

CITY OF WICHITA, KANSAS  
**STORM WATER SEWER NO. 261**  
 (CHERRY CREEK HILLS)

PROJECT NO. 468-76-245-81342-000-000-001

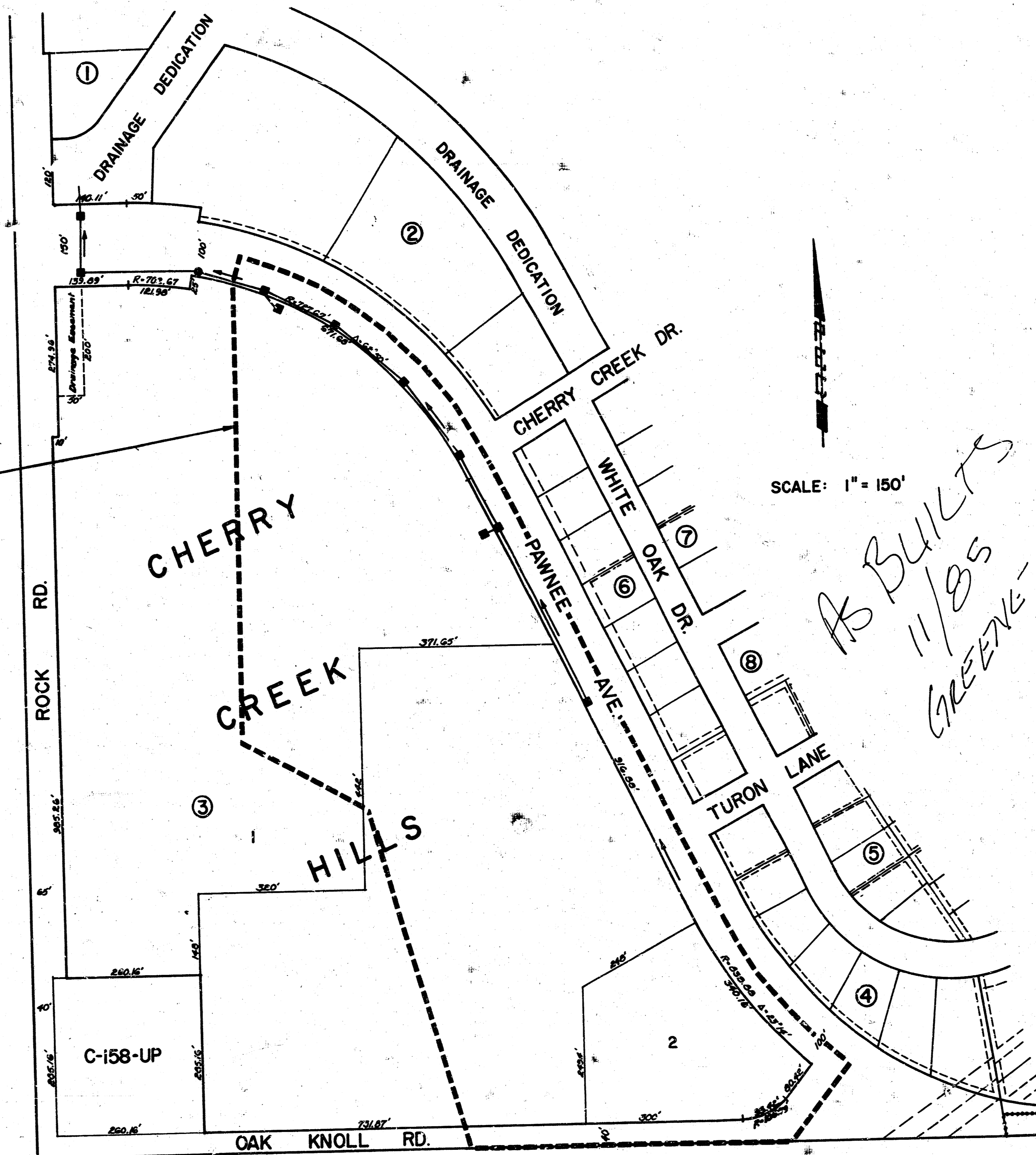
**INDEX OF SHEETS**

1. Title Sheet
- 2-4. Plan & Profile
5. Detail Standard Type I Curb Inlet (5' Opening)
6. Type I Curb Inlet (10' Opening)
7. Flume Inlet (Type I)
8. Trench Inlet Details
9. Shallow Type "B" Manhole
10. Manhole Frame and Cover Detail

STORM WATER SEWER NO. 261  
 BENEFIT DISTRICT

**LEGEND**

- BENEFIT DISTRICT BOUNDARY
- DRAINAGE FLOW DIRECTION
- PROPOSED INLET
- PROPOSED MANHOLE



MICHAEL E. LINDEBAK, P.E., CITY ENGINEER  
 JULY, 1984

**GENERAL NOTES**

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 APPLICABLE STATE LAWS.

UTILITIES: EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.

PRIVATE UTILITY SERVICE LINES, POLES, VALVE BOXES, METERS, ETC. ARE TO BE ADJUSTED BY OTHERS UNLESS THE PLANS CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF COMMENCEMENT OF WORK AND SHOULD REQUEST THAT ANY EXISTING LINES BE FLAGGED:

WICHITA WATER DEPARTMENT MR. BILL OTTEN 268-4217	KANSAS GAS & ELECTRIC CO. MR. BOB BLEVINGS 261-6421	SOUTHWESTERN BELL TEL. CO. MR. DAN CLEVINGER 268-2895
GAS SERVICE COMPANY MR. GENE CURLESS 263-7511 (EXT. 311)	MULTIMEDIA CABLEVISION MR. DON SHUE 263-2336	

THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHILE EXCAVATING ALONGSIDE THE EXISTING 12-INCH WATER MAIN STA. 1+38 TO STA. 9+85. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF SAID WATER MAIN, AND THE COSTS ASSOCIATED WITH ITS REPAIR AND/OR REPLACEMENT DUE TO DAMAGE SHALL BE BORNE BY THE CONTRACTOR.

INLET OPENINGS WHICH ARE NOT ADJACENT TO EXISTING PAVEMENT ARE TO BE TEMPORARILY BRICKED SHUT. COST OF THIS SHALL BE CONSIDERED AS INCIDENTAL TO THE INLETS. THE PAVEMENT CONTRACTOR WILL REMOVE THE BRICK AND ADJUST THE INLETS TO FINAL GRADE.

NEW COMBINED CURB AND GUTTER ABUTTING EXISTING CURB AND GUTTER SHALL HAVE THE SAME SECTION AS THE EXISTING CURB AND GUTTER.

EXISTING COMBINED CURB AND GUTTER REMOVAL AND REPLACEMENT IS REQUIRED TO CONSTRUCT THE CURB INLETS AT STA. 6+47.45, STA. 8+16.07, STA. 9+44.80, STA. 11+34.52, AND STA. 14+96.52. THE CURB AND GUTTER SHALL BE REMOVED TO A MINIMUM OF 1'-4" BEYOND EACH OUTSIDE FACE OF INLET WALLS. IF RESULTING LENGTHS TO NEAREST EXISTING JOINTS ARE LESS THAN FIVE (5) FEET, REMOVAL TO THE NEAREST EXISTING JOINT WILL BE REQUIRED. THE MAXIMUM REMOVAL REQUIRED WOULD BE INLET LENGTH PLUS 2'-8" PLUS 8'-0". THE MINIMUM REMOVAL REQUIRED WOULD BE INLET LENGTH PLUS 2'-8". 20'-0" REMOVAL AND REPLACEMENT HAS BEEN SHOWN AT EACH OF THE LISTED INLETS. PAYMENT, HOWEVER, WILL BE MADE ONLY FOR THAT AMOUNT ACTUALLY REMOVED AND REPLACED. SAW CUTS REQUIRED FOR CURB AND GUTTER REMOVAL SHALL BE SUBSIDIARY TO THE BID ITEM "COMBINED CURB AND GUTTER REMOVED".

SAW CUTS SHALL BE MADE AS NECESSARY FOR REMOVAL OF DRIVEWAYS AND STREET. THE ENGINEER SHALL DETERMINE THE AMOUNTS OF REMOVAL AND LOCATION OF SAW CUTS. SAW CUTS SHALL BE CONSIDERED AS SUBSIDIARY TO THE VARIOUS REMOVAL ITEMS.

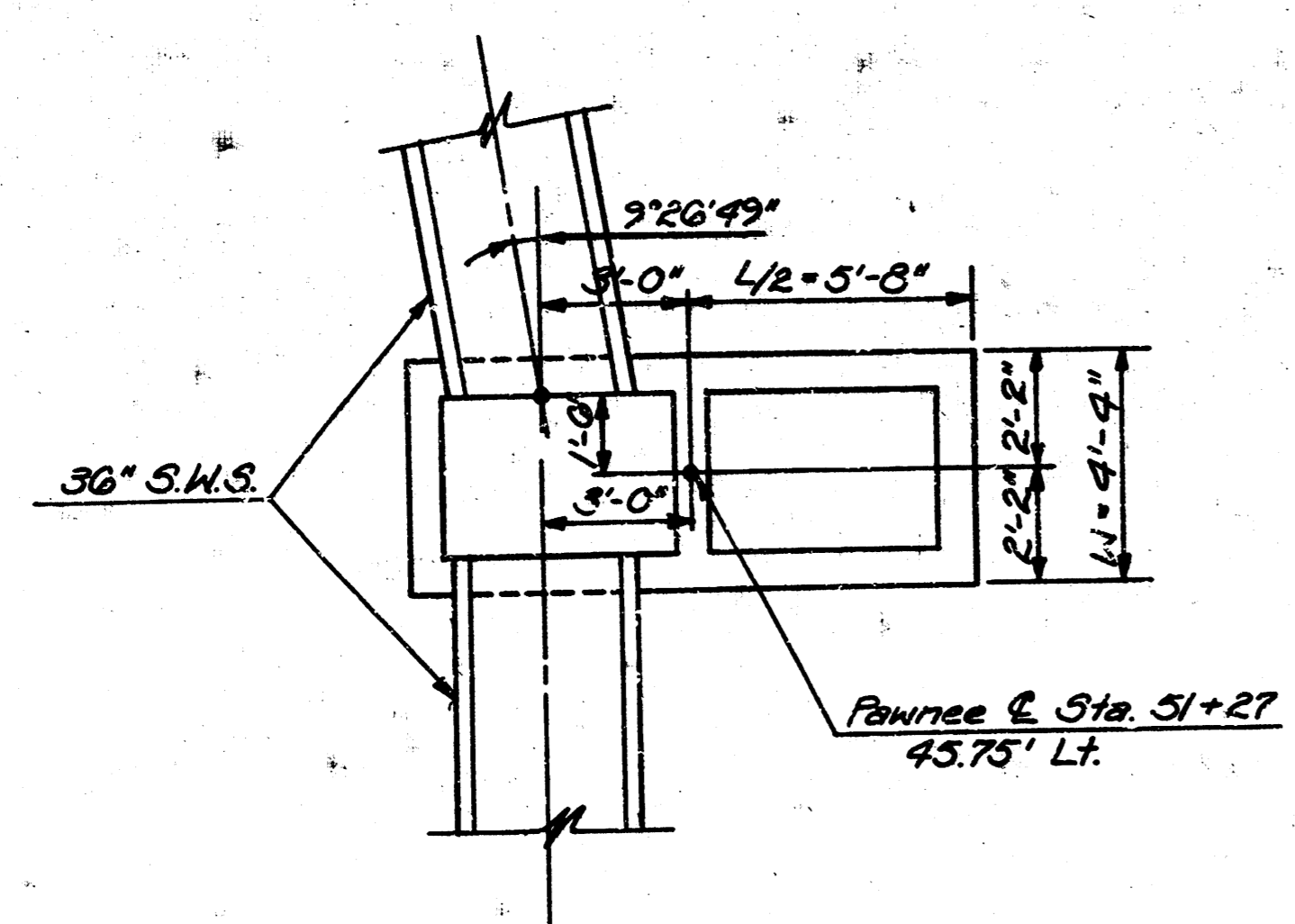
ALL DISTURBED AREAS SHALL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF WICHITA STANDARD SPECIFICATIONS FOR SANITARY AND STORM SEWERS. THIS WORK SHALL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

**CONSTRUCTION TRAFFIC CONTROL:**

- A. THE CONTRACTOR SHALL MAINTAIN APPROPRIATE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE CITY OF WICHITA BARRICADE MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- B. A MINIMUM OF TWO-LANE, TWO-WAY TRAFFIC SHALL BE MAINTAINED ON PAWNEE AVENUE AT ALL TIMES. LOCAL TRAFFIC SHALL BE CARRIED THROUGH CONSTRUCTION.
- C. THE CONTRACTOR WILL BE PERMITTED TO CLOSE THE DRIVES RT. STA. 55+45 AND STA. 61+79, BUT BOTH DRIVES SHALL NOT BE CLOSED SIMULTANEOUSLY.

	Revision		By	Date
	<b>TITLE SHEET</b> STORM WATER SEWER NO. 261			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS				
Designed by	Job No. 54278	Sht. 1 of 10		
Drawn by	Date			

FILMED FROM THE BEST AVAILABLE COPY .....



LOCATION SKETCH  
 Type I Curb Inlet (Sta. 0+56.87)

FILED  
 NOTE BOOK ARCHITECTURE FRI 10  
 No. 81 OF WAY CR 10

LEGEND

- Tree Removal
- Pavement Removal
- Asphalt Pavement
- UTILITIES**
- CTV
- Sanitary Sewer & Water
- Gas
- Power
- Telephone
- Multimedia Cablevision
- City of Wichita
- Gas Service Co.
- Kansas Gas & Electric
- Southwestern Bell

CURVE DATA BASED ON RADIUS  $A/2 = 31^{\circ}22'51.5''$   
 $H = 776.37'$   $T = 473.54'$   $L = 850.44'$

STATION	ARC LENGTH	CHORD LENGTH	DEFLECTION ANGLE	TOTAL ANGLE
52+16.13	0	0	0	0
52+50	33.82	33.82	1°14'52.6"	1°14'52.6"
53+00	50	49.99	1°50'41.9"	3°05'34.5"
53+35	25	25.00	0°55'21.0"	4°00'55.5"
53+50	"	"	"	4°56'16.5"
53+60	10	10.00	0°24'08.4"	5°18'24.9"
53+64.64	4.64	4.64	0°10'16.4"	5°28'41.3"
54+00	35.36	35.36	1°18'17.2"	6°46'58.5"
54+50	50	49.99	1°50'41.9"	8°37'40.4"
55+00	"	"	"	10°28'22.3"
55+45	45	44.99	1°39'37.7"	12°08'00.0"
55+50	5	5.00	0°11'04.2"	12°19'04.2"
56+00	50	49.99	1°50'41.9"	14°09'46.1"
56+30	"	"	"	16°00'28.0"
57+00	"	"	"	17°51'09.9"
57+50	"	"	"	19°41'51.8"
58+00	"	"	"	21°32'33.7"
58+25	25	25.00	0°55'21.0"	22°27'54.7"
58+50	"	"	"	23°23'15.7"
59+00	50	49.99	1°50'41.9"	25°13'57.6"
59+50	"	"	"	27°04'39.5"
60+00	"	"	"	28°55'21.4"
60+30	"	"	"	30°46'03.3"
60+66.02	16.62	16.62	0°36'41.8"	31°22'51.1"

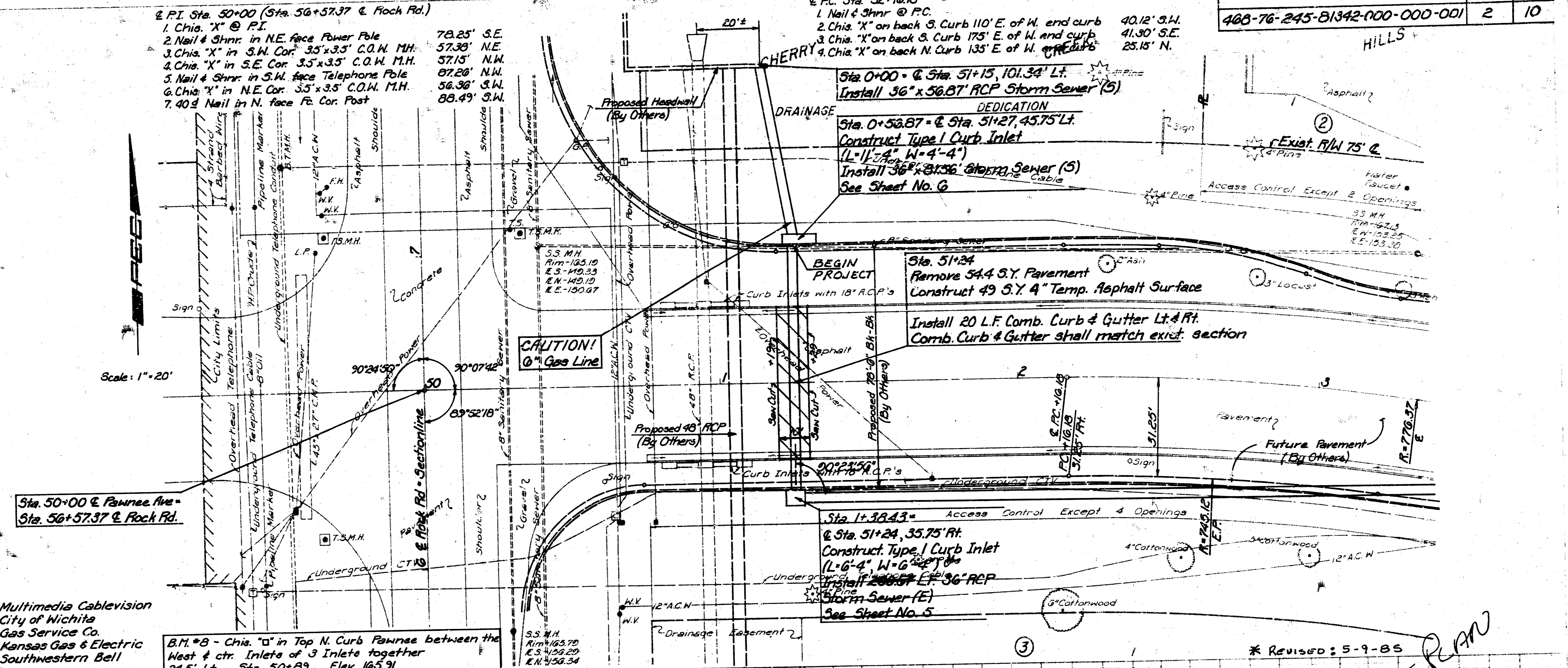
PROFILE  
 DRAWN  
 NOTE BOOK ARCHITECTURE FRI 10  
 No. 81 OF WAY CR 10

- & P.I. Sta. 50+00 (Sta. 56+57.37 & Rock Rd.)
- Chis. "X" @ P.I.
  - Nail & Shmr. in N.E. face Power Pole
  - Chis. "X" in S.W. Cor. 35'x35' C.O.W. M.H.
  - Chis. "X" in S.E. Cor. 35'x35' C.O.W. M.H.
  - Nail & Shmr. in S.W. face Telephone Pole
  - Chis. "X" in N.E. Cor. 35'x35' C.O.W. M.H.
  - 4" Nail in N. face P.C. Cor. Post

- 78.25' S.E.
- 57.39' N.E.
- 57.15' N.W.
- 97.28' N.W.
- 56.38' S.W.
- 88.49' S.W.

- & P.C. Sta. 52+16.18
- Nail & Shmr. @ P.C.
  - Chis. "X" on back S. Curb 110' E. of W. end curb
  - Chis. "X" on back S. Curb 175' E. of W. end curb
  - Chis. "X" on back N. Curb 135' E. of W. end curb

- 40.12' S.W.
- 41.30' S.E.
- 25.15' N.



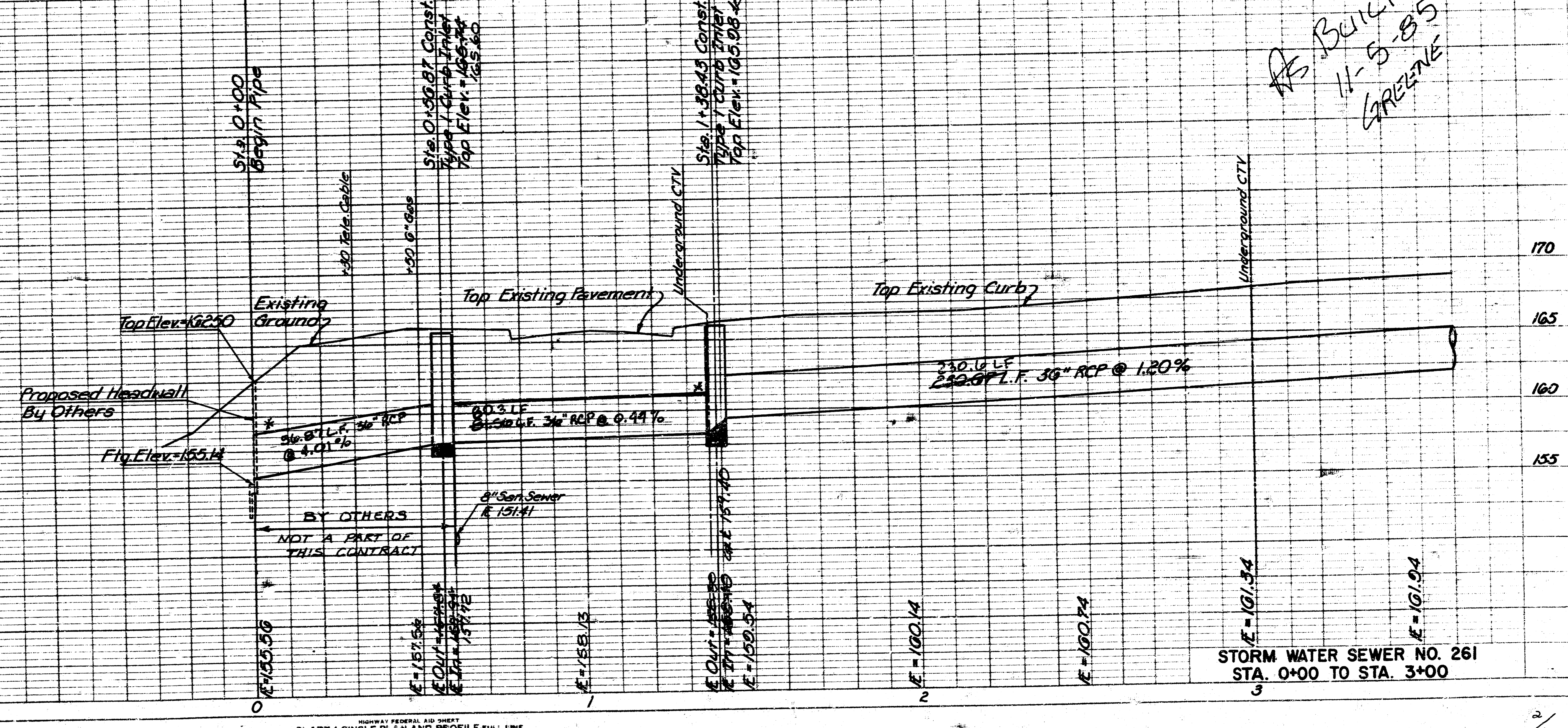
Sta. 50+00 @ Pawnee Ave.  
 Sta. 56+57.37 @ Rock Rd.

B.M. \*B - Chis. "O" in Top N. Curb Pawnee between the Heat & ctr. Inlets of 3 Inlets together  
 24.5' Lt. Sta. 50+89 Elev. 165.91

Sta. 1+38.43 @ Sta. 51+24, 35.75' Rt.  
 Construct Type I Curb Inlet  
 (L=6'-4", W=4'-4")  
 Install 36" x 36" RCP  
 Storm Sewer (E)  
 See Sheet No. 5

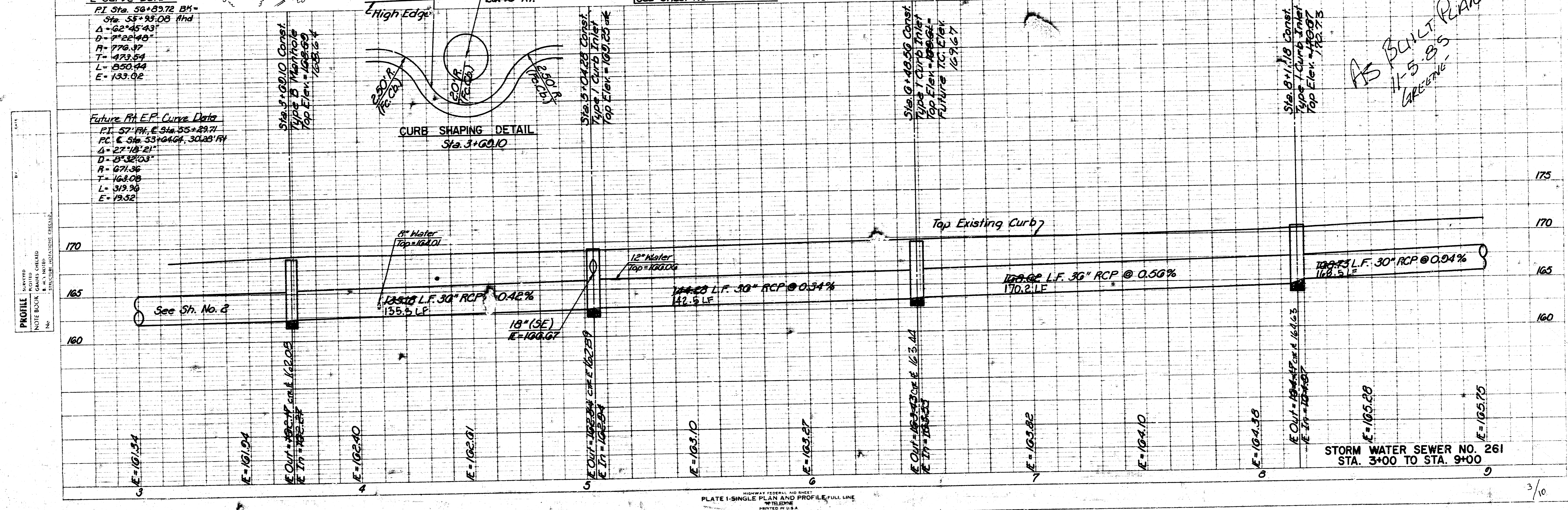
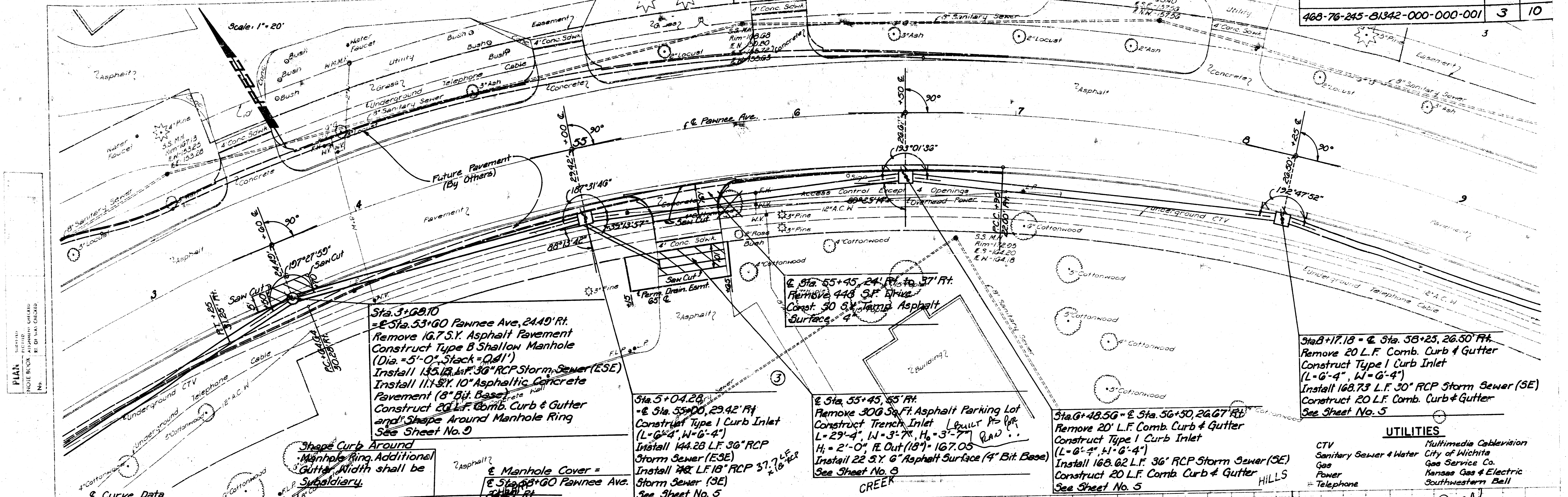
\* Revised: 5-9-85

AS BUILT PLAN  
 11-5-85  
 GREENE



STORM WATER SEWER NO. 261  
 STA. 0+00 TO STA. 3+00

FILMED FROM THE BEST AVAILABLE COPY.....



*AS BUILT PLAN*  
 11-5-85  
 GREENE

FILMED FROM THE BEST AVAILABLE COPY.....

& P.O.T. Sta. 60+00.62  
 1. Nail & Shmr. @ P.T.  
 2. Chis. "X" on Back S. Curb Cherry Creek Rd. @ C. Sidewalk  
 3. Chis. "X" on Back W. Curb Pawnee just B' of Bell Jet. Box  
 4. Chis. "X" on Back E. Curb Pawnee 7' S. of C. Cherry Creek Rd.

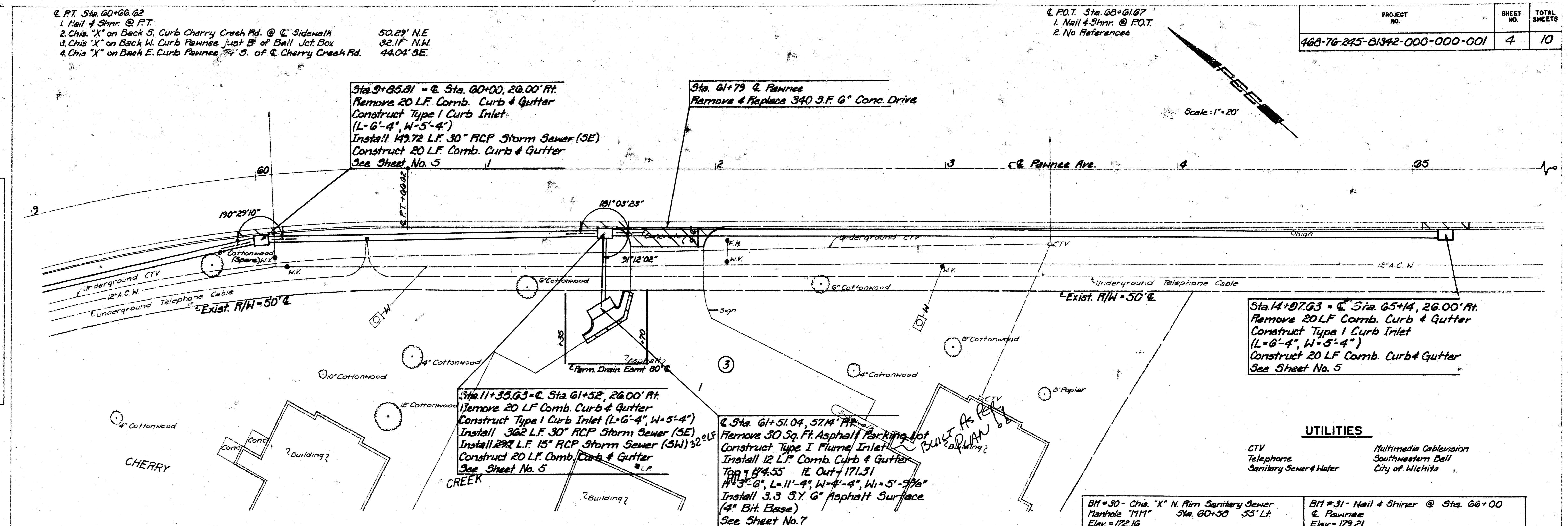
50.29' N.E.  
 32.17' N.W.  
 44.04' S.E.

& P.O.T. Sta. 68+01.67  
 1. Nail & Shmr. @ P.O.T.  
 2. No References

PROJECT NO.	SHEET NO.	TOTAL SHEETS
468-76-245-81342-000-000-001	4	10

PLAN  
 SHOWN  
 NOTE BOOK  
 NO. OF WAY CHECKED  
 NO.

PROFILE  
 SHOWN  
 NOTE BOOK  
 NO. OF WAY CHECKED  
 NO.



Scale: 1" = 20'

Sta. 9+85.81 = & Sta. 60+00, 28.00' RT  
 Remove 20 LF Comb. Curb & Gutter  
 Construct Type I Curb Inlet  
 (L-6'-4", W-5'-4")  
 Install 149.72 LF 30" RCP Storm Sewer (SE)  
 Construct 20 LF Comb. Curb & Gutter  
 See Sheet No. 5

Sta. 61+79 & Pawnee  
 Remove & Replace 340 3" F. G" Conc. Drive

Sta. 14+97.63 = & Sta. 65+14, 26.00' RT  
 Remove 20 LF Comb. Curb & Gutter  
 Construct Type I Curb Inlet  
 (L-6'-4", W-5'-4")  
 Construct 20 LF Comb. Curb & Gutter  
 See Sheet No. 5

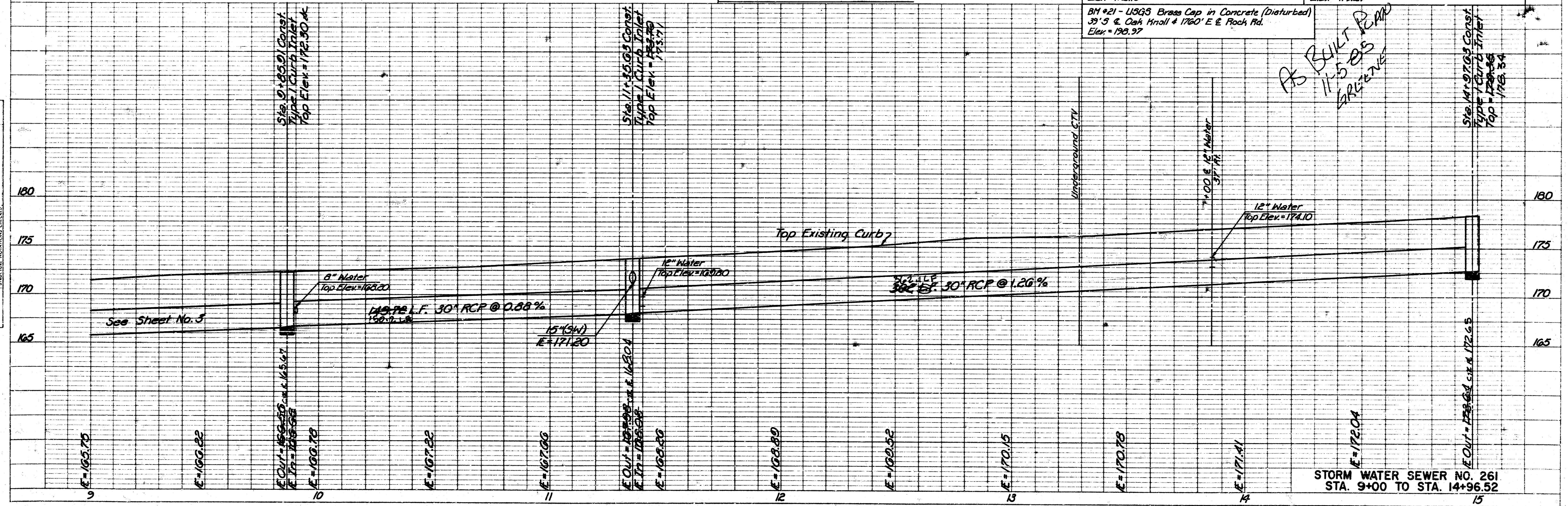
Sta. 11+35.63 = & Sta. 61+52, 26.00' RT  
 Remove 20 LF Comb. Curb & Gutter  
 Construct Type I Curb Inlet (L-6'-4", W-5'-4")  
 Install 362 LF 30" RCP Storm Sewer (SE)  
 Install 297 LF 15" RCP Storm Sewer (SW) 32'  
 Construct 20 LF Comb. Curb & Gutter  
 See Sheet No. 5

& Sta. 61+51.04, 57.14' RT  
 Remove 30 Sq. Ft. Asphalt Parking Lot  
 Construct Type I Flume Inlet  
 Install 12 LF Comb. Curb & Gutter  
 Top + 8'-5.55' IE Out + 171.31  
 14' 3'-0", L-11'-4", W-4'-4", W-5'-5 7/8"  
 Install 3.3 3" X 6" Asphalt Surface  
 (4" Bit Base)  
 See Sheet No. 7

BM #30 - Chis. "X" N. Rim Sanitary Sewer  
 Manhole "111" Sta. 60+38 55' Lt.  
 Elev. = 172.16  
 BM #21 - USGS Brass Cap in Concrete (Disturbed)  
 39' S & Oak Knoll & 1760' E & Rock Rd.  
 Elev. = 198.97

**UTILITIES**  
 CTV  
 Telephone  
 Sanitary Sewer & Water  
 Multimedia Cablevision  
 Southwestern Bell  
 City of Wichita

BM #31 - Nail & Shmr. @ Sta. 66+00  
 & Pawnee  
 Elev. = 179.21

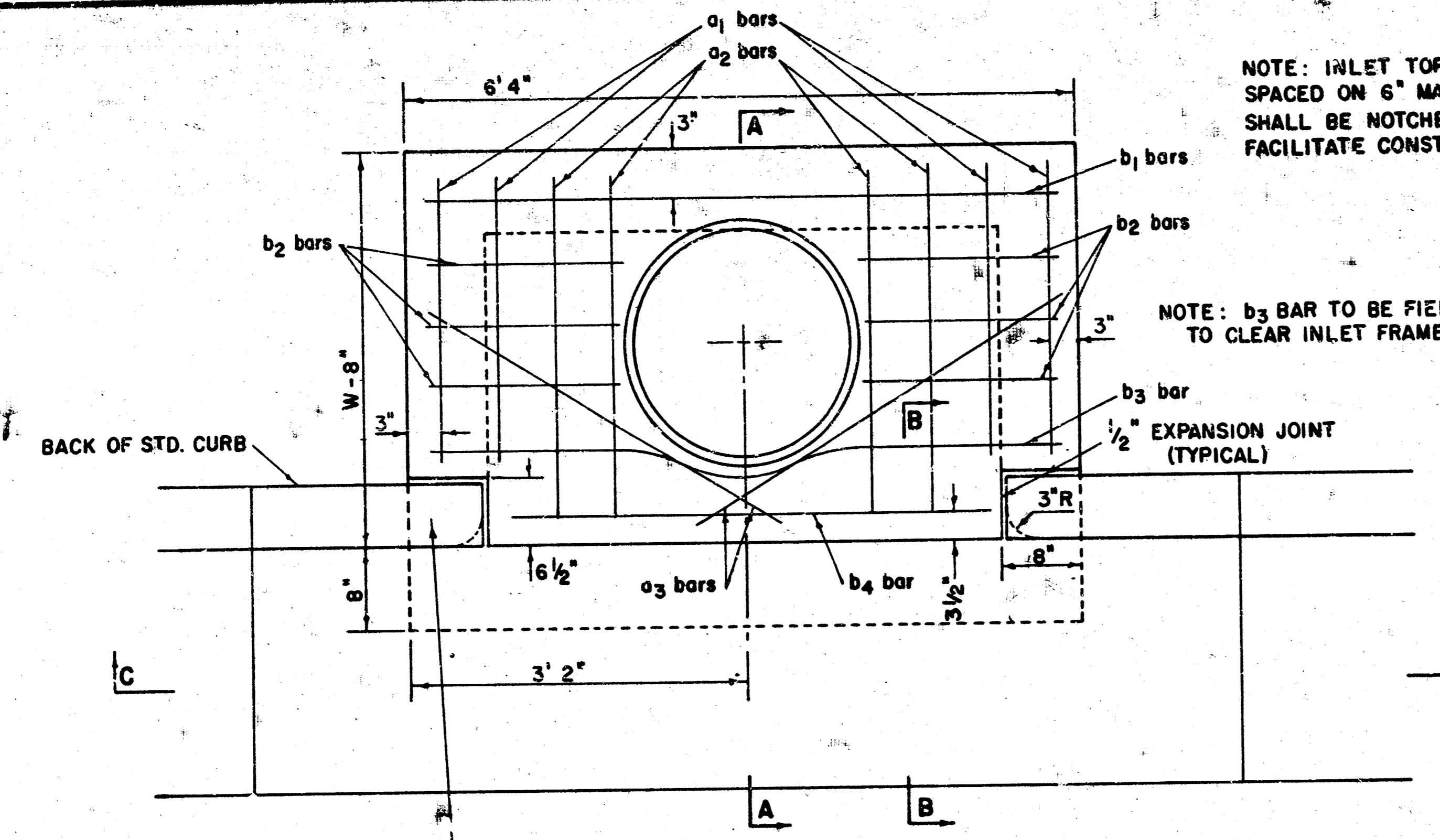


STORM WATER SEWER NO. 261  
 STA. 9+00 TO STA. 14+96.52

HIGHWAY FEDERAL AID SHEET  
 PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE  
 TYPE LINE  
 PRINTED IN U.S.A.

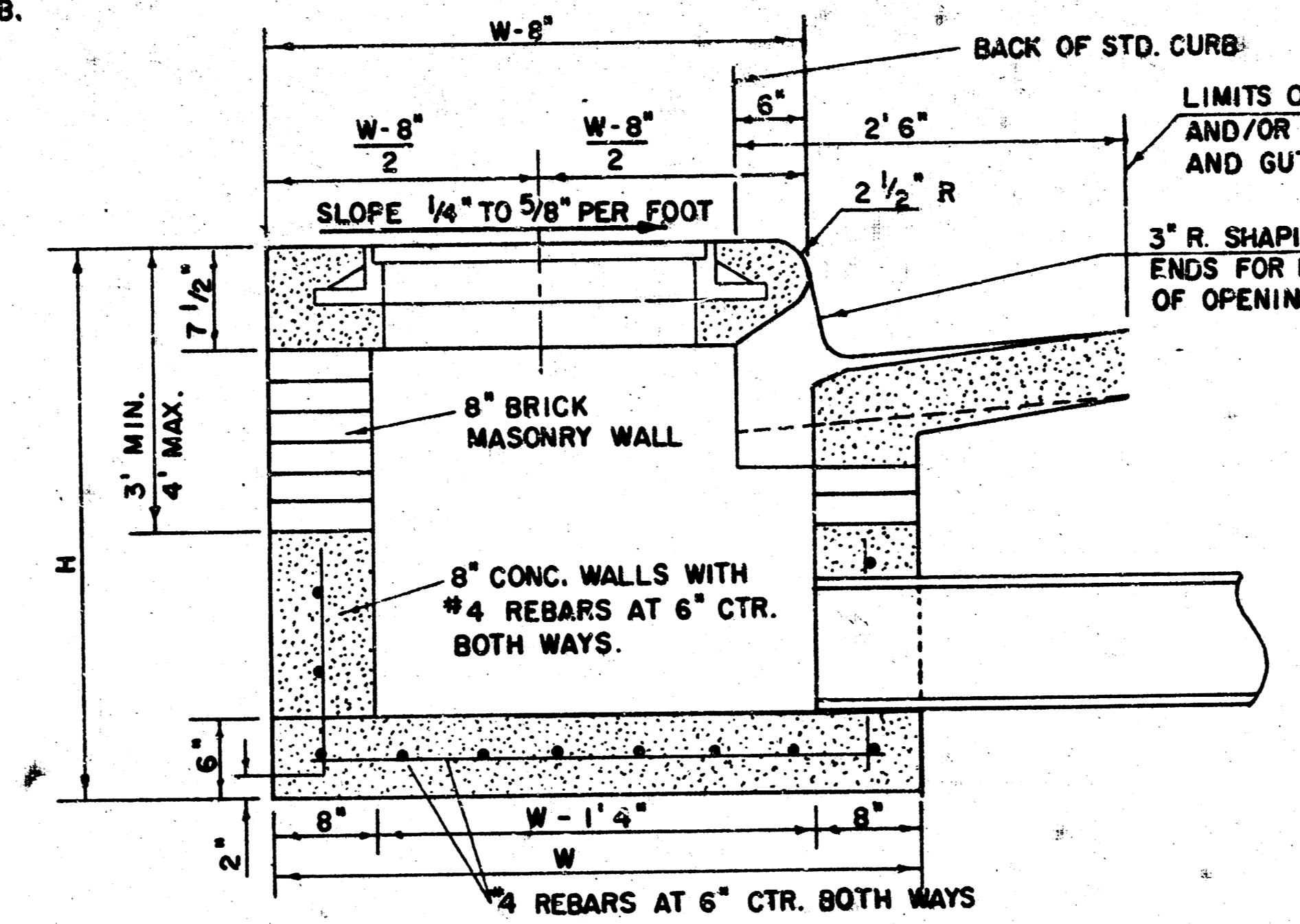
FILMED FROM THE BEST  
 AVAILABLE COPY



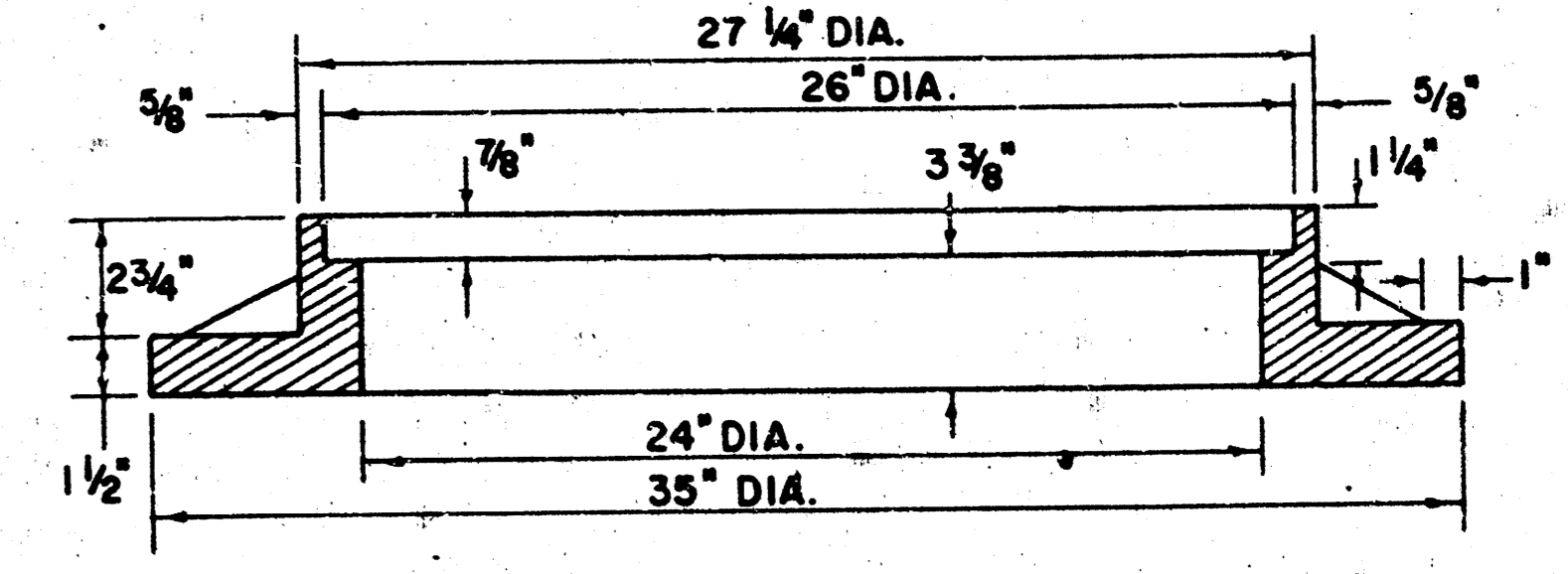
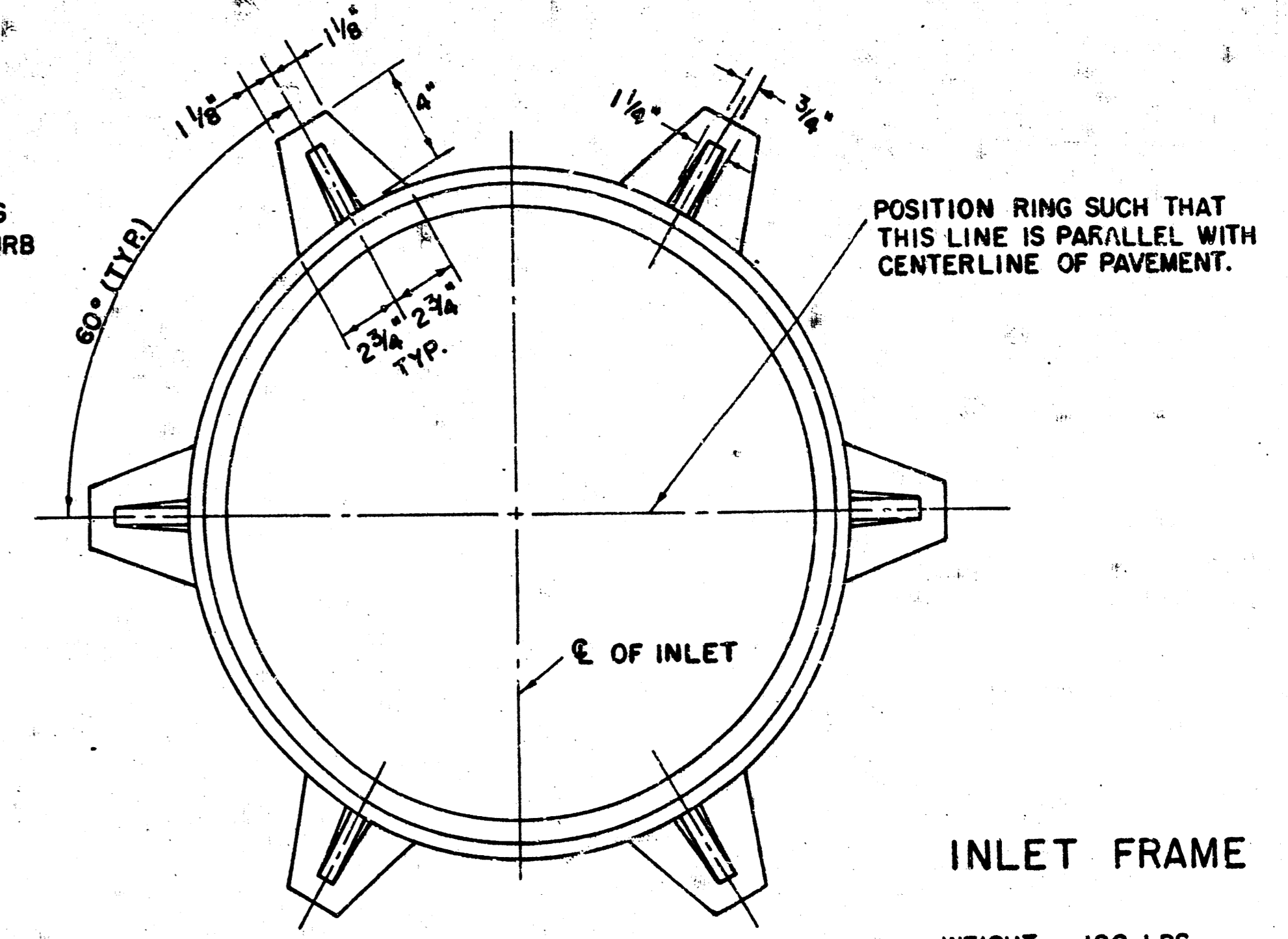


WARP CURB TO MATCH INLET TOP WITH 1' MIN. TRANSITION LENGTH

PLAN



SECTION A-A



SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.

NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX.

NOTE CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP ON THIS INLET WHEN W = 6' 4" AND H = 7' 0" OR LESS.

INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

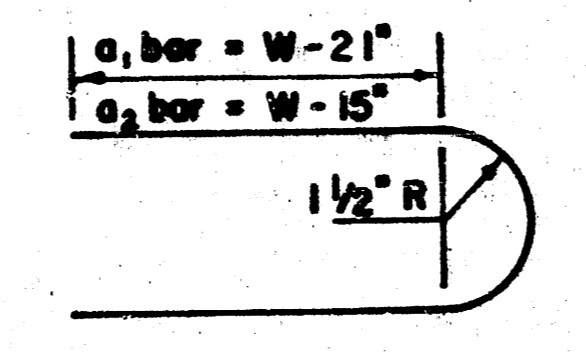
THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.

STEEL SCHEDULE

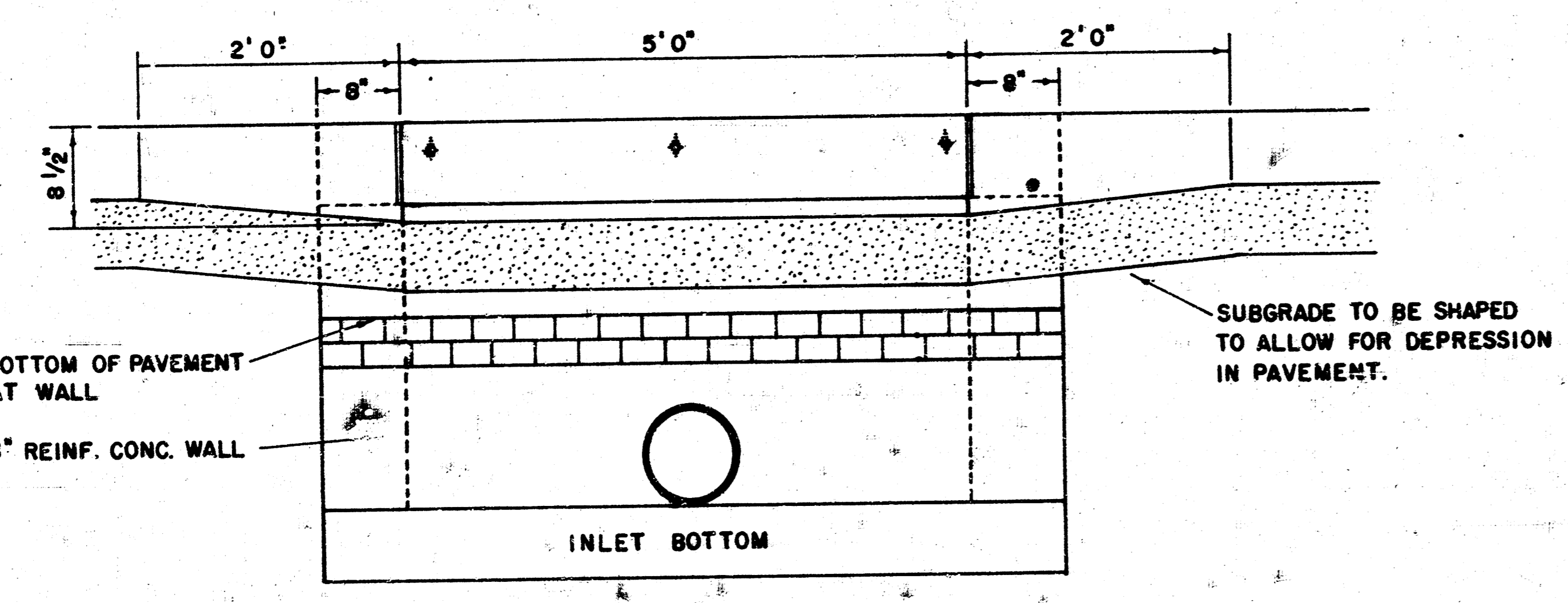
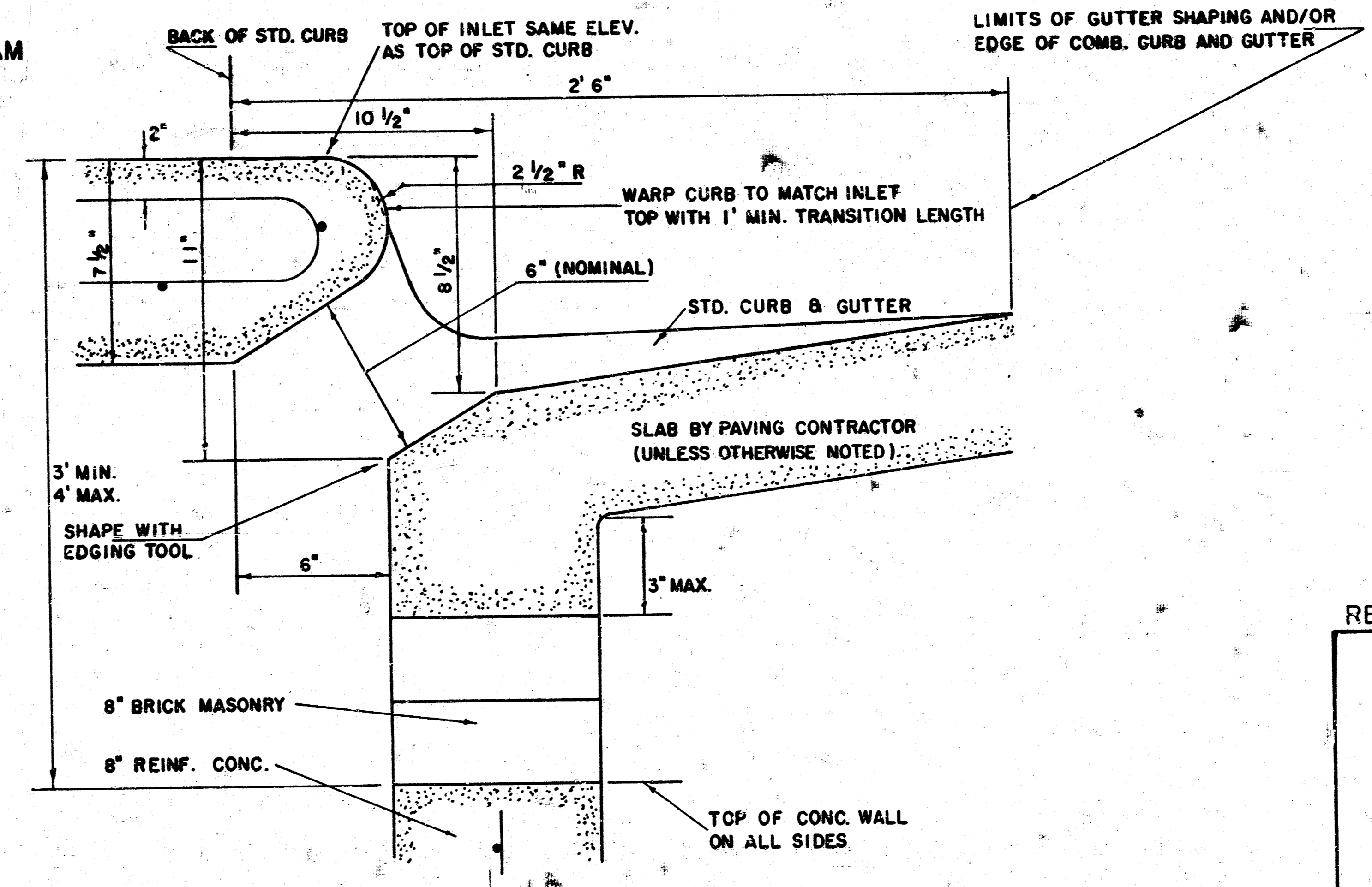
BAR	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	b <sub>1</sub>				b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	WT. LBS.	
NUMBER	4	4	2	1	3	5	7	9	6	1		
SIZE	"4	"4	"4	"4	"4	"4	"4	"4	"4	"6		
W = 4' 4"	5' 7"	6' 7"	4' 0"	6' 1"	-	-	-	-	1' 9"	6' 2"	4' 8"	60 ±
W = 5' 4"	7' 7"	8' 7"	5' 0"	-	6' 1"	-	-	-	1' 9"	6' 2"	4' 8"	81 ±
W = 6' 4"	9' 7"	10' 7"	6' 0"	-	-	6' 1"	-	-	1' 9"	6' 2"	4' 8"	101 ±
W = 7' 4"	11' 7"	12' 7"	7' 0"	-	-	-	6' 1"	-	1' 9"	6' 2"	4' 8"	121 ±
W = 8' 4"	13' 7"	14' 7"	8' 0"	-	-	-	-	6' 1"	1' 9"	6' 2"	4' 8"	141 ±

NOTE: a<sub>3</sub> BARS TO BE PLACED APPROX. 2" BELOW TOP OF INLET COVER.

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4' 4"	5' 0"	6' 4" 7 1/2"	21" & SMALLER 0.38 ±
5' 4"	6' 0"	6' 4" 7 1/2"	24" & 30" 0.51 ±
6' 4"	7' 0"	6' 4" 7 1/2"	36" & 42" 0.64 ±
7' 4"	8' 0"	6' 4" 7 1/2"	48" & 54" 0.77 ±
8' 4"	9' 0"	6' 4" 7 1/2"	60" & 66" 0.90 ±



SECTION B-B



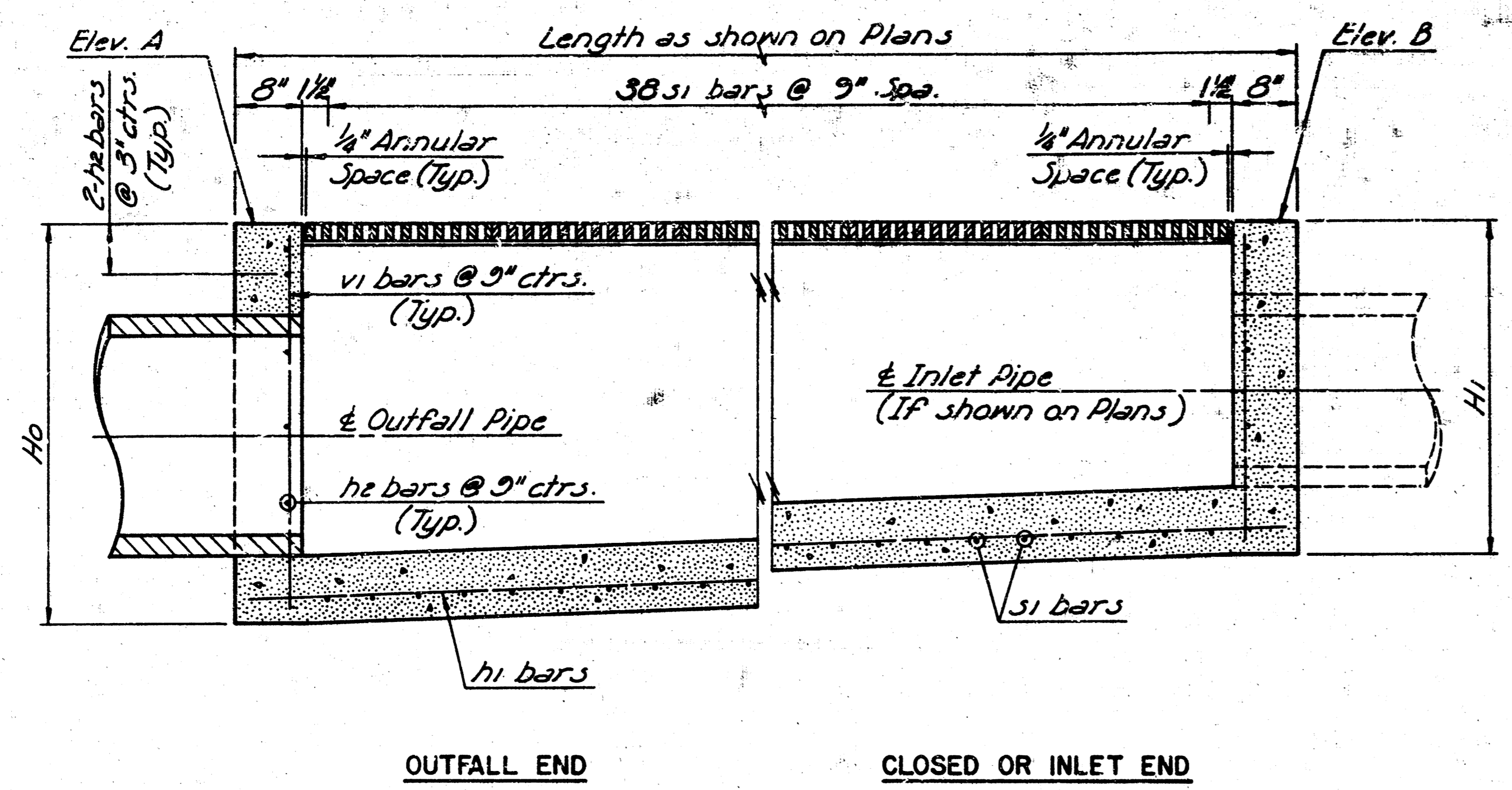
SECTION C-C

REVISED 12-21-1984  
 468-76-243-B1342-000-000-001  
**DETAIL STANDARD TYPE I CURB INLET**  
 CITY OF WICHITA, KANSAS  
 INLET OPENING = 6" x 5' 0"  
 JUNE 1984

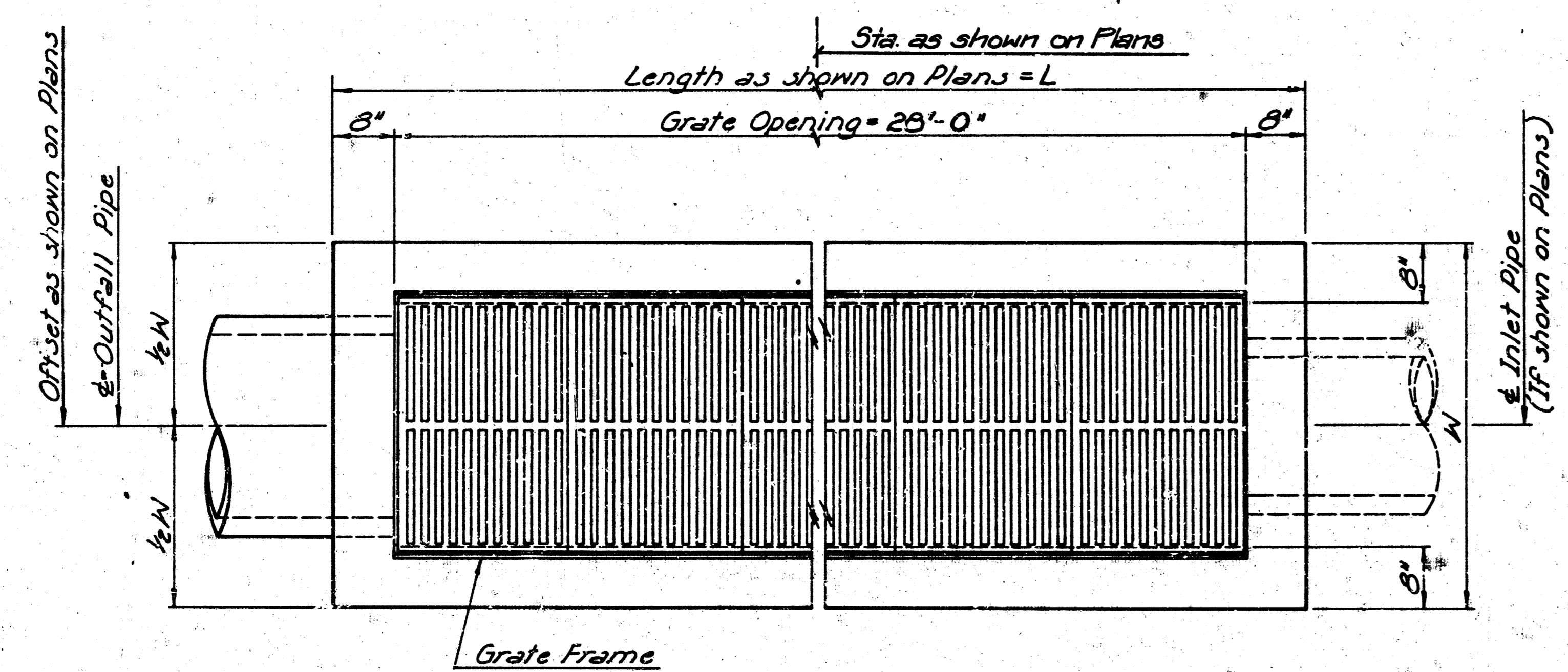


GRATE DIMENSIONS, TYPES & REINFORCING													
Inlet Dimens.		Outfall Pipe Dia. (In.)	Approved Grates						Reinforcing				
W (In.)	Ho (Min.) (In.)		Neenah Foundry Co.		Clay & Bailey Mfg. Co.		Jester Foundry Co.		s1*	h1	h2**	vi**	
		Catalog No.	Grate Dim. A (In.)	B (In.)	Catalog No.	Grate Dim. A (In.)	B (In.)	Catalog No.	Grate Dim. A (In.)	B (In.)	Size # Spa.	Size # Spa.	Size # Spa.
28	36	12	R-4990-D	14	2	2143-D	14	2	3990-D	14	2	4@12"	4@9"
31	39 1/2	15	R-4990-E	17	2	2143-E	17	2	3990-E	17 1/2	2	4@12"	4@9"
34	43	18	R-4990-F	20	2	2143-F	20	2	3990-F	20 1/2	2	4@12"	4@9"
37	46 1/2	21	R-4990-G	23	2	2143-G	23	2	3990-G	23	2	4@12"	4@9"
40	50	24	R-4990-H	26	2	2143-H	26	2	3990-H	26	2	4@12"	4@9"
43	53 1/2	27	R-4990-J	30	2 1/2	2143-J	30	2 1/2				4@12"	4@9"
46	57	30	R-4990-K	33	2 1/2				3990-K	32 1/2	2 1/2	4@12"	4@9"
52	64	36	R-4990-M	39	2 1/2				3990-M	39	2 1/2	4@12"	4@9"
58	71	42	R-4990-N	45	3							4@12"	4@9"
64	78	48	R-4990-O	51	3							4@12"	4@9"

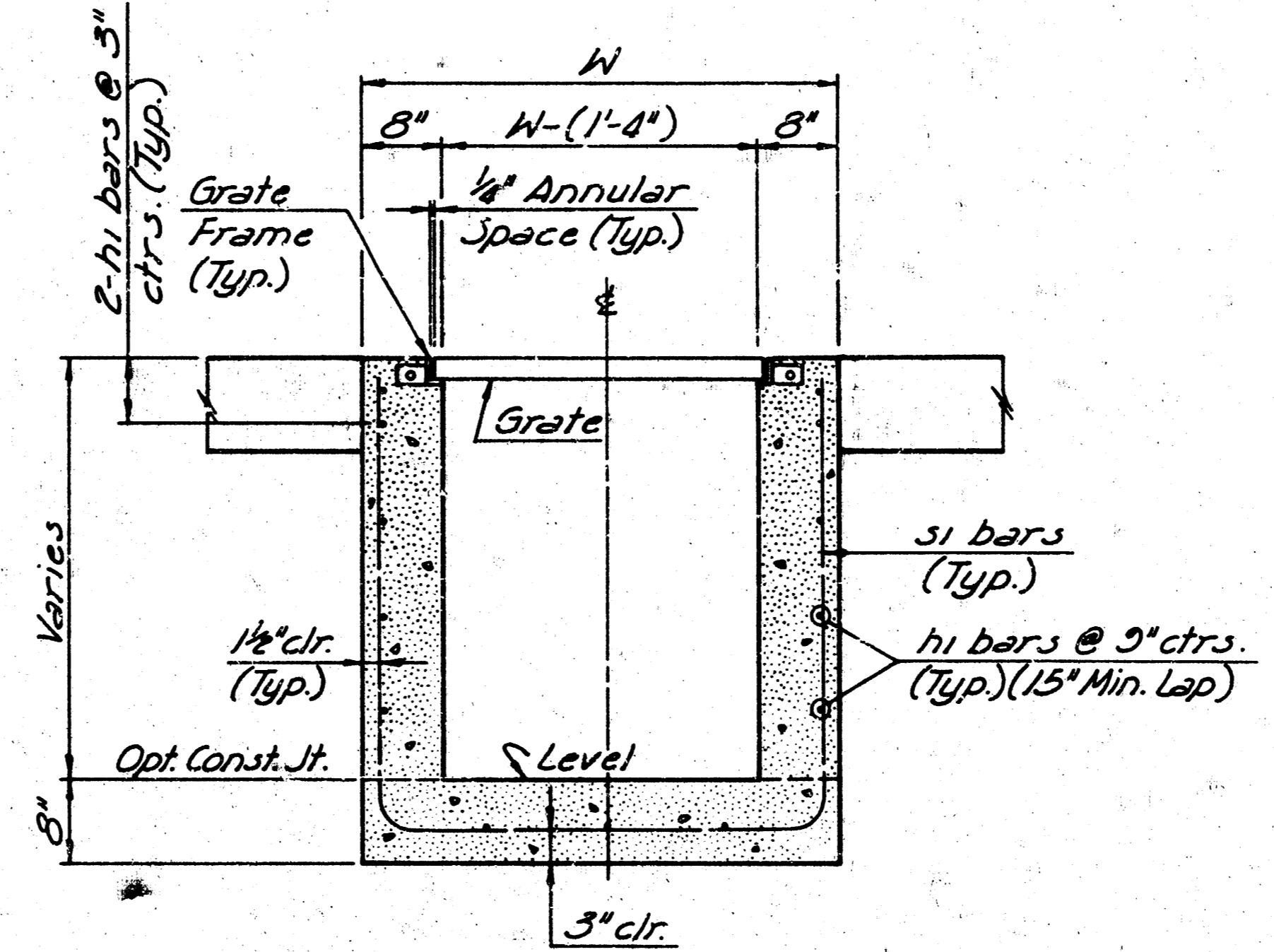
\* Field Cut bars at shallow end for vertical clearance.  
\*\* Field Cut or Bend for clearance.



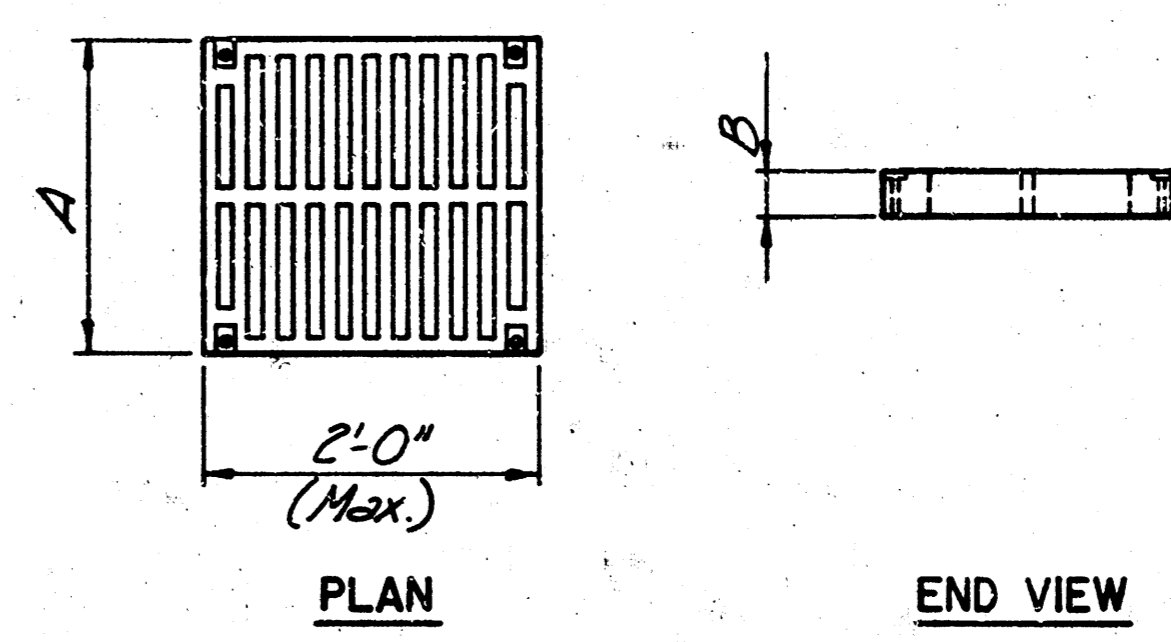
SECTION AT TRENCH INLET



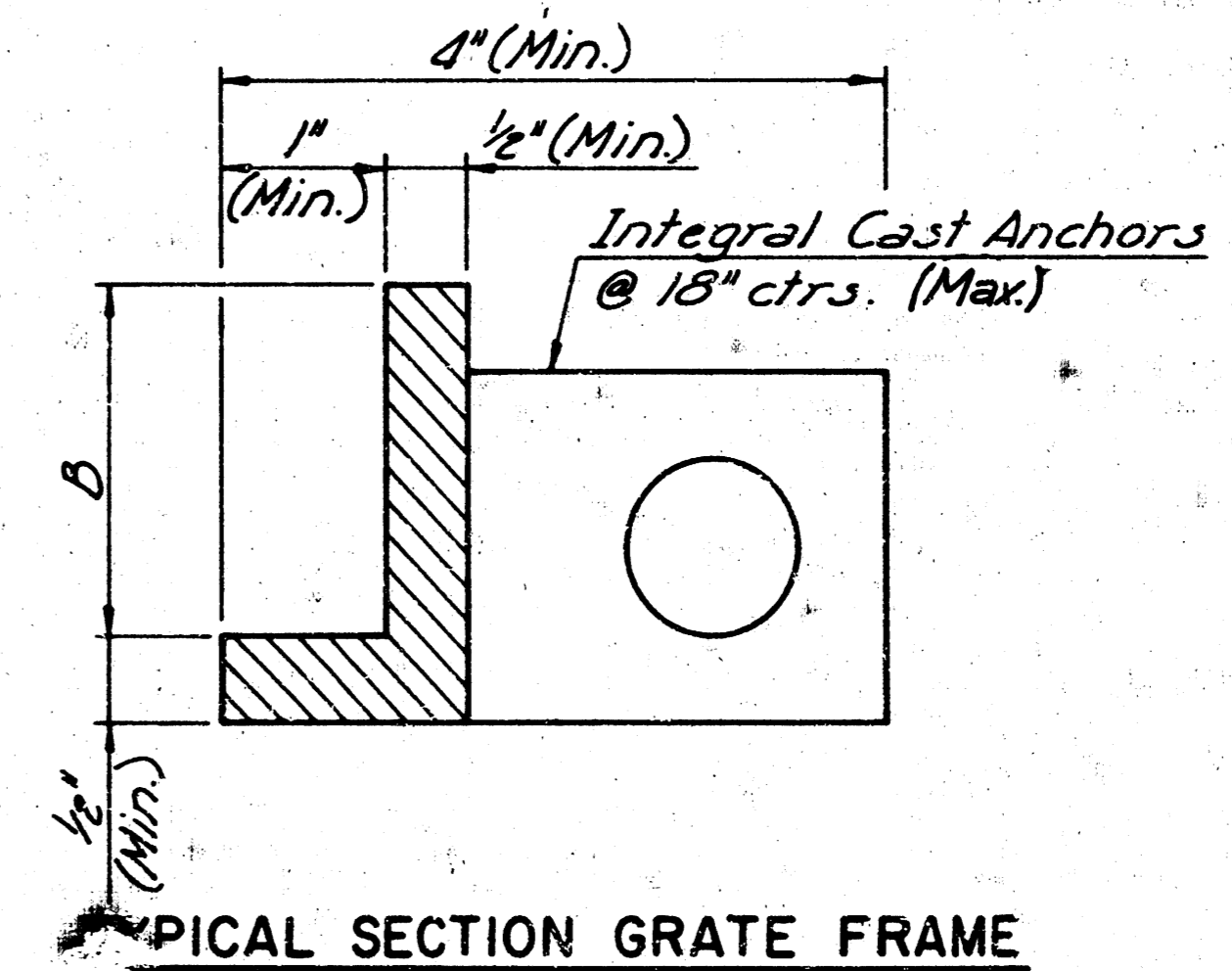
PLAN



TYPICAL TRENCH SECTION



GRATE DETAIL



TYPICAL SECTION GRATE FRAME

- GENERAL NOTES
1. THE TRENCH GRATE AND FRAME SHALL BE AS SHOWN ABOVE OR APPROVED EQUAL. THE GRATE SHALL BE THE HEAVY DUTY TYPE WITH A DESIGN LOADING OF H20-44 AND SHALL BE BICYCLE SAFE. THE GRATE AND FRAME MATERIAL SHALL BE GRAY CAST IRON CONFORMING TO THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR GRAY-IRON CASTINGS", ASTM A 48, GRADE 30.
  2. City of Wichita Standard Paving Mix to be used throughout.
  3. BEVEL ALL EXPOSED EDGES OF THE CONCRETE WITH A 3/4" TRIANGULAR MOLDING.
  4. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF "STANDARD SPECIFICATIONS FOR DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM A 616, GRADE 40 OR GRADE 60.

Station	DIMENSIONS				ELEVATIONS		PIPE SIZE		REINFORCING								QUANTITIES*							
	W	Ho	Hi	L	A	B	Outfall Pipe Size (In.)	Inlet Pipe Size (In.)	s1*		h1		h2**		vi**		Conc.	Rein.	Exc.	Cast Iron				
	(In.)	(In.)	(In.)						Size # Spa.	No.	Length	Size # Spa.	No.	Length	Size # Spa.	No.	Length	(Cu. Yds.)	(Lbs.)	(Cu. Yds.)	#/Lbs.			
55+45, 55+174	43	43	24	20'-0"	169.75	169.75	18	-	#4@9"	38	3'-9"	#4@9"	16	29'-1"	#4@9"	3	3'-4"	#4@9"	8	3'-4"	5.85	600	18.1	**

\* For Information only

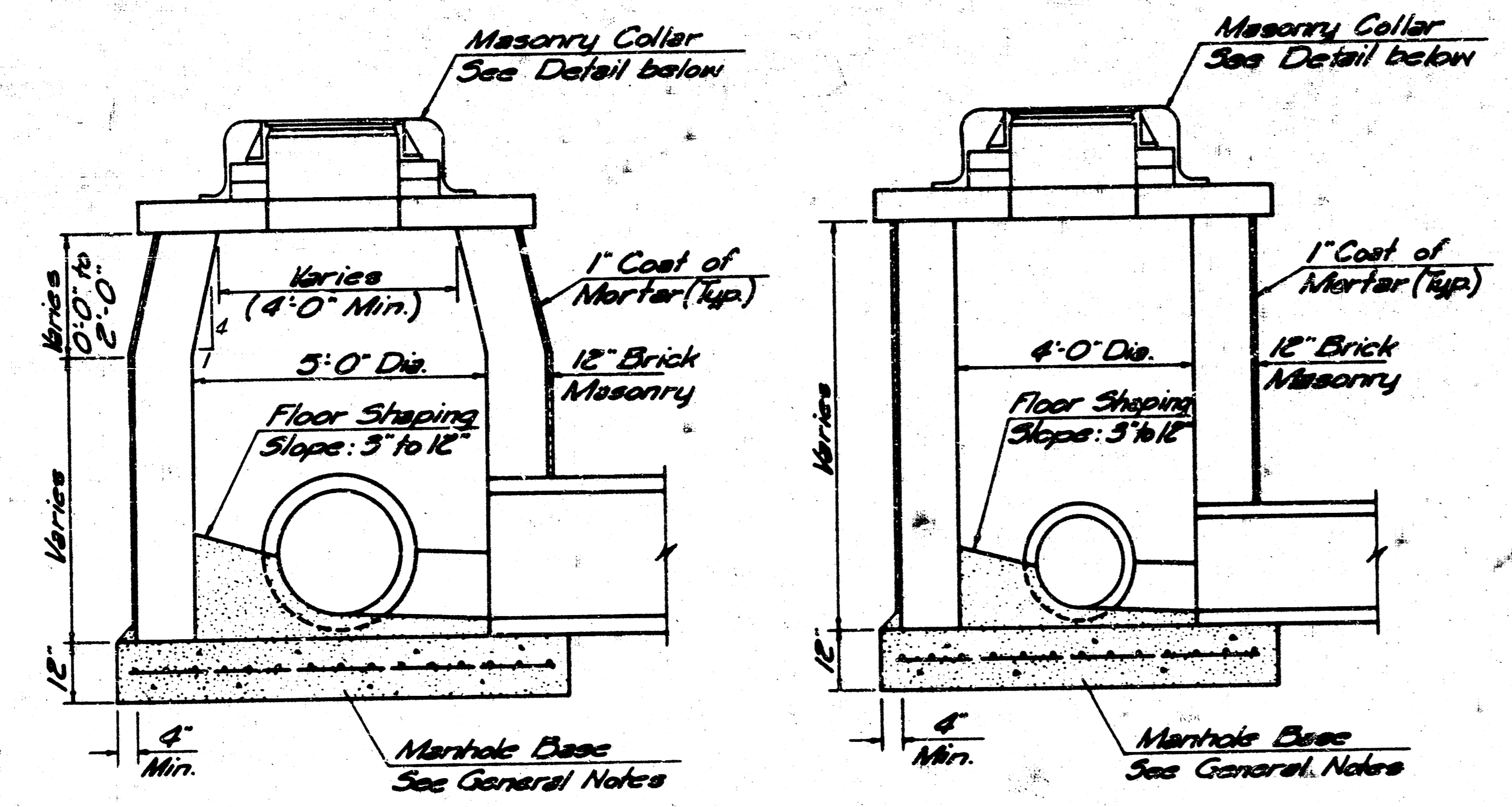
\*\* Weights vary w/ Manufacturer

**TRENCH INLET DETAILS**

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

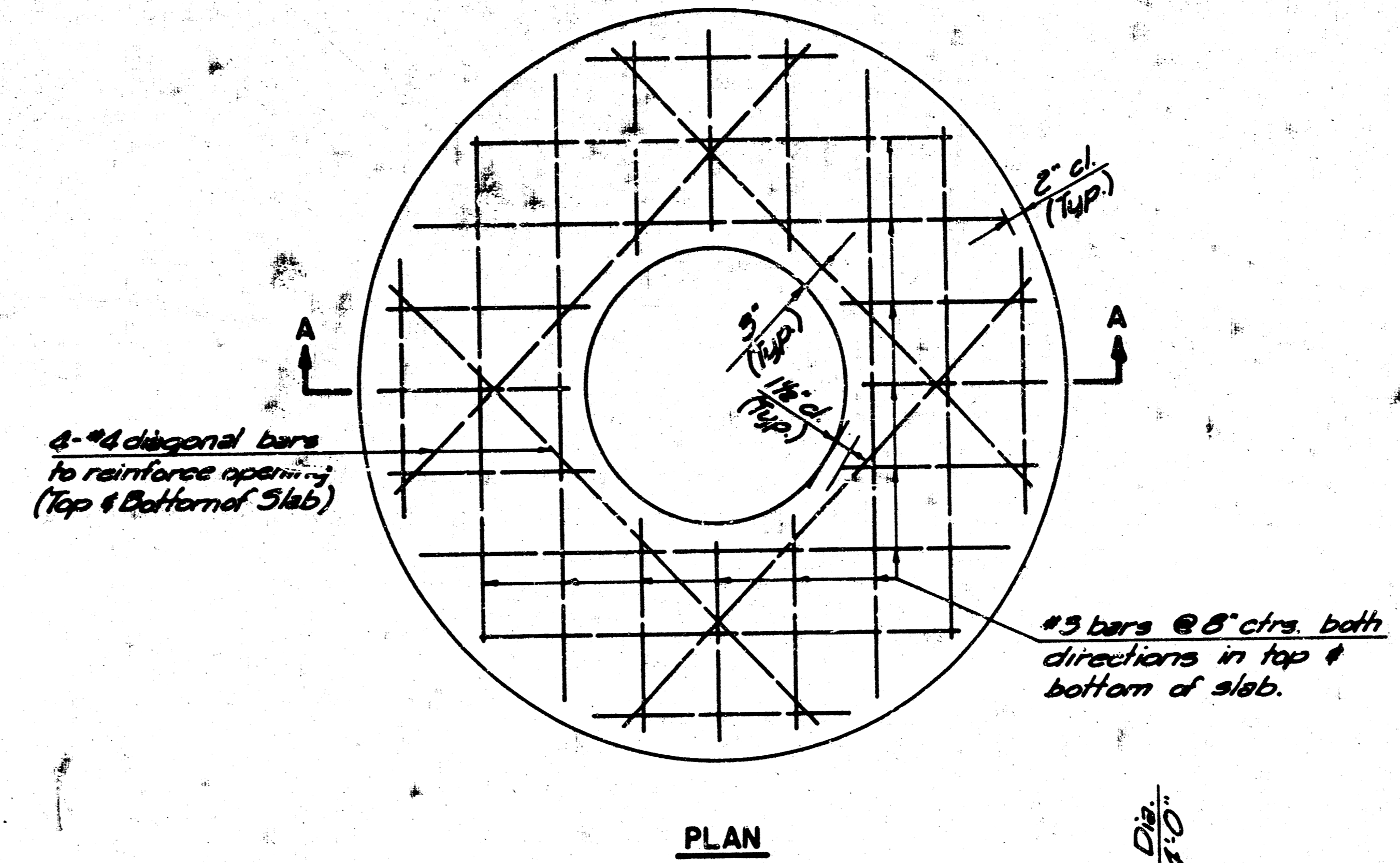
Checked by: K.J.S. / 8/10  
Date: K.J.S.  
Drawn by: M.L.L. / Date: M.L.L. Job No. 64270

FILMED FROM THE BEST AVAILABLE COPY ....

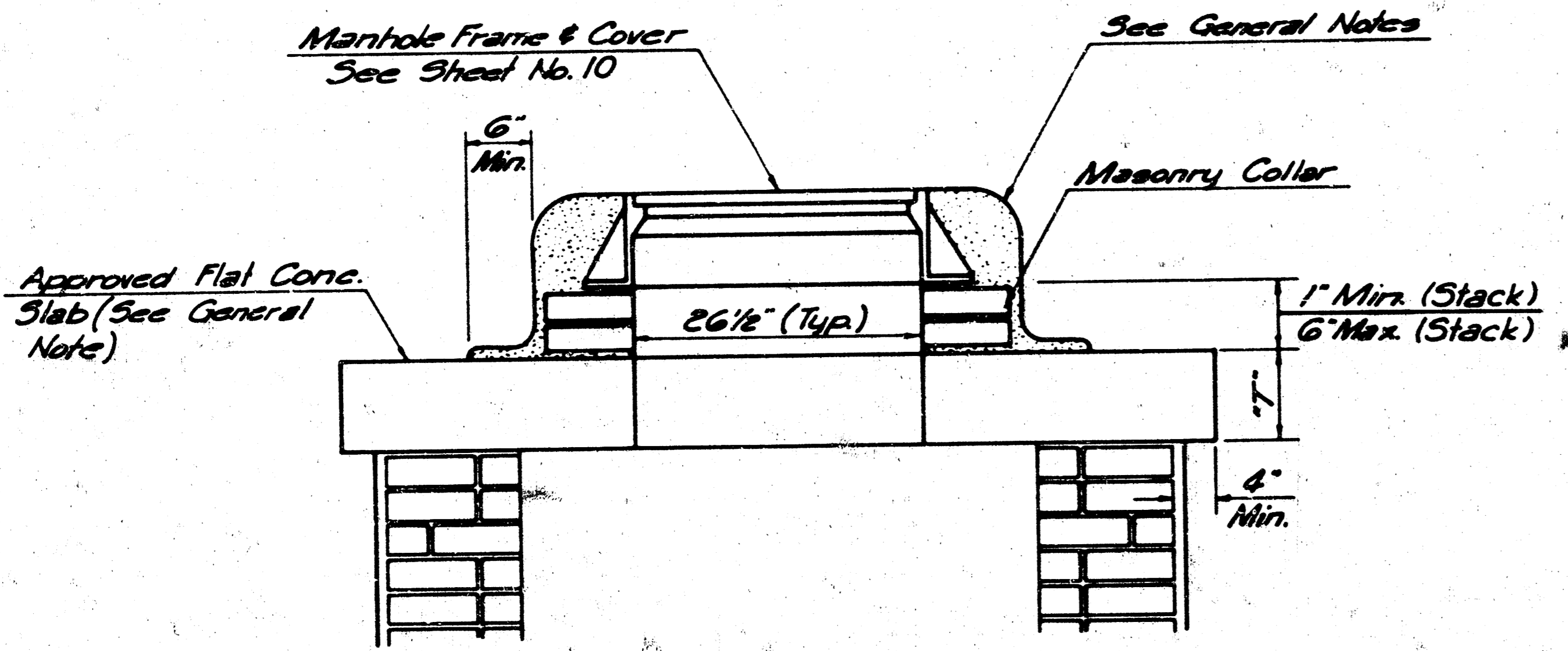


**SHALLOW TYPE "B" MANHOLE (5' DIA.)**

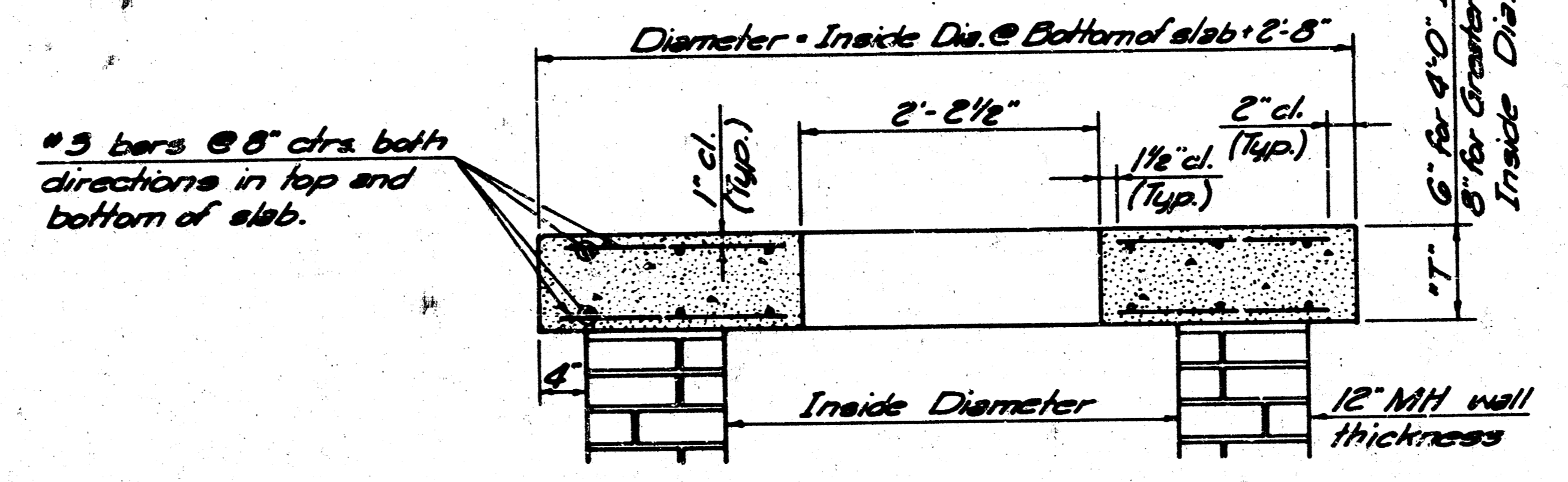
**SHALLOW TYPE "B" MANHOLE (4' DIA.)**



**PLAN**



**MASONRY COLLAR DETAIL**



**SECTION A-A  
FLAT CONCRETE SLAB DETAILS**

**GENERAL NOTES:**

TOPS OF MANHOLES LOCATED IN PAVED AREAS SHALL BE SET FLUSH WITH THE PAVEMENT. TOPS OF MANHOLES LOCATED IN GRASSED AREAS SHALL BE SET FLUSH WITH THE FINISHED GRADE. TOPS OF MANHOLES LOCATED IN UNPAVED TRAVEL WAYS SHALL BE SET SIX INCHES (6") BELOW FINISHED GRADE.

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 ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. 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.

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.

BRICK USED SHALL CONFORM TO THE REQUIREMENTS SPECIFIED FOR GRADE MS IN A.S.T.M. C 32-73 OR GRADE SW IN A.S.T.M. C 62-69.

ALL BRICK SHALL BE LAID WITH SHOVE JOINTS. THE ENTIRE OUTSIDE SURFACE OF THE MANHOLE SHALL BE PLASTERED WITH A MINIMUM OF ONE INCH (1") OF THE CEMENT MORTAR. ALL CONTACT SURFACES BETWEEN BRICK MASONRY, FLAT CONCRETE SLABS, AND CAST IRON RINGS SHALL BE SEALED WITH A LAYER OF THE CEMENT MORTAR. BACKFILL SHALL NOT BE ACCOMPLISHED UNTIL THE MORTAR HAS CURED FOR TWENTY-FOUR (24) HOURS.

CEMENT USED FOR MORTAR SHALL BE TYPE I COMPLYING WITH THE REQUIREMENTS OF THE LATEST REVISION OF A.S.T.M. DESIGNATION C-150.

FINE AGGREGATE USED FOR MORTAR SHALL CONFORM TO THE SAME REQUIREMENTS AS REQUIRED FOR CONCRETE PAVEMENT, EXCEPT THAT IT SHALL HAVE A GRADATION FACTOR OF NOT LESS THAN 2.75 AND SHALL BE FREE FROM DUST, LOAM OR DIRT.

AN APPROVED TYPE OF FLAT CONCRETE SLAB, CONFORMING TO THE REQUIREMENTS OF A.S.T.M. C-478, SHALL BE USED TO SUPPORT THE MANHOLE RING AND COVER. A ONE INCH (1") MINIMUM TO SIX INCH (6") MAXIMUM MASONRY COLLAR CONFORMING TO THE SAME TYPE OF CONSTRUCTION AS SPECIFIED ABOVE SHALL BE INSTALLED BETWEEN THE MANHOLE RING AND THE FLAT CONCRETE SLAB TO FACILITATE MINOR ADJUSTMENTS IN ELEVATIONS.

THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF AREAS WHERE DEBRIS COULD BE DEPOSITED AS WATER 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. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS.

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.

SHALLOW MANHOLES TYPE "B" SHALL BE BID PER EACH FOR THE DIAMETER INDICATED. SAID PRICE BID SHALL BE FULL PAYMENT FOR FURNISHING ALL MATERIALS, FOR ALL EXCAVATION, BACKFILLING, AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

*Note: Manhole's Frame & Covers on this project shall not be grouted to stack. Final adjustment to finish grade shall be made by paving contractor.*

**SHALLOW TYPE "B" MANHOLE  
(FOR STORM SEWERS)**

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

Designed by B.E.R. Checked by \_\_\_\_\_  
Drawn by D.D. Date \_\_\_\_\_ Job No. 84278

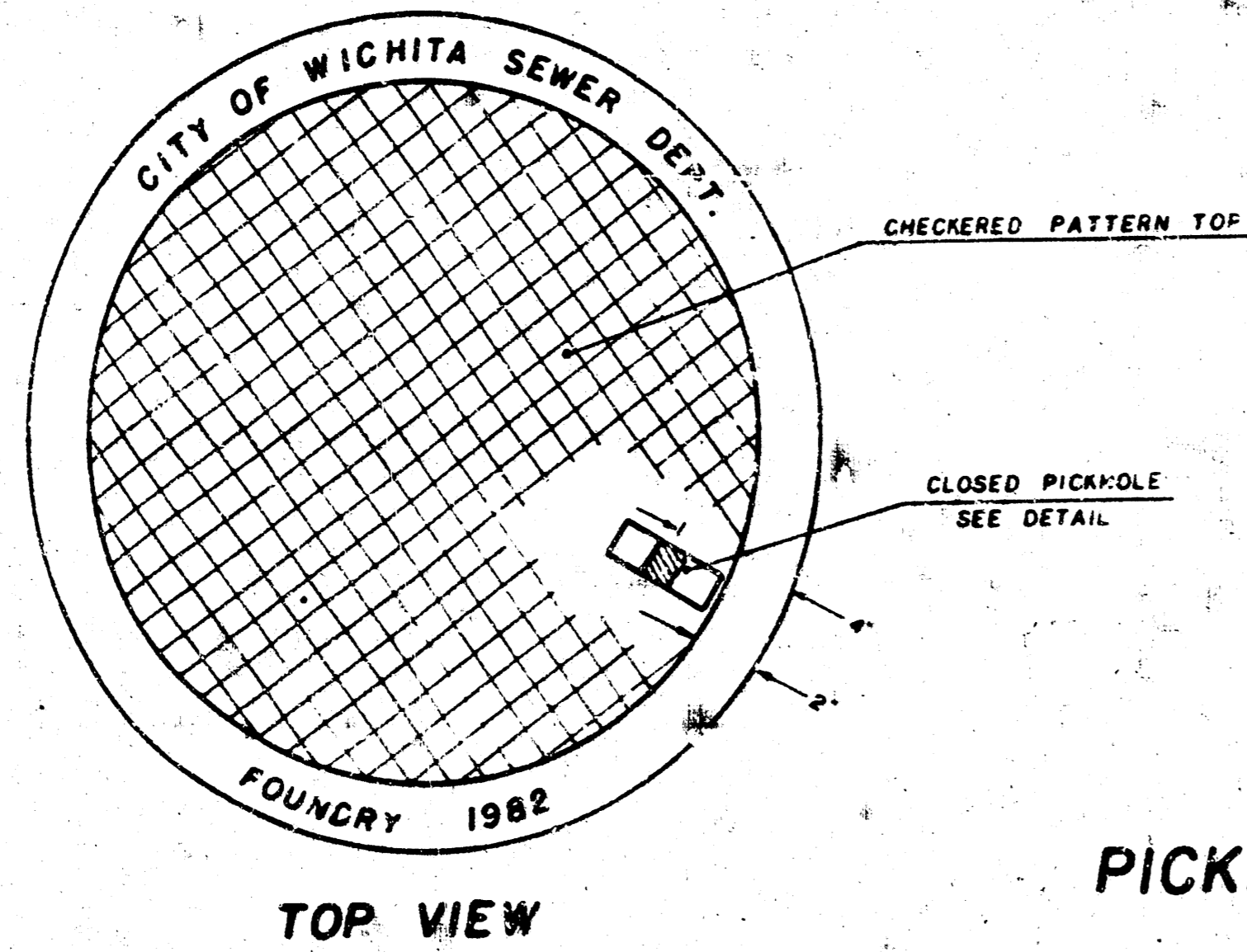
# MANHOLE FRAME AND COVER DETAIL

## ADOPTED AS STANDARD DESIGN

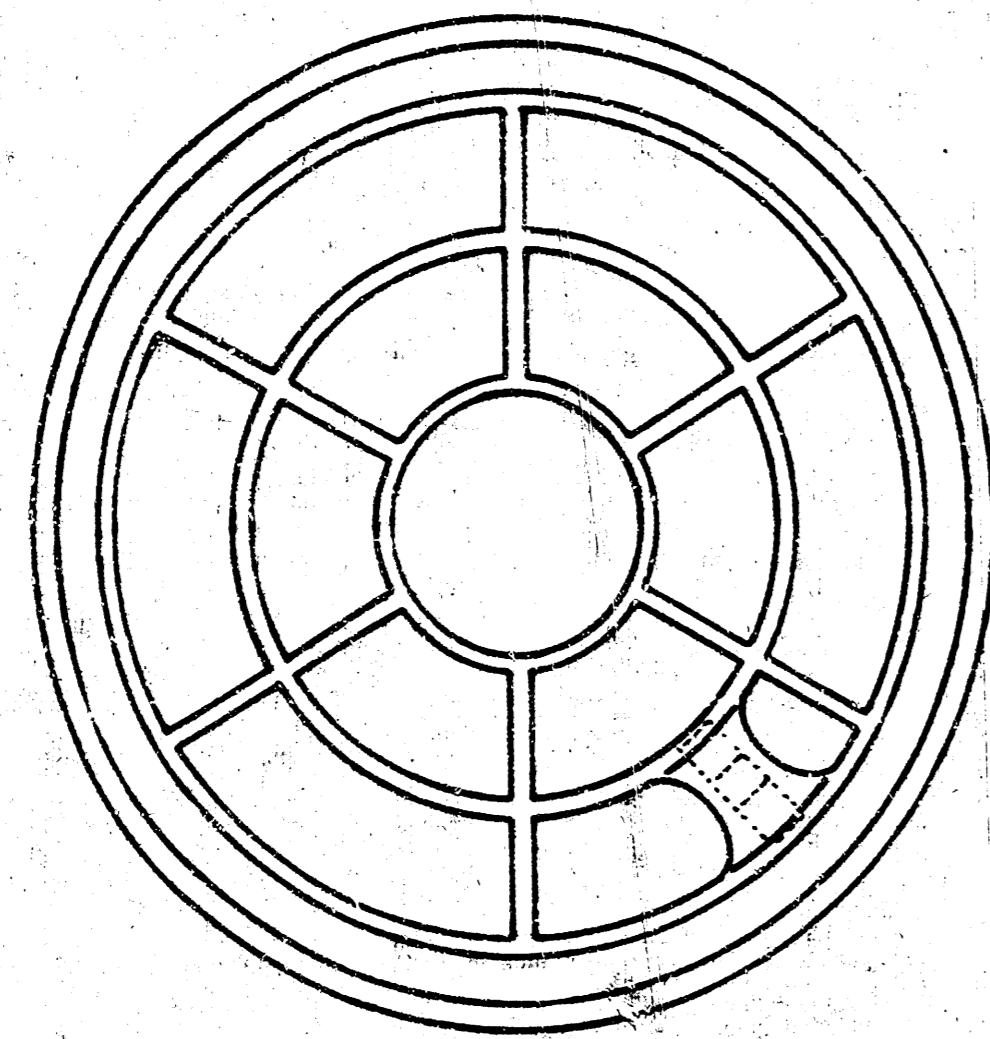
### BY

### City of Wichita, Kansas

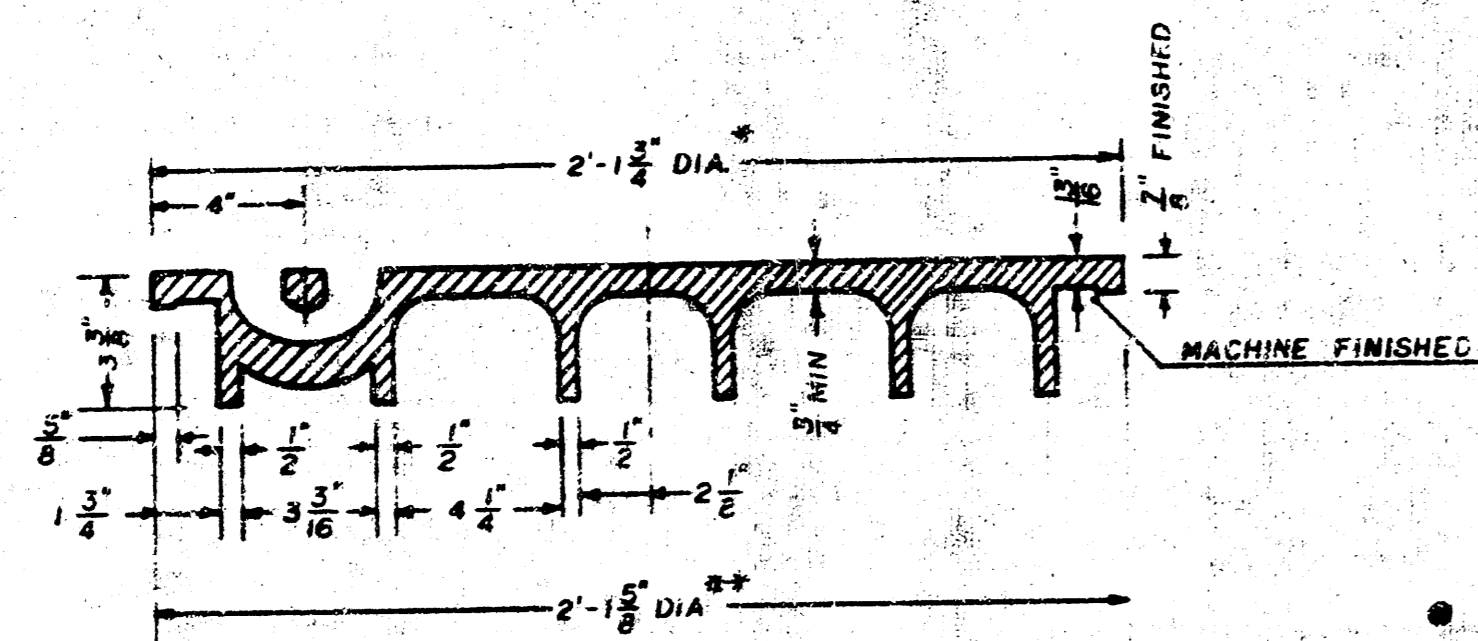
**MANHOLE COVER**  
Weight: 180 Lbs.



TOP VIEW



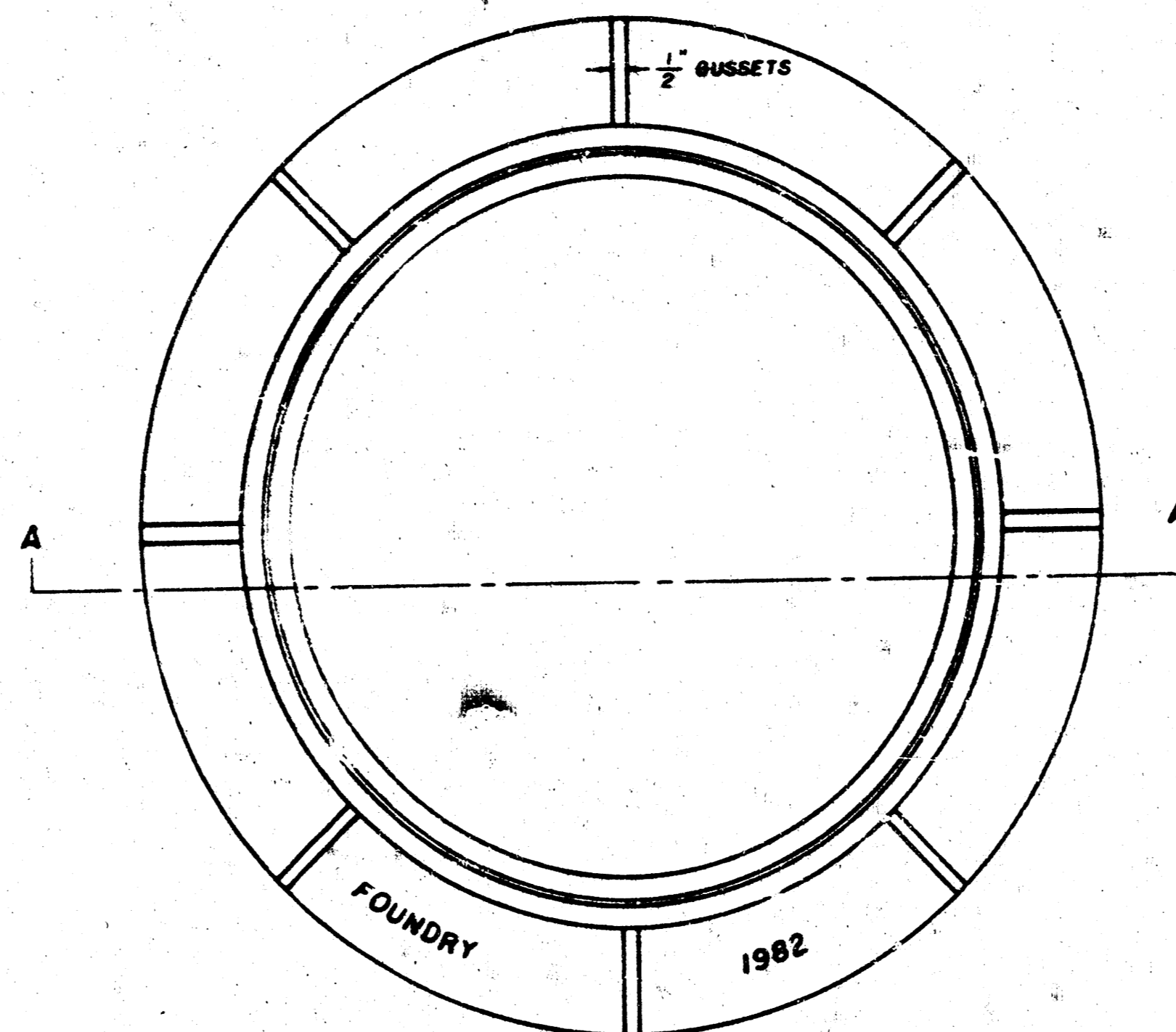
BOTTOM VIEW



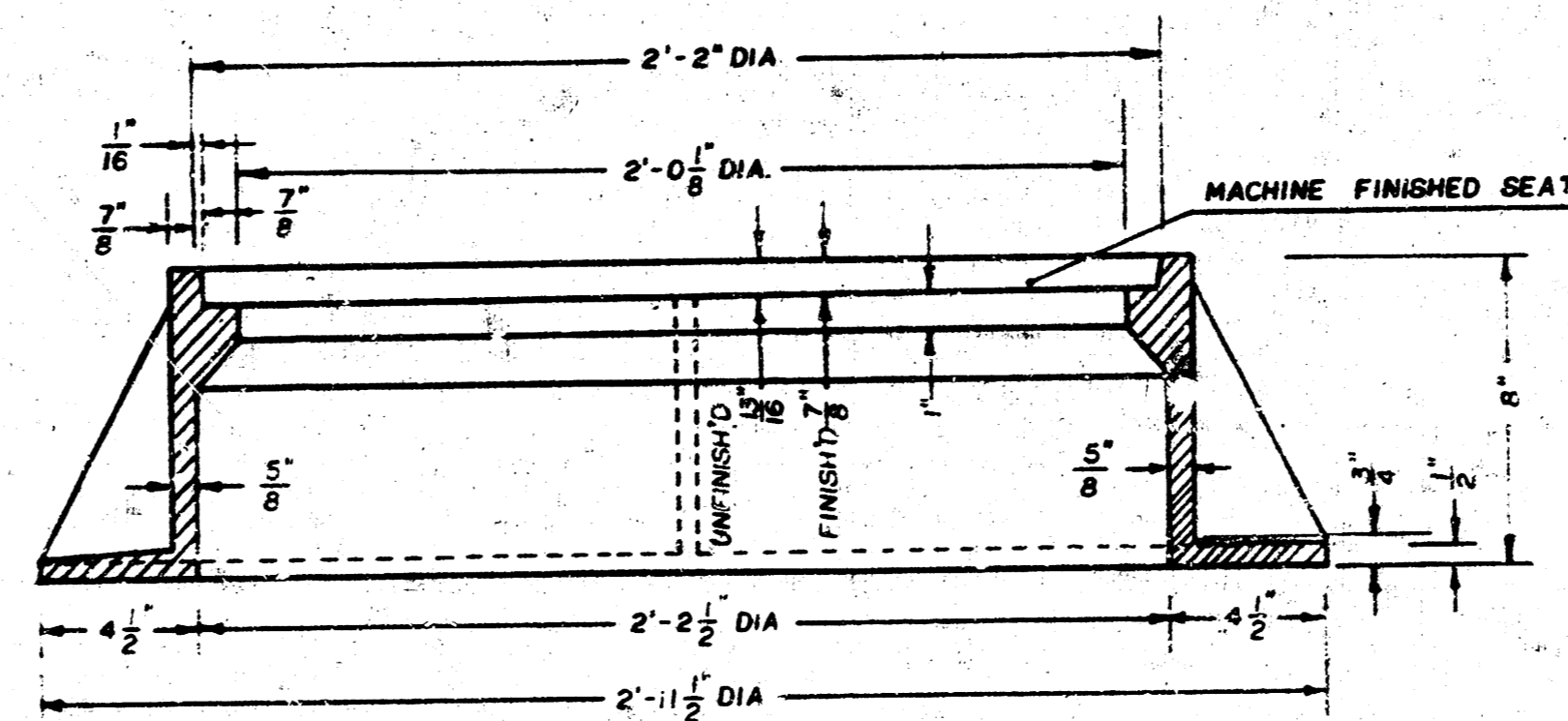
SECTION VIEW

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

**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, SHINKAGE 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.