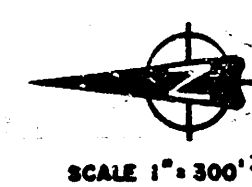
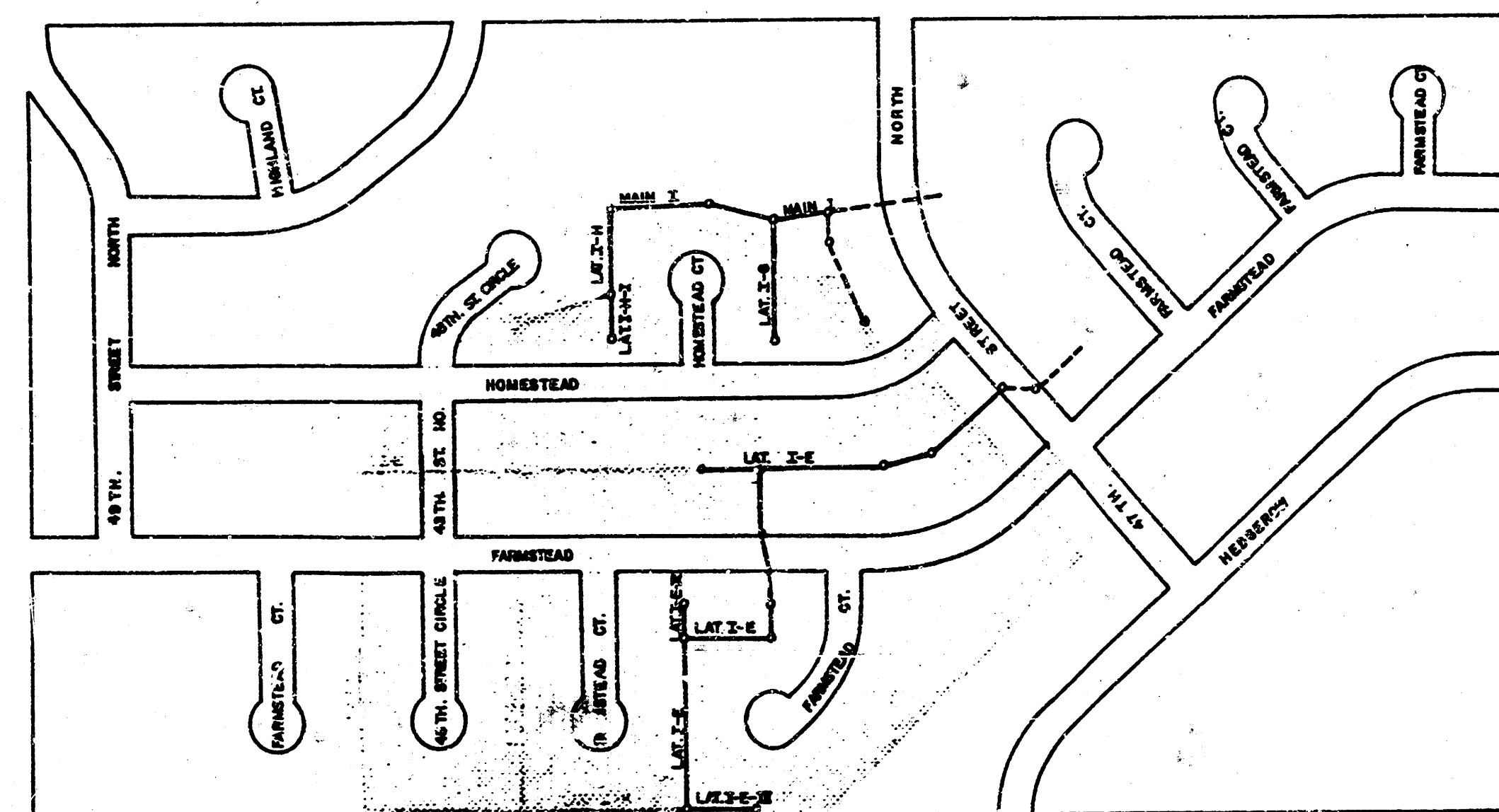


PLANS
FOR
SANITARY SEWER EXTENSIONS
KAPPELMAN'S BEL AIRE HEIGHTS

PHASE II

PROJECT NO. 468-76-245-80001-000-000-057

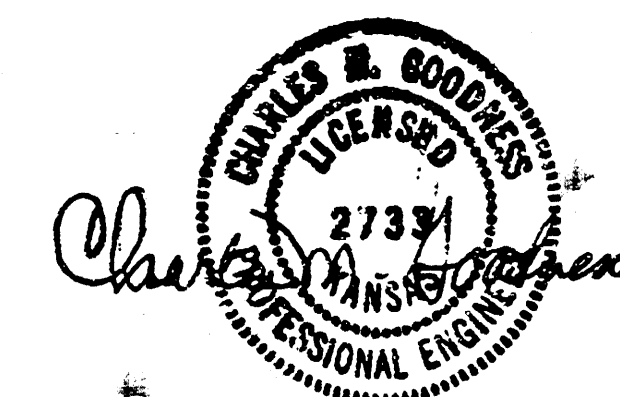
1986.



APPROVED AS NOTED
By CITY ENGINEER OF WICHITA
Sanitary Sewers 208 3/10/86
Storm Sewers _____
Driveway Approaches _____
Water Mains _____
Paving _____

NOTE TO CONTRACTOR

This project will be constructed under the supervision of the CITY ENGINEER and conforming to the SPECIFICATIONS of the CITY OF WICHITA. The CONTRACTOR will pay the City of Wichita for all costs of plan review, inspection and booking per contract.

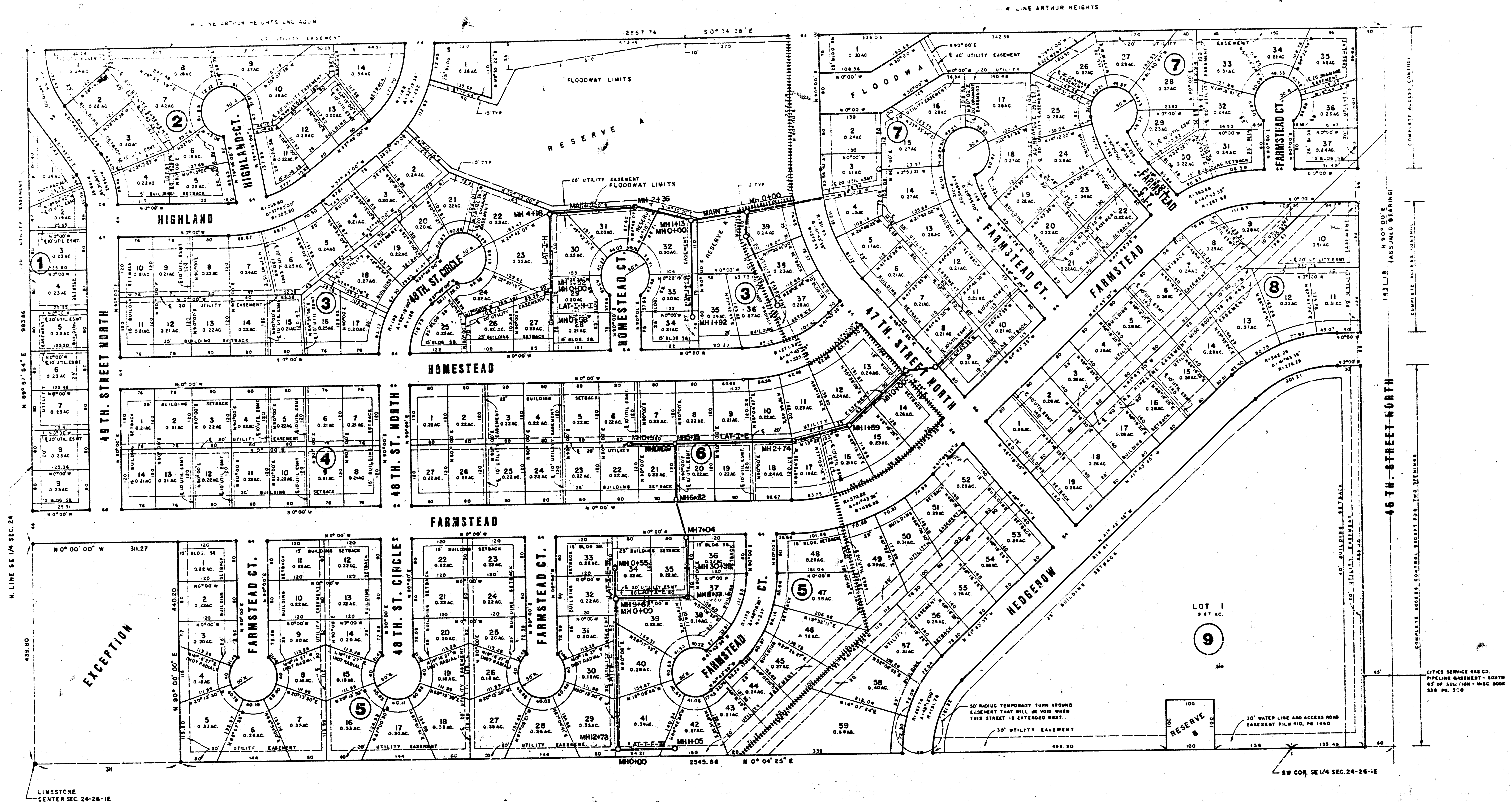


AS CONSTRUCTED

JUNE-1986

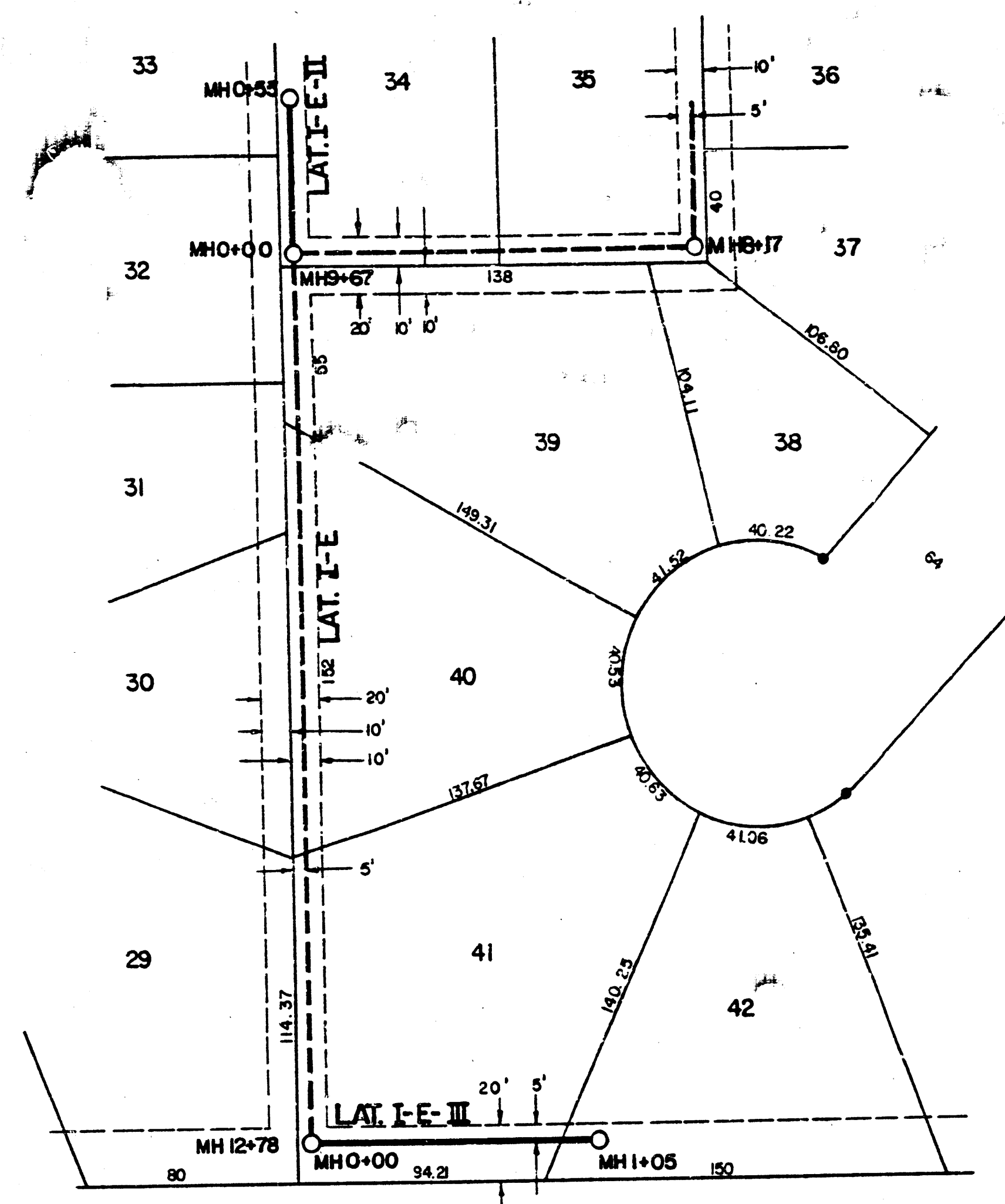
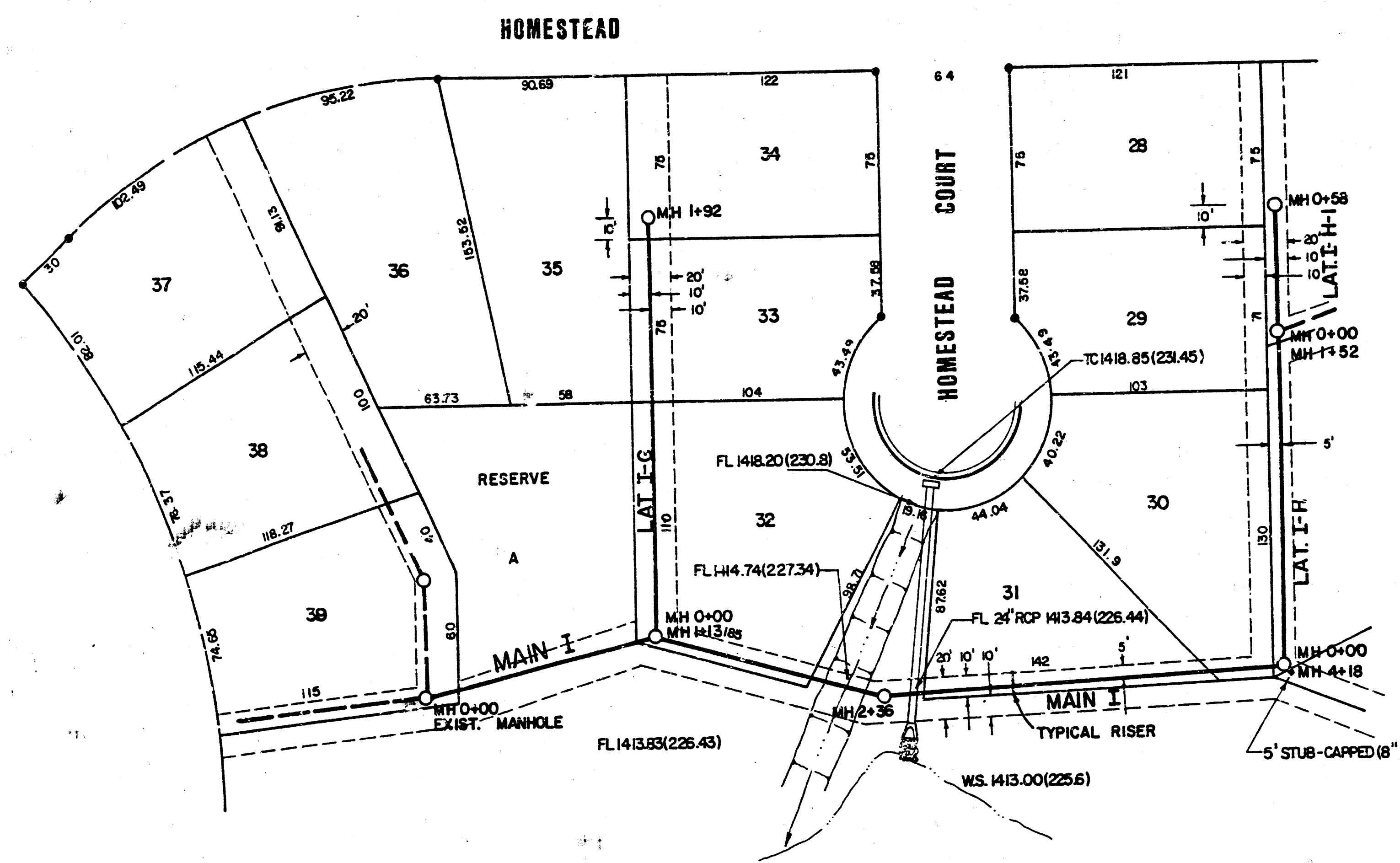
CHARLES E. GOODNESS ENGINEERS
1130 WEST 21ST AVE
WICHITA, KANSAS 67203
(313) 622-0223

FILMED FROM THE BEST

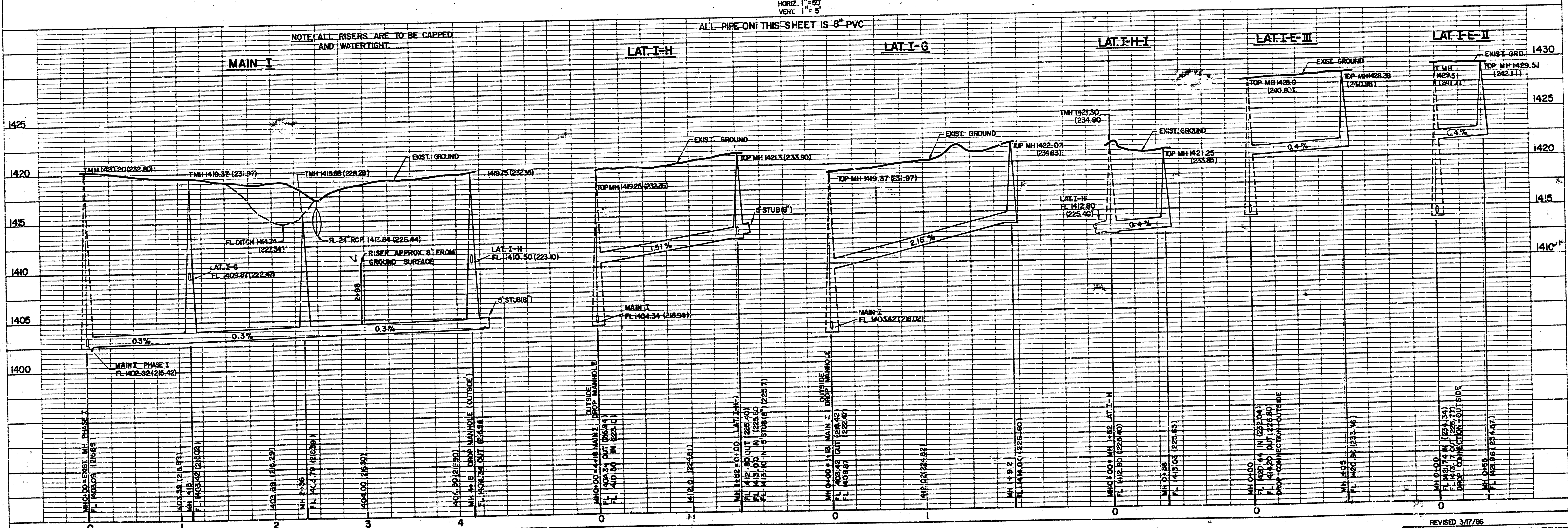


KAPPELMAN'S BEL AIRE HEIGHTS PHASE II

Reiss and Goodness Engineers



SCALE
PLAN 1"=50'
PROFILE 1"=5'



AS CONSTRUCTED

REISS & GOODNESS ENGINEERS
2100 WEST 21ST STREET
WICHITA, KANSAS 67203
(316) 532-0253

SANITARY SEWER EXTENSIONS

KAPPELMANS-PHASE II-BEL AIRE, KANSAS

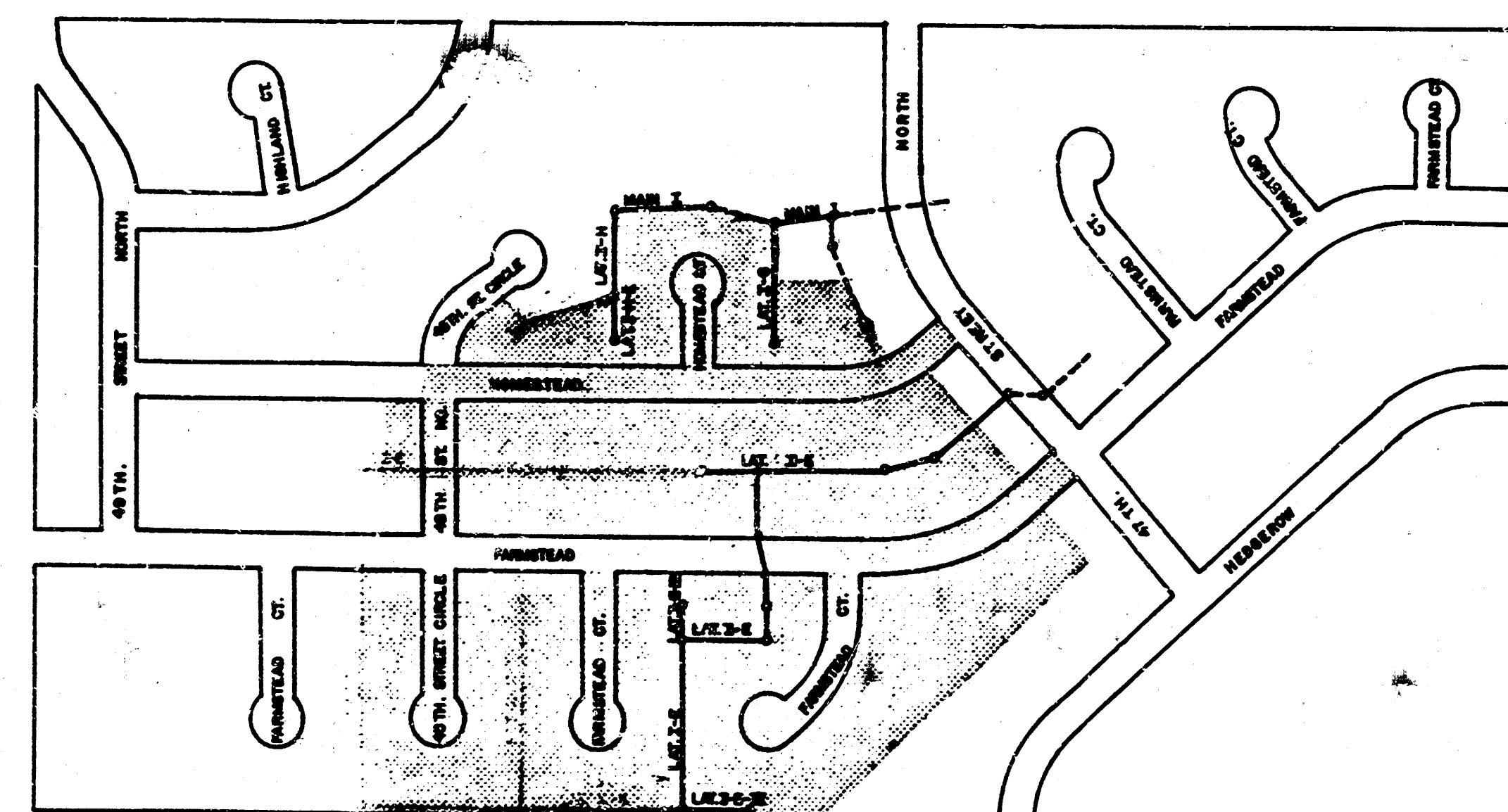
SCALE NOTED
DATE 1/31/86
PROJECT NO. 1800
SHEET 4 OF 11

PLANS
FOR
SANITARY SEWER EXTENSIONS
KAPPELMAN'S BEL AIRE HEIGHTS

PHASE II

PROJECT NO. 468-76-245-80001-000-000-057

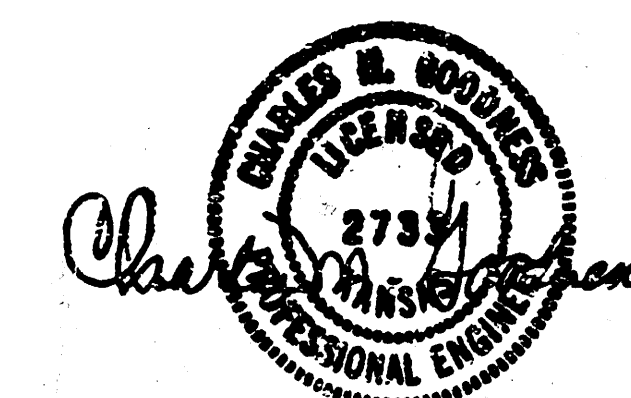
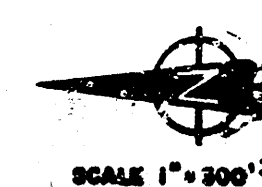
1986

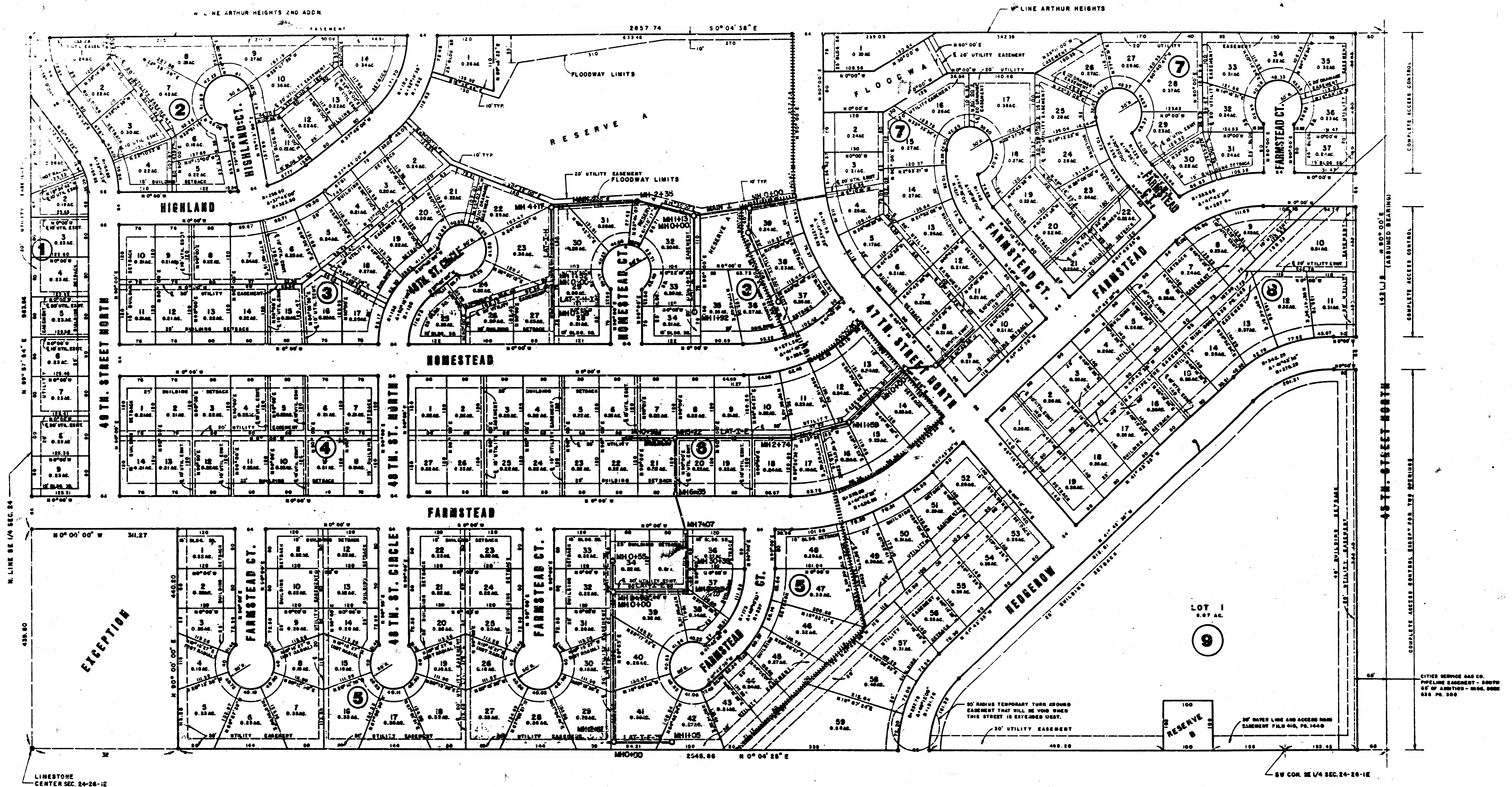


APPROVED AS NOTED
By CITY ENGINEER OF WICHITA
Sanitary Sewers 3/10/86
Storm Sewers _____
Driveway Approaches _____
Water Mains _____
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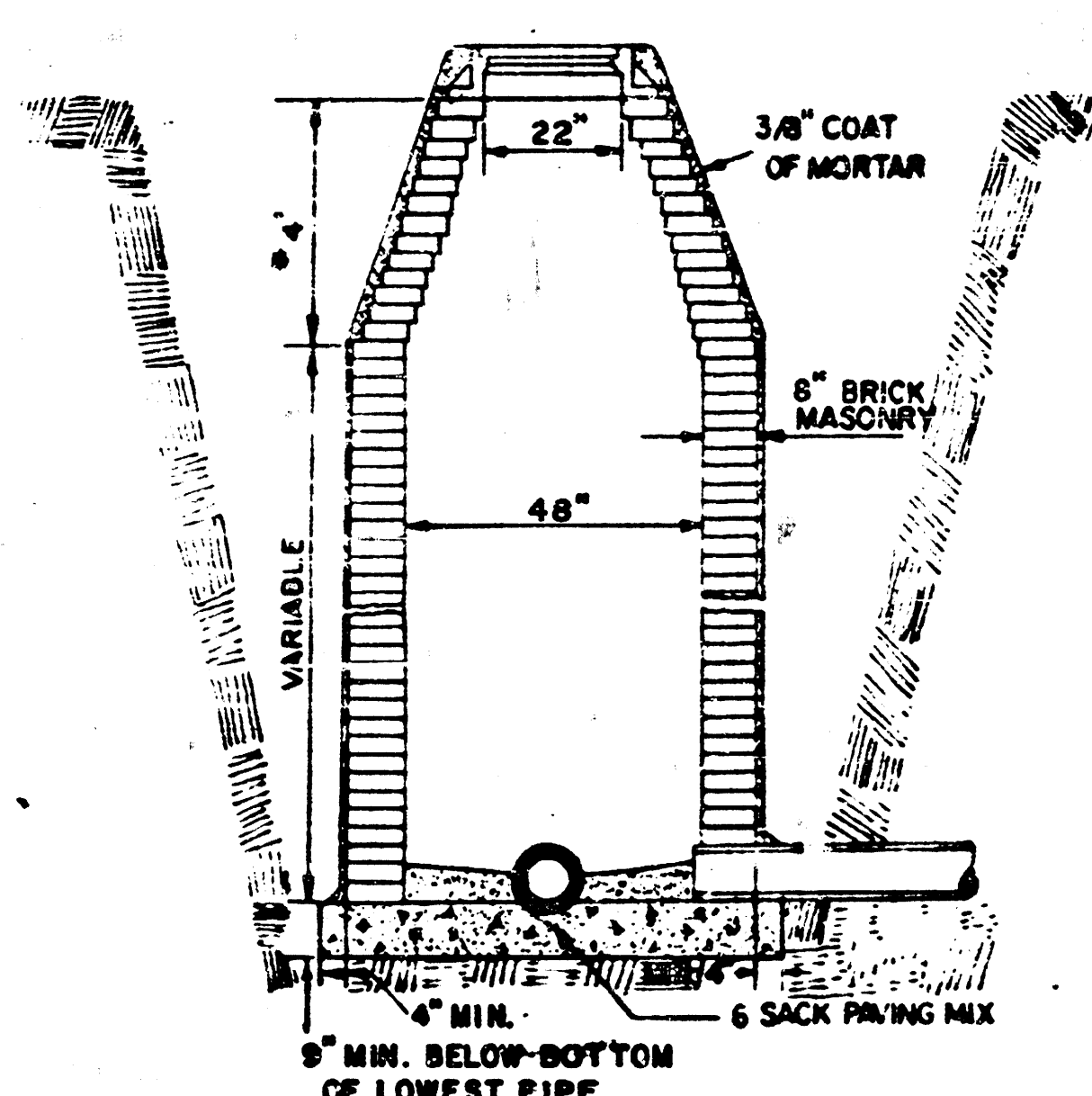
KAPPELMAN'S BEL AIRE HEIGHTS

PHASE II

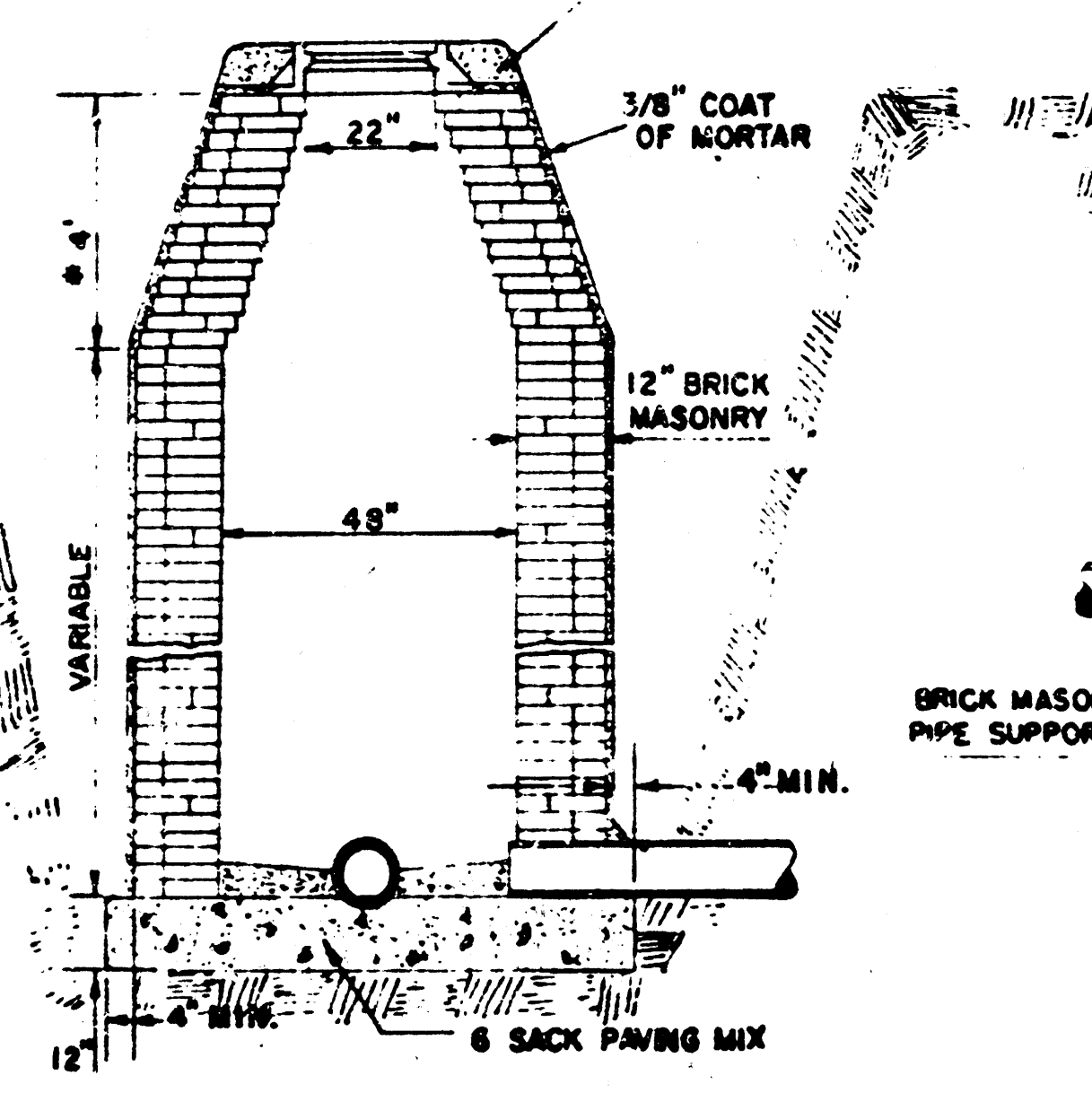
LEGEND
3/4" IRON PIPE

Reiss and Goodness Engineers

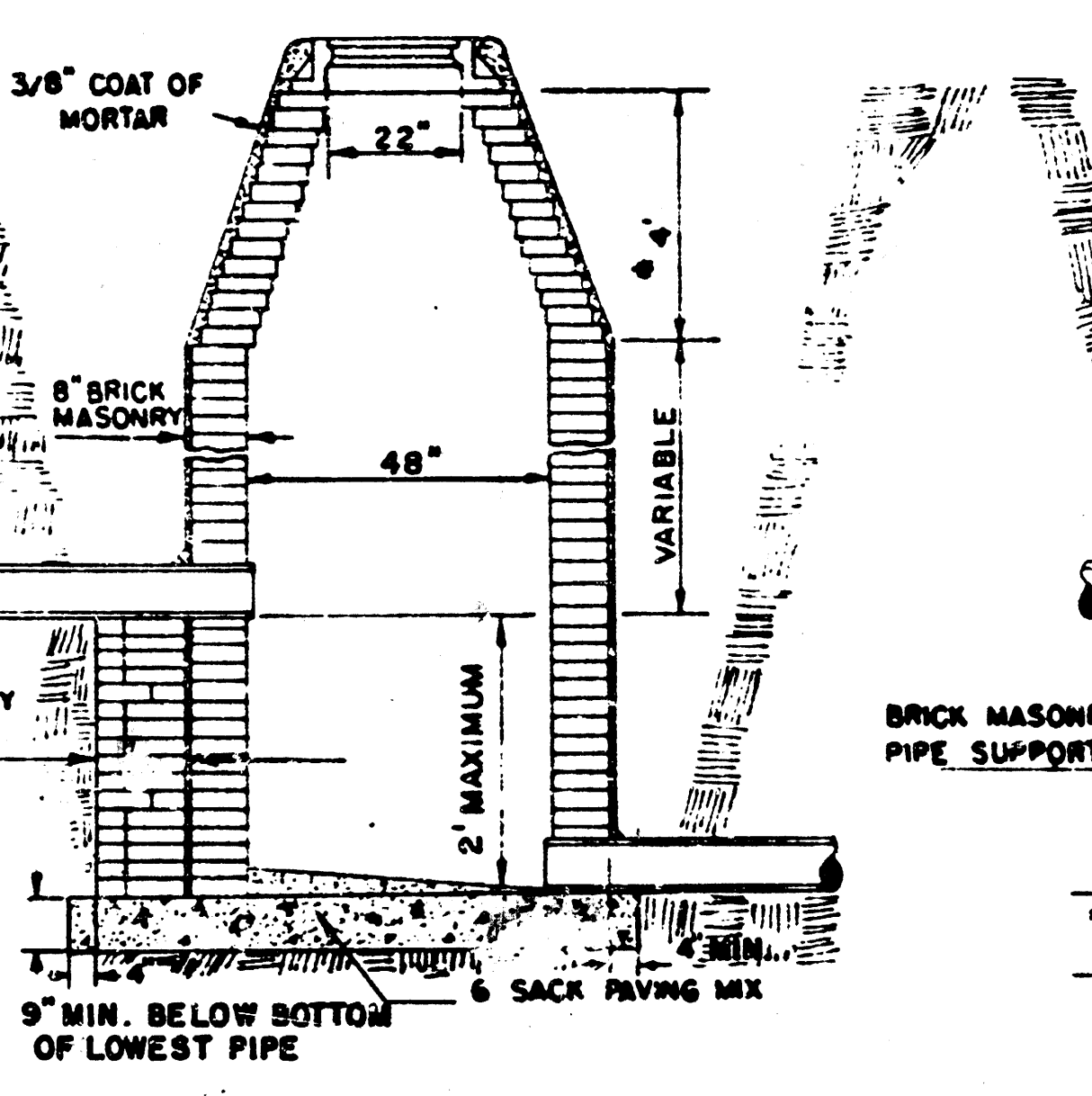
GROUT TO BE PLACED AROUND MANHOLE RING ONLY WHEN MANHOLE IS CONSTRUCTED IN UNPAVED AREAS. (TYPICAL ALL MANHOLES)



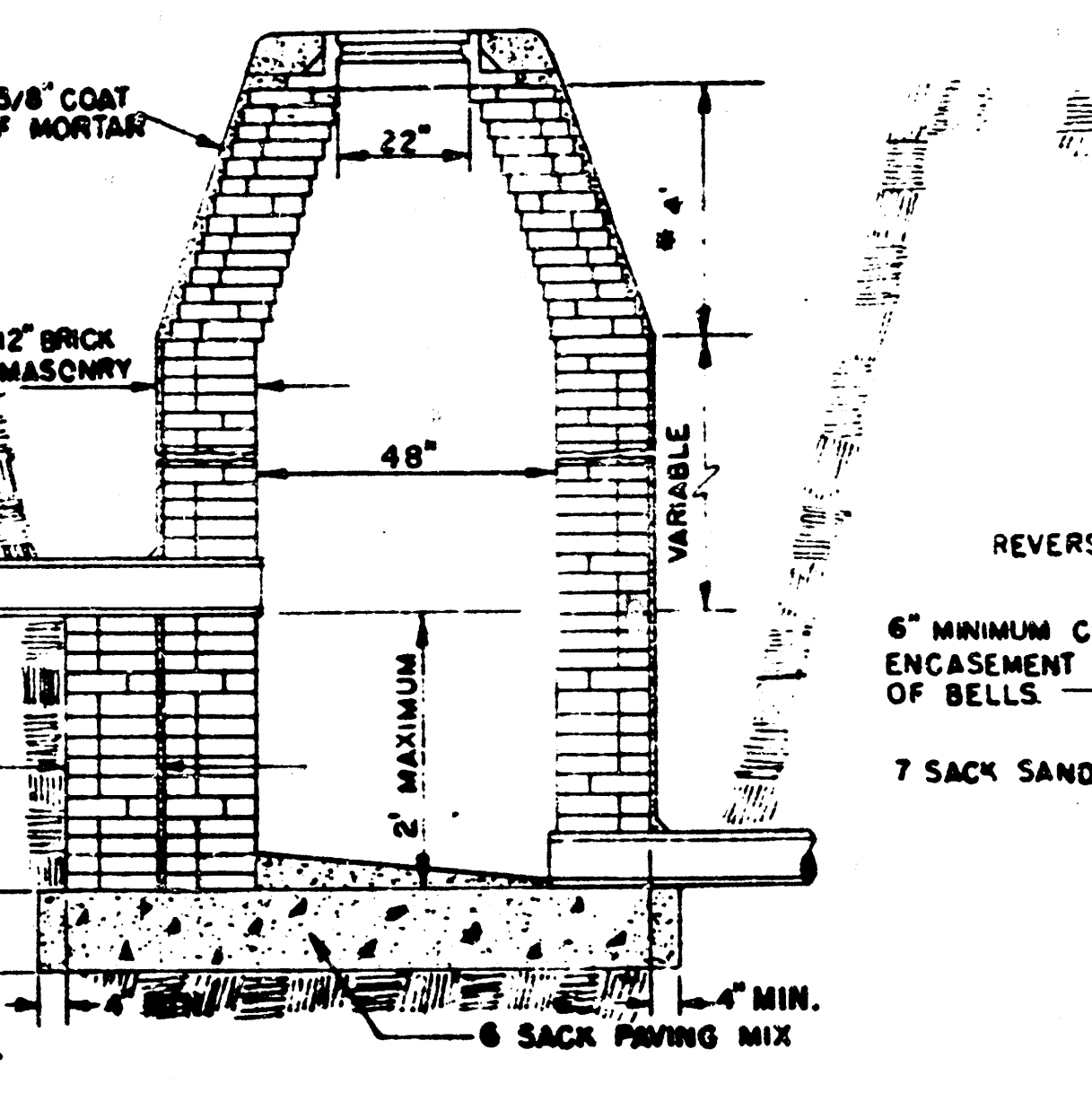
STANDARD MANHOLE TYPE "A"



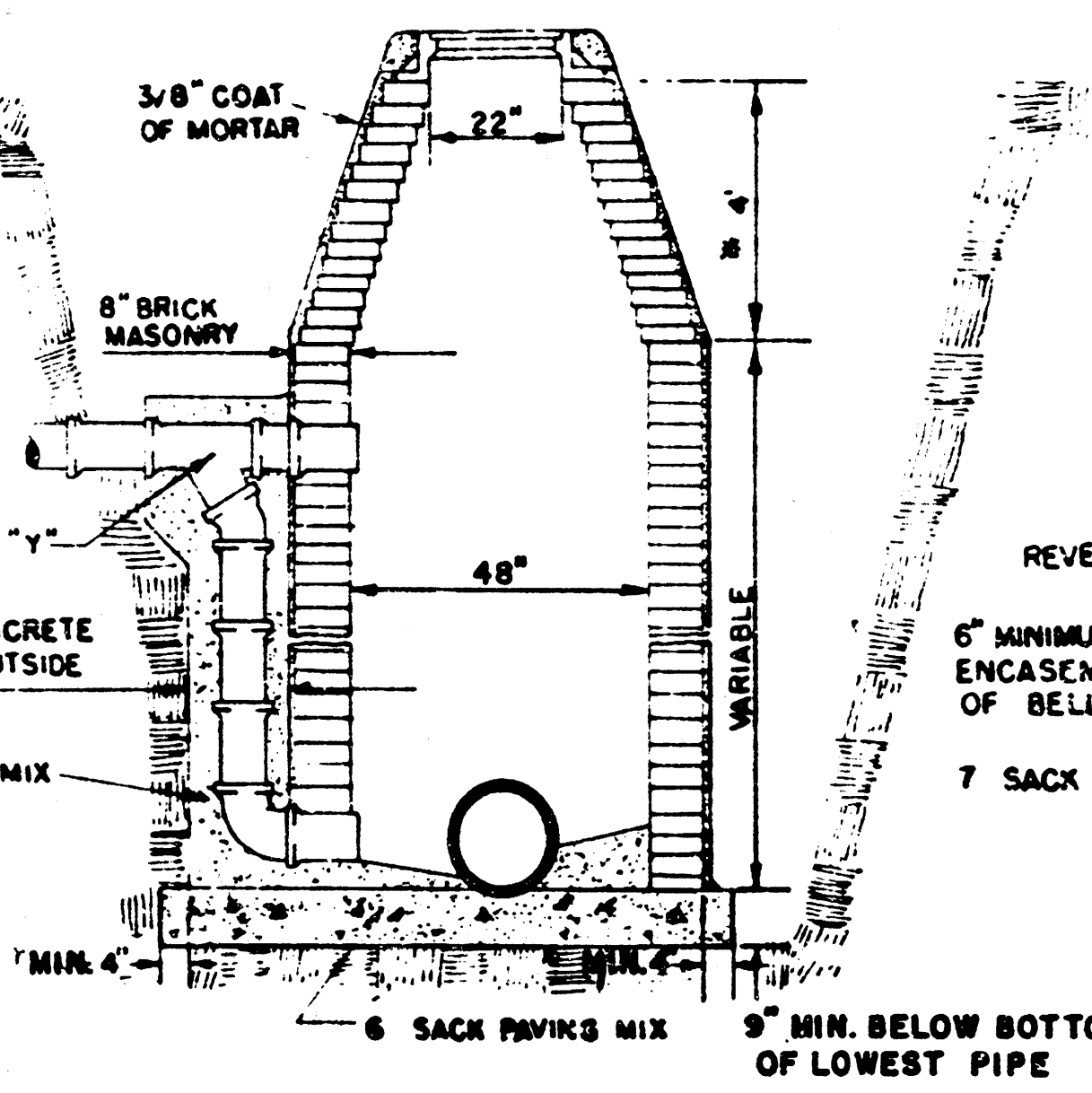
STANDARD MANHOLE TYPE "B"



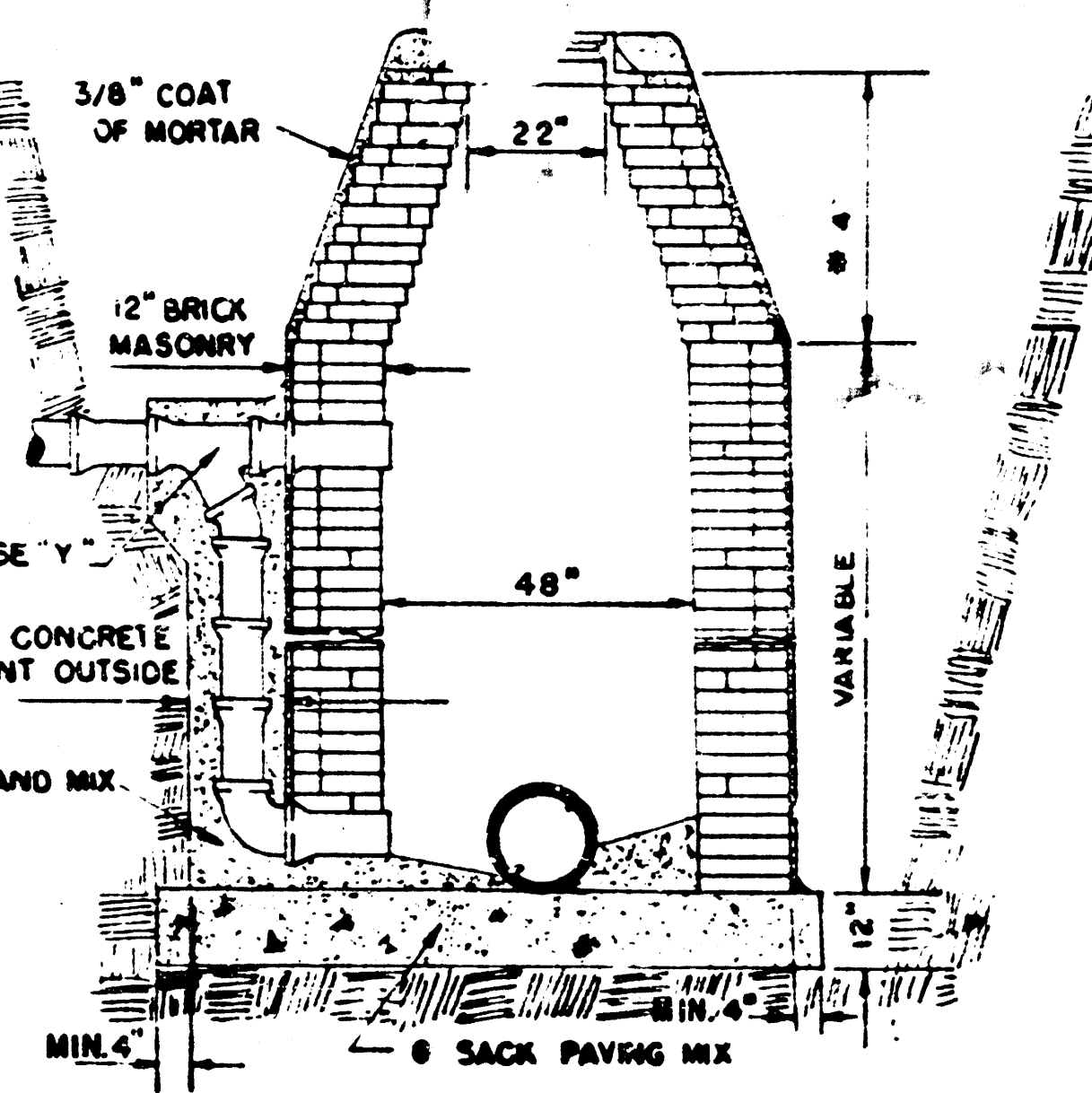
DROP MANHOLE TYPE "A"



DROP MANHOLE TYPE "B"



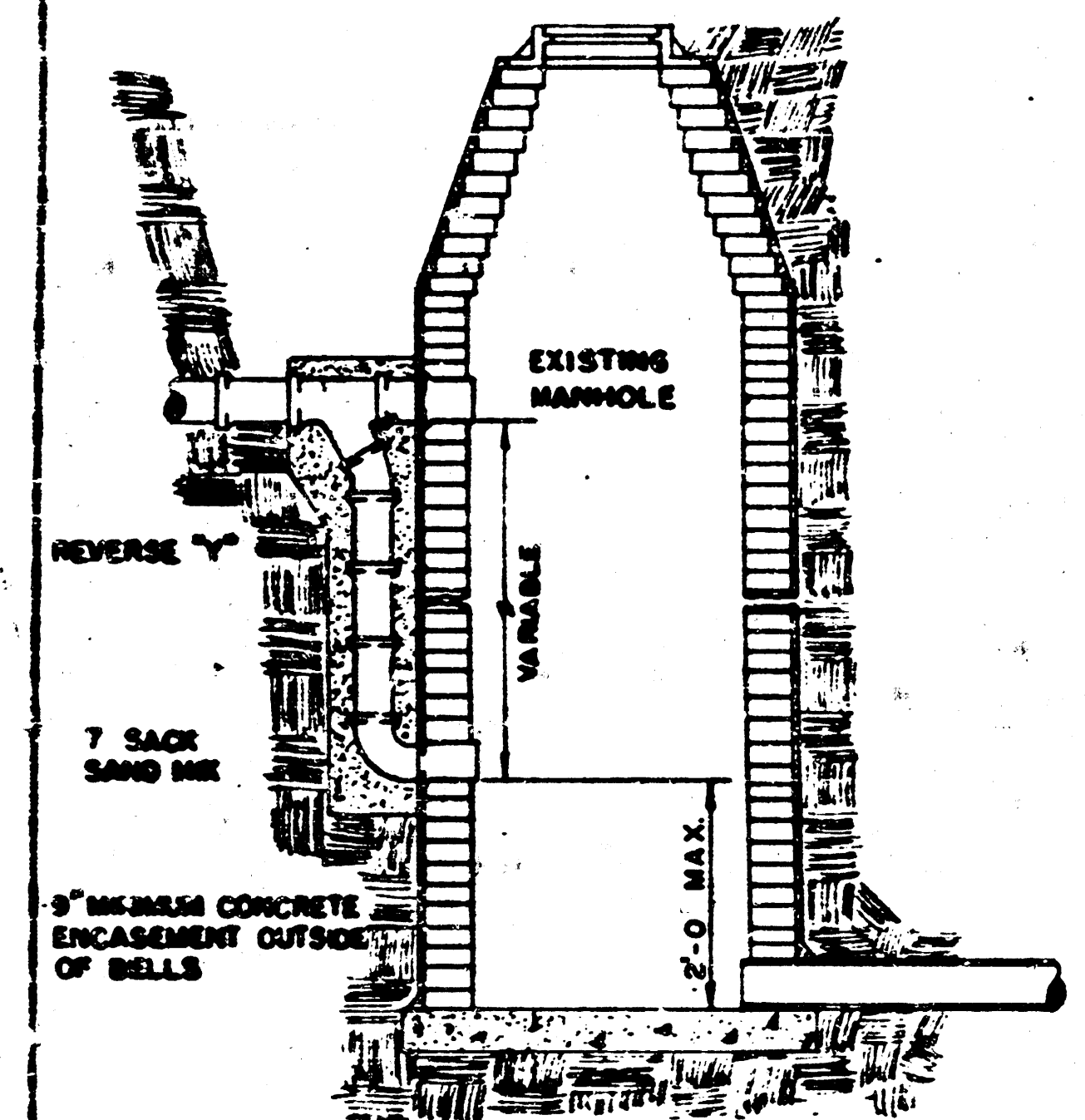
OUTSIDE DROP MANHOLE TYPE "A"



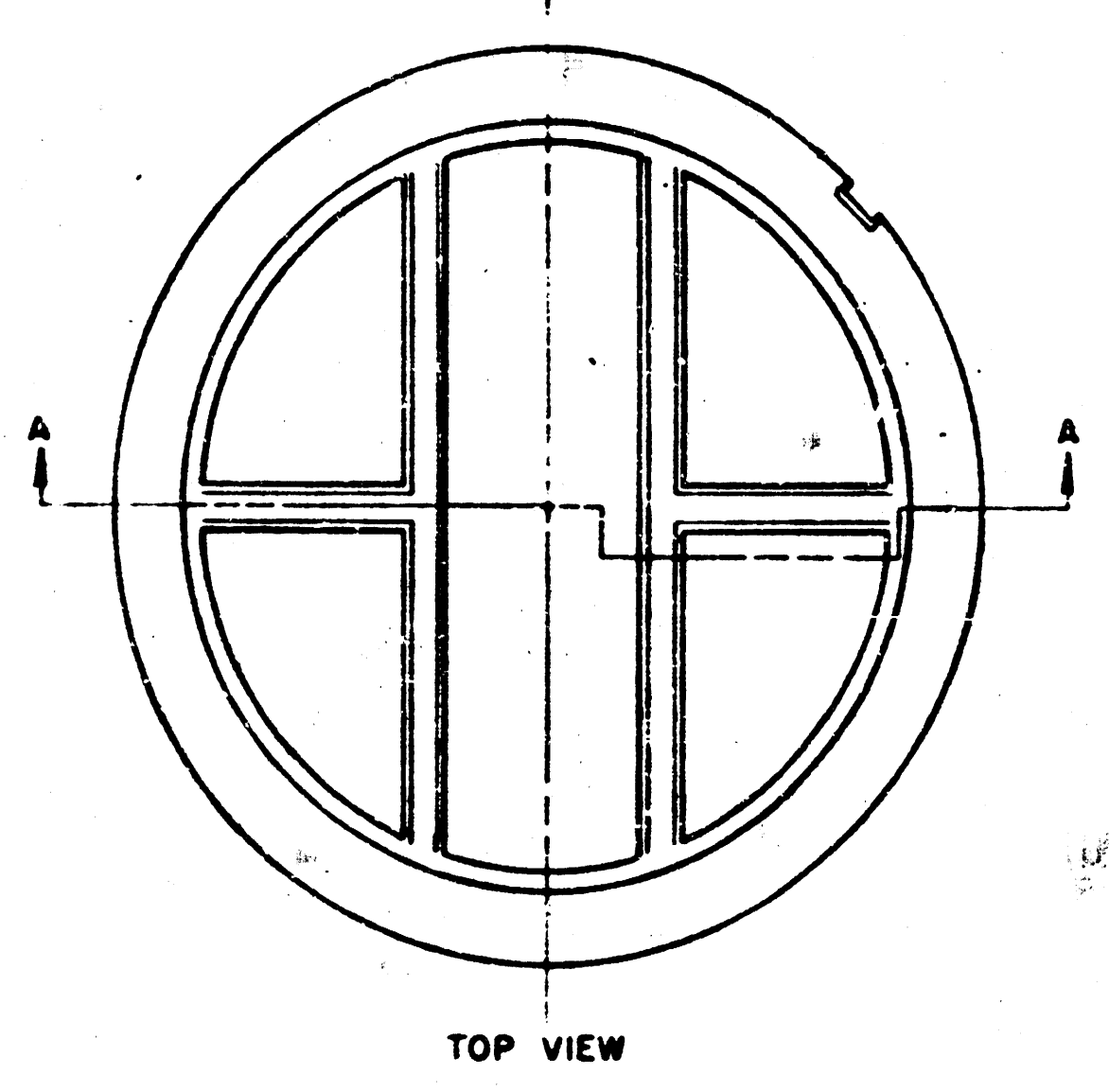
OUTSIDE DROP MANHOLE TYPE "B"

* DRAW = 6' ON 5' DIA. M.H.

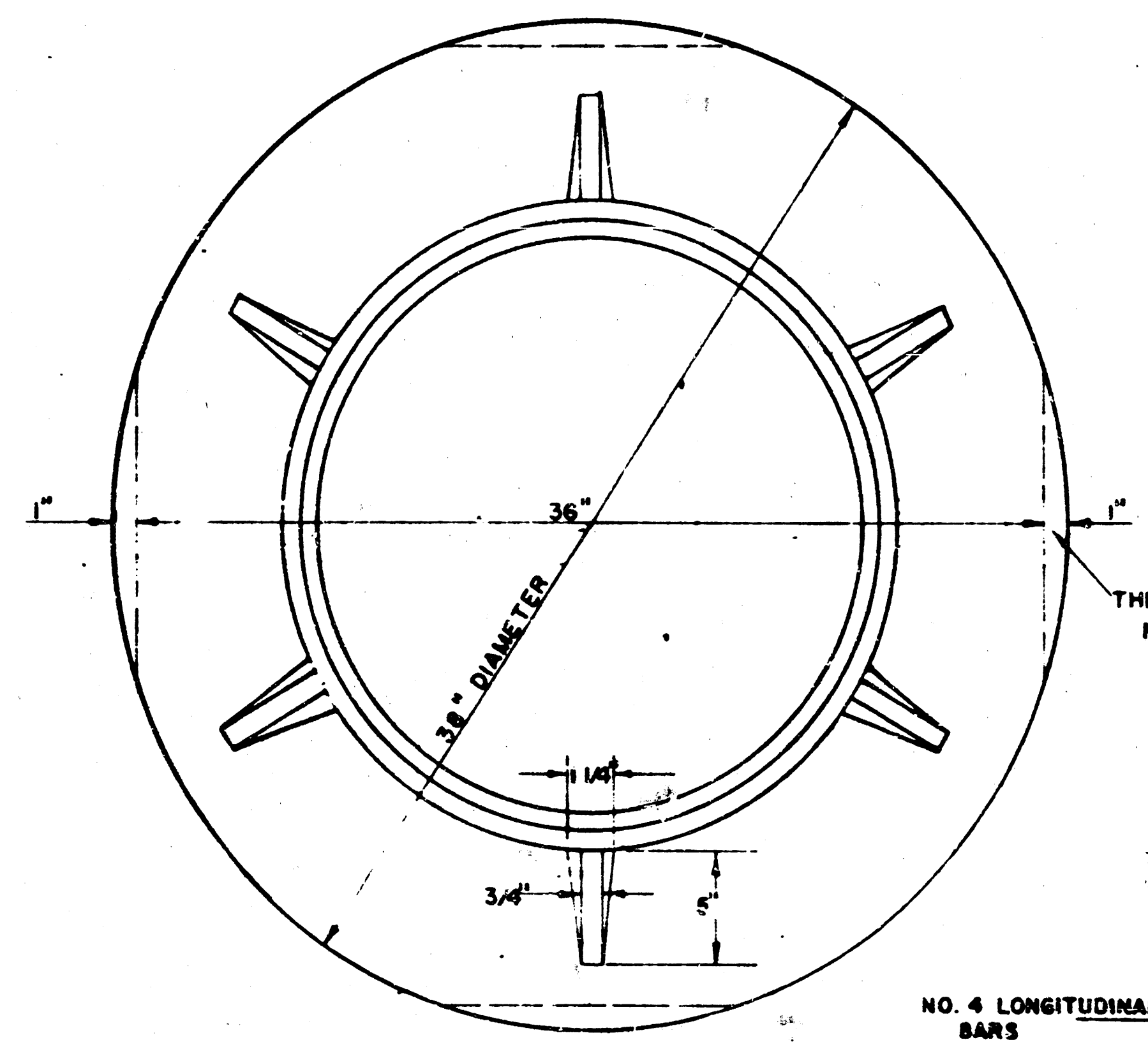
NOTE: REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASIS 6" ABOVE THE BOTTOM. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE COST OF REINFORCING STEEL IS TO BE INCLUDED IN THE PRICE BID FOR THE MANHOLE.



DETAIL OF DROP STACK FOR EXISTING MANHOLES IN GROUND WATER

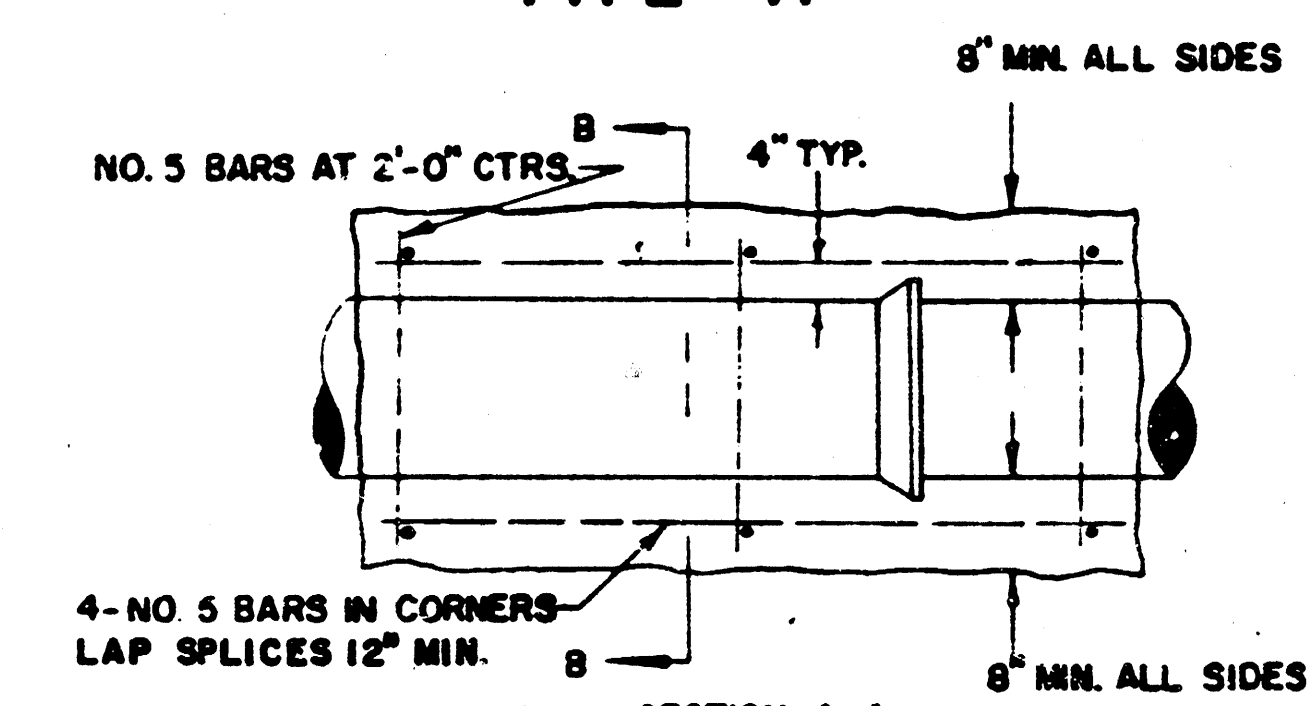


MANHOLE COVER WEIGHT 110 LBS.

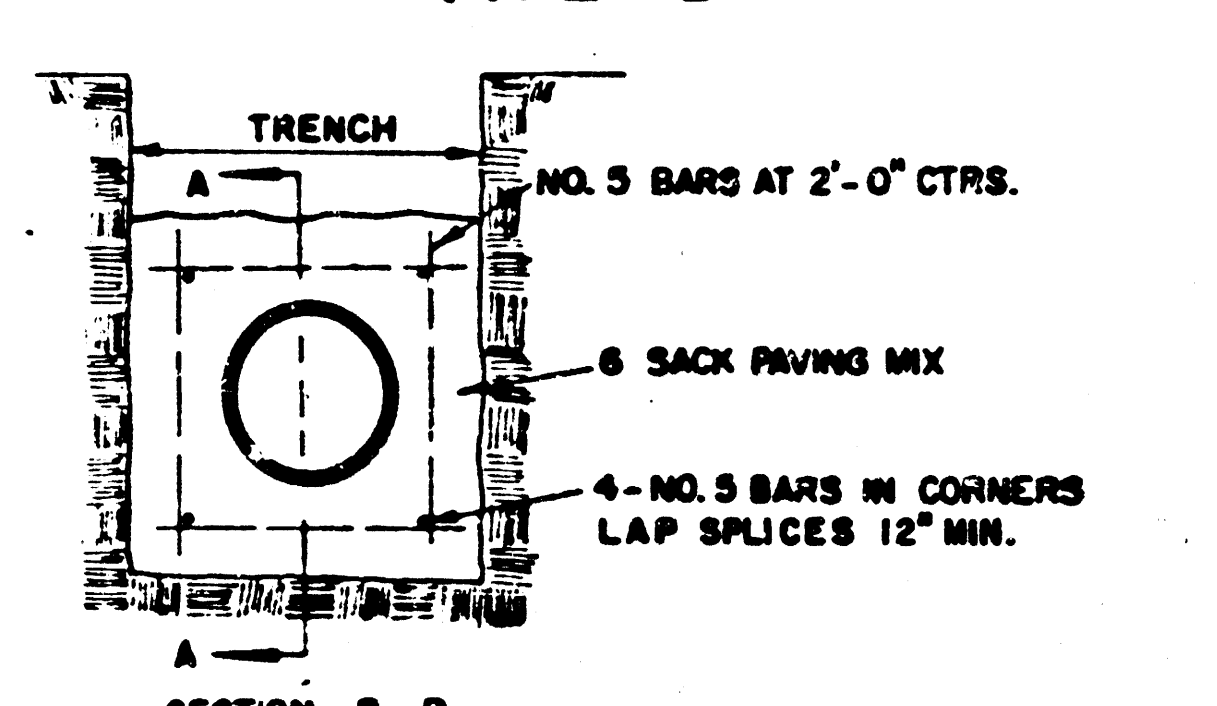


MANHOLE RING WEIGHT 325 LBS. RING NO. 500A WEIGHT 800 LBS. RING NO. 500AS

THIS PORTION OF FLANGE MAY BE OMITTED



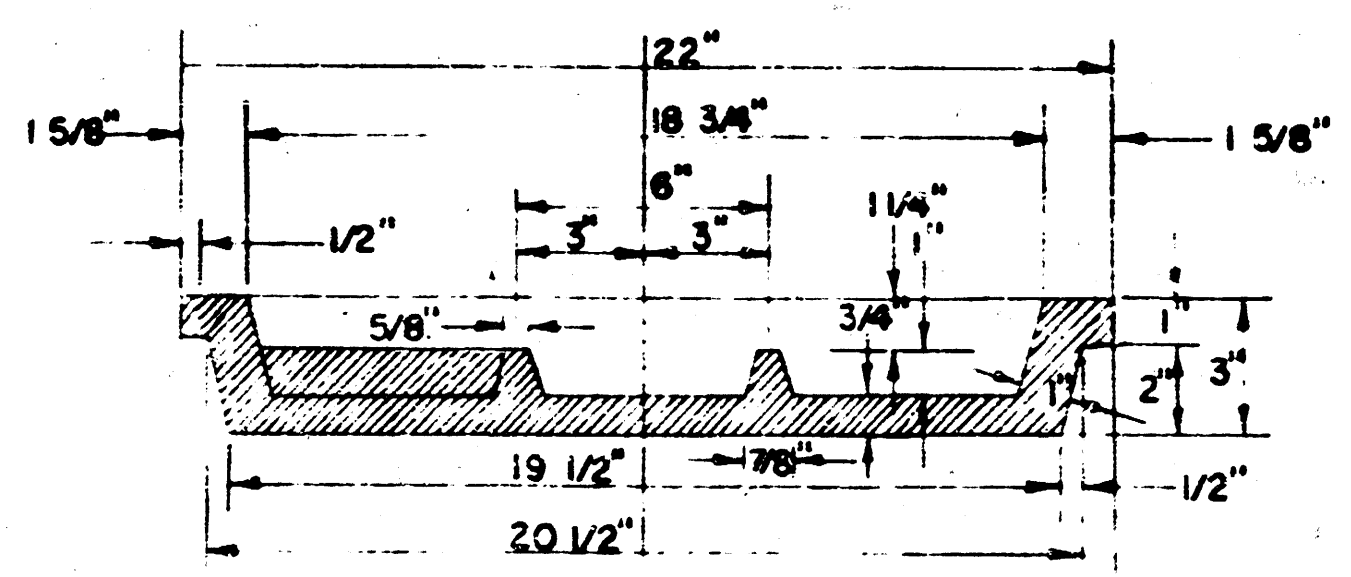
REINFORCED CONCRETE ENCASEMENT



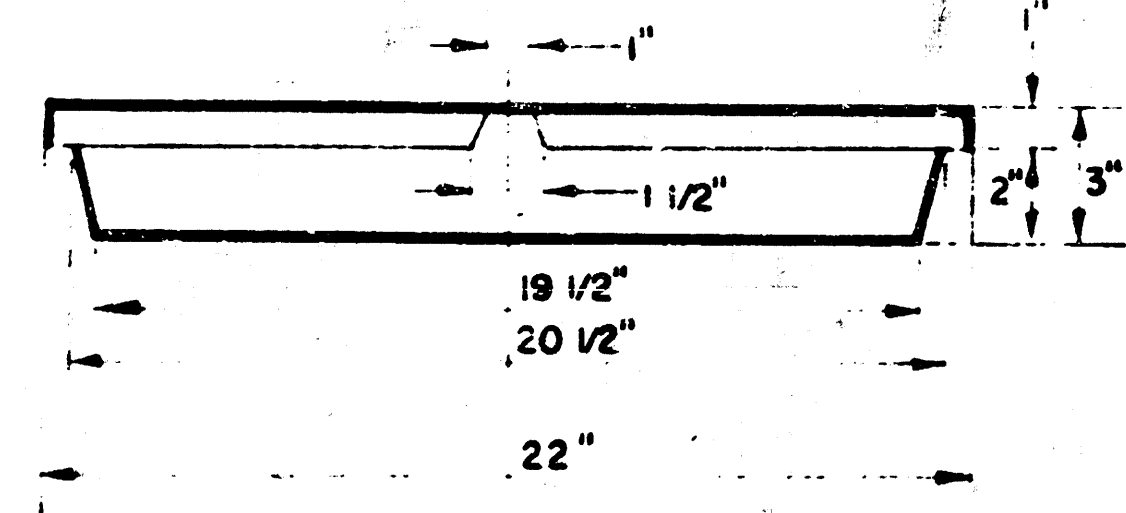
NOTE: CONCRETE ENCASEMENT AND CONCRETE CRADLE SHALL BEGIN AND END AT A JOINT WHEN CLAY PIPE IS USED. MINIMUM CONCRETE COVERAGE OF REBAR TO BE 3".

GENERAL NOTES

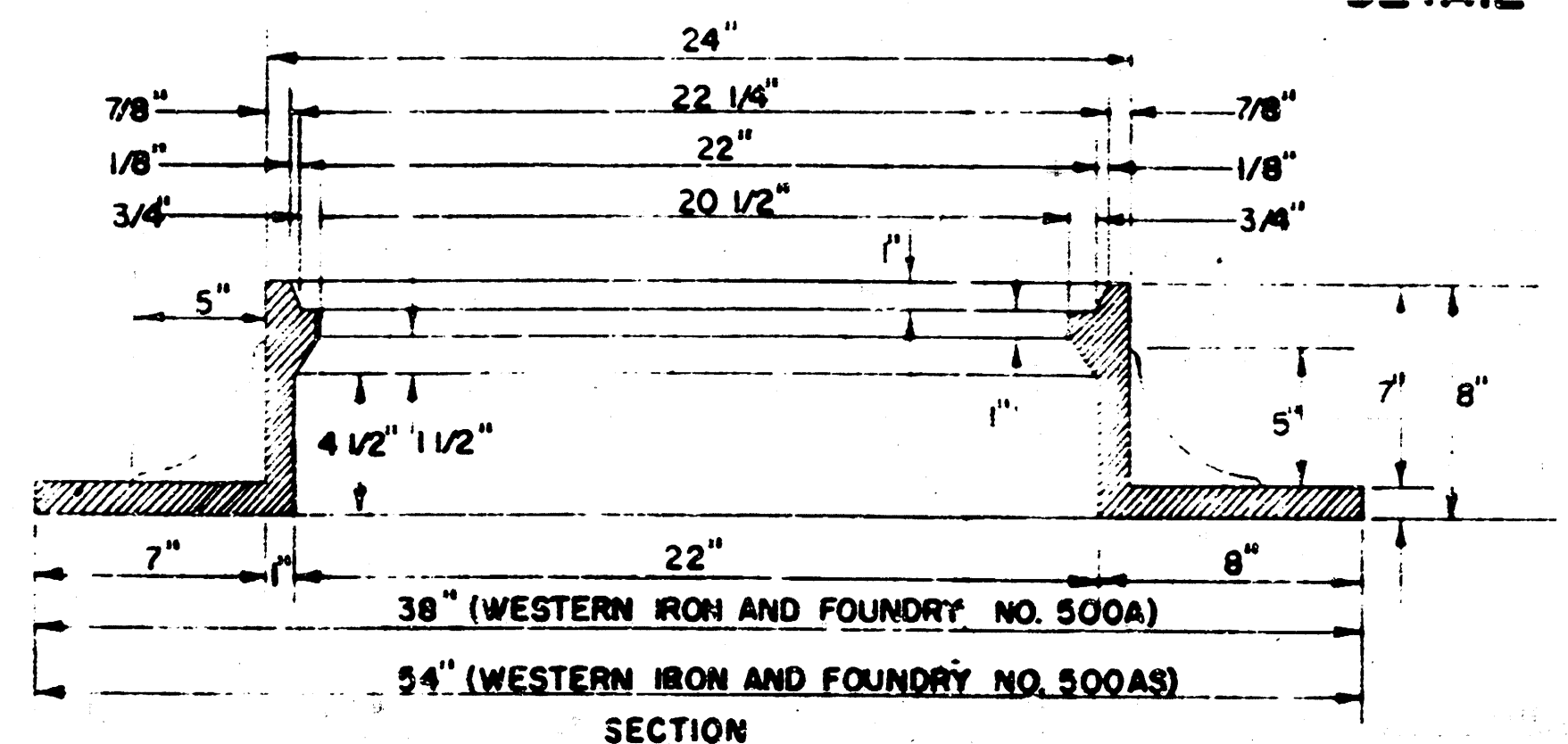
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD.
- STANDARD MANHOLES TYPE "A" OR TYPE "B" AND STANDARD DROP MANHOLES TYPE "A" OR TYPE "B" SHALL BE BID PER LINEAR FOOT OF MANHOLES CONSTRUCTED.
- OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE. MANHOLES WITH PIPE SIZES LARGER THAN 24" SHALL BE 5' DIAMETER.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED TO INCREASE HYDRAULIC EFFICIENCY USING 6 SACK SAND MIX CONCRETE.
- PIPE INSTALLED WITHIN THE MANHOLE EXCAVATION SHALL BE SET WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. COST OF CRADLE WITHIN MANHOLE EXCAVATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR MANHOLES CONSTRUCTED. CRADLE SHALL EXTEND TO FIRST JOINT OUTSIDE OF MANHOLE WHEN CLAY PIPE IS USED.



MANHOLE COVER

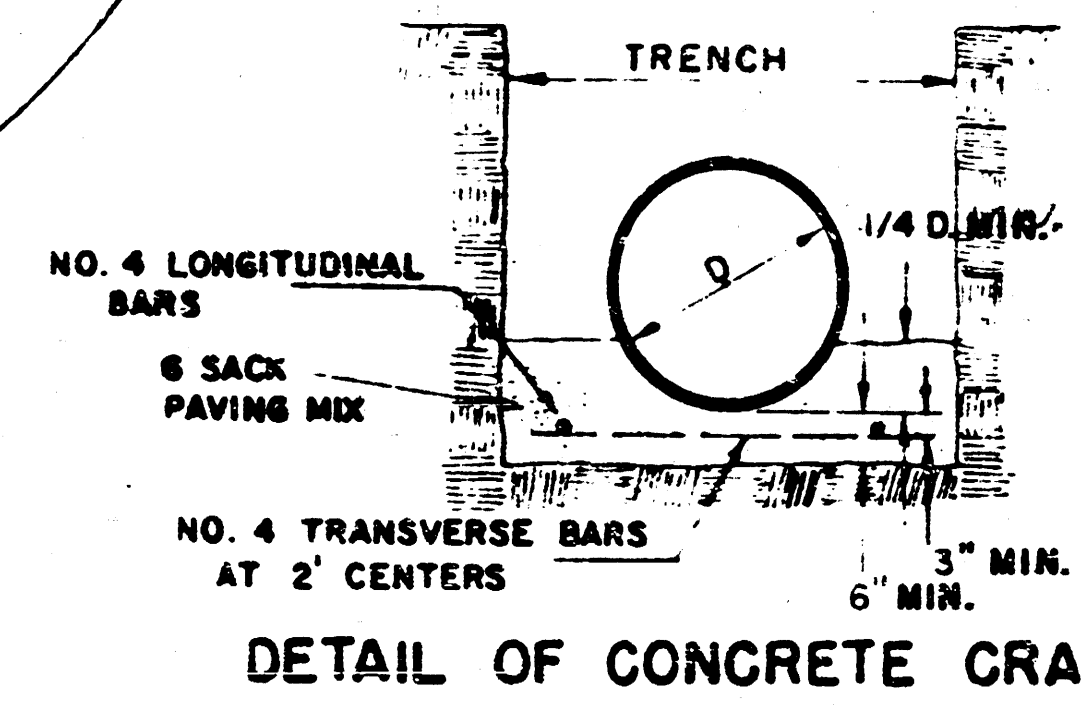


MANHOLE COVER

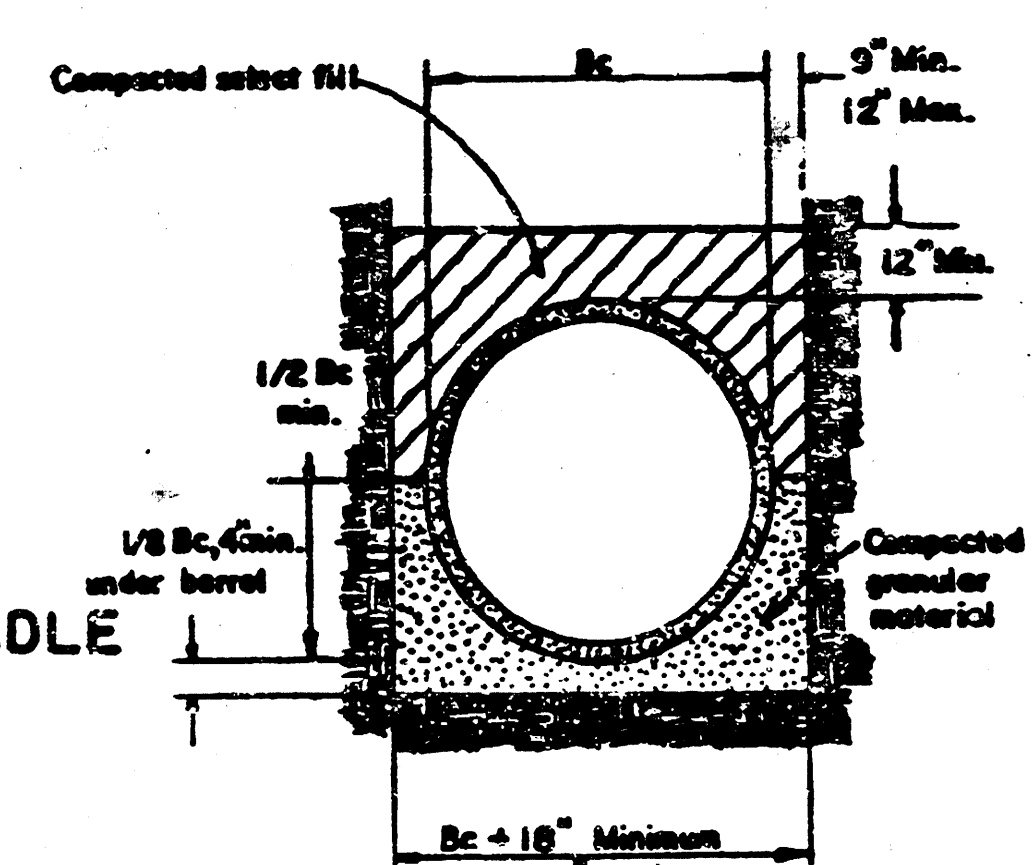


MANHOLE RING

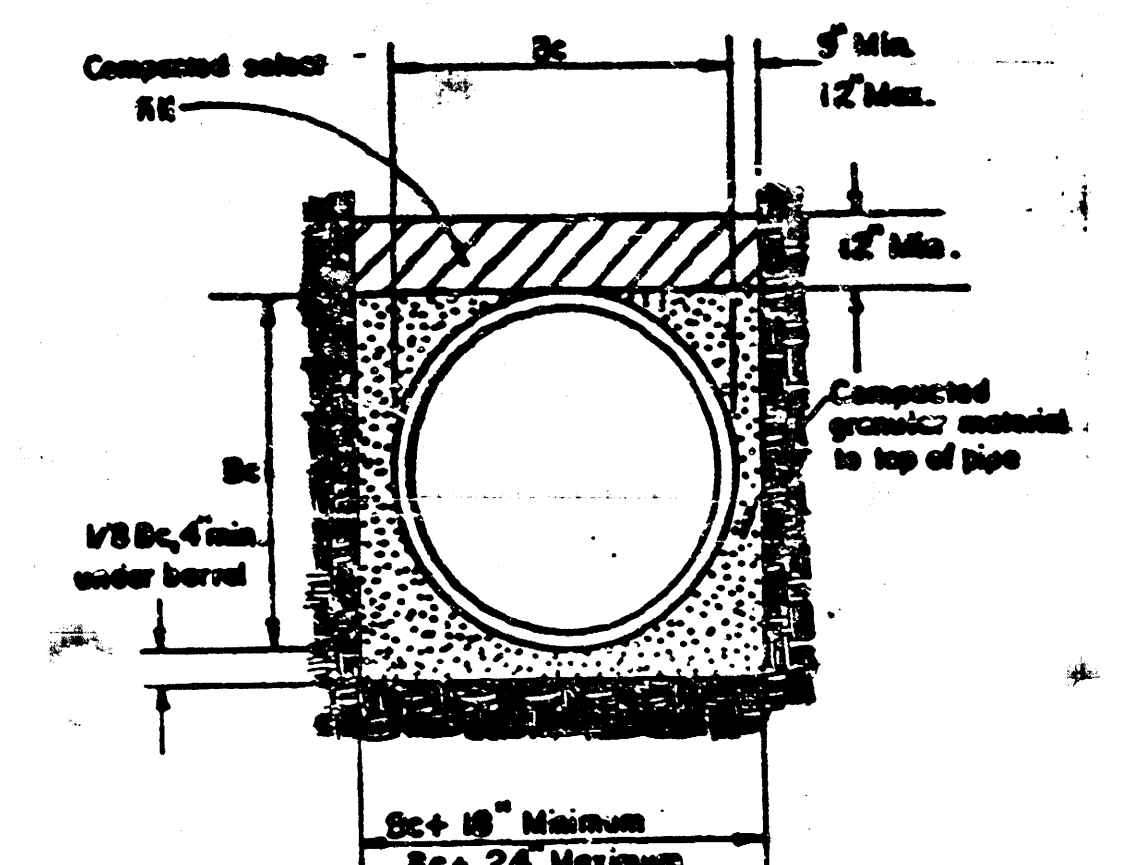
OUTSIDE CIRCUMFERENCE OF COVER AND THE INNER FACE AND SEAT OF RING TO BE MACHINE FIT.



DETAIL OF CONCRETE CRADLE



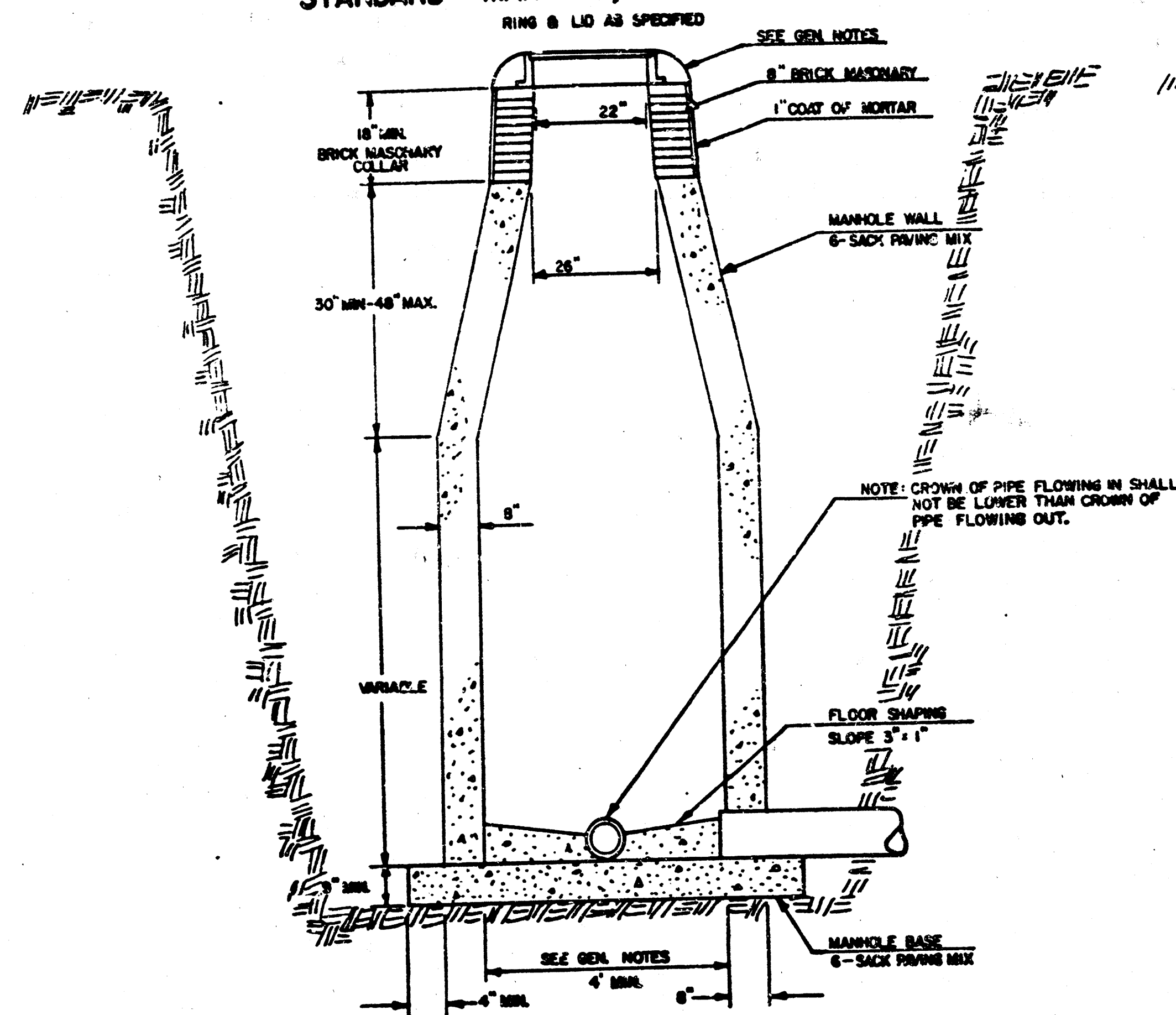
A.B.S. PIPE BEDDING DETAIL



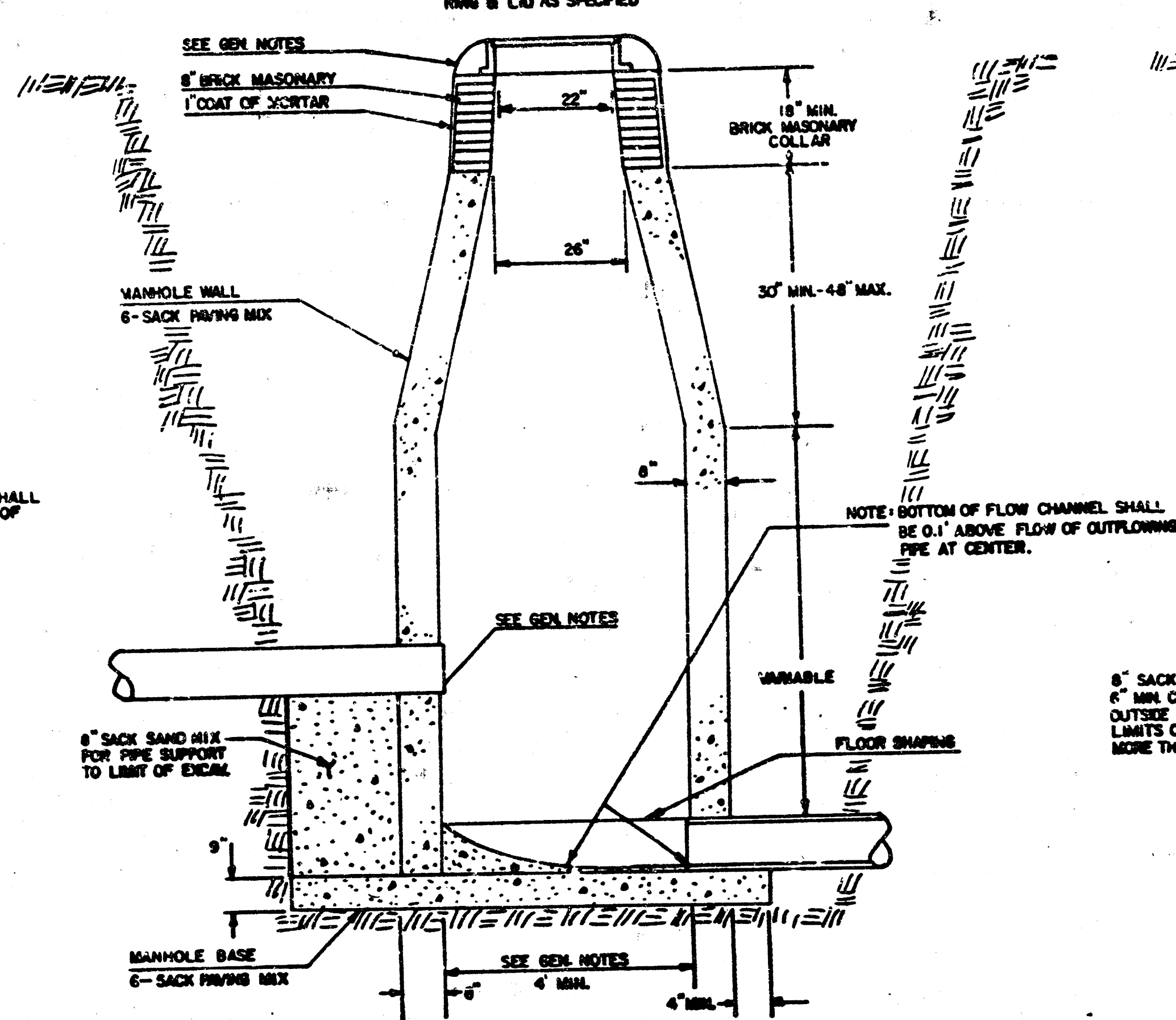
P.V.C. PIPE BEDDING DETAIL

DETAILS OF
SEWER APPURTENANCES
ADOPTED AS STANDARD DESIGN
BY
ENGINEERING DIVISION
CITY OF WICHITA, KANSAS
R. W. LINN CITY ENGINEER

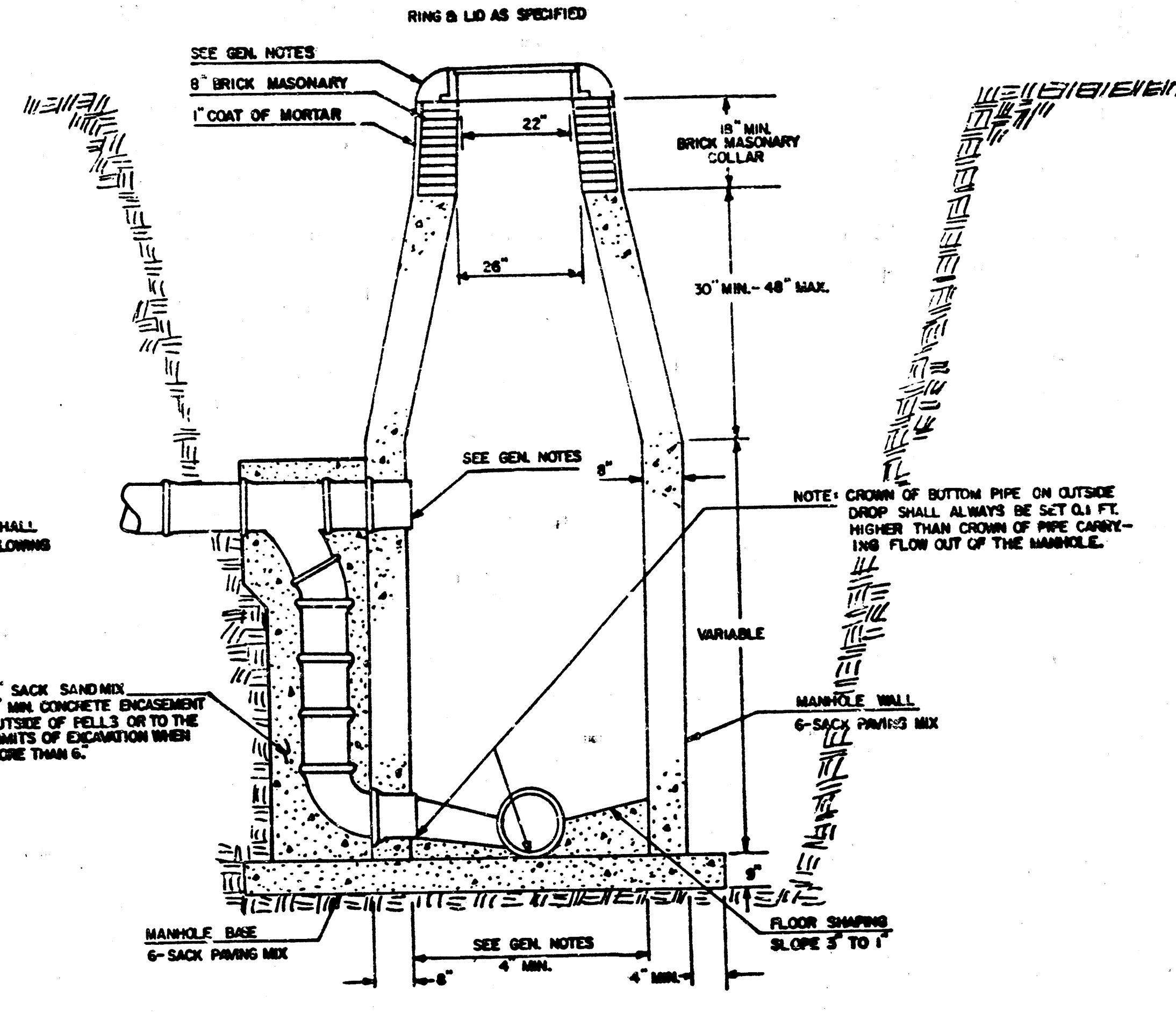
STANDARD MANHOLE, TYPE "C"



INSIDE DROP MANHOLE, TYPE "C"

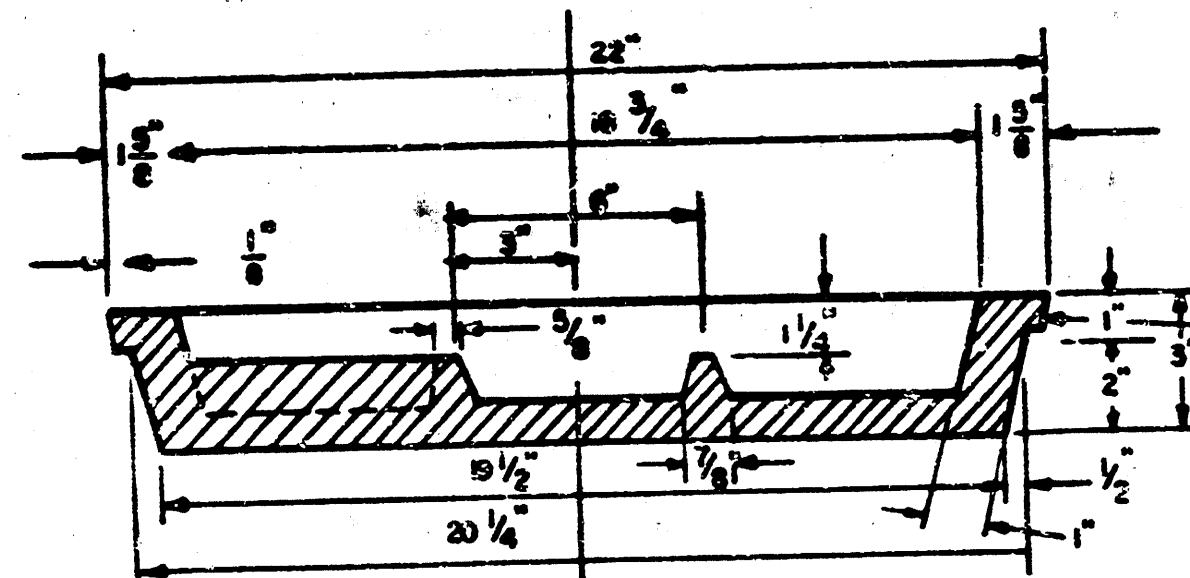
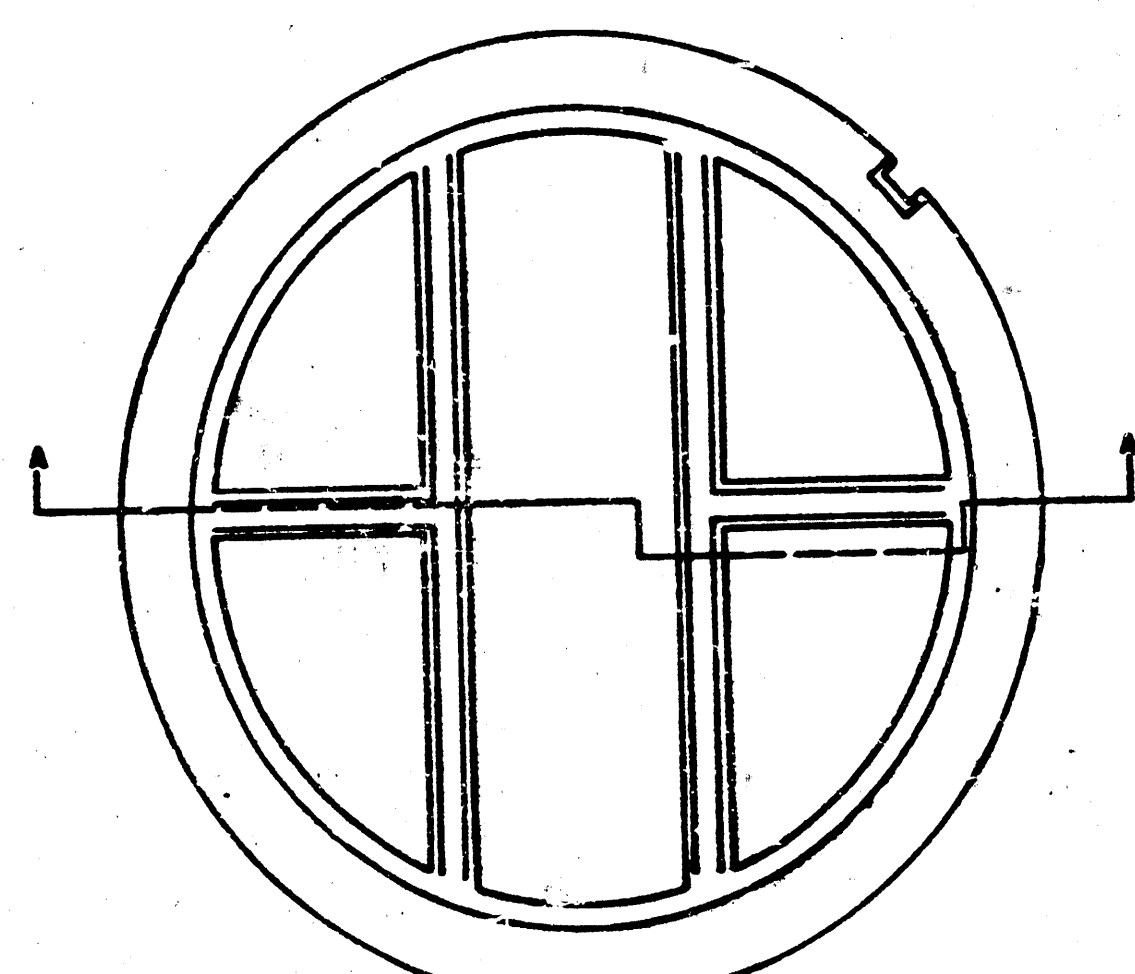


OUTSIDE DROP MANHOLE, TYPE "C"

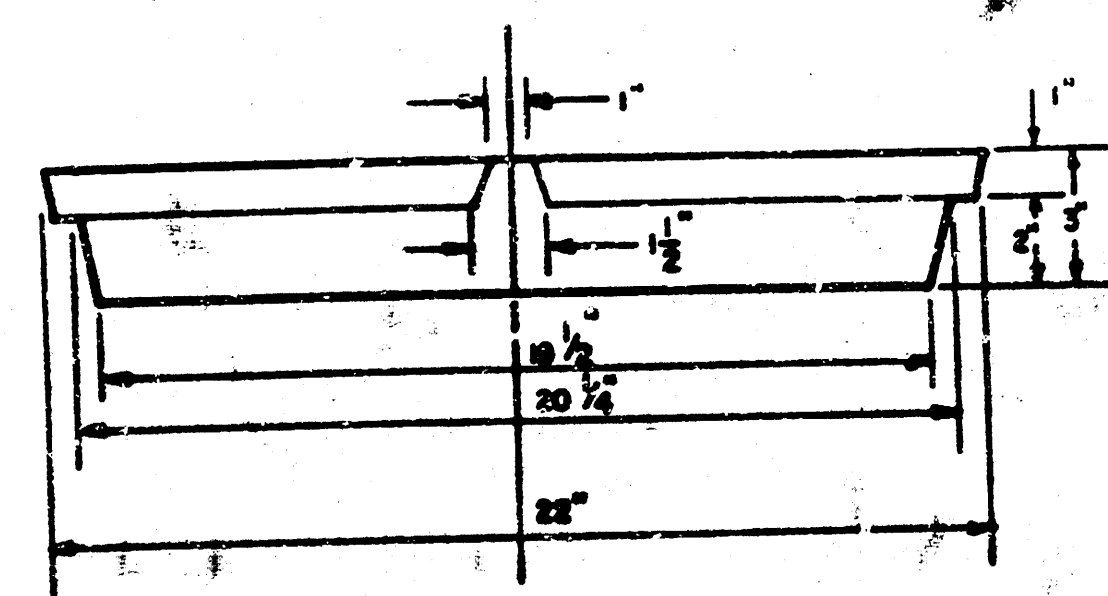


GENERAL NOTES

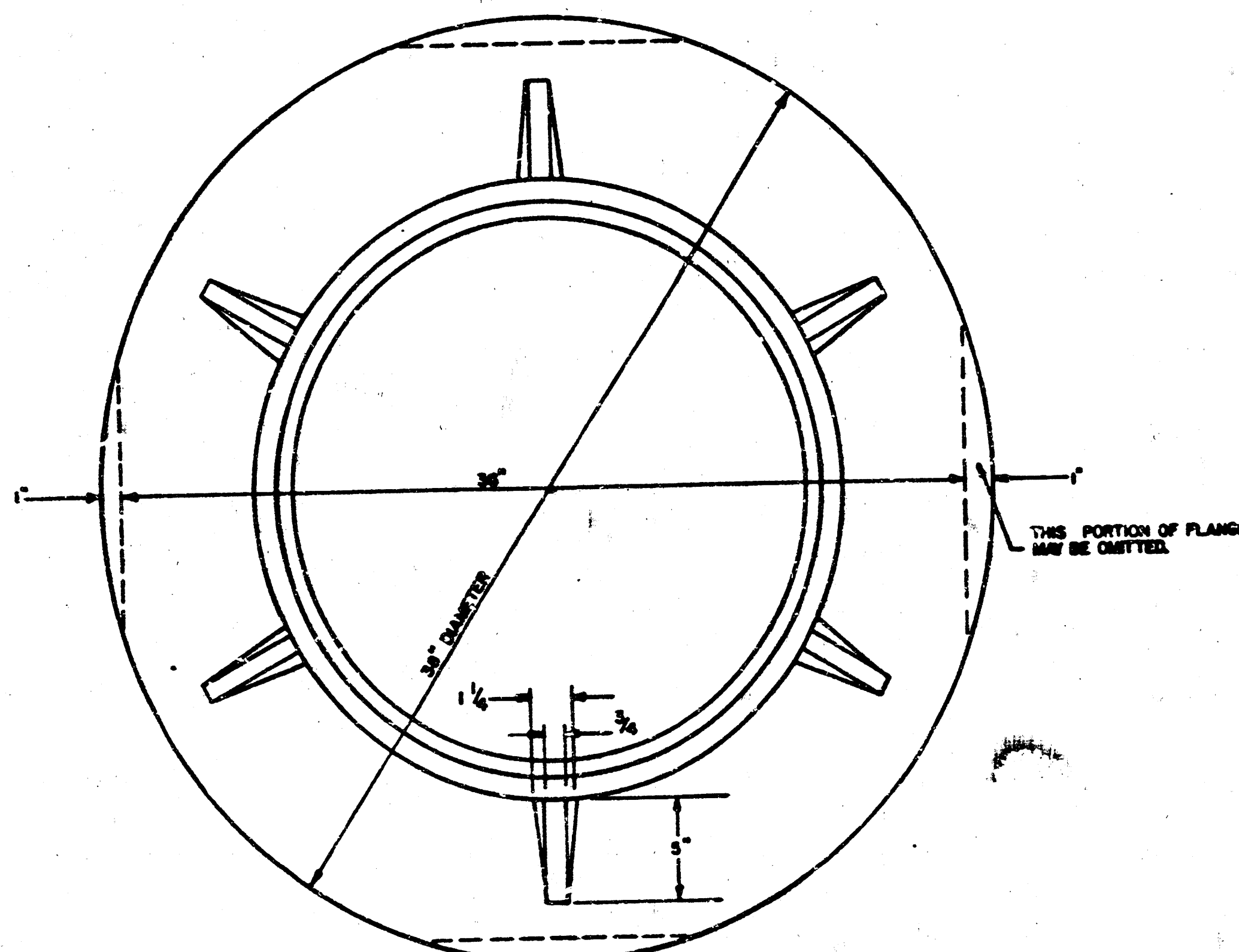
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVING CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING 6 BAGS OF CEMENT PER CUBIC YARD WITHOUT 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 36". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. 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 MANHOLE CONSTRUCTION.
3. 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.
4. 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 VALVES 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 LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO REAR 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.
5. 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 MANHOLE CONSTRUCTION.
6. THE OUTSIDE CIRCUMFERENCE OF MANHOLE COVERS, THE INSIDE CIRCUMFERENCE OF MANHOLE RINGS, AND THE SEATING FACES BETWEEN THE COVER AND THE RING SHALL BE MACHINED TO THE DIMENSIONS INDICATED SO THE MANHOLE COVER WILL FIT INTO THE RING SUCH THAT THE CLEARANCE BETWEEN THE COVER AND THE RING WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE RING AND COVER SHALL BE MACHINED SUCH THAT THESE SURFACES WILL MAKE CONTACT FOR THEIR FULL CIRCUMFERENCE WITHOUT ROCKING. A PICK HOLD SHALL BE FABRICATED AT ONE LOCATION IN THE OUTER CIRCUMFERENCE OF THE COVER TO FACILITATE REMOVAL OF THE COVER. THE PICK HOLD SHALL BE FABRICATED IN SUCH A MANNER THAT WILL PRECLUDE AN OPENING THROUGH WHICH STORM WATER COULD ENTER INTO THE MANHOLE.
7. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2'. INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWN OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.



MANHOLE COVER

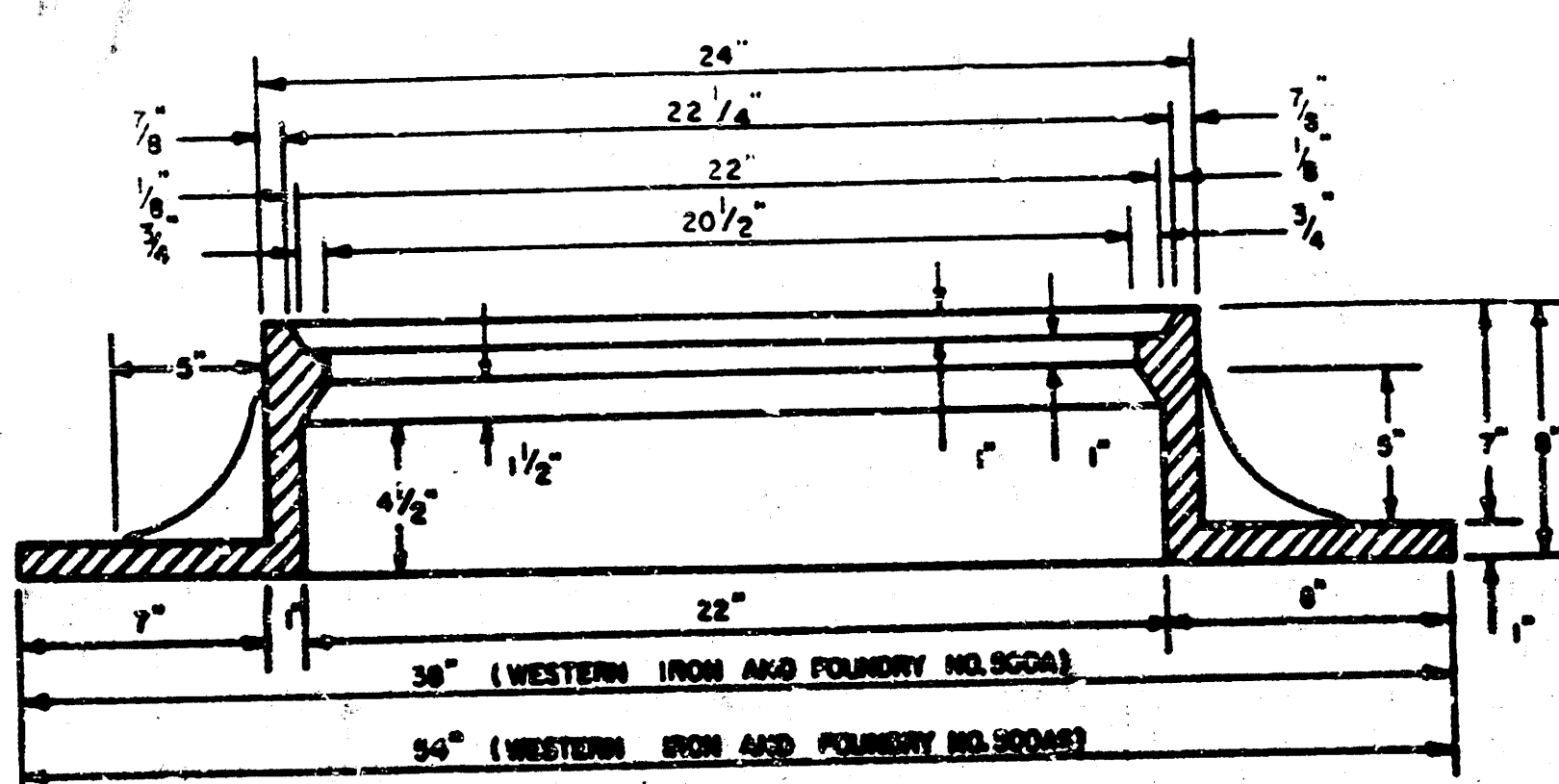


MANHOLE COVER



MANHOLE RING

325 LBS. RING NO. 500A
WEIGHT 800 LBS. RING NO. 500AS



MANHOLE RING

SANITARY SEWER EXTENSIONS
KAPPELMAN'S BEL AIRE HEIGHTS-

NO. 12-3-80 REVISION 10-10-80 BY DATE
SEDMON COUNTY DEPARTMENT OF PUBLIC WORKS

CONCRETE MANHOLE DETAILS
(TYPE C MANHOLES)

DRIS & GOODNESS ENGINEERS
2100 WEST 21ST STREET
WICHITA, KANSAS 67204
(316) 838-0285

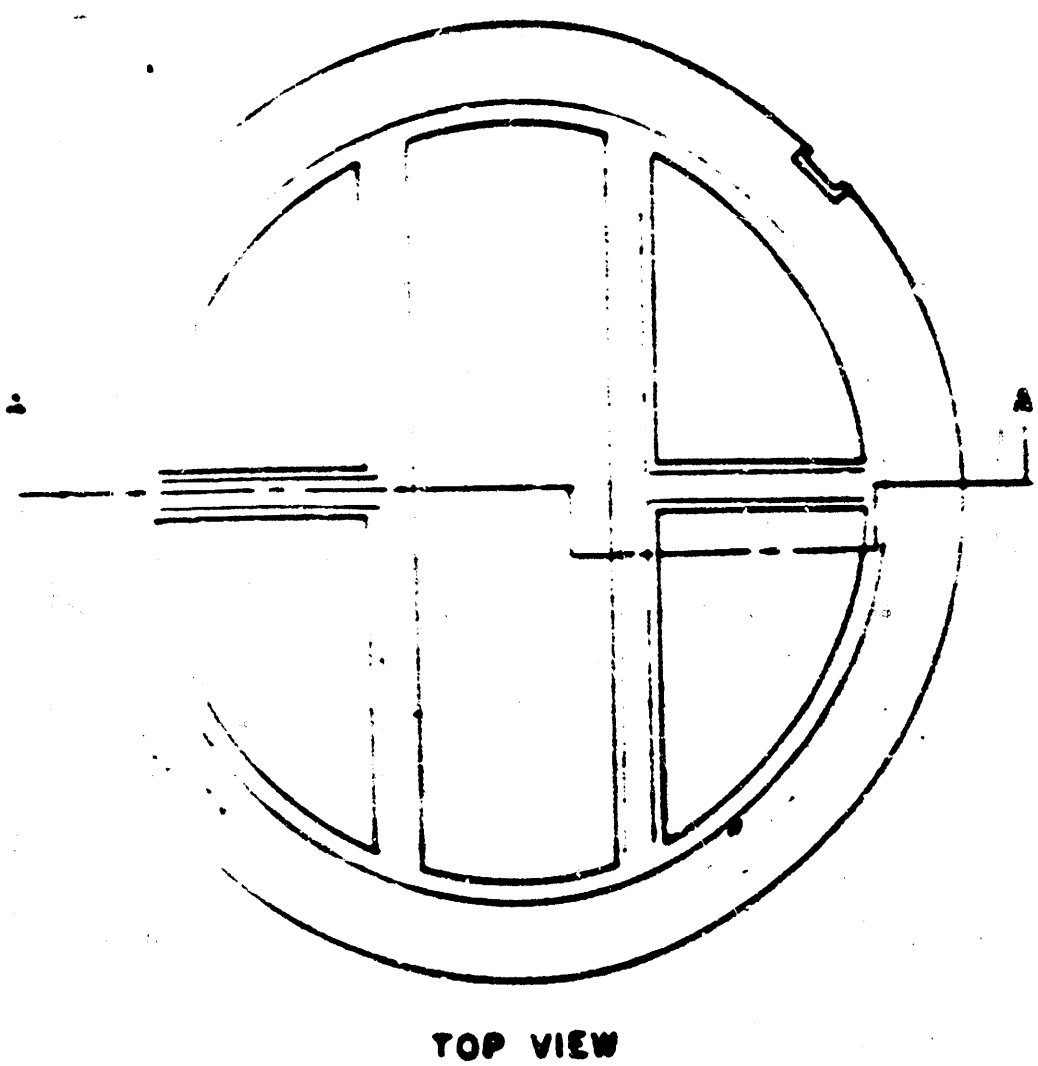
DESIGNED BY CITY OF WICHITA
DRAWN BY CA
DATE 1/28/80

FILMED FROM THE BEST

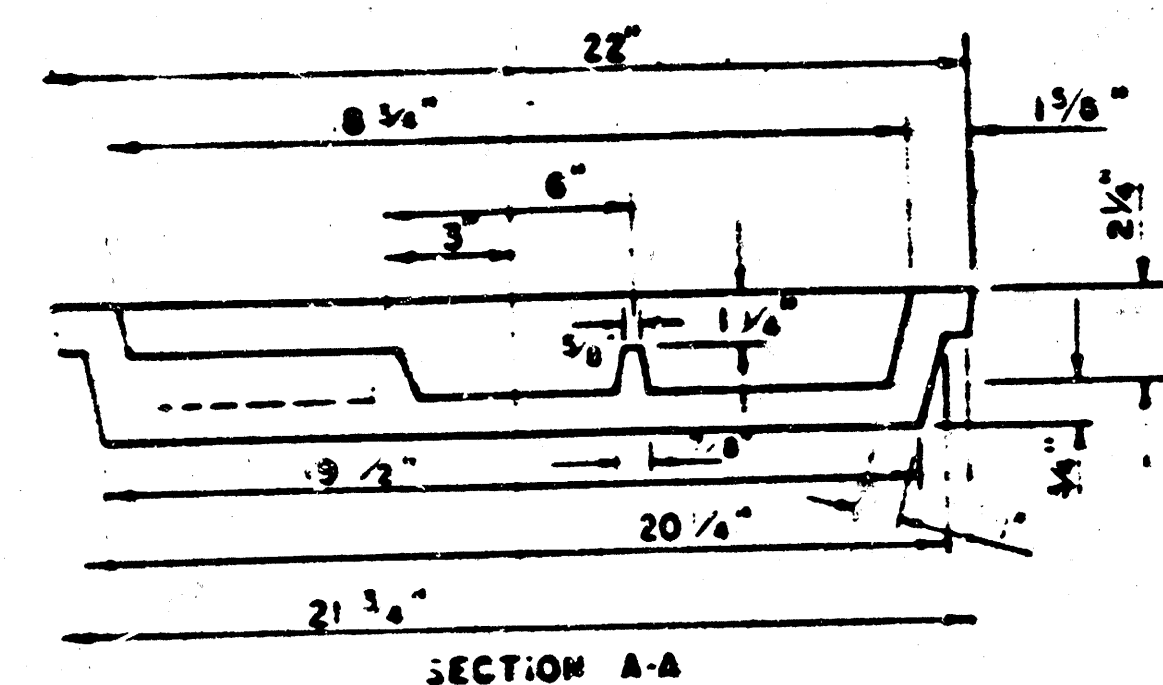
SEWER APPURTENANCES DETAILS

GENERAL NOTES

- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 6 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 6 SACKS OF CEMENT PER CUBIC YARD WITHOUT AIR ENTRAINING ADJUSTMENT. THE CITY STANDARD PAVING SPECIFICATIONS USING 6 SACKS OF CEMENT PER CUBIC YARD WITHOUT AIR ENTRAINING ADJUSTMENT. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. PLASTIC LINING INSIDE THE MANHOLE SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THE STANDARD SPECIFICATIONS FOR PLASTIC LINING FOR SANITARY SEWER CONSTRUCTION. ALL INSIDE SURFACES OF THE MANHOLE WALL WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY THE PLASTIC LINING. TYPE D MANHOLES MAY BE USED ON PIPE SIZES 10" TO 36" WHEN THE MANHOLE DEPTH EXCEEDS THE REQUIRED CORREL 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 4" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLES COMPLETED.
- 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 GROUDED INTO THIS OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION 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 EFFECTIVELY MAINTAIN THE INTEGRITY OF THE PROTECTIVE PLASTIC LINER.

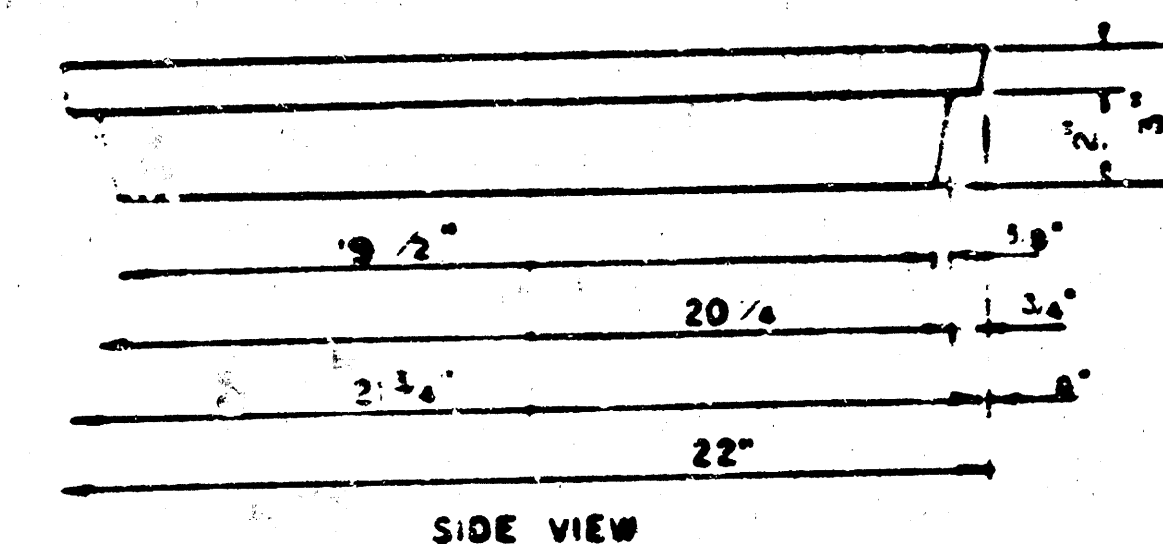


TOP VIEW

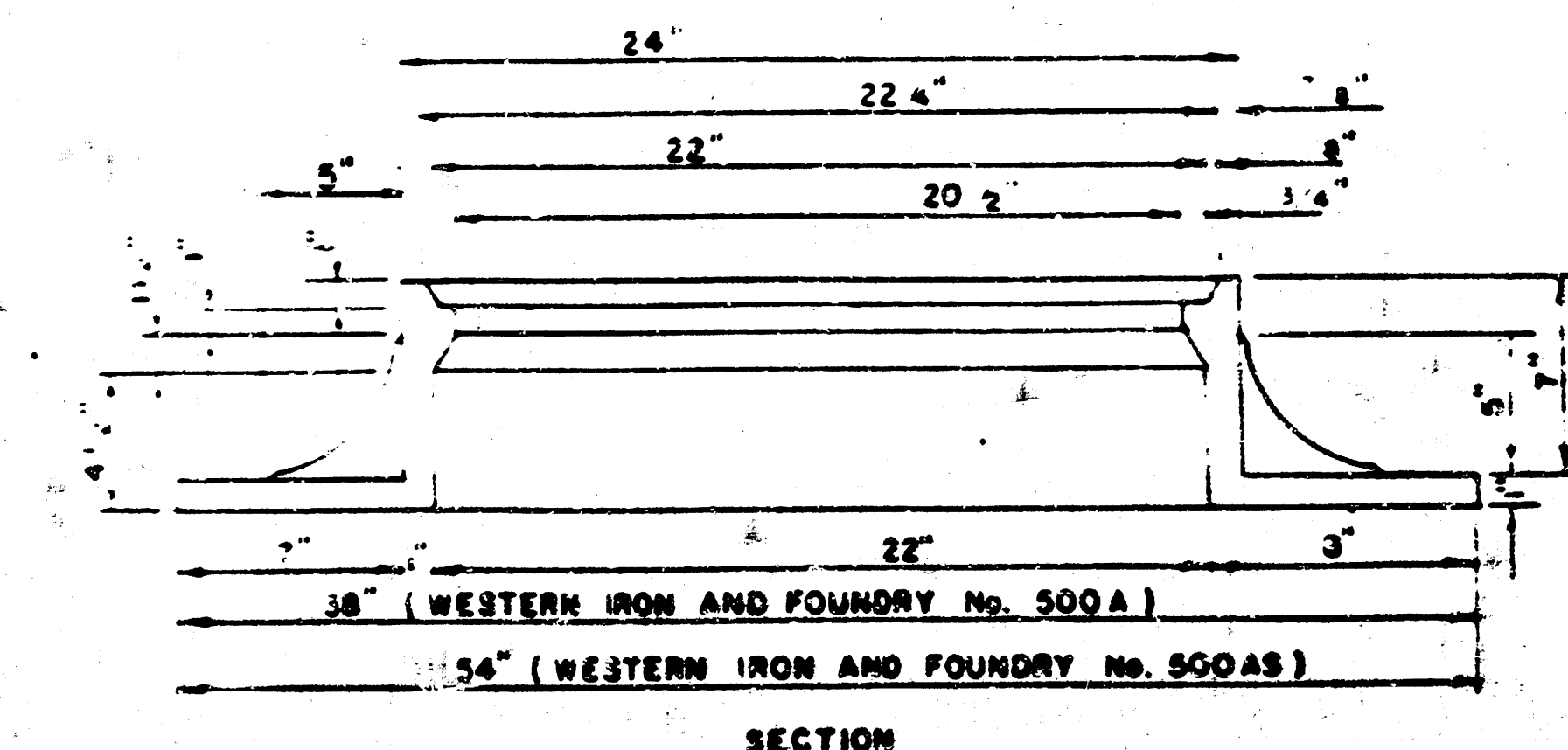


SECTION A-A

MANHOLE COVER



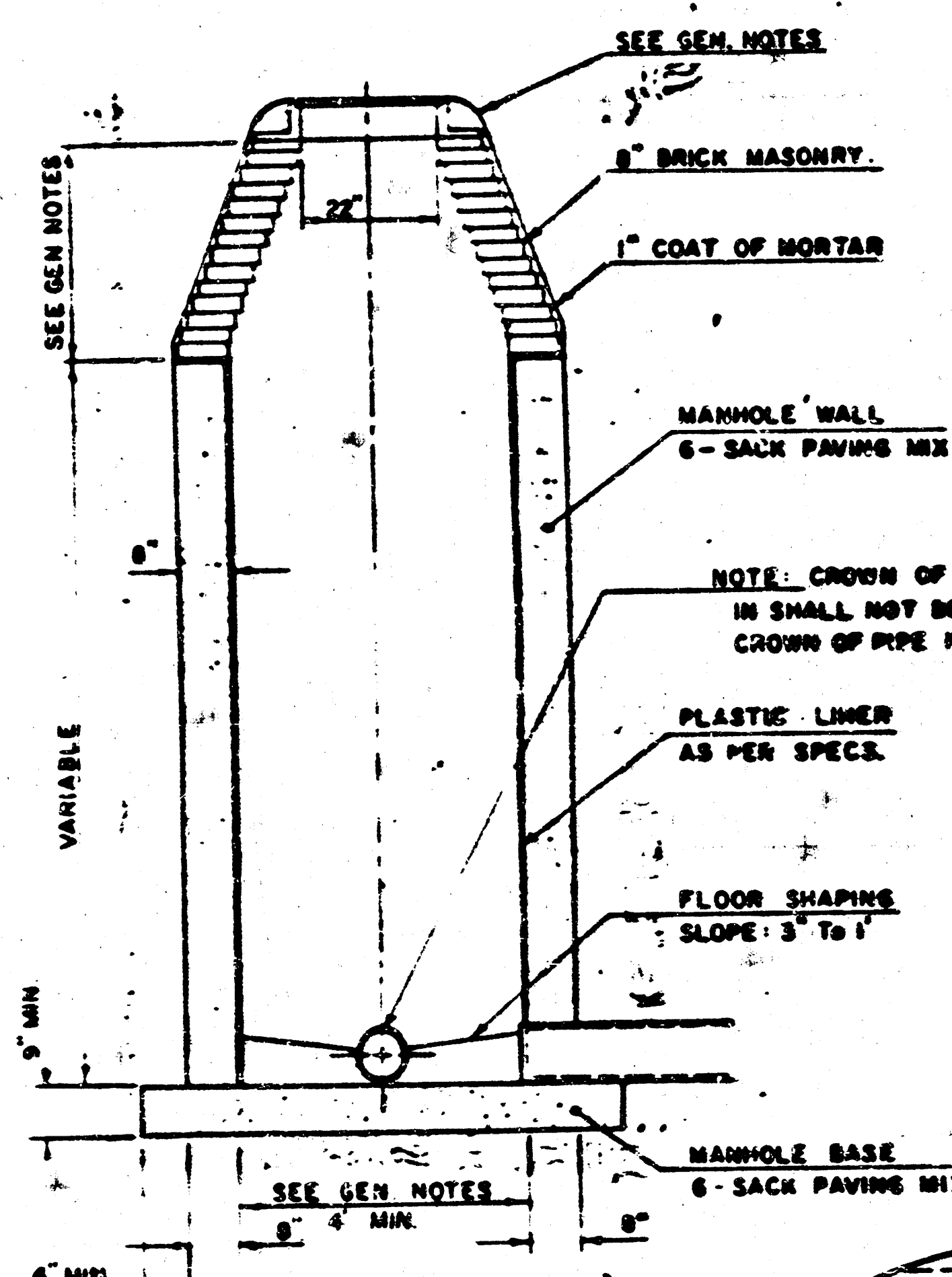
SIDE VIEW
HEIGHT OF MANHOLE COVER = 0.00



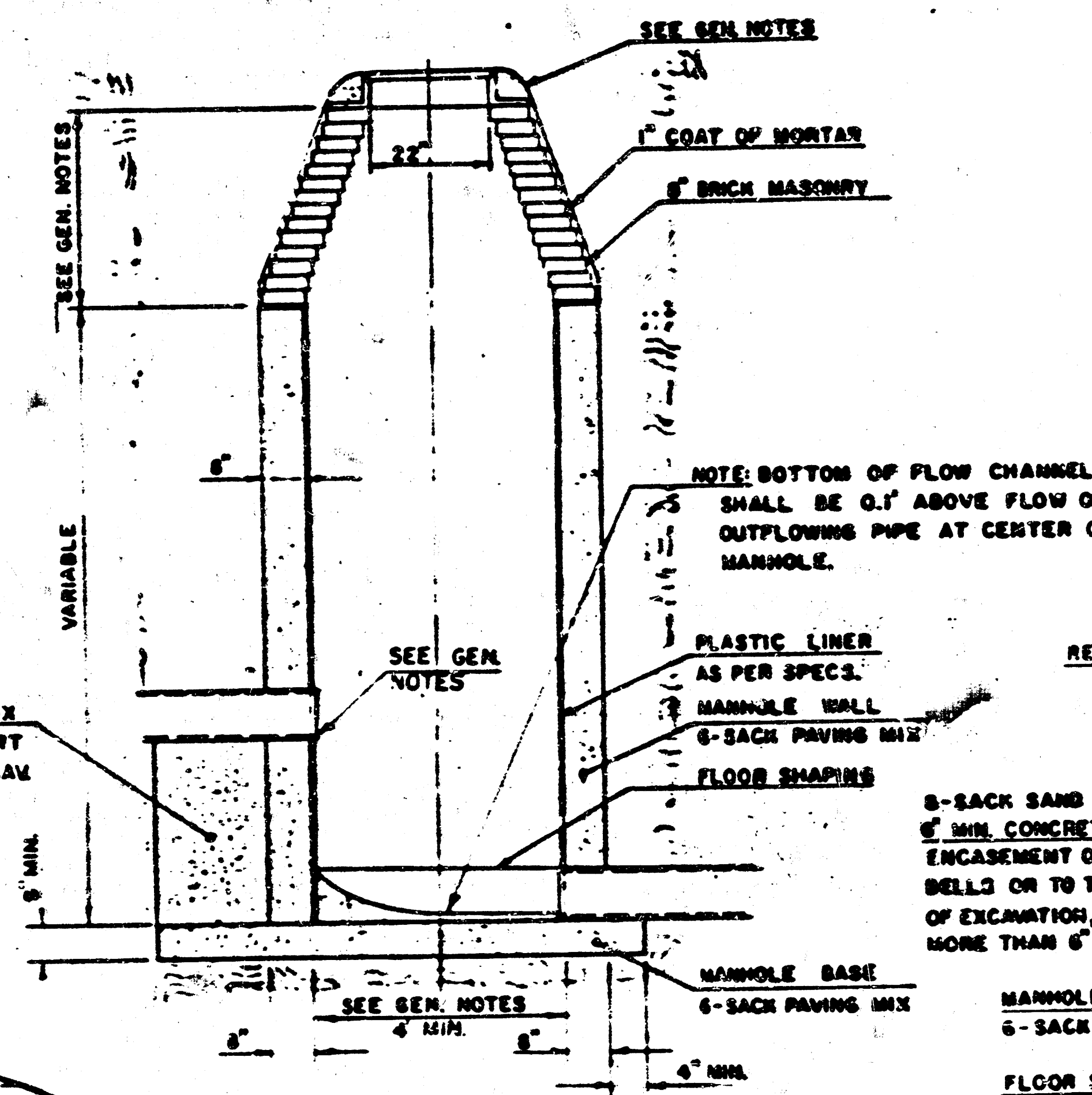
SECTION

HEIGHT OF MANHOLE RING NO. 500A = 325 lbs.
HEIGHT OF MANHOLE RING NO. 500AS = 400 lbs.

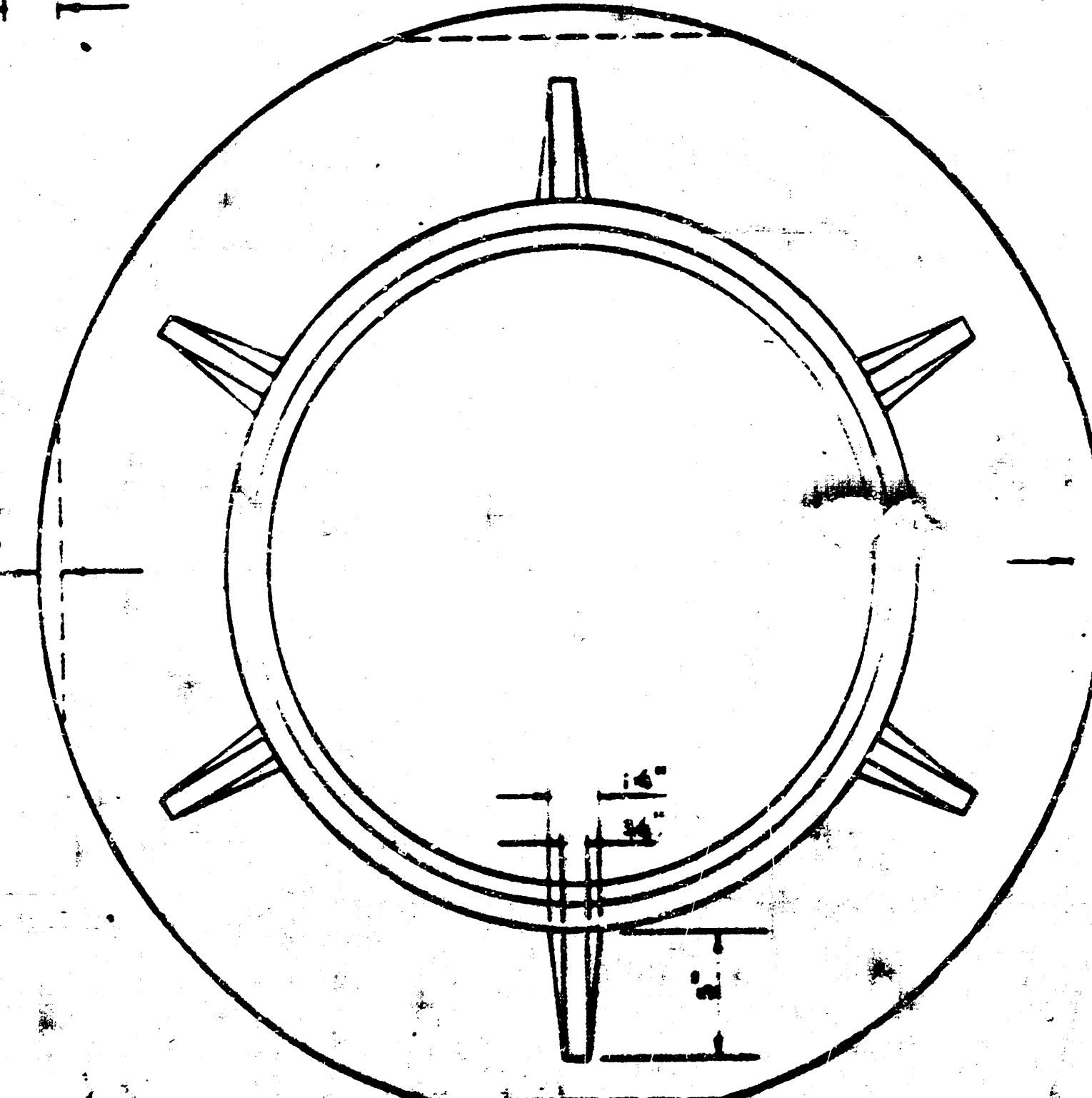
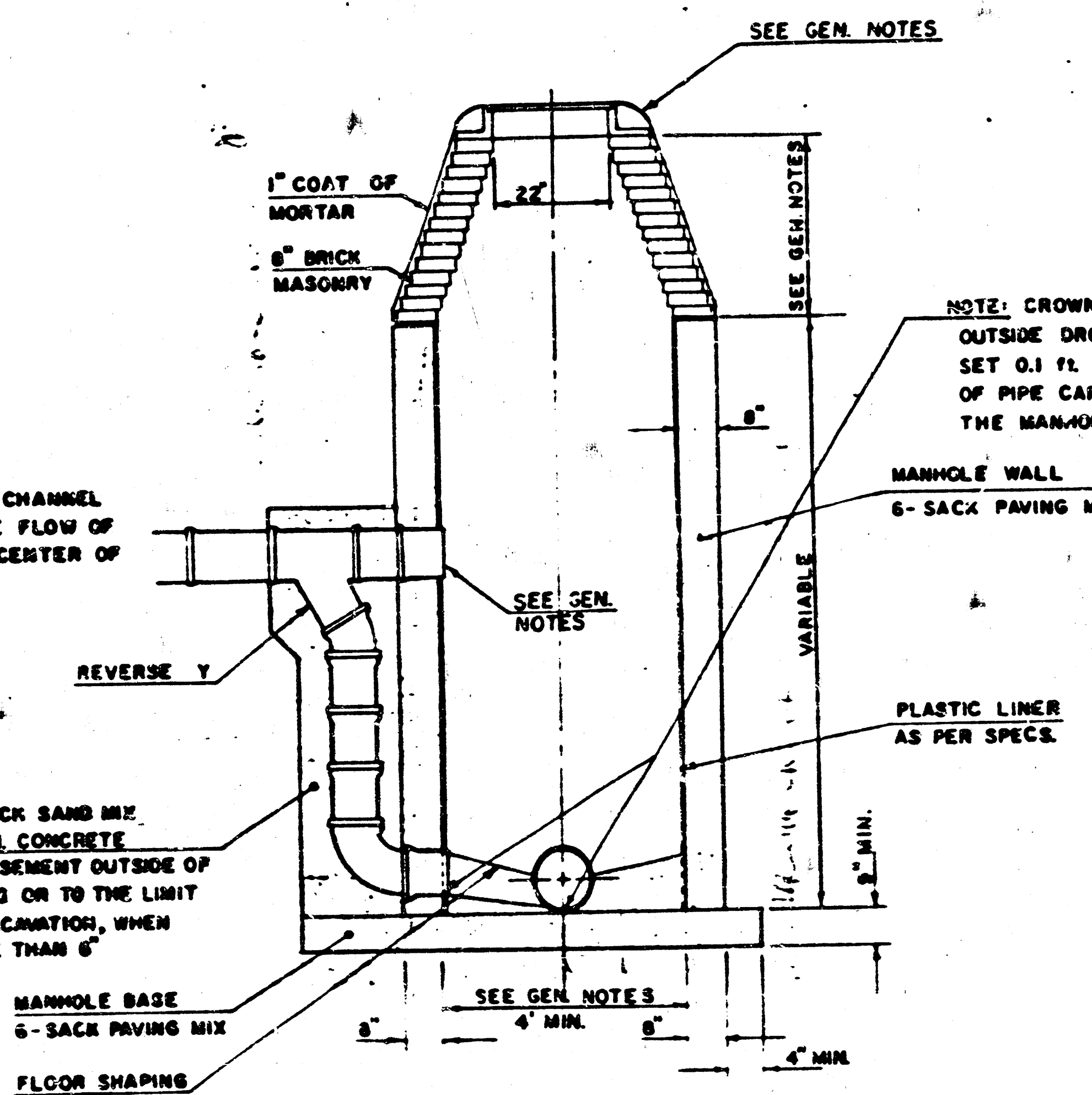
TYPE "D" MANHOLE



TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE



TOP VIEW

MANHOLE RING

- 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 INLET PIPES AND THE OUTFLOWING PIPE. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED 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. CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLES COMPLETED.
- THE OUTSIDE CIRCUMFERENCE OF MANHOLE COVERS, THE INSIDE CIRCUMFERENCE OF MANHOLE RINGS, AND THE SEATING FACES BETWEEN THE COVER AND THE RING SHALL BE MACHINED TO THE DIMENSIONS INDICATED SO THAT THE MANHOLE COVER WILL FIT INTO THE RING SUCH THAT THE CLEARANCE BETWEEN THE COVER AND THE RING WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE RING AND COVER SHALL BE MACHINED SUCH THAT THESE SURFACES WILL MAKE CONTACT FOR THEIR FULL CIRCUMFERENCE WITHOUT ROCKING. A PICK HOLE SHALL BE FABRICATED AT ONE LOCATION IN THE OUTER CIRCUMFERENCE OF THE COVER TO FACILITATE REMOVAL OF THE COVER. THE PICK HOLE SHALL BE FABRICATED IN SUCH A MANNER THAT WILL PRECLUDE AN OPENING THROUGH WHICH STORM WATER COULD ENTER INTO THE MANHOLE.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INLET PIPES SIZED 12" OR SMALLER AND 2' FOR INLET PIPES LARGER THAN 12". THE CROWN OF INLET PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES TYPE D AND STANDARD INSIDE DROP MANHOLES TYPE D SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE D SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- PLASTIC LINER SHALL BE ASBESTHOS, T-1000, OR APPROVED EQUAL.