

SANITARY SEWER

TO SERVE PART OF WHEATLAND ADDITION AND OATVILLE SCHOOL

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

Sanitary Sewers VRH 9/6/96
Storm Sewers _____
Driveway Approaches _____
Water Mains _____
Paving _____

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION IS TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR THE PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTION NOR SHALL ANY WORK BE COMPLETED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.

CITY OF WICHITA, KANSAS

M.E. LINDEBAK

CITY ENGINEER

PRIVATE PROJECT NO. 654PPS
INDEX NO. 607861

August 1996

NOTES

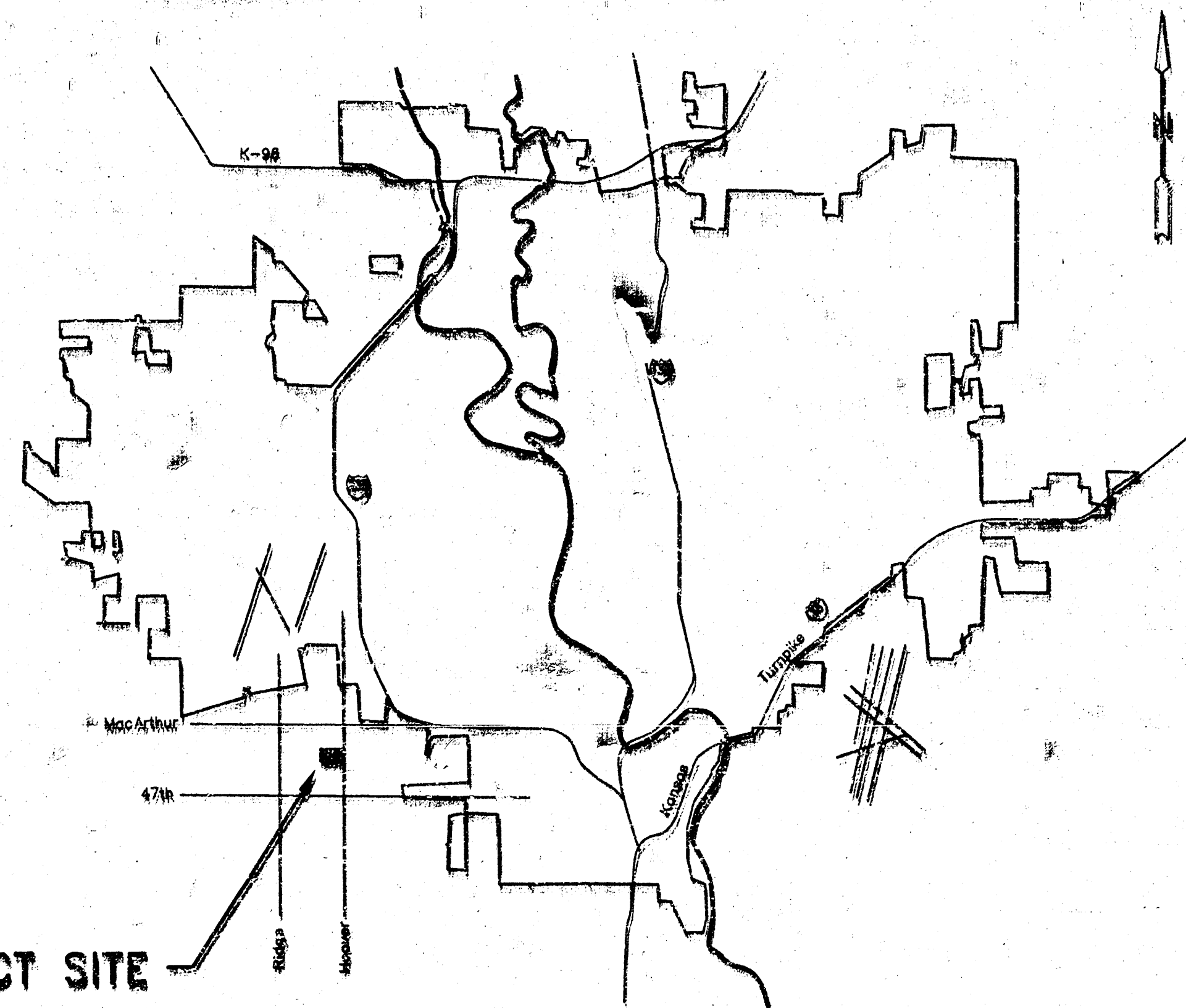
1. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE ADVANCE NOTICE OF TWENTY-FOUR (24) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL 687-2470

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF EMERGENCY:

CABLEVISION	282-4270 OR 283-2081
KANSAS GAS & ELECTRIC (GAS)	283-7511
KANSAS GAS & ELECTRIC (ELECTRIC)	284-1141
ARKLA GAS COMPANY	942-8350 OR 283-8181
SOUTHWESTERN BELL TELEPHONE	1-371-2811
CITY OF WICHITA WATER DEPT.	288-4908
CITY OF WICHITA SEWER MAINTENANCE	288-4071

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO REESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE REESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
3. UNLESS OTHERWISE SPECIFIED ON THE PLANS, MANHOLES MAY BE TYPE "B", "C" OR "D" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
4. TRAFFIC WILL NOT BE AFFECTED IN THIS AREA OF CONSTRUCTION.
5. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
6. CONTRACTOR SHALL GRADE THE SANITARY SEWER ALIGNMENT TO THE PROFILE AND ELEVATION SHOWN ON THE EASEMENT GRADING PLAN. ALL DISTURBED AREAS TO BE RESEEDED USING TEMPORARY RYE GRASS AT A RATE OF 4 LBS. PER 1000 SQ. FT. WITHIN 14 DAYS UPON PROJECT COMPLETION. CONTRACTOR SHALL PREPARE GROUND AS PER CITY SPECIFICATIONS. ALL COSTS FOR GRADING AND SEEDING SHALL BE PAID AS EASEMENT GRADING.
7. CONTRACTOR SHALL MECHANICALLY COMPACT TOP 2' OF BACKFILL WITHIN STREET R/W TO 95% STANDARD DENSITY.
8. THE COST OF T.V. INSPECTION, AIR TESTING AND TESTING OF COMPACTED BACKFILL SHALL BE SUBSIDIARY TO OTHER BID ITEMS.



PROJECT SITE

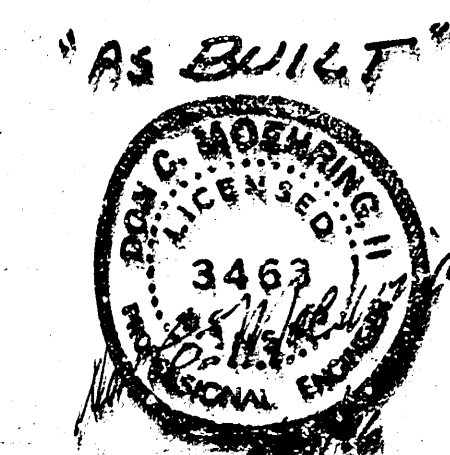
SERVICE AREA DESCRIPTION

LOT 19, BLOCK "B";
LOTS 1 THROUGH 8 INCLUSIVE, BLOCK C;
LOTS 9 THROUGH 20 INCLUSIVE, BLOCK H
IN WHEATLAND ADDITION
AND ALSO THE EAST 867.87' OF THE SOUTH
321.77' OF THE NE 1/4 OF SEC. 15, T 28 S,
R 1 W OF THE 6TH P.M., SAGGICK COUNTY,
KANSAS

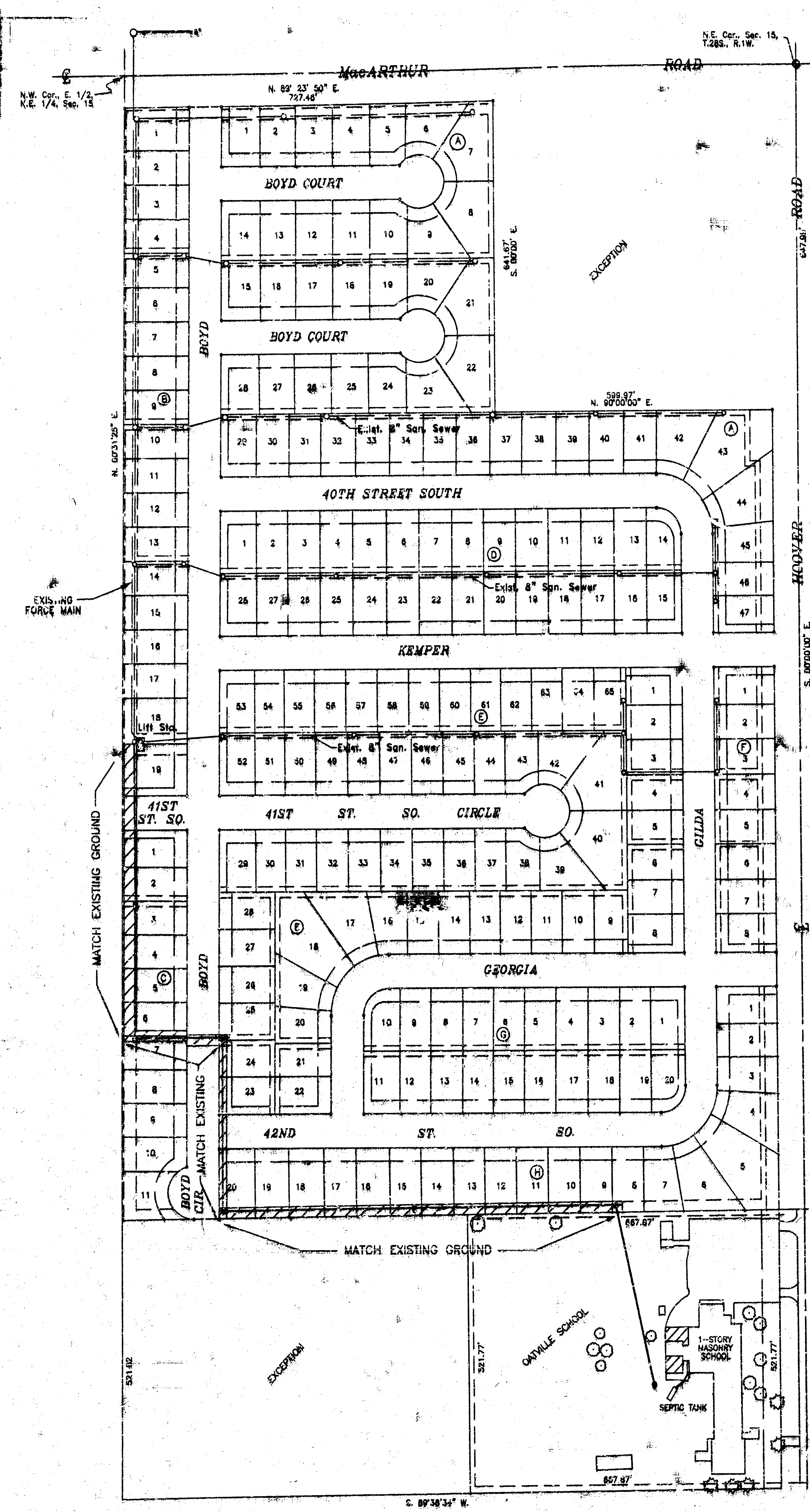
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1. Title Sheet
2. Key Map & Easement Grading Plan
3. Recorded Plat - Wheatland Addition
- 4, 5. Standard Manhole Details
6. Standard Riser Details
- 7-10. Plan & Profile - Line 1

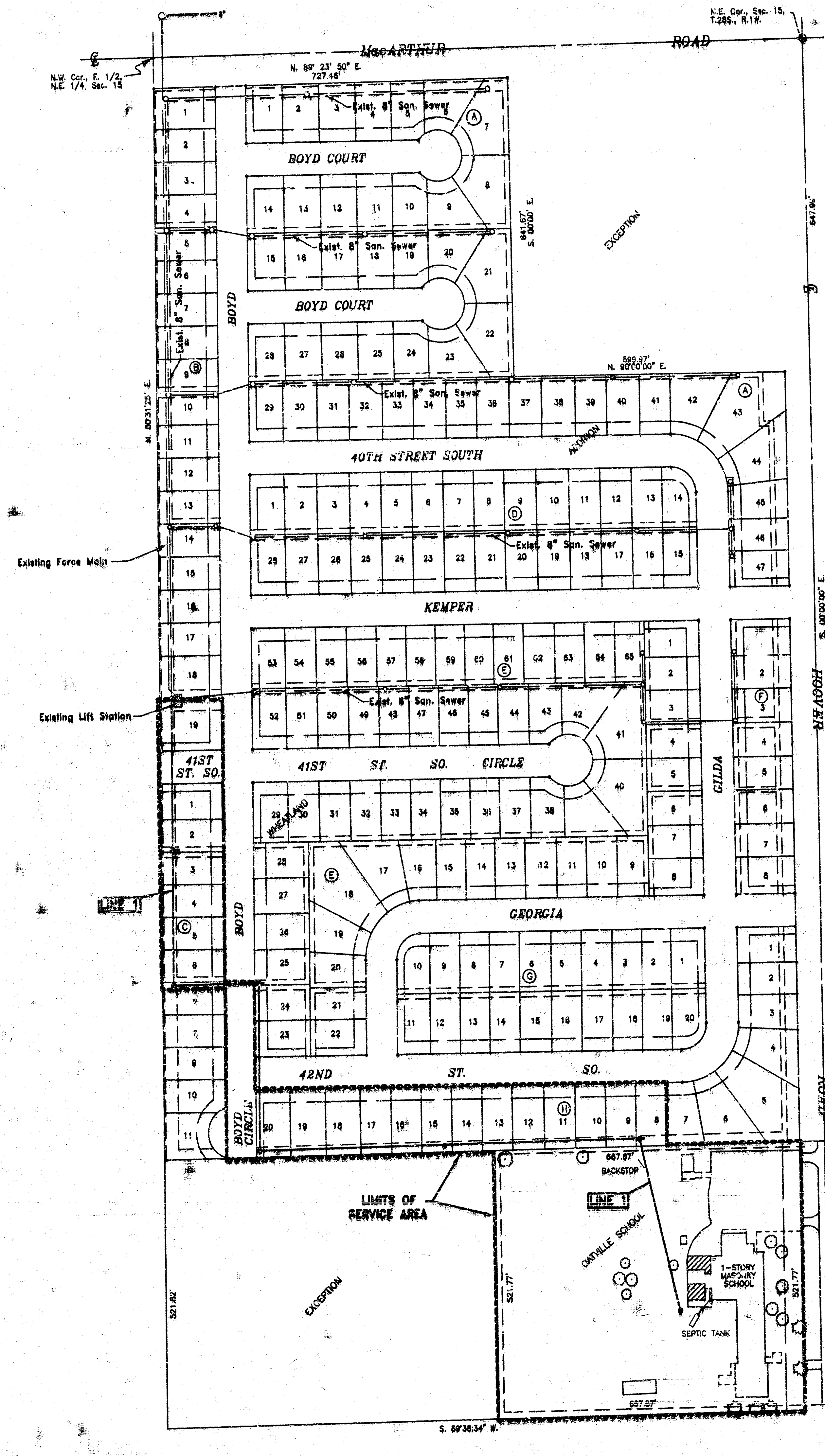
*Booked
RPL
2/2/97
M-245*



MOHRING & ASSOCIATES
CONSULTING ENGINEERS
WICHITA



EASEMENT GRADING PLAN



SEWER KEY MAP

WHEATLAND ADDITION
SEDDWICK COUNTY, KANSAS
1" = 150'

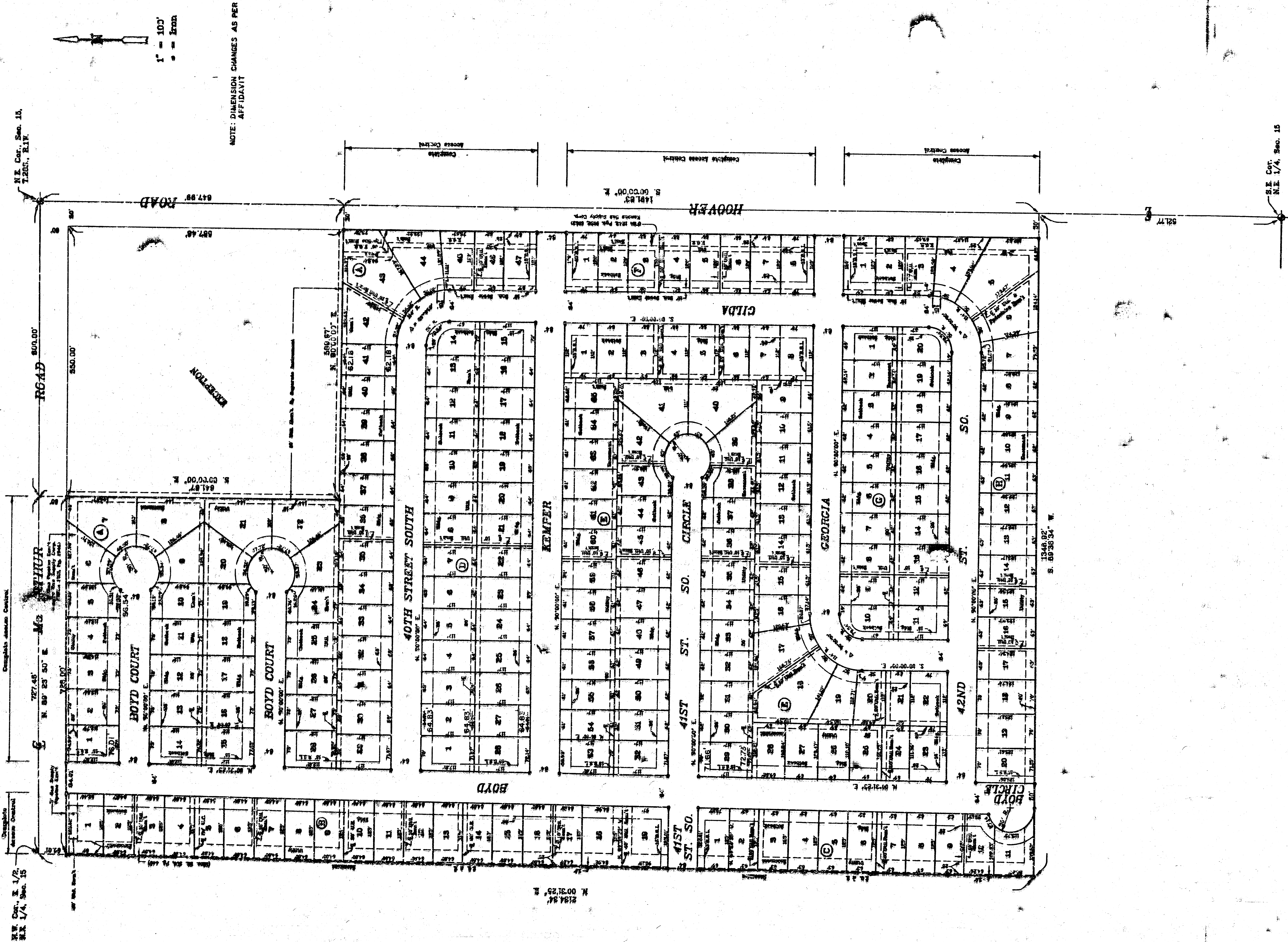
- BENCHMARKS**
1. "□" ON CENTER OF EAST FACE
LIFT STATION PAD.
ELEV. = 121.49 CITY DATUM
 2. R.R. SPIKE IN UTILITY POLE AT NW
CORNER WHEATLAND ADDITION.
ELEV. = 124.06 CITY DATUM
 3. TOP OF IRON IN THIMBLE AT
C.L. HOOVER & MACARTHUR.
ELEV. = 122.45 CITY DATUM

**SEWER KEY MAP
EASEMENT GRADING PLAN**

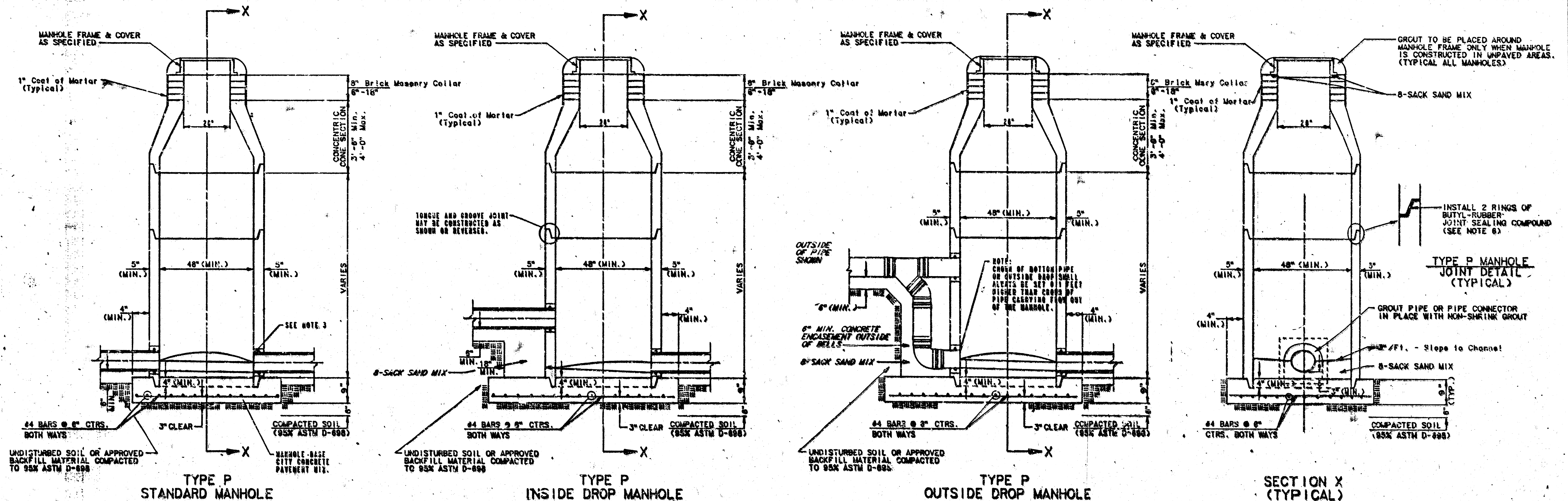
**MOEHRING & ASSOCIATES
CONSULTING ENGINEERS - SURVEYORS**
433 S. HYDRAULIC WICHITA, KS.
(316) 263-8291

PRIVATE PROJECT NO. 656PPS
DATE: AUGUST 1996 SHEET 2

WHEATLAND ADDITION
SEDGWICK COUNTY, KANSAS



SEWER APPURTENANCES DETAILS ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA

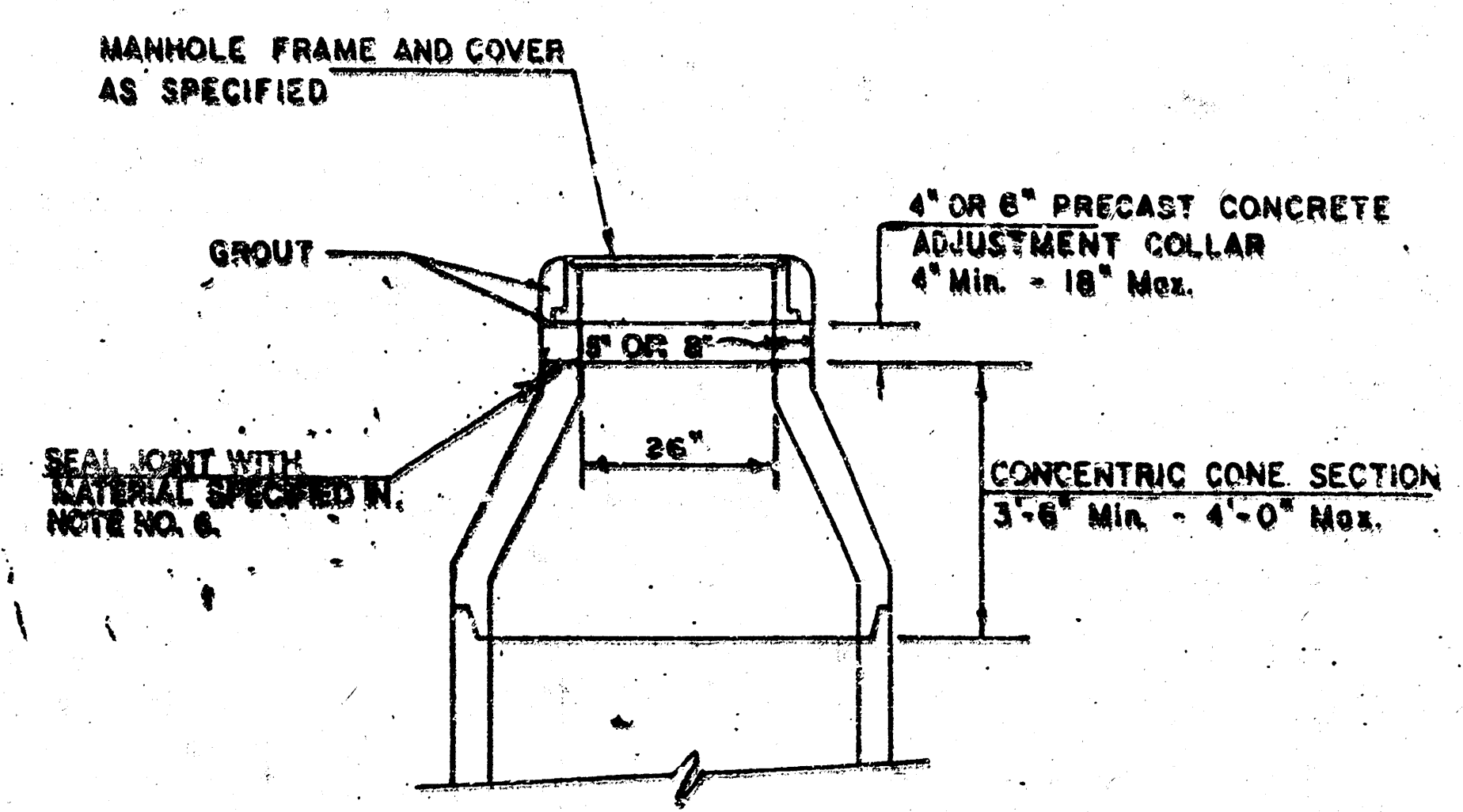


GENERAL NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE SPECIFICATIONS OF A.S.T.M. C-900 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP ASSETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.P.S. COMPOSITE PIPE AND P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUDED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENGAGEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR P.V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS THICKNESS 60 MI-BUILD EPOXYLINE, DRY TO EXCESS OF 4 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILAMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. 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 SLAB INVERT.
9. LISTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT SPECIFICATIONS IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE BASES AND THE BASES SHALL BE GROUDED IN PLACE WITH NON-SHRINK GROUT. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN UNDISTURBED SOIL OR APPROVED BACKFILL MATERIAL COMPACTED TO 95% ASTM D-698 AND WATER TIGHT.

11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF 4 BARS PLACED ON 1" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.P.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUDED INTO THE OPENING USING AN APPROVED ROUGHENING GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWINGS. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STAGE CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAIN THROUGH MANHOLES SHALL HAVE THE TOP REMOVED TO REVEAL LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CHAINED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. IF A CHAIN PIPE IS USED, THE CHAIN SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CHAIN SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CHAIN PIPE WITHIN EXCAVATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'. THE CROWN OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CAME. THE COLLAR SHALL HAVE 4" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.



ALTERNATE CONSTRUCTION
IN UNPAVED AREAS

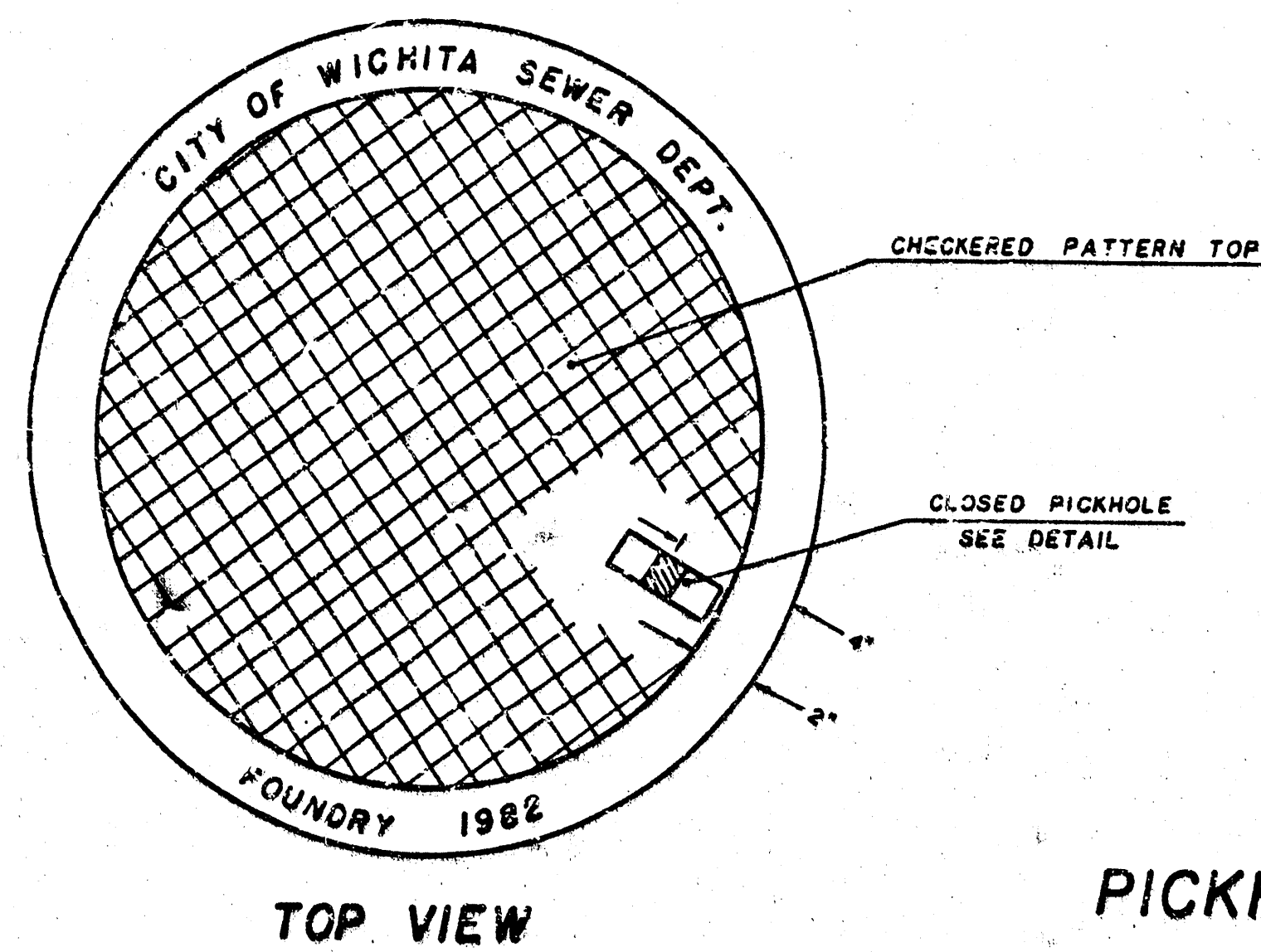
REVISED NOV. 1993
NOTE NO. 16 REVISED JAN. 1991
Revised 3-21-89
Revised 8-10-88
Revised: June 10, 1988

101151

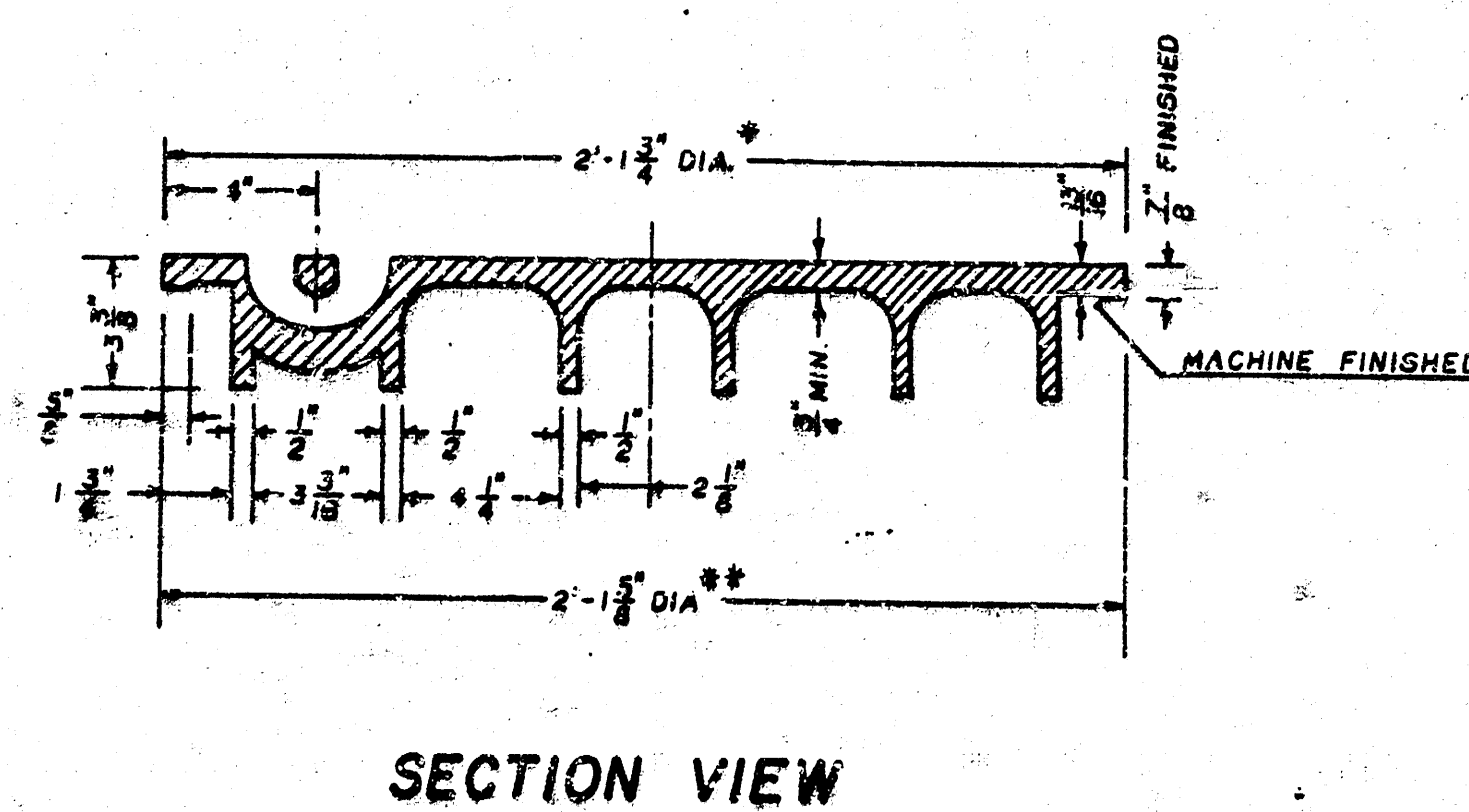
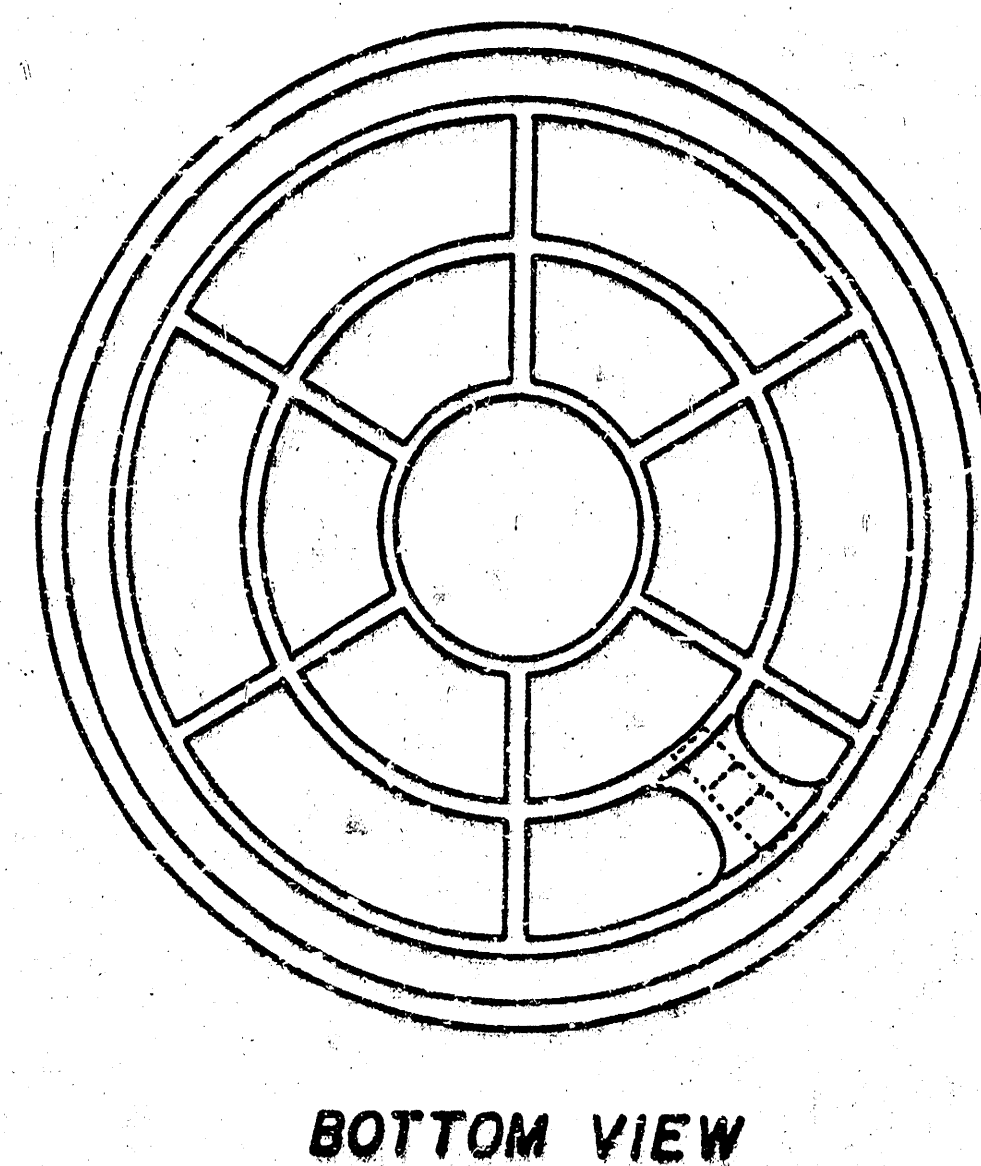
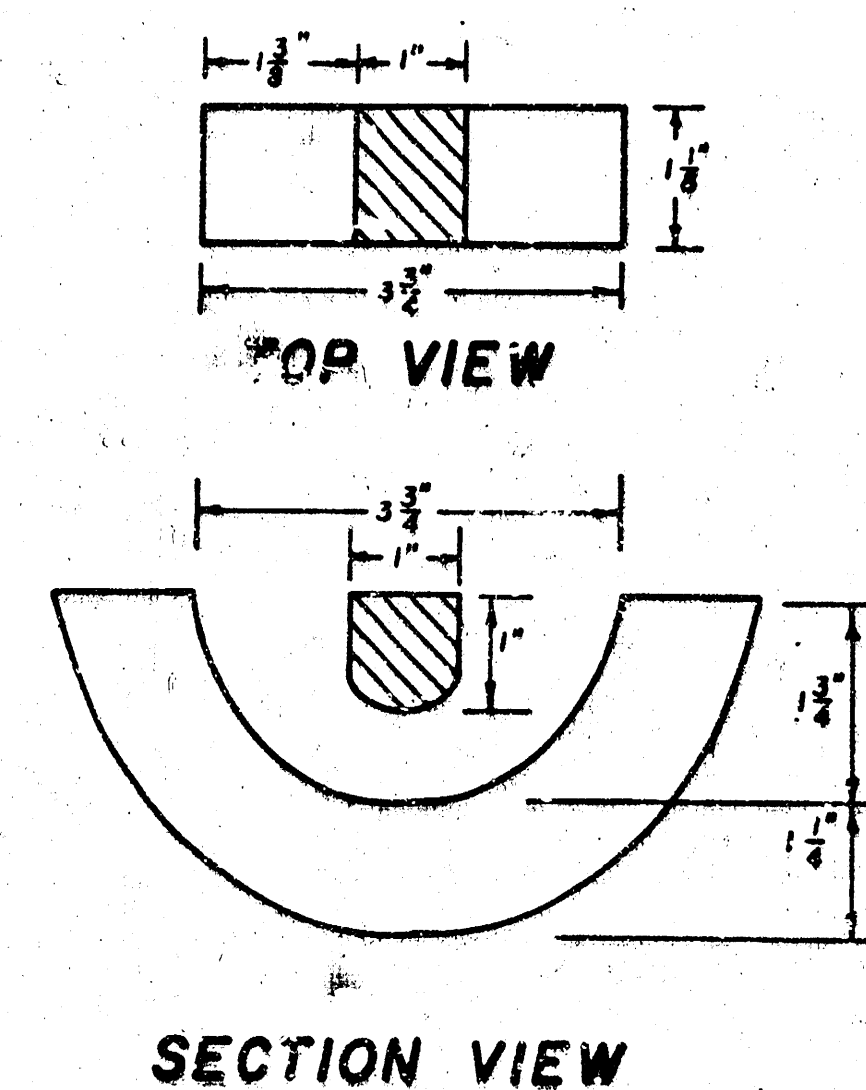
MANHOLE FRAME AND COVER DETAIL

MANHOLE COVER

Weight: 180 Lbs.



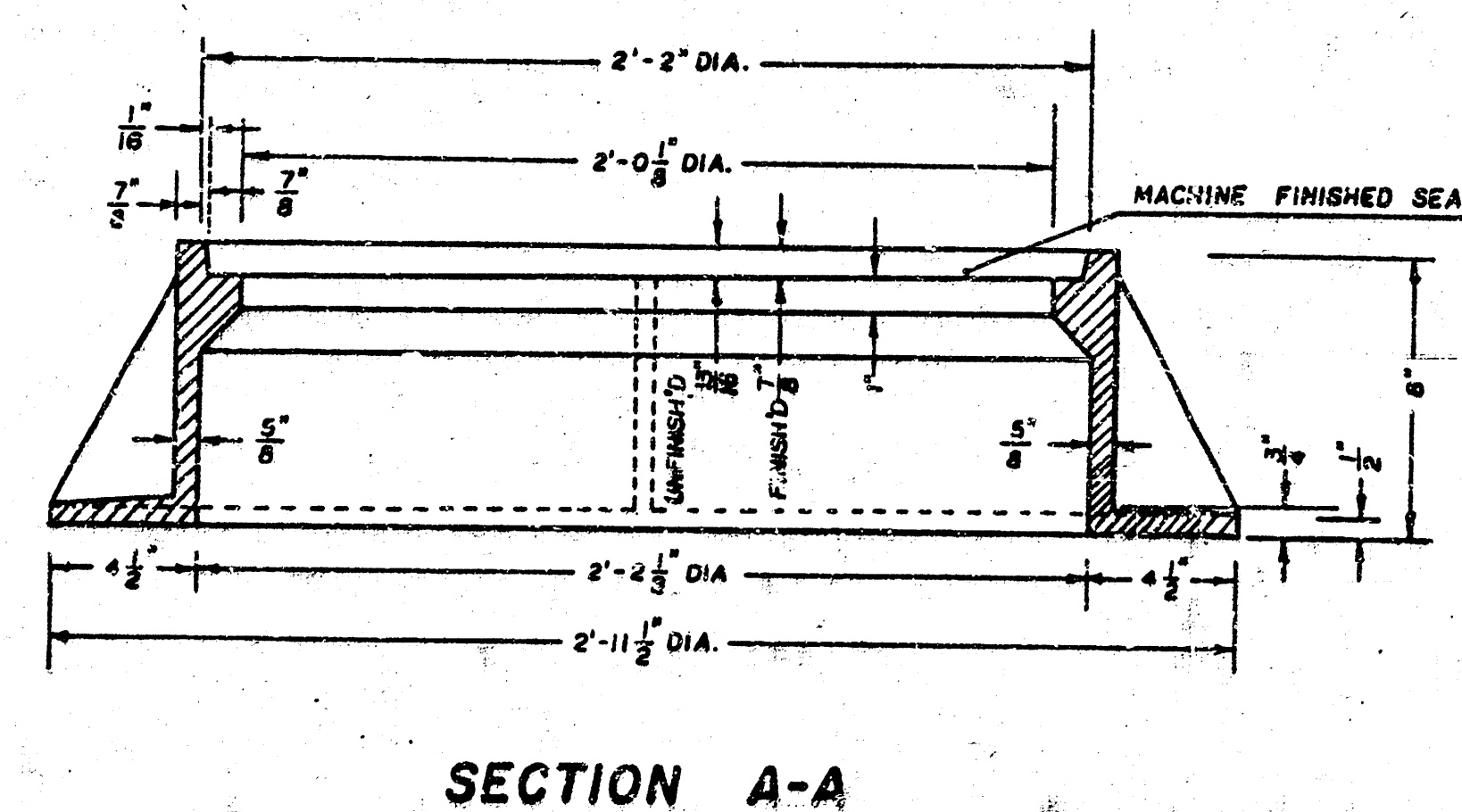
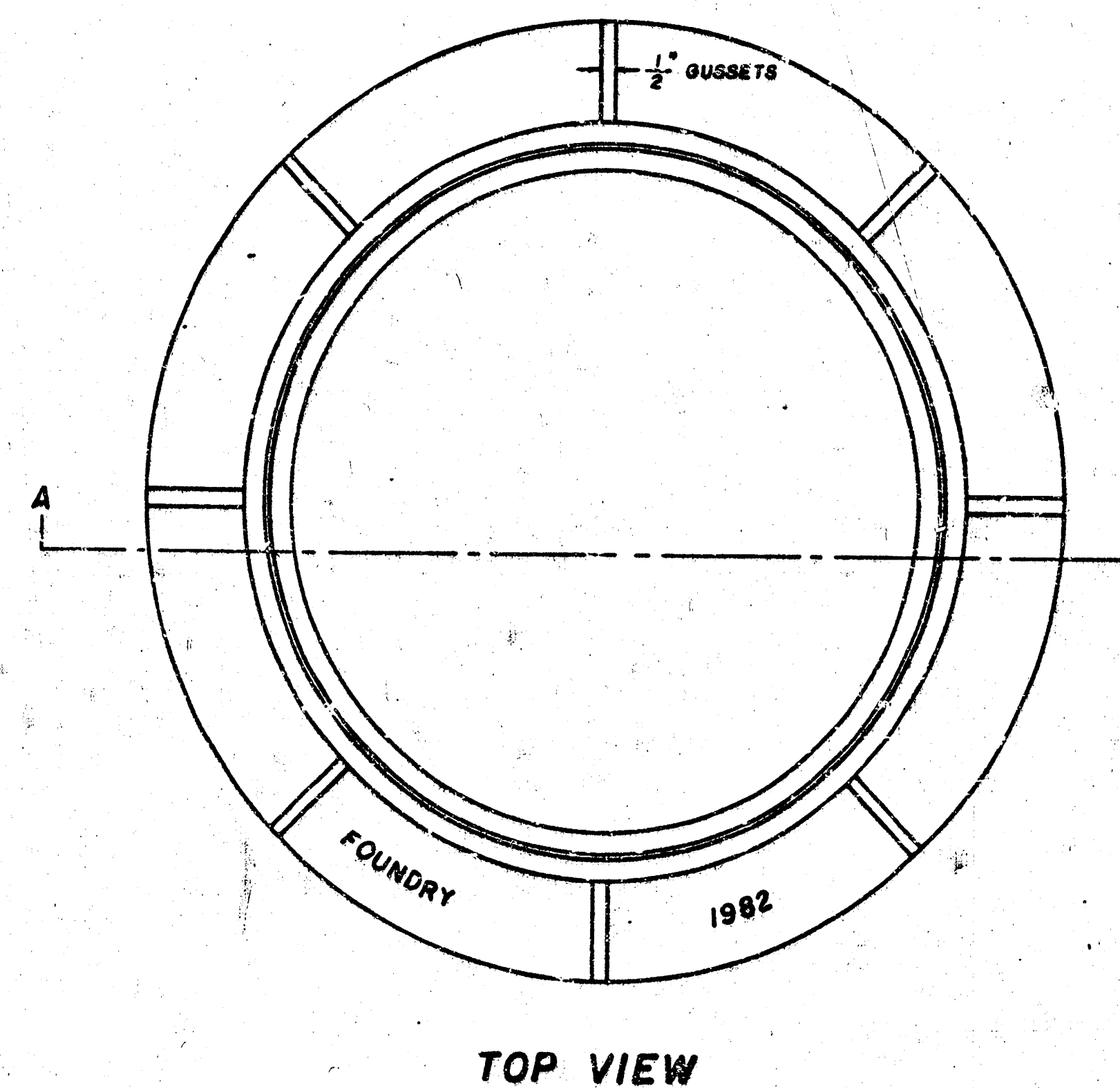
PICKHOLE DETAIL



* OUTSIDE DIA. TOP OF COVER
** OUTSIDE DIA. BOTTOM OF COVER

MANHOLE FRAME

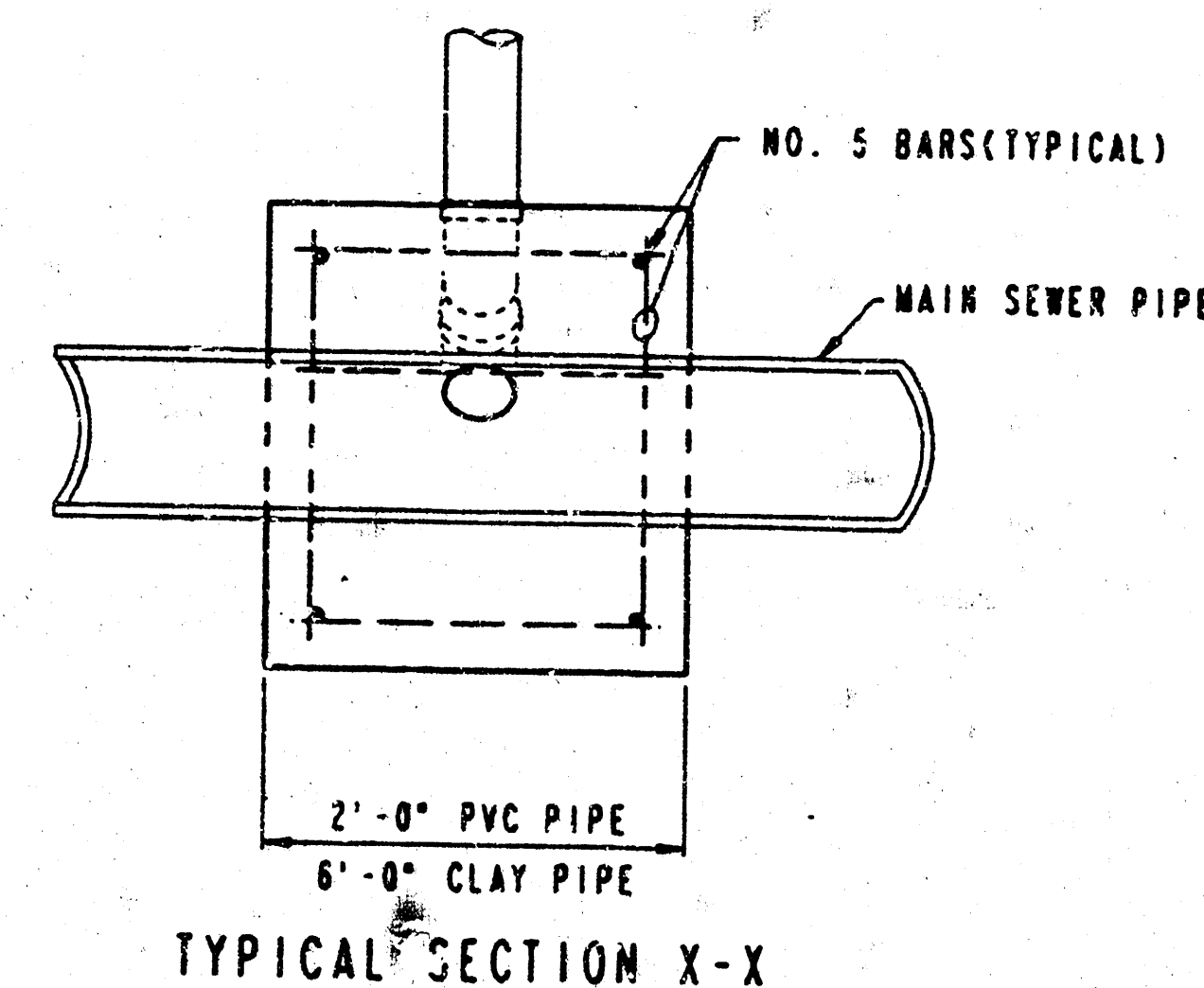
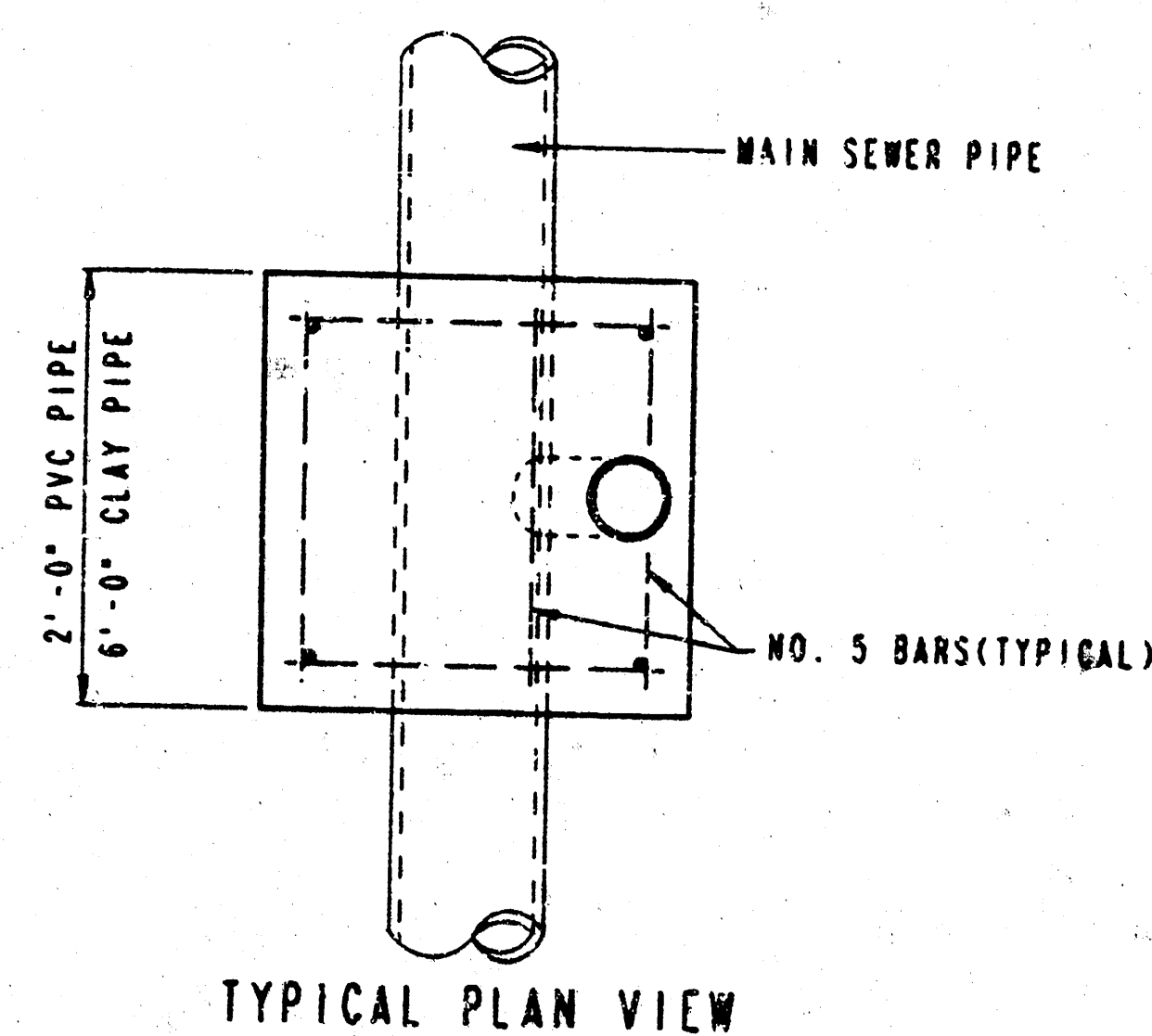
Weight: 240 Lbs.



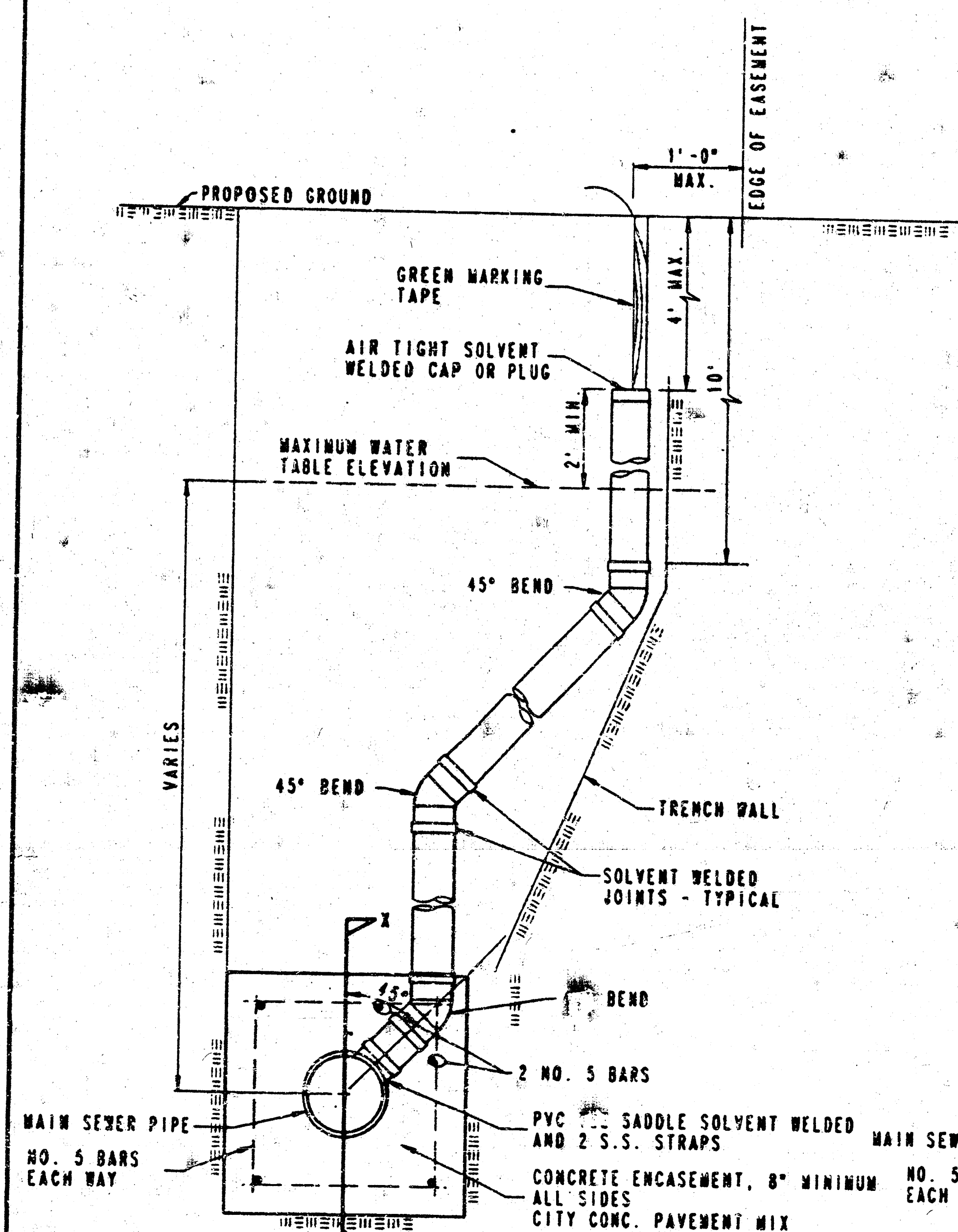
GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
2. MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.
3. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
4. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8\"/>

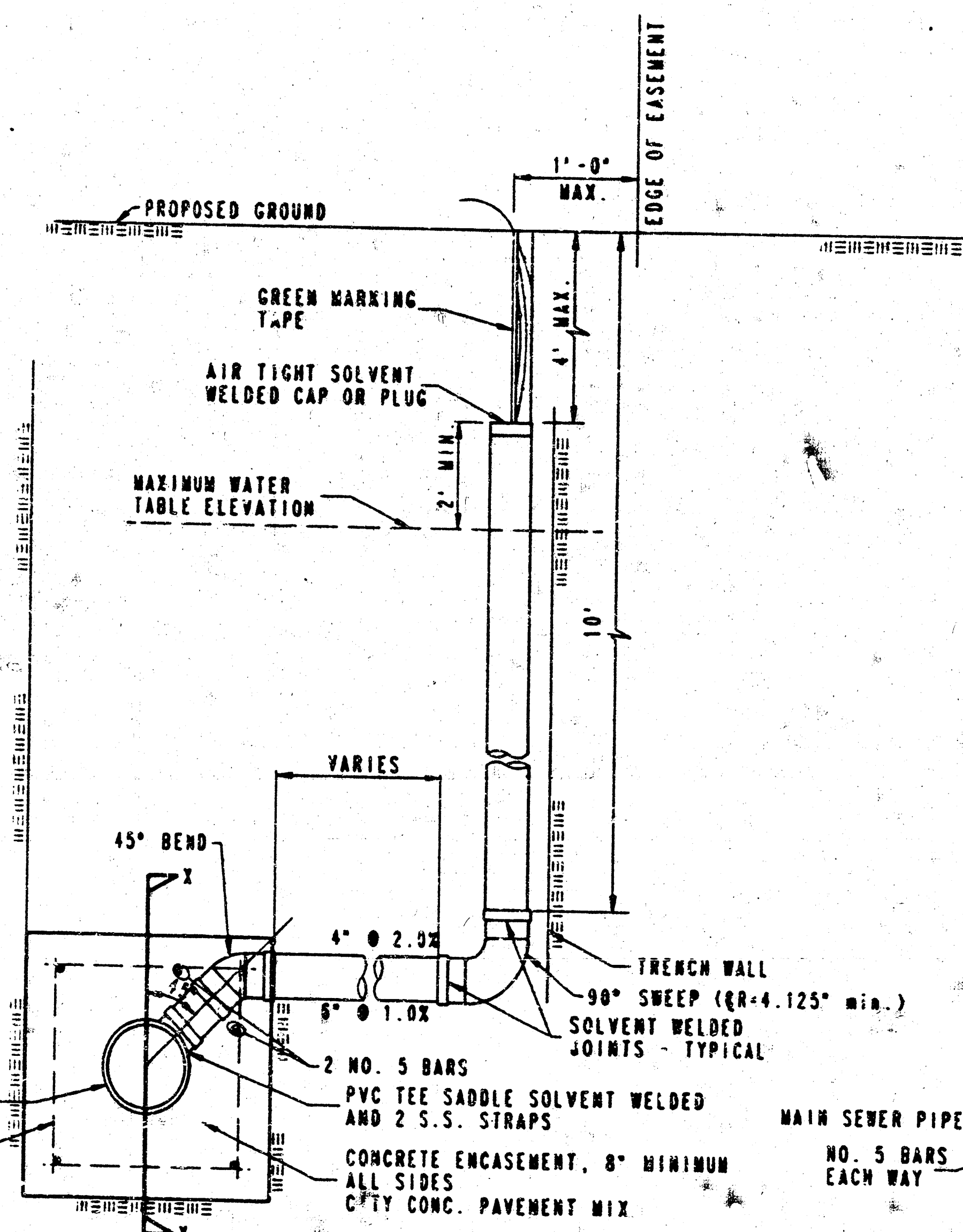
VERTICAL RISER DETAILS ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KANSAS OCTOBER 1992



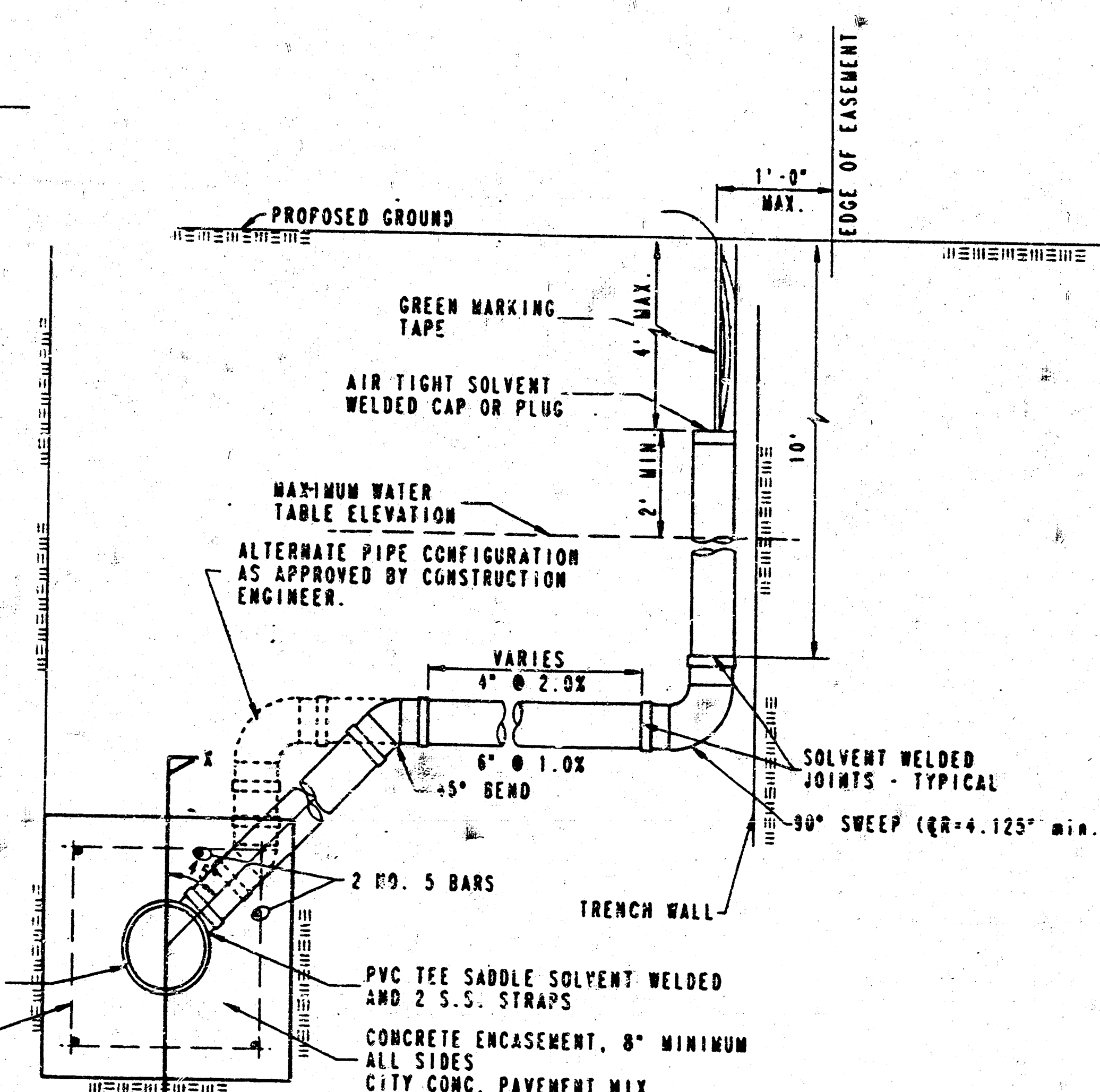
PLAN	CHECKED	DATE



METHOD "A"



METHOD "B"



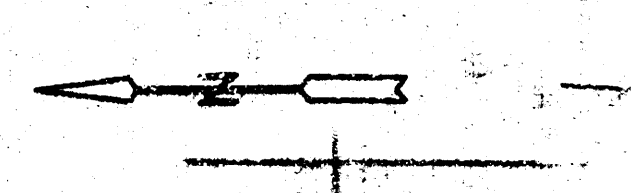
METHOD "C"

NOTE: RISER PIPE REQUIREMENTS AT MANHOLE STUBS SHALL BE SIMILAR TO THOSE SHOWN ABOVE.

GENERAL NOTES

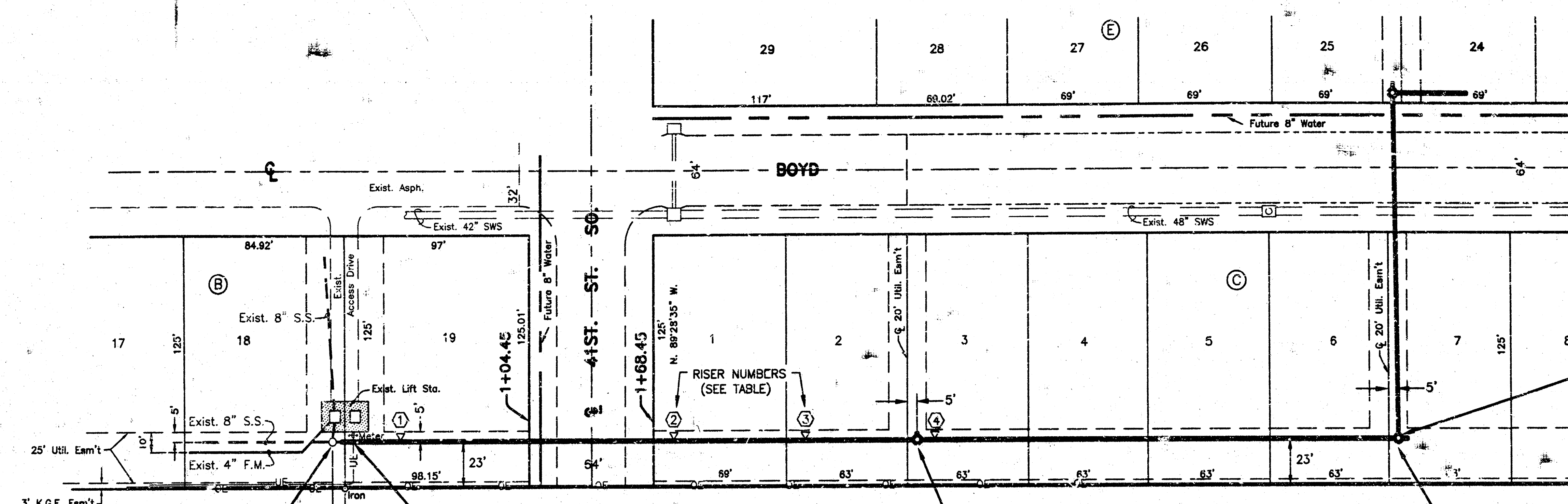
- RISERS.** Risers shall be installed to serve all lots or tracts where the sanitary sewer main is below the water table. Risers shall also be installed to serve all lots and tracts where the sanitary sewer main depth is greater than 12 feet below the proposed ground elevation. Installation of risers because of field conditions shall be as approved by the Construction Engineer. The location of the risers to serve developed property shall be approved by the property owner and the Construction Engineer.
- PIPE STUBS.** Pipe stubs shall be installed in manholes where locations of manholes will provide satisfactory service connection as determined by the Construction Engineer. The vertical distance between the flowline of the manhole pipe stub and the flowline of the sanitary sewer main out of the manhole shall not exceed 2 feet. Risers shall be utilized if manhole pipe stubs as indicated in Note 1. Manhole pipe stubs shall be set such that the top of the stub is not lower than the top of the sanitary sewer main.
- SIZING.** Pipe stubs and risers shall be sized according to the plans and riser table above. Risers are indicated by the plans. Where risers or pipe stubs are required because of field conditions, the risers and stubs shall be six-inch diameter for commercial or industrial properties and 4" or 6" diameter for residential properties. Based on lot size and sanitary sewer main depth, Sizing of risers and stubs shall be approved by the Construction Engineer prior to installation.
- RISER OR STUB MATERIAL.** Risers and stubs shall be constructed of SDR 35 PVC Pipe or Schedule 40 PVC Pipe, meeting the requirements of the latest revision of A.S.T.M. All pipe joints shall be solvent welded.
- REINFORCED CONCRETE ENCASMENT.** Riser connections to clay pipe sanitary sewers shall be reinforced concrete encased both ways from the riser centerline. The reinforced concrete encasement shall extend three feet from the riser centerline to the top of the first sanitary sewer pipe joint within three feet of the riser centerline. Riser connections to PVC Sanitary Sewer mains shall be reinforced concrete encased one foot each way from the riser centerline. The concrete encasement shall be reinforced using reinforcing steel as shown in the appropriate drawings. The concrete shall conform to the City Standard Specifications for concrete pavement.
- BEDDING.** Bedding around the sanitary sewer riser shall be compacted Pipe Bedding Type 1 or 2. The bedding shall be placed and compacted from the depth of the sanitary sewer main to the top of the sanitary sewer riser pipe. Compacted Pipe Bedding Type 1 or 2 shall be required for all risers whether constructed in vertical wall or sloped wall trenches. Bedding material and construction practices shall be approved by the Construction Engineer prior to installation.
- SUPPORT OF RISERS.** Sanitary sewer riser pipe shall be supported during trench backfill. The riser pipe shall be held in a vertical position of all times until trench backfill and connection has been completed. Contractor's methods for supporting and backfilling the riser pipe shall be approved by the Construction Engineer.
- PLUGGING.** The ends of the riser pipes and manhole stubs shall be plugged using an airtight solvent welded cap or plug. Cap or plug fittings shall be approved by the Construction Engineer prior to installation. Caps or plugs which do not provide an airtight seal will not be accepted.
- TOP OF THE RISER PIPE.** The top elevation of the sanitary sewer riser pipe shall be built per plan elevation, unless otherwise directed by the Construction Engineer. Where riser elevations are not shown on the plans, the top of the risers shall be set at an elevation four feet below the proposed ground surface. If ground water is encountered, the top of the riser pipe shall be set at an elevation two feet (min.) above the maximum water table elevation, regardless of the riser elevation shown on the plans.
- MARKING.** Locations of the ends of the sanitary sewer riser pipe shall be marked by fastening green colored plastic tape to the end of the riser. The tape shall be supported by a length of wooden 2 x 4, extending from the top of the riser pipe to the proposed ground surface. The green tape shall be visible and extend no foot above the proposed ground surface. The green tape shall be 4 mil Polyethylene film with a minimum width of three inches, specifically manufactured for the purpose of identification of underground sewers.
- LOCATION MEASURES.** The project inspector shall record and document the location of all risers constructed as measured from the nearest manhole, indicating the direction from the manhole, the distance and distance from the main, riser size, and elevation of the top of the riser.
- RISER LOCATION.** The riser shall be located per plan if shown. If not shown on the plan, the riser shall be located at the center of the lot, within one foot of the property side of the easement for the lot being served. All riser locations shall be approved by the Construction Engineer prior to installation.
- PAYMENT.** "Sanitary sewer risers" shall be paid for at the contract unit price per each, which price shall be full compensation for all pipe, fittings, marking tape, length of wooden 2 x 4, reinforced concrete encasement, support during backfill, backfill, labor, site restoration, and any other items necessary to complete the work.

"Manhole stubs" shall be paid for at the contract unit price per each, which shall be full compensation for all labor, material, and incidentals necessary to complete the work, including all pipe, fittings, reinforced concrete encasement, and all other items required and listed for "Sanitary Sewer Risers".

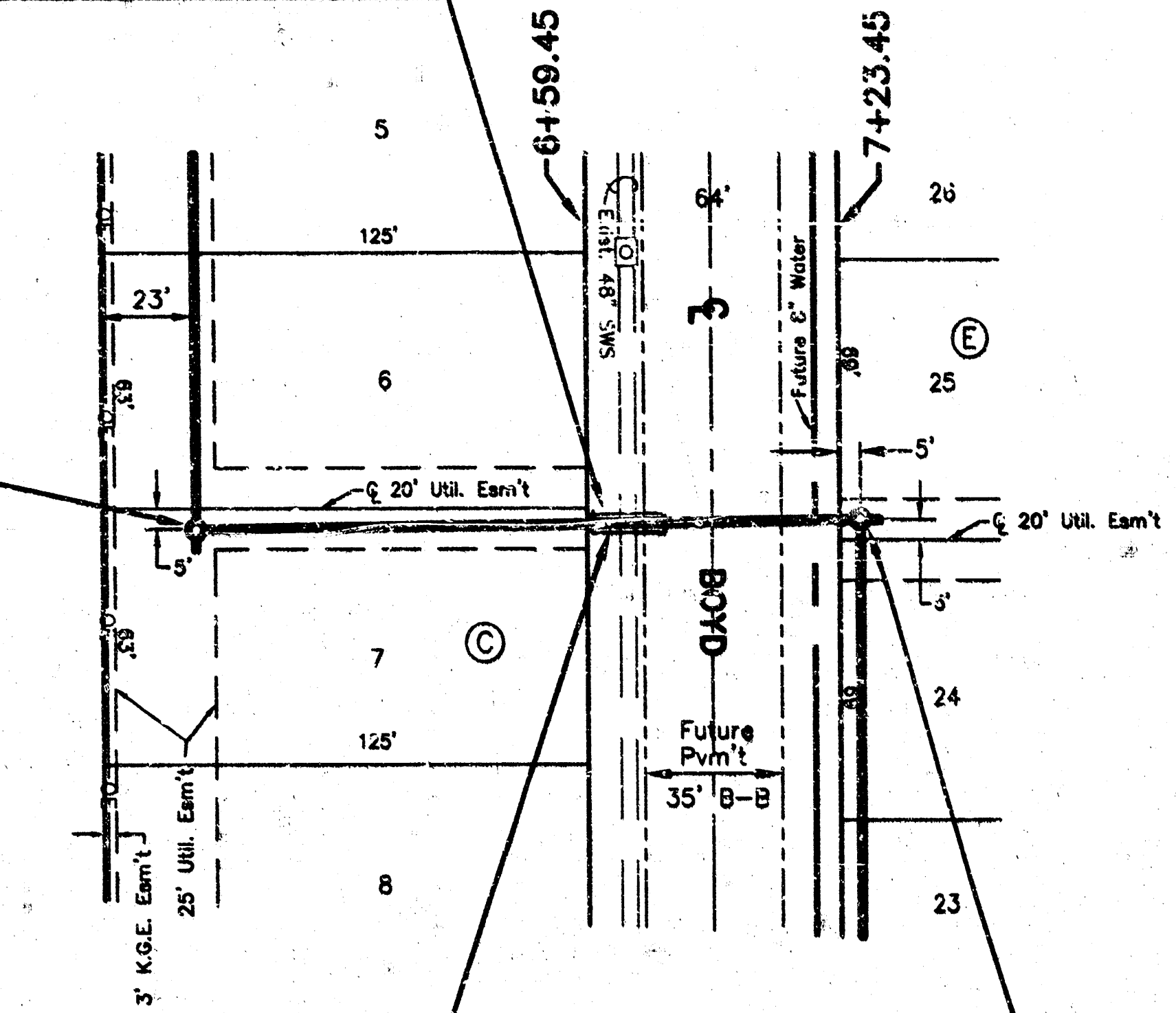


RISER LOCATION TABLE								
TEE SADDLE LOCATION					4" RISER	FL 8" SS	TOP RISER	
NO.	LINE NO.	STATION	BLOCK NO.	LOT NO.	DIRECTION	PIPE (LF)		
1	1	0+35	B	19	Left	11.8	107.90	117.2
2	1	1+78	C	1	Left	11.4	108.33	117.3
3	1	2+47	C	2	Left	11.2	109.54	117.3
4	1	3+15	C	3	Left	11.5	108.75	117.7

1" = 40' Horiz.
1" = 5' Vert.



STA. 6+58 TO STA. 6+78
REINF. CONC. ENCASEMENT
SEE DETAIL, SHT. 8



STA. 0+00
CONNECT TO EXIST.
8" STUB (S)

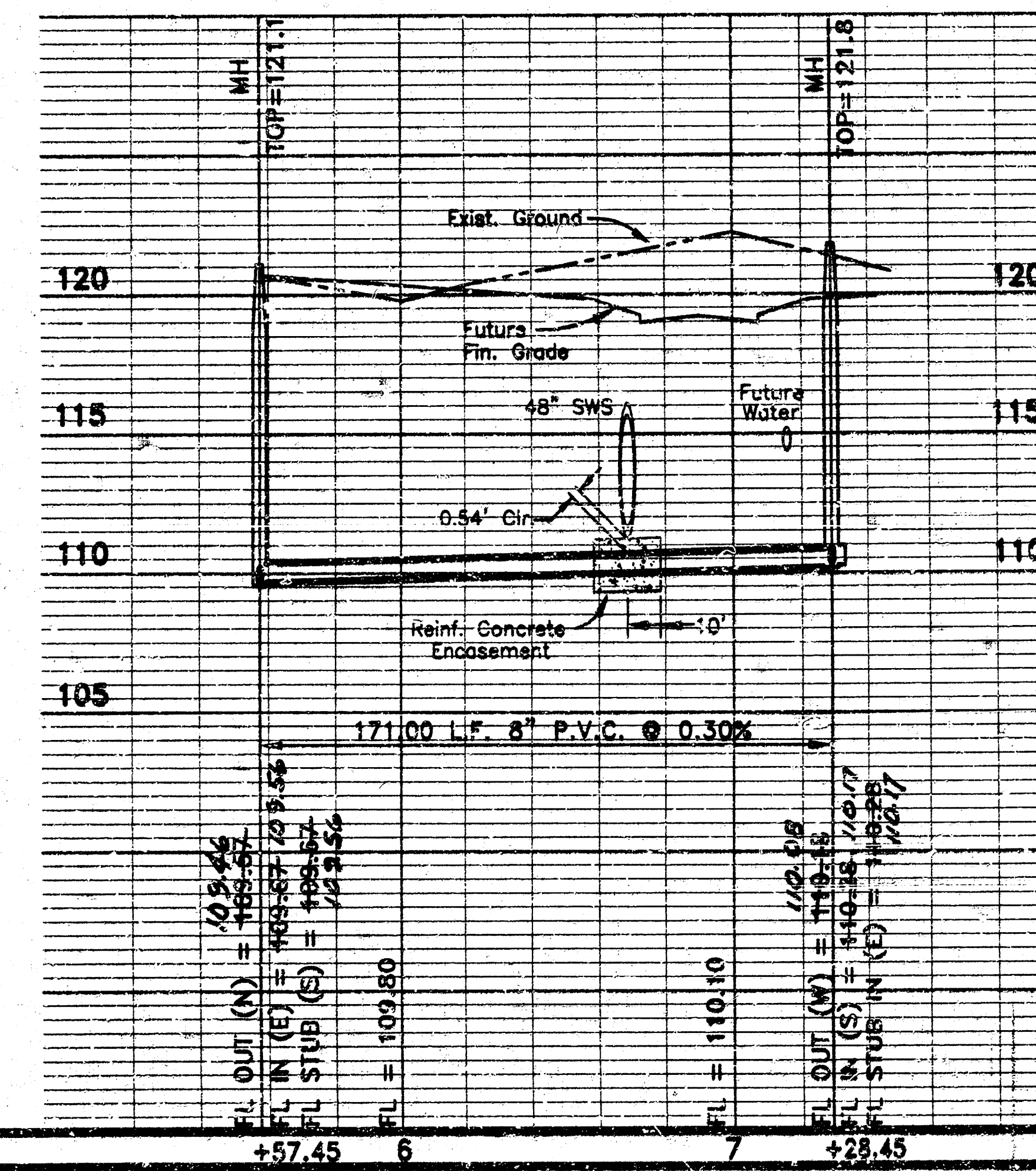
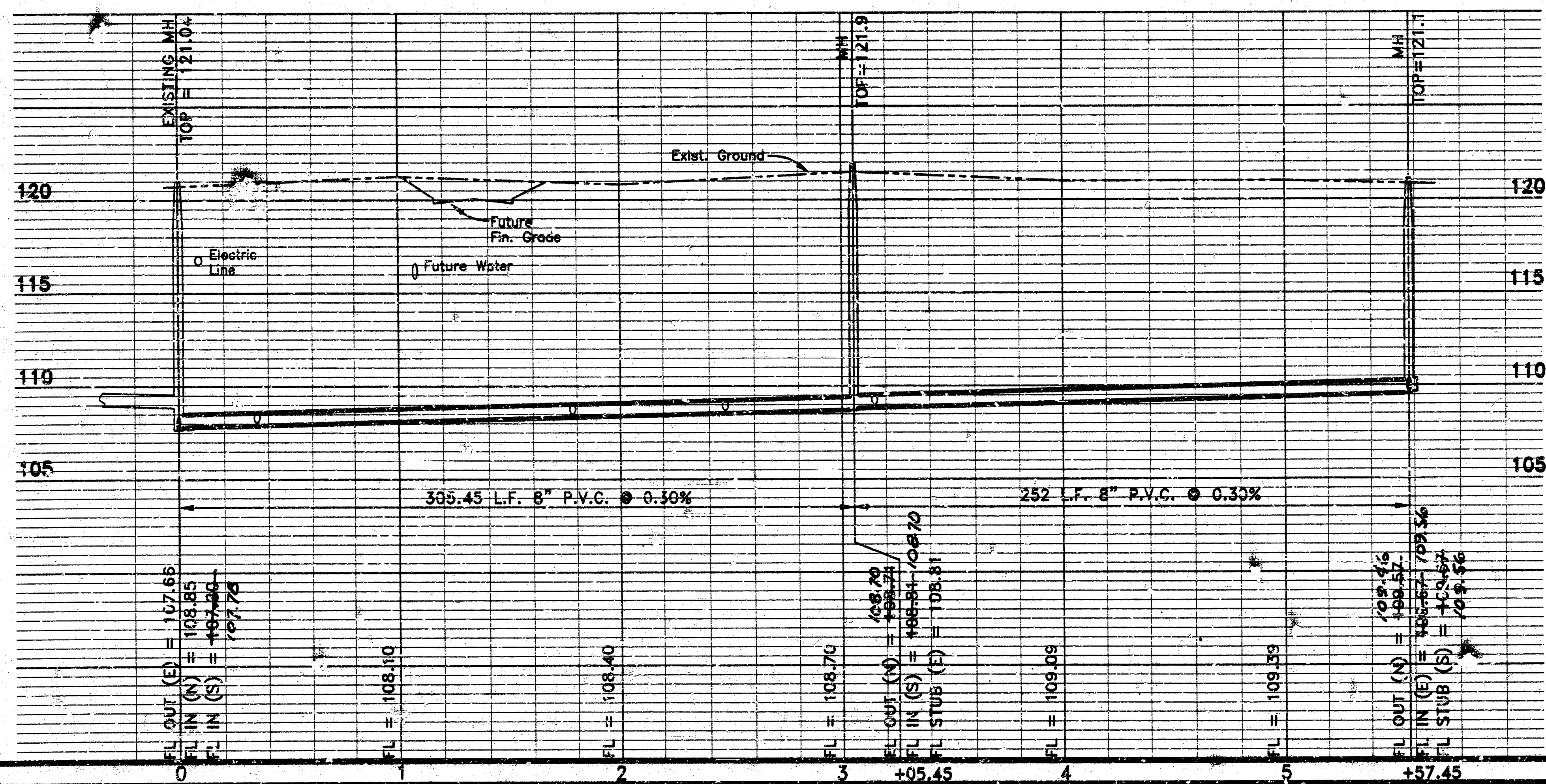
STA. 3+05.45 (MH 1-1)
CONSTRUCT STD. TYPE P MH
1 - 8" STUB (E)

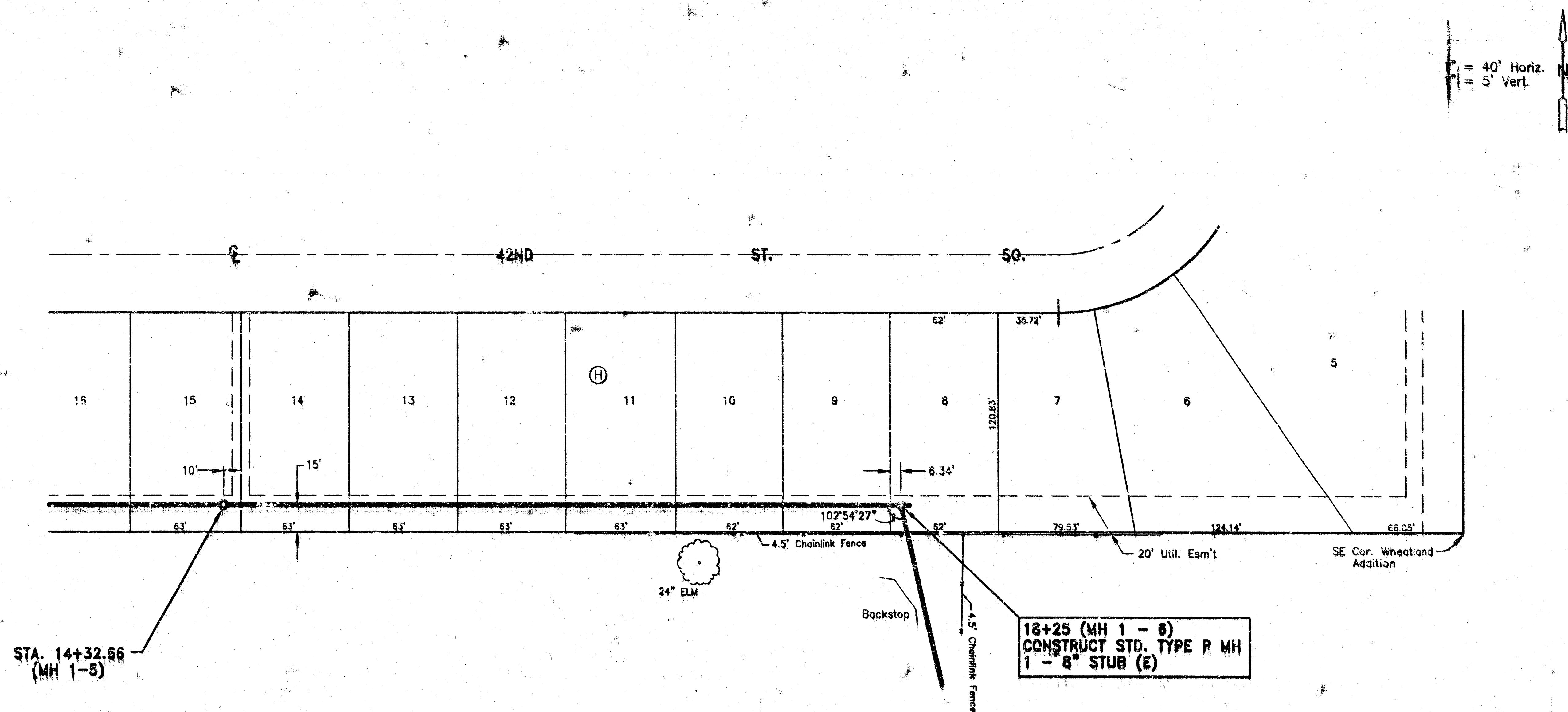
STA. 5+57.45 (MH 1-2)
CONSTRUCT STD. TYPE P MH
1 - 8" STUB (S)

STA. 7+28.45 (MH 1-3)
CONSTRUCT STD. TYPE P MH
1 - 8" STUB (E)

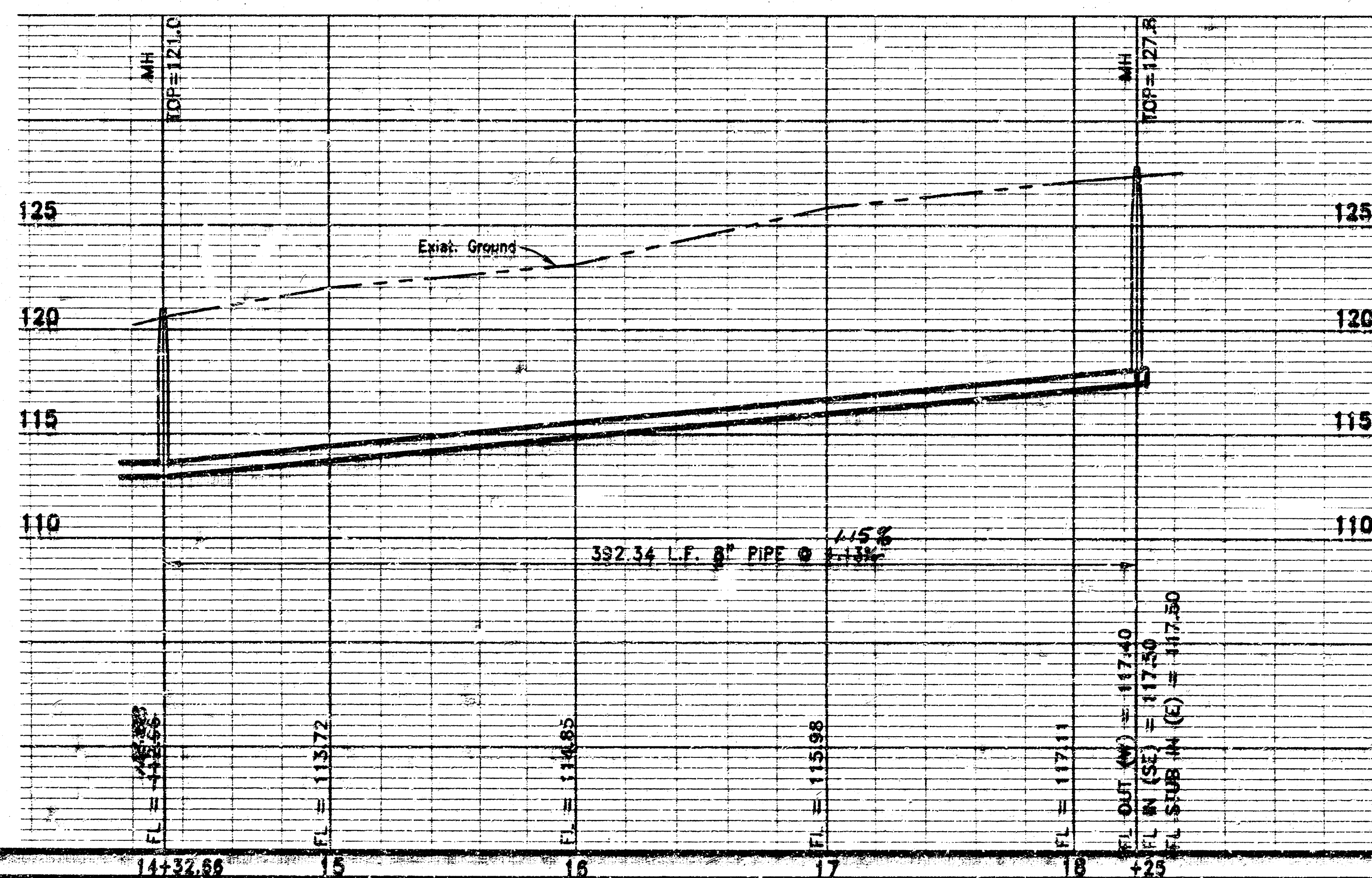
CAUTION--
48" STORM
SEWER

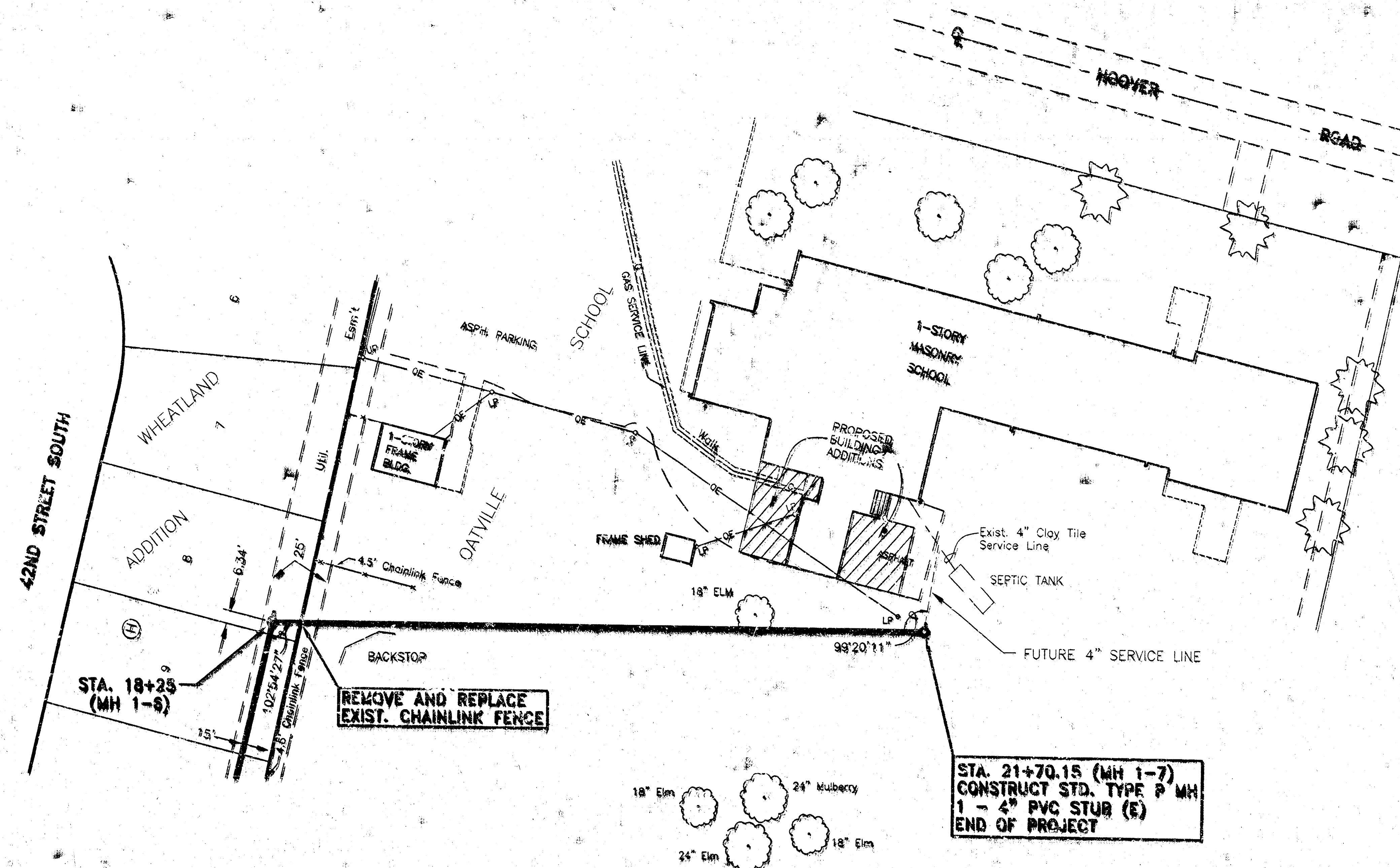
LINE 1





LINE 1





1" = 40' Horiz.
1" = 5' Vert.

LINE 1

