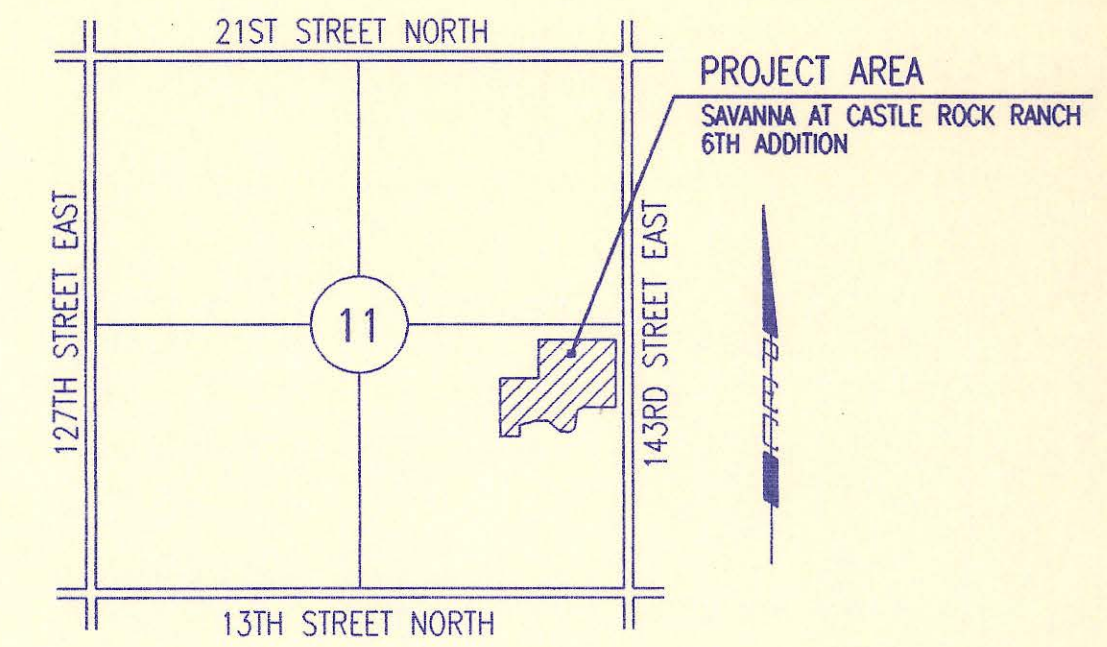


4MC-108

# BUREAU OF PUBLIC SERVICES



LOCATION MAP  
NOT TO SCALE

### INDEX OF SHEETS

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	KEY MAP
SHEET NO. 3	PLAT/EASEMENT GRADING PLAN
SHEET NO. 4	PRECAST MANHOLE DETAILS
SHEET NO. 5	BACKFILL DETAILS
SHEET NO. 6	SERVICE CONNECTION DETAILS
SHEET NO. 7-8	PLAN/PROFILE

# CONSTRUCTION PLANS FOR SANITARY SEWER IMPROVEMENTS

IN

## SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION (PHASE 1)

TO SEDGWICK COUNTY, KANSAS

## NOVEMBER, 1994

### PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS

**RECORD DRAWING**  
PROJ. ENG. 11/16/94 DATE  
RES. ENG. DATE

APPROVED:

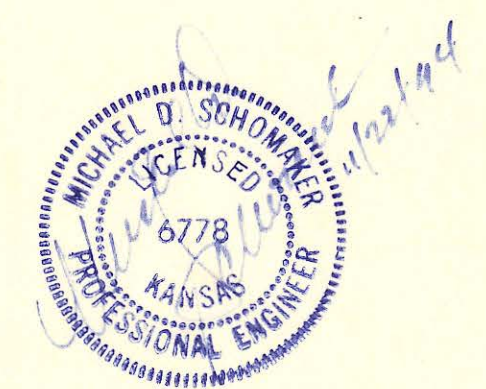
*David C. Spears*  
DAVID C. SPEARS, P.E.  
DIRECTOR OF PUBLIC SERVICES/COUNTY ENGINEER  
DATE: 12/15/94

APPROVED:

*Betsy Stein*  
CHAIR, BOARD OF COUNTY COMMISSIONERS  
DATE: 12/15/94

FILED IN THE OFFICE OF  
THE SEDGWICK COUNTY CLERK

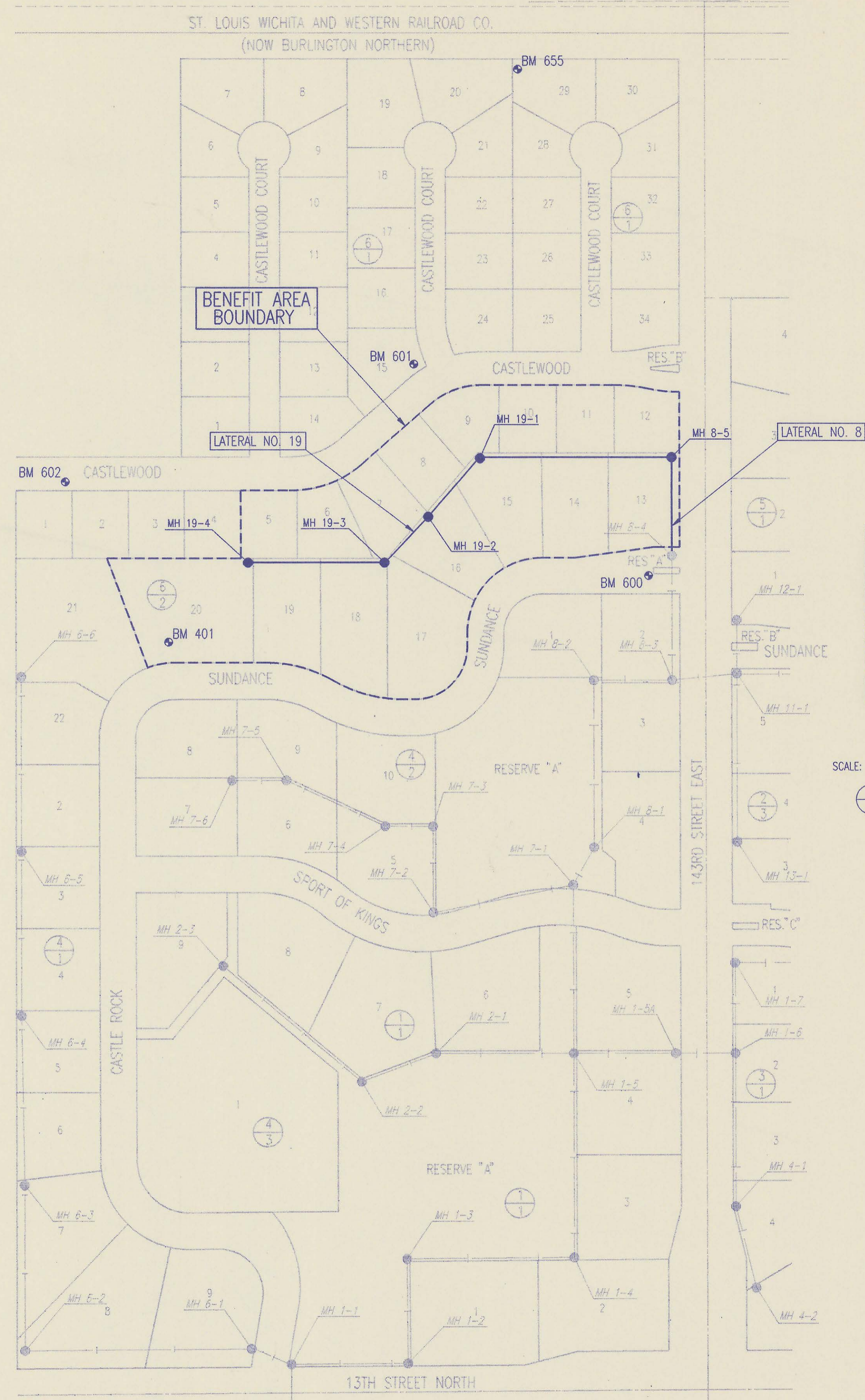
*David C. Spears*  
COUNTY CLERK  
DATE: 12/15/94



4MC-108

DSNR: RFJ OPER: ILS SCALE: 1" = 1'  
C:\94607\001\TITLE 11-22-1994 14:45:52

DSNR: REF. OPER: JLS SCALE: 1" = 150'  
 Q:\94607\001\506KEY 11-22-1994 12:35:10



SCALE: 1" = 150'

6 ADDITION NO. (i.e. Savanna at Castle Rock Ranch 6th Addition)  
 2 BLOCK NO.

**BENCHMARK LIST**

- BM 600 - CHISELED "□" @ CENTERLINE OF WEST END CONCRETE MEDIAN (WEST SIDE OF 143RD STREET EAST @ SUNDANCE).  
ELEV. = 1353.99
- BM 401 - CHISELED "□" ON SOUTHWEST CORNER CONCRETE PAD NEAR SOUTHWEST CORNER HORSE BARN IN LOT 20, BLOCK 2, SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION.  
ELEV. = 1359.96
- BM 601 - "T" POST 10' WEST OF EAST CORNER LOT 15, BLOCK 1, SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION.  
ELEV. = 1362.39
- BM 602 - CHISELED "4" IN TOP STEEL CORNER POST TO HORSE CORRAL 17' NORTH AND 13' WEST OF THE NORTHWEST CORNER LOT 1, BLOCK 2, @ WEST END OF CASTLEWOOD STREET IN SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION.  
ELEV. = 1353.36
- BM 655 - 4" "T" POST SET 0.5' BELOW GROUND LEVEL, 20' SOUTH AND 10' EAST OF NORTHEAST CORNER LOT 20, BLOCK 1, SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION.  
ELEV. = 1366.47

**GENERAL NOTES**

1. ALL ELEVATIONS SHOWN ARE USGS DATUM.
2. AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT 687-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: MULTIMEDIA CABLE TV, WICHITA WATER, SOUTHWESTERN BELL TELEPHONE, K G & E GAS, AND K G & E ELECTRIC.
3. THE BURIED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLES MAY EXIST WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
4. AT LEAST 24 HOURS BEFORE CONNECTING NEW SEWER PIPE TO THE EXISTING SEWAGE SYSTEM, THE CONTRACTOR SHALL CONTACT THE SEDGWICK COUNTY EASTERN SEWER DISTRICT (733-0202). THE CONTRACTOR SHALL KEEP ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION. TO PREVENT WATER OR DEBRIS FROM ENTERING THE EXISTING SEWER, A MECHANICAL PLUG SHALL BE INSTALLED AND MAINTAINED TO ISOLATE THE EXISTING SEWER FROM THE NEW CONSTRUCTION UNTIL THE NEW CONSTRUCTION IS CLEANED, TESTED, AND HAS BEEN ACCEPTED. THE WATER USED FOR CLEANING SHALL NOT BE ADDED TO THE FLOW OF THE EXISTING SEWER. THE CLEANING OR OTHERWISE ACCUMULATED WATER SHALL BE PUMPED OR OTHERWISE REMOVED PRIOR TO TELEVISION.
5. ALL PIPE JOINTS SHALL BE LAID AND PUSHED 'FULL HOME', WITH THE BEVELED END OF THE SPIGOT MAKING FULL CONTACT WITH THE CHAMFERED AREA AT THE THROAT OF THE BELL OR SOCKET, WITH NO SEPARATION BETWEEN THEM. IF SEPARATION IS DETERMINED, THE PIPE SHALL BE EXCAVATED AND RE-LAID ACCORDING TO SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.
6. EXCESS EXCAVATED MATERIAL AND OTHER DEBRIS SHALL BE WASTED ON SITES TO BE PROVIDED BY THE CONTRACTOR AS APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL CONTAIN HIS OPERATIONS TO PERMIT TRAFFIC THROUGH AND ACROSS CONSTRUCTION AT EXISTING ROADWAYS AT ALL TIMES. THE CONTRACTOR SHALL ERECT WARNING SIGNS, FLASHING LIGHTS, AND BARRICADES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES TO ENSURE SAFETY AS DIRECTED IN THE GENERAL CONDITIONS. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR SHALL FLAG AND REFERENCE ALL PROPERTY CORNERS THAT MAY BE DISTURBED BY CONSTRUCTION OPERATIONS, AND VERIFY THESE IN THE FIELD IN THE PRESENCE OF THE ENGINEER AND THE CONTRACTOR'S SURVEYOR. AFTER CONSTRUCTION AND BEFORE THE FINAL INSPECTION, A LETTER SIGNED AND SEALED BY THE LICENSED LAND SURVEYOR CERTIFYING REPLACEMENT OF ALL DISTURBED PROPERTY CORNERS SHALL BE SUBMITTED TO THE ENGINEER.
9. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, AND BANKS TO THEIR ORIGINAL SLOPES AND GRADES. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, SIGNS, FENCES, ETC., CONFLICT WITH THE PROPOSED WORK HEREIN, THEY SHALL BE REMOVED AND REPLACED OR RESET UNLESS OTHERWISE INDICATED ON THE PLANS. THE REPLACEMENT OF ALL THE AFOREMENTIONED ITEMS, INCLUDING SEEDING, FERTILIZER, AND MULCHING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
10. EASEMENTS AND RIGHTS-OF-WAY PROVIDED BY THE OWNER FOR THE PROJECT ARE SHOWN IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF ANY ADDITIONAL TEMPORARY EASEMENTS OR RIGHTS-OF-WAY THAT HE DESIRES TO USE IN COMPLETING THE WORK.
11. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.
12. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
13. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF 10 DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION IN THE VICINITY OF THE AFFECTED PROPERTY.
14. ALL TRENCH BACKFILL SHALL BE EITHER TYPE I OR TYPE III UNLESS NOTED OTHERWISE.
15. THE CONTRACTOR SHALL ALSO CONTACT THE FOLLOWING AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION TO ADVISE THEM OF THE INTENDED WORK AND OF HIS PROPOSED SCHEDULE:  
 SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
 1250 S. SENECA  
 WICHITA, KS 67213  
 MR. JIM WEBER  
 (316) 385-7901
16. THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL OBTAIN THE CONCURRENCE OF THE ENGINEER BEFORE PROCEEDING WITH SUCH WORK.
17. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED, TREE TRIMMINGS, AND EXCESS EXCAVATION WHICH IS TO BE WASTED, SHALL BE DISPOSED OF ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL ALSO BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOODPLAIN WILL REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT AND A FLOODPLAIN DEVELOPMENT PERMIT FROM SEDGWICK COUNTY. ANY MATERIALS DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIALS BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
18. EACH BIDDER SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING THE PROPOSAL FOR THIS WORK SO THAT HE WILL BE FULLY INFORMED OF THE EXISTING FIELD CONDITIONS AND THE OBSTACLES WHICH MIGHT BE ENCOUNTERED. UPON AWARD OF THE CONTRACT, THE CONTRACTOR WILL NOT BE GRANTED ANY ADDITIONAL COMPENSATION WITH REGARDS TO TIME AND MONEY FOR CONDITIONS THAT MAY HAVE BEEN EVALUATED DURING AN INSPECTION OF THE SITE.
19. ALL GRASSED AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE REPLANTED WITH GRASS AND FERTILIZED IN ACCORDANCE WITH THE SPECIFICATIONS FOR SUCH WORK. ALL COSTS FOR SEEDING AND FERTILIZING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
20. CONTRACTOR SHALL GRADE THE EASEMENTS TO THE PROFILE AND ELEVATIONS SHOWN ON THE EASEMENT GRADING PLAN. ALL COSTS FOR EASEMENT GRADING SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "EASEMENT GRADING".
21. APPROVED EXCESS EXCAVATED MATERIAL FROM CONSTRUCTION ACTIVITIES SHALL BE WASTED AT A LOCATION APPROVED BY THE DEVELOPER AND IN ACCORDANCE WITH NOTE 17.

**RECORD DRAWING**

PROJ. ENG. DATE  
 RES. ENG. DATE



Revision	By	Date

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
 DAVID C. SPEARS, P.E.  
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

**KEY MAP**

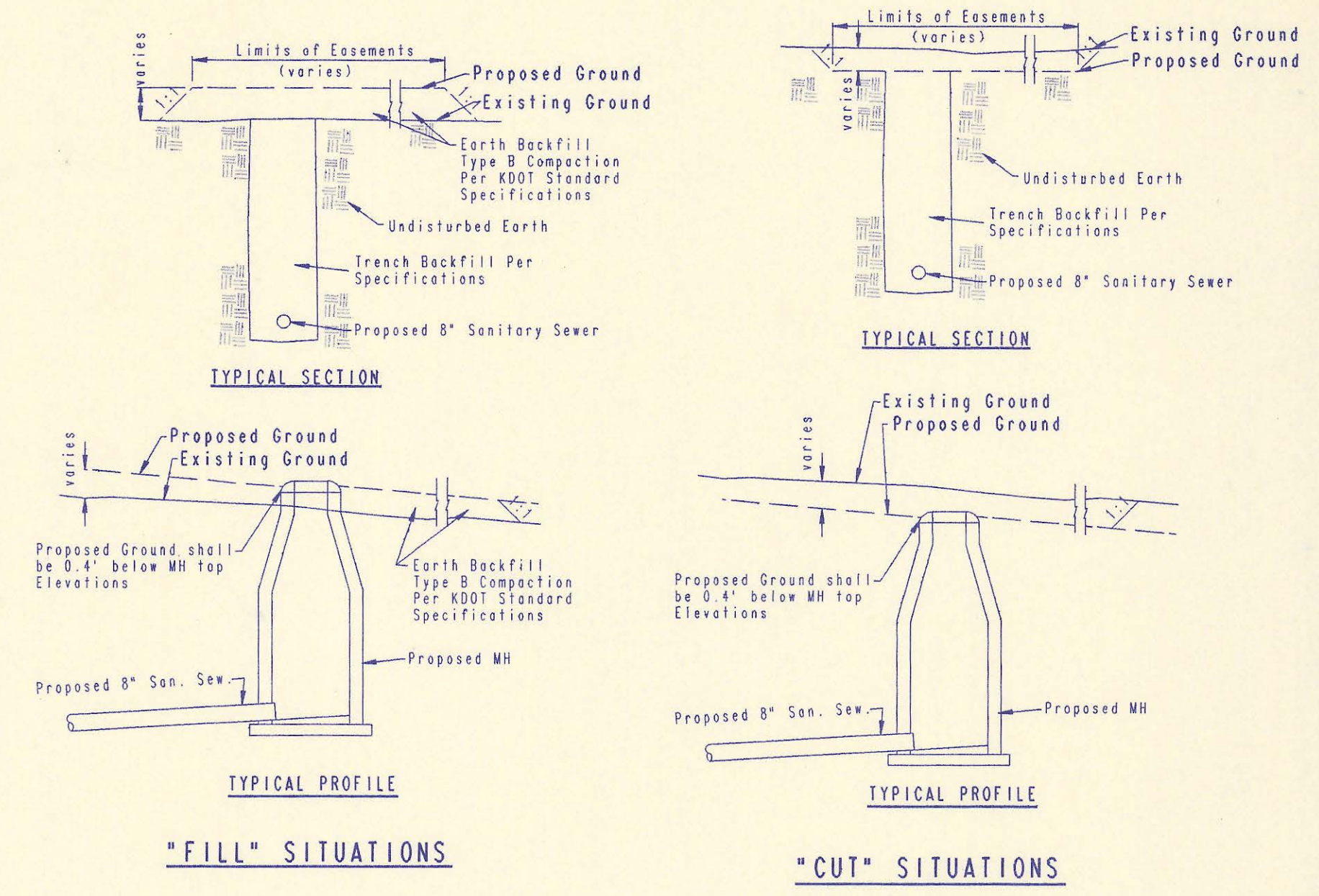
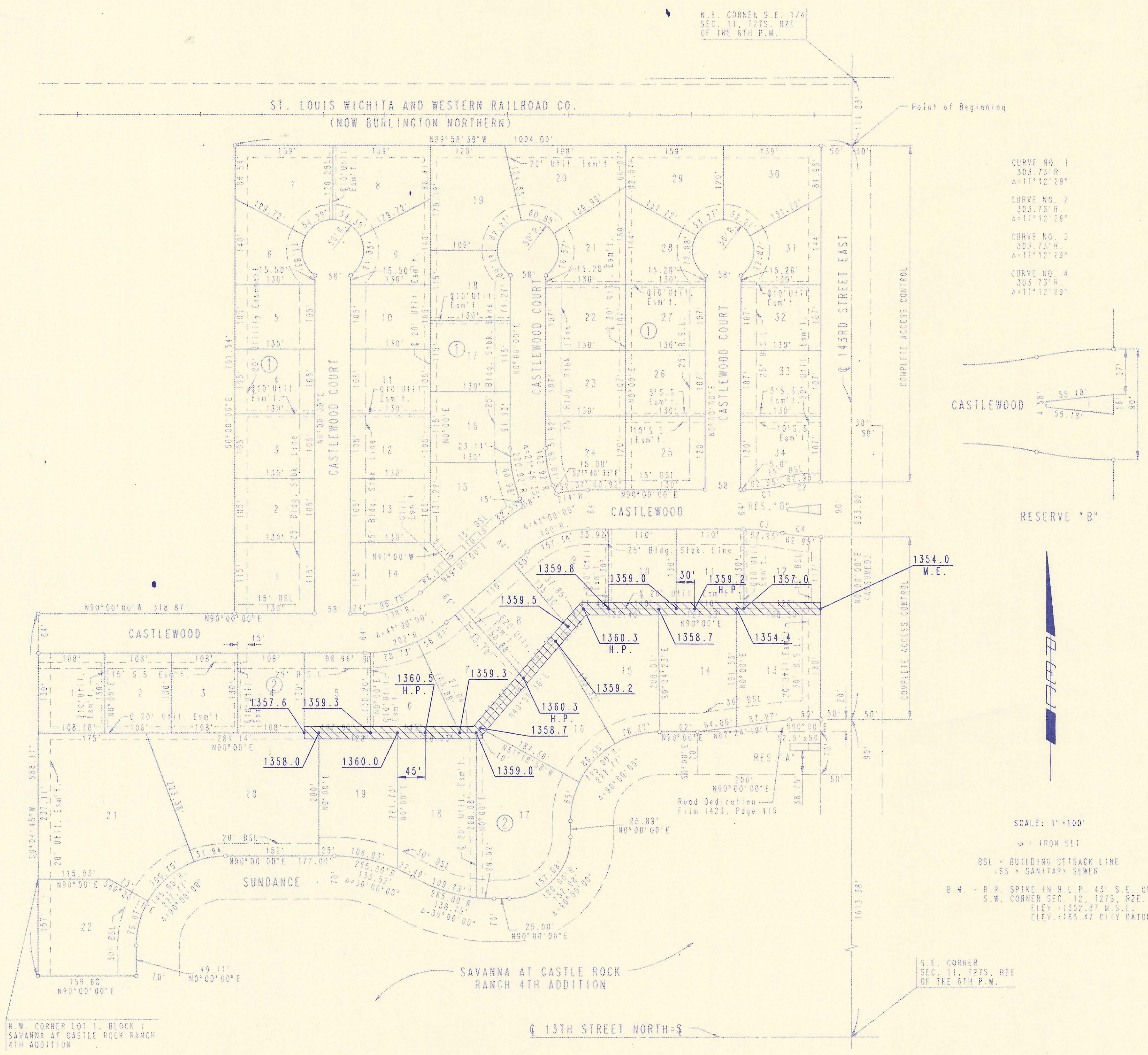
PHASE 1-SANITARY SEWER IMPROVEMENTS  
 SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION

**PROFESSIONAL ENGINEERING CONSULTANTS, P.A.**  
 ENGINEERS  
 WICHITA, KANSAS

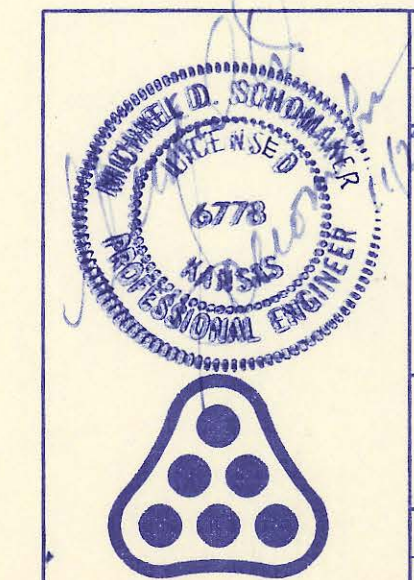
Designed by	CRY, MDK	Job No.	34-94607-1	Sht. 2 of 8
Drawn by	B.Baktha	Date	September 1994	

# SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION TO SEDGWICK COUNTY, KANSAS

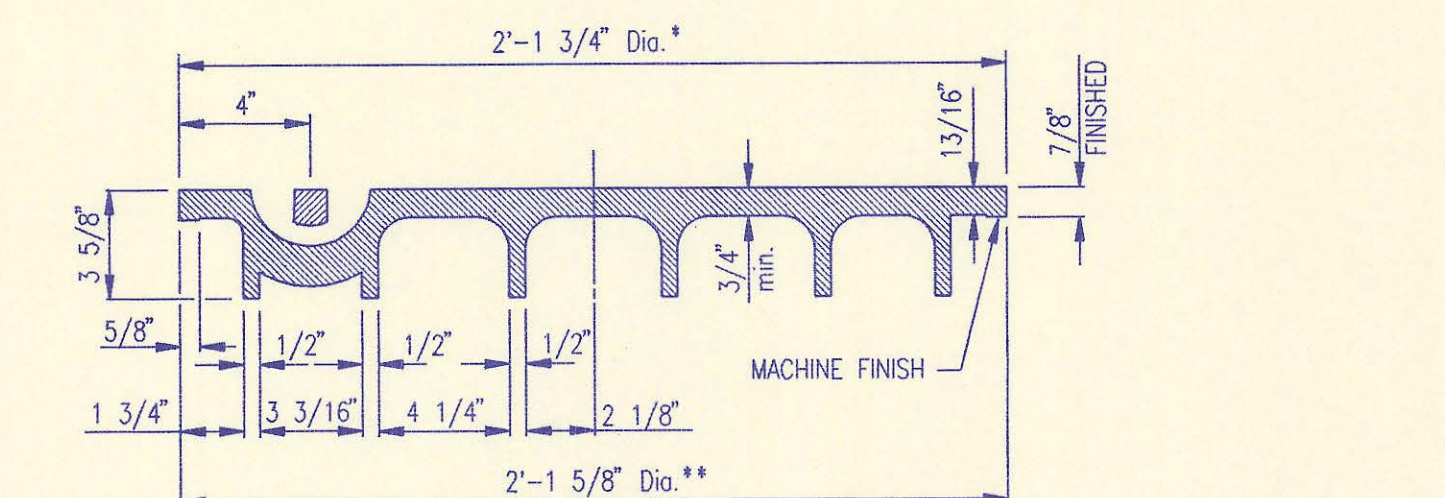
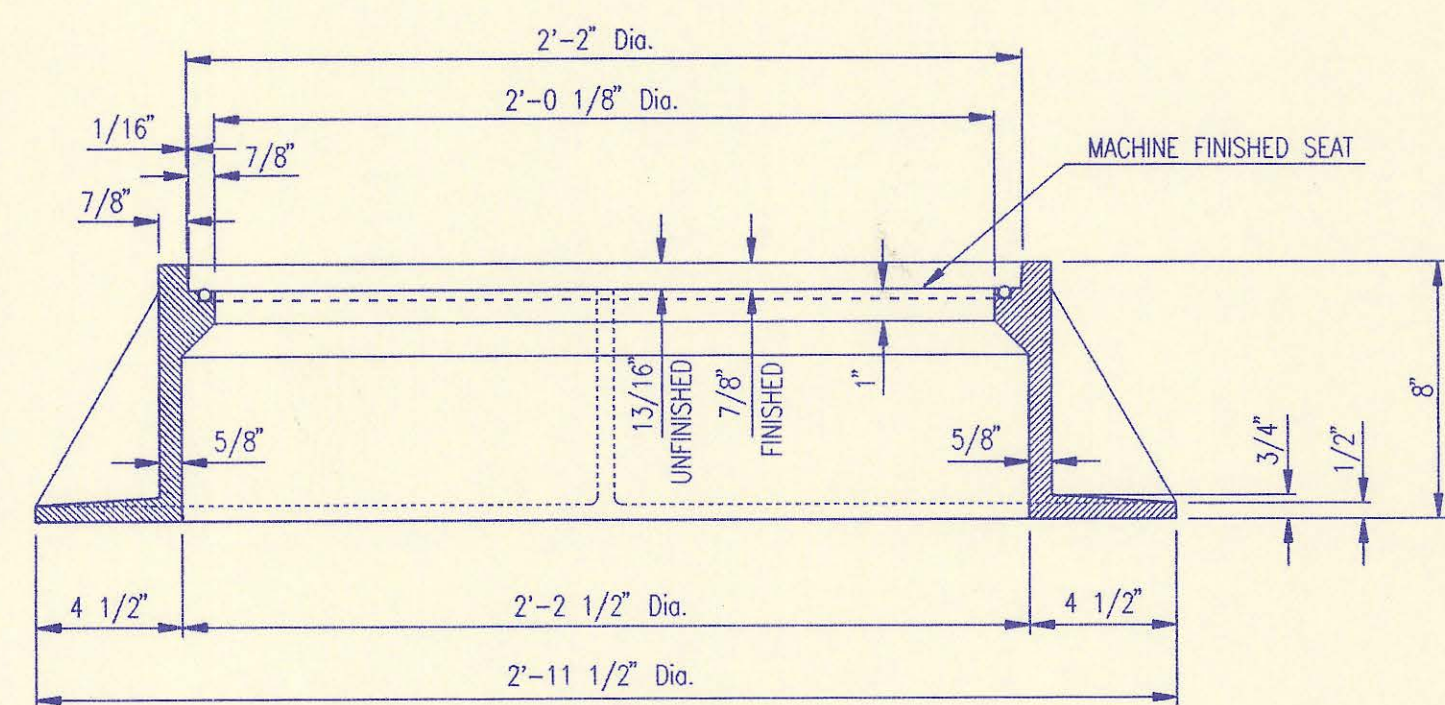
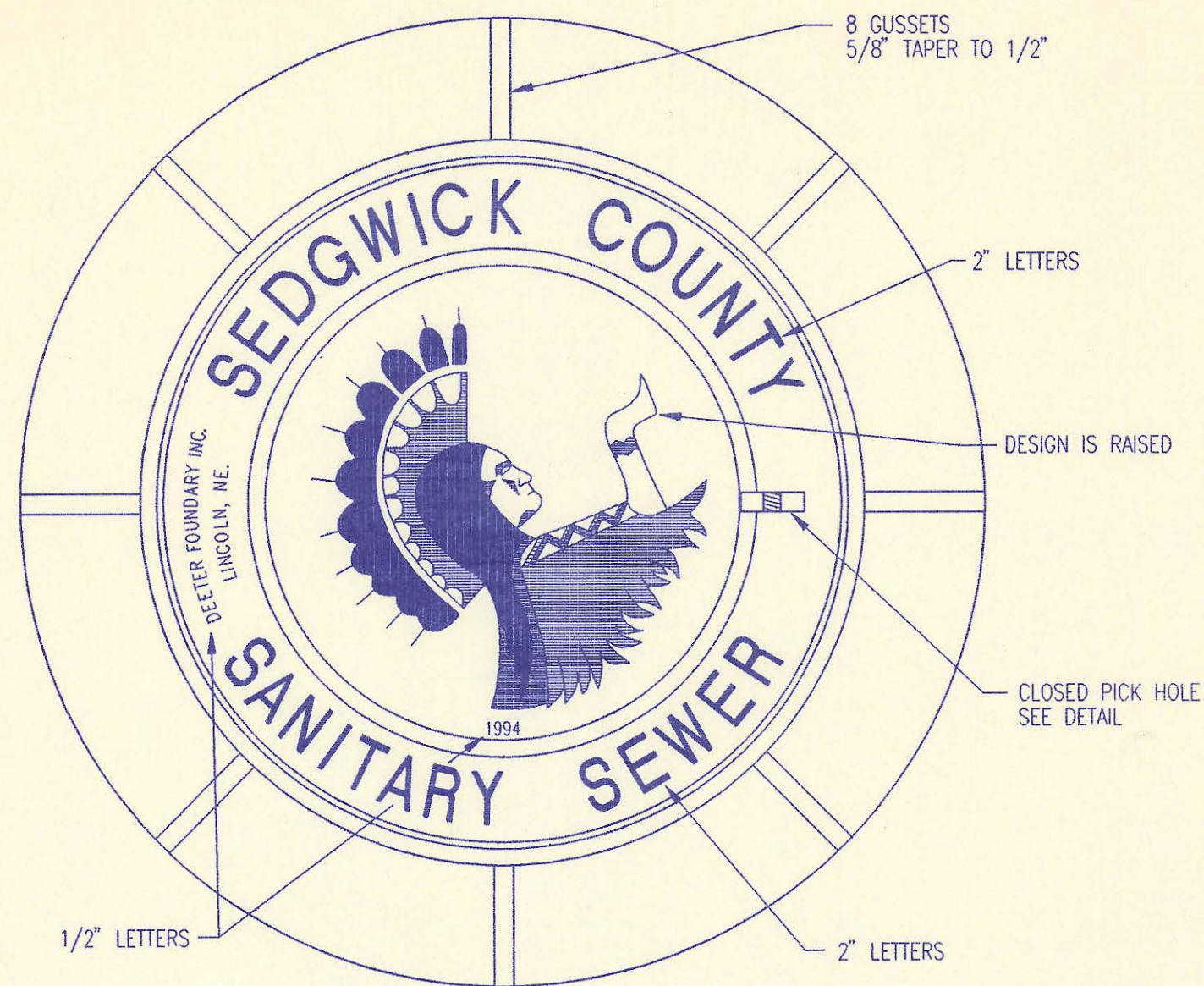
PLAN	CHECKED
BY	DATE



DRAWING NAME: 34-94607-1 SAVE ESMPLAT  
 LOCATION: EA, DWG.# 39  
 REVIEW COORDINATOR:  
 DATE LAST WORKED ON: NOV. 22, 1994  
 SPECIAL INSTRUCTIONS:  
 EX - 115



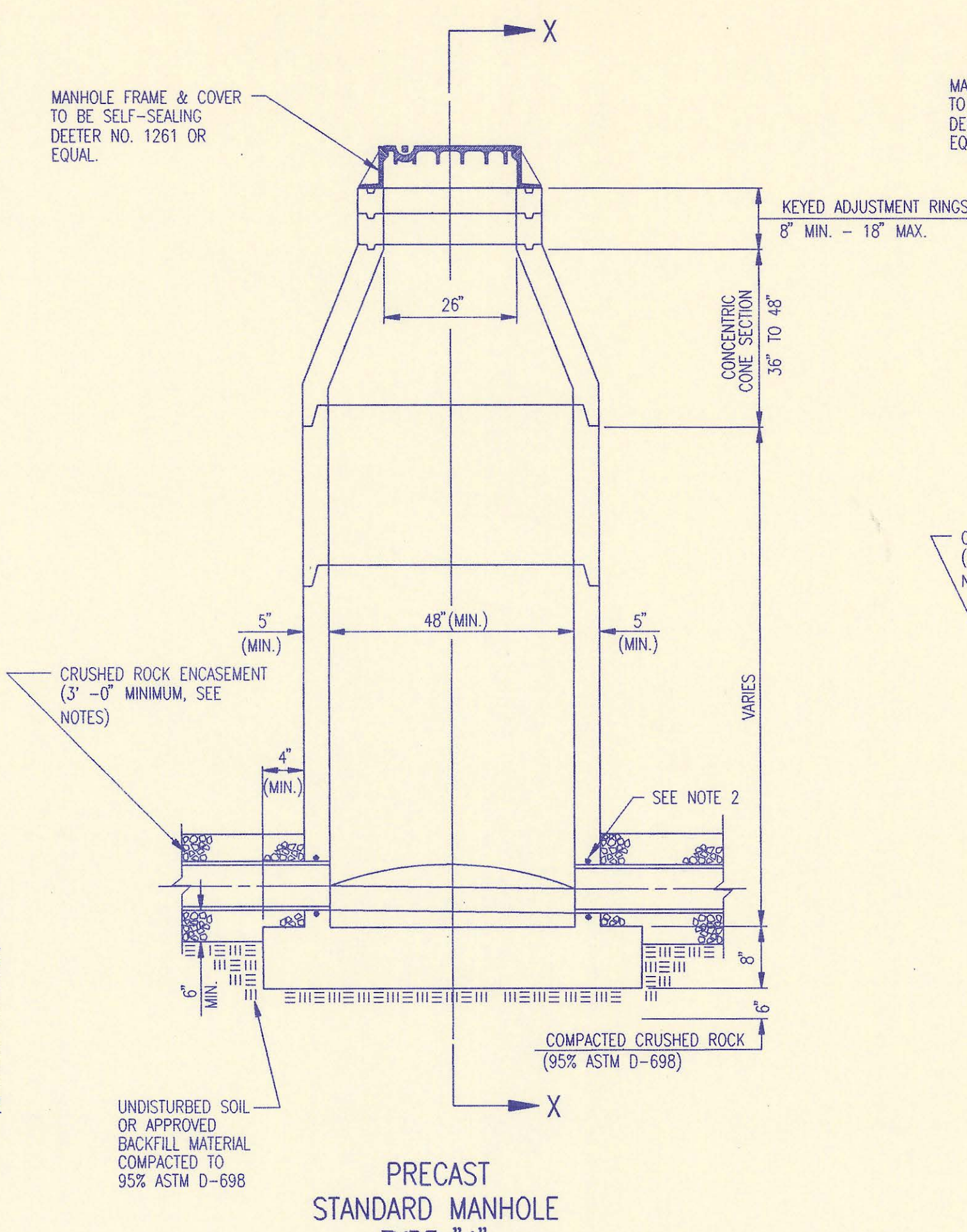
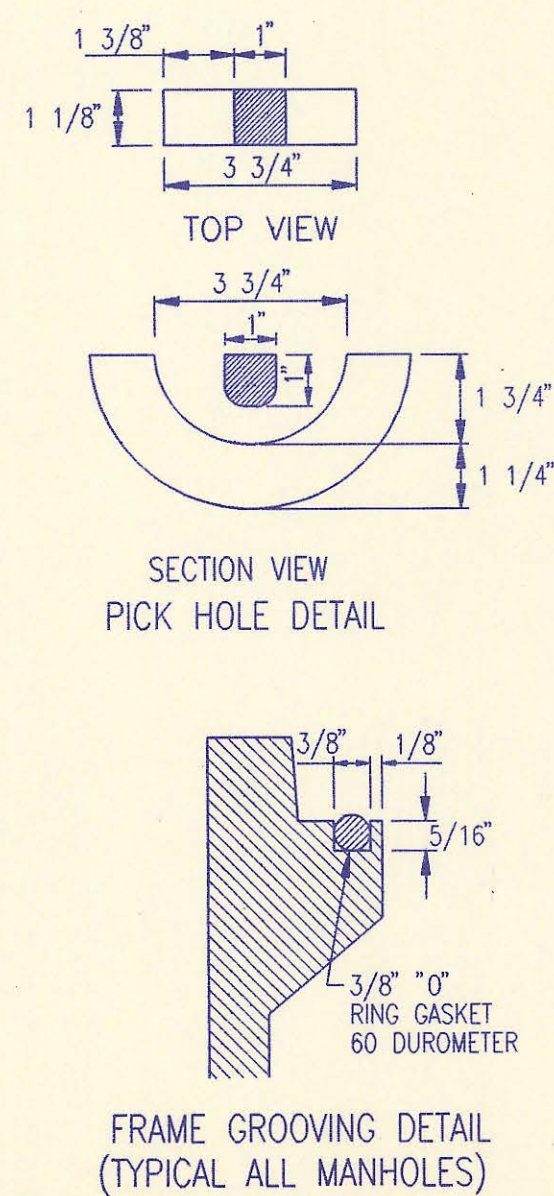
<b>RECORD DRAWING</b>	
PROJ. ENG. _____	DATE _____
DES. ENG. _____	DATE _____
Revision _____ By _____ Date _____ SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER <b>PLAT/EASEMENT GRADING PLAN</b> <b>PHASE 1 - SANITARY SEWER IMPROVEMENTS</b> SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION <b>PROFESSIONAL ENGINEERING CONSULTANTS, P.A.</b> ENGINEERS WICHITA, KANSAS	
Designed by CRY. MDK	Job No. 34-94607-1
Drawn by TDS	Date September 1994
Sht. 3 of 8	



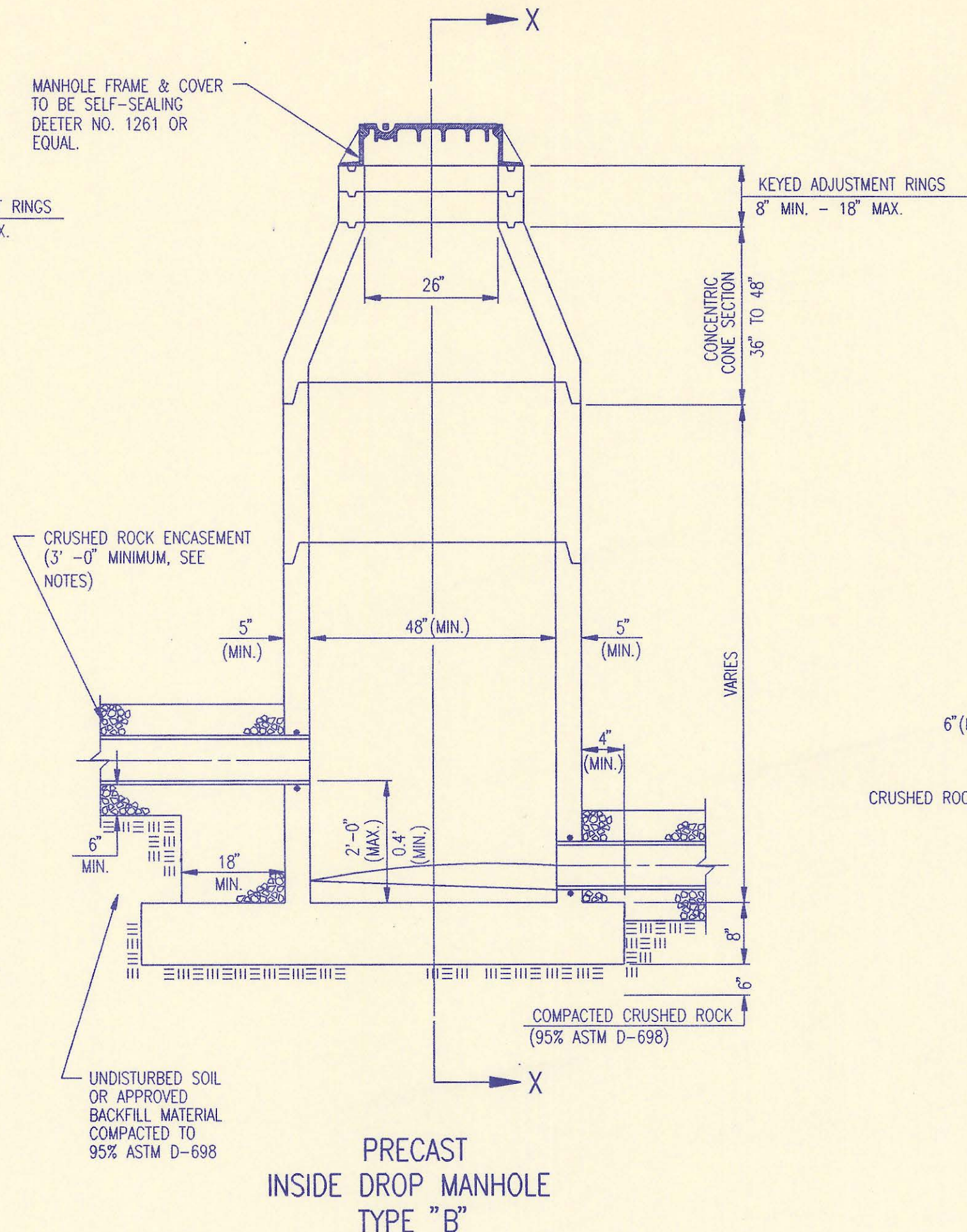
**MANHOLE FRAME AND COVER**  
(TOTAL WEIGHT = 430 LBS.)

**MANHOLE FRAME AND COVER NOTES**

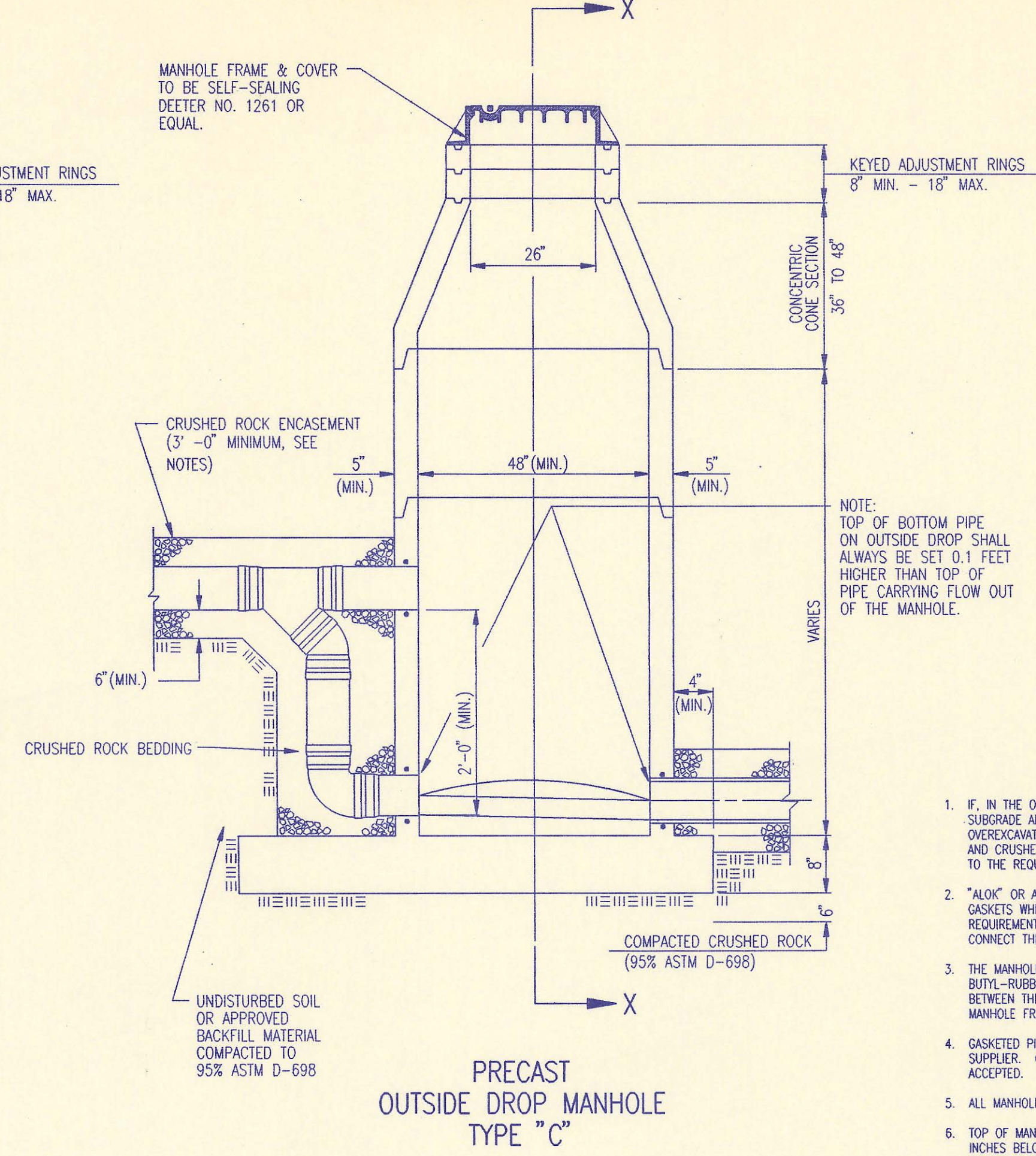
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
- CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL BURRS SHALL BE GROUND SMOOTH. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE 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. 1261 OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT = 430 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-DOWN CORNING OR EQUAL.



**PRECAST STANDARD MANHOLE TYPE "A"**

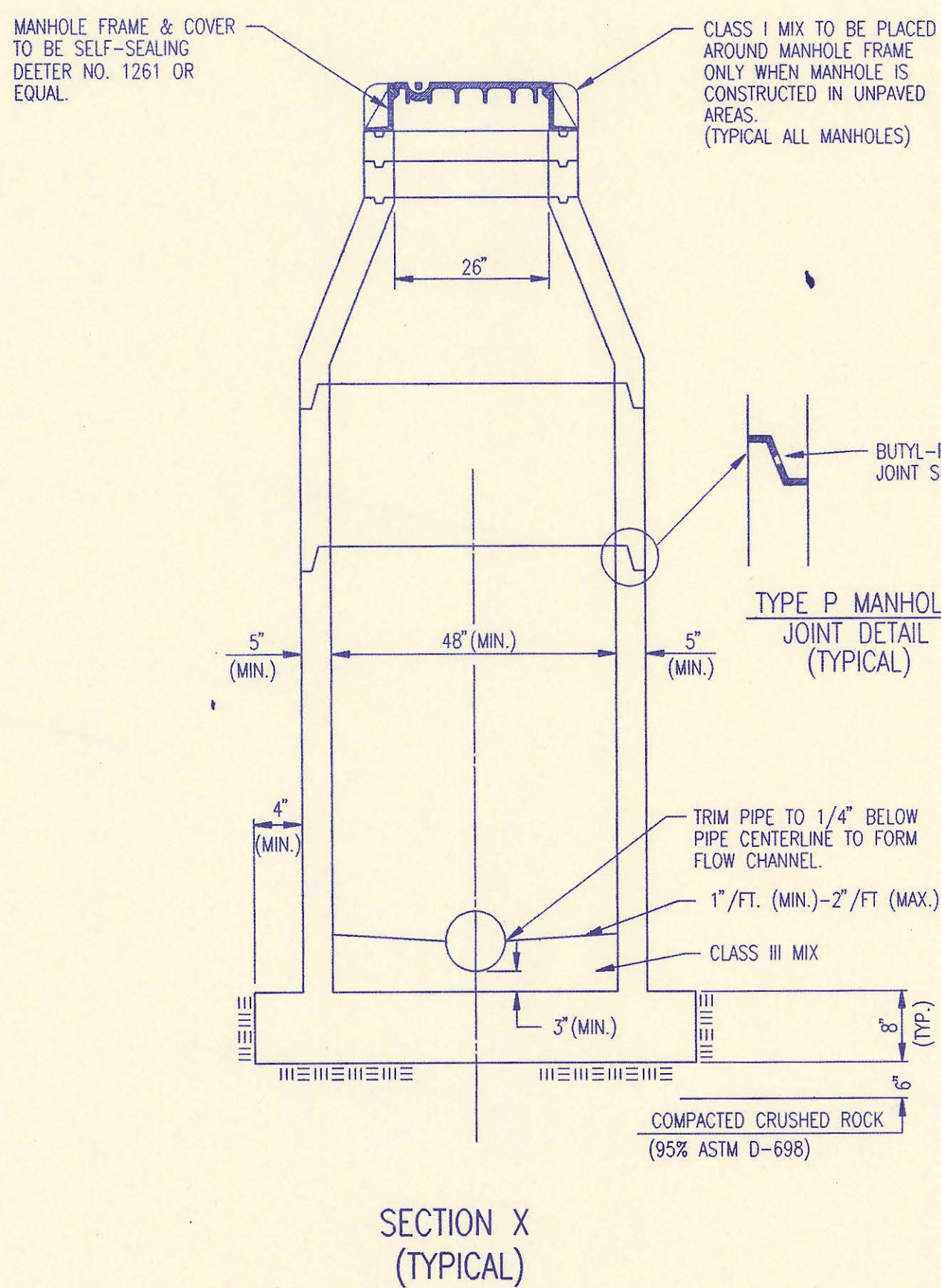


**PRECAST INSIDE DROP MANHOLE TYPE "B"**

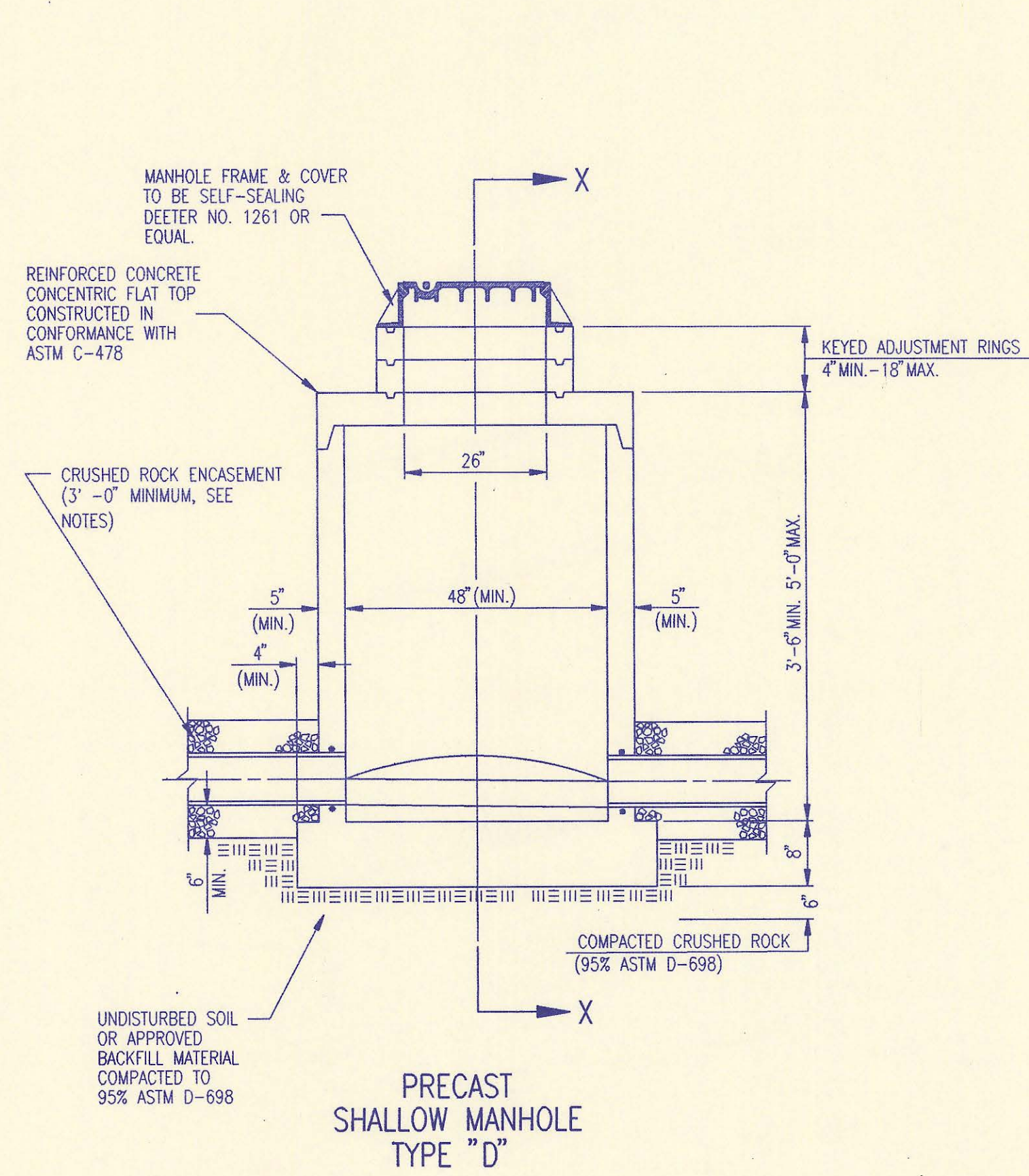


**PRECAST OUTSIDE DROP MANHOLE TYPE "C"**

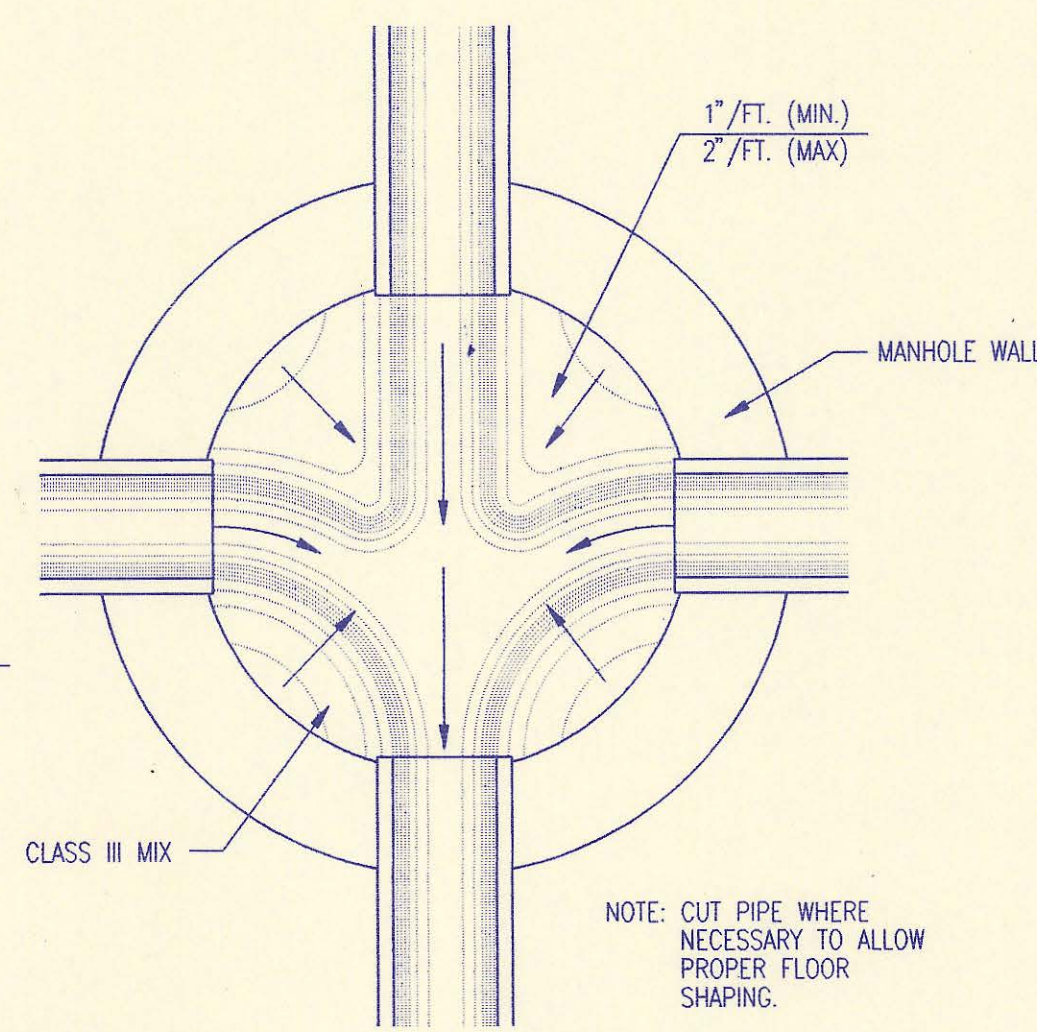
- PRECAST MANHOLE NOTES**
- IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL OVEREXCAVATE TO A SUITABLE SUBGRADE CONDITION AND CRUSHED ROCK SHALL BE PLACED AND COMPACTED TO THE REQUIRED GRADE.
  - "A-LOK" OR APPROVED EQUAL FLEXIBLE WATER-STOP GASKETS WHICH 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 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. GLUED 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 SECTIONS AND BASES SHALL CONFORM TO THE LATEST REVISION OF ASTM C478 AS MODIFIED BY THE SPECIFICATIONS.
  - WHERE MANHOLE STUBS ARE SHOWN ON THE PLANS, THE STUB SHALL EXTEND AT LEAST 5 FEET FROM THE INSIDE WALL OF THE MANHOLE. 4" STUBS SHALL BE SET AT 2.0% GRADE. 6" STUBS SHALL BE SET AT 1.0% GRADE.
  - MANHOLE SECTIONS SHALL BE SUPPLIED WITH RECESSED LIFTING EYES. LIFTING EYE RECESSES SHALL BE GROUVED 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-LOK 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 I CONCRETE ENCASEMENT A MINIMUM OF 3 FEET OUTSIDE THE MANHOLE WALL.
  - CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.



**SECTION X (TYPICAL)**



**PRECAST SHALLOW MANHOLE TYPE "D"**



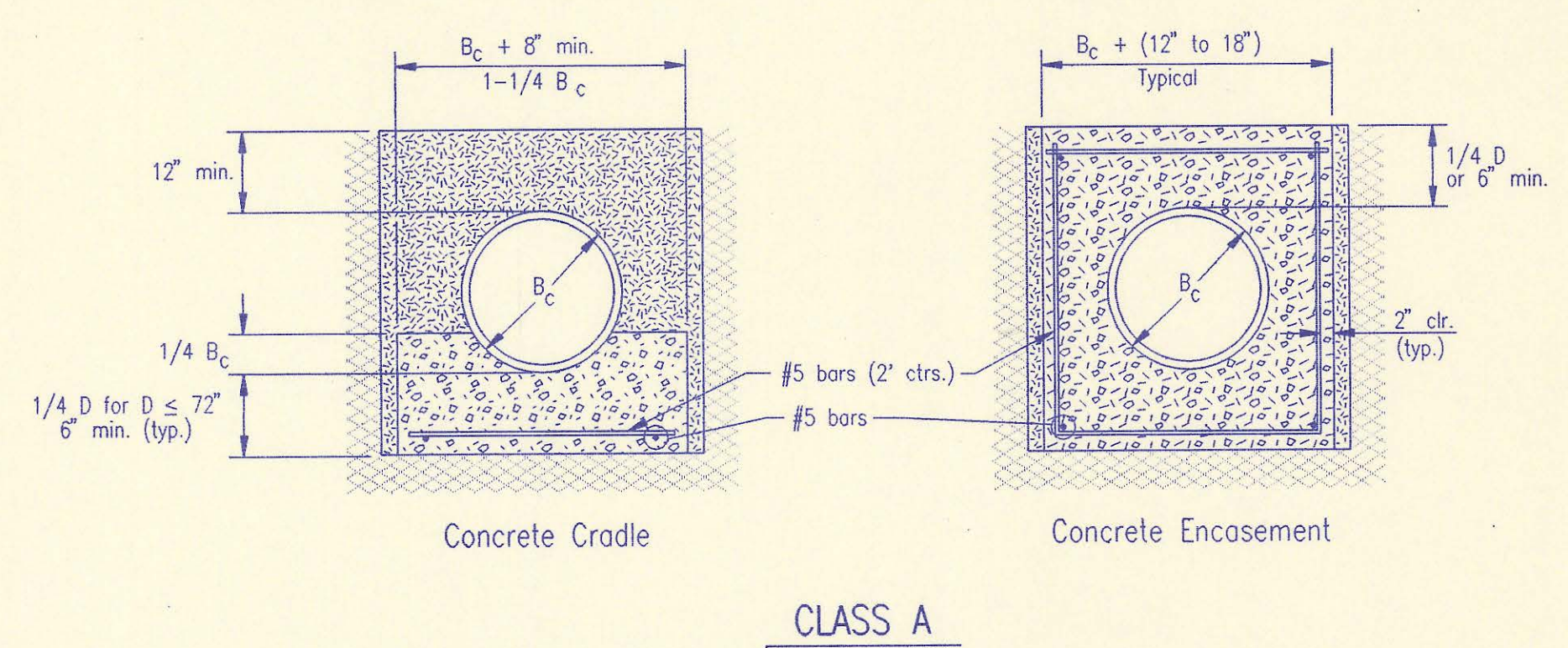
**TYPICAL MANHOLE FLOOR SHAPING**

No.	Revision	By	Date
5	Change concrete encasement to crushed rock encasement	RJ	3/9/94
4	Precast Bases, Precast Manhole Notes, Manhole Frame and Cover Notes, Keyed Adjustment Rings, and Class I mix at concrete encasement and field cap.	RJ	8/27/93
3	All Manholes self-sealing/MH Cover	RJ	1/25/93
2	Modified pipe connection note	RJ	6/01/92
1	Manhole Frame and Cover Note 1	RJ	7/16/91

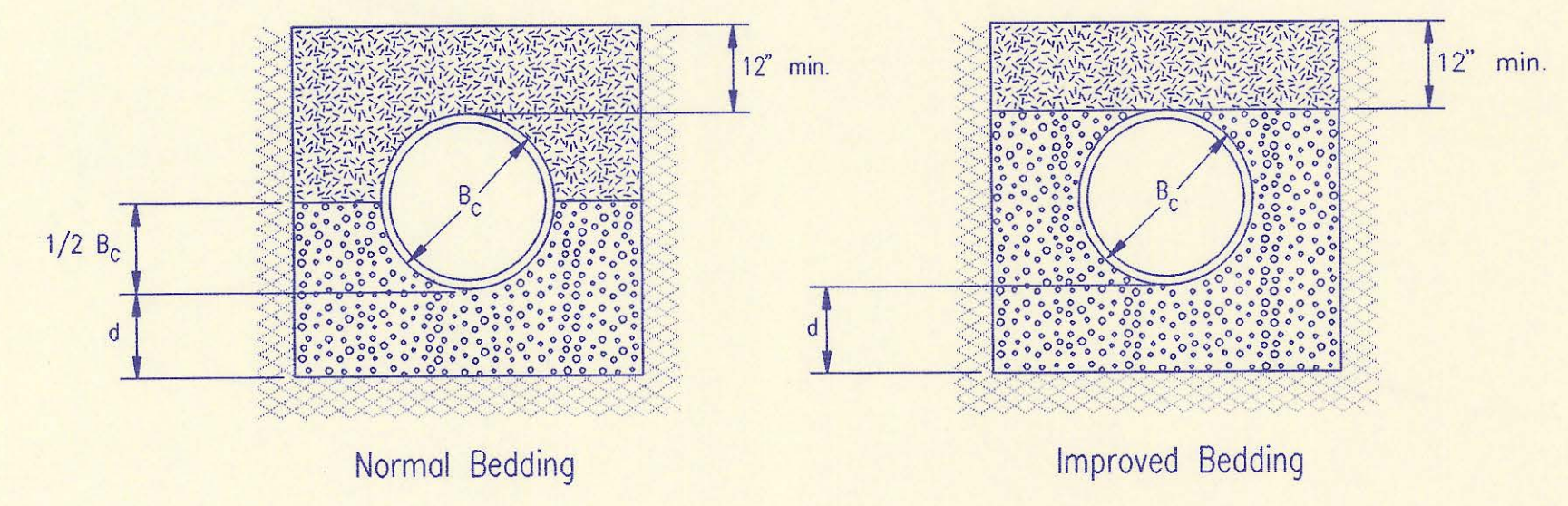
**PRECAST MANHOLE DETAILS**  
ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989  
BY  
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

DATE	
BY	
CHECKED	CHECKED
PLAN	

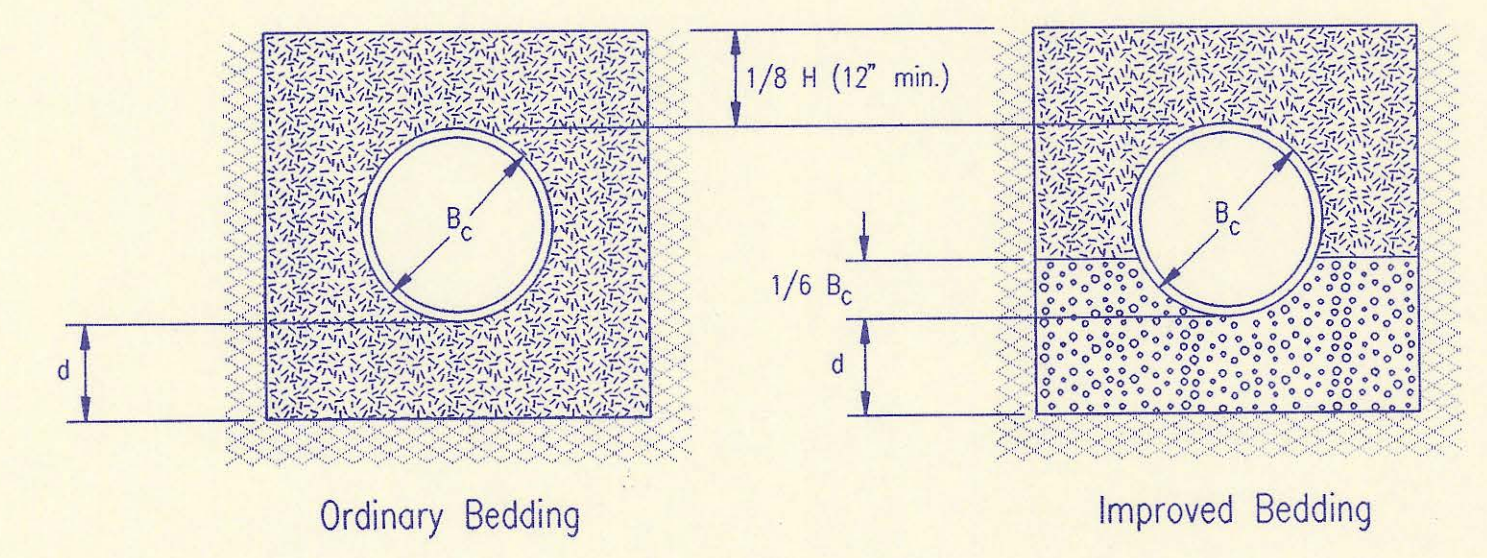
DSNR: RJ OPER: ILS SCALE: 1" = 1' 12:42:35  
 Q:\34607\001\BKFILD\11-22-1994



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
- [Symbol] = Granular Bedding Material or Sand-Gravel Bedding
- [Symbol] = Compacted Embedment
- [Symbol] = 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.

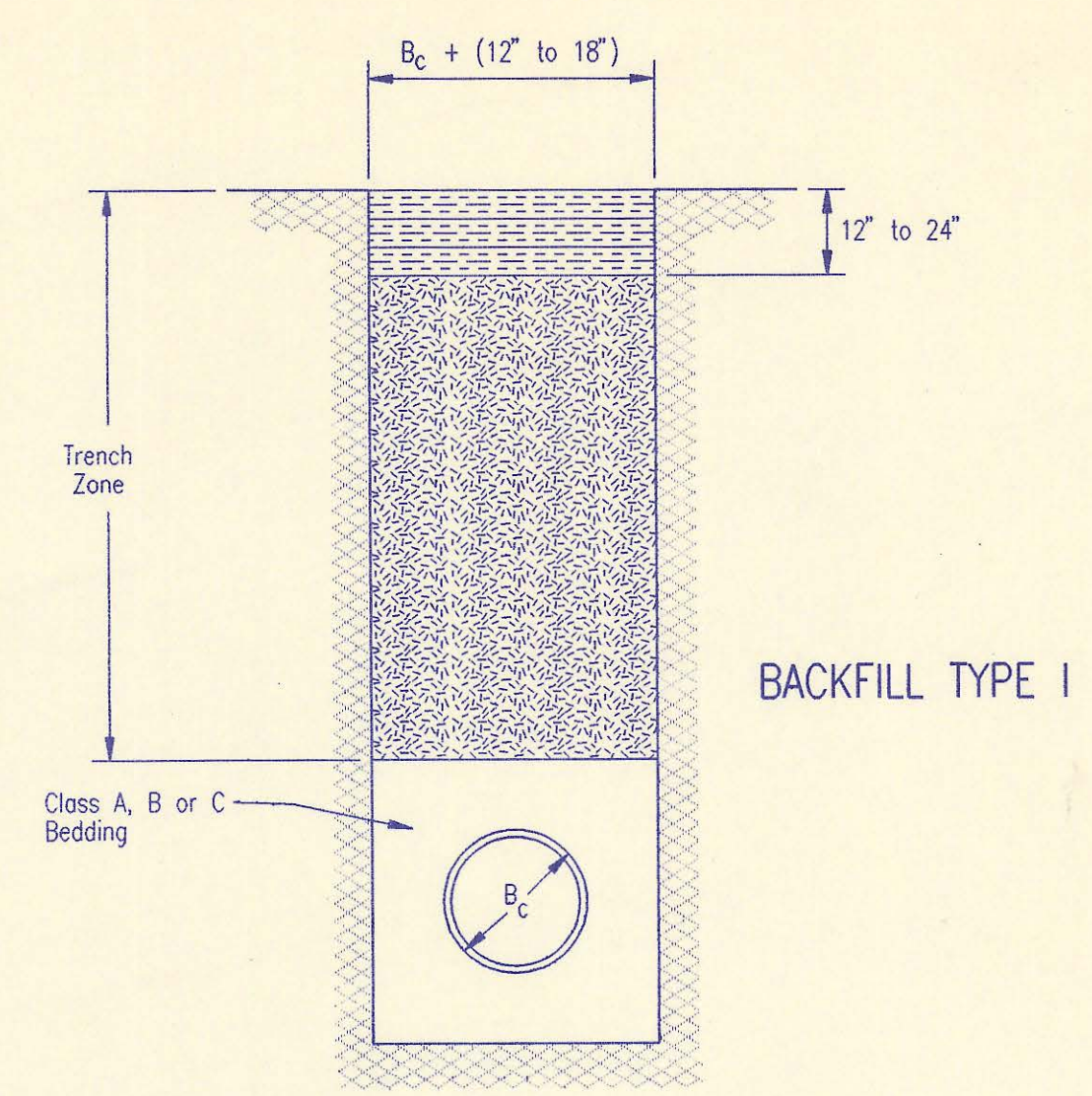
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

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).



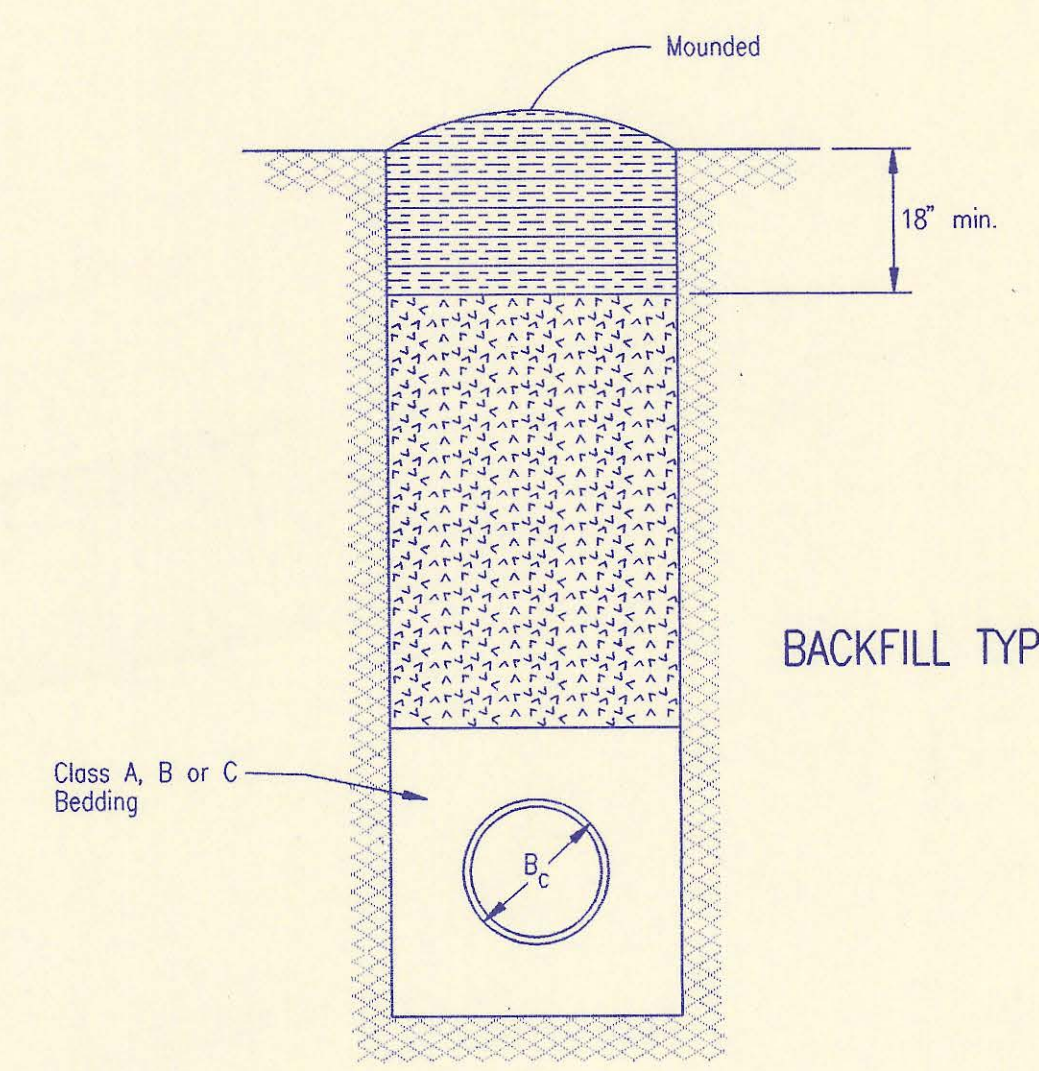
BACKFILL TYPE I

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



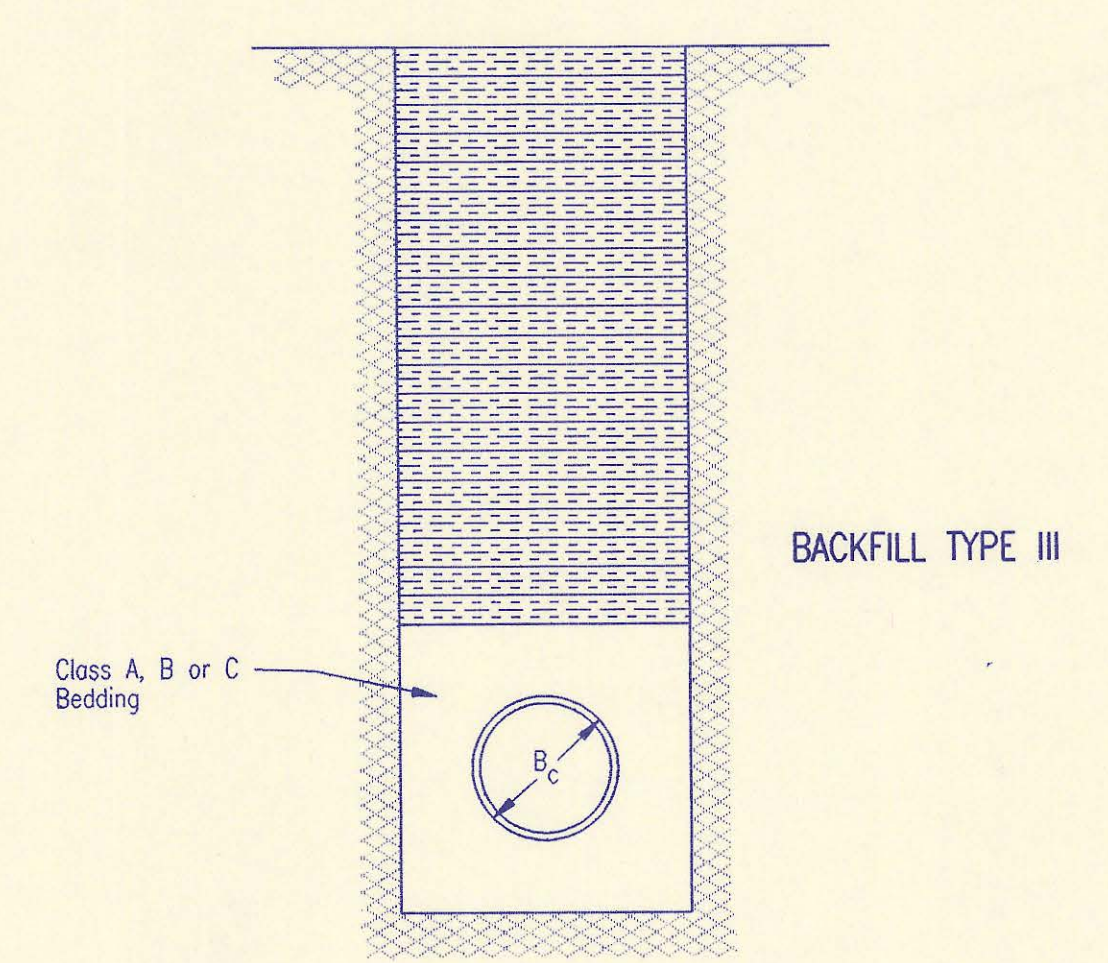
BACKFILL TYPE II

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".



BACKFILL TYPE III

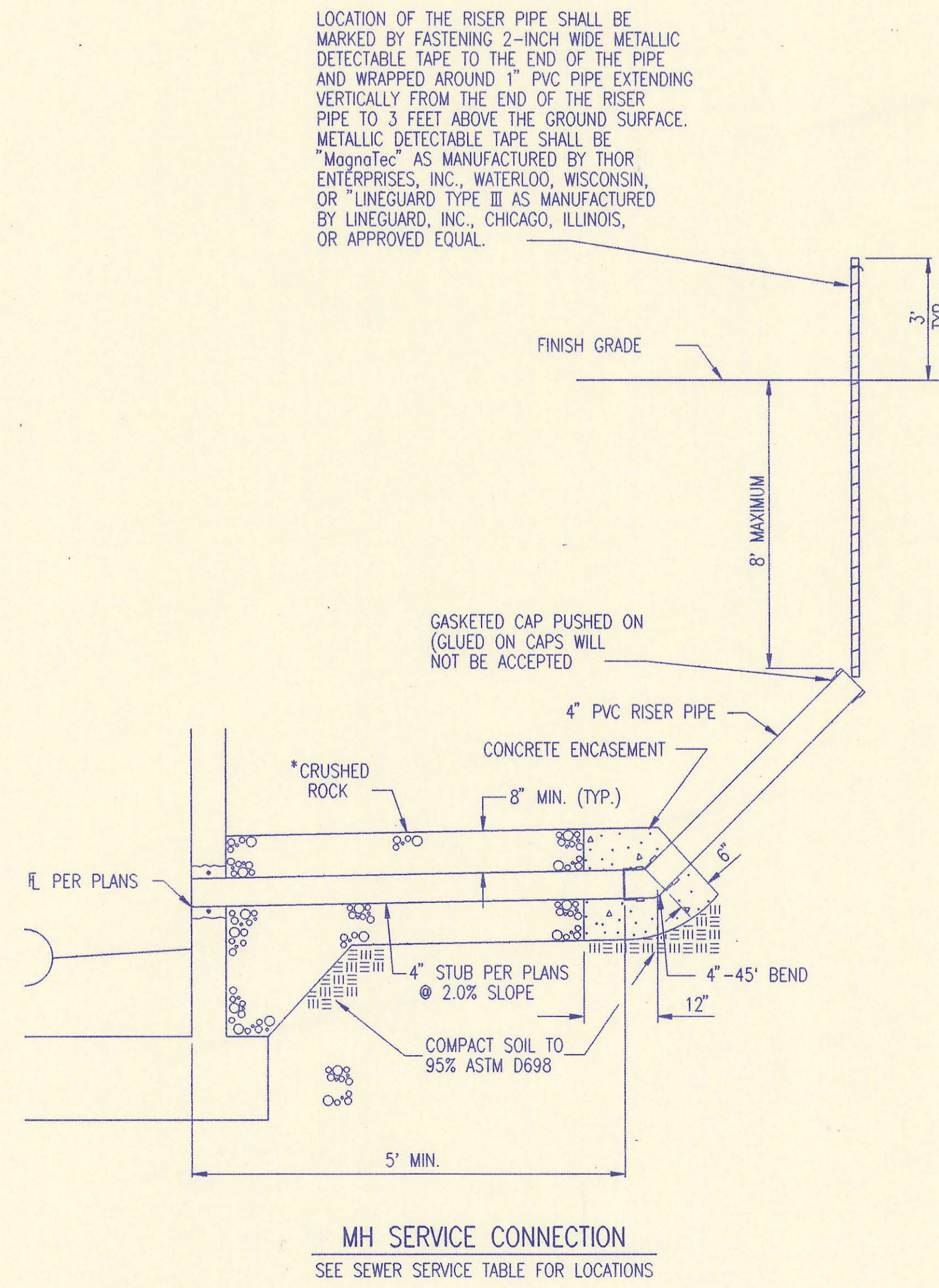
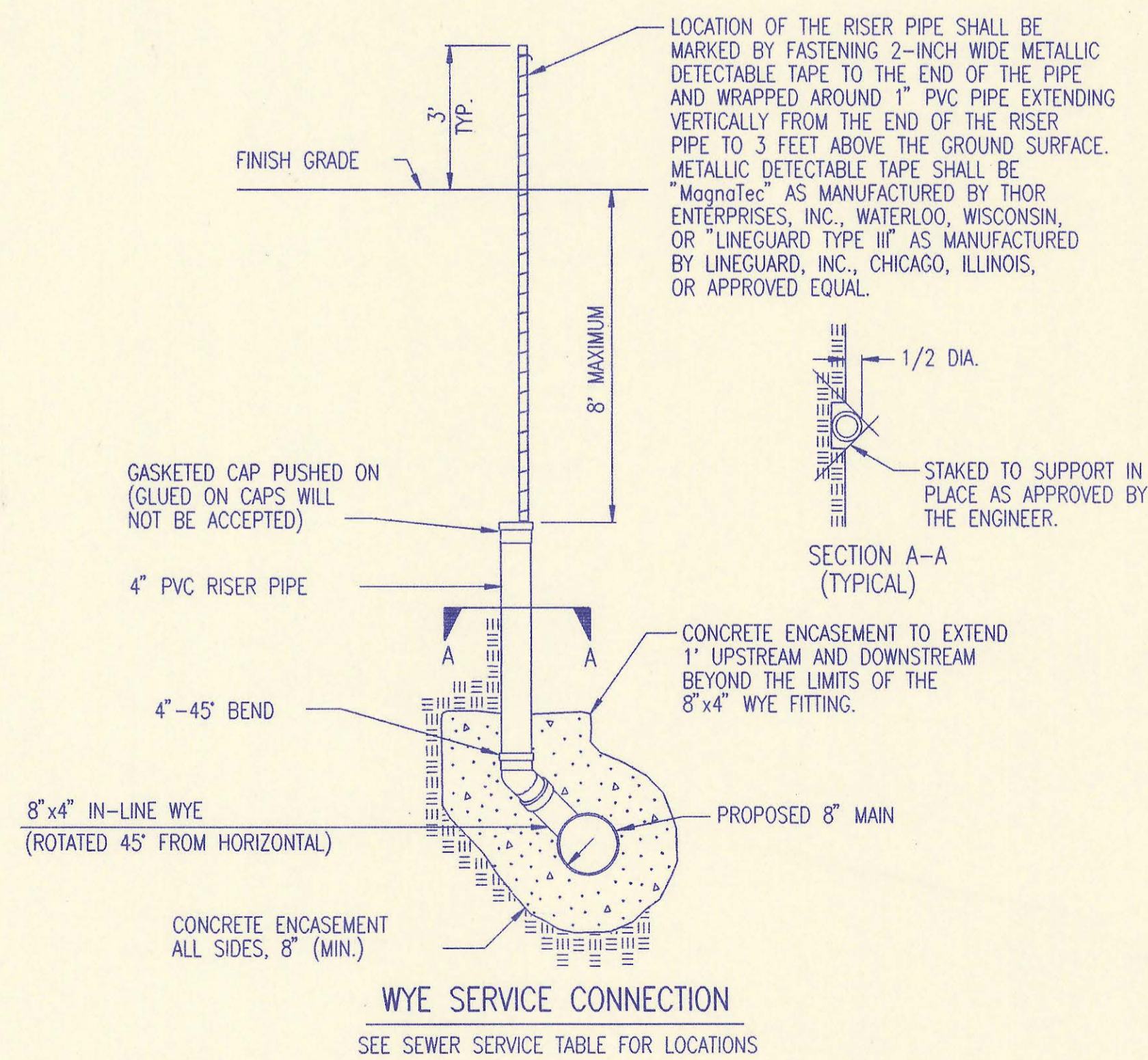
TRENCH ZONE BACKFILLING

2	Revised compaction designation-Backfilling under pavement	RJ	9/28/94
1	Revised compaction designation	RJ	3/9/94
No.	Revision	By	Date

BACKFILL DETAILS

ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989  
 BY  
 SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
 DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

SEWER SERVICE TABLE										
LOCATION					FOR INFORMATION ONLY		RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR)			
NO.	TYPE	LOT NO.	BLOCK NO.	LATERAL NO.	STATION/DIRECTION	APPROXIMATE LENGTH 4" PIPE	DISTANCE FROM NEAREST MANHOLE		NO.	
							UPSTREAM	DOWNSTREAM		
1	8" x 4" WYE	13	2	19	LT./0+35	7'	356' to MH 10-1	34' to MH 8-5	1	
2	8" x 4" WYE	12	2	19	RT./0+45	7'	327' to MH 10-1	43' to MH 8-5	2	
3	8" x 4" WYE	11	2	19	RT./1+47	9'	224' to MH 10-1	146' to MH 8-5	3	
4	8" x 4" WYE	14	2	19	LT./1+62	9'	211' to MH 10-1	159' to MH 8-5	4	
5	8" x 4" WYE	10	2	19	RT./2+55	10'	114' to MH 10-1	35' to MH 10-2	5	
6	8" x 4" WYE	15	2	19	LT./2+90	10'	78' to MH 10-1	71' to MH 10-2	6	
7	MH SERVICE CONNECTION (4" STUB)	9	2	19	N/3+69.11	15'	8.5' North		7	
8	8" x 4" WYE	8	2	19	RT./4+45	9'	76' to MH 10-2	73' to MH 10-1	8	
9	8" x 4" WYE	16	2	19	LT./5+00	10'	18' to MH 10-2	131' to MH 10-1	9	
10	8" x 4" WYE	7	2	19	LT./5+80	9'	67' to MH 10-3	55' to MH 10-2	10	
11	MH SERVICE CONNECTION (4" STUB)	17	2	19	SE/6+40.39	11'	8.5' Southeast		11	
12	8" x 4" WYE	18	2	19	LT./6+75	8'	223' to MH 10-4	37' to MH 10-3	12	
13	8" x 4" WYE	6	2	19	RT./7+10	9'	188' to MH 10-4	72' to MH 10-3	13	
14	8" x 4" WYE	19	2	19	LT./8+10	8'	25' to MH 10-4	164' to MH 10-3	14	
15	8" x 4" WYE	5	2	19	RT./8+47	7'	53' to MH 10-4	207' to MH 10-3	15	
16	MH SERVICE CONNECTION (4" STUB)	20	2	19	SW/9+01.43	7'	8.5' Southwest		16	



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

RECORD DRAWING  
PROJ. ENG. \_\_\_\_\_ DATE \_\_\_\_\_  
RES. ENG. \_\_\_\_\_ DATE \_\_\_\_\_



No.	Revision	By	Date

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
DAVID C. SPEARS, P.E.  
DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

SERVICE CONNECTION DETAILS

PHASE 1-SANITARY SEWER IMPROVEMENTS  
SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.  
ENGINEERS  
WICHITA, KANSAS

Designed by CRY, MDK  
Job No. 34-94607-1  
Drawn by B.Baktho  
Date September 1994

Sh. 6 of 8

DSNR: RFJ OPER: ILS SCALE: 1" = 1'  
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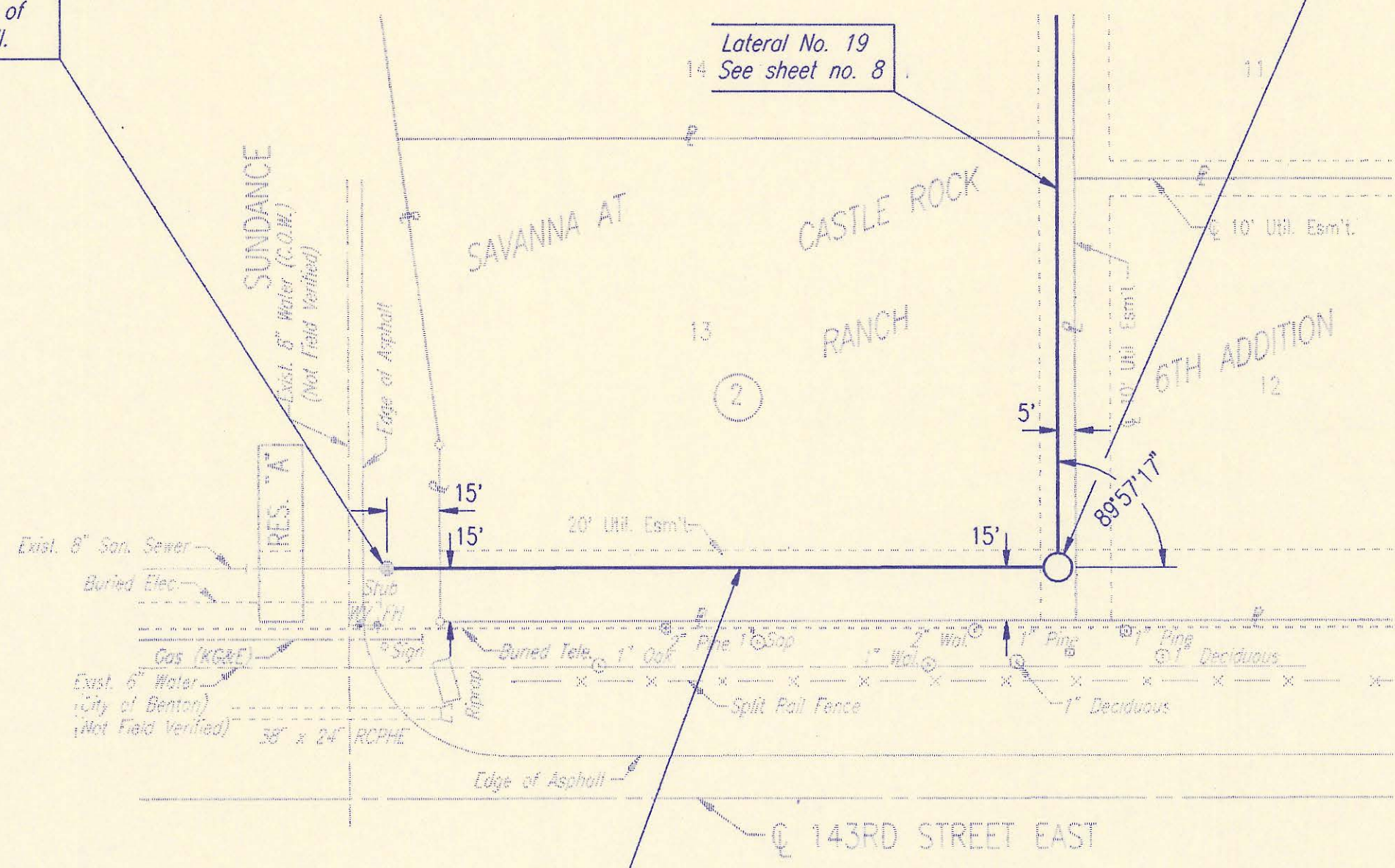
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DSNR: REF. OPER. TJS SCALE: 1 = 40  
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Sta. 7+95.76 ✓  
Existing Concrete MH 8-4 Core MH wall and install new 8" pipe. Seal new pipe to MH wall with quick-set hydraulic cement. Patch any imperfections caused by the coring operation with quick-set hydraulic cement. Construct minimum of 3" Concrete Encasement from MH wall.

Sta. 9+85.72  
Const. MH 8-5 Type A

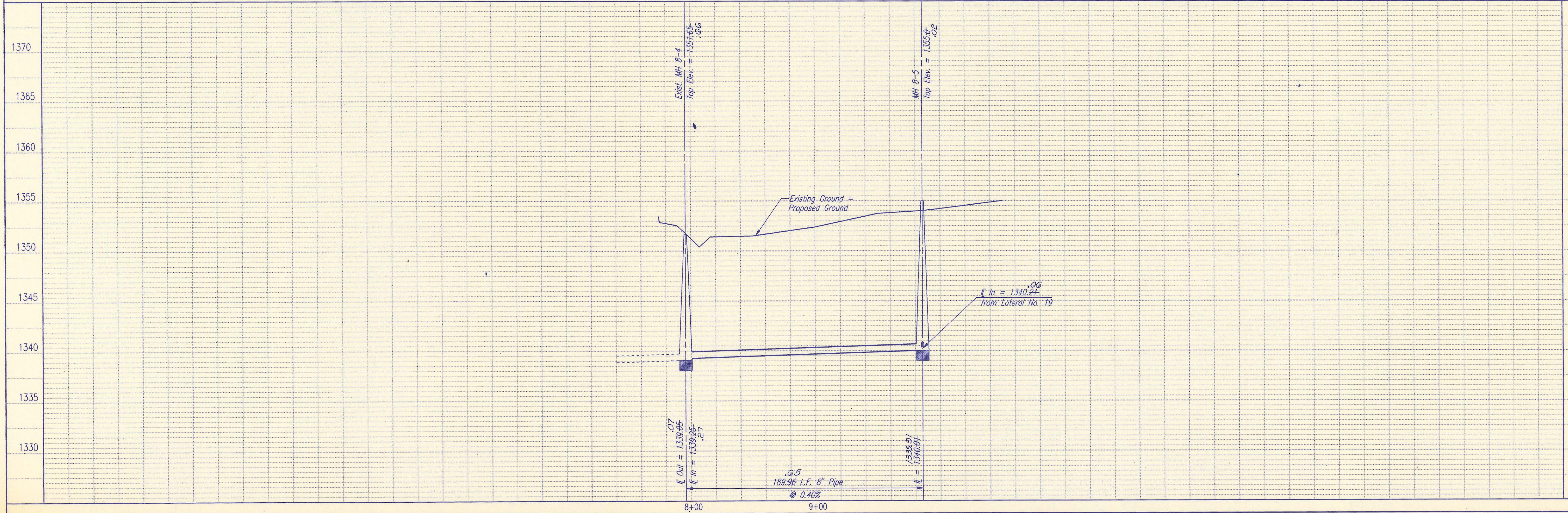


Install 189.96 L.F. 8" Pipe

SANITARY SEWER PIPE SLOPES AND DEFLECTION ANGLES AT MANHOLES HAVE NOT BEEN REVISED TO REFLECT AS CONSTRUCTED CONDITIONS.

ALL PIPE INSTALLED IS PVC PIPE.

RECORD DRAWING  
PROJ. ENG. 3/26/94 DATE  
RES. ENG. DATE



SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES  
DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.  
WICHITA, KANSAS

Job No. 34-94607-1  
Date September, 1994

LATERAL NO. 8  
PHASE-1 SANITARY SEWER IMPROVEMENTS  
SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION

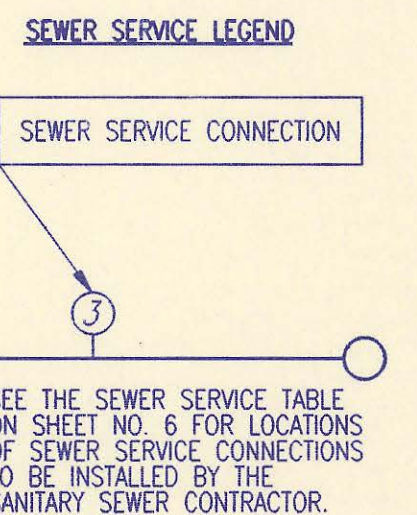
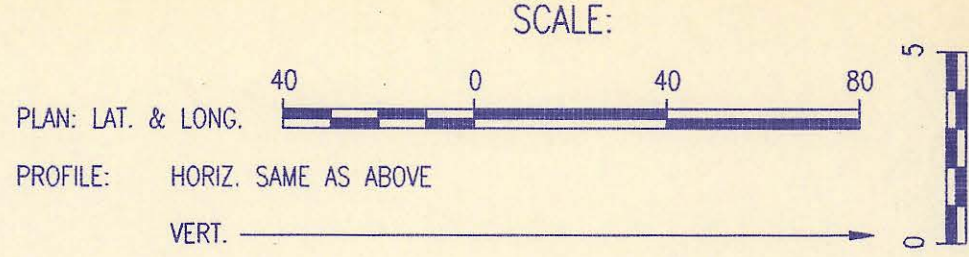
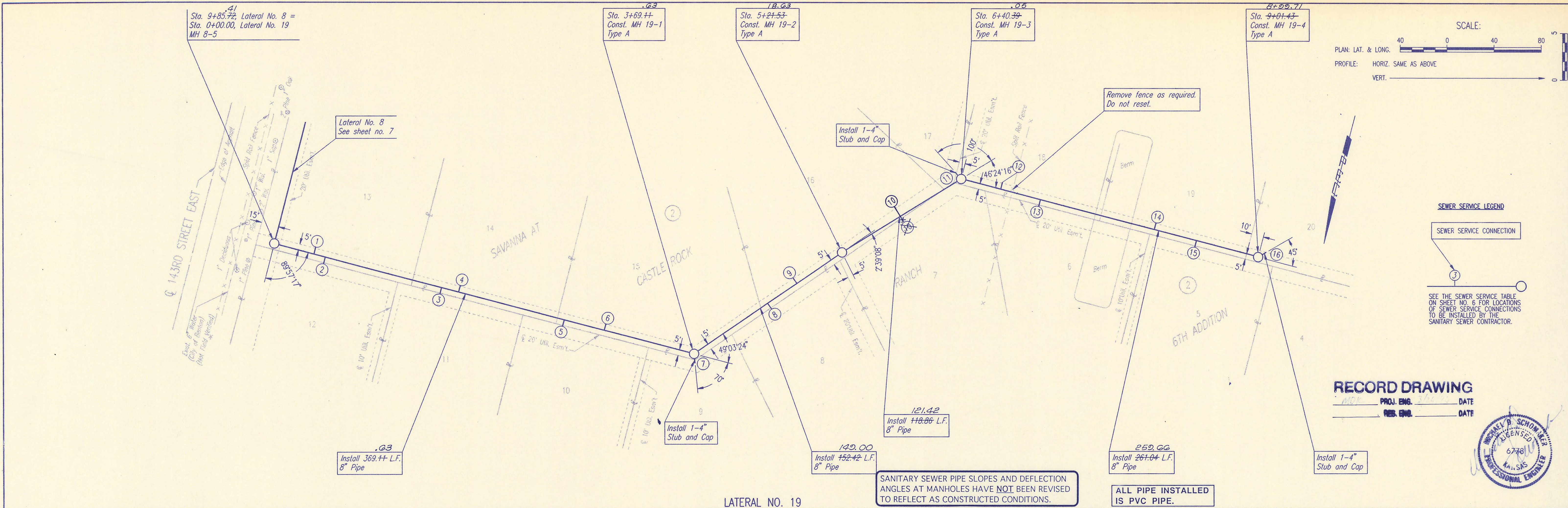
Designed By: CRY, MDK  
Drawn By: E.Bakhtia

Sheet 7 of 8

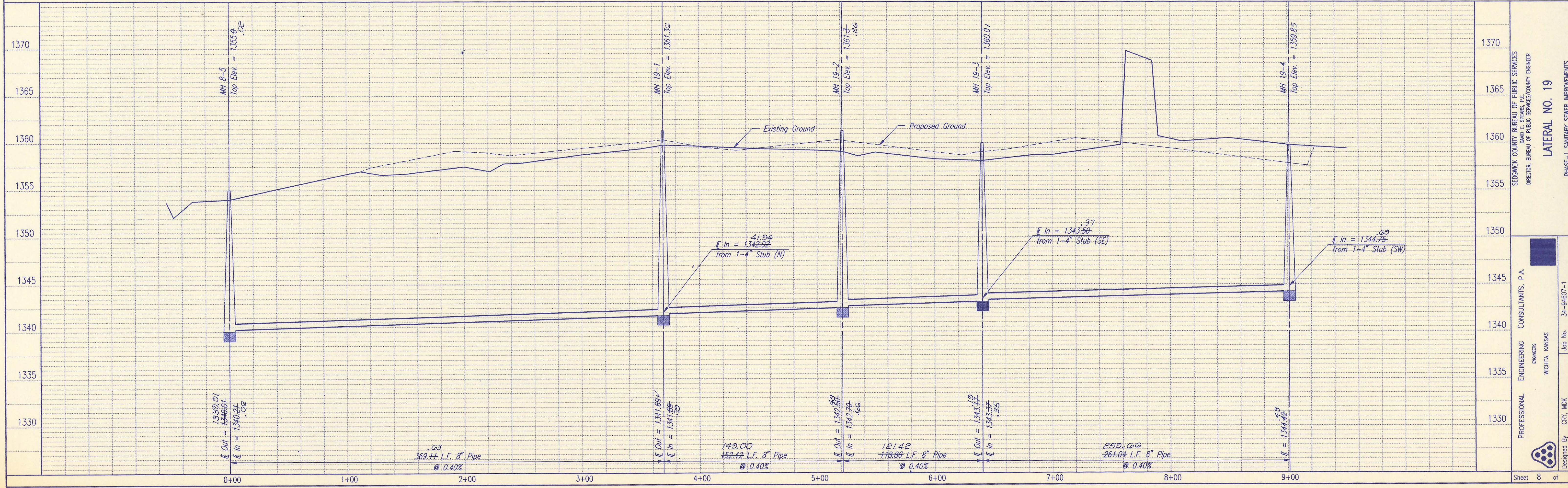
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DSNR: RFJ OPER: ILS SCALE: 1 = 40  
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**RECORD DRAWING**  
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 RES. ENG. \_\_\_\_\_ DATE \_\_\_\_\_



**LATERAL NO. 19**

PHASE-1 SANITARY SEWER IMPROVEMENTS  
 SAVANNA AT CASTLE ROCK RANCH 6TH ADDITION

SEDMICK COUNTY BUREAU OF PUBLIC SERVICES  
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.  
 ENGINEERS  
 WICHITA, KANSAS

Designed By: CRY, MJK  
 Drawn By: B.Bohler

Job No. 34-94607-1  
 Date: September, 1994

Sheet 8 of 8