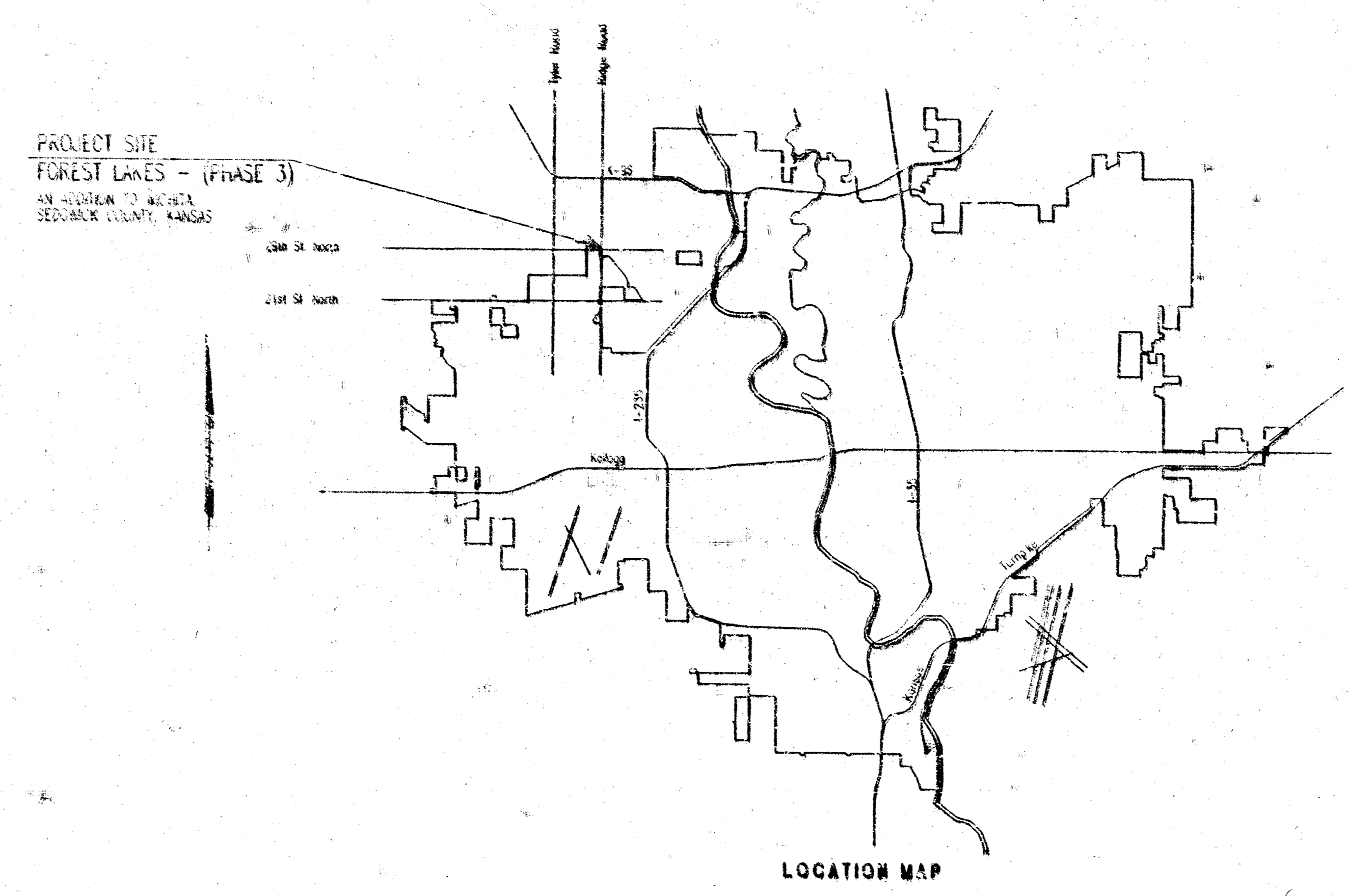


82301

CONSTRUCTION PLANS FOR
LATERAL 3, MAIN 17
 OF THE
SOUTHWEST INTERCEPTOR SEWER
 IN
THE CITY OF WICHITA,
 SEDGWICK COUNTY, KANSAS
 MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER



INDEX OF SHEETS

| | |
|---------------|---------------------------|
| SHEET NO. 1 | TITLE SHEET |
| SHEET NO. 2 | KEY MAP AND GENERAL NOTES |
| SHEET NO. 3 | EASEMENT GRADING PLAN |
| SHEET NO. 4-5 | PLAN |
| SHEET NO. 6 | PLAN/PROFILE |
| SHEET NO. 7 | TYPE "P" MANHOLE DETAILS |
| SHEET NO. 8 | TYPE "C" MANHOLE DETAILS |
| SHEET NO. 9 | TYPE "D" MANHOLE DETAILS |
| SHEET NO. 10 | FRAME & COVER DETAIL |
| SHEET NO. 11 | RISER DETAILS |

*Booked
 per Plan
 1/9/96*

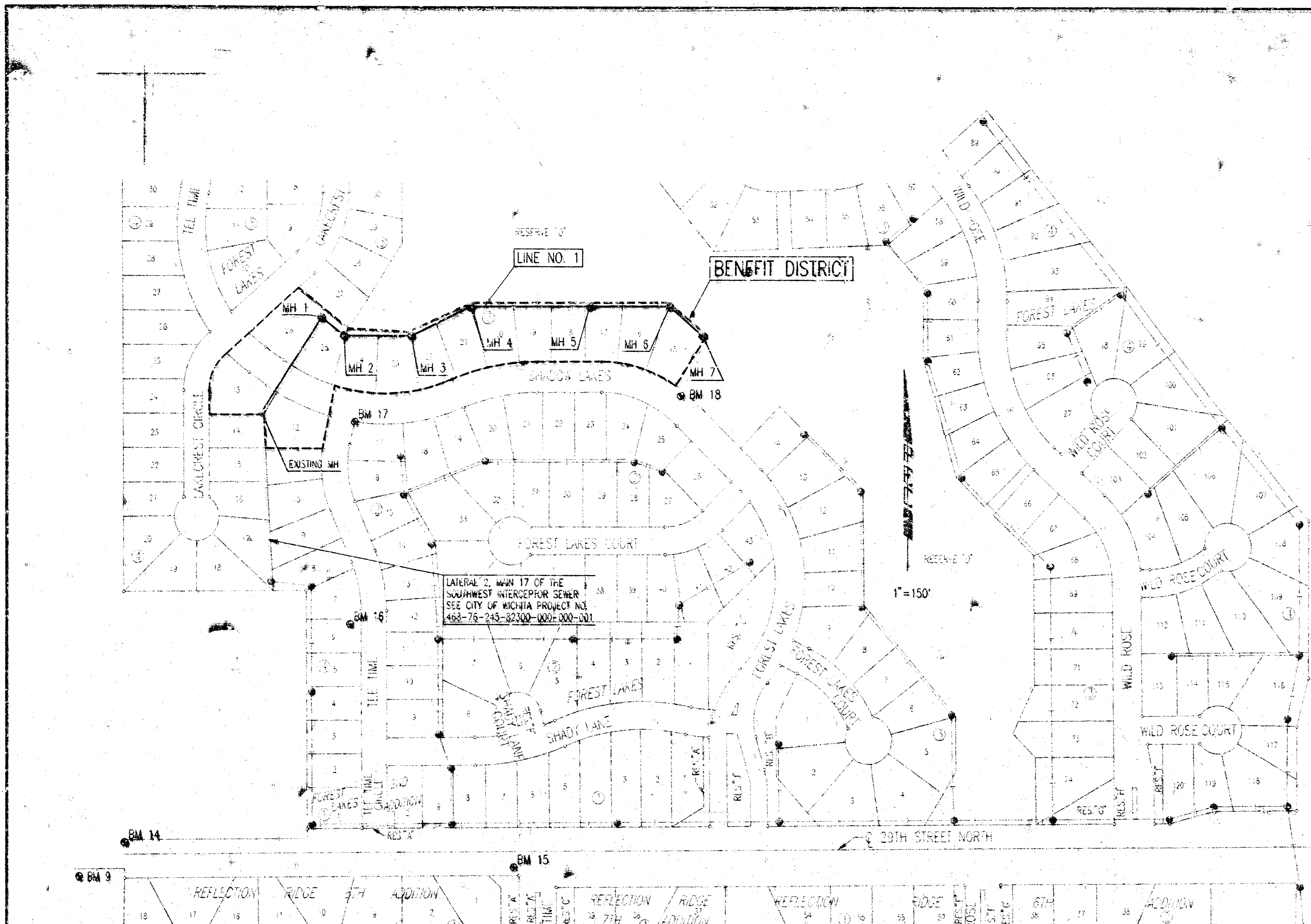
INDEX CODE 742403
 CITY OF WICHITA PROJECT NO. 468-76-245-82301-000-000-001

AUGUST 1995

PLANS PREPARED BY
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS



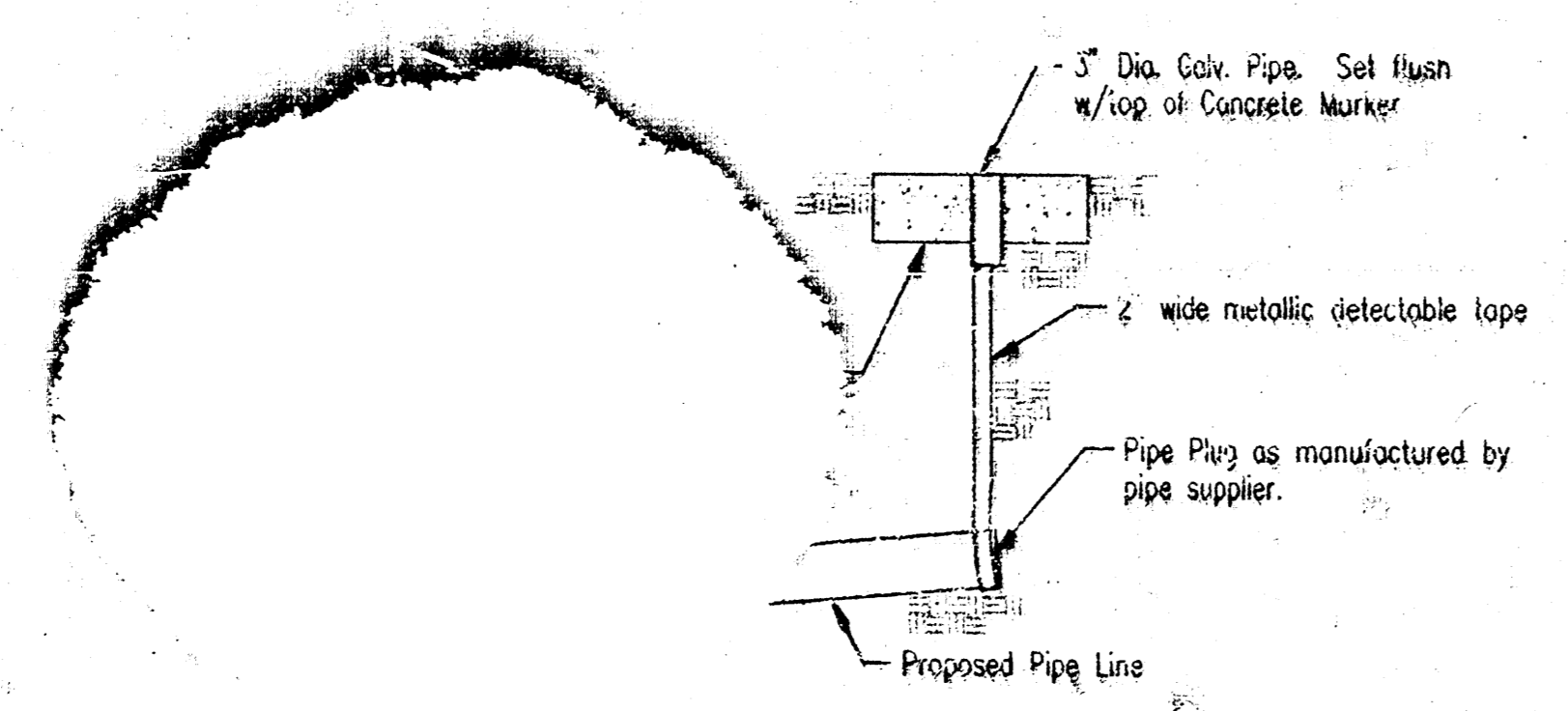
DSNR: RJU OPER: JLM SCALE: 1"=100'
 01/1995/95147/002/VITL/DWG



GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
- ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM.
- THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
- AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 887-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: K.G. & E. (ELECTRIC), PEOPLES NATURAL GAS, THE WICHITA WATER DEPARTMENT, MULTIMEDIA CABLEVISION, K.G.A.E. (GAS), AND SOUTHWESTERN BELL TELEPHONE.
- 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 THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL 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. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
- UNLESS OTHERWISE SPECIFIED ON THE PLANS, MANHOLES MAY BE TYPE "C" OR "D" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
- ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOIL AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION 103.4078 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
- 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. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN 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 WILL 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 MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
- THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES OR SHRUBS WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER. COSTS FOR TREE/SHRUB REMOVAL AND TRIMMING REGARDLESS OF SIZE SHALL BE CONSIDERED SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE CLEARING".
- CONTRACTOR SHALL GRADE THE SANITARY SEWER ALIGNMENT 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".
- THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
- THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJOINING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
- ALL APPROVED EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE STOCKPILED WITHIN FOREST LAKES AT NO ADDITIONAL COST TO THE OWNER. STOCKPILE LOCATIONS SHALL BE AS DIRECTED BY MR. MARVIN SCHELLENBERG, AT 721-2153 AND IN ACCORDANCE WITH GENERAL NOTE NO. 10 ABOVE.
- CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING MAINS AT ALL TIMES.
- THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY RYE GRASS. RYE GRASS SEED SHALL BE PLANTED AT A MINIMUM RATE OF SIX (6) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET. THIS TEMPORARY SEEDING MAY BE OMITTED ONLY IF OTHER SEEDING IS REQUIRED IN ACCORDANCE WITH GENERAL NOTE NO. 9 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.
- THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE REM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND AT THE MANHOLE. THE GROUND AROUND SUCH MANHOLES AND ALONG THE SEWER ALIGNMENT SHALL BE BACKFILLED TO THE APPROXIMATE ELEVATION OF THE PROPOSED GROUND ELEVATION SHOWN ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE DRAINAGE AWAY FROM THESE MANHOLES AND SEWER LINES BY CONSTRUCTION OF TEMPORARY DITCHES OR SLOPING THE GROUND AS REQUIRED. ALL COSTS FOR THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE INSTALLED BID PRICE FOR MANHOLES OR PIPE.
- 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".
- INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER FORMALIZED BY PROJECT SPECIAL PROVISIONS.

- BM 9 -RAILROAD SPIKE IN NORTH FACE 15' ELM, SOUTH SIDE OF 29TH STREET NORTH, APPROXIMATELY 102' WEST OF THE SOUTH 1/4 CORNER OF SECTION 33, T26S, R1W. ELEV. = 155.98
- BM 14 -CITY OF WICHITA DISC APPROXIMATELY 25' NORTH OF THE SOUTH 1/4 CORNER OF SECTION 33, T26S, R1W. ELEV. = 152.16
- BM 15 -CITY OF WICHITA DISC IN THE NORTHWEST CORNER HEADWALL TO R.O.B. AT THE SOUTH SIDE OF 29TH STREET NORTH ON THE WEST SIDE OF TEE TIME. ELEV. = 142.22
- BM 16 -RAILROAD SPIKE IN EAST FACE 15' ELM IN EAST-WEST TREE ROW, APPROXIMATELY 24' WEST AND 10' SOUTH OF THE NORTHWEST CORNER OF LOT 6, BLOCK 4, FOREST LAKES. ELEV. = 148.83
- BM 17 -"T" POST, 0.5' EAST OF THE NORTHWEST CORNER OF LOT 17, BLOCK 2, FOREST LAKES. ELEV. = 143.74
- BM 18 -CHISELED "C" IN NORTH TOP OF CURB SHADOW LAKES AT FIRE HYDRANT NEAR LOT 15, BLOCK 3, FOREST LAKES. ELEV. = 142.33

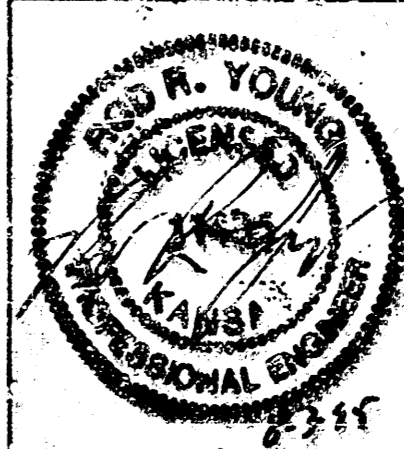


BURIED PIPE PLUS & MARKER DETAIL
(PLUGGING & STAKING SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR SITE RESTORATION)

| SEWER SERVICE TABLE (See detail and notes, sheet no. 11) | | | | | | | | | | |
|---|----------------------|----------|-----------|----------|-------------------|--|------------|--|------------|-----|
| NO. | TYPE | LOCATION | | | | FOR INFORMATION ONLY | | RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR) | | NO. |
| | | LOT NO. | BLOCK NO. | LINE NO. | STATION/DIRECTION | APPROXIMATE LENGTH 4" PIPE VERTICAL | HORIZONTAL | DISTANCE FROM NEAREST MANHOLE UPSTREAM | DOWNSTREAM | |
| 1 | 8"x4" Tapping Saddle | 12 | 4 | 1 | 0+10/RL | 15' | | | | 1 |
| 2 | 8"x4" Tapping Saddle | 15 | 4 | 1 | 0+20/LL | 3' | | | | 2 |
| 3 | 8"x4" Tapping Saddle | 26 | 3 | 1 | 2+00/LL | 14' | | | | 3 |
| 4 | 8"x4" Tapping Saddle | 25 | 3 | 1 | 2+55/HL | 4' | | | | 4 |

- NOTES:
1. Vertical Riser Pipe shall be extended to 2' minimum above ground water elevation and 4' maximum below proposed ground elevation.

DSNR, RJJ OPER. JULY SCALE: 1"=150.00
 01/1995/95147/002/KCMAP.DWG 48-02-1995 2:30:12 pm



Revision _____ By _____ Date _____

**LATERAL 3, MAIN 17 OF THE
SOUTHWEST INTERCEPTOR SEWER**

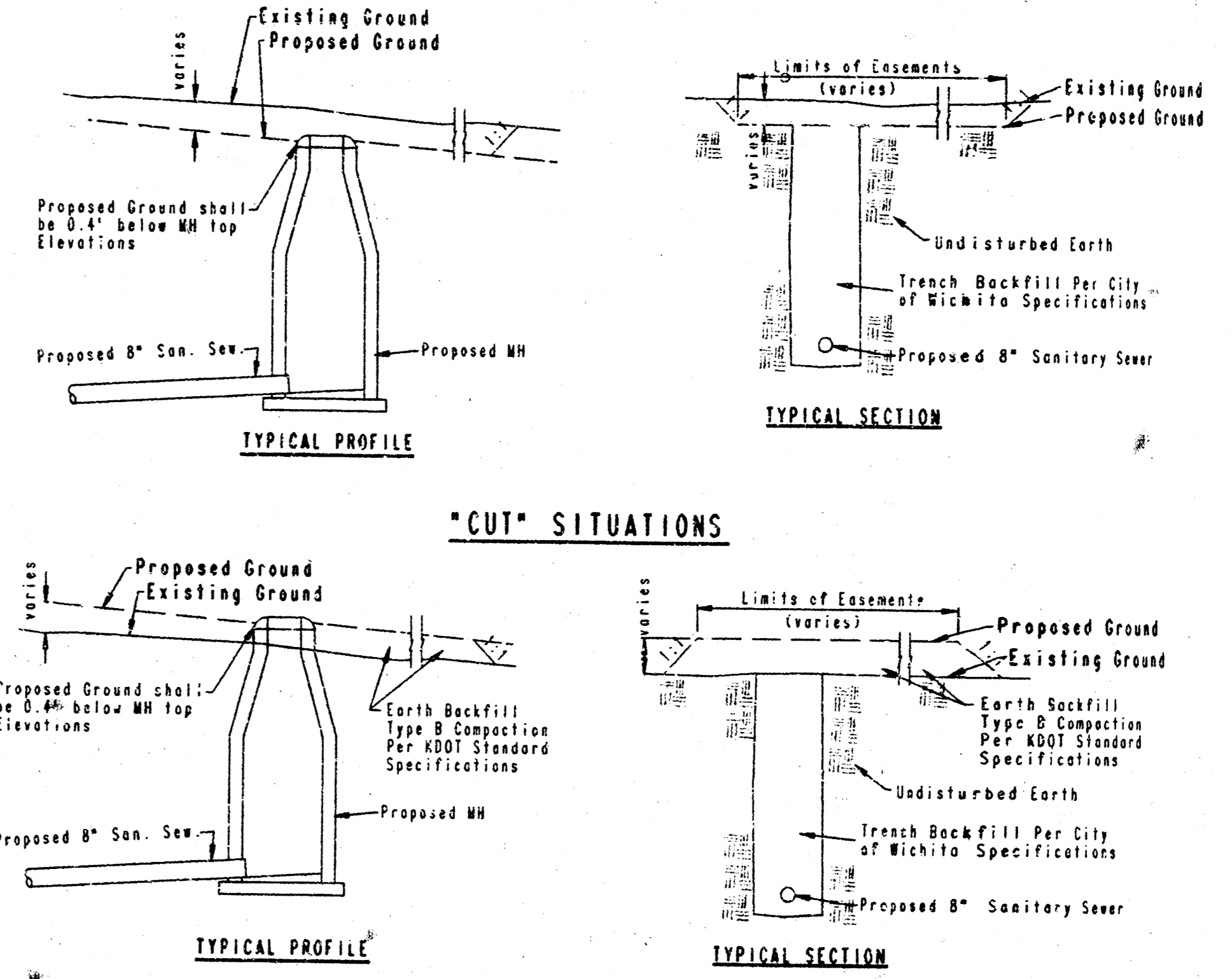
KEY MAP

MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 488-76-245-82301-000-001

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

| | | | | |
|-------------|----------|---------|------------|--------------|
| Designed by | RRY, MDK | Job No. | 34-95147-2 | Sht. 2 of 11 |
| Drawn by | JLM | Date | March 1995 | |

PLAN CHECKED: [] DATE: []
 BY: []



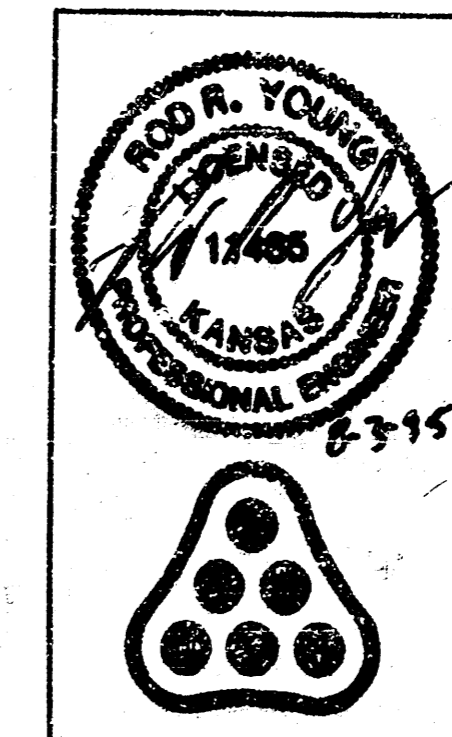
EASEMENT GRADING DETAILS

- = AREAS TO BE GRADED
- H.P. = HIGH POINT
- W.E. = WATCH EXISTING

Easement Grading will be bid on a lump sum basis for grading the easement to the profile and elevations shown on this Easement Grading Plan (this sheet). Approximate quantities of earthwork for easement grading are shown below. These approximate quantities are given for information only. The Contractor should verify the quantities when preparing the proposal.

Cut C.Y. (Approximate)
 Fill C.Y. (Approximate)

DRAWING NAME: 34-95147-2 ESM:GBO
 LOCATION: E4 4417
 DATE: 08/08/1995
 SPECIAL INSTRUCTIONS:



| | | | |
|---|----------|---------|--------------|
| No. | Revision | By | Date |
| LATERAL 3 MAIN 17 OF THE SOUTHWEST INTERCEPTOR SEWER EASEMENT GRADING PLAN MICHAEL E. LIMBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82301-000-000-001 PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS | | | |
| Designed by | RRY, WDK | Job No. | 34-95147-2 |
| Drawn by | TDS | Date | MARCH 1995 |
| | | | Sht. 3 of 11 |

FOREST LAKES

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



3/4" IRON PIPE WITH 1.0 CAP ("PEC PA")
 SET UNLESS OTHERWISE NOTED.

DATUM BM - CHISELED "O" ON NE CORNER OF EAST HEADWALL OF RCB UNDER RIDGE RD. AT 200' NORTH OF EAST 1/4 CORNER, SEC. 4, 127S, R1W. ELEV. 138.46
 ELEV. 1325.64 M.S.L.

BM F.L.-2 - CHISELED "O" ON NORTH END OF WEST HEADWALL OF RCB UNDER WILD ROSE ON SOUTH SIDE OF 29TH STREET NORTH. ELEV. 138.90

BM F.L.-8 - RAILROAD SPIKE IN SOUTH FACE OF 18" ELW IN NORTH TO SOUTH TREE ROW AT 25' EAST AND 125' NORTH OF EAST CORNER OF LOT 26, BLOCK 2, FOREST LAKES ADDITION. ELEV. 141.61

SCALE: 1"=100'

ALL BUILDING SETBACK LINES ARE 25' UNLESS OTHERWISE LABELED.

MINIMUM PAD ELEVATIONS (LOWEST OPENING) SHALL BE AS FOLLOWS:

| BLOCK | LOTS | CITY DATUM | M.S.L. |
|-------|---------------|------------|--------|
| 4 | 47 THROUGH 60 | 144.82 | 1332.0 |
| 3 | 1 THROUGH 14 | 140.32 | 1327.5 |
| 3 | 54 THROUGH 74 | 140.32 | 1327.5 |
| 3 | 15 THROUGH 53 | 141.82 | 1326.0 |

| | | |
|------------------|---------|------|
| PLAN | REVISED | DATE |
| NOTE BOOK | DATE | |
| REVISION CHECKED | DATE | |
| BY | DATE | |

S.W. CORNER, S.E. 1/4 SEC. 33, 126S, R1W OF THE 6TH P.M. FOUND CHIS. "O" ON LIMESTONE.

REPLATED AS FOREST LAKES 2ND. ADDITION See Sheet No. 5 of 11

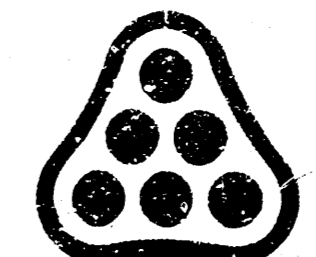
REPLATED AS FOREST LAKES 2ND. ADDITION See Sheet No. 5 of 12

NE CORNER, SE 1/4 SEC. 33, 126S, R1W OF THE 6TH P.M. FOUND 1/2" IRON PIPE IN THIMBLE.

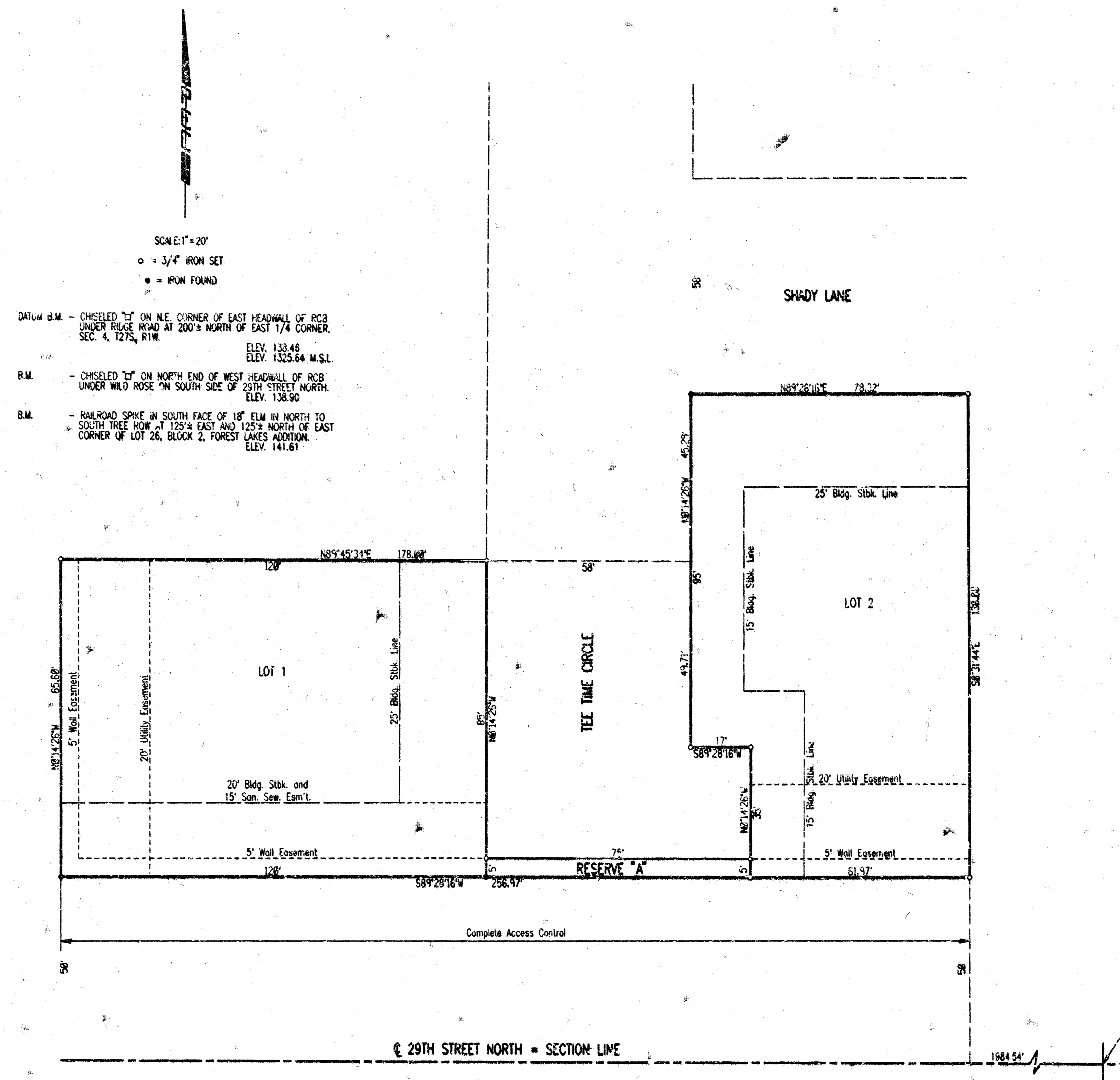
S.E. CORNER, S.E. 1/4 SEC. 33, 126S, R1W OF THE 6TH P.M. FOUND 5/8" BAR IN THIMBLE.

DRAWING MADE BY: J. L. HARRIS
 CHECKED BY: J. L. HARRIS
 DATE: MARCH 1995

| | | | |
|---|--|--------------|------|
| No. | Revision | By | Date |
| | LATERAL 3 MAIN 17 OF THE SOUTHWEST INTERCEPTOR SEWER | | |
| PLAT | | | |
| MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-82301-000-000-001 | | | |
| PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS | | | |
| Designed by | Job No. 34-95147-2 | Sht. 4 of 11 | |
| Drawn by DEP | Date MARCH 1995 | | |



FOREST LAKES 2ND ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1" = 20'

○ = 3/4" IRON SET
● = IRON FOUND

DATUM B.M. - CHISELED "L" ON N.E. CORNER OF EAST HEADWALL OF RCB UNDER RIDGE ROAD AT 200' NORTH OF EAST 1/4 CORNER, SEC. 4, 127S, R1W.
ELEV. 133.48
ELEV. 1325.64 M.S.L.

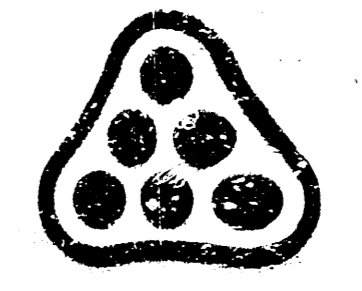
R.M. - CHISELED "L" ON NORTH END OF WEST HEADWALL OF RCB UNDER WILD ROSE ON SOUTH SIDE OF 29TH STREET NORTH.
ELEV. 138.90

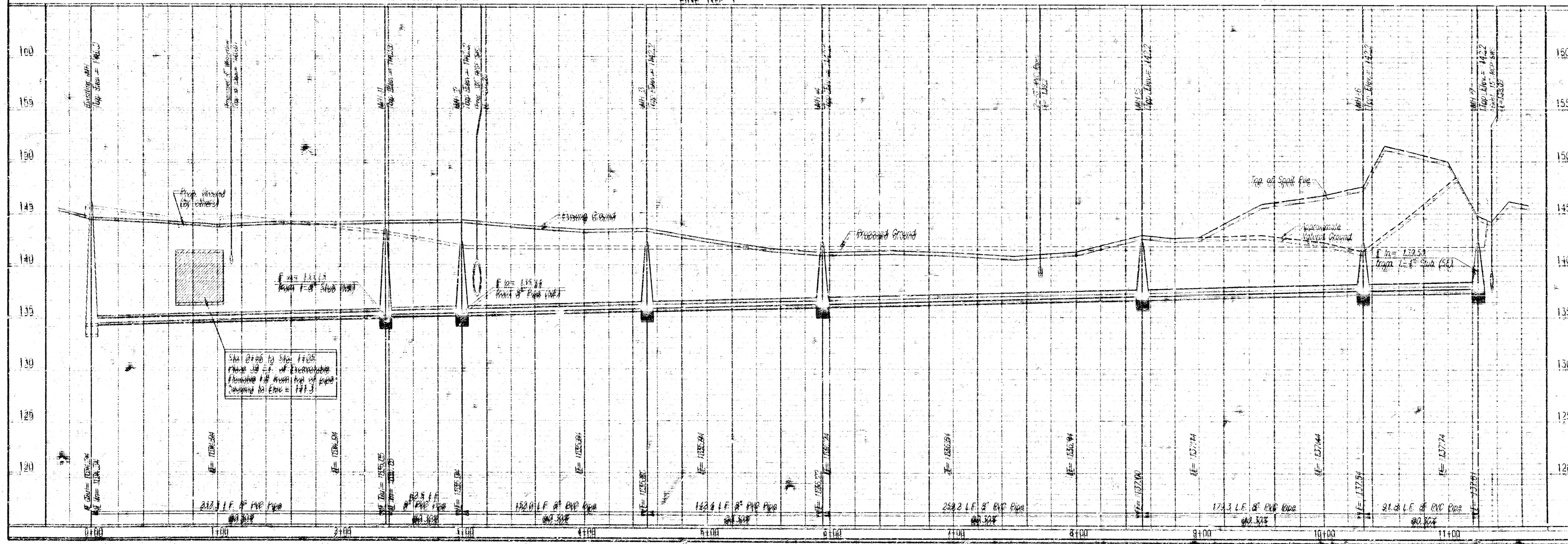
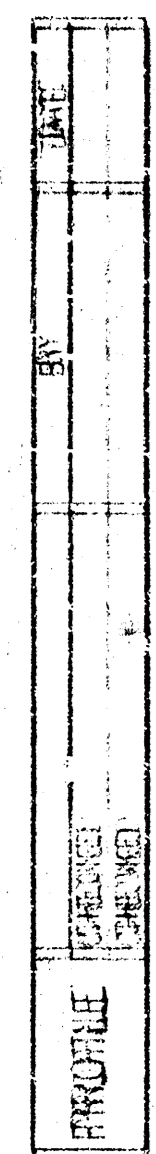
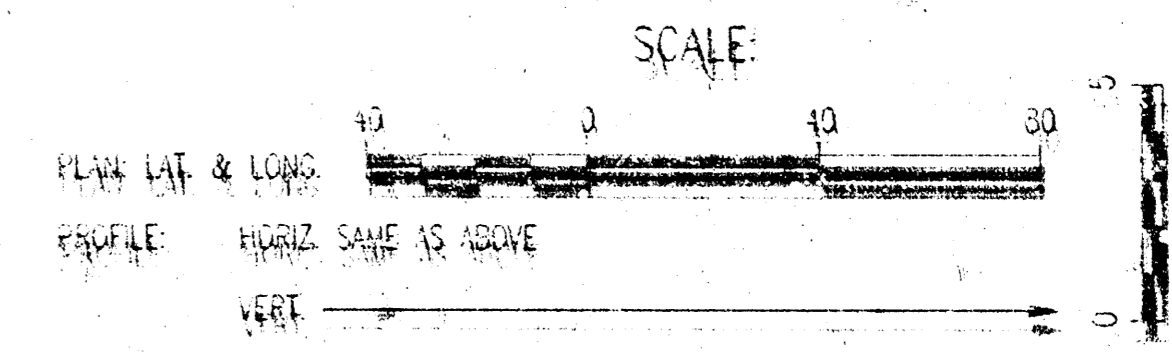
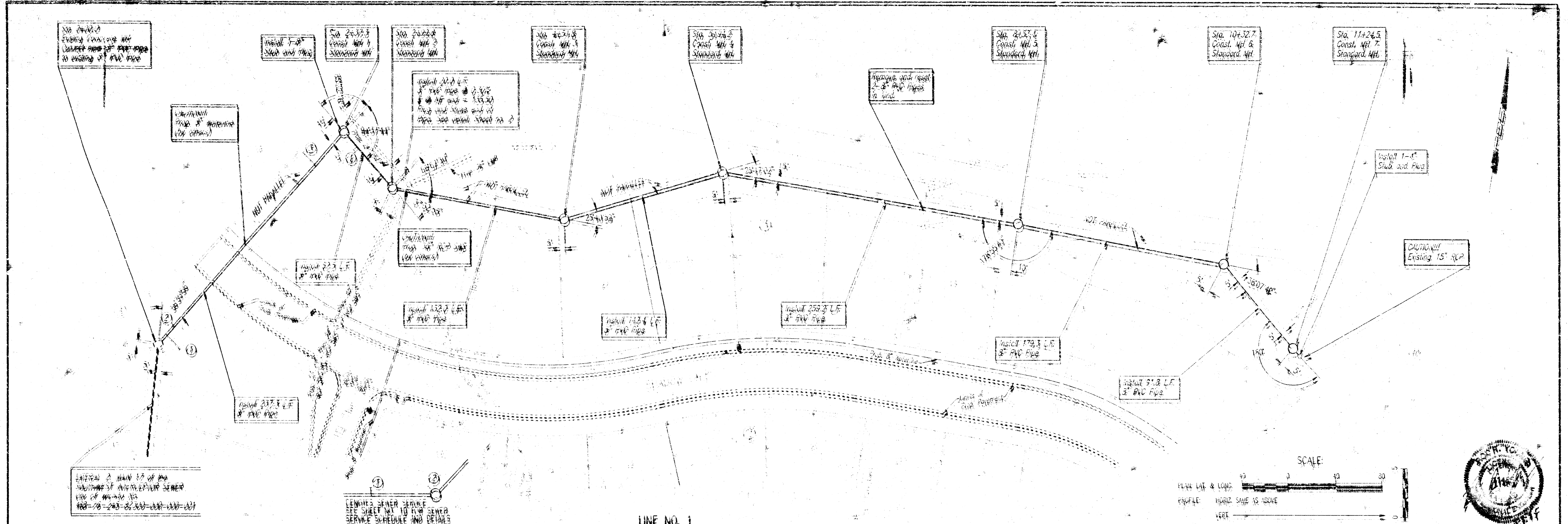
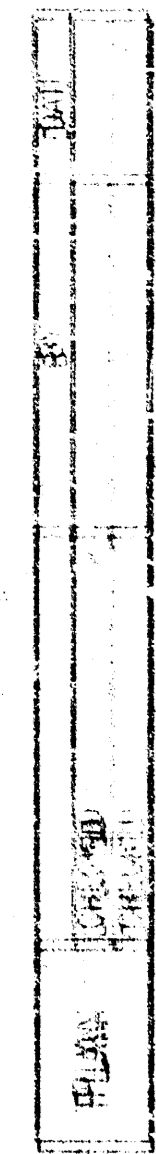
B.M. - RAILROAD SPIKE IN SOUTH FACE OF 18" ELM IN NORTH TO SOUTH TREE ROW, 125' EAST AND 125' NORTH OF EAST CORNER OF LOT 26, BLOCK 2, FOREST LAKES ADDITION.
ELEV. 141.61

S.E. Corner, SE 1/4 Sec. 25, 126S, R1W of the 6th P.M. (5/8" bar on thumb)

usr / ush / dms 95/47 / 11s2ndaddp
date plotted 9/1/95
drawn by tom sanford

| | | | | | |
|--|---------|------------|-----------|---------------|------|
| No. | | Revisions | | By | Date |
| LATERAL 3 MAIN 17 OF THE SOUTHWEST INTERCEPTOR SEWER PLAT | | | | | |
| MICHAEL E. LINEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-23301-000-000 | | | | | |
| PROFESSIONAL ENGINEERING CONSULTANTS, P.A. INDEPENDENT WICHITA, KANSAS | | | | | |
| Designed by | Job No. | 34-95147-2 | | Sheet 5 of 11 | |
| Drawn by | DEP | Date | JUNE 1995 | | |





LATERAL 3 MAN 17 OF THE
 SOUTHWEST INTERCEPTOR
 LINE NO. 1
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 WINDYBUSH AVENUE
 ALPHARETTA, GEORGIA
 SHEET NO. 14-5014-2
 DRAWN BY: JLM
 DATE: MARCH 1970

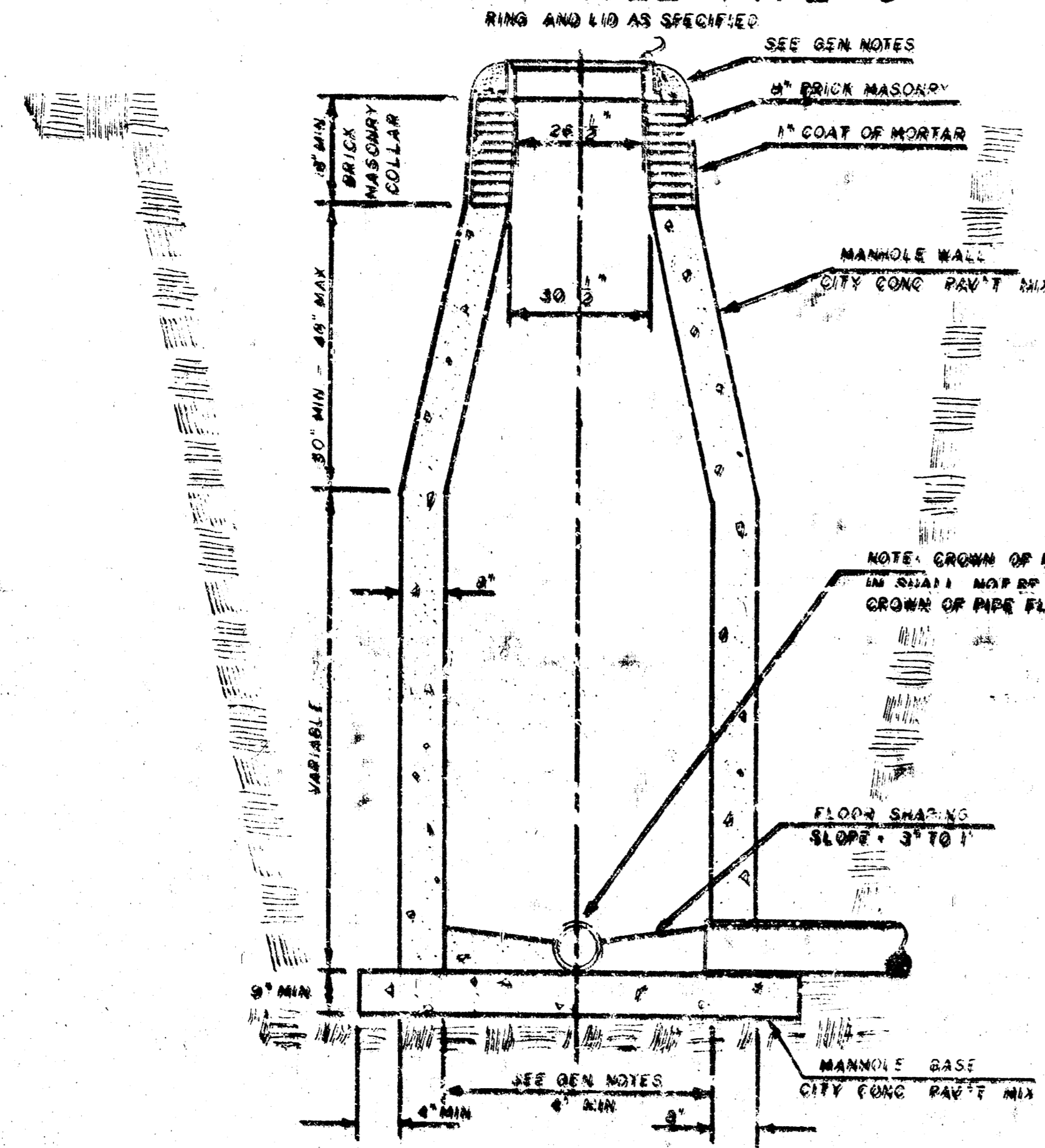
USUAL SET, OTHER, AND SCALE: 1"=40.0'
 CIVIL ENGINEER'S SEAL AND SIGNATURE REQUIRED

SEWER APPURTENANCES DETAILS

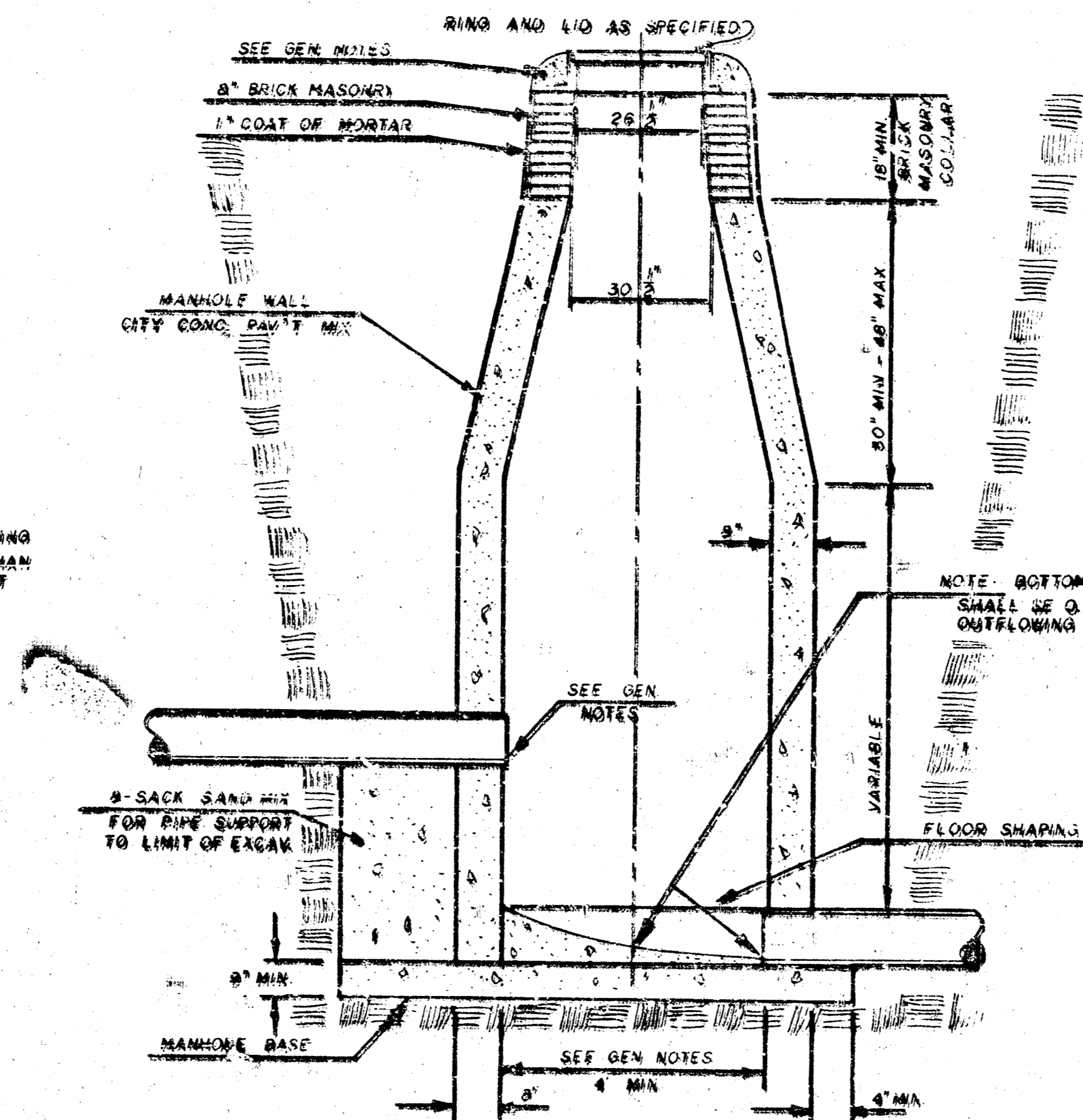
ADOPTED AS STANDARD DESIGN
BY

City of Wichita, Kansas

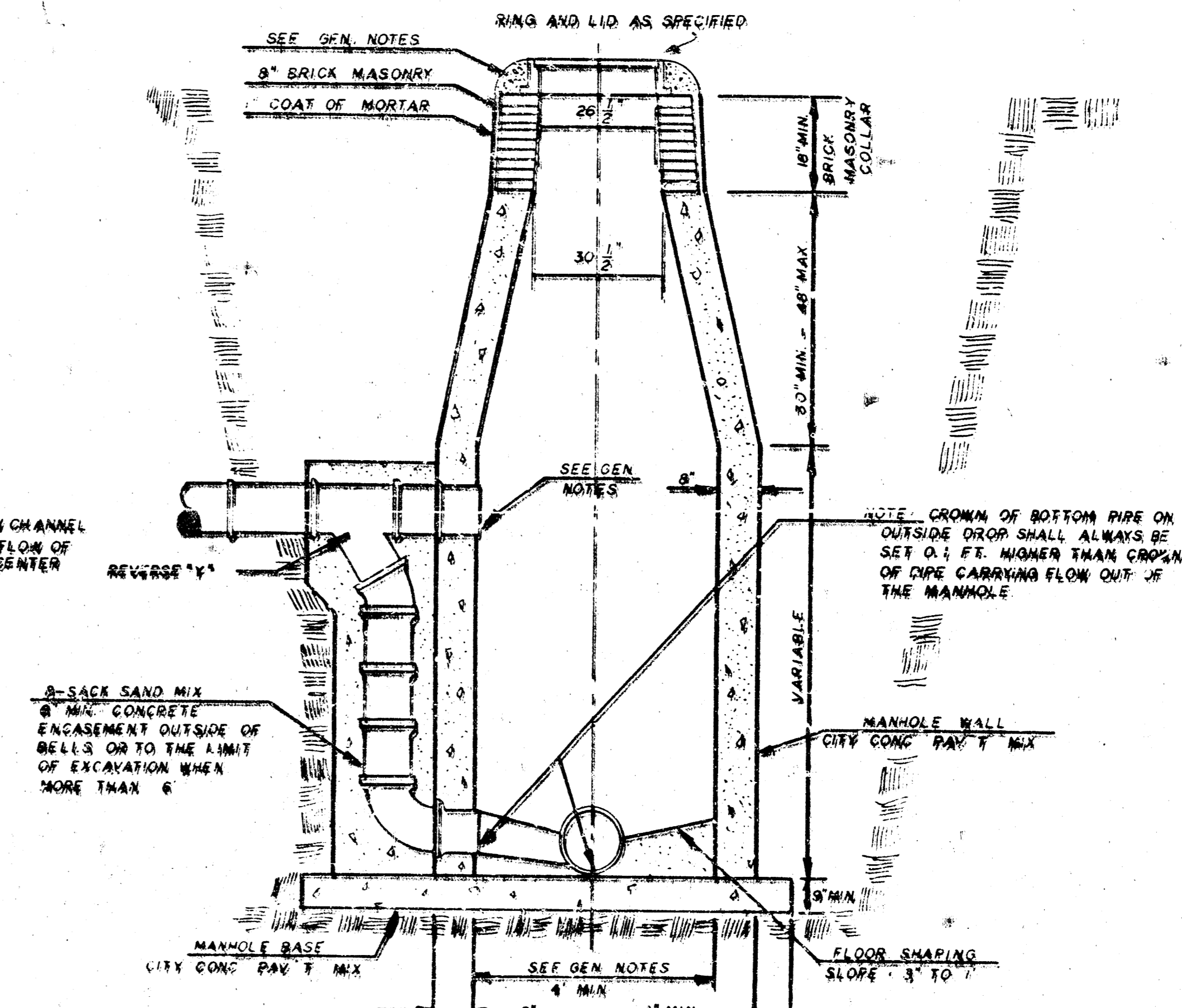
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES:

- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADJUSTMENTS. MANHOLE RINGS SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE FOR INSIDE AND OUTSIDE DROP MANHOLES. THE UPPER INLET PIPE SHALL BE GROUTED INTO THIS OPENING WITH NEARLY SET GROUT. THE EXTERIOR OF THIS COMPLETE CONNECTION SHALL BE COVERED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF UNDESIRABLE SOLIDS DEPOSITS. AS SEWER FLOW THROUGH THE MANHOLE FROM THE INLET PIPE TO THE OUTLET PIPE, FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM RADIUS OF THE INLET PIPE AND THE OUTFLOWING PIPE AS SHOWN ON 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 LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAR 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.
- PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE GRADE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE GRADE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF GRADE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- 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 DRAWINGS.
- THE VERTICAL FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'. THE CORNER OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CORNER OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES TYPE "C" AND STANDARD INSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

SEWER APPURTENANCES DETAILS

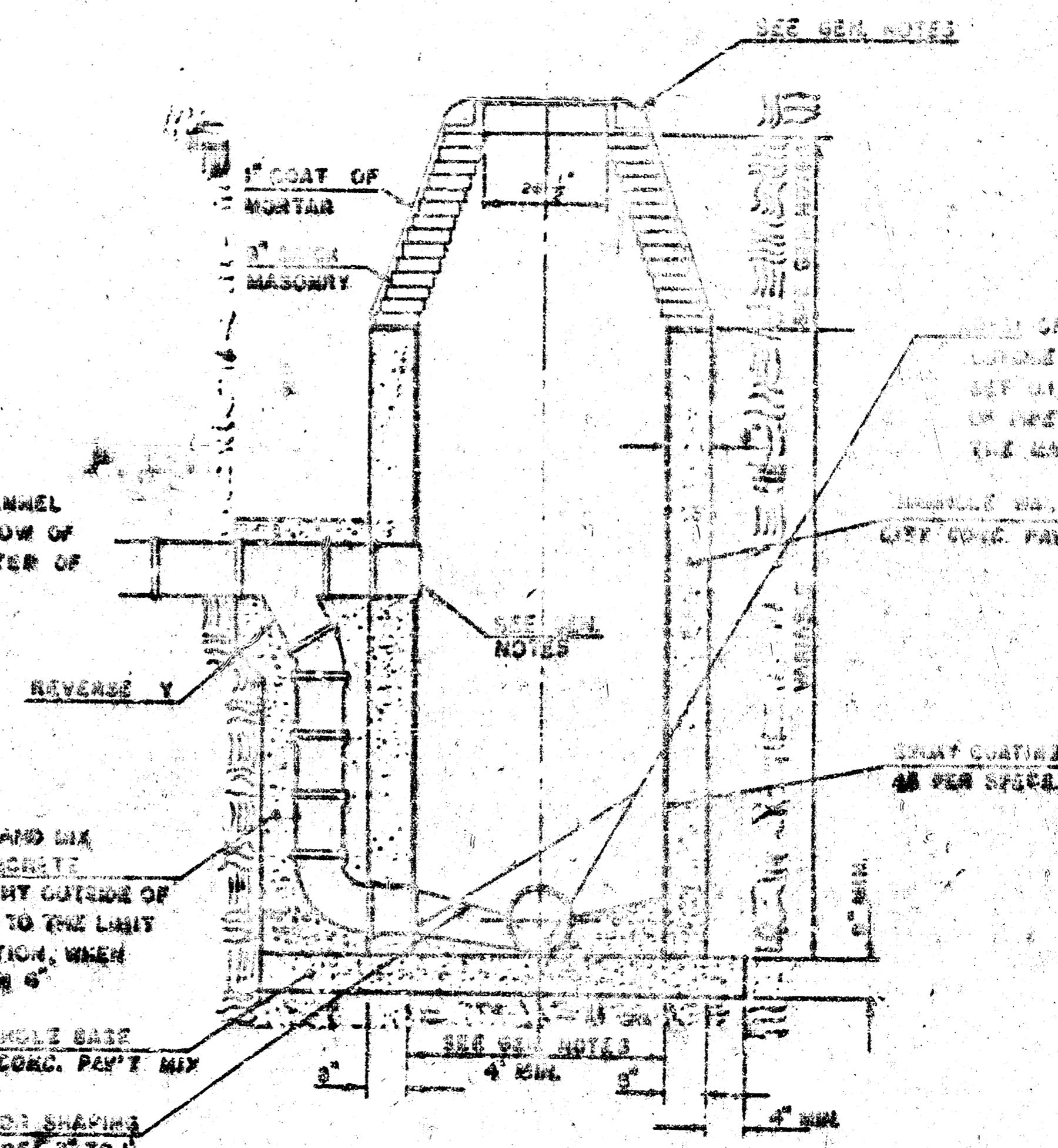
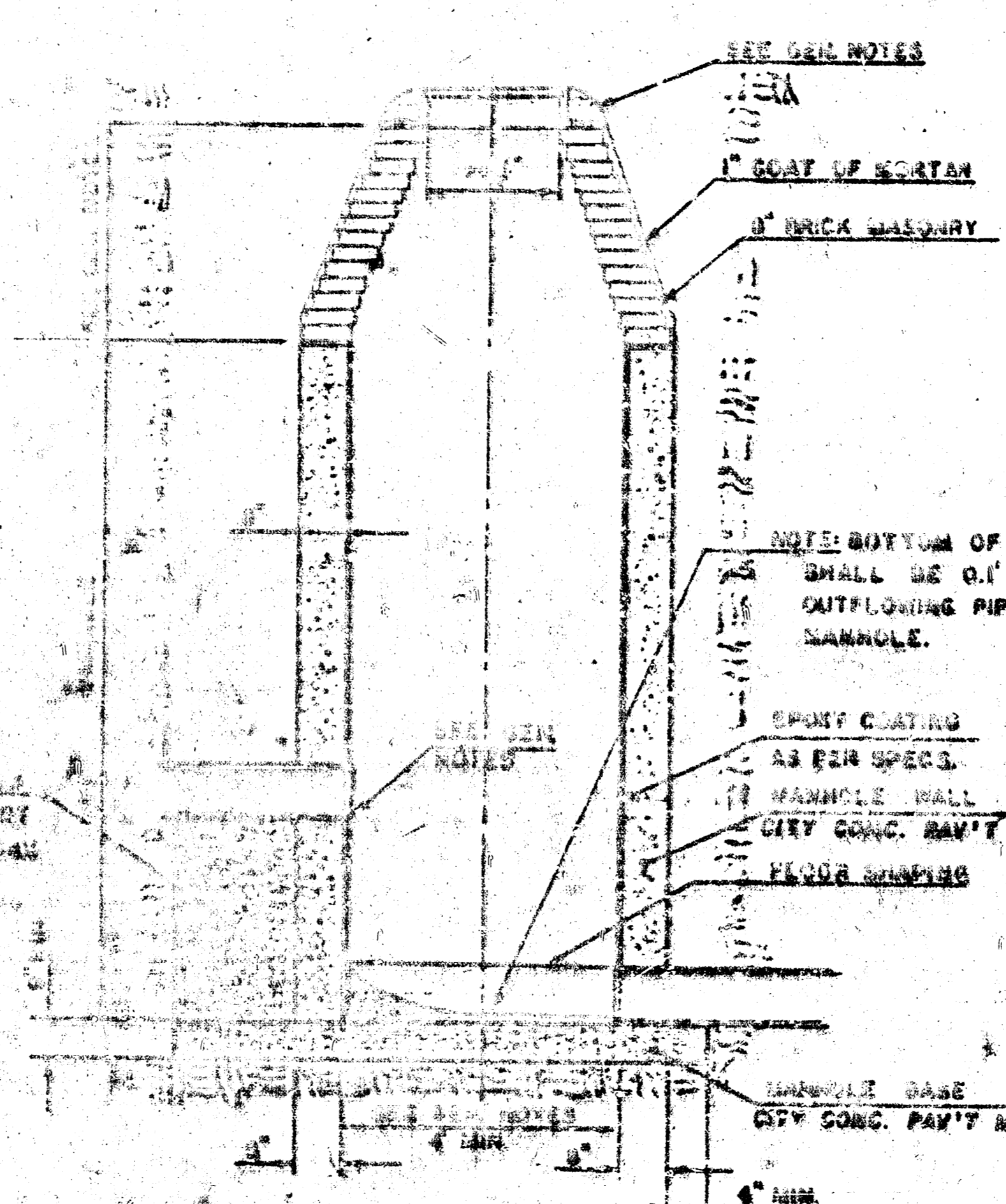
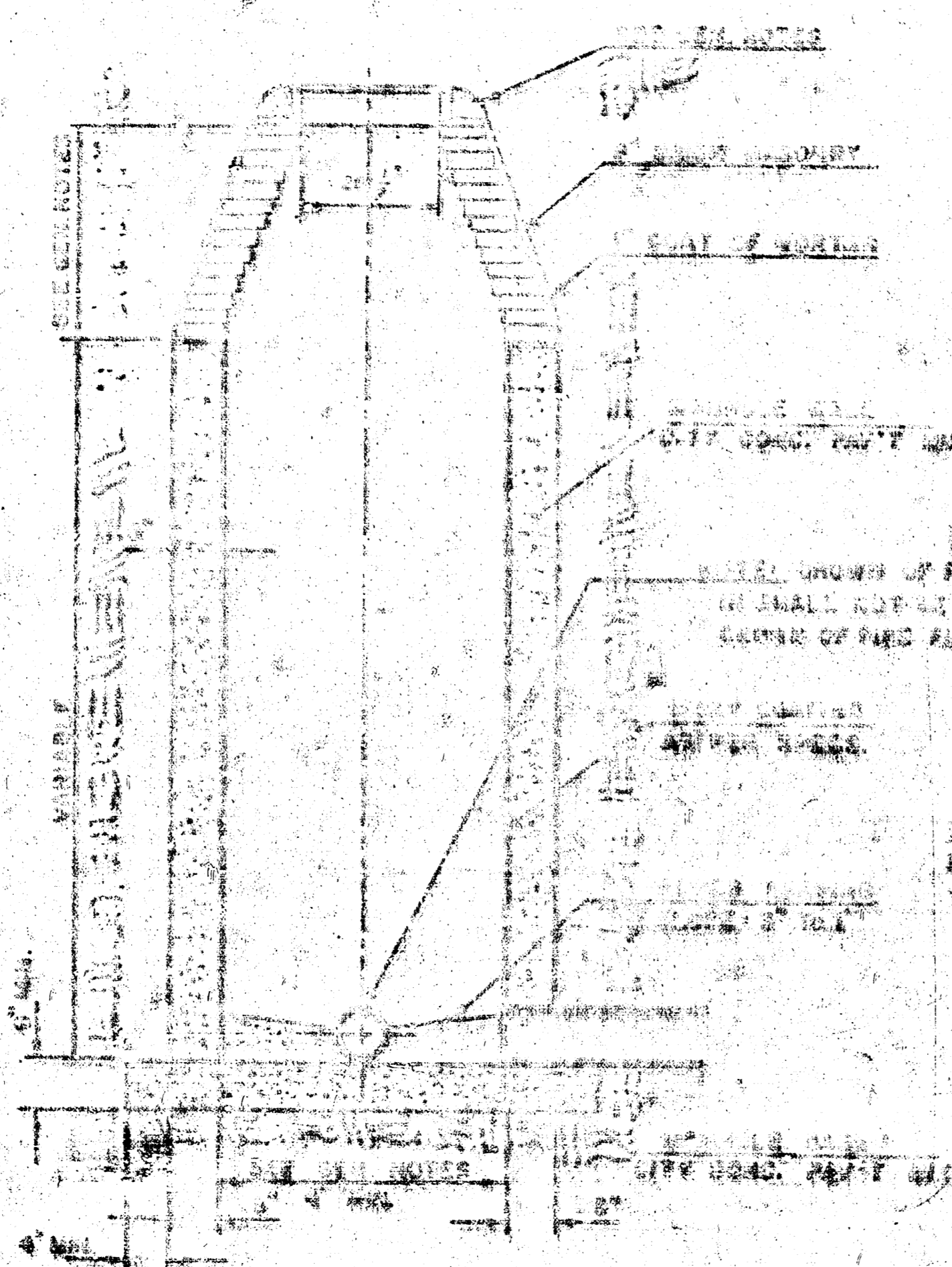
ADOPTED AS STANDARD DESIGN
BY

CITY OF WICHITA, KANSAS

TYPE "D" MANHOLE

TYPE "D" INSIDE DROP MANHOLE

TYPE "D" OUTSIDE DROP MANHOLE



- GENERAL NOTES**
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 3 BAGS OF PORTLAND CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE MASONRY CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD RATING SPECIFICATIONS USING CITY CONCRETE PAYMENT MIX WITHOUT AIR ENTRAINING ADJUSTMENT. MORTAR SHALL BE PLACED AROUND THE MANHOLE AND AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS.
 2. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WALL WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY AN APPROVED EPOXY COATING. TYPE "D" MANHOLES MAY BE BIDD ON PIPE SIZES 8" TO 18" WHEN THE MANHOLE DEPTH EXCEEDS THE REQUIRED CURREL HEIGHT BY 1' PLUS THE OUTSIDE DIAMETER OF THE LARGEST PIPE IN THE MANHOLE.
 3. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE A DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE THE PIPE SIZES ARE 24" OR LARGER SHALL HAVE A DIAMETER OF 5". THE HEIGHT OF THE CURRELS ON 4" DIAMETER MANHOLES SHALL BE 6". MANHOLES HAVING A DIAMETER OF 5" SHALL HAVE CURRELS 6" IN HEIGHT. COMPLETED MANHOLES SHALL BE WITHOUT LEAKS AND WATER TIGHT.
 4. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
 5. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE FOR INSIDE AND OUTSIDE DROP MANHOLES. THE UPPER INLET PIPE SHALL BE GROUTED INTO THIS OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THIS COMPLETELY SUBSTITUTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. THE INTERIOR PLASTIC LINING SHALL BE SEALED AROUND THE INLET PIPE OPENING IN SUCH A MANNER THAT WILL PERPETUALLY MAINTAIN THE INTEGRITY OF THE PROTECTIVE PLASTIC LINER.
 6. THE FLOORS OF ALL MANHOLES SHALL BE SHIPPED WITH FLOW CHANNELS SUCH THAT THE MANHOLE WILL BE SELF-DRAINING AND FREE OF AREAS WHERE SOLIDS COULD BE ACCUMULATED TO STOP FLOW THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE

1. OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM WALLS 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 DRAWINGS. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES PASS THROUGH MANHOLES SHALL HAVE THE TOP HALF ROUNDED TO NEAR 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.
2. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CROWDED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CIRCLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CIRCLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CIRCLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
3. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS IMPLICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
4. THE VERTICAL FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 6'. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
5. STANDARD MANHOLES TYPE "D" AND STANDARD INSIDE DROP MANHOLES TYPE "D" SHALL BE BIDD AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED SHALL BE BIDD AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 6" UNLESS INDICATED OTHERWISE.

NOTE: EPOXY COATING ON INTERIOR CONCRETE SURFACES MAY BE DELETED WHEN TYPE "D" MANHOLES ARE CONSTRUCTED ON SEWERS WITH DIAMETERS SMALLER THAN 10".

MANHOLE FRAME AND COVER DETAIL

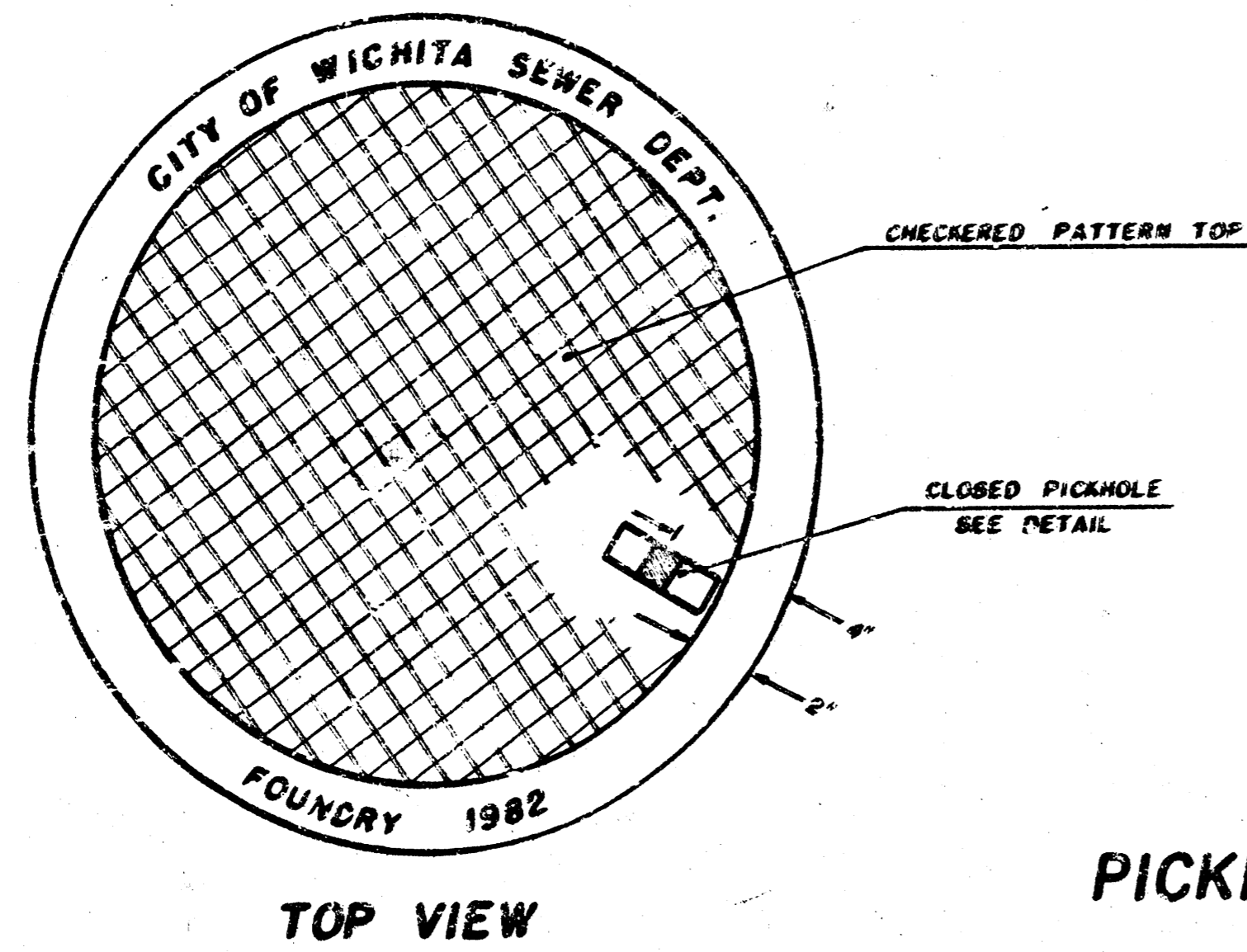
ADOPTED AS STANDARD DESIGN

BY

City of Wichita, Kansas

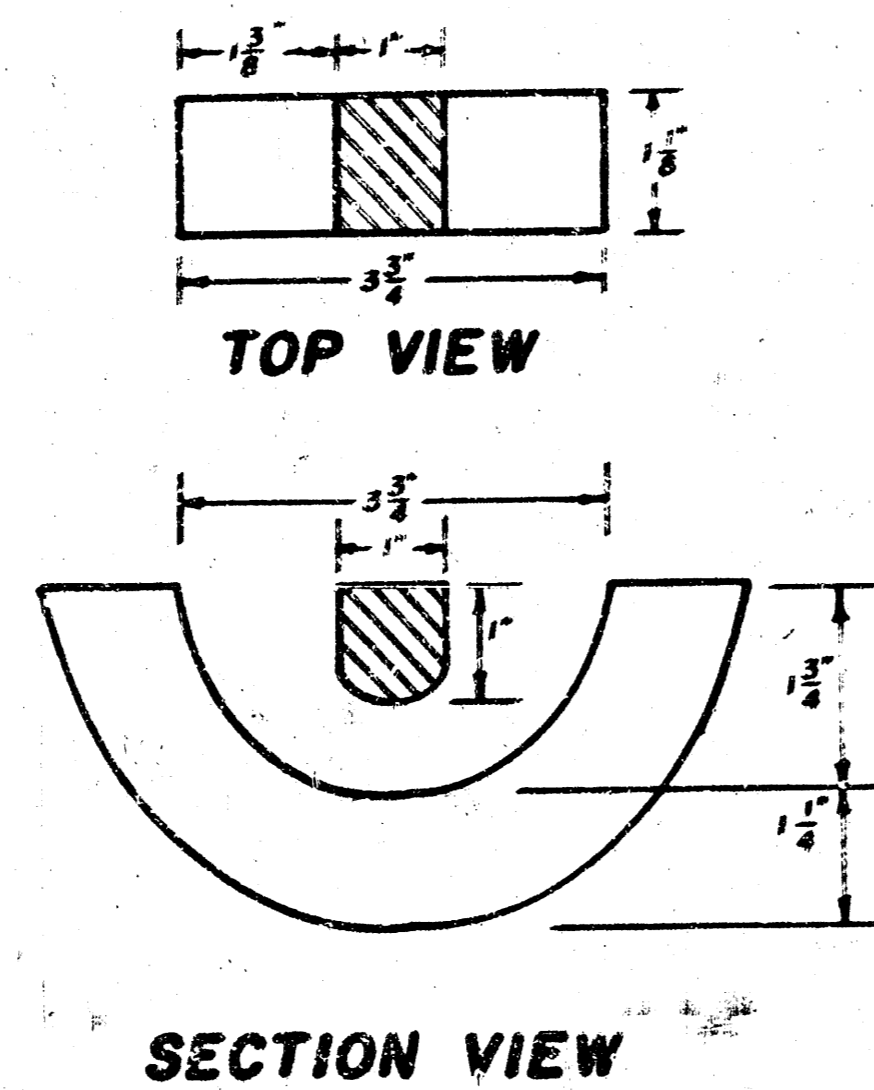
MANHOLE COVER

Weight: 180 Lbs.



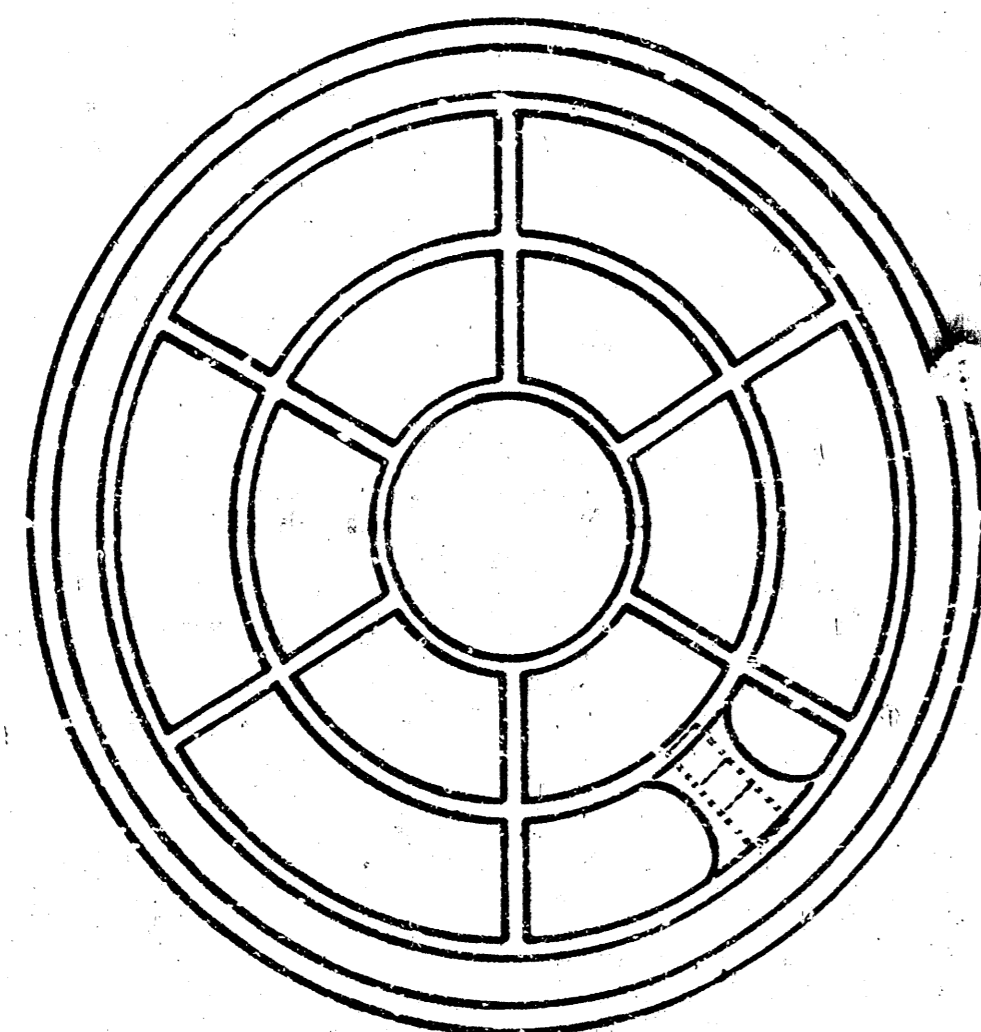
TOP VIEW

PICKHOLE DETAIL

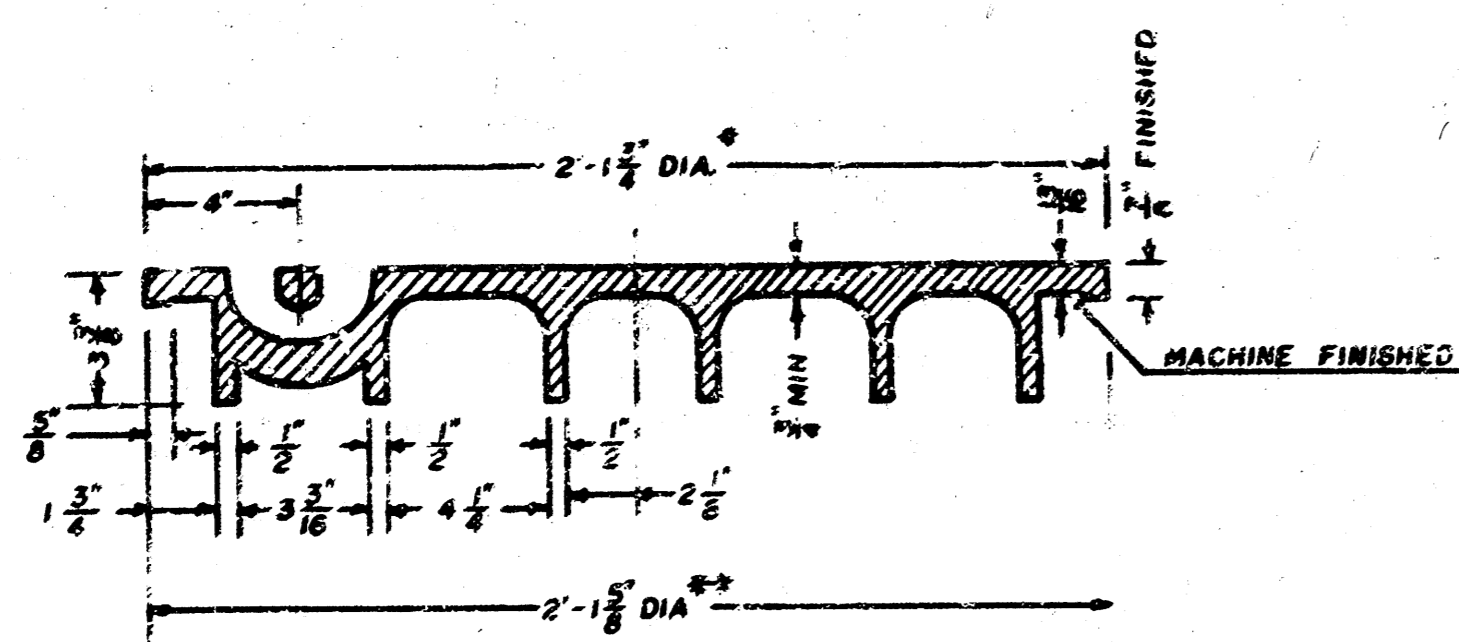


TOP VIEW

SECTION VIEW



BOTTOM VIEW

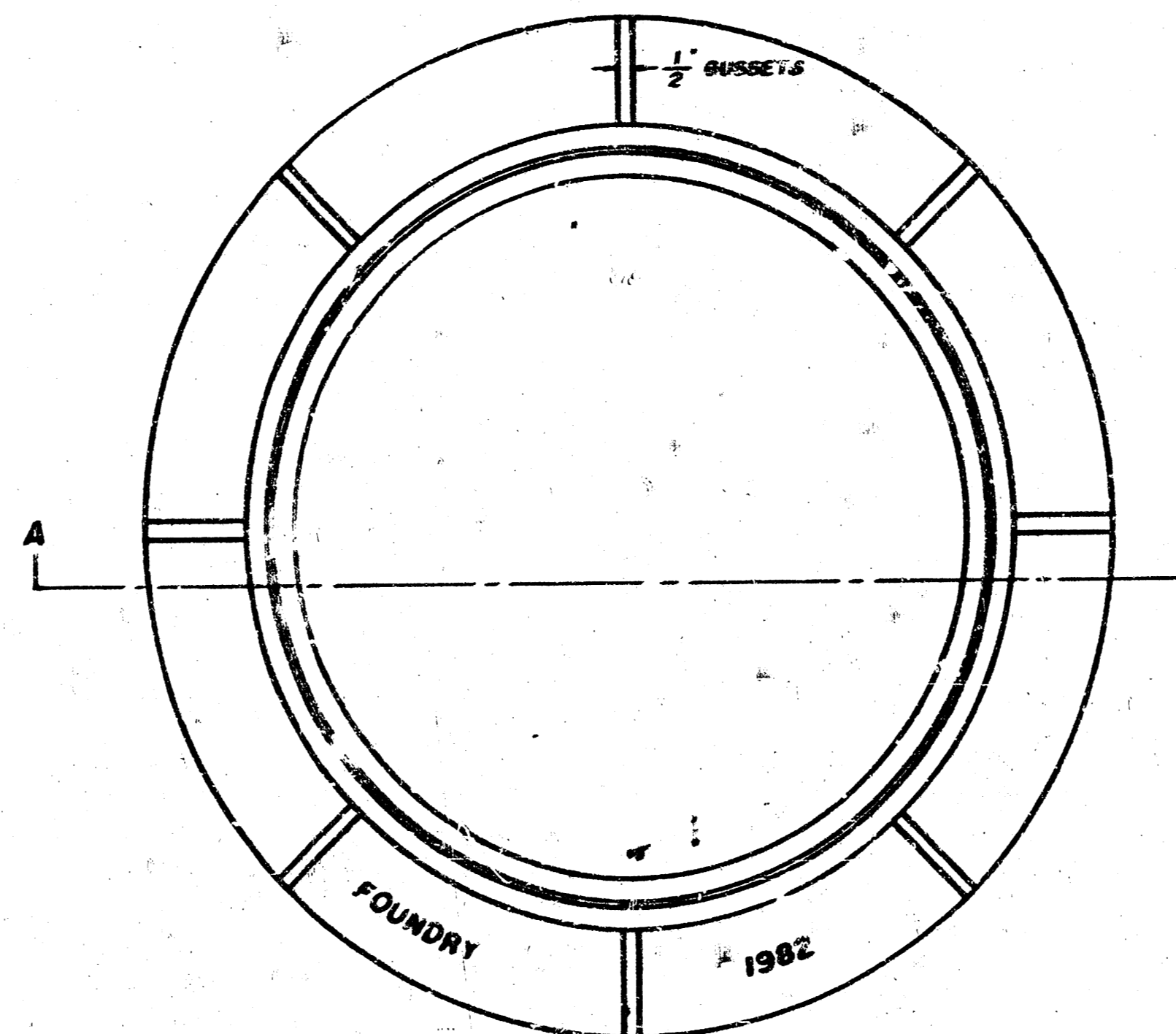


SECTION VIEW

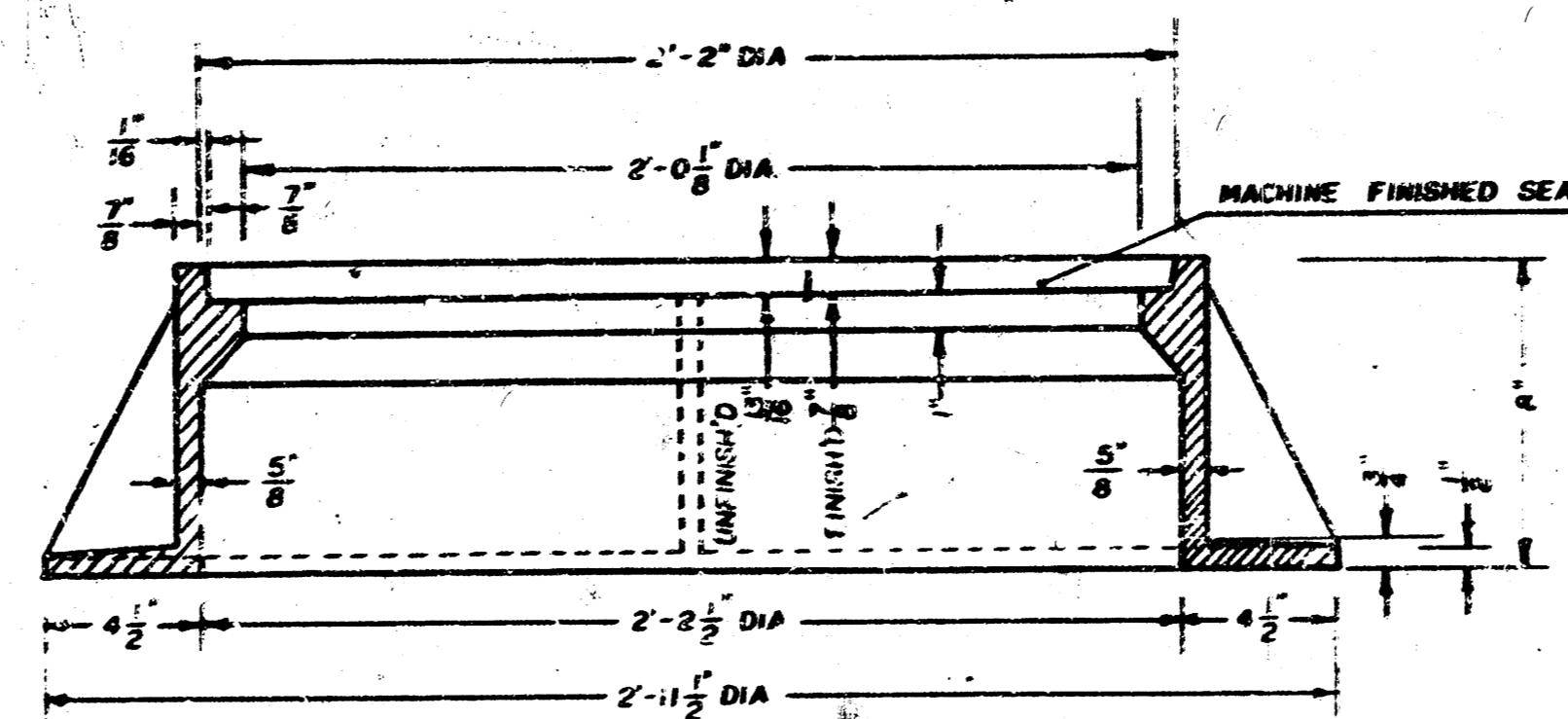
* OUTSIDE DIA. TOP OF COVER
 ** OUTSIDE DIA. BOTTOM OF COVER

MANHOLE FRAME

Weight: 240 Lbs.



TOP VIEW



SECTION A-A

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 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.
3. 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" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
4. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1" IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

VERTICAL RISER DETAILS

ADOPTED AS STANDARD DESIGN

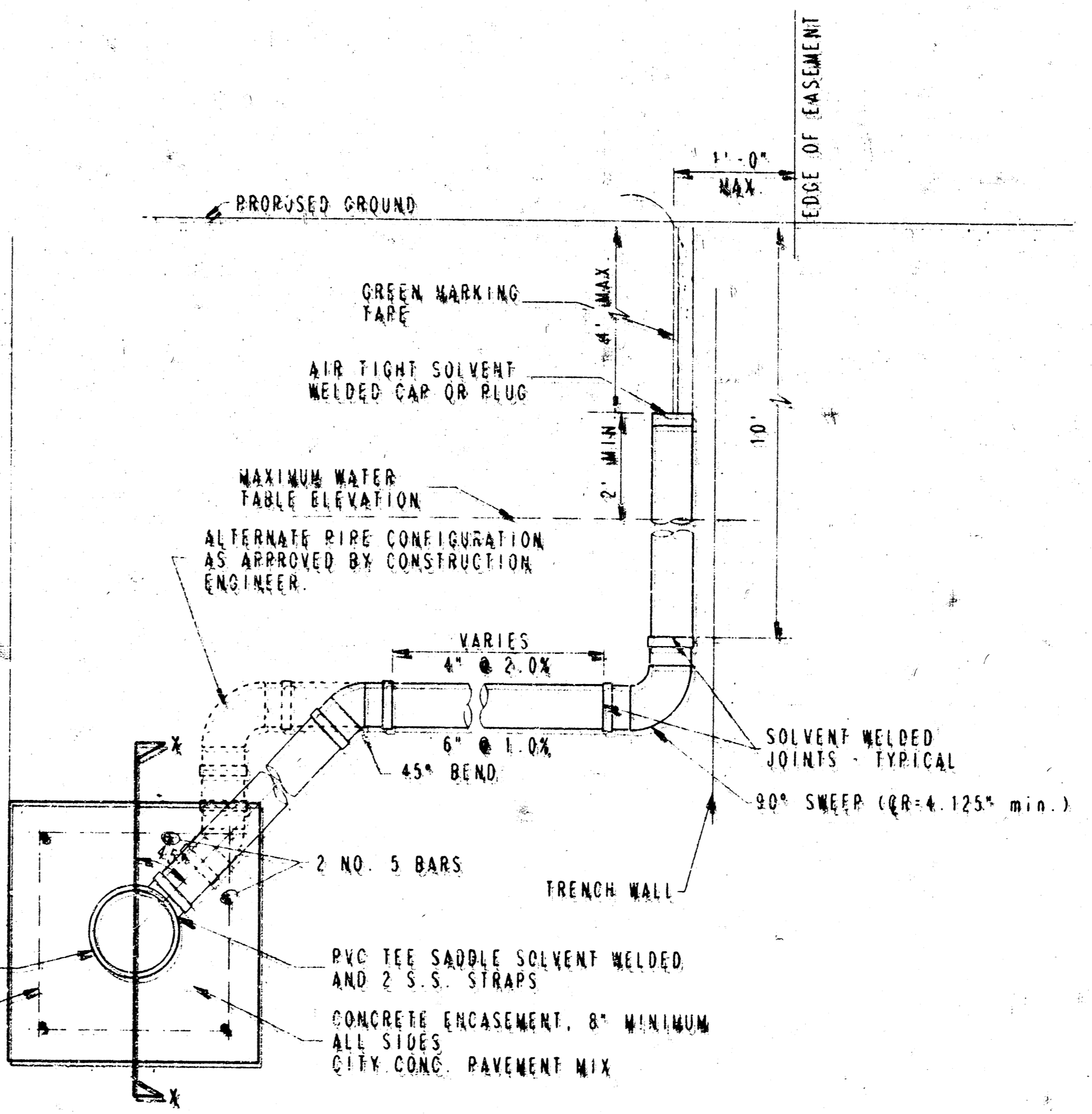
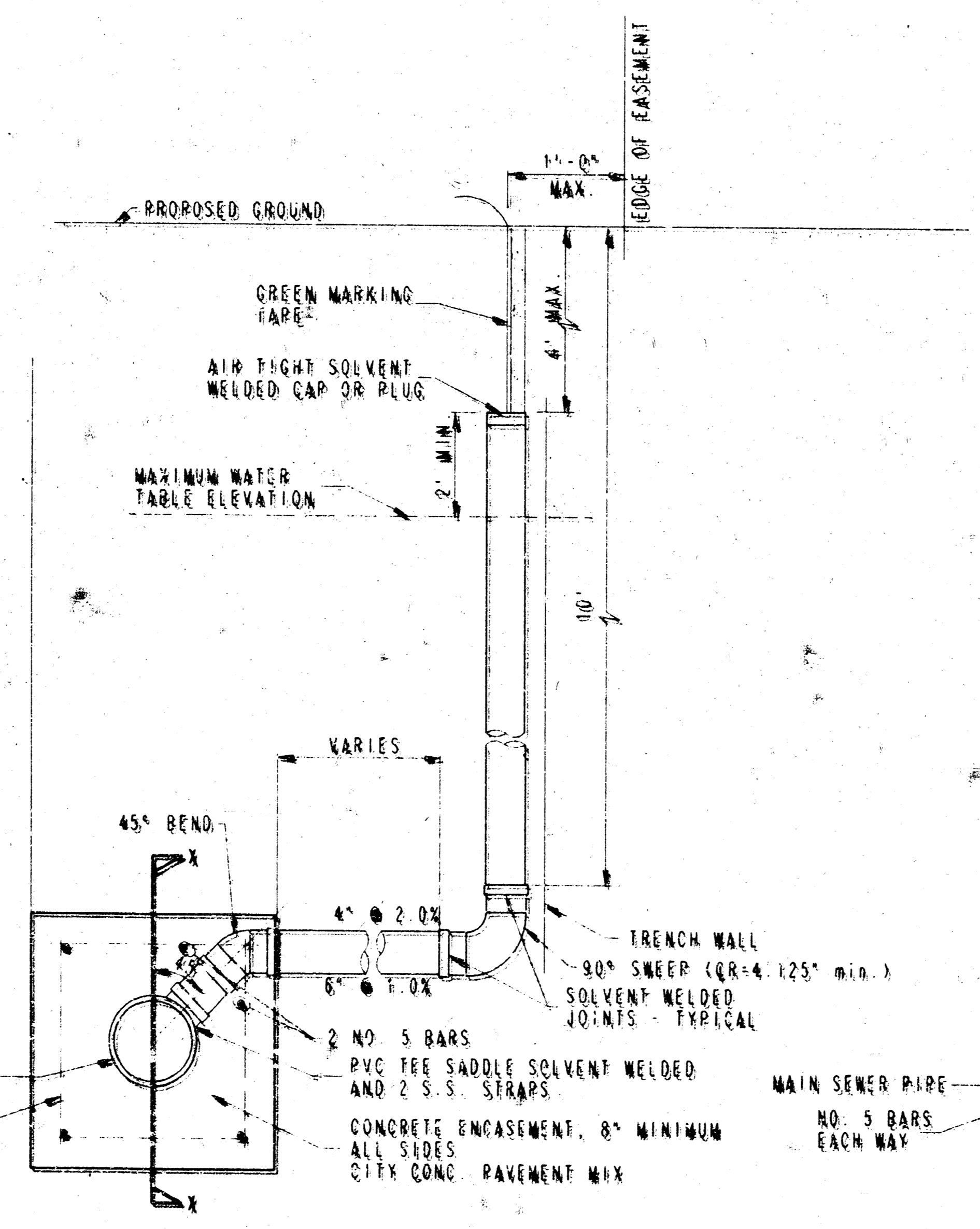
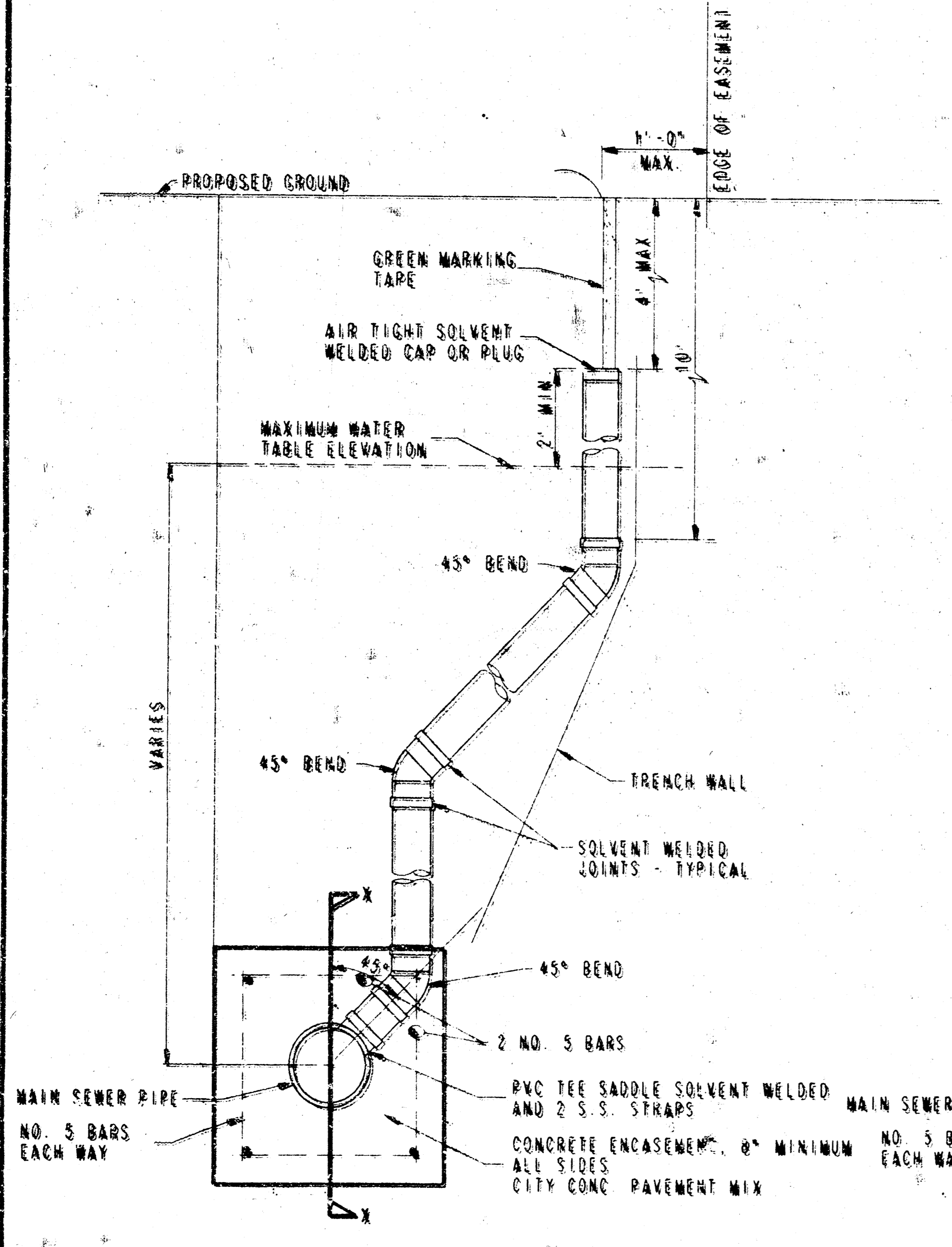
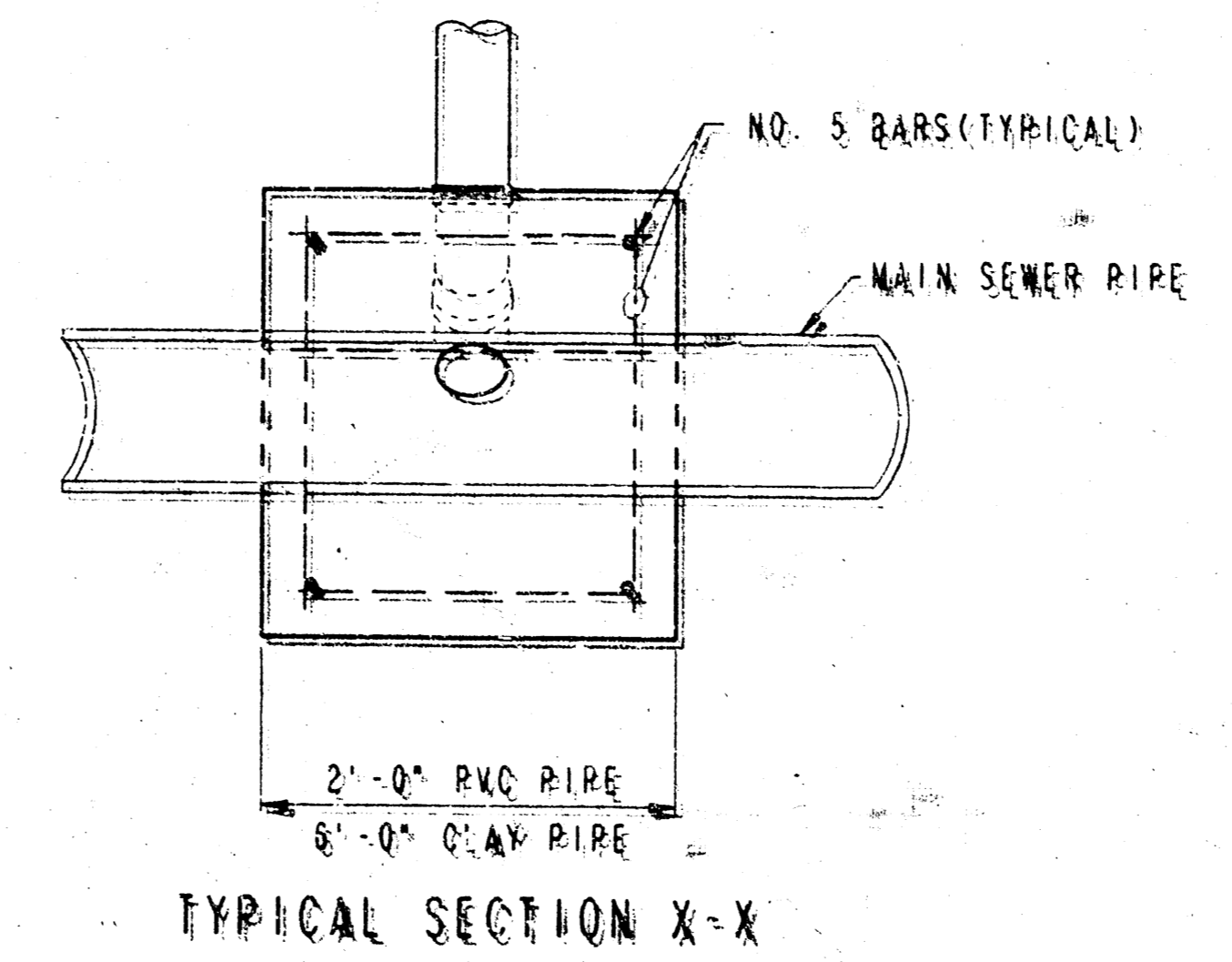
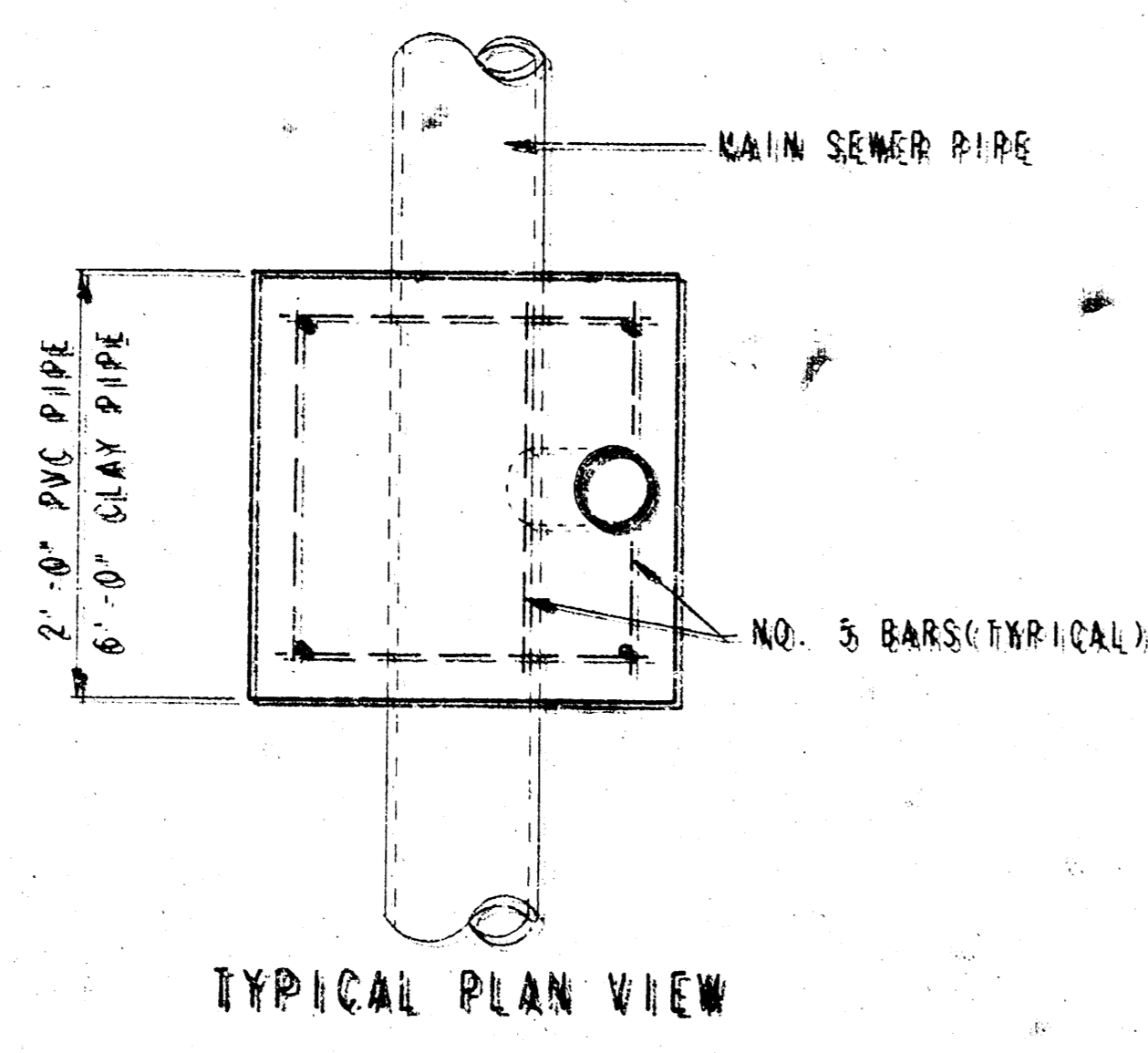
BY

CITY OF NICHITA, KANSAS

OCTOBER 1992

GENERAL NOTES

1. **RISERS** - Risers shall be installed to serve all lots or tracts where the sanitary sewer main is below the water table. Risers shall not 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.
 2. **PIPE STUBS** - Pipe stubs shall be installed in manholes where connections as determined by the Construction Engineer. The vertical distance between the flange of the manhole pipe stub and the flange of the sanitary sewer main out of the manhole shall not exceed 2 feet. Risers shall be utilized at 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.
 3. **SIZING** - Pipe stubs and risers shall be sized according to the plans and riser table where 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.
 4. **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.
 5. **REINFORCED CONCRETE ENCASUREMENT** - 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 or stop at 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 drawing. The concrete shall conform to the City Standard Specifications for concrete pavement.
 6. **BEDDING** - Bedding around the sanitary sewer riser shall be compacted Pipe Bedding Type 1 or 2. The bedding shall be placed and compacted to 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.
 7. **SUPPORT OF RISERS** - Sanitary sewer riser pipe shall be supported during trench backfill. The riser pipe shall be held in a vertical position at all times until trench backfill and compaction has been completed. Contractor's methods for supporting and backfilling the riser pipe shall be approved by the Construction Engineer.
 8. **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. Cap or plug which do not provide an airtight seal will not be accepted.
 9. **TOP OF THE RISER PIPE** - The top elevation of the sanitary sewer riser pipe shall be built per plan elevations, 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.
 10. **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 one 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.
 11. **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 direction and distance from the manhole, riser size, and elevation of the top of the riser.
 12. **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.
 13. **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 as required and listed for "Sanitary Sewer Risers".



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

PLAN CHECKED BY DATE