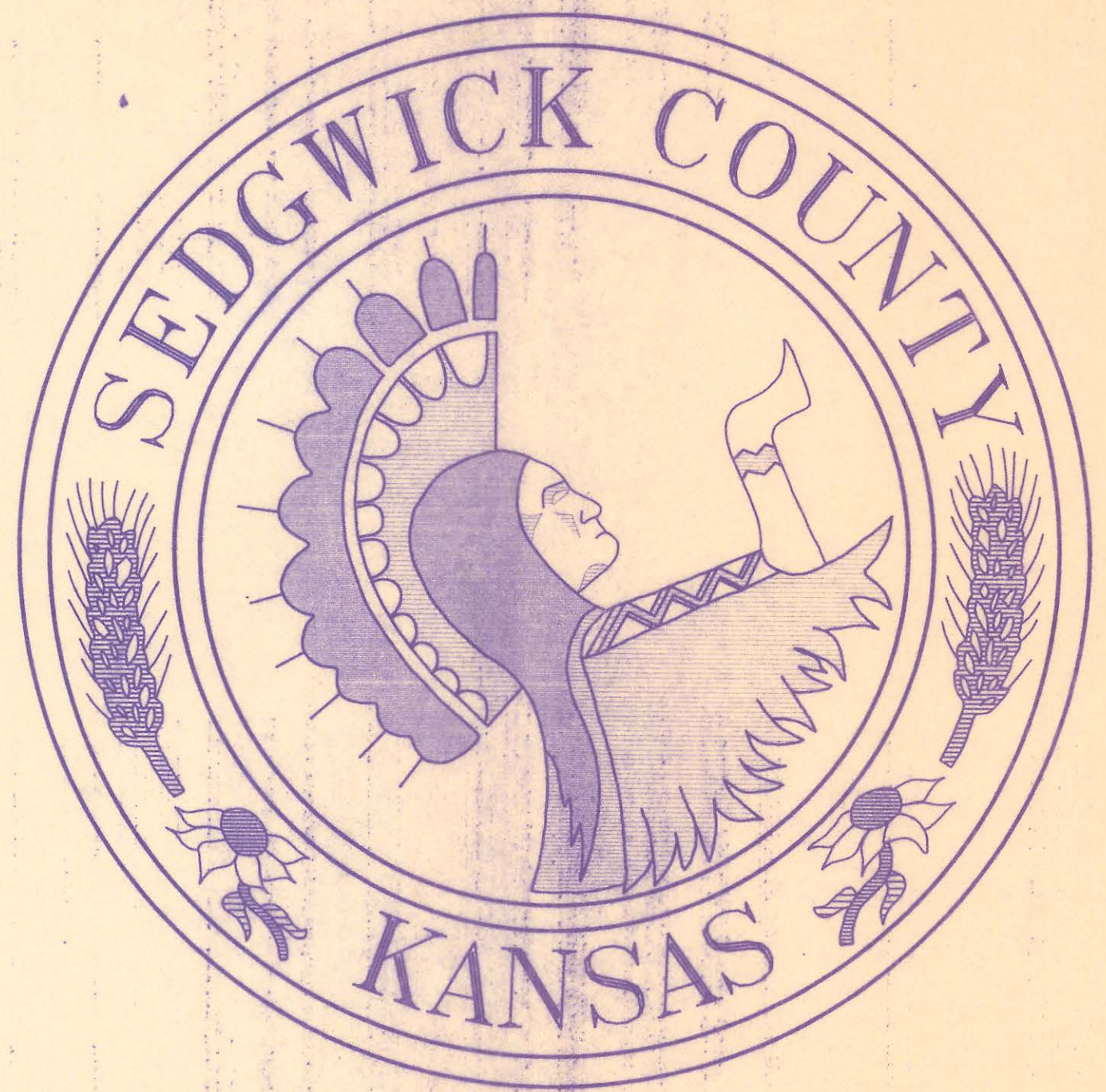
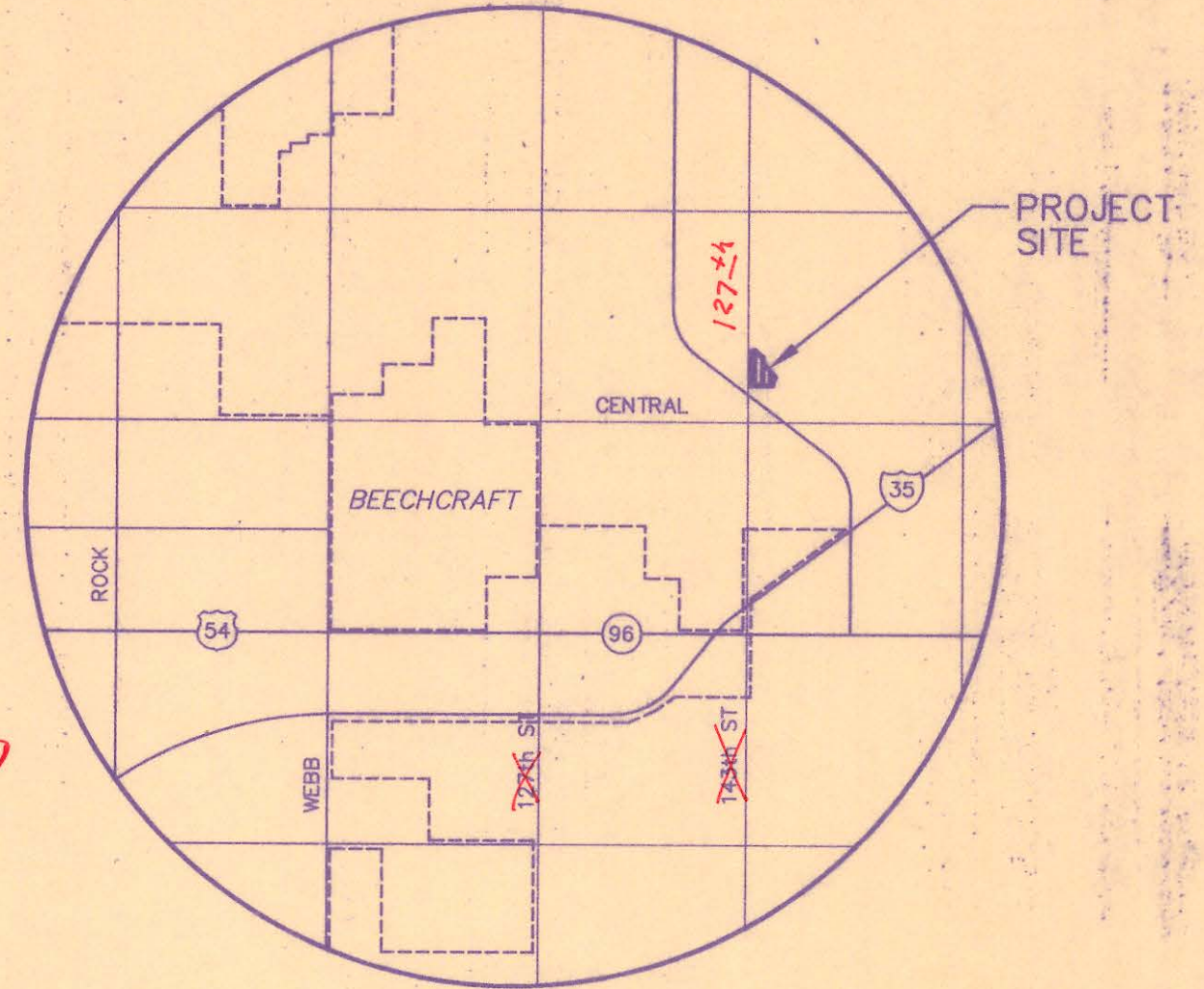


4MC-102

BUREAU OF PUBLIC SERVICES



Extra Copy



LOCATION MAP
NOT TO SCALE

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	KEY MAP
3	MANHOLE DETAILS
4	BACKFILL DETAILS
5	LINE 1 & LINE 2
6	LINE 3 & LINE 4
7	LINE 5

CONSTRUCTION PLANS FOR SANITARY SEWER IMPROVEMENTS IN CREST RIDGE ADDITION

TO SEDGWICK COUNTY, KANSAS
DECEMBER, 1994

BY

 MID-KANSAS ENGINEERING CONSULTANTS, INC.

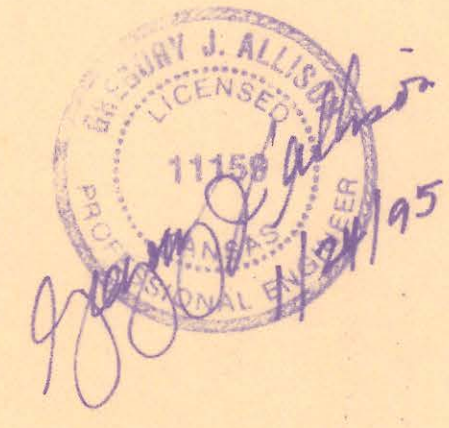
APPROVED:

David C. Spears
DAVID C. SPEARS, P.E.
DIRECTOR OF PUBLIC SERVICES/COUNTY ENGINEER
DATE: 1/24/95

APPROVED:

Walter J. Lyman
CHAIRMAN, BOARD OF COUNTY COMMISSIONERS
DATE: 1/26/95

FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK
Susan J. ...
COUNTY CLERK
DATE: Jan. 30, 1995



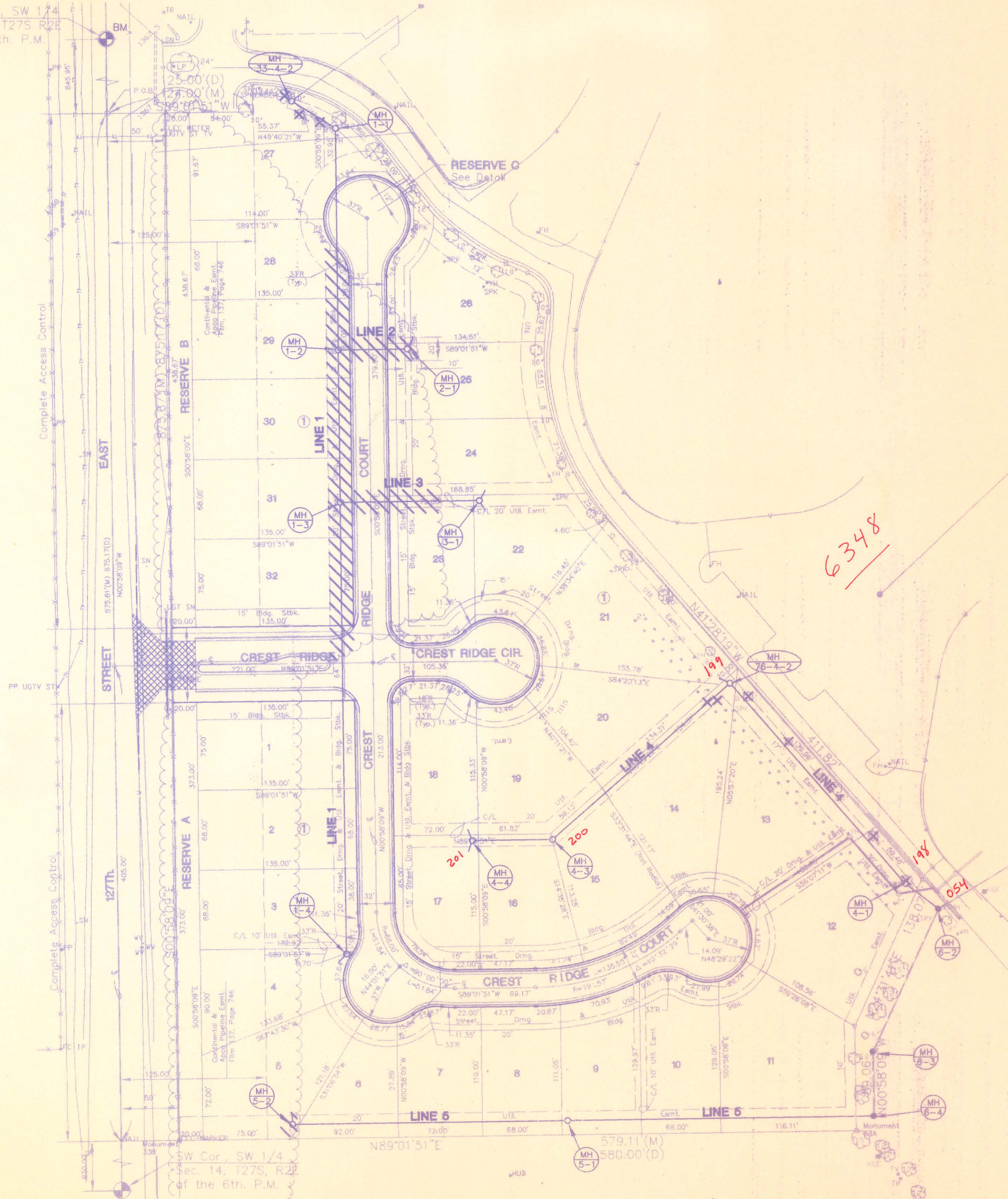
BENCHMARKS

BM TOP OF 3/4" I.P. IN CENTERLINE OF 127TH STREET EAST AT EAST 1/4 CORNER OF SECTION 15, T27S, R2E OF THE 6TH P.M.
ELEV.=1372.44 M.S.L.


GENERAL NOTES

- All Elevation shown are USGS Datum.
- At least 72 hours 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, KG&E Gas and KG&E Electric.
- 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.
- The Contractor shall contact the Sedgwick County Eastern Sewer District (733-0202) at least 24 hours before connecting new sewer pipe to the existing sewer system. The Contractor shall keep any construction debris from entering the existing sanitary sewer during construction. A mechanical plug shall be installed and maintained to isolate the existing sewer from the new construction until the new construction is cleaned, televised, and has been accepted to prevent water or debris from entering the existing sewer. The water used for cleaning shall not be added to the flow of the existing sewer. The cleaning and otherwise accumulated water shall be pumped or otherwise removed prior to televising.
- All manholes constructed on this project shall have self-sealing frames.
- 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 relaid according to specifications at the Contractor's expense.
- Excess excavation 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.
- Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave unsightly appearance will not be approved. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.
- Underground utility service lines and overhead utility pole lines are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their locations, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
- Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.
- The limits of tree removal are indicated on the key map. The Contractor may remove trees within the street right-of-way. Trees outside the right-of-way marked with orange ribbon shall not be removed or damaged.
- The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractor's proposed method for maintaining sewage flow shall be approved by the Engineer. Cost of maintaining flow of sewage through construction will not be paid for directly and this cost shall be considered subsidiary to the other pay items of work.
- 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 return 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 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.
- The Contractor shall contain his operation 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.
- 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. The replacement of all the aforementioned items, including seeding, fertilizer and mulching shall be considered subsidiary to "site clearing and restoration."
- 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.
- Positive drainage shall be provided for all areas on or near spoil areas. Natural drainage ways shall be maintained.
- The Contractor shall provide positive drainage away from all manhole covers.
- 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.
- All trench backfill shall be either type I or type III unless noted otherwise.
- Top elevations for manholes are approximate only. Top elevations for manholes shall be set as follows:
A. Outside of traveled ways, 0.4 feet above finish grade.
B. Paved traveled ways, flush with finish grade.
C. Unpaved traveled ways, as directed by the Engineer.
- 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, Kansas 67213
Mr. Jim Weber, 315-383-7901
- It shall be the responsibility of the Contractor to satisfy himself as to the existence of unusual subsurface conditions, and to allow for such conditions in his bid.
- Contractor shall grade the sanitary sewer alignment to elevations shown on the easement grading plan.

N.W. Cor., SW 1/4
Sec. 14, T27S, R2E
of the 6th P.M.



SCALE: 1" = 60'
LEGEND
• IRON
LIMITS OF TREE REMOVAL
X INDIVIDUAL TREE REMOVAL



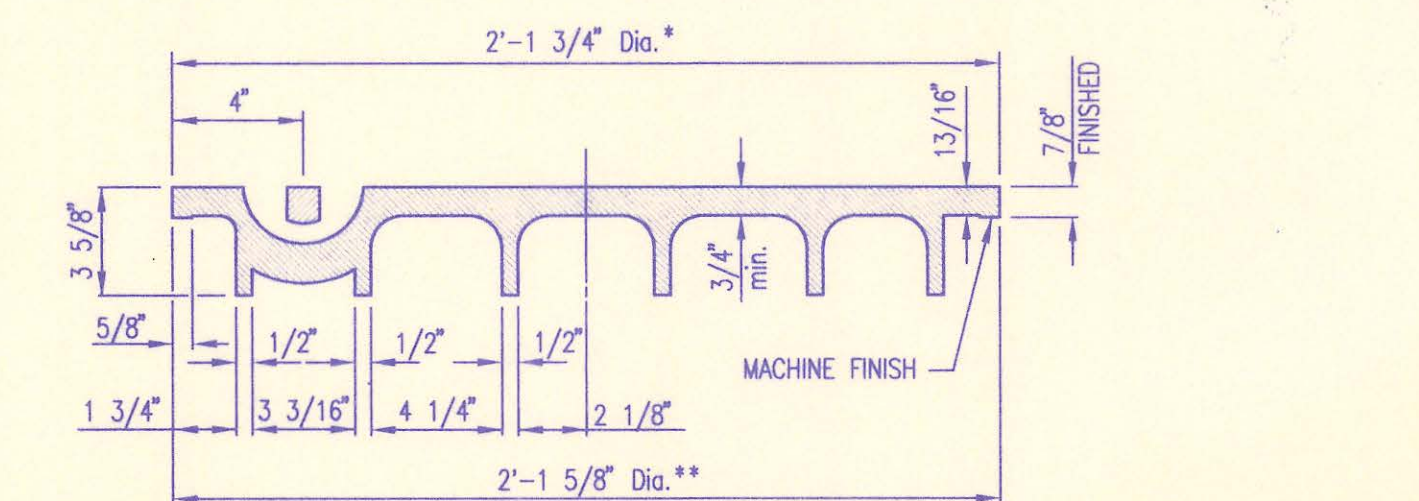
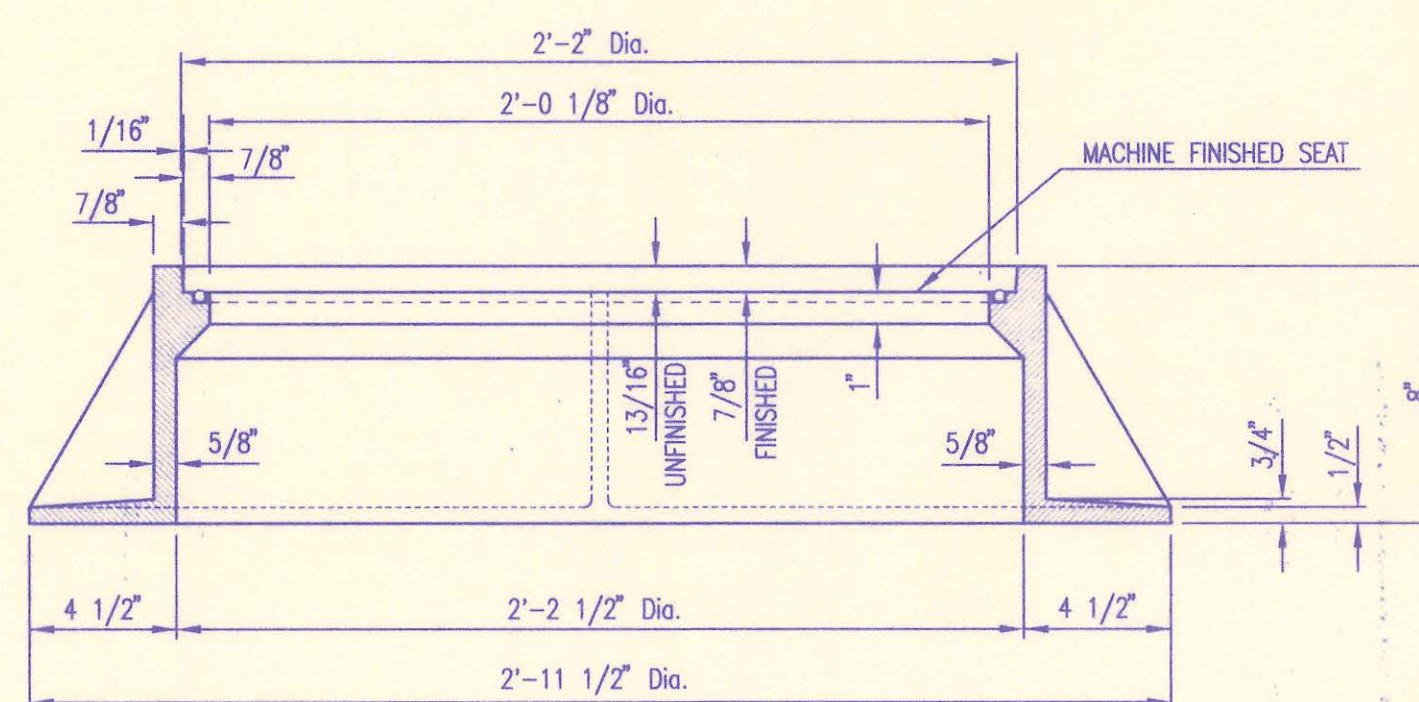
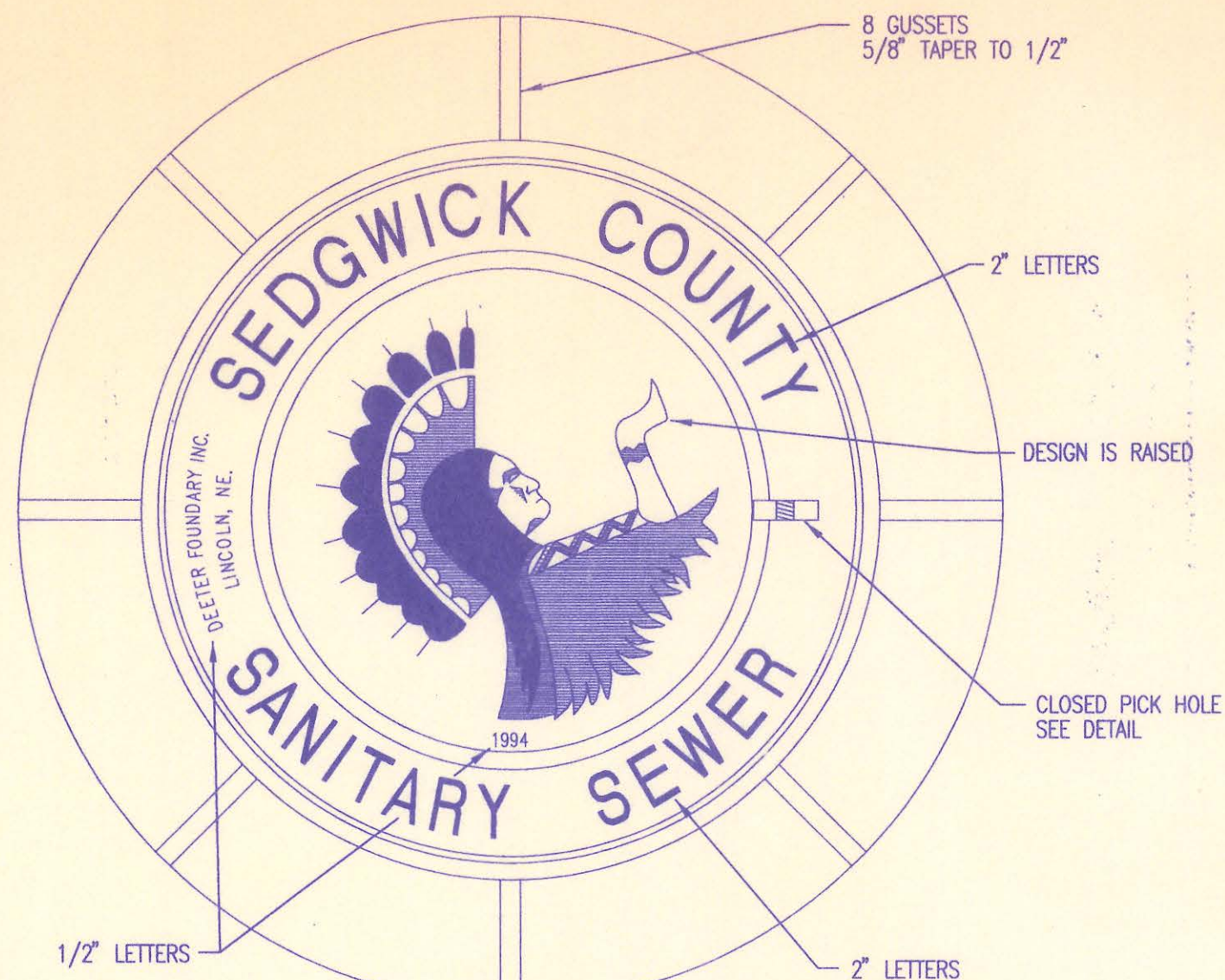
MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CREST RIDGE
PROJECT NAME

KEY MAP
SHEET TITLE

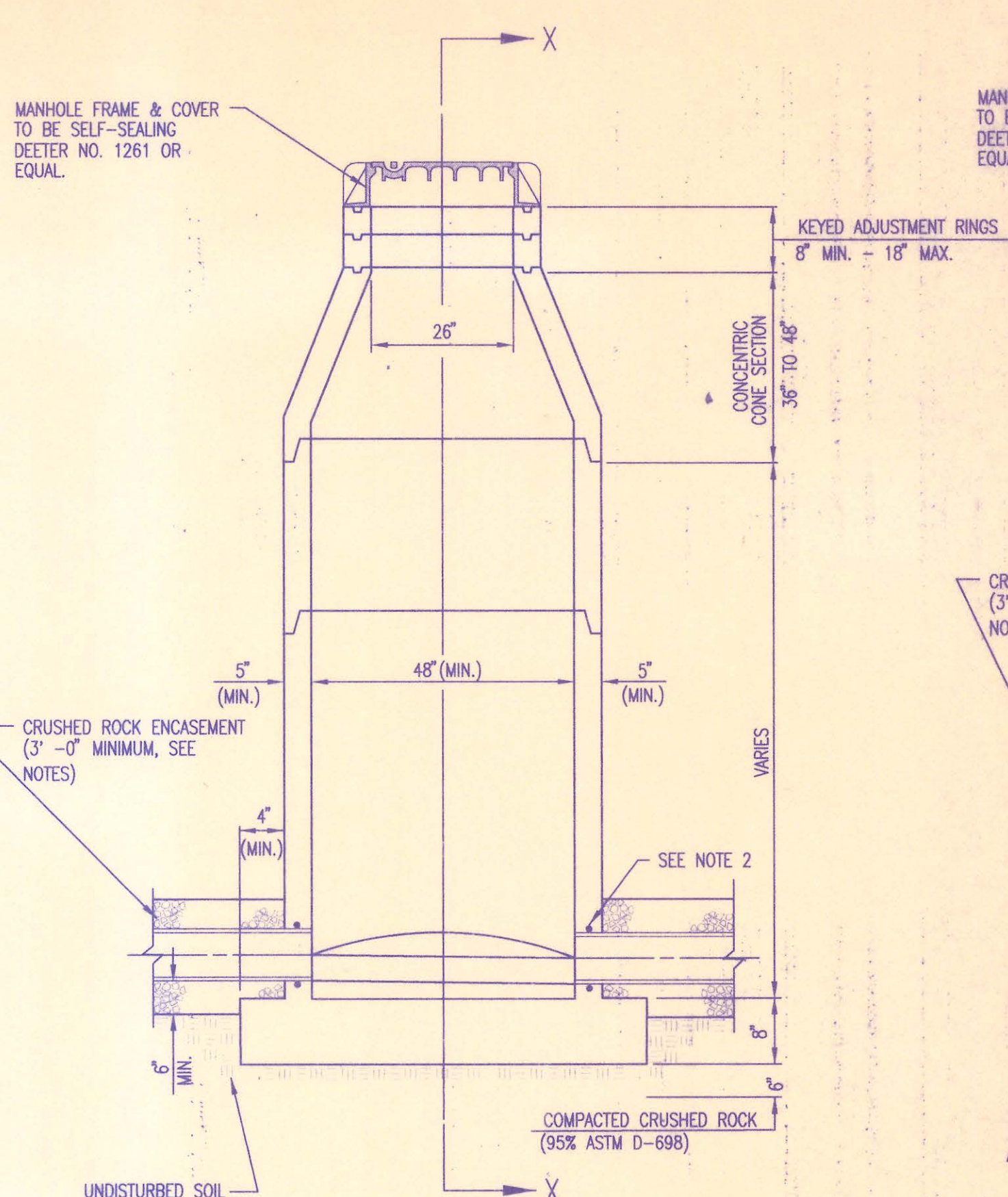
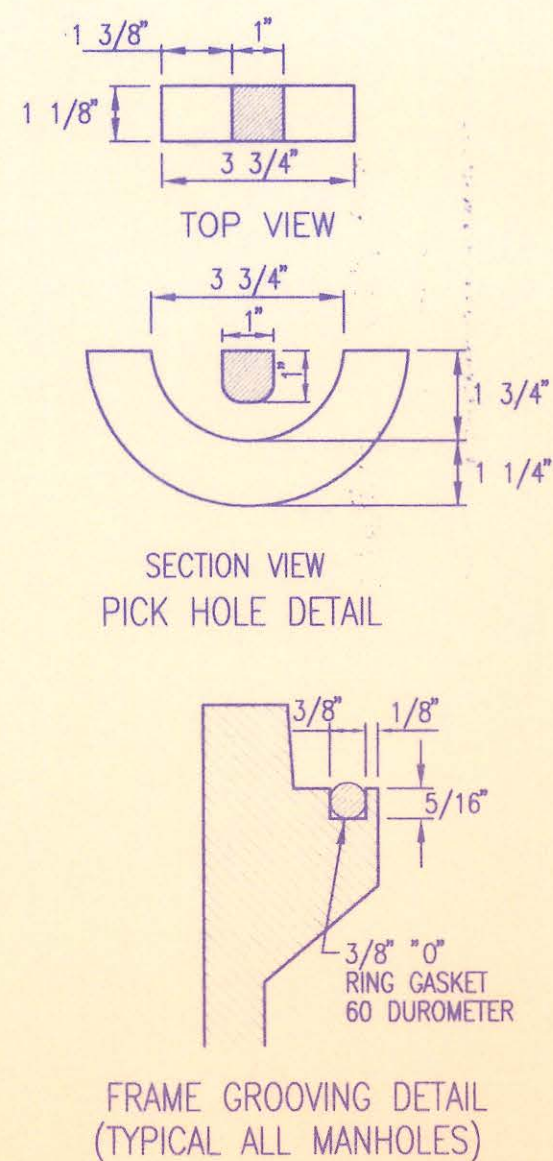
P.A.F. DESIGN BY.	B.D.M. DRAWN BY.	G.J.A. CHECKED BY.
12/9/94 DATE	94073-BK JOB NO.	2 / 7 SHEET OF

6348

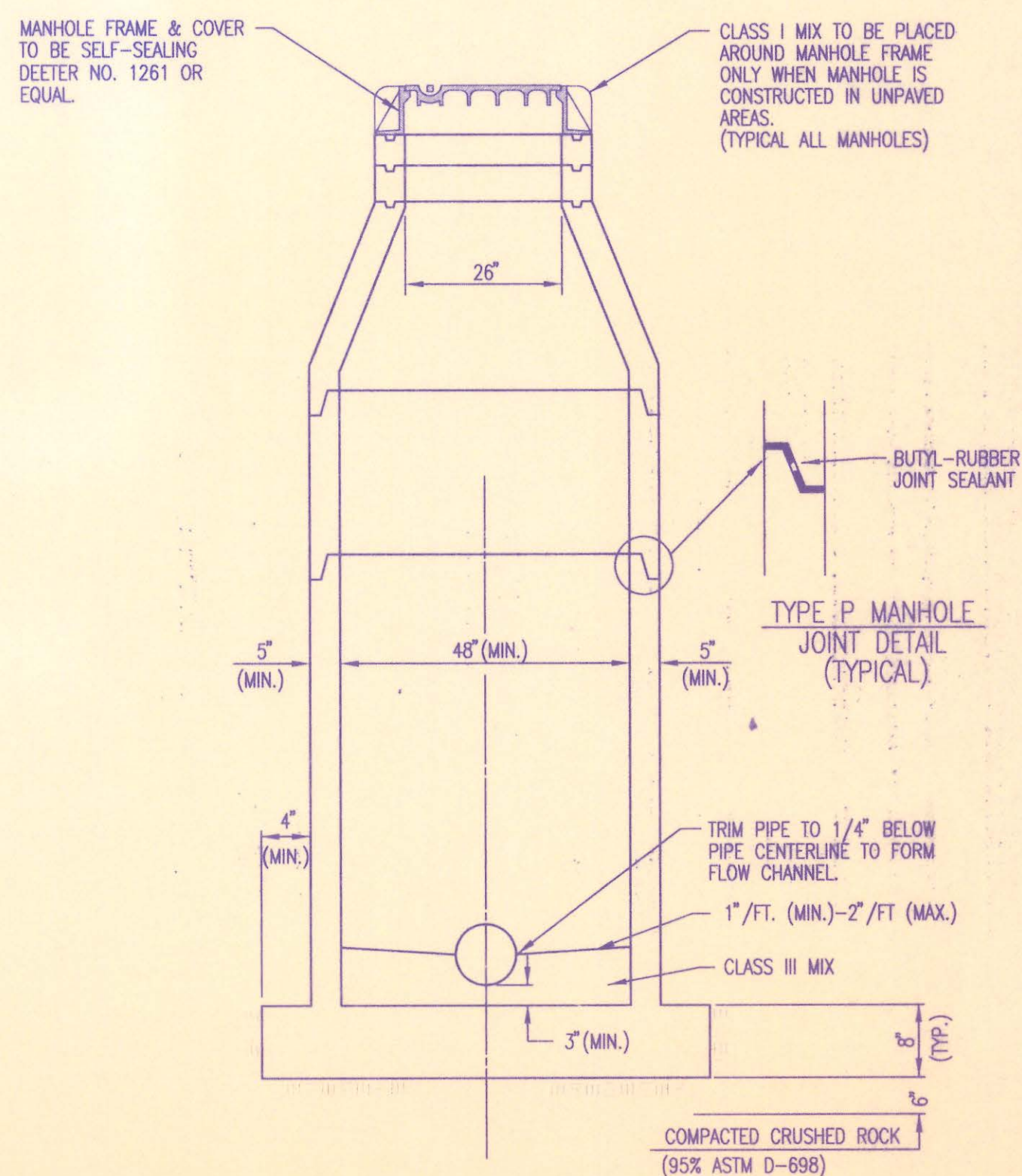


MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 430 LBS.)

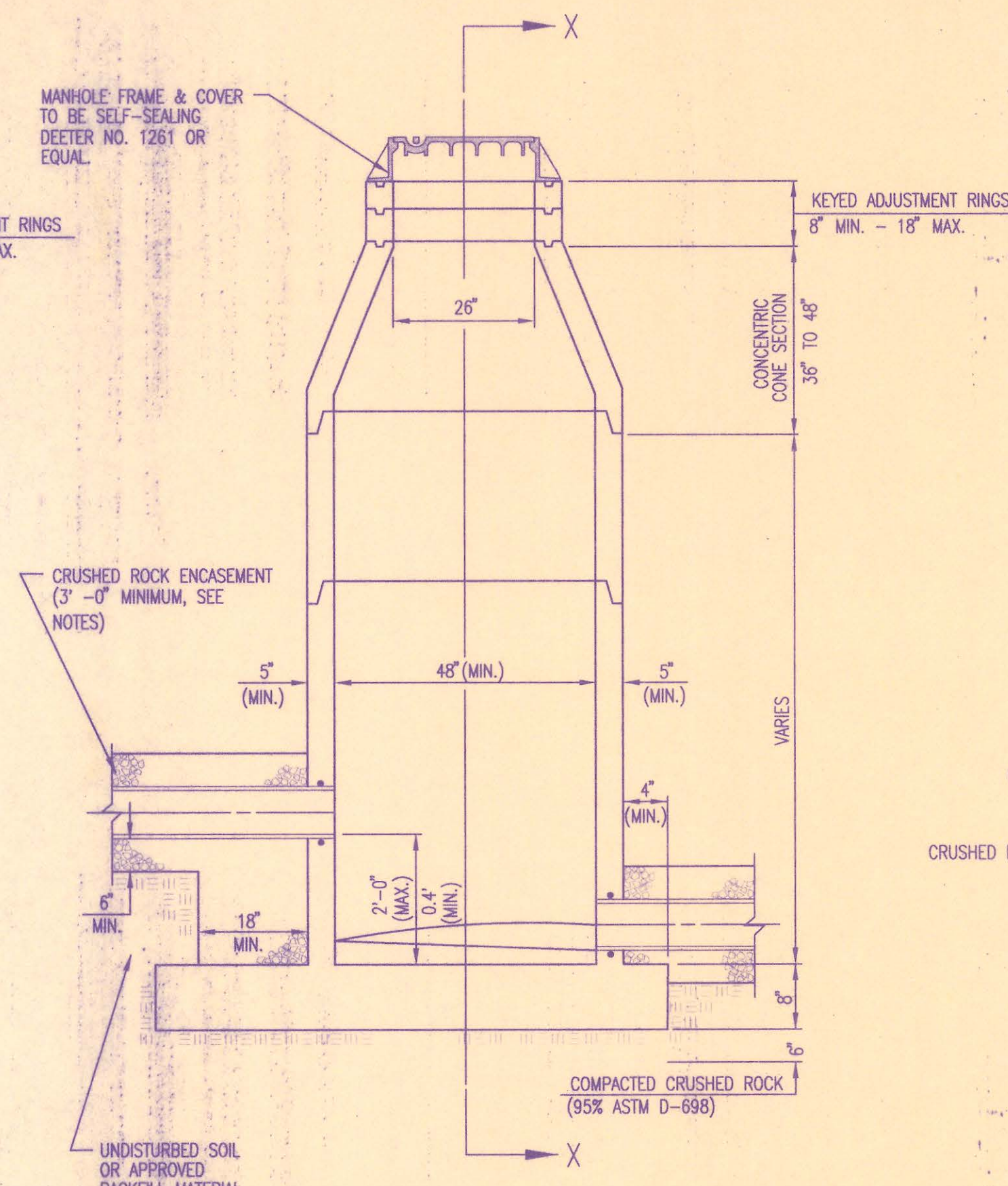
- MANHOLE FRAME AND COVER NOTES**
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
 - CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS AND ALL BURRS SHALL BE GROUND SMOOTH. DIMENSIONS AS DETAIL ON PLAN SHALL NOT VARY 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-DOW CORNING OR EQUAL.



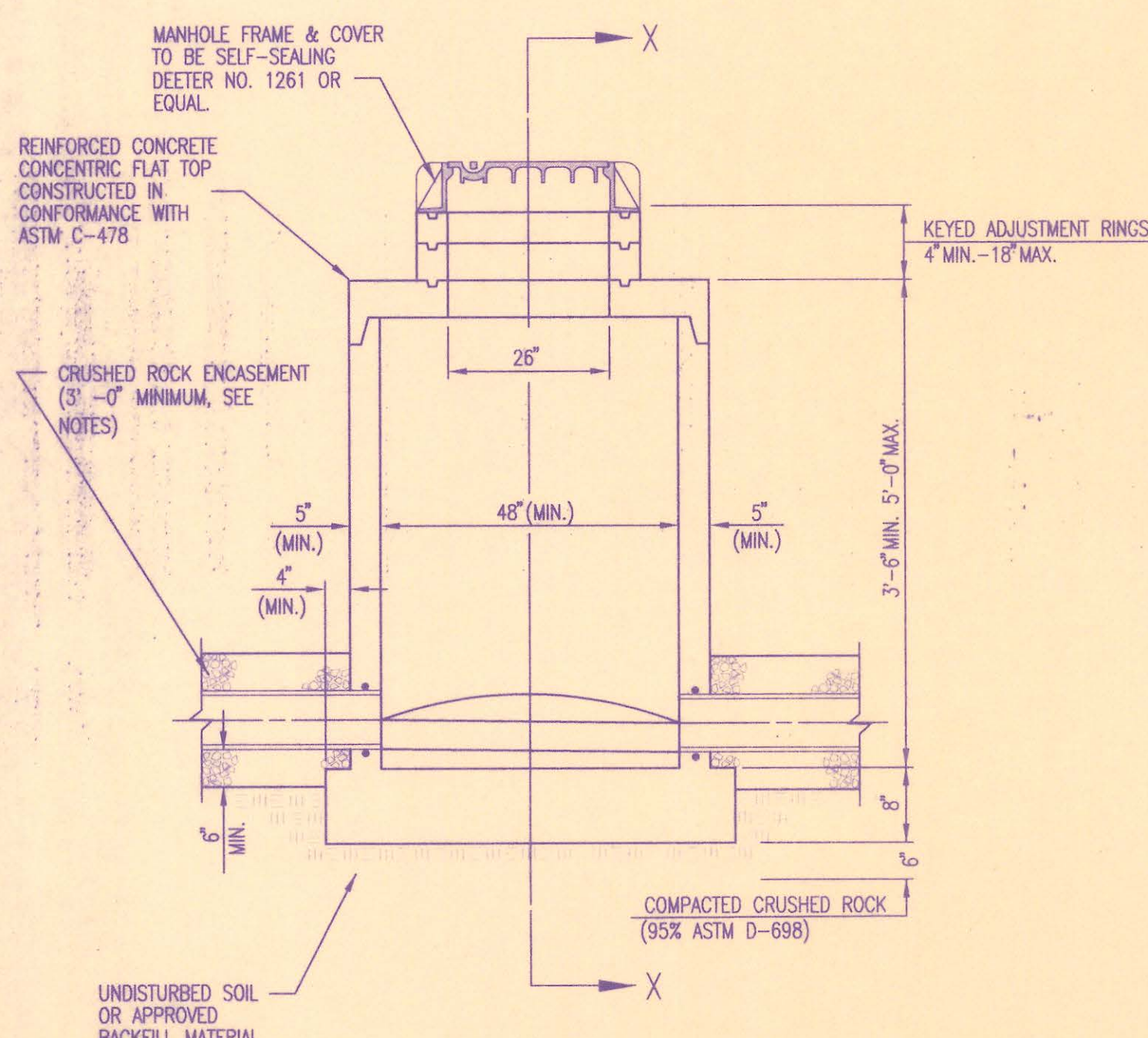
PRECAST STANDARD MANHOLE TYPE "A"



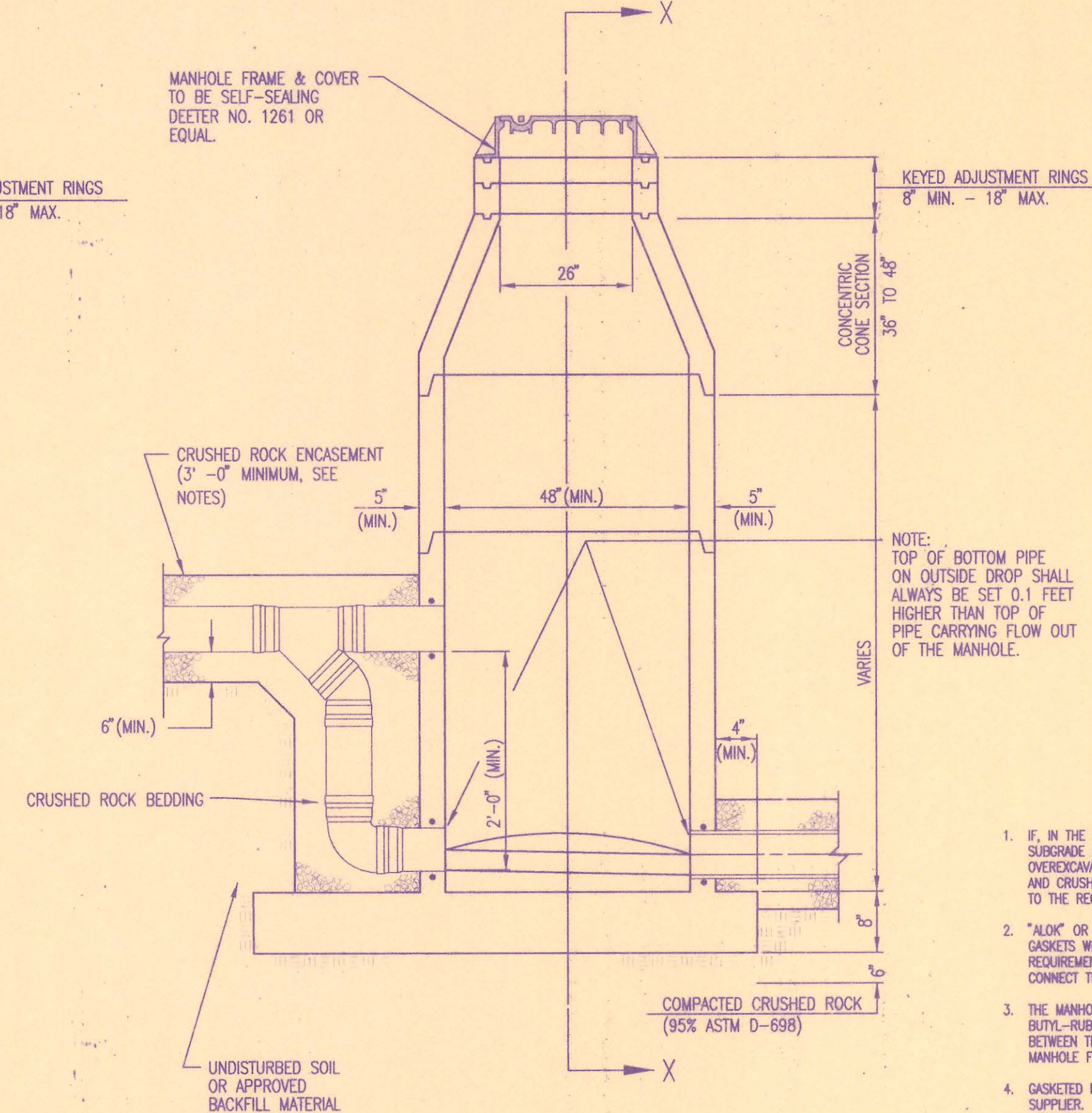
SECTION X (TYPICAL)



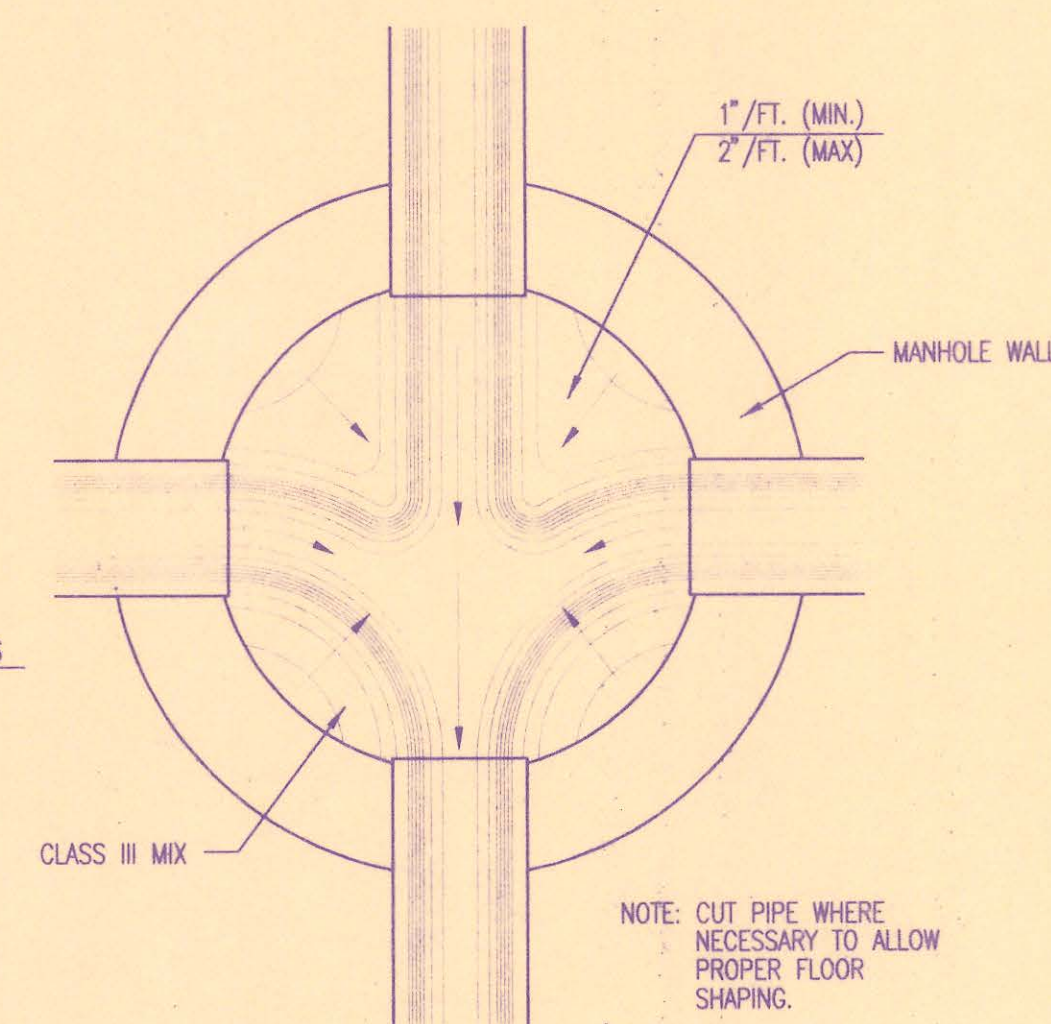
PRECAST INSIDE DROP MANHOLE TYPE "B"



PRECAST SHALLOW MANHOLE TYPE "D"



PRECAST OUTSIDE DROP MANHOLE TYPE "C"



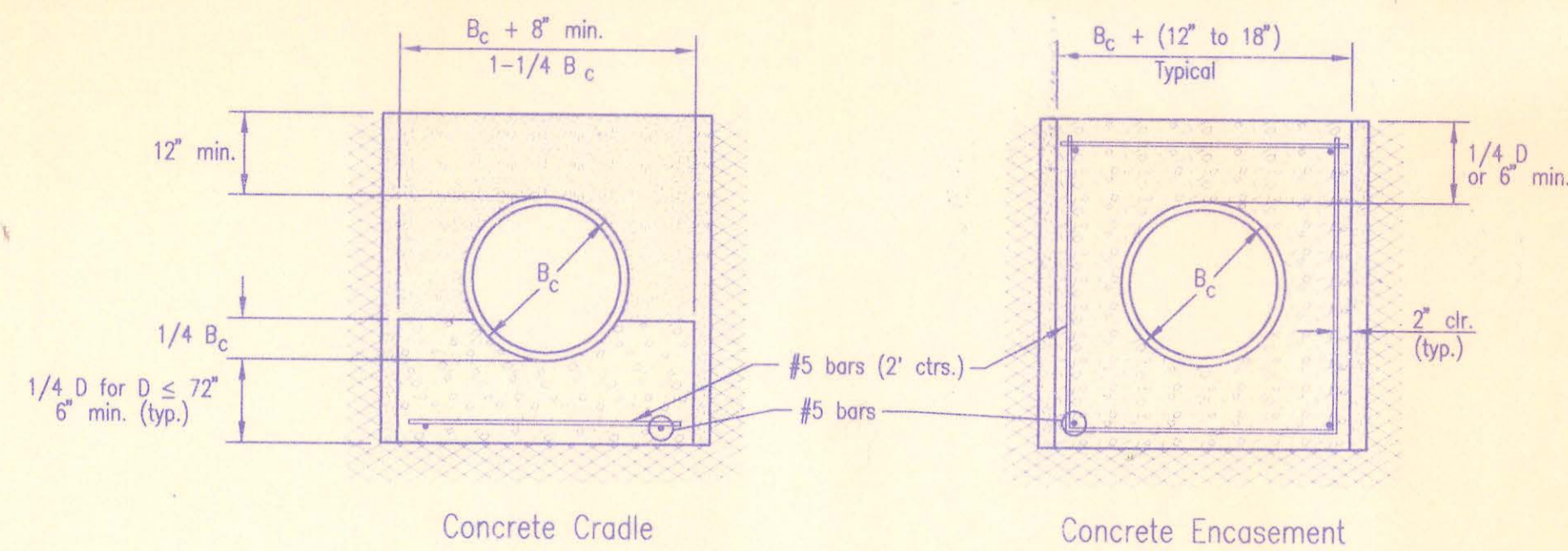
TYPICAL MANHOLE FLOOR SHAPING

NOTE: TOP OF BOTTOM PIPE ON OUTSIDE DROP SHALL ALWAYS BE SET 0.1 FEET HIGHER THAN TOP OF PIPE CARRYING FLOW OUT OF THE MANHOLE.

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.
- "ALOK" OR APPROVED EQUAL FLEXIBLE WATER-STOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-993 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 MANHOLE 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 2.0K GRADE.
6" STUBS SHALL BE SET AT 1.0K 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-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.

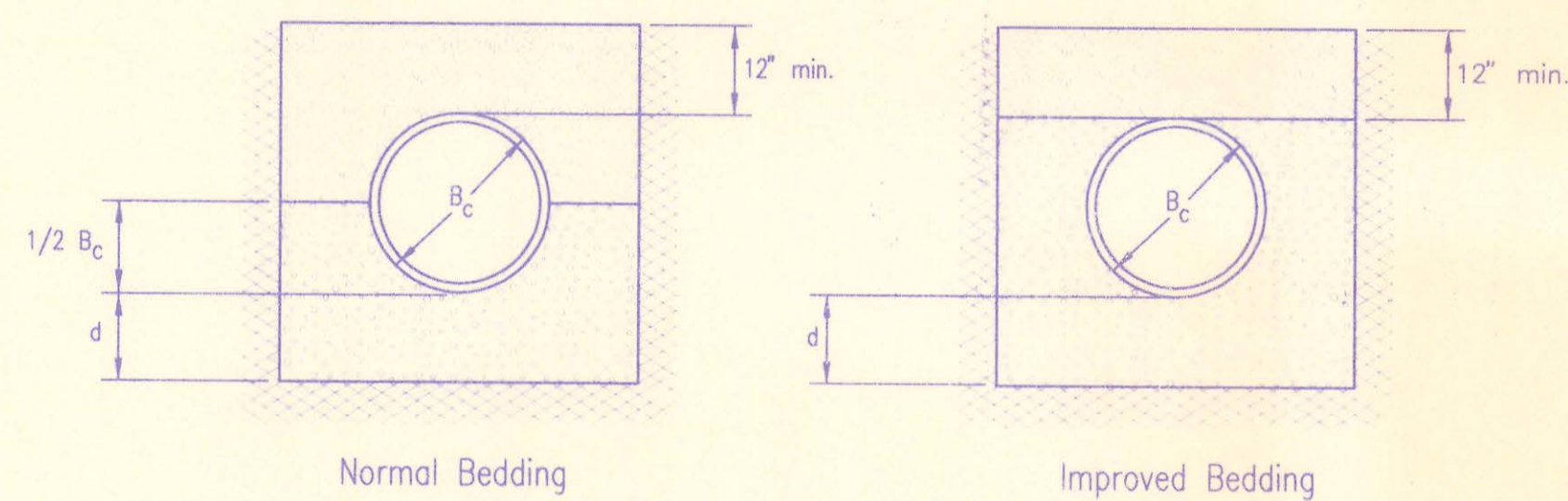
1	Received from County	GJA	11/24/94
No.	Revision	By	Date
PRECAST MANHOLE DETAILS			
ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989			
BY			
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES			
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			



CLASS A

- 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



CLASS B

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. 57 (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.

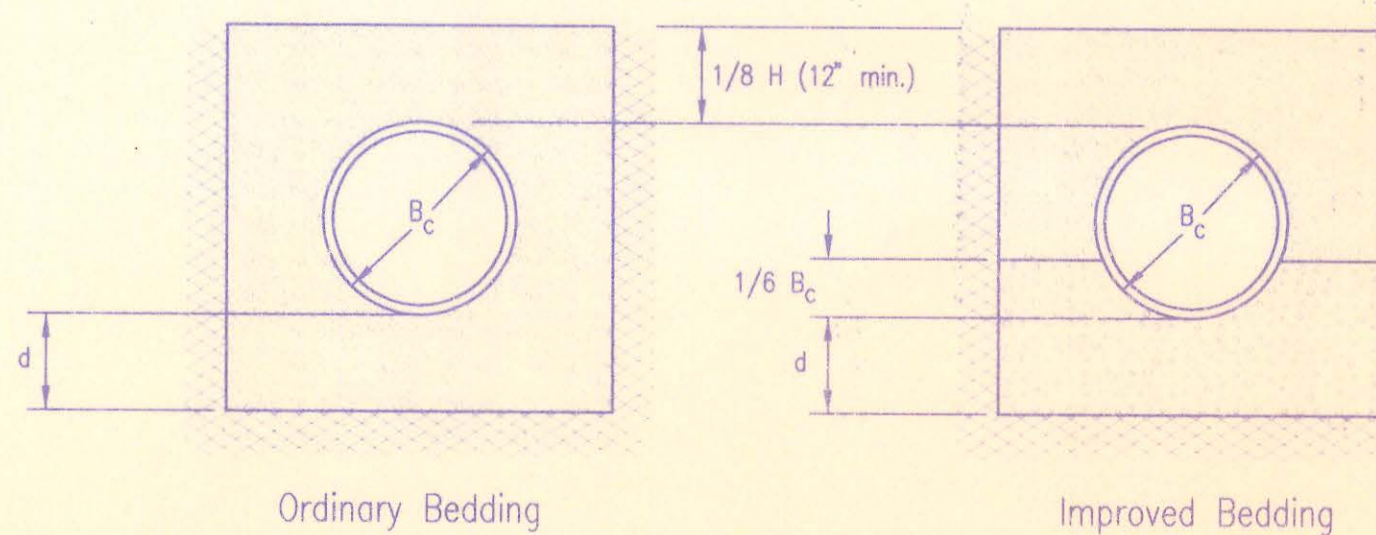
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

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.

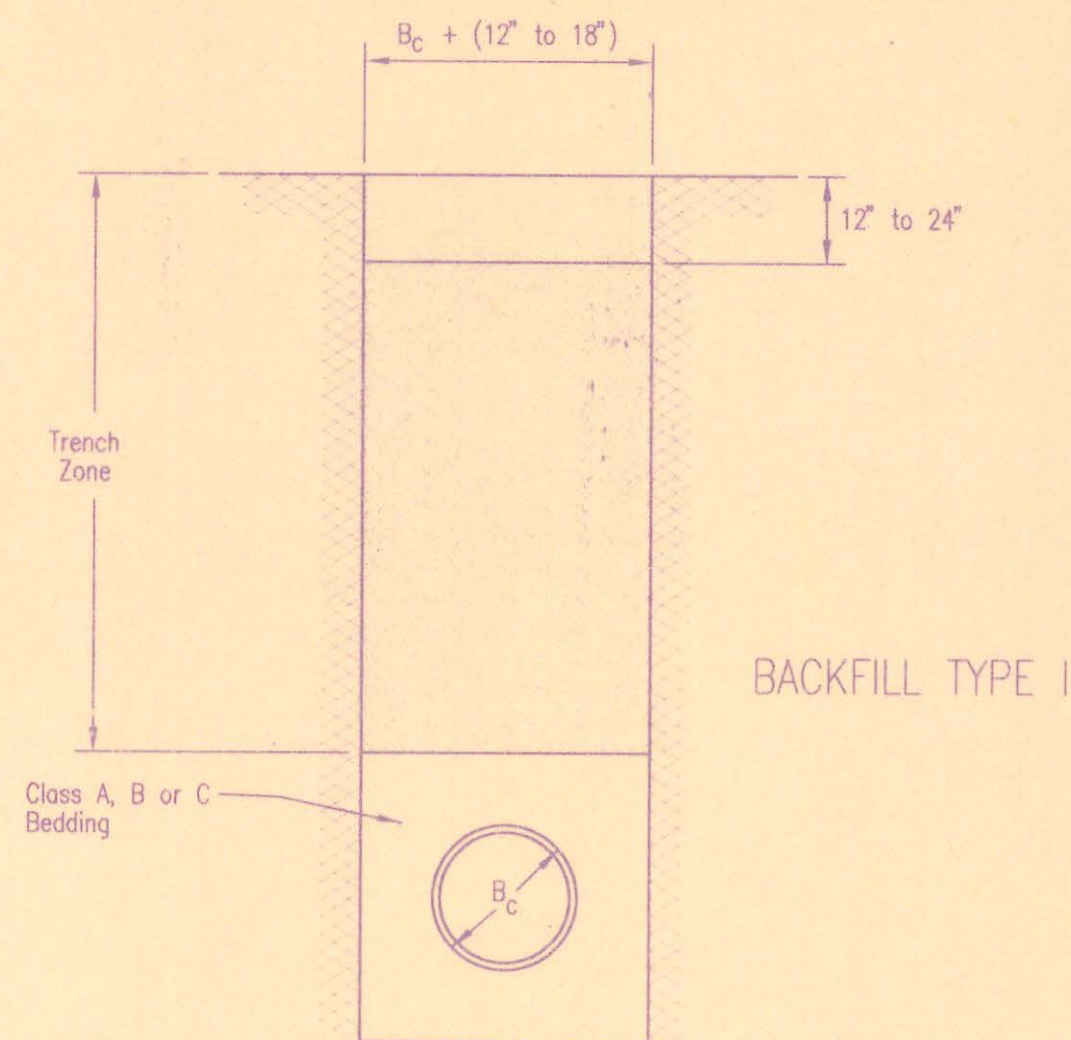
- a. Class C Ordinary Bedding shall be used for all rigid pipe unless wet conditions are encountered.
- b. Class C Improved Bedding shall be used for wet conditions existing in the trench, as directed by the Engineer, at no additional cost to the Owner. The dimensions shall be equal to that required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



CLASS C

PIPE ZONE BACKFILLING

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"



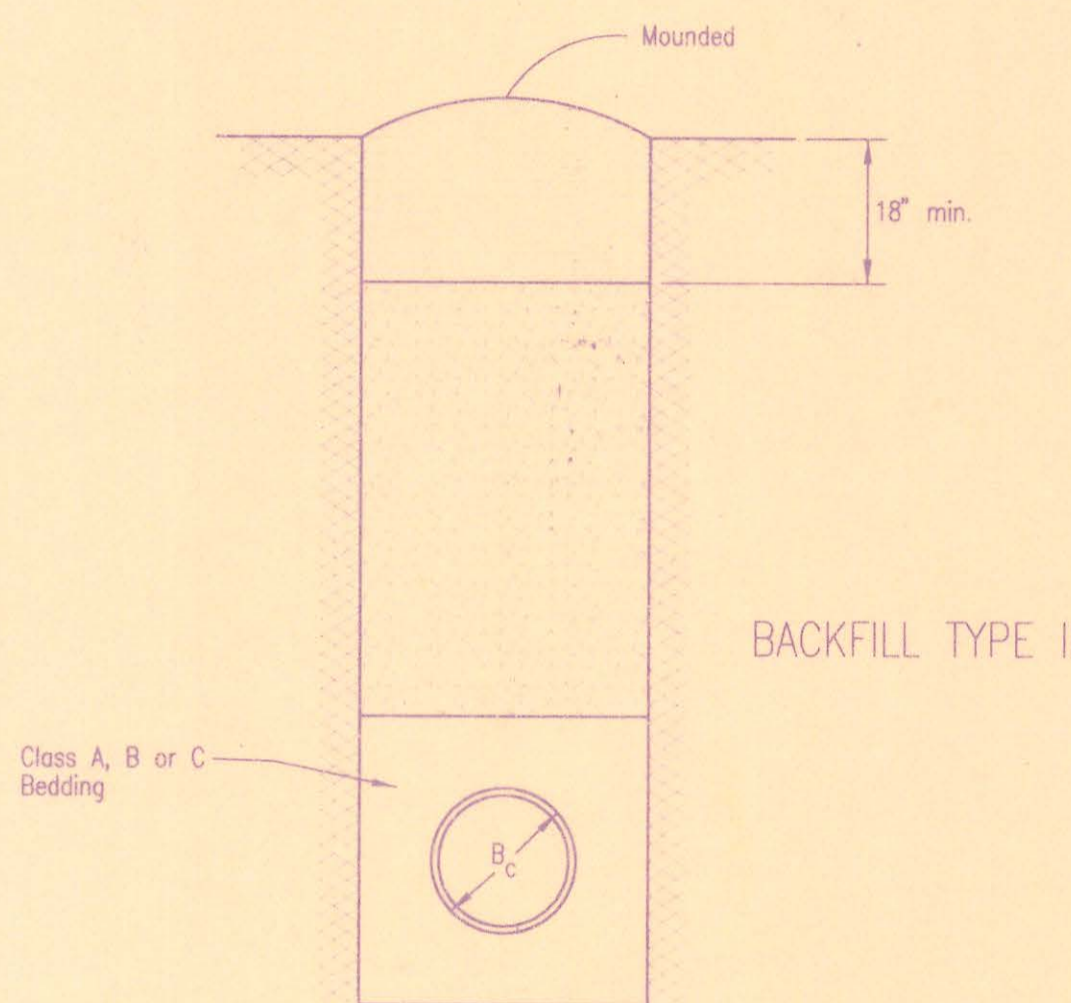
BACKFILL TYPE I

- 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.



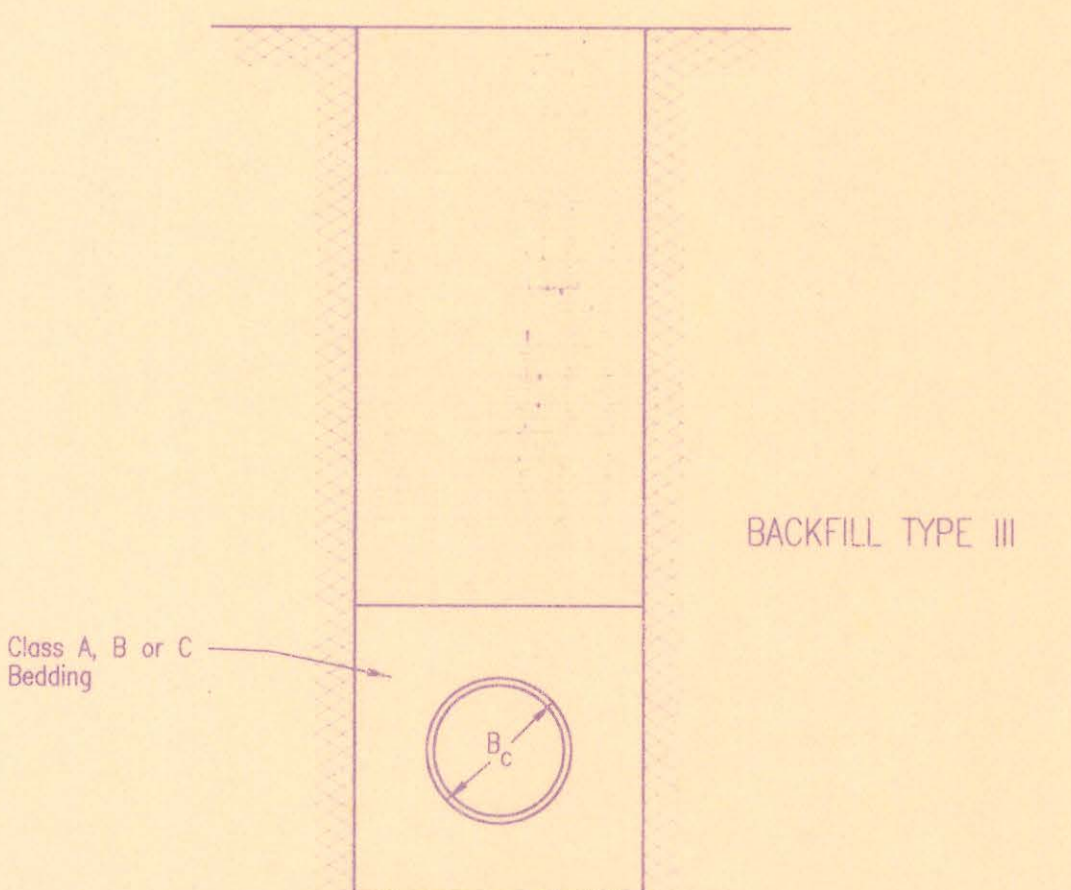
BACKFILL TYPE II

Backfill: Backfill material and compaction requirements shall conform to either Type I, Type II or Type III as specified in the plans. One year 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.

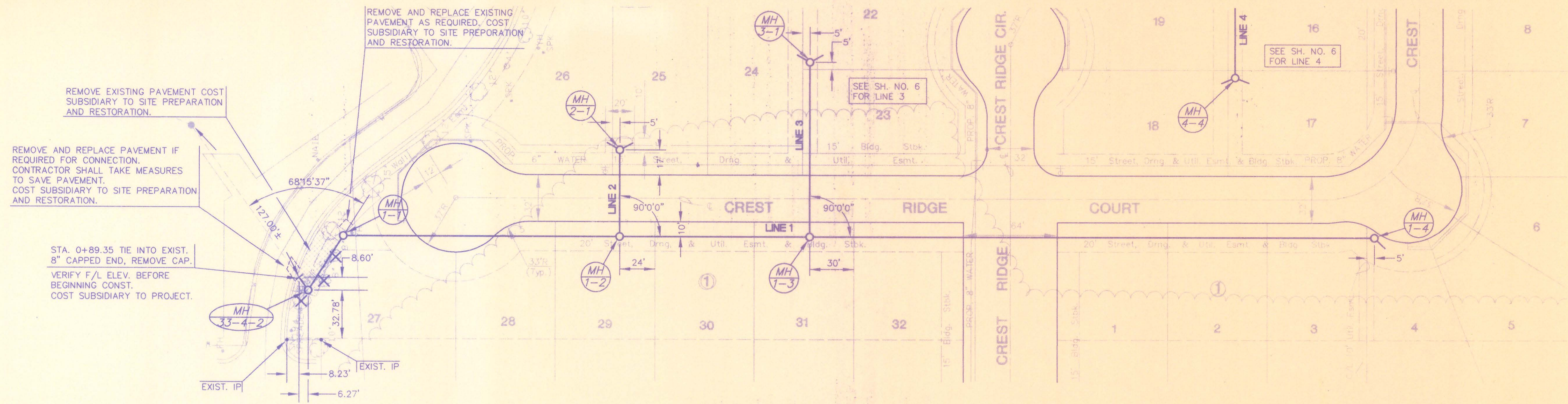
Backfilling Under Gravel Streets: Where the trench crosses or is in existing gravel surfaced streets, the backfill shall be compacted as provided in the paragraph "Backfilling Under Pavement".



BACKFILL TYPE III

TRENCH ZONE BACKFILLING

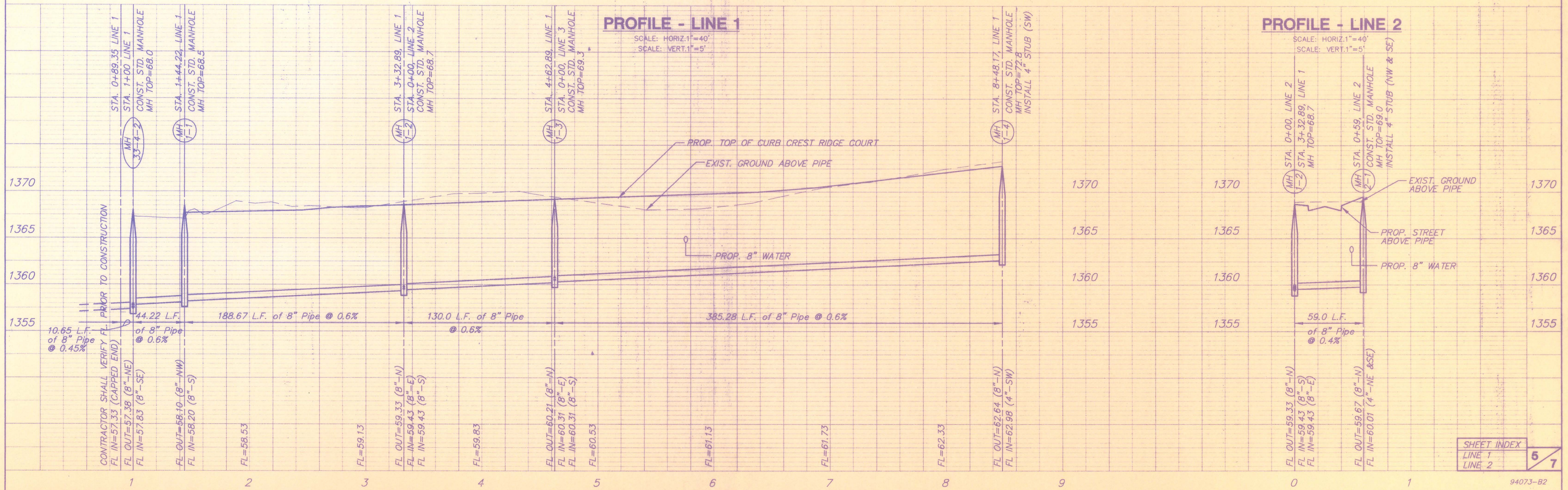
1	Received from County	GJA	11/24/94
No.	Revision	By	Date
BACKFILL DETAILS ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989 BY SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			



PLAN - LINE 1 & LINE 2

SCALE: 1"=40'

NOTE:
SEE KEY MAP (SHEET 2 OF 7) FOR LIMITS
OF TREE REMOVAL.



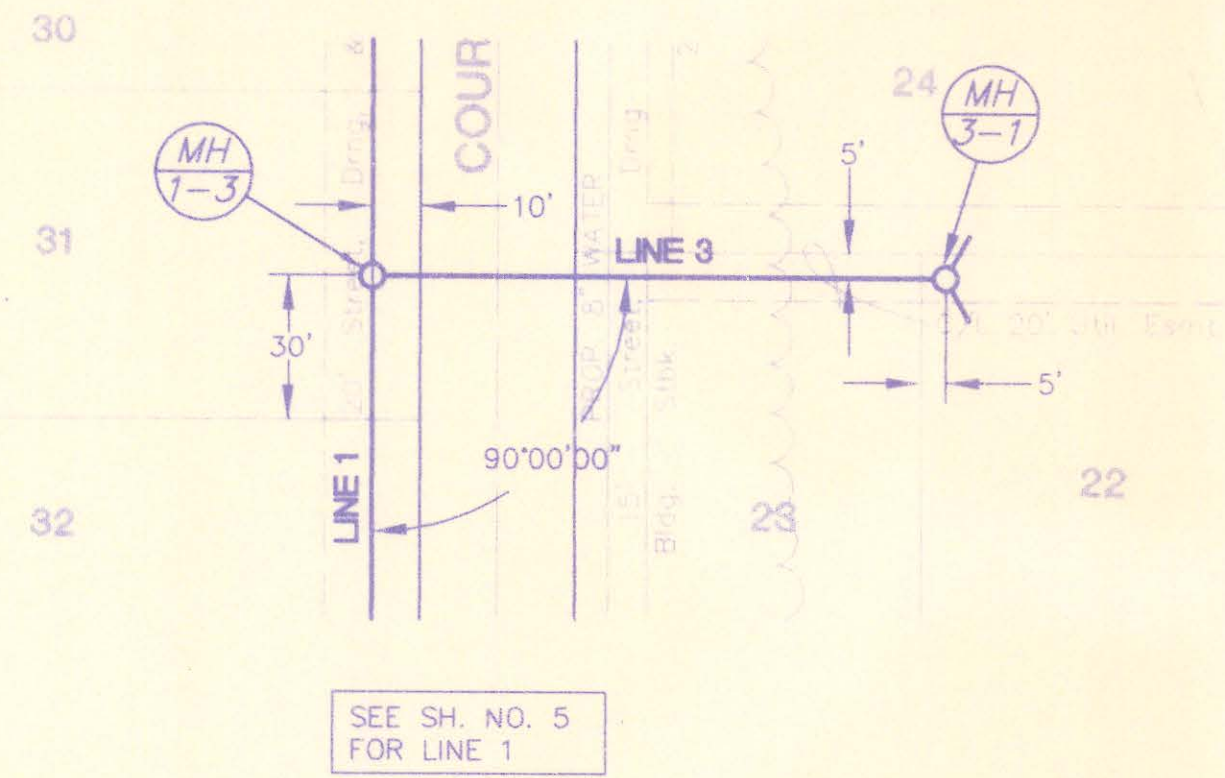
PROFILE - LINE 1

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'

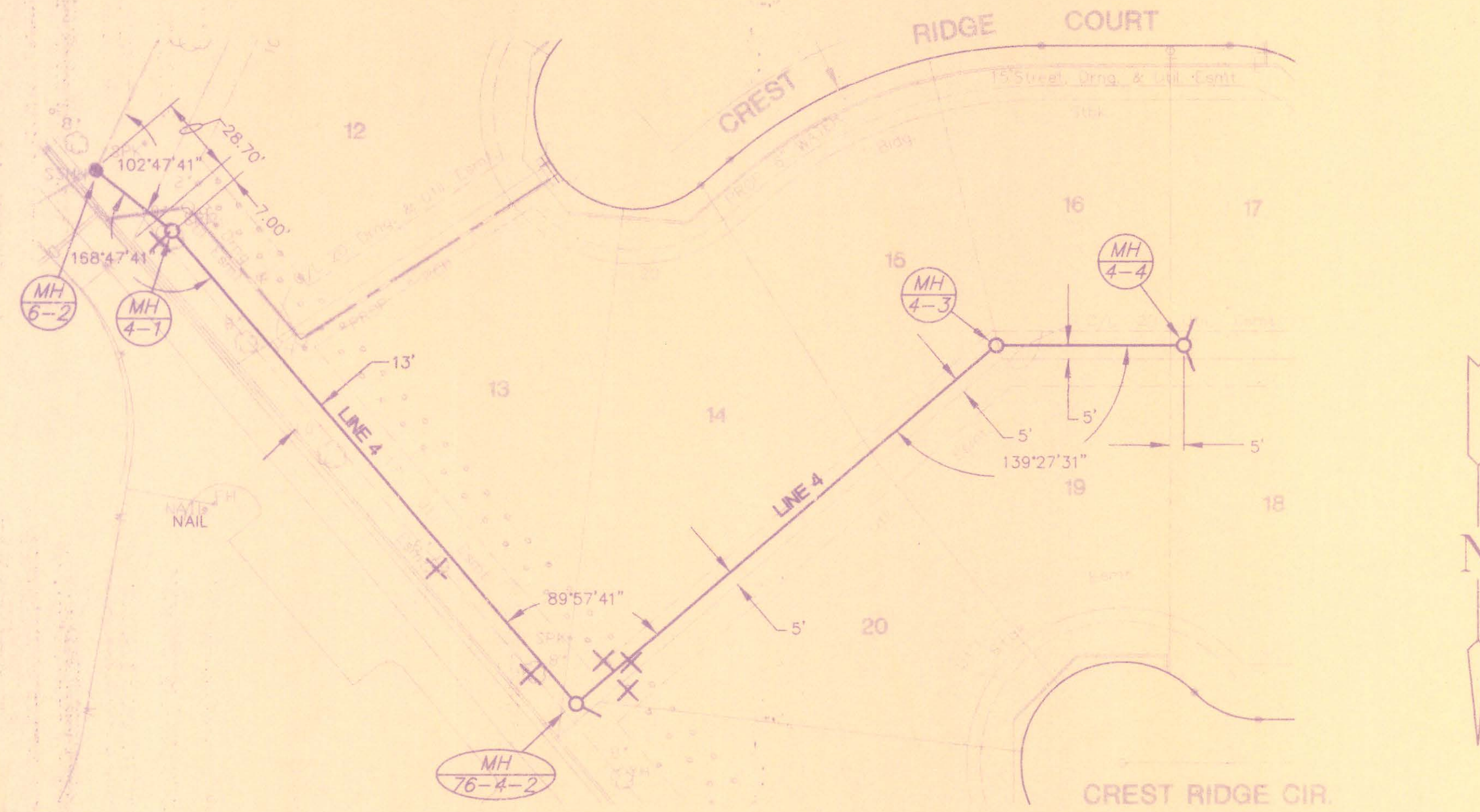
PROFILE - LINE 2

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'

SHEET INDEX	
LINE 1	5
LINE 2	7



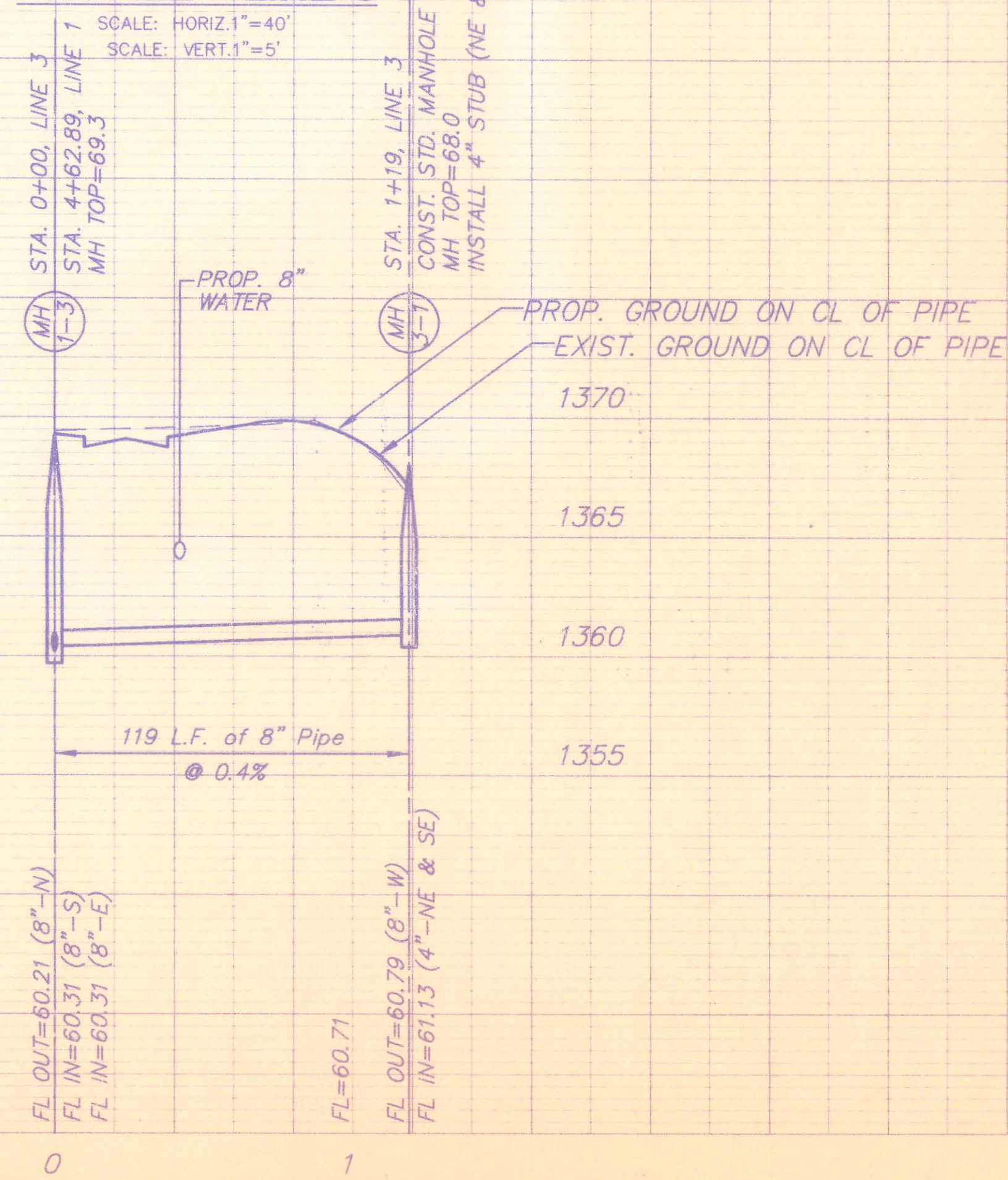
PLAN - LINE 3
SCALE: 1"=40'



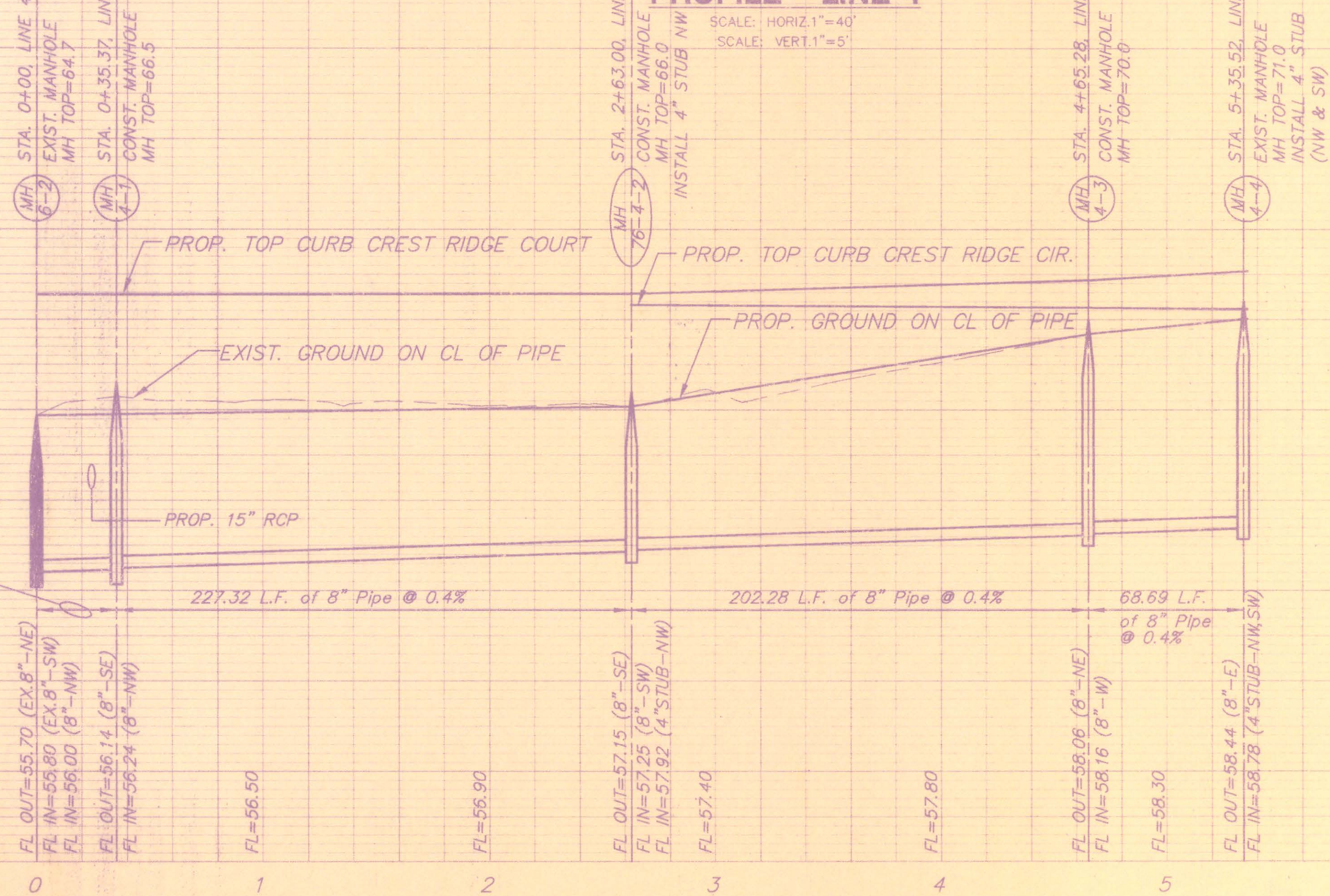
PLAN - LINE 4
SCALE: 1"=40'

NOTE:
SEE KEY MAP (SHEET 2 OF 7) FOR LIMITS
OF TREE REMOVAL.

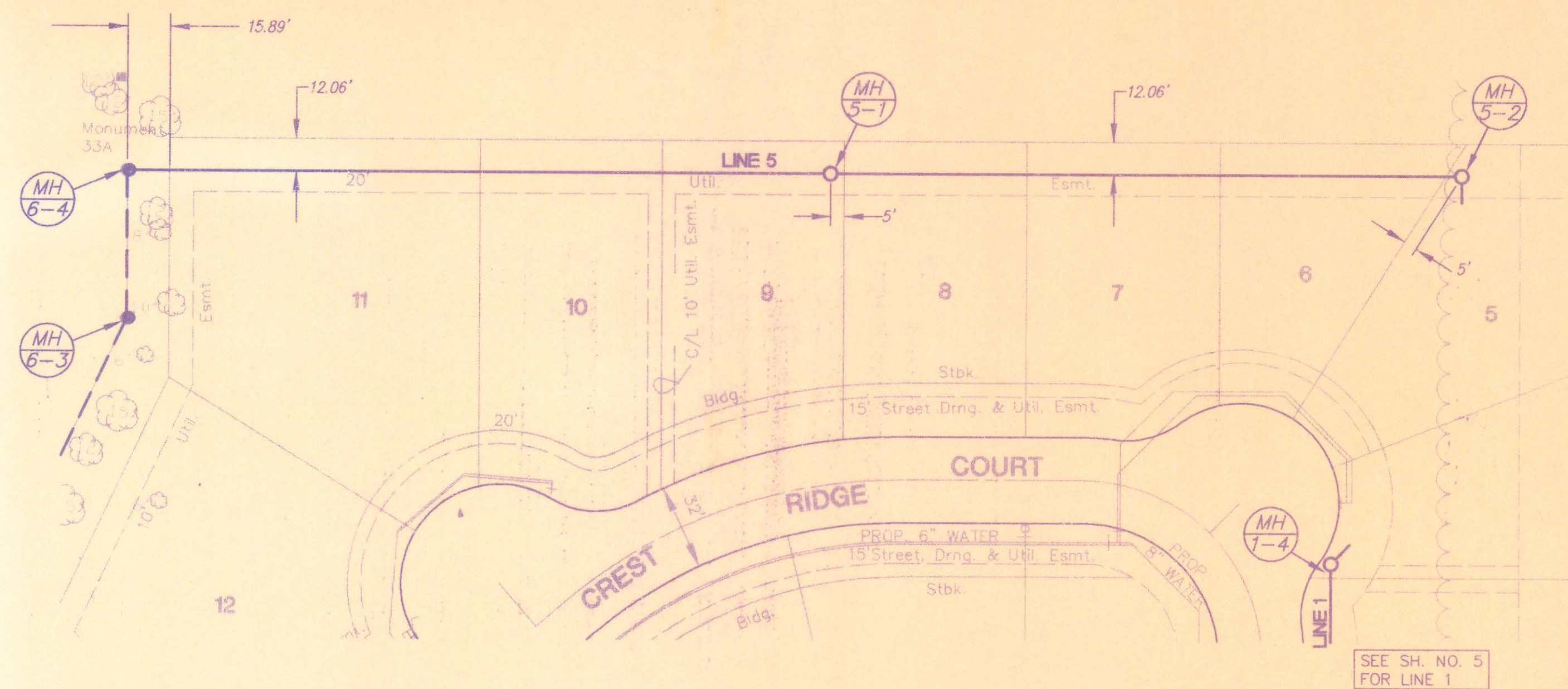
PROFILE - LINE 3



PROFILE - LINE 4



SHEET INDEX	6
LINE 3	7
LINE 4	



NOTE:
SEE KEY MAP (SHEET 2 OF 7) FOR LIMITS
OF TREE REMOVAL.

PLAN - LINE 5

SCALE: 1"=40'

