

LATERAL 81, MAIN 1, S.W.I.

GENERAL NOTES

1. The contractor shall coordinate with each individual property owner within the sanitary sewer improvement district to ascertain proposed wye branch location.
2. The contractor shall record the locations and flow line elevations of all wye branches that he installs. Such records shall be provided to the City of Wichita upon completion of the project.
3. 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.
4. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The plan locations shown are not guaranteed. Additional existing utilities may also be encountered. The contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
5. 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.
6. 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 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 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 archaeological investigations unless buried in a previously approved borrow location.
7. Contractor will be required to provide as minimum advance notice of forty eight (48) hours to utility companies prior to starting any excavation as follows:

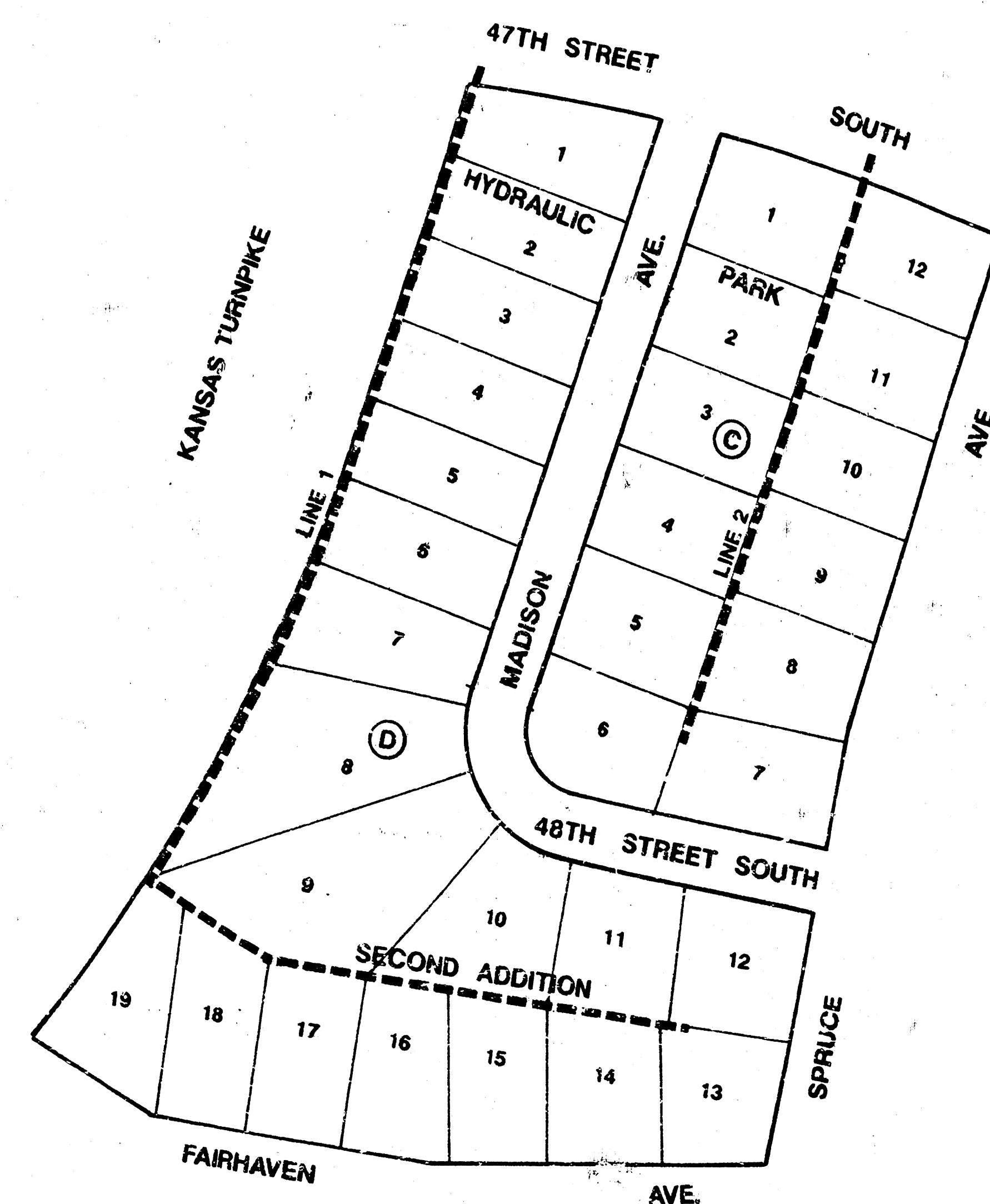
Kansas One Call	687-2470
Southwestern Bell Telephone Company	1-316-571-2611
Cablevision	262-4270 or 263-2061
KPL Gas Service	263-7511
Kansas Gas & Electric	264-1141
City of Wichita Water Department	268-4908
City of Wichita Sewer Department	268-4071
Arkla Gas Company	942-8350 or 263-8161
8. The contractor is solely responsible to notify and to make any necessary arrangements with utility companies for any needed adjustments of utility facilities prior to start of work.
9. Contractor will be required to excavate existing building sewers as required by Engineer to verify the depth of proposed sewer will allow connections in accordance with City code.
10. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE OF THE WORK TO BE COMPLETED.
11. ANY FENCE REMOVED FOR CONSTRUCTION SHALL BE REPAIRED IN A CONDITION EQUAL TO, OR BETTER THAN ORIGINAL, AT NO ADDITIONAL COST TO THE OWNER.

NOTE: RISERS SHALL BE INSTALLED TO SERVE INDIVIDUAL PROPERTIES WHERE SEWER DEPTH EXCEEDS SIX FEET AND/OR WHEN PROPOSED SEWER IS IN GROUND WATER. INSTALLATION OF RISERS BETWEEN DEPTHS OF 12 FEET TO 6 FEET SHALL BE AT THE INDIVIDUAL PROPERTY OWNERS OPTION. LOCATION OF ALL RISERS SHALL BE AS APPROVED BY EACH INDIVIDUAL PROPERTY OWNER. TOPS OF RISER PIPES SHALL BE INSTALLED TO AN ELEVATION OF 4 FEET BELOW THE EXISTING GROUND ELEVATION UNLESS APPROVED OTHERWISE BY THE INVOLVED PROPERTY OWNER.

PROJECT NO. 468-82129

INDEX NO. 740795

M.E. LINDEBAK CITY ENGINEER



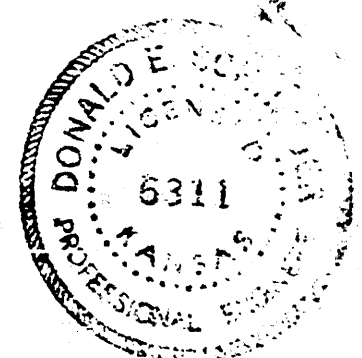
BENEFIT DISTRICT

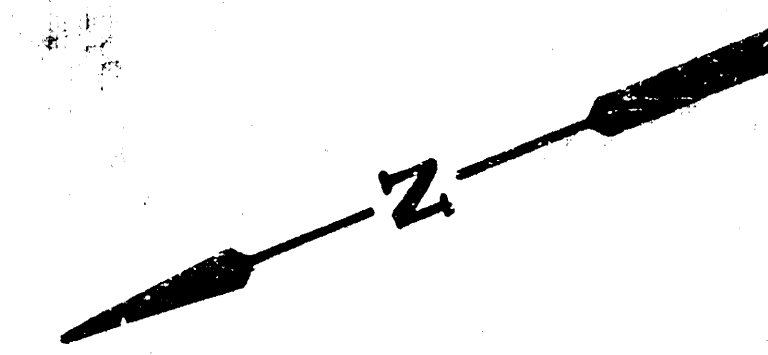
CITY OF WICHITA, KANSAS

INDEX

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1.	TITLE SHEET
2 & 3	LINE 1
4.	LINE 2
5.	VERTICAL RISER DETAIL
6.	STANDARD M.H. TYPE P
7.	STANDARD M.H. TYPE C
8.	STANDARD M.H. TYPE D
9.	TYPE P & C SHALLOW M.H.
10.	SPECIAL SHALLOW TYPE A

Booked 6-21-93
AS PER PLAN
JKB

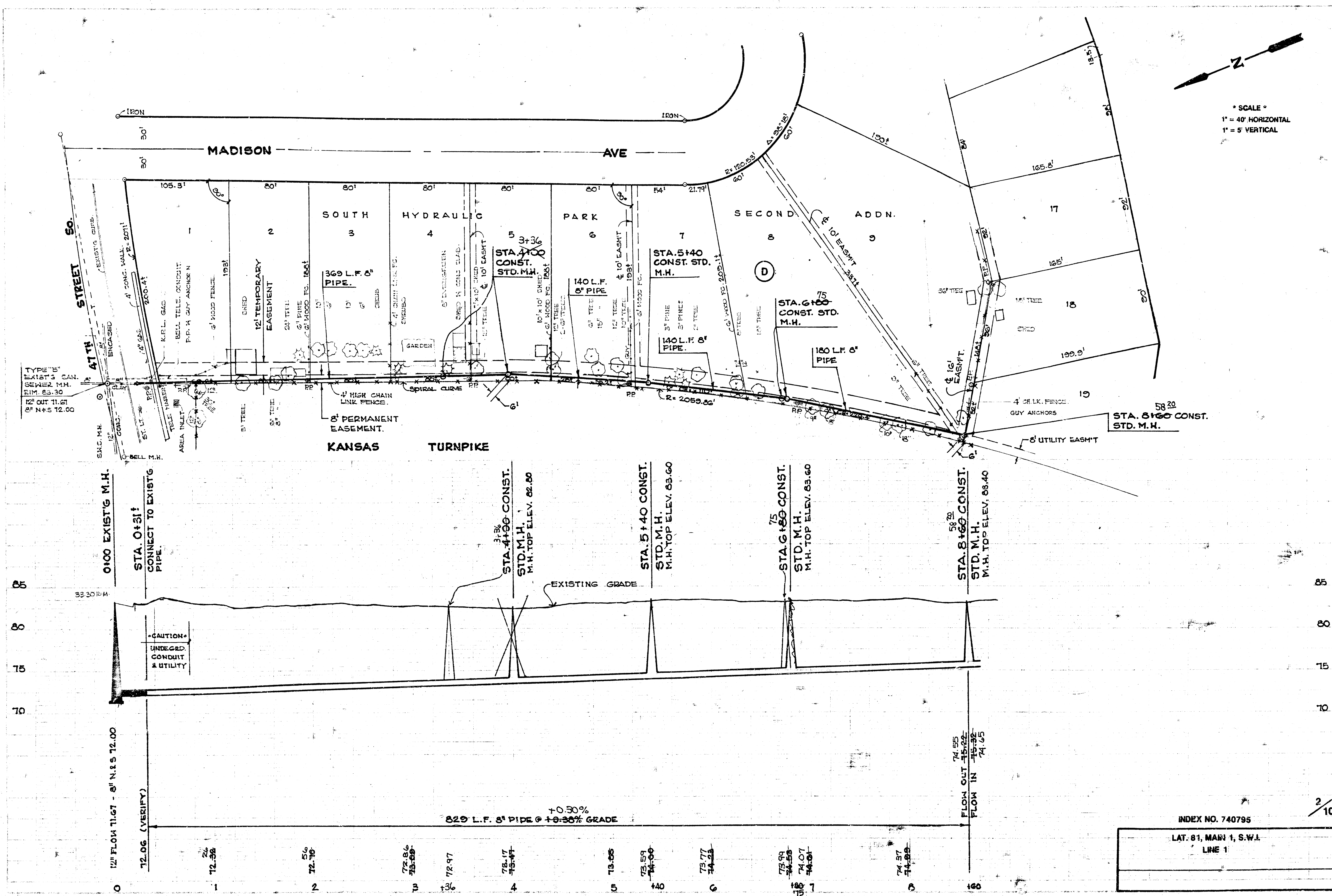




* SCALE *

1" = 40' HORIZONTAL

1" = 5' VERTICAL



INDEX NO. 740795

LAT. 81, MAIN 1, S.W.1

LINE 1

VERTICAL RISER DETAIL

ADOPTED AS STANDARD DESIGN

BY

CITY OF WICHITA, KANSAS

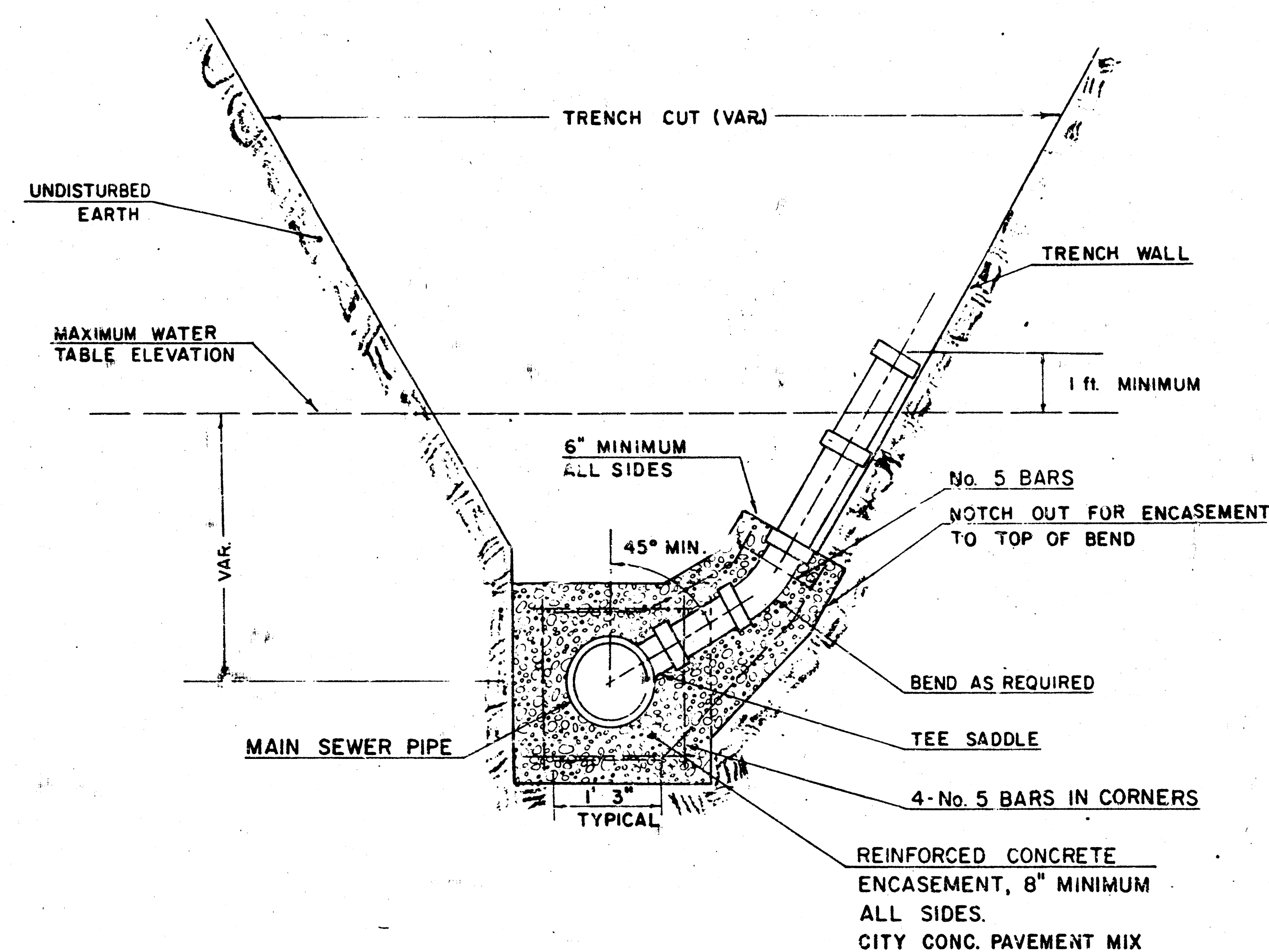
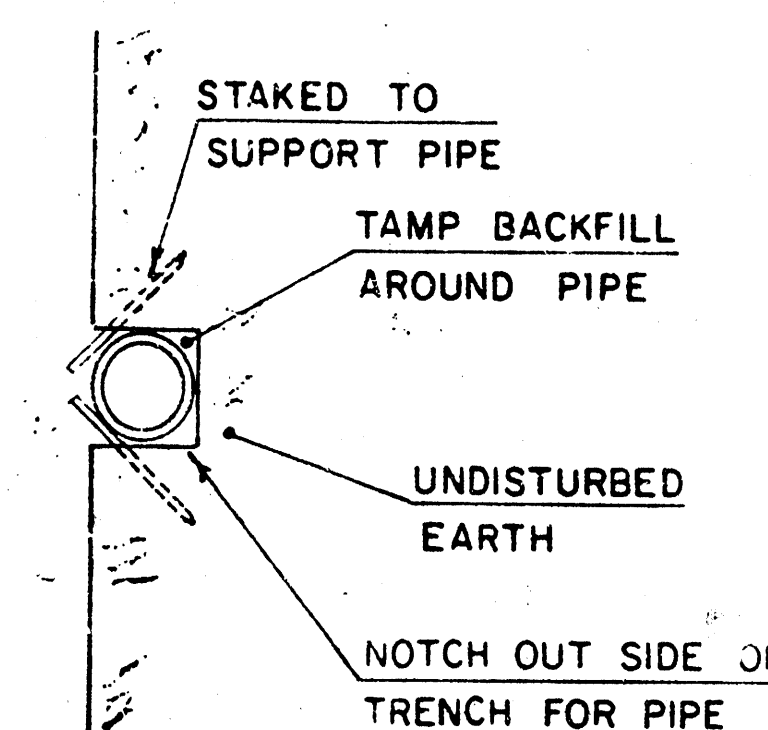
GENERAL NOTE

RISERS SHALL BE INSTALLED TO SERVE ALL LOTS OR TRACTS WHEN THE MAIN SEWER LINE IS BELOW THE WATER TABLE. RISERS SHALL ALSO BE INSTALLED TO SERVE ALL LOTS AND TRACTS WHEN THE MAIN SEWER LINE DEPTH IS SUCH THAT WOULD MAKE THE BUILDING SEWER LINE CONNECTION DIFFICULT. INSTALLATION OF RISERS BECAUSE OF MAIN LINE SEWER DEPTH SHALL BE AS APPROVED BY THE ENGINEER. THE LOCATION OF RISERS TO SERVE DEVELOPED PROPERTY SHALL BE APPROVED BY THE PROPERTY OWNER. PIPE STUBS SHALL BE INSTALLED IN MANHOLES WHERE LOCATIONS OF MANHOLES WILL PROVIDE SATISFACTORY SERVICE CONNECTIONS AS DETERMINED BY THE FIELD ENGINEER. THE VERTICAL DISTANCE BETWEEN THE FLOW LINE OF THE MANHOLE PIPE STUB AND THE FLOW LINE OF THE MAIN SEWER LINE SHALL NOT EXCEED 4 FT. MANHOLE PIPE STUBS SHALL NOT BE SET BELOW AN ELEVATION WHICH WILL PERMIT THE TOP OF THE INSIDE OF THE STUB TO MATCH THE TOP OF THE INSIDE OF THE MAIN SEWER PIPE. PIPE STUBS AND RISERS INSTALLED TO SERVE COMMERCIAL OR INDUSTRIAL PROPERTY SHALL BE 6 INCH. PIPE STUBS AND RISERS INSTALLED TO SERVE RESIDENTIAL PROPERTY MAY BE EITHER 6 INCH OR 4 INCH DEPENDING UPON THE AVAILABLE GRADE AND THE SIZE OF THE LOT AS DETERMINED BY THE FIELD ENGINEER. ENCASUREMENT OF VITRIFIED CLAY MAIN SEWER PIPE SHALL EXTEND TO THE FIRST JOINT IN THE MAIN SEWER CLAY PIPE ON EACH SIDE OF THE RISER INSTALLATION. ENCASUREMENT OF A.B.S., COMPOSITE OR P.V.C. MAIN SEWER PIPE SHALL EXTEND A MINIMUM OF 3 FT. ON BOTH SIDES OF THE CENTERLINE OF THE RISER. FOUR INCH AND SIX INCH RISER PIPE SHALL BE ENCASED WITH CONCRETE TO THE TOP OF THE BEND AS INDICATED IN THE DRAWINGS. FOUR INCH AND SIX INCH CLAY PIPE USED FOR RISERS SHALL BE EXTRA STRENGTH PIPE CONFORMING TO THE REQUIREMENTS OF THE LATEST REVISION OF A.S.T.M. DESIGNATION C700 WITH COMPRESSION JOINTS AS SPECIFIED FOR CLAY PIPE IN THE STANDARD SPECIFICATIONS. FOUR INCH AND SIX INCH A.B.S. OR P.V.C. PIPE SHALL BE PIPE APPROVED FOR USE IN THE CITY BY THE CHIEF PLUMBER AND MECHANICAL INSPECTOR FOR THE CENTRAL INSPECTION DIVISION OF THE DEPARTMENT OF HOUSING AND ECONOMIC DEVELOPMENT. LOCATIONS OF THE ENDS OF THE RISERS SHALL BE MARKED BY FASTENING GREEN COLORED PLASTIC TAPE TO THE END OF THE RISER WHICH SHALL BE EXTENDED TO THE GROUND SURFACE AS THE EXCAVATION IS BACKFILLED SUCH THAT THE COLORED TAPE WILL BE VISIBLE WHEN THE PROJECT IS COMPLETED. SUCH GREEN PLASTIC TAPE SHALL BE 4 MIL POLYETHYLENE FILM WITH A MINIMUM WIDTH OF 3" SPECIALLY MANUFACTURED FOR THE PURPOSE OF IDENTIFICATION OF UNDERGROUND SLEWERS. THE ENDS OF THE RISER PIPE AND MANHOLE STUBS SHALL BE CAPPED OR PLUGGED USING FITTINGS FURNISHED BY THE MANUFACTURER OF THE PIPE. CONTRACTOR'S METHODS FOR SUPPORTING AND BACKFILLING RISER PIPE SHALL BE APPROVED BY THE ENGINEER.

FURNISHING AND INSTALLING RISERS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR:

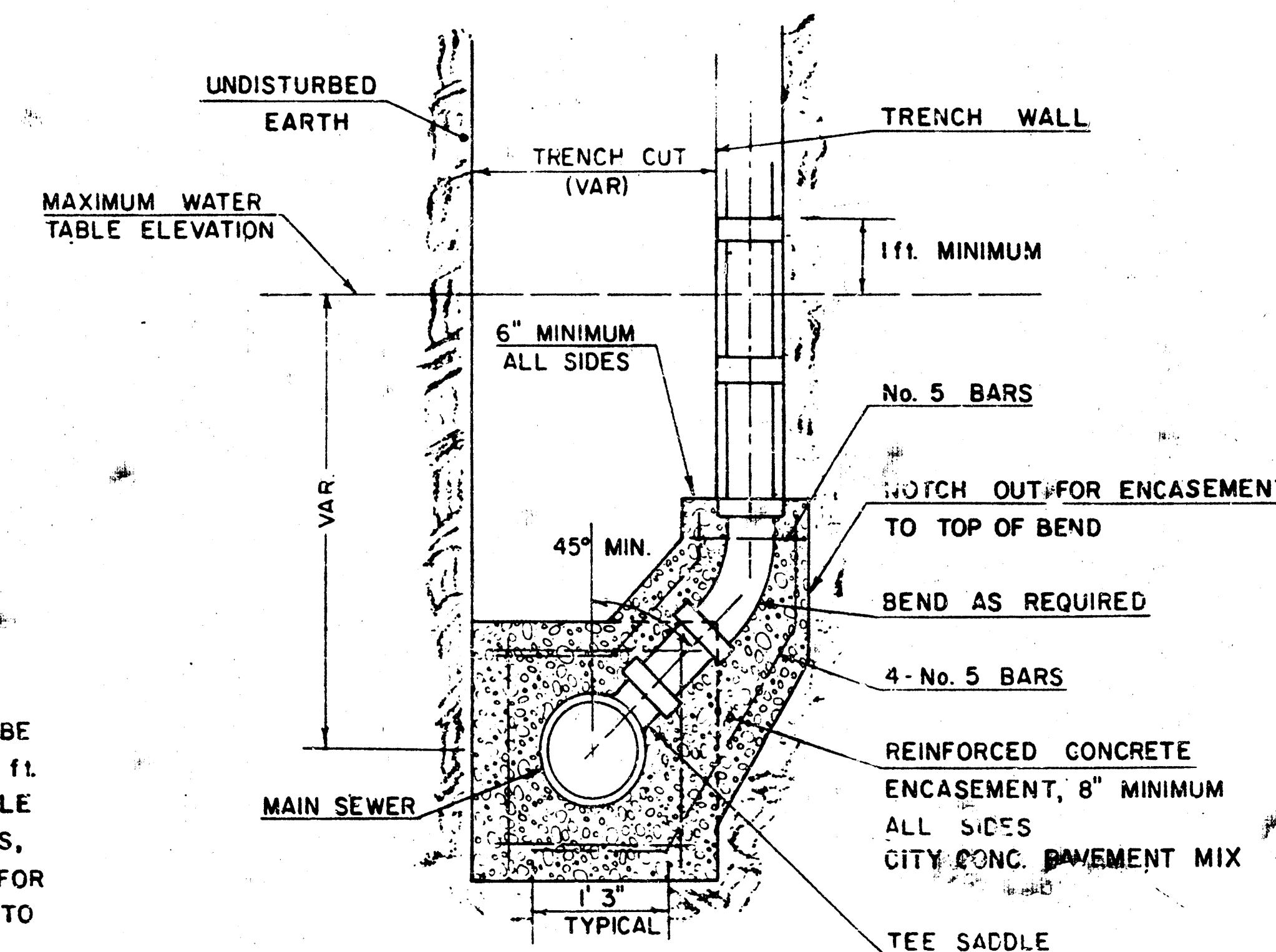
SEWER RISERS (COMPLETE IN PLACE) — WHICH PRICE SHALL INCLUDE ALL COSTS FOR COMPLETION OF THIS ITEM INCLUDING CADDLES, BENDS, CONCRETE, REINFORCING STEEL, CAPS OR PLUGS, AND ALL OTHER NECESSARY MATERIALS OR WORK. CONCRETE ENCASUREMENT OF THE RISER PIPE TO THE TOP OF THE BEND AS SHOWN BY THE DRAWINGS WILL NOT BE PAID FOR DIRECTLY AND THE COST FOR THIS WORK SHALL BE CONSIDERED AS SUBSIDIARY TO THE OTHER ITEMS OF WORK.

THE PROJECT INSPECTOR SHALL REPORT ON INSPECTOR CARDS THE LOCATION OF ALL RISERS CONSTRUCTED AS MEASURED FROM THE NEAREST MANHOLE, THE DIRECTION OF SERVICE, THE ELEVATION OF THE TOP OF THE RISER, AND THE DAY QUANTITIES INVOLVED. THE PROJECT INSPECTOR SHALL ALSO REPORT ON INSPECTOR CARDS THE LOCATION, DIRECTION OF SERVICE, AND SIZE OF ALL STUBS INSTALLED IN MANHOLES.



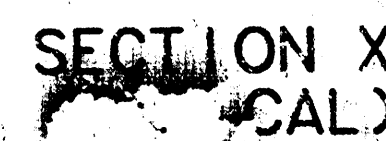
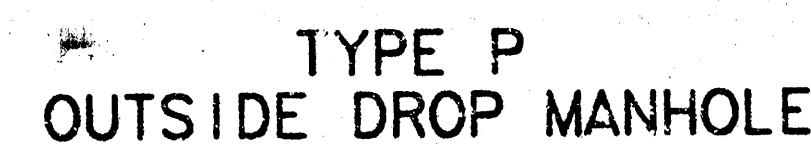
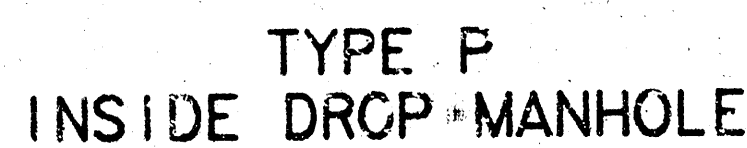
TYPICAL RISER FOR SLOPING TRENCH WALLS

NOTE:
TOP OF 4" OR 6" RISER PIPE TO BE EXTENDED TO AN ELEVATION OF 1 ft. MINIMUM ABOVE THE WATER TABLE ELEVATION, WHEN WATER EXISTS, OR TO AN ELEVATION SUITABLE FOR PROVIDING SERVICE TO THE LOT TO BE SERVED AND THEN PLUGGED.



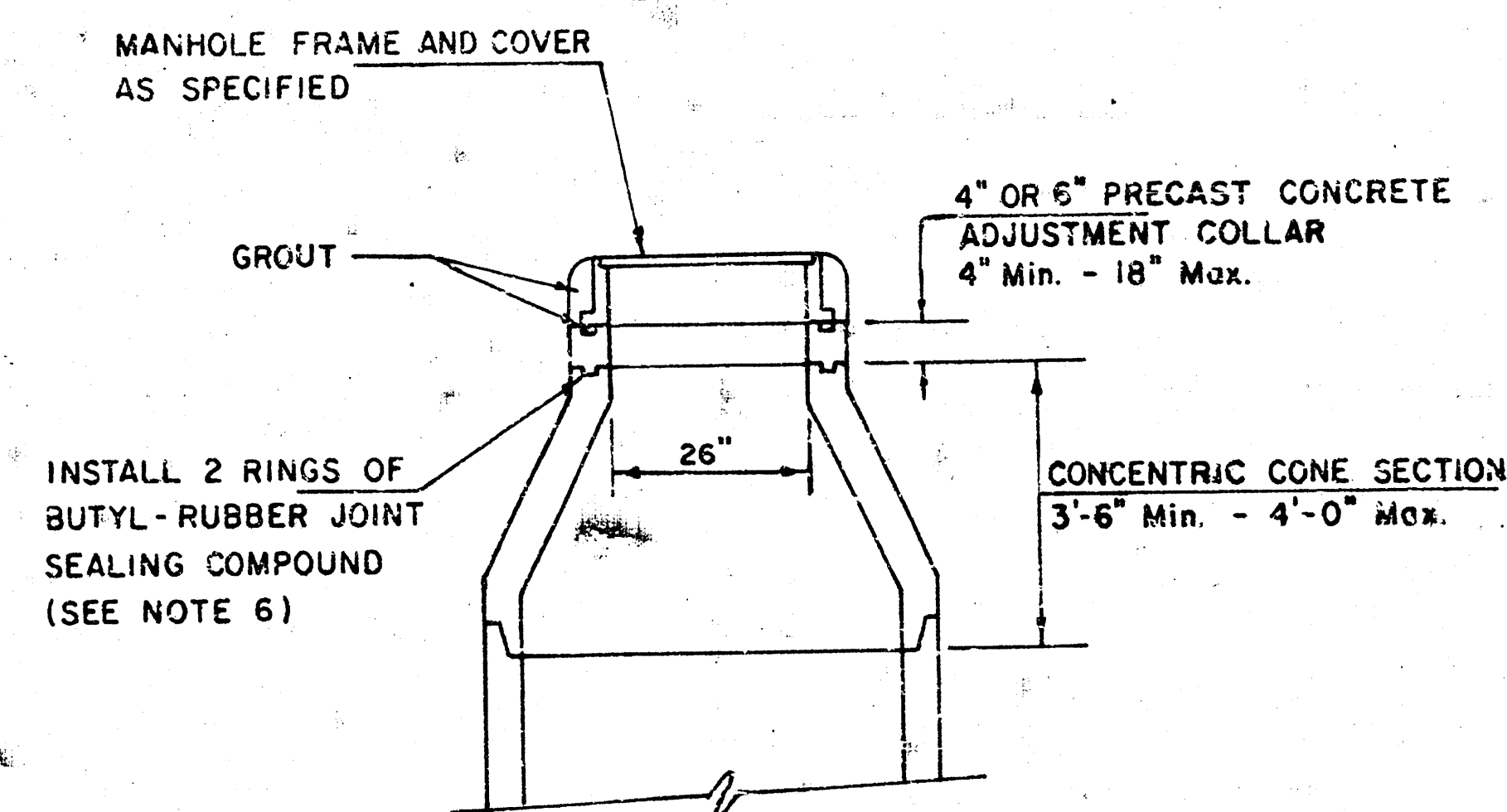
TYPICAL RISER FOR VERTICAL TRENCH WALLS

CITY OF WICHITA



11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" 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 CONSIDERED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.C. AND PRECAST COMPOSITE PIPE. THE PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED SITUATIONOUS COATING. THE CONNECTION SHALL NOT BE DEPENDENT UPON THE EXISTING MANHOLE. THE PIPE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. TWO-FLOWS OF ALL MANHOLES, IF BEING CHANGED FROM ONE-FLOW TO TWO-FLOWS, SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MAIN LINE PIPE, BEING LINED WITH FREE OF OBSTACLES, SHALL BE ABLE TO PASS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL DIRECTIONS TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE FOLLOWING PIPE. THE TOP HALF OF EACH INCEPT PIPE SHOULD BE REMOVED TO FORM FLOW CHANNELS FOR INSIDE DROP MANHOLES. FLOW CHANNELS SHALL BE SHAPED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT TOWARD THE AREAS OUTSIDE THE PIPE TOWARD THE LOW POINT. THE FLOW CHANNELS SHALL BE SHAPED TO ALLOW THE PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO MEET 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 GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE. THE CRADIF SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADIF SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. JOINTS LOCATED WITHIN THE EXCAVATION SHALL BE PLACED AT JOINTS ADJACENT TO MANHOLE. 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 CROWNS 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 8' D AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL OUTSIDE DROP MANHOLES SHALL BE 8' D 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 CONCRETE CORE. THE COLLAR SHALL HAVE 8" WALLS AND VERTICAL JOINTS SHALL BE PLASTERED. THE COLLAR SHALL BE COAT OF PORTLAND WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.



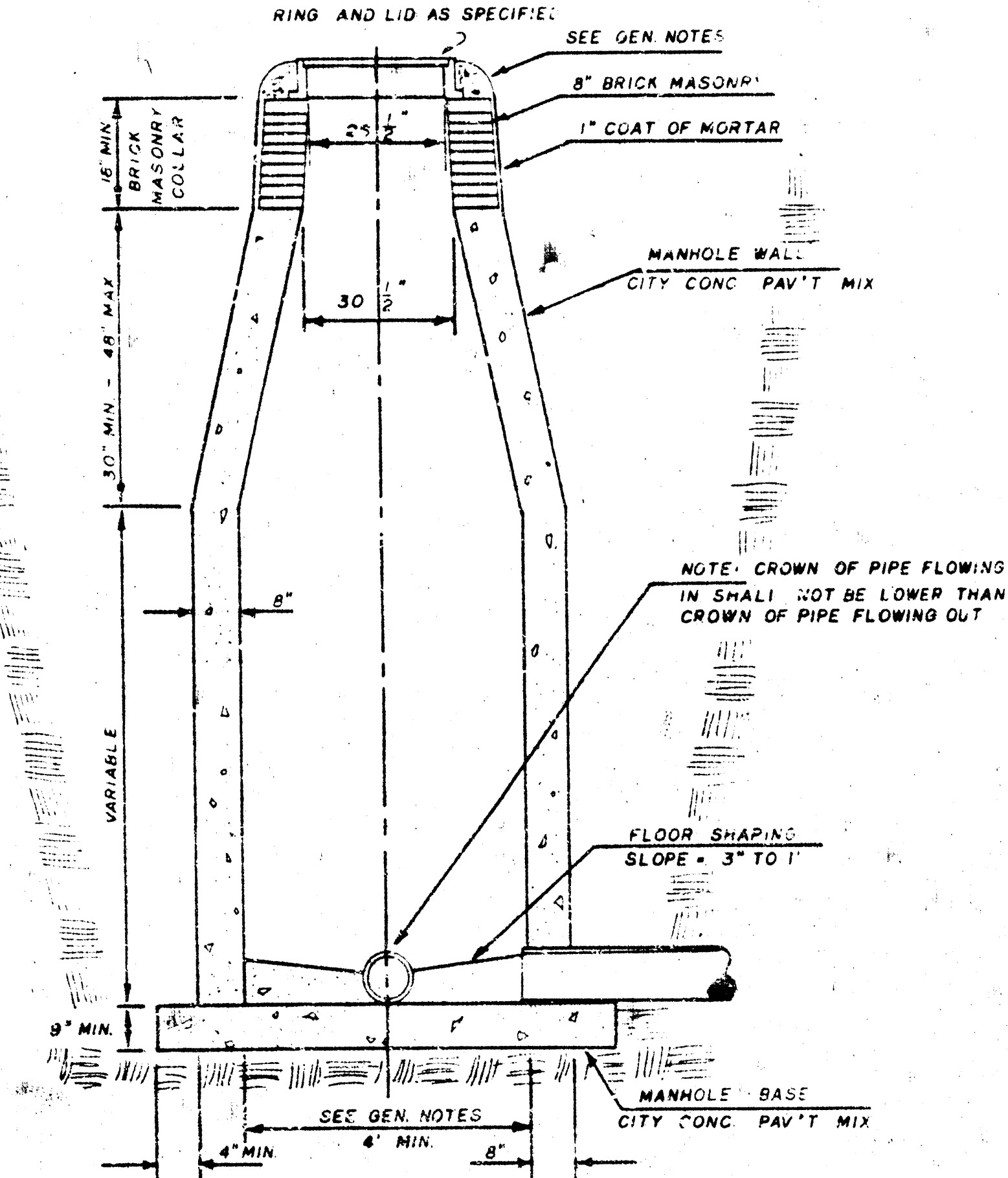
NOTE NO. 16 REVISED JAN. 1991
 Revised 3-21-89
 Revised 8-10-88
 Revised: June 12, 1996

SEWER APPURTENANCES DETAILS

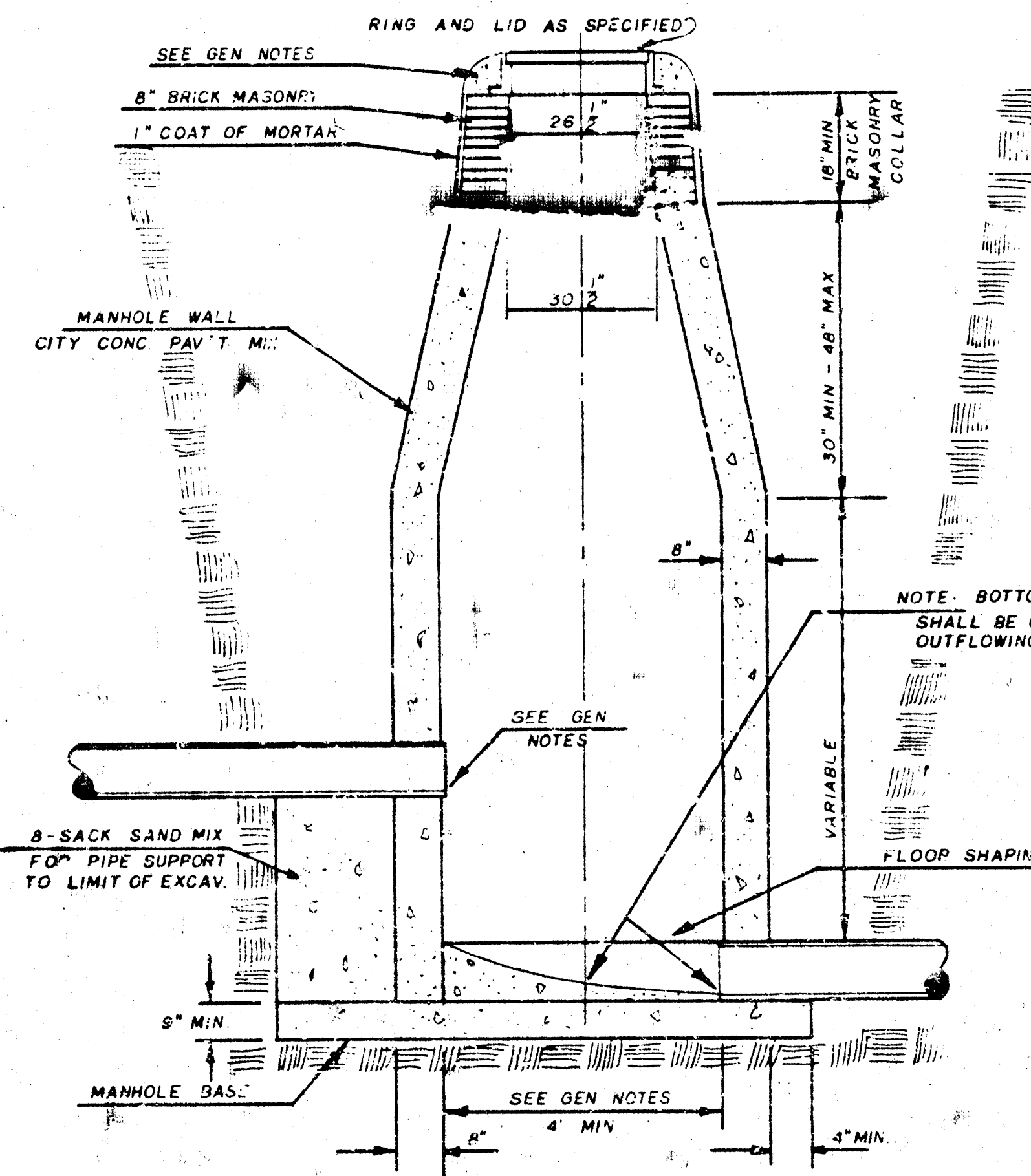
ADOPTED AS STANDARD DESIGN
BY

City of Wichita, Kansas

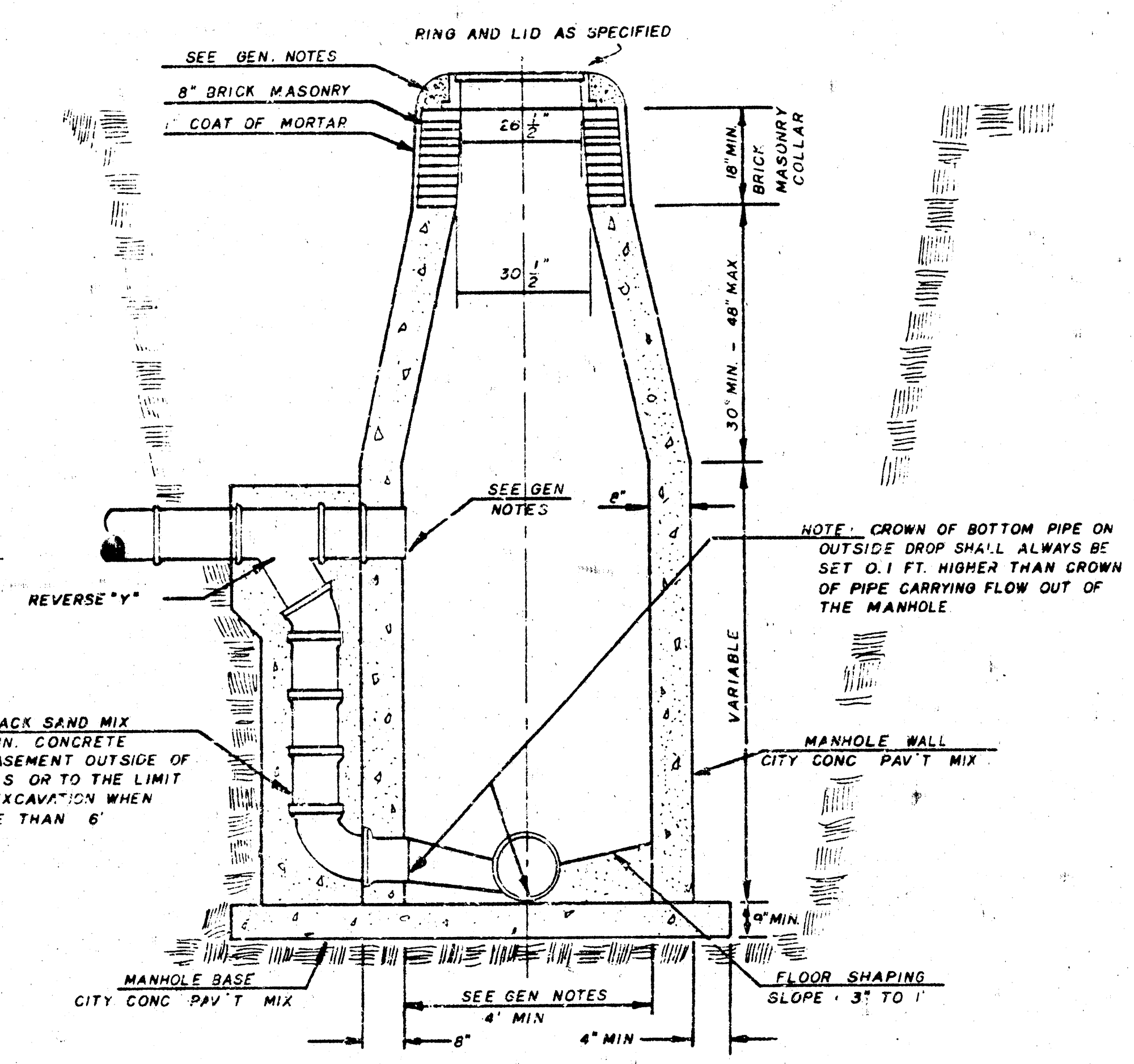
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES

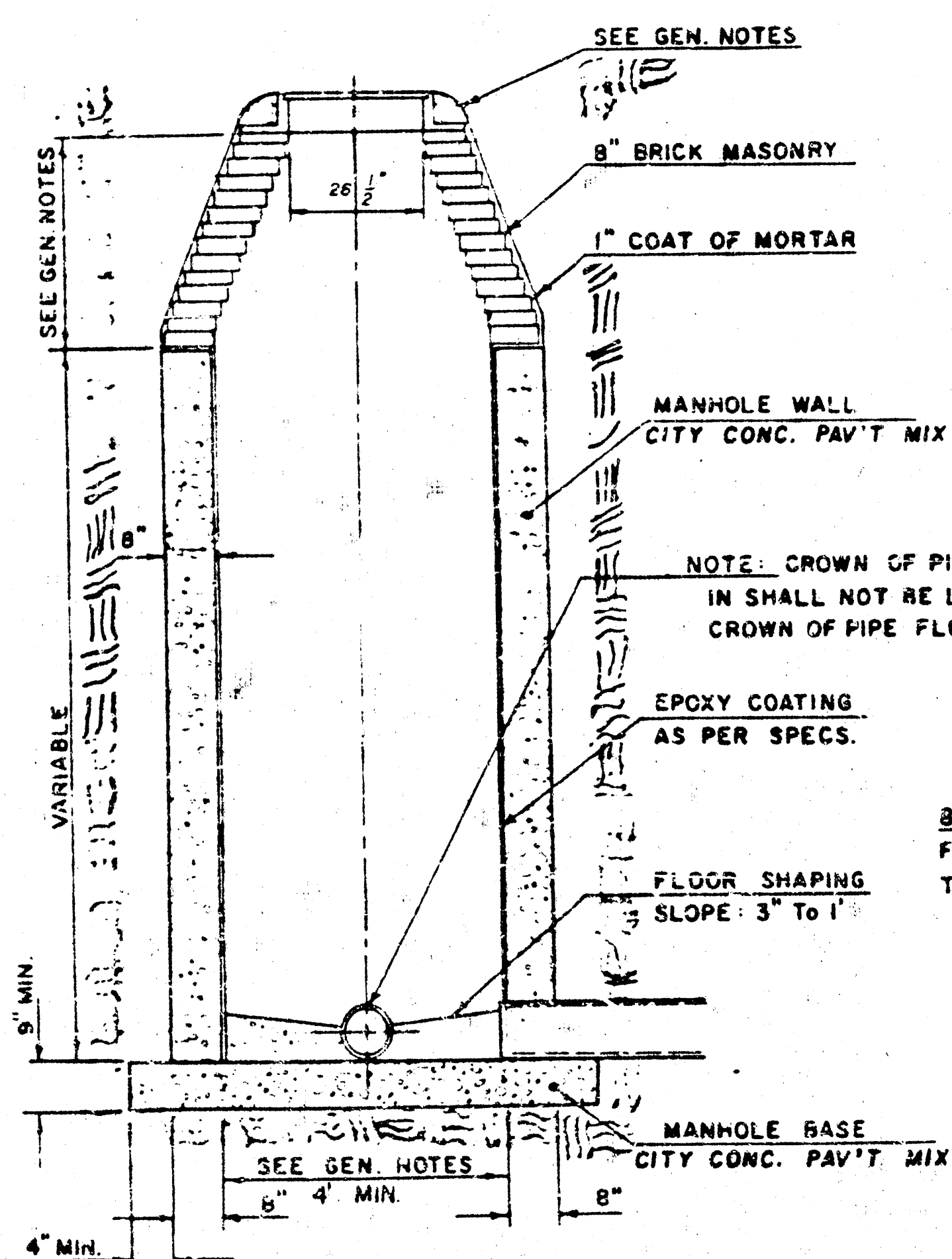
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR 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 NON-SHRINKING GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION SHALL BE SEALED 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 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 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 LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT 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 CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE 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 DRAWING.
- 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.
- 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 OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

SEWER APPURTENANCES DETAILS

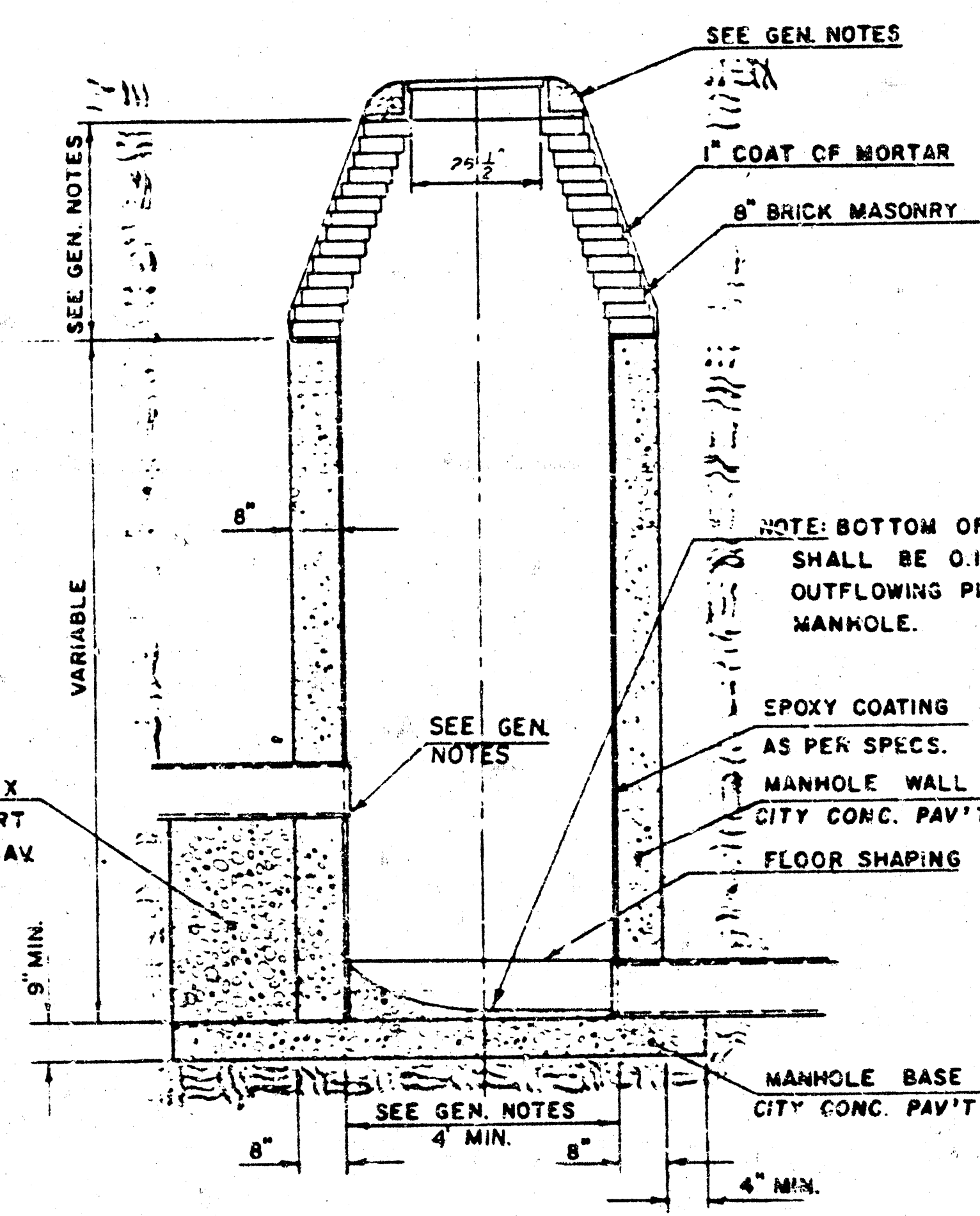
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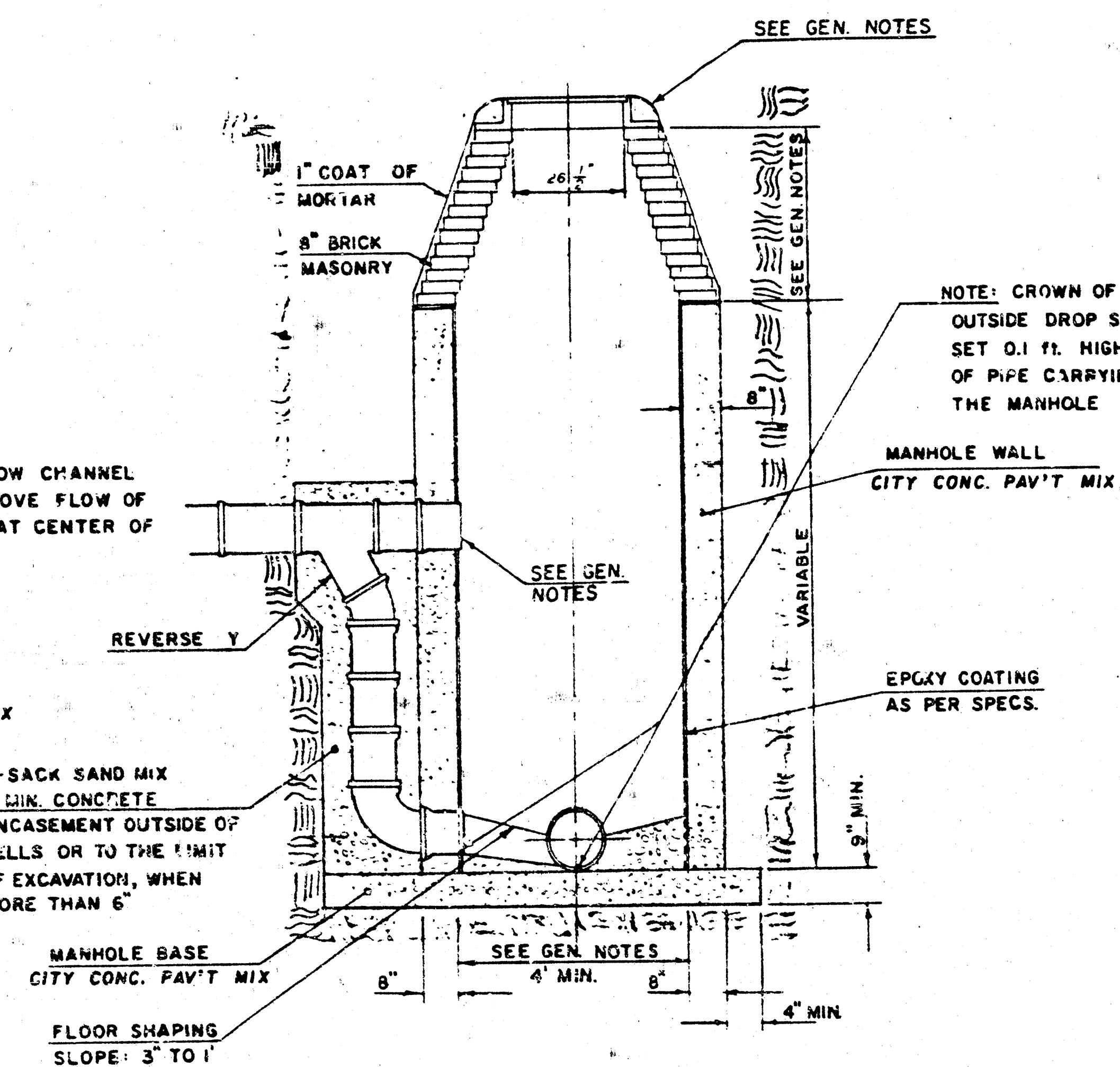
TYPE "D" MANHOLE



TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE



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- 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 USED ON PIPE SIZES 8" TO 36" WHEN THE MANHOLE DEPTH EXCEEDS THE REQUIRED CORBEL HEIGHT BY 1' PLUS THE OUTSIDE DIAMETER OF THE LARGEST PIPE IN THE MANHOLE.
- 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 CORBELS ON 4' DIAMETER MANHOLES SHALL BE 4'. MANHOLES HAVING A DIAMETER OF 5' SHALL HAVE CORBELS 6' IN HEIGHT. 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.
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- 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 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 Laid THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT 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.

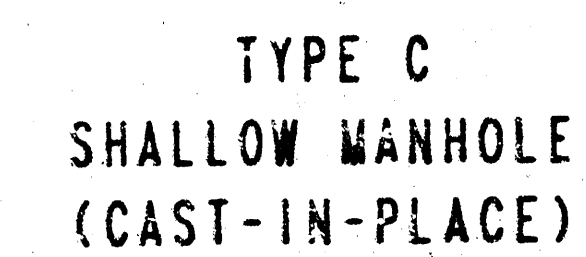
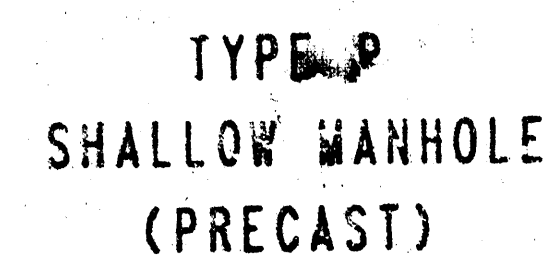
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NOTE: EPOXY COATING ON INTERIOR CONCRETE SURFACES MAY BE DELETED WHEN TYPE "D" MANHOLES ARE CONSTRUCTED ON SEWERS WITH DIAMETERS SMALLER THAN 10".

CITY OF WICHITA

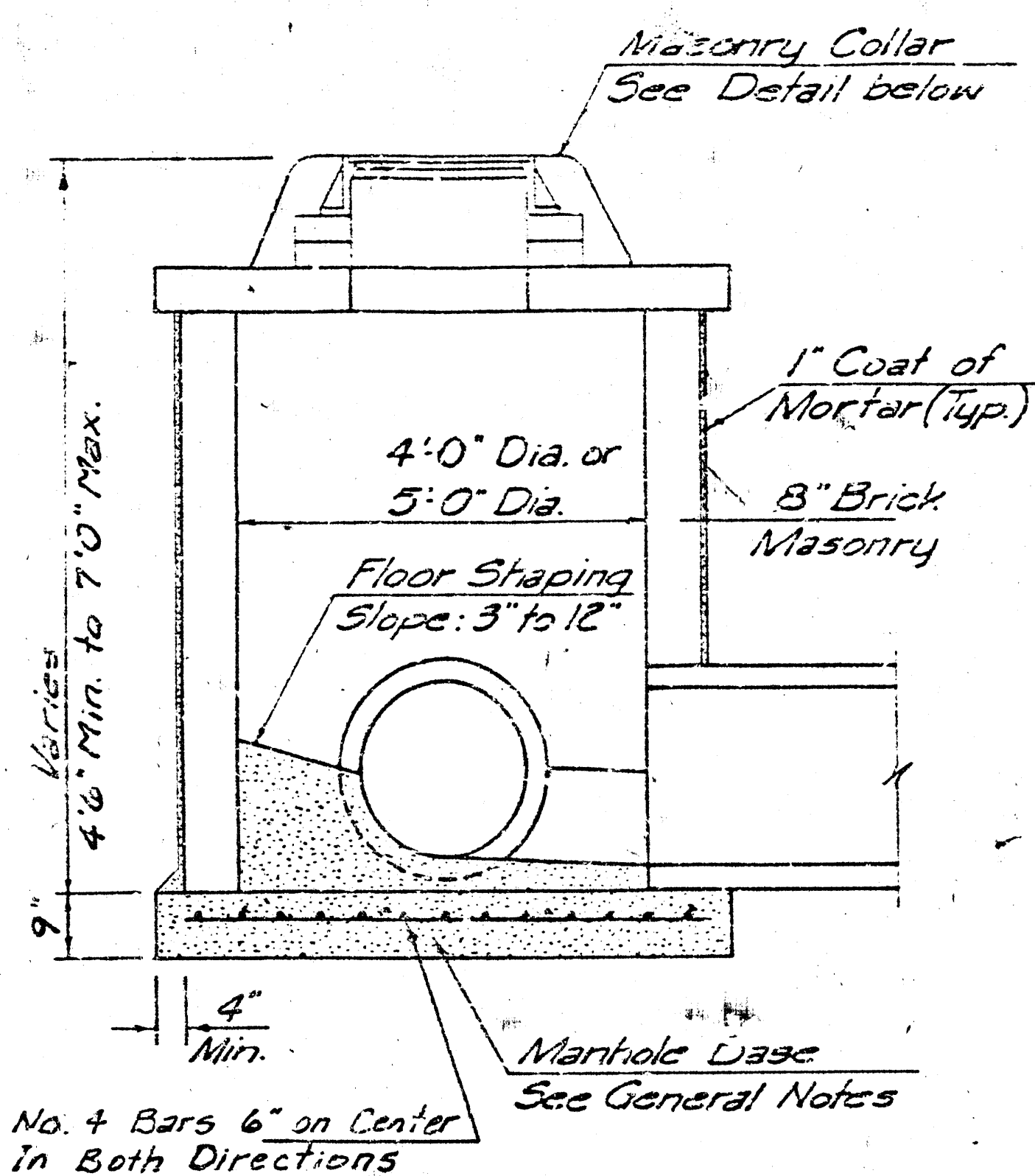


1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST EDITION OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. APPROVED FLEXIBLE WATER-STOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN PLASTIC PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT.
3. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
4. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION (3" MIN.). WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE (3" MIN.). THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
5. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS, THREE SERIES 66 HI-BUILD EPOXYLINE, DRY THICKNESS OF 8 MILS (MIN.).
6. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
7. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
8. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
9. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE LOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
10. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.

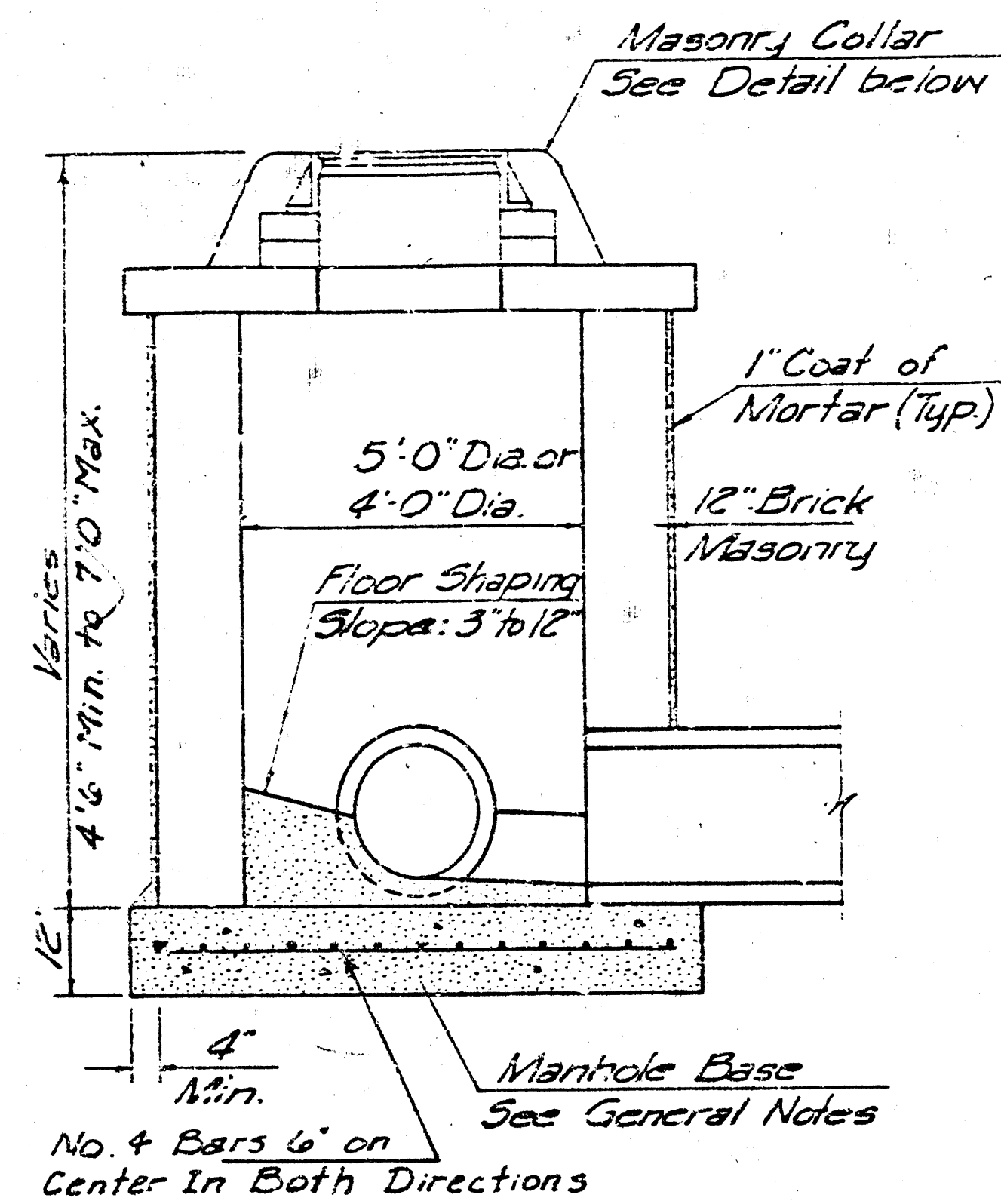
13. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD SPECIFICATIONS FOR CONSTRUCTION USING CEMENT PAVEMENT TYPE 1, WITHOUT AIR ENTRAINING ADJUTIVE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED IN THE PIPE AREAS ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND SEWER TIGHT.
14. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS SPACED AT 6" CENTERS IN THE TOP FLOORS. REINFORCING STEEL SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL CONTRACTOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANSING AND FREE OF AREAS OF SOLID DEBRIS. THE FLOORS OF THE INLET PIPES THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE, FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLUING PIPES AND THE PIPES TO THE OUTLET PIPE. 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 LAID THROUGH MANHOLES SHALL BE HALF REMOVED TO THE FULL SIZE FOR THE FLOOR. INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
16. 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.
17. THE CROWNS OF INFLUING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE PRECAST REINFORCED FLAT TOP. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 8" MINIMUM AND 16" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.
19. SHALLOW MANHOLES TYPE "D" SHALL BE BID AS SHALLOW MANHOLES FOR ALL TYPES AND DIAMETERS INDICATED. ALL MANHOLE DIAMETERS WILL BE 4" UNLESS INDICATED OTHERWISE.

1. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL. WHEN PLASTIC PIPE IS USED, FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION (3" MIN.). CLAY PIPE IS USED. THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE (3" MIN.). THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE INTEGRITY OF THE JOINT. POST ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
4. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
5. 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.
6. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS 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 CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. ALL MANHOLES SHALL BE CONSTRUCTED ON A MINIMUM PIPE SIZE OF 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4' . COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
7. 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 AT LEAST 3" ABOVE THE TOP OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

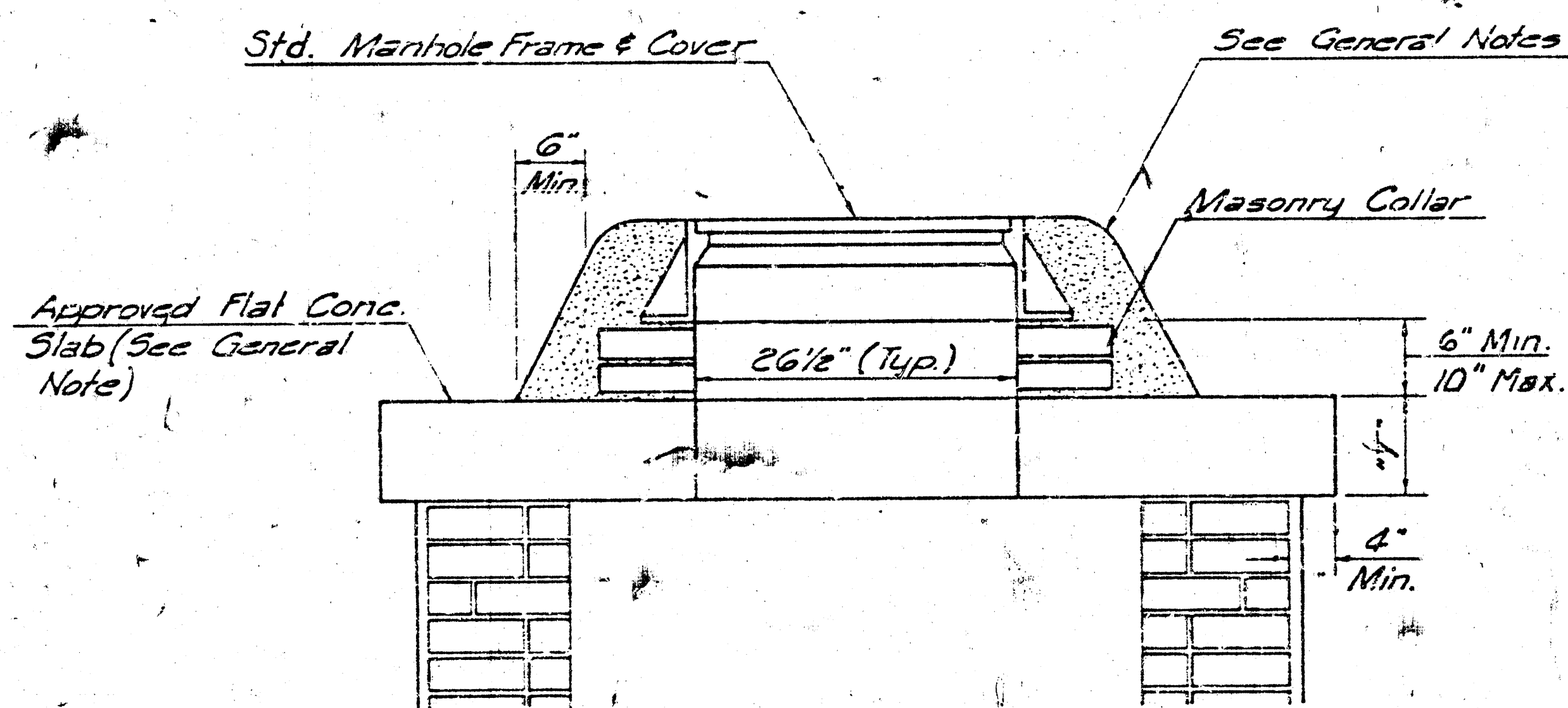
8. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE. FROM THE POINT OF INLET TO THE MANHOLE, THE FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN 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. ROPES LAID THROUGH MANHOLE SHALL HAVE THE HALF ROPES HALF ROPES FOR THE FULL LENGTH OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
9. 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.
10. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
11. A CAST WOODSORY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE PRECAST CONCRETE FLAT TOP. THE COLLAR SHALL HAVE 6" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.
12. SHALLLOW MANHOLE TYPE "C" SHALL BE BID AS SHALLLOW MANHOLES FOR THE TYPE AND SIZE. ALL MANHOLE DIAMETERS WILL BE AS INDICATED OTHERWISE.



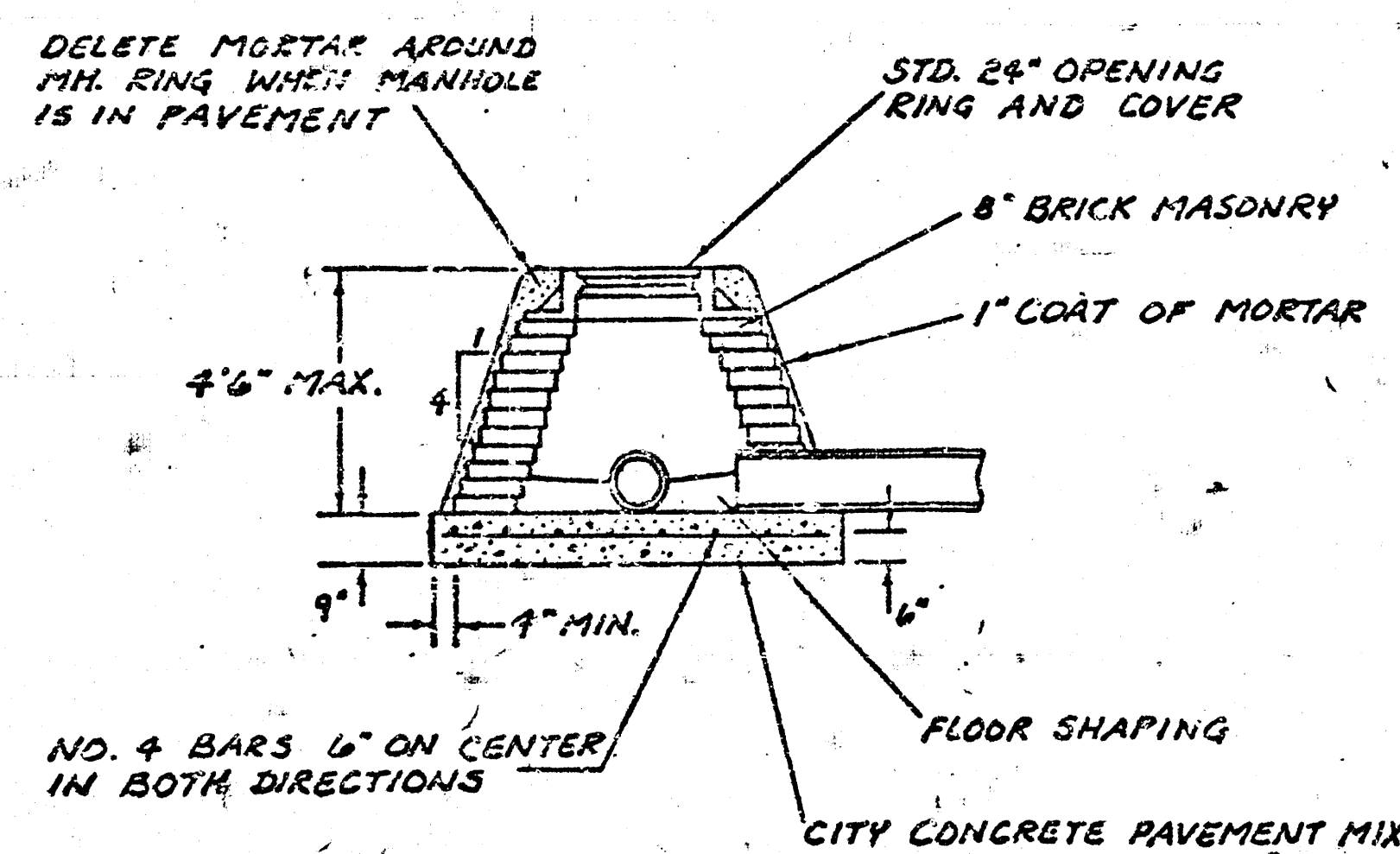
SHALLOW TYPE "A" MANHOLE



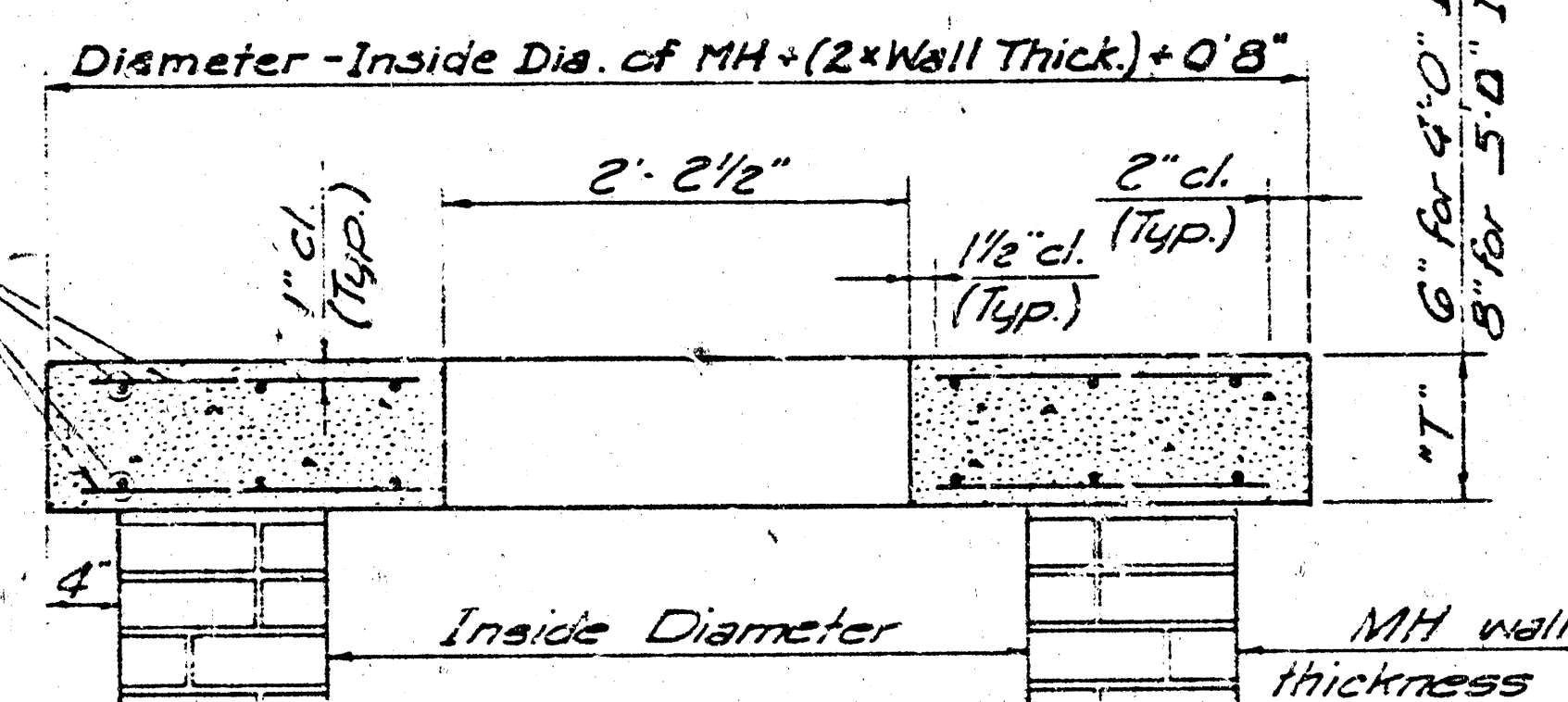
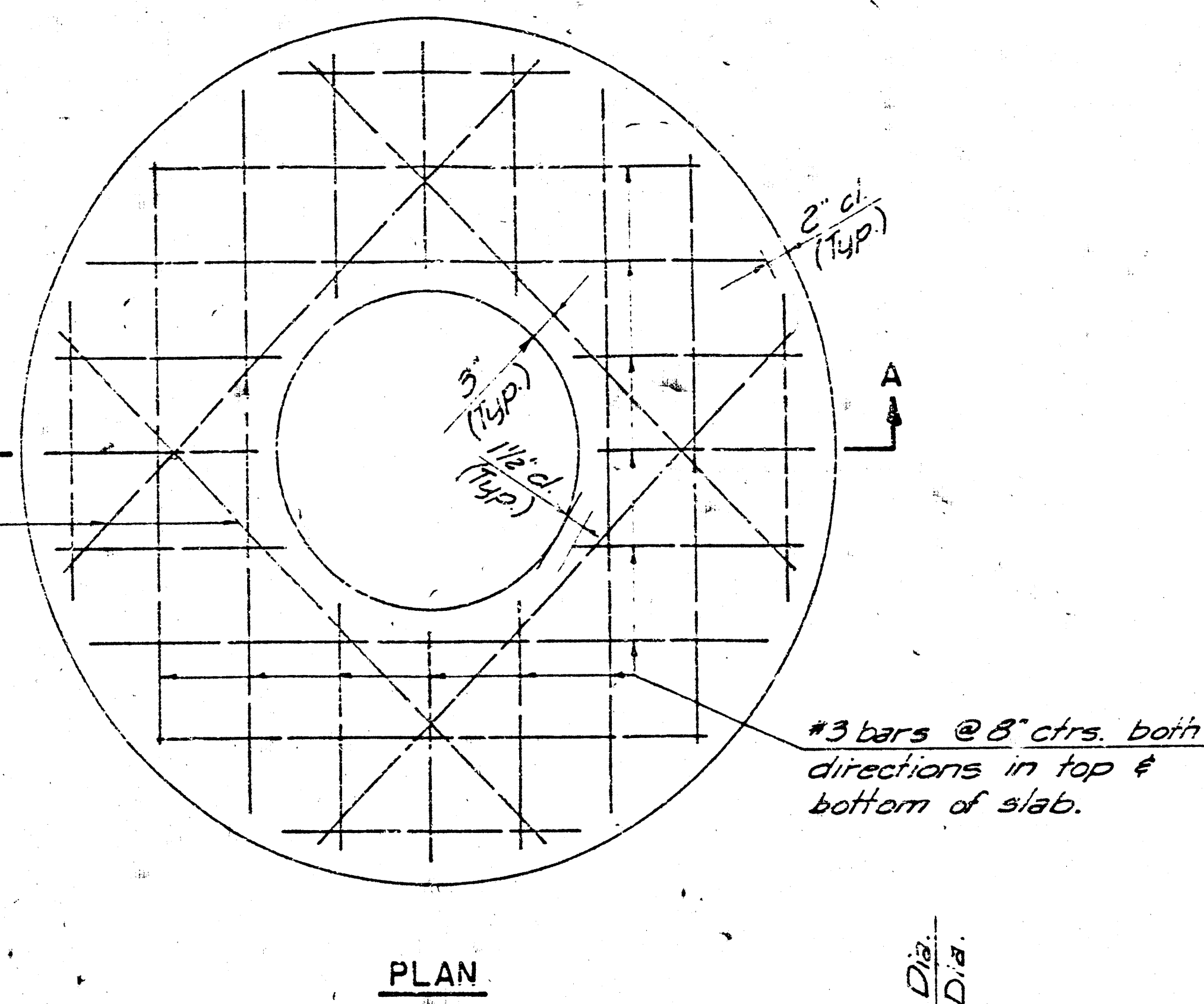
SHALLOW TYPE "B" MANHOLE



MASONRY COLLAR DETAIL

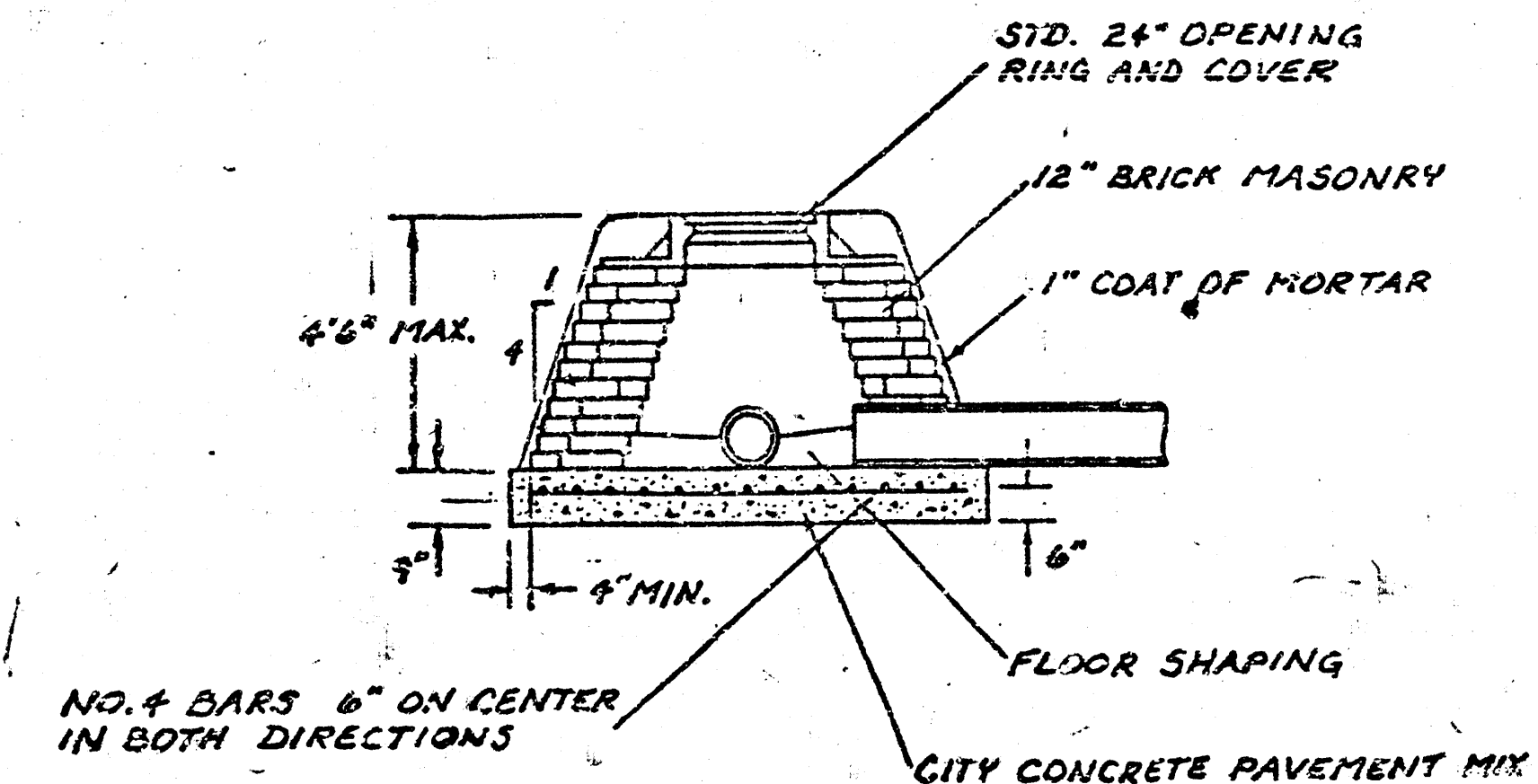


SPECIAL SHALLOW TYPE "A" MANHOLE



SECTION A-A

FLAT CONCRETE SLAB DETAILS



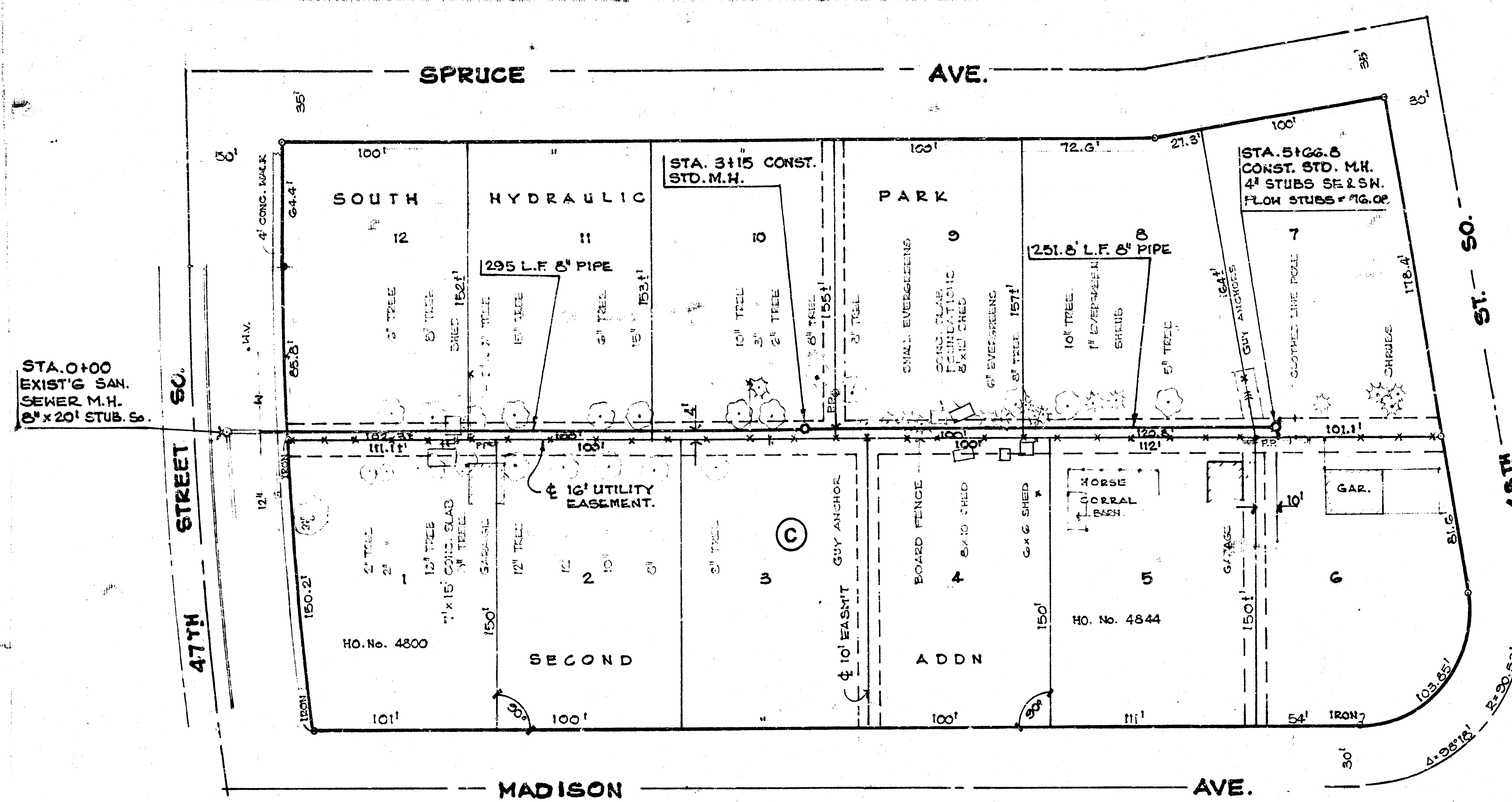
SPECIAL SHALLOW TYPE "B" MANHOLE

GENERAL NOTES

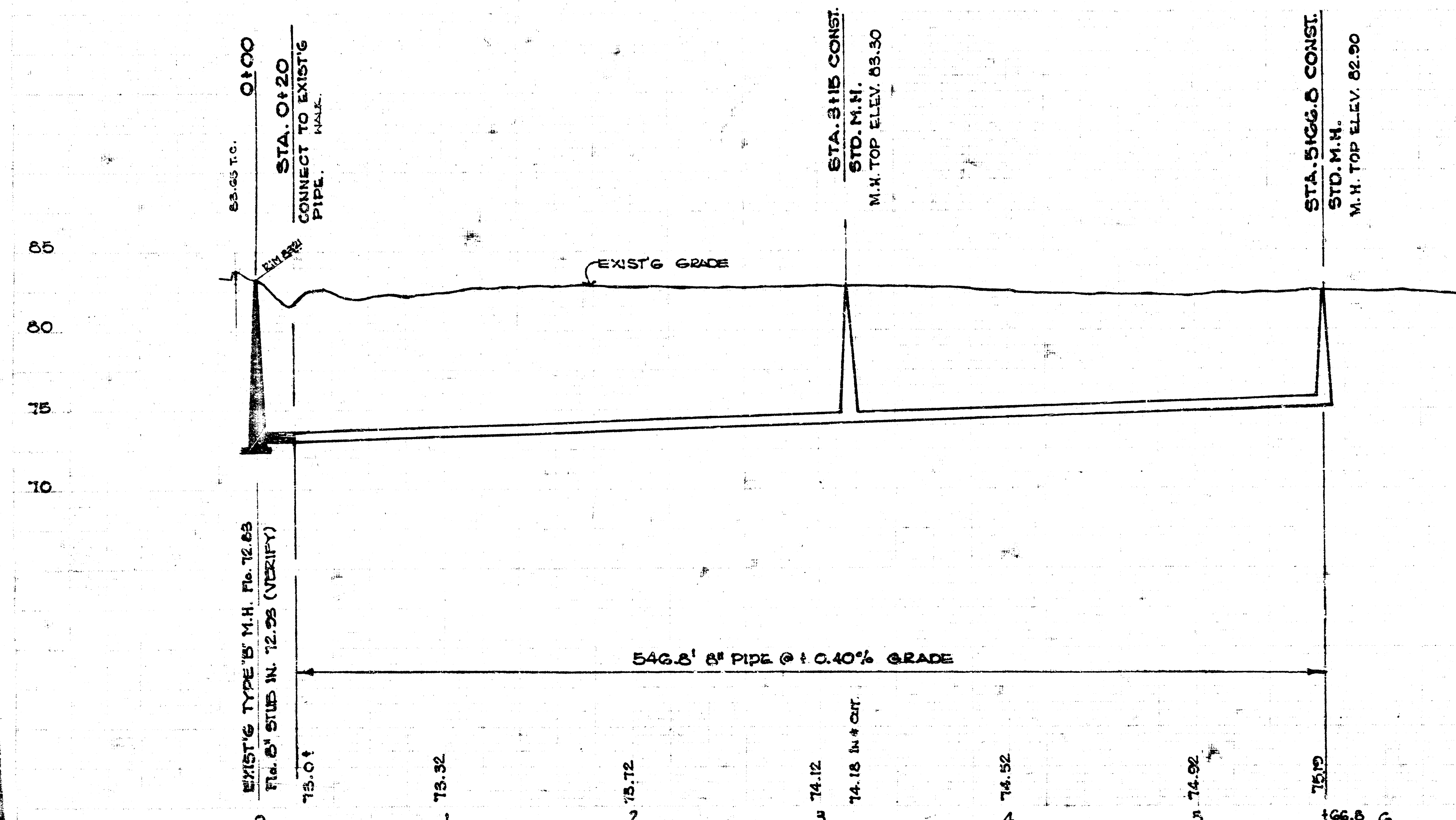
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE CEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "A" SHALLOW MANHOLES CAN BE USED ON SENERS WHEN THE MANHOLE IS NOT LOCATED WITHIN PUBLIC STREET PAVEMENT. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED 6" 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.
3. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SULLUS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FURNISHED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN 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 LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE MATCH FURNS, THE FLOW CHANNEL.
4. 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 CRAULE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRAULE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRAULE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
5. 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.
6. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
7. STANDARD SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE AND DIAMETER INDICATED. STANDARD SPECIAL SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE INDICATED. ALL STANDARD SHALLOW MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

CITY OF WICHITA, KANSAS
STANDARD SHALLOW MANHOLES
TYPE "A" AND TYPE "B"

Designed by _____ Checked by _____
Drawn by _____ Date _____ Job No. _____



SCALE
 1" = 40' HORIZONTAL
 1" = 5' VERTICAL



INDEX NO. 740795
 LAT. 81, MAIN 1, S.W.1
 LINE 2