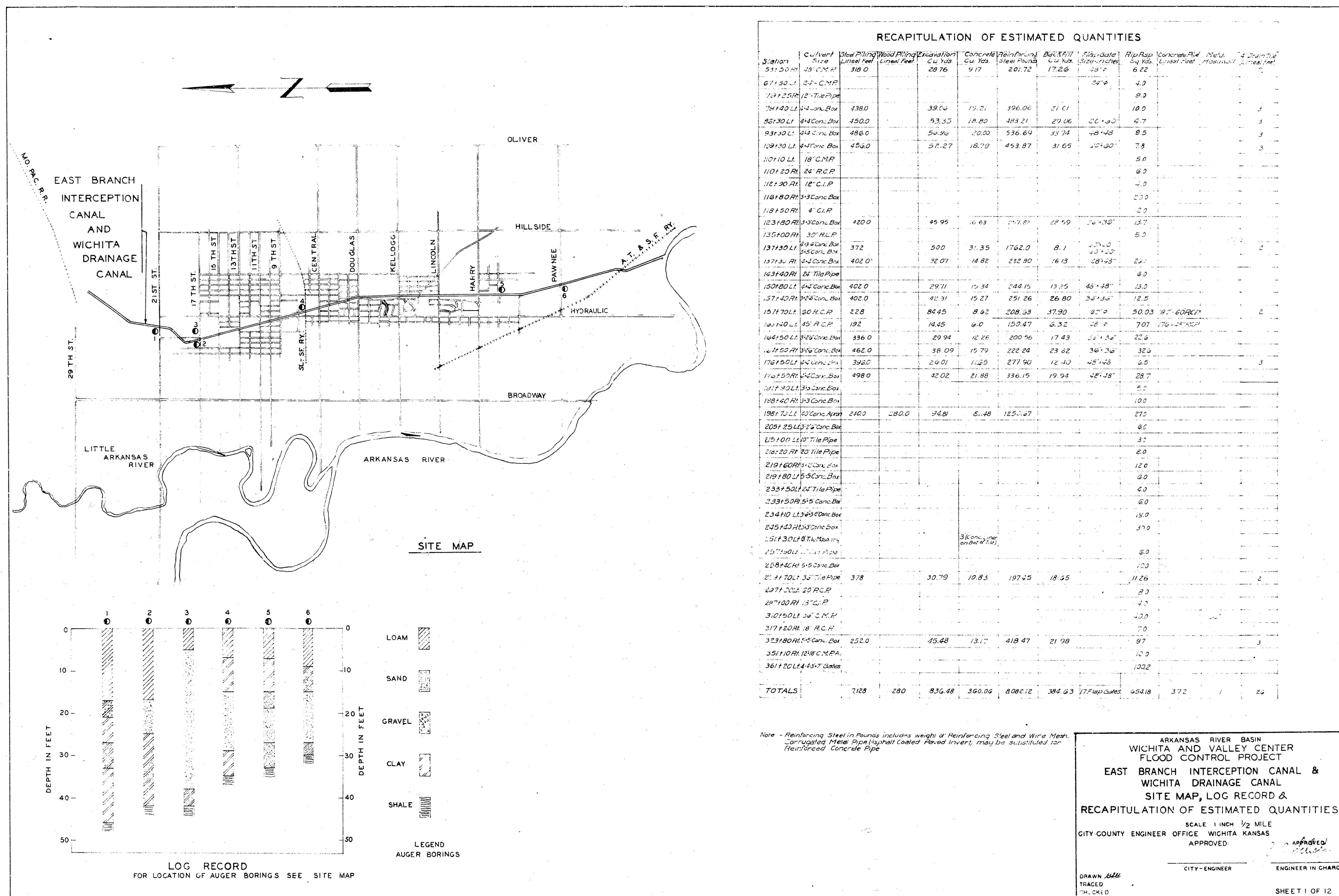
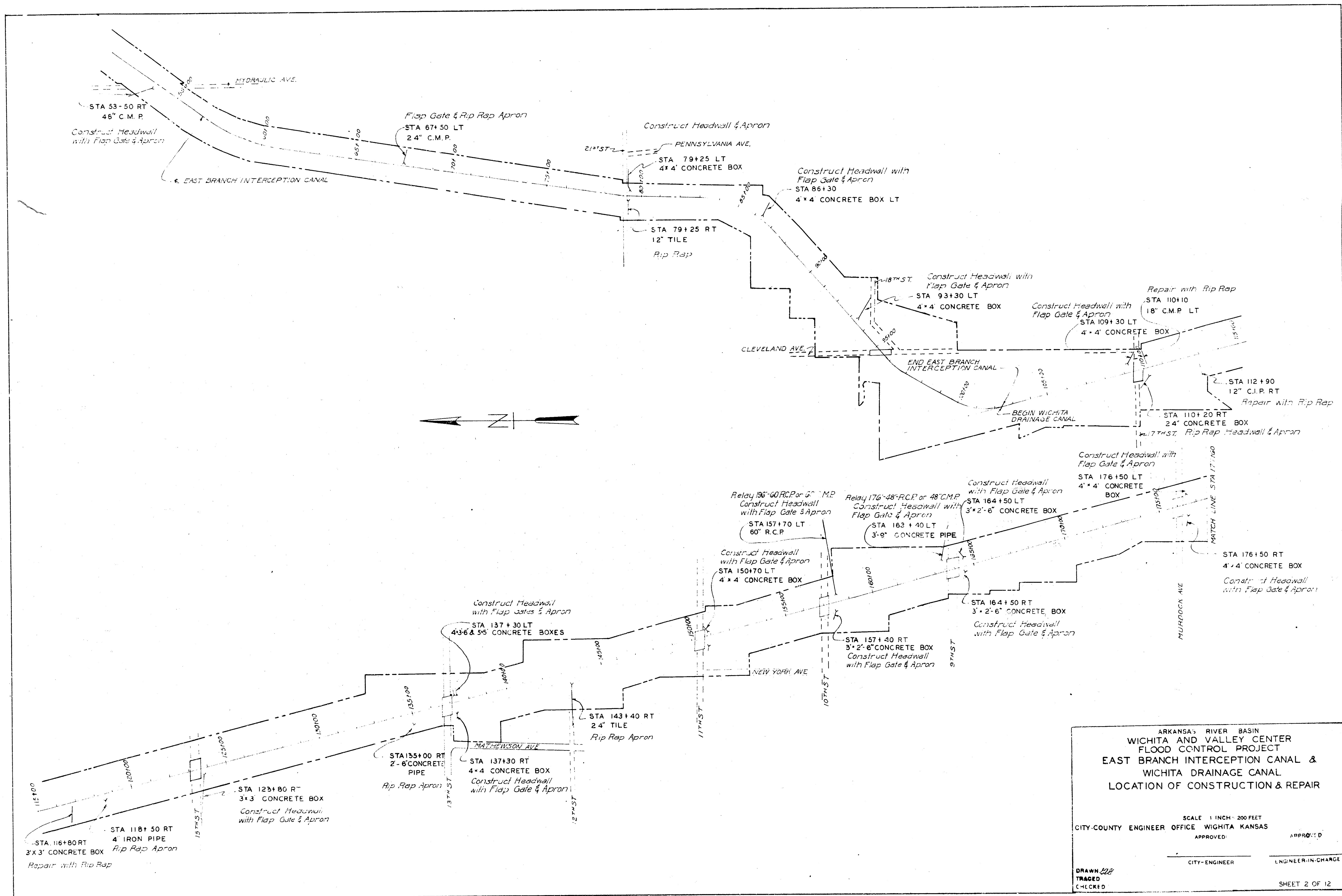
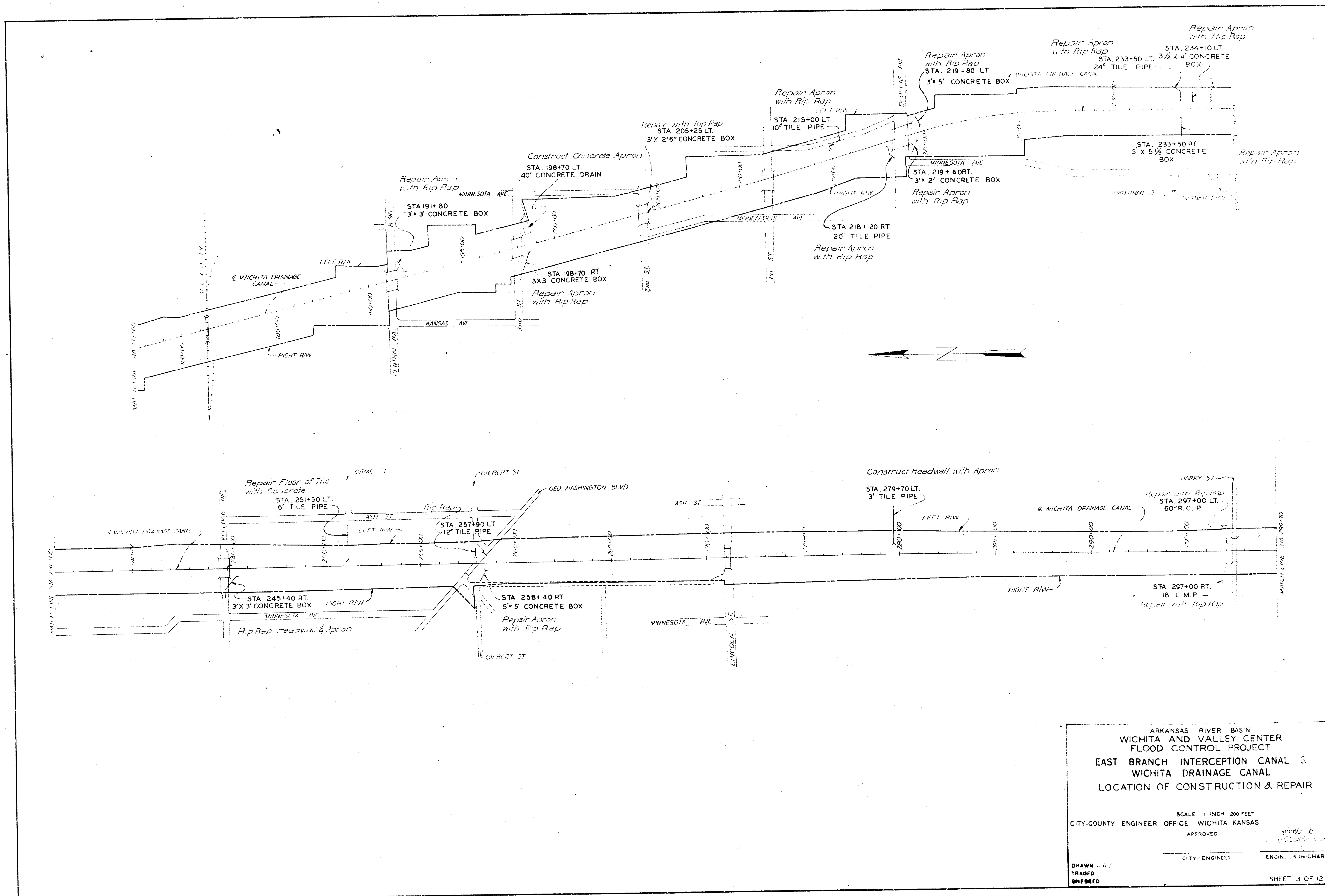
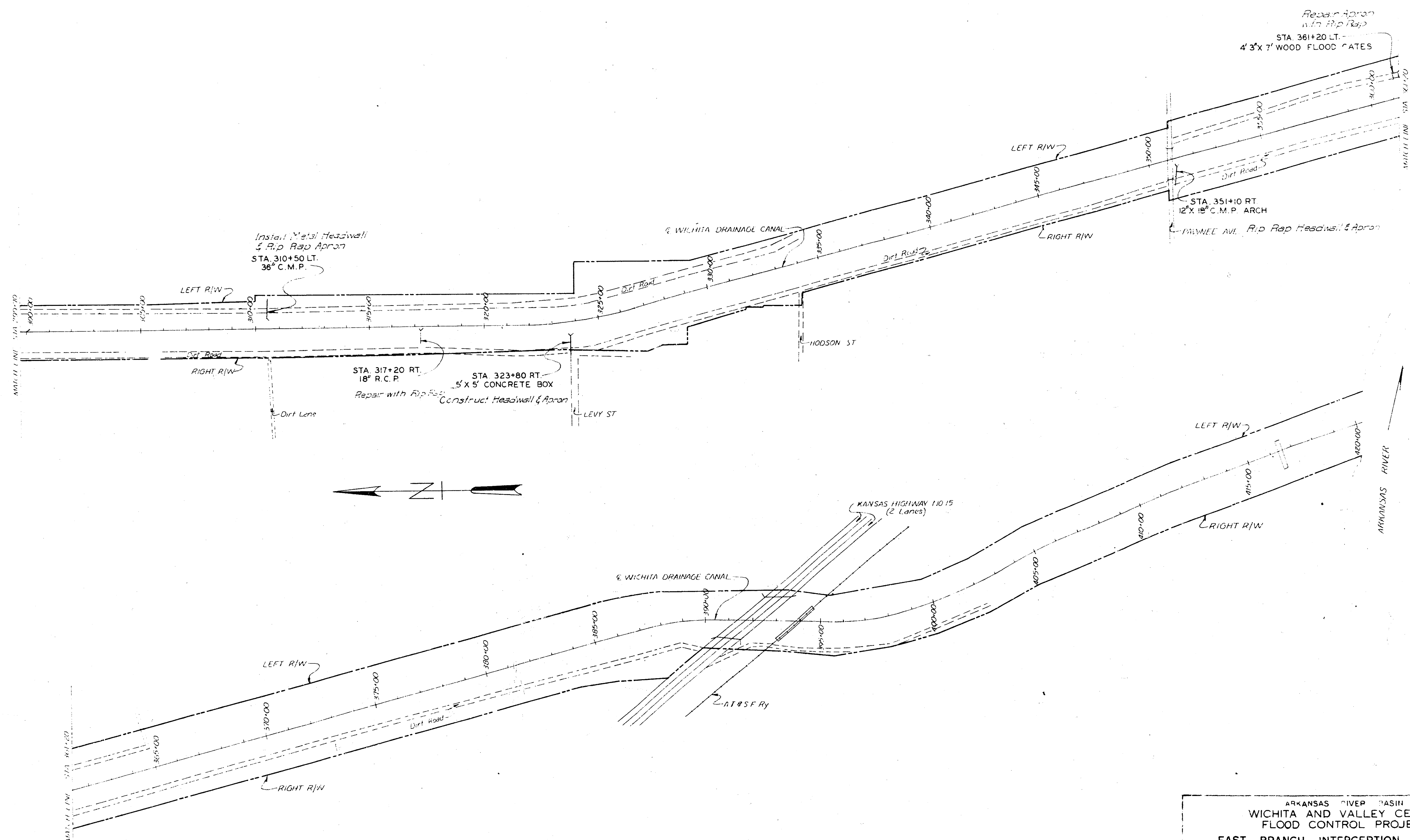








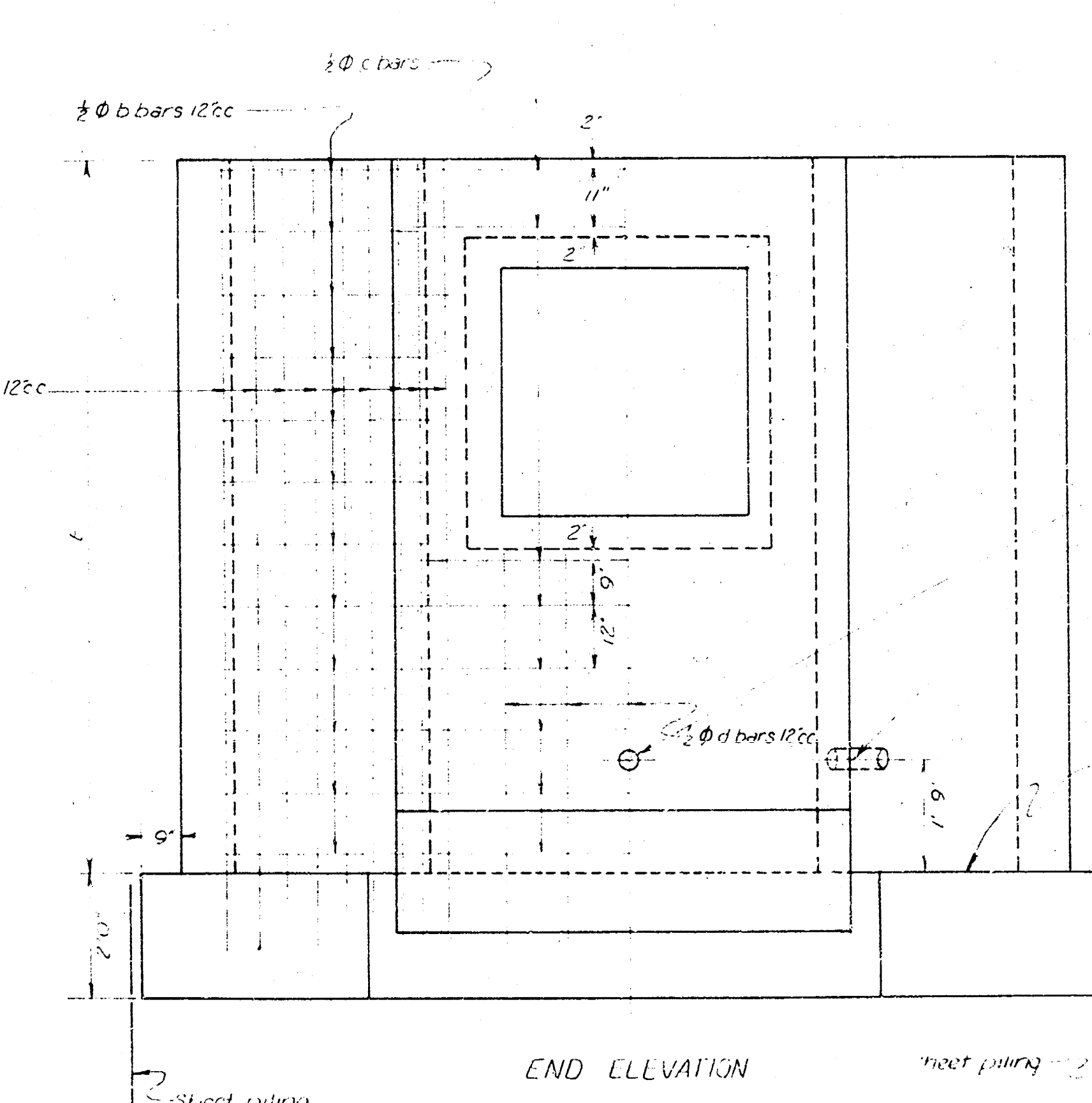
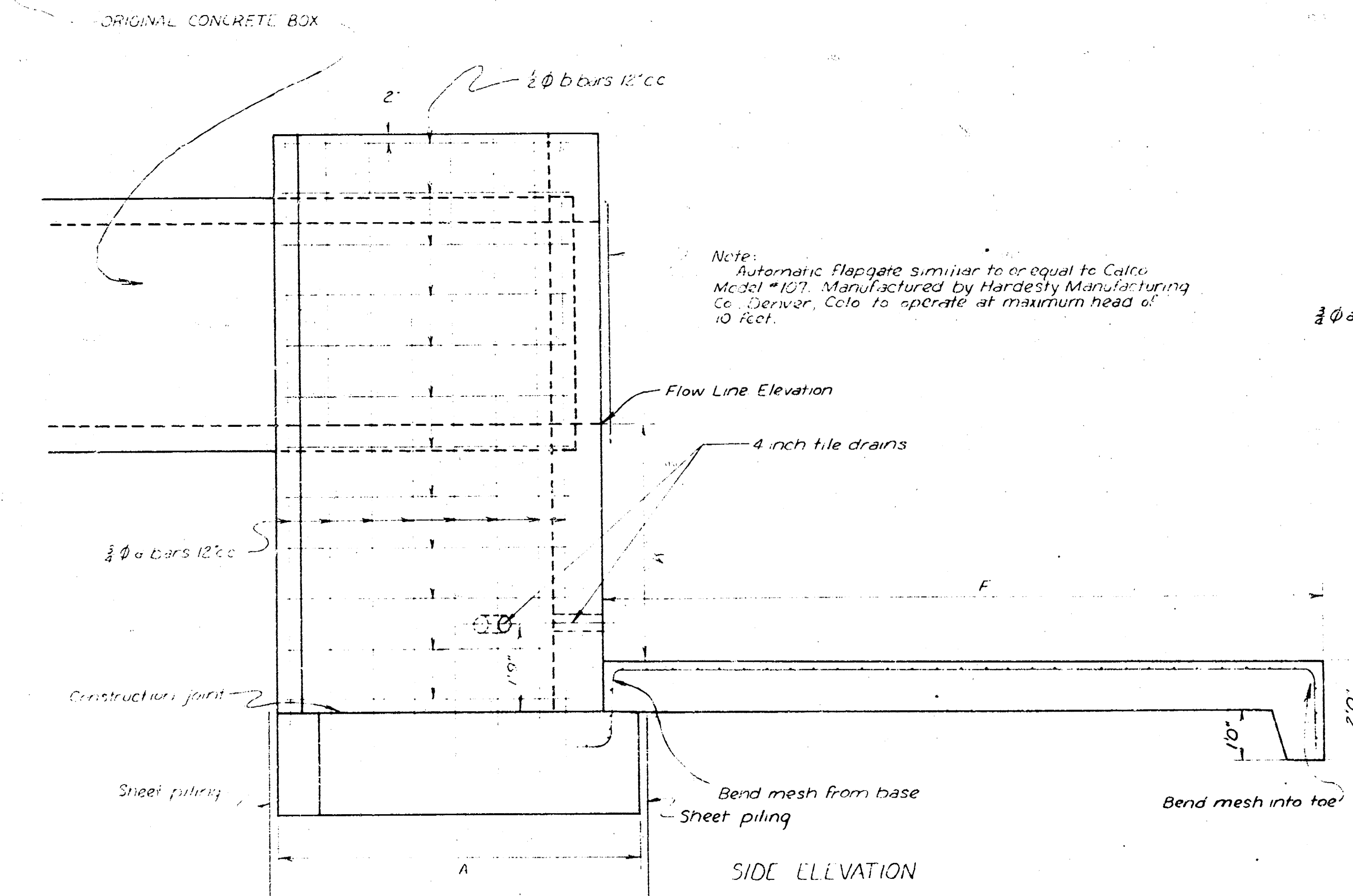
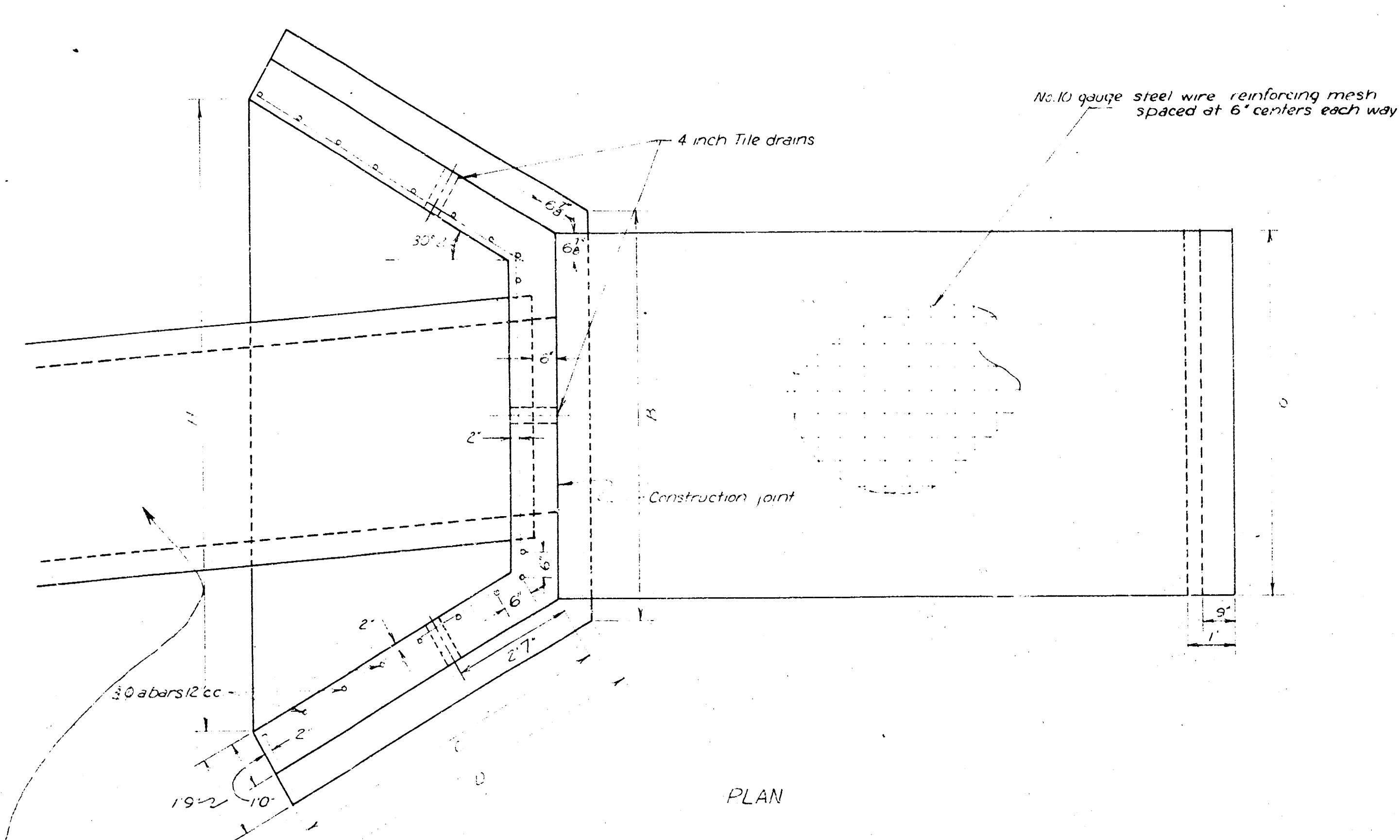


ARKANSAS RIVER BASIN
 WICHITA AND VALLEY CENTER
 FLOOD CONTROL PROJECT
 EAST BRANCH INTERCEPTION CANAL &
 WICHITA DRAINAGE CANAL
 LOCATION OF CONSTRUCTION & REPAIR

SCALE: 1" = 200 FEET
 CITY-COUNTY ENGINEER OFFICE WICHITA KANSAS

DRAWN: C.H.S. TRACED CHECKED	APPROVED: CITY-ENGINEER [Signature] [Signature]
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SHEET 4 OF 12



LISTS OF BARS, DIMENSIONS, AND QUANTITIES FOR HEADWALLS

FOR 4'x4' CONCRETE BOX AT STA. 79+40.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	5'10 1/2"	8'9"	5'2 1/2"	5'8"	10'9"	13'1"	7'9 1/2"	11'3 1/2"	4'0"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	14	22	7	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	11'10"	2'8"	7'0"	5'1"									1501.00
FOR 4'x4' CONCRETE BOX AT 86+30.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	8'5 1/2"	8'8"	6'2 1/2"	8'8"	9'2 1/2"	10'7"	7'9 1/2"	14'3 1/2"	2'8 1/2"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	20	20	0	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	10'6"	7'8"	7'0"	4'3"									1501.00
FOR 4'x4' CONCRETE BOX AT 93+30.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	7'7"	8'8"	7'2 1/2"	7'8"	11'5 1/2"	15'7"	7'9 1/2"	13'3 1/2"	4'8 1/2"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	16	24	8	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	12'6"	6'8"	7'0"	7'2"									1501.00
FOR 4'x4' CONCRETE BOX AT 109+33.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	5'10 1/2"	8'8"	4'2 1/2"	4'8"	8'6 1/2"	11'1"	7'9 1/2"	10'3 1/2"	1'9 1/2"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	12	18	9	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	11'0"	4'0"	12'0"	4'11"									1501.00
FOR 4'x4' CONCRETE BOX AT 176+50.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	5'10 1/2"	8'8"	4'2 1/2"	4'8"	8'6 1/2"	11'1"	7'9 1/2"	10'3 1/2"	1'9 1/2"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	12	18	9	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	11'0"	4'0"	12'0"	4'11"									1501.00
FOR 5'x5' CONCRETE BOX AT STA. 323+80.1													Flow Line Elev.
Letter	A	B	C	D	E	F	G	H	I	J	K		1501.00
Dimension	6'3 1/2"	9'8"	6'2 1/2"	6'8"	10'5 1/2"	13'1"	8'9 1/2"	13'3 1/2"	1'9 1/2"				1501.00
Bar	a	b	c	d	e	f	g	h	i	j	k		1501.00
Number	16	24	8	5									1501.00
Size	3/8"	1/2"	1/2"	1/2"									1501.00
Length	11'6"	5'8"	8'0"	5'3"									1501.00

Note:
The corrugated sheet piling sections shall be of 12 gauge steel and 6 feet long.
For Flapgate detail see sheet no. 12.
3 sets of 4 inch tile 1 foot long shall be required for each headwall.

GENERAL NOTES

Coarse aggregate shall be deposited behind each weep hole to occupy a space extending 15 inches in all directions from the weep hole.

The front face of the headwalls shall be placed parallel and 6 inches in front of the face of the concrete boxes and shall be placed symmetrically about centerline of the concrete boxes at the front face of the headwall.

All exposed edges shall be beveled with 2 inch triangular beveling.

All reinforcing dimensions are to the centerline of the bars.

Two feet of rip rap shall be placed on each side of all aprons.

The distance that rip rap extends in front of each apron is as follows:

- Sta 79+40.1 - 3 feet
- Sta 86+30.1 - 2 "
- Sta 93+30.1 - 2 "
- Sta 109+30.1 - 3 "
- Sta 176+50.1 - 3 "
- Sta 323+80.1 - 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

DRAWN J.R.S.

TRACED

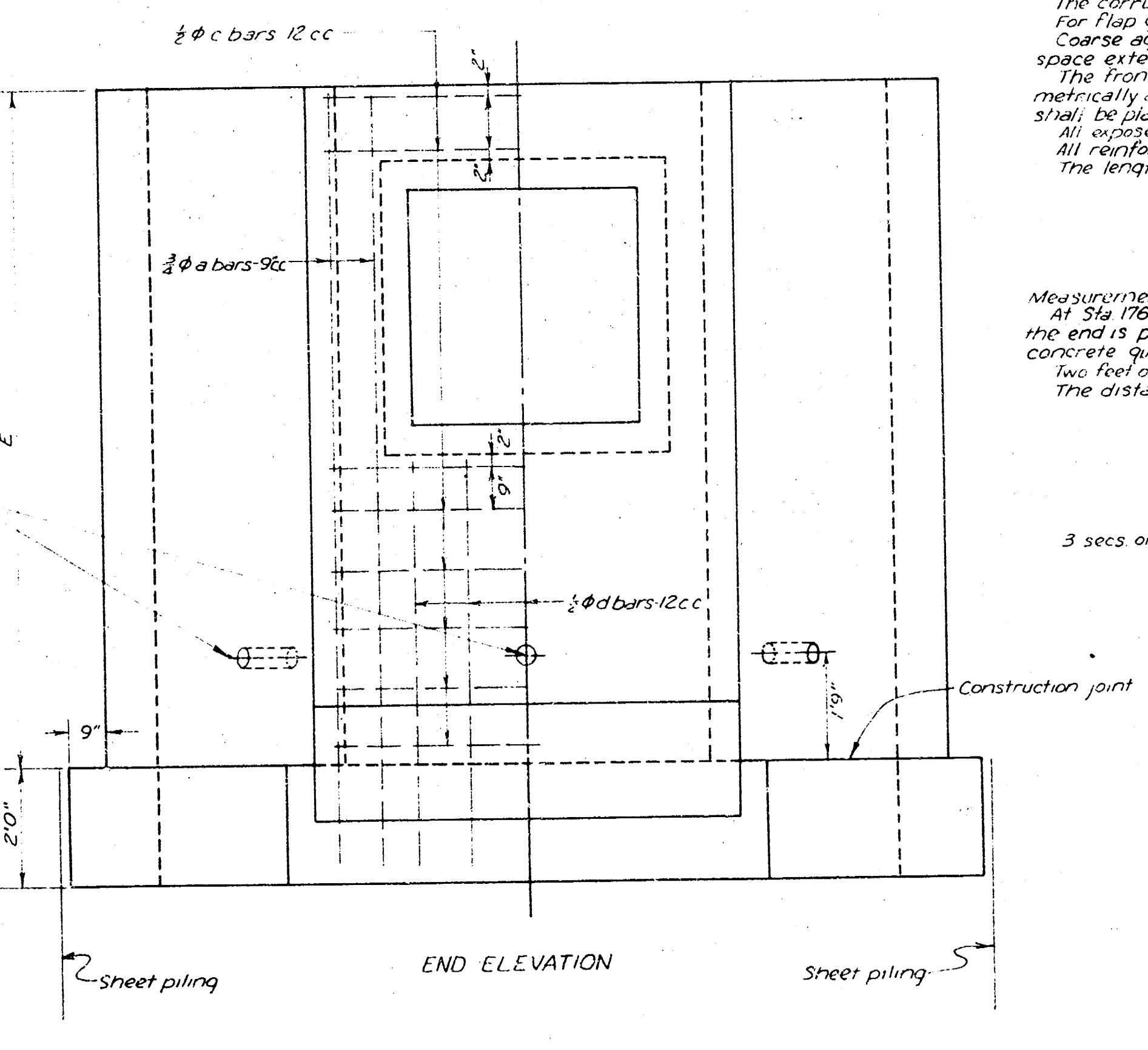
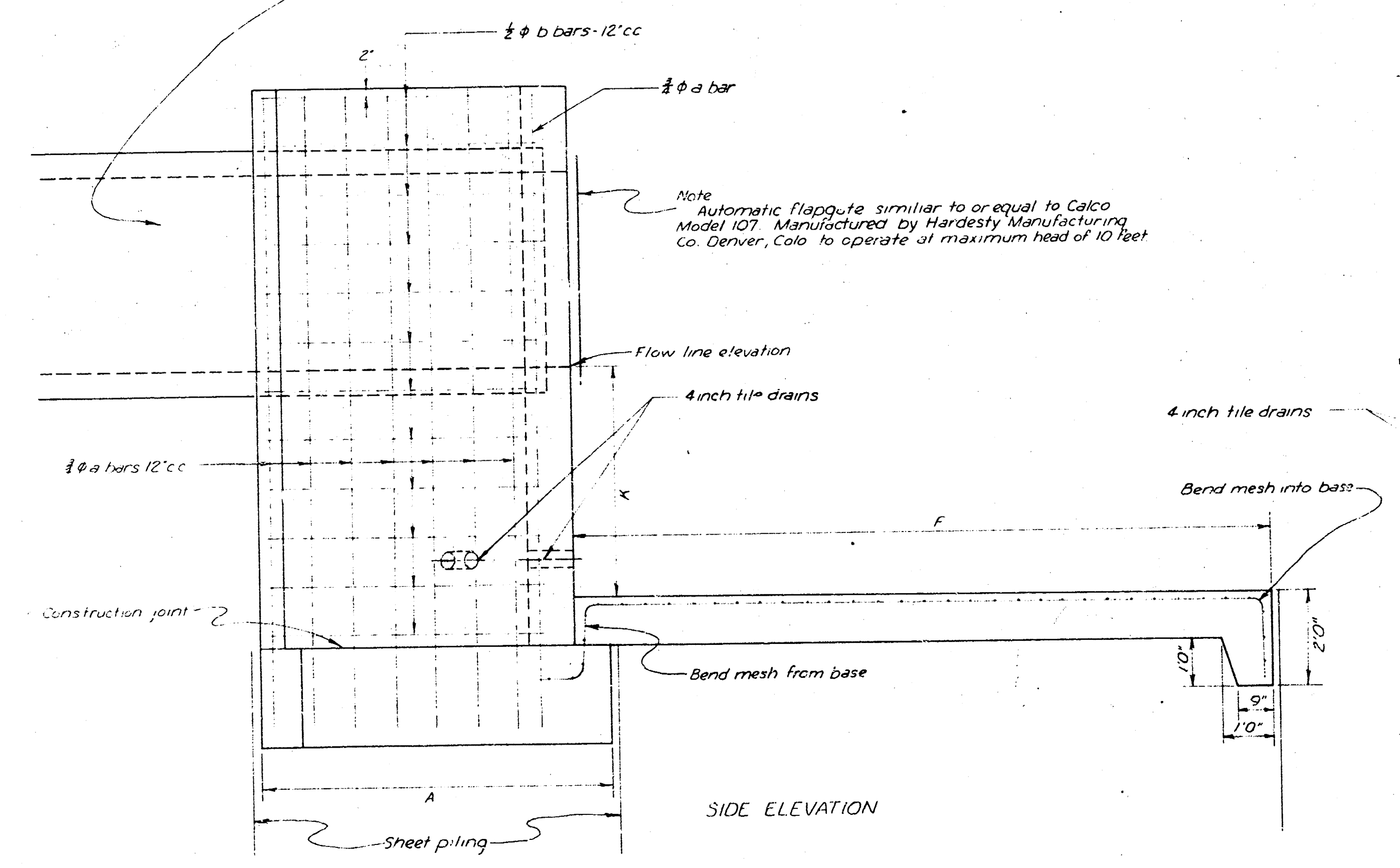
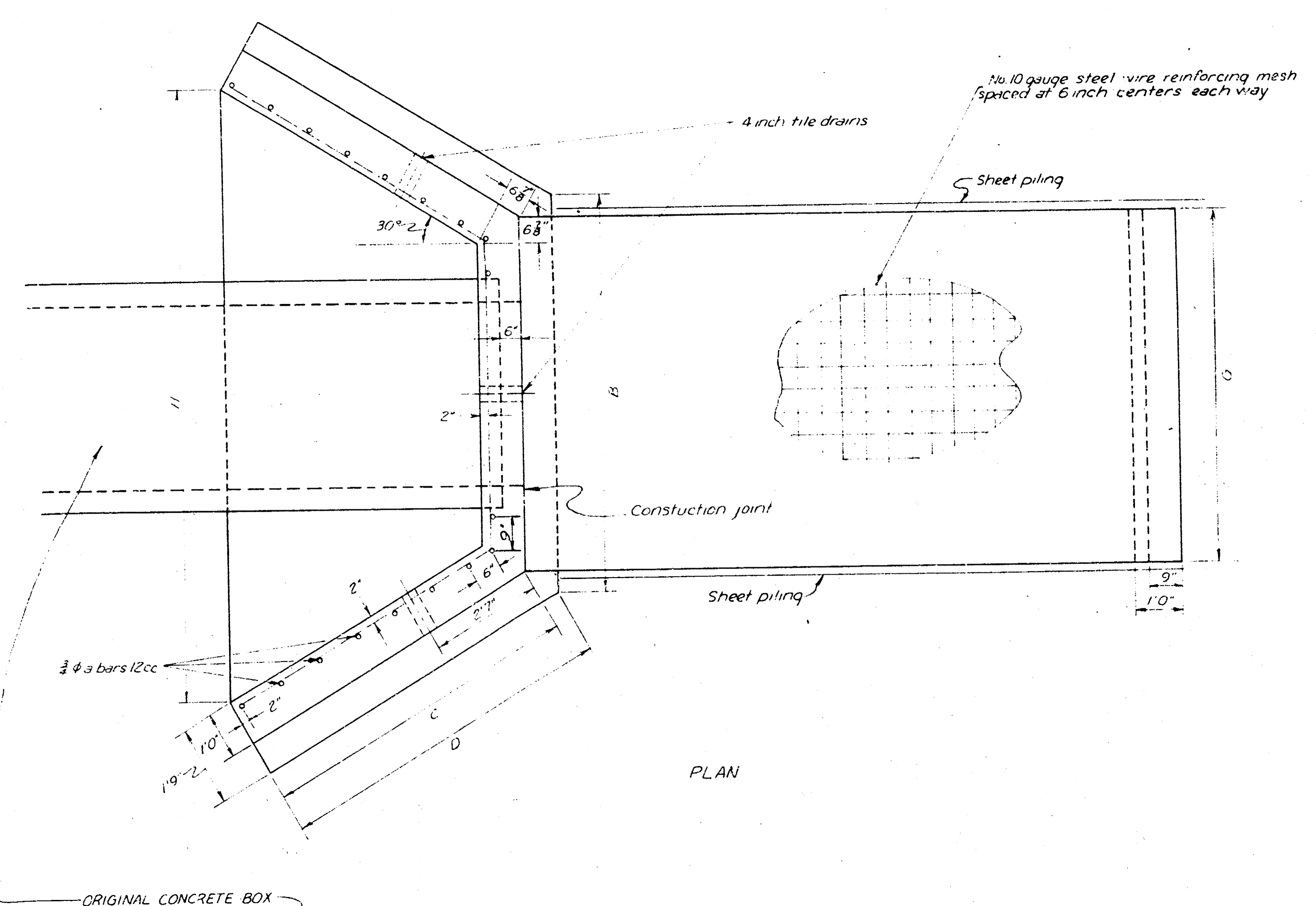
CHECKED

APPROVED: _____

ENGINEER

CHANGE

SHEET 5 OF 12



LISTS OF BARS, DIMENSIONS, AND QUANTITIES FOR HEADWALL

FOR 3'x3' CONCRETE BOX AT STA 123+80 RT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	45.95 cu yds
Dimension	5'9"	7'8"	5'2"	3'8"	6'6"	14'7"	6'9"	10'3"	8'	Excavation	12.71 cu yds Apron - 306"
Bar	a	b	c	d	e	f	g	h	k	Backfill	26.59 cu yds
Number	10	10	4	5	10	10	4	5	5	Reinforcing Steel	144' - 234 6" Apron - 232"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 35 sec
Length	9'0"	4'8"	5'10"	2'8"	9'0"	2'8"	5'10"	2'8"	9'0"	Flap Gate	One 36" x 36"

FOR 4'x4' CONCRETE BOX AT STA 137+30 RT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	32.07 cu yds
Dimension	4'0"	8'8"	3'2"	3'8"	7'6"	14'7"	7'9"	9'3"	8'	Excavation	10.90 cu yds Apron - 444 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	16.13 cu yds
Number	10	10	4	5	10	10	4	5	5	Reinforcing Steel	144' - 206 02" Apron - 26 78"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 35 sec
Length	9'0"	4'8"	5'10"	2'8"	9'0"	2'8"	5'10"	2'8"	9'0"	Flap Gate	One 48" x 48"

FOR 4'x4' CONCRETE BOX AT STA 150+80 LT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	29.71 cu yds
Dimension	4'0"	8'8"	3'2"	3'8"	8'6"	14'7"	7'9"	9'3"	1'8"	Excavation	10.90 cu yds Apron - 444 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	13.25 cu yds
Number	10	10	4	5	10	10	4	5	5	Reinforcing Steel	144' - 217 37" Apron - 26 78"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 35 sec
Length	9'0"	4'8"	5'10"	2'8"	9'0"	2'8"	5'10"	2'8"	9'0"	Flap Gate	One 48" x 48"

FOR 3'x3' CONCRETE BOX AT STA 157+40 RT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	42.31 cu yds
Dimension	4'0"	7'8"	4'2"	4'8"	7'6"	14'7"	6'9"	9'3"	8'	Excavation	11.41 cu yds Apron - 311 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	26.80 cu yds
Number	10	10	4	4	10	10	4	4	4	Reinforcing Steel	144' - 228 05" Apron - 232"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 35 sec
Length	9'0"	3'8"	5'10"	2'8"	9'0"	2'8"	5'10"	2'8"	9'0"	Flap Gate	One 36" x 36"

FOR 2'x3' CONCRETE BOX AT STA 164+50 RT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	38.09 cu yds
Dimension	4'0"	7'8"	4'2"	4'8"	6'0"	19'7"	6'9"	9'3"	8'	Excavation	10.60 cu yds Apron - 311 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	23.82 cu yds
Number	10	10	4	4	10	10	4	4	4	Reinforcing Steel	144' - 192 21" Apron - 30 33"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 45 sec
Length	7'6"	3'8"	5'10"	2'8"	7'6"	2'8"	5'10"	2'8"	7'6"	Flap Gate	One 36" x 36"

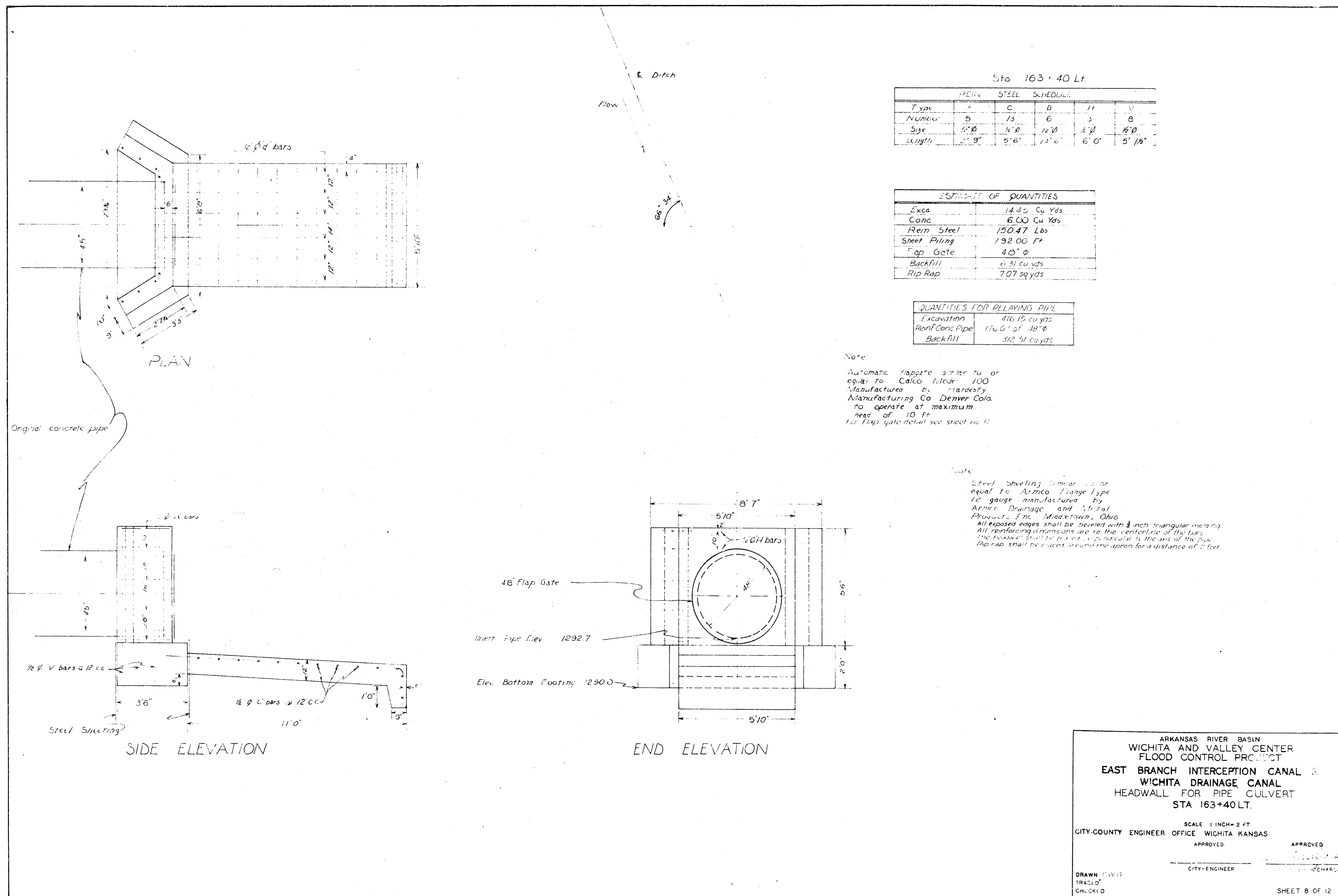
FOR 2'x3' CONCRETE BOX AT STA 164+50 LT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	39.94 cu yds
Dimension	4'0"	7'8"	4'2"	4'8"	7'0"	10'7"	6'9"	8'3"	8'	Excavation	10.90 cu yds Apron - 286 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	17.43 cu yds
Number	10	10	4	4	10	10	4	4	4	Reinforcing Steel	144' - 182 81" Apron - 17 75"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 27 sec
Length	8'6"	2'8"	5'10"	2'8"	8'6"	2'8"	5'10"	2'8"	8'6"	Flap Gate	One 36" x 36"

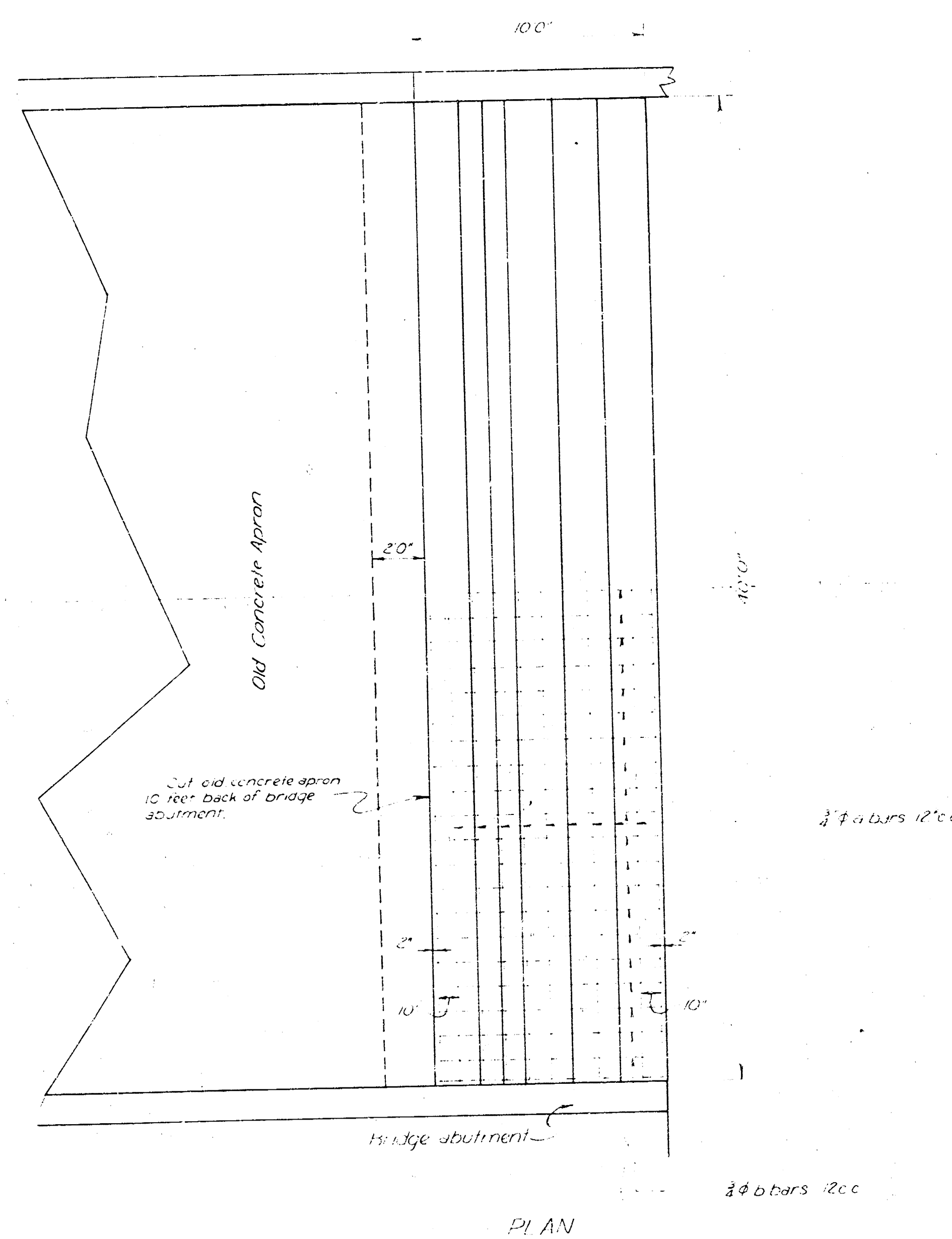
FOR 4'x4' CONCRETE BOX AT STA 176+50 RT											
Letter	A	B	C	D	E	F	G	H	K	Excavation	42.02 cu yds
Dimension	5'9"	8'8"	5'2"	5'8"	8'6"	19'7"	7'9"	11'3"	1'8"	Excavation	16.01 cu yds Apron - 581 cu yds
Bar	a	b	c	d	e	f	g	h	k	Backfill	19.34 cu yds
Number	10	10	4	5	10	10	4	5	5	Reinforcing Steel	144' - 301 50" Apron - 34 65"
Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Sheet Piling	144' - 35 sec Apron - 46 sec
Length	10'0"	4'8"	6'10"	3'8"	10'0"	3'8"	6'10"	3'8"	10'0"	Flap Gate	One 48" x 48"

Note:
The corrugated sheet piling sections shall be of 12 gauge steel and 6 feet long.
For flap gate detail see sheet no 12.
Coarse aggregate shall be deposited behind each weep hole to occupy a space extending 15 inches in all directions from the weep hole.
The front face of the headwalls shall be placed perpendicular to and symmetrically about the centerline of the boxes. The front face of the headwalls shall be placed 6 inches in front of the ends of the boxes.
All exposed edges shall be beveled with 1/4 inch triangular mauling.
All reinforcing measurements are to the centerline of the bars.
The length of concrete box to be removed at each station is as follows:
Station 123+80 RT - 9 feet
Sta 137+30 RT - 9 feet
Sta 150+80 LT - None
Sta 157+40 RT - 9 feet
Sta 164+50 RT - 12 feet
Sta 164+50 LT - 12 feet
Measurements are along axis of the box from the front face of the top headwall.
At Sta 176+50 RT the concrete box shall be extended into the headwall until the end is perpendicular. Concrete quantity shall be included with the headwalls concrete quantity.
Two feet of rip rap shall be placed on each side of all aprons.
The distance that rip rap shall extend in front of each apron is as follows:
Sta 123+80 RT - 6.0 feet
Sta 137+30 RT - 15.0 feet
Sta 150+80 LT - 5.0 feet
Sta 157+40 RT - 5.0 feet
Sta 164+50 RT - 20.0 feet
Sta 164+50 LT - 15.0 feet
Sta 176+50 RT - 18.0 feet
3 secs 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
ENGINEER IN CHARGE
DRAWN: JRS
TRACED
CHECKED
SHEET 6 OF 12

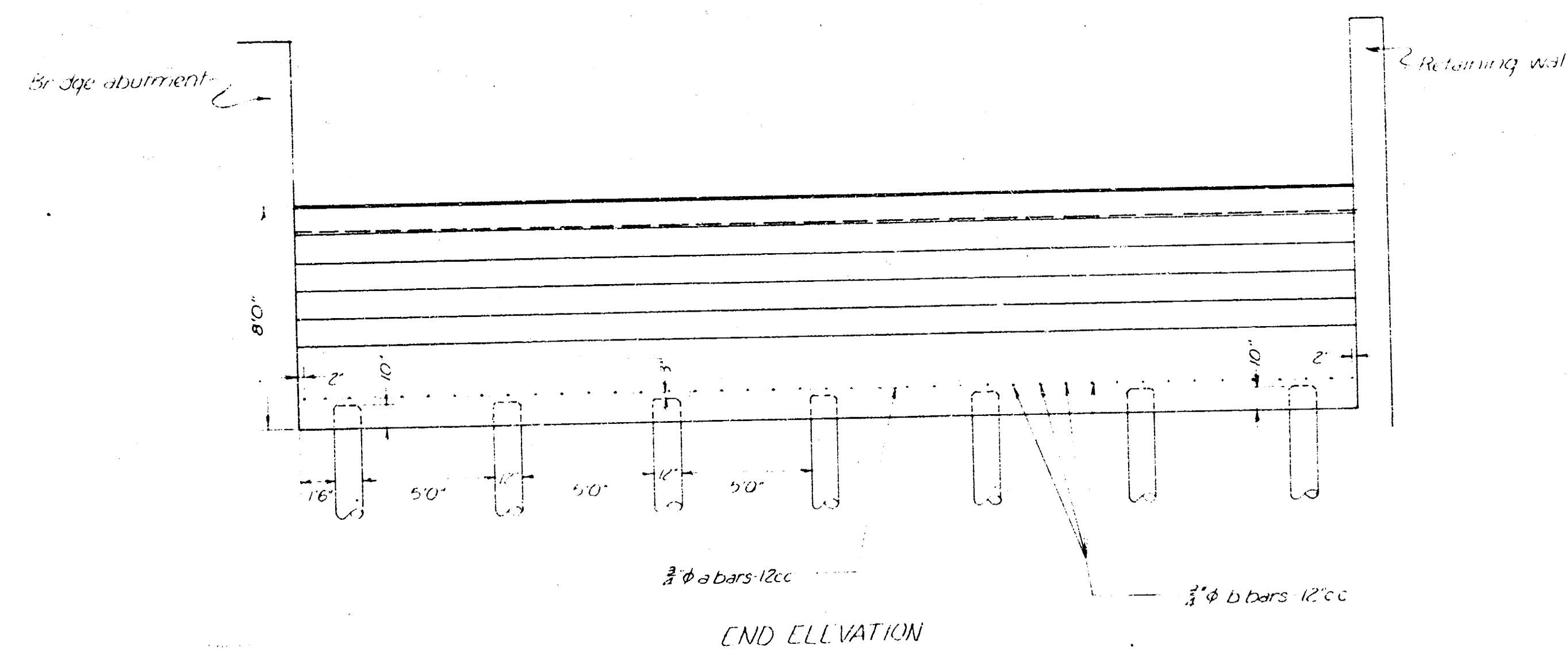
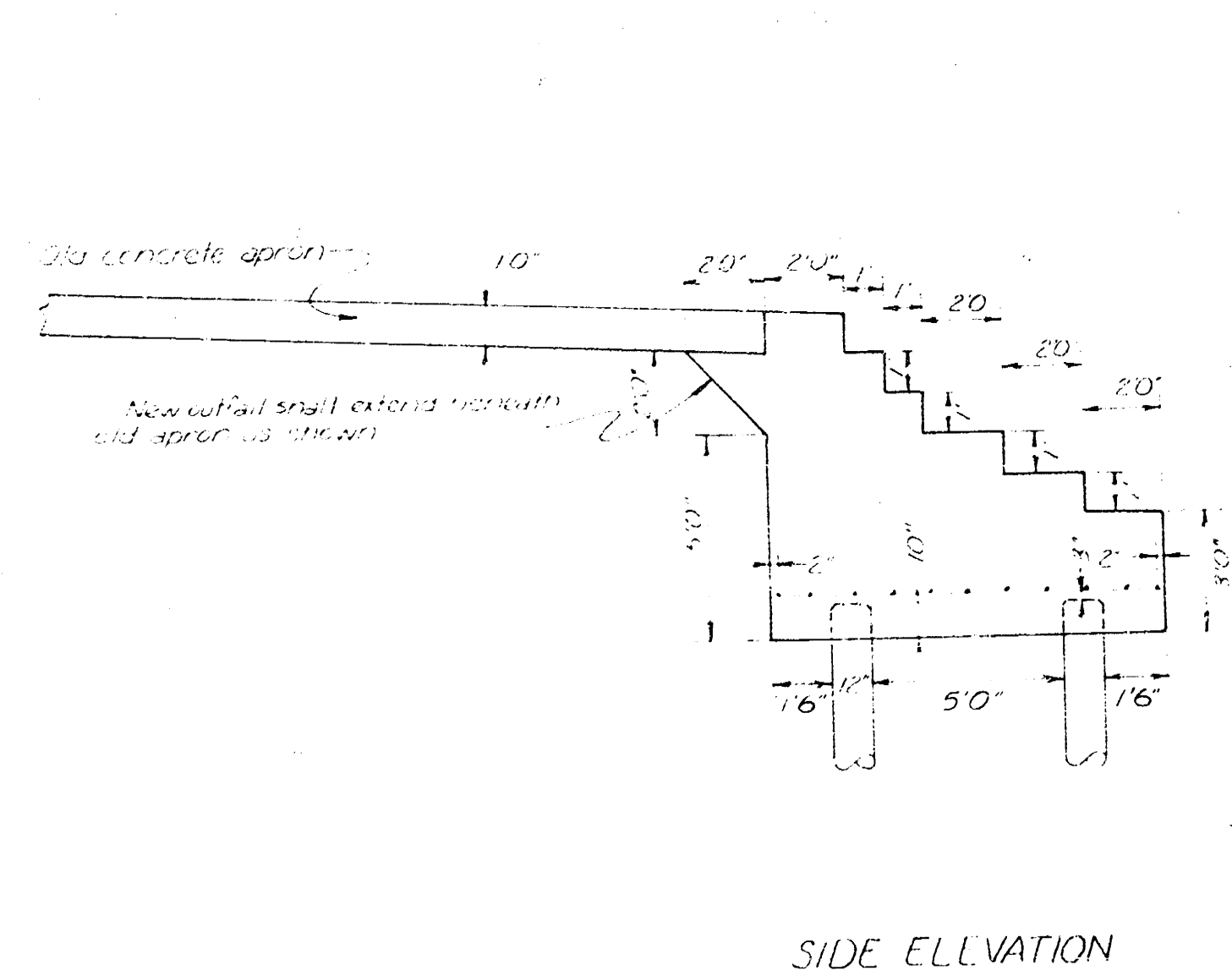




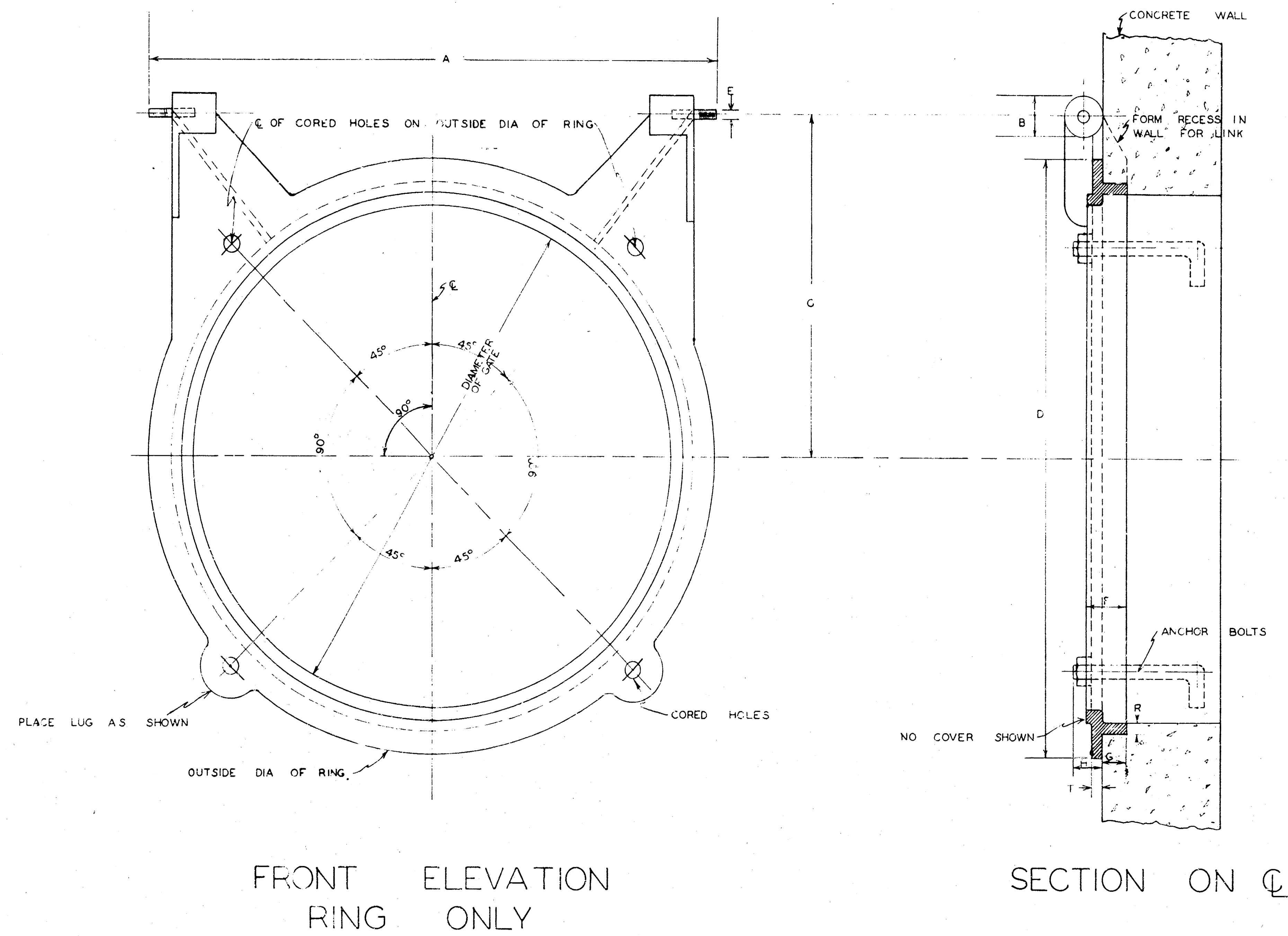
RUN SILL SCHEDULE		
Bar	a	b
Number	11	41
Size	3/4"	3/4"
Length	39'8"	9'8"

ESTIMATE OF QUANTITIES	
Excavation	94.81 cu yds
Concrete	41.48 cu yds
Reinforcing Steel	20 - 1250.67*
Sheet Piling	40' sec of 12 gauge - 6' long
Piling	14 - 12" treated pile - 20' long

NOTE:
 All reinforcing measurements are to the center line of the bars.
 Bevel all exposed edges with 3/4 inch triangular mounding.
 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 and the front face of the apron shall be made flush with old apron.
 New concrete at top of outfall shall be made flush with old apron.

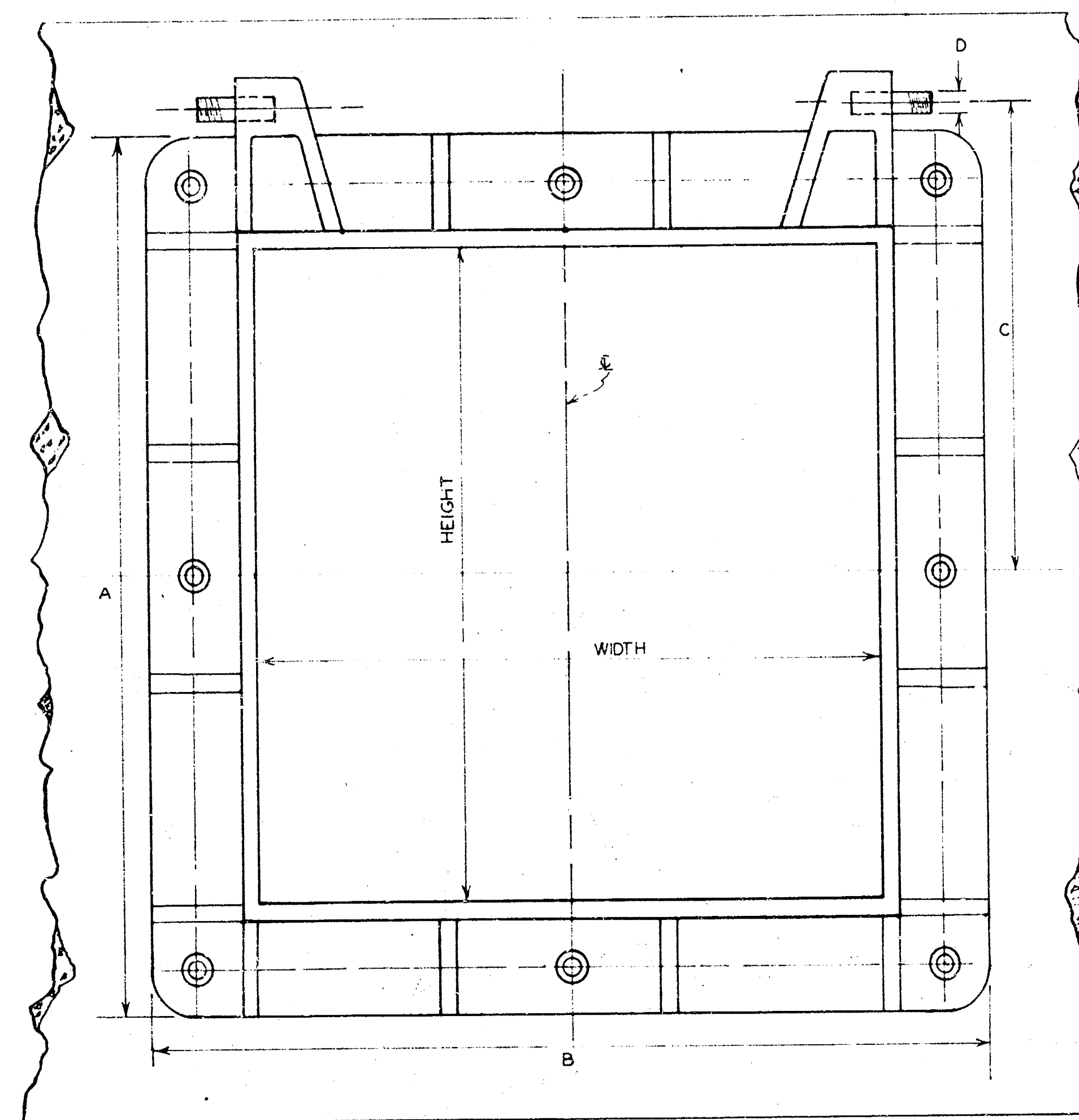


ARKANSAS RIVER BASIN WICHITA AND VALLEY CENTER FLOOD CONTROL PROJECT EAST BRANCH INTERCEPTION CANAL & WICHITA DRAINAGE CANAL OUTFALL APRON AT 3RD STREET STA. 198+80.17	
SCALE 1 INCH = 4 FEET CITY-COUNTY ENGINEER OFFICE WICHITA KANSAS APPROVED _____ CITY-ENGINEER _____ ENGINEER IN CHARGE	
DRAWN JRS TRACED CHECKED	SHEET 10 OF 12

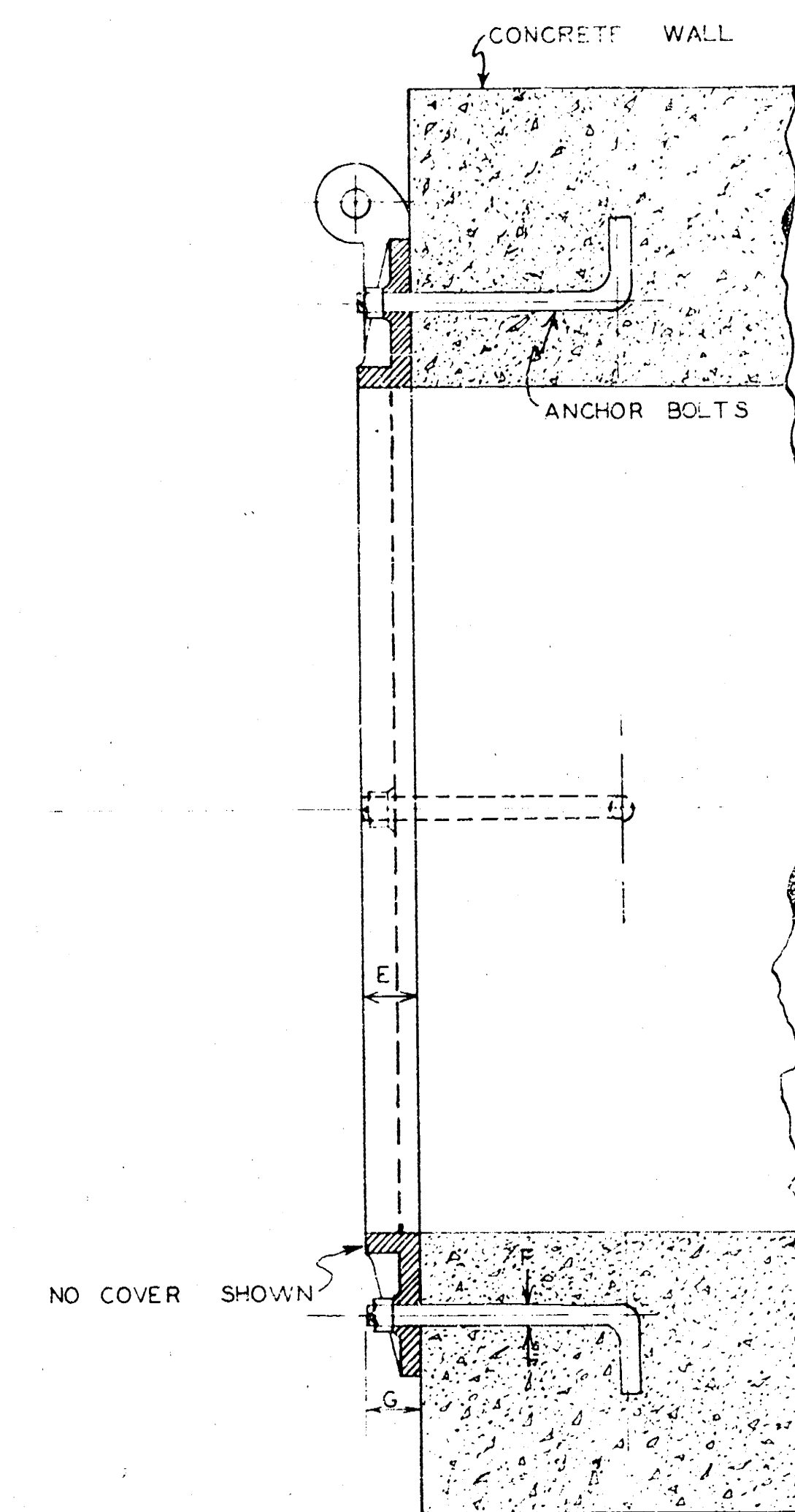


STATION	DIA	FLAP	GATE	SCHEDULE	CALCO	MODEL	#100	ANCHOR			
53+50	46"	53 1/2"	2 1/2"	34"	54"	1"	4"	2 3/4"	1 3/4"	3/4"	3/4"
67+50	24"	28 1/2"	2"	17"	27 1/2"	3/4"	2 1/2"	1 1/2"	1 1/2"	3/4"	3/4"
157+70	60"	66 1/2"	2 1/2"	42"	60 1/2"	1 1/4"	4 3/16"	2 3/4"	2 1/4"	7/8"	7/8"
163+40	46"	53 1/2"	2 1/2"	34"	54"	1"	4"	2 3/4"	1 3/4"	3/4"	3/4"

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: _____
ENGINEER-IN-CHARGE
DRAWN: C.V.G.
TRACED
CHECKED
SHEET 1 OF 2



FRONT ELEVATION
RING ONLY



SECTION ON C-C

FLAP GATE SCHEDULE — CALCO MODEL 107									
STATION	GATE SIZE		A	B	C	D	E	F	G
	WIDTH	HEIGHT							
86 + 30L1	6'0"	6'0"	7'0"	7'0"	4'2"	1'1/4"	2'1/2"	1"	2'1/4"
93 + 30L1	4'0"	4'0"	5'7"	5'7"	3'4"	1"	2'1/2"	3/4"	1'3/4"
109 + 30	6'0"	6'0"	7'0"	7'0"	4'2"	1'1/4"	2'1/2"	1"	2'1/4"
123 + 30	3'6"	3'6"	4'4"	4'4"	2'5"	1"	2'1/2"	3/8"	1'3/8"
137 + 30L1	6'0"	6'0"	7'0"	7'0"	4'2"	1'1/4"	2'1/2"	1"	2'1/4"
137 + 30L2	6'0"	6'0"	7'0"	7'0"	4'2"	1'1/4"	2'1/2"	1"	2'1/4"
137 + 30R2	4'0"	4'0"	5'7"	5'7"	3'4"	1"	2'1/2"	3/4"	1'3/4"
150 + 30L1	4'0"	4'0"	5'7"	5'7"	3'4"	1"	2'1/2"	3/4"	1'3/4"
157 + 40H1	3'6"	3'6"	4'4"	4'4"	2'5"	1"	2'1/2"	3/8"	1'3/8"
163 + 50L1	3'6"	3'6"	4'4"	4'4"	2'5"	1"	2'1/2"	3/8"	1'3/8"
164 + 50R1	3'6"	3'6"	4'4"	4'4"	2'5"	1"	2'1/2"	3/8"	1'3/8"
176 + 50L1	4'0"	4'0"	5'7"	5'7"	3'4"	1"	2'1/2"	3/4"	1'3/4"
176 + 50R1	4'0"	4'0"	5'7"	5'7"	3'4"	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 FEET

CITY COUNTY ENGINEER OFFICE WICHITA KANSAS

APPROVED _____

CITY ENGINEER _____ ENGINEER IN CHARGE _____

DRAWN C.W.G.
TRACED
CHECKED

SHEET 1 OF 1