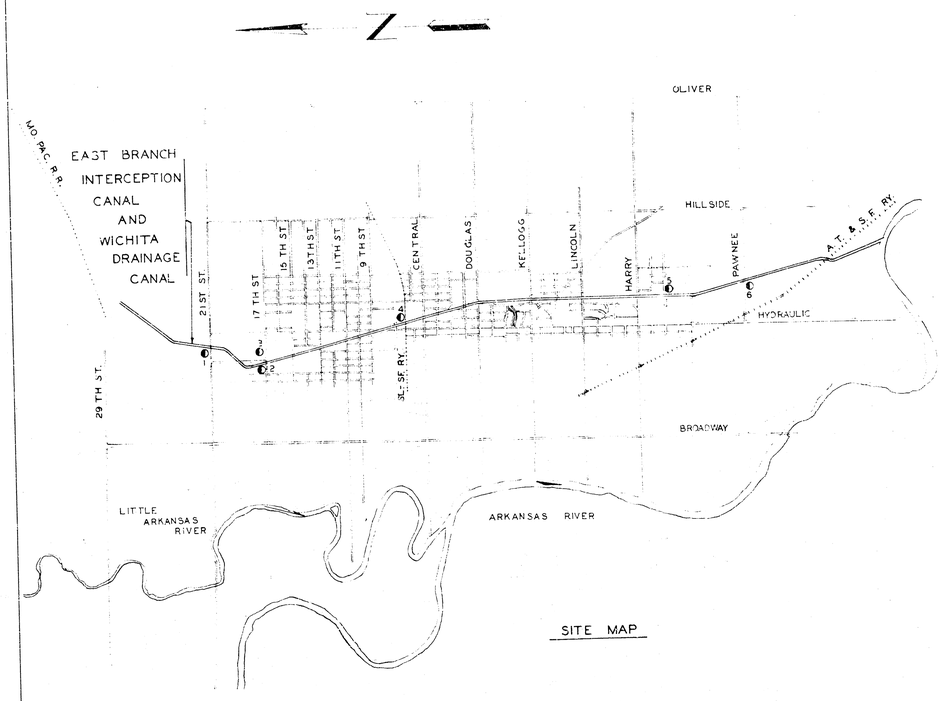
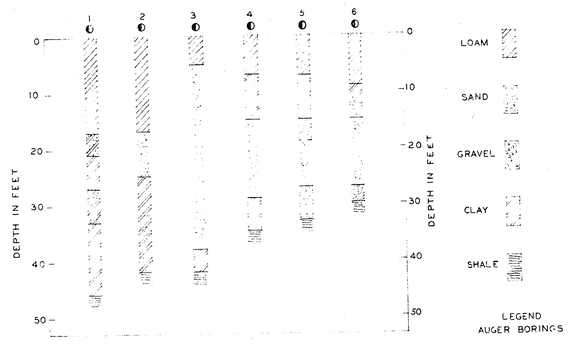


SITE MAP



LOG RECORD

FOR LOCATION OF AUGER BORINGS SEE SITE MAP

RECAPITULATION OF ESTIMATED QUANTITIES

Station	Culvert Size	Steel Piling Lineal Feet	Wood Piling Lineal Feet	Excavation Cu Yds	Concrete Cu Yds	Reinforcing Steel Pounds	Box Culv. Cu Yds	Rip-Rap Dumped Cu Yds	Rip-Rap Grouted Sq Yds	Concrete Pvt. Lineal Feet	Steel Piling Lineal Feet	Timber Pvt. Lineal Feet
53+50 Rt	36 C.M.P.	918.0		2876	9.17	20.72	17.26	19.7	6.22			
67+80 Lt	24 C.M.P.							12.4	4.0			
71+25 Rt	12 C.M.P.								2.0			
79+40 Lt	24 C.M.P.	138.0		39.0	1.5	196.06	21.01		10.0			
82+30 Lt	42 C.M.P.	150.0		93.35	14.80	183.21	22.96	32+30	6.7			
93+30 Lt	54 C.M.P.	486.0		540	20.00	536.64	35.11	48+48	9.5			
94+40 Lt	42 Conc. Box	156.0		52.07	8.03	458.97	9.69	12+00	7.8			
101+30 Lt	18 C.M.P.								5.0			
110+20 Rt	24 R.C.P.								6.0			
112+90 Rt	18 C.M.P.								4.0			
116+80 Rt	9'-0 Conc. Box								12.0			
119+30 Rt	9 C.M.P.								3.0			
123+40 Rt	3'-0 Conc. Box	420.0		46.99	6.63	1.1.39	4.96	6+00	14.1			
130+00 Rt	12 C.M.P.								8.0			
131+35 Lt	24 Conc. Box	30.0		500	3.35	1762.0	8.1	12+00				
134+... Rt	24 Conc. Box	402.0		32.01	14.82	212.80	16.13	18+48	5.0			
136+30 Rt	24 Tile Pipe								6.0			
137+80 Lt	24 Conc. Box	402.0		39.11	11.54	134.15	11.15	48+48	13.0			
137+40 Rt	108 C.M.P.	402.0		41.11	15.27	251.26	26.80	30+36	12.9			
151+70 Lt	36 R.C.P.	226		8445	8.62	208.23	37.90	12+00	30.03	30 Lineal Feet		
154+40 Rt	15 R.C.P.	192		14.35	2.0	150.27	0.32	12+00	7.07	70 Lineal Feet		
162+50 Lt	3'-0 Conc. Box	336.0		29.93	12.26	220.14	17.43	24+36	10.2			
172+30 Rt	3'-0 Conc. Box	462.0		48.09	15.71	722.26	23.82	30+36	16.2			
174+50 Lt	60 Conc. Pipe	342.0		24.51	11.23	211.90	12.13	42+48	8.8			
176+50 Rt	60 Conc. Box	348.0		42.02	21.98	336.15	14.94	48+48	28.1			
177+40 Lt	3'-0 Conc. Box								5.0			
184+20 Rt	24 Conc. Box								10.1			
196+70 Lt	3'-0 Conc. Box	216.0	280.0	31.15	8.38	120.47			22.0			
209+25 Lt	3'-6 Conc. Box								3.0			
215+60 Lt	30 Tile Pipe								3.1			
218+20 Rt	30 Tile Pipe								8.0			
219+60 Rt	54 C.M.P.								10.0			
219+80 Lt	5'-5 Conc. Box								5.0			
233+50 Lt	42 Tile Pipe								4.0			
239+50 Rt	5'-5 Conc. Box								6.0			
244+10 Lt	3'-6 Conc. Box								15.0			
245+20 Rt	30 Conc. Pipe								3.0			
251+30 Lt	8'-8 Tile Pipe											
257+40 Lt	[illegible]								5.0			
258+40 Rt	30 Conc. Box								10.0			
279+70 Lt	36 Tile Pipe	3.18		32.70	10.83	187.35	18.55		11.26			
283+30 Lt	20 R.C.P.								2.0			
287+20 Rt	36 C.M.P.								3.0			
3.0+50 Lt	36 C.M.P.								4.0.3			
317+20 Rt	18 R.C.P.								3.0			
323+80 Rt	5'-6 Conc. Box	252.0		45.68	13.1	418.47	21.98		8.7			
351+10 Rt	12'-8 C.M.P.A.								5.0			
361+70 Lt	4'-5'-7 Gates								10.2			
TOTALS		7128	280	836.48	360.04	8082.12	390.53	175 Lin. Ft.	454.18	3.72		72

Note - Reinforcing Steel in Pounds includes weight of Reinforcing Steel and Wire Mesh. Corrugated Metal Pipe (Asphalt Coated Paved Invert, may be substituted for Reinforced Concrete Pipe

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT

EAST BRANCH INTERCEPTION CANAL & WICHITA DRAINAGE CANAL
SITE MAP, LOG RECORD & RECAPITULATION OF ESTIMATED QUANTITIES

SCALE 1 INCH = 1/2 MILE

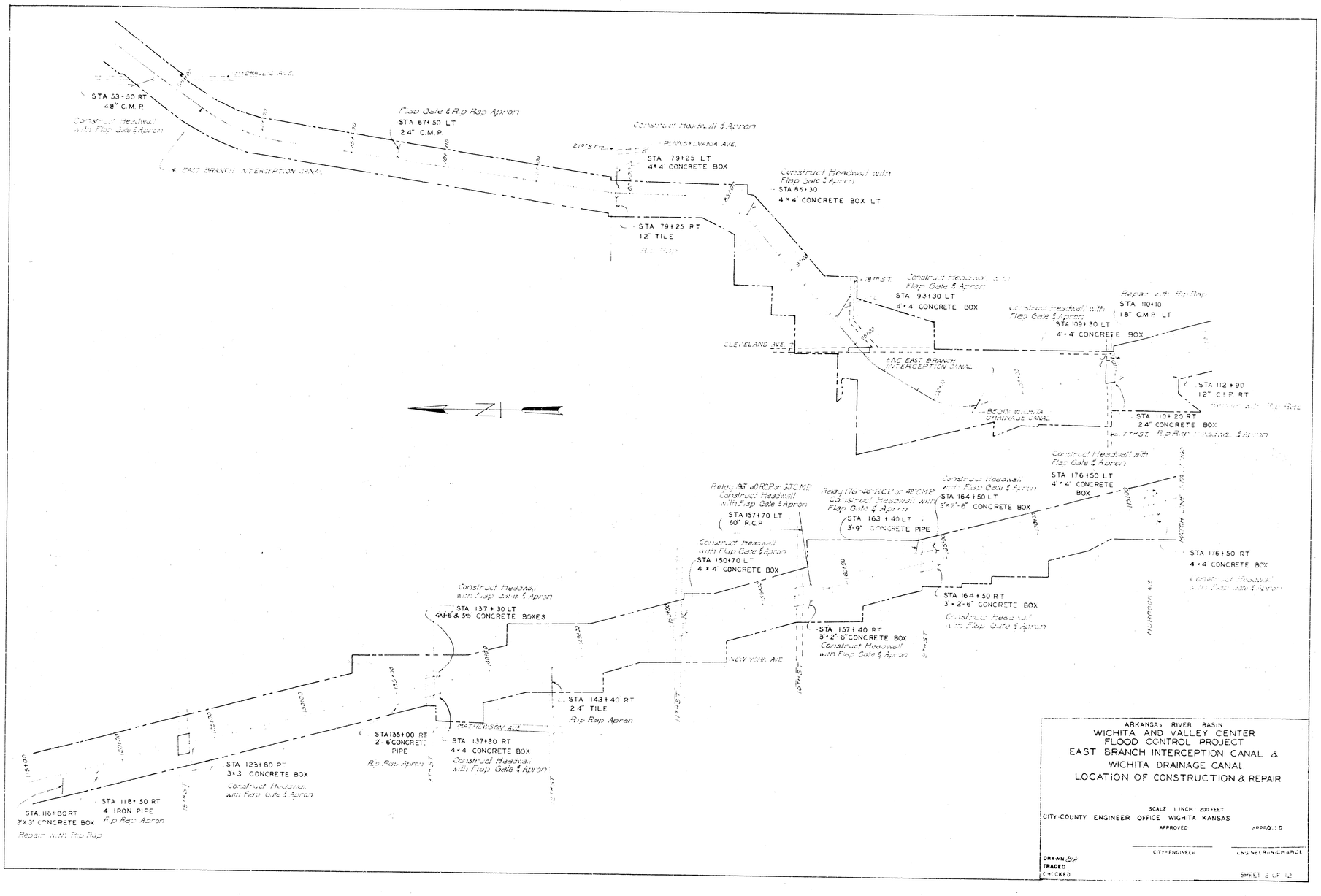
CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED _____ CITY ENGINEER

APPROVED _____ ENGINEER IN CHARGE

DRAWN [illegible]
TRACED
CHECKED

SHEET 1 OF 12



ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
LOCATION OF CONSTRUCTION & REPAIR

SCALE 1 INCH 200 FEET

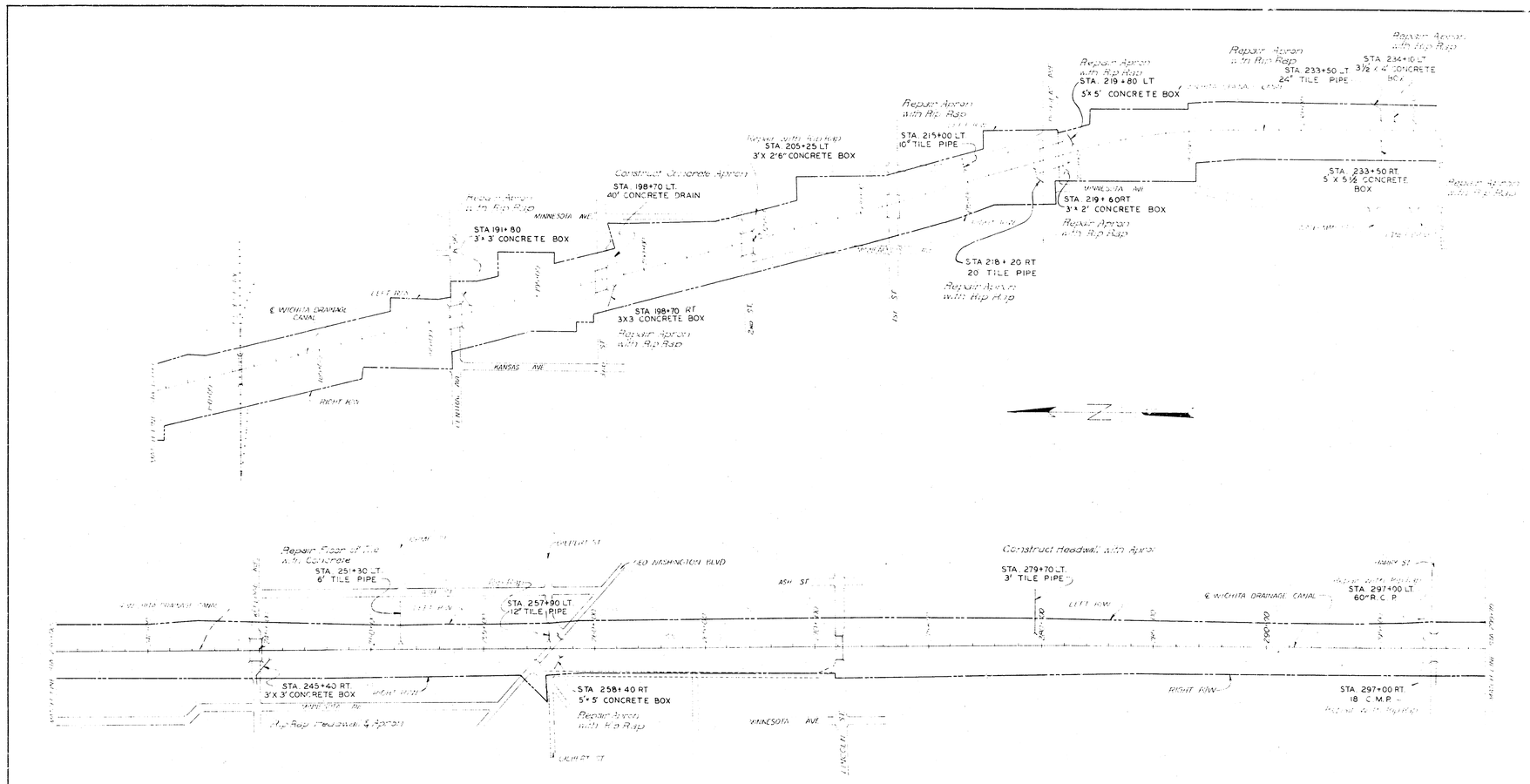
CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED APPROVED

CITY ENGINEER ENGINEER IN CHARGE

DRAWN
TRACED
CHECKED

SHEET 2 OF 12



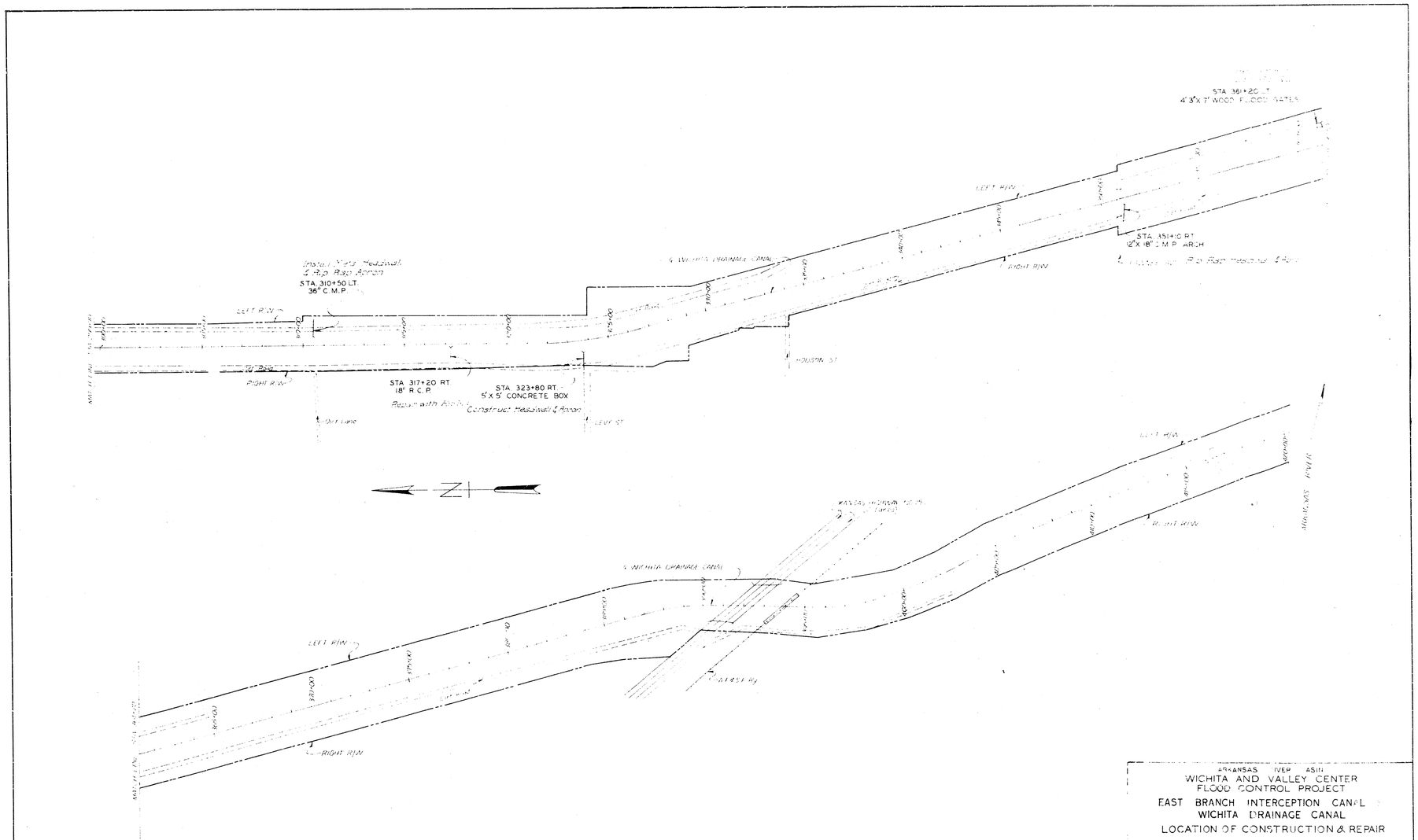
ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
LOCATION OF CONSTRUCTION & REPAIR

SCALE 1 INCH 200 FEET
CITY-COUNTY ENGINEER OFFICE WICHITA KANSAS
APPROVED

CITY-ENGINEER | ENGIN. IN CHARGE

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SHEET 3 OF 12



ARKANSAS IVEP ASIH

WICHITA AND VALLEY CENTER FLOOD CONTROL PROJECT

EAST BRANCH INTERCEPTION CANAL WICHITA DRAINAGE CANAL

LOCATION OF CONSTRUCTION & REPAIR

SCALE 1 INCH = 200 FEET

CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED APPROVED

CITY ENGINEER

DRAWN
TRACED
CHECKED

SHEET 4 OF 12

LISTS OF BARS, DIMENSIONS, AND QUANTITIES FOR HEADWALLS

FOR 4'X4' CONFRETE BOX AT STA 79+40 LT.

Letter	A	B	C	D	E	F	G	H	K
Dimension	5'10¼"	8'10"	5'2¾"	5'8"	10'9"	13'1"	7'10⅝"	11'3½"	4'0"
Bar	a	b	c	d					
Number	14	22	7	5					
Size	#6	#4	#4	#6					
Length	11'0"	9'8"	7'0"	5'7"					

Excavation 51.06 Cu. Yds
Concrete Head 11.04 cu yds Apron 1.13 cu yds
Reinf. Steel #6 bars 337.95# #4 bars 126.87#
Sheet Piling Total 37 sheets Length 38'-0"
Length 14'-0" each
Weight 17.9 #
Steel Wire Mesh No 12 gauge 40.95#

Flow Line Elev 1972.10

Rip Rap 9.95 sq yds

FOR 4'X4' CONCRETE BOX AT 96+30 LT

Letter	A	B	C	D	E	F	G	H	K
Dimension	8'11⅛"	8'10"	4'2⅜"	6'8"	12'5⅛"	10'1"	7'10⅝"	11'3½"	4'0⅛"
Bar	a	b	c	d					
Number	20	22	7	5					
Size	#6	#4	#6	#6					
Length	10'6"	7'8"	7'0"	4'5"					

Excavation 33.70 Cu. Yds
Concrete Head 7.77 cu yds Apron 1.13 cu yds
Reinf. Steel #6 bars 337.95# #4 bars 126.87#
Sheet Piling Total 32 sheets Length 38'-0"
Weight 17.9 #
Steel Wire Mesh No 12 gauge 40.95#

Flow Line Elev 1972.10

Rip Rap 8.52 sq yds

FOR 4'X4' CONCRETE BOX AT 93+30 LT

Letter	A	B	C	D	E	F	G	H	K
Dimension	11'1"	6'5"	7'3¾"	7'8"	11'6"	15'1"	7'10⅝"	11'3½"	4'0⅛"
Bar	a	b	c	d					
Number	16	24	8	5					
Size	#6	#4	#6	#6					
Length	12'6"	6'8"	7'0"	7'1"					

Excavation 46.76 Cu. Yds
Concrete Head 11.04 cu yds Apron 1.13 cu yds
Reinf. Steel #6 bars 337.95# #4 bars 126.87#
Sheet Piling Total 43 sheets Apron 38 sheets
Length 14'-0" Dia 28" x 36"
Weight 17.9 #
Steel Wire Mesh No 12 gauge 40.95#

Flow Line Elev 1972.10

Rip Rap

FOR 4'X4' CONCRETE BOX AT 109+30 LT

Letter	A	B	C	D	E	F	G	H	K
Dimension	9'10¼"	11'8"	5'2¾"	5'8"	9'3"	8'1"	6'10"	16'3½"	5'1⅛"
Bar	a	b	c	d					
Number	18	10	4	4					
Size	#6	#6	#6	#6					
Length	11'0"	9'8"	7'0"	3'11"					

Excavation 52.27 Cu Yds
Concrete Head 14.30cu yds Apron 2.49 cu yds (Slant)
Reinf. Steel #6 bars 297.6# #6 bars 126.87#
Sheet Piling Total 47 incl. Apron 29 secs
Length 14'-0" Dia 28" x 36"
Weight 17.9 #
Steel Wire Mesh No 10 gauge 294#

Flow Line Elev 1971.10

FOR 4'X4' CONCRETE BOX AT 76+50 LT

Letter	A	B	C	D	E	F	G	H	K
Dimension	11'0"	8'3"	4'3⅜"	5'8"	8'6⅛"	11'1"	7'10⅝"	13'3½"	4'0⅛"
Bar	a	b	c	d					
Number	12	18	5	5					
Size	#6	#6	#6	#6					
Length	9'8"	9'8"	7'0"	3'11"					

Excavation 26.61 Cu Yds
Concrete Head 8.01 cu yds Apron 1.13 cu yds
Reinf. Steel #6 bars 297.6# #6 bars 126.87#
Sheet Piling Total 43 sheets Apron 29 secs
Length Dia 45" x 48"
Weight 17.9 #
Steel Wire Mesh No 10 gauge 294#

Flow Line Elev 1973.30

FOR 4'X4' CONCRETE BOX AT STA 323+80 RT

Letter	A	B	C	D	E	F	G	H	K
Dimension	11'3"	9'4"	5'2⅜"	5'5"	12'4⅛"		8'0"	13'3½"	
Bar	a	b	c	d					
Number	14	22	7	6					
Size	#6	#6	#6	#6					
Length	11'0"	9'8"	8'0"	5'4"					

Excavation 25.49 Cu Yds
Concrete
Reinf. Steel
Sheet Piling
Length

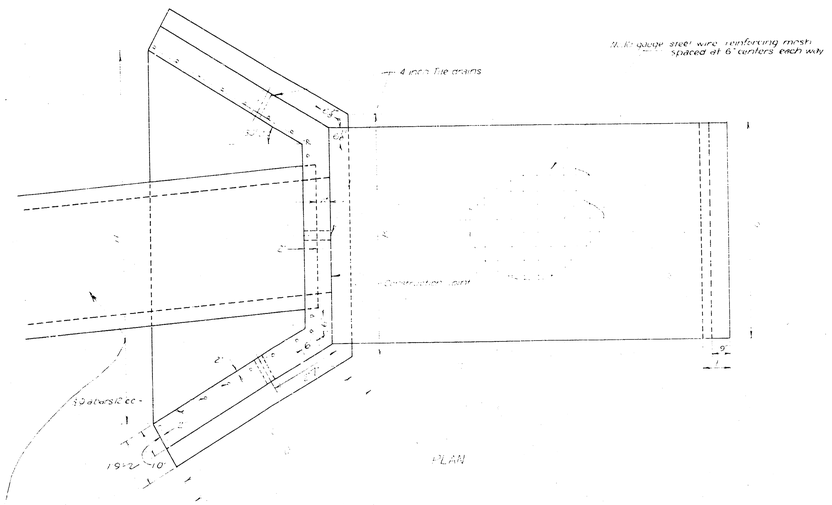
Flow Line Elev 1973.30

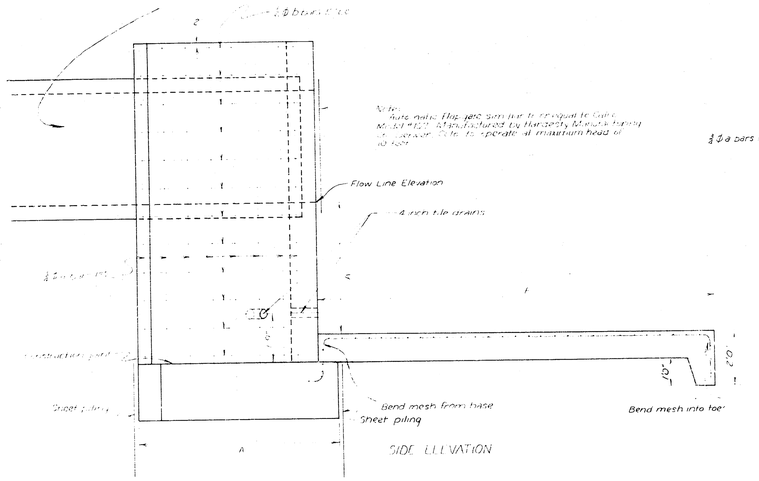
Note
The corrugated sheet piling sections shall be of 12 gauge steel and 6 feet long.
For Riprap detail see Sheet No. 6
Sheet piling shall be required for each headwall.

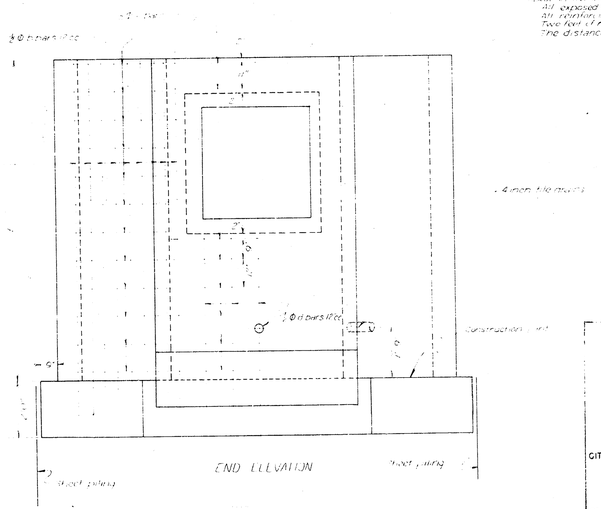
GENERAL NOTES

All concrete shall be placed and cured in accordance with Section 6 of the State Highway Commission Standard Specifications, latest revision.
Riprap from side of the headwalls shall be placed on the same slope as the slope of the embankment and shall be placed to the full depth of the embankment.
All exposed edges shall be broken with a ¾ inch chamfer strip.
All reinforcing dimensions are to the centerline of the bars.
Two feet of riprap shall be placed around each of all corners.
The distance that riprap extends in front of the headwalls shall be as follows:

Sta 94+40 Lt	9 feet
Sta 96+30 Lt	2 "
Sta 93+30 Lt	2 "
Sta 109+30 Lt	3 "
Sta 76+50 Lt	4 "
Sta 323+80 Rt	10 "





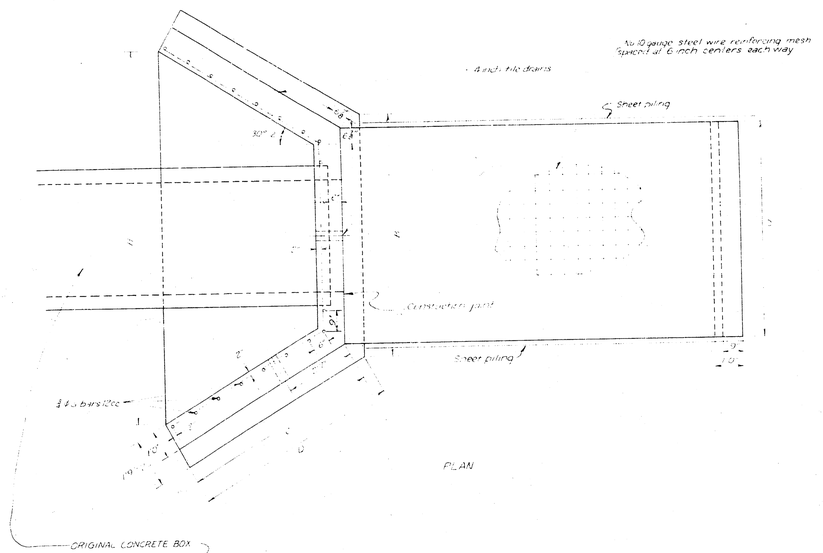


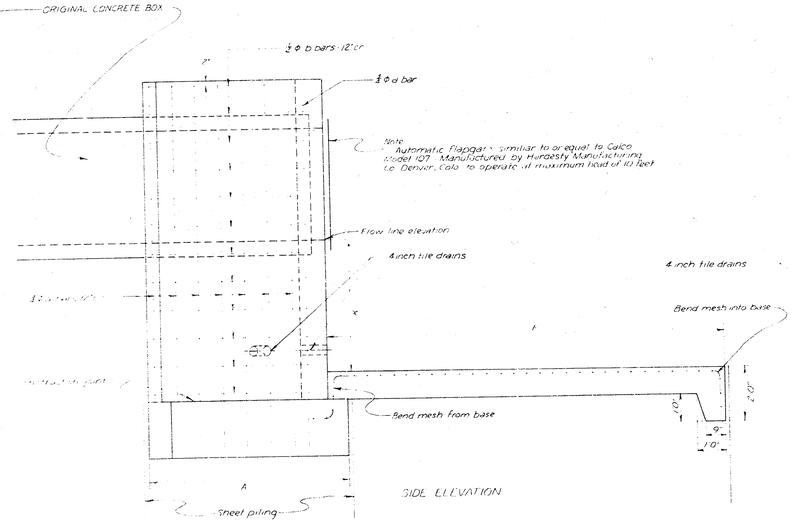
ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL
WICHITA DRAINAGE CANAL
HEADWALLS FOR BOX CULVERTS

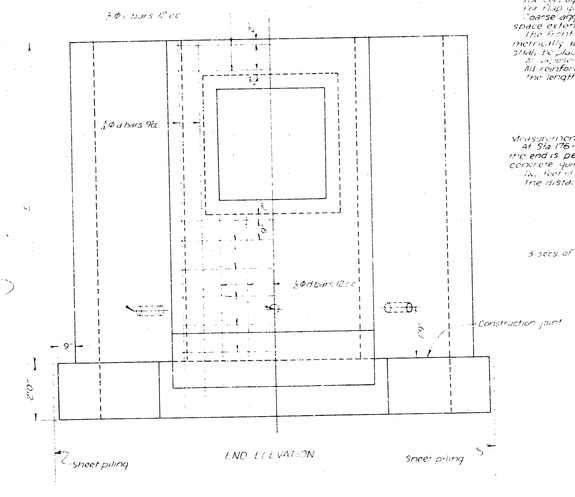
SCALE 1 INCH = 2 FEET
CITY COUNTY ENGINEER OFFICE WICHITA KANSAS
APPROVED
CITY ENGINEER
APPROVED
ENGINEER-IN-CHARGE

DRAWN J.R.S.
TRACED
CHECKED

SHEET 5 OF 12







LISTS OF BARS, DIMENSIONS, AND QUANTITIES FOR HEADWALL

FOR 3'X3' CONCRETE BOX AT STA 129+80 RT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	5'9½"	7'8"	5'2⅜"	5'8"	6'6"	14'7"	6'9½"	10'3⅜"	8"
Bar	a	b	c	d					
Number	14	14	4	4					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	6'0"	4'8"	5'10"	4'8"					

Excavation 75.0 cu yds
Concrete (Wall 10.1 cu yds, Apron 4.6 cu yds) 14.7 cu yds
Backfill 61.4 cu yds
Reinforcing Steel (Wall 248 lbs, Apron 23 lbs)
Sheet piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

FOR 3'X3' CONCRETE BOX AT STA 137+30 RT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	4'08⅜"	8'8"	3'2⅜"	3'8"	7'6"	14'7"	7'9½"	9'3⅜"	8"
Bar	a	b	c	d					
Number	10	11	3	3					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	9'0"	8'8"	6'10"	4'8"					

Excavation 87.0 cu yds
Concrete (Wall 10.9 cu yds, Apron 4.6 cu yds) 15.5 cu yds
Backfill 71.5 cu yds
Reinforcing Steel (Wall 270 lbs, Apron 18 lbs)
Sheet Piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

FOR 4'X4' CONCRETE BOX AT STA 150+80 LT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	4'08⅜"	8'8"	3'2⅜"	3'8"	9'6"	14'7"	7'9½"	9'3⅜"	8"
Bar	a	b	c	d					
Number	10	13	4	4					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	10'0"	8'8"	6'10"	4'8"					

Excavation 97.7 cu yds
Concrete (Wall 13.9 cu yds, Apron 6.1 cu yds) 20.0 cu yds
Backfill 77.7 cu yds
Reinforcing Steel (Wall 337 lbs, Apron 23 lbs)
Sheet Piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

FOR 4'X4' CONCRETE BOX AT STA 157+40 RT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	4'08⅜"	7'8"	4'2⅜"	4'8"	7'6"	14'7"	7'9½"	9'3⅜"	8"
Bar	a	b	c	d					
Number	12	16	5	5					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	9'0"	7'8"	5'10"	4'8"					

Excavation 92.9 cu yds
Concrete (Wall 13.2 cu yds, Apron 5.8 cu yds) 19.0 cu yds
Backfill 73.9 cu yds
Reinforcing Steel (Wall 320 lbs, Apron 22 lbs)
Sheet Piling (Wall 32 sheets Apron 18 sheets)
Flap Gate One 12"x12"

FOR 12'X4' CONCRETE BOX AT STA 164+50 RT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	4'10⅜"	7'8"	4'2⅜"	4'8"	6'0"	10'7"	6'9½"	9'9⅜"	8"
Bar	a	b	c	d					
Number	12	14	4	4					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	9'6"	7'8"	5'10"	4'8"					

Excavation 65.0 cu yds
Concrete (Wall 9.2 cu yds, Apron 4.1 cu yds) 13.3 cu yds
Backfill 51.7 cu yds
Reinforcing Steel (Wall 180 lbs, Apron 17 lbs)
Sheet Piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

FOR 12'X4' CONCRETE BOX AT STA 164+50 LT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	4'08⅜"	7'8"	4'2⅜"	3'8"	7'0"	10'7"	6'9½"	8'3⅜"	8"
Bar	a	b	c	d					
Number	12	16	5	4					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	8'6"	7'8"	5'10"	3'8"					

Excavation 71.0 cu yds
Concrete (Wall 9.2 cu yds, Apron 4.1 cu yds) 13.3 cu yds
Backfill 57.7 cu yds
Reinforcing Steel (Wall 180 lbs, Apron 17 lbs)
Sheet Piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

FOR 4'X4' CONCRETE BOX AT STA 176+50 RT.

Letter Dimension	A	B	C	D	E	F	G	H	K
	5'01"	8'8"	3'2⅜"	4'8"	8'6"	14'7"	7'9½"	11'3⅜"	8"
Bar	a	b	c	d					
Number	14	18	5	5					
Size	⅝ ϕ	⅝ ϕ	⅝ ϕ	⅝ ϕ					
Length	10'0"	8'8"	6'10"	5'8"					

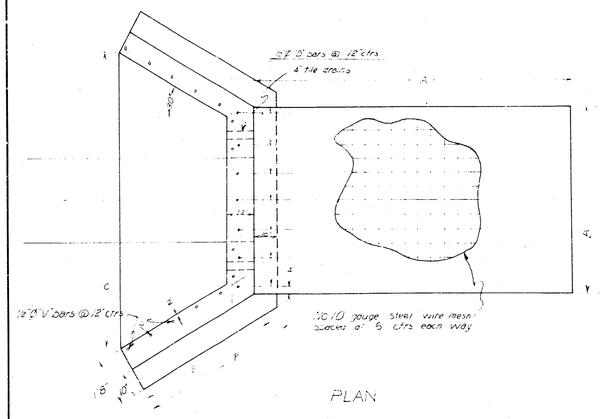
Excavation 112.5 cu yds
Concrete (Wall 15.8 cu yds, Apron 7.0 cu yds) 22.8 cu yds
Backfill 89.7 cu yds
Reinforcing Steel (Wall 405 lbs, Apron 28 lbs)
Sheet Piling (Wall 11 sheets Apron 9 sheets)
Flap Gate One 12"x12"

Note
The corrugated steel pipe flap gate shall be of a type shall not exceed forty (40) pounds in weight. The flap gate shall be equipped with a counterbalance weight.
Coarse aggregate shall be separated around each pipe opening to provide a space extending 12 inches in all directions from the pipe.
The front face of the headwall shall be placed perpendicular to the flow line. Symmetrically about the centerline of the box. The front face of the headwall shall be placed normal to the axis of the box.
All reinforcing shall be placed with 2 inch clear cover except where otherwise noted.
All reinforcing measurements are to the centerline of the bar.
The length of concrete box to be removed at each station is as follows:
Station 129+80 RT — 9 feet
137+30 RT — 6 feet
150+80 LT — None
157+40 RT — 9 feet
164+50 LT — 12 feet
164+50 RT — 12 feet
Wing segments are along axis of the box from the front face to the rear vertical face. At Sta 176+50 RT the concrete box shall be extended into the headwall where the end is perpendicular. Concrete quantity shall be included in the box concrete quantity.
Rip-rap shall be placed on each side of all aprons.
The distance that rip-rap shall extend in front of each headwall is as follows:
Sta 129+80 RT — 6.0 feet
Sta 137+30 RT — 11.0 feet
Sta 150+80 LT — 5.0 feet
Sta 157+40 RT — 9.0 feet
Sta 164+50 RT — 20.0 feet
Sta 164+50 LT — 15.0 feet
Sta 176+50 RT — 18.0 feet
3 sacks of 4 inch tile 1 foot long shall be required for each headwall.

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL & WICHITA DRAINAGE CANAL
HEADWALLS FOR BOX CULVERTS

SCALE 1 INCH 2 FEET
CITY COUNTY ENGINEER OFFICE, WICHITA KANSAS
APPROVED _____ CITY ENGINEER
APPROVED _____ ENGINEER IN CHARGE
DRAWN JRS
TRACED
CHECKED
SHEET 6 OF 12

STA. OF	ELEVATION		
	A	B	C
53+50	1305.00	1299.25	1300.10
279+70 Lt	1280.20	1274.00	1273.00
157+70	1294.50	1289.00	1288.50



NOTE:
Concrete aprons at sta 157+70 to be rip raped with 18" thick rock for a length of 24 ft. from headwall. The bottom shall be 8.2' wide. Sides of aprons shall be one to one to top of natural bank.

NOTE:
Automatic flap gates to be similar to or equal to Calco Model 100 Manufactured by Hardesty Manufacturing Co. Denver, Colo. to operate at a maximum head of 10 ft.
The corrugated sheet piling sections shall be of 12 gauge steel and 6 ft long
Remove one 40 in section of 36 in tile pipe before placing headwall
Cut 2 ft aft of 48 IN C.M.P. before Placing headwall
Headwalls to be placed at rt angles to ℄ of pipe
For flap gate detail see sheet no. 11
Weep holes and gravel backing are required for each headwall

LISTS OF BARS, DIMENSIONS, AND QUANTITIES FOR HEADWALLS FOR

36" TILE PIPE AT STA 279 + 70 LT.

Letter	A	B	C	D_i	D_o	E	F	G	H	J	K	L
Dimension	12'0"	6'8"	10'2½"	36"	42"	5'3"	5'8"	11'11"	9'0"	6'0"	5'10"	12"
Bar	A	B	C	V	H	D	F					
Number	3	4	4	14	14	7	4					
Size	#6	#6	#6	#6	#6	#6	#6					
Length	7'6"	29'1"	9'7"	7'0"	5'4"	3'6"	3'6"					

Excavation	307.9 cu yds
Concrete	Headwalls 76.6 cu yds - Aprons 3.23 cu yds
Rein Steel	1114.35 #
Sheet Piling	63 Sections*
Wire Mesh	23.1 #
Flap Gate	None
Backfill	162.5 cu yds
R.R. Rip	11.48 sq yds

48" C.M. PIPE AT STA 53 + 50 LT.

Letter	A	B	C	D_i	D_o	E	F	G	H	J	K	L
Dimension	6'0"	6'8"	10'2½"	48"		5'3"	5'8"	11'11"	9'0"	7'0"	5'10"	12"
Bar	A	B	V	H	D	F						
Number	3	4	14	16	7	4						
Size	#8	#8	#8	#8	#8	#8						
Length	7'6"	2'5"	8'5"	5'4"	3'6"	3'6"						

Excavation	28.76 cu yds
Concrete	Wall 17.6 cu yds Apron 1.41 cu yds
Rein Steel	1868 #
Sheet Piling	53 Sections*
Wire Mesh	14.91 #
Flap Gate	48"
Backfill	17.4 cu yds
Rip Rap	6.32 sq yds

60" CONCRETE PIPE AT STA 157 + 70 LT

Letter	A	B	C	D_i	D_o	E	F	G	H	J	K	L
Dimension	24'0"	8'2"	11'8½"	60"	70"	5'3"	5'8"	13'5"	10'0"	8'0"	5'10"	12"
Bar	A	B	V	H	D	F						
Number	3	4	14	16	8	4						
Size	#10	#10	#10	#10	#6	#6						
Length	9'0"	2'4"	9'6"	5'4"	3'6"	3'6"						

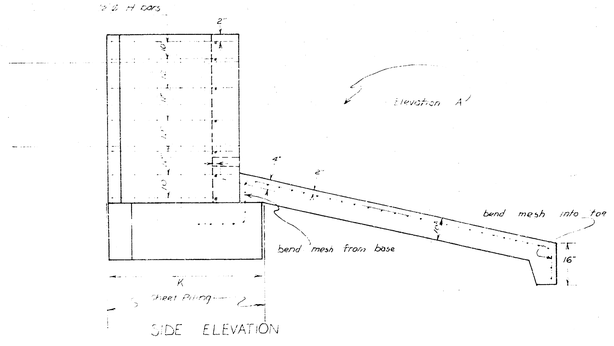
Excavation	84.45 cu yds
Concrete	Head 8.62 cu yds
Rein Steel	209.3 #
Sheet Piling	38 Sections*
Rip Rap	52.03 Sq yd
Flap Gate	60"
Backfill	37.90 cu yds

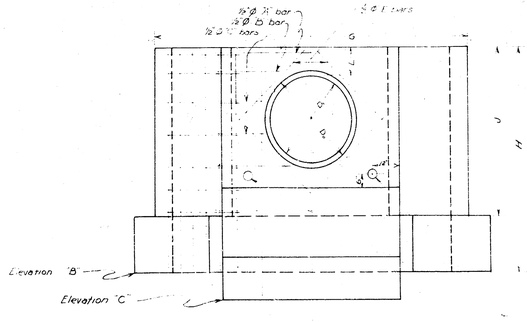
AT STA 157+70 LT

QUANTITIES FOR RELAYING PIPE	
EXCAVATION	508 CU YDS
REINF CONC PIPE	140.0 LF OF 60" ϕ
BACKFILL	356 CU YDS

General Notes

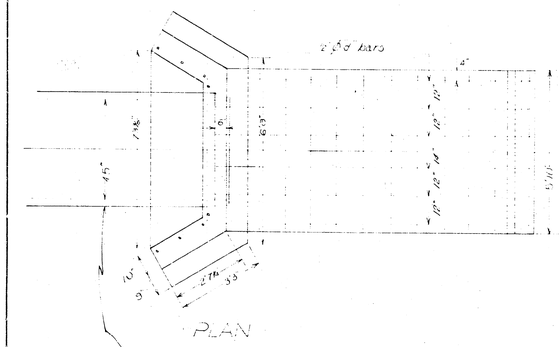
Concrete aggregate shall be deposited behind each waterstop to occupy a space extending 15 in in all direction from the waterstop
Exposed edges shall be beveled 1.0 in ± in triangular molding
Spacing dimensions are to centerlines of bars
Weep holes shall be placed on each side of all aprons
Riprap stone that riprap shall extend in front of each apron as set forth as follows
Sta 279+70 Lt 5 feet
Sta 1+50 Lt 3 feet



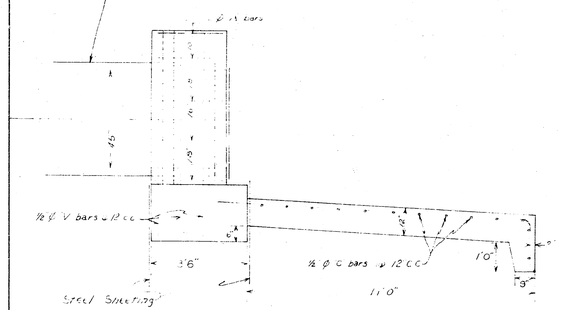


ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
HEADWALLS FOR PIPE CULVERTS

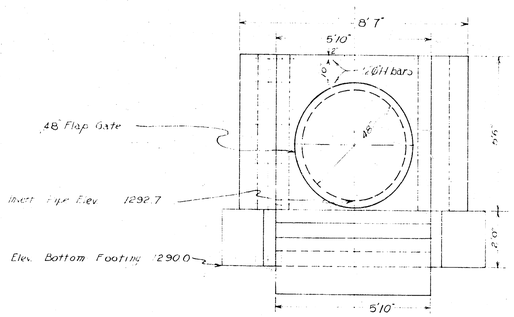
SCALE: 1 INCH = 2 FT.
CITY-COUNTY ENGINEER OFFICE, WICHITA, KANSAS
APPROVED APPROVED:
CITY-ENGINEER ENGINEER-IN-CHARGE
DRAWN C.W.G.
TRACED
CHECKED
SHEET 7 OF 12



Original concrete pipe



SIDE ELEVATION



END ELEVATION

Ditch

Flow

66° 34'

Sta 163 + 40 Lt.

REIN. STEEL SCHEDULE					
Type	A	C	D	H	V
Number	5	13	6	5	8
Size	#6	#6	#6	#5	#5
Length	9'	5'6"	11'0"	5'0"	5'11"

ESTIMATE OF QUANTITIES	
Excv	14.45 Cu Yds
Conc	6.00 Cu Yds
Rein Steel	150.47 Lbs
Sheet Piling	192.00 Ft.
Flap Gate	48" ø
Backfill	6.31 Cu yds
Rip Rap	7.07 Sq yds

QUANTITIES FOR RELAYING PIPE	
Excavation	216.75 cu yds
Reinf Conc Pipe	170.67 Lin ft
Backfill	187.91 cu yds

Note

Automatic flapgate similar to or equal to Calco Model 100 Manufactured by Tideflex Manufacturing Co. Denver Colo. to operate at maximum head of 10 Ft. For flap gate detail see sheet no 11

Note

Steel Sheeting; similar to or equal to Armco Flange Type 10 gauge manufactured by Armco Drainage and Metal Products Inc. Middletown, Ohio.

All exposed edges shall be beveled with a ¾ inch triangular molding. All reinforcing dimensions are to the centerline of the bars. The headwall shall be placed perpendicular to the axis of the pipe. Rip rap shall be placed around the apron for a distance of 6 feet.

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL
WICHITA DRAINAGE CANAL
HEADWALL FOR PIPE CULVERT
STA 163+40 LT.

SCALE 1 INCH = 2 FT.

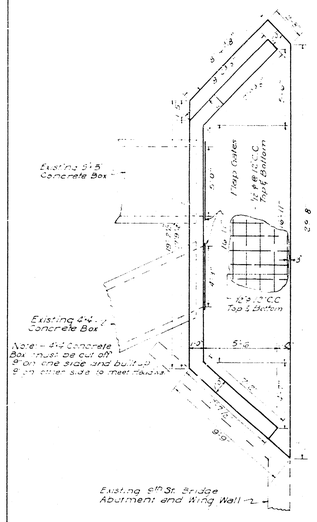
CITY-COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED. _____ CITY-ENGINEER

APPROVED _____ DIV. ENGINEER

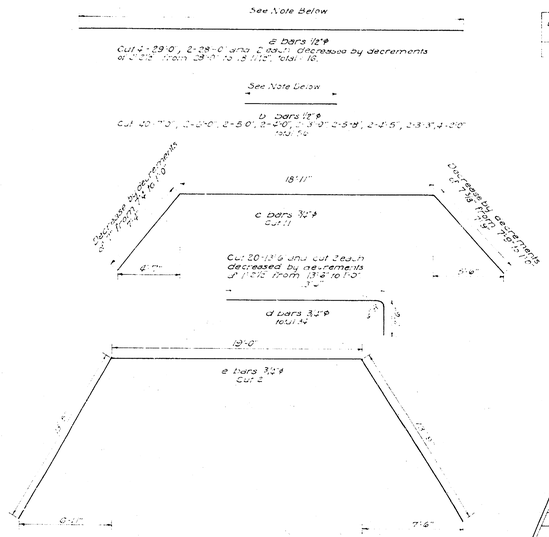
DRAWN CWG
TRACED
CHECKED

SHEET 8 OF 12

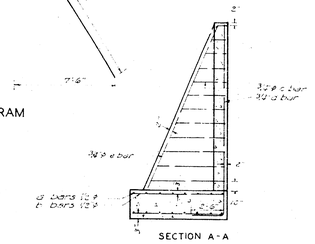


PLAN

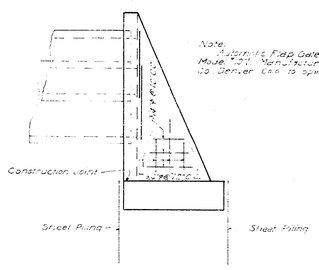
Note: Place front face of headwall 3' in front of existing 5'x5' Concrete Box and perpendicular to axis of Box.



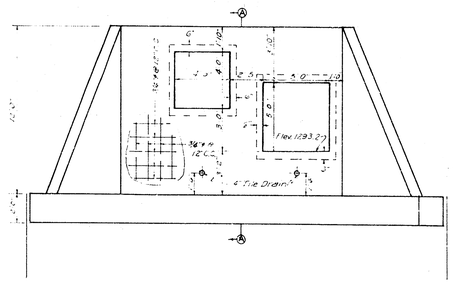
REINFORCING BAR BENDING DIAGRAM



SECTION A-A



SIDE ELEVATION



FRONT ELEVATION

ESTIMATE OF QUANTITIES FOR HEADWALL
AT STA 137+30 LT.

Excavation Cu. Yds	Sheet Piling Lineal Feet	Reinforcing Steel Lbs	Concrete Cu. Yds	Flap Gates inches	Backfill Cu. Yds	Drain Tile Lineal Feet
50.0	372	1742	31.35	[illegible]	8.	2

GENERAL NOTES

Corrugated Sheet Piling Sections shall be of 12 gauge steel and 6 feet in length
For Flap Gates see Sheet No 12.
Coarse aggregate shall be deposited behind each weep hole to occupy a space extending 3 inches in all directions from the weep hole.
All exposed edges shall be beveled with 3/4 inch triangular molding.
All reinforcing dimensions are to the center-line of the bar.

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
HEADWALL FOR BOX CULVERT
STA. 137+30 LT.

SCALE 1 INCH 4 FEET

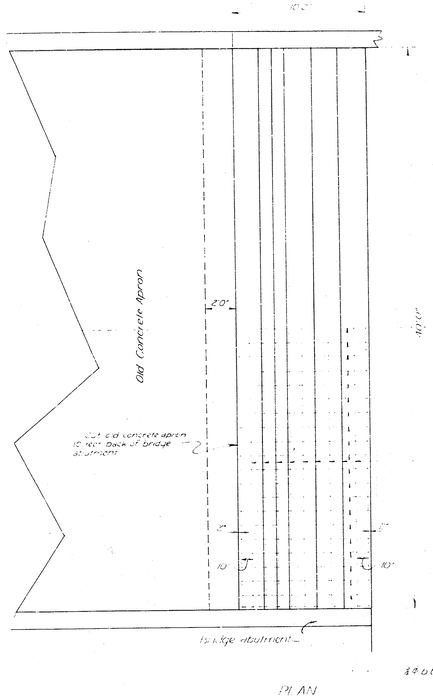
CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED _____ CITY-ENGINEER

APPROVED _____ ENGINEER IN CHARGE

DRAWN [illegible]
T. [illegible]
C. [illegible]

SHEET 9 OF 12

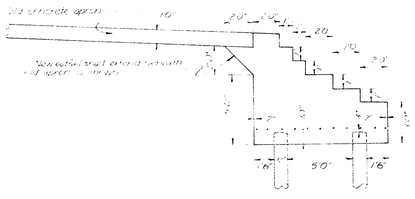


PLAN

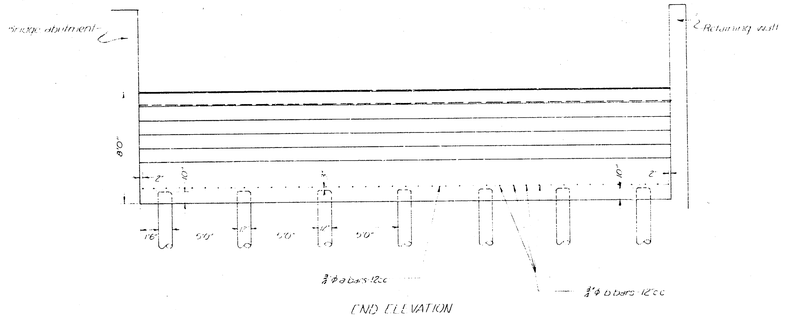
MAIN SILL SCHEDULE		
Bar	a	b
Number	11	41
Size	#6	#4
Length	39'8"	9'8"

ESTIMATE OF QUANTITIES	
Excavation	94.81 cu yds
Concrete	31.28 cu yds
Reinforcing Steel	#6 - 1250.67#
Sheet Piling	40 lbs. of 8 gauge - 6' long
Piling	10 3/4" treated pile - 20' long

NOTE
All reinforcing steel dimensions are to the center line of the bars.
Bevel all exposed edges with 3/4 inch triangular molding.
Removal of old concrete shall be considered part of the excavation and shall be paid for accordingly.
The apron shall be constructed perpendicular to the axis of the drain and the front face shall be flush with the existing bridge abutment.
New concrete at top of outfall shall be made flush with old apron.



SIDE ELLVATION



END ELLVATION

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
OUTFALL APRON AT 3RD STREET
STA. 198+80 LT.

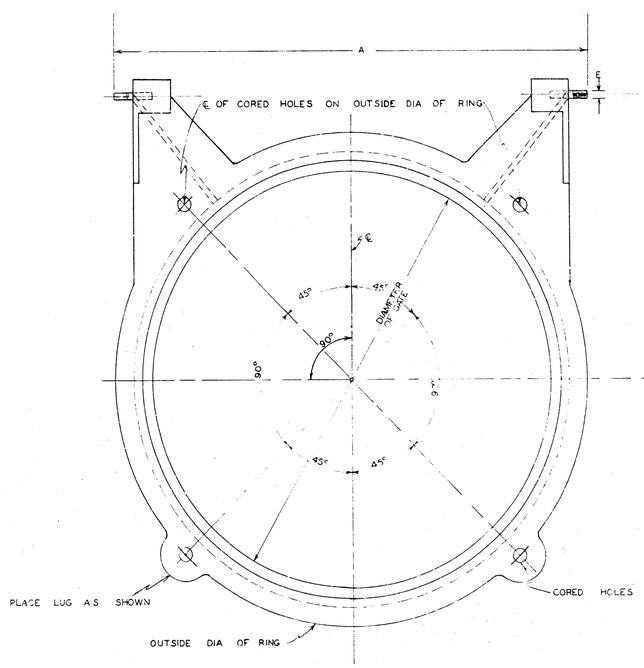
SCALE 1 INCH 4 FEET
CITY-COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED _____ CITY-ENGINEER

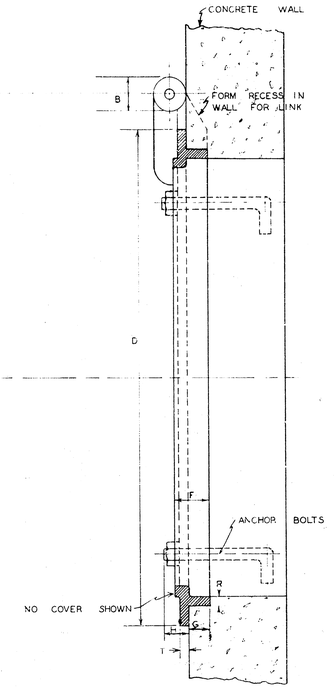
APPROVED _____ ENGINEER IN CHARGE

DRAWN JHS
TRACED
CHECKED

SHEET 10 OF 12



FRONT ELEVATION
RING ONLY

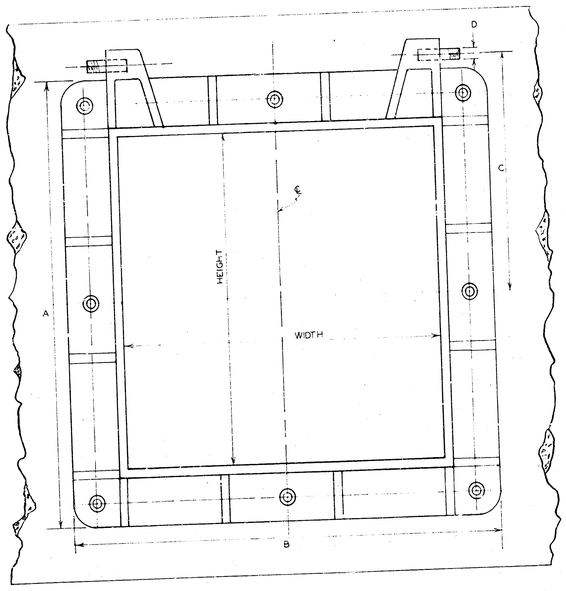


SECTION ON ℄

STATION	DIA	FLAP GATE SCHEDULE — GALCO MODEL #100										
		A	B	C	D	E	F	G	h	R	T	ANCHOR BOLT DIA.
53+50	48"	5 31/32"	2½	34"	54"	1"	4"	2 3/4"	1 3/4	¾	¾	¾"
61+50	24"	28¼"	2"	17"	27½	¾"	2 1/2	17/16	1 1/16	9/16"	⅜	⅜"
157+70	60"	66⅜"	2½	42"	60½	1¼	4 3/16"	2 3/4"	2¼	⅞	1/16	1"
163+40	48"	53⅜"	2½	34"	54"	1"	4"	2 3/4	1 3/4	¾	½	¾

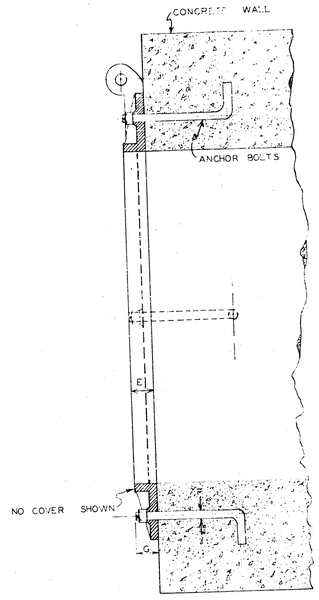
ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT
EAST BRANCH INTERCEPTION CANAL &
WICHITA DRAINAGE CANAL
FLAP GATE DETAIL
MODEL 100

SCALE: 1 INCH = 4 INCHES
CITY COUNTY ENGINEER OFFICE WICHITA KANSAS
APPROVED APPROVED
CITY ENGINEER ENGINEER-IN-CHARGE
DRAWN C.W.O.
TRACED
CHECKED
SHEET 1 OF 2



FRONT ELEVATION

RING ONLY



SECTION ON ℄

FLAP GATE SCHEDULE — CALCO MODEL 107									
STATION	GATE SIZE WIDTH	HEIGHT	A	B	C	D	E	F	G
86 + 30 Lt	60"	60"	70"	70"	42"	1 1/4"	2 1/2"	1"	2 3/4"
93 + 30 Lt	45"	45"	57"	57"	34"	1"	2 1/2"	3/4"	1 3/4"
109 + 30	60"	60"	70"	70"	42"	1 1/4"	2 1/2"	1"	2 3/4"
123 + 80	36"	36"	44"	44"	25"	1"	2 1/2"	5/8"	1 3/8"
137 + 30 Lt	60"	60"	70"	70"	42"	1 1/4"	2 1/2"	1"	2 3/4"
151 + 30 Lt	60"	60"	70"	70"	42"	1 1/4"	2 1/2"	1"	2 3/4"
151 + 30 Rt	45"	45"	57"	57"	34"	1"	2 1/2"	3/4"	1 3/4"
151 + 60 Lt	45"	45"	57"	57"	34"	1"	2 1/2"	3/4"	1 3/4"
157 + 40 Rt	36"	36"	44"	44"	25"	1"	2 1/2"	5/8"	1 3/8"
164 + 50 Lt	36"	36"	44"	44"	25"	1"	2 1/2"	5/8"	1 3/8"
164 + 50 Rt	36"	36"	44"	44"	25"	1"	2 1/2"	5/8"	1 3/8"
176 + 30 Lt	45"	45"	57"	57"	34"	1"	2 1/2"	3/4"	1 3/4"
176 + 50 Rt	45"	45"	57"	57"	34"	1"	2 1/2"	3/4"	1 3/4"

ARKANSAS RIVER BASIN
WICHITA AND VALLEY CENTER
FLOOD CONTROL PROJECT

EAST BRANCH INTERCEPTION CANAL & WICHITA DRAINAGE CANAL

FLAP GATE DETAIL
MODEL 107

SCALE: 1 INCH = 4 INCHES

CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED

CITY ENGINEER

APPROVED

ENGINEER IN CHARGE

DRAWN C.L.L.C.
TRACED
CHECKED

SHEET NO. 10