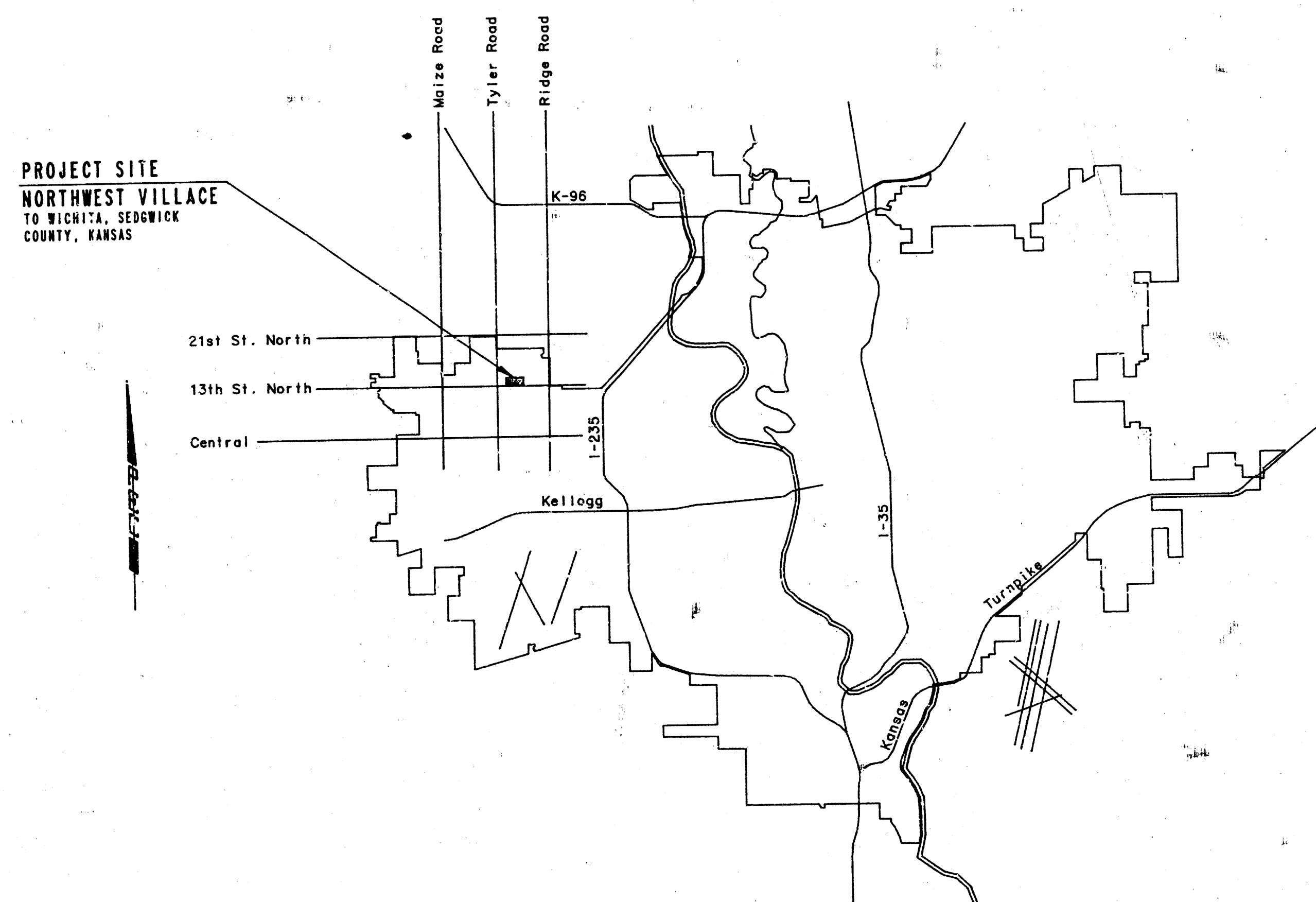


CONSTRUCTION PLANS FOR
LATERAL 161
 OF THE
SOUTHWEST INTERCEPTOR SEWER
THE CITY OF WICHITA,
 SEDGWICK COUNTY, KANSAS
 MICHAEL E. LINDEBAK, P.E. CITY ENGINEER

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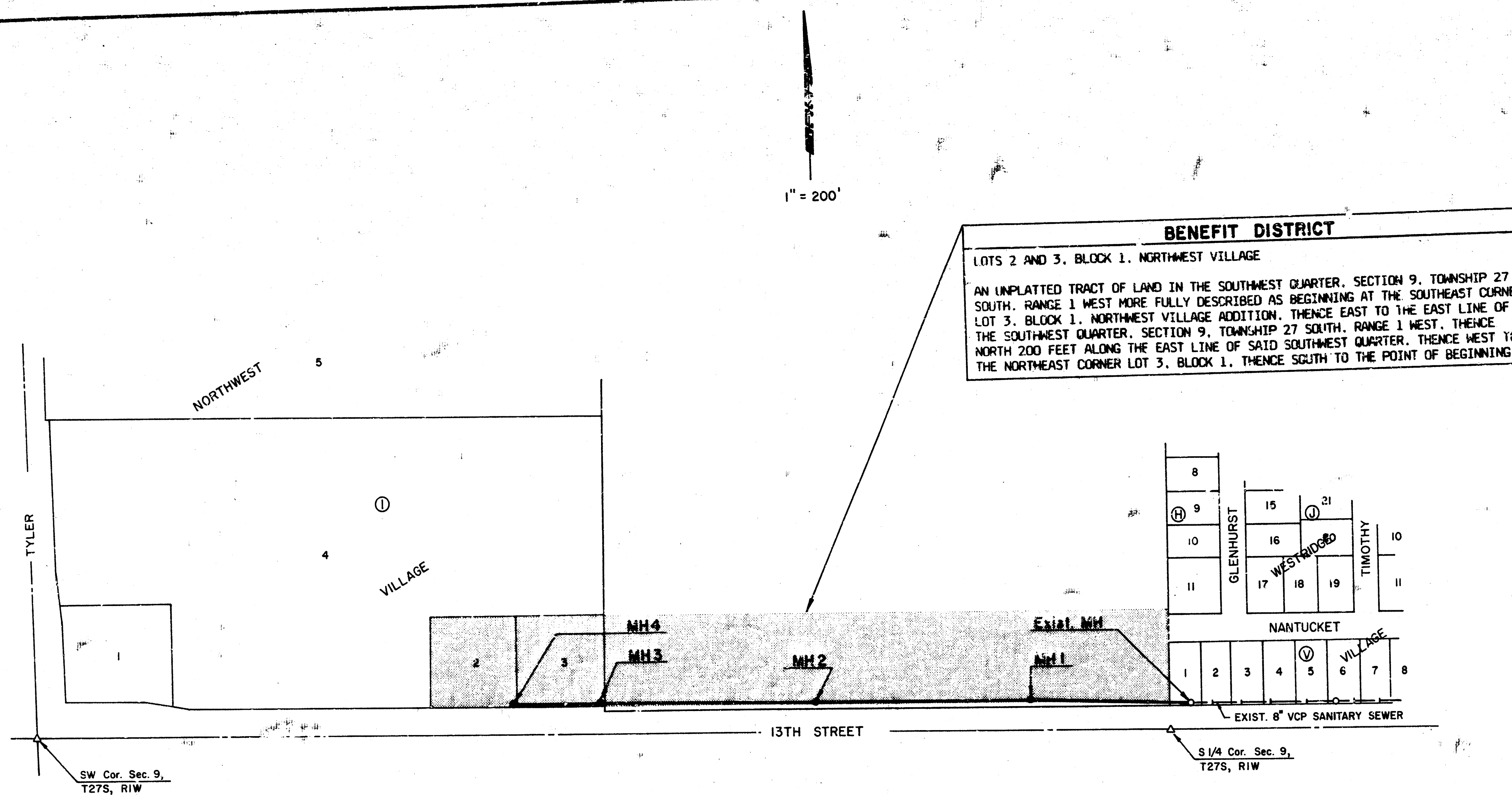
LOCATION MAP

CITY OF WICHITA PROJECT NO. 468-76-245-81042-000-000-001

JANUARY, 1986

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





KEY MAP

GENERAL NOTES

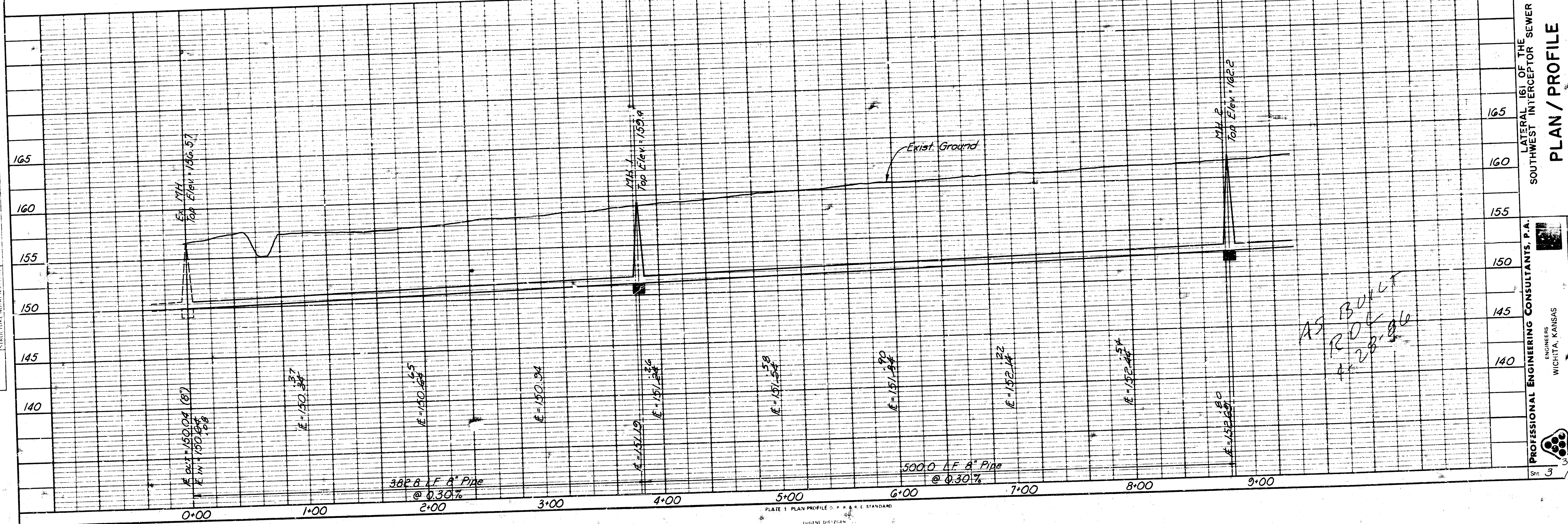
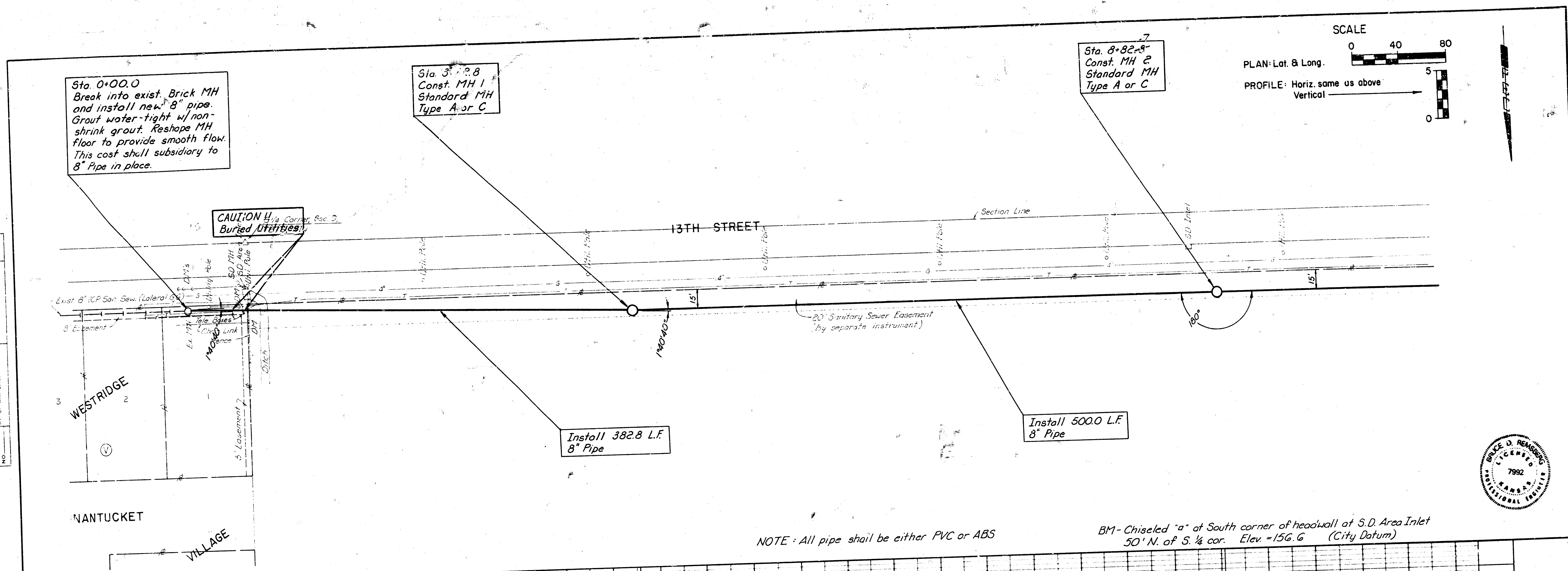
1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
2. ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM (USGS-1187.4 = CITY DATUM).
3. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHTS AND WORKDAYS TO LESS THAN 50 FEET.
4. AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION, IF REQUIRED, (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: GAS SERVICE COMPANY, K.G.B.E., THE WICHITA WATER DEPARTMENT, AND AIR CAPITAL CABLEVISION.
5. THE CONTRACTOR MUST ALSO NOTIFY THE TELEPHONE COMPANY AT (316) 571-2115 48 HOURS PRIOR TO BEGINNING EXCAVATION AND REQUEST THAT ANY LINES WITHIN THE PROJECT AREA BE FLAGGED.
6. THE BURIED UTILITIES AS LOCATED ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLES MAY EXIST WHICH ARE NOW SHOWN ON THESE PLANS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SHALES, ROAD SHOULDERS, ENTRANCES, AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR OR A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE OTHER ITEMS OF WORK.
9. NO EXCESS MATERIAL SHALL BE PLACED WITHIN STREET RIGHTS-OF-WAY. THE CONTRACTOR SHALL CONTACT THE DEVELOPER FOR INFORMATION PERTAINING TO ACCEPTABLE LOCATIONS FOR THE DISPOSITION OF WASTE MATERIAL. WASTE MATERIAL SHALL BE BLADED SMOOTH AND SLOPED TO DRAIN. THIS WORK SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
10. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.

	Revision		By	Date
	LATERAL 161 OF THE SOUTHWEST INTERCEPTOR SEWER KEY MAP			
	MICHAEL E. LINDEBAK, P.E. CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-81042-000-000-001 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.			
	ENGINEERS WICHITA, KANSAS			
Designed by <i>BDR</i>	Job No. <i>34-85562</i>	Date <i>January, 1986</i>		Sht. <i>2</i> of <i>7</i>
Drawn by <i>GM</i>				

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PLAN	DATE
NO.	
REVISION	
BY	
CHECKED	
NOTED	
APPROVED	

PROFILE	DATE
NO.	
REVISION	
BY	
CHECKED	
NOTED	
APPROVED	



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

Job No. 34-85562
Designed by BDF
Drawn by G.M. D.M.

LATERAL 161 OF THE
SOUTHWEST INTERCEPTOR SEWER

PLAN / PROFILE

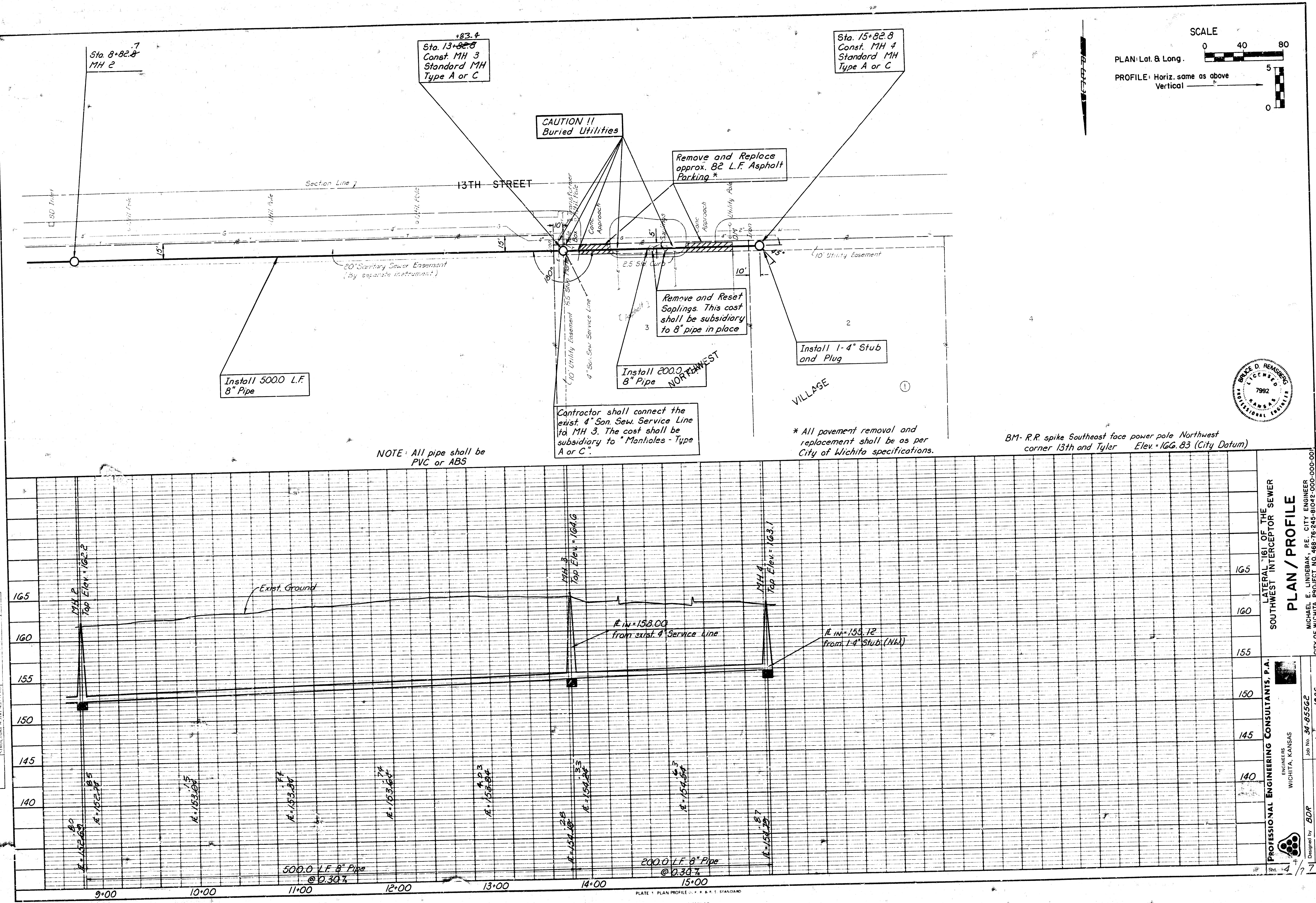
MICHAEL E. LINDEBAK, P.E., CITY ENGINEER
CITY OF WICHITA PROJECT NO. 48576-245-8042-000-000-001

Date January, 1986

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PLAN	DATE	
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PROFILE	DATE	
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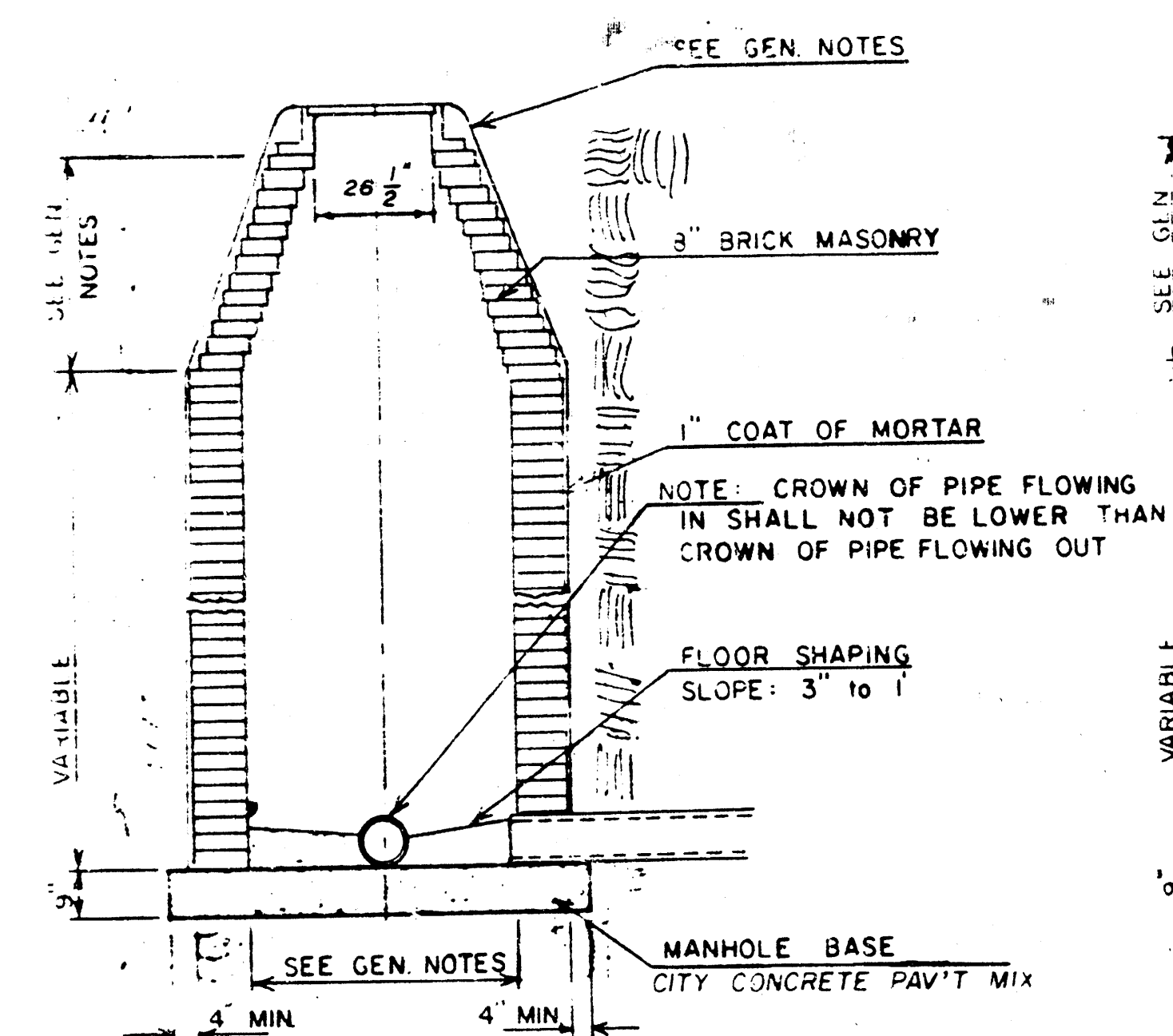
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN
BY

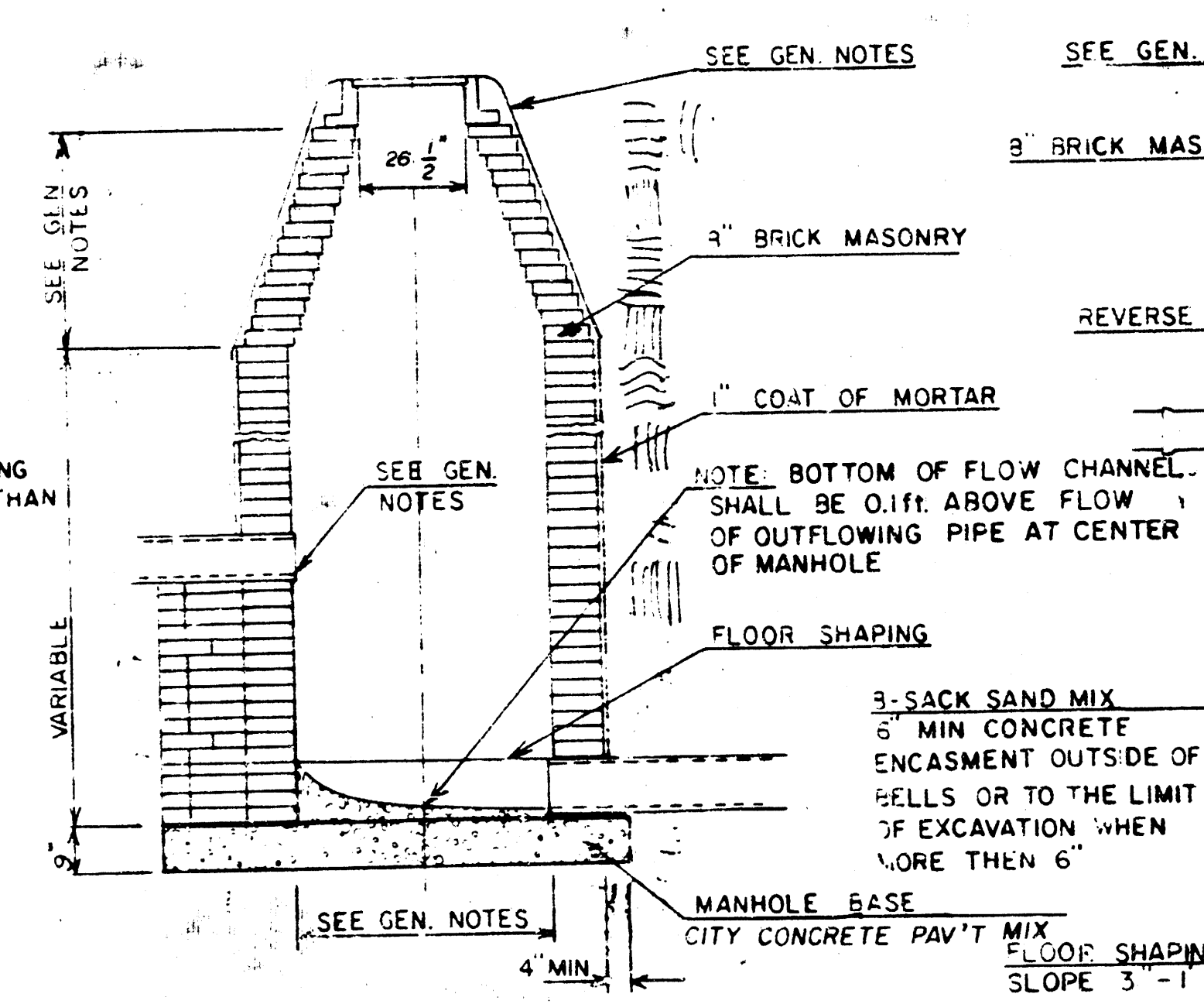
CITY of WICHITA, KANSAS

REVISED SEPTEMBER 1980
REVISED DECEMBER 1981

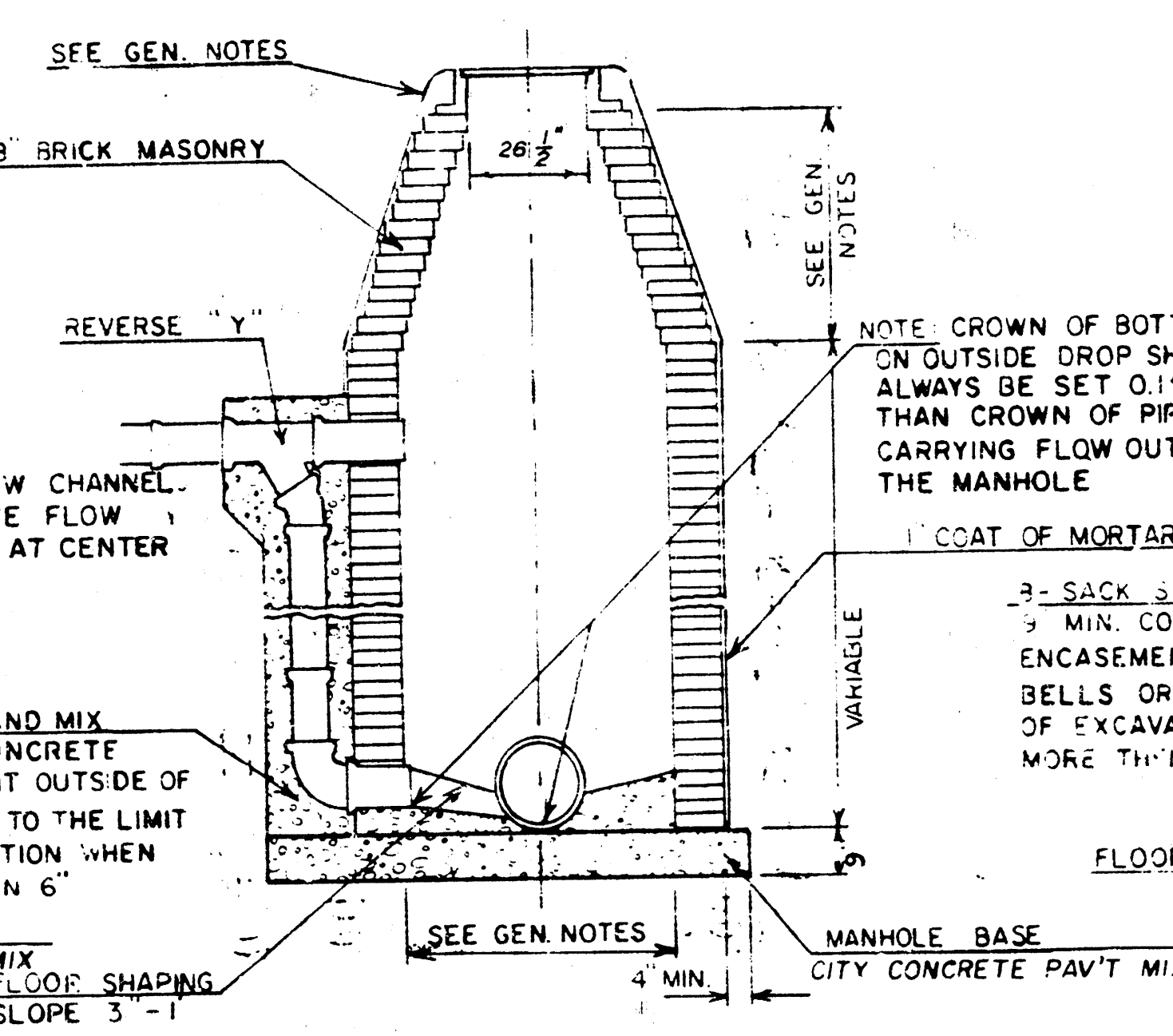
TYPE "A" MANHOLE



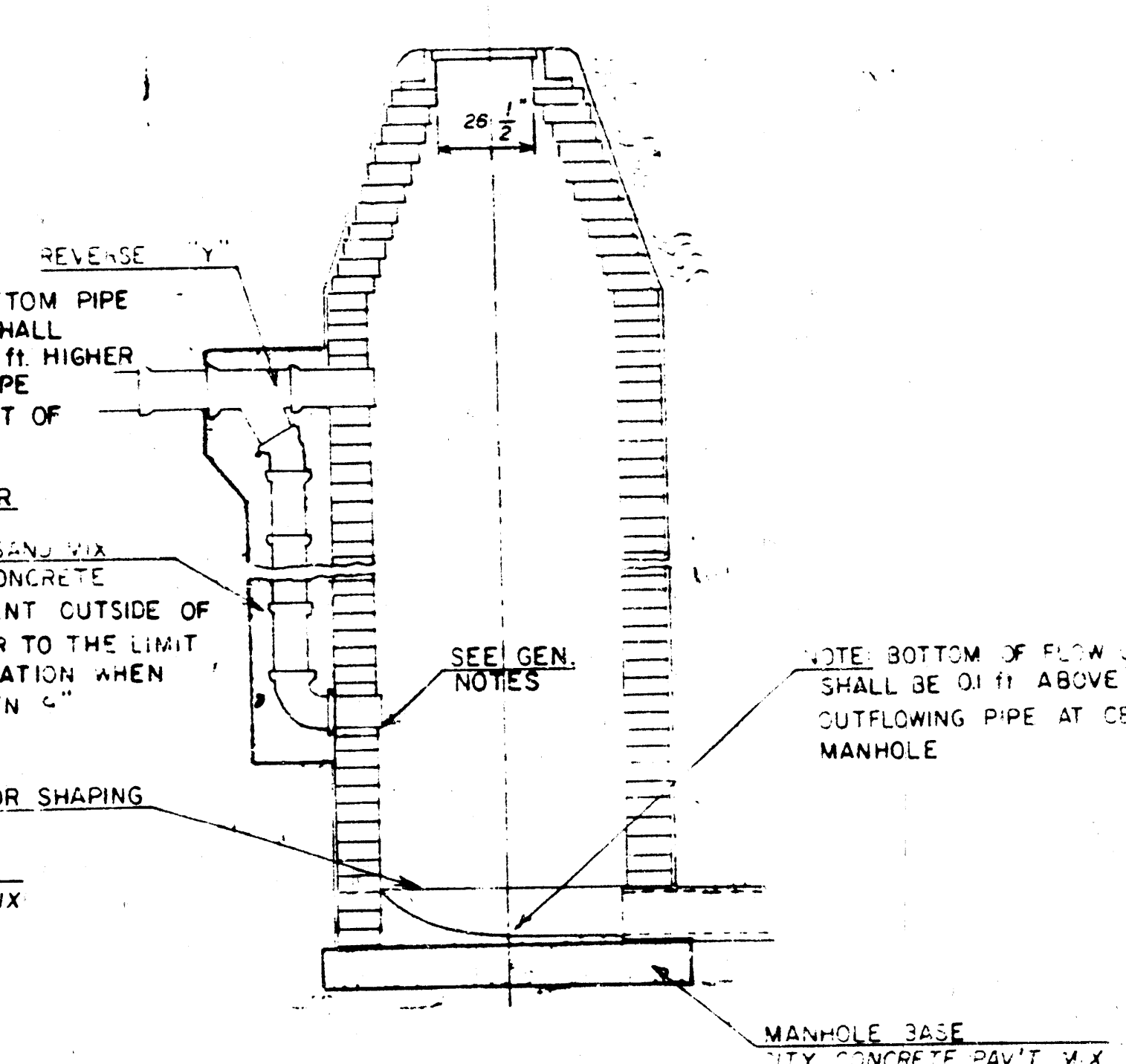
TYPE "A" INSIDE DROP MANHOLE



TYPE "A" OUTSIDE DROP MANHOLE



DETAIL OF OUTSIDE DROP
CONSTRUCTED ON EXISTING 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 PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN IN THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "A" MANHOLES CAN BE USED ON LAYERS UP TO 16" IN DEPTH 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'. 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.

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. 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 RAISING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE JOINT 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 DRAWING. THE CRITICAL DROP FROM THE LOWER PIPE IN SUCH OUTSIDE DROP CONNECTIONS SHALL NOT EXCEED 4" FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES SIZED LARGER THAN 12". EXCEPT THE CROWN OF THE LOWER PIPE SHALL NEVER BE SET BELOW THE CROWN OF ANY LARGER OUTFLOWING PIPE. THIS WORK, INCLUDING RAISING OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STRUCT CONSTRUCTED ON EXISTING MANHOLE.

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 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 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.

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 THE MANHOLE.

6. 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.

7. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4" FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.

8. STANDARD MANHOLES TYPE "A" AND STANDARD INSIDE DROP MANHOLES TYPE "A" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "A" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

City of Wichita, Kansas

8" MIN
 18" MAX
 BRICKWORK
 COLLAR
 26" 2
 30" 2
 8" MIN - 48" MAX
 10" MIN - 48" MAX
 VARIABLE
 9" MIN.
 SEE GEN NOTES
 8" BRICK MASONRY
 1" COAT OF MORTAR
 MANHOLE WALL -
 CITY CONC PAV'T MIX
 NOTE CROWN OF PIPE SHALL NOT BE CROWN OF PIPE
 FLOW SHAPING
 SLOPE 3" TO 1"
 MANHOLE BASE
 CITY CONC PAV'T MIX
 SEE GEN NOTES
 4" MIN. 4" MIN. 8"

SEE GEN NOTES

8" BRICK MASONRY

1" COAT OF MORTAR

26 1/2

30 1/2

8" MIN - 18" MAX BRICK MASONRY COLLAR

30" MIN - 48" MAX

SEE GEN NOTES

8"

NOTE: CROWN OF BOTTOM PIPE ON INSIDE JUMP SHALL ALWAYS BE SET 0.1 FT. HIGHER THAN CROWN OF PIPE CARRYING FLOW OUT OF THE MANHOLE

REVERSE "Y"

BACK SAND MIX

CONCRETE

SEMENT OUTSIDE OF S OR TO THE LIMIT XCAVATION WHEN THAN 6"

MANHOLE WALL

CITY CONC. PAV'T MIX

19 MIN

SEE GEN NOTES

4" MIN

4" MIN

MANHOLE BASE

CITY CONC. PAV'T MIX

8"

4" MIN

6" OOD SHALING

SLOPE 3" TO 1"

1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL COMPLY WITH THE REQUIREMENTS FOR CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING TYPE I CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE BASE TO SHOW THE GRAVING WHEN THE MANHOLE IS COVERED. TYPE "C" MANHOLES CAN BE MANHOLES CONSTRUCTED UNDER OTHER PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4". COMPLETED MANHOLE SHALL BE A TIGHT LEAK 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 ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF THE STEEL AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
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 WELDED INTO THE WALL 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.
4. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF DEBRIS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE. ALL INLET PIPES TO THE OUTLET PIPES, FLOW CHANNELS SHALL BE FORMED TO THE OUTLET OF THE OUTLET OF THE INLET 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 MANHOLE SHALL HAVE THE TOP HALF REMOVED TO HEAT 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. PILES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRAWLED 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.
6. 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.
7. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4" FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2" FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.

4. 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.

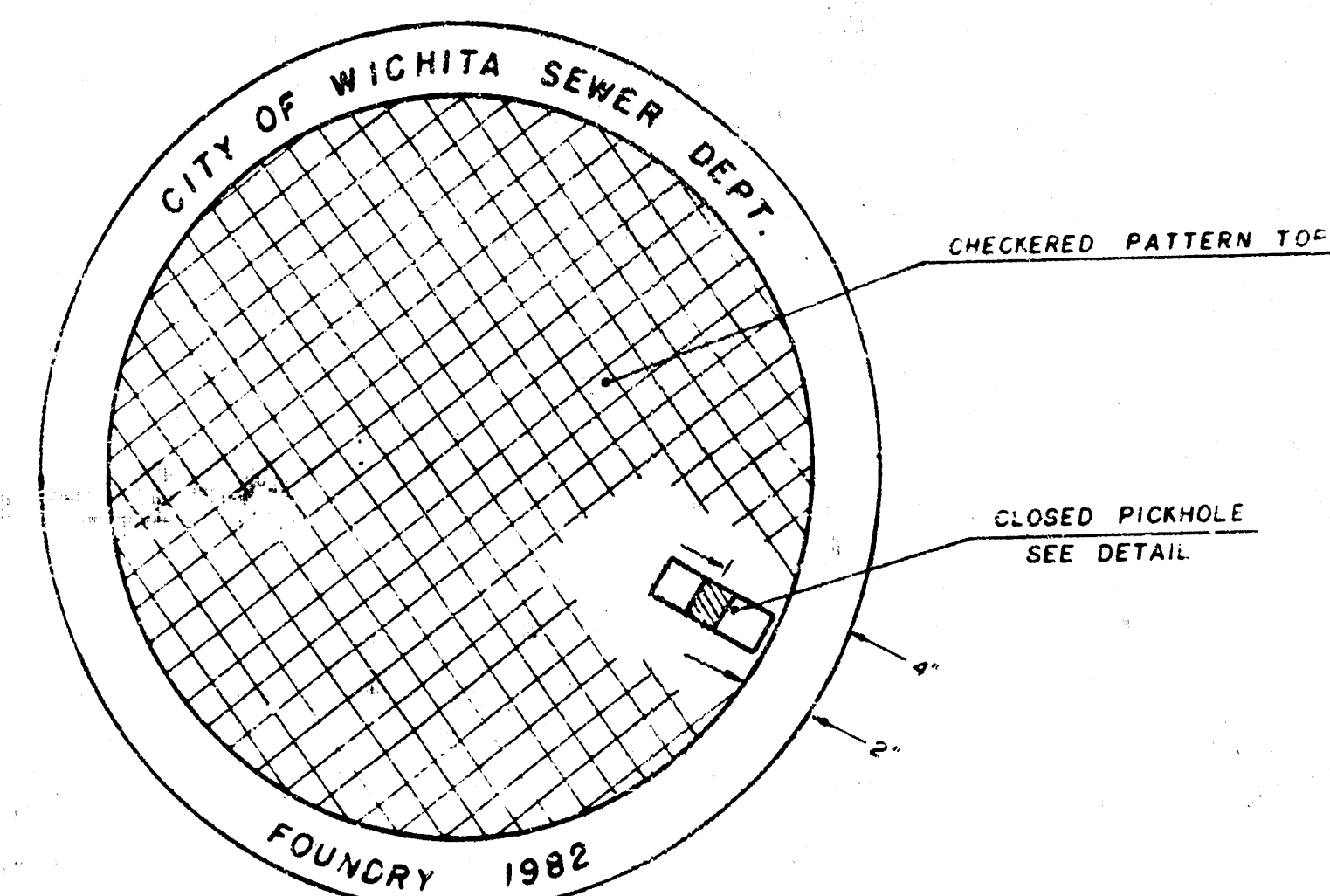
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN
BY

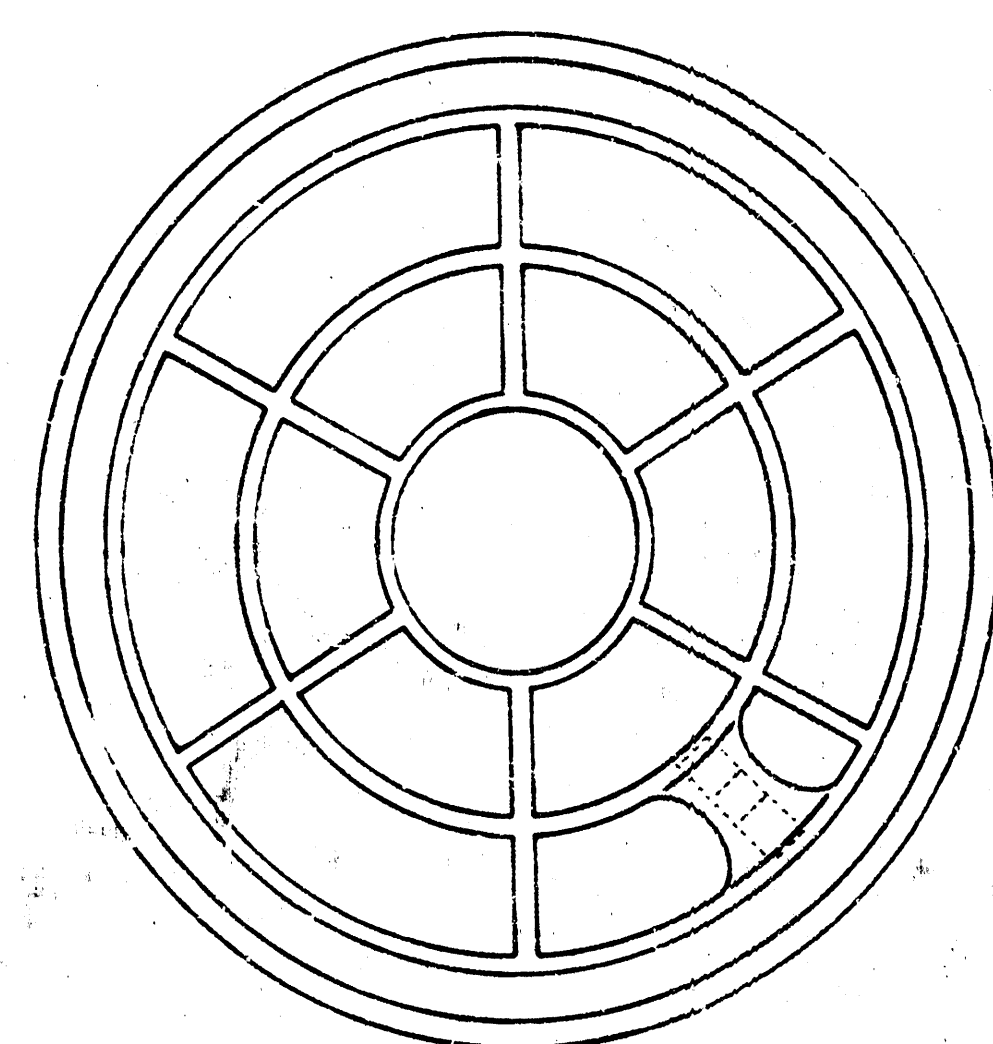
City of Wichita, Kansas

MANHOLE COVER

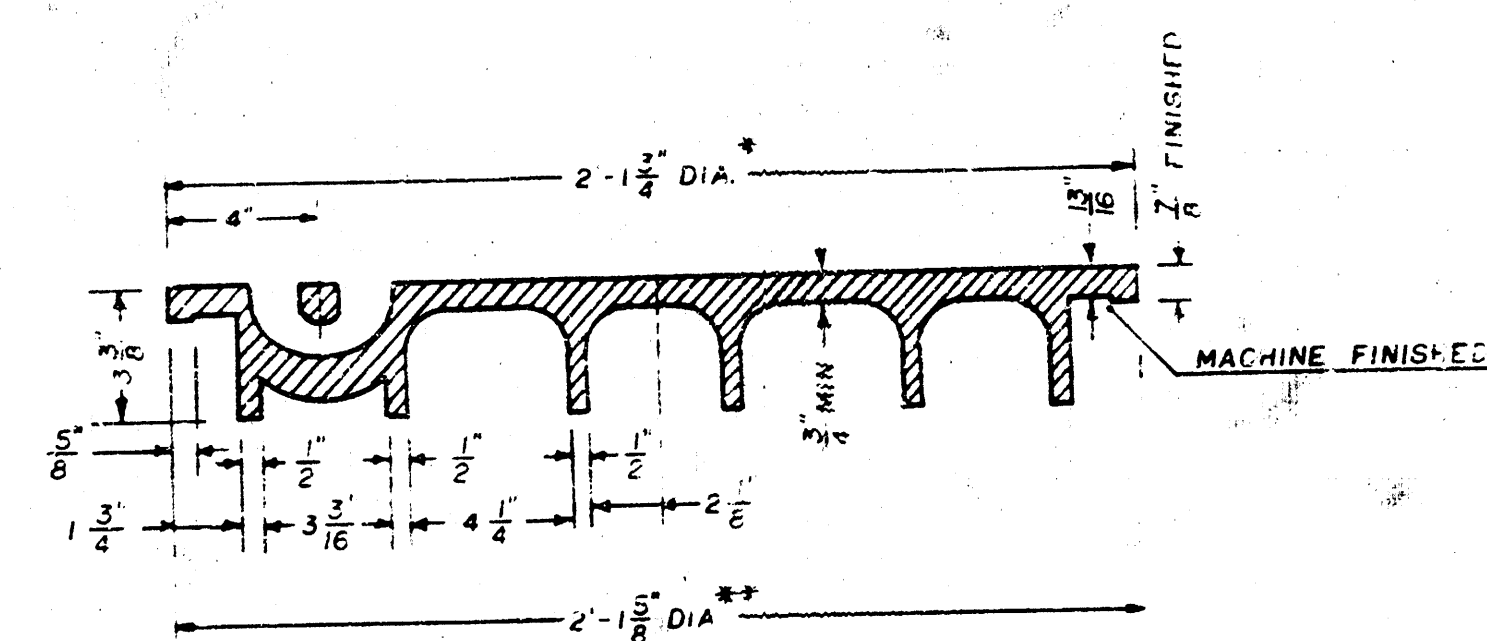
Weight: 180 Lbs.



TOP VIEW



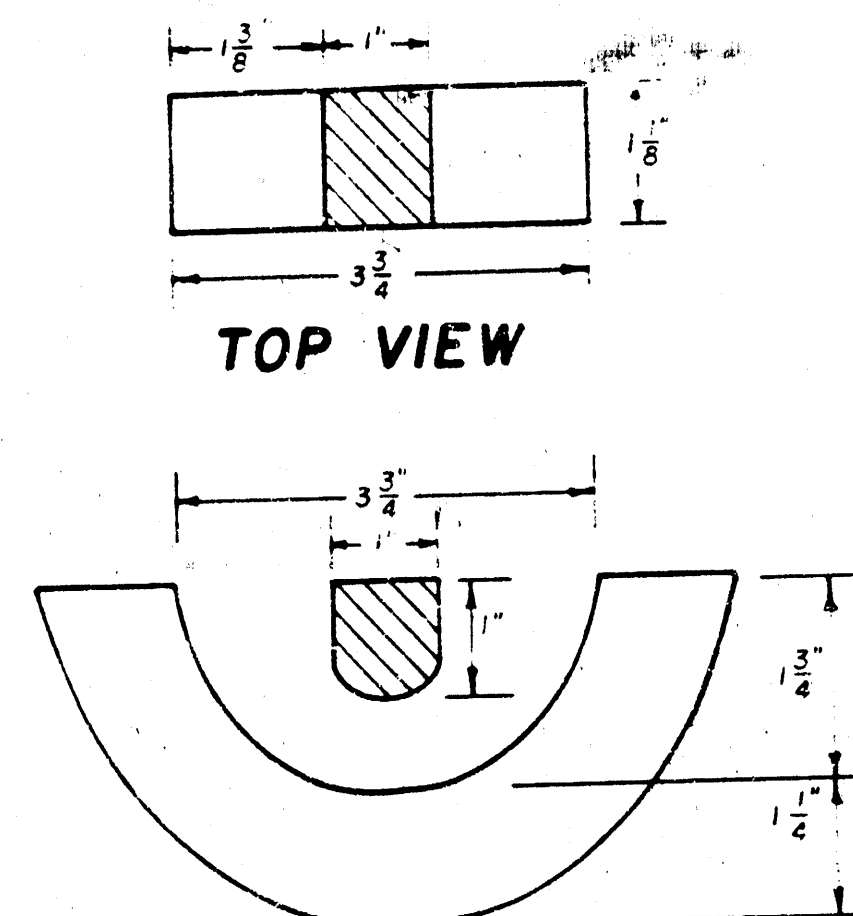
BOTTOM VIEW



SECTION VIEW

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

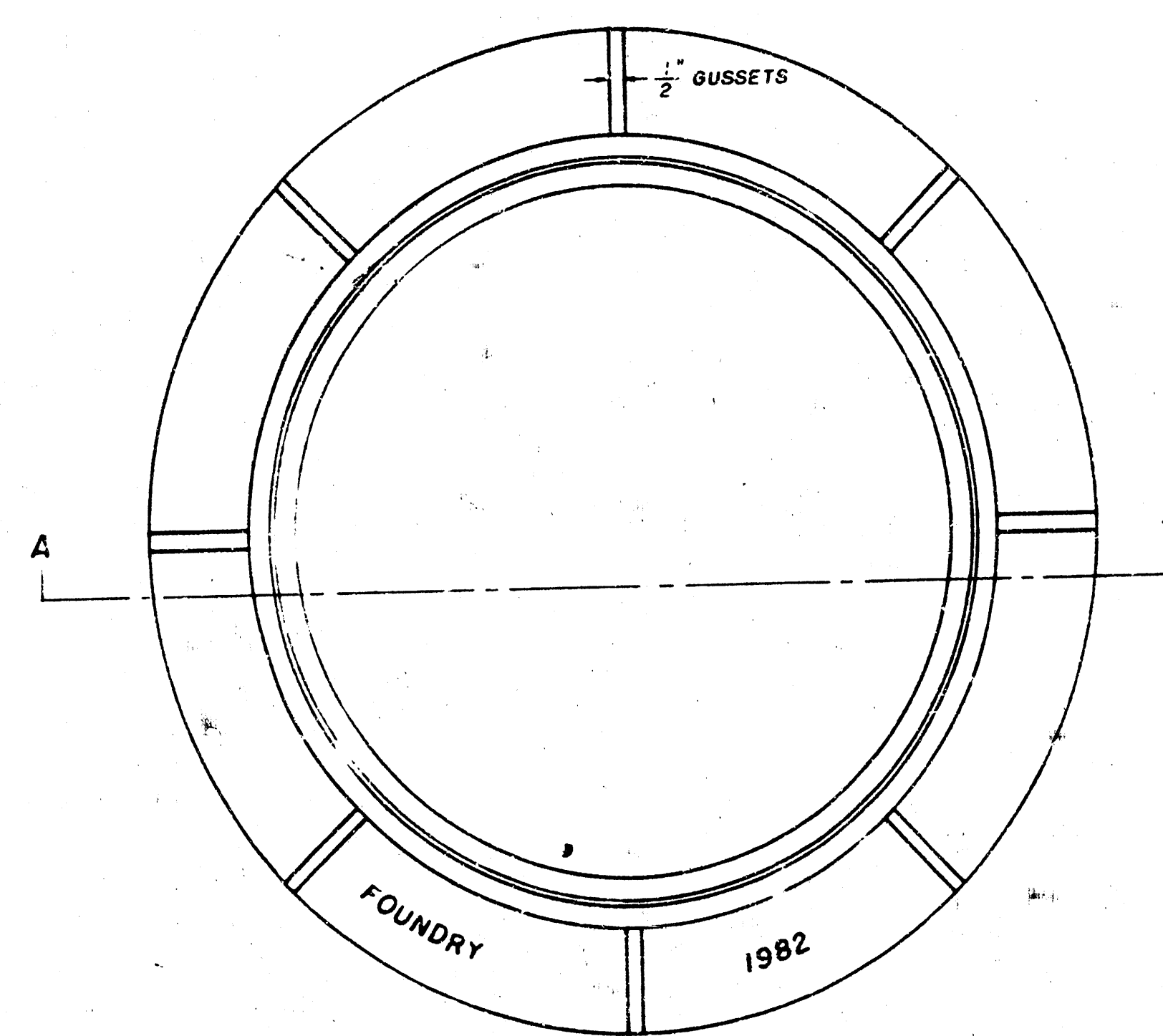
PICKHOLE DETAIL



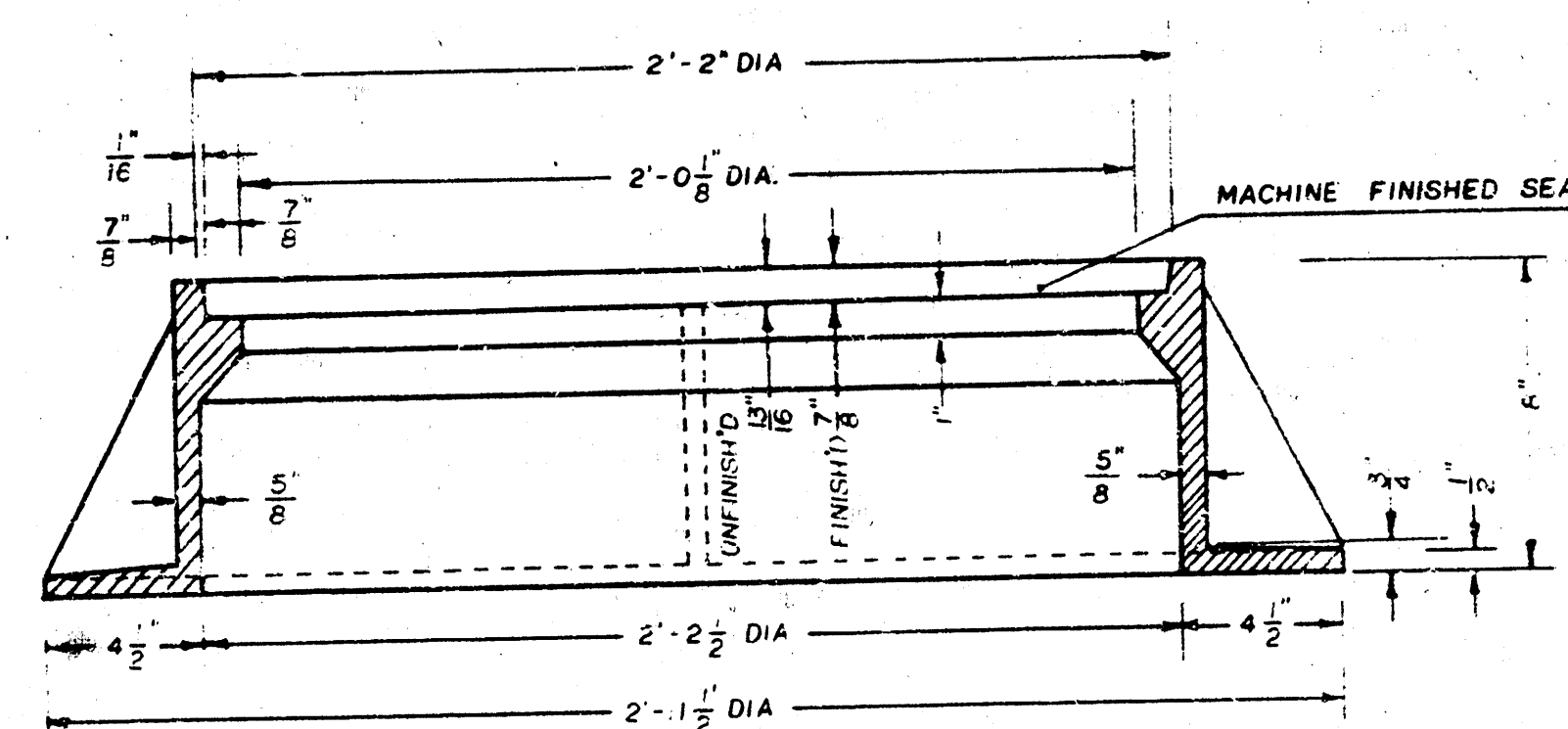
SECTION VIEW

MANHOLE FRAME

Weight: 240 Lbs.



TOP VIEW



SECTION A-A

GENERAL NOTE

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 DETAIL 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" 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.
5. 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.