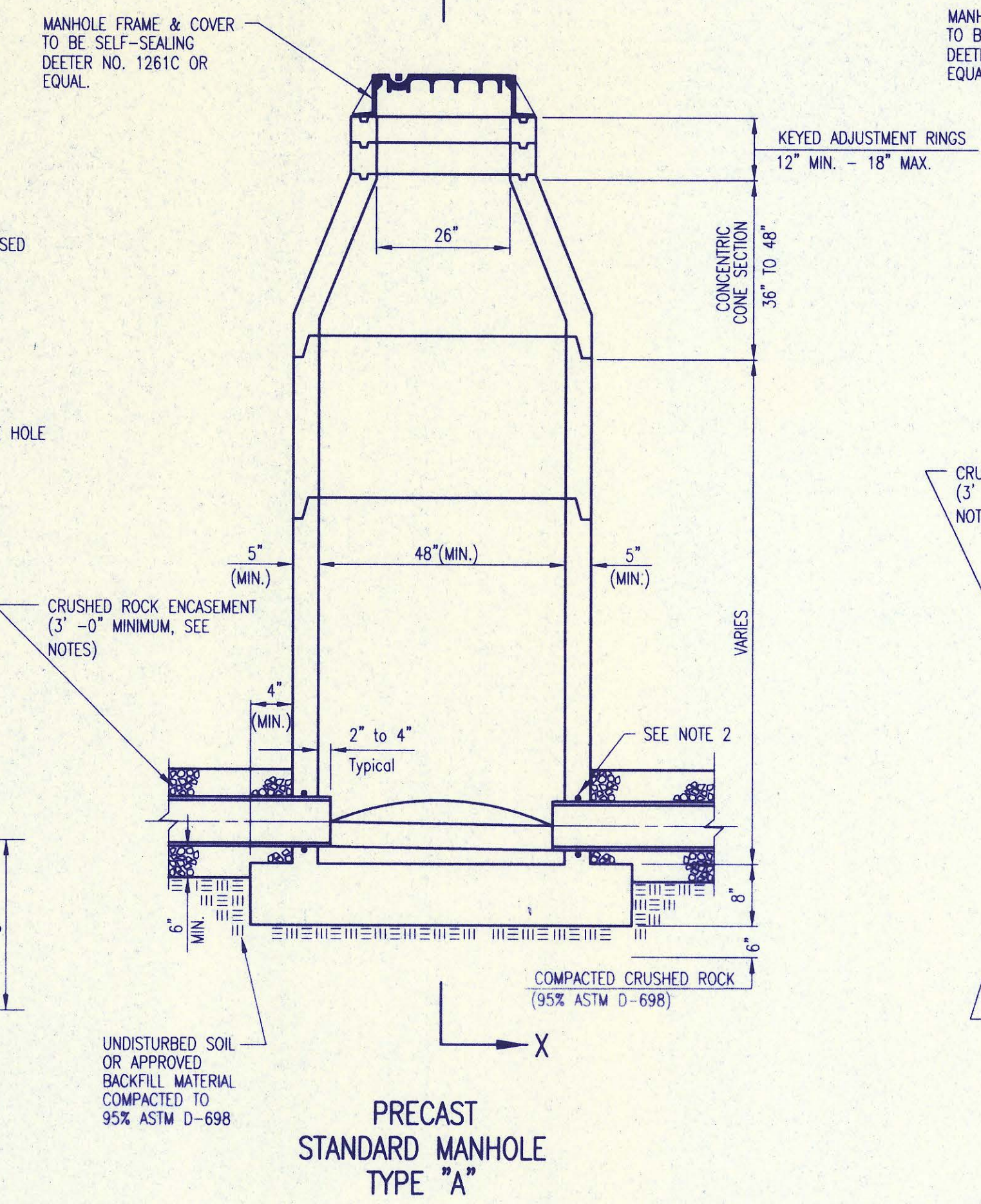
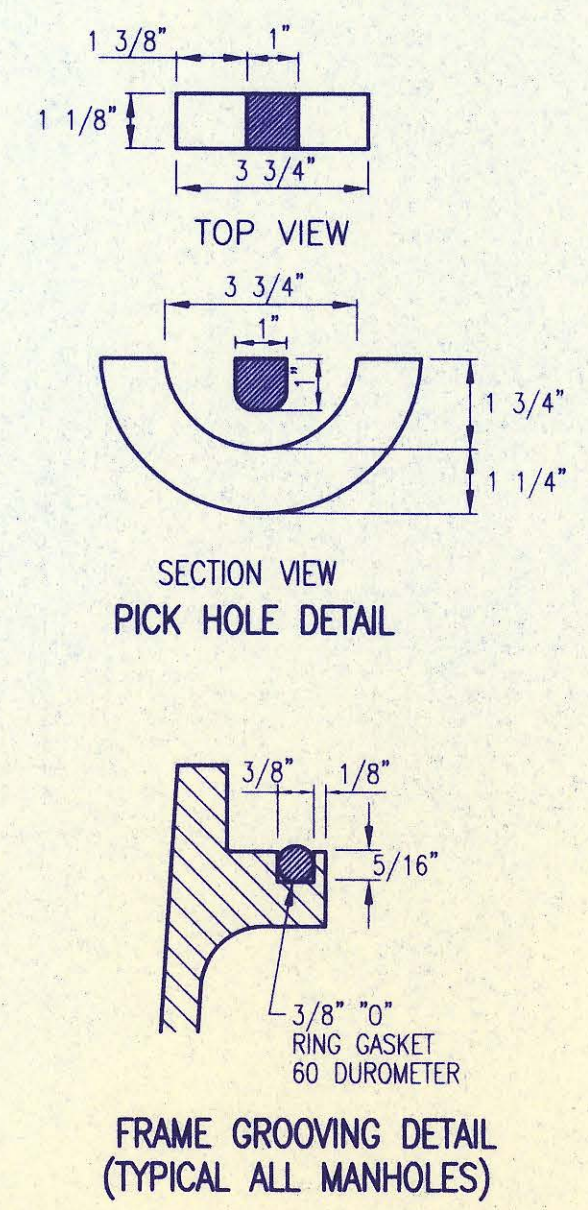
Water Line Alignment:
End of a 12" Water Line located 7.5' South and 7' West of the NE Corner of the intersection of 143rd Street East and Stakes.



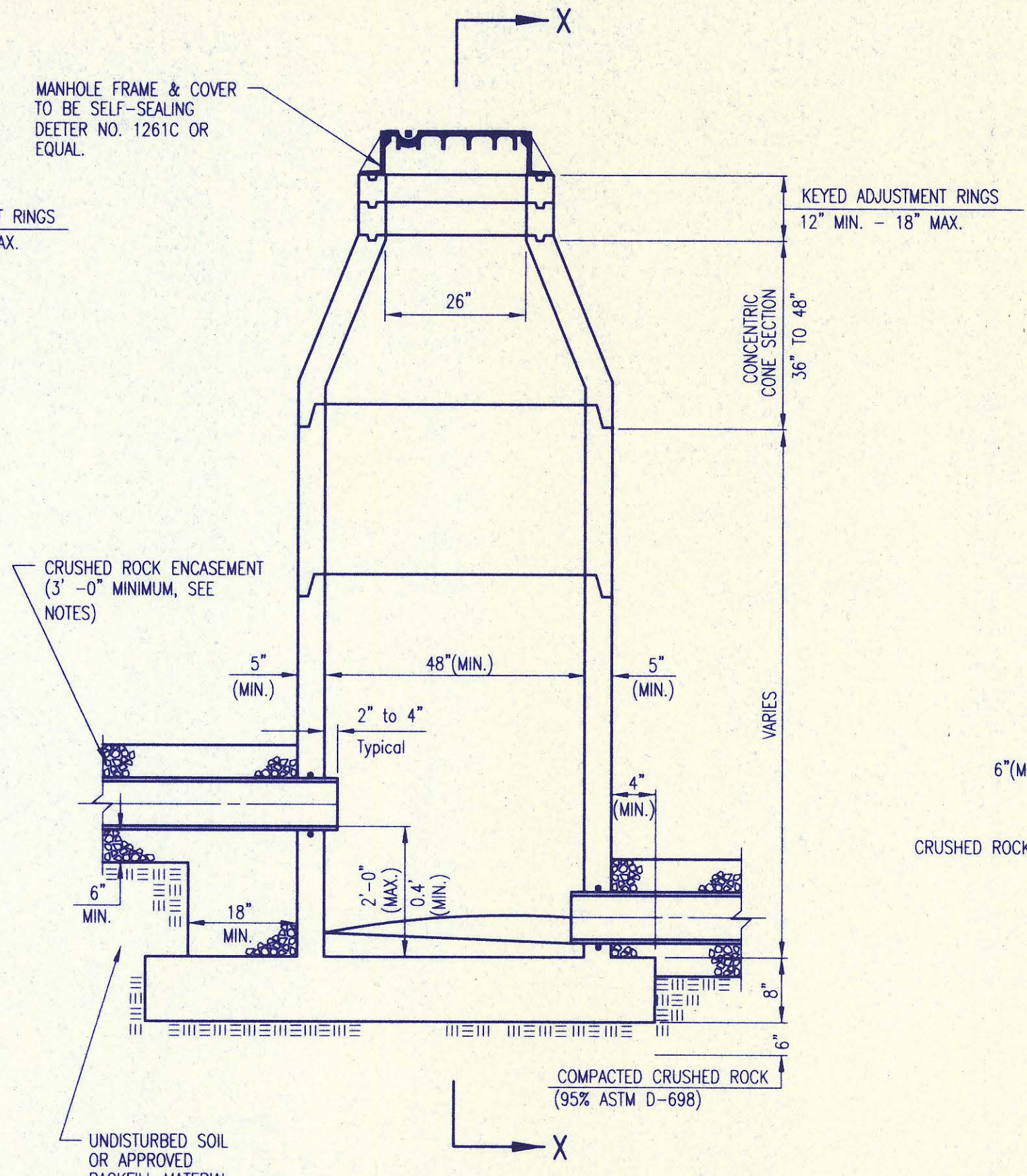


MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 325 LBS.)

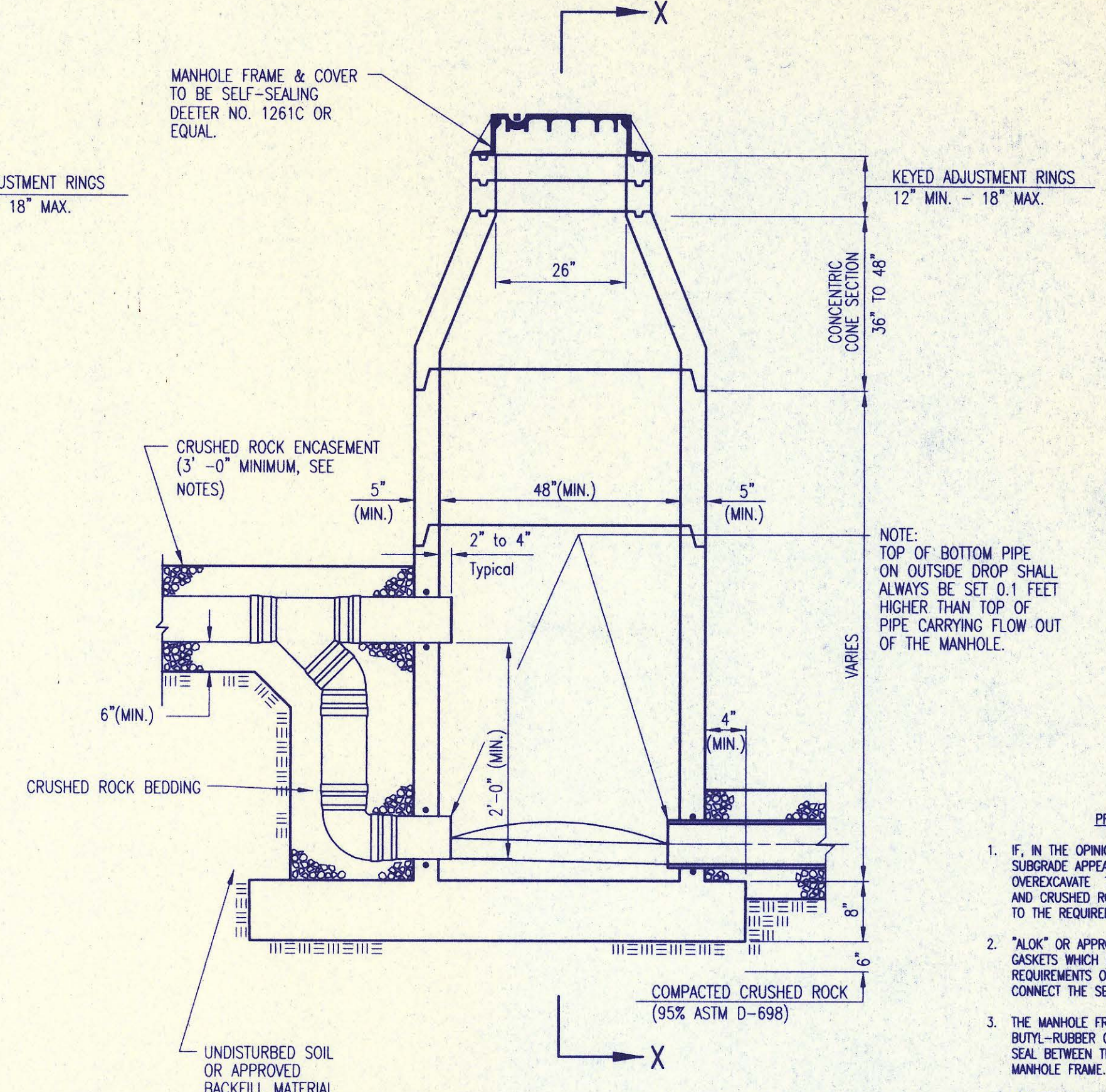
- MANHOLE FRAME AND COVER NOTES**
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 350, OR BETTER.
 - CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL BURRS SHALL BE GROUND SMOOTH. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE BY $\pm 1/16$ " PER FOOT.
 - NO OTHER LETTERING OR MARKINGS OTHER THAN THOSE DETAILED ON PLAN WILL BE PERMITTED ON CASTINGS.
 - CASTINGS MUST BE DOMESTICALLY MANUFACTURED IN THE UNITED STATES OF AMERICA.
 - THE FRAMES AND COVERS SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
 - MANHOLE CASTINGS SHALL BE SELF-SEALING DEETER FOUNDRY INC. NO. 1261C OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT. = 325 LBS.) ALL MANHOLE CASTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
 - THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
 - THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED CONTINUOUS "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL BE FACTORY INSTALLED IN THE MANHOLE FRAME WITH 100% SILICON SEALANT-DOW CORNING OR EQUAL.



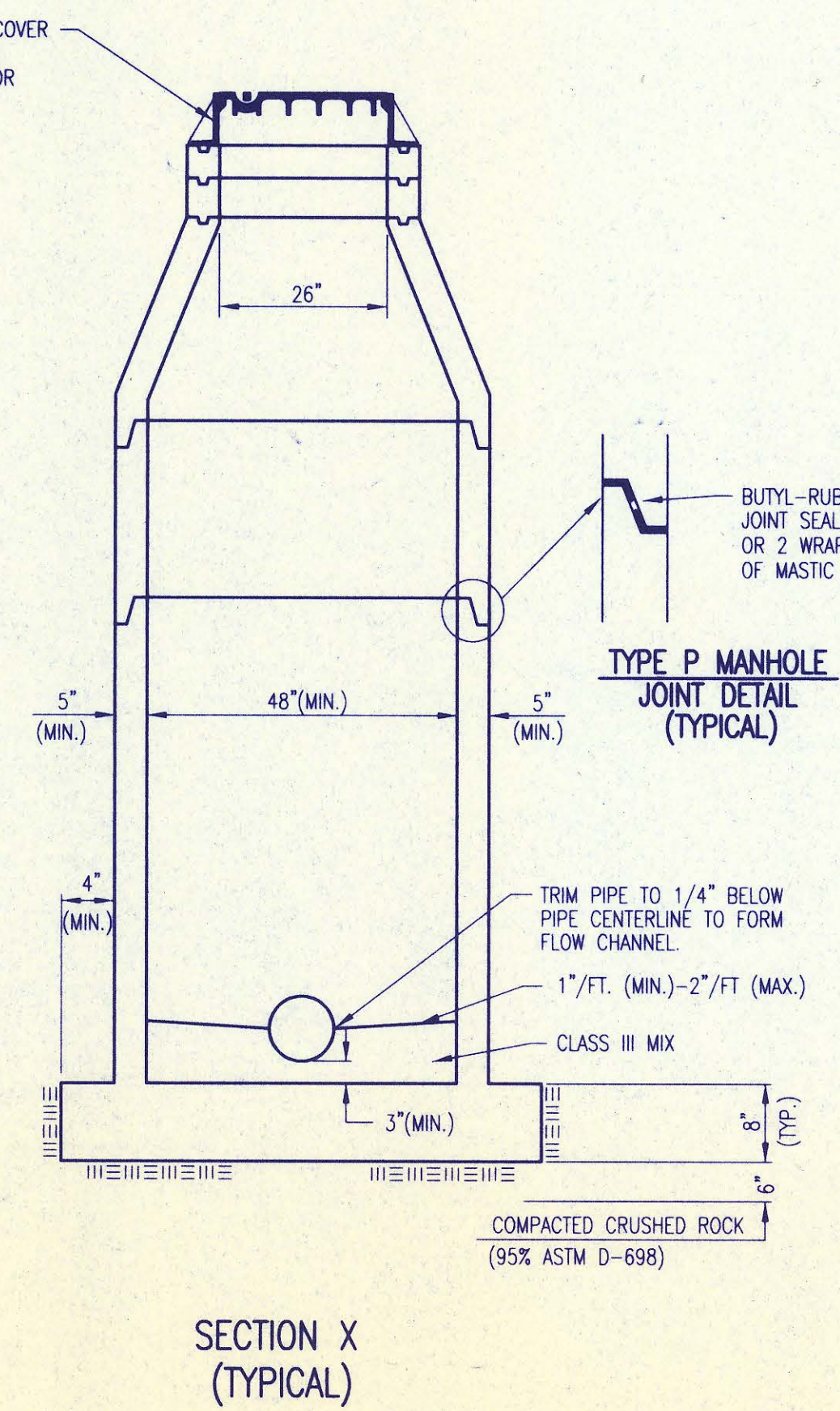
PRECAST STANDARD MANHOLE TYPE "A"



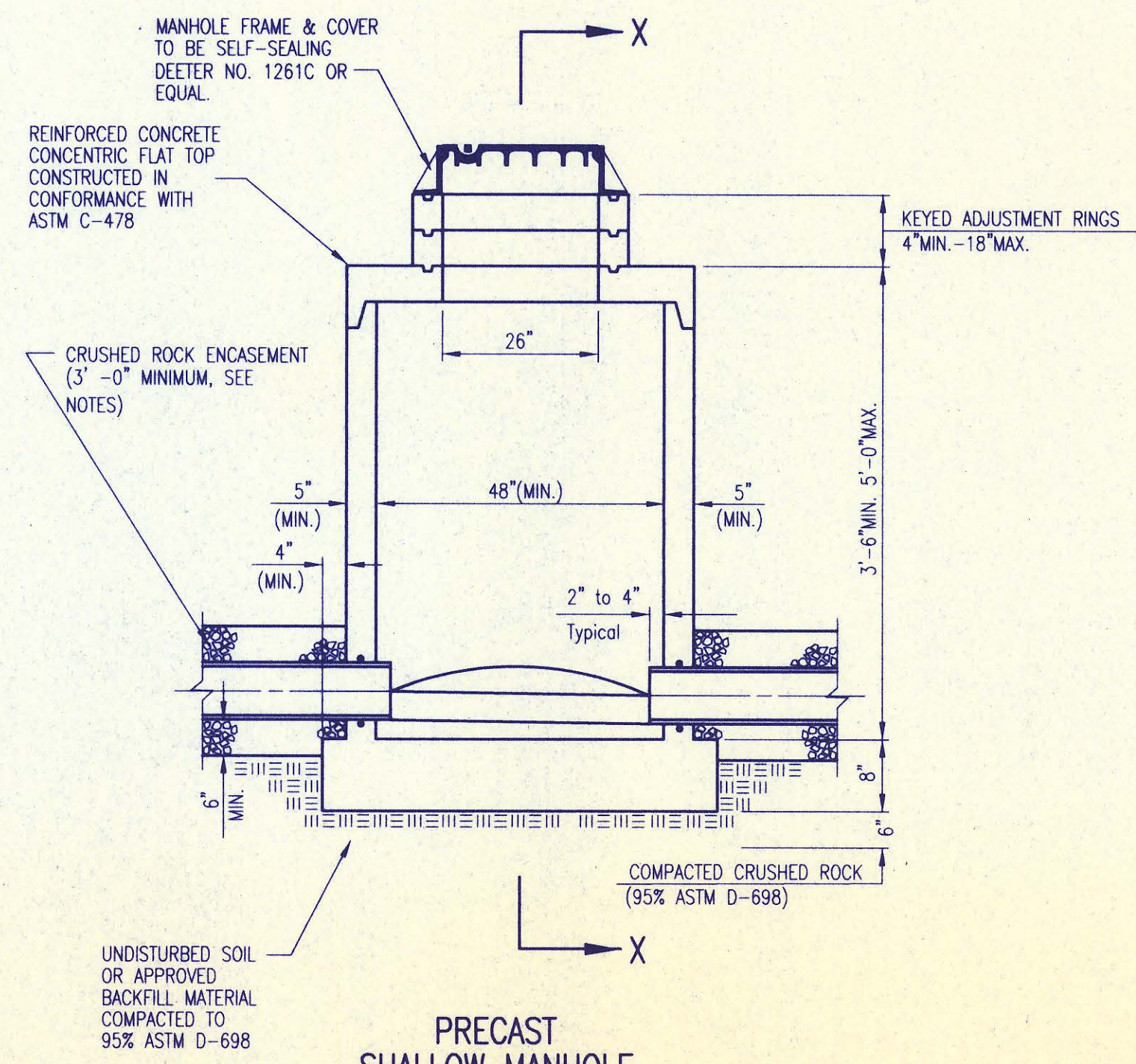
PRECAST INSIDE DROP MANHOLE TYPE "B"



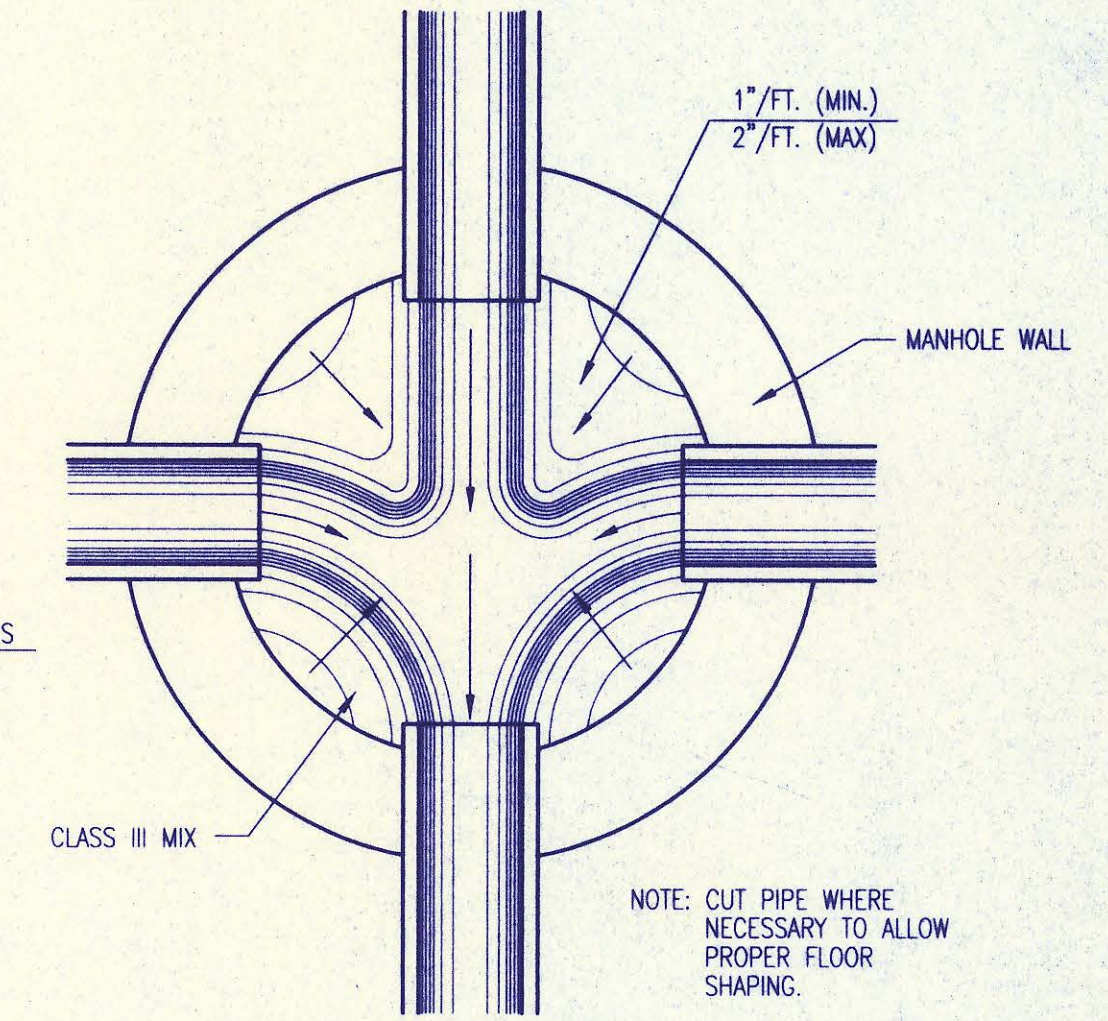
PRECAST OUTSIDE DROP MANHOLE TYPE "C"



PRECAST SHALLOW MANHOLE TYPE "D"



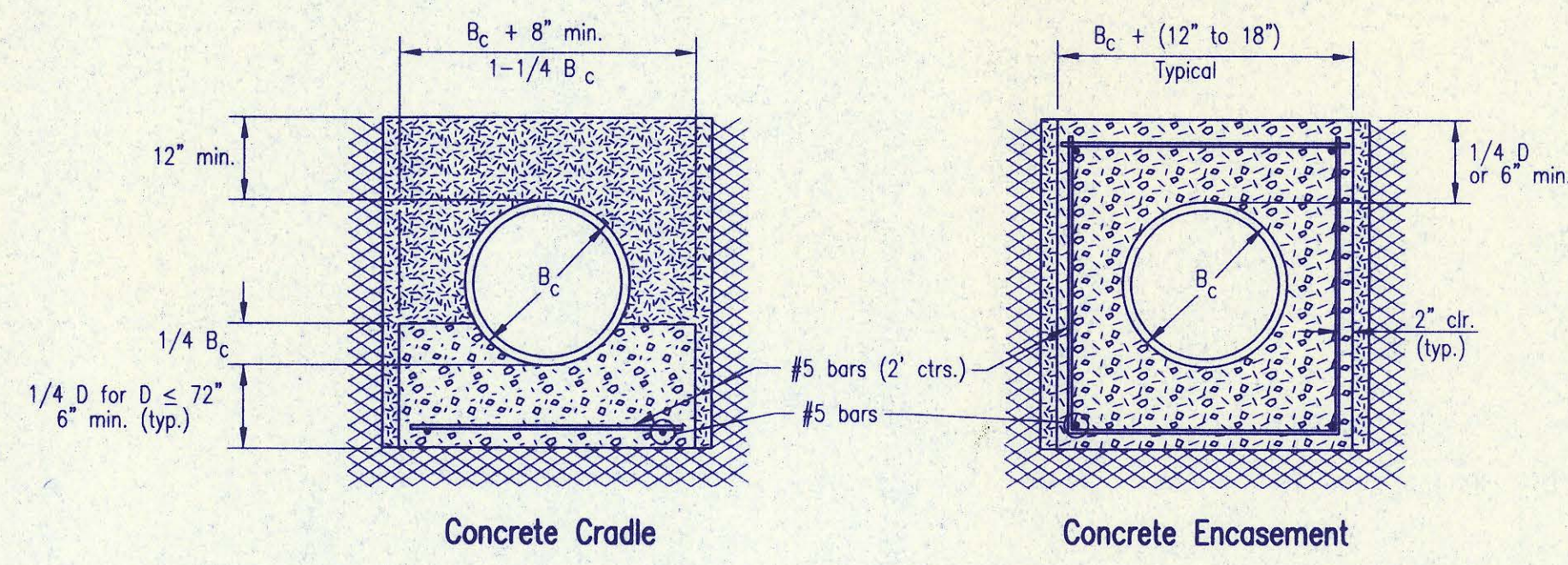
TYPE P MANHOLE JOINT DETAIL (TYPICAL)



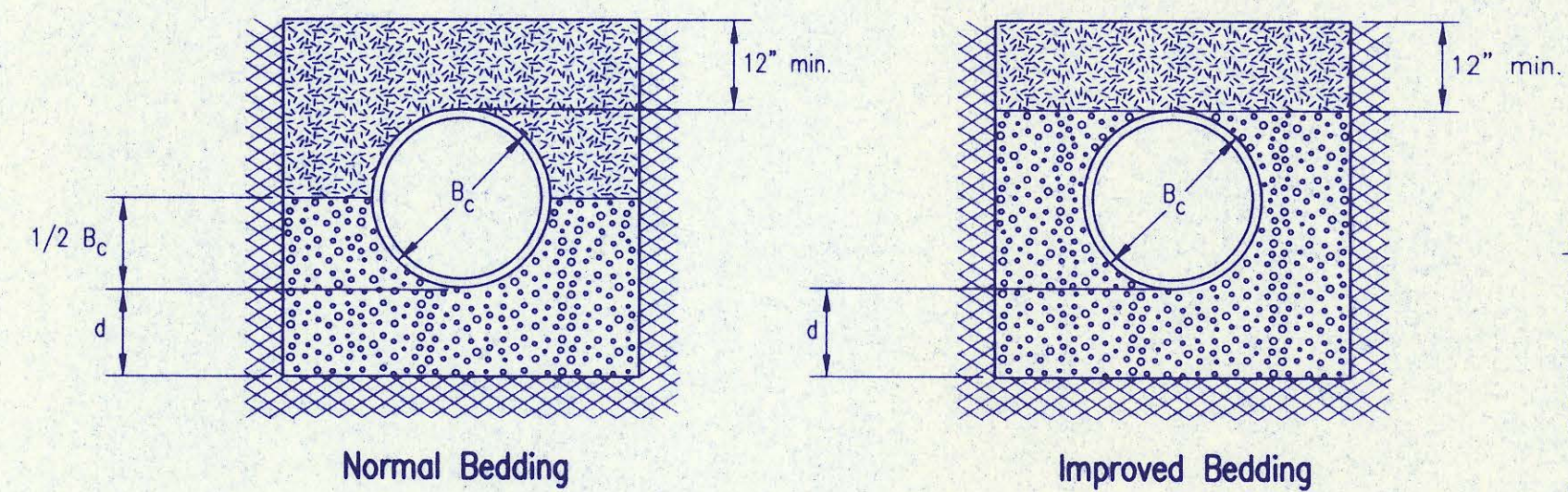
TYPICAL MANHOLE FLOOR SHAPING

- PRECAST MANHOLE NOTES**
- IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL OVEREXCAVATE TO A SUITABLE SUBGRADE CONDITION AND CRUSHED ROCK SHALL BE PLACED AND COMPACTED TO THE REQUIRED GRADE.
 - "A-LOCK" OR APPROVED EQUAL FLEXIBLE WATER-STOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-923 SHALL BE INSTALLED TO CONNECT THE SEWER TO THE MANHOLE WALL.
 - THE MANHOLE FRAME SHALL BE SEATED ON AN APPROVED BUTYL-RUBBER OR MASTIC SEALANT TO PROVIDE WATER-TIGHT SEAL BETWEEN THE MANHOLE ADJUSTMENT RING AND THE MANHOLE FRAME.
 - GASKETED PIPE CAPS SHALL BE PROVIDED BY THE PIPE SUPPLIER. GLOUED OR CEMENTED CAPS WILL NOT BE ACCEPTED.
 - ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
 - TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
 - MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5" INSIDE DIAMETER (MIN.).
 - INSIDE DIAMETER OF FIVE-FOOT DIAMETER PRECAST MANHOLES SHALL REMAIN CONSTANT TO THE LOCATION OF THE REDUCING FLAT TOP WHICH CONNECTS THE FOUR-FOOT DIAMETER CONE SECTION TO THE FIVE-FOOT DIAMETER MANHOLE BARREL.
 - MANHOLES SHALL BE SUPPLIED WITH PRECAST BASE SECTIONS UNLESS OTHERWISE APPROVED. ALL PRECAST CONCRETE MANHOLE SECTIONS AND BASES SHALL CONFORM TO THE LATEST REVISION OF ASTM C478 AS MODIFIED BY THE SPECIFICATIONS. ALL MANHOLES WITH PRECAST BASES SHALL INCLUDE A-LOCK GASKETS FOR ALL PIPE PENETRATIONS INTO THE MANHOLES.
 - WHERE MANHOLE STUDS ARE SHOWN ON THE PLANS, THE STUD SHALL EXTEND AT LEAST 5 FEET FROM THE INSIDE WALL OF THE MANHOLE. 4" STUDS SHALL BE SET AT 2.0% GRADE. 6" STUDS SHALL BE SET AT 1.0% GRADE.
 - MANHOLE SECTIONS SHALL BE SUPPLIED WITH RECESSED LIFTING EYES. LIFTING EYE RECESSES SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.
 - WHERE A-LOCK GASKETS ARE REQUIRED, THE CONTRACTOR SHALL UTILIZE A CRUSHED ROCK BEDDING MATERIAL. THE ROCK BEDDING MATERIAL SHALL EXTEND TO 3 FEET FROM THE MANHOLE WALL AND SHALL BE COMPACTED IN PLACE FROM THE BOTTOM OF THE DISTURBED AREA TO 1 FOOT ABOVE THE TOP OF PIPE. THE CRUSHED ROCK WHICH IS PLACED BELOW THE PIPE BEDDING ZONE SHALL BE COMPACTED TO 95% ASTM D-698(MIN.).
 - WHERE MANHOLES ARE TO BE BUILT OVER EXISTING SANITARY SEWER LINES, SEWER PIPES SHALL BE SUPPORTED WITH CLASS III CONCRETE ENCASUREMENT A MINIMUM OF 3 FEET OUTSIDE THE MANHOLE WALL.
 - CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.

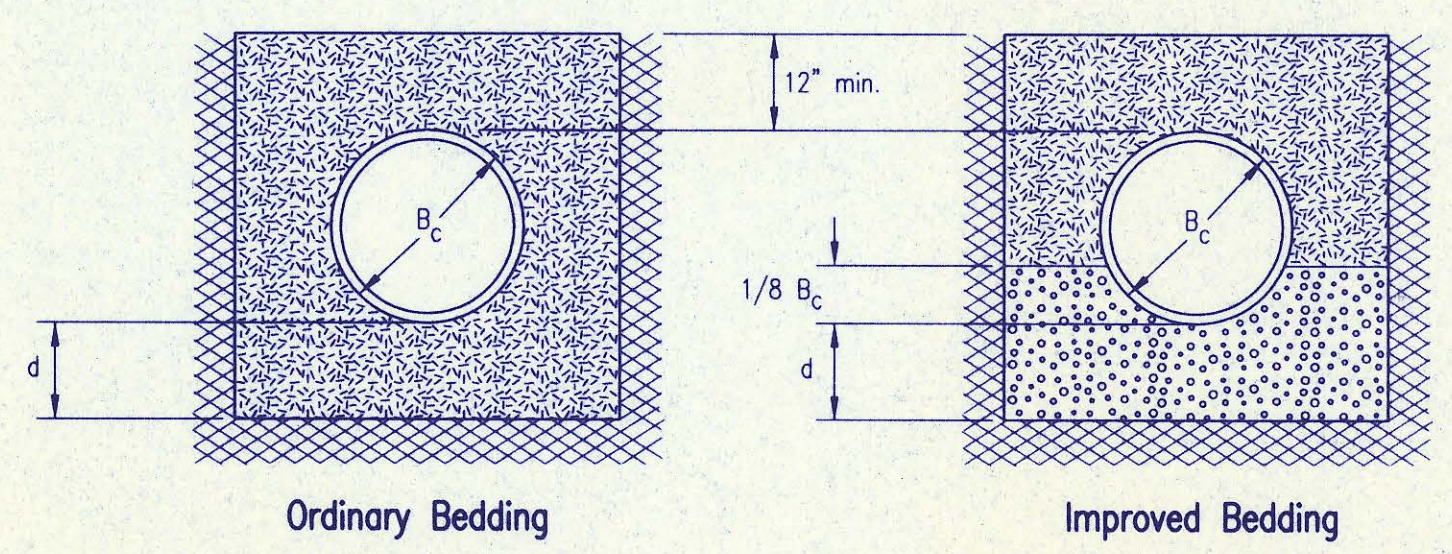
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CLASS A



CLASS B



CLASS C

PIPE ZONE BACKFILLING

- B_c = Outside Pipe Diameter
- H = Backfill from Top of Pipe to Existing Ground
- D = Inside Pipe Diameter
- d = Depth of Bedding Material Below Pipe
- [Granular Bedding Material or Sand-Gravel Bedding]
- [Compacted Embedment]
- [Concrete]

Depth of Bedding Material Below Pipe		
D	d(min) Soil	d(min) Rock
27" & smaller	4"	6"
30" to 60"	5"	9"
66" & larger	6"	12"

Granular Bedding Material shall be an approved material consisting of durable crushed rock conforming with the requirements of the latest revision of ASTM C-33 Size No. 67 (3/4" to No. 4); to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating. Soundness, abrasion, and absorption limits shall be as required for coarse aggregates in Section 03010-Concrete Work in the specifications.

Sand-Gravel Bedding Material - sand-gravel mix meeting Type UD-1 of the 1990 Kansas Standard Specifications for State Road and Bridge Construction.

Compacted Embedment shall be an approved sand material free from debris, organic material, and stones with 100% passing the 3/4" sieve to be placed in uniform layers not more than 6" thick and compacted to 95 percent maximum density as determined by ASTM D698. Granular Bedding Material may be substituted for all or part of Compacted Embedment Materials.

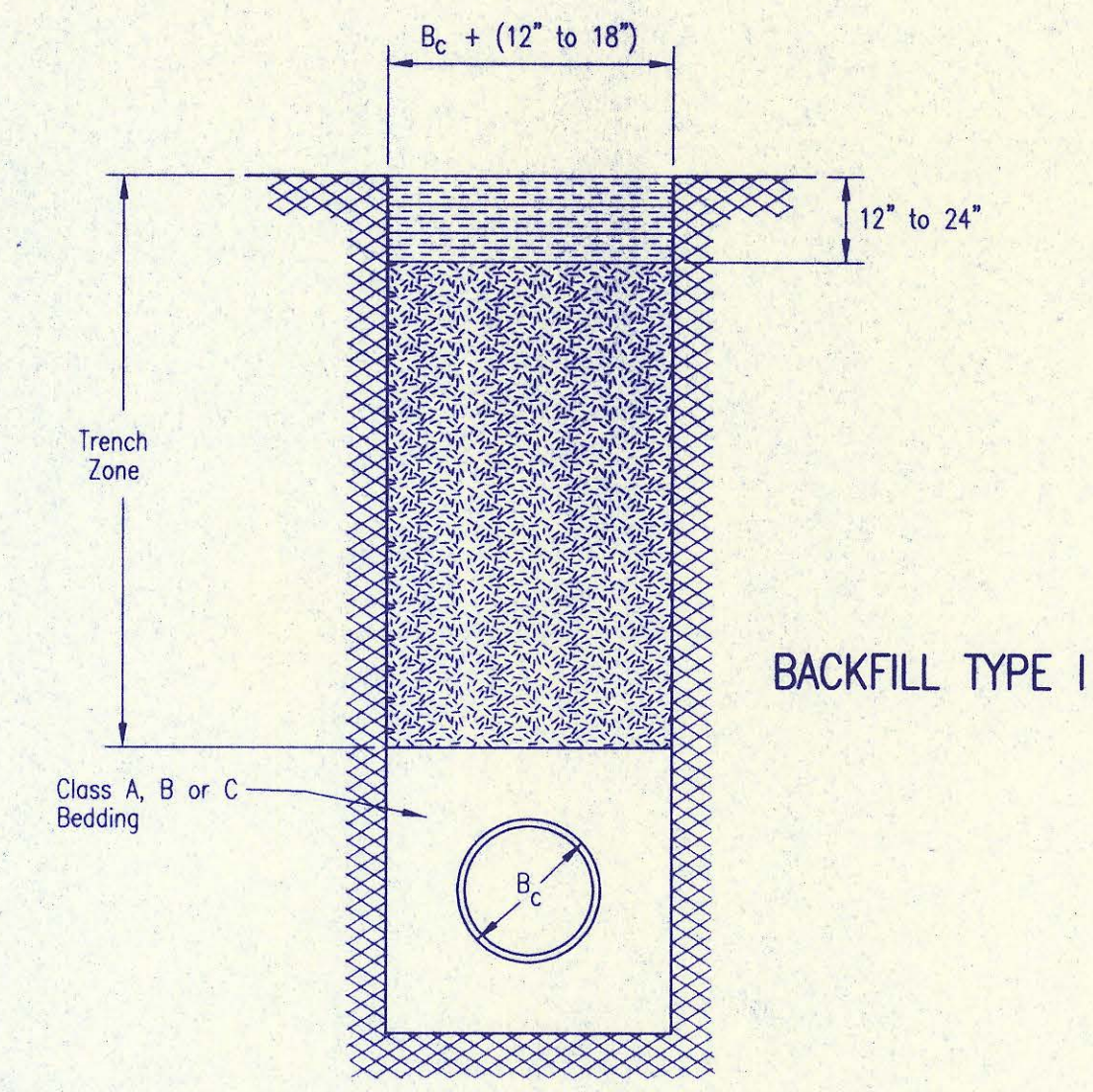
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

Class B Bedding shall be used for all flexible pipe.

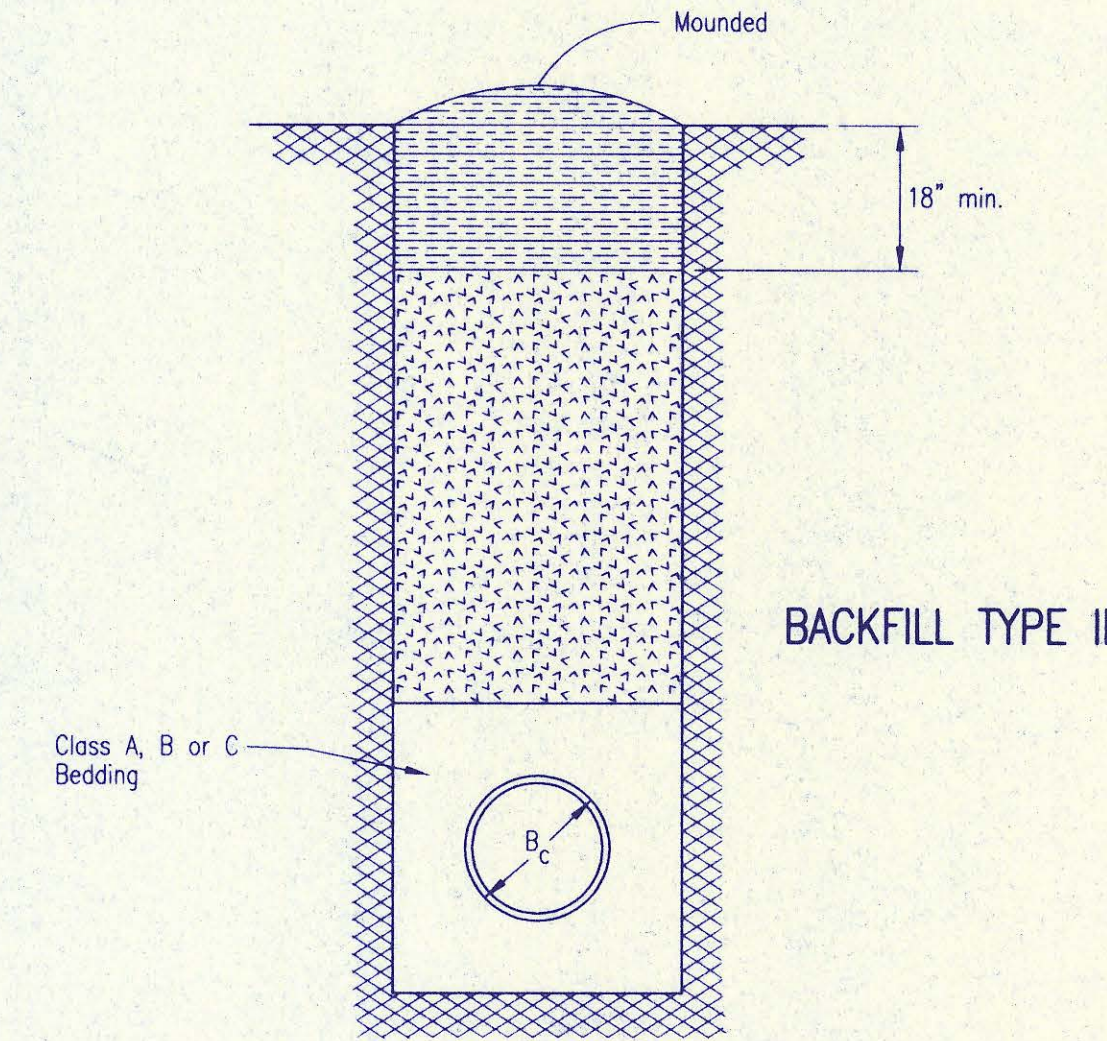
- a. Class B Normal Bedding shall be used for PVC Pipe unless wet conditions are encountered.
- b. Class B Improved Bedding shall be used for other flexible pipe, and for PVC pipe in wet conditions.

Class C Bedding shall be used for all rigid pipe.

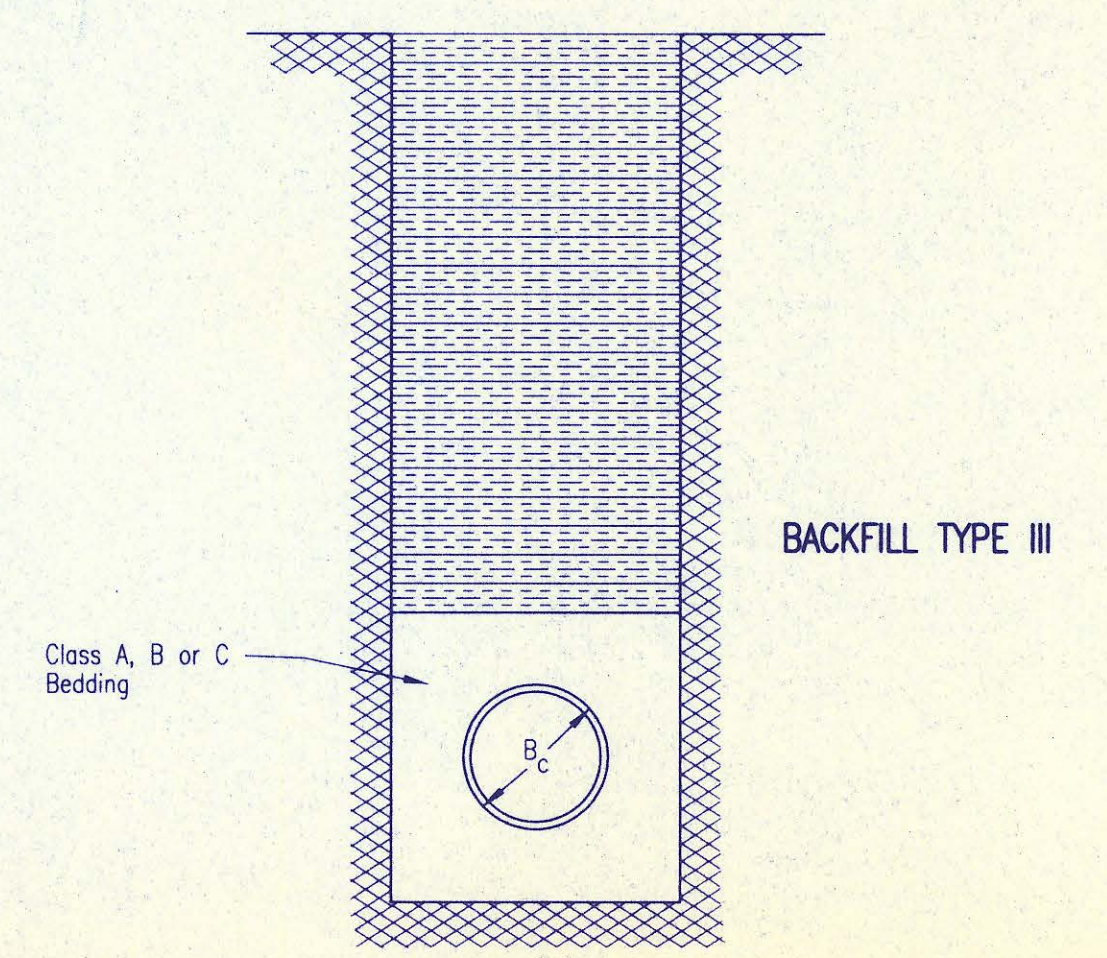
- a. Class C Ordinary Bedding shall be used for all rigid pipe unless wet conditions are encountered.
- b. Class C Improved Bedding shall be used for wet conditions existing in the trench, as directed by the Engineer, at no additional cost to the Owner. The dimensions shall be equal to that required for "rock" excavation (see specifications).



BACKFILL TYPE I



BACKFILL TYPE II



BACKFILL TYPE III

- B_c = Outside Pipe Diameter
- [Compacted Granular Backfill]
- [Uncompacted Earth Backfill]
- [Compacted Earth Backfill]

Compacted Granular Backfill material shall be an approved sand material free from debris, organic material and stones with 100% passing the 3/4" sieve and not more than 15% passing a No. 200 sieve; to be jetted and mechanically vibrated into place and compacted to 95% density as determined by ASTM D698.

Uncompacted Earth Backfill material may be natural soil free from large clods or stones, brush, roots more than 2 inches in diameter, debris, and junk. Flooding with water shall be provided as directed by the Engineer.

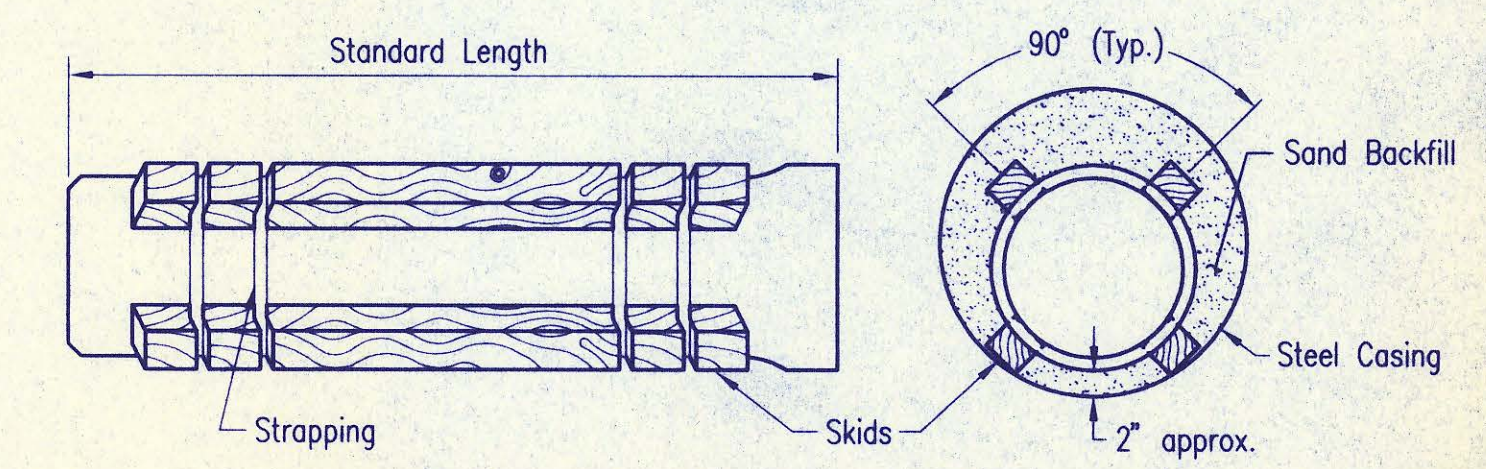
Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D698.

Backfill: Backfill material and compaction requirements shall conform to either Type I, Type II or Type III as specified in the plans. One years maintenance will be required on all backfill.

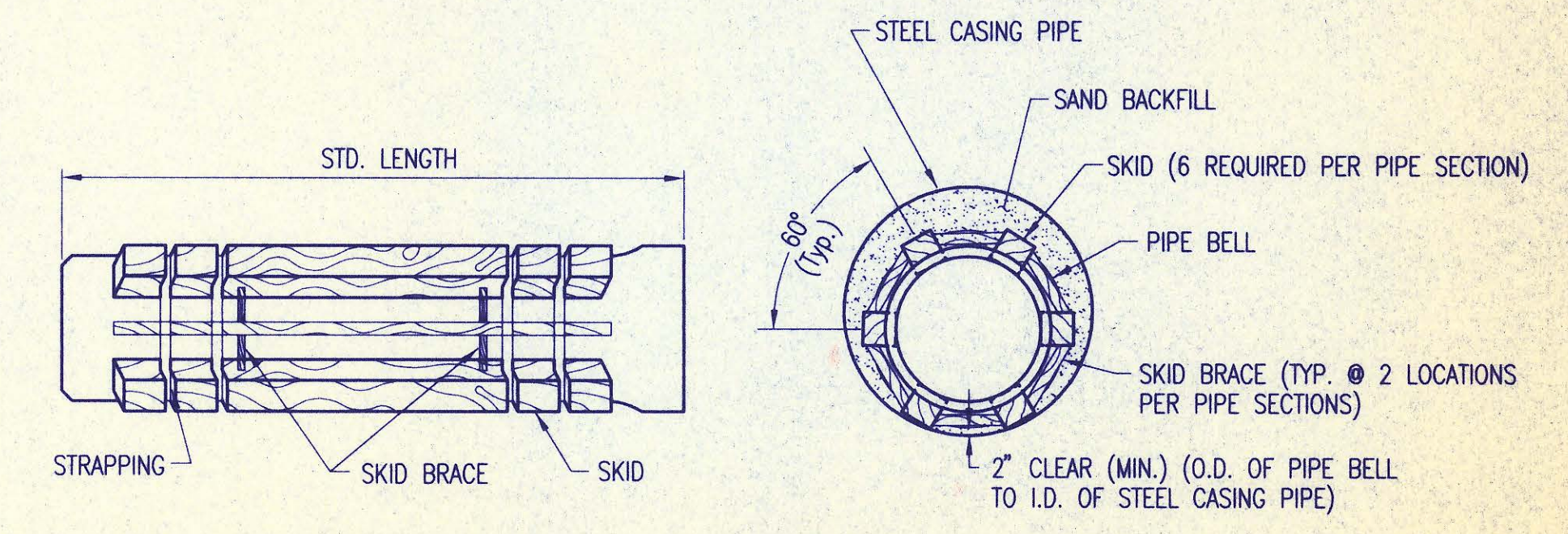
Backfilling Through Rock: Backfilling through rock shall be performed as specified in the paragraph Backfill above, except that the Pipe Zone is increased to provide eighteen (18) inches of cover over the pipe. When approved by the Engineer the remainder of the backfill may be excavated rock provided the excavated rock has been broken up so that earth and rock will thoroughly mix and not result in voids around the larger pieces of rock. Any excess rock remaining after the trench has been backfilled shall be removed or wasted as directed by the Engineer.

Backfilling Under Pavement: Backfilling under existing or proposed pavement shall be performed as Backfill Type I to a level of two (2) feet from the bottom of the pavement. The remainder of the trench shall be backfilled with selected material, sufficiently damp to be properly compacted in layers not exceeding six (6) inches in depth, compaction shall be performed with mechanical tampers and continued until a relative density of 100 percent of standard density, in conformance with ASTM D698 is attained.

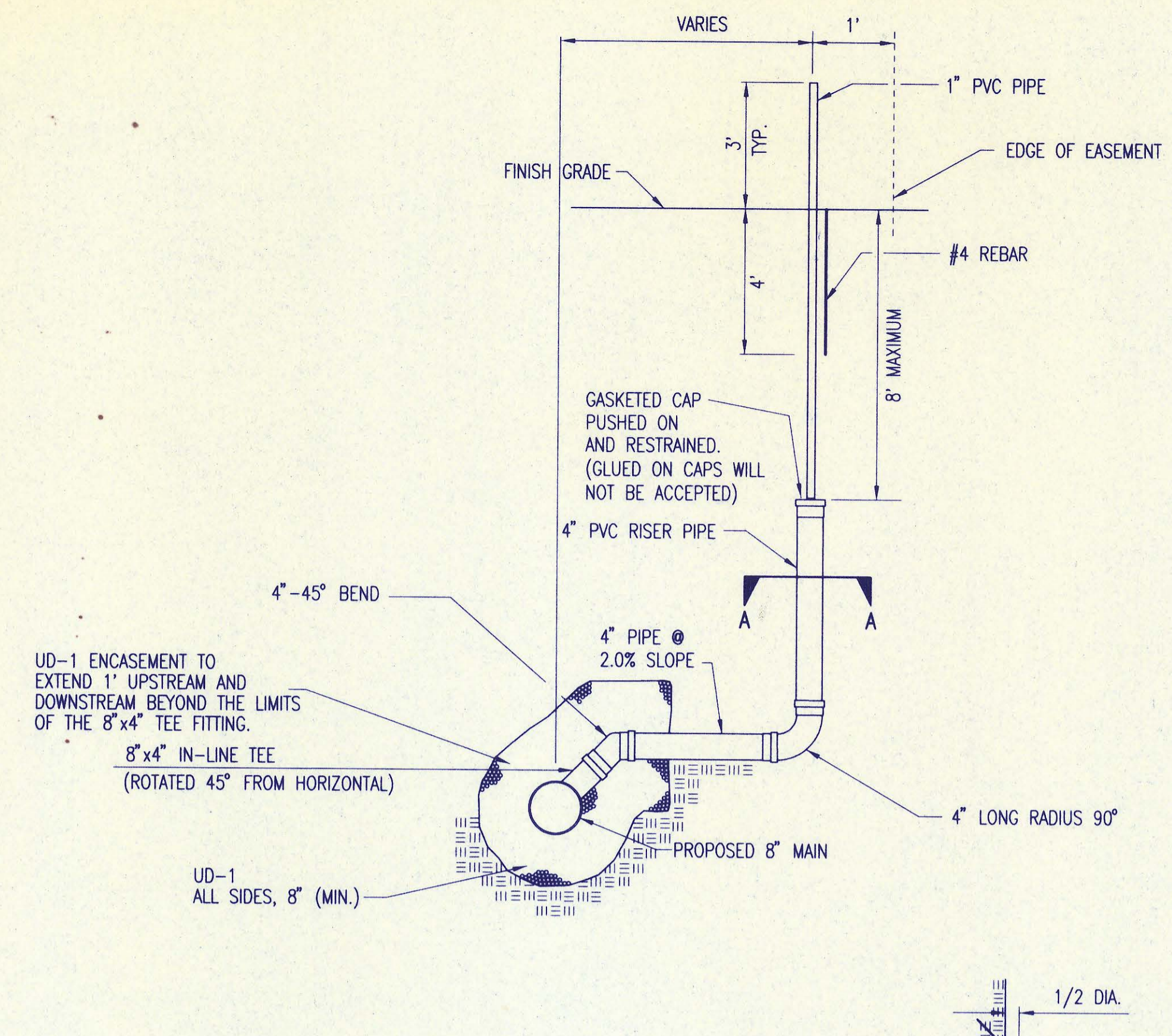
Backfilling Under Gravel Streets: Where the trench crosses or is in existing gravel surfaced streets, the backfill shall be compacted as provided in the paragraph "Backfilling Under Pavement".



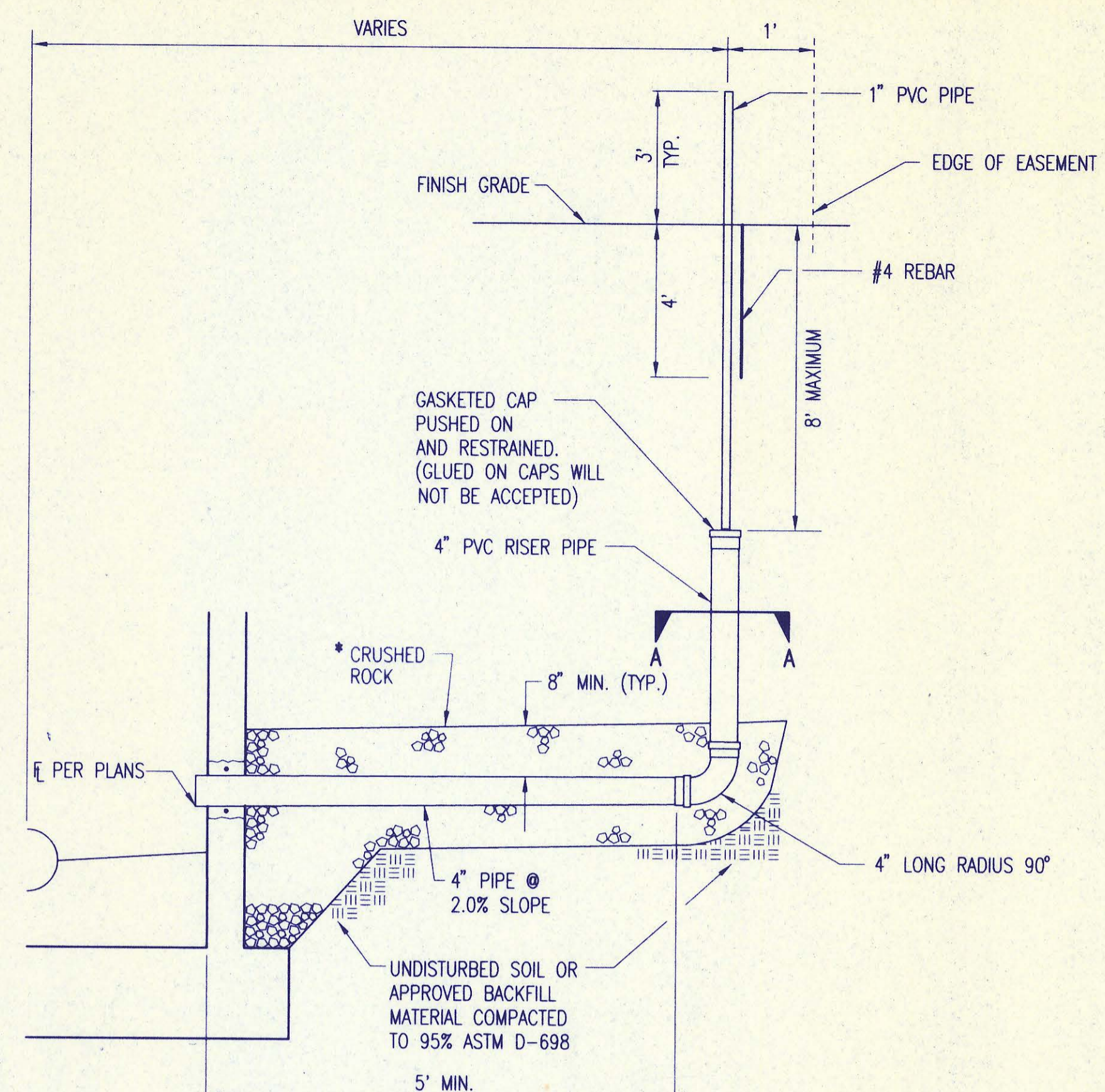
STEEL ENCASEMENT DETAIL
SEWER MAIN 12" AND UNDER



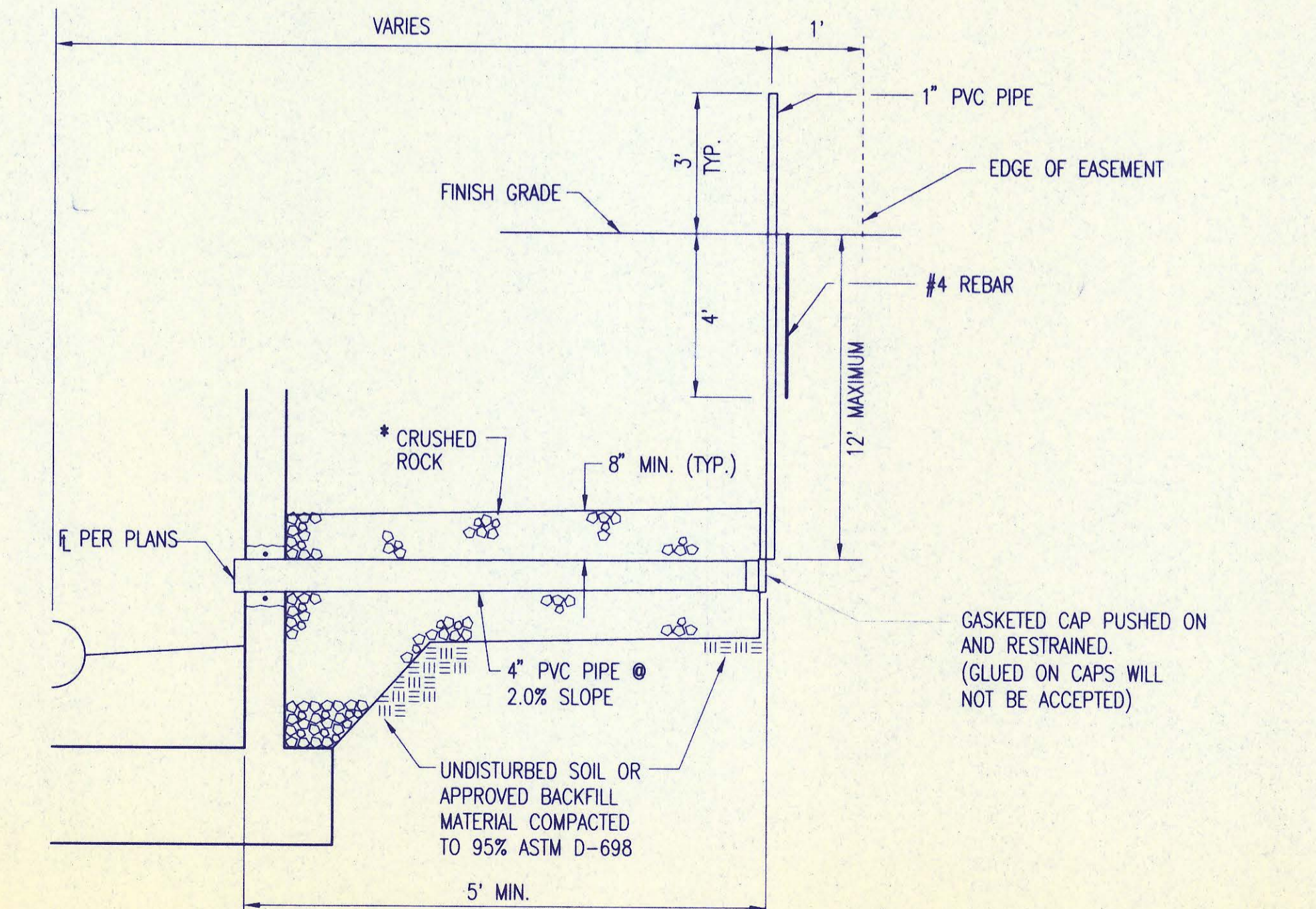
STEEL ENCASEMENT DETAIL
SEWER MAIN OVER 12"



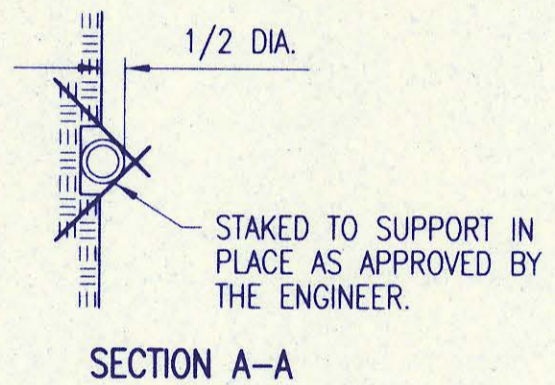
TEE SERVICE CONNECTION



MH SERVICE CONNECTION



4" STUB



SECTION A-A

* CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.

SERVICE CONNECTIONS ARE TO BE INSTALLED WHERE PROPOSED SEWER MAIN IS 12' OR MORE BELOW PROPOSED GROUND OR AS SHOWN IN THE PLANS.

SEWER SERVICE TABLE									
NO.	TYPE	LOCATION				APPROXIMATE LENGTH 4" PIPE	RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR)		NO.
		LOT NO.	BLOCK NO.	LATERAL NO.	STATION/DIRECTION		DISTANCE FROM NEAREST MANHOLE UPSTREAM	DISTANCE FROM NEAREST MANHOLE DOWNSTREAM	
1	MH SERVICE CONNECTION								1
2	TEE SERVICE CONNECTION								2
3	4" STUB SERVICE CONNECTION								3
4	4" STUB								4
5									5
6									6
7									7
8									8
9									9
10									10
11									11
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Clark Eng'g